

2013 PACCAR MX-13

Diagnostic Service Manual

EPA2013

(P3757 to P3873)

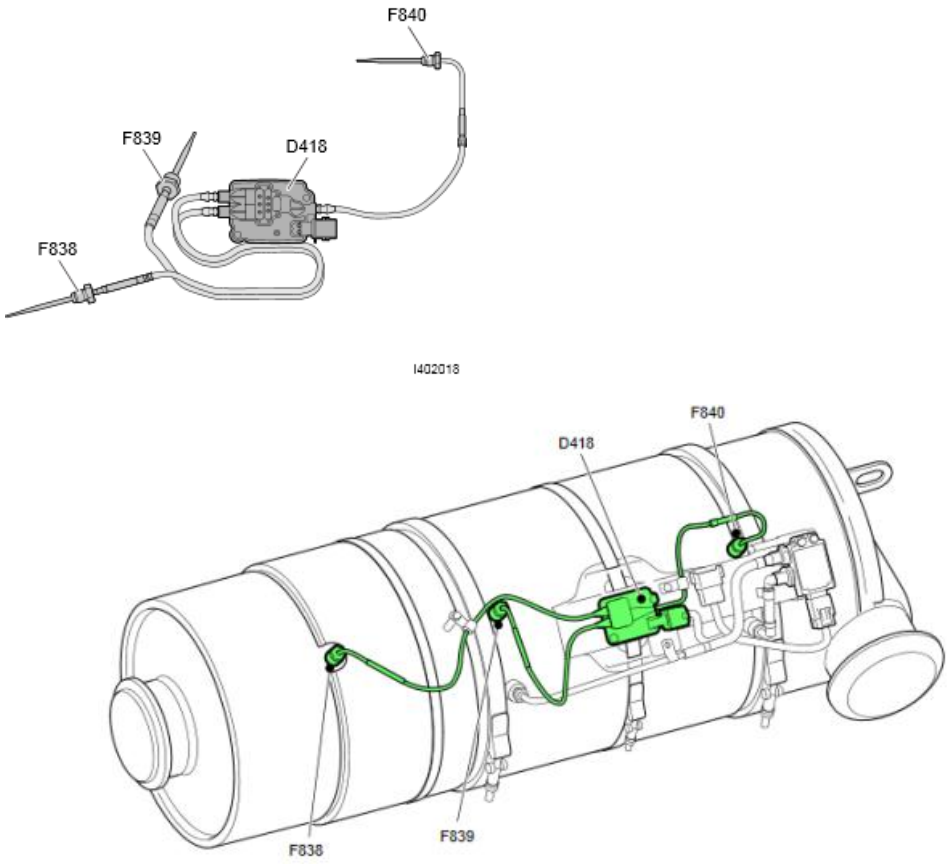


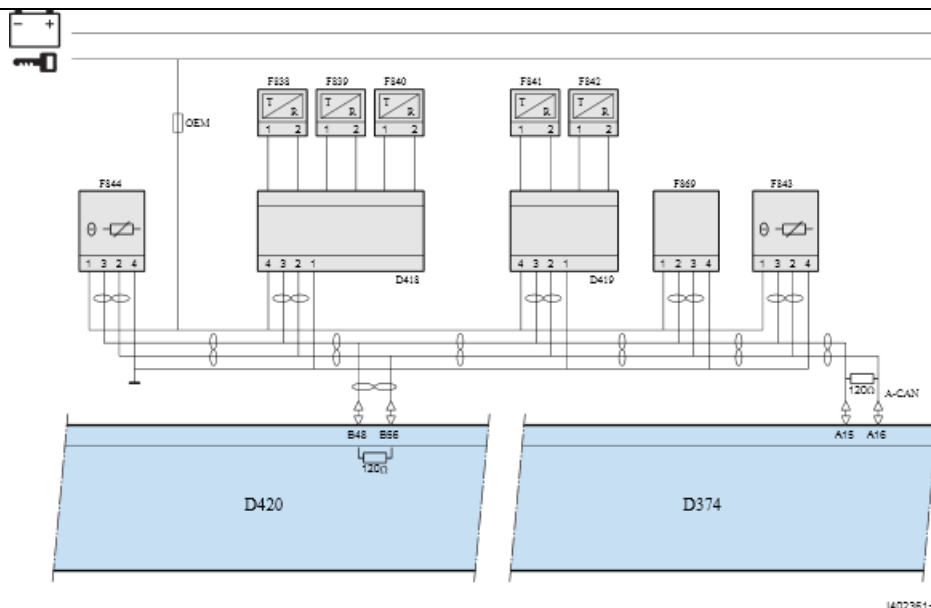
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P3757

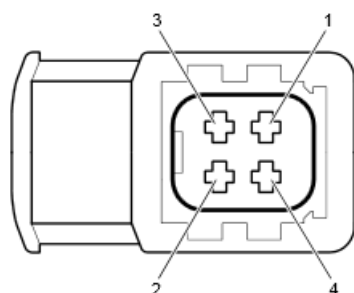
Code number	P3757
Fault code description	Exhaust gas temperature after DPF - Voltage too low or short circuit to ground
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter
Description of component(s)	DOC/DPF temperature sensors ECU (D418) The exhaust gas temperature is measured at three different positions in the DOC/DPF unit. • The temperature sensors are connected to the DOC/DPF temperature sensors ECU (D418). • The DOC/DPF temperature sensors ECU (D418) transmits the temperature sensor values to the A-CAN. • The temperature sensors cannot be disconnected or replaced separately from the DOC/DPF temperature sensors ECU (D418). • The temperature sensors are thermocouple sensors. Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DPF (F839). • Determines whether a regeneration can be started. • Calculates the amount of fuel that must be injected. • Determines whether the NOx sensor before the catalyst must be heated to the operating temperature. • Warning activation if the exhaust gas temperature before the DOC is too high. Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DOC (F838). • Determines whether a regeneration is started. • Controls the regeneration temperature. • Calculates the amount of fuel that must be injected. • Diagnoses DOC efficiency.

	- Warning activation if the exhaust gas temperature before the DPF is too high. Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature after the DPF. Effect on the system: - Protect the DPF against temperatures that are too high. - Warning activation if the exhaust gas temperature after the DPF is too high.
Location of component(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840)  1402018
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground is detected for ten consecutive seconds.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840)



- D374 EAS-3 ECU
- D418 DOC/DPF temperature sensors ECU
- D419 Catalytic convertor temperature sensors ECU
- D420 PCI ECU
- F838 Sensor, exhaust temperature before DOC
- F839 Sensor, exhaust temperature before DPF
- F840 Sensor, exhaust temperature after DPF
- F841 Sensor, exhaust temperature before catalyst
- F842 Sensor, exhaust temperature after catalyst
- F843 NOx sensor after catalyst
- F844 NOx sensor before catalyst
- F869 NH3 sensor

D420	F552	Function
A15	3	A-CAN High
A16	2	A-CAN Low
	1	Ground
	4	Power supply



ES04061

Wiring harness connector D418, front view

Technical data

Component & wiring check, DOC/DPF temperature sensors ECU (D418)

Preparation

- Disconnect connector D418
- Ignition switched to ON
- Measure on the connector D418

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	< 0.5 V	Switch on all consumers

Component & wiring check, A-CAN

Preparation

- Ignition switched to OFF
- Disconnect connector D418
- Measure on the connector D418

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	



Refer to the corresponding OEM service manual for more information regarding specific connector pin designations and locations specific to the vehicle.

Possible causes

- Malfunctioning temperature sensors DOC-DPF ECU (D418).
- Sensor signal wire short circuit to ground.

Additional information	• The DOC/DPF temperature sensors ECU (D418) report a short circuit to ground. • An active mobile DPF regeneration is disabled. • Only a stationary DPF regeneration is possible. • The sensor value is replaced by the exhaust gas temperature sensor before DPF (F839).										
Diagnostic Step-by-Step	The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components. ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Diesel Exhaust Fluid Checks <table border="1"> <tr> <th colspan="2">Step 1A Check DEF for contamination</th></tr> <tr> <td colspan="2"> Action 1. Check the DEF tank and DEF for possible contamination by performing the procedure, “check DEF,” job ID 69521. </td></tr> <tr> <td colspan="2">Was the DEF or DEF tank found to be contaminated?</td></tr> <tr> <th>Yes</th><th>No</th></tr> <tr> <td>Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance.</td><td></td></tr> </table>	Step 1A Check DEF for contamination		Action 1. Check the DEF tank and DEF for possible contamination by performing the procedure, “check DEF,” job ID 69521.		Was the DEF or DEF tank found to be contaminated?		Yes	No	Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance.	
Step 1A Check DEF for contamination											
Action 1. Check the DEF tank and DEF for possible contamination by performing the procedure, “check DEF,” job ID 69521.											
Was the DEF or DEF tank found to be contaminated?											
Yes	No										
Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance.											

	Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 2A	Go to step 2A
Step 2 Investigate Related DTCs Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC.		
Step 2A Investigate related DTCs		
Action 1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.		
Are these or any other related DTCs active? P3942; P3943; P3945; P3987; P3990		
Yes		No
Refer to the troubleshooting information for these DTCs before performing this procedure.		
		Go to step 3A
Step 3 DOC/DPF Temperature Sensors ECU Module (D418) Checks		
Step 3A Visual inspection, connections and wiring		
Action 1. Set the ignition switch to OFF. 2. Visually inspect the DOC/DPF temperature sensors ECU module (D418) component connections and wiring for any of the following: - Damaged or loose connectors - Bent, broken, corroded, or loose connector pins - Moisture or dirt in the connections - Damage to the wire harness or insulation - Damage to the ECU module		
Were there any signs of the above?		

	Yes	No
	Correct any issues found. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3B	Go to step 3B
Step 3B Electrical checks, resistance, DOC/DPF temperature sensors ECU module (D418)		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Ensure the ignition switch is set to OFF. 2. Disconnect DOC-DPF temperature sensor ECU (D418) connector. 3. Measuring between pins 3 and 2 on the D418 wiring harness connector, confirm the resistance value for the A-CAN connection as outlined in the corresponding checking data, <u>“component & wiring check, DOC/DPF temperature sensors ECU (D418).</u>		
Is the measured value within expected range?		
Yes	No	
	Possible problem in the harness or EAS-3 ECU.	
Go to step 3C	Go to step 3D	
Step 3C Electrical checks, supply voltage, DOC/DPF temperature sensors ECU module (D418)		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Turn the key switch ON.
4. Measuring on the D418 connector, confirm the supply voltage value as outlined in the corresponding checking data, "component & wiring check, DOC/DPF temperature sensors ECU (D418)".

Are measured values within expected range?

Yes

No

Possible problem in the harness.

Go to step 3E

Go to step 3D

Step 3D Electrical checks, open in harness, DOC/DPF temperature sensors ECU module (D418)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.



Refer to the OEM service manual for more information regarding specific pinout location/designation specific to the vehicle.

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Check the ground connection between DOC/DPF temperature sensors ECU (D418) connector and the Power Distribution Center (PDC) / Chassis Load Center (CLC):

Measure the resistance of the ground wire between the engine ground stud and the DOC/DPF temperature sensor ECU (D418) connector, pin 1.

The expected resistance is < 10 Ω.

Is the measured resistance less than 10 Ω?

Yes

No

Possible open condition in the harness. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue, and possible

		replacement of the wiring harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.
	Go to step 3E	If this DTC is still present, contact the PACCAR Engine Support Center for further assistance in diagnosing this issue.
Step 3E Electrical checks, short in harness, DOC/DPF temperature sensors ECU module (D418)		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Ensure the ignition switch is set to OFF. 2. Disconnect DOC-DPF temperature sensor ECU (D418) connector. 3. Measure the resistance between pin 1 and pin 4 of the DOC/DPF temperature sensor ECU (D418) connector. The expected value is > 100K Ω.		
Is the measured resistance greater than 100K Ω?		
Yes		No
Likely issue with the DOC/DPF temperature sensor ECU module (D418). Replace this module. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.		Possible short condition in the harness. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue, and possible replacement of the wiring harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.
If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.		If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.
Step 4 Repair Verification		
Step 4A Repair verification cycles		

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action

1. Steady State

This cycle is best performed on a level grade road (least amount of incline possible) and under load using a trailer. If a loaded trailer is unavailable, produce engine load by turning the A/C and fan to ON.

With the System Initiation cycle complete, proceed to a road with a minimum speed limit of 50 mph, then get to the highest gear possible with the engine speed between 1100-1500 rpm, and set the cruise control. Run this cycle for roughly 3 to 5 miles or in three separate 1-mile increments if a steady 3 to 5 miles is unachievable.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 4B

Step 4B DAVIE Diagnostics, Quick Check

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready."
A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.
If the displayed status is "Not ready," continue to action step 2.
2. View the DTC overview display, and confirm that P3757 has been cleared.

Has P3757 been cleared?

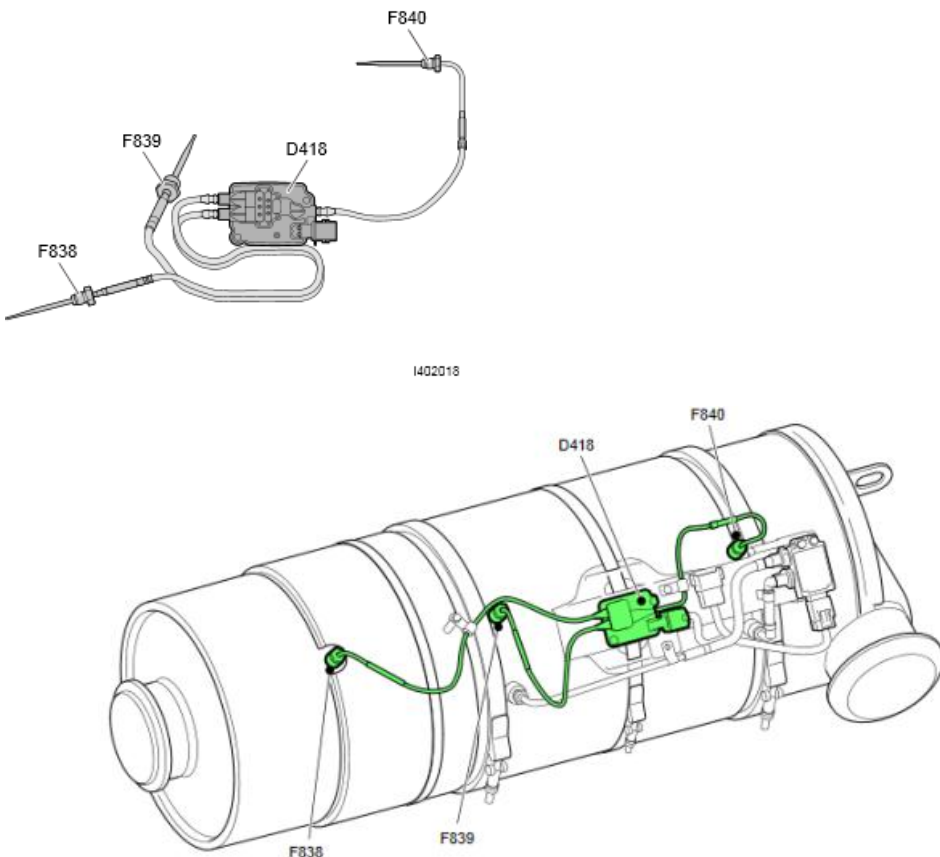
Yes

No

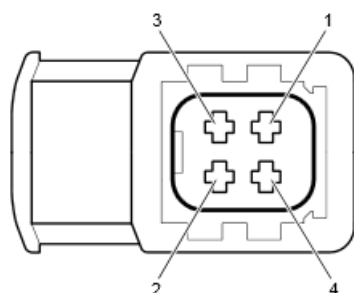
	Problem resolved. No further actions. Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 4A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.  Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
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P3758

Code number	P3758
Fault code description	Exhaust gas temperature after DPF - Data erratic, intermittent, or incorrect
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter
Description of component(s)	DOC/DPF temperature sensors ECU (D418) The exhaust gas temperature is measured at three different positions in the DOC/DPF unit. • The temperature sensors are connected to the DOC/DPF temperature sensors ECU (D418). • The DOC/DPF temperature sensors ECU (D418) transmits the temperature sensor values to the A-CAN. • The temperature sensors cannot be disconnected or replaced separately from the DOC/DPF temperature sensors ECU (D418). • The temperature sensors are thermocouple sensors. Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DPF (F839). • Determines whether a regeneration can be started. • Calculates the amount of fuel that must be injected. • Determines whether the NOx sensor before the catalyst must be heated to the operating temperature. • Warning activation if the exhaust gas temperature before the DOC is too high. Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DOC (F838). • Determines whether a regeneration is started. • Controls the regeneration temperature. • Calculates the amount of fuel that must be injected. • Diagnoses DOC efficiency.

	- Warning activation if the exhaust gas temperature before the DPF is too high. Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature after the DPF. Effect on the system: - Protect the DPF against temperatures that are too high. - Warning activation if the exhaust gas temperature after the DPF is too high.
Location of component(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840) 
Diagnostic condition	This diagnostic runs continuously when the entry conditions are fulfilled: - Ignition is keyed on and the engine is running. - No active faults on any sensor used to calculate the engine mass flow. - No active faults on any of the EAS-3 exhaust gas temperature sensors. - No active faults on the DPF pressure sensor (F837). - No CAN communication faults on the EAS-3 exhaust gas temperature sensors. - The exhaust gas flow must be high enough.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature difference over the DOC compared

	with the temperature difference over the DPF does not match the expected value for the present engine operating conditions															
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.															
Electrical diagram(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840) D374 EAS-3 ECU D418 DOC/DPF temperature sensors ECU D419 Catalytic convertor temperature sensors ECU D420 PCI ECU F838 Sensor, exhaust temperature before DOC F839 Sensor, exhaust temperature before DPF F840 Sensor, exhaust temperature after DPF F841 Sensor, exhaust temperature before catalyst F842 Sensor, exhaust temperature after catalyst F843 NOx sensor after catalyst F844 NOx sensor before catalyst F869 NH3 sensor <table><tr><th>D420</th><th>F552</th><th>Function</th></tr><tr><td>A15</td><td>3</td><td>A-CAN High</td></tr><tr><td>A16</td><td>2</td><td>A-CAN Low</td></tr><tr><td></td><td>1</td><td>Ground</td></tr><tr><td></td><td>4</td><td>Power supply</td></tr></table>	D420	F552	Function	A15	3	A-CAN High	A16	2	A-CAN Low		1	Ground		4	Power supply
D420	F552	Function														
A15	3	A-CAN High														
A16	2	A-CAN Low														
	1	Ground														
	4	Power supply														



ES04061

Wiring harness connector D418, front view

Technical data

Component & wiring check, DOC/DPF temperature sensors ECU (D418)

Preparation

- Disconnect connector D418
- Ignition switched to ON
- Measure on the connector D418

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	< 0.5 V	Switch on all consumers

Component & wiring check, A-CAN

Preparation

- Ignition switched to OFF
- Disconnect connector D418
- Measure on the connector D418

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	



Refer to the corresponding OEM service manual for more information regarding specific connector pin designations and locations specific to the vehicle.

Possible causes

- Malfunctioning DOC/DPF temperature sensors ECU (D418).
- Stuck in-range exhaust gas temperature sensor after DPF (F840).

Additional information



First solve other EAS temperature sensor related DTCs.

- The reading of the exhaust gas temperature sensor after DPF (F840) is not

	changing under varying conditions.														
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. - Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. - Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. - It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. - This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Diesel Exhaust Fluid Checks <table border="1"> <tr> <td colspan="2">Step 1A Check DEF for contamination</td></tr> <tr> <td colspan="2">Action</td></tr> <tr> <td colspan="2">1. Check the DEF tank and DEF for possible contamination as outlined in the procedure, “check DEF” (job ID 69521).</td></tr> <tr> <td colspan="2">Was the DEF or DEF tank found to be contaminated?</td></tr> <tr> <td>Yes</td><td>No</td></tr> <tr> <td>Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.</td><td></td></tr> <tr> <td>If this DTC is still present, go to step 2A</td><td>Go to step 2A</td></tr> </table> Step 2 Investigate Related DTCs Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC.	Step 1A Check DEF for contamination		Action		1. Check the DEF tank and DEF for possible contamination as outlined in the procedure, “check DEF” (job ID 69521).		Was the DEF or DEF tank found to be contaminated?		Yes	No	Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.		If this DTC is still present, go to step 2A	Go to step 2A
Step 1A Check DEF for contamination															
Action															
1. Check the DEF tank and DEF for possible contamination as outlined in the procedure, “check DEF” (job ID 69521).															
Was the DEF or DEF tank found to be contaminated?															
Yes	No														
Empty, clean, and completely dry the DEF tank before refilling with a fresh supply of DEF. Depending on the extent of the contamination, the DEF filter, pump, and injector may also require cleaning or replacement. Contact the PACCAR Engine Support Center for assistance. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.															
If this DTC is still present, go to step 2A	Go to step 2A														

Step 2A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are these or any other related DTCs active?

P3942; P3943; P3945; P3987; P3990

Yes

No

Refer to the troubleshooting information for these DTCs before performing this procedure.

Go to step 3A

Step 3 DOC/DPF Temperature Sensors ECU Module (D418) Checks

Step 3A Visual inspection, connections and wiring

Action

1. Set the ignition switch to OFF.
2. Visually inspect the DOC/DPF temperature sensors ECU module (D418) component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded, or loose connector pins
 - Moisture or dirt in the connections
 - Damage to the wire harness or insulation
 - Damage to the ECU module

Were there any signs of the above?

Yes

No

Correct any issues found.
Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 3B

Go to step 3B

Step 3B Electrical checks, resistance, DOC/DPF temperature sensors ECU module (D418)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Measuring between pins 3 and 2 on the D418 wiring harness connector, confirm the resistance value for the A-CAN connection as outlined in the corresponding checking data, "component & wiring check, DOC/DPF temperature sensors ECU (D418)".

Is the measured value within expected range?

Yes

No

Possible problem in the harness or EAS-3 ECU.

Go to step 3C

Go to step 3D

Step 2C Electrical checks, supply voltage, DOC/DPF temperature sensors ECU module (D418)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Turn the key switch ON.
4. Measuring on the D418 connector, confirm the supply voltage value as outlined in the corresponding checking data, "component & wiring check, DOC/DPF temperature sensors ECU (D418)".

Are measured values within expected range?

Yes

No

Possible problem in the harness.

Go to step 3E

Go to step 3D

Step 3D Electrical checks, open in harness, DOC/DPF temperature sensors ECU module (D418)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.



Refer to the OEM service manual for more information regarding specific pinout location/designation specific to the vehicle.

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Check the ground connection between DOC/DPF temperature sensors ECU (D418) connector and the Power Distribution Center (PDC) / Chassis Load Center (CLC):

Measure the resistance of the ground wire between the engine ground stud and the DOC/DPF temperature sensor ECU (D418) connector, pin 1.

Is the measured resistance less than 10 Ω ?

Yes

No

Possible open condition in the harness. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue, and possible replacement of the wiring harness. Go to step 4A to perform the corresponding repair verification cycles and rechecks.

Go to step 3E

Step 3E Electrical checks, short in harness, DOC/DPF temperature sensors ECU module (D418)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Ensure the ignition switch is set to OFF.
2. Disconnect DOC-DPF temperature sensor ECU (D418) connector.
3. Measure the resistance between pin 1 and pin 4 of the DOC/DPF temperature sensor ECU (D418) connector.

Is the measured resistance greater than 100K Ω ?

Yes

No

Likely issue with the DOC/DPF temperature sensor ECU module (D418). Replace this module. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

Possible short condition in the harness. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue, and possible replacement of the wiring harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 4 Repair Verification

Step 4A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action

1. Steady State

This cycle is best performed on a level grade road (least amount of incline possible) and under load using a trailer. If a loaded trailer is unavailable, produce engine load by turning the A/C and fan to ON.

With the System Initiation cycle complete, proceed to a road with a minimum speed limit of 50 mph, then get to the highest gear possible with the engine speed between 1100-1500 rpm, and set the cruise control. Run this cycle for roughly 3 to 5 miles or in three separate 1-mile increments if a steady 3 to 5 miles is unachievable.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 4B

Step 4B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready."
A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.
If the displayed status is "Not ready," continue to action step 2.
2. View the DTC overview display, and confirm that P3758 has been cleared.

Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3758 been cleared?

Yes

Problem resolved. No further actions.

No

Continue with the next step in this troubleshooting procedure.
If all steps have been completed and this DTC is still present:

- continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete
- or, return to step 4A and perform this repair verification again.

If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.

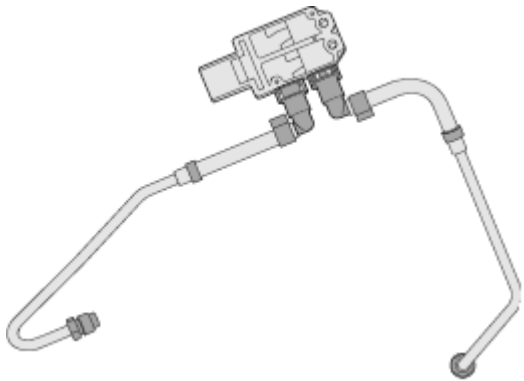
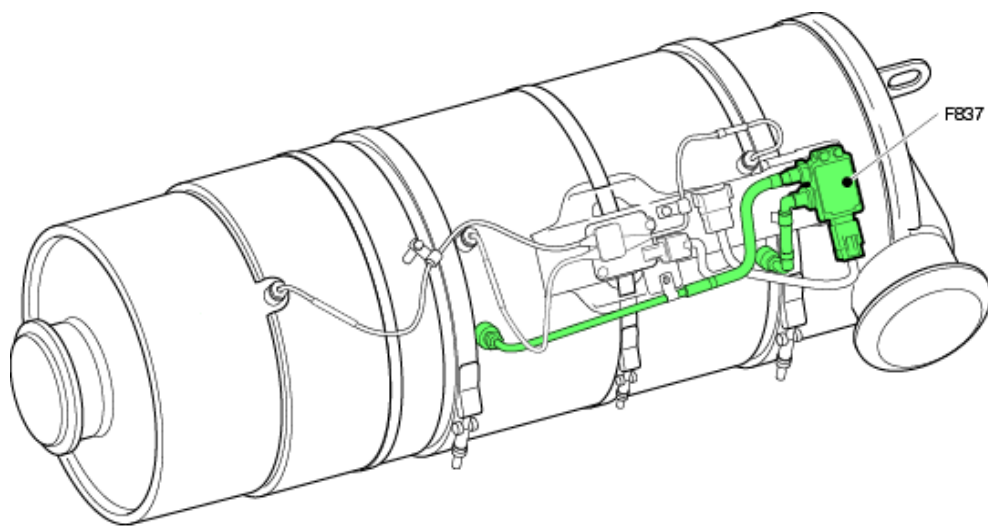


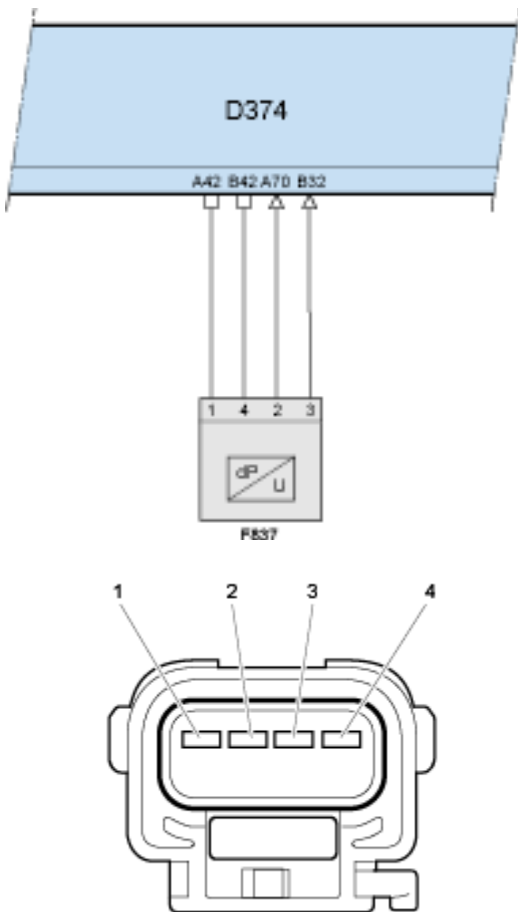
Contacting the PACCAR Engine Support Center

For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.

[Back to Index](#)

P3762

Code number	P3762
Fault code description	DPF differential pressure – Voltage too high or short circuit to supply on ECU D374 pin A70
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to supply is detected for 2 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive immediately after the diagnostic runs and passes.

Electrical diagram(s)	 Wiring harness connector F837 front view <table><tr><td>D374</td><td>EAS-3 ECU</td></tr><tr><td>F837</td><td>DPF pressure sensor</td></tr><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	EAS-3 ECU	F837	DPF pressure sensor	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
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Technical data	DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin (+ probe)</td><td>Pin (- probe)</td><td>Value</td><td>Condition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5V</td><td>Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	1	Battery negative pole	< 0.5V	Switch all consumers on.	4	1	4.75 - 5.25V								
Pin (+ probe)	Pin (- probe)	Value	Condition																	
1	Battery negative pole	< 0.5V	Switch all consumers on.																	
4	1	4.75 - 5.25V																		
Possible causes	• Short circuit to supply.																			

	• Check with DAVIE if the raw and processed values of the sensor are different. • Check for physical damage to the sensor and/or wiring harness. • Compare the raw and processed sensor values with DAVIE; they must be the same. • Start the engine, vary the accelerator pedal position, and validate the pressure change.																		
Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3762a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3762b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3762 inactive? • Yes – Proceed to step 12 • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3762c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals </td></tr></table>	Step 1	Step ID 3762a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3762b	SRT	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3762 inactive? • Yes – Proceed to step 12 • No – Proceed to step 3			Step 3	Step ID 3762c	SRT	Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals		
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Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals																			

	• Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12 • No – Proceed to step 4		
	Step 4	Step ID 3762d	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3763 active? • Yes – Proceed to step 5 • No – Proceed to step 7		
	Step 5	Step ID 3762e	SRT
	Check the sensor supply voltage and ground circuit • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Measure the voltage between the DPF pressure sensor supply pin and the DPF pressure sensor ground pin at the connector. Is the voltage 4.75 to 5.25 VDC? • Yes – Proceed to step 6 • No – Proceed to step 7		
	Step 6	Step ID 3762f	SRT
	Check the fault codes and verify the sensor condition • Turn the key switch OFF. • Connect the DPF pressure sensor to the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3762 active? • Yes – A damaged sensor has been detected. Replace the sensor - Proceed to step 12 • No – The removal and installation of the connector corrected the fault - Proceed to step 12		
	Step 7	Step ID 3762g	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins		

- Damaged pins
- Pushed back or expanded pins
- Loose connector
- Moisture in or on the connector
- Damaged connector shell
- Missing or damaged connector seals
- Wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12
- No – Proceed to step 8

Step 8

Step ID 3762h

SRT

Check for an open circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for an open circuit.
- Measure the resistance of the DPF pressure sensor ground wire between the EAS-3 unit connector pin and the sensor connector pin.

Is the resistance less than 10 ohms?

- Yes – Proceed to step 9
- No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12

Step 9

Step ID 3762i

SRT

Check for a pin-to-pin short circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for a pin-to-pin short circuit.
- Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness.

Is the resistance greater than 100K ohms?

- Yes – Proceed to step 10
- No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12

Step 10

Step ID 3762j

SRT

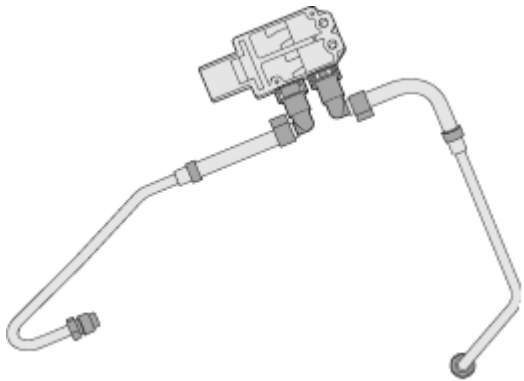
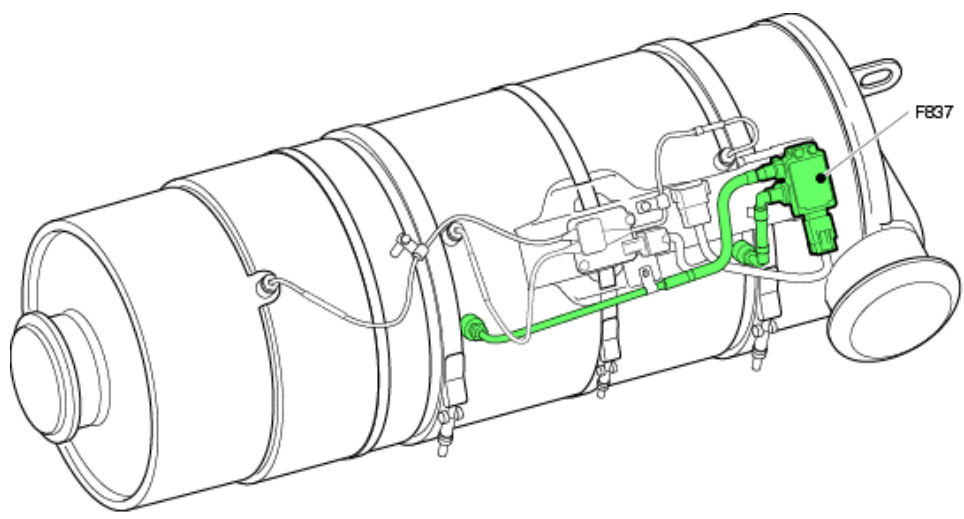
Check for a pin-to-pin short circuit in the harness

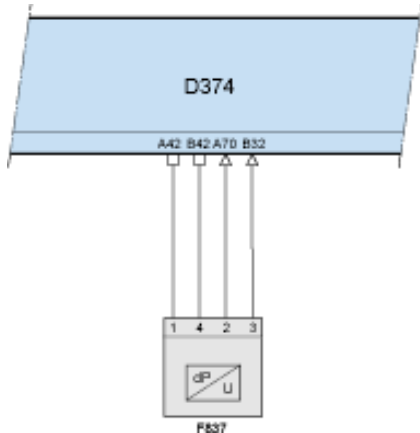
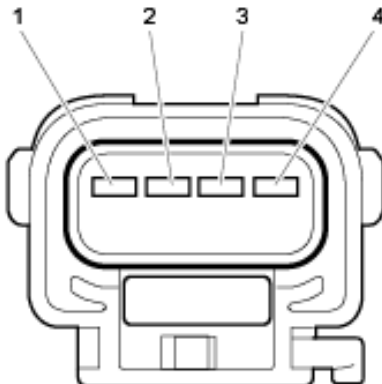
- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for a pin-to-pin short circuit.
- Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness.

Is the resistance greater than 100K ohms?

	• Yes – Proceed to step 11 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 11	Step ID 3762k	SRT
	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3762 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 12 • No – Return to the troubleshooting steps - Proceed to step 2 • If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions		
	Step 12	Step ID 3762l	SRT
	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Does the fault related to “DPF pressure sensor “occur? • Yes – Proceed to step 13 • No – Return to the troubleshooting steps Proceed to step 2 • If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
Step 13	Step ID 3762m	SRT	
Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes			
Step 14	Step ID 3762n	SRT	
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3763

Code number	P3763
Fault code description	DPF differential pressure – Voltage too low or short circuit to ground on ECU D374 pin A70
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground or open circuit is detected for 10 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive immediately after the diagnostic runs and passes.

Electrical diagram(s)	  Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
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Technical data	Component check, DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin (+ probe)</td><td>Pin (- probe)</td><td>Value</td><td>Condition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5V</td><td rowspan="2">Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	1	Battery negative pole	< 0.5V	Switch all consumers on.	4	1	4.75 - 5.25V				
Pin (+ probe)	Pin (- probe)	Value	Condition													
1	Battery negative pole	< 0.5V	Switch all consumers on.													
4	1	4.75 - 5.25V														
Possible causes	• Short circuit to ground or open circuit. • Check with DAVIE if the raw and processed values of the sensor are different.															

	• Check for physical damage to the sensor and/or wiring harness. • Compare the raw and processed sensor values with DAVIE; they must be the same. • Start the engine, vary the accelerator pedal position, and validate the pressure change.																		
Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3763a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3763b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Does the fault related to “DPF pressure sensor “occur?” • Yes – Proceed to step 12 • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3763c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage </td></tr></table>	Step 1	Step ID 3763a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3763b	SRT	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Does the fault related to “DPF pressure sensor “occur?” • Yes – Proceed to step 12 • No – Proceed to step 3			Step 3	Step ID 3763c	SRT	Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage		
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	Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12 • No – Proceed to step 4		
	Step 4	Step ID 3763d	SRT
	Check the sensor supply voltage and ground circuit • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Measure the voltage between the DPF pressure sensor supply pin and the DPF pressure sensor ground pin at the connector. Is the voltage 4.75 to 5.25 VDC? • Yes – Proceed to step 5 • No – Proceed to step 7		
	Step 5	Step ID 3763e	SRT
	Check the sensor supply voltage and ground circuit • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Measure the voltage between the DPF pressure sensor supply pin and the DPF pressure sensor ground pin at the connector. Is the voltage 4.75 to 5.25 VDC? • Yes – Proceed to step 6 • No – Proceed to step 7		
	Step 6	Step ID 3763f	SRT
	Check the fault codes and verify the sensor condition • Turn the key switch OFF. • Connect the DPF pressure sensor to the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Does the fault related to “DPF pressure sensor “occur? • Yes – A damaged sensor has been detected. Replace the sensor - Proceed to step 12 • No – The removal and installation of the connector corrected the fault - Proceed to step 12		
	Step 7	Step ID 3763g	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins		

- Pushed back or expanded pins
- Loose connector
- Moisture in or on the connector
- Damaged connector shell
- Missing or damaged connector seals
- Wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12
- No – Proceed to step 8

Step 8	Step ID 3763h	SRT

Check for an open circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for an open circuit. • Measure the resistance of the DPF pressure sensor supply wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 9 • No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		

Step 9	Step ID 3763i	SRT

Check for an open circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for an open circuit. • Measure the resistance of the DPF pressure sensor signal wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 10 • No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		

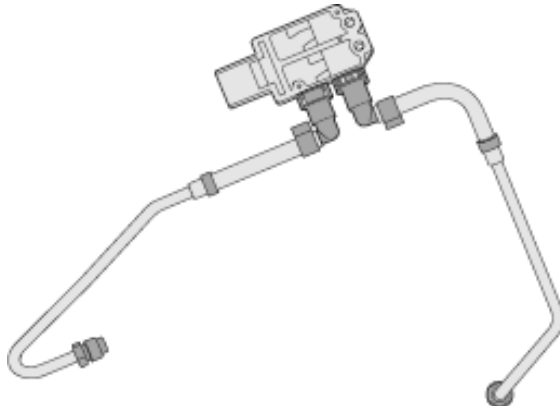
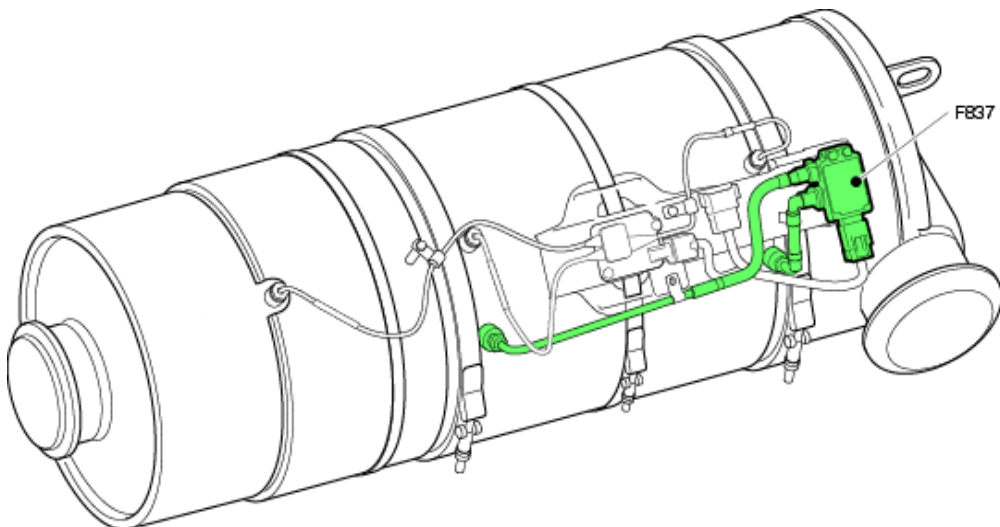
Step 10	Step ID 3763j	SRT

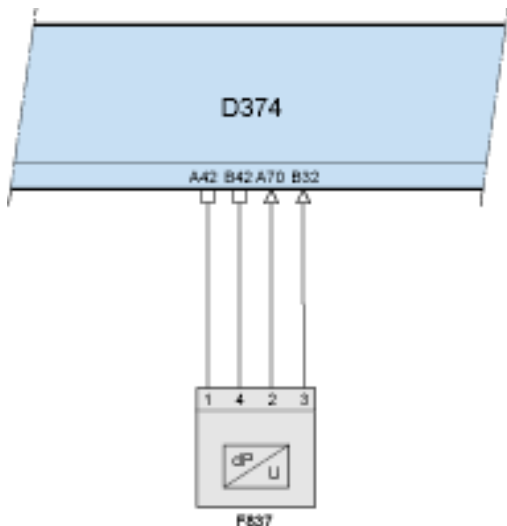
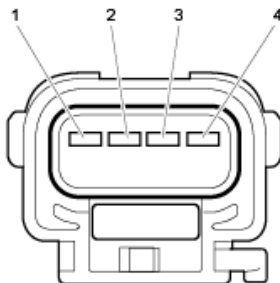
Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100K ohms? • Yes – Proceed to step 11		

	No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 11	Step ID 3763k	SRT
	Check for a pin-to-ground short circuit - Turn the key switch OFF. - Disconnect the EAS-3 unit from the harness. - Disconnect the DPF pressure sensor from the harness. - Check for a pin-to-ground short circuit. - Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100K ohms? - Yes – Proceed to step 12 - No – A pin-to-ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 12	Step ID 3763l	SRT
	Check for an inactive fault code - Connect all components. - Turn the key switch ON. - Check for the appropriate circuit response after 30 seconds. - Use DAVIE to read the fault codes. Does the fault related to “DPF pressure sensor “occur? - Yes – The removal and installation of the connector corrected the fault - Proceed to step 14 - No – Return to the troubleshooting steps - Proceed to step 2 - If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions		
	Step 13	Step ID 3763m	SRT
	Disable the fault code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify that the fault codes are inactive. Does the fault related to “DPF pressure sensor “occur? - Yes – Proceed to step 14 - No – Return to the troubleshooting steps Proceed to step2 - If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 14	Step ID 3763n	SRT
	Clear the inactive fault codes - Connect all components. - Turn the key switch ON. - Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? - Yes – Repair complete		

	No – Troubleshoot any remaining active fault codes		
	Step 15	Step ID 3763o	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3764

Code number	P3764
Fault code description	DPF differential pressure - Data erratic, intermittent, or incorrect
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic consists of two parts: - This diagnostic runs continuously when the ignition is initially keyed on. - This diagnostic runs when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the differential pressure in the DPF is greater than 1.5 kPa at initial ignition on, or is not changing with engine conditions.

Reset condition of fault code	- To validate the repair, perform a key cycle and leave the key in the on position for 1 minute. Then start the engine and operate it at high idle for 1 minute. It is necessary to elevate the exhaust flow for at least 30 seconds to clear this fault code. - This DTC changes to inactive as soon as the diagnostic runs and passes.																				
Electrical diagram(s)	  Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply					
D374	F837	Function																			
A42	1	Ground																			
A70	2	Signal, delta pressure over DPF																			
B32	3	Signal, pressure after DPF																			
B42	4	Supply																			
Technical data	DPF pressure sensor (F837) Preparation - Disconnect connector F837. - Switch the ignition on. - Measure on connector F837 <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Condition</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td></tr></table>	Pin	Pin	Value	Condition	(+ probe)	(- probe)														
Pin	Pin	Value	Condition																		
(+ probe)	(- probe)																				

	1 Battery negative pole < 0.5V Switch all consumers on. 4 1 4.75 - 5.25V																		
Possible causes	• Stuck in-range DPF pressure sensor (F837). • High resistance in the DPF pressure sensor (F837) or return wires. • Disconnected or damaged DPF pressure sensor (F837) tubes. • Clogged DPF pressure sensor (F837) ports could cause this DTC if pressure is held in the port after the engine is turned off.																		
Additional information	• A default value for the DPF pressure sensor (F837) reading is used. • DEF injection is disabled. • Active DPF regeneration is disabled. • The EGR valve is closed. • Engine torque is reduced.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3764a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3764b</td><td>SRT</td></tr><tr><td colspan="3">Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3762 or P3763 active? • Yes – Proceed with fault code P3762 or P3763 • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3764c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes - </td></tr></table>	Step 1	Step ID 3764a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3764b	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3762 or P3763 active? • Yes – Proceed with fault code P3762 or P3763 • No – Proceed to step 3			Step 3	Step ID 3764c	SRT	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes -		
Step 1	Step ID 3764a	SRT																	
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																			
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Step 3	Step ID 3764c	SRT																	
Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes -																			

Proceed to step 15 No – Proceed to step 4		
Step 4	Step ID 3764d	SRT
Monitor the pressure after the DPF An exhaust ventilation system connected to the exhaust can influence the pressure sensor reading. Remove any ventilation or vacuum system before reading the pressure after the DPF. - Connect all components - Turn the key switch ON. - Engine off. - Monitor the pressure after the DPF with DAVIE. Is the pressure after DPF reading 0 ± 0.22 PSI (0 ± 1.5 kPa) with the key switch ON and engine OFF? - Yes – Proceed to step 5 - No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15		
Step 5	Step ID 3764e	SRT
Check for deposits in the decomposition pipe - Turn the key switch OFF. - Engine off. - Remove the decomposition pipe from the vehicle. - Inspect for excessive DEF deposits. Are excessive deposits found inside the decomposition pipe? - Yes – Clean and reinstall the decomposition pipe - Proceed to step 15 - No – Proceed to step 6		
Step 6	Step ID 3764f	SRT
Inspect the DPF pressure sensor and connector pins - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Inspect the DPF pressure sensor connector for: - Corroded or dirty pins - Damaged pins - Pushed back or expanded pins - Loose connector - Moisture in or on the connector - Damage to the connector shell - Missing or damaged connector seals - Wire insulation damage Dirty or damaged pins/connector? - Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 - No – Proceed to step 7		
Step 7	Step ID 3764g	SRT
Check the circuit response		

- Turn the key switch OFF.
- Disconnect the DPF pressure sensor from the harness.
- Turn the key switch ON.
- Check for the appropriate circuit response after 30 seconds.
- Use DAVIE to read the fault codes.

Is fault code P3763 active?

- Yes – Proceed to step 8
- No – Proceed to step 9

Step 8	Step ID 3764h	SRT

Check the circuit response

- Turn the key switch OFF.
- Disconnect the DPF pressure sensor from the harness.
- Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the DPF pressure sensor.
- Turn the key switch ON.
- Check for the appropriate circuit response after 30 seconds.
- Use DAVIE to read the fault codes.

Is fault code P3762 active?

- Yes – Proceed to step 14
- No – Proceed to step 9

Step 9	Step ID 3764i	SRT

Inspect the EAS-3 unit and the harness connector pins

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Inspect the harness and EAS-3 unit connector for:
 - Corroded or dirty pins
 - Damaged pins
 - Pushed back or expanded pins
 - Loose connector
 - Moisture in or on the connector
 - Damage to the connector shell
 - Missing or damaged connector seals
 - Wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15
- No – Proceed to step 10

Step 10	Step ID 3764j	SRT

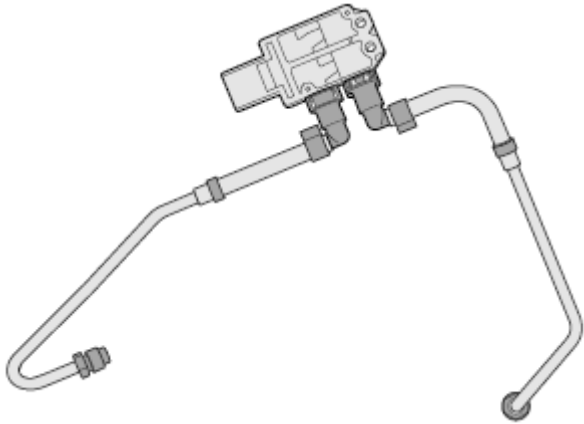
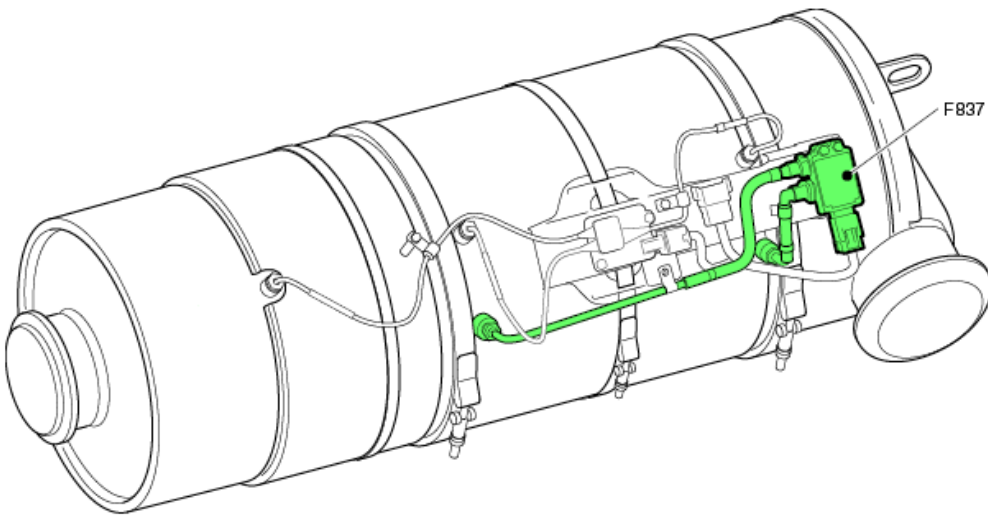
Check for resistance in the harness

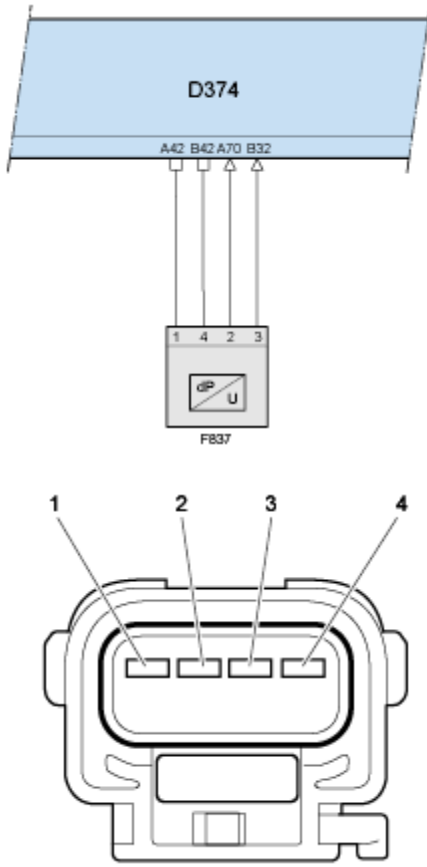
- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for resistance in the circuit.
- Measure the resistance of the DPF pressure sensor signal wire between

	the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 11 • No – High resistance has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 11	Step ID 3764k	SRT
	Check for a pin to ground short circuit • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 12	Step ID 3764l	SRT
	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 13	Step ID 3764m	SRT
	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. • Is fault code P3764 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 15 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit.		
	Step 14	Step ID 3764n	SRT
	Check the exhaust system for restrictions Check for restrictions in the exhaust system		

	Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15		
	Step 15	Step ID 3764o	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3765 inactive? • Yes – Proceed to step 16 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 16	Step ID 3764p	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3765

Code number	P3765
Fault code description	DPF differential pressure – Data erratic, intermittent, or incorrect
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – PM filter Freeze frame type – PM filter
Description of component(s)	DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF.  Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot, is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic consists of two parts: - This diagnostic runs continuously when the ignition is initially keyed on. - This diagnostic runs when the engine is running
Set condition of fault code	The EAS-3 ECU (D374) detects that the differential pressure in the DPF filter is greater than 1.5 kPa (.22 PSI) at initial ignition on, or is not changing with engine conditions.
Reset condition of fault code	To validate the repair, perform a key cycle and leave the key in the on position for

	1 minute. Then start the engine and operate it at high idle for 1 minute. It is necessary to elevate the exhaust flow for at least 30 seconds to clear this fault code. This DTC changes to inactive as soon as the diagnostic runs and passes.																
Electrical diagram(s)	 Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply	
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A42	1	Ground															
A70	2	Signal, delta pressure over DPF															
B32	3	Signal, pressure after DPF															
B42	4	Supply															
Technical data	Component check, DPF pressure sensor (F837) Preparation - Disconnect connector F837. - Switch the ignition on. - Measure on connector F837. <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Condition</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td><0.5V</td><td>Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin	Pin	Value	Condition	(+ probe)	(- probe)			1	Battery negative pole	<0.5V	Switch all consumers on.	4	1	4.75 - 5.25V	
Pin	Pin	Value	Condition														
(+ probe)	(- probe)																
1	Battery negative pole	<0.5V	Switch all consumers on.														
4	1	4.75 - 5.25V															
Possible causes	Stuck in-range DPF pressure sensor (F837).																

	• High resistance in the DPF pressure sensor (F837) or return wires. • Disconnected or damaged DPF pressure sensor (F837) tubes. • Clogged DPF pressure sensor (F837) ports could cause this fault code if pressure is held in the port after the engine is turned off.																		
Additional information	• A default value for the DPF pressure sensor (F837) reading is used. • DEF injection is disabled. • Active DPF regeneration is disabled. • The EGR valve is closed. • Engine torque is reduced.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3765a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3765b</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Does other fault related to "DPF pressure sensor" occur? • Yes – Proceed with that fault code • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3765c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes • Turn the Key switch OFF. • Inspect the DPF pressure sensor tubes for: • Both ends being securely connected • Leaks or damage • Blockage Are there damaged, disconnected, or blocked tubes? • Yes – Clean, repair, or replace the damaged pressure sensor tubes - Proceed to step 15 • No – Proceed to step 4 </td></tr></table>	Step 1	Step ID 3765a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3765b	SRT	Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Does other fault related to "DPF pressure sensor" occur? • Yes – Proceed with that fault code • No – Proceed to step 3			Step 3	Step ID 3765c	SRT	Inspect the DPF pressure sensor tubes • Turn the Key switch OFF. • Inspect the DPF pressure sensor tubes for: • Both ends being securely connected • Leaks or damage • Blockage Are there damaged, disconnected, or blocked tubes? • Yes – Clean, repair, or replace the damaged pressure sensor tubes - Proceed to step 15 • No – Proceed to step 4		
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Step 2	Step ID 3765b	SRT																	
Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Does other fault related to "DPF pressure sensor" occur? • Yes – Proceed with that fault code • No – Proceed to step 3																			
Step 3	Step ID 3765c	SRT																	
Inspect the DPF pressure sensor tubes • Turn the Key switch OFF. • Inspect the DPF pressure sensor tubes for: • Both ends being securely connected • Leaks or damage • Blockage Are there damaged, disconnected, or blocked tubes? • Yes – Clean, repair, or replace the damaged pressure sensor tubes - Proceed to step 15 • No – Proceed to step 4																			

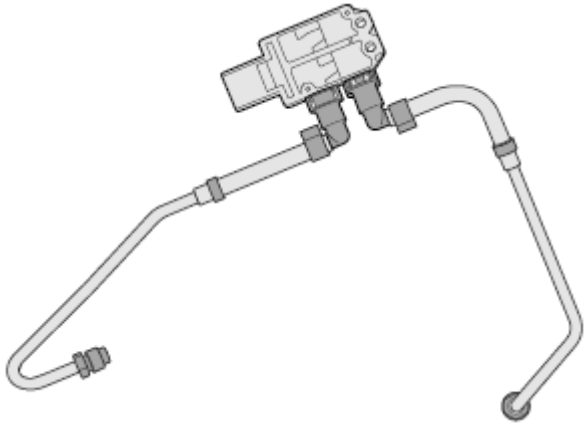
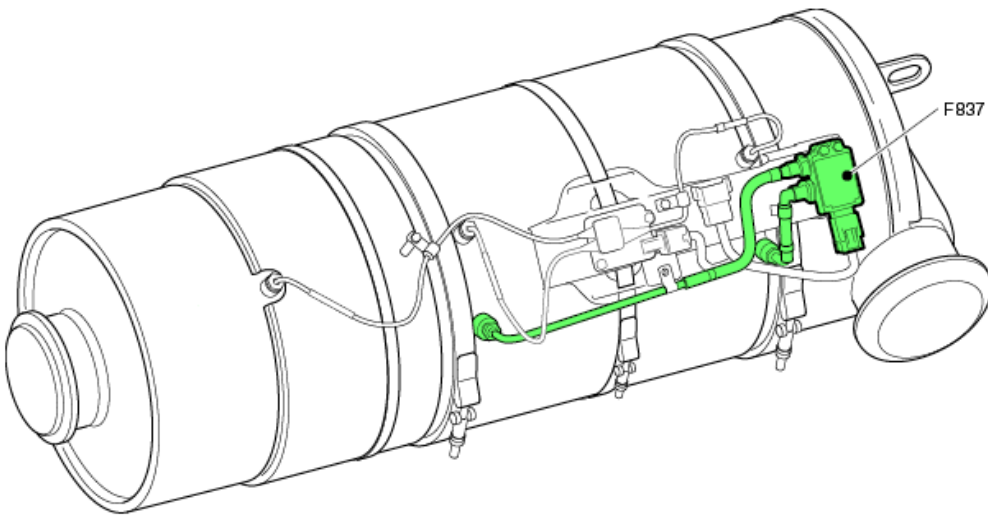
	Step 4	Step ID 3765d	SRT
	Monitor the pressure after the DPF • Connect all components • Turn the key switch ON. • Engine off. • Monitor the pressure after the DPF with DAVIE. An exhaust ventilation system connected to the exhaust can influence the pressure sensor reading. Remove any ventilation or vacuum system before reading the pressure after the DPF. Is the pressure after DPF reading 0 ± 0.22 PSI (0 ± 1.5kPA) with the key switch ON and engine OFF? • Yes – Proceed to step 5 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15		
	Step 5	Step ID 3765e	SRT
	Check for deposits in the decomposition pipe • Turn the key switch OFF. • Engine off. • Remove the decomposition pipe from the vehicle. • Inspect for excessive DEF deposits. Are excessive deposits found inside the decomposition pipe? • Yes – Clean and reinstall the decomposition pipe - Proceed to step 15 • No – Proceed to step 6		
	Step 6	Step ID 3765f	SRT
	Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 7		
	Step 7	Step ID 3765g	SRT
	Check the circuit response • Turn the key switch OFF.		

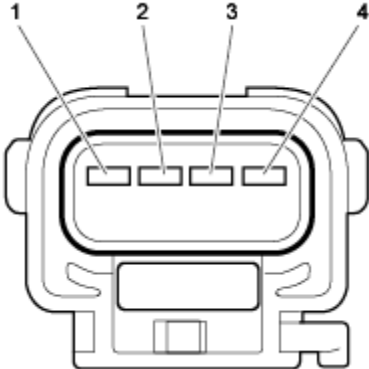
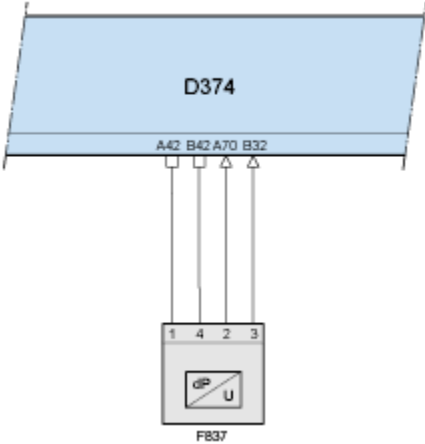
	• Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3764 active? • Yes – Proceed to step 8 • No – Proceed to step 9		
	Step 8	Step ID 3765h	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the DPF pressure sensor. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3763 active? • Yes – Proceed to step 14 • No – Proceed to step 9		
	Step 9	Step ID 3765i	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 10		
	Step 10	Step ID 3765j	SRT
	Check for resistance in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for resistance in the circuit. • Measure the resistance of the DPF pressure sensor signal wire between the EAS-3 unit connector pin and the sensor connector pin.		

	Is the resistance less than 10 ohms? • Yes – Proceed to step 11 • No – High resistance has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 11	Step ID 3765k	SRT
	Check for a pin to ground short circuit • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 12	Step ID 3765l	SRT
	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 13	Step ID 3765m	SRT
	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3765 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 6A • No – Return to the troubleshooting steps - Proceed to step 2 (If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit, proceed to step 17)		
	Step 14	Step ID 3765n	SRT
	Check the exhaust system for restrictions Check for restrictions in the exhaust system		

	Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15		
	Step 15	Step ID 3765o	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3765 inactive? • Yes – Proceed to step 6B • No – Return to the troubleshooting steps. Proceed to step 1A (If all the steps have been completed and rechecked, proceed to step 17.)		
	Step 16	Step ID 3765p	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 17	Step ID 3765q	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, perform a key cycle and leave the key in the on position for 1 minute. Then start the engine and operate it at high idle for 1 minute. It is necessary to elevate the exhaust flow for at least 30 seconds to clear this fault code.		
	Back to Index		

P3766

Code number	P3766
Fault code description	DPF pressure – Voltage too high or short circuit to supply on ECU D374 pin B32
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF.  Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot, is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously after ignition is keyed on.
Set condition of fault code	A short circuit to supply is detected for 2 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive immediately after the diagnostic runs and passes.

Electrical diagram(s)	 Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
D374	F837	Function														
A42	1	Ground														
A70	2	Signal, delta pressure over DPF														
B32	3	Signal, pressure after DPF														
B42	4	Supply														
Technical data	Component check, DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin (+ probe)</td><td>Pin (- probe)</td><td>Value</td><td>Condition</td></tr><tr><td>1</td><td>Battery negative pole</td><td><0.5V</td><td rowspan="2">Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	1	Battery negative pole	<0.5V	Switch all consumers on.	4	1	4.75 - 5.25V				
Pin (+ probe)	Pin (- probe)	Value	Condition													
1	Battery negative pole	<0.5V	Switch all consumers on.													
4	1	4.75 - 5.25V														
Possible causes	• Short circuit to supply. • Check with DAVIE if the raw and processed values of the sensor are different. • Check for physical damage to the sensor and/or wiring harness. • Compare the raw and processed sensor values with DAVIE; they must be the															

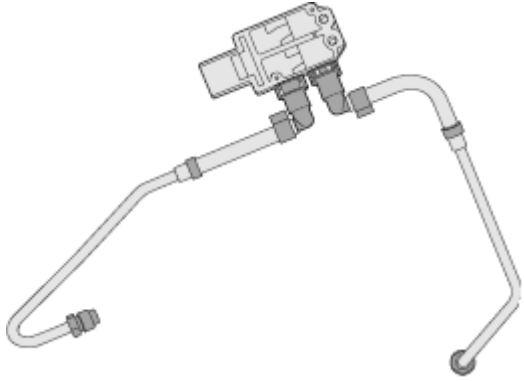
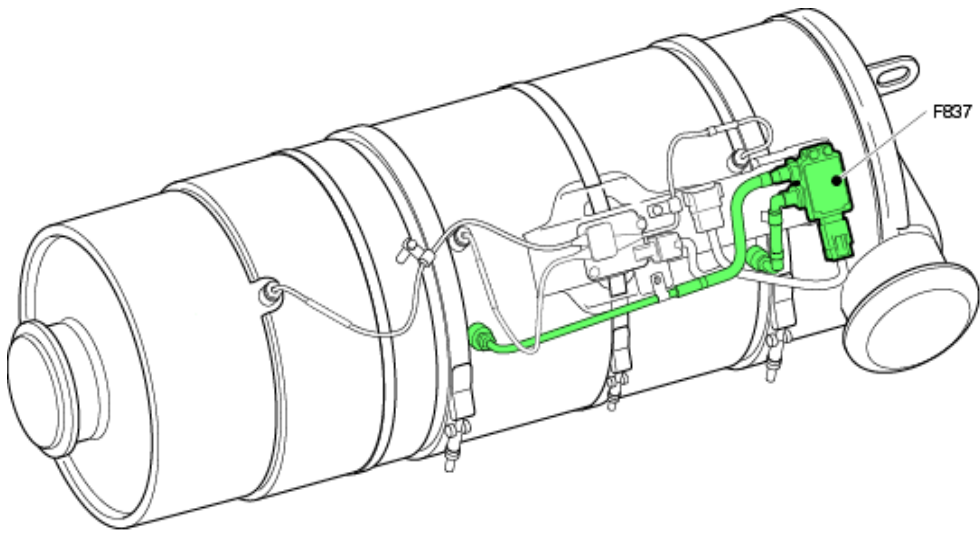
	same. Start the engine, vary the accelerator pedal position, and validate the pressure change.																		
Additional information	No additional information available.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3766a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3766b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Does other fault related to “DPF pressure sensor “occur?” - Yes – Proceed to step 12 - No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3766c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor and connector pins - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Inspect the DPF pressure sensor connector for: - Corroded or dirty pins - Damaged pins - Pushed back or expanded pins - Loose connector - Moisture in or on the connector - Damaged connector shell - Missing or damaged connector seals - Wire insulation damage Dirty or damaged pins/connector? - Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12 </td></tr></table>	Step 1	Step ID 3766a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3766b	SRT	Check for fault codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Does other fault related to “DPF pressure sensor “occur?” - Yes – Proceed to step 12 - No – Proceed to step 3			Step 3	Step ID 3766c	SRT	Inspect the DPF pressure sensor and connector pins - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Inspect the DPF pressure sensor connector for: - Corroded or dirty pins - Damaged pins - Pushed back or expanded pins - Loose connector - Moisture in or on the connector - Damaged connector shell - Missing or damaged connector seals - Wire insulation damage Dirty or damaged pins/connector? - Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12		
Step 1	Step ID 3766a	SRT																	
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																			
Step 2	Step ID 3766b	SRT																	
Check for fault codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Does other fault related to “DPF pressure sensor “occur?” - Yes – Proceed to step 12 - No – Proceed to step 3																			
Step 3	Step ID 3766c	SRT																	
Inspect the DPF pressure sensor and connector pins - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Inspect the DPF pressure sensor connector for: - Corroded or dirty pins - Damaged pins - Pushed back or expanded pins - Loose connector - Moisture in or on the connector - Damaged connector shell - Missing or damaged connector seals - Wire insulation damage Dirty or damaged pins/connector? - Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12																			

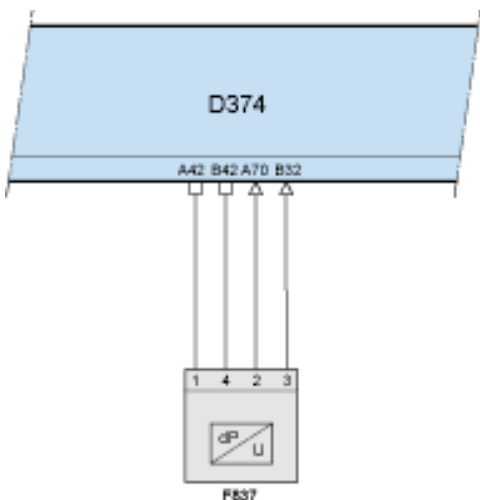
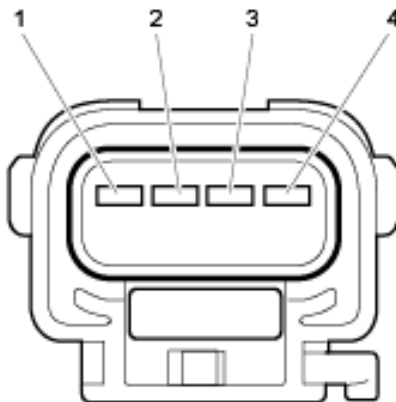
No – Proceed to step 4		
Step 4	Step ID 3766d	SRT
Check the circuit response - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Turn the key switch ON. - Check for the appropriate circuit response after 30 seconds. Use DAVIE to read the fault codes. Is fault code P3764 active? - Yes – Proceed to step 5 - No – Proceed to step 7		
Step 5	Step ID 3766e	SRT
Check the sensor supply voltage and ground circuit - Turn the key switch OFF. - Disconnect the DPF pressure sensor from the harness. - Turn the key switch ON. - Measure the voltage between the DPF pressure sensor supply pin and the DPF pressure sensor ground pin at the connector. Is the voltage 4.75 to 5.25 VDC? - Yes – Proceed to step 6 - No – Proceed to step 7		
Step 6	Step ID 3766f	SRT
Check the fault codes and verify the sensor condition - Turn the key switch OFF. - Connect the DPF pressure sensor to the harness. - Turn the key switch ON. - Check for the appropriate circuit response after 30 seconds. - Use DAVIE to read the fault codes. Is fault code P3766 active? - Yes – A damaged sensor has been detected. Replace the sensor - Proceed to step 12 - No – The removal and installation of the connector corrected the fault - Proceed to step 12		
Step 7	Step ID 3766g	SRT
Inspect the EAS-3 unit and the harness connector pins - Turn the key switch OFF. - Disconnect the EAS-3 unit from the harness. - Inspect the harness and EAS-3 unit connector for: - Corroded or dirty pins - Damaged pins - Pushed back or expanded pins - Loose connector - Moisture in or on the connector - Damaged connector shell		

	• Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12 • No – Proceed to step 8		
	Step 8	Step ID 3766h	SRT
	Check for an open circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for an open circuit. • Measure the resistance of the DPF pressure sensor ground wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 9 • No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 9	Step ID 3766i	SRT
	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100K ohms? • Yes – Proceed to step 10 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 10	Step ID 3766j	SRT
	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor supply pin and all other pins in the harness. Is the resistance greater than 100K ohms? • Yes – Proceed to step 11 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		
	Step 11	Step ID 3766k	SRT

	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3763 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 12 • No – Return to the troubleshooting steps - Proceed to step 2 (If all the steps have been completed and rechecked, proceed to step 13)			
	<table><tr><td>Step 12</td><td>Step ID 3766l</td><td>SRT</td></tr></table> Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3763 inactive? • Yes – Proceed to step 13 • No – Return to the troubleshooting steps Proceed to step 2 (If all the steps have been completed and rechecked, proceed to step 13.)	Step 12	Step ID 3766l	SRT
	Step 12	Step ID 3766l	SRT	
	<table><tr><td>Step 13</td><td>Step ID 3766m</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	Step 13	Step ID 3766m	SRT
	Step 13	Step ID 3766m	SRT	
<table><tr><td>Step 15</td><td>Step ID 3766n</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 15	Step ID 3766n	SRT	
Step 15	Step ID 3766n	SRT		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.			
	Back to Index			

P3767

Code number	P3767
Fault code description	DPF pressure - Voltage too low or short circuit to ground on ECU (D374) pin (B32)
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground or open circuit is detected for 2 consecutive seconds.
Reset condition of fault code	To validate the repair, start the engine and let it idle for 1 minute.

Electrical diagram(s)	  Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply	
D374	F837	Function															
A42	1	Ground															
A70	2	Signal, delta pressure over DPF															
B32	3	Signal, pressure after DPF															
B42	4	Supply															
Technical data	DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Additional information</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5V</td><td>Switch all consumers on</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin	Pin	Value	Additional information	(+ probe)	(- probe)			1	Battery negative pole	>0.5V	Switch all consumers on	4	1	4.75 - 5.25V	
Pin	Pin	Value	Additional information														
(+ probe)	(- probe)																
1	Battery negative pole	>0.5V	Switch all consumers on														
4	1	4.75 - 5.25V															

Possible causes	• A short circuit to ground or open circuit. • Compare the raw and processed sensor values with DAVIE; they must be the same. • Start the engine, vary the accelerator pedal position, and validate the pressure change.																		
Additional information	No additional information available.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3767a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3767b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3767 inactive? • Yes – Proceed to step 12. • No – Proceed to step 3. </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3767c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or </td></tr></table>	Step 1	Step ID 3767a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3767b	SRT	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3767 inactive? • Yes – Proceed to step 12. • No – Proceed to step 3.			Step 3	Step ID 3767c	SRT	Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or		
Step 1	Step ID 3767a	SRT																	
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																			
Step 2	Step ID 3767b	SRT																	
Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3767 inactive? • Yes – Proceed to step 12. • No – Proceed to step 3.																			
Step 3	Step ID 3767c	SRT																	
Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair, or																			

	replace the damaged connection or harness, if possible - Proceed to step 12 • No – Proceed to step 4		
	Step 4	Step ID 3767d	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3766 active? • Yes – Proceed to step 5 • No – Proceed to step 7		
	Step 5	Step ID 3767e	SRT
	Check the sensor supply voltage and ground circuit • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Measure the voltage between the DPF pressure sensor supply pin and the DPF pressure sensor ground pin at the connector. Is the voltage 4.75 to 5.25 VDC? • Yes – Proceed to step 6 • No – Proceed to step 7		
	Step 6	Step ID 3767f	SRT
	Check the fault codes and verify the sensor condition • Turn the key switch OFF. • Connect the DPF pressure sensor to the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3767 active? • Yes – A damaged sensor has been detected. Replace the sensor - Proceed to step 12 • No – The removal and installation of the connector corrected the fault - Proceed to step 12		
	Step 7	Step ID 3767g	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector		

- Moisture in or on the connector
- Damaged connector shell
- Missing or damaged connector seals
- Wire insulation damage

Dirty or damaged pins/connector?

- Yes – A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 12
- No – Proceed to step 8

Step 8	Step ID 3767h	SRT

Check for an open circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for an open circuit. • Measure the resistance of the DPF pressure sensor ground wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 9 • No – An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		

Step 9	Step ID 3767i	SRT

Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100K ohms? • Yes – Proceed to step 10 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		

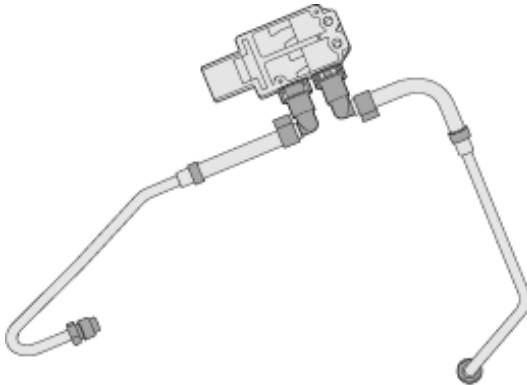
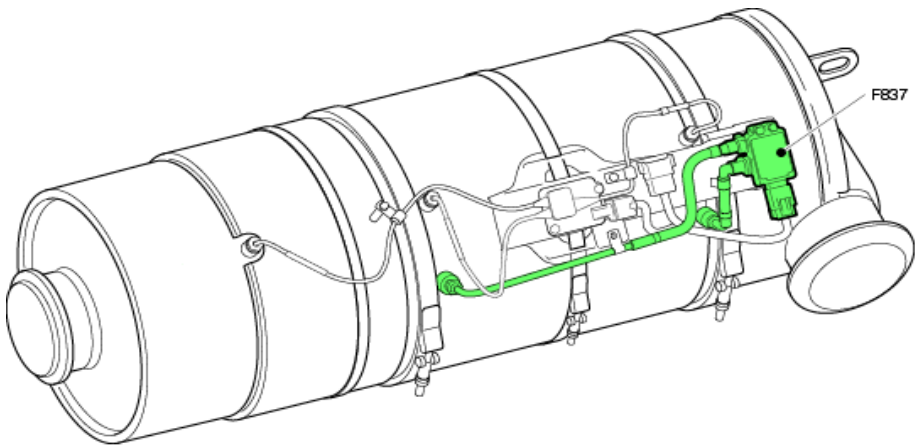
Step 10	Step ID 3767j	SRT

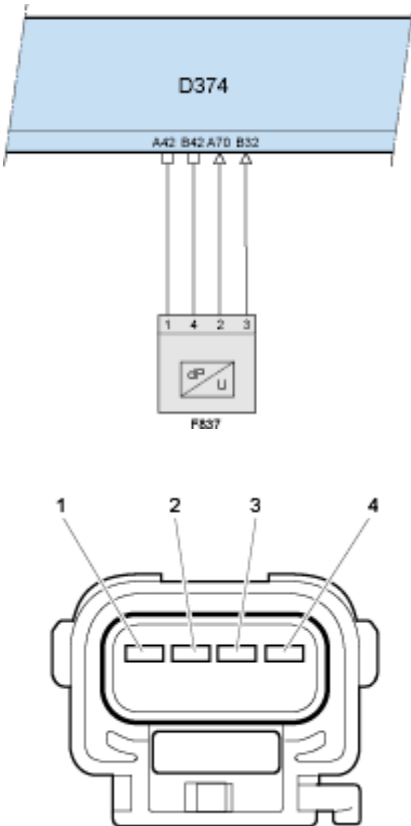
Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor supply pin and all other pins in the harness. Is the resistance greater than 100K ohms? • Yes – Proceed to step 11 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 12		

	<table><tr><td>Step 11</td><td>Step ID 3767k</td><td>SRT</td></tr><tr><td colspan="3">Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3767 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 12 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.</td></tr></table>	Step 11	Step ID 3767k	SRT	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3767 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 12 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 11	Step ID 3767k	SRT				
	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3767 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 12 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.						
	<table><tr><td>Step 12</td><td>Step ID 3767l</td><td>SRT</td></tr><tr><td colspan="3">Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3767 inactive? • Yes – Proceed to step 13 • No – Return to the troubleshooting steps Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.</td></tr></table>	Step 12	Step ID 3767l	SRT	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3767 inactive? • Yes – Proceed to step 13 • No – Return to the troubleshooting steps Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 12	Step ID 3767l	SRT				
Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3767 inactive? • Yes – Proceed to step 13 • No – Return to the troubleshooting steps Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							
<table><tr><td>Step 13</td><td>Step ID 3767m</td><td>SRT</td></tr><tr><td colspan="3">Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 13	Step ID 3767m	SRT	Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes			
Step 13	Step ID 3767m	SRT					
Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes							
<table><tr><td>Step 14</td><td>Step ID 3767n</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 14	Step ID 3767n	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Step 14	Step ID 3767n	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.						

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P3768

Code number	P3768
Fault code description	DPF outlet pressure – Data erratic, intermittent, or incorrect at ignition on or during operation on ECU D374 pin B32
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –NMHC
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration. - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic consists of two parts: - This diagnostic runs continuously when the ignition is initially keyed on. - This diagnostic runs when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the aftertreatment diesel particulate filter outlet pressure is greater than 0.015 bar or less than -0.015 bar at initial key on, or is not changing with engine conditions.
Reset condition of fault code	The fault code will change to inactive when an in-range pressure condition is

	detected.																
Electrical diagram(s)	 Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply	
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Technical data	DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Additional information</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5V</td><td>Switch all consumers on</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin	Pin	Value	Additional information	(+ probe)	(- probe)			1	Battery negative pole	>0.5V	Switch all consumers on	4	1	4.75 - 5.25V	
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Possible causes	• Stuck in-range DPF pressure sensor (F837) reading. • High resistance in the DPF pressure sensor (F837) signal or return wires. • Higher than expected DPF outlet pressure. • Excessive DEF deposits in the aftertreatment decomposition tube.																

	• Clogged DPF pressure sensor (F837) ports could cause this DTC if pressure is held in the port after the engine is turned off.																								
Additional information	• Active DPF regeneration will be disabled. • The EGR valve is closed.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3768a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3768b</td><td>SRT</td></tr><tr><td colspan="3">Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? • Yes – Proceed with that fault code P3766 or P3767. • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3768c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15 • No – Proceed to step 4 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3768d</td><td>SRT</td></tr><tr><td colspan="3">Monitor the pressure after the DPF • Connect all components • Turn the key switch ON. • Engine off. • Monitor the pressure after the DPF with DAVIE. An exhaust ventilation system connected to the exhaust can influence the</td></tr></table>	Step 1	Step ID 3768a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3768b	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? • Yes – Proceed with that fault code P3766 or P3767. • No – Proceed to step 3			Step 3	Step ID 3768c	SRT	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15 • No – Proceed to step 4			Step 4	Step ID 3768d	SRT	Monitor the pressure after the DPF • Connect all components • Turn the key switch ON. • Engine off. • Monitor the pressure after the DPF with DAVIE. An exhaust ventilation system connected to the exhaust can influence the		
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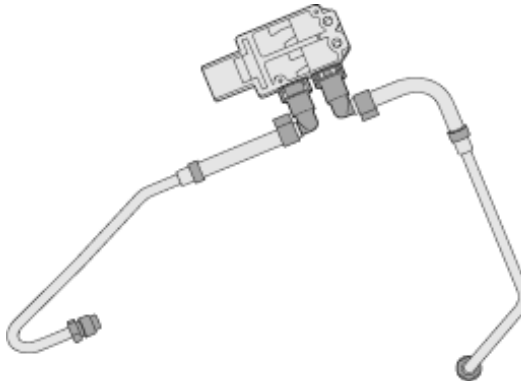
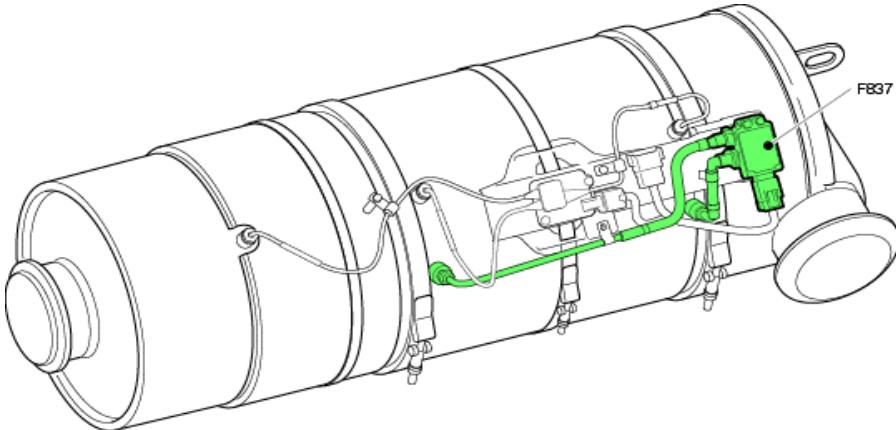
	pressure sensor reading. Remove any ventilation or vacuum system before reading the pressure after the DPF. Is the pressure after DPF reading 0 ± 0.22 PSI (0 ± 1.5kPA) with the key switch ON and engine OFF? • Yes – Proceed to step 5 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15
Step 5	Step ID 3768e SRT
Check for deposits in the decomposition pipe • Turn the key switch OFF. • Engine off. • Remove the decomposition pipe from the vehicle. • Inspect for excessive DEF deposits. Are excessive deposits found inside the decomposition pipe? • Yes – Clean and reinstall the decomposition pipe - Proceed to step 15 • No – Proceed to step 6	
Step 6	Step ID 3768f SRT
Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 7	
Step 7	Step ID 3768g SRT
Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Does the fault related to “DPF pressure sensor “occur? • Yes – Proceed to step 8 • No – Proceed to step 9	

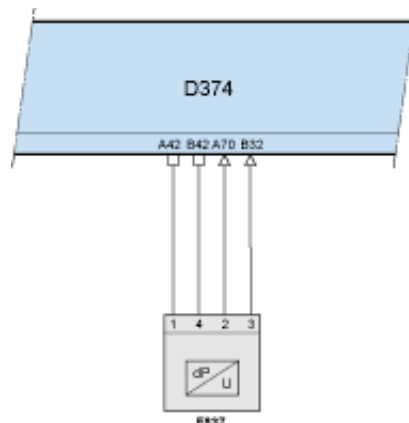
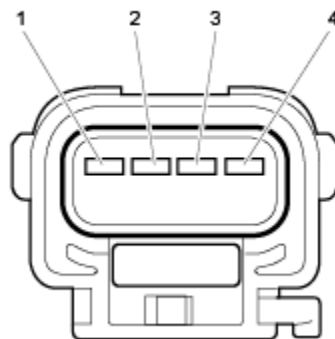
	Step 8	Step ID 3768h	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the DPF pressure sensor. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Does the fault related to "DPF pressure sensor "occur"? • Yes – Proceed to step 14 • No – Proceed to step 9		
	Step 9	Step ID 3768i	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 10		
	Step 10	Step ID 3768j	SRT
	Check for resistance in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for resistance in the circuit. • Measure the resistance of the DPF pressure sensor signal wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 11 • No – High resistance has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 11	Step ID 3768k	SRT
	Check for a pin to ground short circuit • Turn the key switch OFF.		

	• Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 12	Step ID 3768l	SRT
	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 13	Step ID 3768m	SRT
	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Does the fault related to “DPF pressure sensor “occur? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 15 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit.		
	Step 14	Step ID 3768n	SRT
	Check for restrictions in the exhaust system Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15. • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15.		
	Step 15	Step ID 3768o	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in		

	the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Does the fault related to “DPF pressure sensor “occur? • Yes – Proceed to step 16 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.			
	<table><tr><td>Step 16</td><td>Step ID 3768p</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	Step 16	Step ID 3768p	SRT
Step 16	Step ID 3768p	SRT		
	<table><tr><td>Step 17</td><td>Step ID 3768q</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 17	Step ID 3768q	SRT
Step 17	Step ID 3768q	SRT		
Verification Drive Cycle	To validate the repair: With the brakes set, start the engine and allow it to run at idle for 2 minutes.			
	Back to Index			

P3769

Code number	P3769
Fault code description	DPF outlet pressure – Data erratic, intermittent, or incorrect ignition on or during operation on ECU D374 pin B32
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –NMHC
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic consists of two parts: - This diagnostic runs continuously when the ignition is initially keyed on. - This diagnostic runs when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the after treatment diesel particulate filter outlet pressure is greater than 0.0015 bar or less than -00.015 bar at initial key on, or is not changing with engine conditions.
Reset condition of fault code	To validate the repair, turn the key switch to on for 1 minute, and then start the

	engine and let it idle for 1 minute.																
Electrical diagram(s)	  Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply	
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Technical data	DPF pressure sensor (F837) Preparation - Disconnect connector F837. - Switch the ignition on. - Measure on connector F837. <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Additional information</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5V</td><td>Switch all consumers on</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin	Pin	Value	Additional information	(+ probe)	(- probe)			1	Battery negative pole	>0.5V	Switch all consumers on	4	1	4.75 - 5.25V	
Pin	Pin	Value	Additional information														
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Possible causes	- Stuck in-range DPF pressure sensor (F837) reading. - High resistance in the DPF pressure sensor (F837) signal or return wires. - Higher than expected diesel particulate filter outlet pressure. - Excessive DEF deposits in the after treatment decomposition tube.																

	• Clogged DPF pressure sensor (F837) ports could cause this DTC if pressure is held in the port after the engine is turned off.																								
Additional information	• Active DPF regeneration will be disabled. • The EGR valve is closed. • Engine torque is reduced.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3769a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3769b</td><td>SRT</td></tr><tr><td colspan="3">Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? • Yes – Proceed with that fault code P3766 or P3767 • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3769c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15. • No – Proceed to step 4. </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3769d</td><td>SRT</td></tr><tr><td colspan="3">Monitor the pressure after the DPF • Connect all components • Turn the key switch ON. • Engine off. • Monitor the pressure after the DPF with DAVIE. </td></tr></table>	Step 1	Step ID 3769a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3769b	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? • Yes – Proceed with that fault code P3766 or P3767 • No – Proceed to step 3			Step 3	Step ID 3769c	SRT	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15. • No – Proceed to step 4.			Step 4	Step ID 3769d	SRT	Monitor the pressure after the DPF • Connect all components • Turn the key switch ON. • Engine off. • Monitor the pressure after the DPF with DAVIE.		
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	An exhaust ventilation system connected to the exhaust can influence the pressure sensor reading. Remove any ventilation or vacuum system before reading the pressure after the DPF. Is the pressure after DPF reading 0 ± 0.22 PSI (0 ± 1.5 kPa) with the key switch ON and engine OFF? • Yes – Proceed to step 5. • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15.
Step 5	Step ID 3769e SRT
Check for deposits in the decomposition pipe • Turn the key switch OFF. • Engine off. • Remove the decomposition pipe from the vehicle. • Inspect for excessive DEF deposits. Are excessive deposits found inside the decomposition pipe? • Yes – Clean and reinstall the decomposition pipe - Proceed to step 15. • No – Proceed to step 6.	
Step 6	Step ID 3769f SRT
Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 7.	
Step 7	Step ID 3769g SRT
Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Does the fault related to “DPF pressure sensor “occur? • Yes – Proceed to step 8. • No – Proceed to step 9.	

	Step 8	Step ID 3769h	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the DPF pressure sensor. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3767 active? • Yes – Proceed to step 14 • No – Proceed to step 9		
	Step 9	Step ID 3769i	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 10		
	Step 10	Step ID 3769j	SRT
	Check for resistance in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for resistance in the circuit. • Measure the resistance of the DPF pressure sensor signal wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 11 • No – High resistance has been detected in the harness. Repair or replace the harness - Proceed to step 15		
	Step 11	Step ID 3769k	SRT
	Check for a pin to ground short circuit		

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for a pin to ground short circuit.
- Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 12
- No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15

Step 12	Step ID 3769l	SRT

Check for a pin-to-pin short circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the DPF pressure sensor from the harness.
- Check for a pin-to-pin short circuit.
- Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness.

Is the resistance greater than 100k ohms?

- Yes – Proceed to step 13
- No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15

Step 13	Step ID 3769m	SRT

Check for an inactive fault code

- Connect all components.
- Turn the key switch ON.
- Check for the appropriate circuit response after 30 seconds.
- Use DAVIE to read the fault codes.

Does the fault related to “DPF pressure sensor “occur?

- Yes – The removal and installation of the connector corrected the fault - Proceed to step 15
- No – Return to the troubleshooting steps - Proceed to step 2

If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit.

Step 14	Step ID 3769n	SRT

Check the exhaust system for restrictions

Check for restrictions in the exhaust system

Have any restrictions in the exhaust been identified?

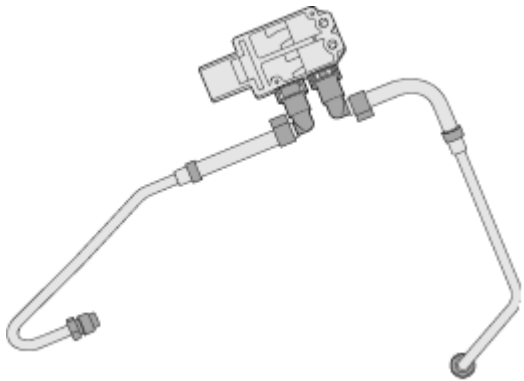
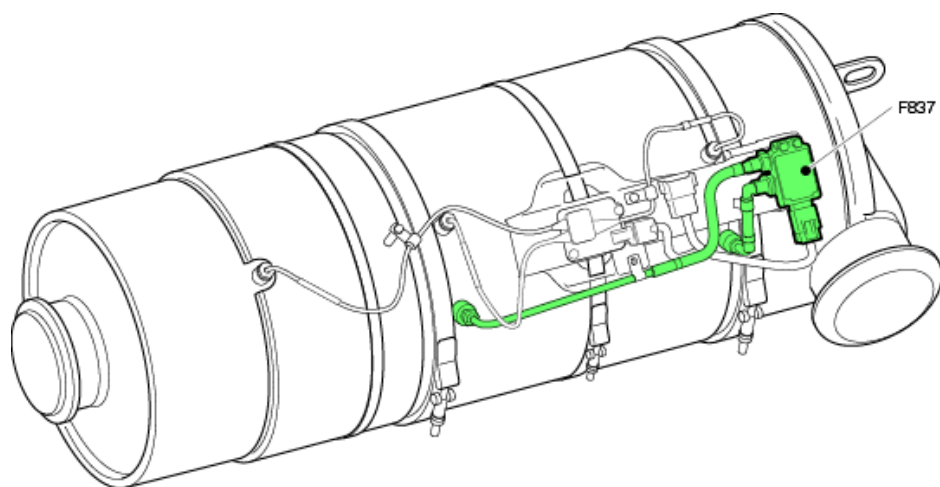
- Yes – A damaged sensor has been detected. Replace the sensor. Proceed to step 15
- No – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15

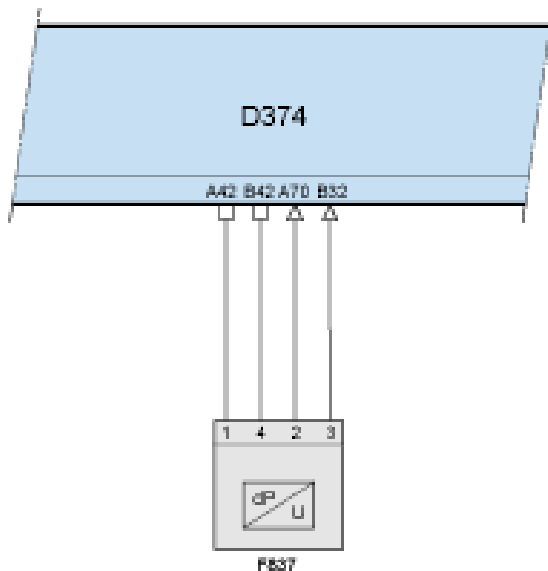
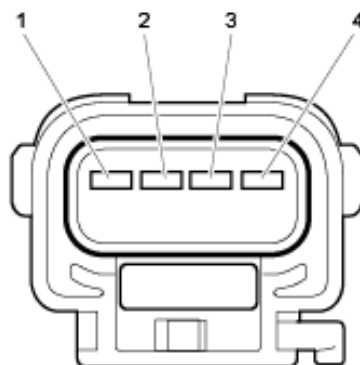
Step 15	Step ID 3769o	SRT

Disable the Fault Code

	• Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Does the fault related to “DPF pressure sensor “occur? • Yes – Proceed to step 16 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. <table><tr><td>Step 16</td><td>Step ID 3769p</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes <table><tr><td>Step 17</td><td>Step ID 3769q</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 16	Step ID 3769p	SRT	Step 17	Step ID 3769q	SRT
Step 16	Step ID 3769p	SRT					
Step 17	Step ID 3769q	SRT					
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.						
	Back to Index						

P3770

Code number	P3770
Fault code description	DPF outlet pressure – Data erratic, intermittent, or incorrect ignition on or during operation on ECU D374 pin B32
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –NMHC
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic consists of two parts: - This diagnostic runs continuously when the ignition is initially keyed on. - This diagnostic runs when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the DPF outlet pressure is greater than 0.015 bar or less than 0.015 bar at initial key on, or is not changing with engine conditions.
Reset condition of fault code	To validate the repair, turn the key switch to on for 1 minute, and then start the

	engine and let it idle for 1 minute.															
Electrical diagram(s)	  Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
D374	F837	Function														
A42	1	Ground														
A70	2	Signal, delta pressure over DPF														
B32	3	Signal, pressure after DPF														
B42	4	Supply														
Technical data	DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin</td><td>Pin</td><td>Value</td><td>Additional information</td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td></td><td></td></tr><tr><td>1</td><td>Battery</td><td>>0.5V</td><td>Switch all consumers on</td></tr></table>	Pin	Pin	Value	Additional information	(+ probe)	(- probe)			1	Battery	>0.5V	Switch all consumers on			
Pin	Pin	Value	Additional information													
(+ probe)	(- probe)															
1	Battery	>0.5V	Switch all consumers on													

	negative pole 414.75 - 5.25V																					
Possible causes	- Stuck in-range DPF pressure sensor (F837) reading. - High resistance in the DPF pressure sensor (F837) signal or return wires. - Higher than expected diesel particulate filter outlet pressure. - Excessive DEF deposits in the aftertreatment decomposition tube. - Clogged DPF pressure sensor (F837) ports could cause this fault code if pressure is held in the port after the engine is turned off.																					
Additional information	- Active DPF regeneration will be disabled. - The EGR is closed.																					
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pin out locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3770a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table><table><tr><td>Step 2</td><td>Step ID 3770b</td><td>SRT</td></tr><tr><td colspan="3">Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? - Yes – Proceed with fault code P3766 or P3767 - No – Proceed to step 3 </td></tr></table><table><tr><td>Step 3</td><td>Step ID 3770c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes - Turn the key switch OFF. - Disconnect the DPF pressure sensor tubes. - Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? - Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15 - No – Proceed to step 4 </td></tr></table><table><tr><td>Step 4</td><td>Step ID 3770d</td><td>SRT</td></tr></table>	Step 1	Step ID 3770a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3770b	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Is fault code P3766 or P3767 active? - Yes – Proceed with fault code P3766 or P3767 - No – Proceed to step 3			Step 3	Step ID 3770c	SRT	Inspect the DPF pressure sensor tubes - Turn the key switch OFF. - Disconnect the DPF pressure sensor tubes. - Check the DPF pressure sensor tubes for blockages. Are there damaged, disconnected or blocked tubes? - Yes – Clean, repair or replace the damaged pressure sensor tubes - Proceed to step 15 - No – Proceed to step 4			Step 4	Step ID 3770d	SRT
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Step 4	Step ID 3770d	SRT																				

Monitor the pressure after the DPF

An exhaust ventilation system connected to the exhaust can influence the pressure sensor reading. Remove any ventilation or vacuum system before reading the pressure after the DPF.

- Connect all components
- Turn the key switch ON.
- Engine off.
- Monitor the pressure after the DPF with DAVIE.

Is the pressure after DPF reading 0 ± 0.22 PSI (0 ± 1.5 kPa) with the key switch ON and engine OFF?

- Yes – Proceed to step 5.
- No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15

Step 5	Step ID 3770e	SRT
Check for deposits in the decomposition pipe • Turn the key switch OFF. • Engine off. • Remove the decomposition pipe from the vehicle. • Inspect for excessive DEF deposits. Are excessive deposits found inside the decomposition pipe? • Yes – Clean and reinstall the decomposition pipe - Proceed to step 15 • No – Proceed to step 6		

Step 6	Step ID 3770f	SRT
Inspect the DPF pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Inspect the DPF pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 7		

Step 7	Step ID 3770g	SRT
Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds.		

	• Use DAVIE to read the fault codes. Is fault code P3766 active? • Yes – Proceed to step 8 • No – Proceed to step 9		
	Step 8	Step ID 3770h	SRT
	Check the circuit response • Turn the key switch OFF. • Disconnect the DPF pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the DPF pressure sensor. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3765 active? • Yes – Proceed to step 14 • No – Proceed to step 9		
	Step 9	Step ID 3770i	SRT
	Inspect the EAS-3 unit and the harness connector pins • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Inspect the harness and EAS-3 unit connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damage to the connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible - Proceed to step 15 • No – Proceed to step 10		
	Step 10	Step ID 3770j	SRT
	Check for resistance in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for resistance in the circuit. • Measure the resistance of the DPF pressure sensor signal wire between the EAS-3 unit connector pin and the sensor connector pin. Is the resistance less than 10 ohms? • Yes – Proceed to step 11 • No – High resistance has been detected in the harness. Repair or replace the harness - Proceed to step 15		

	<table><tr><td>Step 11</td><td>Step ID 3770k</td><td>SRT</td></tr><tr><td colspan="3"> Check for a pin to ground short circuit • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15 </td></tr></table>	Step 11	Step ID 3770k	SRT	Check for a pin to ground short circuit • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
Step 11	Step ID 3770k	SRT					
Check for a pin to ground short circuit • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin to ground short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and ground. Is the resistance greater than 100k ohms? • Yes – Proceed to step 12 • No – A pin to ground short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15							
	<table><tr><td>Step 12</td><td>Step ID 3770l</td><td>SRT</td></tr><tr><td colspan="3"> Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15 </td></tr></table>	Step 12	Step ID 3770l	SRT	Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15		
Step 12	Step ID 3770l	SRT					
Check for a pin-to-pin short circuit in the harness • Turn the key switch OFF. • Disconnect the EAS-3 unit from the harness. • Disconnect the DPF pressure sensor from the harness. • Check for a pin-to-pin short circuit. • Measure the resistance between the EAS-3 unit connector DPF pressure sensor signal pin and all other pins in the harness. Is the resistance greater than 100k ohms? • Yes – Proceed to step 13 • No – A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 15							
	<table><tr><td>Step 13</td><td>Step ID 3770m</td><td>SRT</td></tr><tr><td colspan="3"> Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3770 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 15 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit. </td></tr></table>	Step 13	Step ID 3770m	SRT	Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3770 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 15 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit.		
Step 13	Step ID 3770m	SRT					
Check for an inactive fault code • Connect all components. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code P3770 inactive? • Yes – The removal and installation of the connector corrected the fault - Proceed to step 15 • No – Return to the troubleshooting steps - Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions on replacement of the EAS-3 unit.							
	<table><tr><td>Step 14</td><td>Step ID 3770n</td><td>SRT</td></tr><tr><td colspan="3"> Check the exhaust system for restrictions Check for restrictions in the exhaust system Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15 </td></tr></table>	Step 14	Step ID 3770n	SRT	Check the exhaust system for restrictions Check for restrictions in the exhaust system Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15		
Step 14	Step ID 3770n	SRT					
Check the exhaust system for restrictions Check for restrictions in the exhaust system Have any restrictions in the exhaust been identified? • Yes – Investigate and repair the cause of the high exhaust restriction. Proceed to step 15 • No – A damaged sensor has been detected. Replace the sensor. Proceed to step 15							

	Step 15	Step ID 3770o	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3770 inactive? • Yes – Proceed to step 16 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 16	Step ID 3770p	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3773

Code number	P3773										
Fault code description	SCR catalyst efficiency – Compensation level too high										
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –NMHC										
Description of component(s)	Not available/required for this code.										
Location of component(s)	Not available/required for this code.										
Diagnostic condition	This diagnostic has to meet specific engine and aftertreatment conditions to run and complete. NOx sensor data is gathered over varying engine speeds and loads. When enough data has been gathered, the diagnostic will run, make a pass/fail decision and begin to gather data again.										
Set condition of fault code	The EAS-3 ECU (D374) detects that the NOx conversion across the SCR catalyst is lower than expected.										
Reset condition of fault code	The fault changes to inactive immediately after the diagnostic runs and passes.										
Electrical diagram(s)	Not available/required for this code.										
Technical data	Not available/required for this code.										
Possible causes	• Troubleshoot all other active NOx sensor and DEF dosing system-related DTCs before diagnosing this fault. • Malfunctioning DEF dosing system. • Exhaust system leaks. • Malfunctioning SCR catalyst. • Degraded, diluted, or incorrect DEF. • DEF deposits in decomposition tube. • Malfunctioning NOx sensor before catalyst (F844). • Malfunctioning NOx sensor after catalyst (F843).										
Additional information	Engine torque is reduced.										
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <tr> <td>Step 1</td><td>Step ID 3773a</td><td>SRT</td></tr> <tr> <td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr> </table> <table border="1"> <tr> <td>Step 2</td><td>Step ID 3773b</td><td>SRT</td></tr> </table>		Step 1	Step ID 3773a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3773b	SRT
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Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.											
Step 2	Step ID 3773b	SRT									

	Visually inspect the associated components: • The SCR is not installed correctly • The SCR type is not correct for the application • The ACM connections are damaged or disconnected Was there evidence of any of the above? • No – Proceed to step 3. • Yes – Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, proceed to step 3.		
	Step 3	Step ID 3773c	SRT
	Ancillary Test: DPF-SCR Leak • Perform the prescribed testing to determine if there are any exhaust leaks in the aftertreatment system. • Does the test fail to complete or result in a failed state? • No – Continue to the next step in the troubleshooting process. • Yes – Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 4.		
	Step 4	Step ID 3773d	SRT
	Visual Inspection: Decomposition Tube Remove the decomposition tube and visually inspect the inside DEF crystallization depositions: Was there evidence of any of the above? • No – Continue to the next step in the troubleshooting process. • Yes – Clean the decomposition tube, then reinstall. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 5.		
	Step 5	Step ID 3773e	SRT
	Visual Inspection: DEF Tank Inspect the Diesel Exhaust Fluid Tank for signs of contamination or debris. Use a Diesel Exhaust Fluid Refractometer to check the quality of the Urea. • The measured urea quality should be 32.5% Were there any signs of contamination or debris inside the DEF tank, or was the measured urea quality not at the specified value? • No: Continue to the next step in the troubleshooting process. • Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved.		

	• Yes – If this related fault is still active, proceed to step 6.						
	<table><tr><td>Step 6</td><td>Step ID 3773f</td><td>SRT</td></tr><tr><td colspan="3"> DAVIE Direct Test: DEF Pump Module Override Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow (Urea_Dose_Override_Test_Dosing_Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 7. </td></tr></table>	Step 6	Step ID 3773f	SRT	DAVIE Direct Test: DEF Pump Module Override Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow (Urea_Dose_Override_Test_Dosing_Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 7.		
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	<table><tr><td>Step 7</td><td>Step ID 3773g</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 7	Step ID 3773g	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 7	Step ID 3773g	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair, perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.						
	Back to Index						

P3774

Code number	P3774										
Fault code description	SCR catalyst efficiency – Compensation level too high										
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –NMHC										
Description of component(s)	Not available/required for this code.										
Location of component(s)	Not available/required for this code.										
Diagnostic condition	This diagnostic has to meet specific engine and aftertreatment conditions to run and complete. NOx sensor data is gathered over varying engine speeds and loads. When enough data has been gathered, the diagnostic will run, make a pass/fail decision and begin to gather data again.										
Set condition of fault code	The EAS-3 ECU (D374) detects that the NOx conversion across the SCR catalyst is lower than expected.										
Reset condition of fault code	The fault changes to inactive immediately after the diagnostic runs and passes.										
Electrical diagram(s)	Not available/required for this code.										
Technical data	Not available/required for this code.										
Possible causes	• Troubleshoot all other active NOx sensor and DEF dosing system-related DTCs before diagnosing this fault. • Malfunctioning DEF dosing system. • Exhaust system leaks. • Malfunctioning SCR catalyst. • Degraded, diluted, or incorrect DEF. • DEF deposits in decomposition tube. • Malfunctioning NOx sensor before catalyst (F844). • Malfunctioning NOx sensor after catalyst (F843).										
Additional information	Engine torque is reduced.										
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin-out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <tr> <td>Step 1</td><td>Step ID 3774a</td><td>SRT</td></tr> <tr> <td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr> </table> <table border="1"> <tr> <td>Step 2</td><td>Step ID 3774b</td><td>SRT</td></tr> </table>		Step 1	Step ID 3774a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3774b	SRT
Step 1	Step ID 3774a	SRT									
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.											
Step 2	Step ID 3774b	SRT									

	Visually inspect the associated components: • The SCR is not installed correctly • The SCR type is not correct for the application • The ACM connections are damaged or disconnected Was there evidence of any of the above? • No – Proceed to step 3. • Yes – Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, proceed to step 3.			
	<table><tr><td>Step 3</td><td>Step ID 3774c</td><td>SRT</td></tr></table> Ancillary Test: DPF-SCR Leak Perform the prescribed testing to determine if there are any exhaust leaks in the aftertreatment system. Does the test fail to complete or result in a failed state? • No – Continue to the next step in the troubleshooting process. • Yes – Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 4.	Step 3	Step ID 3774c	SRT
Step 3	Step ID 3774c	SRT		
	<table><tr><td>Step 4</td><td>Step ID 3774d</td><td>SRT</td></tr></table> Visual Inspection: Decomposition Tube Remove the decomposition tube and visually inspect the inside DEF crystallization depositions: Was there evidence of any of the above? • No – Continue to the next step in the troubleshooting process. • Yes – Clean the decomposition tube, then reinstall. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 5.	Step 4	Step ID 3774d	SRT
Step 4	Step ID 3774d	SRT		
	<table><tr><td>Step 5</td><td>Step ID 3774e</td><td>SRT</td></tr></table> Visual Inspection: DEF Tank Inspect the Diesel Exhaust Fluid Tank for signs of contamination or debris. Use a Diesel Exhaust Fluid Refractometer to check the quality of the Urea. • The measured urea quality should be 32.5% Were there any signs of contamination or debris inside the DEF tank, or was the measured urea quality not at the specified value? • No: Continue to the next step in the troubleshooting process. • Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved.	Step 5	Step ID 3774e	SRT
Step 5	Step ID 3774e	SRT		

	• Yes – If this related fault is still active, proceed to step 6.						
	<table><tr><td>Step 6</td><td>Step ID 3774f</td><td>SRT</td></tr><tr><td colspan="3"> DAVIE Direct Test: DEF Pump Module Override Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow (Urea_Dose_Override_Test_Dosing_Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 7. </td></tr></table>	Step 6	Step ID 3774f	SRT	DAVIE Direct Test: DEF Pump Module Override Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow (Urea_Dose_Override_Test_Dosing_Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 7.		
Step 6	Step ID 3774f	SRT					
DAVIE Direct Test: DEF Pump Module Override Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow (Urea_Dose_Override_Test_Dosing_Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • No – If this related fault is no longer active, then this issue has been resolved. • Yes – If this related fault is still active, proceed to step 7.							
	<table><tr><td>Step 7</td><td>Step ID 3774g</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 7	Step ID 3774g	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 7	Step ID 3774g	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair, perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.						
	Back to Index						

P3776

Code number	P3776								
Fault code description	Diesel Oxidation Catalyst (DOC) efficiency - Data valid but too low								
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter								
Description of component(s)	Not available/required for this code.								
Location of component(s)	Not available/required for this code.								
Diagnostic condition	Active regeneration of the DPF must be occurring before the diagnostic will run.								
Set condition of fault code	The EAS-3 ECU (D374) has calculated DOC efficiency to be less than required to complete regeneration successfully.								
Reset condition of fault code	Perform the 'Aftertreatment DPF regeneration test' in DAVIE.								
Electrical diagram(s)	Not available/required for this code.								
Technical data	Not available/required for this code.								
Possible causes	• Malfunctioning ECU DOC DPF temperature sensors (D418). • Soot clogging the front face of the DOC. • Engine oil or fuel contaminating the DOC. • A cracked or contaminated DOC. • A malfunction in the aftertreatment fuel injection system. • An exhaust system leaking between the turbocharger and DOC.								
Additional information	• The temperature increase of the aftertreatment catalyst is lower than expected. • Active DPF regeneration is disabled. • The aftertreatment system is monitored by temperature sensors SCR catalyst ECU (D419). The exhaust gas temperature sensor before DOC (F838) and exhaust gas temperature sensor before DPF (F839) are used to monitor the temperature differential across the catalyst during active regeneration of the aftertreatment system.								
Diagnostic Step-by-Step	  Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3776a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table>			Step 1	Step ID 3776a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		
Step 1	Step ID 3776a	SRT							
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.									

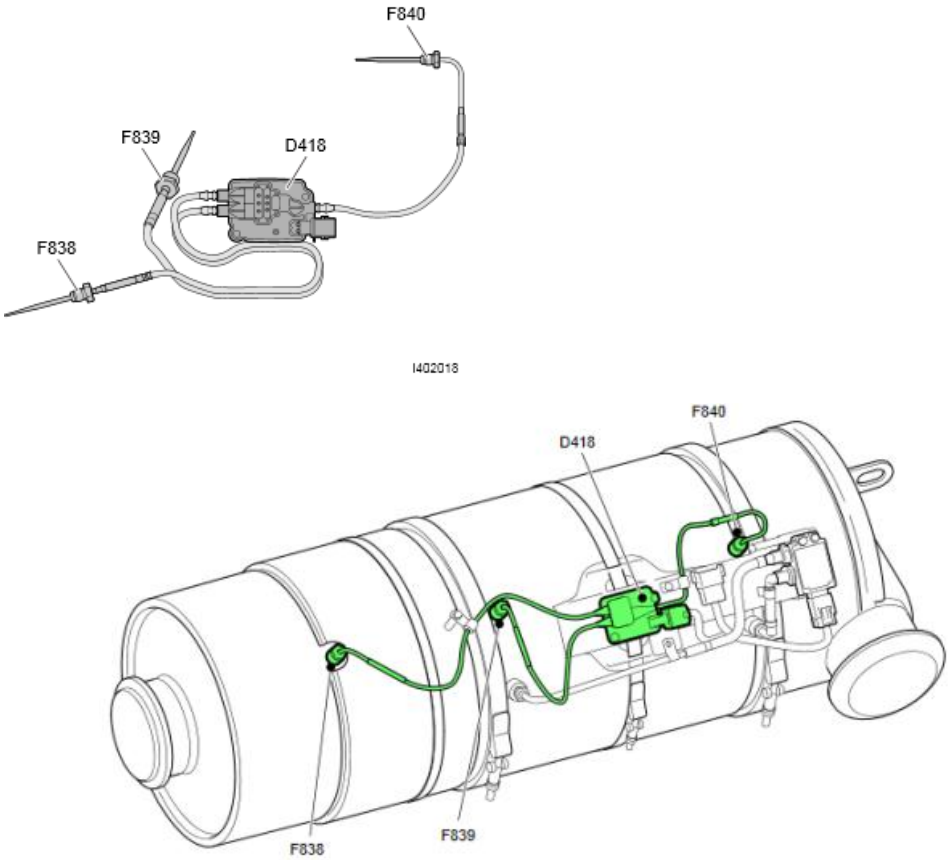
	Step 2	Step ID 3776b	SRT
	Visually inspect the exhaust and aftereffects systems for any of the following: • Broken or missing clamps between the Turbo and DOC inlet • The DOC inlet is properly installed • Verify proper exhaust routing and parts • The Fuel Doser is properly installed and connected • Signs of tampering to the aftertreatment system Was there evidence of any of the above issues? • No: Proceed to step 3. • Yes: Adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, Proceed to step 3		
	Step 3	Step ID 3776c	SRT
	Visual inspection for exhaust leaks With the brakes set, start the engine and allow it to idle. Using a squirt bottle with soapy water, spray every joint and flex pipe between the Turbo and DOC inlet and observe for signs of excessive bubbling, particularly between the BPV and DOC inlet. Was there evidence exhaust leaks? • No: Proceed to step 4. • Yes: Adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, Proceed to step 4		
	Step 4	Step ID 3776d	SRT
	Monitor Aftertreatment temp sensors: Monitor all aftertreatment temperature sensors: • Allow the engine to idle for a minimum of 10 minutes to allow the Temperature Sensors to stabilize • While monitoring no sensor should vary by more than 75°F (24°C) Do any monitored values vary by more than 75°F (24°C)? • No: Proceed to step 5. • Yes: Clean adjust, repair or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, Proceed to step 5		
	Step 5	Step ID 3776e	SRT
	• Inspect the Fuel Dosing System • Check for Fault Codes • Turn the key switch ON.		

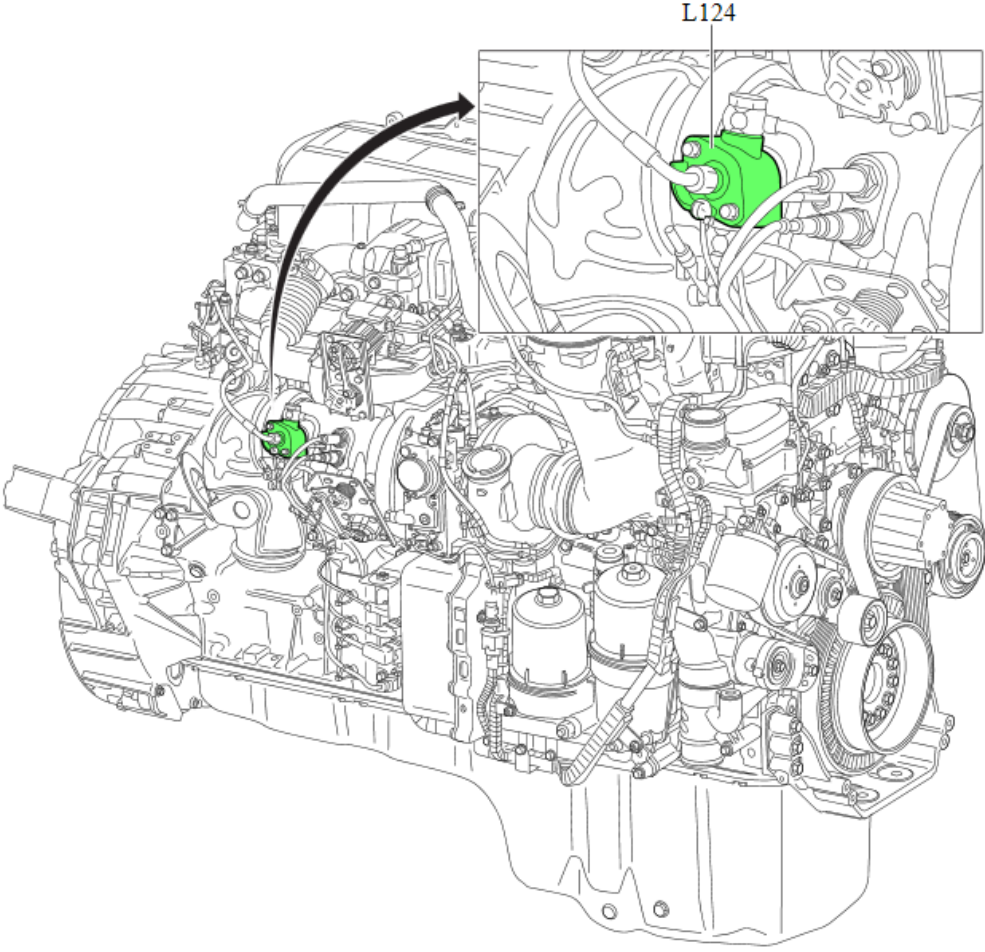
Use DAVIE to check for fault codes. Are fault codes related to the Fuel Dosing System? • Yes – Proceed to step 6 • No – Proceed to step 9		
Step 6	Step ID 3776f	SRT
Inspect the fuel dosing module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing system override test' and the 'dosing module leak test'. For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? • Yes – Proceed to step 7 • No – Replace the fuel dosing module – Proceed to step 7		
Step 7	Step ID 3776g	SRT
Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault related to “fuel dosing module” inactive? • Yes – Proceed to step 8 • No – Proceed to step 9 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
Step 8	Step ID 3776h	SRT
Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • No – Proceed to step 9 • Yes – Repair complete		
Step 9	Step ID 3776i	SRT
Visual inspection: DOC inlet, DPF inlet Remove the DOC inlet and visually inspect the catalyst for any of the following: • Signs of damage to the catalyst cells, including cracks, broken pieces, or foreign objects. • Check for excessive soot accumulation • Check for oil contamination • Check for soot plugging; 50% or more of the cells in the catalyst being plugged		

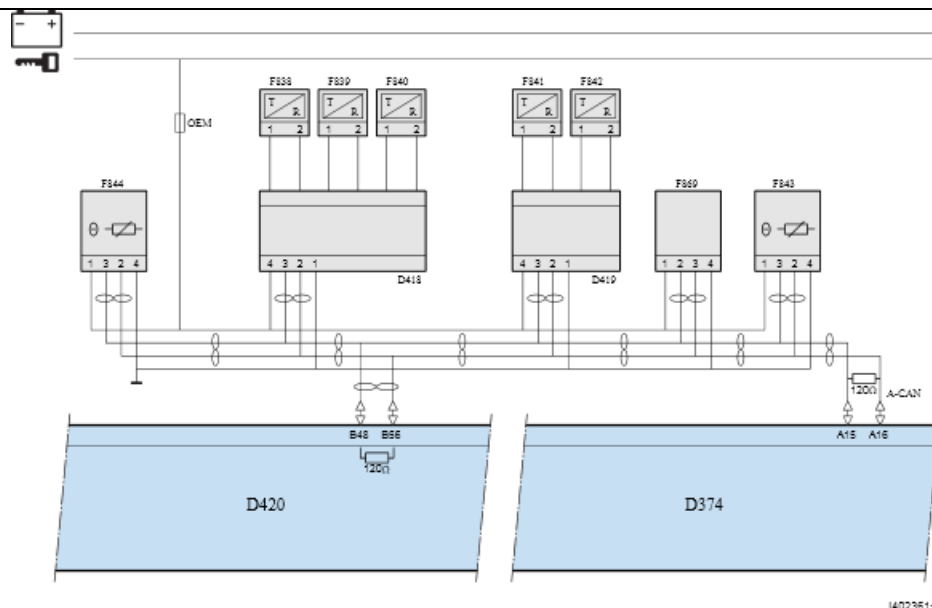
	Was there evidence of any of the above? • No: Proceed to step 10 • Yes: Adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, Proceed to step 10			
	<table><tr><td>Step 10</td><td>Step ID 3776j</td><td>SRT</td></tr></table> Visual inspection: Turbo outlet Check for oil, coolant, or fuel contamination, indicating a problem with the turbocharger. Was there evidence of any of the above? • No: Proceed to step 11 • Yes: Adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step in the troubleshooting process.	Step 10	Step ID 3776j	SRT
Step 10	Step ID 3776j	SRT		
	<table><tr><td>Step 11</td><td>Step ID 3776k</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 11	Step ID 3776k	SRT
Step 11	Step ID 3776k	SRT		
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.			
	Back to Index			

P3778

Code number	P3778
Fault code description	Diesel Oxidation Catalyst (DOC) -- Not detected
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – NMHC Freeze frame type –PM filter
Description of component(s)	DOC/DPF temperature sensors ECU (D418) The exhaust gas temperature is measured at three different positions in the DOC/DPF unit. • The temperature sensors are connected to the DOC/DPF temperature sensors ECU (D418). • The DOC/DPF temperature sensors ECU (D418) transmits the temperature sensor values to the A-CAN. • The temperature sensors cannot be disconnected or replaced separately from the DOC/DPF temperature sensors ECU (D418). • The temperature sensors are thermocouple sensors. Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DPF (F839). • Determines whether a regeneration can be started. • Calculates the amount of fuel that must be injected. • Determines whether the NOx sensor before the catalyst must be heated to the operating temperature. • Warning activation if the exhaust gas temperature before the DOC is too high. Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect on the system: • Calculates the temperature rise over the DOC, in combination with the signal of the exhaust gas temperature sensor before DOC (F838). • Determines whether a regeneration is started. • Controls the regeneration temperature. • Calculates the amount of fuel that must be injected. • Diagnoses DOC efficiency.

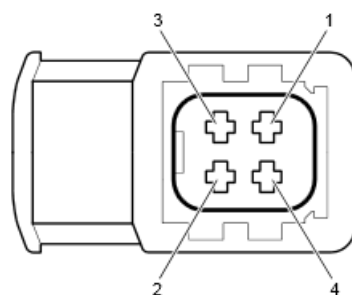
	- Warning activation if the exhaust gas temperature before the DPF is too high. Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature after the DPF. Effect on the system: - Protect the DPF against temperatures that are too high. - Warning activation if the exhaust gas temperature after the DPF is too high. Fuel Dosing Valve (L124) During an active or stationary DPF regeneration, the fuel dosing valve doses fuel into the exhaust system, before the Diesel Oxidation Catalyst. - The fuel dosing valve is actuated by a PWM signal. - The fuel dosing valve is connected to the engine cooling system to limit the temperature of the nozzle. - The longer the solenoid is activated, the more fuel is injected.
Location of component(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840)  The diagram illustrates the installation of the DOC/DPF temperature sensors and the fuel dosing valve. The top part shows a close-up of the ECU (D418) with its electrical connectors (F838, F839, F840) and the fuel dosing valve (L124). The bottom part shows the ECU (D418) mounted on the DPF unit, with the sensors (F838, F839, F840) and the fuel dosing valve (L124) connected to it. The sensors are labeled F838, F839, and F840, and the ECU is labeled D418. The fuel dosing valve is labeled L124. The diagram is identified by the number 1402018. Fuel dosing valve (L124)

	
Diagnostic condition	This diagnostic runs during active regeneration of the DPF, when fuel is dosed into the exhaust system.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature increase between the exhaust gas temperature sensor before DOC (F838) and the exhaust gas temperature sensor before DPF (F839) is too low during an active regeneration.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	DOC/DPF temperature sensors ECU (D418, with F838, F839, and F840)



- D374 EAS-3 ECU
- D418 DOC/DPF temperature sensors ECU
- D419 Catalytic convertor temperature sensors ECU
- D420 PCI ECU
- F838 Sensor, exhaust temperature before DOC
- F839 Sensor, exhaust temperature before DPF
- F840 Sensor, exhaust temperature after DPF
- F841 Sensor, exhaust temperature before catalyst
- F842 Sensor, exhaust temperature after catalyst
- F843 NOx sensor after catalyst
- F844 NOx sensor before catalyst
- F869 NH3 sensor

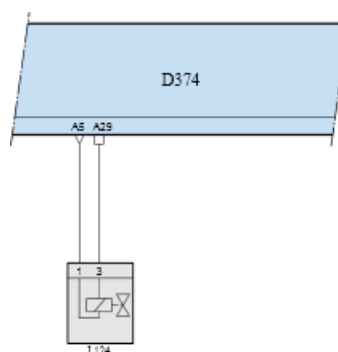
D420	D418	Function
A15	3	A-CAN High
A16	2	A-CAN Low
	1	Ground
	4	Power supply



E504061

Wiring harness connector D418, front view

Fuel dosing valve (L124)

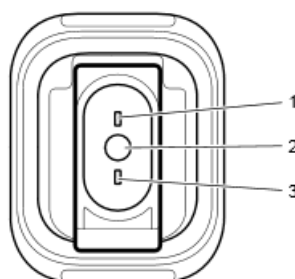


I401851

D374 EAS-3 ECU

L124 fuel dosing valve

D374	L124	Function
A5	1	Signal, fuel dosing valve
A29	3	Ground, fuel dosing valve



E504063

Component connector L124 front view

Technical data

Component & wiring check, DOC/DPF temperature sensors ECU (D418)

	Preparation • Disconnect connector D418 • Ignition switched to ON • Measure on the connector D418 <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>4</td><td>1</td><td>Ubat</td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5 V</td><td>Switch on all consumers</td></tr></table> Component & wiring check, A-CAN Preparation • Ignition switched to OFF • Disconnect connector D418 • Measure on the connector D418 <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td></td></tr></table> Component check, fuel dosing valve (L124) Preparation • Key off the ignition • Remove connector L124 • Measure on the fuel dosing valve L124 <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>1</td><td>3</td><td>0.5–2.0 Ω</td><td>at 20°C</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	4	1	Ubat		1	Battery negative pole	< 0.5 V	Switch on all consumers	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	3	± 60 Ω		Pin (+ probe)	Pin (- probe)	Value	Additional information	1	3	0.5–2.0 Ω	at 20°C
Pin (+ probe)	Pin (- probe)	Value	Additional information																										
4	1	Ubat																											
1	Battery negative pole	< 0.5 V	Switch on all consumers																										
Pin (+ probe)	Pin (- probe)	Value	Additional information																										
2	3	± 60 Ω																											
Pin (+ probe)	Pin (- probe)	Value	Additional information																										
1	3	0.5–2.0 Ω	at 20°C																										
Possible causes	• A damaged or face-plugged Diesel Oxidation Catalyst (DOC). • Poor fuel quality.																												
Additional information	 First troubleshoot other DTCs related to EAS-3 fuel dosing system. Check for other related engine DTCs before troubleshooting this DTC. • The temperature increase of the aftertreatment Diesel Oxidation Catalyst (DOC) is lower than expected, compared with the quantity of fuel injected by the fuel dosing module (L124). • Active DPF regeneration is disabled.																												

	• If the DTC is active, fuel dosing into the exhaust system is disabled. • The exhaust gas temperature sensor before DOC (F838) and exhaust gas temperature sensor before DPF (F839) are used to monitor the temperature differential across the DOC during active regeneration of the aftertreatment system.														
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Investigate Related DTCs Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC. <table border="1"> <tr> <th colspan="2">Step 1A Investigate related DTCs</th></tr> <tr> <td colspan="2">Action</td></tr> <tr> <td colspan="2">1. Use DAVIE Diagnostics to perform a Quick Check for current related DTCs.</td></tr> <tr> <td colspan="2">Are these or any other related DTCs active? P3750; P3751; P3752; P3753; P3754; P3755; P3831; P3832; P3833; P3834; P3835</td></tr> <tr> <td>Yes</td><td>No</td></tr> <tr> <td>Refer to the troubleshooting information for these DTCs before performing this procedure.</td><td></td></tr> <tr> <td></td><td>Go to step 2A</td></tr> </table> Step 2 Fuel Dosing Module (L124) Checks	Step 1A Investigate related DTCs		Action		1. Use DAVIE Diagnostics to perform a Quick Check for current related DTCs.		Are these or any other related DTCs active? P3750; P3751; P3752; P3753; P3754; P3755; P3831; P3832; P3833; P3834; P3835		Yes	No	Refer to the troubleshooting information for these DTCs before performing this procedure.			Go to step 2A
Step 1A Investigate related DTCs															
Action															
1. Use DAVIE Diagnostics to perform a Quick Check for current related DTCs.															
Are these or any other related DTCs active? P3750; P3751; P3752; P3753; P3754; P3755; P3831; P3832; P3833; P3834; P3835															
Yes	No														
Refer to the troubleshooting information for these DTCs before performing this procedure.															
	Go to step 2A														

	Step 2A Visual inspection; connections and wiring, fuel dosing module (L124)	
	Action	
	1. Set the ignition switch to OFF. 2. Disconnect the corresponding connectors for the fuel dosing module (L124) and EAS-3 ECU (D374). 3. Visually inspect associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Pushed back or expanded pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • Missing or damage connector seals	
	Was there evidence of any of the above?	
	Yes	No
	Correct any issues found: clean connectors with an electrical contact cleaner, and repair or replace any damaged connections or connectors as needed. Refer to step 5A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 2B	Go to step 2B
	Step 2B DAVIE test, check the fuel dosing module	
	Action	
	1. Set the ignition switch to OFF. 2. Remove the fuel dosing module (L124) as outlined in the initial steps of the maintenance procedure, <u>"check leakage dosing module, fuel (Aftertreatment, eng.)"</u> job ID 58726. 3. Check that the fuel line to the fuel dosing module is not kinked or blocked: Blow shop air through the fuel line to the fuel dosing module to confirm there is no internal blockage. Reconnect the fuel line to the fuel dosing module (L124) when finished. 4. Place the fuel dosing module (L124) into a measuring container with a volume of at least 0.5 liters (0.13 gallons), then cover the container. 5. Set the ignition switch to ON.	

	6. Using DAVIE, run the test, “check the fuel dosing module.”	
	Did the test fail to complete or result in a failed state?	
	Yes	No
	Fuel dosing module leak test failed. Replace the fuel dosing module. Refer to step 5A to perform the corresponding repair verification cycles and rechecks.	
	Go to step 3A	Go to step 2C
	Step 2C DAVIE test, check the fuel dosing system	
	Action	
	1. Set the ignition switch to OFF. 2. If the fuel dosing module is not already removed, perform the initial steps outlined in <u>“check fuel delivery dosing module, fuel (Aftertreatment, eng.)” (job ID 59678)</u> to remove the fuel dosing module (L124), and place it into a measuring container with a volume of at least 0.2 gallons (1 liter), then cover the container. 3. Set the ignition switch to ON. 4. Using DAVIE, perform the test procedure, “check the fuel dosing system” (DEF pump module override).	
	Did the test fail to complete or result in a failed state?	
	Yes	No
	Possible issue with the fuel module injector tip.	Possible DOC damage or blocking.
	Go to step 2D	Go to step 3A
	Step 2D Visual inspection, fuel dosing module injector tip	
	Action	
	1. Set the ignition switch to OFF. 2. Inspect the fuel dosing module injector tip for any signs of the following: • Buildup of carbon	

	Corrosion	
	Was there evidence of any of the above?	
	Yes	No
	If there is carbon buildup on the injector tip, perform the maintenance procedure, "clean dosing module, fuel (Aftertreatment, eng.)" job ID 67627. If the injector shows signs of corrosion, replace the fuel dosing module.	
	Go to step 2E	Go to step 3A
	Step 2E DAVIE test, check the fuel dosing module	
	Action - Set the ignition switch to OFF. - Remove the fuel dosing module (L124) as outlined in the initial steps of the maintenance procedure, <u>"check leakage dosing module, fuel (Aftertreatment, eng.)" job ID 58726.</u> - Check that the fuel line to the fuel dosing module is not kinked or blocked: Blow shop air through the fuel line to the fuel dosing module to confirm there is no internal blockage. Reconnect the fuel line to the fuel dosing module (L124) when finished. - Place the fuel dosing module (L124) into a measuring container with a volume of at least 0.5 liters (0.13 gallons), then cover the container. - Set the ignition switch to ON. - Using DAVIE, run the test, "check the fuel dosing module."	
	Did the test fail to complete or result in a failed state?	
	Yes	No
	Fuel dosing module leak test failed. Replace the fuel dosing module. Refer to step 5A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3A	Go to step 2F

Step 2F DAVIE test, check the fuel dosing system

Action

1. Set the ignition switch to OFF.
2. If the fuel dosing module is not already removed, perform the initial steps outlined in "check fuel delivery dosing module, fuel (Aftertreatment, eng.)" (job ID 59678) to remove the fuel dosing module (L124), and place it into a measuring container with a volume of at least 0.2 gallons (1 liter), then cover the container.
3. Set the ignition switch to ON.
4. Using DAVIE, perform the test procedure, "check the fuel dosing system" (DEF pump module override).

Did the test fail to complete or result in a failed state?

Yes

Failed fuel dosing module. Replace the fuel dosing module.
Refer to step 5A to perform the corresponding repair verification cycles and rechecks.

No

Possible DOC damage or blocking

If this DTC is still present, go to step 3A

Go to step 3A

Step 3 Diesel Oxidation Catalyst (DOC) Checks

Step 3A Visual inspection, DOC

Action

1. Perform the procedure, "check Diesel Oxidation Catalyst, (DOC) (Diesel Partic. Filter)" (job ID 59162), to check the DOC for signs of damage, contamination, or blockage.

Is DOC cleaning or replacement required as prescribed by this procedure?

Yes

Correct any issues found. Clean the DOC as outlined in the maintenance procedure, "check/clean Diesel Oxidation Catalyst" (job ID 80286). Replace the DOC as required.
Refer to step 5A to perform the corresponding repair verification cycles and rechecks.

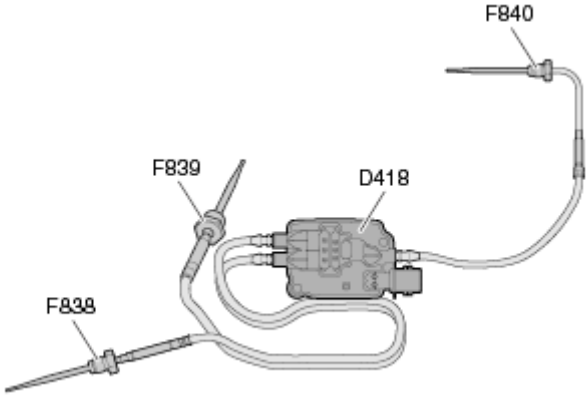
No

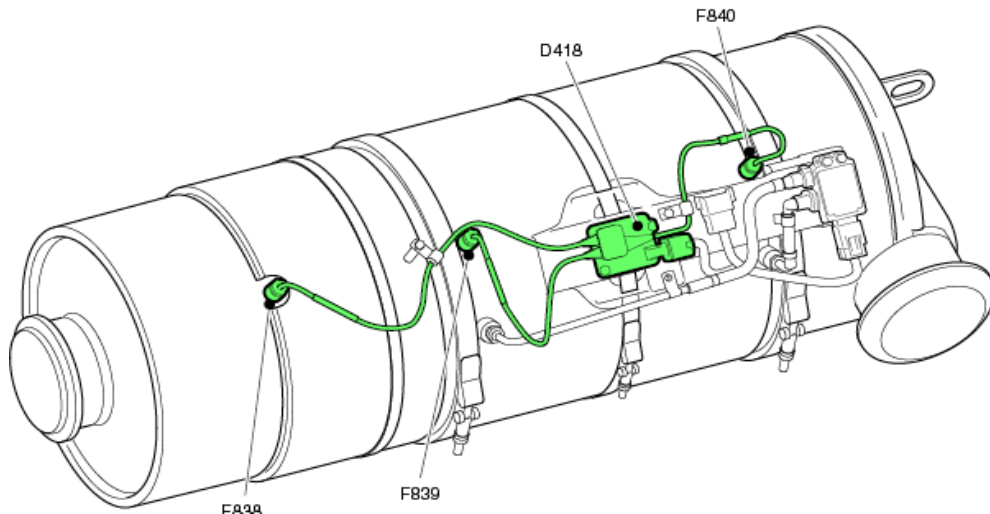
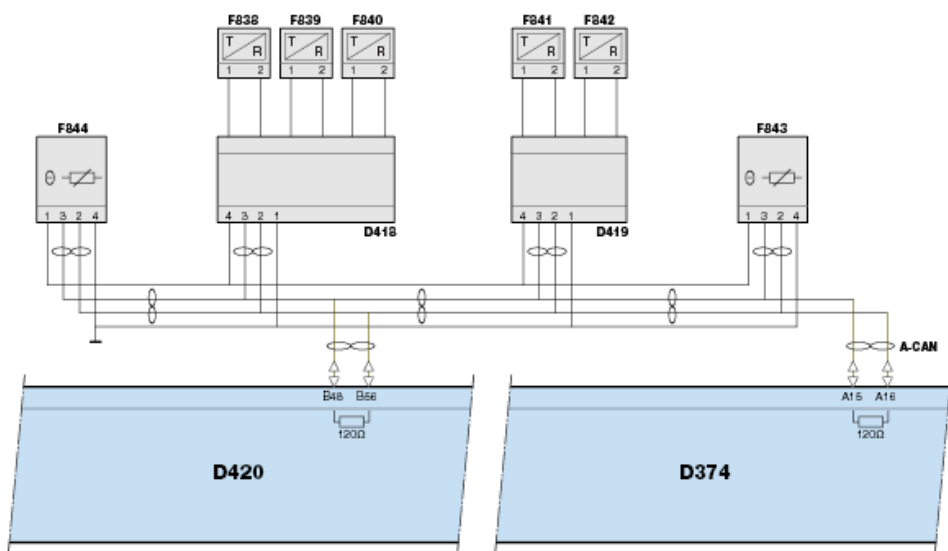
	<table border="1"> <tr> <td>If this DTC is still present, go to step 4A</td><td>Go to step 4A</td></tr> </table> Step 4 Diesel Particulate Filter (DPF) Checks <table border="1"> <tr> <td colspan="2">Step 4A Visual inspection, DPF</td></tr> <tr> <td colspan="2"> Action 1. Check the DPF for signs of damage or contamination as outlined in the maintenance procedure, "<u>check DPF element (Diesel Partic. Filter),</u>" job ID <u>66938</u>. </td></tr> <tr> <td colspan="2">Is DPF cleaning or replacement required as prescribed by this procedure?</td></tr> <tr> <td>Yes</td><td>No</td></tr> <tr> <td> Correct any issues found. If cleaning is required; clean per "<u>check DPF Element, (Diesel Partic. Filter); Cleaning DPF</u>" (job ID 66938). Replace the DPF as required. Refer to step 5A to perform the corresponding repair verification cycles and rechecks. </td><td></td></tr> <tr> <td>If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.</td><td>If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.</td></tr> </table> Step 5 Repair Verification <table border="1"> <tr> <td colspan="2">Step 5A Repair verification cycles</td></tr> <tr> <td colspan="2"> Perform these repair verification cycles following any corrective actions taken; to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.  Before beginning these repair verification cycles; use the DAVIE Diagnostics; Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs. </td></tr> <tr> <td colspan="2"> Action  This test can take up to an hour to complete. 1. DPF & DOC Start the truck. Using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE and perform a stationary DPF regeneration. </td></tr> </table>	If this DTC is still present, go to step 4A	Go to step 4A	Step 4A Visual inspection, DPF		Action 1. Check the DPF for signs of damage or contamination as outlined in the maintenance procedure, "<u>check DPF element (Diesel Partic. Filter),</u>" job ID <u>66938</u>.		Is DPF cleaning or replacement required as prescribed by this procedure?		Yes	No	Correct any issues found. If cleaning is required; clean per "<u>check DPF Element, (Diesel Partic. Filter); Cleaning DPF</u>" (job ID 66938). Replace the DPF as required. Refer to step 5A to perform the corresponding repair verification cycles and rechecks.		If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	Step 5A Repair verification cycles		Perform these repair verification cycles following any corrective actions taken; to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.  Before beginning these repair verification cycles; use the DAVIE Diagnostics; Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.		Action  This test can take up to an hour to complete. 1. DPF & DOC Start the truck. Using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE and perform a stationary DPF regeneration.	
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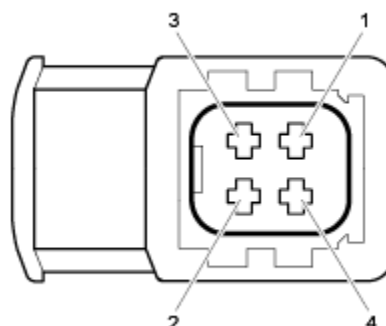
	Record the data during the regeneration process. Monitor the temperature difference between the DPF inlet (F839) and DOC inlet (F838) sensors to ensure they are reading greater than 35°C (95°F).	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed; then re-run. For additional assistance; contact the PACCAR Engine Support Center.
	Go to step 5B	
Step 5B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors		
Action Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. - Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.” A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is “Not ready,” continue to action step 2. - View the DTC overview display, and confirm that P3778 has been cleared.		
Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3778 been cleared?		
Yes		No
Problem resolved. No further actions.		Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 5A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.

	Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
	Back to Index

P3779

Code number	P3779
Fault code description	Exhaust temperature before DPF - Data valid but too high , least severe
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 - Exhaust gas temperature sensor before DOC (F838) - Exhaust gas temperature sensor before DPF (F839) - Exhaust gas temperature sensor after DPF (F840) General: - Thermocouple sensors. - The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). - The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838): - Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system: - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) - Determines if a regeneration can be started - Calculates the amount of fuel that must be injected - Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839): - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) - Determines whether regeneration has started

	- Controls the regeneration temperature - Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840): - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine runs.
Set condition of fault code	The exhaust gas temperature sensor before DPF (F839) reading exceeds 675°C [1247°F] for 5 seconds.
Reset condition of fault code	This fault becomes inactive immediately after the after treatment temperatures drop below the warning limit and will likely be inactive when the vehicle is in the workshop.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Ignition keyed on [68°C]
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

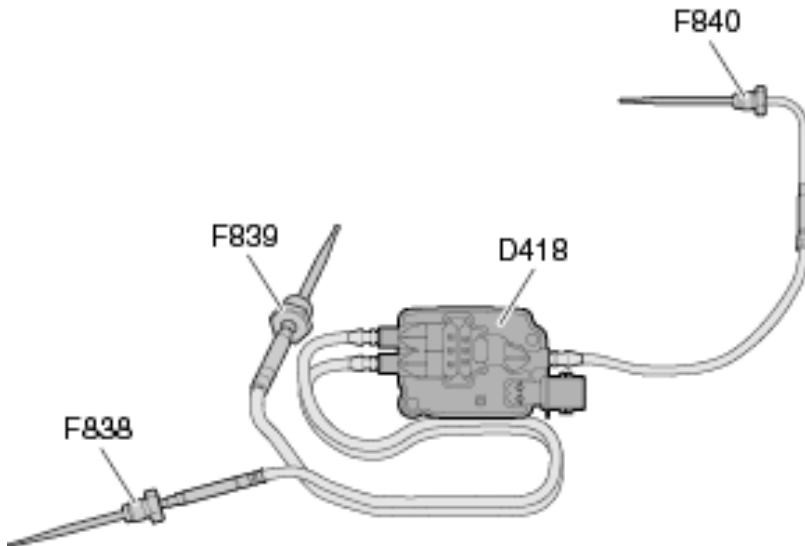
- Excessive engine oil introduced into the exhaust system from the engine.
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned fuel to enter the exhaust system.

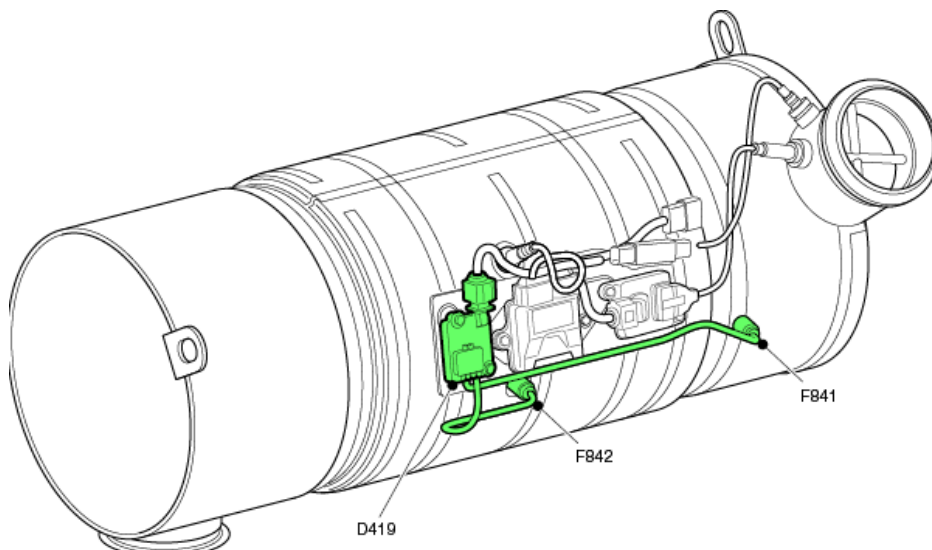
	- Excessive amount of fuel entering the exhaust system. - Malfunctioning fuel dosing module (L124). - Malfunctioning fuel pressure sensor inside the fuel intake module (L135). - Perform the 'Fuel dosing override test' with DAVIE.												
Additional information	Hydrocarbon injection into the after treatment system is disabled.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to electrical components  - This troubleshooting tree is based on the assumption that supply power and ground to the PCI are functioning properly. - Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data in Rapido. - It is necessary to exit the 'active errors' screen in DAVIE and run the diagnostic test again to identify changes in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive codes. Refer to the 'possible causes' section in Rapido. <table><tr><td>Step 1</td><td>Step ID 3779a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code related to Exhaust temperature before DOC sensor, Fuel intake module active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3779b</td><td>SRT</td></tr><tr><td colspan="3"> Check the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 6 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. </td></tr></table>	Step 1	Step ID 3779a	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code related to Exhaust temperature before DOC sensor, Fuel intake module active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2			Step 2	Step ID 3779b	SRT	Check the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 6 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors.		
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	No – Proceed to step 3		
	Step 3	Step ID 3779c	SRT
	Check the Fuel Dosing Module - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? - Yes – Proceed to step 4 - No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6		
	Step 4	Step ID 3779d	SRT
	Inspect the DOC - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 5 - No – Proceed to step 5		
	Step 5	Step ID 3779e	SRT
	Check the DOC for cracks in the cell wall - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? - Yes – Replace the DOC - Proceed to step 6 - No – This fault code can also be caused by engine failure. Proceed to step 6		
	Step 6	Step ID 3779f	SRT
	Clear the Fault Code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust temperature before DPF sensor inactive? - Yes – Proceed to step 5 - No – Return to the troubleshooting steps. Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 7	Step ID 3779g	SRT
	Clear the inactive fault codes		

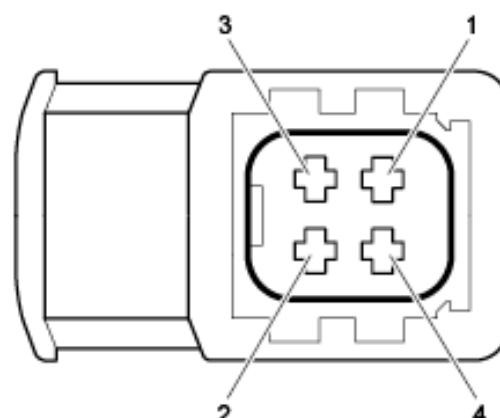
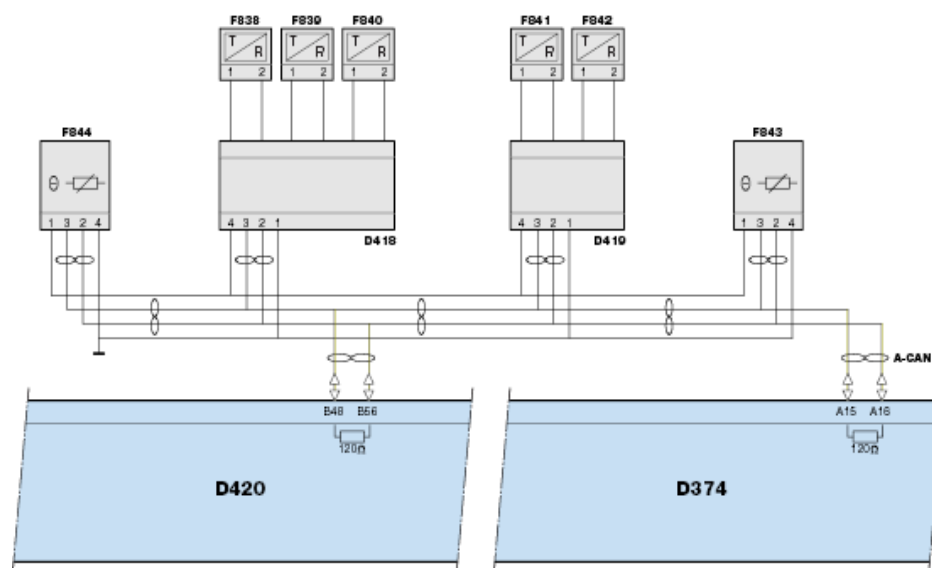
	• Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	
Verification Drive Cycle	Not available/required for this code.	
	Back to Index	

P3780

Code number	P3780
Fault code description	Exhaust temperature before DPF – Data valid but too high, most severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 • ECU DOC-DPF temperature sensors (D418) • Exhaust gas temperature sensor before DOC (F838) • Exhaust gas temperature sensor before DPF (F839) • Exhaust gas temperature sensor after DPF (F840) General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838) Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal

	of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature • Calculates the amount of fuel that must be injected • Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	 The diagram shows a cylindrical Diesel Particulate Filter (DPF) with various sensors and components. A green line highlights the sensor assembly. Labels point to specific components: D419 (a green sensor housing), F842 (a sensor probe), and F841 (a sensor probe). The DPF has a circular access panel on the right side.
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • Active DPF regeneration is also occurring.
Set condition of fault code	EAS-3 ECU (D374) detects that the exhaust gas temperature sensor before DOC 800°C [1472°F] reading is higher than 800°C for more than 20 seconds, or the temperature differential across the DOC is higher than 500°C [932°F] for more than 120 seconds.
Reset condition of fault code	This DTC becomes inactive immediately after the aftertreatment temperatures drop below the warning limit and will likely be inactive when the vehicle is in the workshop

Electrical diagram(s)



Wiring harness connector D418 front view

D374 EAS-3 ECU
D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition

	4 1 Ubat 1 Battery negative pole >0.5 V Switch all consumers on Component & wiring check, A-CAN Preparation - Ignition switched off. - Disconnect connector D418. - Measure on connector D418. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	3	± 60 Ω					
Pin (+ probe)	Pin (- probe)	Value	Condition										
2	3	± 60 Ω											
Possible causes	- Excessive engine oil introduced into the exhaust system from the engine. - A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned fuel to enter the exhaust system. - Excessive amount of fuel entering the exhaust system. - Malfunctioning fuel dosing module (L124). - Malfunctioning fuel pressure sensor inside the fuel intake module (L135). - Perform the 'Fuel dosing override test' with DAVIE.												
Additional information	- Active DPF regeneration is disabled. - A message to immediately turn off engine is displayed to the driver.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - Disconnecting the EAS connectors during the troubleshooting process causes multiple errors. - For specific electrical component information and pin out locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational and mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3780a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3780b</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module </td></tr></table>	Step 1	Step ID 3780a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3780b	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module		
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Step 2	Step ID 3780b	SRT											
Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module													

- Yes – Proceed with the appropriate fault code
- No – Proceed to step 3

Step3	Step ID 3780c	SRT

Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 4		

Step 4	Step ID 3780d	SRT

Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 7		

Step 5	Step ID 3780e	SRT

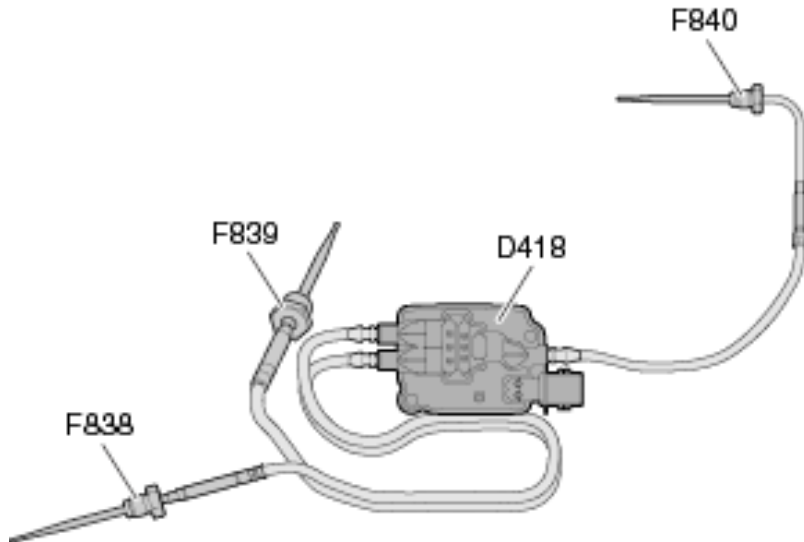
Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6		

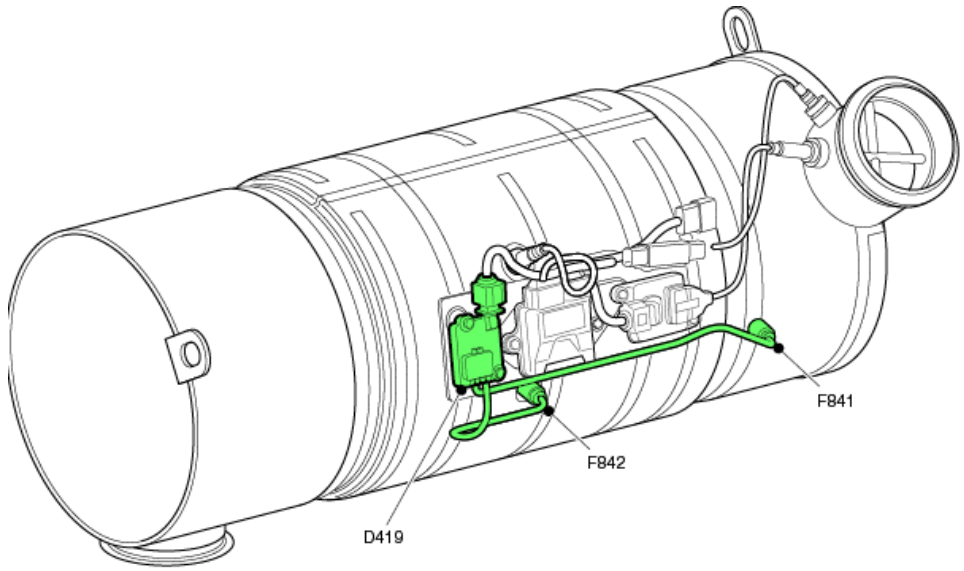
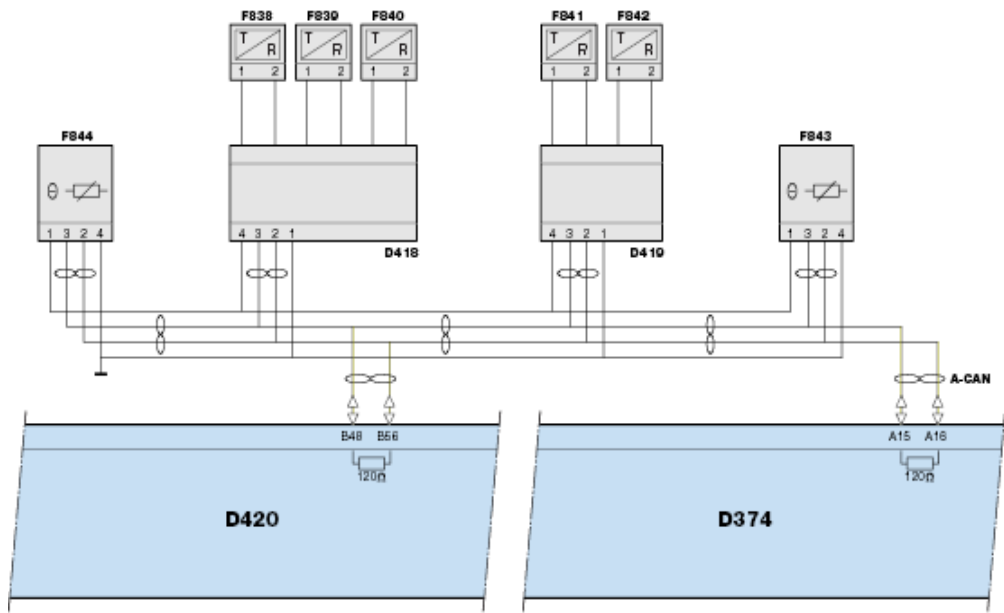
Step 6	Step ID 3780f	SRT

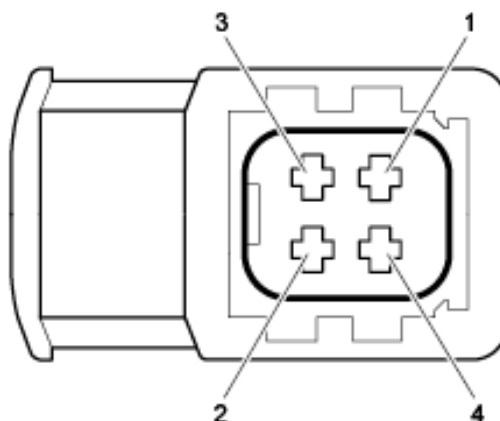
Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC.		

	• Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step7 • No – This fault code can also be caused by engine failure. Proceed to step 7			
	<table><tr><td>Step 7</td><td>Step ID 3780g</td><td>SRT</td></tr></table> Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code ‘Exhaust temperature before DOC sensor’ inactive? • Yes – Proceed to step 6 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.	Step 7	Step ID 3780g	SRT
	Step 7	Step ID 3780g	SRT	
	<table><tr><td>Step 8</td><td>Step ID 3780h</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	Step 8	Step ID 3780h	SRT
Step 8	Step ID 3780h	SRT		
<table><tr><td>Step 9</td><td>Step ID 3780i</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 9	Step ID 3780i	SRT	
Step 9	Step ID 3780i	SRT		
Verification Drive Cycle	To validate repair, perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: •Exhaust Temperature Before SCR •Exhaust Temperature After SCR •Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.			
	Back to Index			

P3781

Code number	P3781
Fault code description	Exhaust temperature before DOC – Data valid but too high, moderately severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 • ECU DOC-DPF temperature sensors (D418) • Exhaust gas temperature sensor before DOC (F838) • Exhaust gas temperature sensor before DPF (F839) • Exhaust gas temperature sensor after DPF (F840) General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838) Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838)

	• Determines whether regeneration has started • Controls the regeneration temperature • Calculates the amount of fuel that must be injected • Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • No active DPF regeneration is occurring.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature before DPF is greater than 690°C [1112°F] for 60 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	3	$\pm 60 \Omega$	

Possible causes

Turbo outlet temperature too high.

Additional information

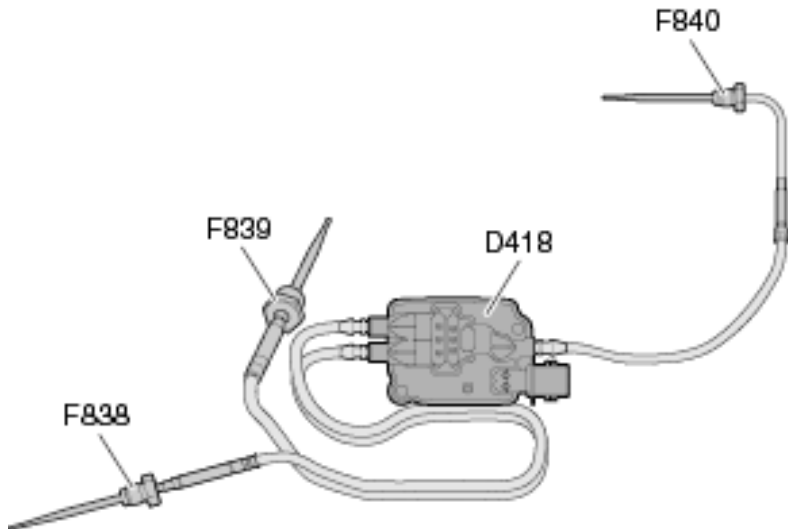
- Active DPF regeneration is disabled.
- A default value for the exhaust gas temperature sensor before SCR catalyst (F841) reading is used.

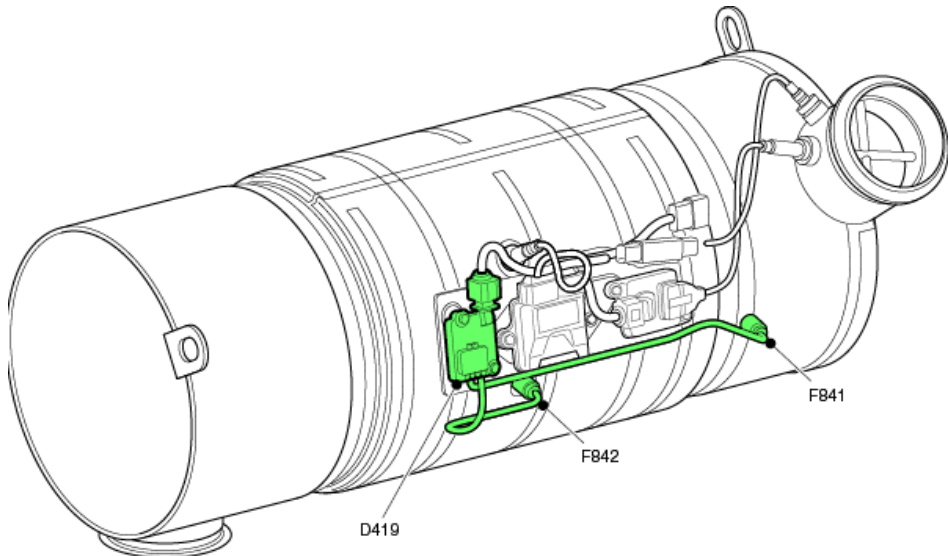
	• A request to immediately turn off the engine is displayed to the driver.						
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  • Disconnecting the EAS connectors during the troubleshooting process causes multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational and mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.						
	<table><tr><td>Step 1</td><td>Step ID 3781a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table>	Step 1	Step ID 3781a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		
	Step 1	Step ID 3781a	SRT				
	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.						
	<table><tr><td>Step 2</td><td>Step ID 3781b</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: • Exhaust temperature before DOC sensor • Fuel intake module • Yes – Proceed with the appropriate fault code • No – Proceed to step 3 </td></tr></table>	Step 2	Step ID 3781b	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: • Exhaust temperature before DOC sensor • Fuel intake module • Yes – Proceed with the appropriate fault code • No – Proceed to step 3		
Step 2	Step ID 3781b	SRT					
Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: • Exhaust temperature before DOC sensor • Fuel intake module • Yes – Proceed with the appropriate fault code • No – Proceed to step 3							
<table><tr><td>Step3</td><td>Step ID 3781c</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. </td></tr></table>	Step3	Step ID 3781c	SRT	Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors.			
Step3	Step ID 3781c	SRT					
Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors.							

	No – Proceed to step 4		
	Step 4	Step ID 3781d	SRT
	Inspect the Fuel Dosing Module - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? - Yes – Proceed to step 5 - No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6		
	Step 5	Step ID 3781e	SRT
	Check the DOC for Particulate Accumulation - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 6 - No – Proceed to step 6		
	Step 6	Step ID 3781f	SRT
	Check the DOC for cracks in the cell wall - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? - Yes – Replace the DOC - Proceed to step 7 - No – This fault code can also be caused by engine failure. Proceed to step 7		
	Step 7	Step ID 3781g	SRT
	Disable the Fault Code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify whether the fault codes are inactive. Is fault code 'Exhaust temperature before DOC sensor' inactive? - Yes – Proceed to step 6 - No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 8	Step ID 3781h	SRT

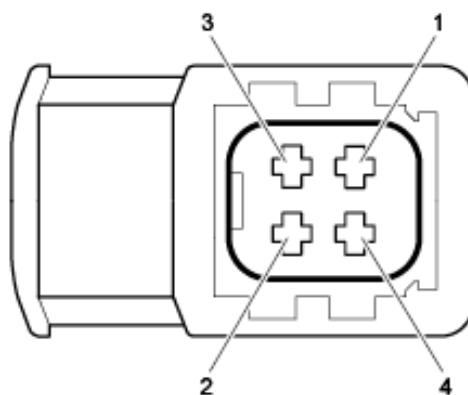
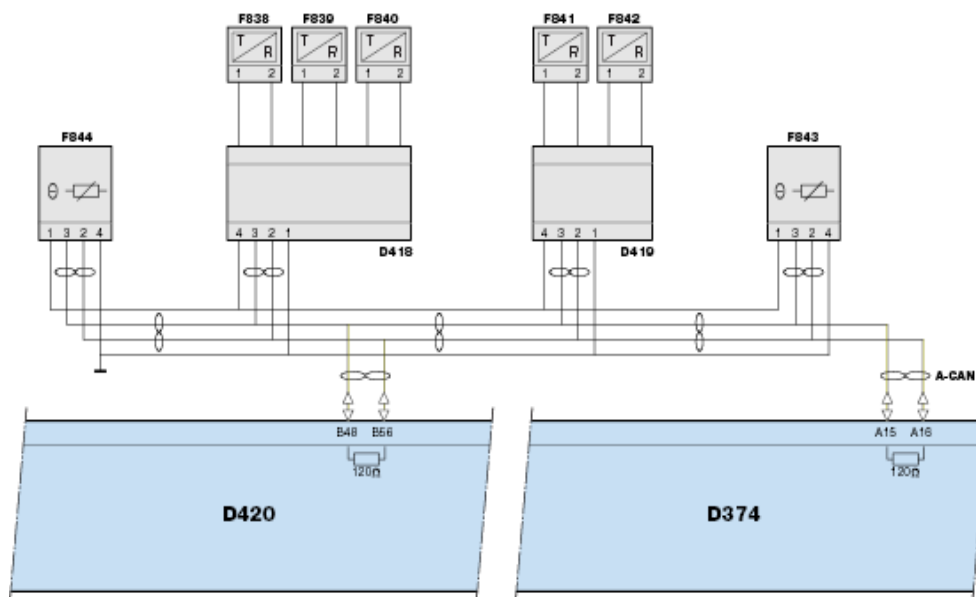
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes				
Verification Drive Cycle	<table border="1"> <tr> <td>Step 9</td><td>Step ID 3781i</td><td>SRT</td></tr> </table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. To validate repair, perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: •Exhaust Temperature Before SCR •Exhaust Temperature After SCR •Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.	Step 9	Step ID 3781i	SRT	
Step 9	Step ID 3781i	SRT			
	Back to Index				

P3782

Code number	P3782
Fault code description	Exhaust temperature before DPF – Data valid but too high, moderately severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 • ECU DOC-DPF temperature sensors (D418) • Exhaust gas temperature sensor before DOC (F838) • Exhaust gas temperature sensor before DPF (F839) • Exhaust gas temperature sensor after DPF (F840) General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838) Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838)

	• Determines whether regeneration has started • Controls the regeneration temperature • Calculates the amount of fuel that must be injected • Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • No active DPF regeneration is occurring.
Set condition of fault code	The exhaust gas temperature sensor before DPF (F839) reading exceeds 650°C [1202°F] for 85 seconds.
Reset condition of fault code	To validate the repair, start the engine and let it idle for 2 minutes. This fault becomes inactive immediately after the aftertreatment temperatures drop below the warning limit, and will likely be inactive when the vehicle is in the shop.

Electrical diagram(s)



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition

	41Ubat 1Battery negative pole>0.5 VSwitch all consumers on Component & wiring check, A-CAN Preparation - Ignition switched off. - Disconnect connector D418. - Measure on connector D418. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Condition</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td></td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Condition	2	3	± 60 Ω	
Pin	Pin												
(+ probe)	(- probe)	Value	Condition										
2	3	± 60 Ω											
Possible causes	- Excessive engine oil introduced into the exhaust system from the engine. - A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned fuel to enter the exhaust system. - Excessive amount of fuel entering the exhaust system. - Malfunctioning fuel dosing module (L124). - Malfunctioning fuel pressure sensor inside the fuel intake module (L135). - Perform the 'Fuel dosing override test' with DAVIE.												
Additional information	- Active DPF regeneration is disabled. - A message to immediately turn off engine is displayed to the driver.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - Disconnecting the EAS connectors during the troubleshooting process causes multiple errors. - For specific electrical component information and pin out locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational and mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3782a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3782b</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module </td></tr></table>	Step 1	Step ID 3782a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3782b	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module		
Step 1	Step ID 3782a	SRT											
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.													
Step 2	Step ID 3782b	SRT											
Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below components are active: - Exhaust temperature before DOC sensor - Fuel intake module													

- Yes – Proceed with the appropriate fault code
- No – Proceed to step 3

Step3	Step ID 3782c	SRT
Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 6 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 4		

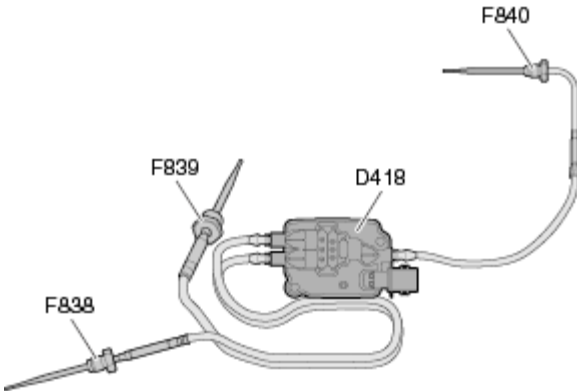
Step 4	Step ID 3782d	SRT
Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6		

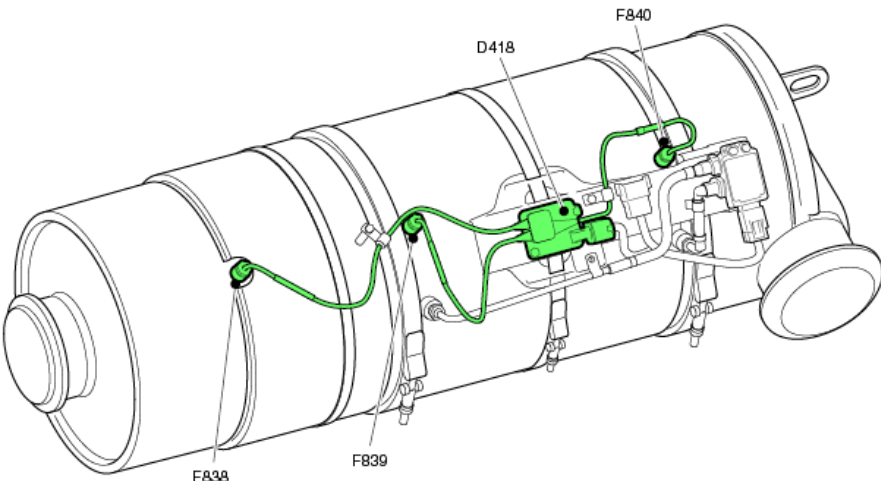
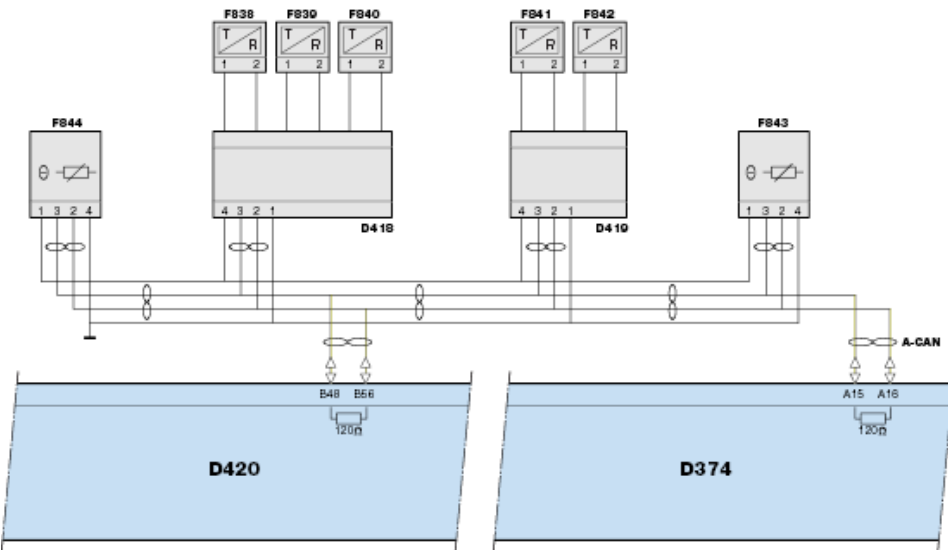
Step 5	Step ID 3782e	SRT
Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6		

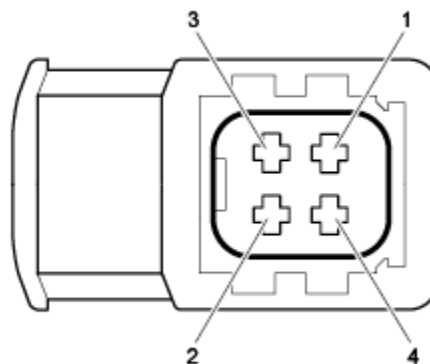
Step 6	Step ID 3782f	SRT
Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC.		

	• Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step7 • No – This fault code can also be caused by engine failure. Proceed to step 7			
	<table><tr><td>Step 7</td><td>Step ID 3782g</td><td>SRT</td></tr></table> Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code ‘Exhaust temperature before DOC sensor’ inactive? • Yes – Proceed to step 6 • No – Return to the troubleshooting steps. Proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.	Step 7	Step ID 3782g	SRT
Step 7	Step ID 3782g	SRT		
	<table><tr><td>Step 8</td><td>Step ID 3782h</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	Step 8	Step ID 3782h	SRT
Step 8	Step ID 3782h	SRT		
	<table><tr><td>Step 9</td><td>Step ID 3782i</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 9	Step ID 3782i	SRT
Step 9	Step ID 3782i	SRT		
Verification Drive Cycle	To validate repair, perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.			
	Back to Index			

P3783

Code number	P3783
Fault code description	Diesel oxidation catalyst (DOC) - Data valid but too high, moderately severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	General - Thermocouple sensors. - The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418).  - Exhaust gas temperature sensor before DOC (F838) - Exhaust gas temperature sensor before DPF (F839) - Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) - Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) - Determines if a regeneration can be started - Calculates the amount of fuel that must be injected - Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) - Determines whether regeneration has started - Controls the regeneration temperature

	- Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	- This diagnostic runs continuously when the engine runs. - No active DPF regeneration is occurring.
Set condition of fault code	The difference between the exhaust gas temperature sensor before DOC (F838) and the exhaust gas temperature sensor before DPF (F839) is higher than 500°C [930°F] for 50 seconds.
Reset condition of fault code	To validate the repair, start the engine and let it idle for 2 minutes. This fault becomes inactive immediately after the after treatment temperatures drop below the warning limit, and will likely be inactive when the vehicle is in the shop.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	3	$\pm 60 \Omega$	

Possible causes

- Excessive engine oil introduced into the exhaust system from the engine.
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned fuel to enter the exhaust system.
- Excessive amount of fuel entering the exhaust system.
- Malfunctioning fuel dosing module (L124).
- Malfunctioning fuel pressure sensor inside the fuel intake module (L135).

	Perform the 'Fuel dosing override test' with DAVIE.																								
Additional information	- Active DPF regeneration is disabled. - A message to immediately turn off engine is displayed to the driver.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3783a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3783b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Is a fault code related to the Diesel oxidation catalyst (DOC) active? - Yes – Proceed with the appropriate fault code. - No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3783c</td><td>SRT</td></tr><tr><td colspan="3">Check the exhaust system for leaks - Turn the key switch OFF. - Check the exhaust for leaks. - Inspect the exhaust system between the turbocharger and the DOC. Check for: - Loose connections - Leaking connections - Broken exhaust system components Are exhaust system leaks found? - Yes – Repair the exhaust system leak. Proceed to step 5 - No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3783d</td><td>SRT</td></tr><tr><td colspan="3">Check the DOC for particulate accumulation - Turn the key switch OFF. </td></tr></table>	Step 1	Step ID 3783a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3783b	SRT	Check for fault codes - Turn the key switch ON. - Use DAVIE to check for fault codes. Is a fault code related to the Diesel oxidation catalyst (DOC) active? - Yes – Proceed with the appropriate fault code. - No – Proceed to step 3			Step 3	Step ID 3783c	SRT	Check the exhaust system for leaks - Turn the key switch OFF. - Check the exhaust for leaks. - Inspect the exhaust system between the turbocharger and the DOC. Check for: - Loose connections - Leaking connections - Broken exhaust system components Are exhaust system leaks found? - Yes – Repair the exhaust system leak. Proceed to step 5 - No – Proceed to step 3			Step 4	Step ID 3783d	SRT	Check the DOC for particulate accumulation Turn the key switch OFF.		
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- Remove the DOC.
- Check the inlet and the exhaust pipes of the DOC for:
 - Particulate or oil contamination
 - Fuel or coolant traces
 - Cracks or damage

Is any damage or contamination found during inspection of the DOC?

- Yes – Clean the DOC. An engine-related failure that causes excessive exhaust smoke could be the cause. Continue to troubleshoot the root cause. Proceed to step 5
- No – Proceed to step 5

Step 5	Step ID 3783e	SRT

Perform the DPF regeneration test

- Turn the key switch ON.
- Start the engine.
- Perform the 'DPF regeneration test.' For more information go to 'Explanatory notes to DAVIE.'

Is fault code related to the Diesel oxidation catalyst (DOC) inactive after the regeneration is completed?

- Yes – Proceed to step 6
- No – Perform the regeneration test again. Proceed to step 6

Step 6	Step ID 3783f	SRT

Disable the fault code

- Connect all components.
- Operate the system within 'reset condition of the fault code' found in the fault code information.
- Use DAVIE to verify if the fault codes are inactive.

Is fault code P3776 inactive?

- Yes – Proceed to step 7
- No – Return to the troubleshooting steps - Proceed to step 2

If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.

Step 7	Step ID 3783g	SRT

Clear the inactive fault codes

- Connect all components.
- Turn the key switch ON.
- Use DAVIE to clear the inactive fault codes.

Have all the fault codes been cleared?

- Yes – Repair complete
- No – Troubleshoot any remaining active fault codes

Step 8	Step ID 3783h	SRT

For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.

Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.
	Back to Index

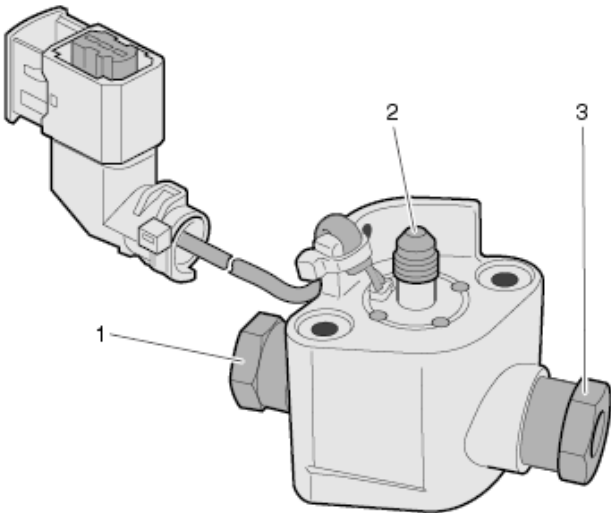
P3786

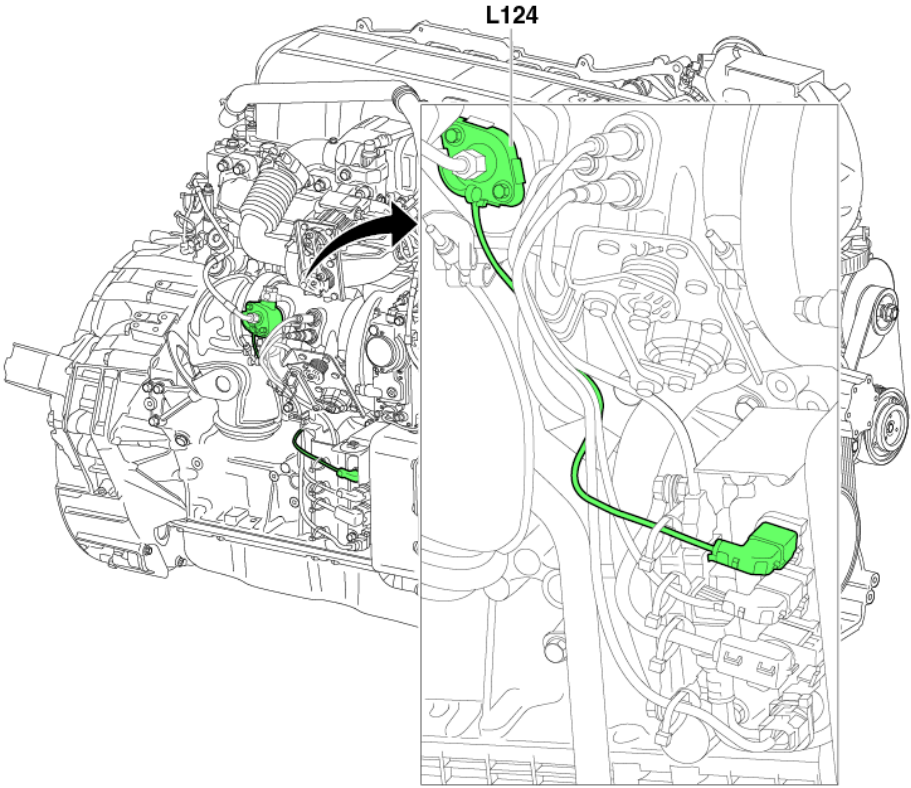
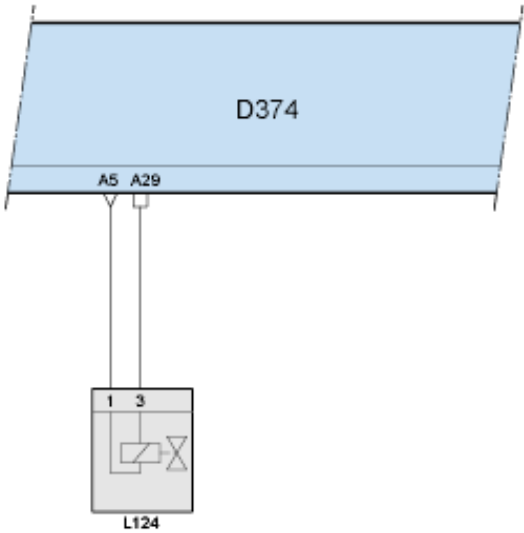
Code number	P3786								
Fault code description	Diesel Oxidation Catalyst (DOC) Compensation level too high								
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter								
Description of component(s)	Not available/required for this code.								
Location of component(s)	Not available/required for this code.								
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • Active DPF regeneration is also occurring.								
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature differential across the DOC during active regeneration does not match the expected temperature increase								
Reset condition of fault code	The DTC is set to inactive after performing the DPF regeneration test and the DOC efficiency is determined to be above a calibratable threshold.								
Electrical diagram(s)	Not available/required for this code.								
Technical data	Not available/required for this code.								
Possible causes	• Particulates clogging the front face of the diesel oxidation catalyst (DOC). • Engine oil or fuel contamination of the diesel oxidation catalyst (DOC). • Cracked or contaminated diesel oxidation catalyst (DOC). • Malfunction in the aftertreatment fuel dosing system. • An in-range malfunction of the temperature before DOC sensor or the temperature before DPF sensor. • Leaking exhaust system between the turbocharger and the diesel oxidation catalyst (DOC).								
Additional information	• Active DPF regeneration is disabled. • The EGR valve operation is disabled. • Engine torque is reduced if the engine is operated for an extended period of time with this fault active (due to EGR disablement).								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3786a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table>			Step 1	Step ID 3786a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		
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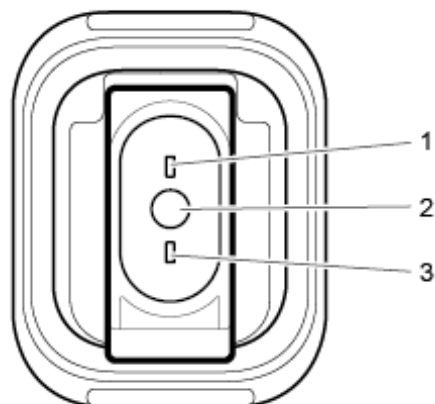
	<table><tr><td>Step 2</td><td>Step ID 3786b</td><td>SRT</td></tr><tr><td colspan="3"> Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is any fault code other than “Diesel oxidation catalyst (DOC)” found? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3 </td></tr></table>	Step 2	Step ID 3786b	SRT	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is any fault code other than “Diesel oxidation catalyst (DOC)” found? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3			
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Step 6	Step ID 3786f	SRT						

	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is any fault code other than “Diesel oxidation catalyst (DOC)” found? • Yes – Proceed to step 7 • No – Return to the troubleshooting steps proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. <table><tr><td>Step 7</td><td>Step ID 3786g</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes and Proceed to step 8. <table><tr><td>Step 8</td><td>Step ID 3786h</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 7	Step ID 3786g	SRT	Step 8	Step ID 3786h	SRT
Step 7	Step ID 3786g	SRT					
Step 8	Step ID 3786h	SRT					
Verification Drive Cycle	This test can take up to 45 minutes to 1 hour to complete. • To validate the repair, start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3787

Code number	P3787
Fault code description	Fuel dosing module - Used up all compensation
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter
Description of component(s)	 1 Coolant return 2 Fuel supply 3 Coolant supply • Dosing fuel into the exhaust pipe before the oxidation catalyst, during active regeneration. • PWM controlled. • The fuel dosing valve (L124) is connected to the engine coolant circuit to limit the temperature. Effect of the output signal on the system • Dose fuel into the exhaust; • thus raise the temperature of the exhaust gas in order to 'burn' soot in the DPF.

Location of component(s)	
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • Active DPF regeneration is also occurring.
Set condition of fault code	The EAS-3 ECU (D374) detects that the fuel dosing valve (L124) cannot inject enough fuel for active regeneration DPF.
Reset condition of fault code	• To validate the repair, perform the 'DPF regeneration test' in DAVIE. The diagnostic runs once the temperatures in the after treatment system are high enough to inject fuel into the exhaust. • The DTC is set to inactive after performing the DPF regeneration test and the DOC efficiency is determined to be above a calibratable threshold.
Electrical diagram(s)	



Wiring harness connector L124 front view

D374 EAS-3 ECU
L124 Fuel dosing valve

D374	L124	Function
A5	1	Control signal high
A29	3	Control signal low

Technical data	Component check, fuel dosing valve (L124) Preparation • Switch the ignition off. • Disconnect connector L124. • Measure on connector L124. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional information</td></tr><tr><td>1</td><td>3</td><td>1.14–1.26 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional information	1	3	1.14–1.26 Ω	at 20°C
Pin	Pin												
(+ probe)	(- probe)	Value	Additional information										
1	3	1.14–1.26 Ω	at 20°C										
Possible causes	• Malfunctioning fuel dosing valve (L124). • Perform a 'Fuel shut off valve test' with DAVIE. • Perform a 'Fuel dosing override test' with DAVIE.												
Additional information	• Active DPF regeneration is disabled. • Engine runs in protection mode. • Hydrocarbon dosing into the after treatment system is disabled.												

Diagnostic Step-by-Step



Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.



- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pin out locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3787a	SRT

Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.

Step 2	Step ID 3787b	SRT

Check for Fault Codes

- Turn the key switch ON.
- Use DAVIE to check for fault codes.

Are fault codes related to the fuel intake module, fuel pressure sensor, fuel shutoff valve, air shutoff valve or fuel dosing module active?

- Yes – Proceed with the appropriate fault code
- No – Proceed to Step 3

Step 3	Step ID 3787c	SRT

Inspect the fuel dosing module and related circuit connector pins

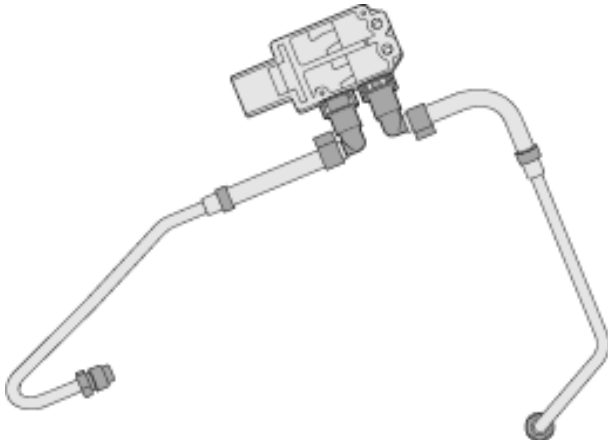
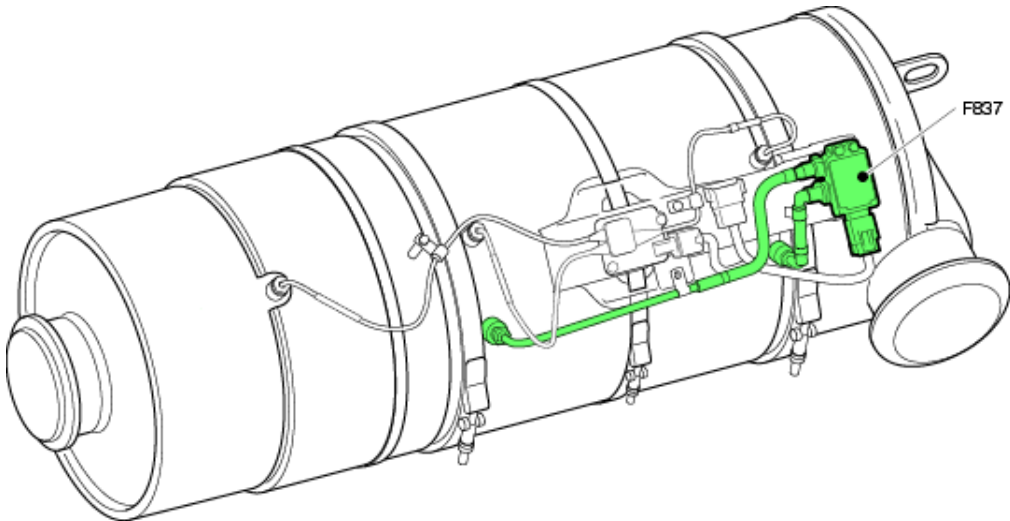
- Turn the key switch OFF.
- Disconnect the connectors for the fuel dosing module circuit.
- Inspect the connectors for:
 - Corroded or dirty pins
 - Damaged pins
 - Pushed back or expanded pins
 - Loose connector
 - Moisture in or on the connector
 - Connector shell damaged
 - Missing or damaged connector seals
 - Wire insulation damage
 - Clean connectors with electrical contact cleaner.

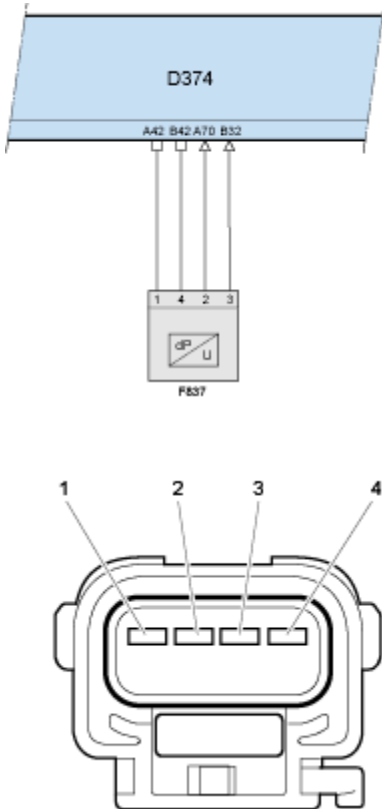
Are any of the pins/connectors dirty or damaged?

- Yes – A dirty or damaged connection has been detected. Clean, repair or replace the damaged connection or harness if possible. Proceed to Step 4
- No – Proceed to step 4

	<table><tr><td>Step 4</td><td>Step ID 3787d</td><td>SRT</td></tr><tr><td colspan="3">Inspect the fuel dosing module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing system override test' and the 'dosing module leak test'. For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Replace the fuel dosing module – Proceed to step 5 </td></tr></table>	Step 4	Step ID 3787d	SRT	Inspect the fuel dosing module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing system override test' and the 'dosing module leak test'. For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Replace the fuel dosing module – Proceed to step 5		
	Step 4	Step ID 3787d	SRT				
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	<table><tr><td>Step 5</td><td>Step ID 3787e</td><td>SRT</td></tr><tr><td colspan="3">Disable the fault code • Connect all components. • Perform a stationary regeneration • Use DAVIE to verify that the fault codes are inactive. Is fault code P3787 inactive? • Yes – Proceed to Step 6 • No – Return to the troubleshooting steps. Proceed to Step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.</td></tr></table>	Step 5	Step ID 3787e	SRT	Disable the fault code • Connect all components. • Perform a stationary regeneration • Use DAVIE to verify that the fault codes are inactive. Is fault code P3787 inactive? • Yes – Proceed to Step 6 • No – Return to the troubleshooting steps. Proceed to Step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
Step 5	Step ID 3787e	SRT					
Disable the fault code • Connect all components. • Perform a stationary regeneration • Use DAVIE to verify that the fault codes are inactive. Is fault code P3787 inactive? • Yes – Proceed to Step 6 • No – Return to the troubleshooting steps. Proceed to Step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							
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For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3788

Code number	P3788
Fault code description	DPF filtration efficiency – Data valid but too low, moderately severe
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – PM filter Freeze frame type –PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs after successful completion of an active DPF regeneration.
Set condition of fault code	The PCI ECU (D420) detects that the DPF flow resistance is lower than a threshold for 2 minutes.

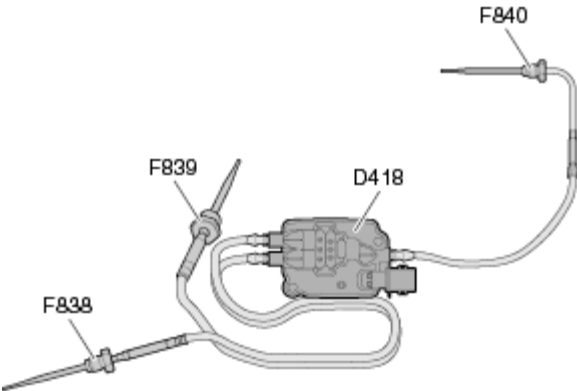
Reset condition of fault code	- Perform a successful DPF regeneration. - To validate the repair, start the engine and let it idle for 1 minute.																			
Electrical diagram(s)	 Wiring harness connector F837 front view <table><tr><td>D374</td><td>EAS-3 ECU</td></tr><tr><td>F837</td><td>DPF pressure sensor</td></tr></table><table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	EAS-3 ECU	F837	DPF pressure sensor	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
D374	EAS-3 ECU																			
F837	DPF pressure sensor																			
D374	F837	Function																		
A42	1	Ground																		
A70	2	Signal, delta pressure over DPF																		
B32	3	Signal, pressure after DPF																		
B42	4	Supply																		
Technical data	Component check, DPF pressure sensor (F837) Preparation - Disconnect connector F837. - Switch the ignition on. - Measure on connector F837. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5V</td><td>Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	1	Battery negative pole	< 0.5V	Switch all consumers on.	4	1	4.75 - 5.25V								
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1	Battery negative pole	< 0.5V	Switch all consumers on.																	
4	1	4.75 - 5.25V																		
Possible causes	- A damaged DOC-DPF pressure sensor (F837). - Malfunctioning DPF																			
Additional information	The system has detected a malfunction in the filtering capability of the DPF.																			

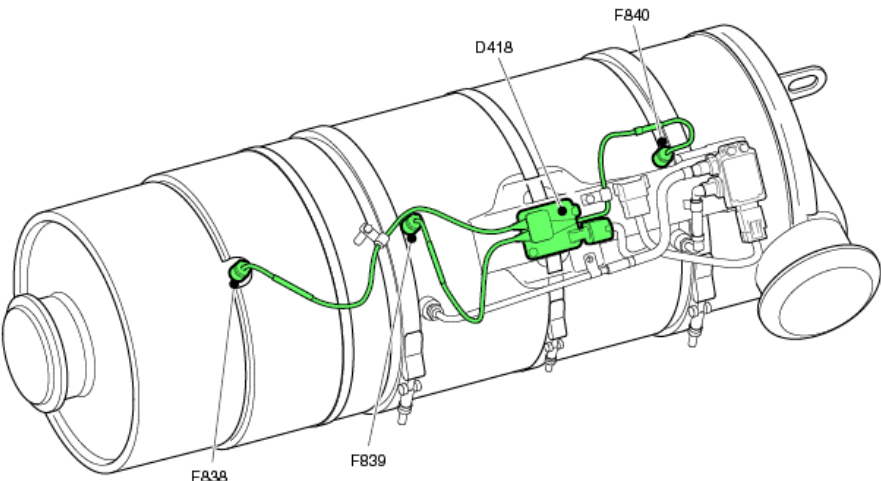
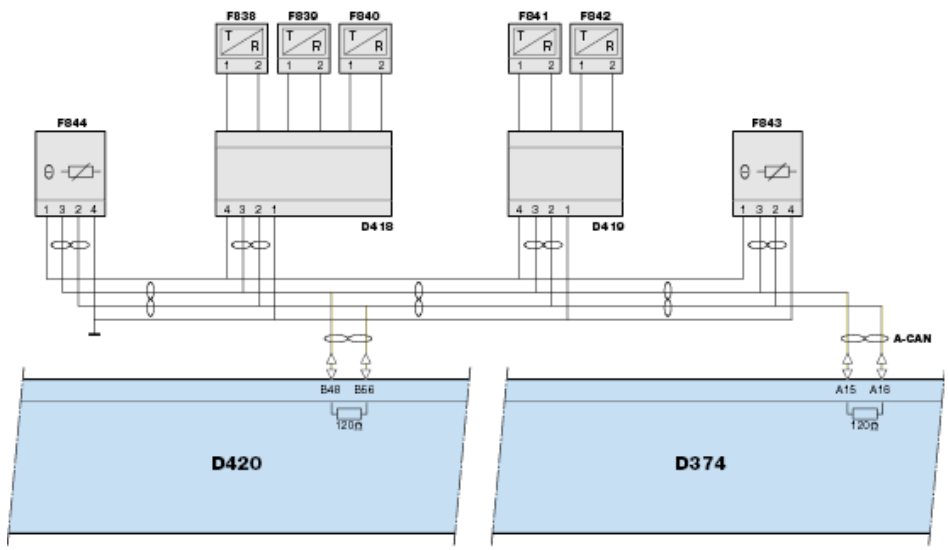
Diagnostic Step-by-Step

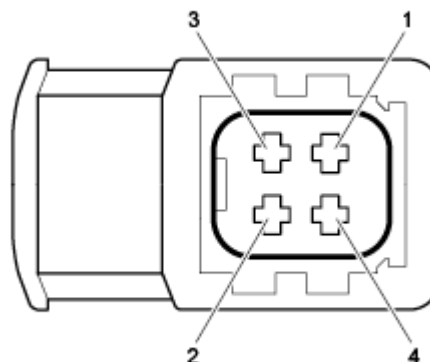
<

	• Yes – Repair or replace the affected components - Proceed to step 5 • No – Proceed to step 5						
	<table><tr><td>Step 5</td><td>Step ID 3788e</td><td>SRT</td></tr><tr><td colspan="3"> Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is any fault code other than “Diesel particulate filter (DPF)” found? • Yes – Proceed to step 6 • No – Return to the troubleshooting step2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 5	Step ID 3788e	SRT	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is any fault code other than “Diesel particulate filter (DPF)” found? • Yes – Proceed to step 6 • No – Return to the troubleshooting step2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
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	<table><tr><td>Step 6</td><td>Step ID 3788f</td><td>SRT</td></tr><tr><td colspan="3"> Clear the inactive fault codes • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 6	Step ID 3788f	SRT	Clear the inactive fault codes • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
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<table><tr><td>Step 7</td><td>Step ID 3788g</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 7	Step ID 3788g	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Step 7	Step ID 3788g	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	• This test can take up to 45 minutes to 1 hour to complete. • To validate the repair, start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3789

Code number	P3789
Fault code description	Exhaust temperature after DPF - Data valid but too high, most severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418).  • Exhaust gas temperature sensor before DOC (F838) • Exhaust gas temperature sensor before DPF (F839) • Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature

	- Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine runs.
Set condition of fault code	The EAS-3 ECU (D374) detects that the exhaust gas temperature sensor after DPF (F840) reading is greater than 800°C [1472°F] for 10 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	3	$\pm 60 \Omega$	

Possible causes

- A malfunctioning fuel injector causing too much fuel to enter the DPF.
- Excessive engine oil introduced into the exhaust system from the engine.
- Malfunctioning fuel pressure sensor, the fuel pressure sensor is part of the intake module fuel (L135).
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned diesel fuel to enter the exhaust system.

Additional information

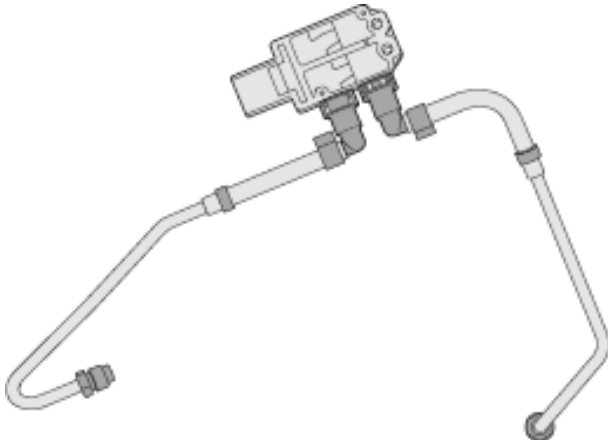
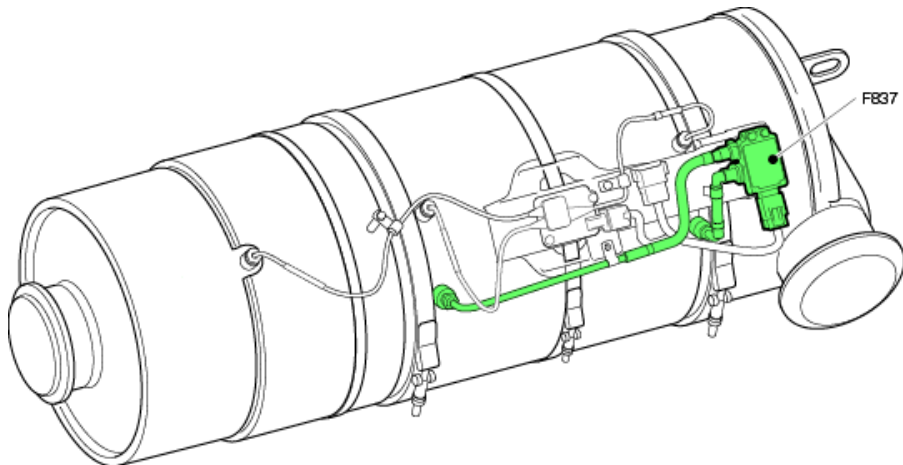
- Active DPF regeneration is disabled.

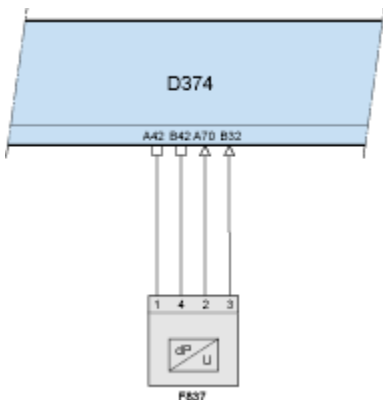
	• A message to immediately turn off engine is displayed to the driver.			
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.			
	 • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.			
	<table><tr><td>Step 1</td><td>Step ID 3789a</td><td>SRT</td></tr></table>	Step 1	Step ID 3789a	SRT
	Step 1	Step ID 3789a	SRT	
	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			
<table><tr><td>Step 2</td><td>Step ID 3789b</td><td>SRT</td></tr></table>	Step 2	Step ID 3789b	SRT	
Step 2	Step ID 3789b	SRT		
Check fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3756, P3757, P3758, P3833, or P3834 active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3				
<table><tr><td>Step 3</td><td>Step ID 3789c</td><td>SRT</td></tr></table>	Step 3	Step ID 3789c	SRT	
Step 3	Step ID 3789c	SRT		
Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 4				

	<table><tr><td>Step 4</td><td>Step ID 3789d</td><td>SRT</td></tr><tr><td colspan="3"> Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 5A </td></tr></table>	Step 4	Step ID 3789d	SRT	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 5A		
	Step 4	Step ID 3789d	SRT				
	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 5A						
	<table><tr><td>Step 5</td><td>Step ID 3789e</td><td>SRT</td></tr><tr><td colspan="3"> Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6 </td></tr></table>	Step 5	Step ID 3789e	SRT	Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6		
	Step 5	Step ID 3789e	SRT				
Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6							
<table><tr><td>Step 6</td><td>Step ID 3789f</td><td>SRT</td></tr><tr><td colspan="3"> Check the DOC for cracks in the cell wall • Troubleshooting steps • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 7 • No – This fault code can also be caused by engine failure. Proceed to step 7 </td></tr></table>	Step 6	Step ID 3789f	SRT	Check the DOC for cracks in the cell wall • Troubleshooting steps • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 7 • No – This fault code can also be caused by engine failure. Proceed to step 7			
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<table><tr><td>Step 7</td><td>Step ID 3789g</td><td>SRT</td></tr><tr><td colspan="3"> Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3786 inactive? • Yes – Proceed to step 6 • No – Return to the troubleshooting steps proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 7	Step ID 3789g	SRT	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3786 inactive? • Yes – Proceed to step 6 • No – Return to the troubleshooting steps proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.			
Step 7	Step ID 3789g	SRT					
Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3786 inactive? • Yes – Proceed to step 6 • No – Return to the troubleshooting steps proceed to step 2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							
<table><tr><td>Step 8</td><td>Step ID 3789h</td><td>SRT</td></tr></table>	Step 8	Step ID 3789h	SRT				
Step 8	Step ID 3789h	SRT					

	Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes and Proceed to step 13.						
	<table><tr><td>Step 9</td><td>Step ID 3789i</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 9	Step ID 3789i	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 9	Step ID 3789i	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3790

Code number	P3790
Fault code description	Diesel particulate filter (DPF) Not detected
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – PM filter Freeze frame type –PM filter
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	
Diagnostic condition	This diagnostic runs when the engine is running and exhaust flow exceeds a minimum level.
Set condition of fault code	This diagnostic monitors the DPF pressure sensor (F837). When the differential pressure is below a minimum value and exhaust flow rate is above a minimum flow

	rate, the DTC is set.															
Reset condition of fault code	To validate the repair, start the engine and operate it at high idle for 1 minute. It is necessary to elevate the exhaust flow for at least 30 seconds to clear this fault code.															
Electrical diagram(s)	 Wiring harness connector F837 front view D374 EAS-3 ECU F837 DPF pressure sensor <table><tr><td>D374</td><td>F837</td><td>Function</td></tr><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal, pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal, pressure after DPF	B42	4	Supply
D374	F837	Function														
A42	1	Ground														
A70	2	Signal, delta pressure over DPF														
B32	3	Signal, pressure after DPF														
B42	4	Supply														
Technical data	Component check, DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch the ignition on. • Measure on connector F837. <table><tr><td>Pin (+ probe)</td><td>Pin (- probe)</td><td>Value</td><td>Condition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5V</td><td>Switch all consumers on.</td></tr><tr><td>4</td><td>1</td><td>4.75 - 5.25V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	1	Battery negative pole	< 0.5V	Switch all consumers on.	4	1	4.75 - 5.25V				
Pin (+ probe)	Pin (- probe)	Value	Condition													
1	Battery negative pole	< 0.5V	Switch all consumers on.													
4	1	4.75 - 5.25V														
Possible causes	• The DPF has been removed from the vehicle. • The DPF is cracked or broken.															

	• The DPF differential tubes are installed incorrectly, broken, or loose or have been tampered with. • The DPF differential tubes are installed backwards.																								
Additional information	• Active DPF regeneration is disabled. • The EGR valve is closed. • Engine torque is reduced.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3790a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3790b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is any fault code other than “DPF pressure sensor” found? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3790c</td><td>SRT</td></tr><tr><td colspan="3">Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Inspect the DPF pressure sensor tubes for: • Both ends being securely connected • Leaks or damage • Missing or blockage Make sure the pressure sensor tubes are correctly installed. It is possible to connect the tubes backwards at the sensor connection. Are the pressure sensor tubes in good condition and installed correctly? • Yes – Proceed to step 4 • No – Repair or replace the pressure sensor tubes. Proceed to step 5 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3790d</td><td>SRT</td></tr><tr><td colspan="3">Inspect the presence of the DPF</td></tr></table>	Step 1	Step ID 3790a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3790b	SRT	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is any fault code other than “DPF pressure sensor” found? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3			Step 3	Step ID 3790c	SRT	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Inspect the DPF pressure sensor tubes for: • Both ends being securely connected • Leaks or damage • Missing or blockage Make sure the pressure sensor tubes are correctly installed. It is possible to connect the tubes backwards at the sensor connection. Are the pressure sensor tubes in good condition and installed correctly? • Yes – Proceed to step 4 • No – Repair or replace the pressure sensor tubes. Proceed to step 5			Step 4	Step ID 3790d	SRT	Inspect the presence of the DPF		
Step 1	Step ID 3790a	SRT																							
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Step 4	Step ID 3790d	SRT																							
Inspect the presence of the DPF																									

	• Turn the key switch OFF. • Remove the DPF. • Inspect the DPF to determine if the DPF has been tampered with or removed. Has tampering or removal of the aftertreatment system been detected? • Yes – Repair or replace the affected components - Proceed to step 5 • No – Proceed to step 5						
	<table><tr><td>Step 5</td><td>Step ID 3790e</td><td>SRT</td></tr><tr><td colspan="3"> Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is any fault code other than “Diesel particulate filter (DPF)” found? • Yes – Proceed to step 6 • No – Return to the troubleshooting step2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 5	Step ID 3790e	SRT	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is any fault code other than “Diesel particulate filter (DPF)” found? • Yes – Proceed to step 6 • No – Return to the troubleshooting step2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 5	Step ID 3790e	SRT				
	Disable the fault code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is any fault code other than “Diesel particulate filter (DPF)” found? • Yes – Proceed to step 6 • No – Return to the troubleshooting step2 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.						
	<table><tr><td>Step 6</td><td>Step ID 3790f</td><td>SRT</td></tr><tr><td colspan="3"> Clear the inactive fault codes • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 6	Step ID 3790f	SRT	Clear the inactive fault codes • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
Step 6	Step ID 3790f	SRT					
Clear the inactive fault codes • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes							
<table><tr><td>Step 7</td><td>Step ID 3790g</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 7	Step ID 3790g	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
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For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	• This test can take up to 45 minutes to 1 hour to complete. • To validate the repair, start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3791

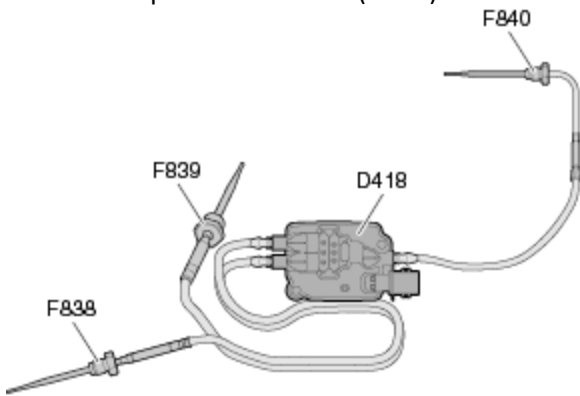
Code number	P3791										
Fault code description	Diesel particulate filter (DPF) - Too frequent regeneration										
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – PM filter Freeze frame type –PM filter										
Description of component(s)	No information available										
Location of component(s)	No information available										
Diagnostic condition	This diagnostic runs after completion of a successful active DPF regeneration.										
Set condition of fault code	The time between the completion of a successful active regeneration and the request for another active regeneration is less than the threshold.										
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE.										
Electrical diagram(s)	No information available										
Technical data	No information available										
Possible causes	- Malfunctioning fuel dosing module (L124). - Malfunctioning temperature sensors DOC-DPF ECU (D418). - Malfunctioning temperature sensors SCR catalyst ECU (D419). - The surface of the DOC is clogged. - Malfunctioning or stuck in-range DPF pressure sensor (F837). - Damaged or malfunctioning vehicle wiring harness to the DPF pressure sensor (F837). - An engine malfunction resulting in high levels of smoke from the engine. - Aftertreatment DPF with excessive ash accumulation. An excessive ash accumulation condition reduces the soot holding capability of the DPF and causes frequent aftertreatment regenerations.										
Additional information	The system has detected that the need for an active regeneration has occurred too soon following the last active regeneration.										
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <tr> <td>Step 1</td><td>Step ID 3791a</td><td>SRT</td></tr> <tr> <td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr> <tr> <td>Step 2</td><td>Step ID 3791b</td><td>SRT</td></tr> </table>		Step 1	Step ID 3791a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3791b	SRT
Step 1	Step ID 3791a	SRT									
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Step 2	Step ID 3791b	SRT									

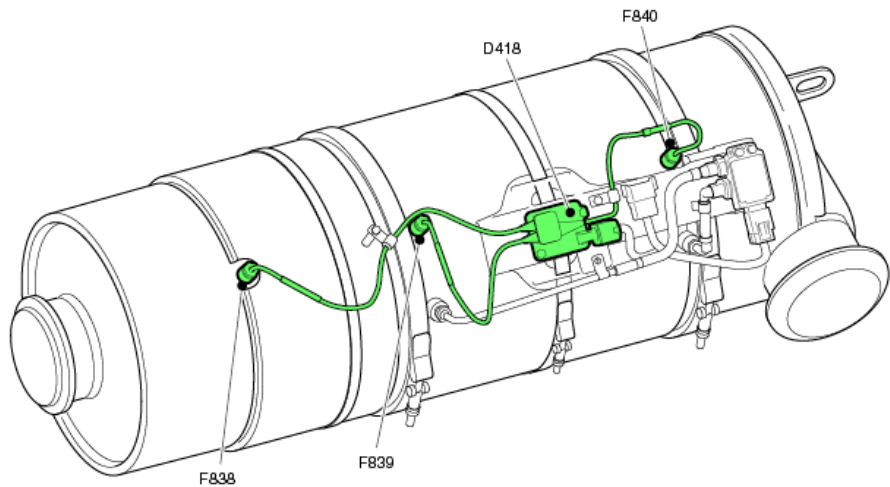
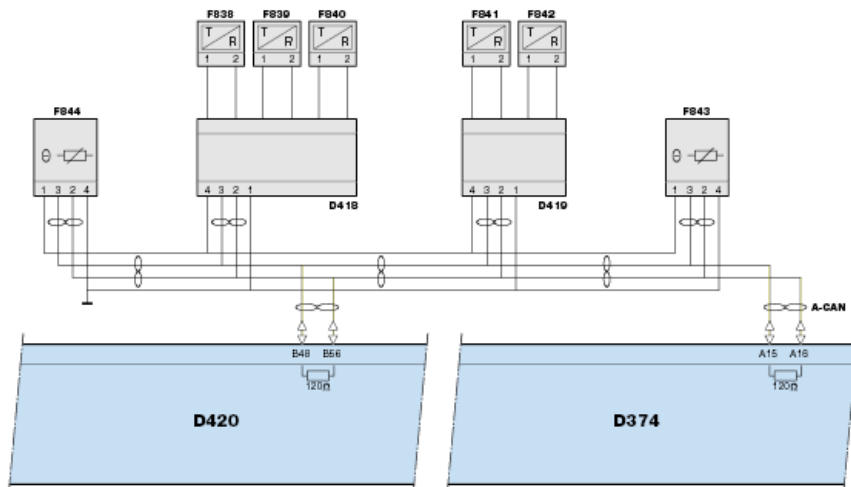
	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3791 active? • Yes – Proceed to step 3 • No – Proceed to step 10		
	Step 3	Step ID 3791c	SRT
	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code related to DPF pressure sensor active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 4		
	Step 4	Step ID 3791d	SRT
	Check for Fault Codes • Turn the key switch ON. • Check for engine-related fault codes • Use DAVIE to check for fault codes. Are fault codes related to the engine active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 5		
	Step 5	Step ID 3791e	SRT
	Monitor the DPF pressure sensor • Turn the key switch ON. • Engine OFF. • Monitor the DPF pressure sensor with DAVIE. Is the differential pressure reading 0 ± 0.44 PSI (0 ± 0.03 bar) with the key switch ON and the engine OFF? • Yes – Proceed to step 7 • No – Proceed to step 6		
	Step 6	Step ID 3791f	SRT
	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages or leakages. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes – Proceed to step 9 • No – Check for a pin-to-pin short circuit in the differential pressure signal wire. If no short circuit is found, replace the DPF pressure sensor – Proceed to step 9		
	Step 7	Step ID 3791g	SRT
	Inspect the DOC for particulate accumulation		

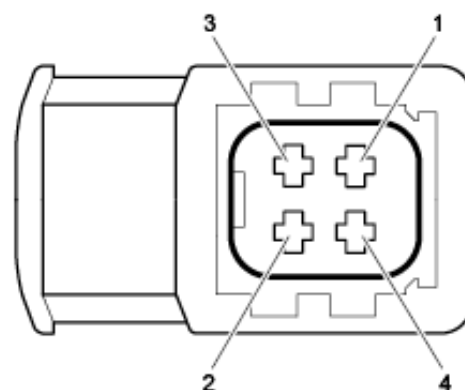
	• Turn the key switch OFF. • Remove the DOC. • Check the inlet of the DOC for particulate accumulation. Are more than 50 percent of the cells completely blocked? • Yes – Clean the DOC. An engine-related failure that causes excessive exhaust smoke could be the cause. Proceed to step 8 • No – An engine-related failure that causes excessive exhaust smoke could be the cause. Proceed to step 8		
	Step 8	Step ID 3791h	SRT
	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing system override test' and the 'dosing module leak test'. For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? • Yes – Proceed to step 9 • No – Replace the fuel dosing module - Proceed to step 9		
	Step 9	Step ID 3791i	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3791 inactive? • Yes – Proceed to step 10 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 10	Step ID 3791j	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 11	Step ID 3791k	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: • Drive the vehicle at a minimum speed of 80 km/h [50 mph] in the highest		

	gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible. • To validate the repair, with the System Initiation cycle complete, under moderate engine load (A/C and Fan both ON), perform a series of brief accelerations, progressing from a lower to a higher speed until reaching a top speed of 40 mph. Once the top speed has been reached, perform several decelerations from a higher to a lower speed until reaching a bottom speed of 10 mph. Perform this cycle 5 times.
	Back to Index

P3792

Code number	P3792
Fault code description	Exhaust temperature after DPF - Data valid but too high, least severe
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418).  • Exhaust gas temperature sensor before DOC (F838) • Exhaust gas temperature sensor before DPF (F839) • Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature • Calculates the amount of fuel that must be injected • Diagnoses the DOC efficiency

	Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine runs.
Set condition of fault code	The exhaust gas temperature sensor after DPF (F840) reading exceeds 675°C [1250°F] for 10 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

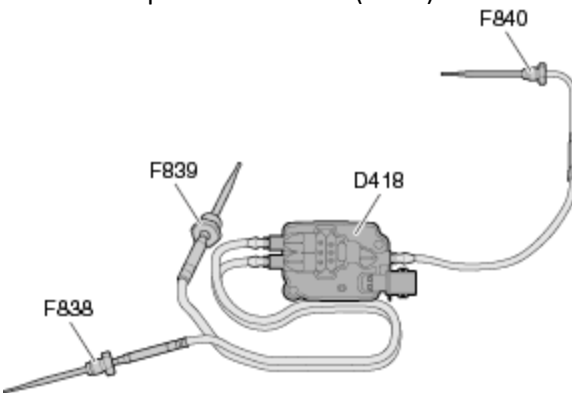
- A malfunctioning fuel injector causing too much fuel to enter the DPF.
- Excessive engine oil introduced into the exhaust system from the engine.
- Malfunctioning fuel pressure sensor, the fuel pressure sensor is part of the intake module fuel (L135).
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned diesel fuel to enter the exhaust system

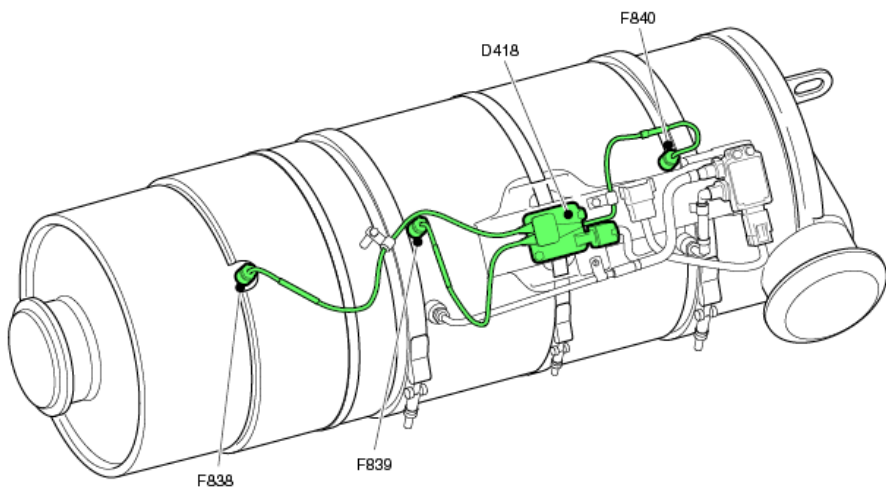
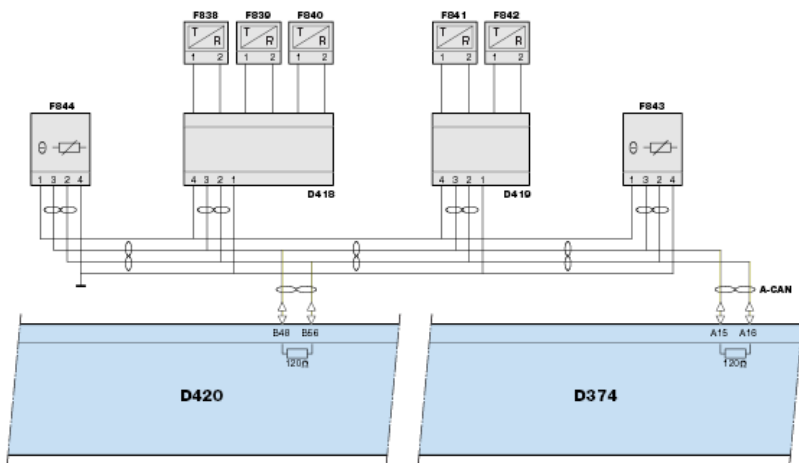
Additional information	Hydrocarbon injection in the exhaust is stopped. Once the temperature after DPF is safe again and DTC has become inactive, hydrocarbon injection resumes.												
Diagnostic Step-by-Step	Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3792a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3792b</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 6 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. - No – Proceed to step 3 </td></tr></table>	Step 1	Step ID 3792a	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2			Step 2	Step ID 3792b	SRT	Monitor the Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 6 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. - No – Proceed to step 3		
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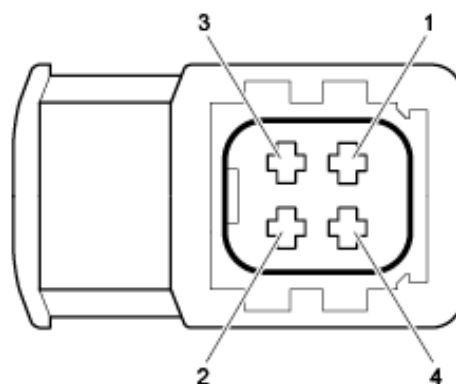
	<table><tr><td>Step 3</td><td>Step ID 3792c</td><td>SRT</td></tr><tr><td colspan="3"> Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 4 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6 </td></tr></table>	Step 3	Step ID 3792c	SRT	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 4 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6		
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Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 4 • No – Failed fuel dosing module. Replace the fuel dosing module - Proceed to step 6							
	<table><tr><td>Step 4</td><td>Step ID 3792d</td><td>SRT</td></tr><tr><td colspan="3"> Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 5 • No – Proceed to step 5 </td></tr></table>	Step 4	Step ID 3792d	SRT	Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 5 • No – Proceed to step 5		
Step 4	Step ID 3792d	SRT					
Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 5 • No – Proceed to step 5							
	<table><tr><td>Step 5</td><td>Step ID 3792e</td><td>SRT</td></tr><tr><td colspan="3"> Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 6 • No – This fault code can also be caused by engine failure. Proceed to step 6 </td></tr></table>	Step 5	Step ID 3792e	SRT	Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 6 • No – This fault code can also be caused by engine failure. Proceed to step 6		
Step 5	Step ID 3792e	SRT					
Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 6 • No – This fault code can also be caused by engine failure. Proceed to step 6							
	<table><tr><td>Step 6</td><td>Step ID 3792f</td><td>SRT</td></tr><tr><td colspan="3"> Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3792 inactive? • Yes – Proceed to step 7 • No – Return to the troubleshooting steps. Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 6	Step ID 3792f	SRT	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3792 inactive? • Yes – Proceed to step 7 • No – Return to the troubleshooting steps. Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
Step 6	Step ID 3792f	SRT					
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	Step 7	Step ID 3792g	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 8	Step ID 3792h	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, perform stationary DPF regeneration.		
	Back to Index		

P3793

Code number	P3793
Fault code description	Exhaust temperature after DPF - Data valid but too high, moderately severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	General - Thermocouple sensors. - The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418).  - Exhaust gas temperature sensor before DOC (F838) - Exhaust gas temperature sensor before DPF (F839) - Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) - Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) - Determines if a regeneration can be started - Calculates the amount of fuel that must be injected - Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) - Determines whether regeneration has started - Controls the regeneration temperature - Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency

	Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	- This diagnostic runs continuously when the engine runs. - No active DPF regeneration is occurring.
Set condition of fault code	Exhaust gas temperature sensor before DPF (F839) reading exceeds 687°C [1269°F] for 90 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- A malfunctioning fuel injector causing too much fuel to enter the DPF.
- Excessive engine oil introduced into the exhaust system from the engine.
- Malfunctioning fuel pressure sensor, the fuel pressure sensor is part of the intake module fuel (L135).
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned diesel fuel to enter the exhaust system.

Additional information	• A message to immediately turn off engine is displayed to the driver. • Active DPF regeneration is disabled.												
Diagnostic Step-by-Step	Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3793a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3793b</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 6 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 3 </td></tr></table>	Step 1	Step ID 3793a	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 2			Step 2	Step ID 3793b	SRT	Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 6 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 3		
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Step 6	Step ID 3793f	SRT					
Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3793 inactive? • Yes – Proceed to step 7 • No – Return to the troubleshooting steps. Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							

	Step 7	Step ID 3793g	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 8	Step ID 3793h	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, perform stationary DPF regeneration.		
	Back to Index		

P3794

Code number	P3794											
Fault code description	Diesel particulate filter (DPF) - Differential pressure too high, least severe level											
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –PM filter											
Description of component(s)	No information available											
Location of component(s)	No information available											
Diagnostic condition	This diagnostic runs continuously when the engine speed is greater than 500 rpm.											
Set condition of fault code	• The PCI ECU (D420) detects that the differential pressure across the DPF is above the maximum limit. • The PCI ECU (D420) illuminates the malfunction indicator lamp (MIL) immediately after the diagnostic fails.											
Reset condition of fault code	• The DTC status displayed by DAVIE changes to inactive immediately after the differential pressure across the aftertreatment diesel particulate filter has dropped below the maximum severity level and the diagnostic runs and passes. • The PCI ECU (D420) turns off the malfunction indicator lamp (MIL) after three consecutive trips during which the diagnostic runs and passes.											
Electrical diagram(s)	No information available											
Technical data	No information available											
Possible causes	• The aftertreatment diesel particulate filter is plugged with ash. • The engine has been operating under light load conditions that prevent exhaust gas temperatures from being high enough to actively regenerate the DPF. • An engine malfunction that is elevating the engine smoke output.											
Additional information	The aftertreatment differential pressure has exceeded the maximum operating limits, or the DPF is plugged.											
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3791a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3794b</td><td>SRT</td></tr></table> Check for fault codes			Step 1	Step ID 3791a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3794b	SRT
Step 1	Step ID 3791a	SRT										
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.												
Step 2	Step ID 3794b	SRT										

	• Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3794 active? • Yes – Proceed to step 3 • No – Proceed to step 9		
	Step 3	Step ID 3794c	SRT
	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the DPF pressure sensor. Is fault codes related to the DPF pressure sensor active? • Yes – Proceed with the appropriate fault code. • No – Proceed to step 4		
	Step 4	Step ID 3794d	SRT
	Monitor the DPF pressure sensor • Turn the key switch ON. • Engine off. • Monitor the DPF pressure sensor with DAVIE. Is the differential pressure reading 0 ± 0.44 PSI (0 ± 0.03 bar) with the key switch ON and the engine OFF? • Yes – Proceed to step 6 • No – Proceed to step 5		
	Step 5	Step ID 3794e	SRT
	Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockage or leaking. Are there damaged, disconnected or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes – Proceed to step 9 • No – Check for a pin-to-pin short circuit in the differential pressure signal wire. If no short circuit is found, replace the DPF pressure sensor – Proceed to step 9		
	Step 6	Step ID 3794f	SRT
	Check for fault codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the aftertreatment temperature sensors. Is fault codes related to the aftertreatment temperature sensors active? • Yes – Proceed with the appropriate fault code. • No – Proceed to step 7		
	Step 7	Step ID 3794g	SRT
	Monitor the exhaust gas temperature sensors • Turn the key switch ON.		

- Engine idling greater than 10 minutes.
- Monitor the exhaust gas temperature sensors with DAVIE.
 - Idle the engine for 10 minutes to stabilize the exhaust gas temperatures.
 - If any faults occur, go to the appropriate fault code.
 - If no fault occurs, record the value of the DOC and DPF exhaust gas temperature sensors.

Does the value of the sensors vary by more than 75°F (24°C)?

- Yes – Proceed to step 9 after completing the following checks
 - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness.
 - Check for a short circuit in the DOC/DPF temperature sensor interface.
 - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors
- No-- Proceed to step 8

Step 8	Step ID 3794h	SRT

- Inspect the ash cleaning maintenance interval
- Check the ash cleaning maintenance interval. It is possible that the ash cleaning maintenance interval has been ignored and the filter needs to be cleaned.
Refer to the maintenance schedule for the recommended ash cleaning interval
- Has the ash cleaning interval been followed?
- Yes -- Remove and inspect the DPF. Clean or replace the DPF as necessary. An engine-related failure that causes excessive black smoke could be the cause. Proceed to step 9
 - No – Clean the DPF. Proceed to step 9

Step 9	Step ID 3794i	SRT

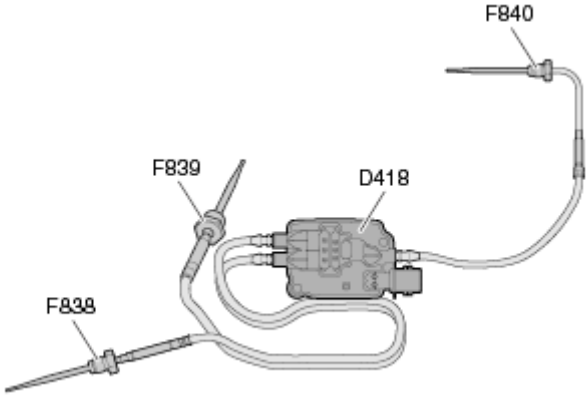
- Disable the Fault Code
- Connect all components.
 - Operate the system within the 'reset condition of the fault code' found in the fault code information.
 - Use DAVIE to verify whether the fault codes are inactive.
- Is fault code P3794 inactive?
- Yes – Proceed to step 10
 - No – Return to the troubleshooting steps - Proceed to step 1
- If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.

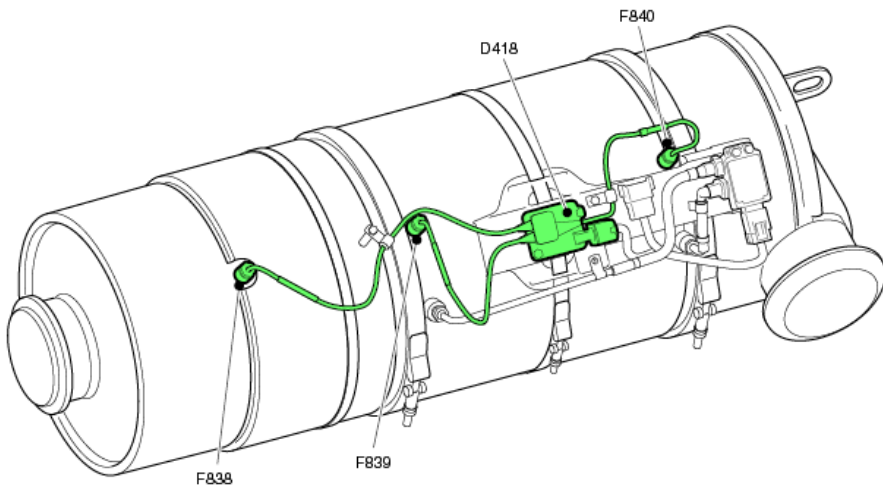
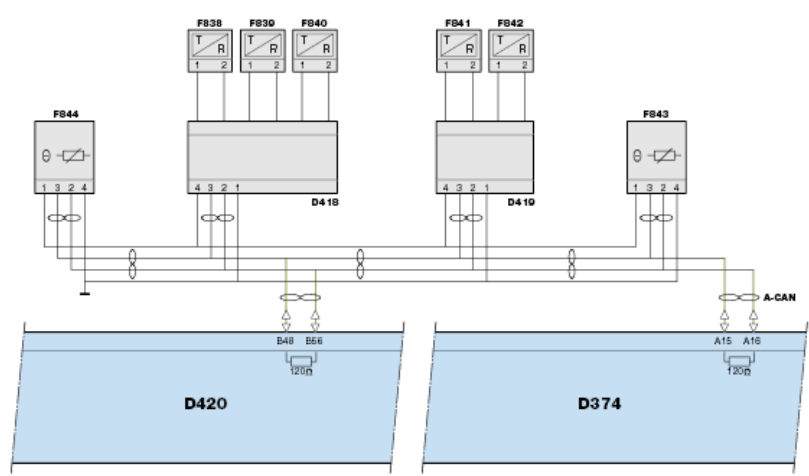
Step 10	Step ID 3794j	SRT

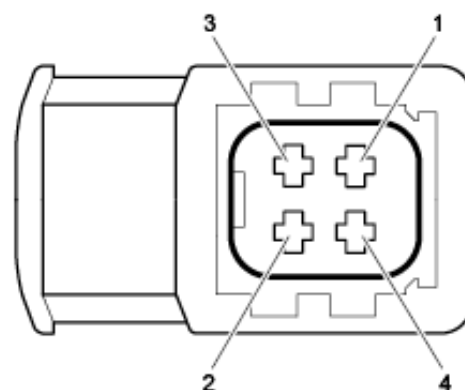
- Clear the inactive fault codes
- Connect all components
 - Turn the key switch ON.
 - Use DAVIE to clear the inactive fault codes.

	Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 11	Step ID 3794k	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.		
	Back to Index		

P3795

Code number	P3795
Fault code description	Exhaust temperature after DPF - Data valid but too high, moderately severe
Fault code information	1 trip red fault lamp 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 General : • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensor is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). 1. Exhaust gas temperature sensor before DOC (F838) 2. Exhaust gas temperature sensor before DPF (F839) 3. Exhaust gas temperature sensor after DPF (F840) Exhaust gas temperature sensor before DOC (F838) • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839) • Measure the exhaust gas temperature before the DPF Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started

	- Controls the regeneration temperature - Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840) - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: - Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	- This diagnostic runs continuously when the engine runs. - No active DPF regeneration is occurring.
Set condition of fault code	The difference between the exhaust gas temperature sensor before DPF (F839) reading and the exhaust gas temperature sensor after DPF (F840) reading is greater than 300°C [575°F] for 90 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

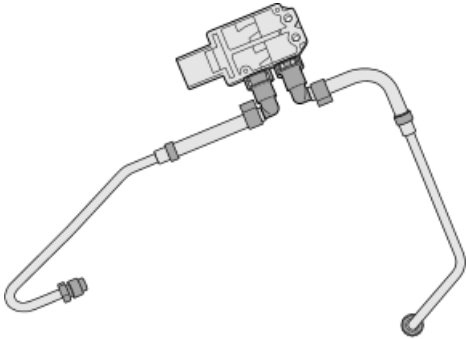
- A malfunctioning fuel injector causing too much fuel to enter the DPF.
- Excessive engine oil introduced into the exhaust system from the engine.
- Malfunctioning fuel pressure sensor, the fuel pressure sensor is part of the intake module fuel (L135).
- A damaged injector solenoid valve cylinder 1-6 (B421-B426) causing unburned diesel fuel to enter the exhaust system.

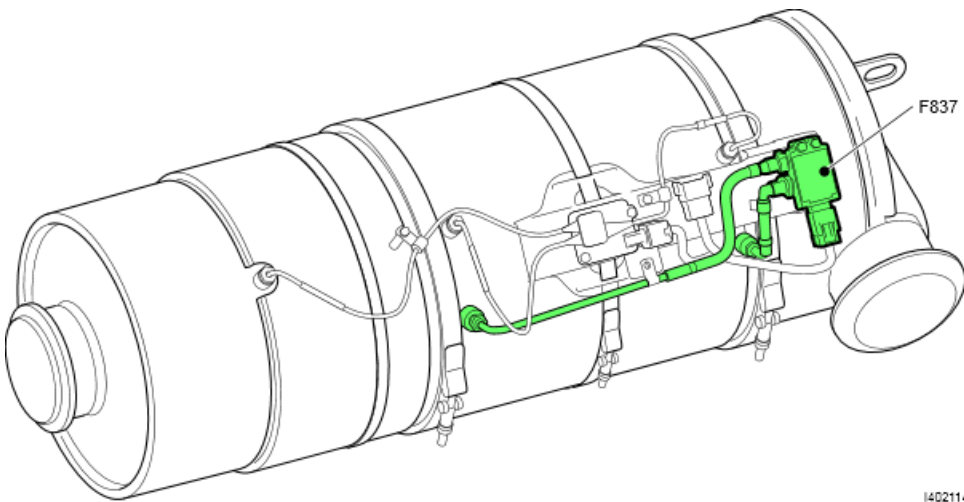
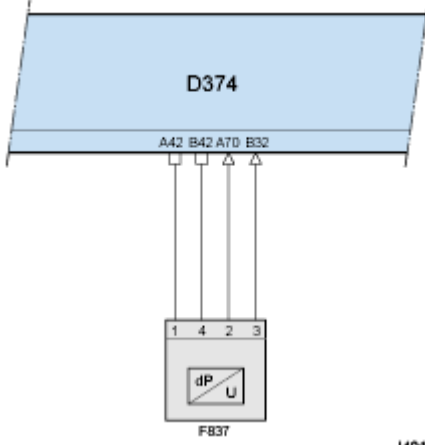
Additional information	• Active DPF regeneration is disabled. • A message to immediately turn off engine is displayed to the driver.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3795a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3795b</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 6 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 3 </td></tr></table>	Step 1	Step ID 3795a	SRT	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code P3756, P3757, P3758, or fault related to component “Fuel intake module” active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 2			Step 2	Step ID 3795b	SRT	Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 6 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 3		
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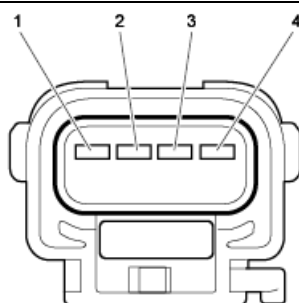
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Step 6	Step ID 3795f	SRT					
Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3786 inactive? • Yes – Proceed to step 7 • No – Return to the troubleshooting steps. Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							

	Step 7	Step ID 3795g	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 8	Step ID 3795h	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, perform stationary DPF regeneration.		
	Back to Index		

P3796

Code number	P3796
Fault code description	Diesel particulate filter (DPF) - Soot level most severe
Fault code information	1 trip MIL + 1 trip Stop Engine lamp 3 drive cycle recovery Readiness group – PM filter Freeze frame type – SCR catalyst
Description of component(s)	DPF pressure sensor (F837) The DPF pressure sensor measures the pressure before and after the DPF.  1402004 The DPF pressure sensor has two output signals: • Pressure after the DPF • Differential pressure over the DPF Effect on the system • Determines the soot load of the PDF. This is an indication of the amount of soot in the DPF. • The pressure after the DPF (back pressure) is used to determine crystallization on the SCR. • DPF diagnostics.

Location of component(s)	 I402114															
Diagnostic condition	This diagnostic runs continuously when the engine runs.															
Set condition of fault code	The EAS-3 ECU (D374) detects that the DPF soot load has exceeded the maximum operating limits.															
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.															
Electrical diagram(s)	 I401855 D374 EAS-3 ECU F837 DPF pressure sensor <table><thead><tr><th>D374</th><th>F837</th><th>Function</th></tr></thead><tbody><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></tbody></table>	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal pressure after DPF	B42	4	Supply
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B32	3	Signal pressure after DPF														
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E504110

Wiring harness connector F837 front view



Handle connectors and pins with care and use matching measuring probes.

Technical data

Component check, DPF pressure sensor (F837)

Preparation

- Disconnect connector F837
- Set the ignition key to ON
- Measure on connector F837

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	Battery negative pole	< 0.5V	Switch all consumers on
4	1	4.75 – 5.25V	

Possible causes

- This DTC indicates that the exhaust gas temperatures exiting the engine are not high enough to actively regenerate the soot that is trapped in the DPF.
- Regeneration inhibit switch applied.
- A possible base engine malfunction that causes excessive black soot to be generated.
- Faulty DPF pressure sensor (F837) and/or DOC/DPF temperature sensors ECU (D418).

Additional information



First check for other DTCs related to the DPF pressure sensor (F837) and/or DOC/DPF temperature sensors ECU (D418). Solve these first.

- The soot level of the diesel particulate filter (DPF) is most severe.
- Soot level 4 (severe) is reached.
- This DTC can activate an engine torque derate.
- DPF regeneration is disabled.

	Engine shutdown request message is displayed to the driver.												
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. - Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. - Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. - It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. - This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Investigate Related DTCs Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC. <table border="1"> <tr> <td colspan="2">Step 1A Investigate related DTCs</td></tr> <tr> <td colspan="2"> Action 1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.  This fault DTC is normally set as the last in a progression of faults as the EAS-3 ECU calculates that the DPF is filling with soot, while no or insufficient regeneration has been taking place. </td></tr> <tr> <td colspan="2">Are any engine, DPF/DOC sensor, or regeneration error related fault DTCs active or recently set?</td></tr> <tr> <td>Yes</td><td>No</td></tr> <tr> <td>Possible engine or DPF/DOC issues are the likely root cause. Refer to the troubleshooting information for these DTCs before continuing with this procedure.</td><td>Possible excessive soot load in DPF or malfunction in the DPF pressure sensor (F837) or wiring.</td></tr> <tr> <td></td><td>Go to step 2A</td></tr> </table> Step 2 DPF Checks	Step 1A Investigate related DTCs		Action 1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.  This fault DTC is normally set as the last in a progression of faults as the EAS-3 ECU calculates that the DPF is filling with soot, while no or insufficient regeneration has been taking place.		Are any engine, DPF/DOC sensor, or regeneration error related fault DTCs active or recently set?		Yes	No	Possible engine or DPF/DOC issues are the likely root cause. Refer to the troubleshooting information for these DTCs before continuing with this procedure.	Possible excessive soot load in DPF or malfunction in the DPF pressure sensor (F837) or wiring.		Go to step 2A
Step 1A Investigate related DTCs													
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Are any engine, DPF/DOC sensor, or regeneration error related fault DTCs active or recently set?													
Yes	No												
Possible engine or DPF/DOC issues are the likely root cause. Refer to the troubleshooting information for these DTCs before continuing with this procedure.	Possible excessive soot load in DPF or malfunction in the DPF pressure sensor (F837) or wiring.												
	Go to step 2A												

Step 2A DAVIE test, regenerate the DPF

Action



This test can take up to 45 minutes to 1 hour to complete.

1. Start the truck, and using cruise control, set and raise the idle to 1,500 rpm to raise the coolant and exhaust temperatures.
2. Perform the prescribed DAVIE test, “regenerate the DPF,” Following the prompts to complete a stationary regeneration.
3. Following completion of the regeneration, use the Repair Support function in DAVIE to disable the DEF derate, if present.
4. Test-drive the vehicle according to either the Transient or Steady State OBD Repair Verification Cycles; drive for approximately 30 minutes.
5. Immediately following test drive, and with the ignition switch still set to ON, use DAVIE to perform a Quick Check for current DTCs.

Is P3796 active?

Yes

No

Repair is complete, no further action required for this fault.

Go to step 2B

Step 2B Visual inspection, DPF pressure sensor (F837)

Action

1. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Damage to the wire harness or insulation
 - The correct parts are not installed
 - ECU connections are damaged or disconnected
 - Batteries not fully charged or contacts are not tight
 - DFP pressure sensor (F837) broken or not installed correctly
 - Exhaust gas pressure tubes for DPF pressure sensor (F837) plugged with soot, kinked, damaged, or installed incorrectly

	Was there evidence of any of the above?	
	Yes	No
	Correct any issues found. If the DPF pressure sensor (F837) is found to be damaged or broken, replace it. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 2C	Go to step 2C
	Step 2C Electrical checks, supply and signal voltage, DPF pressure sensor (F837)	
	 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.	
	Action Confirm the DPF pressure sensor supply and signal voltages as outlined in the corresponding procedure, "<u>component check, DPF pressure sensor (F837).</u>"	
	Are measured values within the expected range?	
	Yes	No
		Possible issue with the sensor supply voltage circuit wiring or EAS-3 ECU sensor voltage supply. Correct any issues found. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
	Go to step 2D	If this DTC is still present, go to step 2D
	Step 2D Electrical checks, resistance, sensor ground circuit, DPF pressure sensor (F837)	
	 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.	
	Action With the ignition key OFF and the DPF pressure sensor (F837)	

and the EAS-3 ECU (D374) disconnected:

check the resistance between pin 1 of the DPF pressure sensor (F837) connector and pin A42 of the EAS-3 ECU (D374) connector.

The expected value is < 10 Ω.

Is the measured value within the expected range?

Yes

No

Possible issue with sensor ground circuit wiring between the DPF pressure sensor (F837) and the EAS-3 ECU (D374). Correct any issues found.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action



The purpose of this repair verification is to allow the PCI and EAS-3 ECU's to determine the DPF soot load. A full stationary regeneration was already performed in troubleshooting Step 2.

1. Steady State

This cycle is best performed on a level grade road (least amount of incline possible) and under load using a trailer. If a loaded trailer is unavailable, produce engine load by turning the A/C and fan to ON.

With the System Initiation cycle complete, proceed to a road with a minimum speed limit of 50 mph, then get to the highest gear possible with

	the engine speed between 1100-1500 rpm, and set the cruise control. Run this cycle for roughly 3 to 5 miles or in three separate 1-mile increments if a steady 3 to 5 miles is unachievable.	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 3B	
Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors		
Action Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. - Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready." A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is "Not ready," continue to action step 2. - View the DTC overview display, and confirm that P3796 has been cleared.		
Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3796 been cleared?		
Yes		No
Problem resolved. No further actions.		Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again. If this issue is still present after

	extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.  Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
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P3797

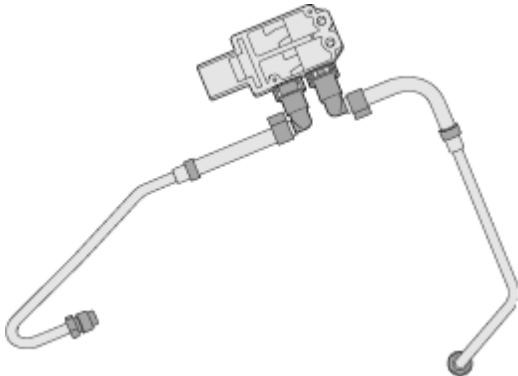
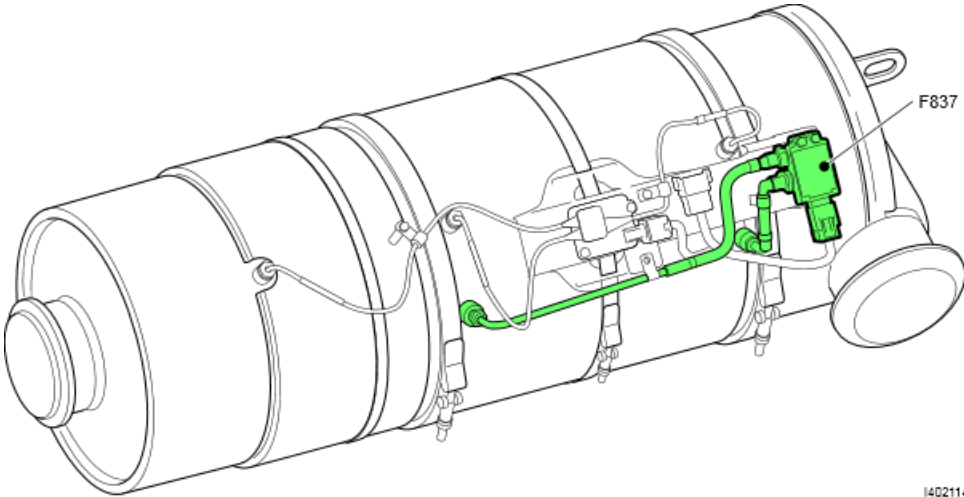
Code number	P3797														
Fault code description	Diesel particulate filter(DPF) - Soot level least severe														
Fault code information	1 trip MIL 255 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst														
Description of component(s)	No information available														
Location of component(s)	No information available														
Diagnostic condition	This diagnostic runs continuously when the engine speed is greater than 500 rpm.														
Set condition of fault code	The EAS-3 ECU (D374) detects that the soot load of the DPF has reached the first stage of plugging.														
Reset condition of fault code	The aftertreatment system must be regenerated to remove the soot.														
Electrical diagram(s)	No information available														
Technical data	No information available														
Possible causes	• This DTC indicates that the exhaust temperatures exiting the turbocharger are not high enough to actively regenerate the soot trapped in the aftertreatment diesel particulate filter. Vehicle was not able to successfully conduct mobile regeneration • Check if no other related DTCs are active. No faults on engine exhaust mass flow or aftertreatment temperature and pressure sensors. First solve other DTCs before taking action for this DTC.														
Additional information	EGR valve is disabled														
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3797a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3797b</td><td>SRT</td></tr><tr><td colspan="3">Check for fault codes Troubleshooting steps • Turn the key switch ON. • Use DAVIE to check for fault codes. </td></tr></table>			Step 1	Step ID 3797a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3797b	SRT	Check for fault codes Troubleshooting steps • Turn the key switch ON. • Use DAVIE to check for fault codes.		
Step 1	Step ID 3797a	SRT													
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.															
Step 2	Step ID 3797b	SRT													
Check for fault codes Troubleshooting steps • Turn the key switch ON. • Use DAVIE to check for fault codes.															

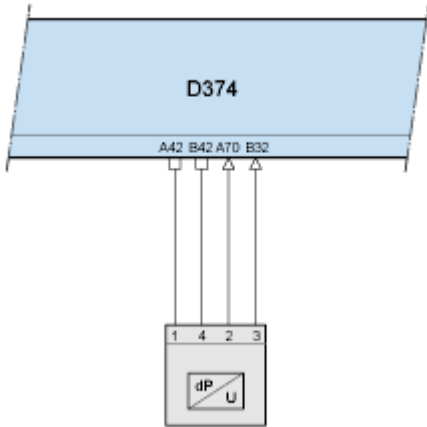
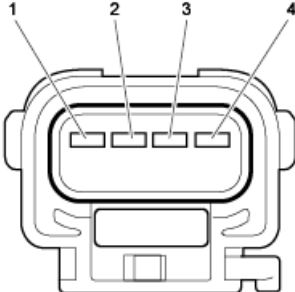
	Are fault codes other than P3797 active? • Yes – The DPF has been blocked with particulates. Inspect the DPF. Clean or replace as necessary. Continue to troubleshoot the cause of the high DPF particulate load. Proceed to step 3 • No – Proceed to step 7		
	Step 3	Step ID 3797c	SRT
	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the aftertreatment temperature sensors. Does other fault related to “Exhaust temperature before DOC sensor, and Exhaust temperature after DPF sensor “occur? • Yes – Proceed with the appropriate fault code. • No – Proceed to step 4		
	Step 4	Step ID 3797d	SRT
	Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the DOC and DPF exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the DOC/DPF temperature sensor interface. • If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. • No – Proceed to step 5		
	Step 5	Step ID 3797e	SRT
	Monitor the DPF Pressure Sensor Accuracy • Turn the key switch ON. • Engine off. • Monitor the DPF pressure sensor reading with DAVIE. An exhaust ventilation system connected to the exhaust can influence the DPF pressure sensor reading. Remove any ventilation or vacuum system before reading the DPF pressure. Is the DPF differential pressure reading 0 ±0.44 psi (0 ±0.03 bar) with key switch ON		

	and engine OFF? • Yes – Troubleshoot possible engine failure creating excessive black smoke. Proceed to step 7 • No – Proceed to step 6		
	Step 6	Step ID 3797f	SRT
	Inspect the DPF Pressure Sensor Tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockage. Are there damaged, disconnected, or blocked tubes? • Yes – Clean, repair or replace the damaged pressure sensor tubes – Proceed to step 7 • No – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the DPF pressure sensor to all other pins in the harness. • If no short circuit is found, replace the DPF pressure sensor.		
	Step 7	Step ID 3797g	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify that the fault codes are inactive. Is fault code P3797 inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps – Proceed to step 1A (If all the steps have been completed and rechecked, proceed with step 9.)		
Step 8	Step ID 3797h	SRT	
Clear the Inactive Fault Codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes			
Step 9	Step ID 3797i	SRT	
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm.		

	• Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.
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P3798

Code number	P3798
Fault code description	Diesel particulate filter (DPF) - Soot level moderately severe
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – PM filter Freeze frame type – SCR catalyst
Description of component(s)	 DPF pressure sensor (F837) - Measures the differential pressure over the DPF. - Measures pressure after the DPF. Effect of output signal on the system - Determining the soot load of the DPF, which is an indication of how much soot is located inside the DPF. - Calculation of the duration of the regeneration - Diagnostics of DPF
Location of component(s)	 I402114

Diagnostic condition	This diagnostic runs continuously when the engine runs.															
Set condition of fault code	The EAS-3 ECU (D374) detects that the soot load of the aftertreatment Diesel Particulate Filter is moderately severe. The aftertreatment system must be regenerated to remove the soot.															
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.															
Electrical diagram(s)	 I401855 D374 EAS-3 ECU F837 DPF pressure sensor <table border="1"><thead><tr><th>D374</th><th>F837</th><th>Function</th></tr></thead><tbody><tr><td>A42</td><td>1</td><td>Ground</td></tr><tr><td>A70</td><td>2</td><td>Signal, delta pressure over DPF</td></tr><tr><td>B32</td><td>3</td><td>Signal pressure after DPF</td></tr><tr><td>B42</td><td>4</td><td>Supply</td></tr></tbody></table>  E504110 Wiring harness connector F837 front view	D374	F837	Function	A42	1	Ground	A70	2	Signal, delta pressure over DPF	B32	3	Signal pressure after DPF	B42	4	Supply
D374	F837	Function														
A42	1	Ground														
A70	2	Signal, delta pressure over DPF														
B32	3	Signal pressure after DPF														
B42	4	Supply														



Handle connectors and pins with care and use matching measuring probes.

Technical data	Component check, DPF pressure sensor (F837) Preparation • Disconnect connector F837. • Switch on the ignition. • Measure on connector F837. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>1</td><td>Battery negative pole</td><td>< 0.5V</td><td>Switch all consumers on</td></tr><tr><td>4</td><td>1</td><td>4.75 – 5.25V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	1	Battery negative pole	< 0.5V	Switch all consumers on	4	1	4.75 – 5.25V	
Pin (+ probe)	Pin (- probe)	Value	Additional information										
1	Battery negative pole	< 0.5V	Switch all consumers on										
4	1	4.75 – 5.25V											
Possible causes	• This DTC can be triggered if the application is not operating at a duty cycle high enough to actively regenerate the DPF. • Regeneration inhibit switch applied. • A possible base engine malfunction that causes excessive black soot to be generated. • Faulty DPF pressure sensor (F837) and/or DOC/DPF temperature sensors ECU (D418).												
Additional information	 First check for other DTCs related to the DPF pressure sensor (F837) and/or DOC/DPF temperature sensors ECU (D418). Resolve these first. • The soot level of the diesel particulate filter (DPF) is moderately severe. • Soot level 3 (high) is reached. • This DTC can activate an engine torque derate.												
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections												

in Rapido for the most up-to-date changes.

- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 DPF Checks

Step 1A DAVIE test, Regenerate the DPF

Action



This test can take up to 45 minutes to 1 hour to complete.

1. Start the truck, and using cruise control, set and raise the idle to 1,500 rpm to raise the coolant and exhaust temperatures.
2. Navigate DAVIE to the DPF Regeneration Test. Follow the prompts to complete a Stationary Regeneration.
3. Following completion of the Regeneration, navigate DAVIE to the Repair Support section and disable any present derates.
4. Test-drive the vehicle according to either the Transient or Steady State OBD Repair Verification Cycles; drive for approximately 30 minutes.
5. Immediately following test drive, with ignition key still ON, reset Quick Check with DAVIE (or reconnect DAVIE and navigate to Quick Check).

Is P3796 active?

Yes

No

Repair is complete, no further action required for this fault.
Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

Go to step 1B

Step 1B Visual inspection, DPF pressure sensor (F837)

Action

1. Visually inspect the associated component connections and wiring for any of the following:

- Damaged or loose connectors
- Bent, broken, corroded or loose connector pins
- Moisture or dirt in the connections
- Damage to the wire harness or insulation
- The correct parts are not installed
- ECU connections are damaged or disconnected
- Batteries not fully charged or contacts are not tight
- DFP pressure sensor (F837) broken or not installed correctly
- Exhaust gas pressure tubes for DPF pressure sensor (F837) plugged with soot, kinked, damaged, or installed incorrectly

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DPF pressure sensor (F837) is found to be damaged or broken, replace it. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 1C

Go to step 1C

Step 1C Electrical checks, supply and signal voltage, DPF pressure sensor (F837)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Confirm the DPF differential pressure sensor supply and signal voltages as outlined in the corresponding procedure, "component check, DPF pressure sensor (F837)."

Are measured values within the expected range?

Yes

No

Possible issue with the sensor supply voltage circuit wiring or EAS-3 ECU sensor voltage supply. Correct any issues found. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

Go to step 1D

If this DTC is still present, go to step 1D

Step 1D Electrical checks, resistance, sensor ground circuit, DPF pressure sensor (F837)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. With the ignition key OFF and the DPF pressure sensor (F837) and the EAS-3 ECU (D374) disconnected:

Check the resistance between pin 1 of the DPF pressure sensor (F837) connector and pin A42 of the EAS-3 ECU (D374) connector.

The expected value is $< 10 \Omega$.

Is the measured value within the expected range?

Yes

No

Possible issue with sensor ground circuit wiring between the DPF pressure sensor (F837) and the EAS-3 ECU (D374). Correct any issues found.
Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

Go to step 2B

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Call Center for further assistance.

Step 2 Repair Verification

Step 2A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Action



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

The purpose of this repair Verification is to allow the PCI and EAS-3 ECU's to determine the DPF soot load. A full stationary regeneration was already performed in troubleshooting Step 2.

1. Steady State

This cycle is best performed on a level grade road (least amount of incline possible) and under load using a trailer. If a loaded trailer is unavailable, produce engine load by turning the A/C and fan to ON.

With the System Initiation cycle complete, proceed to a road with a minimum speed limit of 50 mph, then get to the highest gear possible with the engine speed between 1100-1500 rpm, and set the cruise control. Run this cycle for roughly 3 to 5 miles or in three separate 1-mile increments if a steady 3 to 5 miles is unachievable.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 2B

Go to step 2B

Step 2B - DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready."
A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.
If the displayed status is "Not ready," continue to action step 2.
2. View the DTC overview display, and confirm that P3798 has been cleared.

Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3798 been cleared?

Yes

No

	Problem resolved. No further actions. Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 2A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
	Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center. Back to Index

P3799

Code number	P3799										
Fault code description	Diesel particulate filter (DPF) - Soot level moderately severe										
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type –SCR catalyst										
Description of component(s)	No information available										
Location of component(s)	No information available										
Diagnostic condition	This diagnostic monitors the after treatment diesel particulate filter differential pressure sensor. When the differential pressure is below a minimum value and exhaust flow rate is above a minimum flow rate, the DTC is set.										
Set condition of fault code	This diagnostic monitors the after treatment diesel particulate filter differential pressure sensor. When the differential pressure is below a minimum value and exhaust flow rate is above a minimum flow rate, the DTC is set.										
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.										
Electrical diagram(s)	No information available										
Technical data	No information available										
Possible causes	• DOC-DPF pressure sensor (F837) malfunctioning. Or incorrectly connected tubes. • Wrong Engine mass flow information. • Check fuel dosing module (L124) with DAVIE.										
Additional information	No additional information available										
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <thead> <tr> <th>Step 1</th><th>Step ID 3799a</th><th>SRT</th></tr> </thead> <tbody> <tr> <td colspan="3"> Visually inspect the associated component connections for any of the following: • Exhaust leaks between the VGT and DPF • Broken or missing clamps between the Turbo and Inlet DOC • The DPF and related sensors are not properly installed • The DPF Pressure Sensor tubes are damaged or are not securely connected • Signs of tampering with the after treatment system </td></tr> <tr> <td colspan="3">Was there evidence of an exhaust leak in this area?</td></tr> </tbody> </table>		Step 1	Step ID 3799a	SRT	Visually inspect the associated component connections for any of the following: • Exhaust leaks between the VGT and DPF • Broken or missing clamps between the Turbo and Inlet DOC • The DPF and related sensors are not properly installed • The DPF Pressure Sensor tubes are damaged or are not securely connected • Signs of tampering with the after treatment system			Was there evidence of an exhaust leak in this area?		
Step 1	Step ID 3799a	SRT									
Visually inspect the associated component connections for any of the following: • Exhaust leaks between the VGT and DPF • Broken or missing clamps between the Turbo and Inlet DOC • The DPF and related sensors are not properly installed • The DPF Pressure Sensor tubes are damaged or are not securely connected • Signs of tampering with the after treatment system											
Was there evidence of an exhaust leak in this area?											

- No: Continue to the next step in the troubleshooting process.
- Yes: Repair or replace affected components for any issues identified.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active. Proceed to step 2.

Step 2

Step ID 3799b

SRT

DPF pressure sensor tubes

Remove the DPF pressure sensor tubes and visually inspect for any blockages or restrictions.

Was there evidence of any blockage or restriction?

- No: Continue to the next step in the troubleshooting process.
- Yes: Clean, adjust, repair, or replace affected components for any issues identified.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active, Proceed to step 3

Step 3

Step ID 3799c

SRT

Monitor DPF pressure sensors

For this monitor, you will need the ignition key ON, and the engine OFF.

Monitor the associated pressure sensors.

- DPF Pressure Sensor readings should be 0 ± 1.5 kPa [0 ± 0.44 in Hg]

Do the monitored values appear incorrect?

- No: Continue to the next step in the troubleshooting process.
- Yes: Clean adjust, repair or replace affected components for any issues identified.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active, proceed to step 4

Step 4

Step ID 3799d

SRT

Monitor all after treatment temperature sensors:

- Allow the engine to idle for a minimum of 10 minutes to allow the temperature sensors to stabilize
- While monitoring, no sensor should vary by more than 75°F (24°C)

Do any monitored values vary by more than 75°F (24°C)?

- No: Continue to the next step in the troubleshooting process.
- Yes: Clean adjust, repair or replace affected components for any issues identified.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active, proceed to step 5

	Step 5	Step ID 3799e	SRT
	Visual Inspection: DPF - Cracks or damage to the catalyst cells - Damage to DOC inlet or outlet - Soot plugging; 50% or more of the cells in the catalyst being plugged Was there evidence of any of the above? - No: Continue to the next step in the troubleshooting process. - Yes: Clean, adjust, repair, or replace affected components for any issues identified. If soot plugging was found, perform a manual cleaning of the DPF or perform a stationary regeneration. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, proceed to step 6		
	Step 6	Step ID 3799f	SRT
	Perform the DPF regeneration test - Turn the key switch ON. - Start the engine. - Perform the 'DPF regeneration test.' For more information go to 'Explanatory notes to DAVIE.' Is fault code P3799 active after the regeneration is completed? - Yes: Check for active fault codes that may have become active during the regeneration. Troubleshoot possible engine failure creating excessive black smoke. Proceed to step 7 - No: Check for a damaged DPF. Proceed to step 7		
	Step 7	Step ID 3799g	SRT
	Disable the fault code - Connect all components. - Operate the system within 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify if the fault codes are inactive. Is fault code P3799 inactive? - Yes: Proceed to step 8 - No: Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 8	Step ID 3799h	SRT
	Clear the inactive fault codes - Connect all components. - Turn the key switch ON. - Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared?		

	• Yes: Repair complete • No: Troubleshoot any remaining active fault codes						
	<table><tr><td>Step 9</td><td>Step ID 3799i</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 9	Step ID 3799i	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 9	Step ID 3799i	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

P3800

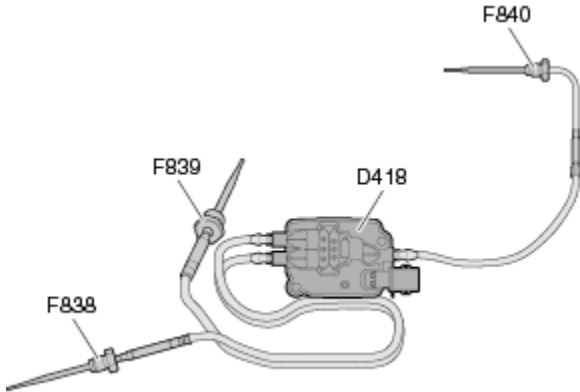
Code number	P3800								
Fault code description	Diesel particulate filter (DPF) - Regeneration completed but insufficient								
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – PM Filter Freeze frame type –SCR catalyst								
Description of component(s)	No information available								
Location of component(s)	No information available								
Diagnostic condition	This diagnostic runs after completion of a successful active DPF regeneration.								
Set condition of fault code	The estimated soot load in the DPF, calculated using the DPF pressure sensor (F837), is higher than a threshold.								
Reset condition of fault code	To validate the repair, perform DPF regeneration test in DAVIE.								
Electrical diagram(s)	No information available								
Technical data	No information available								
Possible causes	• Malfunctioning fuel dosing module (L124). • Malfunctioning temperature sensors DOC-DPF ECU (D418). • Malfunctioning temperature sensors SCR catalyst ECU (D419). • Face plugged DOC. • Malfunctioning or stuck in-range after treatment DPF pressure sensor (F837). • An engine malfunction resulting in high levels of smoke from the engine. • Damaged or malfunctioning vehicle wiring harness to the DPF pressure sensor (F837). • After treatment DPF with excessive ash accumulation. • An excessive ash accumulation condition reduces the soot holding capability of the DPF and causes frequent after treatment regenerations.								
Additional information	• The system has detected that the after treatment diesel particulate filter (DPF) differential pressure is too high following an active regeneration. • Possible frequent need for after treatment regeneration.								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3800a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic</td></tr></table>			Step 1	Step ID 3800a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic		
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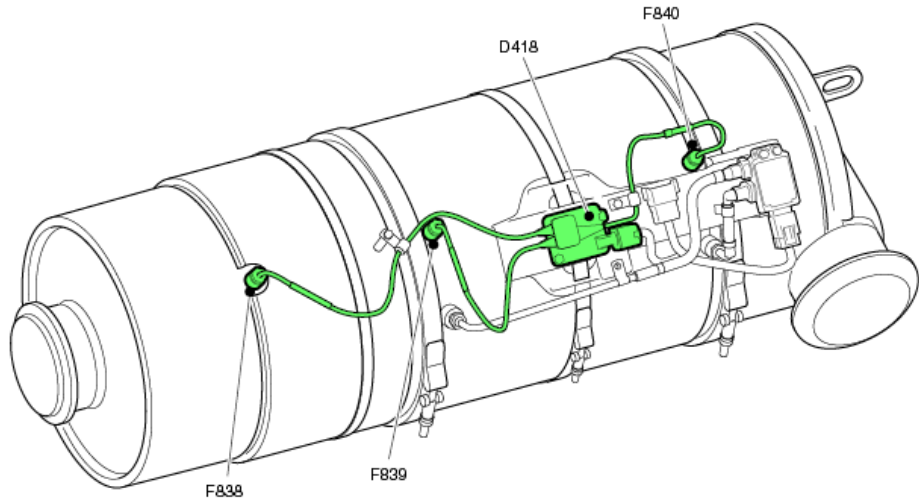
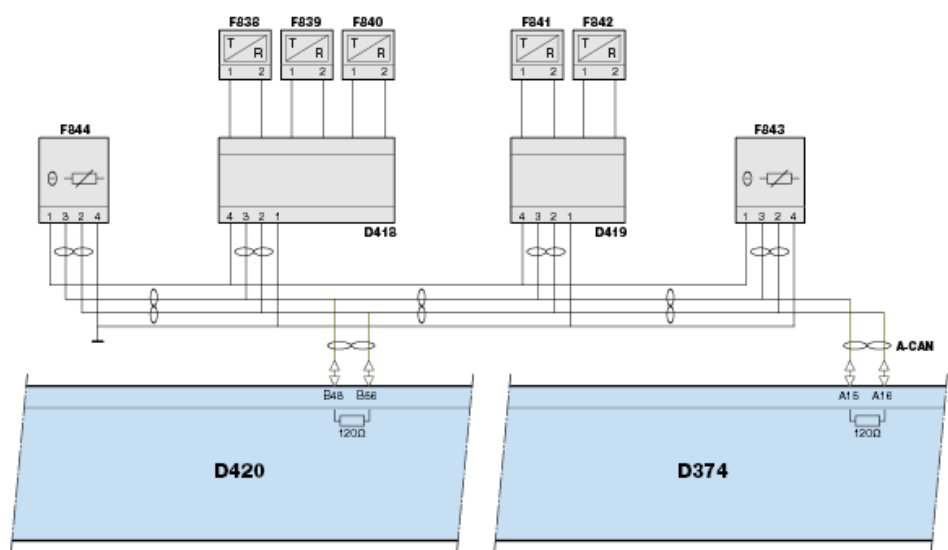
procedure. Proceed to step 2.		
Step 2	Step ID 3800b	SRT
Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is fault code P3800 active? • Yes – Proceed to step 3 • No – Proceed to step 9		
Step 3	Step ID 3800c	SRT
Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes. Is the fault related to below components are active: • DPF pressure sensor • Yes – Proceed with the appropriate fault to reset that fault. • No – Proceed to step 4.		
Step 4	Step ID 3800d	SRT
Check for fault codes • Turn the key switch ON. • Check for engine-related fault codes • Use DAVIE to check for fault codes. Are fault codes related to the engine active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 5		
Step 5	Step ID 3800e	SRT
Monitor the DPF pressure sensor • Turn the key switch ON. • Engine OFF. • Monitor the DPF pressure sensor with DAVIE. Is the differential pressure reading 0 ± 0.44 PSI (0 ± 0.03 bar) with key switch ON and engine OFF? • Yes – Proceed to step 7 • No – Proceed to step 6		
Step 6	Step ID 3800f	SRT
Inspect the DPF pressure sensor tubes • Turn the key switch OFF. • Disconnect the DPF pressure sensor tubes. • Check the DPF pressure sensor tubes for blockages or leakages. Are there damaged, disconnected or blocked tubes?		

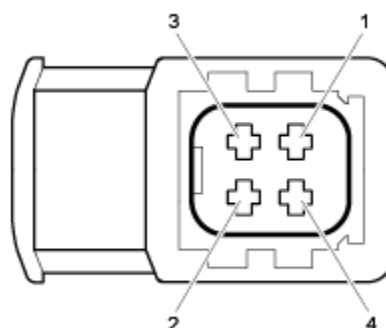
	• Yes – Clean, repair or replace the damaged pressure sensor tubes – Proceed to step 9 • No – Check for a pin-to-pin short circuit in the differential pressure signal wire. If no short circuit is found, replace the DPF pressure sensor – Proceed to step 9		
	Step 7	Step ID 3800g	SRT
	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing system override test' and the 'dosing module leak test'. For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? • Yes – Proceed to step 8 • No – Replace the fuel dosing module - Proceed to step 9		
	Step 8	Step ID 3800h	SRT
	Inspect the DOC for soot accumulation • Turn the key switch OFF. • Remove the DOC. • Check the inlet of the DOC for soot accumulation. Are more than 50 percent of the cells completely blocked? • Yes – Clean the DOC. An engine-related failure that causes excessive exhaust smoke could be the cause. Proceed to step 9 • No – An engine-related failure that causes excessive exhaust smoke could be the cause. Proceed to step 9		
	Step 9	Step ID 3800i	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code P3791 inactive? • Yes – Proceed to step 10 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 10	Step ID 3800j	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes.		

	Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes <table><tr><td>Step 11</td><td>Step ID 3800k</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 11	Step ID 3800k	SRT
Step 11	Step ID 3800k	SRT		
Verification Drive Cycle	To validate the repair: • This test can take up to 45 minutes to 1 hour to complete. • Start the truck and using cruise control, bump and set the idle to 1,500 rpm. • Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.			
	Back to Index			

P3801

Code number	P3801
Fault code description	Inhibit switch - Used in soot level 1 or higher
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR Catalyst
Description of component(s)	 1. Exhaust gas temperature sensor before DOC (F838) 2. Exhaust gas temperature sensor before DPF (F839) 3. Exhaust gas temperature sensor after DPF (F840) General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DOF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DOF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DOF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838): • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839): • Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature

	- Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840): - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously after ignition is keyed on.
Set condition of fault code	This DTC is set when DPF regeneration is requested by the EAS-3 ECU (D374) but is prohibited by the inhibit switch.
Reset condition of fault code	To validate the repair, start the engine and let it idle for 1 minute with the inhibit switch enabled.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- The inhibit switch prevented the after treatment system from performing a mobile regeneration.
- Possible damage to the DPF.
- Disable the inhibit switch to allow active DPF regeneration.

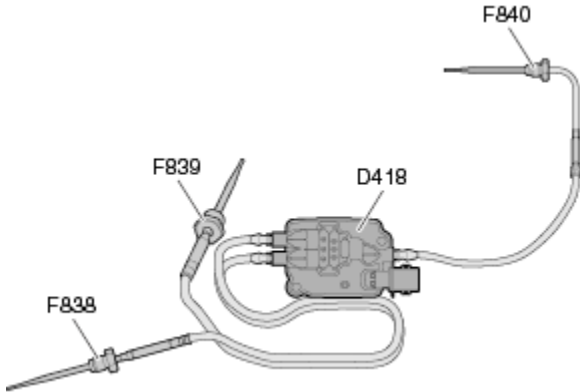
Additional information

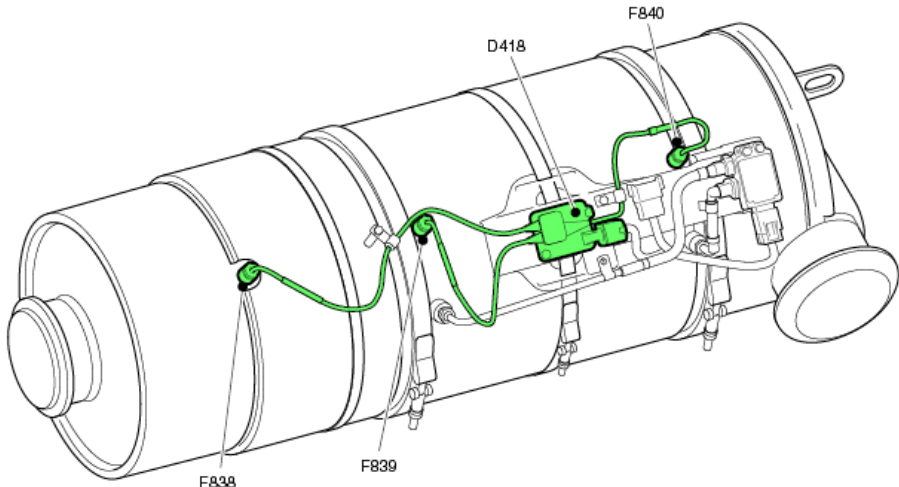
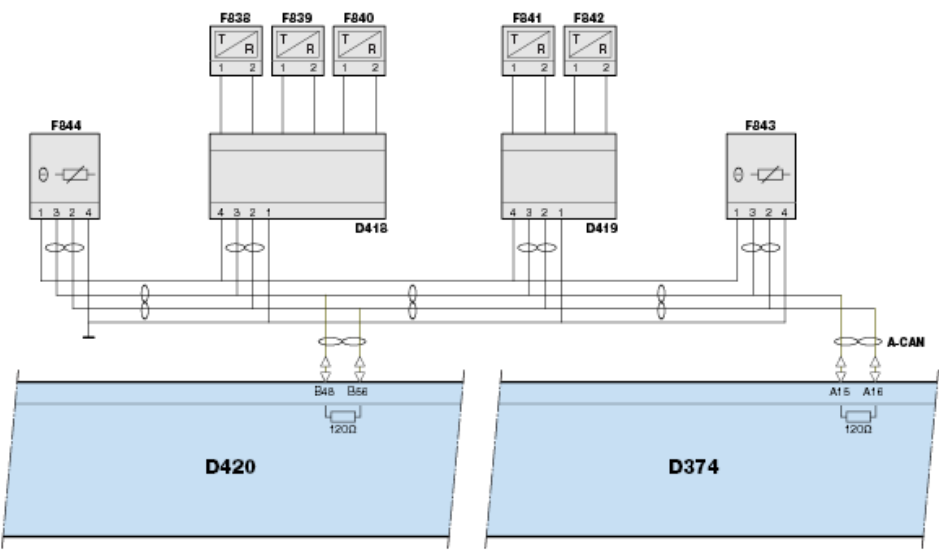
- Regeneration of the DPF has been prevented due to disabling of inhibit switch being disable.
- If this DTC is active and there has been damage to the aftertreatment system, the inhibit switch can possibly have prevented the aftertreatment system from performing active regeneration.

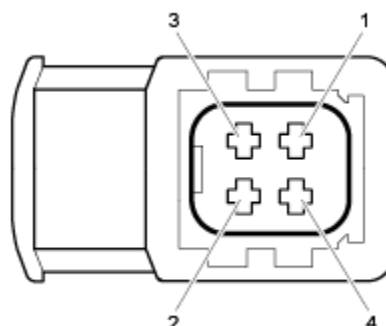
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.						
	<table><tr><td>Step 1</td><td>Step ID 3801a</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Is fault code P3792 active? • Yes – Check if the after treatment system is in good condition - Proceed to step 2 • No – Proceed to step 2 </td></tr></table>	Step 1	Step ID 3801a	SRT	Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Is fault code P3792 active? • Yes – Check if the after treatment system is in good condition - Proceed to step 2 • No – Proceed to step 2		
	Step 1	Step ID 3801a	SRT				
	Troubleshooting steps • Turn the Key switch ON. • Use DAVIE to check for fault codes. Is fault code P3792 active? • Yes – Check if the after treatment system is in good condition - Proceed to step 2 • No – Proceed to step 2						
	<table><tr><td>Step 2</td><td>Step ID 3801b</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is fault code P3792 inactive? • Yes – Proceed to step 3 • No – Return to the troubleshooting steps Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 2	Step ID 3801b	SRT	Troubleshooting steps • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is fault code P3792 inactive? • Yes – Proceed to step 3 • No – Return to the troubleshooting steps Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
Step 2	Step ID 3801b	SRT					
Troubleshooting steps • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify if the fault codes are inactive. Is fault code P3792 inactive? • Yes – Proceed to step 3 • No – Return to the troubleshooting steps Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.							
<table><tr><td>Step 3</td><td>Step ID 3801c</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 3	Step ID 3801c	SRT	Troubleshooting steps • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes			
Step 3	Step ID 3801c	SRT					
Troubleshooting steps • Connect all components. • Turn the Key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes							
Verification Drive Cycle	Not available/required for this code.						

Back to Index

P3802

Code number	P3802
Fault code description	Diesel particulate filter (DPF) - Filter severely damaged
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR Catalyst
Description of component(s)	 4. Exhaust gas temperature sensor before DOC (F838) 5. Exhaust gas temperature sensor before DPF (F839) 6. Exhaust gas temperature sensor after DPF (F840) General • Thermocouple sensors. • The temperature sensors are connected to the ECU DOC-DPF temperature sensors (D418). The signal of the temperature sensors is transmitted to the A-CAN by the ECU DOC-DPF temperature sensors (D418). • The temperature sensors cannot be disconnected or replaced separately from the ECU DOC-DPF temperature sensors (D418). Exhaust gas temperature sensor before DOC (F838): • Measure the exhaust gas temperature before the DOC. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DPF (F839) • Determines if a regeneration can be started • Calculates the amount of fuel that must be injected • Determines if the heating of the NOx sensor before catalytic converter (F844) is required in order to reach the operating temperature Exhaust gas temperature sensor before DPF (F839): • Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: • Calculates the temperature rise over the DOC in combination with the signal of the exhaust gas temperature sensor before DOC (F838) • Determines whether regeneration has started • Controls the regeneration temperature

	- Calculates the amount of fuel that must be injected - Diagnoses the DOC efficiency Exhaust gas temperature sensor after DPF (F840): - Measure the exhaust gas temperature before the DPF. Effect of the output signal on the system: Protects the DPF against excessively high temperature
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine runs.
Set condition of fault code	The exhaust gas temperature sensor after DPF (F840) reading exceeds 950°C [1742°F] for 30 seconds, or the difference between the exhaust gas temperature sensor before DPF (F839) and the exhaust gas temperature sensor after DPF (F840) is greater than 540°C [1000°F] for 15 seconds.
Reset condition of fault code	To validate the repair, perform stationary DPF regeneration.
Electrical diagram(s)	



Wiring harness connector D418 front view

D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D374	D418	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component & wiring check, Temperature sensors DOC-DPF ECU (D418)

Preparation

- Disconnect connector D418.
- Ignition switched on.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D418.
- Measure on connector D418.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- The DPF has been damaged.
- Excessive engine oil or fuel being introduced into the exhaust system from the engine.
- A malfunctioning injector solenoid valve cylinder 1-6 (B421-B426) causing unburned fuel to enter the exhaust system.
- The exhaust gas temperature sensor after DPF (F840) malfunctioning in-range.
- Damaged fuel dosing module (L124).
- Damaged fuel pressure sensor inside the fuel intake module (L135).

Additional information	- Regeneration of the DPF has been prevented due to disabling of inhibit switch being disable. - If this DTC is active and there has been damage to the after treatment system, the inhibit switch can possibly have prevented the after treatment system from performing active regeneration.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3802a</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code related to Exhaust temperature before DOC sensor, Exhaust temperature before DPF Sensor and Exhaust temperature after DPF (F840) sensor active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3802b</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the DOC and DPF exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the DOC/DPF temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. - No – Proceed to step 3 </td></tr></table>	Step 1	Step ID 3802a	SRT	Troubleshooting steps - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault code related to Exhaust temperature before DOC sensor, Exhaust temperature before DPF Sensor and Exhaust temperature after DPF (F840) sensor active? - Yes – Proceed with the appropriate fault code - No – Proceed to step 2			Step 2	Step ID 3802b	SRT	Troubleshooting steps - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the DOC and DPF exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the DOC/DPF temperature sensor interface. - If no short circuit is found, replace the temperature sensor that is reading higher or lower than the other sensors. - No – Proceed to step 3		
Step 1	Step ID 3802a	SRT											
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	<table><tr><td>Step 3</td><td>Step ID 3802c</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps - Remove the DPF. - Inspect the DPF. - Check the DPF for damage and/or cracks. Is the DPF damaged or cracked? - Yes – Replace the DPF - Proceed to step 4 - No – Proceed to step 4 </td></tr></table>	Step 3	Step ID 3802c	SRT	Troubleshooting steps - Remove the DPF. - Inspect the DPF. - Check the DPF for damage and/or cracks. Is the DPF damaged or cracked? - Yes – Replace the DPF - Proceed to step 4 - No – Proceed to step 4		
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	<table><tr><td>Step 4</td><td>Step ID 3802d</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 5 - No – Proceed to step 5 </td></tr></table>	Step 4	Step ID 3802d	SRT	Troubleshooting steps - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 5 - No – Proceed to step 5		
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<table><tr><td>Step 5</td><td>Step ID 3802e</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? - Yes – Replace the DOC - Proceed to step 6 - No – Proceed to step 6 </td></tr></table>	Step 5	Step ID 3802e	SRT	Troubleshooting steps - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? - Yes – Replace the DOC - Proceed to step 6 - No – Proceed to step 6			
Step 5	Step ID 3802e	SRT					
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<table><tr><td>Step 6</td><td>Step ID 3802f</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? - Yes – An engine-related failure, such as high oil consumption and fuel system problems, could be the cause. Check for engine-related failures. Proceed to step 7 - No – Failed fuel dosing module. Replace the fuel dosing module and inspect the after treatment system for possible damage - Proceed to step 7 </td></tr></table>	Step 6	Step ID 3802f	SRT	Troubleshooting steps - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? - Yes – An engine-related failure, such as high oil consumption and fuel system problems, could be the cause. Check for engine-related failures. Proceed to step 7 - No – Failed fuel dosing module. Replace the fuel dosing module and inspect the after treatment system for possible damage - Proceed to step 7			
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<table><tr><td>Step 7</td><td>Step ID 3802g</td><td>SRT</td></tr><tr><td colspan="3">Troubleshooting steps - Connect all components. - Operate the system within the 'reset condition of the fault code' found in </td></tr></table>	Step 7	Step ID 3802g	SRT	Troubleshooting steps - Connect all components. - Operate the system within the 'reset condition of the fault code' found in			
Step 7	Step ID 3802g	SRT					
Troubleshooting steps - Connect all components. - Operate the system within the 'reset condition of the fault code' found in							

	the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault related to DPF pressure sensor– Particulate level severe inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.						
	<table><tr><td>Step 8</td><td>Step ID 3802h</td><td>SRT</td></tr><tr><td colspan="3"> Troubleshooting steps • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 8	Step ID 3802h	SRT	Troubleshooting steps • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
Step 8	Step ID 3802h	SRT					
Troubleshooting steps • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes							
Verification Drive Cycle	Not available/required for this code.						
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P3804

Code number	P3804
Fault code description	Inhibit switch – Timer-based regeneration inhibit
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please contact the Engine Support Center
Location of component(s)	
Diagnostic condition	
Set condition of fault code	
Reset condition of fault code	
Electrical diagram(s)	
Technical data	
Possible causes	
Additional information	
Diagnostic Step-by-Step	
Verification Drive Cycle	
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P3805

Code number	P3805
Fault code description	DPF active regeneration - Unable to perform due to system time out
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust Gas
Description of component(s)	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please contact the Engine Support Center
Location of component(s)	
Diagnostic condition	
Set condition of fault code	
Reset condition of fault code	
Electrical diagram(s)	
Technical data	
Possible causes	
Additional information	
Diagnostic Step-by-Step	
Verification Drive Cycle	
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P3806

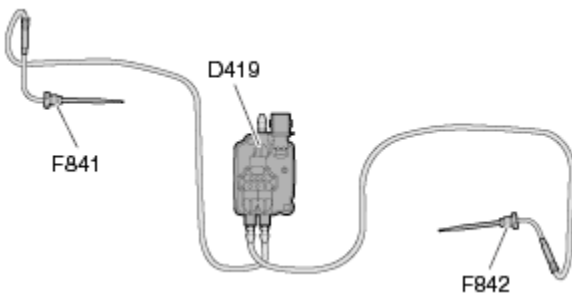
Code number	P3806																
Fault code description	Inhibit switch - Data erratic, intermittent, or incorrect																
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas																
Description of component(s)	No information available																
Location of component(s)	No information available																
Diagnostic condition	This diagnostic runs continuously after ignition is keyed on.																
Set condition of fault code	- The EAS-3 ECU (D374) detects that the DPF regeneration inhibit switch is left in the inhibit position. - The PCI ECU (D420) logs the DTC immediately when the diagnostic runs and fails.																
Reset condition of fault code	To validate the repair, key on the ignition.																
Electrical diagram(s)	No information available																
Technical data	No information available																
Possible causes	If this DTC is active and there has been damage to the after treatment system, the inhibit switch can possibly have prevented the after treatment system from performing active DPF regeneration.																
Additional information	No additional information available																
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <tr> <td>Step 1</td><td>Step ID 3806a</td><td>SRT</td></tr> <tr> <td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr> </table> <table border="1"> <tr> <td>Step 2</td><td>Step ID 3806b</td><td>SRT</td></tr> <tr> <td colspan="3"> Visual Inspection: Inhibit Switch With the ignition key set to OFF or the inhibit switch disconnected, verify that the Inhibit switch functions properly for all three stage selections. Does the switch fail for any of the selections? - Yes - Proceed to step 6 - No - Proceed to step 4 </td></tr> </table> <table border="1"> <tr> <td>Step 3</td><td>Step ID 3806d</td><td>SRT</td></tr> </table>		Step 1	Step ID 3806a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3806b	SRT	Visual Inspection: Inhibit Switch With the ignition key set to OFF or the inhibit switch disconnected, verify that the Inhibit switch functions properly for all three stage selections. Does the switch fail for any of the selections? - Yes - Proceed to step 6 - No - Proceed to step 4			Step 3	Step ID 3806d	SRT
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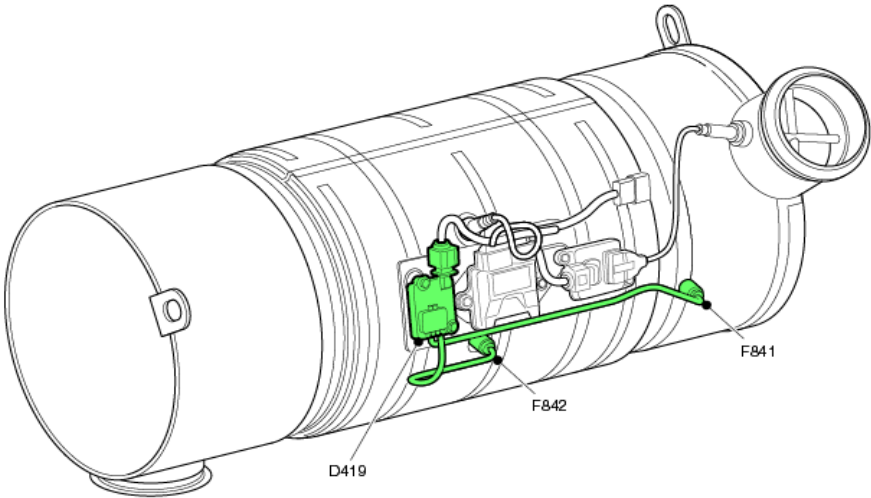
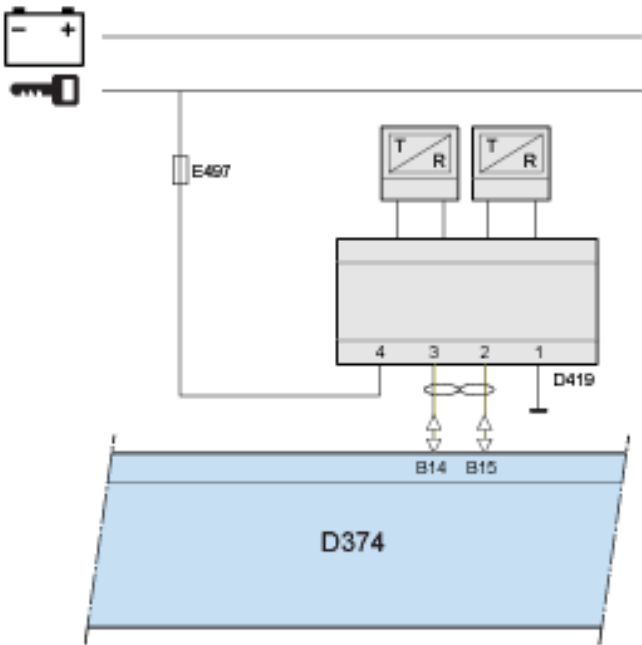
	For fault codes associated with the controller area network (CAN), refer to the “General Troubleshooting – CAN” instructions in Engine Rapido – Service, linked under the diagnostic trouble code information for this or similar fault codes. <table><tr><td>Step 4</td><td>Step ID 3806e</td><td>SRT</td></tr></table> Visually inspect the CECU mounting and connections for any of the following: • Damage to the wires between the inhibit switch and CECU Was there evidence of any of the above? • Yes - Proceed to step 5 • No - Proceed to step 6 <table><tr><td>Step 5</td><td>Step ID 3806f</td><td>SRT</td></tr></table> Repairs or appropriate component replacements and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 6 <table><tr><td>Step 6</td><td>Step ID 3806g</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 4	Step ID 3806e	SRT	Step 5	Step ID 3806f	SRT	Step 6	Step ID 3806g	SRT
Step 4	Step ID 3806e	SRT								
Step 5	Step ID 3806f	SRT								
Step 6	Step ID 3806g	SRT								
Verification Drive Cycle	To validate the repair: This test can take up to 45 minutes to 1 hour to complete. Start the truck and using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.									
	Back to Index									

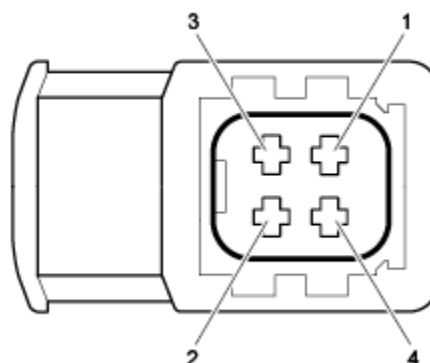
P3807

Code number	P3807
Fault code description	Diesel particulate filter (DPF) - Parked regeneration aborted due to poor regeneration efficiency
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust Gas
Description of component(s)	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please contact the Engine Support Center
Location of component(s)	
Diagnostic condition	
Set condition of fault code	
Reset condition of fault code	
Electrical diagram(s)	
Technical data	
Possible causes	
Additional information	
Diagnostic Step-by-Step	
Verification Drive Cycle	
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P3808

Code number	P3808
Fault code description	Exhaust temperature before SCR catalyst-Data valid but too high.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	 • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to supply is detected for 10 consecutive seconds.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs & passes.
Electrical diagram(s)	



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 After treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)
Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	12 V	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN
Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
6	5	$\pm 60 \Omega$	

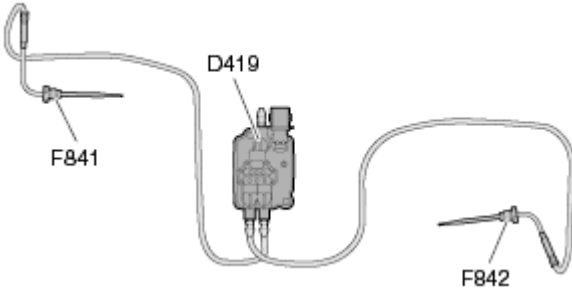
Possible causes

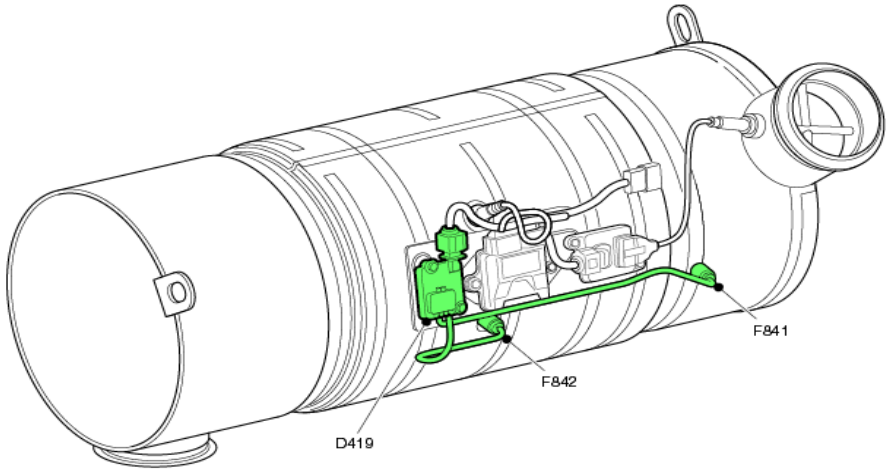
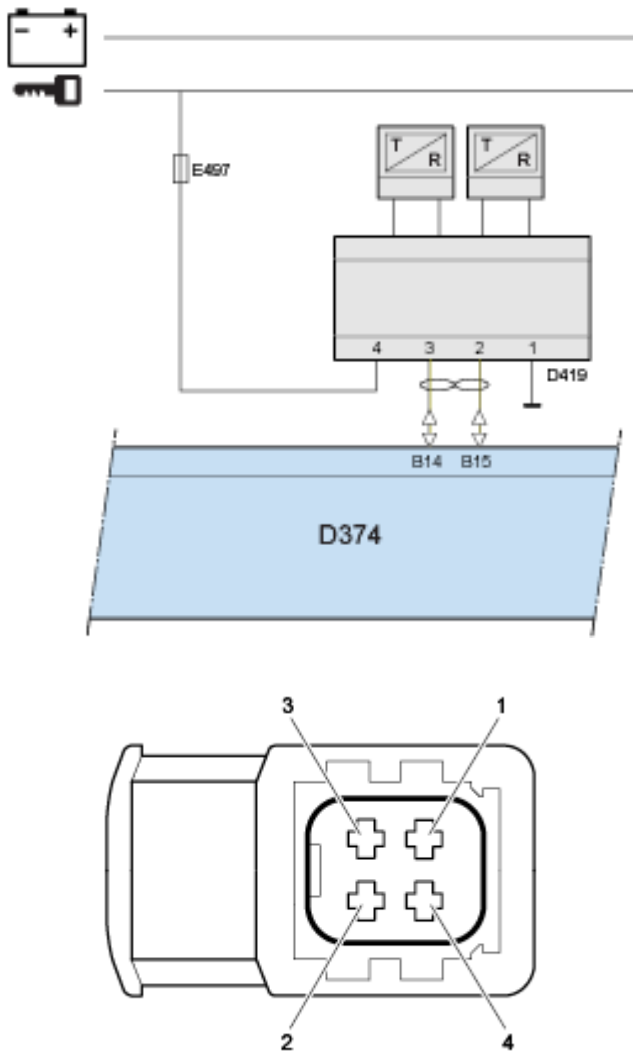
- The SCR catalyst temperature sensors ECU (D419) reports a short circuit to supply.
- The SCR catalyst temperature sensors ECU (D419) reports a signal open circuit.
- Check with DAVIE if the raw and processed values of the sensor are different.
- Check for physical damage to the sensor and/or wiring harness.
- Check for other DTC's on other thermocouples of the SCR catalyst temperature sensors ECU (D419).
- Start the engine and validate if the temperature changes.

Additional information	• DEF injection is disabled. • Sensor value replaced by exhaust gas exhaust temperature sensor after SCR catalyst (F842). • The exhaust gas temperature sensor before SCR catalyst (F841) is part of DOC-DPF temperature sensors ECU (D418) and cannot be replaced separately. • After 10 hours of engine operation with P3808 active, P1518 becomes active. • After 20 hours of engine operation with P3808 active, P151A and/or P151B become active.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3808a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3808b</td><td>SRT</td></tr><tr><td colspan="3">Turn the key switch ON and use the DAVIE to Check for Fault Codes on other thermocouples of the SCR catalyst temperature sensors ECU (D419). Is fault code on other thermocouples of the SCR catalyst temperature sensors ECU (D419) active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3808c</td><td>SRT</td></tr><tr><td colspan="3">With the key OFF, disconnect the Exhaust temperature before SCR catalyst sensor. Turn the key ON and navigate through DAVIE to read errors: • If fault is inactive – Proceed to step 5. • If fault is active – Proceed to step 6. </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3808d</td><td>SRT</td></tr><tr><td colspan="3">With key OFF, disconnect the harness from the Exhaust temperature before SCR catalyst sensor. Turn the key on and measure the voltage between a battery ground and the supply terminal of the Exhaust temperature before SCR catalyst sensor circuit on the engine harness: • If the voltage is acceptable – Proceed to step 5. </td></tr></table>	Step 1	Step ID 3808a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3808b	SRT	Turn the key switch ON and use the DAVIE to Check for Fault Codes on other thermocouples of the SCR catalyst temperature sensors ECU (D419). Is fault code on other thermocouples of the SCR catalyst temperature sensors ECU (D419) active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3			Step 3	Step ID 3808c	SRT	With the key OFF, disconnect the Exhaust temperature before SCR catalyst sensor. Turn the key ON and navigate through DAVIE to read errors: • If fault is inactive – Proceed to step 5. • If fault is active – Proceed to step 6.			Step 4	Step ID 3808d	SRT	With key OFF, disconnect the harness from the Exhaust temperature before SCR catalyst sensor. Turn the key on and measure the voltage between a battery ground and the supply terminal of the Exhaust temperature before SCR catalyst sensor circuit on the engine harness: • If the voltage is acceptable – Proceed to step 5.		
Step 1	Step ID 3808a	SRT																							
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																									
Step 2	Step ID 3808b	SRT																							
Turn the key switch ON and use the DAVIE to Check for Fault Codes on other thermocouples of the SCR catalyst temperature sensors ECU (D419). Is fault code on other thermocouples of the SCR catalyst temperature sensors ECU (D419) active? • Yes – Proceed with the appropriate fault code • No – Proceed to step 3																									
Step 3	Step ID 3808c	SRT																							
With the key OFF, disconnect the Exhaust temperature before SCR catalyst sensor. Turn the key ON and navigate through DAVIE to read errors: • If fault is inactive – Proceed to step 5. • If fault is active – Proceed to step 6.																									
Step 4	Step ID 3808d	SRT																							
With key OFF, disconnect the harness from the Exhaust temperature before SCR catalyst sensor. Turn the key on and measure the voltage between a battery ground and the supply terminal of the Exhaust temperature before SCR catalyst sensor circuit on the engine harness: • If the voltage is acceptable – Proceed to step 5.																									

	If the voltage is not acceptable – Proceed to step 6.		
	Step 5	Step ID 3808e	SRT
	With key OFF, disconnect the engine harness from the PCI. Turn the key ON and navigate through DAVIE to read errors: - If fault is inactive – Issue resolved. - If fault is active – Proceed to step 6.		
	Step 6	Step ID 3808f	SRT
	Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: Drive the vehicle at a minimum speed of 80 km/h [50 mph] in the highest gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.		
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P3809

Code number	P3809
Fault code description	Exhaust temperature before SCR catalyst-Data valid but too low.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	 The diagram illustrates the wiring for the exhaust temperature sensors. Sensor F841 (before SCR catalyst) and sensor F842 (after SCR catalyst) are connected to the ECU SCR catalyst temperature sensors D419. The sensors are shown as thermocouples with wires leading to a central control unit labeled D419. • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground is detected for 10 consecutive seconds.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs & passes.
Electrical diagram(s)	

	Wiring harness connector D419 front view D374EAS-3 ECU D419catalytic converter temperature sensors ECU E497after treatment CAN fuse D374D419Function B143A-CAN High B152A-CAN Low 1Ground 4Power supply																												
Technical data	Component and wiring check, ECU temperature sensors SCR catalyst (D419) Preparation • Disconnect connector D419. • Ignition switched on. • Measure on connector D419. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional information</td></tr><tr><td>4</td><td>1</td><td>12 V</td><td></td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5V</td><td>Switch all consumers on</td></tr></table> Component & wiring check, A-CAN Preparation • Ignition switched off. • Disconnect connector D419. • Measure on connector D419. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional information</td></tr><tr><td>6</td><td>5</td><td>± 60 Ω</td><td></td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional information	4	1	12 V		1	Battery negative pole	>0.5V	Switch all consumers on	Pin	Pin			(+ probe)	(- probe)	Value	Additional information	6	5	± 60 Ω	
Pin	Pin																												
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(+ probe)	(- probe)	Value	Additional information																										
6	5	± 60 Ω																											
Possible causes	• The SCR catalyst temperature sensors ECU (D419) reports a short circuit to supply. • The SCR catalyst temperature sensors ECU (D419) reports a signal open circuit. • Check with DAVIE if the raw and processed values of the sensor are different. • Check for physical damage to the sensor and/or wiring harness. • Check for other DTC's on other thermocouples of the SCR catalyst temperature sensors ECU (D419). • Start the engine and validate if the temperature changes.																												
Additional information	• DEF injection is disabled. • Sensor value replaced by exhaust gas exhaust temperature sensor after SCR catalyst (F842). • The exhaust gas temperature sensor before SCR catalyst (F841) is part of DOC-DPF temperature sensors ECU (D418) and cannot be replaced separately. • After 10 hours of engine operation with P3809 active, P1518 becomes active. • After 20 hours of engine operation with P3809 active, P151A and/or P151B become active.																												
Diagnostic Step-by-Step	Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the																												



likelihood of damage to electrical components.

- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pinout locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3809a	SRT
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		

Step 2	Step ID 3809b	SRT
Turn the key switch ON and use the DAVIE to Check for Fault Codes on other thermocouples of the SCR catalyst temperature sensors ECU (D419). Is fault code on other thermocouples of the SCR catalyst temperature sensors ECU (D419) active?		
• Yes – Proceed with the appropriate fault code • No – Proceed to step 3		

Step 3	Step ID 3809c	SRT
With the key OFF, disconnect the Exhaust temperature before SCR catalyst sensor. Turn the key ON and navigate through DAVIE to read errors:		
• If fault is inactive – Proceed to step 4. • If fault is active – Proceed to step 6.		

Step 4	Step ID 3809d	SRT
With key OFF, disconnect the harness from the Exhaust temperature before SCR catalyst sensor. Turn the key on and measure the voltage between a battery ground and the supply terminal of the Exhaust temperature before SCR catalyst sensor circuit on the engine harness:		
• If the voltage is acceptable – Proceed to step 5. • If the voltage is not acceptable – Proceed to step 6.		

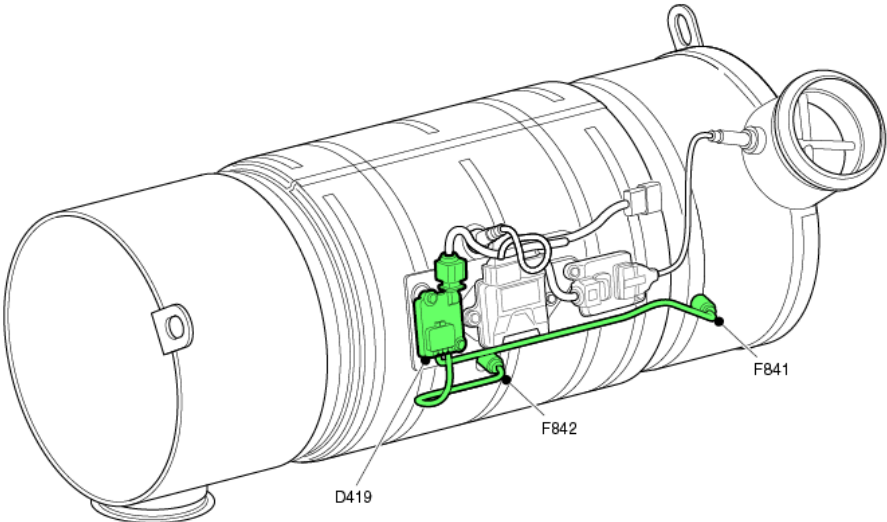
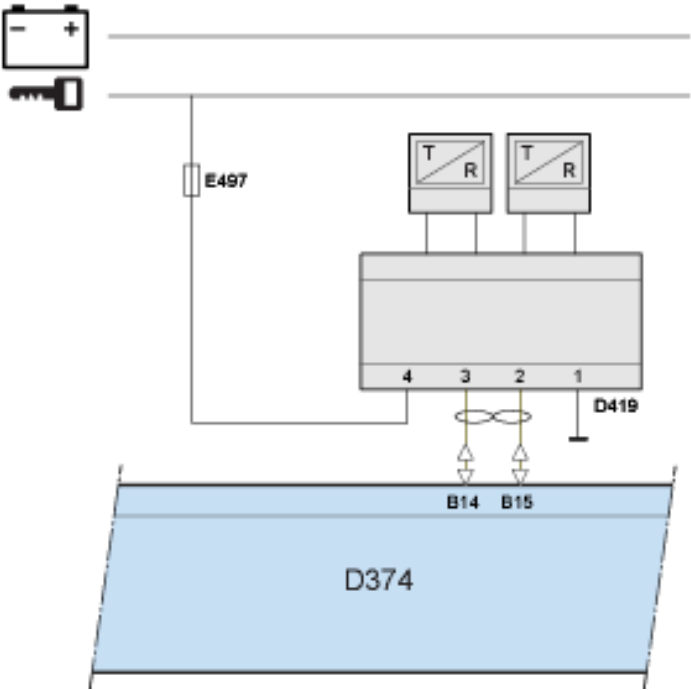
Step 5	Step ID 3809e	SRT
With key OFF, disconnect the engine harness from the PCI. Turn the key ON and navigate through DAVIE to read errors:		
• If fault is inactive – Issue resolved. • If fault is active – Proceed to step 6.		

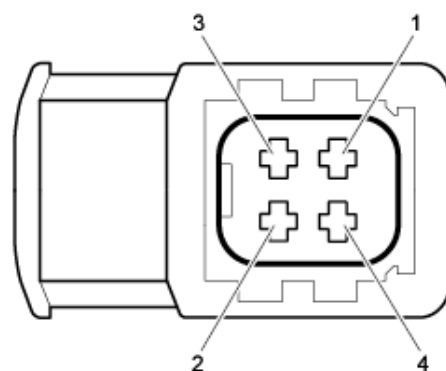
Step 6	Step ID 3809f	SRT
Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		

Verification Drive Cycle	To validate the repair: Drive the vehicle at a minimum speed of 80 km/h [50 mph] in the highest gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.
	Back to Index

P3810

Code number	P3810
Fault code description	Exhaust temperature before SCR catalyst – Temperature difference
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	The diagram illustrates the electrical connection between two exhaust temperature sensors, F841 and F842, and the ECU SCR catalyst temperature sensors, D419. Sensor F841 is located upstream of the SCR catalyst, while sensor F842 is located downstream. Both sensors are connected via wiring to the D419 component, which interfaces with the vehicle's ECU. • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 The diagram shows a cylindrical SCR catalyst assembly. A green rectangular component, labeled D419, is mounted on the side. Two green circular components, labeled F841 and F842, are also mounted on the side. F841 is located towards the rear of the assembly, and F842 is located towards the front. Wires connect these components to the vehicle's electrical system.
Diagnostic condition	• This diagnostic runs when the exhaust gas temperature sensors are compared with other engine temperatures during engine operation. • The engine coolant temperature must be above 60°C before the diagnostic will run.
Set condition of fault code	This DTC is logged if the value of the exhaust gas temperature sensor before SCR catalyst (F841) does not match the engine operating conditions for more than 5 minutes.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	 The electrical diagram shows the power supply for the SCR catalyst assembly. A battery symbol is connected to a fuse labeled E497. The other side of the fuse is connected to terminal 4 of a 4-pin connector. Terminal 3 is connected to a temperature sensor (T/R). Terminal 2 is connected to another temperature sensor (T/R). Terminal 1 is connected to ground. The connector is labeled D419. Below the connector, two relays labeled B14 and B15 are shown, which are connected to a blue rectangular component labeled D374.



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)
Preparation

- Disconnect connector D419.
- Ignition switched on. Measure on connector D419.

Pin	Pin	Value	Additional information
(+ probe)	(- probe)		
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN
Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin	Pin	Value	Additional information
(+ probe)	(- probe)		
2	3	$\pm 60 \Omega$	

Possible causes

SCR catalyst temperature sensors ECU (D419) has malfunctioned or is damaged

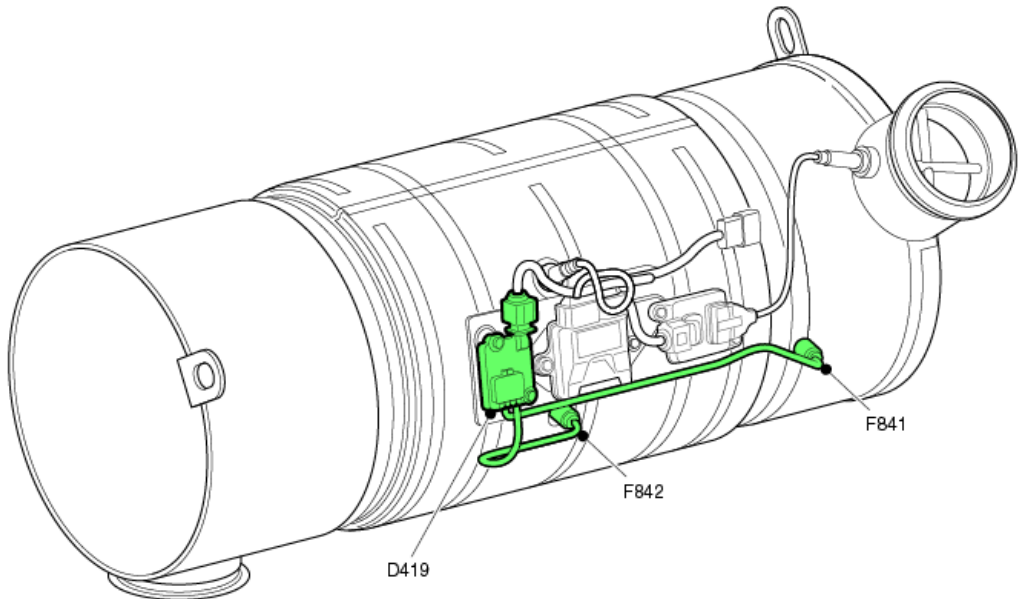
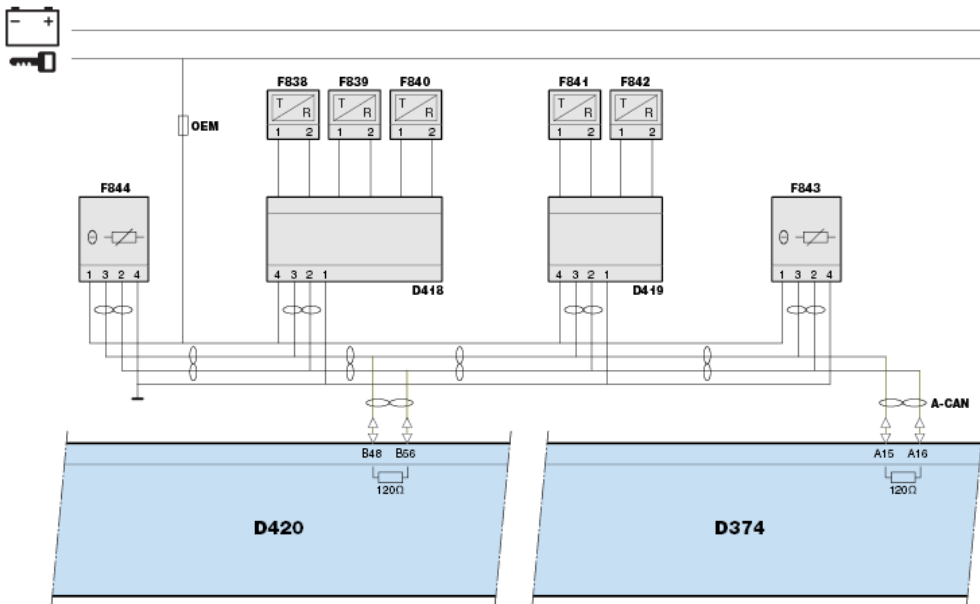
Additional information

- The SCR intake temperature sensor is not changing with engine operating conditions.
- The SCR temperature sensors cannot be replaced individually.
- After 10 hours of engine operation with P3810 active, P1518 becomes active.
- After 20 hours of engine operation with P3810 active, P151A and/or P151B becomes active.

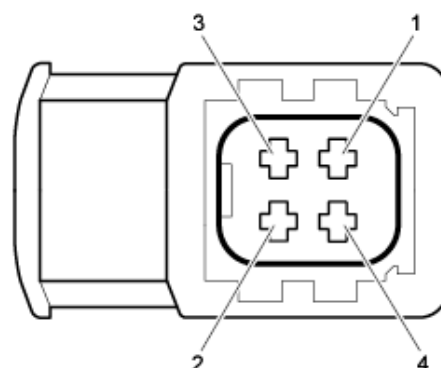
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.						
	<table><tr><td>Step 1</td><td>Step ID 3810a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table>	Step 1	Step ID 3810a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		
	Step 1	Step ID 3810a	SRT				
	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.						
	<table><tr><td>Step 2</td><td>Step ID 3810b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4 </td></tr></table>	Step 2	Step ID 3810b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4		
Step 2	Step ID 3810b	SRT					
Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4							
<table><tr><td>Step 3</td><td>Step ID 3810c</td><td>SRT</td></tr><tr><td colspan="3"> The SCR Temperature Sensor Module must be replaced as a whole unit; these sensors cannot be replaced individually. • Fault inactive – issue resolve • Fault active - Proceed to step 4 </td></tr></table>	Step 3	Step ID 3810c	SRT	The SCR Temperature Sensor Module must be replaced as a whole unit; these sensors cannot be replaced individually. • Fault inactive – issue resolve • Fault active - Proceed to step 4			
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The SCR Temperature Sensor Module must be replaced as a whole unit; these sensors cannot be replaced individually. • Fault inactive – issue resolve • Fault active - Proceed to step 4							
<table><tr><td>Step 4</td><td>Step ID 3810d</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 4	Step ID 3810d	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Step 4	Step ID 3810d	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center						
	Back to Index						

P3812

Code number	P3812
Fault code description	Exhaust temperature after SCR catalyst – Data valid too high
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	• Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) Measure the exhaust gas temperature before the SCR catalytic converter Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 A line drawing of a cylindrical component, likely a fuel tank or filter, with various electrical components mounted on its side. A green line highlights a specific wiring path. Labels point to components: F841 (a circular component on the right), F842 (a small rectangular component), and D419 (a larger rectangular component).
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to supply is detected for 10 consecutive seconds.
Reset condition of fault code	- To validate the repair, start the engine and let it idle for 1 minute. - This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	 The diagram shows the electrical system for the components. It includes a battery symbol at the top left. The main power line runs horizontally. Components are connected to this line and to ground. The components shown are: F838, F839, F840 (each with terminals 1, 2, T, R); F841, F842 (each with terminals 1, 2, T, R); F843 (with terminals 1, 2, 3, 4); F844 (with terminals 1, 2, 3, 4); D418 (with terminals 1, 2, 3, 4); D419 (with terminals 1, 2, 3, 4); D420 (with terminals B48, B56, 120Ω); and D374 (with terminals A15, A16, 120Ω). The diagram also shows the A-CAN line and the OEM line.

1402361-3



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on. Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

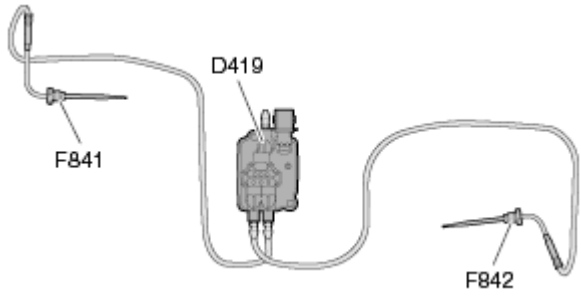
- The SCR catalyst temperature sensors ECU (D419) reports a short circuit to supply.
- The SCR catalyst temperature sensors ECU (D419) reports a signal open circuit.
- Check with DAVIE if the raw and processed values of the sensor are different.
- Check for physical damage to the sensor and/or wiring harness.
- Check for other DTC's on other thermocouples of the SCR catalyst temperature sensors ECU (D419).
- Start the engine and validate the temperature changes.

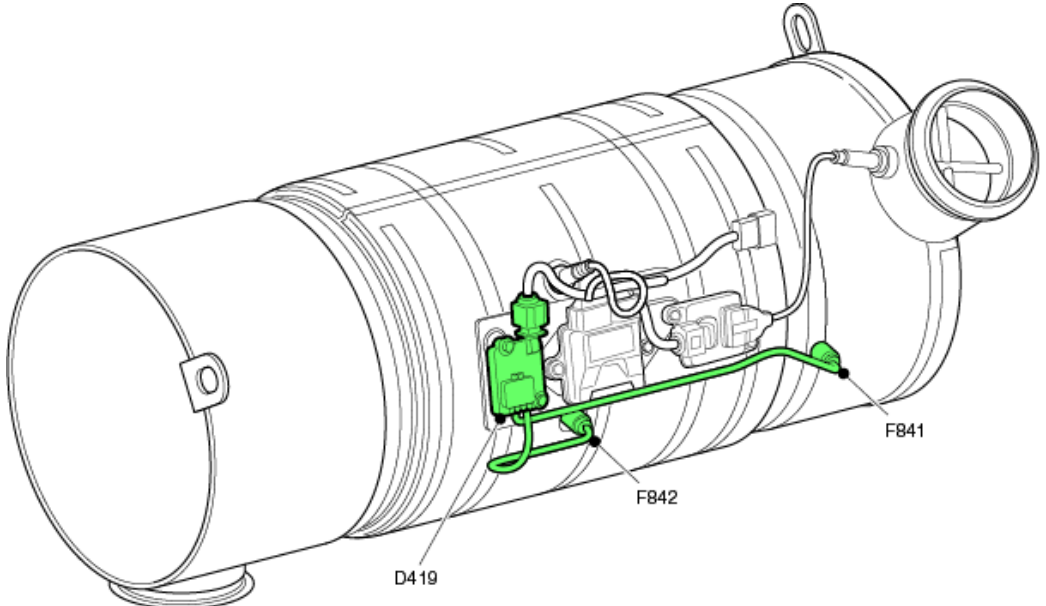
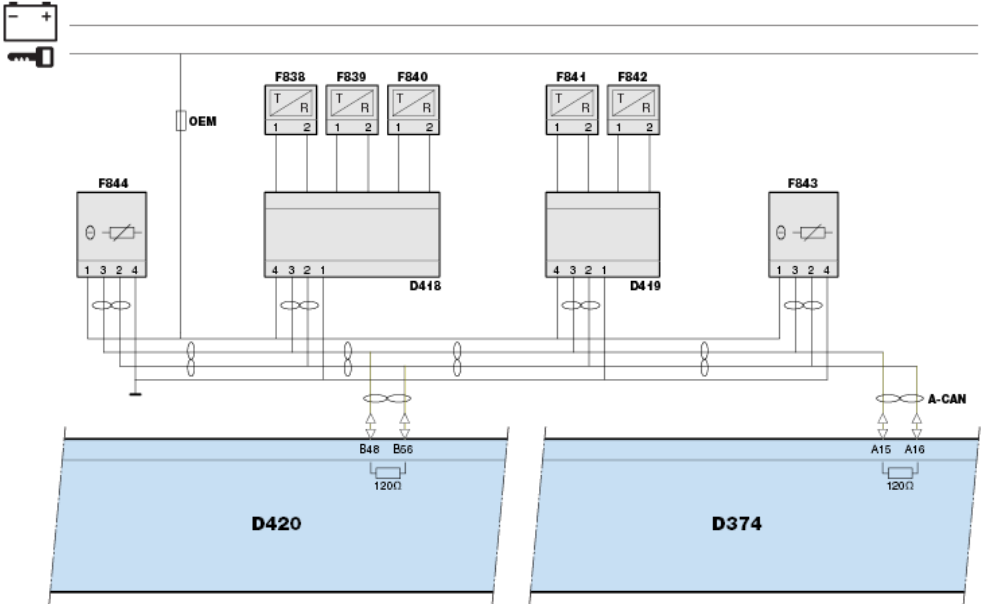
Additional information	- DEF injection is disabled. - The exhaust temperature sensor after the catalyst (F842) is part of the SCR catalyst temperature sensors ECU (D419) and cannot be replaced separately. - After 10 hours of engine operation with P3812 active, P1518 becomes active. - After 20 hours of engine operation with P3812 active, P151A and/or P151B becomes active.															
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3812a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3812b</td><td>SRT</td></tr></table> Electrical Checks - Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. - Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V) - Wire continuity (no opens or shorts) Are measured electrical values outside of expected range or limits? - Yes – Proceed to step 3 - No – Proceed to step 4 <table><tr><td>Step 3</td><td>Step ID 3812c</td><td>SRT</td></tr><tr><td colspan="3"> - Disconnect SCR Temperature Sensor Module (D419). - Measure resistance of A-CAN harness from A-CAN high to A-CAN low. Is measured resistance $\pm 60 \Omega$? - Yes – Leave disconnected and proceed to step 4. - No – Faulty A-CAN harness detected. Repair or replace. </td></tr></table>	Step 1	Step ID 3812a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3812b	SRT	Step 3	Step ID 3812c	SRT	- Disconnect SCR Temperature Sensor Module (D419). - Measure resistance of A-CAN harness from A-CAN high to A-CAN low. Is measured resistance $\pm 60 \Omega$? - Yes – Leave disconnected and proceed to step 4. - No – Faulty A-CAN harness detected. Repair or replace.		
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Step 2	Step ID 3812b	SRT														
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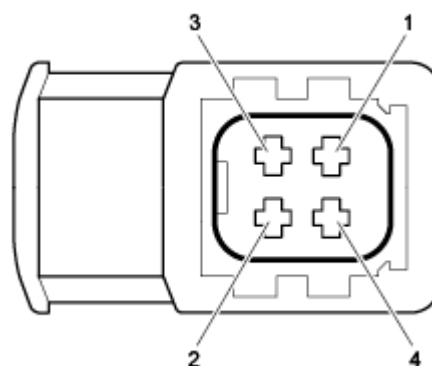
	<table><tr><td>Step 4</td><td>Step ID 3812d</td><td>SRT</td></tr><tr><td colspan="3"> 1. Disconnect PCI (D420) J2 connector. 2. Measure SCR Temperature Sensor Module A-CAN high to A-CAN low signal pins at the SCR Temperature Sensor Module’s connector. Is measured resistance ± 120 Ω? • Yes – Reconnect PCI connector and proceed to step 5. • No – Faulty A-CAN harness detected. Repair or replace. </td></tr></table>	Step 4	Step ID 3812d	SRT	1. Disconnect PCI (D420) J2 connector. 2. Measure SCR Temperature Sensor Module A-CAN high to A-CAN low signal pins at the SCR Temperature Sensor Module’s connector. Is measured resistance ± 120 Ω? • Yes – Reconnect PCI connector and proceed to step 5. • No – Faulty A-CAN harness detected. Repair or replace.		
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	1. Disconnect PCI (D420) J2 connector. 2. Measure SCR Temperature Sensor Module A-CAN high to A-CAN low signal pins at the SCR Temperature Sensor Module’s connector. Is measured resistance ± 120 Ω? • Yes – Reconnect PCI connector and proceed to step 5. • No – Faulty A-CAN harness detected. Repair or replace.						
	<table><tr><td>Step 5</td><td>Step ID 3812e</td><td>SRT</td></tr><tr><td colspan="3"> Replace appropriate component ‘SCR Temperature Sensor Module’ and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 6 </td></tr></table>	Step 5	Step ID 3812e	SRT	Replace appropriate component ‘SCR Temperature Sensor Module’ and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 6		
Step 5	Step ID 3812e	SRT					
Replace appropriate component ‘SCR Temperature Sensor Module’ and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 6							
<table><tr><td>Step 6</td><td>Step ID 3812f</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 6	Step ID 3812f	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Step 6	Step ID 3812f	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center						

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P3813

Code number	P3813
Fault code description	Exhaust temperature after SCR catalyst - Data valid but too low
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Exhaust gas
Description of component(s)	 1 Sensor, exhaust temperature before SCR catalyst (F841) 2 Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 A line drawing of a cylindrical exhaust component. Three components are highlighted in green: F841 is a circular sensor on the right end; F842 is a rectangular sensor on the side; D419 is a small rectangular component on the side, connected to F842 by a green wire.
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground is detected for 10 consecutive seconds.
Reset condition of fault code	To validate the repair, start and run the engine to raise the exhaust temperature. This may be done by either driving the vehicle or initiating a stationary regeneration using DAVIE. The exhaust gas temperature after the SCR catalyst must be above 302°F (150°C) before the sensor can run its internal diagnostic. This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	 The diagram shows the electrical connections for various components. At the top, a battery symbol is connected to a power line. Below it, several components are shown: F838, F839, F840, F841, and F842 are temperature sensors with terminals 1 and 2. F844 and F843 are solenoids with terminals 1, 3, 2, and 4. D418 and D419 are control modules with terminals 4, 3, 2, and 1. D420 and D374 are diagnostic modules with terminals B48, B56, A15, and A16. The diagram also shows a 120Ω resistor connected to the A-CAN line. The components are connected to a common ground line.



Wiring harness connector D419 front view

D374 EAS-3 ECU

D419 catalytic converter temperature sensors ECU

E497 aftertreatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery Negative Pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

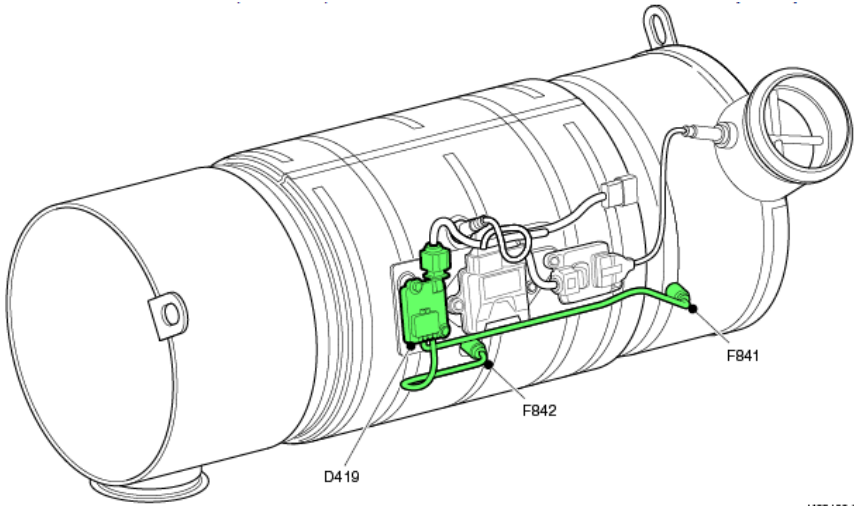
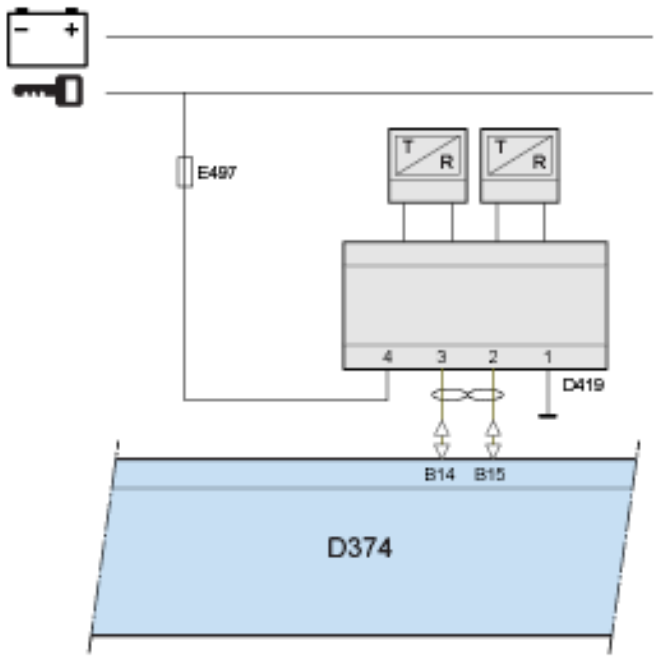
- The SCR catalyst temperature sensor ECU (D419) reports a short circuit to ground.
- Check with DAVIE if the raw and processed values of the sensor are different.
- Check for physical damage to the sensor and/or wiring harness.
- Check for other DTC's on other thermocouples of the SCR catalyst temperature sensors ECU (D419).

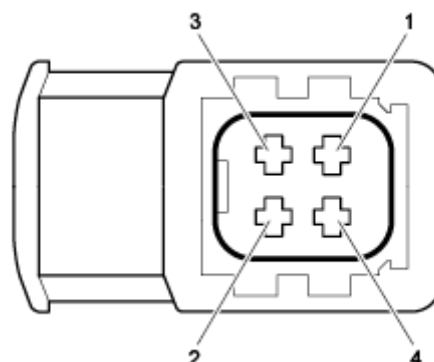
	Start the engine and validate the temperature changes.																		
Additional information	- DEF injection is disabled. - The exhaust temperature sensor after catalyst (F842) is part of the SCR catalyst temperature sensors ECU (D419) and cannot be replaced separately. - After 10 hours of engine operation with P3813 active, P1518 becomes active. - After 20 hours of engine operation with P3813 active, P151A and/or P151B becomes active.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3813a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3813b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks 3. Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. 4. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V) - Wire continuity (no opens or shorts) Are measured electrical values outside of expected range or limits? - Yes – Proceed to step 3 - No – Proceed to step 4 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3813c</td><td>SRT</td></tr><tr><td colspan="3"> 3. Disconnect SCR Temperature Sensor Module (D419). 4. Measure resistance of A-CAN harness from A-CAN high to A-CAN low. Is measured resistance $\pm 60 \Omega$? - Yes – Leave disconnected and proceed to step 4. </td></tr></table>	Step 1	Step ID 3813a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3813b	SRT	Electrical Checks 3. Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. 4. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V) - Wire continuity (no opens or shorts) Are measured electrical values outside of expected range or limits? - Yes – Proceed to step 3 - No – Proceed to step 4			Step 3	Step ID 3813c	SRT	3. Disconnect SCR Temperature Sensor Module (D419). 4. Measure resistance of A-CAN harness from A-CAN high to A-CAN low. Is measured resistance $\pm 60 \Omega$? Yes – Leave disconnected and proceed to step 4.		
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	No – Faulty A-CAN harness detected. Repair or replace.						
	<table><tr><td>Step 4</td><td>Step ID 3813d</td><td>SRT</td></tr><tr><td colspan="3">3. Disconnect PCI (D420) J2 connector. 4. Measure SCR Temperature Sensor Module A-CAN high to A-CAN low signal pins at the SCR Temperature Sensor Module’s connector. Is measured resistance ± 120 Ω? - Yes – Reconnect PCI connector and proceed to step 5. - No – Faulty A-CAN harness detected. Repair or replace. </td></tr></table>	Step 4	Step ID 3813d	SRT	3. Disconnect PCI (D420) J2 connector. 4. Measure SCR Temperature Sensor Module A-CAN high to A-CAN low signal pins at the SCR Temperature Sensor Module’s connector. Is measured resistance ± 120 Ω? - Yes – Reconnect PCI connector and proceed to step 5. - No – Faulty A-CAN harness detected. Repair or replace.		
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	<table><tr><td>Step 5</td><td>Step ID 3813e</td><td>SRT</td></tr><tr><td colspan="3">Replace appropriate component ‘SCR Temperature Sensor Module’ and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 6 </td></tr></table>	Step 5	Step ID 3813e	SRT	Replace appropriate component ‘SCR Temperature Sensor Module’ and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 6		
Step 5	Step ID 3813e	SRT					
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	<table><tr><td>Step 6</td><td>Step ID 3813f</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 6	Step ID 3813f	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
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Verification Drive Cycle	Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.						
	Back to Index						

P3814

Code number	P3814
Fault code description	Exhaust temperature after SCR catalyst - Data erratic, intermittent, or incorrect
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst
Description of component(s)	The diagram illustrates the electrical connection between the ECU SCR catalyst temperature sensor (D419) and the two exhaust temperature sensors (F841 and F842). D419 is a multi-pin connector in the center. F841 is a thermocouple sensor on the left, and F842 is a thermocouple sensor on the right. Wires connect each sensor to the D419 connector. 1 Sensor, exhaust temperature before SCR catalyst (F841) 2 Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	
Diagnostic condition	• This diagnostic runs when the exhaust gas temperature sensors are compared with other engine temperatures during engine operation. • The engine coolant temperature must be above 60°C before the diagnostic will run.
Set condition of fault code	This DTC is logged if the value of the exhaust temperature sensor after SCR catalyst (F842) does not match the engine operating conditions for more than 5 minutes.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	



Wiring harness connector D419 front view

D374 EAS-3 ECU

D419 catalytic converter temperature sensors ECU

E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- The SCR catalyst temperature sensors ECU (D419) shares ground wires in the engine harness with other sensors. A shorted return can cause multiple fault codes to be active.
- The SCR catalyst temperature sensors ECU (D419) has malfunctioned or is damaged.

Additional information

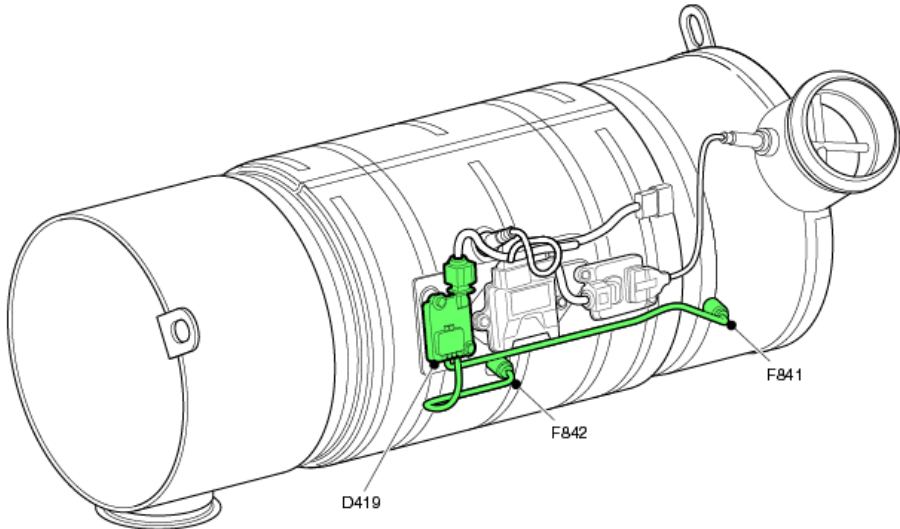
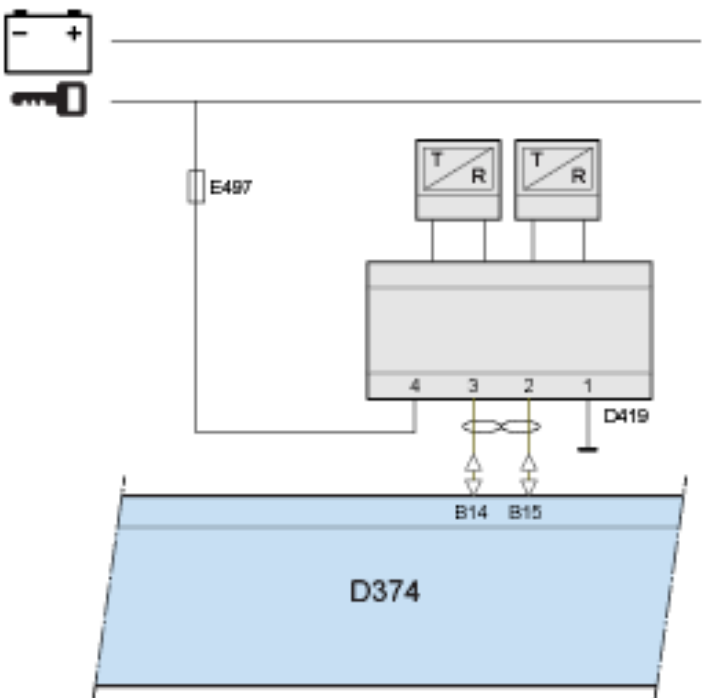
- The exhaust temperature sensor after SCR catalyst (F842) is not changing with engine operating conditions.
- A default value is used for the exhaust temperature sensor after SCR catalyst

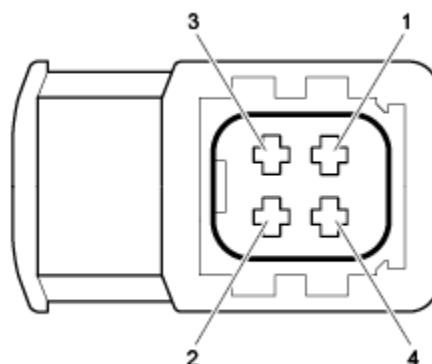
	(F842). • The exhaust temperature sensor after SCR catalyst (F842) is part of the SCR catalyst temperature sensors ECU (D419) and cannot be replaced individually. • After 10 hours of engine operation with P3814 active, P1518 becomes active. • After 20 hours of engine operation with P3814 active, P151A and/or P151B becomes active.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3814a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3814b</td><td>SRT</td></tr><tr><td colspan="3">Replace appropriate component 'SCR Temperature Sensor Module' and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3814c</td><td>SRT</td></tr><tr><td colspan="3">Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 1	Step ID 3814a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3814b	SRT	Replace appropriate component 'SCR Temperature Sensor Module' and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3			Step 3	Step ID 3814c	SRT	Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
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Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR																		

	• Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.
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P3816

Code number	P3816
Fault code description	Exhaust temperature before SCR catalyst – Data erratic, intermittent or incorrect
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – SCR Catalyst
Description of component(s)	1 Sensor, exhaust temperature before SCR catalyst (F841) 2 Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 A detailed line drawing of a cylindrical SCR catalyst assembly. It features a green electronic control unit (ECU) mounted on the side, with various wires and connectors. Labels point to specific components: D419 (the ECU), F841 (a sensor or actuator), and F842 (another component). The assembly has a circular access point on the right end.
Diagnostic condition	This diagnostic when the temperature before the SCR is higher than 150°C [302°F].
Set condition of fault code	This diagnostic has to meet specific engine and after treatment conditions to run and complete. NOx sensor data is gathered over varying engine speeds and loads. When enough data has been gathered, the diagnostic will run, make a pass/fail decision and begin to gather data again. The EAS-3 ECU detects that the NOx conversion across the SCR catalyst is lower than 68%.
Reset condition of fault code	After completing a stationary regeneration and if no additional fault codes change to active, the repair has been validated. Note that this fault code will still be active. It is necessary to use the 'Reset All Faults' command in DAVIE to clear this fault.
Electrical diagram(s)	 An electrical schematic diagram. At the top, a battery symbol is connected to a power line. A fuse labeled E497 is connected to this line. The power line then branches to a central control unit with four terminals labeled 4, 3, 2, and 1. Terminals 3 and 2 are connected to two temperature sensors, each labeled 'T' and 'R'. Terminal 1 is connected to a component labeled D419. Below the control unit, there are two more components labeled B14 and B15, which are connected to a large blue rectangular area labeled D374. The entire diagram is set against a white background with black lines and text.



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

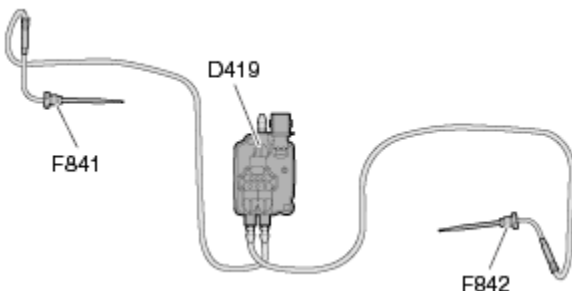
- SCR leakages on connections, which cause temperature differences over the SCR.
- ECU SCR catalyst temperature sensors (D419) have malfunctioned or are damaged.

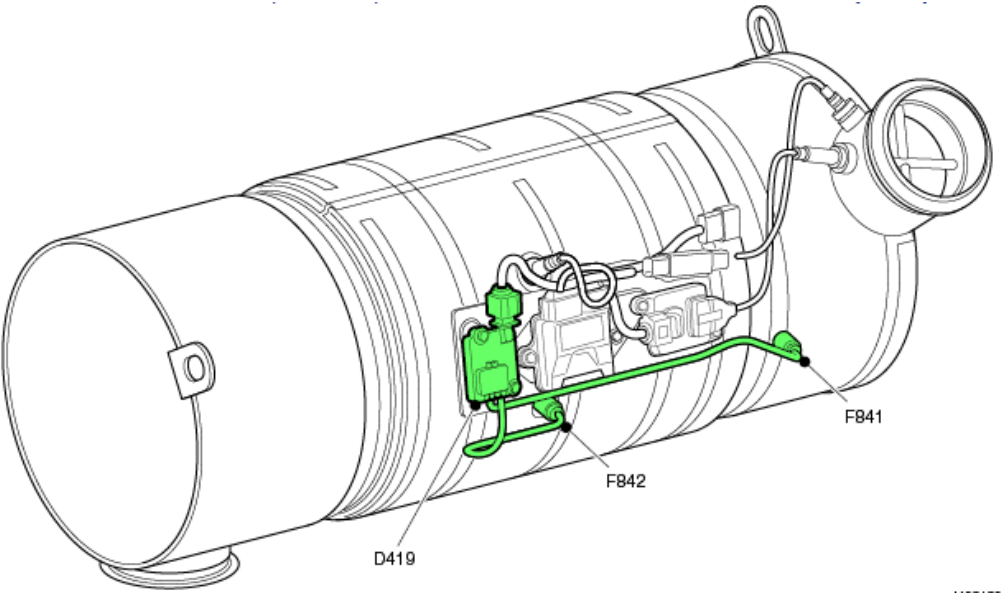
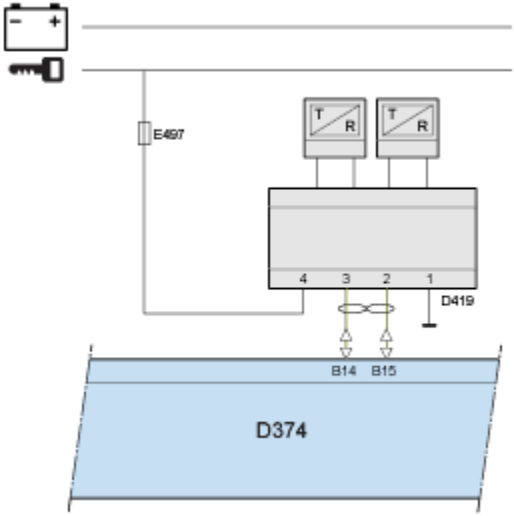
Additional information

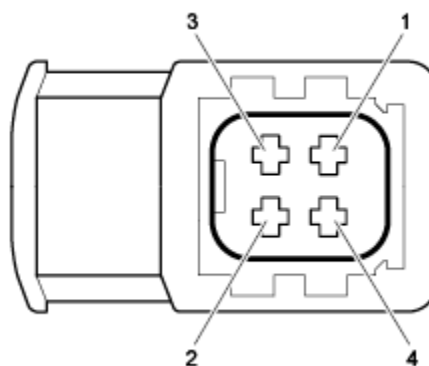
- The exhaust gas temperature sensor before SCR catalyst (F841) is not changing with engine operating conditions.
- The exhaust gas temperature sensor before SCR catalyst (F841) is part of ECU SCR catalyst temperature sensors (D419) and cannot be replaced individually.

Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3816a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3816b</td><td>SRT</td></tr><tr><td colspan="3">Repairs or component replacements appropriate “SCR Temperature Sensor Module” component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3816c</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 1	Step ID 3816a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3816b	SRT	Repairs or component replacements appropriate “SCR Temperature Sensor Module” component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3			Step 3	Step ID 3816c	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
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For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.																			
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.																		
	Back to Index																		

P3817

Code number	P3817
Fault code description	Exhaust temperature after SCR catalyst - Data valid but too high, most severe
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst
Description of component(s)	 General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 The diagram shows a cylindrical SCR catalyst assembly. A green sensor, labeled D419, is mounted on the side. Two other sensors, labeled F842 and F841, are also shown. F842 is located near the front of the assembly, and F841 is located near the rear. Wires connect these sensors to the ECU.
Diagnostic condition	This diagnostic runs continuously when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature at the exhaust gas temperature sensor after SCR catalyst (F842) is higher than 800°C.
Reset condition of fault code	This fault becomes inactive as soon as the temperature after SCR drops below the warning limit and will likely be inactive when the vehicle is in the workshop.
Electrical diagram(s)	 The electrical diagram shows the ECU (D374) connected to the SCR catalyst assembly. The ECU is represented by a blue rectangle with pins 1, 2, 3, and 4. Pin 1 is connected to the D419 sensor. Pin 2 is connected to the F842 sensor. Pin 3 is connected to the F841 sensor. Pin 4 is connected to the E457 sensor. The diagram also shows the ECU connected to the B14 and B15 sensors.



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	12 V	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
6	5	$\pm 60 \Omega$	

Possible causes

- Malfunctioning SCR catalyst.
- Degraded, diluted, or incorrect DEF.
- DEF contaminated with diesel.
- Malfunctioning in-range exhaust gas temperature sensor after SCR catalyst (F842).

Additional information

- The exhaust temperature sensor after catalyst (F842) is part of the SCR catalyst

	temperature sensor's ECU (D419) and cannot be replaced separately. DEF injection is disabled.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3817a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor - Yes – Proceed with the appropriate fault code - No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3817b</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that reads higher or lower than the other sensors. </td></tr></table>	Step 1	Step ID 3817a	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor - Yes – Proceed with the appropriate fault code - No – Proceed to step 2			Step 2	Step ID 3817b	SRT	Monitor the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that reads higher or lower than the other sensors.		
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	No – Proceed to step 3		
	Step 3	Step ID 3817c	SRT
	Inspect the DEF Quality - Turn the key switch OFF. - Check the DEF quality: - Visually inspect the DEF in the tank for signs of debris or contamination. - Use a DEF refractometer to measure the urea concentration. - Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank. Is the DEF free of contamination and within the specifications? - Yes – Proceed to step 4 - No – The fluid in the tank is not pure DEF. Drain the tank, clean the system, and fill the tank with DEF. Proceed to step 7		
	Step 4	Step ID 3817d	SRT
	Inspect the Fuel Dosing Module - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? - Yes – Proceed to step 5 - No – Replace the fuel dosing module - Proceed to step 7		
	Step 5	Step ID 3817e	SRT
	Check the DOC for Particulate Accumulation - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 6 - No – Proceed to step 6		
	Step 6	Step ID 3817f	SRT
	Check the DOC for cracks in the cell wall - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? - Yes – Replace the DOC - Proceed to step 7		

	No – This fault code can also be caused by engine failure. Proceed to step 7						
	<table><tr><td>Step 7</td><td>Step ID 3817g</td><td>SRT</td></tr><tr><td colspan="3">Disable the Fault Code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? - Yes – Proceed to step 8 - No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions tank.</td></tr></table>	Step 7	Step ID 3817g	SRT	Disable the Fault Code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? - Yes – Proceed to step 8 - No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions tank.		
Step 7	Step ID 3817g	SRT					
Disable the Fault Code - Connect all components. - Operate the system within the 'reset condition of the fault code' found in the fault code information. - Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? - Yes – Proceed to step 8 - No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions tank.							
	<table><tr><td>Step 8</td><td>Step ID 3817h</td><td>SRT</td></tr><tr><td colspan="3">Clear the inactive fault codes - Connect all components - Turn the key switch ON. - Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? - Yes – Repair complete - No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 8	Step ID 3817h	SRT	Clear the inactive fault codes - Connect all components - Turn the key switch ON. - Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? - Yes – Repair complete - No – Troubleshoot any remaining active fault codes		
Step 8	Step ID 3817h	SRT					
Clear the inactive fault codes - Connect all components - Turn the key switch ON. - Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? - Yes – Repair complete - No – Troubleshoot any remaining active fault codes							
	<table><tr><td>Step 9</td><td>Step ID 3817i</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 9	Step ID 3817i	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 9	Step ID 3817i	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To verify the repair: Perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.						
	Back to Index						

P3818

Code number	P3818
Fault code description	SCR catalyst conversion efficiency - Too low
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – NOx Catalyst Freeze frame type – SCR Catalyst
Description of component(s)	NOx sensor, before catalyst (F844) The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: - Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via the A-CAN - Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit. Sensor heating control - The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. - The second stage starts after the 'dew point' message is received from the PCI ECU. The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F]. - It is possible to read out the NOx sensor value with DAVIE, but only when the dew point is reached. Until then, a default value of 0 ppm is displayed in DAVIE. Effect on the system - Controls the engine NOx emission - Determines the DEF dosing amount by the EAS-3 system. Higher measured engine NOx emission results in a higher DEF dosing amount.

NOx sensor, after catalyst (F843)

- Ceramic sensor element, heater element, and an electronic control unit.
- The NOx sensor, after catalyst is connected to the A-CAN.

Sensor heating control

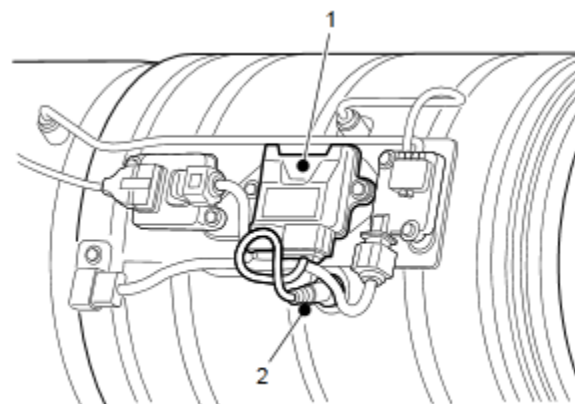
- The first stage starts when the ignition is keyed on.
The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor.
- The second stage starts after the 'dew point' message is received from the PCI ECU.
The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the dew point by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust.
If the dew point message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F].
- It is possible to read out the NOx sensor value with DAVIE, but only when the dew point has been reached. Until then a default value of 3000 ppm is displayed in DAVIE.

Effect of the output signal on the system

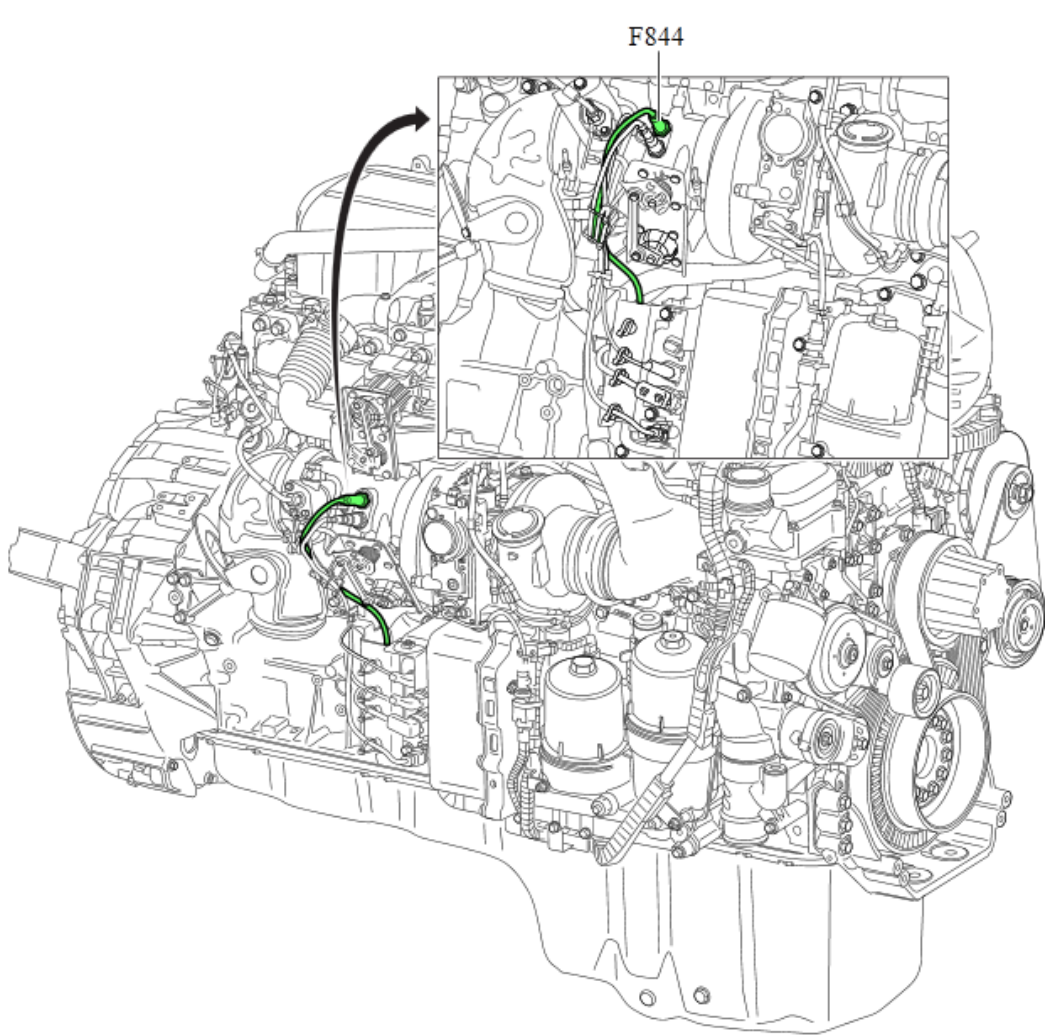
- Measures the amount of NOx after the catalyst in order to determine if the NOx level is within limits.
- Used to determine the DEF quantity to be injected.
- Used to diagnose SCR efficiency

NH3 sensor (F869)

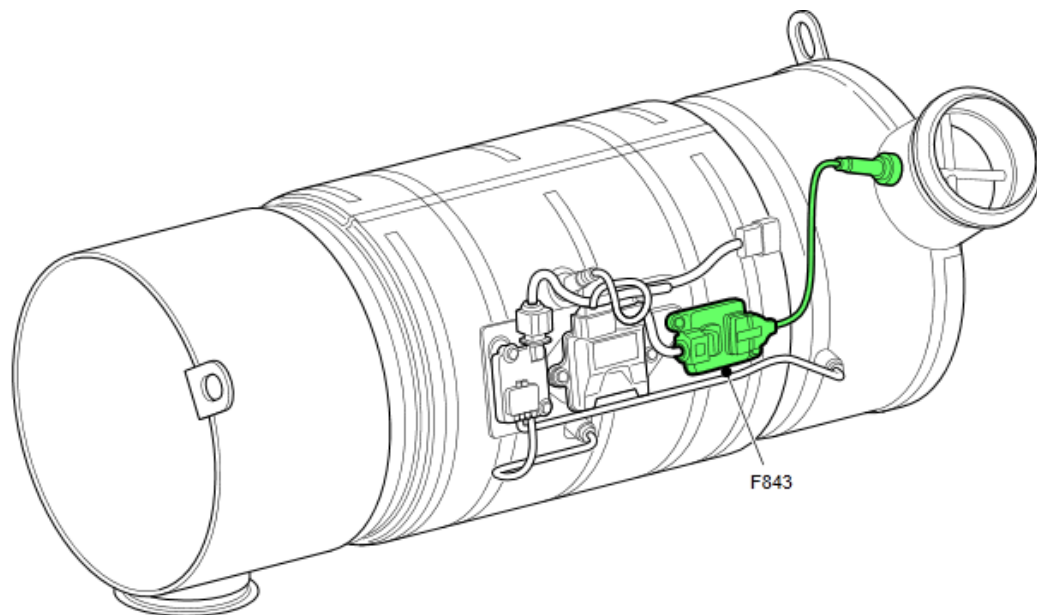
- Measures the amount of ammonia (NH3) that is leaving the tail pipe.
- The NH3 sensor is connected to the A-CAN.
- The NH3 sensor (2) can be separated from the NH3 sensor ECU (1).



1402239-2

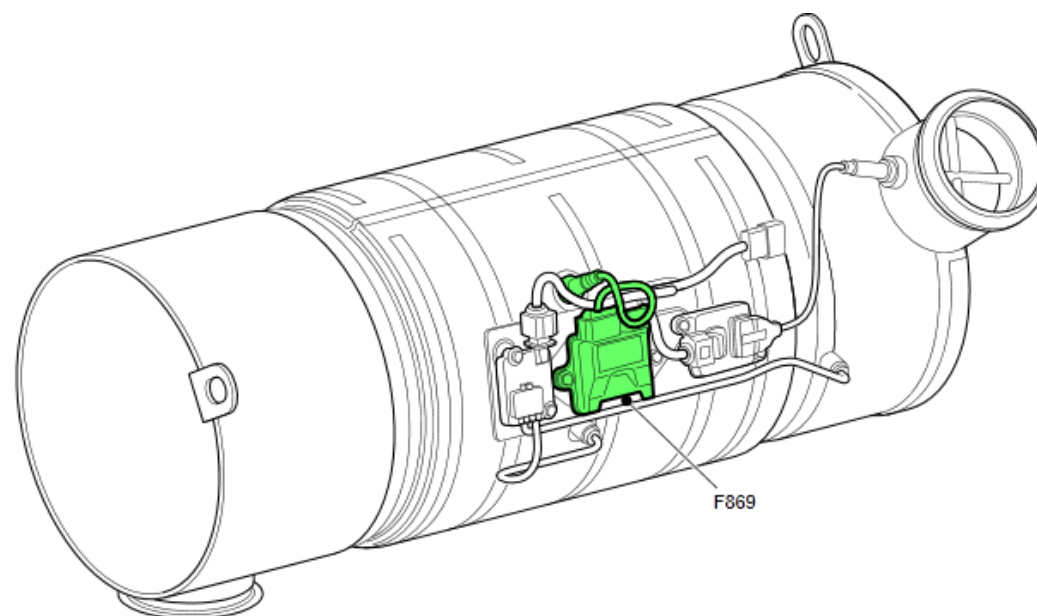
	Effect of the output signal on the system Adjust the quantity of DEF injected
Location of component(s)	NOx sensor, before catalyst (F844)  1402275

NOx sensor, after catalyst (F843)



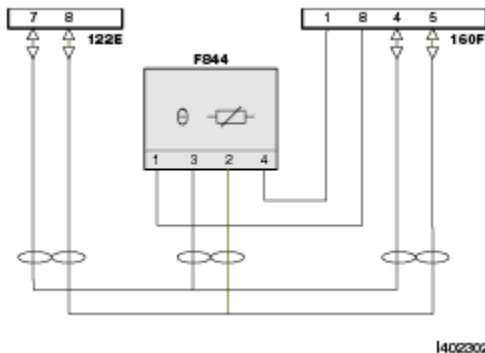
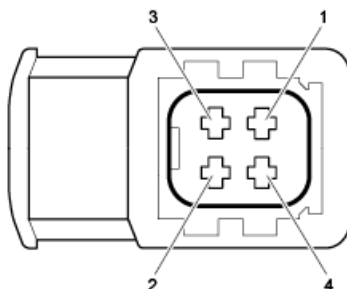
I402109-2

NH3 sensor (F869)

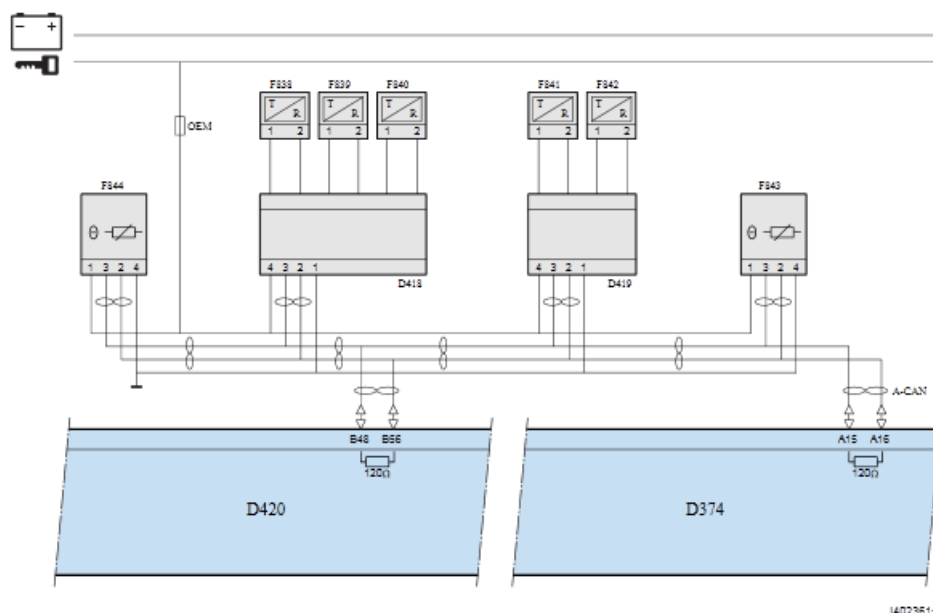


I402131-2

Diagnostic condition	This diagnostic must meet specific engine and aftertreatment conditions to run and complete.
Set condition of fault code	The EAS-3 ECU (D374) detects that NOx conversion across the SCR catalyst is lower than expected.

Reset condition of fault code	This diagnostic must meet specific engine and aftertreatment conditions to run and complete to validate the repair.																				
Electrical diagram(s)	NOx sensor, before catalyst (F844)  I402302 F844 NOx sensor before catalytic convertor 122E 12-pin interface connector 160F 8-pin interface connector <table><tr><th>F844</th><th>122E</th><th>160F</th><th>Function</th></tr><tr><td>3</td><td>7</td><td>4</td><td>A-CAN high</td></tr><tr><td>2</td><td>8</td><td>5</td><td>A-CAN low</td></tr><tr><td>1</td><td></td><td>8</td><td>Power supply after ignition</td></tr><tr><td>4</td><td></td><td>1</td><td>Ground</td></tr></table>  E504061 Wiring harness connector F844 front view	F844	122E	160F	Function	3	7	4	A-CAN high	2	8	5	A-CAN low	1		8	Power supply after ignition	4		1	Ground
F844	122E	160F	Function																		
3	7	4	A-CAN high																		
2	8	5	A-CAN low																		
1		8	Power supply after ignition																		
4		1	Ground																		

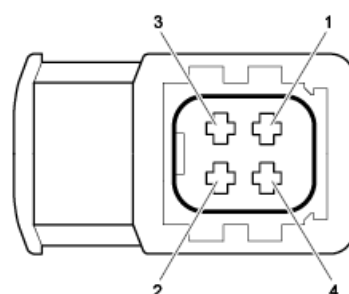
NOx sensor, after catalyst (F843)



D374 EAS-3 ECU

F843 NOx sensor after catalytic convertor

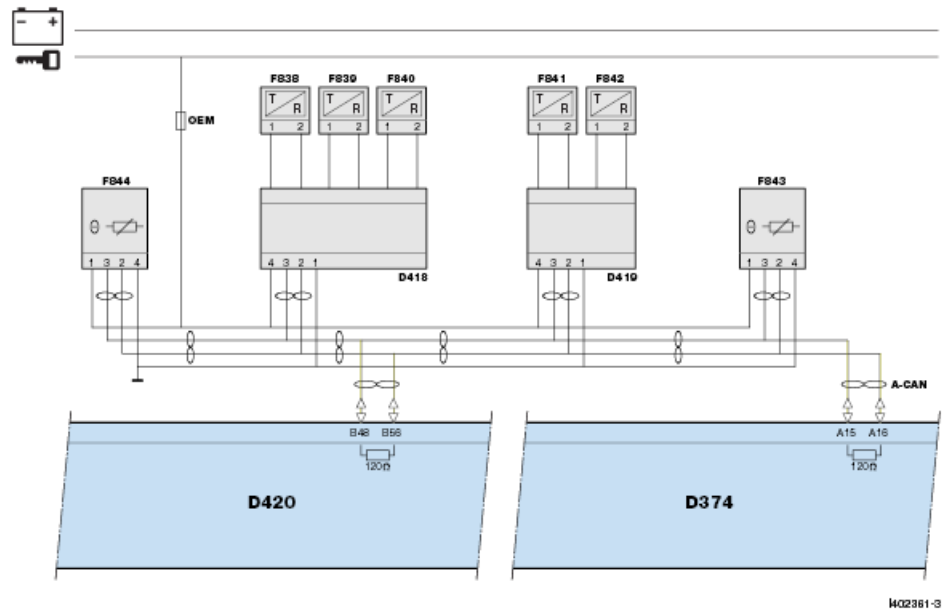
D374	F843	Function
A15	3	A-CAN High
A16	2	A-CAN Low
	1	Power supply
	4	Ground



E504061

Wiring harness connector F843 front view

NH3 sensor (F869)

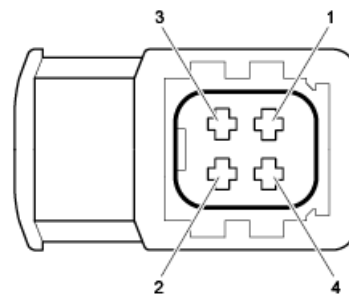


D420 PCI ECU

D374 EAS-3 ECU

F869 NH3 sensor

D420	F869	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Power supply
	4	Ground



E504061

Wiring harness connector F869



Handle connectors and pins with care and use matching measuring probes.

Technical data

NOx sensor, before catalyst (F844)

Component check, NOx sensor before catalyst (F844)

This type of component check cannot be checked with a multimeter or oscilloscope. Perform the following to assess the component:

- Monitor/test the component with DAVIE
- Perform the corresponding wiring check

Wiring check, NOx sensor before catalyst (F844)

Preparation

- Key off the ignition
- Disconnect connector F844
- Measure on the wiring harness connector F844

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	4	Ubat	Key on the ignition
4	Battery negative pole	< 0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	Key off the ignition Disconnect the ground cable from the battery. Disconnect the vehicle communication interface (VCI) of DAVIE.

NOx sensor, after catalyst (F843)

Wiring check, NOx sensor after catalyst (F843)

Preparation

- Disconnect connector F843
- Key on the ignition

- Measure on connector F843

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5 V	Switch on all consumers

Wiring check, A-CAN

Preparation

- Key off the ignition
- Disconnect connector F843
- Measure on connector F843

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	5	60 Ω	

NH3 sensor (F869)

Circuit check, ECU & wiring

Conditions

- Connector removed from NH3 sensor (F869)
- Ignition switch to ON
- Measurements must be made on the wiring harness connector F869

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	4	Ubat	
4	Battery negative pole	>0.5V	Switch on all consumers

Circuit check, A-CAN

Conditions

- Ignition switch to OFF

	• Connector removed from NH3 sensor (F869) • Measurements must be made on the wiring harness connector F869 <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	3	± 60 Ω	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
2	3	± 60 Ω							
Possible causes	• DEF leakage. • DEF leakage between the DEF pipe and the connector due to incorrect assembly. • DEF leakage due to O-ring failure or missing O-ring, DEF dosing valve (L123). • DEF dosing valve (L123) attachment bolts, tightening torque below specified value. • DEF deposits. • DEF crystals are being created and dissolved in the components of the decomposition pipe. • Excessive DEF crystal buildup in the exhaust path. • The DEF decomposition pipe is plugged with deposits. • Internal and external blockage of the DEF dosing valve due to deposit formation (crystallization). • Degraded, diluted, or incorrect DEF. • Malfunctioning DEF dosing system. • Blocked DEF inlet pipe. • Exhaust system leaks. • Malfunctioning NOx sensor after catalyst (F843). • Output of the NOx sensor after catalyst (F843) incorrect due to failed sensing element. • NOx sensor after catalyst (F843) wiring radius below specifications. • Part-to-part variation in NOx sensor signal accuracy. • Malfunctioning NOx sensor before catalyst (F844). • Malfunctioning catalytic convertor temperature sensors ECU (D419). • Malfunctioning SCR catalyst.								

	Sulfur contamination of the SCR catalyst.			
Additional information	This DTC can be set as a result of multiple root causes and can result in other related DTCs.			
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - This troubleshooting procedure is based on the assumption that supply power and ground to the PMCI are functioning properly. - Disconnecting the PMCI connectors during the troubleshooting process will result in multiple errors. - Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. - It is necessary to use DAVIE to clear all current trouble codes from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. - This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1. Investigate Related Trouble Codes Before troubleshooting this code, take notice of any other active or inactive trouble codes. One or multiple other codes could have been the cause for this code. <table><tr><td>Step 2.A Investigate related trouble codes</td></tr><tr><td> Action 1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes. </td></tr><tr><td> Are these or other related codes active? EGR P0405; P0406; P0407; P0408; P040B; P040C; P040D; P0486; P102D; P1030; P127A; P127B; P127C; P1280; P1281; P1284; P1285; P1286; P1288; P1400; P1409; P1458; P1480; P1481; P1482; P1483; P1484; P1485; P1486; P1487; P1488; P1489; P1490; P1494; P1496; P1572; P1717; P1718; P171B; P171C; P2457 NOx sensor before catalyst </td></tr></table>	Step 2.A Investigate related trouble codes	Action 1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes.	Are these or other related codes active? EGR P0405; P0406; P0407; P0408; P040B; P040C; P040D; P0486; P102D; P1030; P127A; P127B; P127C; P1280; P1281; P1284; P1285; P1286; P1288; P1400; P1409; P1458; P1480; P1481; P1482; P1483; P1484; P1485; P1486; P1487; P1488; P1489; P1490; P1494; P1496; P1572; P1717; P1718; P171B; P171C; P2457 NOx sensor before catalyst
Step 2.A Investigate related trouble codes				
Action 1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes.				
Are these or other related codes active? EGR P0405; P0406; P0407; P0408; P040B; P040C; P040D; P0486; P102D; P1030; P127A; P127B; P127C; P1280; P1281; P1284; P1285; P1286; P1288; P1400; P1409; P1458; P1480; P1481; P1482; P1483; P1484; P1485; P1486; P1487; P1488; P1489; P1490; P1494; P1496; P1572; P1717; P1718; P171B; P171C; P2457 NOx sensor before catalyst				

	P103C; P170C; P170D; P170E; P170F; P1710; P1711; P1719; P3863; P3864; P3865; P3866; P3867; P3868; P3869; P3870; P3871; P3873; P3877; P3881; U1849 NOx sensor after catalyst P3773; P3774; P3830; P3913; P3914; P3915; P3916; P3917; P3918; P3921; P3922; P3923; P3924; P3927; P3928; P3929; P3997; U1118; U111A; U111C; U1730; U1850 NH3 sensor P3950; P3951; P3952; P3953; P3954; P3955; P3956; P3957; P3971; P3972; P3973 DEF dosing P1514; P1517; P3844; P3847; P3848; P3856; P3857; P3858; P3859; P3901; P3902; P3903; P3904; P3905; 3996	
	Yes	No
	Refer to the troubleshooting information for these codes before continuing with this procedure.	
		Go to step 2.B
Step 2. Aftertreatment Checks		
Step 2.B Visual inspection, connections and components, exhaust system		
Action 3. Start the engine and allow it to run at idle. 4. Visually inspect the entire exhaust system between the turbocharger outlet and the SCR catalyst outlet, looking for any of the following: - Loose or leaking connections - Broken exhaust system components		
Was there evidence of any of the above?		
Yes	No	

	Correct any issues found.	
	Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.	
	If this code is still present, go to Step 2.B	Go to step 2.B
Step 2.B Visual inspection, connections and wiring, DEF dosing system		
Action - Switch the ignition OFF. - Visually inspect the following components of the DEF dosing system for any signs of leaking: - DEF tank connectors - Pump module (L074) and DEF dosing valve (L123) connectors - DEF lines - DEF dosing valve (L123)		
Was there evidence of any of the above?		
Yes		No
Correct any issues found.		
Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.		
If this code is still present, go to Step 2.C		Go to step 2.C
Step 2.C Rapido maintenance, check DEF		
Action - Ensure the DEF tank has an adequate volume of DEF - Perform the steps outlined in the procedure, "<u>check DEF,</u>" Job ID 59428, to check urea concentration and contamination in the DEF tank. - The measured DEF quality should be 32.5% +/- 0.7% (31.8% to		

	33.2%)	
	3. Check the DEF filter for clogging.	
	Were there any signs of contamination or debris inside the DEF tank or filter, or was the measured urea concentration not at the specified value?	
	Yes	No
	Correct any issues found. If the urea is found to be contaminated or the quality does not meet the specified value, completely drain the DEF tank, rinse with clean water, and then refill with pure urea. Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.	
	If this code is still present, go to Step 2.D	Go to step 2.D
	Step 2.D DAVIE Test: Check the DEF pump module pressure and DEF output	
	Action 1. Remove the DEF dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. 2. After more than 30 seconds of engine idle, use DAVIE to run the following emissions related test, to check for proper DEF flow: <u>Check the DEF pump module pressure and DEF output.</u>	
	Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)?	
	Yes	No
	Replace the DEF dosing unit filter, and perform this test a second time. If the DEF pump module (L074) or DEF dosing valve (L123) is found to be	

	defective, replace it.	
	Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.	
	If this code is still present, go to Step 2.E	Go to step 2.E
Step 2.E Visual inspection, crystallization, decomposition tube		
Action		
1. Remove the decomposition tube as described in the maintenance procedure, “<u>remove decomposition pipe</u>,” job ID 66016. 2. Check for excessive crystallization deposits as described in “<u>check decomposition pipe (Exhaust System(SCR))</u>,” job ID 59377.		
Was there evidence of crystallization deposits?		
Yes	No	
Correct any issues found.		
Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.		
If this code is still present, go to step 3.A.	Go to step 3.A	
Step 3. Repair Verification		
Step 3.A Repair verification cycles		
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the trouble code or system being investigated.		
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.		

Action

1. DEF Doser & SCR

Perform the same driving requirements as the Steady State & Cooling cycle.

Using DAVIE, select the following Monitor values to record:

- Exhaust Temperature Before SCR
- Exhaust Temperature After SCR
- Pump Module

Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to Step 3.B

Go to Step 3.B

Step 3.B DAVIE Diagnostics, Quick Check

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes to determine whether the actions taken have cleared this trouble code.

Has P3830 been cleared?

Yes

No

Problem resolved. No further actions.

Continue with the next step in this troubleshooting procedure. If all steps have been completed and this trouble code is still present, contact the PACCAR Engine Support Center for further assistance.

	Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
	Back to Index

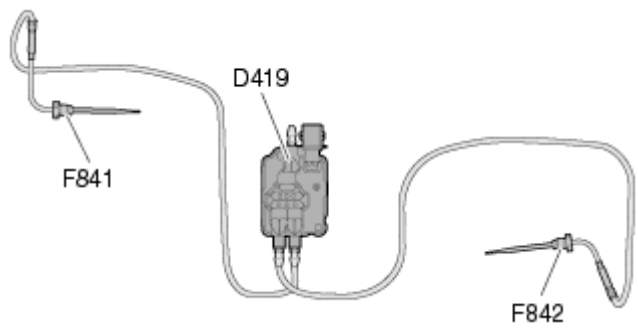
P3819

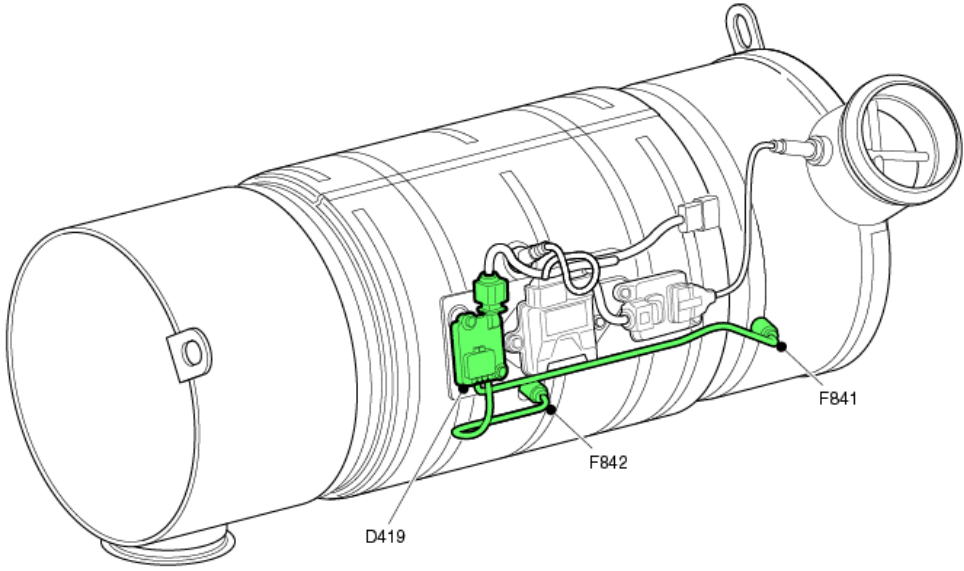
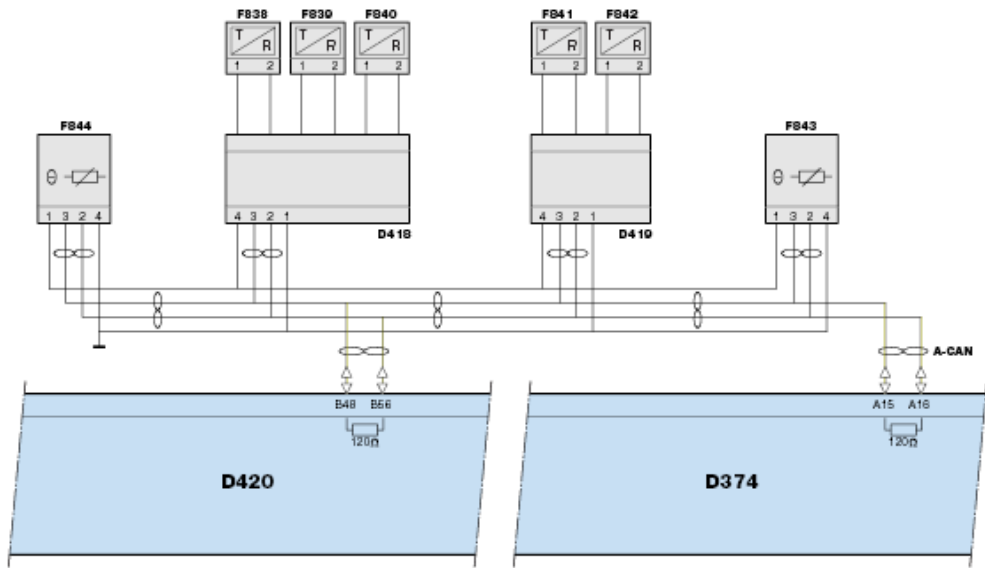
Code number	P3819
Fault code description	SCR catalyst - Efficiency degradation
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR Catalyst
Description of component(s)	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please contact the Engine Support Center
Location of component(s)	
Diagnostic condition	
Set condition of fault code	
Reset condition of fault code	
Electrical diagram(s)	
Technical data	
Possible causes	
Additional information	
Diagnostic Step-by-Step	
Verification Drive Cycle	
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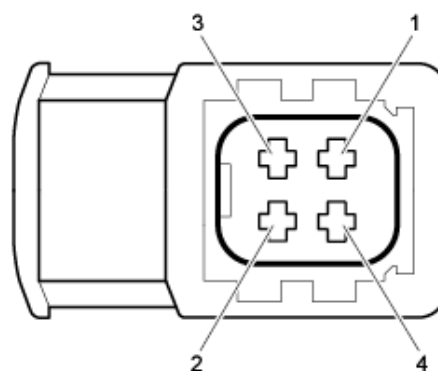
P3820

Code number	P3820
Fault code description	Pump module - Dosing system degradation error
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst
Description of component(s)	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please contact the Engine Support Center
Location of component(s)	
Diagnostic condition	
Set condition of fault code	
Reset condition of fault code	
Electrical diagram(s)	
Technical data	
Possible causes	
Additional information	
Diagnostic Step-by-Step	
Verification Drive Cycle	
	Back to Index

P3825

Code number	P3825
Fault code description	Exhaust temperature before SCR catalyst - Data valid but too high, moderately severe
Fault code information	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please Contact the Engine Support Center
Description of component(s)	 • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature at the exhaust gas temperature sensor before SCR catalyst (F841) is higher than 650°C.
Reset condition of fault code	This fault code changes to inactive immediately after the exhaust gas temperature before SCR catalyst drops below the warning limit, and will likely be inactive when the vehicle is in the shop.
Electrical diagram(s)	



Wiring harness connector D419 front view

D374 EAS-3 ECU

D419 catalytic converter temperature sensors ECU

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
4	1	Ubat	
1	Battery Negative Pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419

Pin (+ probe)	Pin (- probe)	Value	Additional Information
2	3	$\pm 60 \Omega$	

Possible causes

- Malfunctioning SCR catalyst
- Degraded, diluted, or incorrect DEF.
- Malfunctioning in-range exhaust temperature before catalyst sensor (F841)

Additional information

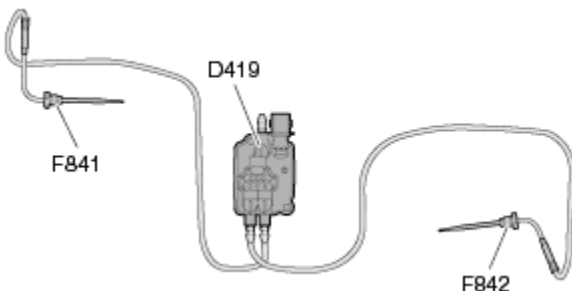
- DEF injection into the SCR system is disabled.
- The SCR outlet temperature sensor reading has exceeded the maximum engine protection temperature limit.
- This fault becomes inactive as soon as the temperature after the SCR drops below

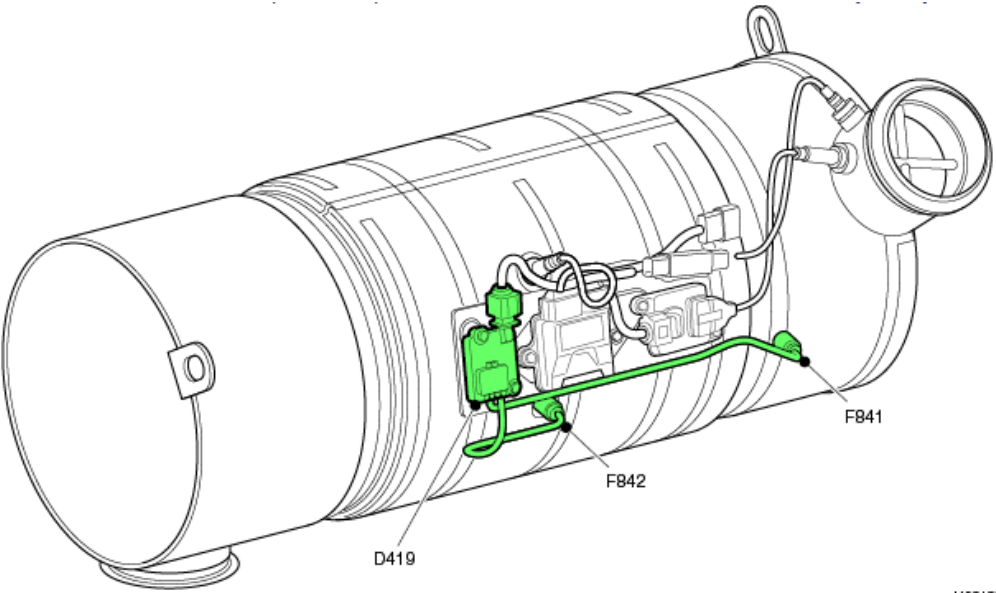
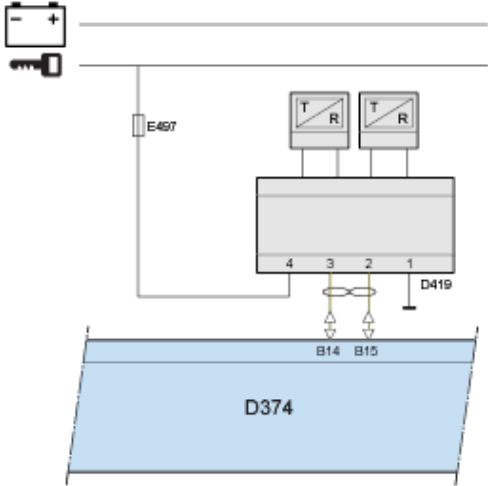
	the warning limit and will likely be inactive when the vehicle is in the workshop.		
Diagnostic Step-by-Step		Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.	
		• Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.	
	Step 1	Step ID 3825a	SRT
	Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor • Yes – Proceed with the appropriate fault code • No – Proceed to step 2		
Step 2	Step ID 3825b	SRT	
Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that reads higher or lower than the other sensors. • No – Proceed to step 3			

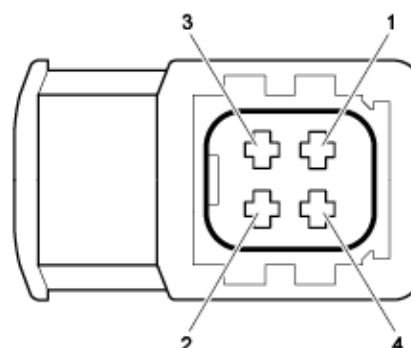
	Step 3	Step ID 3825c	SRT
	Inspect the DEF Quality • Turn the key switch OFF. • Check the DEF quality: • Visually inspect the DEF in the tank for signs of debris or contamination. • Use a DEF refractometer to measure the urea concentration. • Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank. Is the DEF free of contamination and within the specifications? • Yes – Proceed to step 4 • No – The fluid in the tank is not pure DEF. Drain the tank, clean the system, and fill the tank with DEF. Proceed to step 7		
	Step 4	Step ID 3825d	SRT
	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Replace the fuel dosing module - Proceed to step 7		
	Step 5	Step ID 3825e	SRT
	Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6		
	Step 6	Step ID 3825f	SRT

	Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 7 • No – This fault code can also be caused by engine failure. Proceed to step 7		
	Step 7	Step ID 3825g	SRT
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature before SCR catalyst inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 8	Step ID 3825h	SRT
	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
	Step 9	Step ID 3825i	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center.		
	Back to Index		

P3826

Code number	P3826
Fault code description	Exhaust temperature after SCR catalyst - Data valid but too high, moderately severe
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst
Description of component(s)	 • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General: • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 A technical line drawing of a cylindrical exhaust component, likely a Diesel Particulate Filter (DPF). The drawing shows various electrical and fluidic connections. A green-colored component, labeled D419, is mounted on the side. Two other sensors, labeled F841 and F842, are also indicated. F841 is located towards the rear of the cylinder, and F842 is located further forward, near the D419 component. Wires and hoses are shown connecting these components to the rest of the system.
Diagnostic condition	This diagnostic runs continuously when the engine is running and active regeneration of the DPF is not taking place.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature at the exhaust gas temperature sensor after SCR catalyst (F842) is higher than 650°C.
Reset condition of fault code	This fault becomes inactive immediately after the exhaust gas temperature after SCR catalyst drops below the warning limit, and will likely be inactive when the vehicle is in the shop.
Electrical diagram(s)	 An electrical schematic diagram. At the top left, a battery symbol is connected to a power line. A key symbol is also shown. A component labeled E497 is connected to the power line. Below this, a rectangular component with four terminals (labeled 4, 3, 2, 1 from left to right) is shown. Terminal 4 is connected to the power line. Terminal 3 is connected to a component labeled D419. Terminal 2 is connected to a component labeled B14. Terminal 1 is connected to a component labeled B15. Both B14 and B15 are connected to a common ground line. Below the rectangular component is a blue parallelogram shape labeled D374, representing the EAS-3 ECU. The diagram shows the electrical connections between these components.



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)
Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	12 V	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN
Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
6	5	$\pm 60 \Omega$	

Possible causes

- Malfunctioning SCR catalyst
- Degraded, diluted, or incorrect DEF.
- Malfunctioning in-range exhaust gas temperature sensor after SCR catalyst (F842)

Additional information

- The exhaust temperature after SCR sensor (F842) reading has exceeded the maximum temperature limit.
- DEF injection into the SCR system is disabled.

Diagnostic Step-by-Step



Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.



- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pinout locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

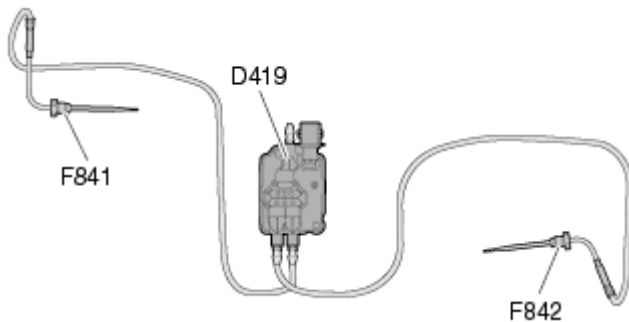
Step 1	Step ID 3826a	SRT
Check for Fault Codes • Turn the key switch ON. • Use DAVIE to check for fault codes related to the aftertreatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor • Yes – Proceed with the appropriate fault code • No – Proceed to step 2		

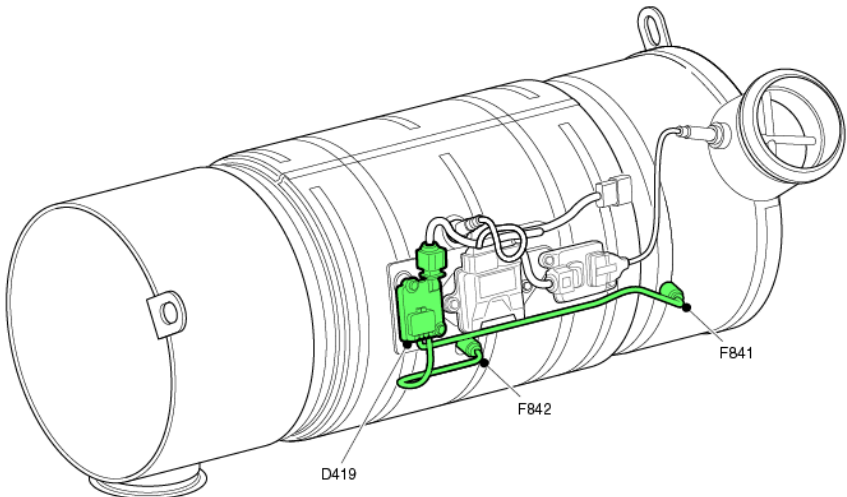
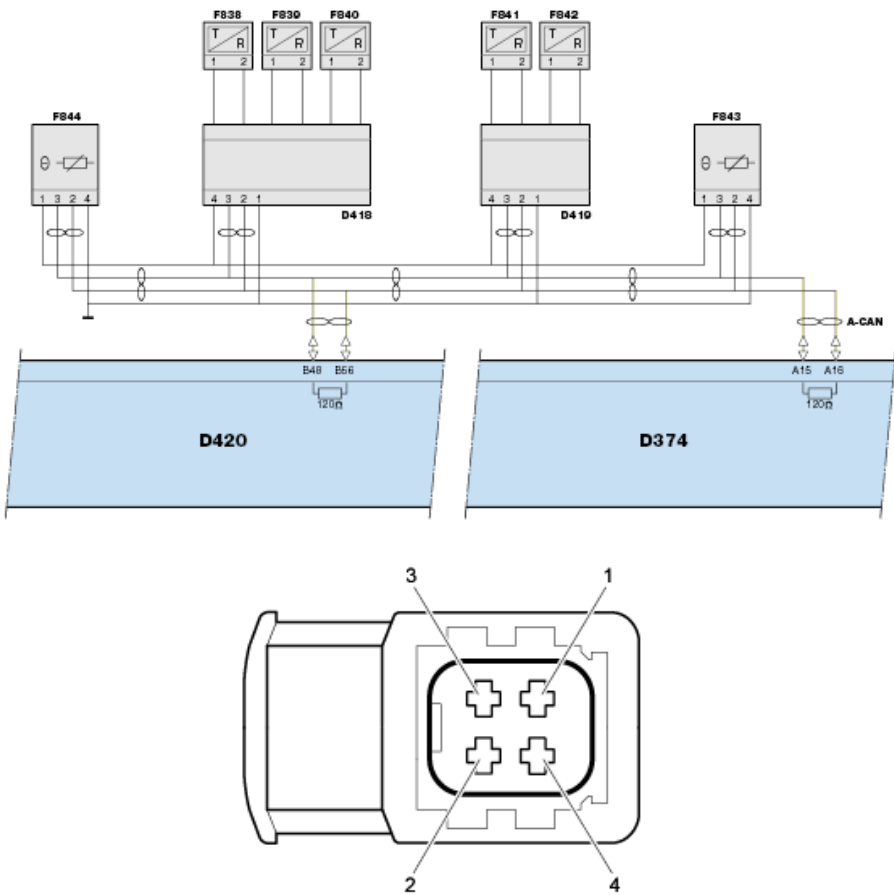
Step 2	Step ID 3826b	SRT
Monitor the Exhaust Gas Temperature Sensors • Turn the key switch ON. • Engine idling greater than ten minutes. • Monitor the exhaust gas temperature sensors with DAVIE. • Idle the engine for ten minutes to stabilize the exhaust gas temperatures. • If any faults occur, go to the appropriate fault code. • If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? • Yes – Proceed to step 7 after completing the following checks. • Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. • Check for a short circuit in the SCR temperature sensor interface. • If no short circuit is found, replace the temperature sensor that reads higher or lower than the other sensors. • No – Proceed to step 3		

	Step 3	Step ID 3826c	SRT
	Inspect the DEF Quality • Turn the key switch OFF. • Check the DEF quality: • Visually inspect the DEF in the tank for signs of debris or contamination. • Use a DEF refractometer to measure the urea concentration. • Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank. Is the DEF free of contamination and within the specifications? • Yes – Proceed to step 4 • No – The fluid in the tank is not pure DEF. Drain the tank, clean the system, and fill the tank with DEF. Proceed to step 7		
	Step 4	Step ID 3826d	SRT
	Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes – Proceed to step 5 • No – Replace the fuel dosing module - Proceed to step 7		
	Step 5	Step ID 3826e	SRT
	Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes – Clean the DOC - Proceed to step 6 • No – Proceed to step 6		
	Step 6	Step ID 3826f	SRT
	Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes – Replace the DOC - Proceed to step 7 • No – This fault code can also be caused by engine failure. Proceed to step 7		

	<table><tr><td>Step 7</td><td>Step ID 3826g</td><td>SRT</td></tr><tr><td colspan="3"> Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions. </td></tr></table>	Step 7	Step ID 3826g	SRT	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.		
	Step 7	Step ID 3826g	SRT				
	Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions.						
	<table><tr><td>Step 8</td><td>Step ID 3826h</td><td>SRT</td></tr><tr><td colspan="3"> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes </td></tr></table>	Step 8	Step ID 3826h	SRT	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes		
Step 8	Step ID 3826h	SRT					
Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes							
<table><tr><td>Step 9</td><td>Step ID 3826i</td><td>SRT</td></tr><tr><td colspan="3"> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 9	Step ID 3826i	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Step 9	Step ID 3826i	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center.						
	Back to Index						

P3827

Code number	P3827
Fault code description	Exhaust temperature before SCR catalyst - Data valid but too high, most severe
Fault code information	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please Contact the Engine Support Center
Description of component(s)	 • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General: • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature at the exhaust temperature before the catalyst sensor (F841) is higher than 800°C.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes. To validate the repair, start the engine and let it idle for 1 minute.
Electrical diagram(s)	 Wiring harness connector D419 front view

	D374EAS-3 ECU D419catalytic converter temperature sensors ECU E497after treatment CAN fuse <table><tr><td>D374</td><td>D419</td><td>Function</td></tr><tr><td>B14</td><td>3</td><td>A-CAN High</td></tr><tr><td>B15</td><td>2</td><td>A-CAN Low</td></tr><tr><td></td><td>1</td><td>Ground</td></tr><tr><td></td><td>4</td><td>Power supply</td></tr></table>	D374	D419	Function	B14	3	A-CAN High	B15	2	A-CAN Low		1	Ground		4	Power supply																	
D374	D419	Function																															
B14	3	A-CAN High																															
B15	2	A-CAN Low																															
	1	Ground																															
	4	Power supply																															
Technical data	Component and wiring check, ECU temperature sensors SCR catalyst (D419) Preparation Disconnect connector D419. Ignition switched on. Measure on connector D419. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>4</td><td>1</td><td>Ubat</td><td></td></tr><tr><td></td><td>Battery</td><td></td><td></td></tr><tr><td>1</td><td>Negative Pole</td><td>>0.5V</td><td>Switch all consumers on</td></tr></table> Component & wiring check, A-CAN Preparation Ignition switched off. Disconnect connector D419. Measure on connector D419 <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td></td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	4	1	Ubat			Battery			1	Negative Pole	>0.5V	Switch all consumers on	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	2	3	± 60 Ω	
Pin	Pin																																
(+ probe)	(- probe)	Value	Additional Information																														
4	1	Ubat																															
	Battery																																
1	Negative Pole	>0.5V	Switch all consumers on																														
Pin	Pin																																
(+ probe)	(- probe)	Value	Additional Information																														
2	3	± 60 Ω																															
Possible causes	Malfunctioning SCR catalyst Degraded, diluted, or incorrect DEF. Malfunctioning in-range exhaust temperature sensor before catalyst (F841)																																
Additional information	The SCR outlet temperature sensor (F841) reading has exceeded the maximum engine protection temperature limit. DEF injection is disabled.																																
Diagnostic Step-by-Step	Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. For specific electrical component information and pinout locations, always refer to the technical data. It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.																																

- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3827a	SRT
Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? - Exhaust temperature before SCR catalyst sensor - Exhaust temperature after SCR catalyst sensor - Yes: Proceed with the appropriate fault code - No: Proceed to step 2		

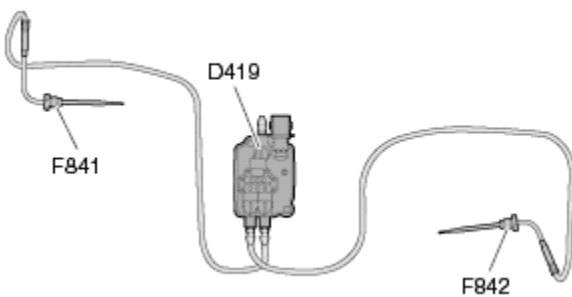
Step 2	Step ID 3827b	SRT
Monitor the Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes: Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that reads higher or lower than the other sensors. - No: Proceed to step 3		

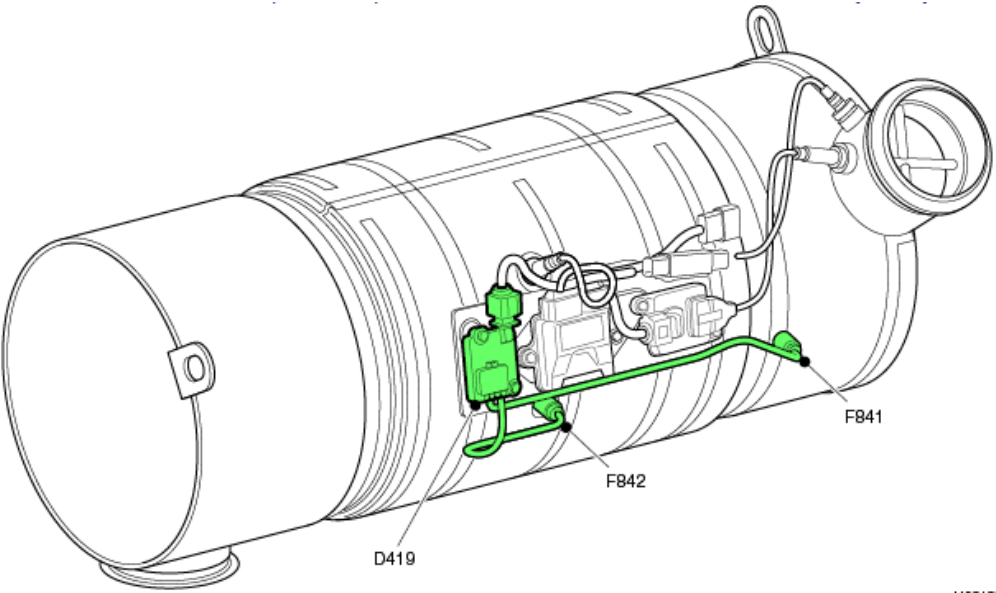
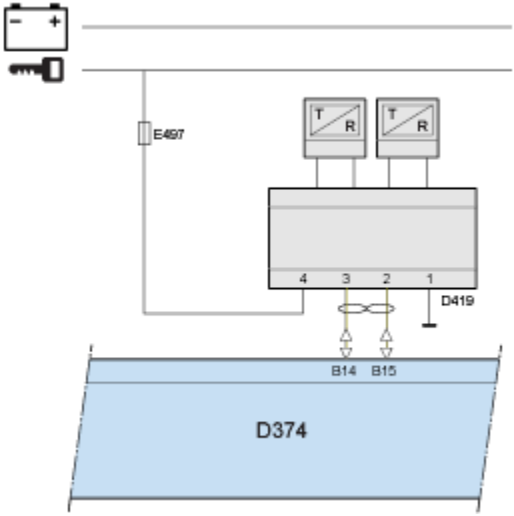
Step 3	Step ID 3827c	SRT
Inspect the DEF Quality - Turn the key switch OFF. - Check the DEF quality: - Visually inspect the DEF in the tank for signs of debris or contamination. - Use a DEF refractometer to measure the urea concentration. - Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank. Is the DEF free of contamination and within the specifications? - Yes: Proceed to step 4 - No: The fluid in the tank is not pure DEF. Drain the tank, clean the		

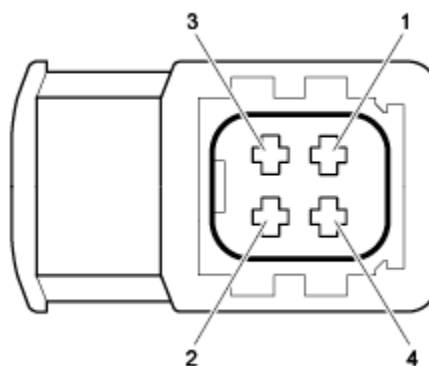
system, and fill the tank with DEF. Proceed to step 6.		
Step 4	Step ID 3827d	SRT
Inspect the Fuel Dosing Module • Turn the key switch OFF. • Remove the fuel dosing module. • Place the fuel dosing module in a measuring container, then cover the measuring container. • Perform the 'fuel dosing module leak test.' For more information, see 'Explanatory Notes to DAVIE.' Does the fuel dosing module meet the specifications? • Yes: Proceed to step 5 • No: Replace the fuel dosing module - Proceed to step 7		
Step 5	Step ID 3827e	SRT
Check the DOC for Particulate Accumulation • Remove the DOC. • Inspect the DOC. • Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? • Yes: Clean the DOC - Proceed to step 6 • No: Proceed to step 6		
Step 6	Step ID 3827f	SRT
Check the DOC for cracks in the cell wall • Remove the DOC. • Inspect the DOC. • Check for cracks in the DOC cell walls. Are any cracks found in the cell walls? • Yes: Replace the DOC - Proceed to step 7 • No: This fault code can also be caused by engine failure. Proceed to step 7		
Step 7	Step ID 3827g	SRT
Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault related to 'Exhaust Temperature before SCR catalyst' inactive? • Yes: Proceed to step 8 • No: Return to the troubleshooting steps - Proceed to step 1		
Step 8	Step ID 3827h	SRT

	Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes: Repair complete • No: Troubleshoot any remaining active fault codes		
	Step 9	Step ID 3827i	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center.		
	Back to Index		

P3828

Code number	P3828
Fault code description	Exhaust temperature after SCR catalyst - Data valid but too high, most severe
Fault code information	3 drive cycle recovery Readiness group – None Freeze frame type – SCR catalyst
Description of component(s)	 • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419). The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 The diagram shows a cylindrical SCR catalyst assembly. A green component, labeled D419, is mounted on the side. Two green wires, labeled F842 and F841, are connected to the assembly. F842 is connected to the green component D419, and F841 is connected to a circular port on the right side of the assembly.
Diagnostic condition	This diagnostic runs continuously when the engine is running.
Set condition of fault code	The EAS-3 ECU (D374) detects that the temperature at the exhaust gas temperature sensor after SCR catalyst (F842) is higher than 800°C.
Reset condition of fault code	This fault becomes inactive as soon as the temperature after SCR drops below the warning limit and will likely be inactive when the vehicle is in the workshop.
Electrical diagram(s)	 The electrical diagram shows the EAS-3 ECU (D374) connected to the SCR catalyst assembly. The ECU is represented by a blue rectangle with pins 1, 2, 3, and 4. Pin 4 is connected to a battery symbol. Pin 3 is connected to a component labeled E497. Pin 2 is connected to a component labeled D419. Pin 1 is connected to a component labeled B14. The diagram also shows two temperature sensors (T R) connected to the ECU. The SCR catalyst assembly is shown as a blue rectangle with pins B14 and B15.



Wiring harness connector D419 front view

D374 EAS-3 ECU
D419 catalytic converter temperature sensors ECU
E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	12 V	
1	Battery negative pole	>0.5V	Switch all consumers on

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
6	5	$\pm 60 \Omega$	

Possible causes

- Malfunctioning SCR catalyst.
- Degraded, diluted, or incorrect DEF.
- DEF contaminated with diesel.
- Malfunctioning in-range exhaust gas temperature sensor after SCR catalyst (F842).

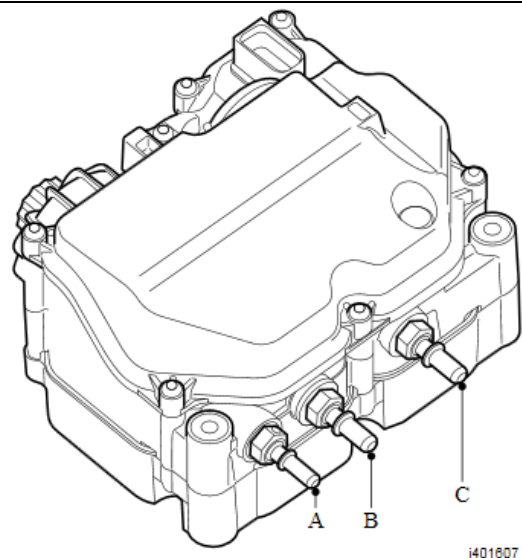
Additional information	- The exhaust temperature sensor after catalyst (F842) is part of the SCR catalyst temperature sensor's ECU (D419) and cannot be replaced separately. - DEF injection is disabled.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3828a</td><td>SRT</td></tr><tr><td colspan="3"> Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor - Yes – Proceed with the appropriate fault code - No – Proceed to step 2 </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3828b</td><td>SRT</td></tr><tr><td colspan="3"> Monitor the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that </td></tr></table>	Step 1	Step ID 3828a	SRT	Check for Fault Codes - Turn the key switch ON. - Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below listed component are active? : Exhaust temperature before SCR catalyst sensor Exhaust temperature after SCR catalyst sensor - Yes – Proceed with the appropriate fault code - No – Proceed to step 2			Step 2	Step ID 3828b	SRT	Monitor the After treatment Exhaust Gas Temperature Sensors - Turn the key switch ON. - Engine idling greater than ten minutes. - Monitor the exhaust gas temperature sensors with DAVIE. - Idle the engine for ten minutes to stabilize the exhaust gas temperatures. - If any faults occur, go to the appropriate fault code. - If no fault occurs, record the value of the SCR exhaust gas temperature sensors. Does the value of the sensors vary by more than 75°F (24°C)? - Yes – Proceed to step 7 after completing the following checks. - Check for a short circuit from the signal pin of the relevant temperature sensor to all other pins in the harness. - Check for a short circuit in the SCR temperature sensor interface. - If no short circuit is found, replace the temperature sensor that		
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	reads higher or lower than the other sensors. No – Proceed to step 3		
	Step 3	Step ID 3828c	SRT
	Inspect the DEF Quality - Turn the key switch OFF. - Check the DEF quality: - Visually inspect the DEF in the tank for signs of debris or contamination. - Use a DEF refractometer to measure the urea concentration. - Use the oil test paper to test for diesel fuel or oil contamination in the DEF tank. Is the DEF free of contamination and within the specifications? - Yes – Proceed to step 4 - No – The fluid in the tank is not pure DEF. Drain the tank, clean the system, and fill the tank with DEF. Proceed to step 7		
	Step 4	Step ID 3828d	SRT
	Inspect the Fuel Dosing Module - Turn the key switch OFF. - Remove the fuel dosing module. - Place the fuel dosing module in a measuring container, then cover the measuring container. - Perform the 'fuel dosing module leak test.' For more information, go to 'Explanatory notes to DAVIE'. Does the fuel dosing module meet the specifications? - Yes – Proceed to step 5 - No – Replace the fuel dosing module - Proceed to step 7		
	Step 5	Step ID 3828e	SRT
	Check the DOC for Particulate Accumulation - Remove the DOC. - Inspect the DOC. - Check the inlet side of the DOC for particulate accumulation. Are more than 50 percent of the cells on the inlet side blocked by particulates? - Yes – Clean the DOC - Proceed to step 6 - No – Proceed to step 6		
	Step 6	Step ID 3828f	SRT
	Check the DOC for cracks in the cell wall - Remove the DOC. - Inspect the DOC. - Check for cracks in the DOC cell walls. Are any cracks found in the cell walls?		

	• Yes – Replace the DOC - Proceed to step 7 • No – This fault code can also be caused by engine failure. Proceed to step 7			
	<table><tr><td>Step 7</td><td>Step ID 3828g</td><td>SRT</td></tr></table> Disable the Fault Code • Connect all components. • Operate the system within the 'reset condition of the fault code' found in the fault code information. • Use DAVIE to verify whether the fault codes are inactive. Is fault code related to Exhaust Temperature after SCR catalyst inactive? • Yes – Proceed to step 8 • No – Return to the troubleshooting steps - Proceed to step 1 If all the steps have been completed and rechecked, contact the Engine Support Center for further instructions tank.	Step 7	Step ID 3828g	SRT
Step 7	Step ID 3828g	SRT		
	<table><tr><td>Step 8</td><td>Step ID 3828h</td><td>SRT</td></tr></table> Clear the inactive fault codes • Connect all components • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes – Repair complete • No – Troubleshoot any remaining active fault codes	Step 8	Step ID 3828h	SRT
Step 8	Step ID 3828h	SRT		
	<table><tr><td>Step 9</td><td>Step ID 3828i</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 9	Step ID 3828i	SRT
Step 9	Step ID 3828i	SRT		
Verification Drive Cycle	To verify the repair: Perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.			
	Back to Index			

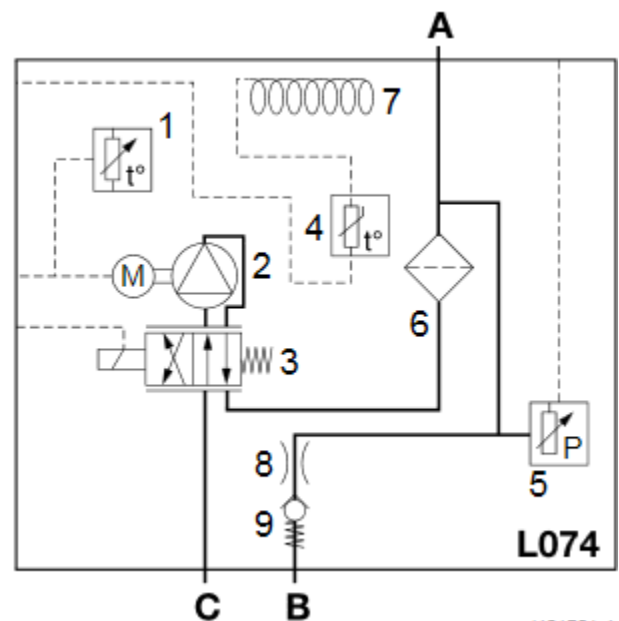
P3830

Code number	P3830
Fault code description	SCR catalyst – Not detected
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – NOx catalyst Freeze frame type – PM filter
Description of component(s)	DEF dosing valve (L123) The DEF dosing valve doses DEF into the exhaust system before the SCR catalyst. • The DEF valve is actuated by a PWM signal. • The longer the solenoid is activated, the more DEF is injected. • The dosing valve is connected to the engine cooling system to limit the temperature. The diagram shows a mechanical component, the DEF dosing valve (L123), with two main ports labeled with numbers 1 and 2. Port 1 is the DEF supply and port 2 is the coolant supply and return. The component has a complex shape with various fittings and a solenoid actuator. 1 DEF supply 2 Coolant supply and return Effect on the system • Dosing DEF into the exhaust system. Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)



The following components are mounted inside the pump module:

- Temperature sensor (1)
- DEF pump motor (2)
- Reverting valve (3)
- Temperature sensor, heater element (4)
- DEF pressure sensor (5)
- DEF filter (6)
- Heater element, pump module (7)
- Orifice (8)
- Check valve (9)



Temperature sensor

- The temperature sensor measures the temperature inside the pump module (L074).
- The temperature signal is used to determine whether the pump module must be started or heated.

DEF pump motor

- The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve.
- The DEF pump is controlled with a duty cycle.
- The pump speed depends on the quantity of DEF to be injected.
- The DEF pressure does not depend

	on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter The DEF is filtered before it is pumped to the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. • These heater elements prevent the DEF from freezing during operation of the pump module. • Defrosting of the pump module is closed-loop controlled based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve The check valve ensures an overpressure of the DEF in the pump module when the pump module is filled with DEF. Orifice

- The orifice in the return line assists the pump in maintaining the operating pressure.
- The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

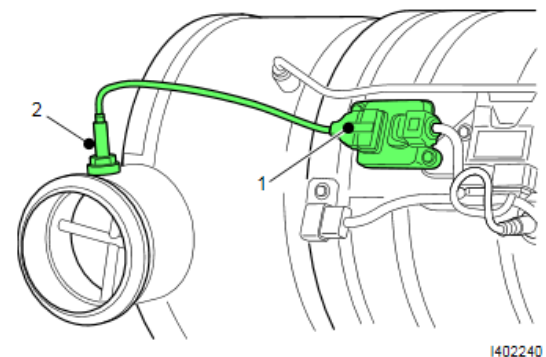
NOx sensor after catalyst (F843)

The NOx concentration tailpipe out is measured in the exhaust gases after the SCR catalyst.

The NOx sensor after catalyst consists of:

- Electronic control unit;
This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN
- Sensor element
The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.

MX_EPA13



1402240

Sensor heating control

- The first stage starts when the ignition is keyed on.
The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor.
- The second stage starts after the 'dew point' message is received from the PCI ECU

The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the dew point by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust.

If the dew point message is not/no longer received, the temperature sensor stays at/drops to the standby temperature of approximately 100°C [212°F].

- It is possible to read out the NOx sensor value with DAVIE, but only when the dew point has been reached. Until then a default value of 3000 ppm is displayed in DAVIE.

Effect on the system:

- Measures the amount of NOx after the catalyst in order to determine if the NOx level is within the limits.

- Used to determine the DEF quantity to be injected.
- Used to diagnose the SCR efficiently.

NOx sensor before catalytic convertor (F844)

The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve.

The NOx sensor before catalyst consists of:

- Electronic control unit
This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN
- Sensor element
The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.

Sensor heating control

- The first stage starts when the ignition is keyed on.
The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor.
- The second stage starts after the 'dew point' message is received from the PCI ECU
The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F].
- It is possible to read out the NOx sensor value with DAVIE, but only when the dew point is reached. Until then, a default value of 0 ppm is displayed in DAVIE.

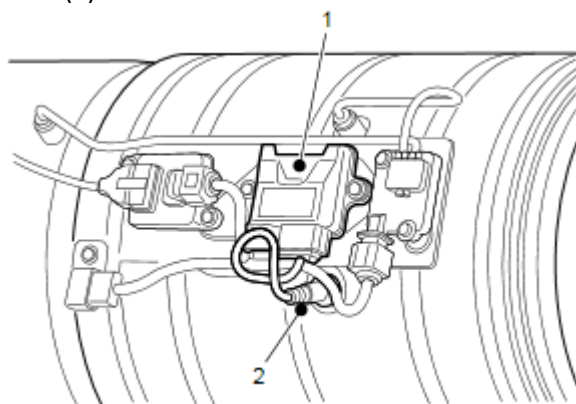
Effect on the system:

- Controls the engine NOx emission
- Determines the DEF dosing amount by the EAS-3 system
Higher measured engine NOx emission results in higher DEF dosing amount.

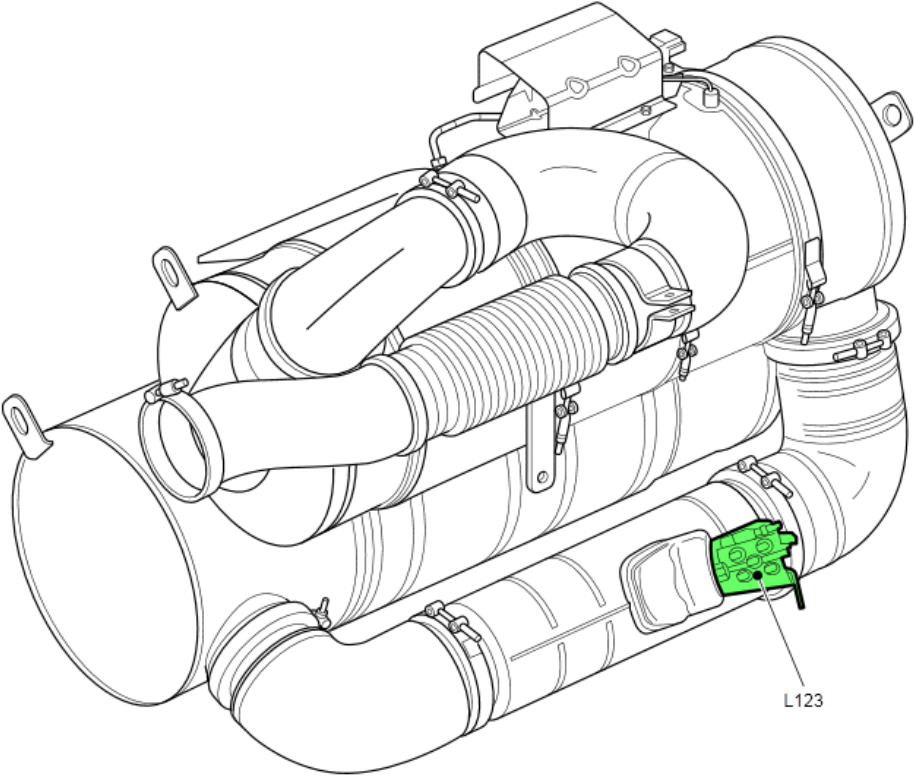
NH3 sensor (F869)

Measures the amount of ammonia (NH3) after the SCR catalyst.

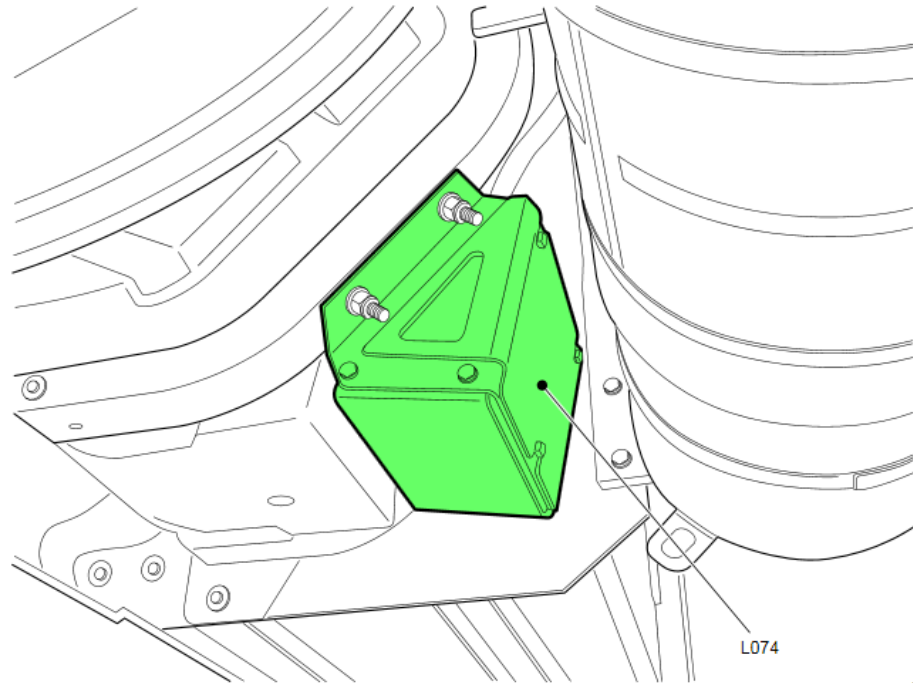
- The NH3 sensor is connected to the A-CAN.
- The NH3 sensor (2) can be disconnected from the NH3 sensor ECU (1).



I402239-2

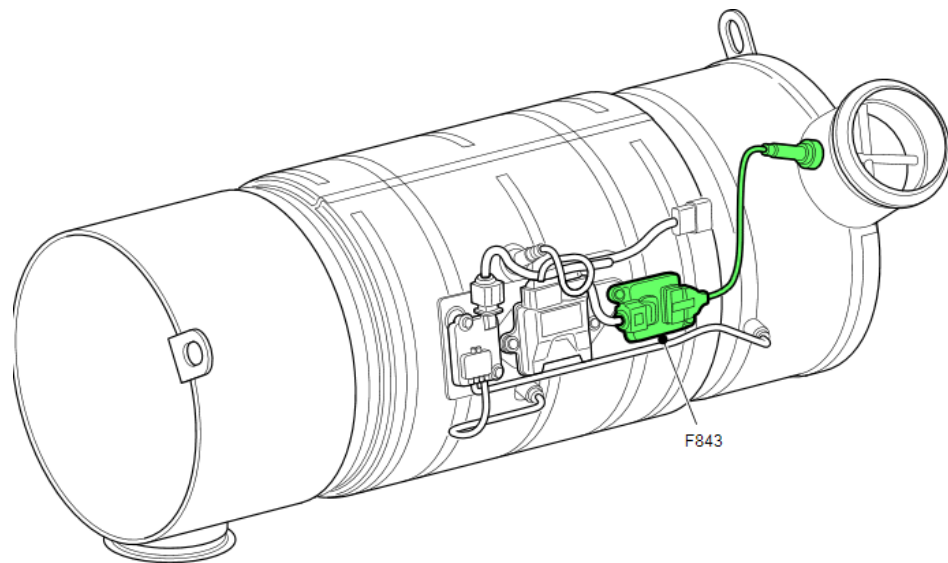
	Effect on the system: To adjust the quantity of injected DEF to prevent ammonia slip.
Location of component(s)	DEF dosing valve (L123)  I402133

Pump module (L074)



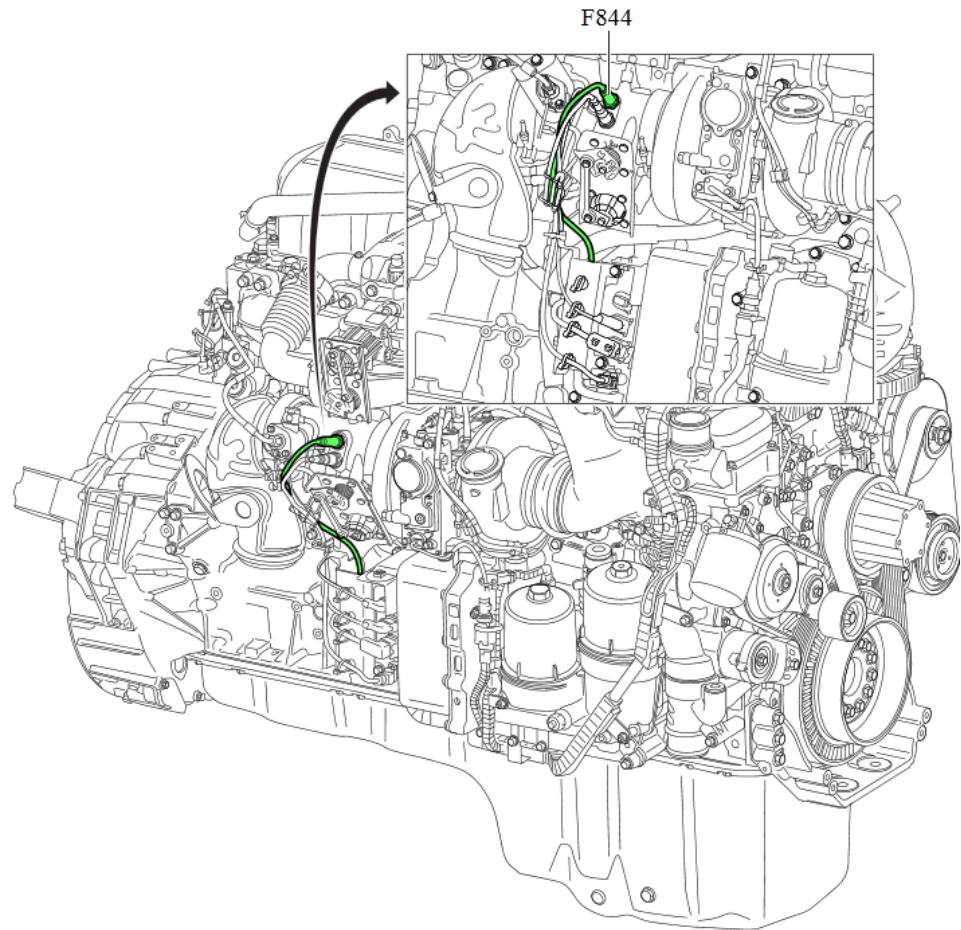
I402235

NOx sensor after catalyst (F843)



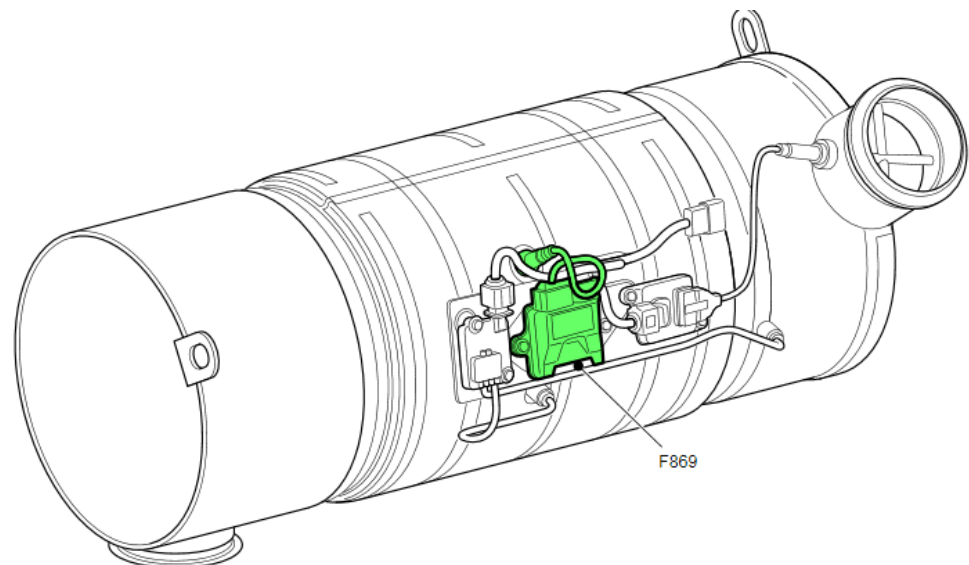
I402109-2

NOx sensor before catalytic convertor (F844)

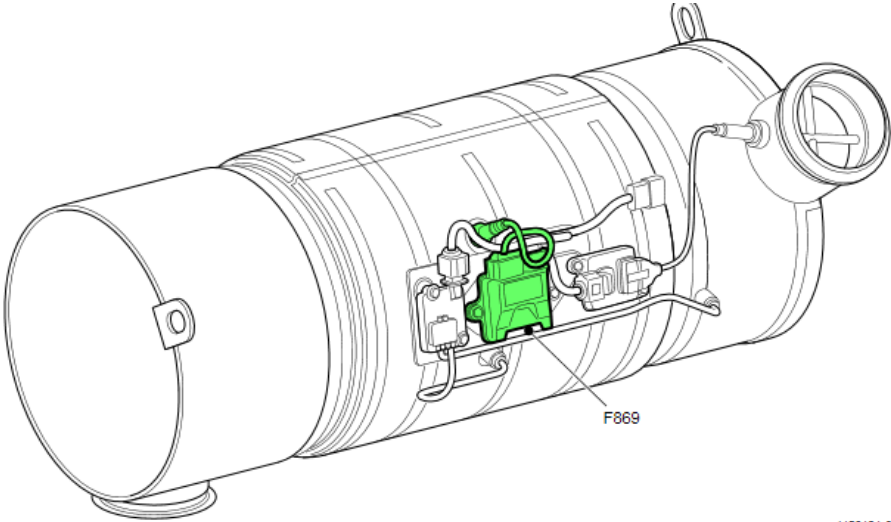


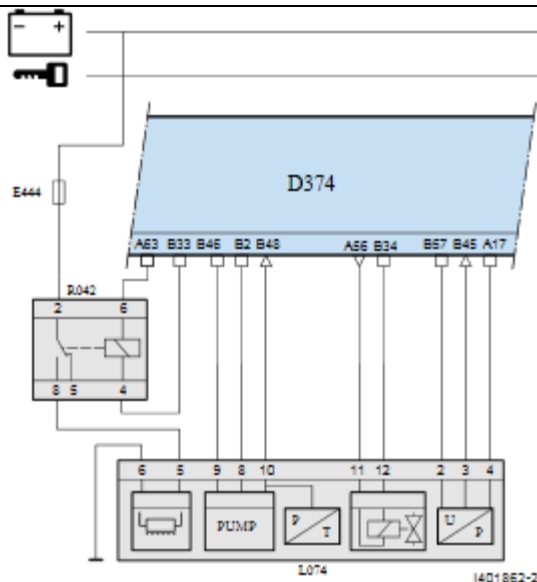
I402275

NH3 sensor (F869)



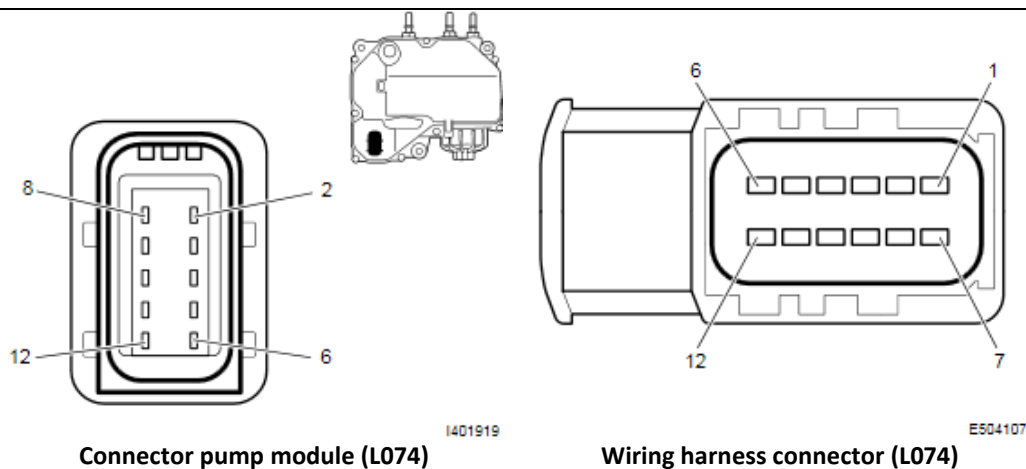
I402131-2

	NH3 sensor (F869)  1402131-2
Diagnostic condition	This diagnostic must meet specific engine and aftertreatment conditions to run and complete.
Set condition of fault code	By comparing the NOx sensor after catalyst (F843) with the NOx sensor before catalyst (F844), the EAS-3 ECU (D374) is able to determine the conversion efficiency of the SCR catalyst and dosing system. The EAS-3 ECU (D374) has detected that the NOx conversion efficiency of the SCR catalyst is critically low.
Reset condition of fault code	This diagnostic must meet specific engine and aftertreatment conditions to run and complete to validate the repair.
Electrical diagram(s)	Checking data, pump module (L074)

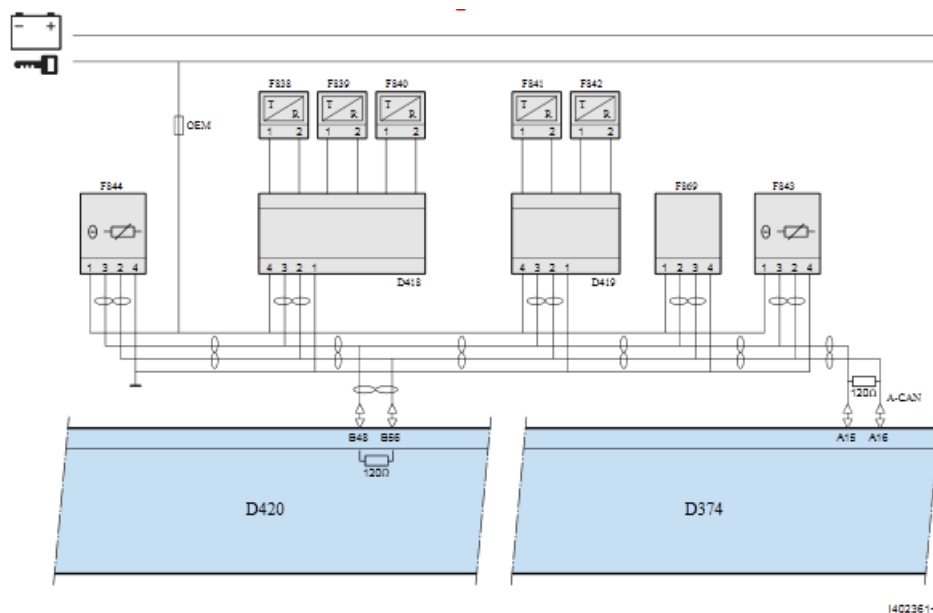


D374 EAS-3 ECU
 E444 Fuse, EAS 2nd
 L074 pump module
 R042 pump heater relay

D374	L074	R042	Function
A17	4		ground, DEF pressure sensor
A56	11		signal, reverting valve
A63		6	ground, relay line heating
B2	8		ground, DEF pump motor
B33		4	signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



Checking data, NOx sensor after catalyst (F843)



D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D419 Catalytic convertor temperature sensors ECU

D420 PCI ECU

F838 Sensor, exhaust temperature before DOC

F839 Sensor, exhaust temperature before DPF

F840 Sensor, exhaust temperature after DPF

F841 Sensor, exhaust temperature before catalyst

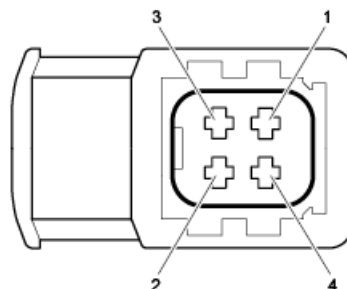
F842 Sensor, exhaust temperature after catalyst

F843 NOx sensor after catalyst

F844 NOx sensor before catalyst

F869 NH3 Sensor

D374	F843	Function
A15	3	A-CAN High
A16	2	A-CAN Low
	1	Power supply
	4	Ground



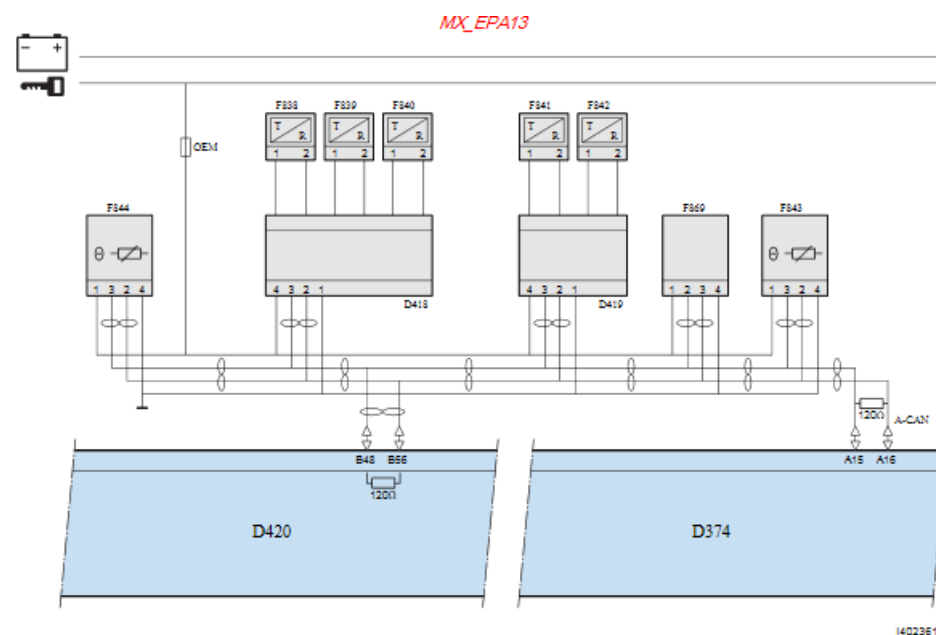
E504061

Wiring harness connector F843 front view



Handle connectors and pins with care and use matching measuring probes.

Checking data, NOx sensor before catalyst (F844)



D374 EAS-3 ECU

D418 DOC/DPF temperature sensors ECU

D419 Catalytic convertor temperature sensors ECU

D420 PCI ECU

F838 Sensor, exhaust temperature before DOC

F839 Sensor, exhaust temperature before DPF

F840 Sensor, exhaust temperature after DPF

F841 Sensor, exhaust temperature before catalyst

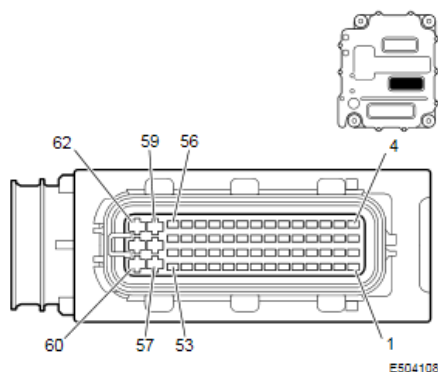
F842 Sensor, exhaust temperature after catalyst

F843 NOx sensor after catalyst

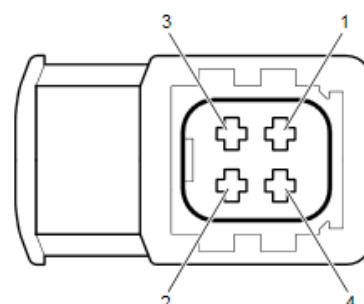
F844 NOx sensor before catalyst

F869 NH3 Sensor

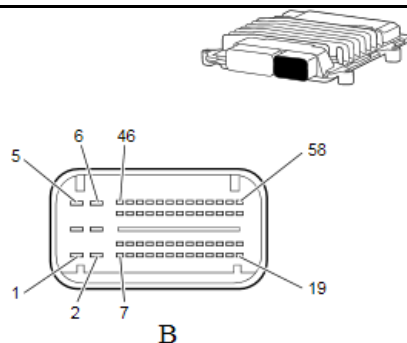
D374	F844	Function
A15	3	A-CAN High
A16	2	A-CAN Low
	1	Power supply
	4	Ground



Wiring harness connector D420.B front view



Wiring harness connector F844 front view

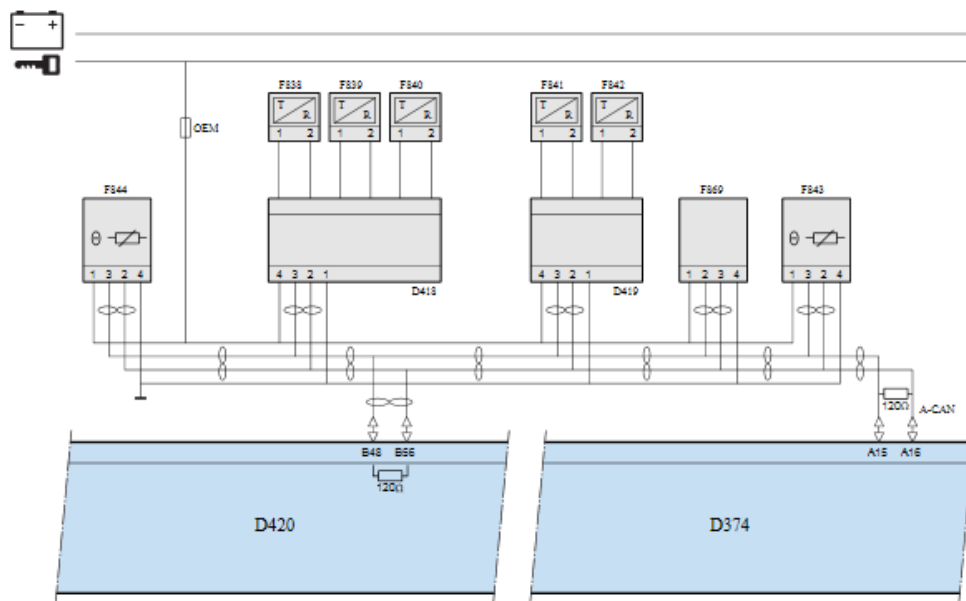


Component connector D374.B front view



Handle connectors and pins with care and use matching measuring probes.

Checking data, NH3 sensor (F869)

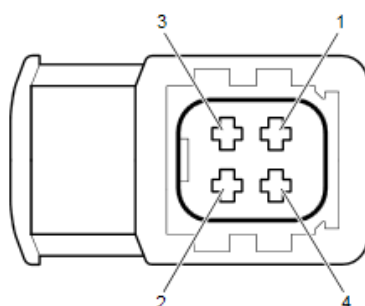


1402361-4

D374 EAS-3 ECU

F869 NH3 sensor

D374	F869	Function
A15	2	A-CAN High
A16	3	A-CAN Low
	1	Power supply
	4	Ground



E504061

Wiring harness connector F844 front view



Handle connectors and pins with care and use matching measuring probes.

Technical data	Component and wiring check, DEF pressure sensor Preparation - Switch on the ignition. - Disconnect connector L074. - Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Wiring check, NOx sensor after catalyst (F843) Preparation - Disconnect connector F843. - Switch on the ignition. - Measure on connector F843.	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Additional information	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Additional information	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Additional information																						
2	4	4.75 - 5.25 V																							
Pin (+ probe)	Pin (- probe)	Value	Additional information																						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Pin (+ probe)	Pin (- probe)	Value	Additional information																						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	4	Ubat	
4	Battery negative pole	< 0.5 V	Switch on all consumers

Wiring check, A-CAN

Preparation

- Switch off the ignition.
- Disconnect connector F843.
- Measure on connector F843.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Component check, NOx sensor before catalyst (F844)

This type of component cannot be checked with a multimeter/oscilloscope. Perform the following to assess the component:

- monitor/test the component with DAVIE.
- perform the wiring check (see below).

Wiring check, NOx sensor before catalyst (F844)

Preparation

- Switch off the ignition.
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	4	Ubat	Switch on the ignition
4	Battery negative pole	<0.5 V	Switch on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	• Switch off the ignition • Disconnect the ground cable from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.

Component check, NH3 sensor (F869)
Circuit check, ECU & wiring
Conditions

- Connector removed from NH3 sensor (F869).
- Switch on the ignition.
- Measurements must be carried out on the wiring harness connector F869.

Pin (+ probe)	Pin (- probe)	Value	Additional information
1	4	Ubat	
4	Battery negative pole	< 0.5 V	Switch on all consumers

Circuit check, A-CAN
Conditions

- Switch off the ignition.
- Connector removed from NH3 sensor (F869).
- Measurements must be carried out on the wiring harness connector F869.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- Malfunctioning DEF dosing system.
- Degraded, diluted, or incorrect DEF.
- Sulfur contamination of the SCR catalyst.
- Exhaust system leaks
- Malfunctioning SCR catalyst.
- DEF deposits in decomposition pipe.
- Malfunctioning NOx sensor before catalyst (F844).
- Malfunctioning NOx sensor after catalyst (F843).

	Malfunctioning NH3 sensor (F869).
Additional information	 This DTC can be set as a result of multiple related DTCs. Troubleshoot all other active NOx sensors, EGR and DEF dosing system-related DTCs before diagnosing this fault. - DEF injection is disabled. - After 1 hour of engine operation or 50 miles with P3830 active, P1518 becomes active (25% torque derate). - After 4 hours of engine operation or 200 miles with P3830 active, P1518 stays active (40% torque derate). - After 4 hours of engine operation or 200 miles with P3830 active, P151A becomes active (5 MPH vehicle speed limit) after a: - key cycle, or - vehicle re-fuel (fuel tank volume increase > 16%), or - vehicle has been stationary for 1 hour.
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  - This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. - Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. - Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. - It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. - This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Quick Checks Step 1A Visual inspection, connections and wiring, NOx sensors (F843, F844)

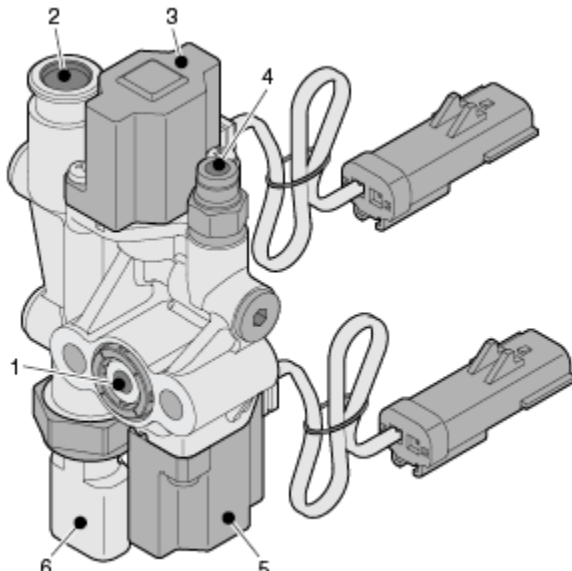
	Action - Visually inspect the associated component connections and wiring for any of the following: - Damaged or loose connectors - Bent, broken, corroded or loose connector pins - Moisture or dirt in the connections - Damage to the wire harness or insulation - The correct parts are not installed - ECU connections are damaged or disconnected - NOx sensors are broken or not installed correctly - Soot buildup on the sensors	
	Was there evidence of any of the above?	
	Yes	No
	Correct any issues found. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 1B	Go to step 1B
	Step 1B Visual inspection, connections and wiring, NH3 sensor (F869)	
	Action - Visually inspect the associated component connections and wiring for any of the following: - Damaged or loose connectors - Bent, broken, corroded or loose connector pins - Moisture or dirt in the connections - Damage to the wire harness or insulation - The correct parts are not installed - ECU connections are damaged or disconnected - NH3 sensor is broken or not installed correctly - Soot buildup on the sensor	
	Was there evidence of any of the above?	
	Yes	No

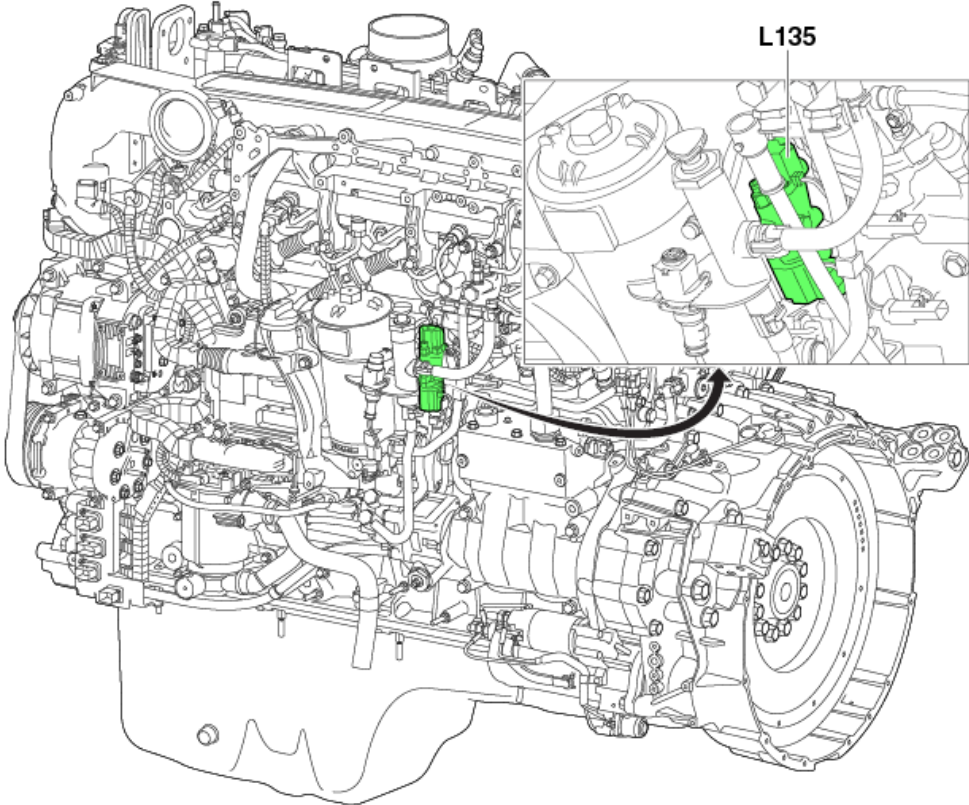
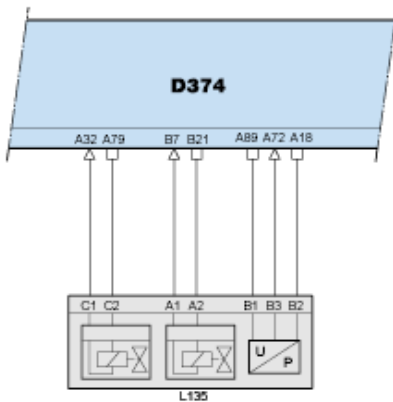
	Correct any issues found. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 2A	Go to step 2A
Step 2 Aftertreatment Checks		
Step 2A Visual inspection, crystallization, decomposition tube		
Action 1. Remove the decomposition tube as described in the maintenance procedure, “<u>remove decomposition pipe</u>,” job ID 66016. 2. Check for excessive crystallization deposits as described in “<u>check decomposition pipe (Exhaust System(SCR))</u>,” job ID 59377.		
Was there evidence of crystallization deposits?		
Yes	No	
Correct any issues found. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.		
If this DTC is still present, go to step 2B	Go to step 2B	
Step 2B DAVIE test: DEF Dose Override Test Dosing Volume		
Action 1. Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. 2. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow “DEF_Dose_Override_Test_Dosing_Volume.”		
Did this test either fail to complete or result in a failed condition?		
Yes	No	

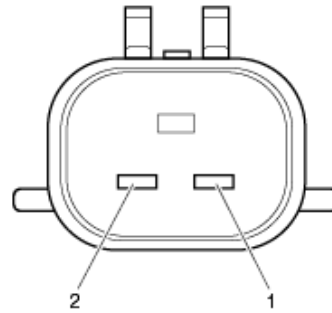
	Correct any issues found. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
	If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.
Step 3 Repair Verification		
Step 3A Repair verification cycles		
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.		
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.		
Action		
1. DEF Doser & SCR Perform the same driving requirements as the Steady State & Cooling cycle. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.		
Were the identified repair verification cycles able to be completed?		
Yes		No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

	Go to step 3B	Go to step 3B
	Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors Action Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. 1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready." A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is "Not ready," continue to action step 2. 2. View the DTC overview display, and confirm that P3830 has been cleared. Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3830 been cleared? Yes Problem resolved. No further actions. No Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance. Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.	
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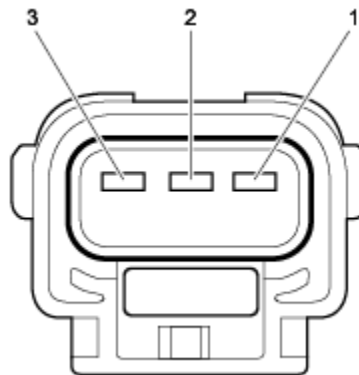
P3831

Code number	P3831
Fault code description	Fuel shutoff valve - Voltage too low or short circuit to ground on ECU D374 pin B07
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

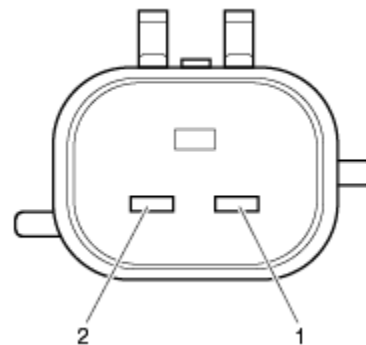
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the fuel shutoff valve is activated.
Set condition of fault code	A short circuit to ground, or open circuit is detected for 1 second.
Reset condition of fault code	The fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	



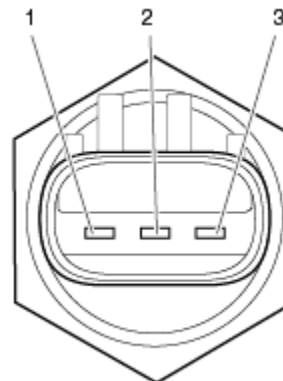
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



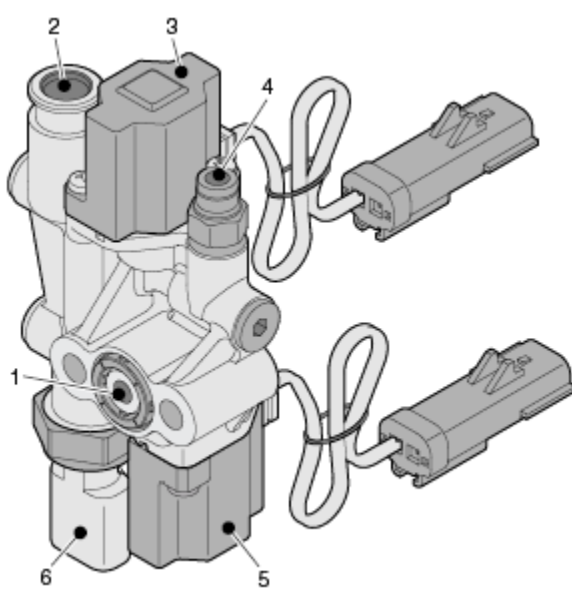
Pressure sensor L135.B front view

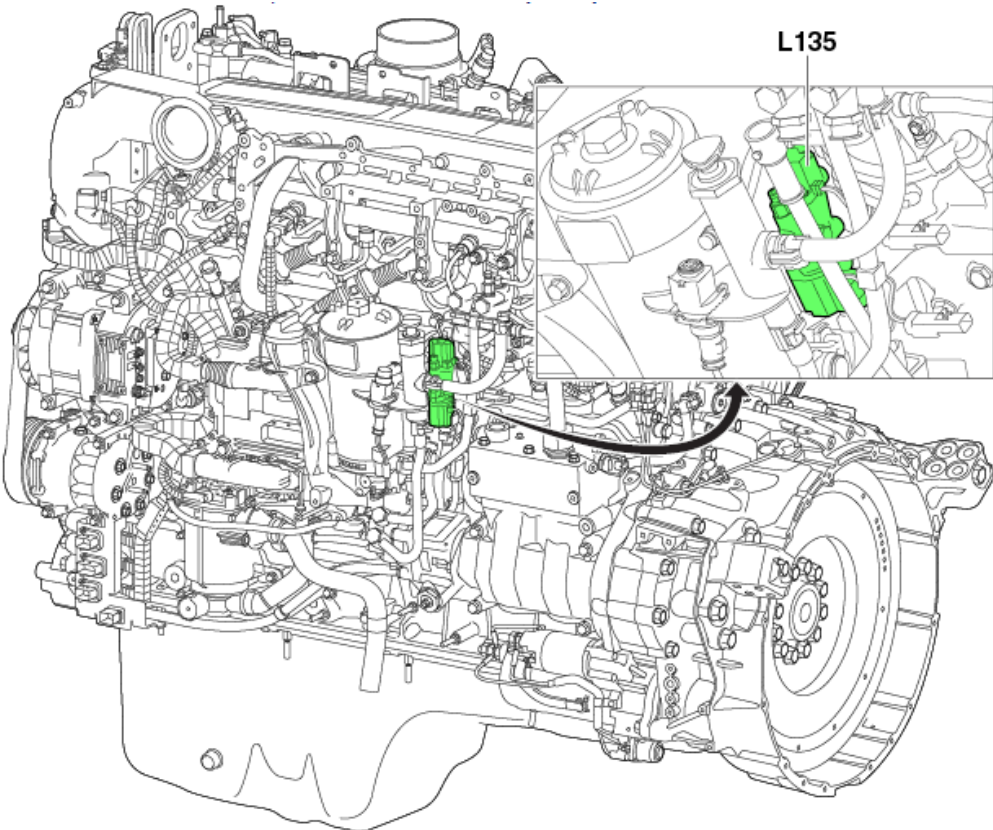
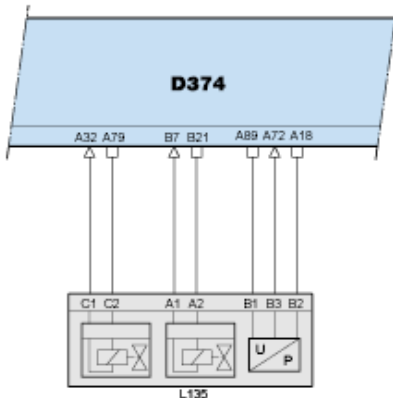
	D374 EAS-3 ECU L135 Fuel intake module			
	D374	L135	Function	
	A18	B3	Ground, fuel pressure sensor	
	A72	B2	Signal, fuel pressure sensor	
	A89	B1	Supply voltage, fuel pressure sensor	
	A32	C1	Signal, air shutoff valve	
	A79	C2	Ground, air shutoff valve	
	B7	A1	Signal voltage, fuel shutoff valve	
	B21	A2	Ground, fuel shutoff valve	
Technical data	Component and wiring check, pressure sensor			
	Preparation			
	• Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	B1	B2	5 V ± 0.25 V	
	Component check, pressure sensor			
	Preparation			
	• Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	B3	B1	37–68 kΩ	at 20°C
	B3	B2	1.4–2.6 kΩ	at 20°C
	B1	B2	46–67 kΩ	at 20°C
	Component check, air shutoff valve			
	Preparation			
	• Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	C1	C2	7.6–8.4 Ω	at 20°C
	Component check, fuel shutoff valve			
	Preparation			
	• Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	A1	A2	7.6–8.4 Ω	at 20°C

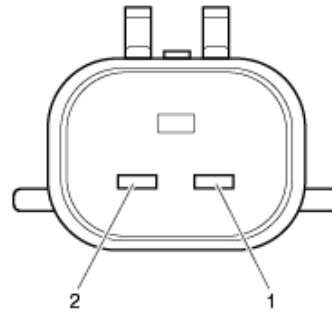
Possible causes	• A short circuit to ground. • Check the electrical connections and wiring of the EAS-3 ECU (D374). • Perform the fuel shutoff valve leak test with DAVIE.														
Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled.														
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3831a</td><td>SRT</td></tr></table> Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2. <table><tr><td>Step 2</td><td>Step ID 3831b</td><td>SRT</td></tr></table> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4 <table><tr><td>Step 3</td><td>Step ID 3831c</td><td>SRT</td></tr></table> Replace appropriate component 'Fuel Intake Module' and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 4 <table><tr><td>Step 4</td><td>Step ID 3831d</td><td>SRT</td></tr></table>			Step 1	Step ID 3831a	SRT	Step 2	Step ID 3831b	SRT	Step 3	Step ID 3831c	SRT	Step 4	Step ID 3831d	SRT
Step 1	Step ID 3831a	SRT													
Step 2	Step ID 3831b	SRT													
Step 3	Step ID 3831c	SRT													
Step 4	Step ID 3831d	SRT													

	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.	
	Back to Index	

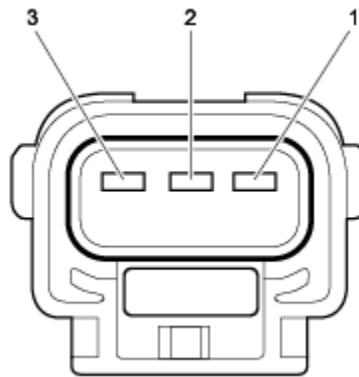
P3832

Code number	P3832
Fault code description	Fuel shutoff valve - Voltage too high or short circuit to supply on ECU D374 pin B07
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

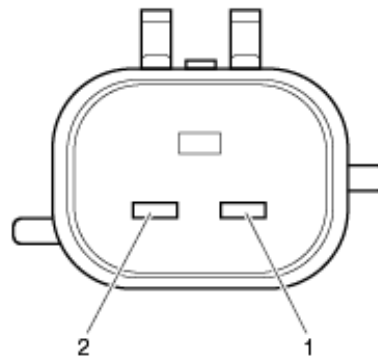
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the fuel shutoff valve is activated.
Set condition of fault code	A short circuit to supply or open circuit is detected for 1 second.
Reset condition of fault code	When there is no short circuit to supply or open circuit.
Electrical diagram(s)	



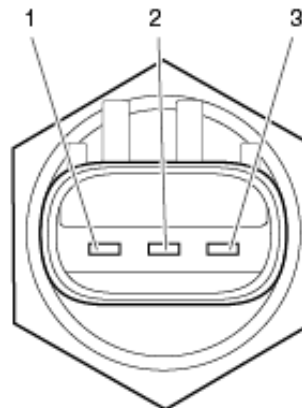
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



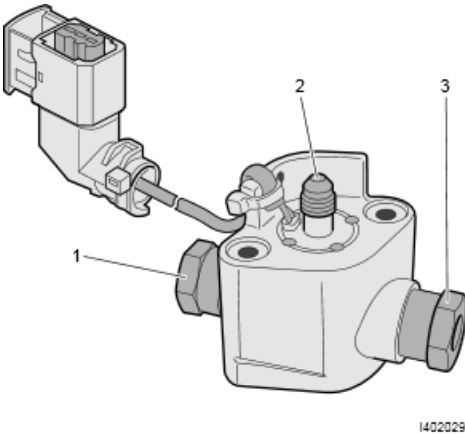
Pressure sensor L135.B front view

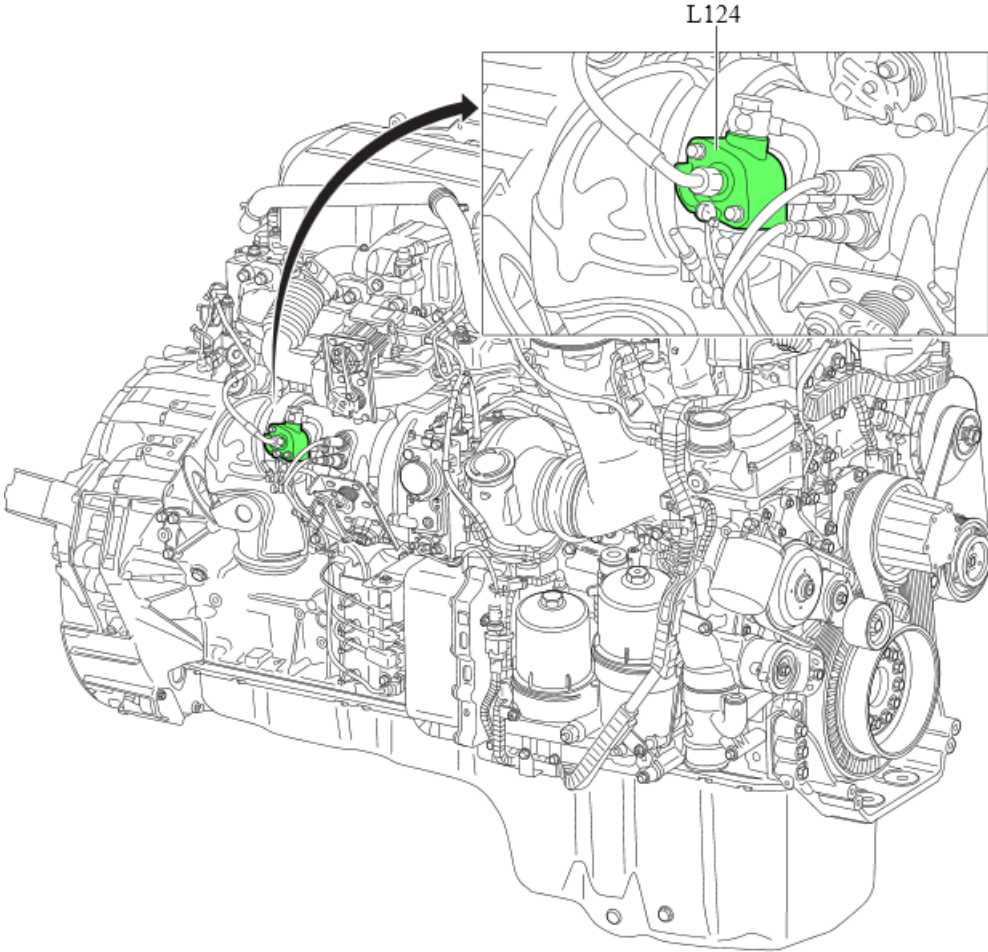
	D374 EAS-3 ECU L135 Fuel intake module			
	D374	L135	Function	
	A18	B3	Ground, fuel pressure sensor	
	A72	B2	Signal, fuel pressure sensor	
	A89	B1	Supply voltage, fuel pressure sensor	
	A32	C1	Signal, air shutoff valve	
	A79	C2	Ground, air shutoff valve	
	B7	A1	Signal voltage, fuel shutoff valve	
	B21	A2	Ground, fuel shutoff valve	
Technical data	Component and wiring check, pressure sensor			
	Preparation			
	• Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	B1	B2	5 V ± 0.25 V	
	Component check, pressure sensor			
	Preparation			
	• Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	B3	B1	37–68 kΩ	at 20°C
	B3	B2	1.4–2.6 kΩ	at 20°C
	B1	B2	46–67 kΩ	at 20°C
	Component check, air shutoff valve			
	Preparation			
	• Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	C1	C2	7.6–8.4 Ω	at 20°C
	Component check, fuel shutoff valve			
	Preparation			
	• Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A.			
	Pin	Pin		
	(+ probe)	(- probe)	Value	Additional Information
	A1	A2	7.6–8.4 Ω	at 20°C

Possible causes	• Short circuit to supply or an open circuit. • Damaged fuel shutoff valve. • Check the electrical connections and wiring of the EAS-3 ECU (D374). • Perform the fuel shutoff valve leak test with DAVIE.												
Additional information	• The air shutoff valve or fuel injector system is part of the fuel intake module (L135). • The fuel shutoff valve circuit is pulse width modulated (PWM) controlled. • Active DPF regeneration is disabled.												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3832a</td><td>SRT</td></tr><tr><td colspan="3"> Visual Inspection Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Was there evidence of any of the above? • No: Continue to the next step 2 in the troubleshooting process. • Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 2 in the troubleshooting process. </td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3832b</td><td>SRT</td></tr><tr><td colspan="3"> Electric Check Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. • Supply and signal voltages. • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? </td></tr></table>	Step 1	Step ID 3832a	SRT	Visual Inspection Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Was there evidence of any of the above? • No: Continue to the next step 2 in the troubleshooting process. • Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 2 in the troubleshooting process.			Step 2	Step ID 3832b	SRT	Electric Check Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. • Supply and signal voltages. • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits?		
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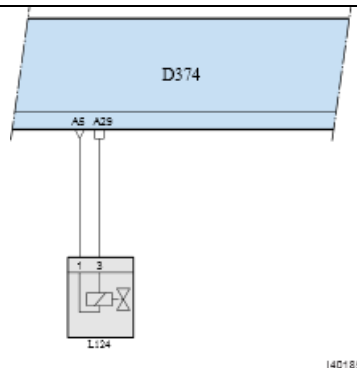
	• No: Continue to the next step 3 in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 3 in the troubleshooting process.			
	<table><tr><td>Step 3</td><td>Step ID 3832c</td><td>SRT</td></tr></table> Replace: Fault Intake module Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 4 in the troubleshooting process.	Step 3	Step ID 3832c	SRT
Step 3	Step ID 3832c	SRT		
	<table><tr><td>Step 4</td><td>Step ID 3832d</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 4	Step ID 3832d	SRT
Step 4	Step ID 3832d	SRT		
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.			
	Back to Index			

P3833

Code number	P3833
Fault code description	Fuel dosing valve - Current too low or open circuit on ECU (D374) pin (A05) or pin (A29)
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	Fuel dosing valve (L124) During an active or stationary DPF regeneration, the fuel dosing valve doses fuel into the exhaust system before the diesel oxidation catalyst (DOC). • The fuel dosing valve is actuated by a PWM signal. • The fuel dosing valve is connected to the engine cooling system to limit the temperature of the nozzle. • The longer the solenoid is activated, the more fuel is injected.  1 Coolant return 2 Fuel Supply 3 Coolant supply 1402029 Effects on the system • Doses fuel into the exhaust system. • Raises the temperature of the exhaust gas in order to “burn” soot in the DPF. • To raise the temperature of the aftertreatment system during a regeneration.

Location of component(s)	 L124 1402134-3
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the fuel dosing module (L124) is activated.
Set condition of fault code	A short circuit to supply or open circuit is detected for 3 consecutive seconds.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE. Once the temperatures in the aftertreatment systems are warm enough to inject fuel into the exhaust, the diagnostic runs.

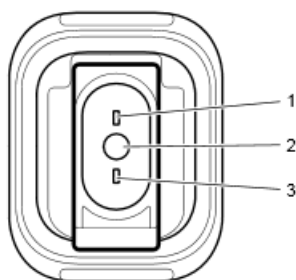
Electrical diagram(s)



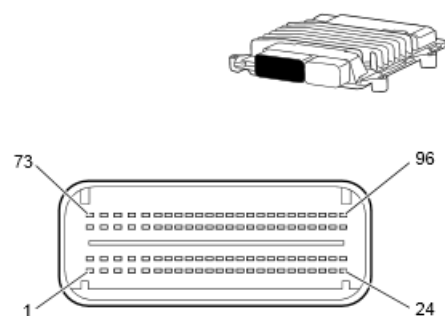
D374 EAS-3 ECU

L124 fuel dosing valve

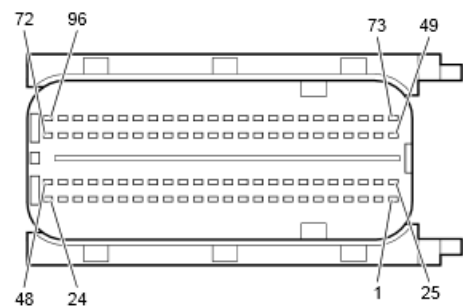
D374	L124	Function
A5	1	Signal, fuel dosing valve
A29	3	Ground, fuel dosing valve



Component connector L124 front view



Component connector D374.A



Wiring harness connector D374.A front view

	 Handle connectors and pins with care and use matching measuring probes.								
Technical data	Component check, fuel dosing valve (L124) Preparation • Key off the ignition • Remove connector L124 • Measure on the fuel dosing valve (L124) <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>1</td><td>3</td><td>0.5 – 2.0 Ω</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	1	3	0.5 – 2.0 Ω	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
1	3	0.5 – 2.0 Ω							
Possible causes	• A short circuit to supply. • A short circuit to ground. • An open circuit. • Check the electrical connections and wiring of the EAS-3 ECU (D374). • Perform the 2.7.4 fuel dosing system override test with DAVIE.								
Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled.								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PMCI are functioning properly. ▪ Disconnecting the PMCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current trouble codes from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.								

Step 1. Fuel Dosing Module (L124) Checks

Step 1.A Visual inspection, connectors and connections, fuel dosing module (L124)

Action

1. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Missing or damaged connector seals
 - Moisture or dirt in the connections
 - Connector shell damaged or broken
 - Damage to wire insulation
 - Damaged connector locking tab

Was there evidence of any of the above?

Yes

No

Correct any issues found.

Refer to step 3.A to perform the corresponding repair verification cycles and rechecks.

If this code is still present, go to step 1.B.

Step 1.B

Step 1.B Electrical checks, resistance, fuel dosing module (L124)



Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Confirm the signal to ground resistance as outlined in the corresponding checking data procedure, "component check, fuel dosing valve (L124)".

Is the measured value within the expected range?

Yes

No

		Correct any issues found, or replace the fuel dosing module (L124). Refer to step 3.A to perform the corresponding repair verification cycles and rechecks.
	Step 1.C	If this code is still present, go to step 2.A
	Step 1.C Electrical checks, short-to-ground, fuel dosing module (L124)	
		Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.
	Action	
	1. Set the ignition switch to OFF. 2. Disconnect the fuel dosing module (L124) connector. 3. Measure the resistance between the fuel dosing module (L124) connector SIGNAL pin and the metal case of the fuel dosing module.	
	Is the measured resistance greater than 100kΩ?	
	Yes	No
		Likely short circuit in the fuel dosing module. Replace the fuel dosing module (L124). Refer to step 3.A to perform the corresponding repair verification cycles and rechecks.
	Step 2.A	If this code is still present, go to step 2.A.
Step 2. EAS-3 ECU D374 and Harness Checks		
Step 2. A Visual inspection, connectors and connections,		
Action		
1. Visually inspect the associated component connections and wiring for any of		

	the following:	
	• Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Missing or damaged connector seals • Moisture or dirt in the connections • Connector shell damaged or broken • Damage to wire insulation • Damaged connector locking tab	
	Was there evidence of any of the above?	
	Yes	No
	Correct any issues found.	
	Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.	
	If this code is still present, go to Step 2.B	Step 2.B
	Step 2.B Electrical checks, harness open supply circuit, fuel dosing module (L124)	
	 Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.	
Action 1. Set the ignition switch to OFF. 2. Disconnect the engine harness A connector from the EAS-3 ECU. 3. Measure the resistance between the A connector fuel dosing module SIGNAL pin and the corresponding SIGNAL pin on the fuel dosing module (L124) harness connector.		
Is the measured resistance less than 10Ω?		
Yes	No	
	Possible open condition in the harness. Contact the PACCAR Engine Support Call	

Step 2.D Electrical checks, harness pin-to-ground short circuit, fuel dosing module (L124)



Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Set the ignition switch to OFF.
2. Disconnect the engine harness A connector from the EAS-3 ECU.
3. Measure the resistance between the A connector fuel dosing module SIGNAL pin and a corresponding GROUND.

Is the measured resistance greater than 100kΩ?

Yes

No

Possible short condition in the harness.
Contact the PACCAR Engine Support Call Center for additional assistance in troubleshooting this issue, and for possible repair or replacement of the harness.

Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.

Step 2.E

Step 2.E Electrical checks, harness pin-to-pin short circuit, fuel dosing module (L124)



Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.

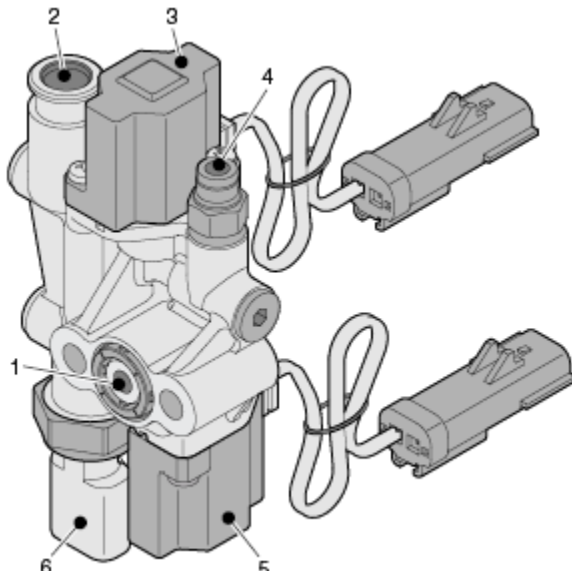
Action

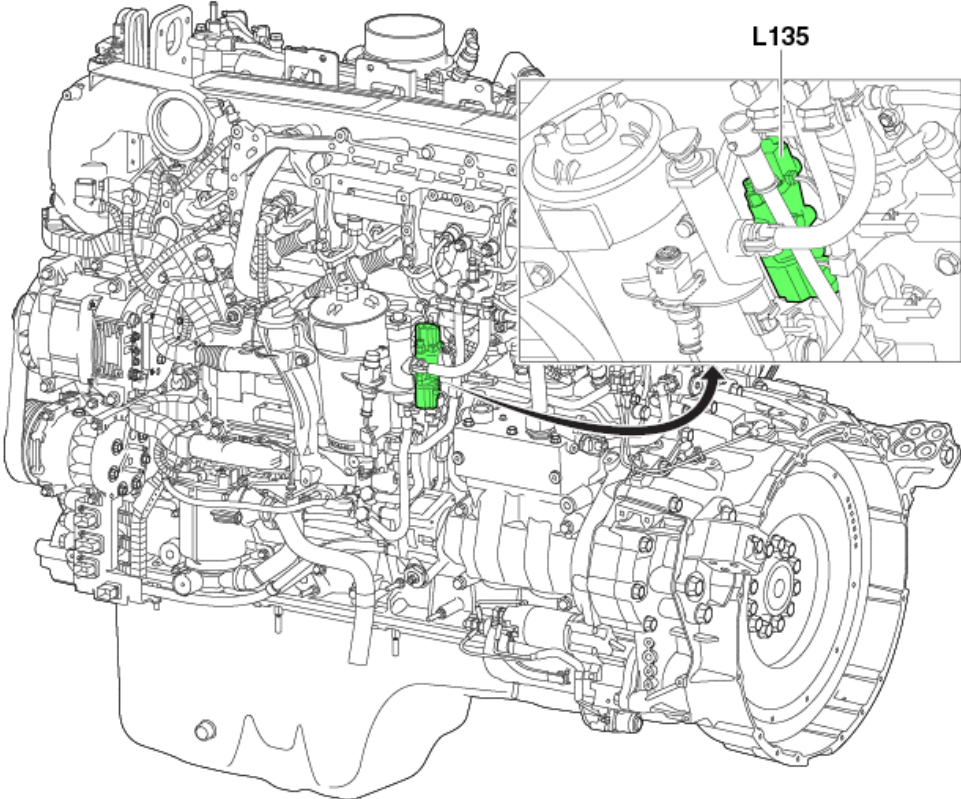
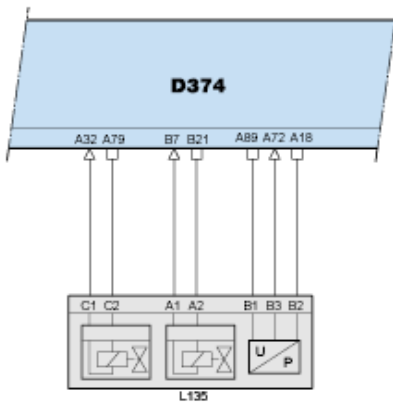
1. Set the ignition switch to OFF.
2. Disconnect the engine harness A connector from the EAS-3 ECU.
3. Measure the resistance between the A connector fuel dosing module SIGNAL pin and the A connector fuel dosing module GROUND pin.

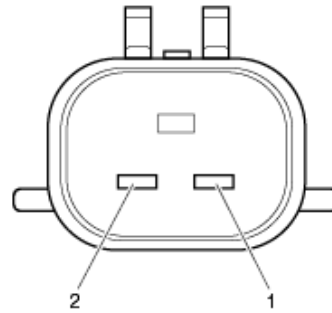
Is the measured resistance greater than 100 kΩ?	
Yes	No
If this code is still present after completing all of the above steps, contact the PACCAR Engine Support Center for additional assistance in troubleshooting this issue.	Possible short condition in the harness. Contact the PACCAR Engine Support Call Center for additional assistance in troubleshooting this issue, and for possible repair or replacement of the harness. Refer to Step 3.A to perform the corresponding repair verification cycles and rechecks.
Step 3. Repair Verification	
Step 3.A Repair verification cycles	
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the trouble code or system being investigated.	
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.	
Action	
1. DPF & DOC	
 This test can take up to 45 minutes to an hour to complete. Start the truck and using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE, and go to the DFP Regeneration test. Follow the prompts to complete a Stationary Regeneration.	
Were the identified repair verification cycles able to be completed?	
Yes	No
	Investigate and correct any issues

		preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 3.B	Go to step 3.B
Step 3.B DAVIE Diagnostics, Quick Check		
Action		
1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes to determine whether the actions taken have cleared this trouble code.		
Has P3833 been cleared?		
Yes		No
Problem resolved. No further actions.		Continue with the next step in this troubleshooting procedure. If all steps have been completed and this trouble code is still present, contact the PACCAR Engine Support Center for further assistance.
 For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.		
	Back to Index	

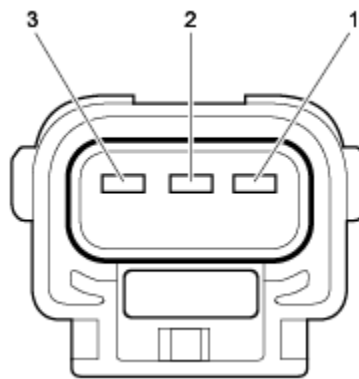
P3834

Code number	P3834
Fault code description	Fuel shutoff valve - Data erratic, intermittent, or incorrect on ECU D374 pin B07
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

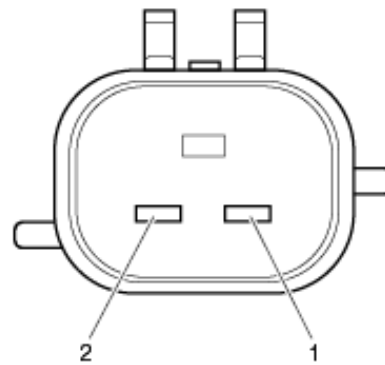
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs at the start of DPF regeneration.
Set condition of fault code	The EAS-3 ECU (D374) detects a short circuit to supply.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE. Once the temperatures in the aftertreatment are high enough to inject diesel fuel into the exhaust, the diagnostic will run.
Electrical diagram(s)	



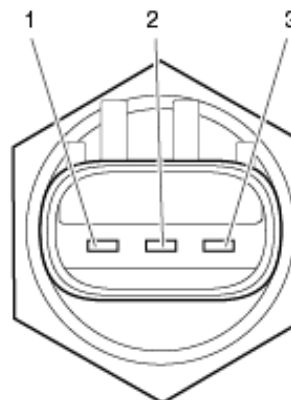
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



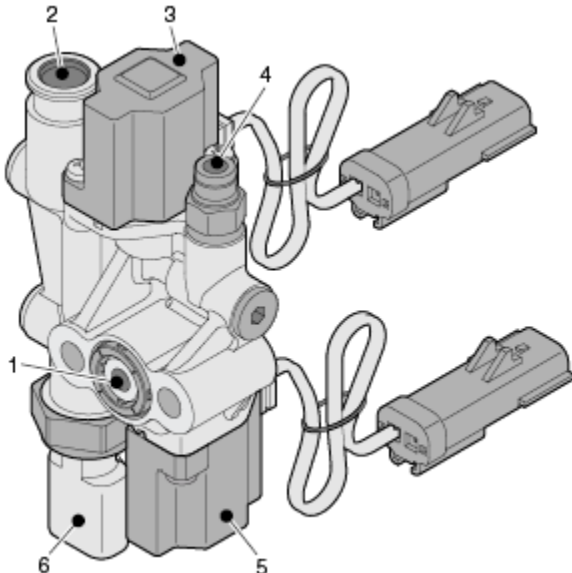
Pressure sensor L135.B front view

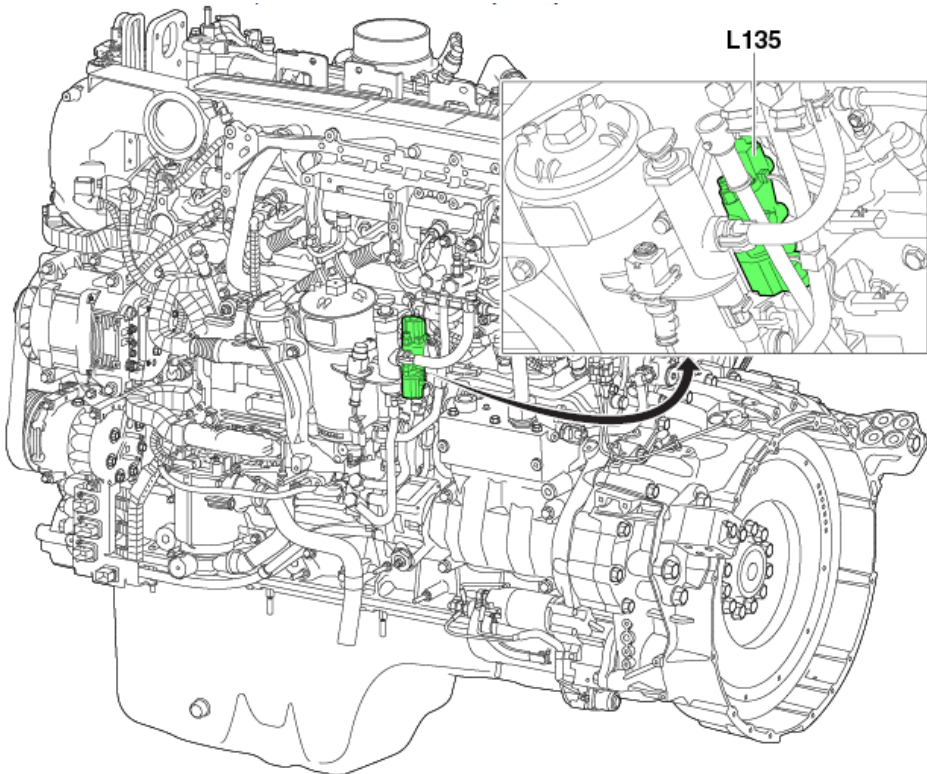
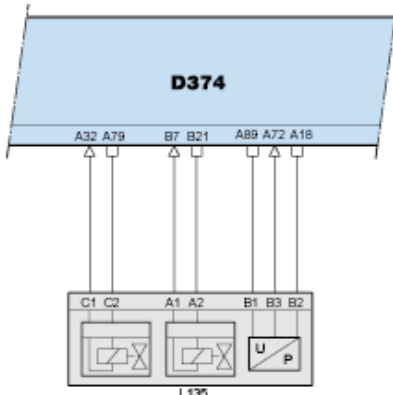
	D374 EAS-3 ECU L135 Fuel intake module																																																											
	D374	L135	Function																																																									
	A18	B3	Ground, fuel pressure sensor																																																									
	A72	B2	Signal, fuel pressure sensor																																																									
	A89	B1	Supply voltage, fuel pressure sensor																																																									
	A32	C1	Signal, air shutoff valve																																																									
	A79	C2	Ground, air shutoff valve																																																									
	B7	A1	Signal voltage, fuel shutoff valve																																																									
	B21	A2	Ground, fuel shutoff valve																																																									
Technical data	Component and wiring check, pressure sensor Preparation • Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B1</td><td>B2</td><td>5 V ± 0.25 V</td><td></td></tr></table> Component check, pressure sensor Preparation • Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B3</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>				Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B1	B2	5 V ± 0.25 V		Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B3	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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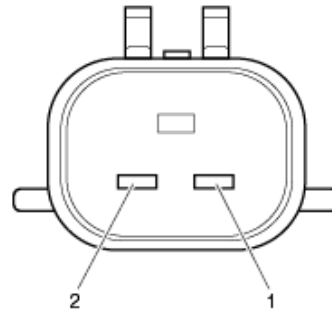
Possible causes	- Internal leakage in the fuel shutoff valve. - The fuel dosing module (L124) is stuck closed, plugged, or clogged.																									
Additional information	- The air shutoff valve is part of the fuel intake module (L135). - Engine runs in protection mode. - Fuel dosing module (L124) is disabled.																									
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Replace the identified faulty component (Fuel Intake Module) and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 4																										

	Step 5	Step ID 3834e	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.		
	Back to Index		

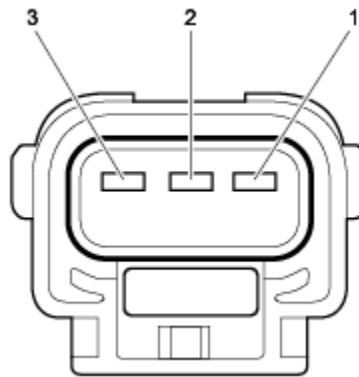
P3835

Code number	P3835
Fault code description	Fuel pressure fuel intake module - Not responding or out of adjustment on ECU D374 pin B07
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

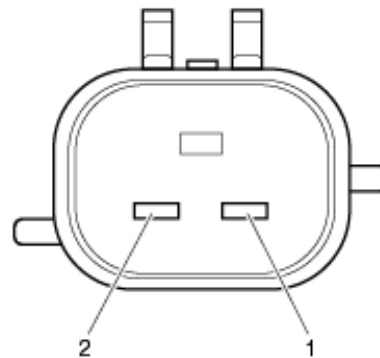
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs at the start of DPF regeneration.
Set condition of fault code	The EAS-3 ECU (D374) detects that the fuel pressure sensor is reading a value lower than a threshold when the after treatment fuel shutoff valve is opened.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE. Once the temperatures in the after treatment are high enough to inject diesel fuel into the exhaust, the diagnostic will run.
Electrical diagram(s)	



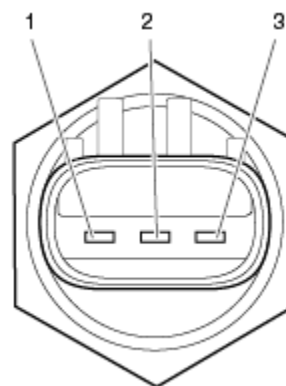
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



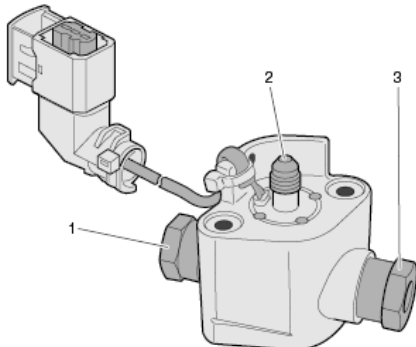
Pressure sensor L135.B front view

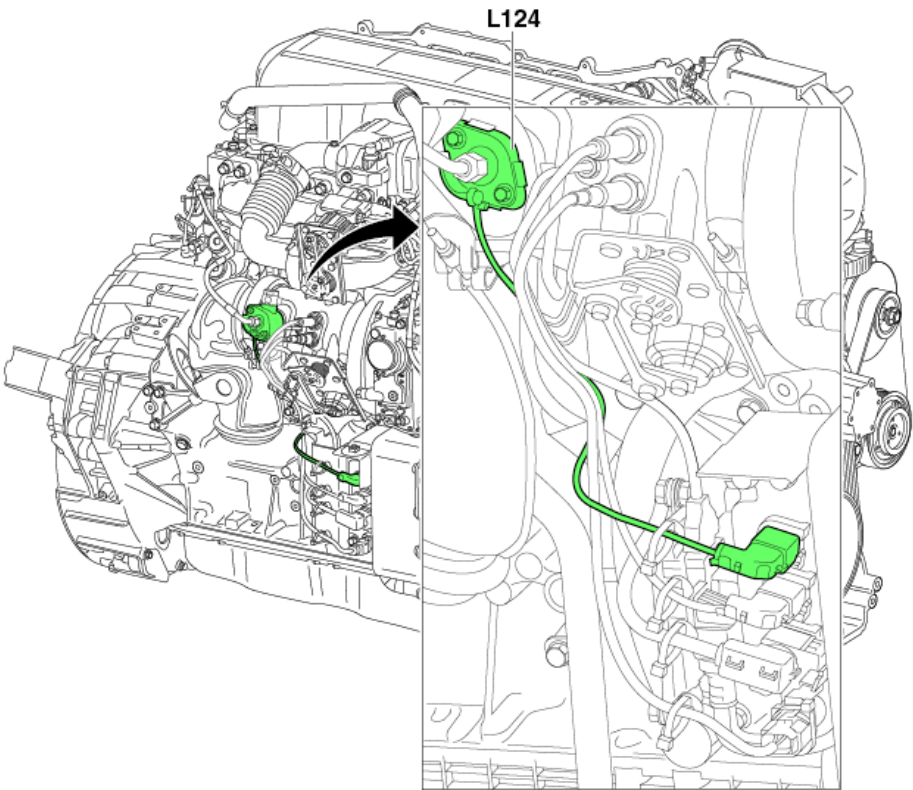
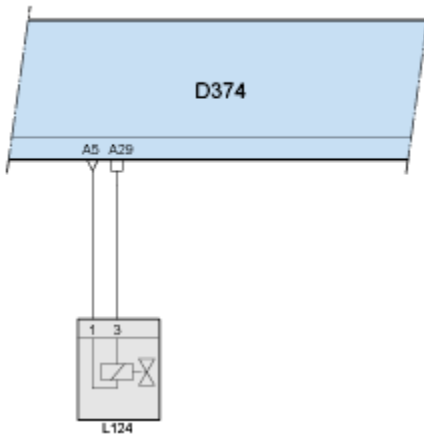
	D374 EAS-3 ECU L135 Fuel intake module																																																											
	D374	L135	Function																																																									
	A18	B3	Ground, fuel pressure sensor																																																									
	A72	B2	Signal, fuel pressure sensor																																																									
	A89	B1	Supply voltage, fuel pressure sensor																																																									
	A32	C1	Signal, air shutoff valve																																																									
	A79	C2	Ground, air shutoff valve																																																									
	B7	A1	Signal voltage, fuel shutoff valve																																																									
	B21	A2	Ground, fuel shutoff valve																																																									
Technical data	Component and wiring check, pressure sensor Preparation • Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B1</td><td>B2</td><td>5 V ± 0.25 V</td><td></td></tr></table> Component check, pressure sensor Preparation • Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B3</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>				Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B1	B2	5 V ± 0.25 V		Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B3	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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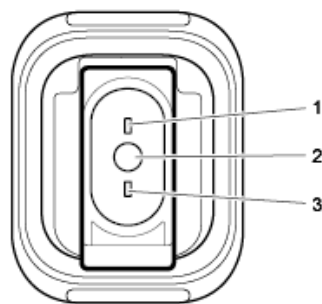
Possible causes	- Stuck, closed fuel shutoff valve. - A missing or leaking fuel supply line to the after treatment fuel shutoff manifold. - A plugged fuel filter. - A malfunctioning fuel pump gear pump.																								
Additional information	- The fuel shutoff valve has been detected to be stuck closed. - The fuel pressure sensor is part of the fuel intake module (L135). - Active DPF regeneration is disabled.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3835a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3835b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V). - Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? - Yes - Proceed to step 3 - No - Proceed to step 4 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3835c</td><td>SRT</td></tr><tr><td colspan="3"> Repair or replace appropriate component and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 4 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3835d</td><td>SRT</td></tr><tr><td colspan="3">Replace the identified faulty component (Fuel Intake Module) and use DAVIE to re-check for the presence of active faults.</td></tr></table>	Step 1	Step ID 3835a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3835b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V). - Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? - Yes - Proceed to step 3 - No - Proceed to step 4			Step 3	Step ID 3835c	SRT	Repair or replace appropriate component and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 4			Step 4	Step ID 3835d	SRT	Replace the identified faulty component (Fuel Intake Module) and use DAVIE to re-check for the presence of active faults.		
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	- Fault inactive – issue resolved - Fault active - Proceed to step 4		
	Step 5	Step ID 3835e	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.		
	Back to Index		

P3836

Code number	P3836
Fault code description	Fuel dosing valve - Fuel leakage
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group - None Freeze frame type - PMfilter
Description of component(s)	- Dosing fuel into the exhaust pipe before the oxidation catalyst, during active regeneration. - PWM controlled. - The fuel dosing valve (L124) is connected to the engine coolant circuit to limit the temperature.  1 Coolant return 2 Fuel supply 3 Coolant supply Effect of the output signal on the system - Dose fuel into the exhaust; - Thus raise the temperature of the exhaust gas in order to 'burn' soot in the DPF.

Location of component(s)	
Diagnostic condition	This diagnostic runs at the start of active DPF regeneration.
Set condition of fault code	The EAS-3 ECU (D374) detected a leaking fuel dosing module (L124) or an external leak.
Reset condition of fault code	This fault code will change to inactive following a key cycle immediately after the diagnostic runs and passes active regeneration of the DPF.
Electrical diagram(s)	



Wiring Harness connector L124 front view

D374 EAS-3 ECU
L124 Dosing valve

D374	L124	Function
A5	1	Control signal high
A29	3	Control signal low

Technical data

Component check, fuel dosing valve (L124)

Preparation

- Switch the ignition off.
- Disconnect connector L124.
- Measure on connector L124

Pin (+ probe)	Pin (- probe)	Value	Additional Information
1	3	1.14–1.26 Ω	at 20°C

Possible causes

- The fuel dosing module (L124) is leaking.
- Perform 'Fuel dosing module leak test' with DAVIE. Or perform the 'Fuel dosing override test' with DAVIE.

Additional information

- Hydro carbon dosing in the aftertreatment system is disabled.
- Engine runs in protection mode.

Diagnostic Step-by-Step



Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.

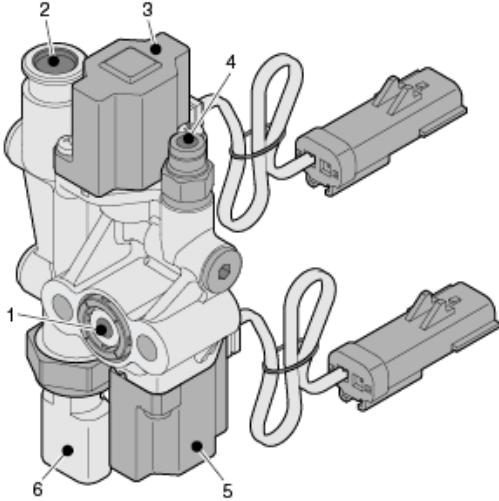


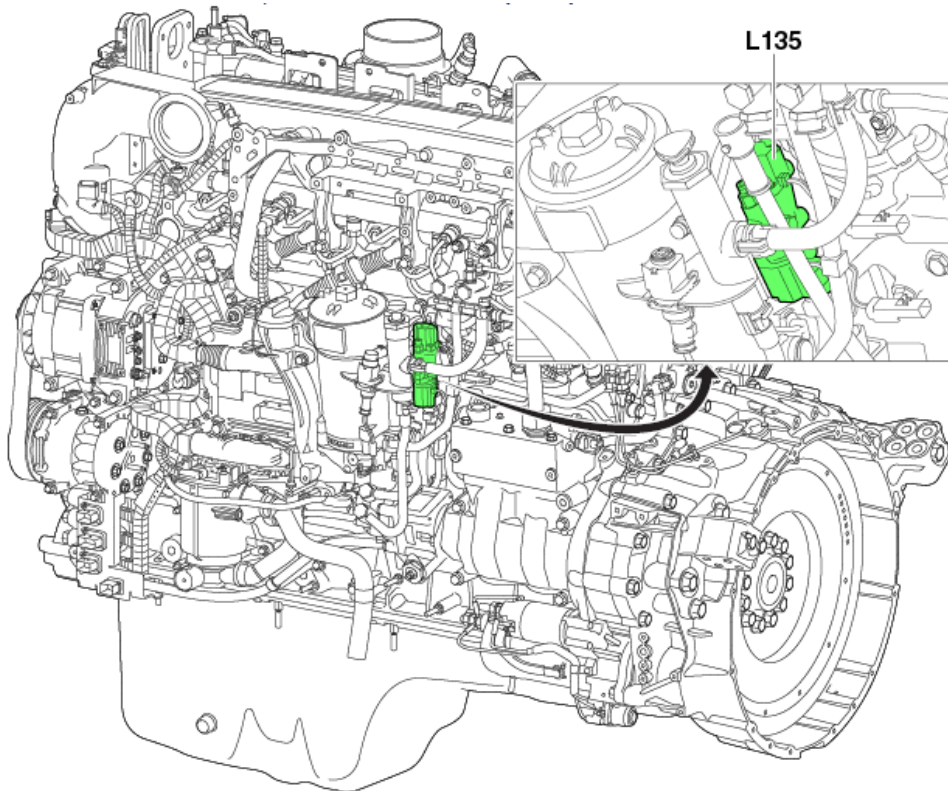
- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pin out locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3836a	SRT
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic		

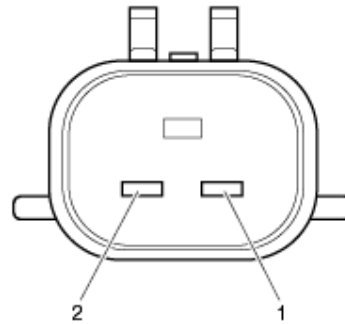
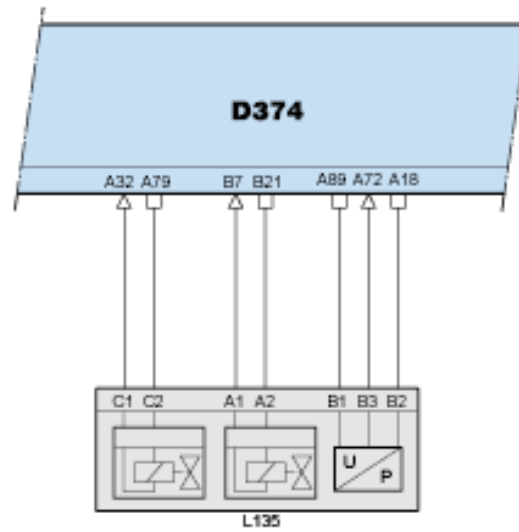
	procedure. Proceed to step 2.		
	Step 2	Step ID 3836b	SRT
	DAVIE Direct Test: Fuel Dosing Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Doser. Does the test fail to complete or result in a failed state? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the step 3 in the troubleshooting process.		
	Step 3	Step ID 3836c	SRT
	DAVIE Direct Test: Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? • No: Continue to the next step in the troubleshooting process. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the step 4 in the troubleshooting process.		
	Step 4	Step ID 3836d	SRT
	Replace: Fuel Dosing Module Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 2 in the troubleshooting process.		
	Step 5	Step ID 3836e	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: This test can take up to 45 minutes to 1 hour to complete. Start the truck and using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.		
	Back to Index		

P3837

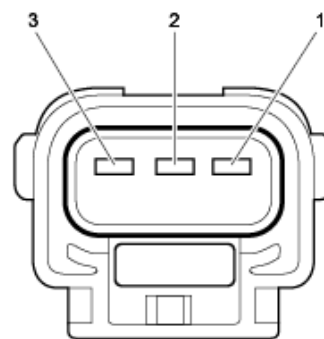
Code number	P3837
Fault code description	Intake module fuel pressure - Data valid but too low, least severe
Fault code information	 For further assistance: Contact the PACCAR Engine Support Call Center 1-800-477-0251 Please Contact the Engine Support Center
Description of component(s)	 1. Fuel from fuel filter module 2. Fuel-to-fuel dosing module (L124) 3. Air shutoff valve 4. Air supply 5. Fuel shutoff valve 6. Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • Diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

	Air shutoff valve • Solenoid valve Effect of output signal on the system: • The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	 The diagram shows a side view of a PACCAR engine. A green highlight indicates the location of the air shutoff valve (L135) on the fuel line. An inset image shows a close-up of the valve and its connection to the fuel line.
Diagnostic condition	• This diagnostic runs continuously when the engine runs. • Active DPF regeneration is also occurring.
Set condition of fault code	The fuel pressure is less than 3 bar [43.5 psi] for more than 15 seconds.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE. Once the temperatures in the after treatment are high enough to inject diesel fuel into the exhaust, the diagnostic runs.

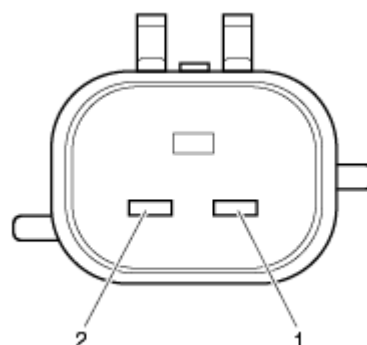
Electrical diagram(s)



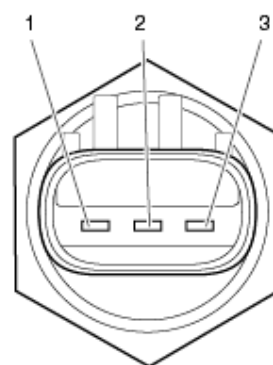
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

D374 EAS-3 ECU
L135 Fuel intake module

D374	L135	Function
A18	B3	Ground, fuel pressure sensor
A72	B2	Signal, fuel pressure sensor
A89	B1	Supply voltage, fuel pressure sensor
A32	C1	Signal, air shutoff valve
A79	C2	Ground, air shutoff valve
B7	A1	Signal voltage, fuel shutoff valve
B21	A2	Ground, fuel shutoff valve

Technical data

Wiring check, pressure sensor

Preparation

- Disconnect connector L135.B
- Key on the ignition.
- Measure on connector L135.B.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
B1	B2	5 V ± 0.25 V	

Component check, pressure sensor

Preparation

- Key off the ignition.

	• Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B2</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Key off the ignition. • Disconnect connector L135.C. • Measure on the air shutoff valve connector L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Keyed off the ignition. • Disconnect connector L135.A. • Measure on the fuel shutoff valve, connector L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B2	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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Possible causes	• Low fuel supply to hydrocarbon dosing system. • Check the hydrocarbon dosing system fuel pressure during DPF regeneration.																																												
Additional information	No additional information available.																																												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3837a</td><td>SRT</td></tr><tr><td colspan="3">Check for Fault Codes</td></tr><tr><td colspan="3"> • Turn the key switch ON. </td></tr></table>	Step 1	Step ID 3837a	SRT	Check for Fault Codes			• Turn the key switch ON.																																					
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	• Use DAVIE to check for fault codes related to the after treatment temperature sensors. Is fault related to below mentioned component active? : Fuel intake module - ECU pin A72, voltage too high Fuel intake module - ECU pin A72, voltage too low • Yes: Proceed with the appropriate fault code • No: Proceed to step 2							
<table border="1"> <tr> <td>Step 2</td><td>Step ID 3837b</td><td>SRT</td></tr> <tr> <td colspan="3"> Inspect the fuel pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Inspect the fuel pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes: A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 10 • No: Proceed to step 3 </td></tr> </table>			Step 2	Step ID 3837b	SRT	Inspect the fuel pressure sensor and connector pins • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Inspect the fuel pressure sensor connector for: • Corroded or dirty pins • Damaged pins • Pushed back or expanded pins • Loose connector • Moisture in or on the connector • Damaged connector shell • Missing or damaged connector seals • Wire insulation damage Dirty or damaged pins/connector? • Yes: A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 10 • No: Proceed to step 3		
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<table border="1"> <tr> <td>Step 3</td><td>Step ID 3837c</td><td>SRT</td></tr> <tr> <td colspan="3"> Check the circuit response • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code related to below mentioned component active? : Fuel intake module - ECU pin A72, voltage too low • Yes: Proceed to step 4 • No: Proceed to step 5 </td></tr> </table>			Step 3	Step ID 3837c	SRT	Check the circuit response • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Turn the key switch ON. • Check for the appropriate circuit response after 30 seconds. • Use DAVIE to read the fault codes. Is fault code related to below mentioned component active? : Fuel intake module - ECU pin A72, voltage too low • Yes: Proceed to step 4 • No: Proceed to step 5		
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<table border="1"> <tr> <td>Step 4</td><td>Step ID 3837d</td><td>SRT</td></tr> <tr> <td colspan="3"> Check the circuit response • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the fuel pressure sensor. </td></tr> </table>			Step 4	Step ID 3837d	SRT	Check the circuit response • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the fuel pressure sensor.		
Step 4	Step ID 3837d	SRT						
Check the circuit response • Turn the key switch OFF. • Disconnect the fuel pressure sensor from the harness. • Place a jumper wire between the sensor supply pin and the signal pin at the sensor connector of the fuel pressure sensor.								

- Turn the key switch ON.
- Check for the appropriate circuit response after 30 seconds.
- Use DAVIE to read the fault codes.

Is fault code related to below mentioned component active?

Fuel intake module - ECU pin A72, voltage too high

- Yes: Proceed to step 10
- No: Proceed to step 5

Step 5	Step ID 3837e	SRT

Inspect the EAS-3 unit and the harness connector pins

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Inspect the harness and EAS-3 unit connector for:
 - Corroded or dirty pins
 - Damaged pins
 - Pushed back or expanded pins
 - Loose connector
 - Moisture in or on the connector
 - Damaged connector shell
 - Missing or damaged connector seals
 - Wire insulation damage

Dirty or damaged pins/connector?

- Yes: A dirty or damaged connection has been detected. Clean, repair, or replace the damaged connection or harness, if possible - Proceed to step 10
- No: Proceed to step 6

Step 6	Step ID 3837f	SRT

Check for an open circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the fuel pressure sensor from the harness.
- Check for an open circuit.
- Measure the resistance of each fuel pressure sensor wire between the EAS-3 unit connector pin and the sensor connector pin.

Is the resistance less than 10 ohms?

- Yes: Proceed to step 7
- No: An open circuit has been detected in the harness. Repair or replace the harness - Proceed to step 10

Step 7	Step ID 3837g	SRT

Check for a pin-to-pin short circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the fuel pressure sensor from the harness.

- Check for a pin-to-pin short circuit.
- Measure the resistance between the EAS-3 unit connector fuel pressure sensor signal pin and all other pins in the harness.

Is the resistance greater than 100k ohms?

- Yes: Proceed to step 8
- No: A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 10

Step 8

Step ID 3837h

SRT

Check for a pin-to-pin short circuit in the harness

- Turn the key switch OFF.
- Disconnect the EAS-3 unit from the harness.
- Disconnect the fuel pressure sensor from the harness.
- Check for a pin-to-pin short circuit.
- Measure the resistance between the EAS-3 unit connector fuel pressure sensor supply pin and all other pins in the harness.

Is the resistance greater than 100k ohms?

- Yes: Proceed to step 9
- No: A pin-to-pin short circuit has been detected in the harness. Repair or replace the harness - Proceed to step 10

Step 9

Step ID 3837i

SRT

Check for an inactive fault code

- Connect all components.
- Turn the key switch ON.
- Check for the appropriate circuit response after 30 seconds.
- Use DAVIE to read the fault codes.

Is fault code related to below mentioned component active? :

Fuel intake module - Pressure signal unlikely

- Yes: The removal and reinstallation of the connector corrected the fault - Proceed to step 10
- No: Return to the troubleshooting steps - Proceed to step 1

Step 10

Step ID 3837j

SRT

Disable the fault code

- Connect all components.
- Operate the system within the 'reset condition of the fault code' found in the fault code information.
- Use DAVIE to verify if the fault codes are inactive.

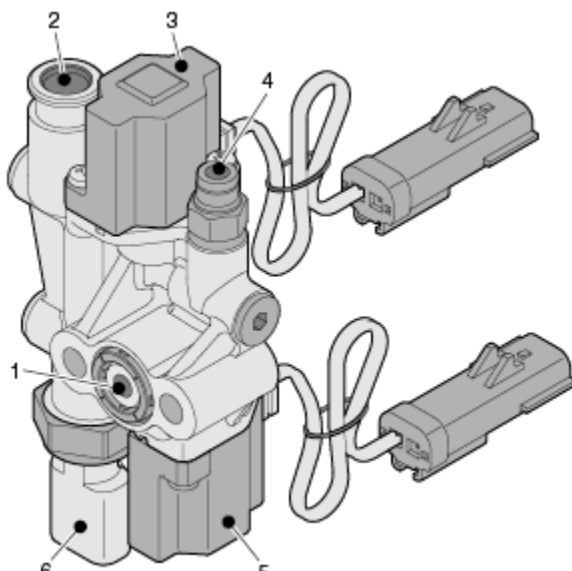
Is fault code related to below mentioned component active? :

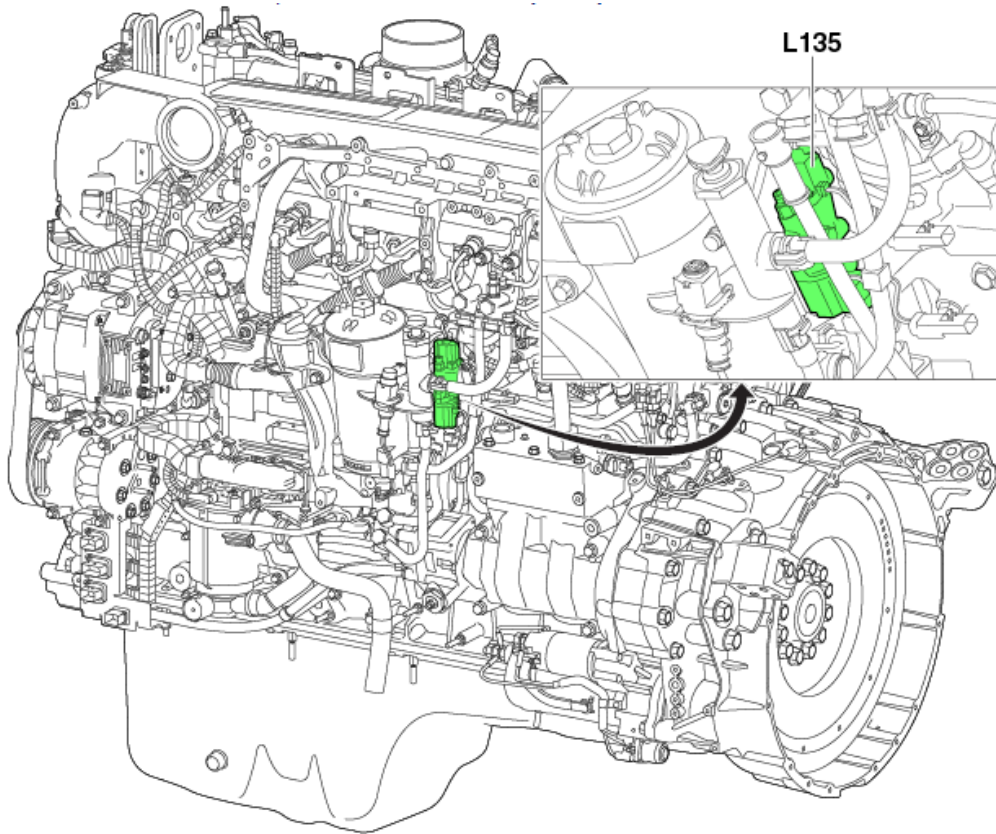
Fuel intake module - Pressure signal unlikely

- Yes: Proceed to step 11
- No: Return to the troubleshooting steps - Proceed to step 1

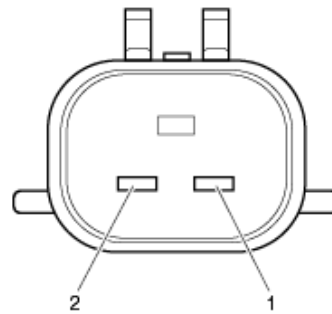
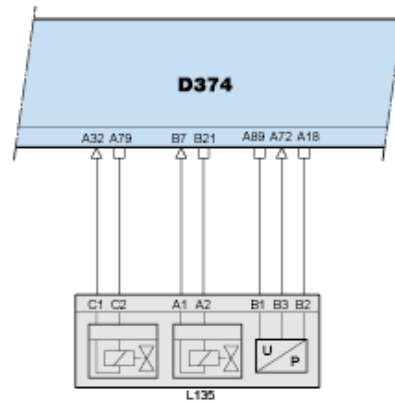
	Step 11	Step ID 3837k	SRT
	Clear the inactive fault codes • Connect all components. • Turn the key switch ON. • Use DAVIE to clear the inactive fault codes. Have all the fault codes been cleared? • Yes: Repair complete • No: Troubleshoot any remaining active fault codes		
	Step 12	Step ID 3837l	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3838

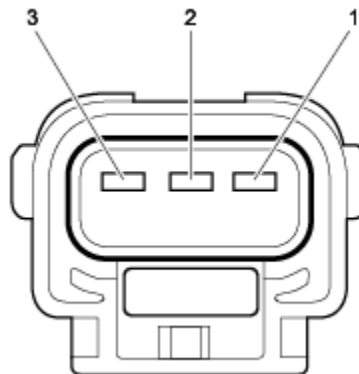
Code number	P3838
Fault code description	Intake module fuel pressure - Data erratic, intermittent or incorrect, not changing during operation on ECU D374 pin B45
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group - None Freeze frame type - PMfilter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

	Air shutoff valve • Solenoid valve Effect of output signal on the system: • The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	 The diagram shows a side view of a PACCAR engine. A green highlight indicates the location of the air shutoff valve (L135) on the fuel line. An inset image provides a magnified view of the valve assembly, showing the solenoid and its connection to the fuel line. A curved arrow points from the main engine diagram to the inset.
Diagnostic condition	This diagnostic runs at the start of active DPF regeneration.
Set condition of fault code	This diagnostic runs continuously when the key switch is in the ON position. The EAS-3 ECU detects that the fuel pressure signal voltage is more than 4.8 VDC for more than 2 seconds.
Reset condition of fault code	To validate the repair, perform the DPF Regeneration Test in DAVIE. Once the temperatures in the after treatment system are warm enough to inject fuel into the exhaust, the diagnostic will run.

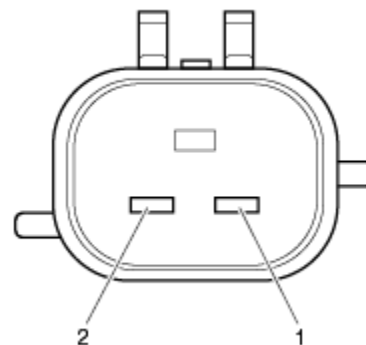
Electrical diagram(s)



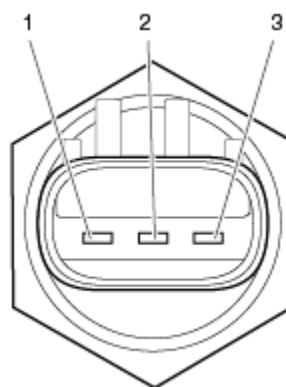
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

D374 EAS-3 ECU
L135 Fuel intake module

D374	L135	Function
A18	B3	Ground, fuel pressure sensor
A72	B2	Signal, fuel pressure sensor
A89	B1	Supply voltage, fuel pressure sensor
A32	C1	Signal, air shutoff valve
A79	C2	Ground, air shutoff valve
B7	A1	Signal voltage, fuel shutoff valve
B21	A2	Ground, fuel shutoff valve

Technical data

Component and wiring check, pressure sensor

Preparation

- Disconnect connector L135B.
- Switch the ignition on.
- Measure on connector L135B.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
B1	B2	5 V ± 0.25 V	

Component check, pressure sensor

Preparation

- Switch the ignition off.
- Disconnect connector L135.B.
- Measure on the pressure sensor connector L135.B.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
B3	B1	37–68 kΩ	at 20°C
B3	B2	1.4–2.6 kΩ	at 20°C
B1	B2	46–67 kΩ	at 20°C

Component check, air shutoff valve

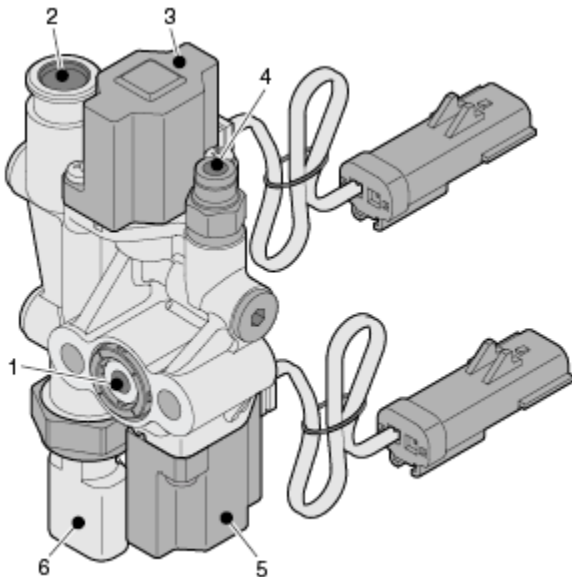
Preparation

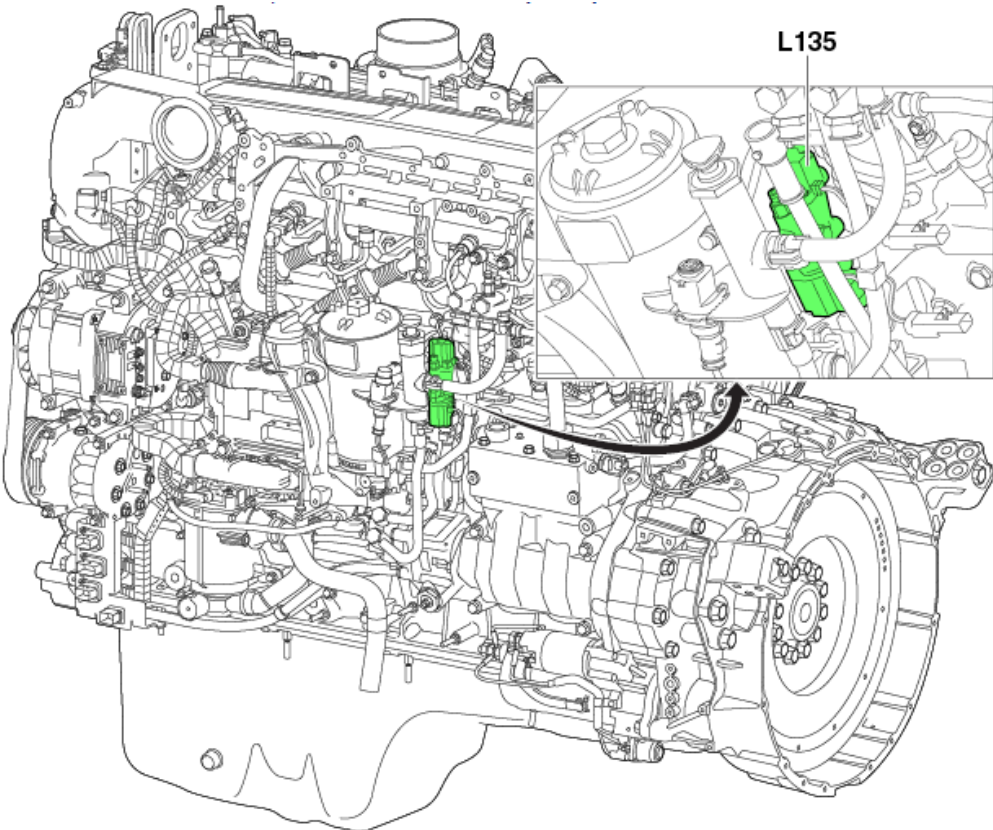
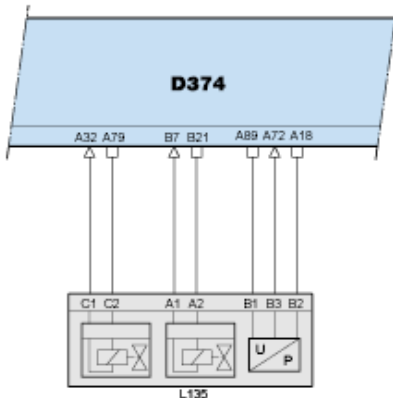
- Switch the ignition off.
- Disconnect connector L135C.

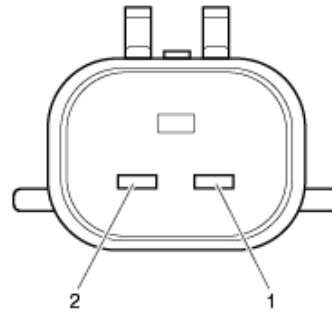
	- Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation - Ignition switched on. - Disconnect connector L135A. - Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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(+ probe)	(- probe)	Value	Additional Information																						
A1	A2	7.6–8.4 Ω	at 20°C																						
Possible causes	A malfunctioning fuel pressure sensor.																								
Additional information	The fuel pressure sensor is part of the fuel intake module (L135).																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pin out locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3838a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3838b</td><td>SRT</td></tr><tr><td colspan="3">DAVIE Direct Test: Fuel Dosing Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Doser. Does the test fail to complete or result in a failed state? - No: Continue to the next step in the troubleshooting process. - Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 3 in the troubleshooting process. </td></tr></table>	Step 1	Step ID 3838a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3838b	SRT	DAVIE Direct Test: Fuel Dosing Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Doser. Does the test fail to complete or result in a failed state? - No: Continue to the next step in the troubleshooting process. - Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 3 in the troubleshooting process.														
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	<table><tr><td>Step 3</td><td>Step ID 3838c</td><td>SRT</td></tr><tr><td colspan="3">DAVIE Direct Test: Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? - No: Continue to the next step in the troubleshooting process. - Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 4 in the troubleshooting process. </td></tr></table>	Step 3	Step ID 3838c	SRT	DAVIE Direct Test: Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? - No: Continue to the next step in the troubleshooting process. - Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 4 in the troubleshooting process.		
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	DAVIE Direct Test: Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? - No: Continue to the next step in the troubleshooting process. - Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 4 in the troubleshooting process.						
	<table><tr><td>Step 4</td><td>Step ID 3838d</td><td>SRT</td></tr><tr><td colspan="3">Visual Inspection: Fuel Doser Supply Line Remove both ends of the fuel doser supply line. Using an air nozzle, shoot compressed air through the supply line to see if there is any blockage or holes. Was there evidence of any blockage or holes in the fuel doser supply line? - No: Continue to the next step in the troubleshooting process. - Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 5 in the troubleshooting process. </td></tr></table>	Step 4	Step ID 3838d	SRT	Visual Inspection: Fuel Doser Supply Line Remove both ends of the fuel doser supply line. Using an air nozzle, shoot compressed air through the supply line to see if there is any blockage or holes. Was there evidence of any blockage or holes in the fuel doser supply line? - No: Continue to the next step in the troubleshooting process. - Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 5 in the troubleshooting process.		
Step 4	Step ID 3838d	SRT					
Visual Inspection: Fuel Doser Supply Line Remove both ends of the fuel doser supply line. Using an air nozzle, shoot compressed air through the supply line to see if there is any blockage or holes. Was there evidence of any blockage or holes in the fuel doser supply line? - No: Continue to the next step in the troubleshooting process. - Yes: Clean, adjust, repair, or replace affected components for any issues identified. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 5 in the troubleshooting process.							
<table><tr><td>Step 5</td><td>Step ID 3838e</td><td>SRT</td></tr><tr><td colspan="3">Replace: Fuel Intake Module Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 6 in the troubleshooting process. </td></tr></table>	Step 5	Step ID 3838e	SRT	Replace: Fuel Intake Module Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 6 in the troubleshooting process.			
Step 5	Step ID 3838e	SRT					
Replace: Fuel Intake Module Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. - If this related fault is no longer active, then this issue has been resolved. - If this related fault is still active, continue to the step 6 in the troubleshooting process.							
<table><tr><td>Step 6</td><td>Step ID 3838f</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 6	Step ID 3838f	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.			
Step 6	Step ID 3838f	SRT					
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.							
Verification Drive Cycle	To validate the repair: This test can take up to 45 minutes to 1 hour to complete. Start the truck and using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.						
	Back to Index						

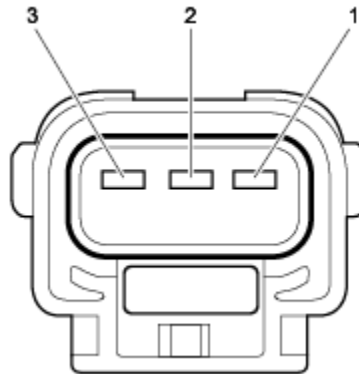
P3839

Code number	P3839
Fault code description	Fuel pressure-Voltage too high or short circuit to supply on ECU D374 pin B45.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

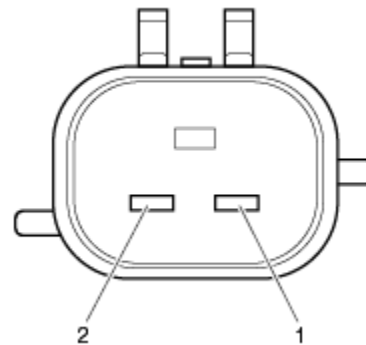
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to supply is detected for 5 consecutive seconds.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	



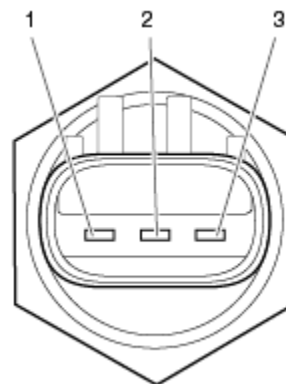
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

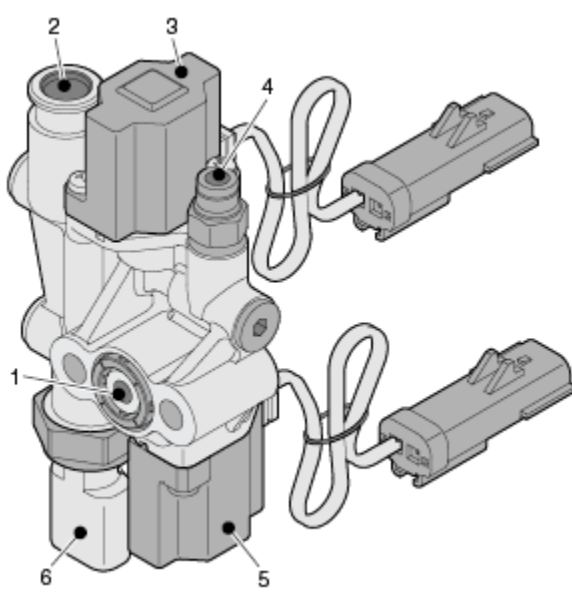
D374 EAS-3 ECU
L135 Fuel intake module

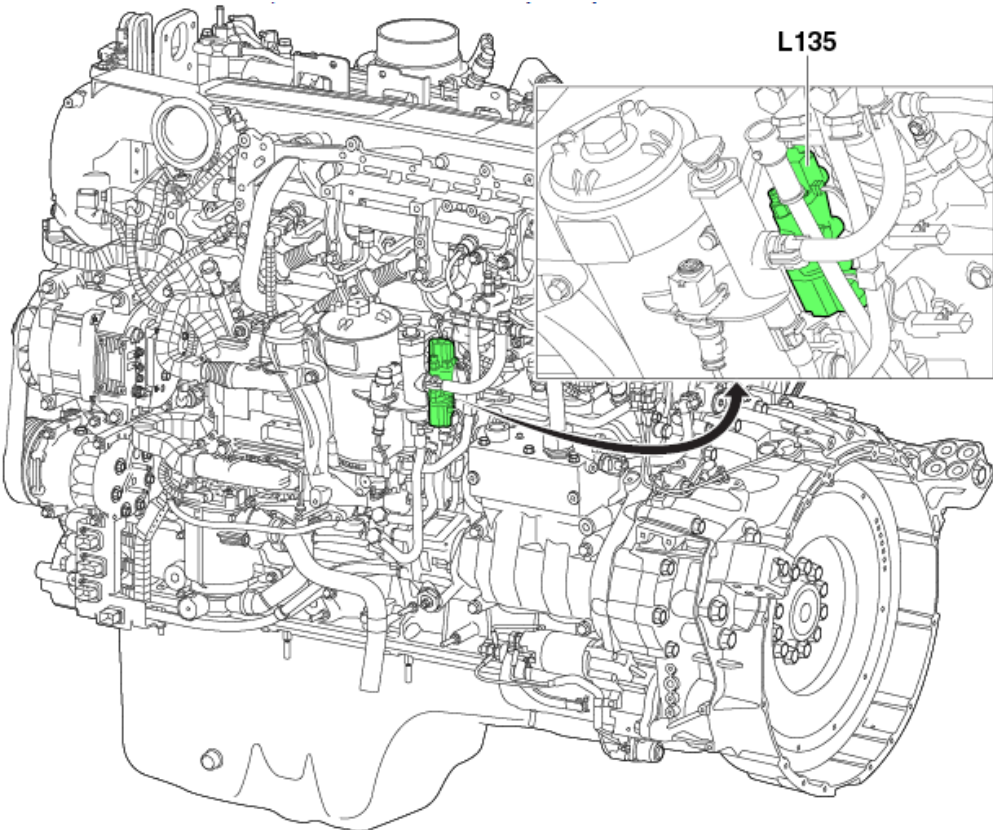
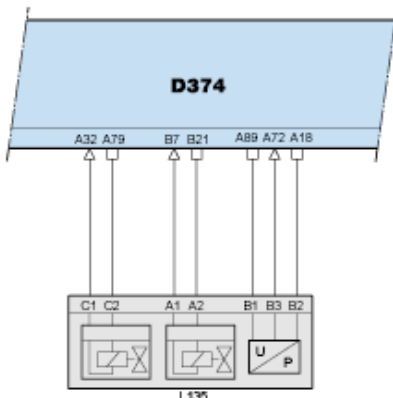
	D374 L135 Function A18 B3 Ground, fuel pressure sensor A72 B2 Signal, fuel pressure sensor A89 B1 Supply voltage, fuel pressure sensor A32 C1 Signal, air shutoff valve A79 C2 Ground, air shutoff valve B7 A1 Signal voltage, fuel shutoff valve B21 A2 Ground, fuel shutoff valve																																																								
Technical data	Component and wiring check, pressure sensor Preparation • Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B1</td><td>B2</td><td>5 V ± 0.25 V</td><td></td></tr></table> Component check, pressure sensor Preparation • Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B3</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B1	B2	5 V ± 0.25 V		Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B3	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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Possible causes	• Signal wire short circuit to supply. • Check with DAVIE if the raw and processed values are the same.																																																								

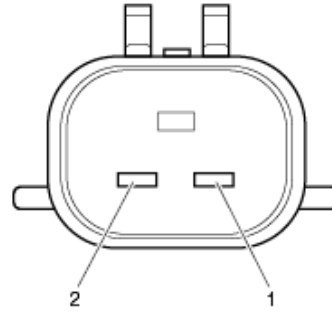
	• Check for physical damage to the sensor and/or wiring harness. • Key on, check the raw and electrical sensor values. • Use DAVIE and perform the fuel shut-off valve leak test, and monitor the pressure.																					
Additional information	• Engine runs in protection mode. • Active DPF regeneration is disabled.																					
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3839a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3839b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3839c</td><td>SRT</td></tr><tr><td colspan="3"> Repair or replace appropriate component and use Davie to recheck for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 4 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3986d</td><td>SRT</td></tr></table>	Step 1	Step ID 3839a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3839b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4			Step 3	Step ID 3839c	SRT	Repair or replace appropriate component and use Davie to recheck for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 4			Step 4	Step ID 3986d	SRT
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	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.
	Back to Index

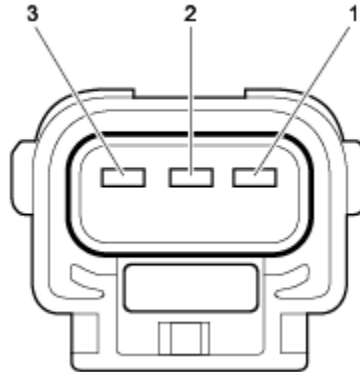
P3840

Code number	P3840
Fault code description	Fuel pressure-Voltage too low or short circuit to ground on ECU D374 pin B45.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

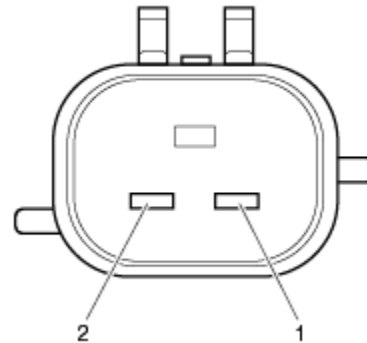
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground or open circuit is detected for 10 consecutive seconds.
Reset condition of fault code	To validate the repair, start the engine and let it idle for 1 minute.
Electrical diagram(s)	



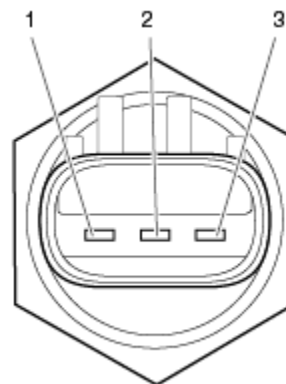
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

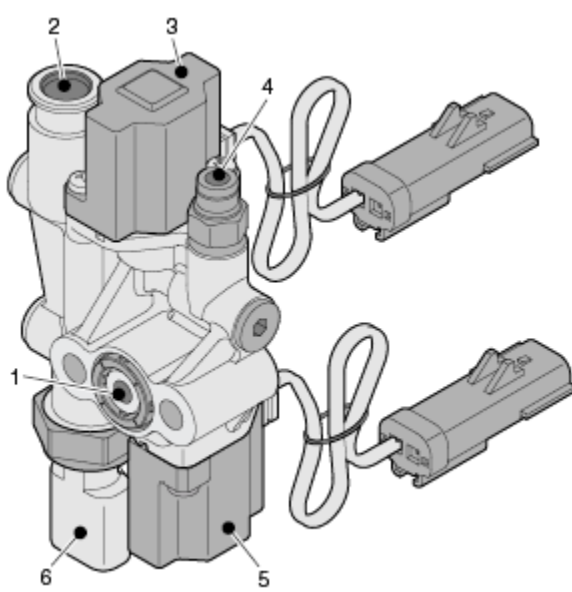
D374 EAS-3 ECU
L135 Fuel intake module

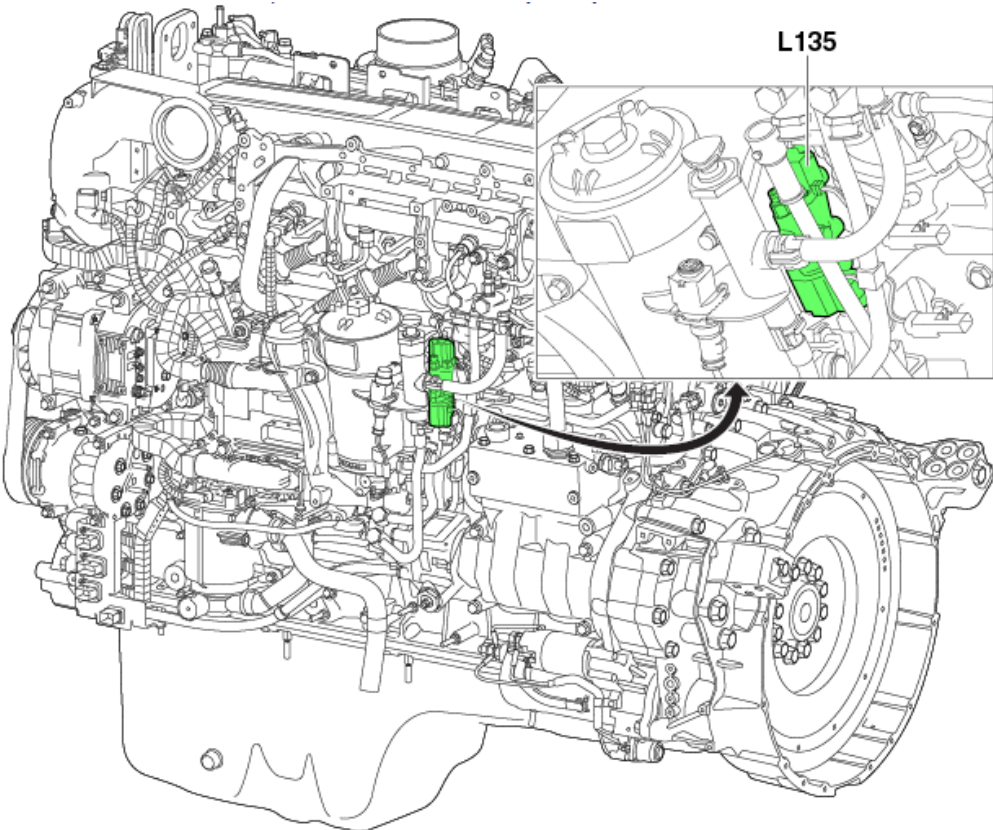
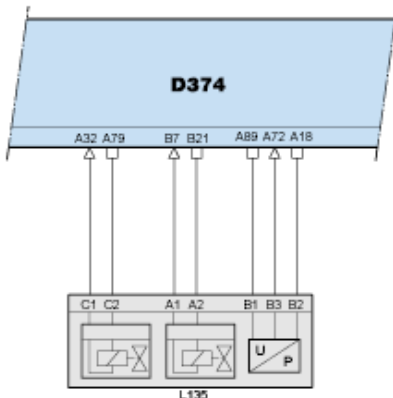
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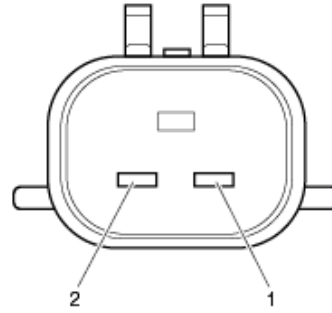
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Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled.																								
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	1-800-477-0251.
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.
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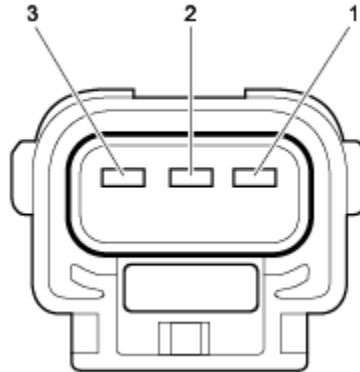
P3841

Code number	P3841
Fault code description	Air shutoff valve – Stuck in closed position
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM Filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

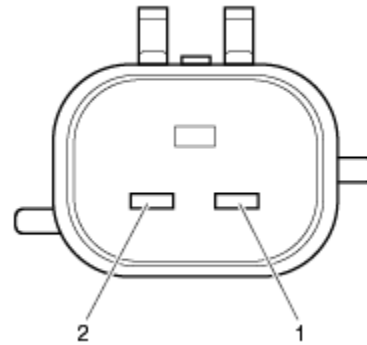
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs at the start of active DPF regeneration.
Set condition of fault code	The EAS-3 ECU (D374) detects that the fuel pressure is lower than a threshold when the air shutoff valve is enabled.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	



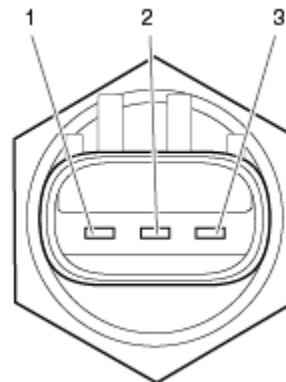
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



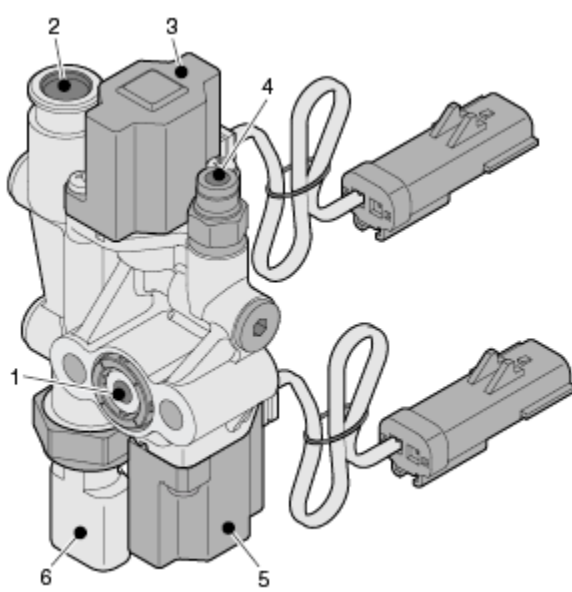
Pressure sensor L135.B front view

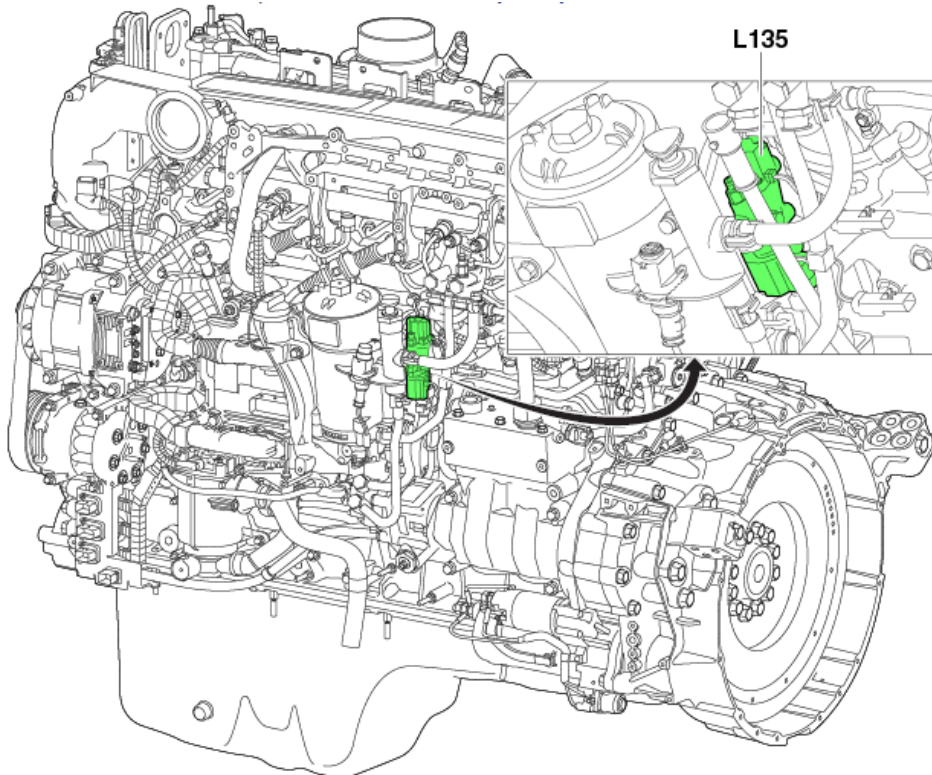
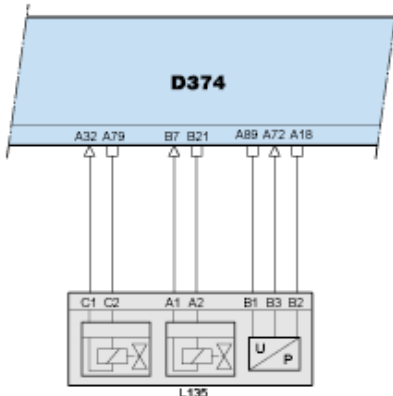
D374 EAS-3 ECU
L135 Fuel intake module

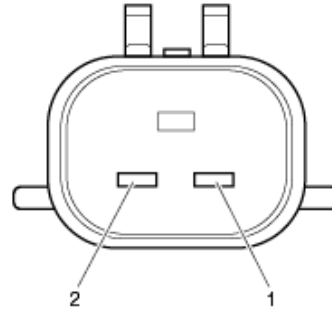
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Technical data	Component and wiring check, pressure sensor Preparation • Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B1</td><td>B2</td><td>5 V ± 0.25 V</td><td></td></tr></table> Component check, pressure sensor Preparation • Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B3</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B1	B2	5 V ± 0.25 V		Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B3	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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Possible causes	The air shutoff valve fails to open.																																																								
Additional information	• Active DPF regeneration is disabled until the next key cycle.																																																								

	• The air shutoff valve is part of the fuel intake module (L135). • Engine runs in protection mode.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3841a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3841b</td><td>SRT</td></tr><tr><td colspan="3">Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? • No: Issue resolved • Yes: Proceed to Step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3841c</td><td>SRT</td></tr><tr><td colspan="3">Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 4 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3841d</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 1	Step ID 3841a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3841b	SRT	Fuel Shutoff Valve Leak Run the prescribed DAVIE Direct test to determine if there is a leak within the Fuel Shutoff Valve. Does the test fail to complete or result in a failed state? • No: Issue resolved • Yes: Proceed to Step 3			Step 3	Step ID 3841c	SRT	Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 4			Step 4	Step ID 3841d	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
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Step 4	Step ID 3841d	SRT																							
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.																									
Verification Drive Cycle	To validate the repair: This test can take up to 45 minutes to 1 hour to complete. Start the truck and using cruise control, bump and set the idle to 1,500 rpm. Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.																								
	Back to Index																								

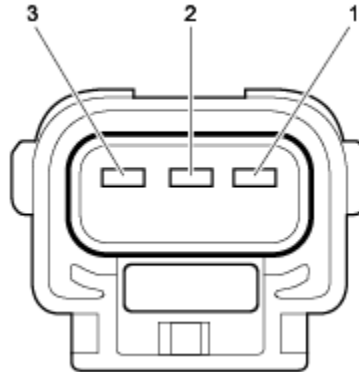
P3842

Code number	P3842
Fault code description	Air shutoff valve – Voltage too low or short circuit to ground on ECU D374 pin A32
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – PM Filter
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

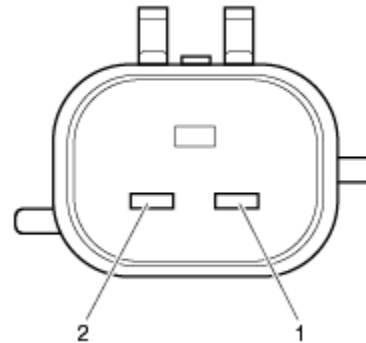
	Air shutoff valve - Solenoid valve Effect of output signal on the system: - The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the air shutoff valve is activated.
Set condition of fault code	A short circuit to ground, or open circuit is detected for 1 second.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE.
Electrical diagram(s)	



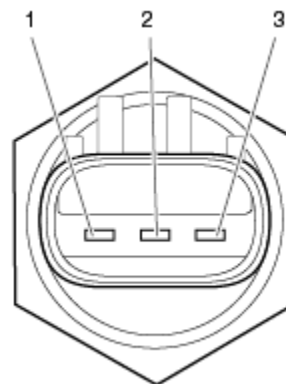
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

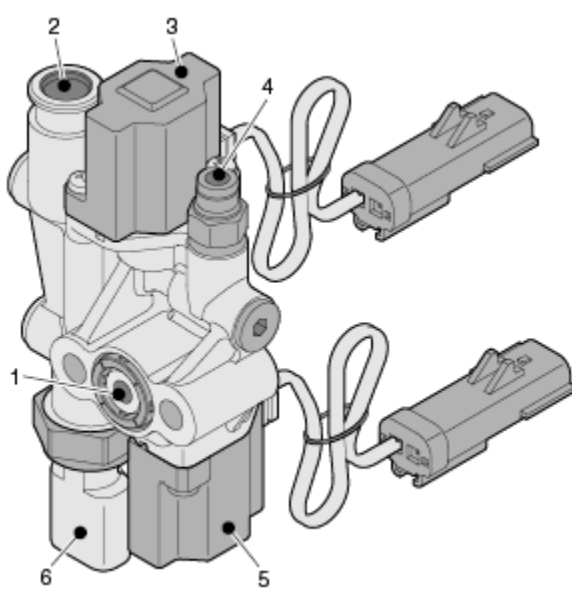
D374 EAS-3 ECU
L135 Fuel intake module

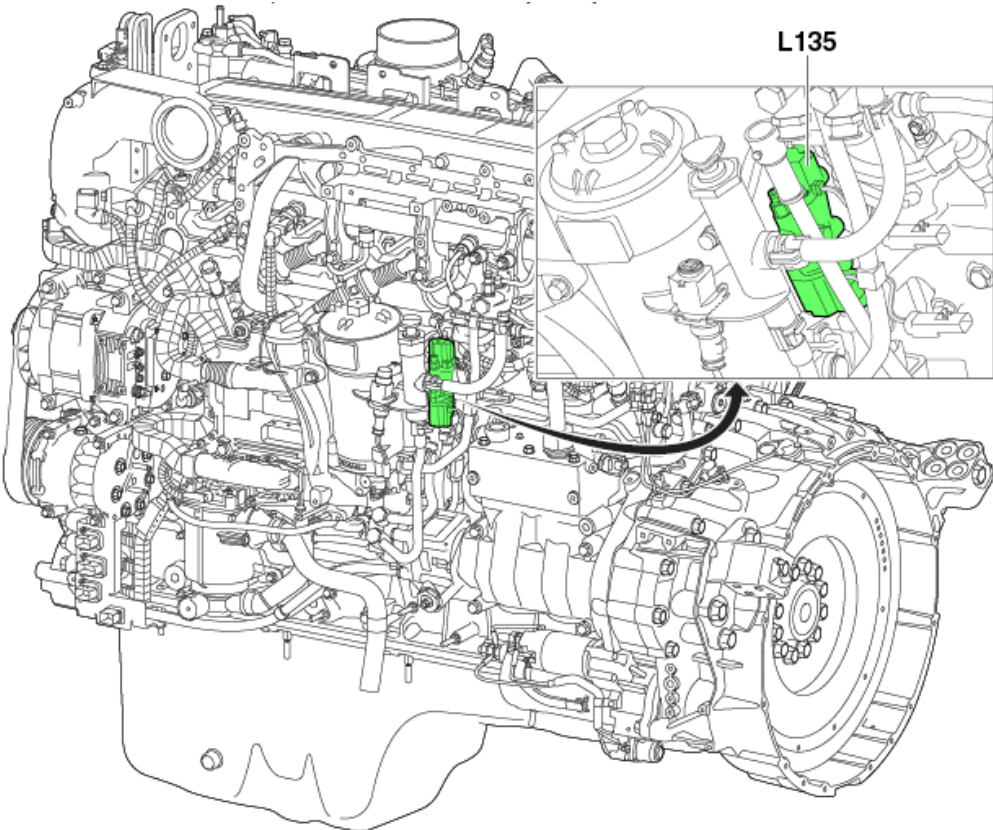
	D374 L135 Function A18 B3 Ground, fuel pressure sensor A72 B2 Signal, fuel pressure sensor A89 B1 Supply voltage, fuel pressure sensor A32 C1 Signal, air shutoff valve A79 C2 Ground, air shutoff valve B7 A1 Signal voltage, fuel shutoff valve B21 A2 Ground, fuel shutoff valve																																																								
Technical data	Component and wiring check, pressure sensor Preparation • Disconnect connector L135B. • Switch the ignition on. • Measure on connector L135B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B1</td><td>B2</td><td>5 V ± 0.25 V</td><td></td></tr></table> Component check, pressure sensor Preparation • Switch the ignition off. • Disconnect connector L135.B. • Measure on the pressure sensor connector L135.B. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>B3</td><td>B1</td><td>37–68 kΩ</td><td>at 20°C</td></tr><tr><td>B3</td><td>B2</td><td>1.4–2.6 kΩ</td><td>at 20°C</td></tr><tr><td>B1</td><td>B2</td><td>46–67 kΩ</td><td>at 20°C</td></tr></table> Component check, air shutoff valve Preparation • Switch the ignition off. • Disconnect connector L135C. • Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B1	B2	5 V ± 0.25 V		Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	B3	B1	37–68 kΩ	at 20°C	B3	B2	1.4–2.6 kΩ	at 20°C	B1	B2	46–67 kΩ	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
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Possible causes	• A short circuit to ground. • Check the electrical connections and wiring of the EAS-3 ECU (D374).																																																								

	• Monitor the status of the valve in the 'DPF overview' in DAVIE.												
Additional information	• Engine runs in protection mode. • Active DPF regeneration will be disabled. • The air shutoff valve is part of the fuel intake module (L135).												
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3842a</td><td>SRT</td></tr></table> Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2. <table><tr><td>Step 2</td><td>Step ID 3842b</td><td>SRT</td></tr></table> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related wires. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4 <table><tr><td>Step 3</td><td>Step ID 3842c</td><td>SRT</td></tr></table> Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 4 <table><tr><td>Step 4</td><td>Step ID 3842d</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at	Step 1	Step ID 3842a	SRT	Step 2	Step ID 3842b	SRT	Step 3	Step ID 3842c	SRT	Step 4	Step ID 3842d	SRT
Step 1	Step ID 3842a	SRT											
Step 2	Step ID 3842b	SRT											
Step 3	Step ID 3842c	SRT											
Step 4	Step ID 3842d	SRT											

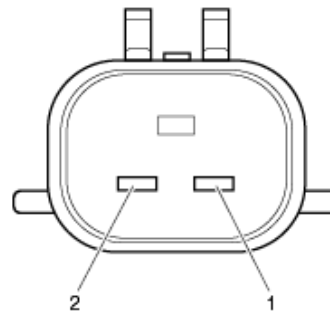
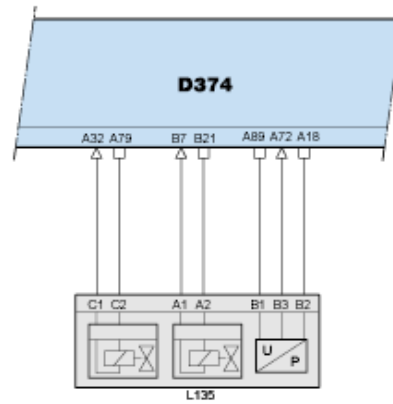
	1-800-477-0251.	
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.	
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P3843

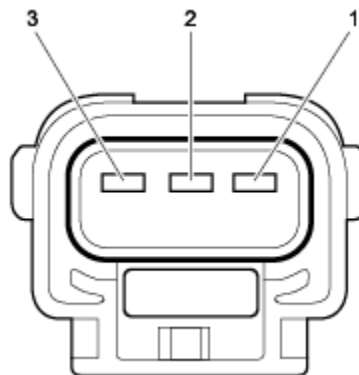
Code number	P3843
Fault code description	Air shutoff valve - Voltage too high or short circuit to supply on ECU D374 pin A32
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	 1 Fuel from fuel filter module 2 Fuel-to-fuel dosing module (L124) 3 Air shutoff valve 4 Air supply 5 Fuel shutoff valve 6 Pressure sensor Fuel pressure sensor • Piezoelectric sensor Effect of output signal on the system: • The fuel pressure sensor measures the fuel pressure after the fuel control valve; • value used for calculation of the amount of fuel that must be injected; • diagnosis of clogged and/or leaking dosing system. Fuel shutoff valve • Solenoid valve Effect of output signal on the system: • The fuel shutoff valve supplies fuel from the fuel filter module to the fuel dosing module (L124).

	Air shutoff valve • Solenoid valve Effect of output signal on the system: • The air shutoff valve purges the fuel line of air in order to empty the fuel line to the fuel dosing module after the fuel supply has stopped.
Location of component(s)	 The diagram illustrates the engine's internal components, with the air shutoff valve (L135) highlighted in green. An inset provides a detailed view of the valve's location and its connection to the fuel line. A curved arrow points from the inset to the main engine diagram, indicating the valve's position relative to the fuel system.
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the air shutoff valve activated.
Set condition of fault code	A short circuit to supply or open circuit is detected for 3 consecutive seconds.
Reset condition of fault code	To validate the repair, perform the DPF regeneration test in DAVIE. Once the temperatures in the after treatment system are high enough to inject diesel fuel into the exhaust, the diagnostic runs.

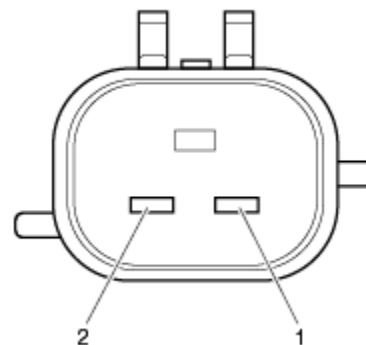
Electrical diagram(s)



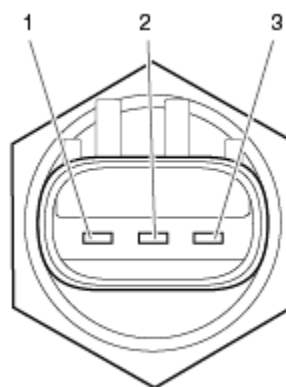
Wiring harness connector L135.A front view



Wiring harness connector L135.B front view



Air shutoff valve connector L135.C front view



Pressure sensor L135.B front view

D374 EAS-3 ECU

L135 Fuel intake module

D374	L135	Function
A18	B3	Ground, fuel pressure sensor
A72	B2	Signal, fuel pressure sensor
A89	B1	Supply voltage, fuel pressure sensor
A32	C1	Signal, air shutoff valve
A79	C2	Ground, air shutoff valve
B7	A1	Signal voltage, fuel shutoff valve
B21	A2	Ground, fuel shutoff valve

Technical data

Component and wiring check, pressure sensor

Preparation

- Disconnect connector L135B.
- Switch the ignition on.
- Measure on connector L135B.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
B1	B2	5 V ± 0.25 V	

Component check, pressure sensor

Preparation

- Switch the ignition off.
- Disconnect connector L135.B.
- Measure on the pressure sensor connector L135.B.

Pin (+ probe)	Pin (- probe)	Value	Additional Information
B3	B1	37–68 kΩ	at 20°C
B3	B2	1.4–2.6 kΩ	at 20°C
B1	B2	46–67 kΩ	at 20°C

Component check, air shutoff valve

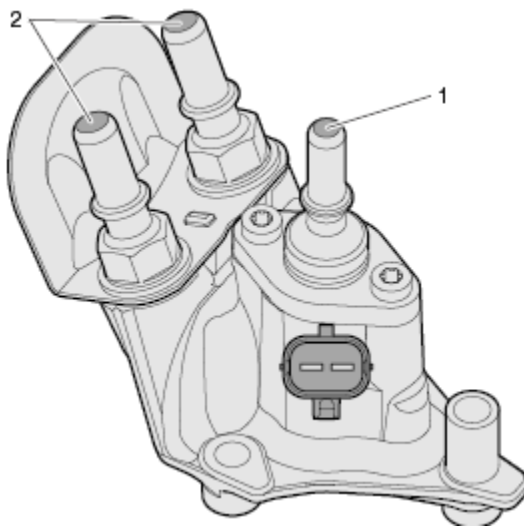
Preparation

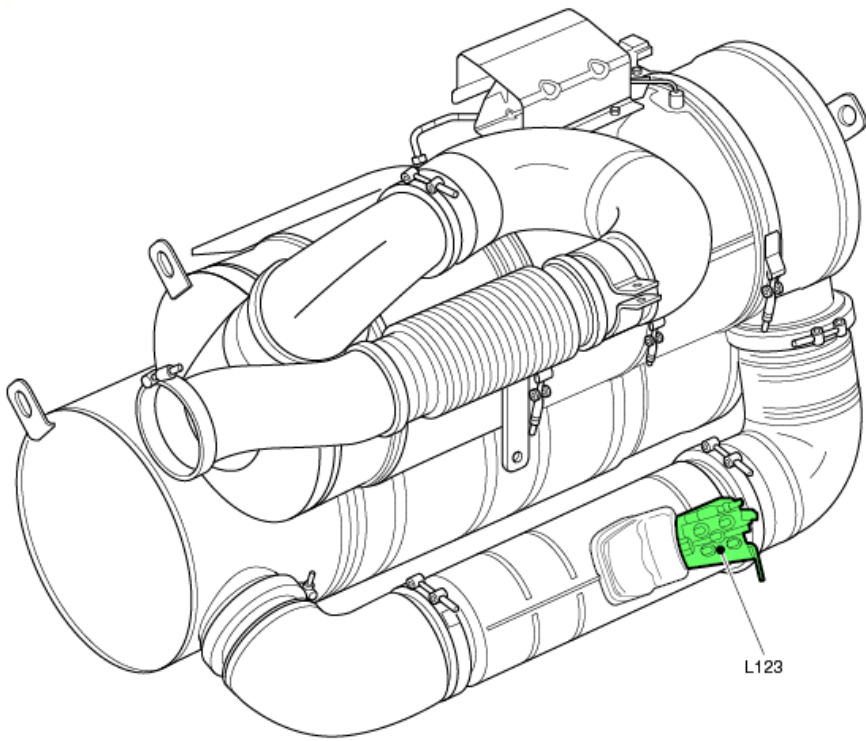
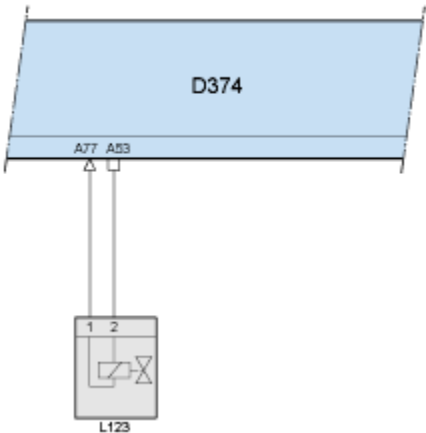
- Switch the ignition off.
- Disconnect connector L135C.

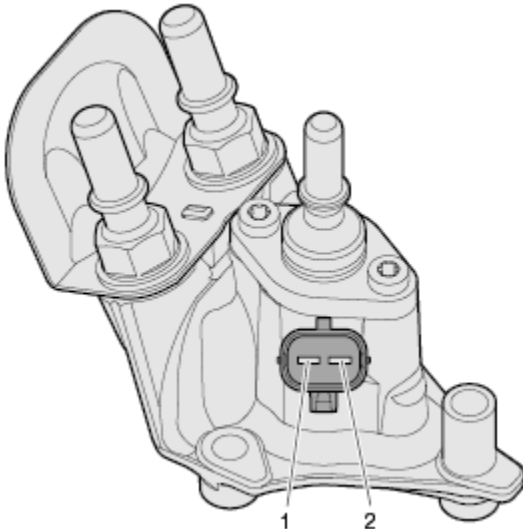
	• Measure on the air shutoff valve L135.C. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>C1</td><td>C2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table> Component check, fuel shutoff valve Preparation • Ignition switched on. • Disconnect connector L135A. • Measure on the fuel shutoff valve L135.A. <table><tr><td>Pin</td><td>Pin</td><td></td><td></td></tr><tr><td>(+ probe)</td><td>(- probe)</td><td>Value</td><td>Additional Information</td></tr><tr><td>A1</td><td>A2</td><td>7.6–8.4 Ω</td><td>at 20°C</td></tr></table>	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	C1	C2	7.6–8.4 Ω	at 20°C	Pin	Pin			(+ probe)	(- probe)	Value	Additional Information	A1	A2	7.6–8.4 Ω	at 20°C
Pin	Pin																								
(+ probe)	(- probe)	Value	Additional Information																						
C1	C2	7.6–8.4 Ω	at 20°C																						
Pin	Pin																								
(+ probe)	(- probe)	Value	Additional Information																						
A1	A2	7.6–8.4 Ω	at 20°C																						
Possible causes	• Short circuit to supply or an open circuit. • A stuck closed air shutoff valve has been detected. • Check the electrical connections and wiring of the EAS-3 ECU (D374). • Monitor the status of the valve in the 'DPF overview' in DAVIE.																								
Additional information	• Active DPF regeneration will be disabled until the next key cycle. • The air shutoff valve is part of the fuel intake module (L135).																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3843a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3843b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? </td></tr></table>	Step 1	Step ID 3843a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3843b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits?														
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Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																									
Step 2	Step ID 3843b	SRT																							
Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits?																									

	• Yes - Proceed to step 3 • No - Proceed to step 4		
	Step 3	Step ID 3843c	SRT
	Replace appropriate component 'Fuel Intake module' and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 4		
	Step 4	Step ID 3843d	SRT
	Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.		
	Back to Index		

P3844

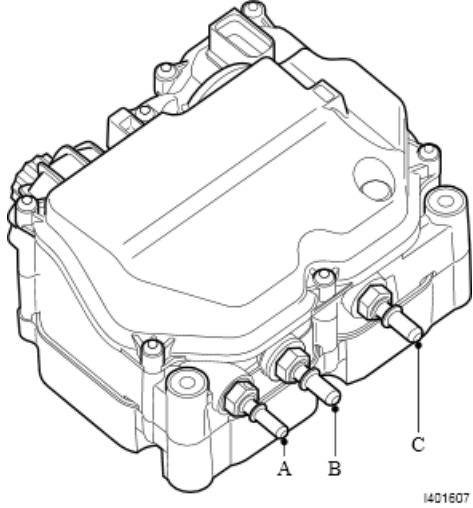
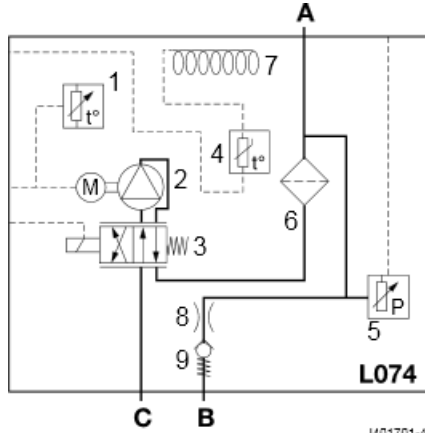
Code number	P3844
Fault code description	DEF dosing valve - Current too low or open circuit on ECU D374 pin A77 or pin A53
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	• The DEF dosing valve injects DEF into the exhaust system. • The dosing valve is connected to the engine cooling system to limit the temperature of the dosing valve. • PWM controlled. Effect of output signal on the system • Dosing DEF into the exhaust system.  1 Coolant supply 2 DEF supply 3 Coolant return

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the DEF dosing valve (L123) is activated.
Set condition of fault code	A short circuit or open circuit is detected for 3 consecutive seconds.
Reset condition of fault code	To validate the repair, perform the 'DEF pump module override test' in DAVIE.
Electrical diagram(s)	

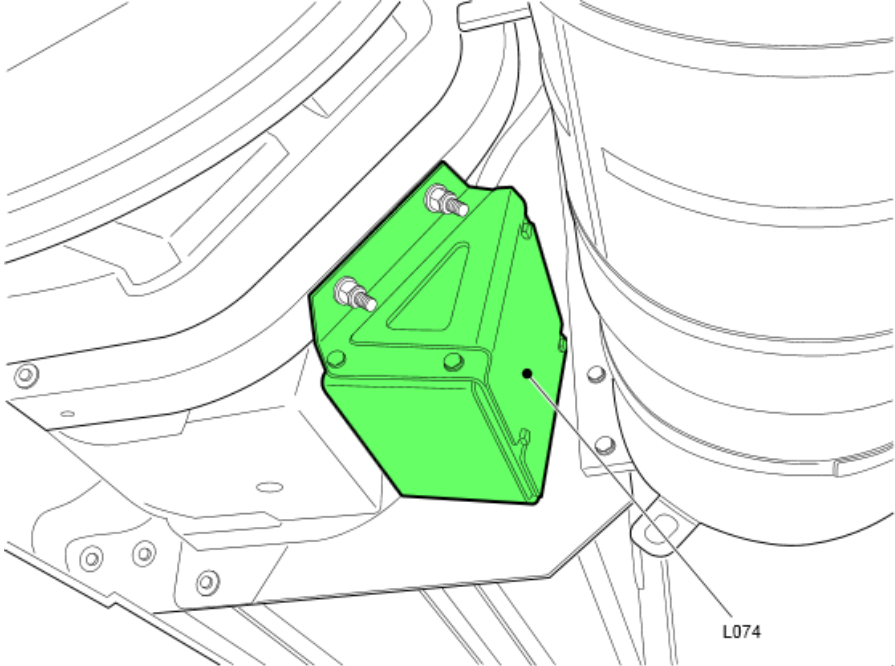
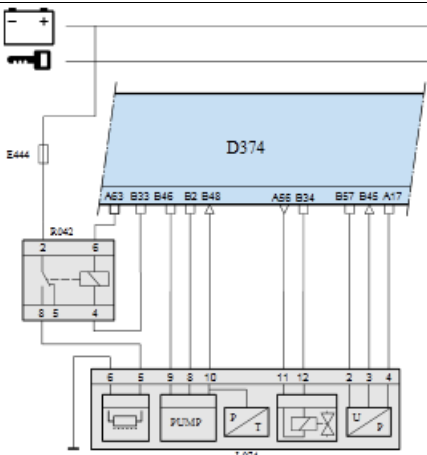
	 Component connector L123 L123 Urea dosing valve <table><tr><td>D374</td><td>L123</td><td>Function</td></tr><tr><td>A77</td><td>1</td><td>Signal, DEF dosing valve</td></tr><tr><td>A53</td><td>2</td><td>Signal, DEF dosing valve</td></tr></table>	D374	L123	Function	A77	1	Signal, DEF dosing valve	A53	2	Signal, DEF dosing valve
D374	L123	Function								
A77	1	Signal, DEF dosing valve								
A53	2	Signal, DEF dosing valve								
Technical data	Component check, DEF dosing valve (L123) Preparation - Remove connector L123. - Switch the ignition on. - Measure on component connector for L123. <table><tr><td>Pin (+ probe)</td><td>Pin (- probe)</td><td>Value</td><td>Additional information</td></tr><tr><td>1</td><td>2</td><td>11–13 Ω</td><td>at 20°C</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	1	2	11–13 Ω	at 20°C	
Pin (+ probe)	Pin (- probe)	Value	Additional information							
1	2	11–13 Ω	at 20°C							
Possible causes	- A short circuit to supply. - A short circuit to ground. - An open circuit. - Check the electrical connections and wiring of the EAS-3 ECU (D374). - Perform the "DEF pump module prime test" with DAVIE.									
Additional information	- DEF injection is disabled. - DEF priming is disabled. - After 10 hours of engine operation with P3844 active, P1518 becomes active. - After 20 hours of engine operation with P3844 active, P151A and/or P151B become active.									
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations,									

	always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3844a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3844b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 2 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3844c</td><td>SRT</td></tr><tr><td colspan="3"> Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251. </td></tr></table>	Step 1	Step ID 3844a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3844b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 2			Step 3	Step ID 3844c	SRT	Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
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Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.																			
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.																		
	Back to Index																		

P3845

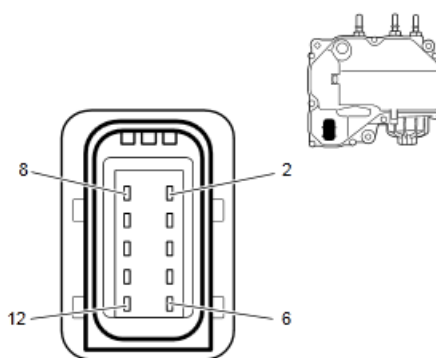
Code number	P3845
Fault code description	Pump module reverting valve - Voltage too low or short circuit to ground on ECU (D374) pin (B34)
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	DEF pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated.

	DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

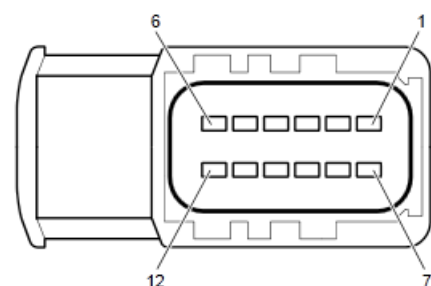
Location of component(s)	 I402235
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the reverting valve is activated.
Set condition of fault code	A short circuit to ground or open circuit is detected for two consecutive seconds.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 I401862-2

D374 EAS-3 ECU
E444 Fuse EAS 2nd
L074 Pump module
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector, pump module (L074)



Wiring harness connector (L074)



Handle connectors and pins with care and use matching measuring probes.

Technical data	Component & wiring check, DEF pressure sensor Preparation - Switch on the ignition. - Disconnect connector L074. - Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>4</td><td>4.75–5.25 V</td><td></td></tr></table> Component check, heater element Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	4	4.75–5.25 V		Pin (+ probe)	Pin (- probe)	Value	Additional information	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Additional information	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
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11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						

	<table><tr><td></td><td></td><td></td><td></td></tr></table>				
Possible causes	A short circuit to ground.				
Additional information	• The reverting valve is part of the pump module (L074) and cannot be replaced separately. • After 1 hour of engine operation or 50 miles with P3845 active, P1518 becomes active (25% torque derate). • After 4 hours of engine operation or 200 miles with P3845 active, P1518 stays active (40% torque derate). • After 4 hours of engine operation or 200 miles with P3845 active, P151A becomes active (5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ vehicle has been stationary for 1 hour.				
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.				



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 DEF Pump Module (L074) Checks

Step 1A Visual inspection, DEF pump module (L074)

Action

1. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Damage to the wire harness or insulation
 - The correct parts are not installed
 - ECU connections are damaged or disconnected
 - Batteries not fully charged, contacts are not tight

Was there evidence of any of the above?

Yes

Correct any issues found.
Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 1B

No

Go to step 1B

Step 1B Electrical checks, resistance, DEF pump module (L074) reverting valve



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Confirm the resistance value for the DEF pump module (L074) as outlined in the corresponding checking data section, "component check, reverting valve".

Is the measured value within expected range?

Yes

No

Correct any issues found, or replace the pump module if the measured value indicates an error.
Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

Go to step 1B

If this DTC is still present, go to step 1B

Step 1.B Electrical checks, harness short to ground, DEF pump module (L074)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Set the ignition switch to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle harness.
3. Disconnect the vehicle harness from the EAS-3 ECU.
4. Check for a short to ground condition by measuring the resistance between the reverting valve Signal pin on the L074 harness connector and a ground.

Is the measured value greater than 100k Ω ?

Yes

No

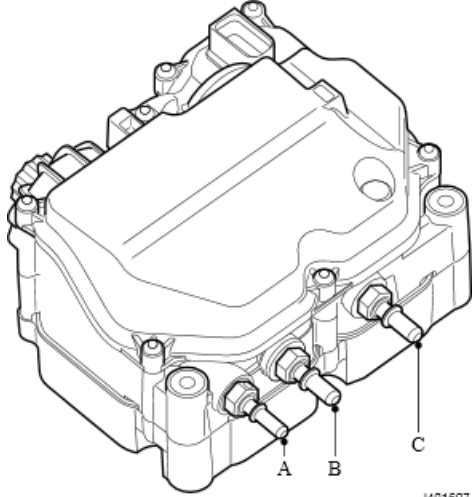
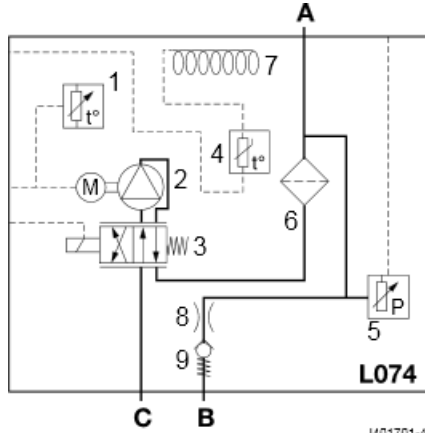
Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness.
Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

	Go to step 1C	If this DTC is still present, go to step 1C
Step 1C Electrical checks, pin-to-pin short, DEF pump module (L074)		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action		
1. Set the ignition switch to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle harness. 3. Disconnect the vehicle harness from the EAS-3 ECU. 4. Check for a pin to pin short circuit condition by measuring the resistance between the reverting valve Signal pin on the L074 harness connector and all other harness connector pins.		
Is the measured value greater than 100k Ω?		
Yes	No	
Possible issue in the EAS-3 ECU. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and for guidance in replacing EAS-3 ECU.	Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.	
If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	
Step 2 Repair Verification		
Step 2A Repair verification cycles		
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.		
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.		

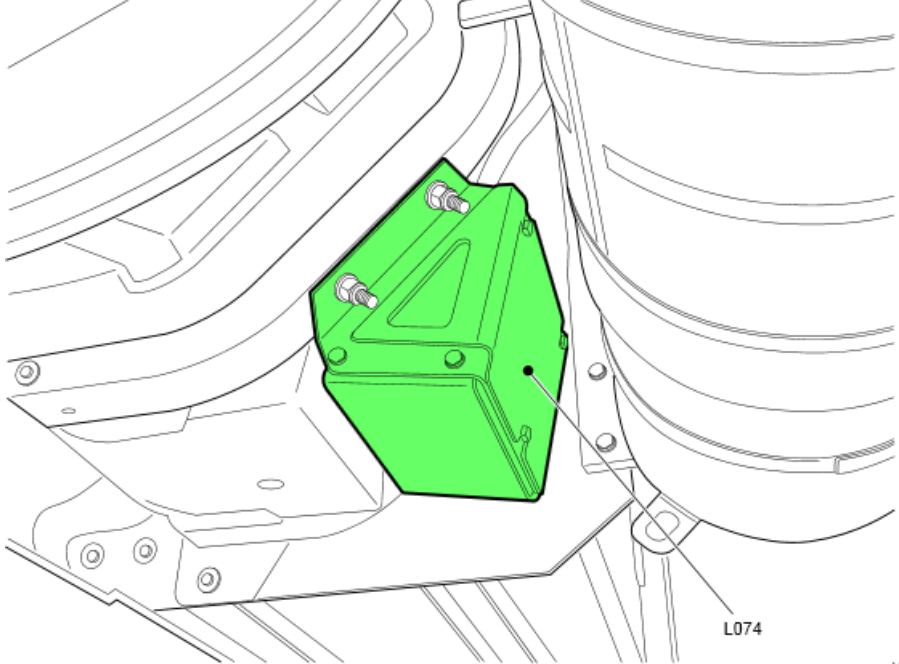
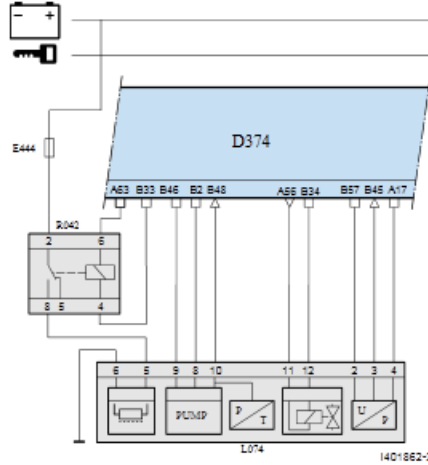
	Action	
	1. Power-up/electrical With the brakes set, turn the ignition key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 2B	Go to step 2B
	Step 2B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors	
	Action	
	Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.	
	1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready." A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is "Not ready," continue to action step 2.	
	2. View the DTC overview display, and confirm that P3845 has been cleared.	
	Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3845 been cleared?	
	Yes	No

	Problem resolved. No further actions. Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 2A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.  Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
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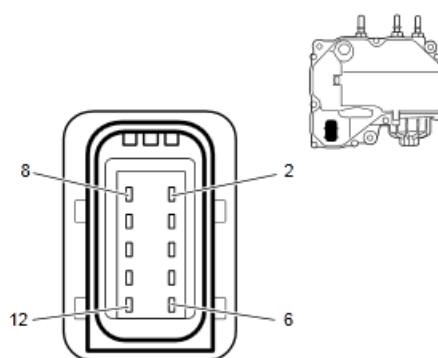
P3846

Code number	P3846
Fault code description	Pump module reverting valve – Voltage too high or short circuit to supply on ECU (D374) pin (B34)
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	DEF pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated.

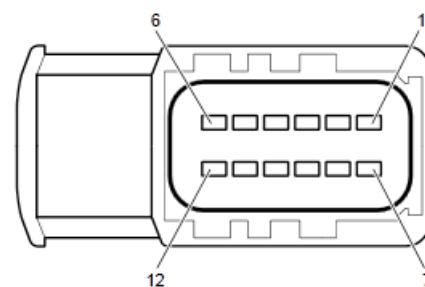
	DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	 I402235								
Diagnostic condition	This diagnostic runs continuously when the ignition is on and the reverting valve is activated.								
Set condition of fault code	A short circuit to supply or open circuit is detected for two consecutive seconds.								
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.								
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse EAS 2nd L074 Pump module R042 Pump heater relay <table><tr><th>D374</th><th>L074</th><th>R042</th><th>Function</th></tr><tr><td>A17</td><td>4</td><td></td><td>Ground, DEF pressure sensor</td></tr></table>	D374	L074	R042	Function	A17	4		Ground, DEF pressure sensor
D374	L074	R042	Function						
A17	4		Ground, DEF pressure sensor						

A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector, pump module (L074)



Wiring harness connector (L074)



Handle connectors and pins with care and use matching measuring probes.

Technical data

Component & wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

Pin	Pin	Value	Additional information

	<table><tr><th>(+ probe)</th><th>(- probe)</th><th></th><th></th></tr><tr><td>2</td><td>4</td><td>4.75–5.25 V</td><td></td></tr></table>	(+ probe)	(- probe)			2	4	4.75–5.25 V	
	(+ probe)	(- probe)							
	2	4	4.75–5.25 V						
	Component check, heater element								
	Preparation								
	• Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074).								
	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
	Pin (+ probe)	Pin (- probe)	Value	Additional information					
	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]					
	Component check, reverting valve								
Preparation									
• Switch off the ignition • Disconnect connector L074 • Measure on the pump module (L074)									
<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Possible causes	Short circuit to supply or an open circuit.								
Additional information	• The reverting valve is part of the pump module (L074) and cannot be replaced separately. • DEF injection is disabled. • DEF priming is disabled. • After 1 hour of engine operation or 50 miles with P3846 active, P1518 becomes active (25% torque derate). • After 4 hours of engine operation or 200 miles with P3846 active, P1518 stays active								

	(40% torque derate). • After 4 hours of engine operation or 200 miles with P3846 active, P151A becomes active (5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ - vehicle has been stationary for 1 hour.
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 DEF Pump Module (L074) Checks Step 1A Visual inspection, DEF pump module (L074) Action 1. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • The correct parts are not installed • ECU connections are damaged or disconnected • Batteries not fully charged, contacts are not tight Was there evidence of any of the above?

	Yes		No	
	Correct any issues found. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.			
	If this DTC is still present, go to step 1B		Go to step 1B	
	Step 1B Electrical checks, resistance, DEF pump module (L074) reverting valve			
	 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.			
	Action			
	1. Confirm the resistance value for the DEF pump module (L074) as outlined in the corresponding checking data section, “ <u>component check, reverting valve</u> ”.			
	Is the measured value within expected range?			
	Yes		No	
			Correct any issues found, or replace the pump module if the measured value indicates an error. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.	
	Go to step 1C		If this DTC is still present, go to step 1C	
	Step 1C Electrical checks, signal open circuit, DEF pump module (L074)			
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.				

Action

1. Set the ignition switch to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle harness.
3. Disconnect the vehicle harness from the EAS-3 ECU.
4. Check for an open circuit condition by measuring the resistance between the reverting valve Signal pin on the L074 harness connector and the corresponding pin on the EAS-3 ECU D374 connector.

Is the measured value less than 10 Ω ?

Yes

No

Possible open circuit in the harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.

Go to step 1D

If this DTC is still present, go to step 1D

Step 1D Electrical checks, ground open circuit, DEF pump module (L074)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Set the ignition switch to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle harness.
3. Disconnect the vehicle harness from the EAS-3 ECU.
4. Check for an open circuit condition by measuring the resistance between the reverting valve Ground pin on the L074 harness connector and the corresponding pin on the EAS-3 ECU D374 connector.

Is the measured value less than 10 Ω ?

Yes

No

		Possible open circuit in the harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.
	Go to step 1E	If this DTC is still present, go to step 1E
Step 1E Electrical checks, pin-to-pin short, DEF pump module (L074)		
 Refer to the corresponding checking data for associated supply and signal voltage resistance values, and related connector pin test points.		
Action - Set the ignition switch to OFF. - Disconnect the DEF pump module (L074) from the vehicle harness. - Disconnect the vehicle harness from the EAS-3 ECU. - Check for a pin to pin short circuit condition by measuring the resistance between the reverting valve Signal pin on the L074 harness connector and all other harness connector pins.		
Is the measured value greater than 100k Ω?		
Yes		No
Possible issue in the EAS-3 ECU. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and for guidance in replacing EAS-3 ECU.		Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to step 2A to perform the corresponding repair verification cycles and rechecks.
If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.		If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.
Step 2 Repair Verification		

Step 2A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action

1. Power-up/Electrical

With the brakes set, turn the ignition key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 2B

Go to step 2B

Step 2B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready."

A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.
If the displayed status is "Not ready," continue to action step 2.
2. View the DTC overview display, and confirm that P3846 has been cleared.

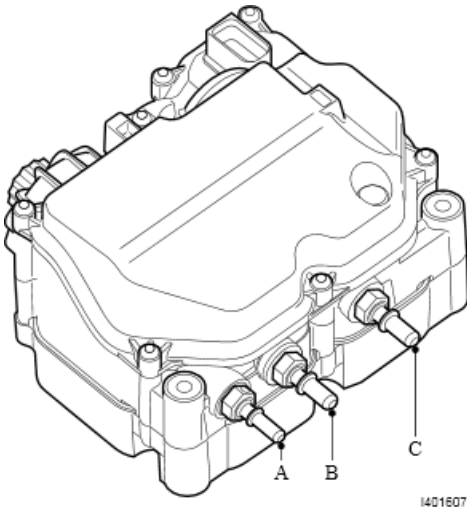
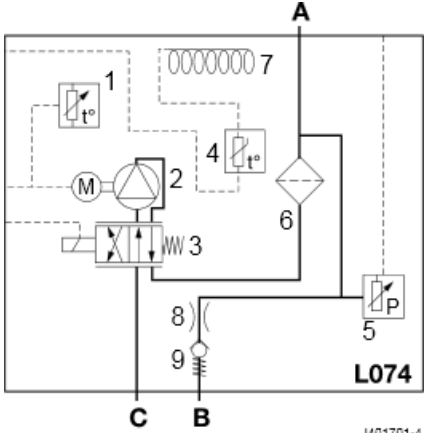
Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3846 been cleared?

Yes

No

	Problem resolved. No further actions. Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 2A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.  Contacting the PACCAR Engine Support Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.
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P3847

Code number	P3847
Fault code description	Pump module pressure - Voltage too high or short circuit to supply on ECU D374 pin B45
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve.

- The DEF pump is controlled with a duty cycle.
- The pump speed depends on the quantity of DEF to be injected.
- The DEF pressure does not depend on the quantity of DEF to inject.

Reverting valve

- This valve is engaged during the purge cycle.
- The DEF inside the inlet line and pressure line is pumped back into the DEF tank.

Temperature Switch, heater element

- The temperature sensor measures the temperature of the heater element.
- This switch is used to control the heater elements in the pump module and prevent them from overheating.

DEF pressure sensor

- The pressure sensor measures the pressure of the DEF after the DEF filter.
- The measured pressure is used by the ECU to control the DEF pump speed.

DEF filter

- The DEF is filtered before it is pumped into the pump module.

Heater element, pump module

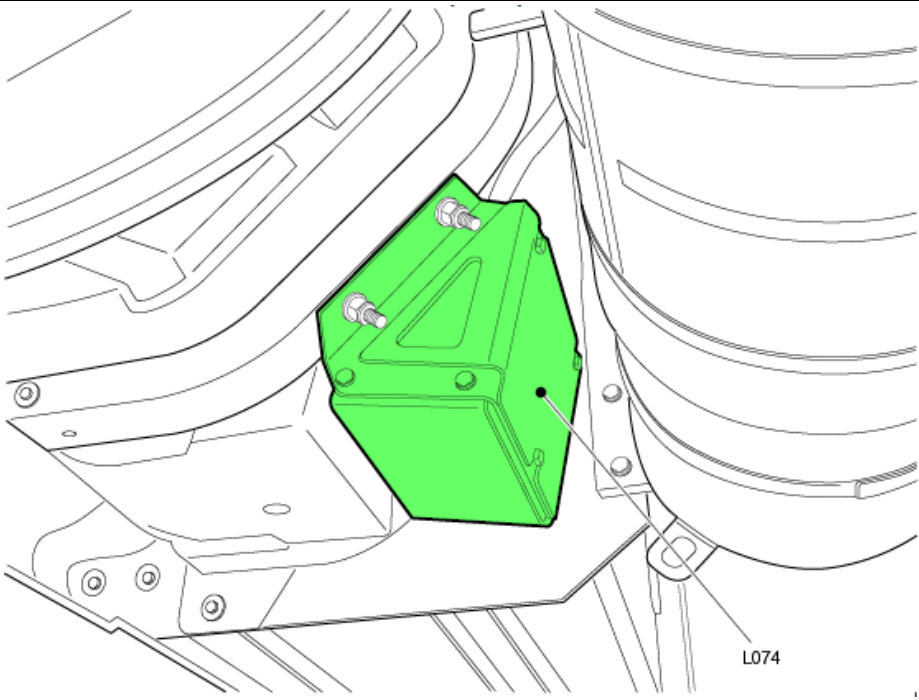
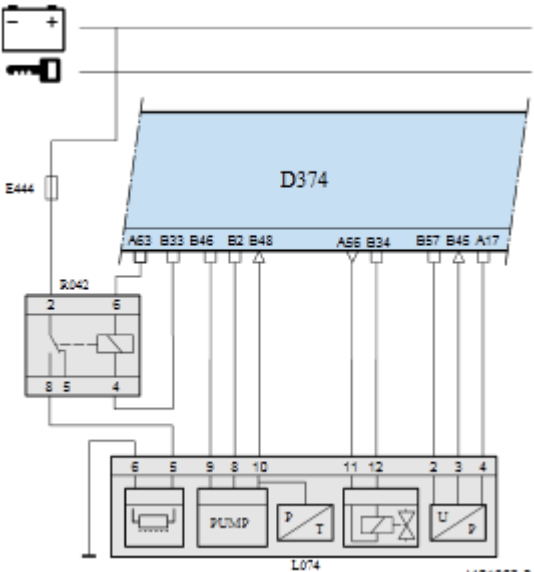
- The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump.
- Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C.
- Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature.

Check valve

- The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF.

Orifice

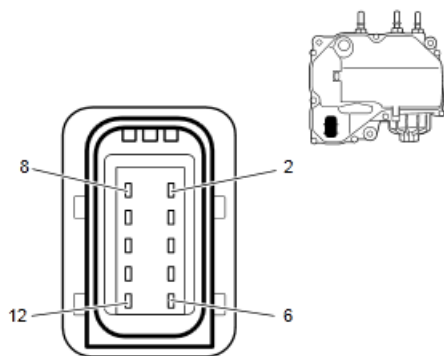
- The orifice in the return line assists the pump in maintaining the operating pressure.
- The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to supply is detected for 10 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	DEF pump module (L074)  D374 EAS-3 ECU E444 Fuse EAS 2nd

L074 Pump module

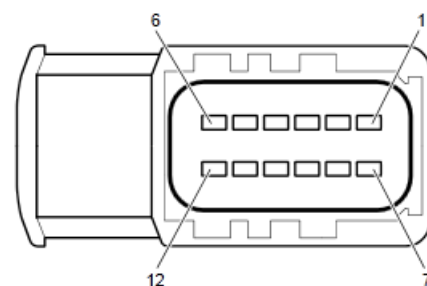
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector, pump module (L074)

I401919



Wiring harness connector (L074)

E504107



Handle connectors and pins with care and use matching measuring probes.

Technical

DEF pump module (L074)

data	Component & wiring check, DEF pressure sensor								
	Preparation								
	• Key on the ignition • Disconnect connector L074 • Measure on connector L074								
	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>4</td><td>4.75–5.25 V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	4	4.75–5.25 V	
	Pin (+ probe)	Pin (- probe)	Value	Additional information					
	2	4	4.75–5.25 V						
	Component check, heater element								
	Preparation								
	• Key off the ignition • Disconnect connector L074 • Measure on the pump module (L074)								
<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Component check, reverting valve									
Preparation									
• Key on the ignition • Disconnect connector L074 • Measure on the pump module (L074)									
<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Possible causes	• Short circuit to supply.								
Additional	• DEF injection is disabled.								

information	• DEF priming is disabled. • DEF pressure sensor is located in the DEF dosing valve (L123) and cannot be serviced separately. • After 1 hour of engine operation or 50 miles with P3847 active, P1518 becomes active (25% torque derate). • After 4 hours of engine operation or 200 miles with P3847 active, P1518 stays active (40% torque derate). • After 4 hours of engine operation or 200 miles with P3847 active, P151A becomes active (5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ vehicle has been stationary for 1 hour.			
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PMCI are functioning properly. ▪ Disconnecting the PMCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current trouble codes from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1. DEF Pump Module (L074) Checks <table><tr><td>Step 1. A Visual inspection, DEF pump module (L074)</td></tr><tr><td> Action 1. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • The correct parts are not installed • ECU connections are damaged or disconnected • Batteries not fully charged, contacts are not tight </td></tr><tr><td>Was there evidence of any of the above?</td></tr></table>	Step 1. A Visual inspection, DEF pump module (L074)	Action 1. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • The correct parts are not installed • ECU connections are damaged or disconnected • Batteries not fully charged, contacts are not tight	Was there evidence of any of the above?
Step 1. A Visual inspection, DEF pump module (L074)				
Action 1. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • The correct parts are not installed • ECU connections are damaged or disconnected • Batteries not fully charged, contacts are not tight				
Was there evidence of any of the above?				

	Yes	No
	Correct any issues found. Refer to Step 2.A to perform the corresponding repair verification cycles and rechecks.	
	If this code is still present, go to Step 1.B	Go to step 1.B
Step 1.B Electrical checks, supply voltage, DEF pump module (L074) pressure sensor		
 Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Confirm the supply voltage value for the DEF pump module (L074) pressure sensor as outlined in the corresponding checking data section, “<u>Component & wiring check, DEF pressure sensor</u>”.		
Is the measured value within expected range?		
Yes	No	
	Correct any issues found, or replace the pump module if the measured value indicates an error. Refer to Step 2.A to perform the corresponding repair verification cycles and rechecks.	
Go to step 1.C	If this code is still present, go to step 1.C	
Step 1.C Electrical checks, signal open circuit, DEF pump module (L074)		
 Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Set the ignition switch to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle harness. 3. Disconnect the vehicle harness from the EAS-3 ECU. 4. Check for an open circuit condition by measuring the resistance between the pressure sensor signal pin on the L074 harness connector and the corresponding pin on the EAS-3 ECU D374 connector.		
Is the measured value less than 10 Ω?		
Yes	No	

	Possible open circuit in the harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to Step 2.A to perform the corresponding repair verification cycles and rechecks.
Go to step 1.D	If this code is still present, go to step 1.D

Step 1.D Electrical checks, pin-to-pin short, DEF pump module (L074)	
	Refer to the corresponding Checking Data in Engine Service – Rapido for associated supply and signal voltages, resistance values, and related connector pin test points.
Action 1. Set the ignition switch to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle harness. 3. Disconnect the vehicle harness from the EAS-3 ECU. 4. Check for a pin to pin short circuit condition by measuring the resistance between the DEF pressure sensor signal pin and the sensor power supply pin on the L074 harness connector.	
Is the measured value greater than 100k Ω?	
Yes	No
Possible issue in the EAS-3 ECU. Contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and for guidance in replacing EAS-3 ECU.	Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the harness. Refer to Step 2.A to perform the corresponding repair verification cycles and rechecks.
If all steps have been completed and this trouble code is still present, contact the PACCAR Engine Support Center for further assistance.	If all steps have been completed and this trouble code is still present, contact the PACCAR Engine Support Center for further assistance.

Step 2. Repair Verification
Step 2.A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the trouble code or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action

1. Power-up/electrical

With the brakes set, turn the ignition key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 2.B

Go to step 2.B

Step 2.B DAVIE Diagnostics, Quick Check

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current trouble codes to determine whether the actions taken have cleared this trouble code.

Has P3847 been cleared?

Yes

No

Problem resolved. No further actions.

Continue with the next step in this troubleshooting procedure. If all steps have been completed and this trouble code is still present, contact the PACCAR Engine Support Center for further assistance.

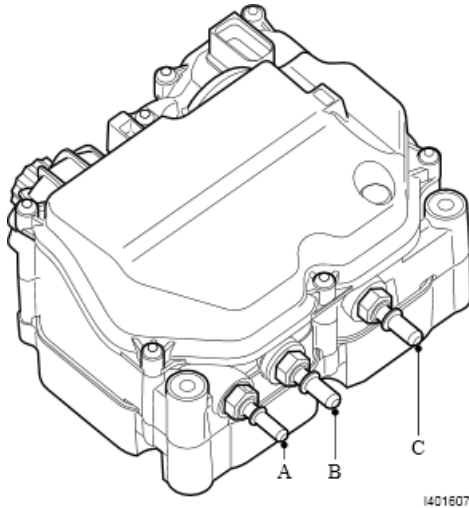
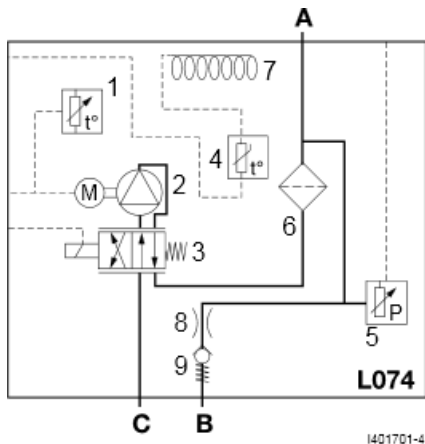


Contacting the PACCAR Engine Support Center

For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center.

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P3848

Code number	P3848
Fault code description	Pump module pressure - Voltage too low or short circuit to ground on ECU D374 pin B45
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing

valve.

- The DEF pump is controlled with a duty cycle.
- The pump speed depends on the quantity of DEF to be injected.
- The DEF pressure does not depend on the quantity of DEF to inject.

Reverting valve

- This valve is engaged during the purge cycle.
- The DEF inside the inlet line and pressure line is pumped back into the DEF tank.

Temperature Switch, heater element

- The temperature sensor measures the temperature of the heater element.
- This switch is used to control the heater elements in the pump module and prevent them from overheating.

DEF pressure sensor

- The pressure sensor measures the pressure of the DEF after the DEF filter.
- The measured pressure is used by the ECU to control the DEF pump speed.

DEF filter

- The DEF is filtered before it is pumped into the pump module.

Heater element, pump module

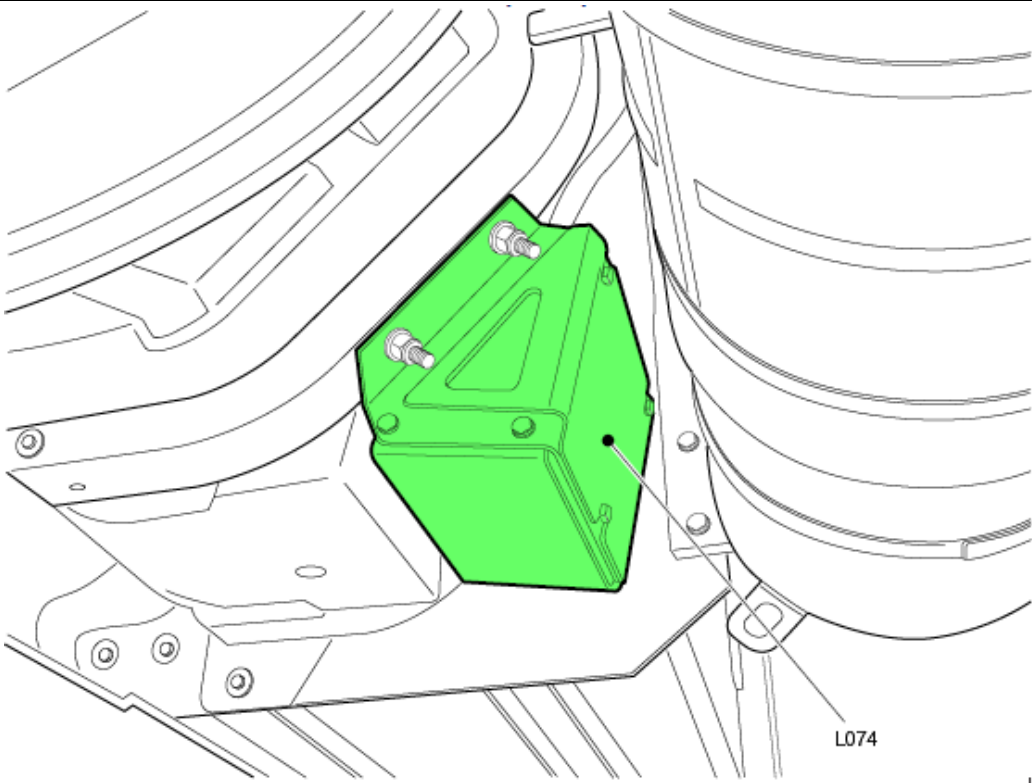
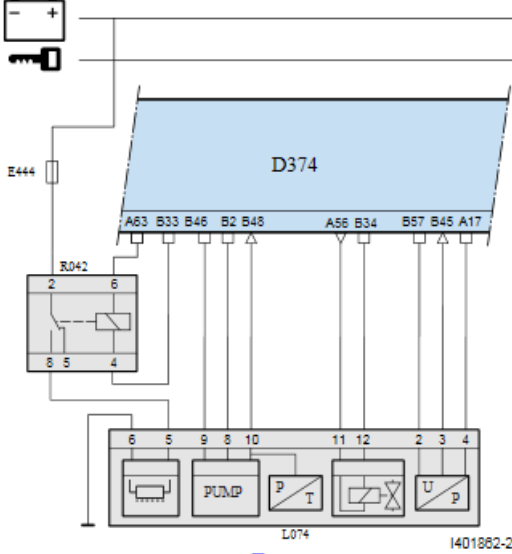
- The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump.
- Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C.
- Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature.

Check valve

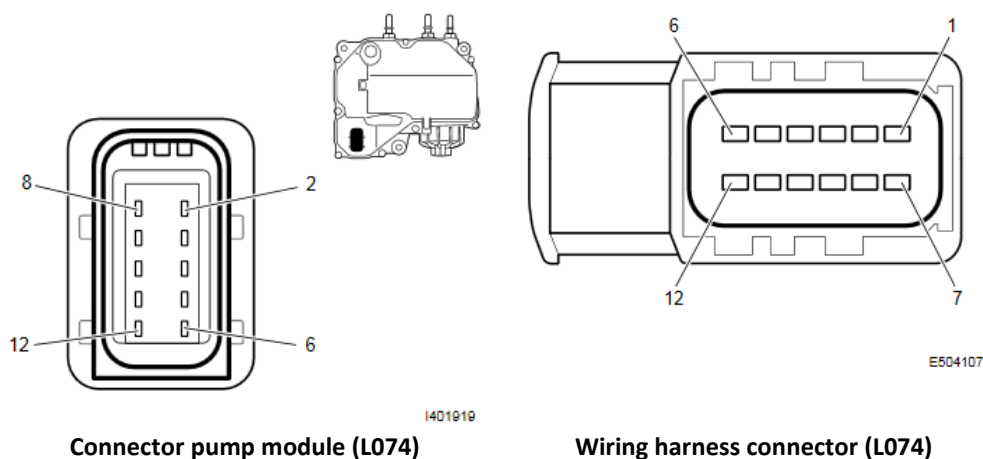
- The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF.

Orifice

- The orifice in the return line assists the pump in maintaining the operating pressure.
- The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	A short circuit to ground or open circuit is detected for 10 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	4	4.75 - 5.25 V	

Component check, heater element

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
5	6	1.5 Ω $\pm$ 0.5 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Component check, reverting valve

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
11	12	6.75 Ω $\pm$ 2 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Possible causes

A short circuit to ground or open circuit.

Additional information

- DEF injection is disabled.
- DEF priming is disabled.
- DEF pressure sensor is located in the DEF dosing valve (L123) and cannot be serviced separately.
- After 1 hour of engine operation or 50 miles with P3848 active, P1518 becomes active (25% torque derate).
- After 4 hours of engine operation or 200 miles with P3848 active, P1518 stays active (40% torque derate).
- After 4 hours of engine operation or 200 miles with P3848 active, P151A becomes active (5 MPH vehicle speed limit) after a:
 - key cycle, or
 - vehicle re-fuel (fuel tank volume increase > 16%), or
 - vehicle has been stationary for 1 hour.

Diagnostic Step-by-Step



The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Investigate Related DTCs

Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause of this DTC.

Step 1A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are these or any other related DTCs active?

P3856; P3857; P3858; P3901

Yes

No

Possible faulty sensor. Refer to the troubleshooting information for these DTCs before continuing with this procedure.

Go to step 2A

Step 2 Pump Module (L074) Checks

Step 2A Visual inspection, connections and wiring, pump module (L074)

Action

1. Visually inspect the associated component connections and wiring for any of the following:

- Damaged or loose connectors
- Bent, broken, corroded or loose connector pins
- Moisture or dirt in the connections
- Damage to the wire harness or insulation
- The correct parts are not installed
- ECU connections are damaged or disconnected
- Battery not fully charged, contacts not tight
- Pump module (L074) is broken or not installed correctly
- Check for broken or leaking connection points (pressure line, return line, inlet line) on the DEF pump module (L074).

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the pump module (L074) is found to be damaged or broken, replace it.
Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, pump module (L074), supply, DEF pressure sensor



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Confirm the supply voltage level for the DEF pressure sensor as outlined in the corresponding checking data, "Checking data, pump module (L074)."

Are measured values within expected range?

Yes

No

Correct any issues found, or replace the pump module (L074) if measured values indicate an error.
Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If this DTC is still present, go to step 3A

Step 3 EAS-3 ECU (D374) Connector and Vehicle Harness Checks

Step 3A Visual inspection, EAS-3 ECU (D374) and vehicle harness connectors

Action

1. Switch off the ignition.
2. Disconnect the vehicle harness from the EAS-3 D374.A and D374.B connectors.
3. Visually inspect the vehicle harness EAS-3 connector pins for any of the following:
 - Damaged or loose connectors
 - Bent, broken, or corroded connector pins
 - Pushed back or expanded pins
 - Moisture, dirt, or debris in or on the connections
 - Damaged connector shell
 - Missing or damaged connector seals
 - Damage to the wire harness or insulation
 - Damaged connector locking tab

Was there any evidence of the above?

Yes

No

A damaged EAS-3 or vehicle harness connector has been detected. Clean or repair if possible. Contact the PACCAR Engine Support Center for additional assistance in diagnosing this issue and for possible replacement of the vehicle harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present go to step 3B

Go to step 3B

Step 3B Electrical checks, open circuit, vehicle harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch off the ignition.
2. Disconnect the vehicle harness from the EAS-3 D374.A and D374.B connectors.
3. Disconnect the pump module (L074) from the vehicle harness.
4. Measure resistance between the pump module (L074) pressure sensor supply pin (pin

B57) in the D374.B connector and the corresponding supply pin (pin 2) in the L074 harness connector.

5. Measure resistance between the pump module (L074) pressure sensor signal pin (pin B45) in the D374.B connector and the corresponding signal pin (pin 3) in the L074 harness connector.

Are measured values less than 10 Ω ?

Yes

No

An open supply or open signal circuit has been detected. Repair if possible or contact the PACCAR Engine Support Center for additional assistance in diagnosing this issue and for possible replacement of the vehicle harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

Go to step 3C

If this DTC is still present, go to step 3C

Step 3C Electrical checks, short circuit, vehicle harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch off the ignition.
2. Disconnect the vehicle harness from the EAS-3 D374.A and D374.B connectors.
3. Disconnect the pump module (L074) from the vehicle harness.
4. Measure resistance between the pump module (L074) pressure sensor signal pin (pin B45) in the D374.B connector and all other pins in the EAS-3 D374.A and D374.B vehicle harness connectors.
5. Measure resistance between the pump module (L074) pressure sensor signal pin (pin B45) in the D374.B connector and ground.

Are measured values greater than 100k Ω ?

Yes

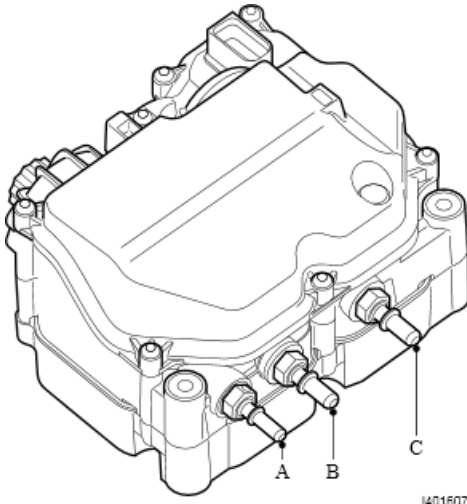
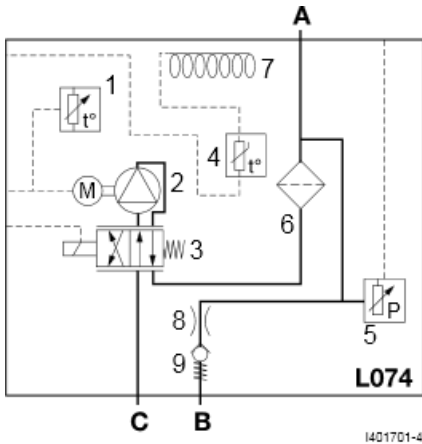
No

		A pin-to-pin or pin-to-ground short circuit has been detected. Repair if possible or contact the PACCAR Engine Support Center for additional assistance in diagnosing this issue and for possible replacement of the vehicle harness. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.
	Go to step 3D	If this DTC is still present, go to step 3D
Step 3D Confirm DTC active state		
Action 1. Connect all components. 2. Switch on the ignition. 3. Power-up/Electrical With the brakes set, turn the key to the on position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.		
Is P3848 active?		
Yes		No
Possible EAS-3 ECU malfunction. Contact the PACCAR Engine Support Center for additional assistance in diagnosing this issue and for possible replacement of the EAS-3 ECU. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.		
If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.		If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.
Step 4 Repair Verification		
Step 4A Repair verification cycles		
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.		
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.		
Action		

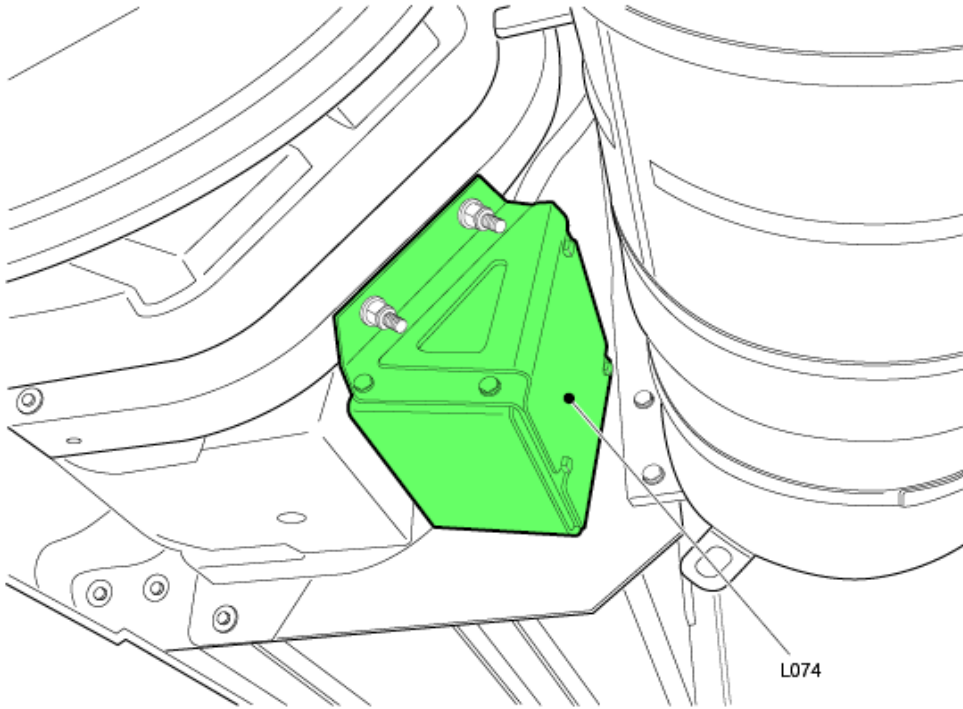
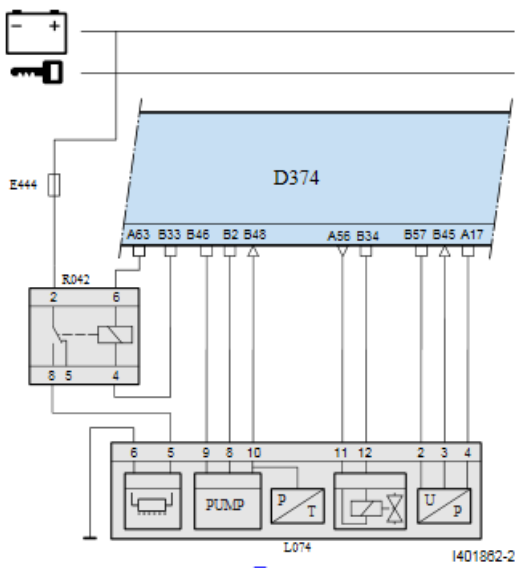
	1. Power-up/Electrical With the brakes set, turn the key to the on position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 4B	
	Step 4B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors	
	Action Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. - Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready." A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is "Not ready," continue to action step 2. - View the DTC overview display, and confirm that P3848 has been cleared.	
	Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3848 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 4A and perform this

		repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
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P3849

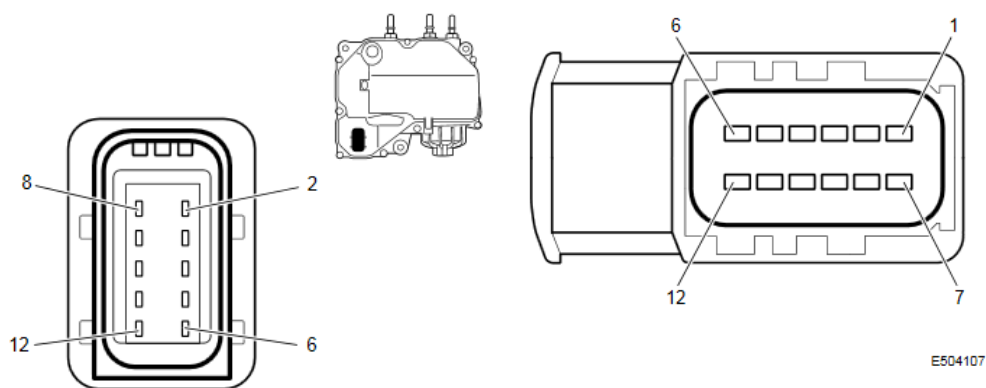
Code number	P3849
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing

	valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected. •

Location of component(s)	 L074
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU

E444 Fuse, EAS 2nd
L074 Pump module
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

	Preparation • Switch on the ignition. • Disconnect connector L074. • Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Condition																						
2	4	4.75 - 5.25 V																							
Pin (+ probe)	Pin (- probe)	Value	Condition																						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Pin (+ probe)	Pin (- probe)	Value	Condition																						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the internal temperature sensor.																								
Additional information	• The temperature sensor is detected by the ECU. • The temperature sensor is part of the pump module (L074) and cannot be replaced separately.																								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.																								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status

Action

1. Switch the ignition to OFF for at least 15 seconds, then switch the ignition to ON again.

Is P3849 inactive?

Yes

No

Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.

If this DTC is still present, go to step 2A

Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)

Action

1. Switch the ignition to OFF.
2. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins

- Moisture or dirt in the connections
- Missing or damaged connector seals
- Damage to the wire harness or insulation
- The correct parts are not installed
- Damaged connector locking tab
- ECU connections are damaged or disconnected
- Batteries not fully charged or contacts are not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, open circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.

Is the measured value less than 10 ohms?

Yes

No

An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2C		If this DTC is still present, go to step 2C	
Step 2C Electrical checks, open circuit, DEF pump module (L074) wiring harness			
		Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.	
Action			
1. Switch the ignition to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.			
Is the measured value less than 10 ohms?			
Yes		No	
		An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
Go to step 2D		If this DTC is still present, go to step 2D	
Step 2D Electrical checks, pin-to-pin short circuit, DEF pump module (L074) wiring harness			
		Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.	

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.

Is the measured value greater than 100k ohms?

Yes

No

A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2E

If this DTC is still present, go to step 2E

Step 2E Electrical checks, pin-to-ground short circuit, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k ohms?

Yes

No

Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU (D374). Upon authorization, replace the EAS-3 ECU (D374).

A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up

With the brakes set, start the engine and allow it to idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Go to step 3B

Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

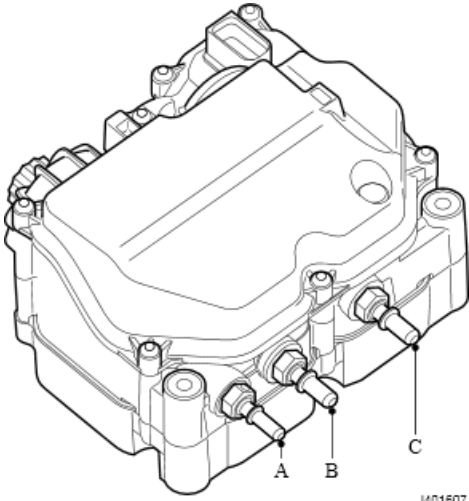
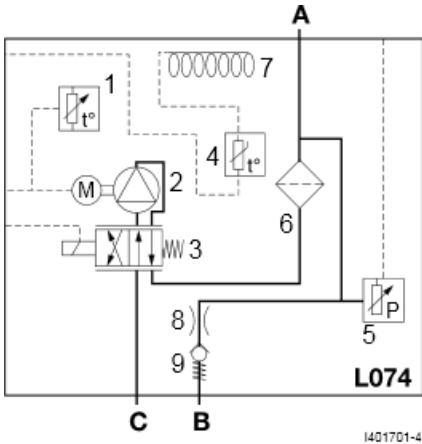
1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.”

A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.

If the displayed status is “Not ready,” continue to action step 2.

	2. View the DTC overview display, and confirm that P3849 has been cleared.	
	Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3849 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
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P3850

Code number	P3850
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor

- The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve.
- The DEF pump is controlled with a duty cycle.
- The pump speed depends on the quantity of DEF to be injected.
- The DEF pressure does not depend on the quantity of DEF to inject.

Reverting valve

- This valve is engaged during the purge cycle.
- The DEF inside the inlet line and pressure line is pumped back into the DEF tank.

Temperature Switch, heater element

- The temperature sensor measures the temperature of the heater element.
- This switch is used to control the heater elements in the pump module and prevent them from overheating.

DEF pressure sensor

- The pressure sensor measures the pressure of the DEF after the DEF filter.
- The measured pressure is used by the ECU to control the DEF pump speed.

DEF filter

- The DEF is filtered before it is pumped into the pump module.

Heater element, pump module

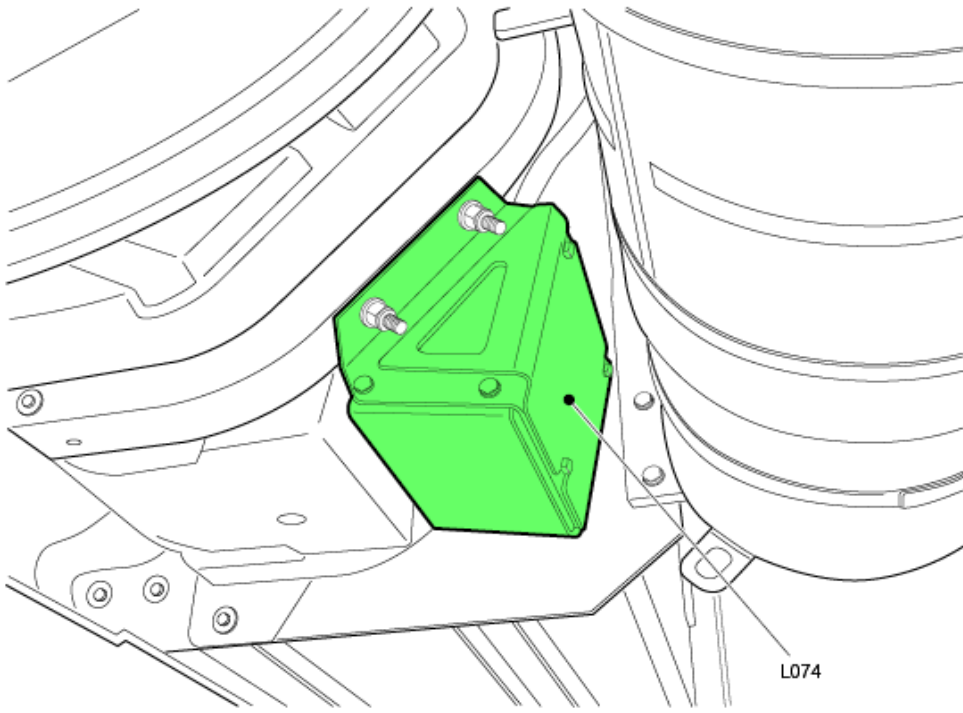
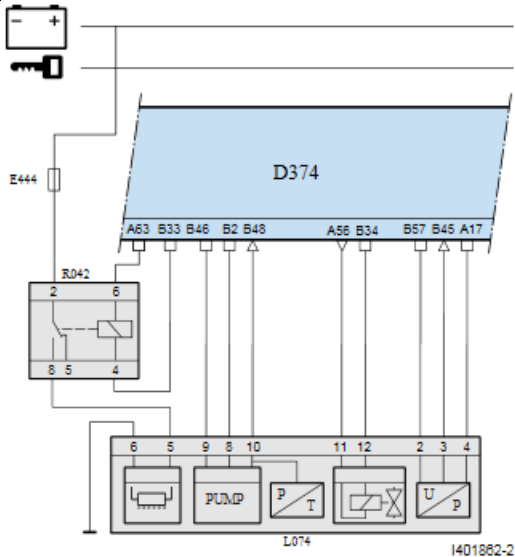
- The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump.
- Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C.
- Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature.

Check valve

- The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF.

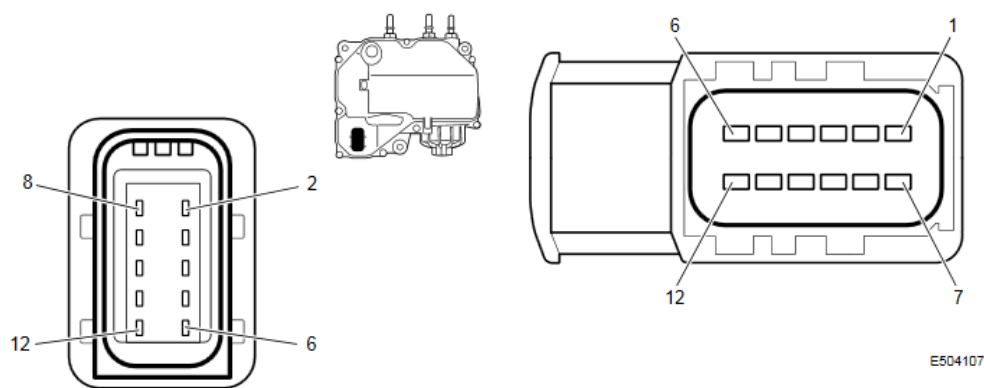
Orifice

- The orifice in the return line assists the pump in maintaining the operating pressure.
- The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	

D374 EAS-3 ECU
E444 Fuse EAS 2nd
L074 Pump module
R042 pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component check, pump module (L074)

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	4	4.75 - 5.25 V	

Component check, heater element

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
5	6	1.5 Ω $\pm$ 0.5 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Component check, reverting valve

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
11	12	6.75 Ω $\pm$ 2 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Possible causes

- Malfunction of the electrical connections and wiring of the pump module (L074).
- Malfunctioning of the internal temperature sensor.

Additional information

- The temperature sensor is detected by the ECU.
- The temperature sensor is part of the pump module (L074) and cannot be replaced separately.

Diagnostic Step-by-Step



The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status

Action

1. Switch the ignition to OFF for at least 15 seconds, then switch the ignition to ON again.

Is P3850 inactive?

Yes

No

Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.

If this DTC is still present, go to step 2A

Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)

Action

1. Switch the ignition to OFF.
2. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Missing or damaged connector seals

- Damage to the wire harness or insulation
- The correct parts are not installed
- Damaged connector locking tab
- ECU connections are damaged or disconnected
- Batteries not fully charged or contacts are not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, open circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.

Is the measured value less than 10 ohms?

Yes

No

An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2C

If this DTC is still present, go to step 2C

Step 2C Electrical checks, open circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.

Is the measured value less than 10 ohms?

Yes

No

An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2D

If this DTC is still present, go to step 2D

Step 2D Electrical checks, pin-to-pin short circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.

Is the measured value greater than 100k ohms?

Yes

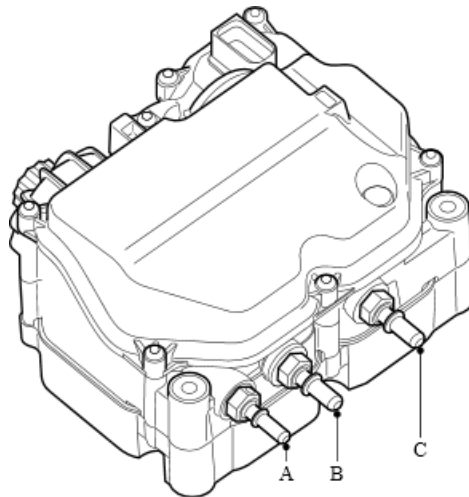
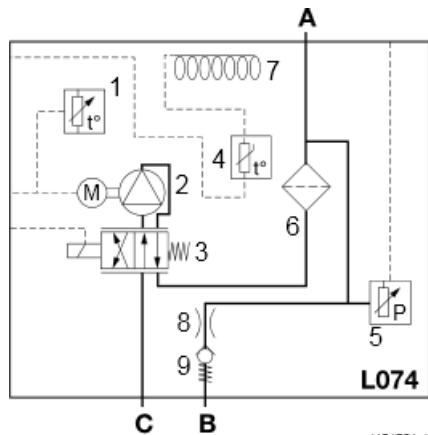
No

		A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2E		If this DTC is still present, go to step 2E
Step 2E Electrical checks, pin-to-ground short circuit, DEF pump wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 10 on the L074 connector and ground.		
Is the measured value greater than 100k ohms?		
Yes		No
Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU (D374). Upon authorization, replace the EAS-3 ECU (D374).		A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 3A		If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.
Step 3 Repair Verification		
Step 3A Repair verification cycles		
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.		
 Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to "Clear all" current DTCs from the PCI and EAS-3 ECUs.		

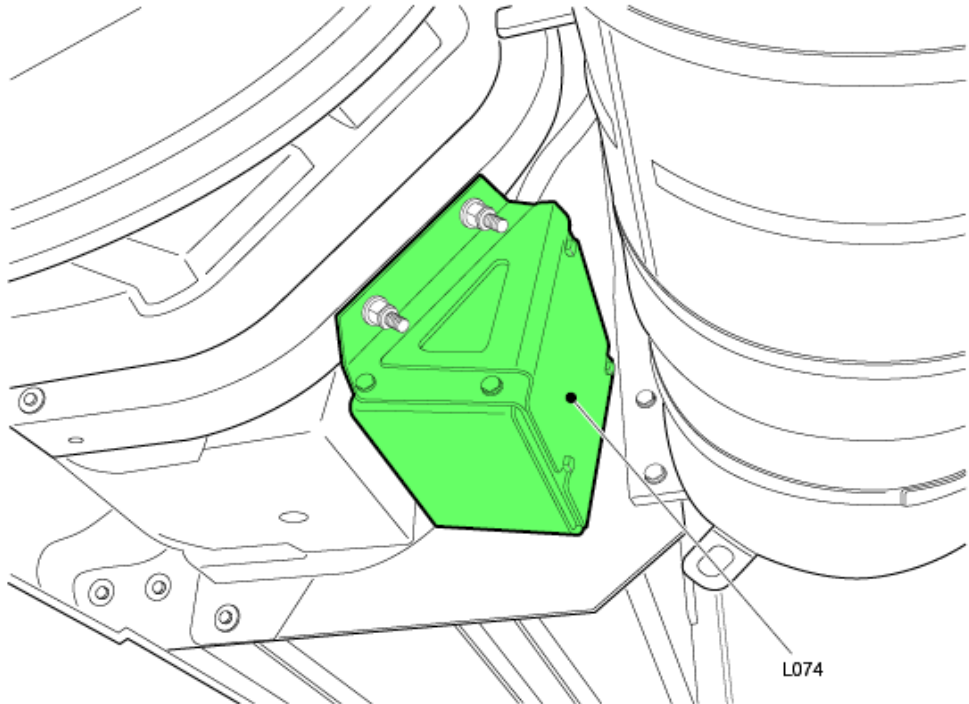
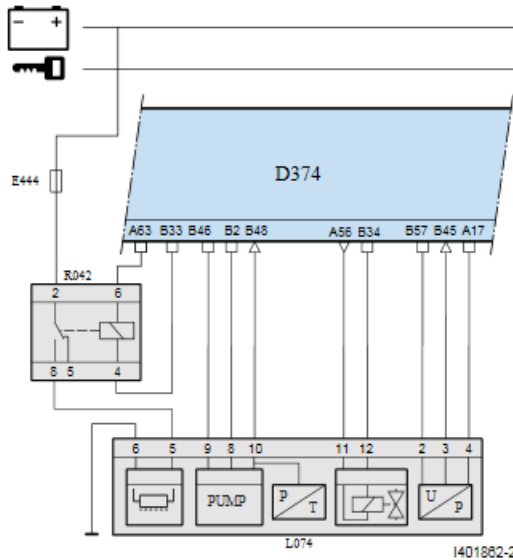
	Action	
	1. Start-up	
	With the brakes set, start the engine and allow it to idle for 2 minutes.	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 3B	Go to step 3B
	Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors	
	Action	
	Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.	
	1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready."	
	A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.	
	If the displayed status is "Not ready," continue to action step 2.	
	2. View the DTC overview display, and confirm that P3850 has been cleared.	
	Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3850 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again.

		If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.	
	Back to Index		

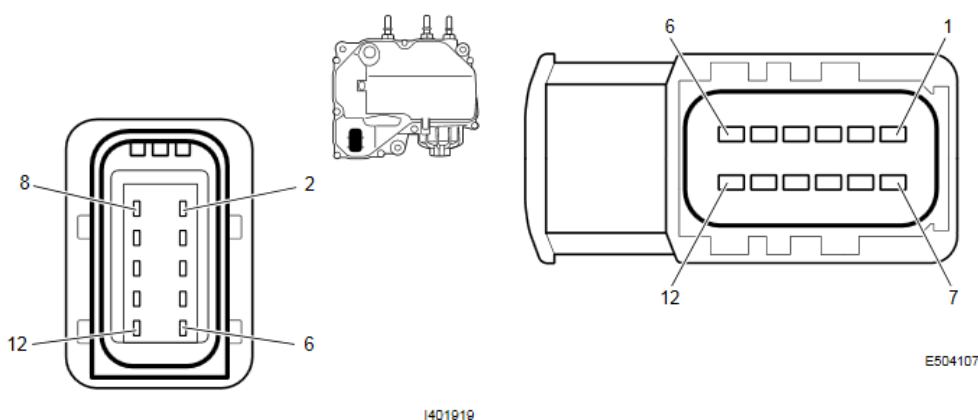
P3851

Code number	P3851
Fault code description	Pump module temperature - Malfunction on sensor
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle.

	• The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Condition																						
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5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Pin (+ probe)	Pin (- probe)	Value	Condition																						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the internal temperature sensor.																								
Additional information	• The temperature sensor is detected by the ECU. • The temperature sensor is part of the pump module (L074) and cannot be replaced separately.																								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.																								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status

Action

1. Switch the ignition to OFF for at least 15 seconds, then switch the ignition to ON again.

Is P3851 inactive?

Yes

No

Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.

If this DTC is still present, go to step 2A

Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)

Action

1. Switch the ignition to OFF.
2. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Missing or damaged connector seals
 - Damage to the wire harness or insulation
 - The correct parts are not installed
 - Damaged connector locking tab
 - ECU connections are damaged or disconnected
 - Batteries not fully charged or contacts are not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, open circuit in harness, DEF pump module (L074)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.

Is the measured value less than 10 Ω ?

Yes

No

An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2C

If this DTC is still present, go to step 2C

Step 2C Electrical checks, open circuit in harness, DEF pump module (L074)



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.

Is the measured value less than 10 Ω ?

Yes

No

	An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2D	If this DTC is still present, go to step 2D

Step 2D Electrical checks, pin-to-pin short circuit in harness, DEF pump module (L074)	
	Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.
Action 1. Switch the ignition to OFF. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.	
Is the measured value greater than 100k Ω ?	
Yes	No
	A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2E	If this DTC is still present, go to step 2E

Step 2E Electrical checks, pin-to-ground short circuit in harness, DEF pump module (L074)	



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k Ω ?

Yes

Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU (D374). Upon authorization, replace the EAS-3 ECU (D374).

No

A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.

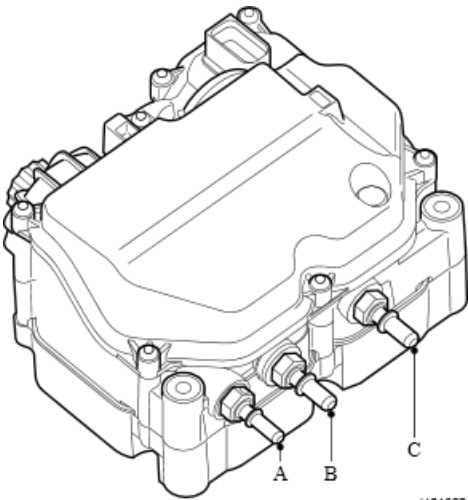
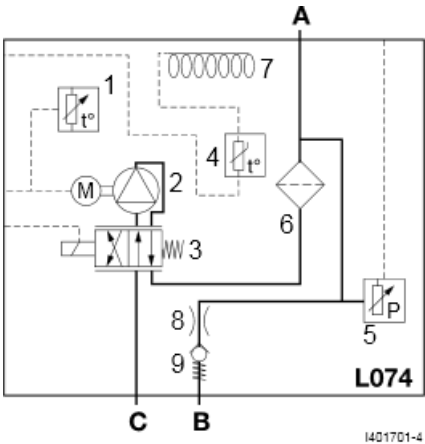


Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to "Clear all" current DTCs from the PCI and EAS-3 ECUs.

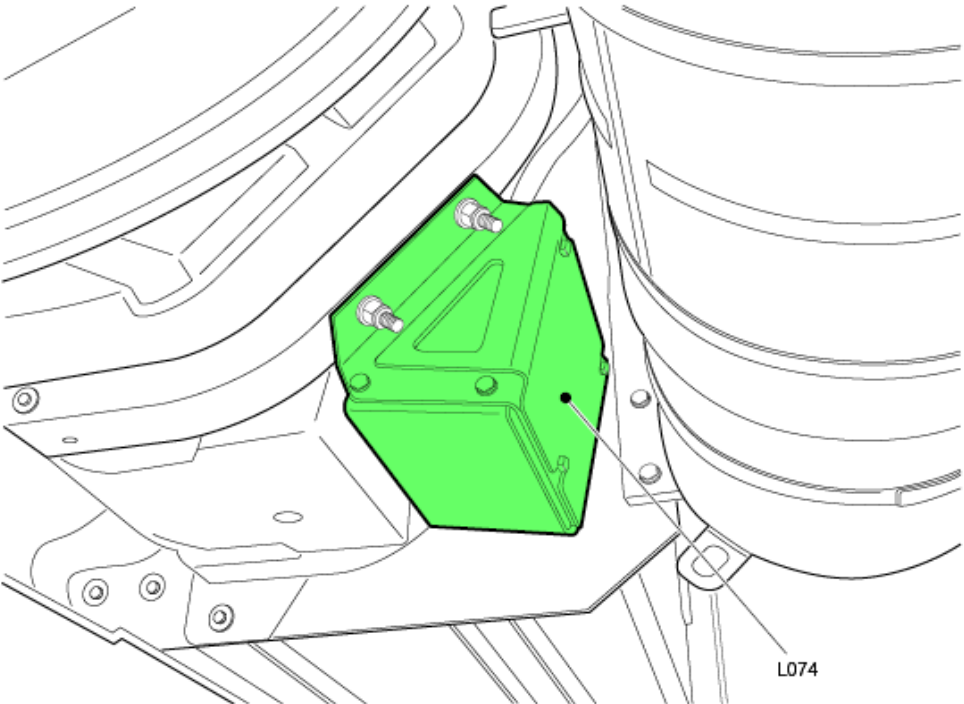
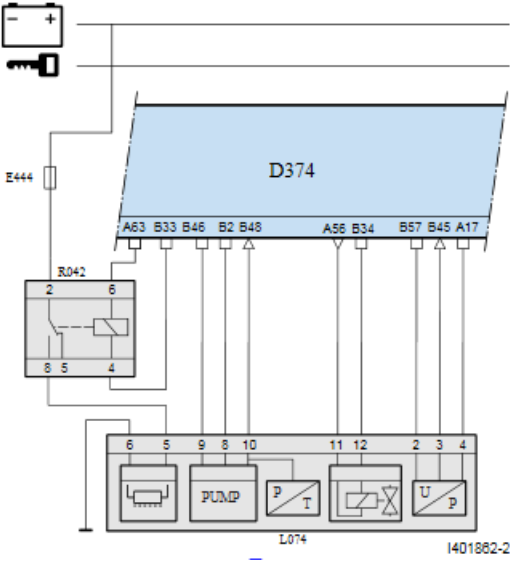
	Action	
	Start-up With the brakes set, start the engine and allow it to idle for 2 minutes.	
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 3B	Go to step 3B
	Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors	
	Action	
	Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. - Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready." A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is "Not ready," continue to action step 2. - View the DTC overview display, and confirm that P3851 has been cleared.	
	Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3851 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: continue to operate the truck to

		extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
		Back to Index

P3852

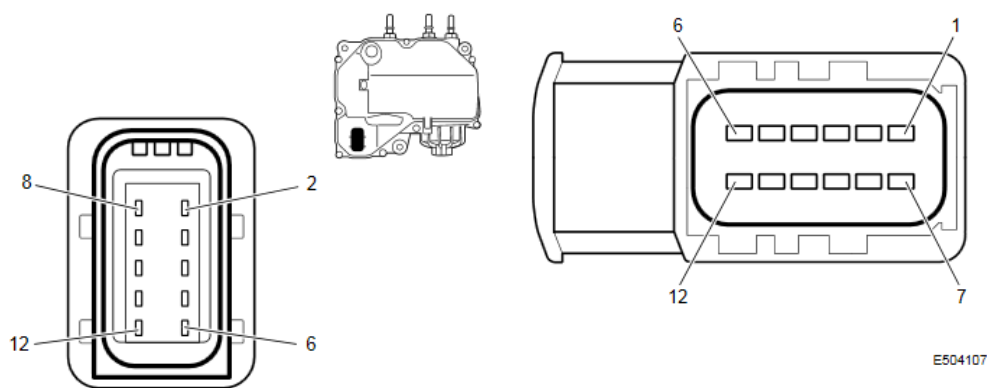
Code number	P3852
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  I401607 The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  I401701-4 Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle.

	• The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module

R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Condition																						
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Pin (+ probe)	Pin (- probe)	Value	Condition																						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the internal temperature sensor.																								
Additional information	• The temperature sensor is detected by the ECU. • The temperature sensor is part of the pump module (L074) and cannot be replaced separately.																								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.																								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status	
Action 1. Switch the ignition to off for at least 15 seconds, then switch the ignition to on again.	
Is P3852 inactive?	
Yes	No
Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.	
If this DTC is still present, go to step 2A	Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)
Action 1. Switch the ignition to off. 2. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins

- Moisture or dirt in the connections
- Missing or damaged connector seals
- Damage to the wire harness or insulation
- The correct parts are not installed
- Damaged connector locking tab
- ECU connections are damaged or disconnected
- Batteries not fully charged or contacts are not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, open circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to off.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.

Is the measured value less than 10 Ω ?

Yes

No

An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness.
Replace the vehicle harness.
Refer to step 3A to perform the corresponding

		repair verification cycles and rechecks.
Go to step 2C		If this DTC is still present, go to step 2C
Step 2C Electrical checks, open circuit, DEF pump module (L074) wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.		
Is the measured value less than 10 Ω?		
Yes		No
		An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2D		If this DTC is still present, go to step 2D
Step 2D Electrical checks, pin-to-pin short circuit, DEF pump module (L074) wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).		

4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.

Is the measured value greater than 100k Ω ?

Yes

No

A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness.

Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2E

If this DTC is still present, go to step 2E

Step 2E Electrical checks, pin-to-ground short circuit, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k Ω ?

Yes

No

Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU (D374). Upon authorization, replace the EAS-3 ECU (D374).

A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness.

Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up

With the brakes set, start the engine and allow it to idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Go to step 3B

Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.”

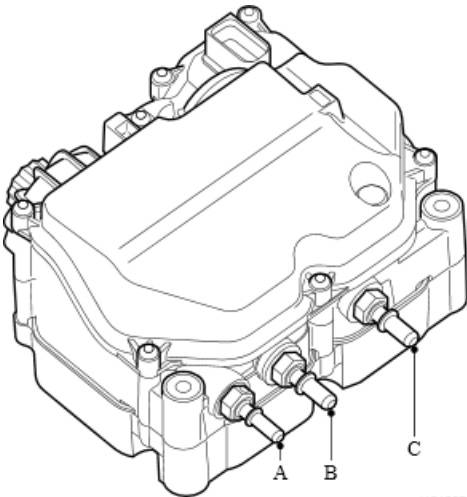
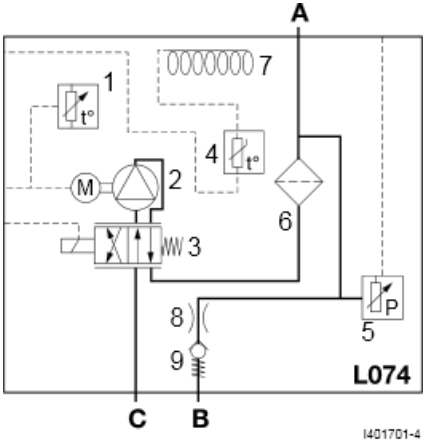
A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.

If the displayed status is “Not ready,” continue to action step 2.

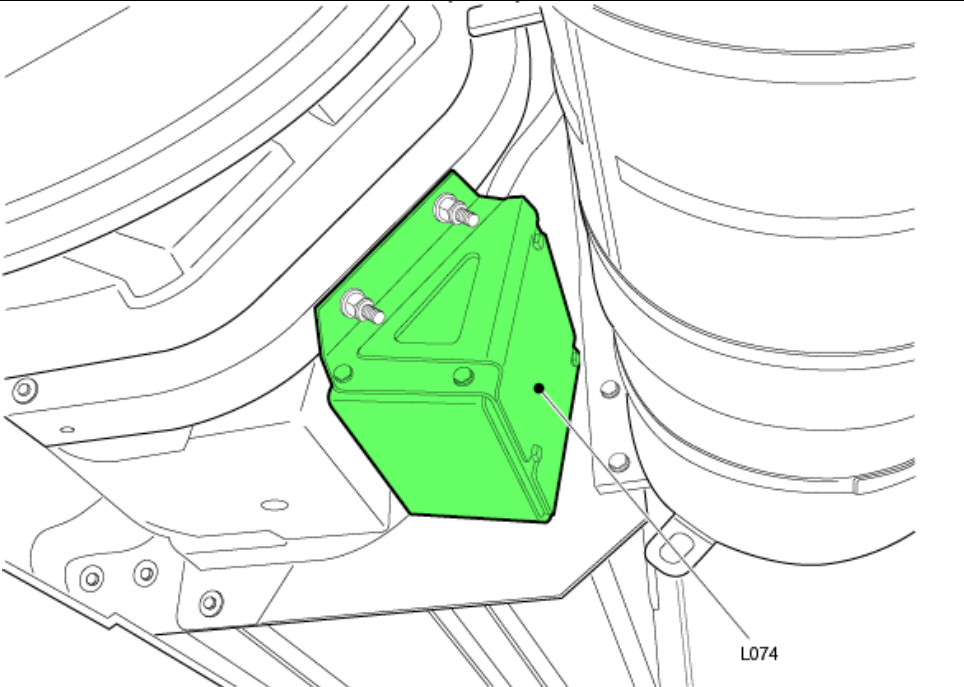
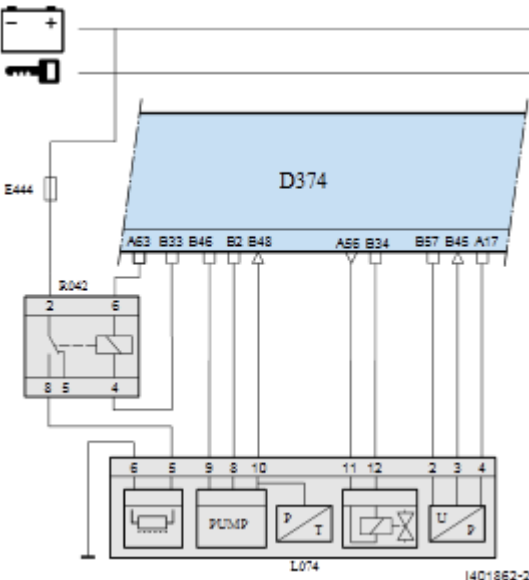
2. View the DTC overview display, and confirm that P3852 has been cleared.

	Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3852 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
	Back to Index	

P3853

Code number	P3853
Fault code description	Pump module - Failed to thaw
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing

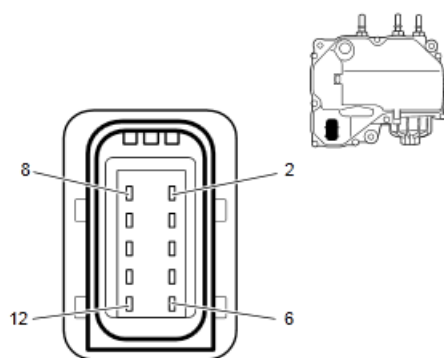
	valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs when the pump module (L074) tries to thaw.
Set condition of fault code	The EAS ECU (D374) detects that the pump module (L074) did not thaw in the appropriate amount of time.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	DEF pump module (L074)  D374 EAS-3 ECU E444 Fuse EAS 2nd

L074 Pump module

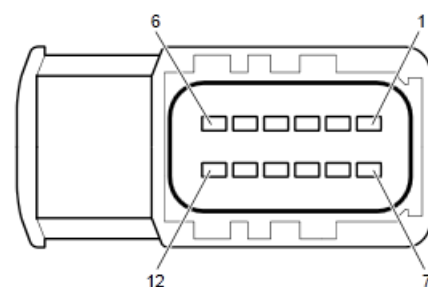
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



I401919

Connector, pump module (L074)



E504107

Wiring harness connector (L074)



Handle connectors and pins with care and use matching measuring probes.

Technical data	DEF pump module (L074)								
	Component & wiring check, DEF pressure sensor								
	Preparation • Switch on the ignition. • Disconnect connector L074. • Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>2</td><td>4</td><td>4.75–5.25 V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	2	4	4.75–5.25 V	
	Pin (+ probe)	Pin (- probe)	Value	Additional information					
2	4	4.75–5.25 V							
Component check, heater element									
Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Component check, reverting valve									
Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Additional information						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the pump module heater.								

Additional information	• The pump module heater is part of the pump module (L074) and cannot be replaced separately. • DEF injection is disabled. • Engine torque will be reduced and vehicle speed will be limited after extended engine operation with the DTC active.																
Diagnostic Step-by-Step	The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components. ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided. Step 1 Investigate Related DTCs Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC. <table border="1"> <tr> <td colspan="2">Step 1A Investigate related DTCs</td></tr> <tr> <td colspan="2">Action</td></tr> <tr> <td colspan="2">1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.</td></tr> <tr> <td colspan="2">Are these or any other related DTCs active?</td></tr> <tr> <td colspan="2">P3849; P3902; P3903; P3906; P3909; P3910</td></tr> <tr> <td>Yes</td><td>No</td></tr> <tr> <td>Go to the troubleshooting information for these DTCs before continuing with this procedure.</td><td></td></tr> <tr> <td></td><td>Go to step 2A</td></tr> </table>	Step 1A Investigate related DTCs		Action		1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.		Are these or any other related DTCs active?		P3849; P3902; P3903; P3906; P3909; P3910		Yes	No	Go to the troubleshooting information for these DTCs before continuing with this procedure.			Go to step 2A
Step 1A Investigate related DTCs																	
Action																	
1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.																	
Are these or any other related DTCs active?																	
P3849; P3902; P3903; P3906; P3909; P3910																	
Yes	No																
Go to the troubleshooting information for these DTCs before continuing with this procedure.																	
	Go to step 2A																

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, connections and wiring, pump module (L074)

Action

1. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Damage to the wire harness or insulation
 - The correct parts are not installed
 - ECU connections are damaged or disconnected
 - Batteries not fully charged or contacts are not tight
 - Pump module (L074) broken or not installed correctly

Was there any evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, resistance, pump module (L074) heater element



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Measure the resistance as outlined in the corresponding checking data, "component check, pump module (L074)."

Are measured values within the expected range?

Yes

No

Correct any issues found, or replace the pump module (L074) if measured values are not correct.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If all steps have been completed and this trouble code is still present, contact the

If all steps have been completed and this trouble code is still present, contact the PACCAR Engine

PACCAR Engine Support Center for further assistance.

Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up

With the brakes set, start the engine and allow it to run at idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

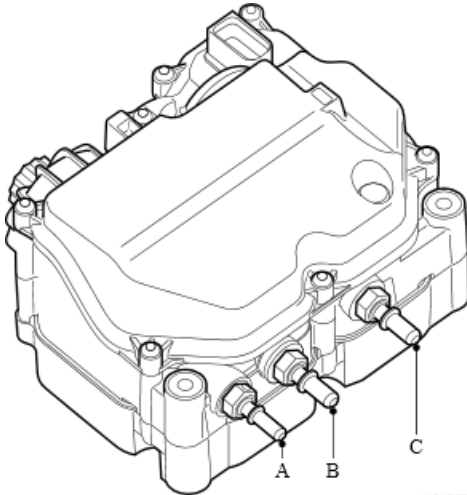
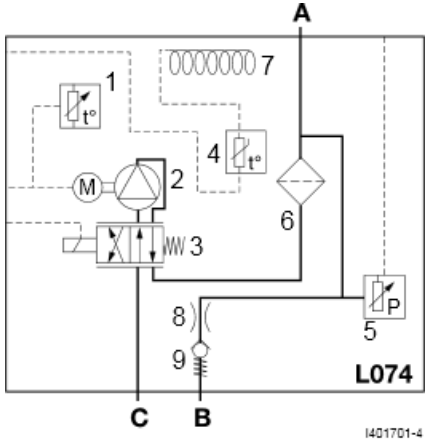
1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.”

A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.

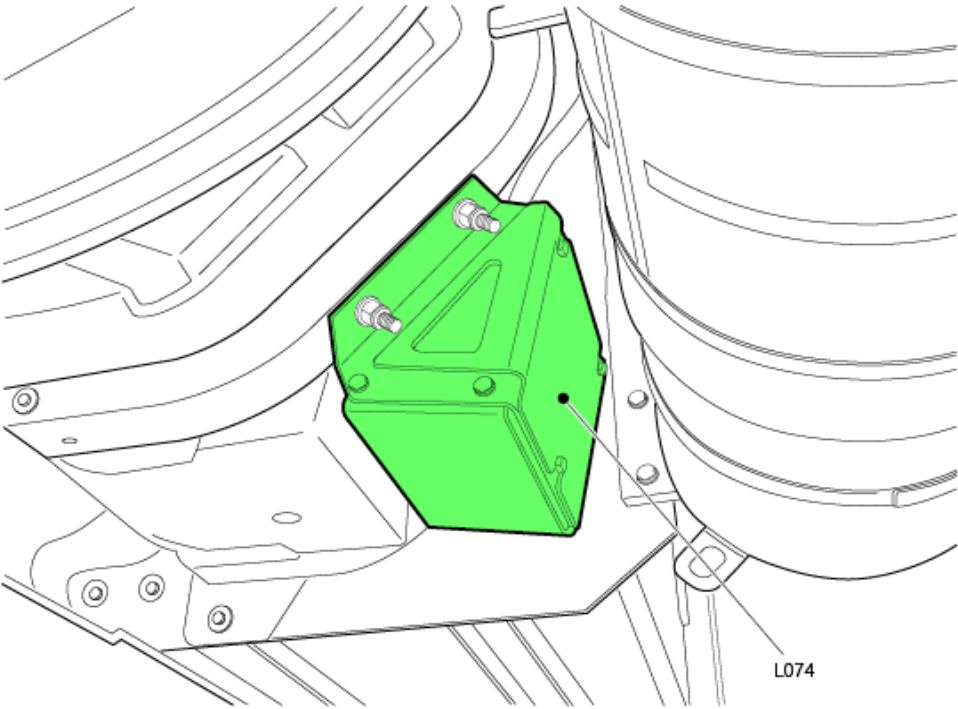
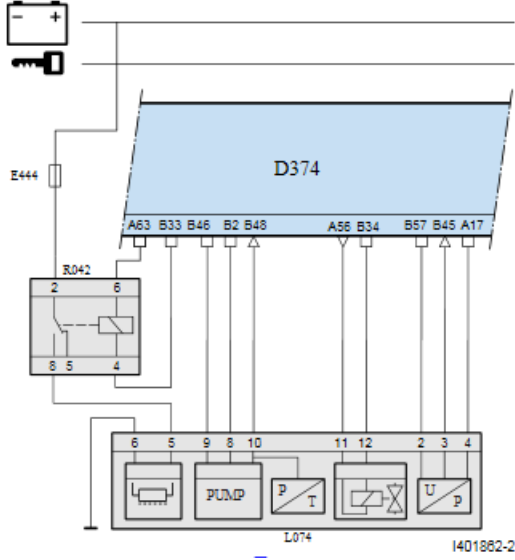
If the displayed status is “Not ready,” continue to action step 2.

	2. View the DTC overview display, and confirm that P3853 has been cleared.	
	Is the related OBD Monitor Readiness Status set to "Ready." Or, has P3853 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
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P3854

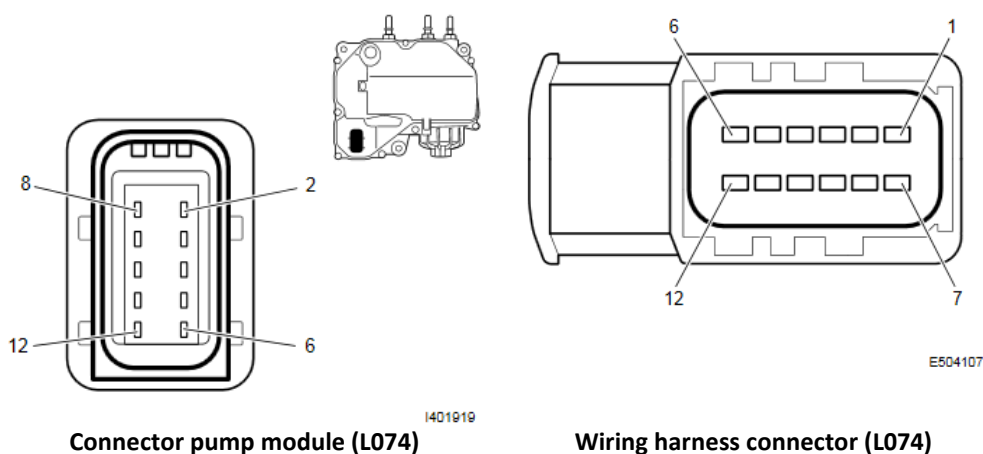
Code number	P3854
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group - None Freeze frame type - Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  I401607 The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  I401701-4 Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing

	valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs before the DEF dosing system is primed and the DEF pump heater must be commanded on.
Set condition of fault code	The EAS-3 ECU (D374) detects that the pump module (L074) temperature sensor value does not change and the pump module heater temperature switch does change while the heater is commanded on.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU

E444 Fuse, EAS 2nd
L074 Pump module
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground, heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.

- Measure on connector L074.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	4	4.75 - 5.25 V	

Component check, heater element

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
5	6	1.5 Ω $\pm$ 0.5 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Component check, reverting valve

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
11	12	6.75 Ω $\pm$ 2 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Possible causes

- Short circuit to ground in the pump module (L074) signal/pump module dosing unit temperature wire.
- Malfunctioning of the internal temperature sensor.

Additional information

The temperature sensor is part of the pump module (L074) and cannot be replaced separately.

Diagnostic Step-by-Step



The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Investigate Related DTCs

Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC.

Step 1A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are any of the following related DTCs active in combination with P3854?

P0072; P0073; P009A; U1070

Yes

No

Possible problem with OEM ambient temperature sensor. Go to the troubleshooting information for these DTCs before continuing with this procedure.

Go to step 2A

Step 2 Pump Module (L074) Checks

Step 2A Visual inspection, connections and wiring, pump module (L074)

Action

1. Visually inspect the associated component connections and wiring for any of the

following:

- Damaged or loose connectors
- Bent, broken, corroded or loose connector pins
- Moisture or dirt in the connections
- Damage to the wire harness or insulation
- The correct parts are not installed
- ECU connections are damaged or disconnected
- Battery not fully charged, contacts not tight
- Pump module (L074) is broken or not installed correctly
- Check for broken or leaking connection points (pressure line, return line, inlet line) on the DEF pump module.

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, resistance, pump module (L074) heater element



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Measure the resistance level as outlined in the corresponding checking data, "component check, pump module (L074)."

Are measured values within expected range?

Yes

No

Correct any issues found, or replace the pump module (L074) if measured values indicate an error.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2C

If this DTC is still present, go to step 2C

Step 2C Electrical checks, resistance, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch off the ignition.
2. Disconnect the DEF pump module from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU.
4. Measure resistance between pin 10 on the L074 connector and pin B48 on the EAS-3 ECU connector.

Is the measured value less than 10 Ω ?

Yes

No

An open circuit has been detected in the wiring harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2D

If this DTC is still present, go to step 2D

Step 2D Electrical checks, resistance, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch off the ignition.
2. Disconnect the DEF pump module from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU.
4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.

Is the measured value less than 10 Ω ?

Yes

No

An open circuit has been detected in the wiring harness. Correct any issues found, or

		contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2E		If this DTC is still present, go to step 2E
Step 2E Electrical checks, resistance, DEF pump wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch off the ignition. 2. Disconnect the DEF pump module from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU. 4. Measure resistance between pin B48 on the EAS-3 ECU connector and all other pins in the EAS-3 ECU connector.		
Is the measured value greater than 100k Ω ?		
Yes		No
		A pin-to-pin short circuit has been detected in the vehicle wiring harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2F		If this DTC is still present, go to step 2F
Step 2F Electrical checks, resistance, DEF pump wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch off the ignition. 2. Disconnect the DEF pump module from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU.		

4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k Ω ?

Yes

The EAS-3 ECU may have failed. Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

No

A short circuit to ground has been detected in the vehicle wiring harness. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to "Clear all" current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up.

With the brakes set, start the engine and allow it to run at idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready".

A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.

If the displayed status is "Not ready", continue to action step 2.

2. View the DTC overview display, and confirm that P3854 has been cleared.

Has P3854 been cleared?

Yes

Problem resolved. No further actions.

No

Continue with the next step in this troubleshooting procedure.

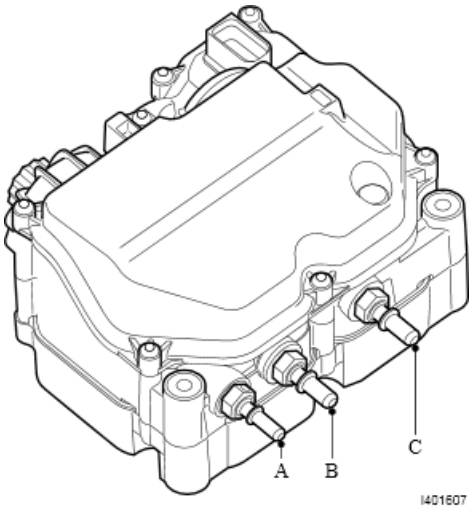
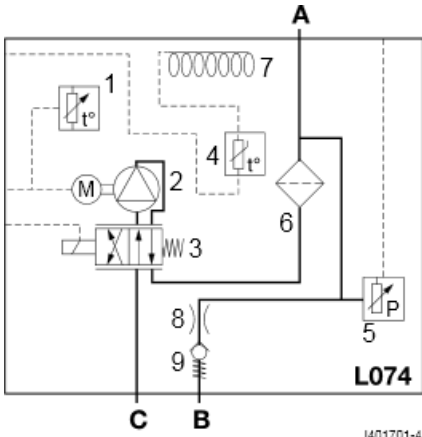
If all steps have been completed and this DTC is still present:

- continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete
- or, return to step 3A and perform this repair verification again.

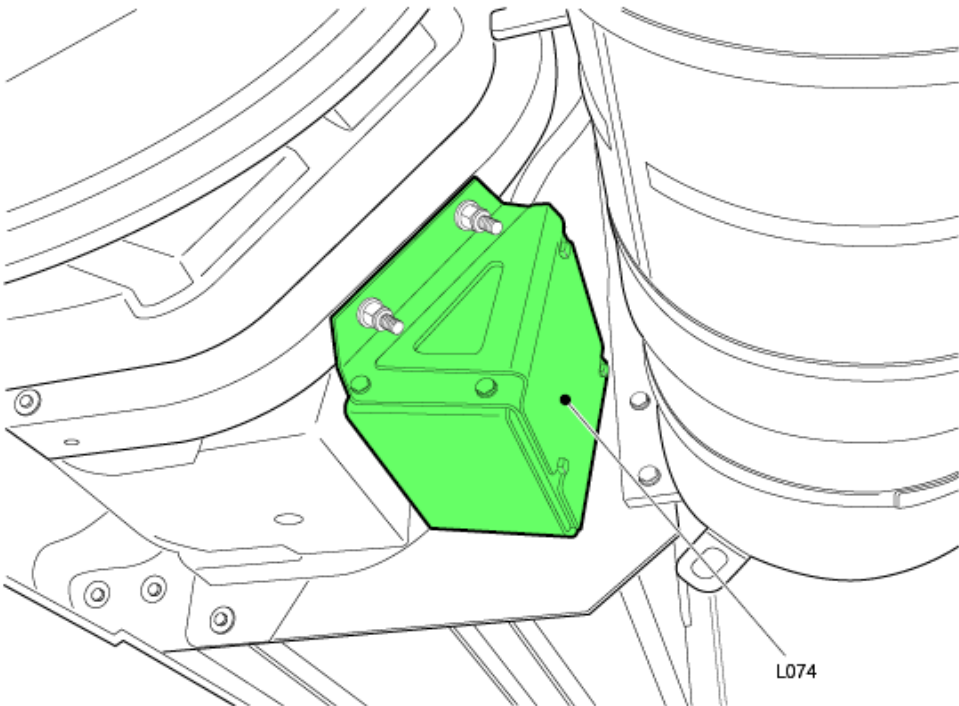
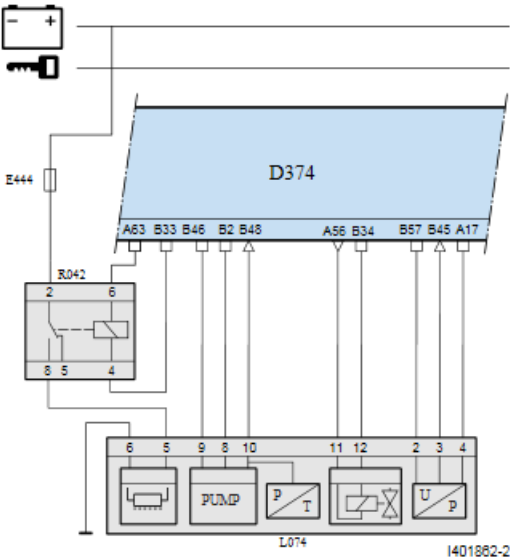
If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.

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P3855

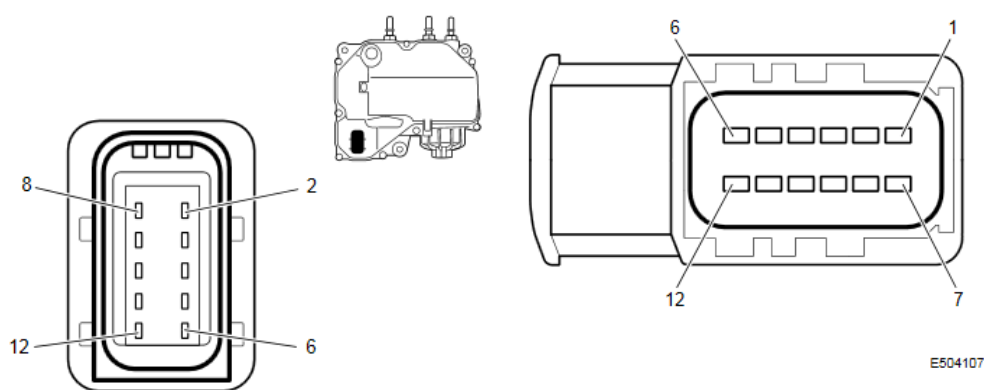
Code number	P3855
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle.

	• The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs before the DEF dosing system is primed and the DEF pump heater must be commanded on.
Set condition of fault code	The EAS-3 ECU (D374) detects that the pump module (L074) temperature sensor value does not change and the pump module heater temperature switch does change while the heater is commanded on.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	

D374 EAS-3 ECU
E444 Fuse, EAS 2nd
L074 Pump module
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data	Component and wiring check, DEF pressure sensor Preparation - Switch on the ignition. - Disconnect connector L074. - Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation - Switch off the ignition. - Disconnect connector L074. - Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
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Possible causes	- Short circuit to ground in the pump module (L074) signal/pump module dosing unit temperature wire. - Malfunctioning of the internal temperature sensor.																								
Additional information	The temperature sensor is part of the pump module (L074) and cannot be replaced separately.																								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.																								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Perform a key-cycle

Action

1. Switch the ignition to off for at least 15 seconds, then switch the ignition to on again.

Is P3855 active?

Yes

No

Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.

Go to step 2A

If this DTC is still present, go to step 2A

Step 2 DEF pump module (L074) Checks

Step 2A Visual inspection, DEF pump module

Action

1. Switch the ignition to off.
2. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors

- Bent, broken, corroded or loose connector pins
- Moisture or dirt in the connections
- Missing or damaged connector seals
- Damage to the wire harness or insulation
- The correct parts are not installed
- Damaged connector locking tab
- ECU connections are damaged or disconnected
- Batteries not fully charged or contacts are not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Electrical checks, resistance, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU.
4. Measure resistance between pin 10 on the L074 connector and pin B48 on the EAS-3 ECU connector.

Is the measured value less than 10 Ω ?

Yes

No

An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness.
Replace the vehicle harness.

		Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2C		If this DTC is still present, go to step 2C
Step 2C Electrical checks, resistance, DEF pump wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to OFF. 2. Disconnect the DEF pump module from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU. 4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.		
Is the measured value less than 10 Ω?		
Yes		No
		An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2D		If this DTC is still present, go to step 2D
Step 2D Electrical checks, resistance, DEF pump wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to OFF. 2. Disconnect the DEF pump module from the vehicle wiring harness.		

3. Disconnect the vehicle wiring harness from the EAS-3 ECU.
4. Measure resistance between pin B48 on the EAS-3 ECU connector and all other pins in the EAS-3 ECU connector.

Is the measured value greater than 100k Ω ?

Yes

No

A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2E

If this DTC is still present, go to step 2E

Step 2E Electrical checks, resistance, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to OFF.
2. Disconnect the DEF pump module from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU.
4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k Ω ?

Yes

No

Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU. Upon authorization, replace the EAS-3 ECU

A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up

With the brakes set, start the engine and allow it to idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Go to step 3B

Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

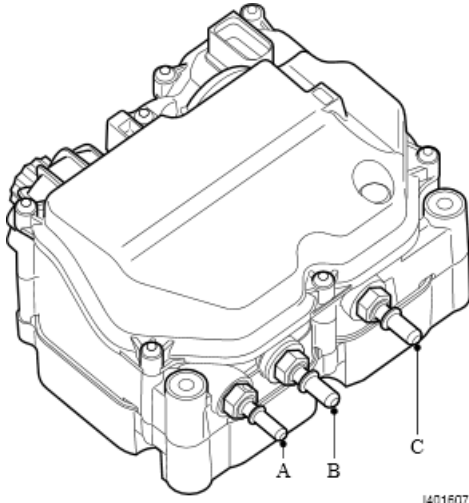
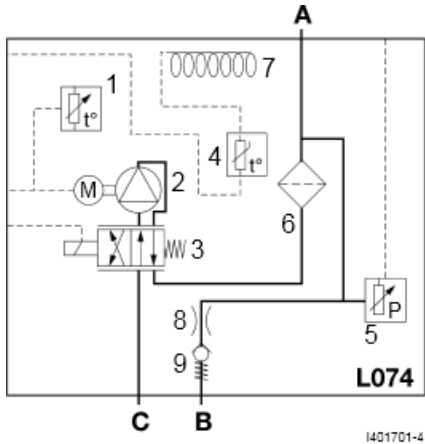
Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.”

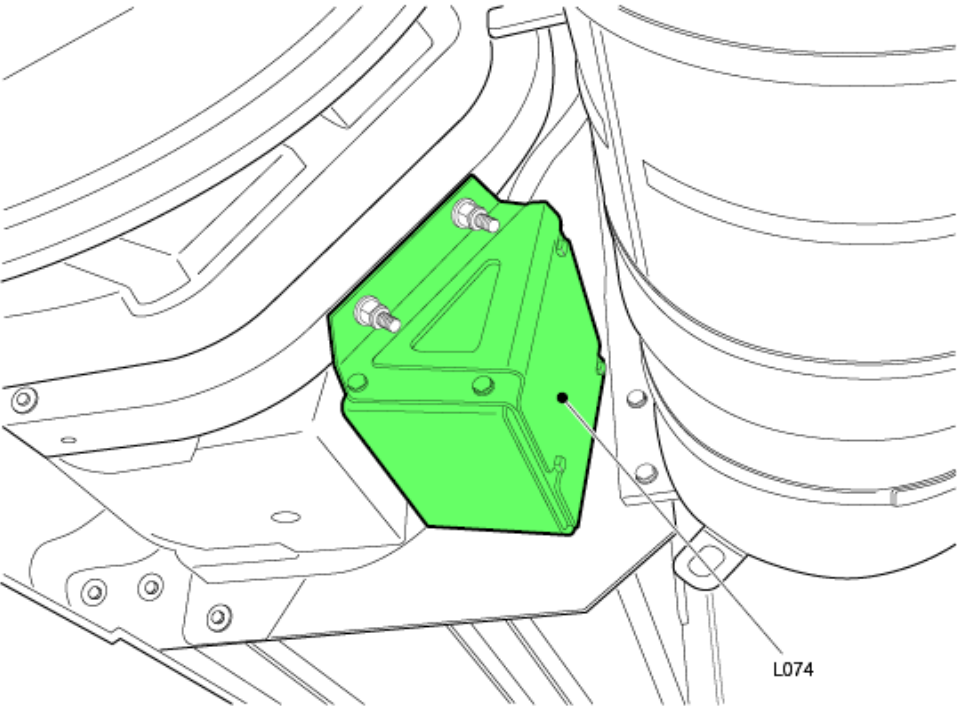
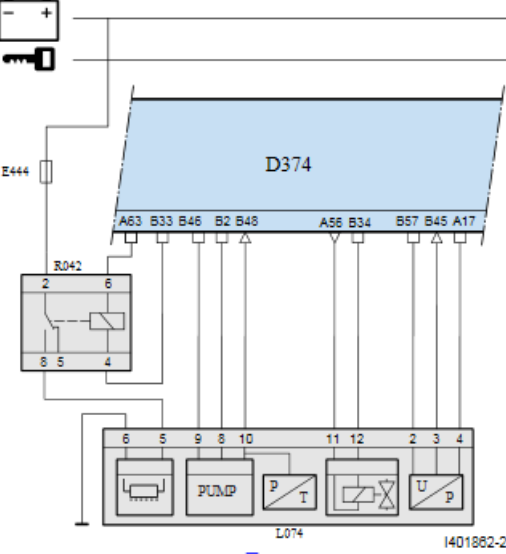
A status of Ready indicates that the corresponding OBD monitor has run successfully and

	the problem has been resolved—no further action. If the displayed status is “Not ready,” continue to action step 2. 2. View the DTC overview display, and confirm that P3855 has been cleared.	
	Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3855 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
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P3856

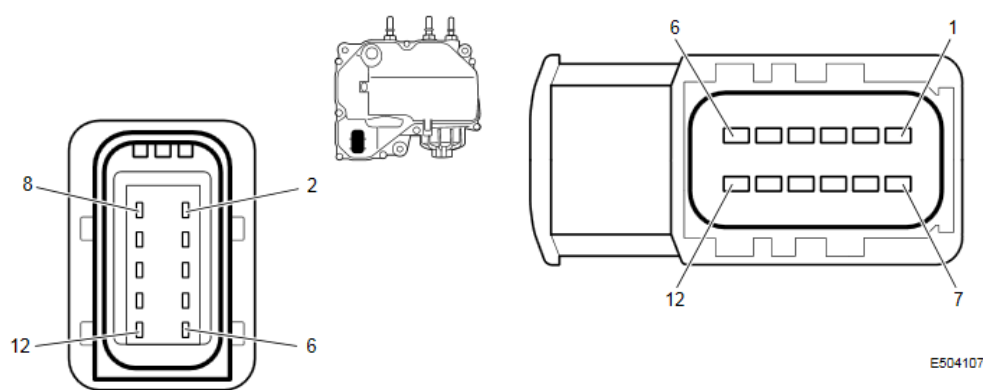
Code number	P3856
Fault code description	DEF pressure - Data valid but too high.
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF

	dosing valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This diagnostic runs when the pump module (L074) is in the priming or dosing state.
Set condition of fault code	The EAS-3 ECU (D374) detects that the DEF pressure in the pump module (L074) is above 1100 kPa [160 psi] for more than 20 seconds.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module

R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



I401919

E504107

Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Key on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	4	4.75 - 5.25 V	

Component check, heater element

Preparation

- Key off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
5	6	1.5 Ω $\pm$ 0.5 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Component check, reverting valve

Preparation

- Key off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
11	12	6.75 Ω $\pm$ 2 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Possible causes

- Blocked, restricted or frozen pump module (L074) return pipe.
- Malfunctioning pump module (L074).

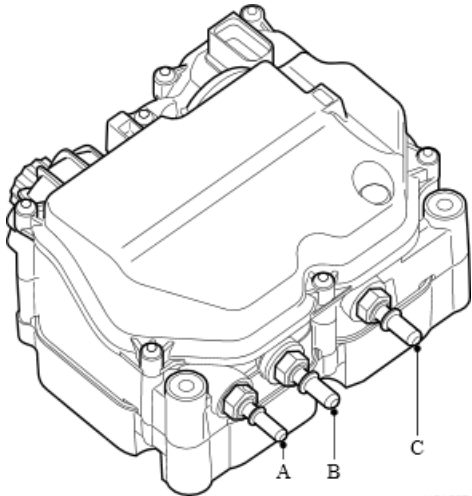
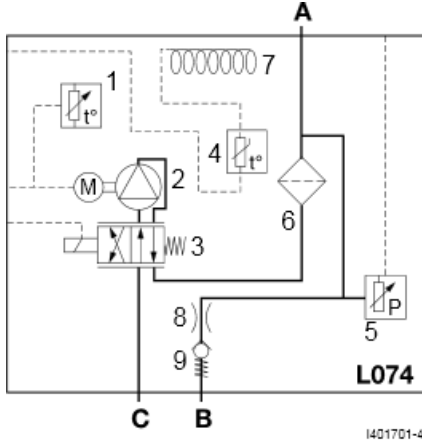
Additional information

- The DEF pressure sensor is located in the pump module (L074).
- DEF dosing is disabled.
- After 1 hour of engine operation or 50 miles with P3856 active, P1518 becomes active (25% torque derate).
- After 4 hours of engine operation or 200 miles with P3856 active, P1518 stays active (40% torque derate).
- After 4 hours of engine operation or 200 miles with P3856 active, P151A becomes active

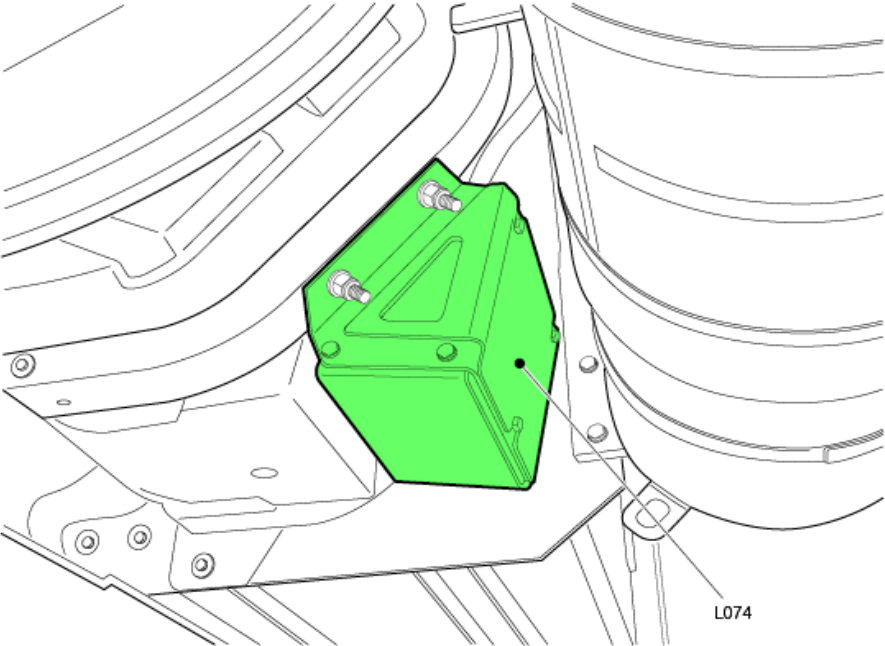
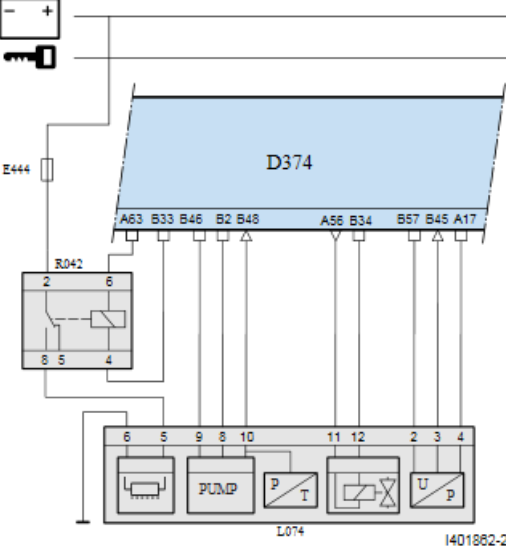
	(5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ vehicle has been stationary for 1 hour.																								
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3856a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3856b</td><td>SRT</td></tr><tr><td colspan="3">Disconnect the DEF supply and return lines at both ends, then use shop air with a nozzle to check for leaks or blockage. Was there evidence of a leak or blockage? • No: Proceed to step 4 • Yes: Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3856c</td><td>SRT</td></tr><tr><td colspan="3">Repair or replace appropriate component and use Davie to recheck for the presence of active faults. • Fault inactive – Issue Resolved • Fault active - Proceed to step 5 </td></tr></table> <table><tr><td>Step 4</td><td>Step ID 3856d</td><td>SRT</td></tr><tr><td colspan="3">Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow(Urea, Dose, Override, Test, Dosing, Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Proceed to step 5 • Yes: Proceed to step 6 </td></tr></table>	Step 1	Step ID 3856a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3856b	SRT	Disconnect the DEF supply and return lines at both ends, then use shop air with a nozzle to check for leaks or blockage. Was there evidence of a leak or blockage? • No: Proceed to step 4 • Yes: Proceed to step 3			Step 3	Step ID 3856c	SRT	Repair or replace appropriate component and use Davie to recheck for the presence of active faults. • Fault inactive – Issue Resolved • Fault active - Proceed to step 5			Step 4	Step ID 3856d	SRT	Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. After more than 30 seconds of engine idle, run the DEF Pump Module Override test to check for proper DEF flow(Urea, Dose, Override, Test, Dosing, Volume). Does the test fail to complete or result in a failed state (the dosing volume reported by DAVIE does not match the amount deposited in the bucket)? • No: Proceed to step 5 • Yes: Proceed to step 6		
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	Step 5	Step ID 3856e	SRT	
	Repair or replace appropriate component and use Davie to recheck for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 6			
	Step 6	Step ID 3856f	SRT	
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.			
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.			
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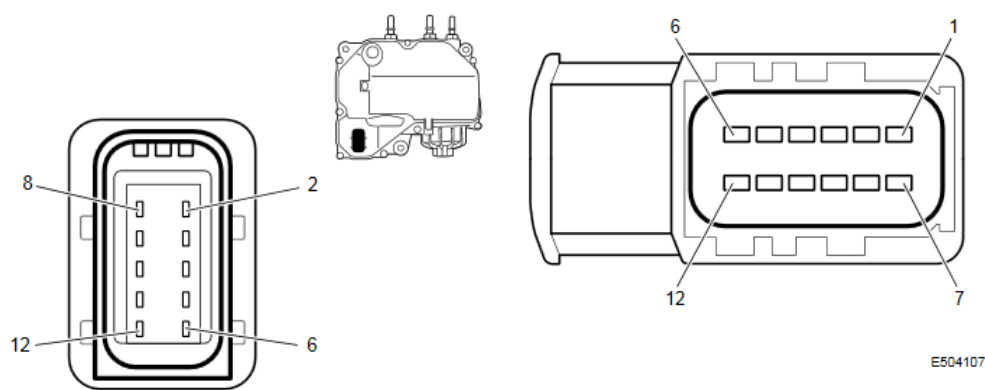
P3857

Code number	P3857
Fault code description	DEF pressure – Data valid but too low
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF

	dosing valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	 The diagram shows a green pump module (L074) mounted within the vehicle's chassis structure. A leader line points from the label 'L074' to the component.
Diagnostic condition	This diagnostic runs when the pump module (L074) is in the priming or dosing state.
Set condition of fault code	The EAS-3 ECU (D374) detects that the pump module (L074) pressure is below 7 bar [100 psi] for more than 200 seconds per event.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 The electrical diagram illustrates the wiring for the pump module (L074) and its associated components. At the top, a battery symbol is connected to a fuse labeled 'E444'. Below the fuse, a pump heater relay labeled 'R042' is shown with terminals 2, 6, 8, and 4. The EAS-3 ECU, labeled 'D374', has two rows of terminals: the top row (A63, B33, B46, B2, B48) and the bottom row (A56, B34, B57, B45, A17). The pump module (L074) has a terminal block with terminals 6, 5, 9, 8, 10, 11, 12, 2, 3, and 4. Wires connect the ECU terminals to the pump module terminals: ECU A63 to L074 6, ECU B33 to L074 5, ECU B46 to L074 9, ECU B2 to L074 8, ECU B48 to L074 10, ECU A56 to L074 11, ECU B34 to L074 12, ECU B57 to L074 2, ECU B45 to L074 3, and ECU A17 to L074 4. The pump module contains a 'PUMP' unit, a pressure sensor 'P', a temperature sensor 'T', and a solenoid 'U'. The diagram is identified by the code 'I401862-2'. D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

Pin (+ probe)	Pin (- probe)	Value	Condition
2	4	4.75 - 5.25 V	

Component check, heater element

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
5	6	1.5 Ω $\pm$ 0.5 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Component check, reverting valve

Preparation

- Switch off the ignition.
- Disconnect connector L074.
- Measure on the pump module (L074).

Pin (+ probe)	Pin (- probe)	Value	Condition
11	12	6.75 Ω $\pm$ 2 Ω	Cold resistance at 23°C $\pm$ 5°C [73°F $\pm$ 9°F]

Possible causes

- Blocked or restricted pump module (L074) inlet pipe.
- Blocked or restricted DEF dosing valve (L123) pressure pipe.
- Blocked or restricted DEF filter.
- Malfunctioning pump module (L074).

Additional information

- The DEF pressure sensor is located in the pump module (L074).
- DEF dosing is disabled.
- After 1 hour of engine operation or 50 miles with P3857 active, P1518 becomes active (25% torque derate).
- After 4 hours of engine operation or 200 miles with P3857 active, P1518 stays active (40% torque derate).
- After 4 hours of engine operation or 200 miles with P3857 active, P151A becomes active (5 MPH vehicle speed limit) after a:
 - key cycle, or
 - vehicle re-fuel (fuel tank volume increase > 16%), or
 - vehicle has been stationary for 1 hour.

Diagnostic Step-by-Step



The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Investigate Related DTCs

Step 1A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are these or any other related DTCs active?

P3938

Yes

No

Refer to the troubleshooting information for these DTCs before continuing with this procedure.

Go to step 2A

Step 2 DEF Tank Check

Step 2A Special test, DEF tank level check

Action

1. Switch the ignition to OFF.
2. Use DAVIE to check the DEF tank level and compare this value to the DEF gauge on the dashboard.

Is the DEF tank low or empty?

Yes

No

Fill the DEF tank.
Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B Visual inspection, DEF fluid quality

Action

1. Switch the ignition to OFF.
2. Check the DEF tank for debris or foreign particles.
3. Remove the sending unit from the DEF tank.
4. Inspect the DEF tank filter for signs of blockage or build-up.

Debris or foreign particles found in the DEF tank or DEF filter?

Yes

No

Clean the DEF tank thoroughly and replace the DEF filter. Inspect and clean the DEF pump module's (L074) inlet filter. Go to step 3D and perform the flushing procedure. When finished, refill the DEF tank with certified diesel exhaust fluid. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 3A

Go to step 3A

Step 3 DEF Pump Module (L074) Checks

Step 3A Visual inspection, DEF pump module (L074)

Action

1. Visually inspect the associated component connections and wiring for any of the

	following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Damage to the wire harness or insulation • The correct parts are not installed • ECU connections are damaged or disconnected • Batteries not fully charged, contacts are not tight • Check for broken or leaking connection points (pressure line, return line, inlet line) on the DEF pump module (L074).	
	Was there evidence of any of the above?	
	Yes	No
	Correct any issues found. Replace any connection fittings that are broken, leaking, or blocked. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3B	Go to step 3B
	Step 3B Visual checks, fittings and hoses, DEF fluid system	
	Action There are three diesel exhaust fluid lines on the SCR dosing system: • Dosing unit supply line between the tank and the dosing unit (suction line) • Dosing valve supply line between the dosing unit and the dosing valve (pressure line) • Return line between the dosing unit and the tank (return line) 1. Inspect all three diesel exhaust fluid lines and associated fittings/connectors: • Check the diesel exhaust fluid tank connections (suction and return lines) for cracks and pitting. • Check all three dosing unit connections and fittings for loose, leaking, or	

	damaged connections. • Disconnect the suction line, pressure line, and return line dosing unit connectors and look for signs of buildup or blockage. • Check the suction line for signs of leakage or openings which would allow the dosing unit to suck in air with the diesel exhaust fluid. • Verify proper sealing at all connection points, including diesel exhaust fluid tank (2 connections), dosing unit (3 connections), and dosing valve (1 connection). Were any damaged, leaking, or restricted lines or connections found? <table> <tr> <th>Yes</th><th>No</th></tr> <tr> <td> Replace leaking DEF lines or fittings as necessary. If blocked, try to clean the line or fitting using shop air. Replace the DEF pump module (L074) as necessary. Refer to step 4A to perform the corresponding repair verification cycles and rechecks. </td><td></td></tr> <tr> <td>If this DTC is still present, go to step 3C</td><td>Go to step 3C</td></tr> </table> Step 3C DAVIE test, DEF pump module (L074) override ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED. However, if aborting a test is required, a key cycle must be performed to reset the engine ECM. Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle. Action 1. Remove the dosing nozzle and place it over a bucket with a capacity greater than 1.5 liters. 2. Run the engine at idle for more than 30 seconds 3. Use DAVIE to perform a DEF pump module override test as described in the maintenance procedure, "<u>test DEF dosing valve (Exhaust System(SCR))</u>", job code: J 1179 439605 033 000.	Yes	No	Replace leaking DEF lines or fittings as necessary. If blocked, try to clean the line or fitting using shop air. Replace the DEF pump module (L074) as necessary. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.		If this DTC is still present, go to step 3C	Go to step 3C
Yes	No						
Replace leaking DEF lines or fittings as necessary. If blocked, try to clean the line or fitting using shop air. Replace the DEF pump module (L074) as necessary. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.							
If this DTC is still present, go to step 3C	Go to step 3C						

Did the test fail to complete or result in a failed state?	
Yes	No
Clean or change the DEF tank filter. Drain, clean, and refill the DEF tank with certified diesel exhaust fluid. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
If this DTC is still present, go to step 3D	Go to step 3D

Step 3D DAVIE test, DEF dosing valve (L123) airless flush	
 ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED. However, if aborting a test is required, a key cycle must be performed to reset the engine ECM. Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle.	
Action 1. Remove the DEF dosing valve (L123) from the exhaust system. 2. Remove the suction line from the DEF tank and place into a bucket containing at least one gallon of distilled water. 3. Flush the aftertreatment DEF dosing unit with clean water. Use DAVIE to perform a DEF pump module override test as described in the maintenance procedure, "<u>test DEF dosing valve (Exhaust System(SCR))</u>", job code: J 1179 439605 033 000.	
Did the test fail to complete or result in a failed state?	
Yes	No
Replace the DEF dosing valve (L123) or the DEF pump module (L074) as necessary. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 4 Repair Verification

Step 4A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Steady State

Drive the vehicle under steady state conditions and monitor the SCR system with DAVIE. Make sure that the DEF system injects DEF.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 4B

Go to step 4B

Step 4B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

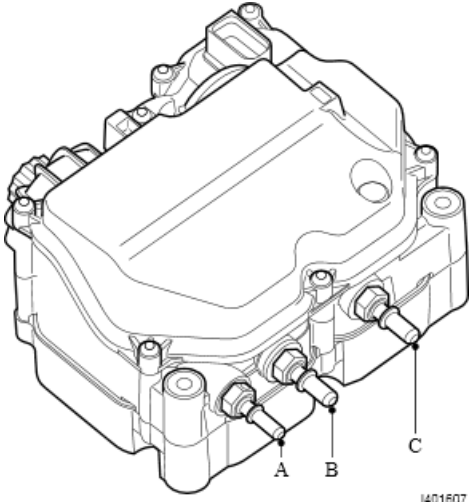
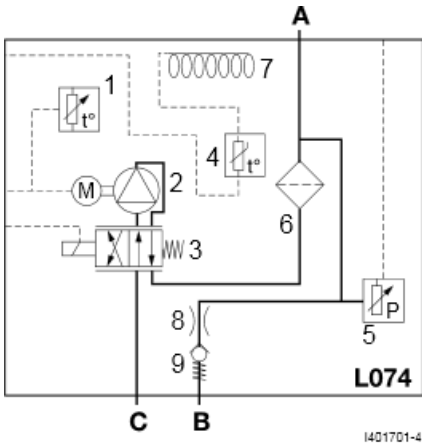
Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.”

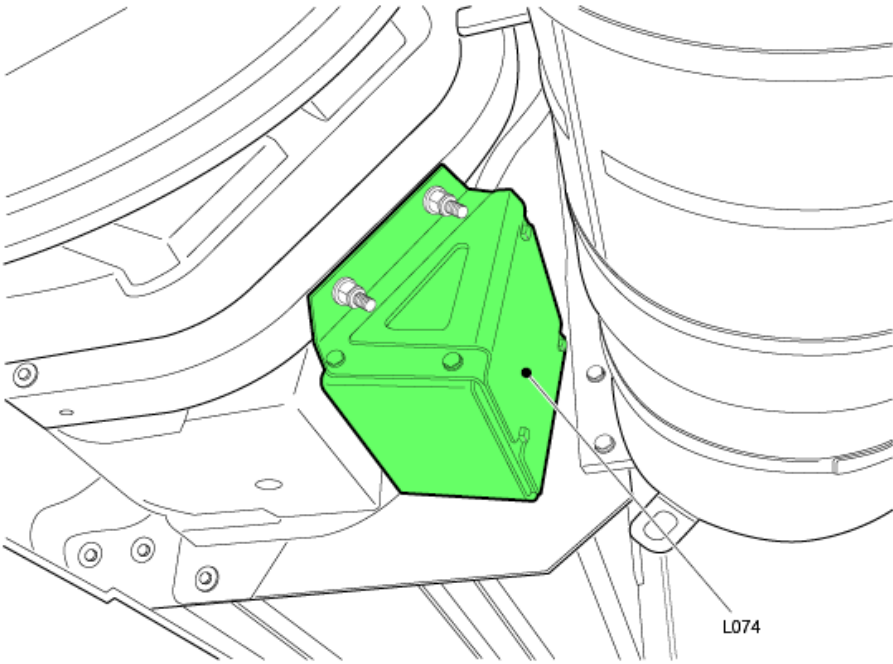
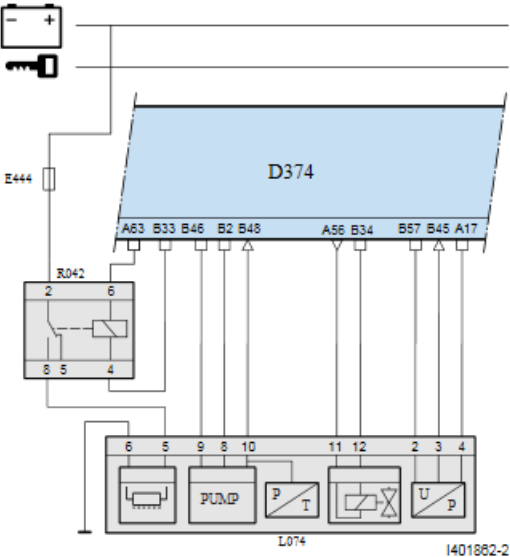
A status of Ready indicates that the corresponding OBD monitor has run

	successfully and the problem has been resolved—no further action. If the displayed status is “Not ready,” continue to action step 2. 2. View the DTC overview display, and confirm that P3857 has been cleared.	
	Is the related OBD Monitor Readiness Status set to “Ready.” Or has P3857 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 4A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
	Back to Index	

P3858

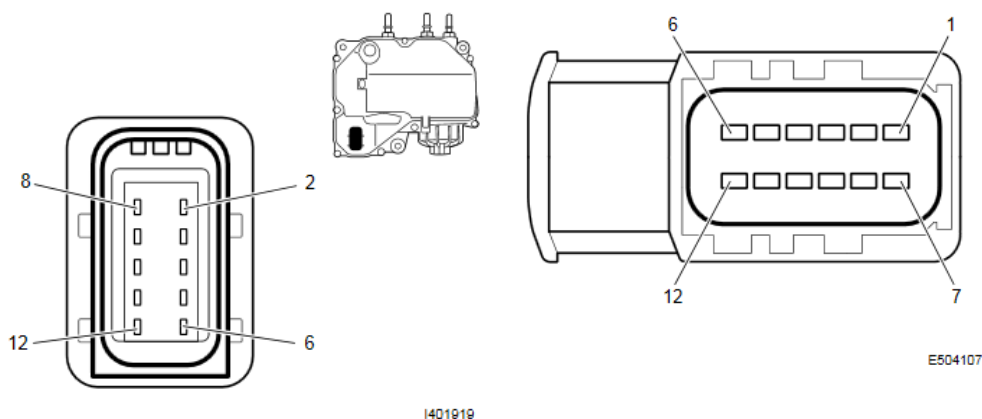
Code number	P3858
Fault code description	Pump module – Pressure stabilization failed
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing

	valve. • The DEF pump is controlled with a duty cycle. • The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	 The diagram shows a green pump module (L074) mounted on the chassis of a vehicle. A leader line points to the module with the label L074.
Diagnostic condition	This diagnostic runs when the pump module (L074) is in the priming or dosing state.
Set condition of fault code	• The pump module (L074) is unable to maintain DEF pressure between 7 bar [100 psi] and 11 bar [160 psi]. • If the combined duration below 7 bar [100 psi] and/or above 11 bar [160 psi] exceeds 240 seconds, the DTC is set.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 The diagram shows the electrical connections between the EAS-3 ECU (D374) and the pump module (L074). The ECU is represented by a blue rectangle with pins A63, B33, B46, B2, B48, A56, B34, B57, B45, and A17. The pump module (L074) is shown at the bottom with various components including a PUMP, a pressure sensor (P/T), and a solenoid (U/p). A fuse E444 is connected to the ECU. A relay R042 is also shown in the circuit. The diagram is labeled I401882-2. D374 EAS-3 ECU E444 Fuse, EAS 2nd

L074 Pump module
R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V	
	Pin (+ probe)	Pin (- probe)	Value	Condition					
	2	4	4.75 - 5.25 V						
	Component check, heater element								
	Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074).								
<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Condition						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Component check, reverting valve									
Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074).									
	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Condition						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Possible causes	• Leaking DEF pump module (L074) inlet, return or pressure pipe. • Malfunctioning pump module (L074).								
Additional information	• After 1 hour of engine operation or 50 miles with P3858 active, P1518 becomes active (25% torque derate). • After 4 hours of engine operation or 200 miles with P3858 active, P1518 stays active (40% torque derate). • After 4 hours of engine operation or 200 miles with P3858 active, P151A becomes active (5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ vehicle has been stationary for 1 hour.								
Diagnostic Step-by-Step	The ignition should always be in the off position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Investigate Related DTCs

Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC.

Step 1A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are any of the following related DTCs active in combination with P3858?

P3847; P3848

Yes

No

Possible problem with vehicle wiring harness or DEF pump module (L074). Refer to the troubleshooting information for these DTCs before continuing with this procedure.

Go to step 2A

Step 2 DEF Pump Module (L074) Tests

Step 2A DAVIE test, Check the DEF pump module pressure and DEF output



ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED.

However, if aborting a test is required, a key cycle must be performed to reset the engine ECM.

Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle.

Action

1. Remove the dosing nozzle and place it in a bucket with a capacity greater than 1.5 liters.
2. Idle the engine for at least 30 seconds
3. Use DAVIE to perform a DEF pump module override test as described in the maintenance procedure, "test DEF dosing valve (Exhaust System (SRC))", job code J 1179 439605 033 000.

Does the test fail to complete or result in a failed state?

Yes

No

Correct any issues found. Replace the DEF dosing valve (L123) if test results indicate a mechanical failure.
Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 2B

Go to step 2B

Step 2B DAVIE test, Prime the system with the DEF pump



ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED.

However, if aborting a test is required, a key cycle must be performed to reset the engine ECM.

Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle.

Action

1. Use DAVIE to perform a DEF pump module prime test as described in the maintenance procedure, "test DEF dosing valve (Exhaust System (SRC))", job code J 1179 439605 033 000.

Does the test fail to complete or result in a failed state?

Yes

No

	Correct any issues found. Replace the DEF pump module (L074) if test results indicate a mechanical failure. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3A	Go to step 3A
Step 3 DEF Pump Module (L074) Checks		
Step 3A Visual checks, fittings and hoses, DEF fluid system		
Action There are three diesel exhaust fluid lines on the SCR dosing system: • Dosing unit supply line between the tank and the dosing unit (suction line) • Dosing valve supply line between the dosing unit and the dosing valve (pressure line) • Return line between the dosing unit and the tank (return line) 2. Inspect all three diesel exhaust fluid lines and associated fittings/connectors: • Check the diesel exhaust fluid tank connections (suction and return lines) for cracks and pitting. • Check all three dosing unit connections and fittings for loose, leaking, or damaged connections. • Disconnect the suction line, pressure line, and return line dosing unit connectors and look for signs of buildup or blockage. • Check the suction line for signs of leakage or openings which would allow the dosing unit to suck in air with the diesel exhaust fluid. • Verify proper sealing at all connection points, including diesel exhaust fluid tank (2 connections), dosing unit (3 connections), and dosing valve (1 connection).		
Were any damaged, leaking, or restricted connections found?		
Yes	No	
Repair or replace the leaking DEF line or fitting as necessary or replace the DEF pump module as necessary. Refer to vehicle service manual. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.		
If this DTC is still present, go to step 3B	Go to step 3B	

Step 3B Visual check, DEF suction line

Action

1. Switch off the ignition.
2. Disconnect the DEF supply line from the DEF pump module inlet connection (this is the suction line between the pump module and DEF tank).
3. Disconnect the DEF supply line from the vehicle's DEF tank.
4. Check the DEF supply line for blockage:
 - Visually check both ends of the supply line for signs of build-up or blockage.
 - Blow compressed shop air through the supply line to ensure free flow.

Is the DEF supply line blocked or restricted?

Yes

No

Try to clean the dosing unit supply line using shop air. If necessary, replace the DEF supply line. Refer to vehicle service manual. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.

If this DTC is still present, go to step 3C

Go to step 3C

Step 3C Visual check, DEF return line

Action

1. Switch off the ignition.
2. Disconnect the DEF return line from the DEF pump module return connection (this is the return line between the pump module and DEF tank).
3. Disconnect the DEF return line from the vehicle's DEF tank.
4. Check the DEF return line for blockage:
 - Visually check both ends of the return line for signs of build-up or blockage.
 - Blow compressed shop air through the return line to ensure free flow.

Is the DEF return line blocked or restricted?

Yes

No

Try to clean the dosing unit return line using shop air. If necessary, replace the DEF return line. Refer to vehicle service manual.

	Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3D	Go to step 3D
	Step 3D Visual check, DEF supply line and return line fittings	
	Action	
	1. Switch off the ignition. 2. Remove DEF supply line and return line fittings. 3. Visually check fittings for signs of build-up or blockage.	
	Is any fitting blocked or restricted?	
	Yes	No
	Try to clean fittings using shop air. If necessary, replace the DEF line fittings. Refer to vehicle service manual. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
	If this DTC is still present, go to step 3E	Go to step 3E
	Step 3E Visual check, DEF tank filter	
	Action	
	1. Switch off the ignition. 2. Remove the sending unit from the vehicle's DEF tank. 3. Inspect the DEF tank filter for signs of blockage or build-up.	
	Is the DEF filter blocked or show signs of build-up?	
	Yes	No
	Clean or replace the DEF tank filter. Refer to the vehicle service manual. Refer to step 4A to perform the corresponding repair verification cycles and rechecks.	
		If all steps have been completed and this DTC is still present, contact the PACCAR Engine

Support Center for further assistance.

Step 4 Repair Verification

Step 4A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to clear all current DTCs from the PCI and EAS-3 ECUs.

Action

1. Drive the vehicle under steady state conditions and monitor the SCR system with DAVIE. Make sure that the DEF system injects DEF.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 4B

Go to step 4B

Step 4B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

Action

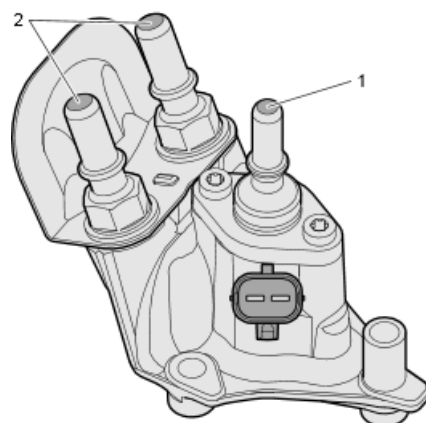
Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.

1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as "Ready".
A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action.

If the displayed status is "Not ready", continue to action step 2.
2. View the DTC overview display, and confirm that P3858 has been cleared.

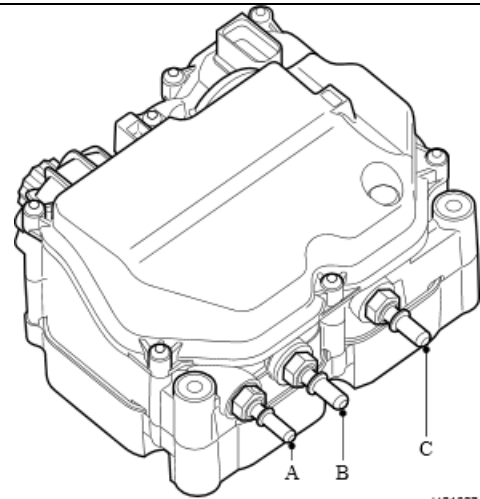
	Has P3858 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 4A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
	Back to Index	

P3859

Code number	P3859
Fault code description	DEF dosing valve - Not responding or out of adjustment
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	DEF dosing valve (L123) The DEF dosing valve doses DEF into the exhaust system before the SCR catalyst. • The DEF valve is actuated by a PWM signal. • The longer the solenoid is activated, the more DEF is injected. • The dosing valve is connected to the engine cooling system to limit the temperature.  1 DEF supply 2 Coolant supply and return Effect on the system • Dosing DEF into the exhaust system. DEF pump module (L074)

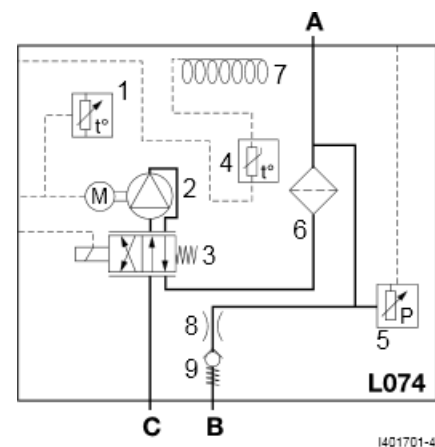
Connection points:

- DEF pressure line (A)
- DEF return line (B)
- DEF inlet line (C)



The following components are mounted inside the pump module:

- Temperature sensor (1)
- DEF pump motor (2)
- Reverting valve (3)
- Temperature sensor, heater element (4)
- DEF pressure sensor (5)
- DEF filter (6)
- Heater element, pump module (7)
- Orifice (8)
- Check valve (9)



Temperature sensor

- The temperature sensor measures the temperature inside the pump module (L074).
- The temperature signal is used to determine whether the pump module must be started or heated.

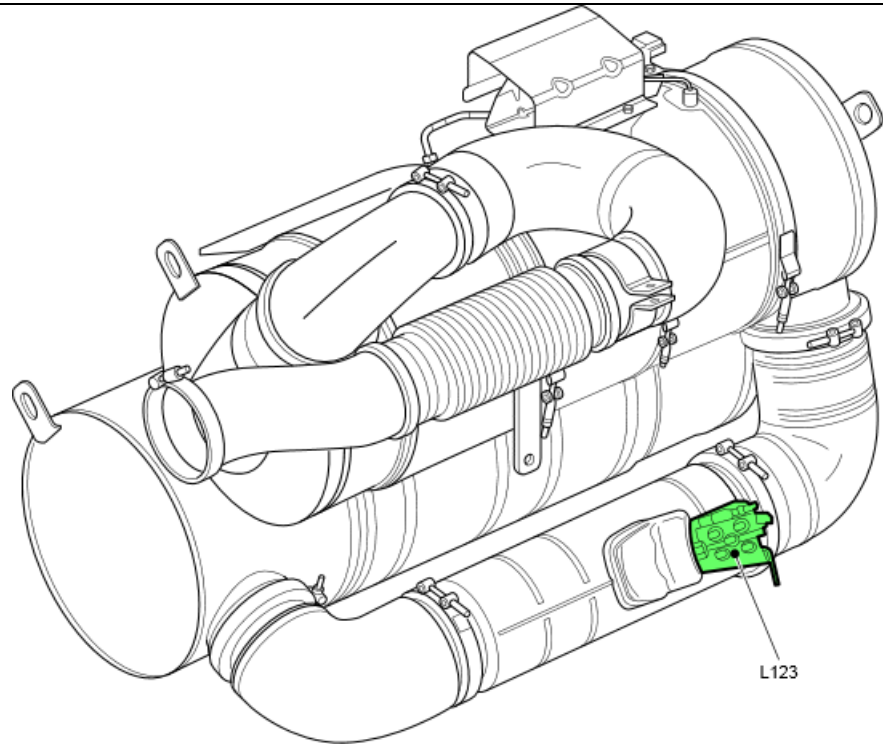
DEF pump motor

- The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve.
- The DEF pump is controlled with a duty cycle.
- The pump speed depends on the quantity of DEF to be injected.
- The DEF pressure does not depend on the quantity of DEF to inject.

Reverting valve

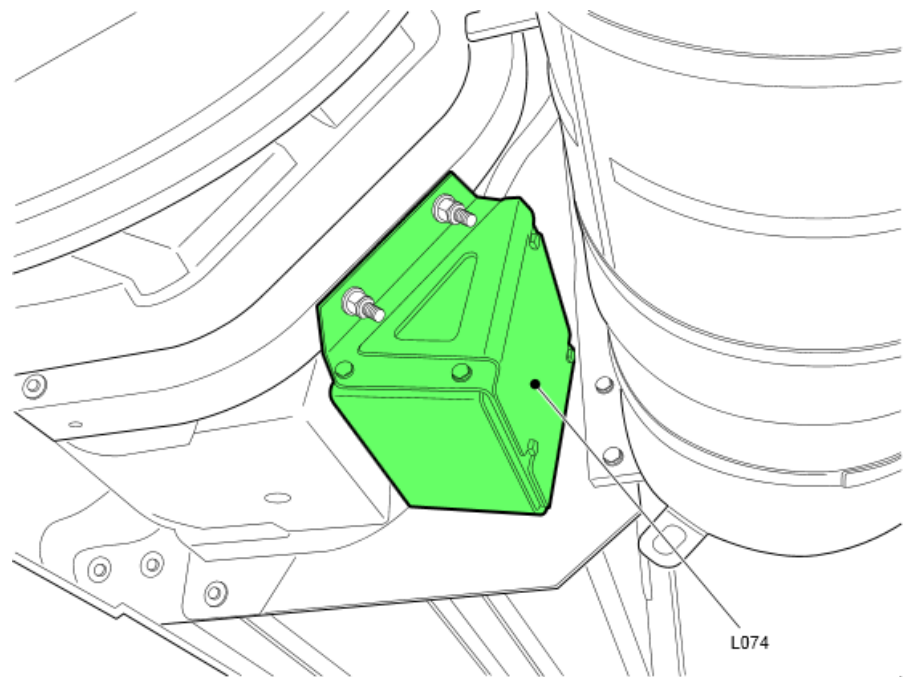
- This valve is engaged during the purge cycle.
- The DEF inside the inlet line and pressure line is pumped back into the DEF tank.

	Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.
Location of component(s)	DEF dosing valve (L123)



I402133

DEF pump module (L074)



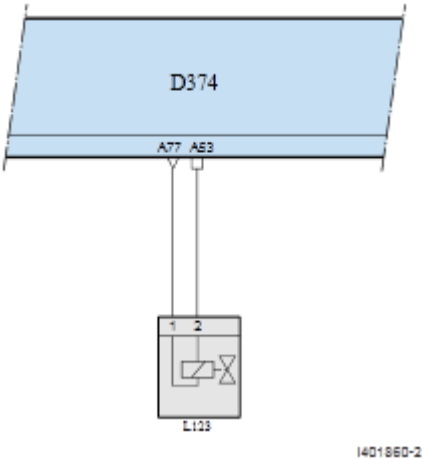
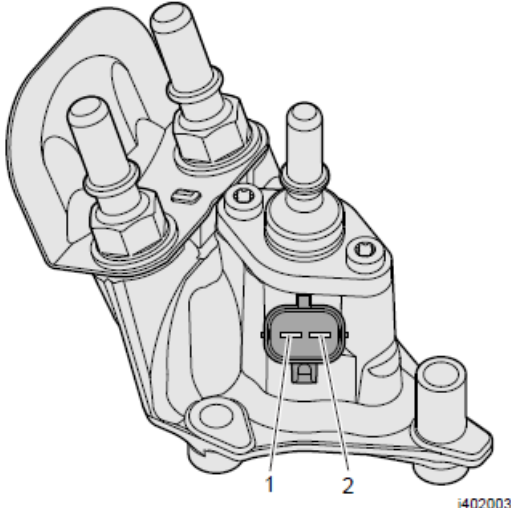
I402235

Diagnostic condition

This diagnostic runs when the DEF dosing valve (L123) is activated.

Set condition of fault code

While DEF dosing is active, the pump pressure and DEF dosing valve (L123) duty cycle will be frozen. The pressure drop will be monitored.

	If the pressure drop is less than 0.3 bar [5 psi], the DEF dosing valve (L123) is expected to be stuck open or stuck closed.									
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.									
Electrical diagram(s)	 L123 DEF dosing valve <table><thead><tr><th>D374</th><th>L123</th><th>Function</th></tr></thead><tbody><tr><td>A77</td><td>1</td><td>Signal, DEF dosing valve</td></tr><tr><td>A53</td><td>2</td><td>Ground, DEF dosing valve</td></tr></tbody></table>  DEF dosing valve (L123)  Handle connectors and pins with care and use matching measuring probes.	D374	L123	Function	A77	1	Signal, DEF dosing valve	A53	2	Ground, DEF dosing valve
D374	L123	Function								
A77	1	Signal, DEF dosing valve								
A53	2	Ground, DEF dosing valve								
Technical data	Component check, DEF dosing valve (L123)									

	Preparation • Switch off the ignition. • Remove connector L123. • Measure on the DEF dosing valve L123. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>1</td><td>2</td><td>11–13 Ω</td><td>At 20°C</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	1	2	11–13 Ω	At 20°C
Pin (+ probe)	Pin (- probe)	Value	Additional information						
1	2	11–13 Ω	At 20°C						
Possible causes	• Temporary crystallization on the DEF dosing valve (L123) • Blocked pressure pipe to the dosing valve (L123) • Malfunctioning pump module (L074)								
Additional information	• DEF injection is disabled • After 1 hour of engine operation or 50 miles with P3859 active, P1518 becomes active (25% torque derate). • After 4 hours of engine operation or 200 miles with P3859 active, P1518 stays active (40% torque derate). • After 4 hours of engine operation or 200 miles with P3859 active, P151A becomes active (5 MPH vehicle speed limit) after a: ○ key cycle, or ○ vehicle re-fuel (fuel tank volume increase > 16%), or ○ vehicle has been stationary for 1 hour.								
Diagnostic Step-by-Step	 The ignition should always be in the off position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.  ▪ This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly. ▪ Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors. ▪ Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes. ▪ It is necessary to use DAVIE to clear all current trouble codes from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status. ▪ This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.								
Step 1 Investigate Related DTCs									

Before troubleshooting this DTC, take notice of any other active or inactive DTCs. One or multiple other DTCs could have been the cause for this DTC.

Step 1A Investigate related DTCs

Action

1. Use DAVIE Diagnostics to perform a Quick Check for current DTCs.

Are any of the following related DTCs active in combination with P3859?

P3845; P3846; P3847; P3848; P3856; P3857; P3858; P3901; P3902; P3903; P3904; P3905; P3909; P3910; P3911; P3912; P3985; P3986; P3996

Yes

No

Possible problem with DEF pump module (L074). Go to the troubleshooting information for these DTCs before continuing with this procedure.

Go to step 2A

Step 2 DEF Dosing Valve (L123) Checks

Step 2A Visual inspection, connections and wiring, DEF dosing valve (L123)

Action

1. Visually inspect the associated component connections and wiring for any of the following:
 - Damaged or loose connectors
 - Bent, broken, corroded or loose connector pins
 - Moisture or dirt in the connections
 - Damage to the wire harness or insulation
 - The correct parts are not installed
 - ECU connections are damaged or disconnected
 - Battery not fully charged or contacts not tight

Was there evidence of any of the above?

Yes

No

Correct any issues found. If the DEF dosing valve (L123) is found to be damaged or broken, replace it.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

	If this DTC is still present, go to step 2B		Go to step 2B	
	Step 2B Visual inspection, DEF dosing valve (L123)			
	Action			
	1. Visually inspect the DEF dosing valve (L123) for any of the following: - Crystallization blockage at the inlet port - Restriction or blockage in the pressure pipe to the dosing valve (L123) - DEF dosing valve (L123) is broken or not installed correctly			
	Was there evidence of any of the above?			
	Yes		No	
	Correct any issues found. If the DEF dosing valve (L123) is found to be damaged or broken, replace it. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.			
	If this DTC is still present, go to step 2C		Go to step 2C	
	Step 2C Electrical checks, resistance, DEF dosing valve (L123)			
	 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.			
	Action			
	1. Switch off the ignition.			
	2. Disconnect the DEF dosing valve (L123) from the vehicle harness.			
	3. Measure resistance as outlined in the corresponding checking data, “ <u>component check, DEF dosing valve (L123).</u> ”			
	Are measured values within expected range?			
	Yes		No	
			Correct any issues found, or replace the DEF dosing valve (L123) if measured values are not correct. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	

	Go to step 2D	If this DTC is still present, go to step 2D
Step 2D Electrical checks, vehicle harness, DEF dosing valve (L123)		
		
Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch off the ignition. 2. Disconnect the DEF dosing valve (L123) from the vehicle harness. 3. Disconnect the vehicle harness from the EAS-3 ECU. 4. Measure resistance between the DEF dosing valve signal pin in the DEF doser vehicle harness connector and the DEF dosing valve signal pin in the EAS-3 ECU vehicle harness connector. 5. Measure resistance between the DEF dosing valve ground pin in the DEF doser vehicle harness connector and the DEF dosing valve ground pin in the EAS-3 ECU vehicle harness connector.		
Are the measured values less than 10 Ω?		
Yes	No	
	A pin-to-pin open circuit has been detected. Correct any issues found, or contact the PACCAR Engine Support Center for further assistance in diagnosing this issue and replacement of the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
If this DTC is still present, go to step 2E		Go to step 2E
Step 2E Electrical checks, resistance, DEF dosing valve (L123)		
		
Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch off the ignition. 2. Disconnect the DEF dosing valve (L123) from the vehicle harness. 3. Measure resistance between the DEF dosing valve signal pin in the DEF		

doser vehicle harness connector and the DEF dosing valve ground pin in the DEF doser vehicle harness connector.	
Is the measured value greater than 100k Ω ?	
Yes	No
	A pin-to-pin short circuit has been detected. Correct any issues found, or contact the PACCAR Engine Support Center for additional assistance in diagnosing this issue and for possible replacement of the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
If this DTC is still present, go to step 2F	Go to step 2F
Step 2F DAVIE test, Check the DEF pump module pressure and DEF output	
 ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED. However, if aborting a test is required, a key cycle must be performed to reset the engine ECM. Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle. Action 1. Use DAVIE to perform a DEF pump module override test as described in the maintenance procedure, <u>test DEF dosing valve (Exhaust System(SCR))</u>, job ID 66473.	
Did the test fail to complete or result in a failed state?	
Yes	No
Correct any issues found. Replace the DEF dosing valve (L123) if test results indicate a mechanical failure. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
If this DTC is still present, go to step 2G	Go to step 2G
Step 2G DAVIE test, Prime the system with the DEF pump	



ABORTING A DAVIE-INITIATED DIAGNOSTIC TEST IS NOT RECOMMENDED.

However, if aborting a test is required, a key cycle must be performed to reset the engine ECM.

Failure to reset the engine ECM in this instance could result in personal injury or damage to the vehicle.

Action

1. Use DAVIE to perform a DEF pump module prime test as described in the maintenance procedure, test DEF dosing valve (Exhaust System(SCR)), job ID 66473.

Did the test fail to complete or result in a failed state?

Yes

Correct any issues found. Replace the DEF pump module (074) if test results indicate a mechanical failure.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

No

If all steps have been completed and this DTC is still present, contact PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the trouble code or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to "Clear all" current DTCs from the PCI and EAS-3 ECUs.

Action

1. DPF and DOC

This test can take up to 45 minutes to 1 hour to complete.

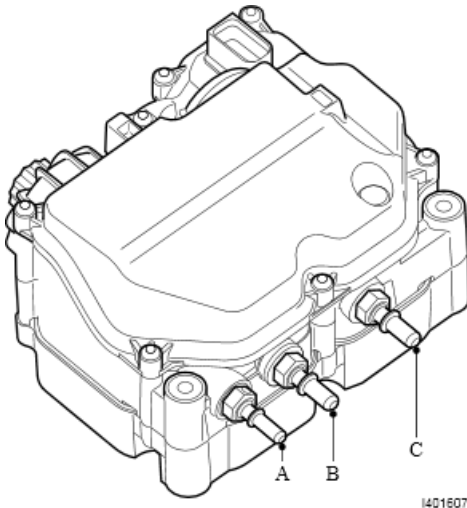
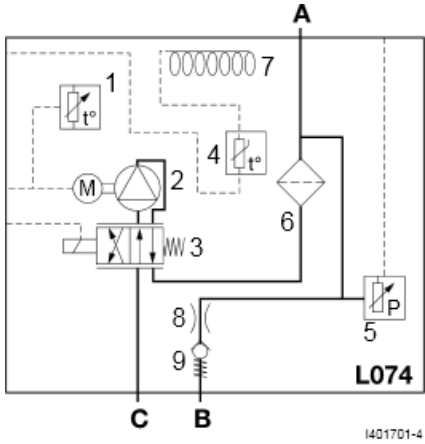
Start the truck and using cruise control, bump and set the idle to 1,500 rpm.

Connect DAVIE, and go to DPF Regeneration test. Follow the prompts to complete a Stationary Regeneration.

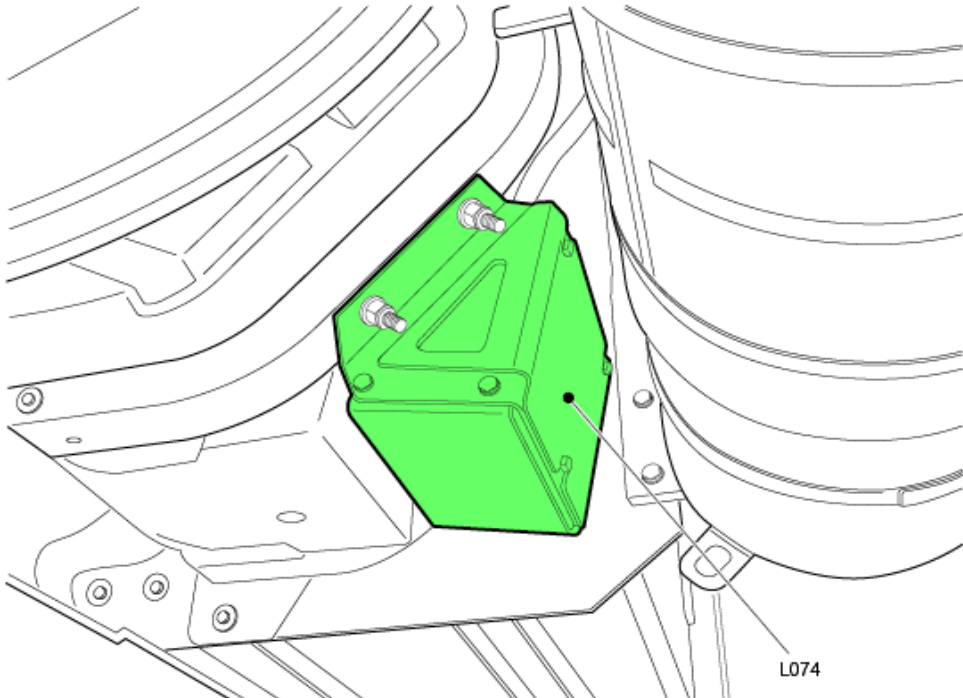
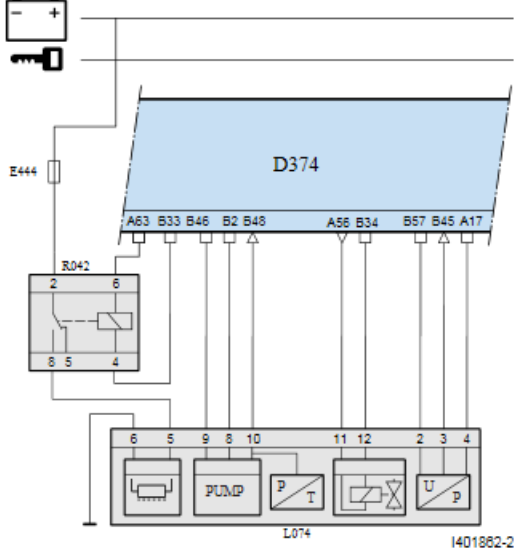
	Were the identified repair verification cycles able to be completed?	
	Yes	No
		Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.
	Go to step 3B	Go to step 3B
	Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors	
	Action	
	Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC.	
	1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready”. A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is “Not ready”, continue to action step 2.	
	2. View the DTC overview display, and confirm that P3859 has been cleared.	
Has P3859 been cleared?		
Yes	No	
Problem resolved. No further actions.		
	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support	

		Center for further assistance.
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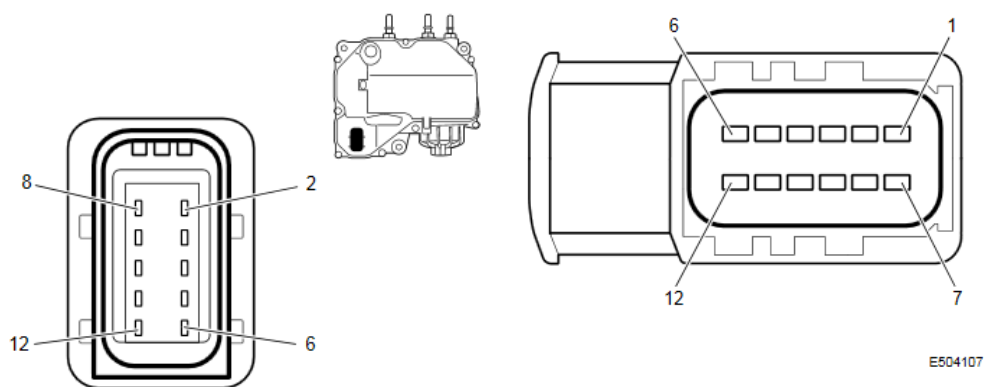
P3860

Code number	P3860
Fault code description	Pump module temperature – Malfunction on sensor
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle.

	• The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	 L074
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 L074 I401882-2 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



Connector pump module (L074)

Wiring harness connector (L074)

Technical data

Component and wiring check, DEF pressure sensor

Preparation

- Switch on the ignition.
- Disconnect connector L074.
- Measure on connector L074.

	<table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table> Component check, heater element Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table> Component check, reverting valve Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V		Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
Pin (+ probe)	Pin (- probe)	Value	Condition																						
2	4	4.75 - 5.25 V																							
Pin (+ probe)	Pin (- probe)	Value	Condition																						
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Pin (+ probe)	Pin (- probe)	Value	Condition																						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]																						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the internal temperature sensor.																								
Additional information	• The temperature sensor is not detected by the ECU. • The temperature sensor is part of the pump module (L074) and cannot be replaced separately.																								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.																								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status	
Action Switch the ignition to off for at least 15 seconds, then switch the ignition to on again.	
Is P3860 inactive?	
Yes	No
Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.	
If this DTC is still present, go to step 2A	Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)
Action Switch the ignition to off.

	2. Visually inspect the associated component connections and wiring for any of the following: • Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Missing or damaged connector seals • Damage to the wire harness or insulation • The correct parts are not installed • Damaged connector locking tab • ECU connections are damaged or disconnected • Batteries not fully charged or contacts are not tight		
Was there evidence of any of the above?			
Yes	No		
Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.			
If this DTC is still present, go to step 2B	Go to step 2B		
Step 2B Electrical checks, open circuit, DEF pump module (L074) wiring harness			
Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.			
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.			
Is the measured value less than 10 Ω?			
Yes	No		

		An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2C		If this DTC is still present, go to step 2C
Step 2C Electrical checks, open circuit, DEF pump module (L074) wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.		
Is the measured value less than 10 Ω?		
Yes		No
		An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2D		If this DTC is still present, go to step 2D
Step 2D Electrical checks, pin-to-pin short circuit, DEF pump module (L074) wiring harness		
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.		

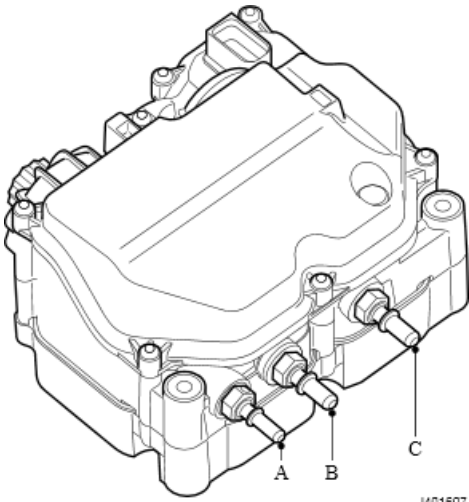
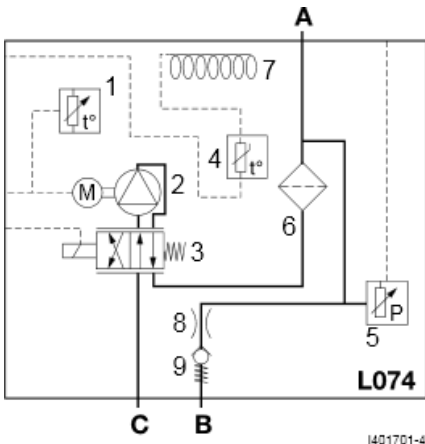
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.	
Is the measured value greater than 100k Ω ?	
Yes	No
	A pin-to-pin short circuit has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2E	If this DTC is still present, go to step 2E

Step 2E Electrical checks, pin-to-ground short circuit, DEF pump wiring harness	
 Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.	
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 10 on the L074 connector and ground.	
Is the measured value greater than 100k Ω ?	
Yes	No
Contact the PACCAR Engine Support Call Center for authorization to replace the	A short circuit to ground has been detected in the vehicle wiring harness.

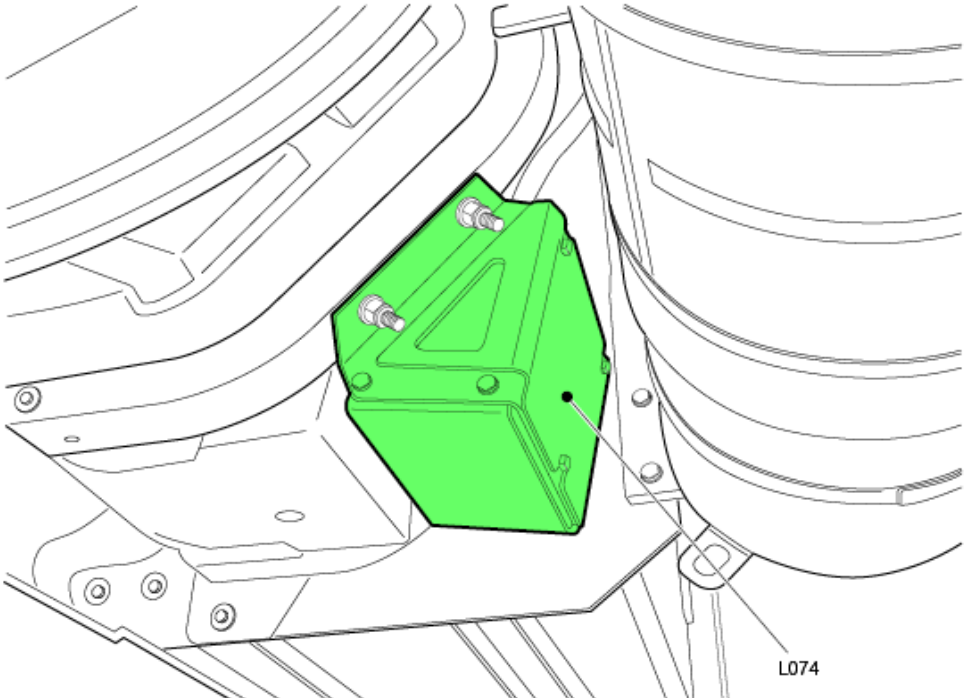
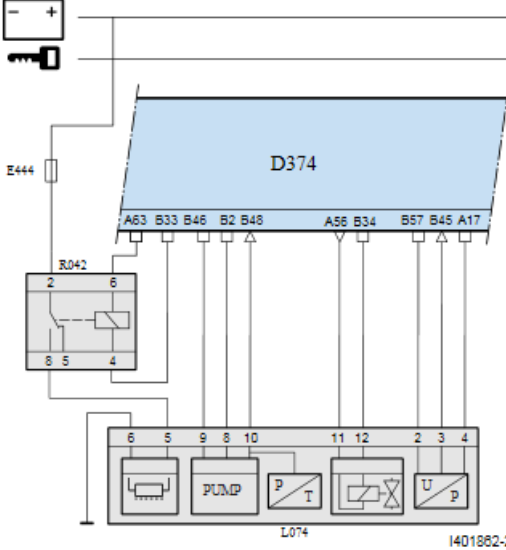
	EAS-3 ECU (D374).	Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
	Go to step 3A	If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.	
Step 3 Repair Verification			
Step 3A Repair verification cycles			
Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.  Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.			
Action Start-up With the brakes set, start the engine and allow it to idle for 2 minutes.			
Were the identified repair verification cycles able to be completed?			
Yes	No		
	Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.		
Go to step 3B	Go to step 3B		
Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors			
Action			

	Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. 1. Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.” A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is “Not ready,” continue to action step 2. 2. View the DTC overview display, and confirm that P3860 has been cleared.	
	Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3860 been cleared?	
	Yes	No
	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: • continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete • or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
	Back to Index	

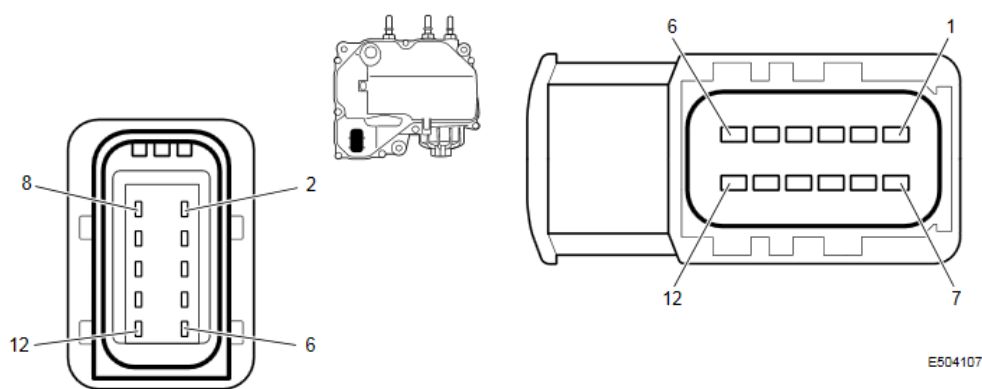
P3861

Code number	P3861
Fault code description	Pump module temperature - Malfunction on sensor
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	Pump module (L074) Connection points: • DEF pressure line (A) • DEF return line (B) • DEF inlet line (C)  The following components are mounted inside the pump module: • Temperature sensor (1) • DEF pump motor (2) • Reverting valve (3) • Temperature sensor, heater element (4) • DEF pressure sensor (5) • DEF filter (6) • Heater element, pump module (7) • Orifice (8) • Check valve (9)  Temperature sensor • The temperature sensor measures the temperature inside the pump module (L074). • The temperature signal is used to determine whether the pump module must be started or heated. DEF pump motor • The DEF pump is a diaphragm pump that pumps the DEF under pressure to the DEF dosing valve. • The DEF pump is controlled with a duty cycle.

	• The pump speed depends on the quantity of DEF to be injected. • The DEF pressure does not depend on the quantity of DEF to inject. Reverting valve • This valve is engaged during the purge cycle. • The DEF inside the inlet line and pressure line is pumped back into the DEF tank. Temperature Switch, heater element • The temperature sensor measures the temperature of the heater element. • This switch is used to control the heater elements in the pump module and prevent them from overheating. DEF pressure sensor • The pressure sensor measures the pressure of the DEF after the DEF filter. • The measured pressure is used by the ECU to control the DEF pump speed. DEF filter • The DEF is filtered before it is pumped into the pump module. Heater element, pump module • The pump module is heated and defrosted by electrical heater elements located inside the pump module. These heater elements prevent the DEF from freezing during operation of the pump. • Defrosting of the pump module is closed-loop controlled, based on the temperature sensor inside the pump module for temperatures below -4°C. • Heating of the pump module is open-loop controlled based on the ambient temperature sensor with a hysteresis. The heating is switched on below 5°C and is switched off at 10°C. The duty cycle depends on the ambient temperature. Check valve • The check valve prevents over pressurization of the DEF in the pump module when the pump module is filled with DEF. Orifice • The orifice in the return line assists the pump in maintaining the operating pressure. • The orifice ensures that a constant quantity of DEF flows from the return line to the tank. Backflow of DEF occurs at low injected quantities and when DEF is not injected.

Location of component(s)	
Diagnostic condition	This DTC is set when the ignition is keyed on and before the pump module is primed.
Set condition of fault code	The EAS-3 ECU detects that the pump module temperature reading is incorrect.
Reset condition of fault code	This DTC changes to inactive after the diagnostic runs and passes.
Electrical diagram(s)	 D374 EAS-3 ECU E444 Fuse, EAS 2nd L074 Pump module R042 Pump heater relay

D374	L074	R042	Function
A17	4		Ground, DEF pressure sensor
A56	11		Signal, reverting valve
A63		6	Ground, relay line heating
B2	8		Ground, DEF pump motor
B33		4	Signal, relay line heating
B34	12		Ground, reverting valve
B45	3		Signal, DEF pressure sensor
B46	9		Power supply, DEF pump motor
B48	10		Signal, DEF pump motor
B57	2		Power supply, DEF pressure sensor
	6		Ground heater element
	5	8	Power supply, heater element



I401919

E504107

Connector pump module (L074)

Wiring harness connector (L074)

Technical data	Component and wiring check, DEF pressure sensor Preparation • Switch on the ignition. • Disconnect connector L074. • Measure on connector L074. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>2</td><td>4</td><td>4.75 - 5.25 V</td><td></td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	2	4	4.75 - 5.25 V	
	Pin (+ probe)	Pin (- probe)	Value	Condition					
	2	4	4.75 - 5.25 V						
	Component check, heater element Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>5</td><td>6</td><td>1.5 Ω ± 0.5 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]
	Pin (+ probe)	Pin (- probe)	Value	Condition					
5	6	1.5 Ω ± 0.5 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Component check, reverting valve Preparation • Switch off the ignition. • Disconnect connector L074. • Measure on the pump module (L074). <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Condition</th></tr><tr><td>11</td><td>12</td><td>6.75 Ω ± 2 Ω</td><td>Cold resistance at 23°C ± 5°C [73°F ± 9°F]</td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Condition	11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]	
Pin (+ probe)	Pin (- probe)	Value	Condition						
11	12	6.75 Ω ± 2 Ω	Cold resistance at 23°C ± 5°C [73°F ± 9°F]						
Possible causes	• Malfunction of the electrical connections and wiring of the pump module (L074). • Malfunctioning of the internal temperature sensor.								
Additional information	• The temperature sensor is not detected by the ECU. • The temperature sensor is part of the pump module (L074) and cannot be replaced separately.								
Diagnostic Step-by-Step	 The ignition should always be in the OFF position when connecting or disconnecting electrical components to reduce the likelihood of damage to the components.								



- This troubleshooting procedure is based on the assumption that supply power and ground to the PCI are functioning properly.
- Disconnecting the PCI connectors during the troubleshooting process will result in multiple errors.
- Specific electrical component information and pin out locations are provided in this procedure as a reference only. Always refer to the technical data sections in Rapido for the most up-to-date changes.
- It is necessary to use DAVIE to clear all current DTCs from the PCI and EAS-3 ECUs, and then run the Quick Check to identify a change in fault status.
- This DTC can be set as a result of multiple failure modes. For proper fault isolation, complete all troubleshooting steps in the sequence provided.

Step 1 Confirm DTC Status

Step 1A Check for inactive status

Action

1. Switch the ignition to off for at least 15 seconds, then switch the ignition to off again.

Is P3861 inactive?

Yes

No

Refer to step 3A to clear all current DTCs and run the corresponding repair verification cycles and rechecks, to determine if this DTC was an intermittent or random occurrence.

If this DTC is still present, go to step 2A

Go to step 2A

Step 2 DEF Pump Module (L074) Checks

Step 2A Visual inspection, DEF pump module (L074)

Action

1. Switch the ignition to off.
2. Visually inspect the associated component connections and wiring for any of the following:

• Damaged or loose connectors • Bent, broken, corroded or loose connector pins • Moisture or dirt in the connections • Missing or damaged connector seals • Damage to the wire harness or insulation • The correct parts are not installed • Damaged connector locking tab • ECU connections are damaged or disconnected • Batteries not fully charged or contacts are not tight	
Was there evidence of any of the above?	
Yes	No
Correct any issues found. If the DEF pump module (L074) is found to be damaged or broken, replace it. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.	
If this DTC is still present, go to step 2B	Go to step 2B

Step 2B Electrical checks, open circuit, DEF pump module (L074) wiring harness	
	Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.
Action 1. Switch the ignition to off. 2. Disconnect the DEF pump module (L074) from the vehicle wiring harness. 3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374). 4. Measure resistance between pin 10 on the pump module (L074) connector and pin B48 on the EAS-3 ECU (D374) connector.	
Is the measured value less than 10 Ω?	
Yes	No

	An open circuit (signal, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2C	If this DTC is still present, go to step 2C

Step 2C Electrical checks, open circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to off.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 8 on the L074 connector and pin B2 on the EAS-3 ECU connector.

Is the measured value less than 10 Ω?

Yes	No
	An open circuit (ground, DEF pump motor) has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.
Go to step 2D	If this DTC is still present, go to step 2D

Step 2D Electrical checks, pin-to-pin short circuit, DEF pump module (L074) wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to off.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pump module (L074) pin 10 on the connector and all other pins in the EAS-3 ECU (D374) connector.

Is the measured value greater than 100k Ω ?

Yes

No

A pin-to-pin short circuit has been detected in the vehicle wiring harness.
Replace the vehicle harness.
Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 2E

If this DTC is still present, go to step 2E

Step 2E Electrical checks, pin-to-ground short circuit, DEF pump wiring harness



Refer to the corresponding checking data for associated supply and signal voltages, resistance values, and related connector pin test points.

Action

1. Switch the ignition to off.
2. Disconnect the DEF pump module (L074) from the vehicle wiring harness.
3. Disconnect the vehicle wiring harness from the EAS-3 ECU (D374).
4. Measure resistance between pin 10 on the L074 connector and ground.

Is the measured value greater than 100k Ω ?

Yes

No

Contact the PACCAR Engine Support Call Center for authorization to replace the EAS-3 ECU (D374).

A short circuit to ground has been detected in the vehicle wiring harness. Replace the vehicle harness. Refer to step 3A to perform the corresponding repair verification cycles and rechecks.

Go to step 3A

If all steps have been completed and this DTC is still present, contact the PACCAR Engine Support Center for further assistance.

Step 3 Repair Verification

Step 3A Repair verification cycles

Perform these repair verification cycles following any corrective actions taken, to enable related OBD monitors to reach a readiness state associated with the DTC or system being investigated.



Before beginning these repair verification cycles, use the DAVIE Diagnostics, Quick Check function to “Clear all” current DTCs from the PCI and EAS-3 ECUs.

Action

1. Start-up

With the brakes set, start the engine and allow it to idle for 2 minutes.

Were the identified repair verification cycles able to be completed?

Yes

No

Investigate and correct any issues preventing these repair verification cycles from being completed, then re-run. For additional assistance, contact the PACCAR Engine Support Center.

Go to step 3B

Go to step 3B

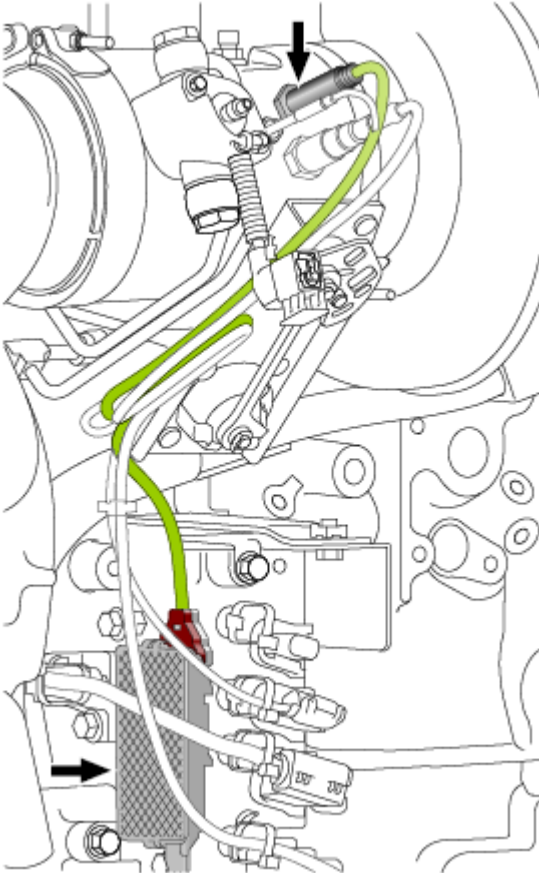
Step 3B DAVIE Diagnostics, Quick Check, OBD Readiness Monitors

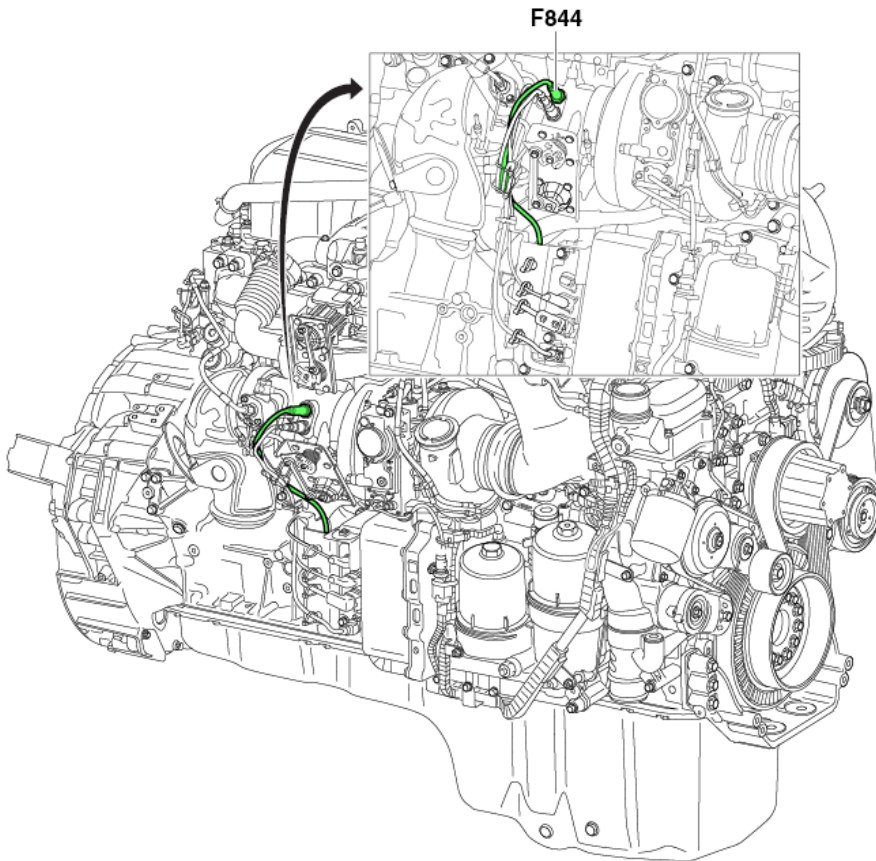
	Action Use DAVIE Diagnostics to perform a Quick Check for current DTCs to determine whether the actions taken have cleared this DTC. - Confirm that the corresponding OBD Monitor Readiness Status value is displayed as “Ready.” A status of Ready indicates that the corresponding OBD monitor has run successfully and the problem has been resolved—no further action. If the displayed status is “Not ready,” continue to action step 2. - View the DTC overview display, and confirm that P3861 has been cleared. Is the related OBD Monitor Readiness Status set to “Ready.” Or, has P3861 been cleared? <table> <tr> <th>Yes</th><th>No</th></tr> <tr> <td>Problem resolved. No further actions.</td><td> Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance. </td></tr> </table>	Yes	No	Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.
Yes	No				
Problem resolved. No further actions.	Continue with the next step in this troubleshooting procedure. If all steps have been completed and this DTC is still present: - continue to operate the truck to extend the run time, allowing the corresponding OBD monitor sufficient time to complete - or, return to step 3A and perform this repair verification again. If this issue is still present after extending or re-running the repair verification, contact the PACCAR Engine Support Center for further assistance.				
	Back to Index				

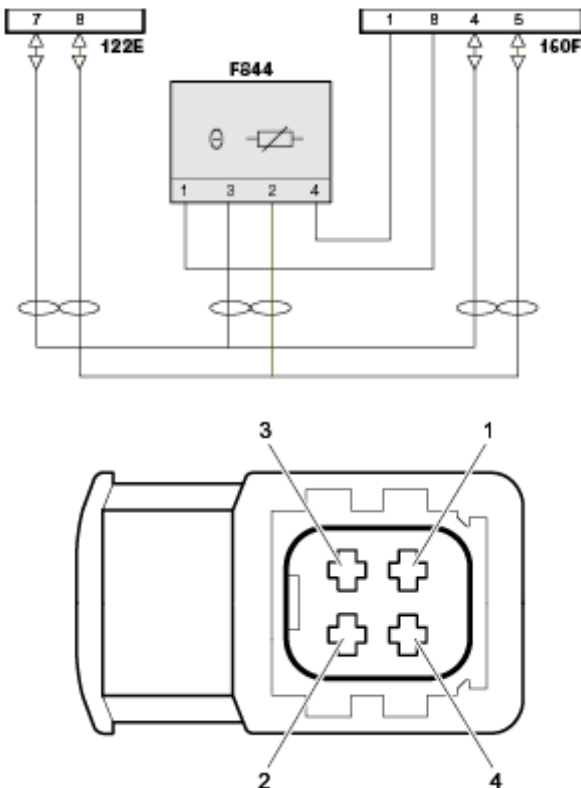
P3862

Code number	P3862
Fault code description	CAN communication – Timeout from Emission system
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	CAN wiring, see "General troubleshooting - CAN"
Location of component(s)	CAN wiring, see "General troubleshooting - CAN"
Diagnostic condition	Please refer "General troubleshooting – CAN"
Set condition of fault code	Please refer "General troubleshooting – CAN"
Reset condition of fault code	Please refer "General troubleshooting – CAN"
Electrical diagram(s)	CAN wiring, see "General troubleshooting - CAN"
Technical data	CAN wiring, see "General troubleshooting - CAN"
Possible causes	Please refer "General troubleshooting – CAN"
Additional information	- The DTC is set when ignition is keyed on or when the engine is running, and when no information from the PCI ECU (D420) is received for a maximum of 25 consecutive seconds. Depending on which of the CAN messages is not received, the reactions can be: - Protection mode. - Regeneration is disabled. - DEF dosing is disabled. - Engine torque is reduced
Diagnostic Step-by-Step	Please refer "General troubleshooting – CAN"
Verification Drive Cycle	Verification drive cycle not specified. Please contact the Engine Support Center
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P3863

Code number	P3863
Fault code description	NOx sensor before catalyst - Power supply not valid
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit • This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU. The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature

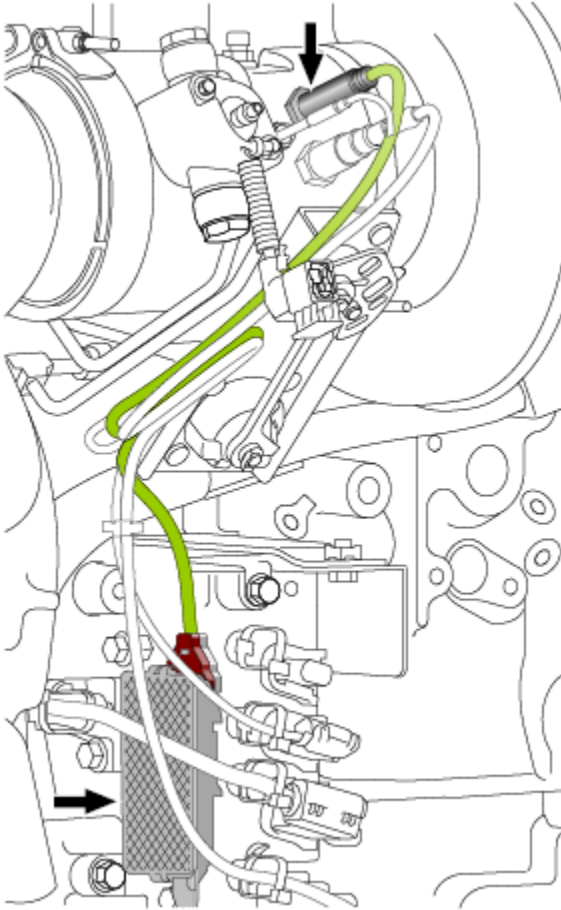
	stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount
Location of component(s)	 The diagram shows a detailed view of an engine. A green arrow points to the NOx sensor before catalyst (F844) located on the right side of the engine. A black arrow points to the DEF dosing system located on the left side of the engine.
Diagnostic condition	This diagnostic runs after the NH3 sensor (F869) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	The DTC is set when the NOx sensor before catalyst (F844) is not powered correctly or there is a problem with the power supply for 10 consecutive seconds.
Reset condition of fault code	- Run a stationary regeneration with DAVIE to raise temperatures and reach dew point of the NOx sensor before catalyst (F844). - Monitor the NOx sensor before catalyst (F844) operation until NOx indicates a stable value.

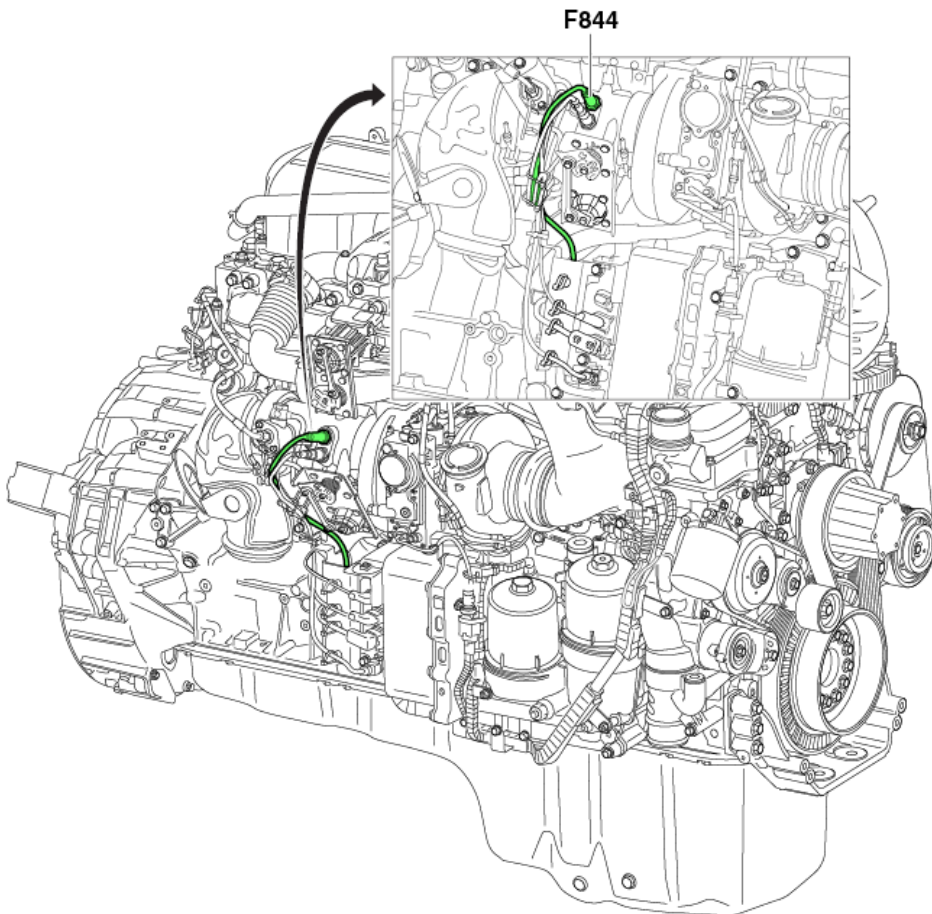
Electrical diagram(s)	 Wiring harness connector F844 front view 122E 12-pin interface connector 160F 8-pin interface connector F844 NOx sensor before catalytic convertor <table><tr><th>F844</th><th>122E</th><th>160F</th><th>Function</th></tr><tr><td>3</td><td>7</td><td>4</td><td>A-CAN high</td></tr><tr><td>2</td><td>8</td><td>5</td><td>A-CAN low</td></tr><tr><td>1</td><td></td><td>8</td><td>Power supply after ignition</td></tr><tr><td>4</td><td></td><td>1</td><td>Ground</td></tr></table>	F844	122E	160F	Function	3	7	4	A-CAN high	2	8	5	A-CAN low	1		8	Power supply after ignition	4		1	Ground
F844	122E	160F	Function																		
3	7	4	A-CAN high																		
2	8	5	A-CAN low																		
1		8	Power supply after ignition																		
4		1	Ground																		
Technical data	Component & wiring check, NOx sensor before catalyst (F844) Preparation - Ignition keyed off - Disconnect connector F844. - Measure on the front side of wiring harness connector F844. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>4</td><td>1</td><td>Ubat</td><td>Key on the ignition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5 V</td><td>Key on the ignition and switch on all consumers</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td> - Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface </td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	4	1	Ubat	Key on the ignition	1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers	2	3	± 60 Ω	- Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface				
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2	3	± 60 Ω	- Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface																		

	(VCI) of DAVIE.																									
Possible causes	- Problem with the power supply to the NOx sensor before catalyst (F844), or problem with the wiring harness. - Check if the sensor is powered correctly - Check the wiring harness for short circuits																									
Additional information	- The NOx sensor before catalyst (F844) is not operational. - DEF injection is based on preprogrammed values.																									
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table border="1"> <tr> <td>Step 1</td><td>Step ID 3863a</td><td>SRT</td></tr> <tr> <td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr> </table> <table border="1"> <tr> <td>Step 2</td><td>Step ID 3863b</td><td>SRT</td></tr> <tr> <td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V). - Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? - Yes - Proceed to step 3 - No - Proceed to step 4 </td></tr> </table> <table border="1"> <tr> <td>Step 3</td><td>Step ID 3863c</td><td>SRT</td></tr> <tr> <td colspan="3"> Make the appropriate repairs or component replacements and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolve - Fault active - Proceed to step 4 </td></tr> </table> <table border="1"> <tr> <td>Step 4</td><td>Step ID 3863d</td><td>SRT</td></tr> <tr> <td colspan="3"> Replace: NOx Sensor, Before Catalyst Replace the identified component. </td></tr> </table>		Step 1	Step ID 3863a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3863b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: - Supply and signal voltages (12V). - Wire continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? - Yes - Proceed to step 3 - No - Proceed to step 4			Step 3	Step ID 3863c	SRT	Make the appropriate repairs or component replacements and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolve - Fault active - Proceed to step 4			Step 4	Step ID 3863d	SRT	Replace: NOx Sensor, Before Catalyst Replace the identified component.		
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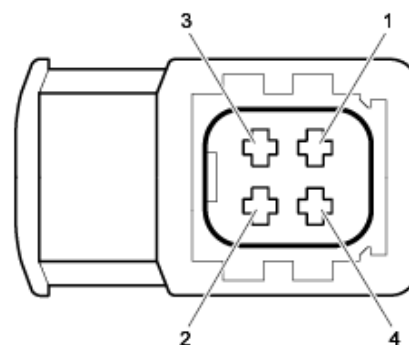
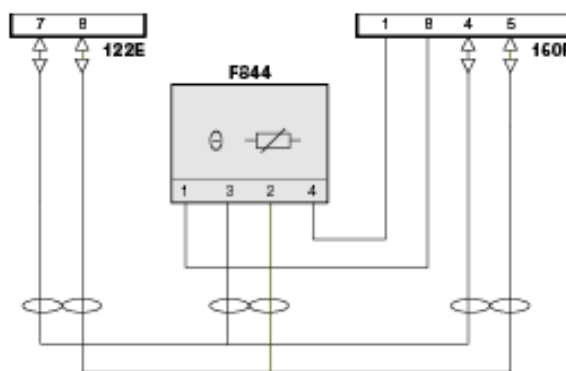
	Use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 5			
	<table><tr><td>Step 5</td><td>Step ID 3863e</td><td>SRT</td></tr></table> For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.	Step 5	Step ID 3863e	SRT
Step 5	Step ID 3863e	SRT		
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.			
	Back to Index			

P3864

Code number	P3864
Fault code description	NOx sensor before catalyst – Short circuit and/or open circuit
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much

	energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	
Diagnostic condition	This diagnostic runs after the NOx sensor before catalyst (F844) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	The DTC is set when the NOx sensor before catalyst heater is short-circuited to supply, or when an open circuit is detected for 10 consecutive seconds.
Reset condition of fault code	- Run a stationary regeneration with DAVIE to raise temperatures and reach dew point of the NOx sensor after catalyst (F843). - Monitor the NOx sensor after catalyst (F843) operation until NOx indicates a stable value.

Electrical diagram(s)



Wiring harness connector F844 front view

122E 12-pin interface connector
 160F 8-pin interface connector
 F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

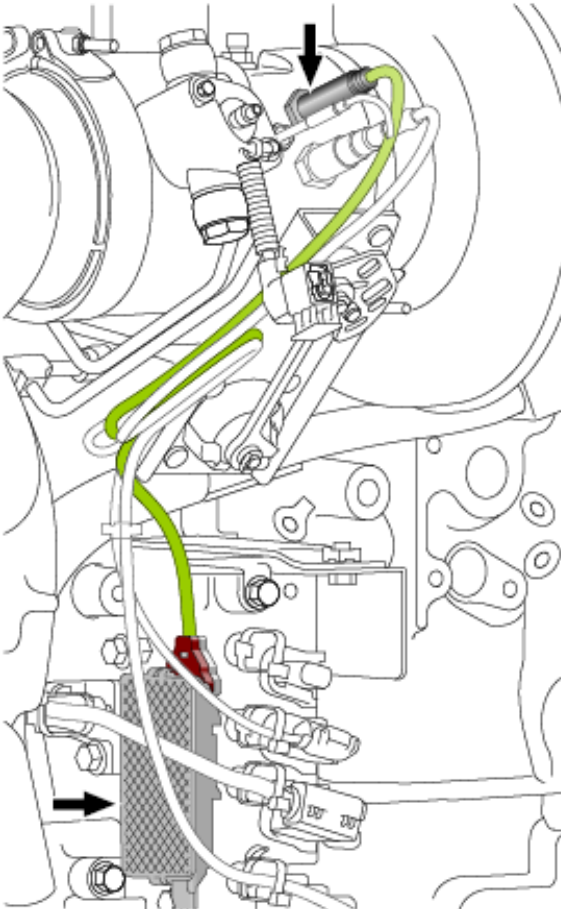
Preparation

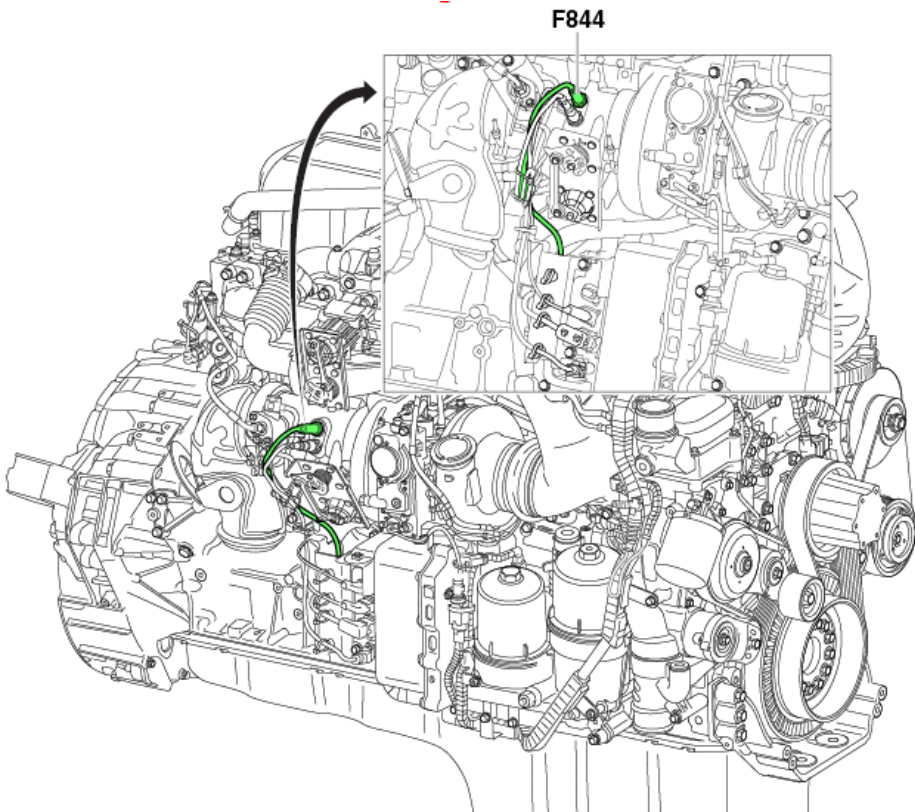
- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.

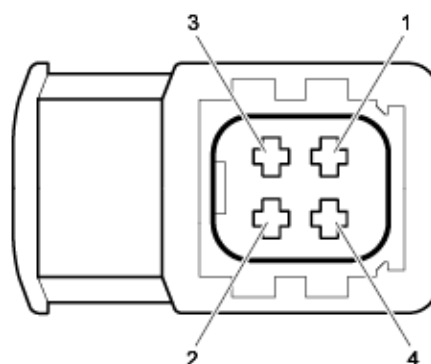
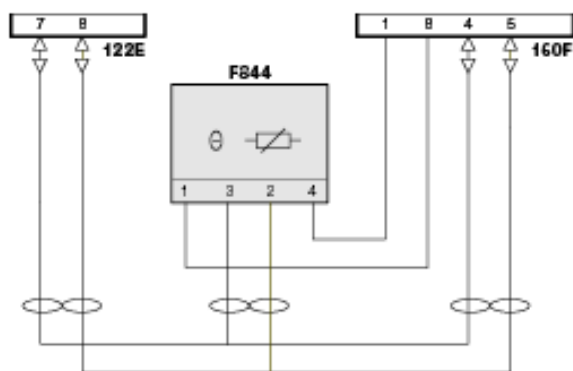
Possible causes	• The NOx sensor before catalyst (F844) has malfunctioned or is damaged. • Short circuit to supply or an open circuit.																		
Additional information	• The NOx sensor before catalyst (F844) is not operational. • DEF injection is based on preprogrammed values.																		
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3864a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3864b</td><td>SRT</td></tr><tr><td colspan="3">Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3864c</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>	Step 1	Step ID 3864a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3864b	SRT	Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3			Step 3	Step ID 3864c	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Step 1	Step ID 3864a	SRT																	
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																			
Step 2	Step ID 3864b	SRT																	
Repairs or component replacements appropriate component and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolve • Fault active - Proceed to step 3																			
Step 3	Step ID 3864c	SRT																	
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.																			
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.																		
		Back to Index																	

P3865

Code number	P3865
Fault code description	NOx sensor before catalyst - Short circuit and/or open circuit
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: - Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN - Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control - The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. - The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much

	energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram illustrates the engine components, with a green arrow indicating the location of the NOx sensor before catalyst (F844). An inset image provides a detailed view of the sensor (F844) mounted on the engine.
Diagnostic condition	This diagnostic runs after the NOx sensor before catalyst (F844) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	The DTC is set when the NOx sensor before catalyst (F844) is reporting a short circuit to supply, or when an open circuit is detected for 10 consecutive seconds.
Reset condition of fault code	- Run a stationary regeneration with DAVIE to raise temperatures and reach dew point of the NOx sensor after catalyst (F843). - Monitor the NOx sensor after catalyst (F843) operation until NOx indicates a stable value.

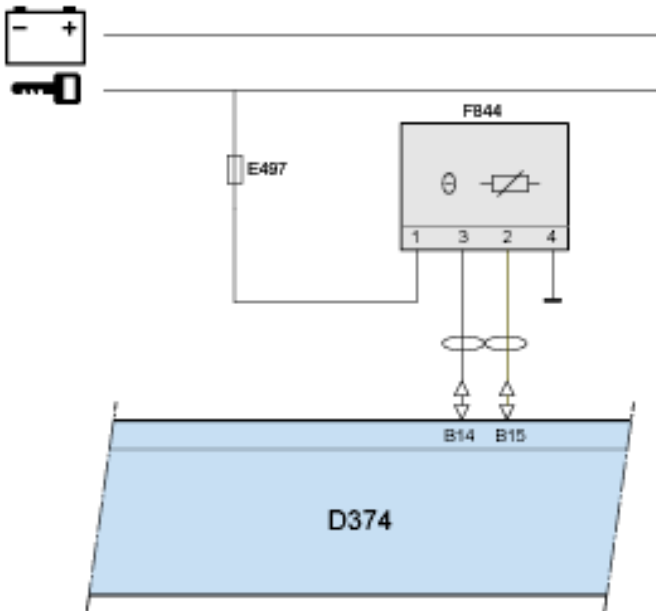
Electrical diagram(s)



Wiring harness connector F844 front view

122E 12-pin interface connector
 160F 8-pin interface connector
 F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

	 D374 EAS-3 ECU E497 after treatment CAN fuse F844 NOx sensor after catalytic convertor <table><tr><td>D374</td><td>F843</td><td>Function</td></tr><tr><td>B14</td><td>3</td><td>A-CAN high</td></tr><tr><td>B15</td><td>2</td><td>A-CAN low</td></tr><tr><td></td><td>1</td><td>Power supply after ignition</td></tr><tr><td></td><td>4</td><td>Ground</td></tr></table>	D374	F843	Function	B14	3	A-CAN high	B15	2	A-CAN low		1	Power supply after ignition		4	Ground	
D374	F843	Function															
B14	3	A-CAN high															
B15	2	A-CAN low															
	1	Power supply after ignition															
	4	Ground															
Technical data	Component & wiring check, NOx sensor before catalyst (F844) Preparation • Ignition keyed off • Disconnect connector F844. • Measure on the front side of wiring harness connector F844. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>4</td><td>1</td><td>U_{bat}</td><td>Key on the ignition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5 V</td><td>Key on the ignition and switch on all consumers</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td> • Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE. </td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	4	1	U _{bat}	Key on the ignition	1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers	2	3	± 60 Ω	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.
Pin (+ probe)	Pin (- probe)	Value	Additional information														
4	1	U _{bat}	Key on the ignition														
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers														
2	3	± 60 Ω	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.														
Possible causes	• The NOx sensor before catalyst (F844) has malfunctioned or is damaged. • Short circuit to supply or an open circuit.																
Additional information	• The NOx sensor after catalyst (F843) is not operational. • DEF injection is based on preprogrammed values.																

Diagnostic Step-by-Step



Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.



- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pinout locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1	Step ID 3865a	SRT
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.		

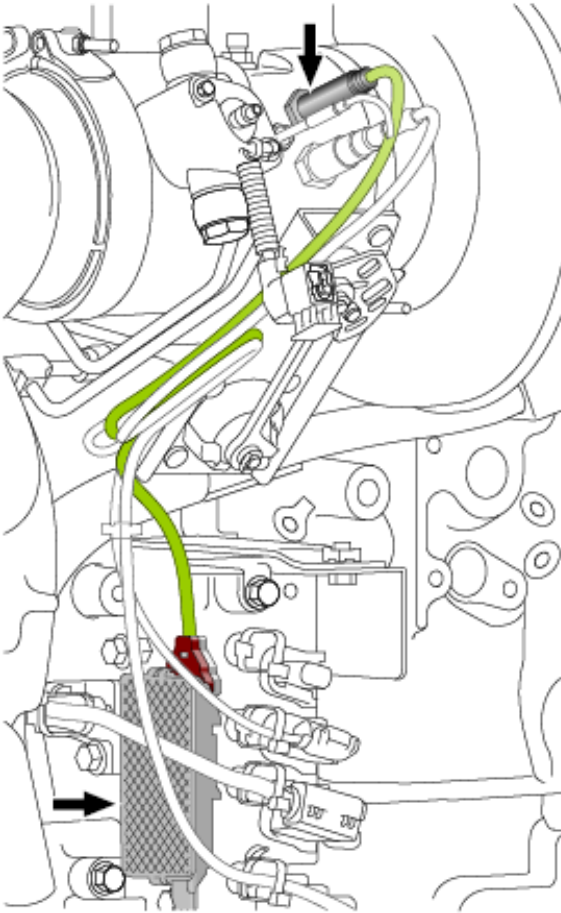
Step 2	Step ID 3865b	SRT
Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4		

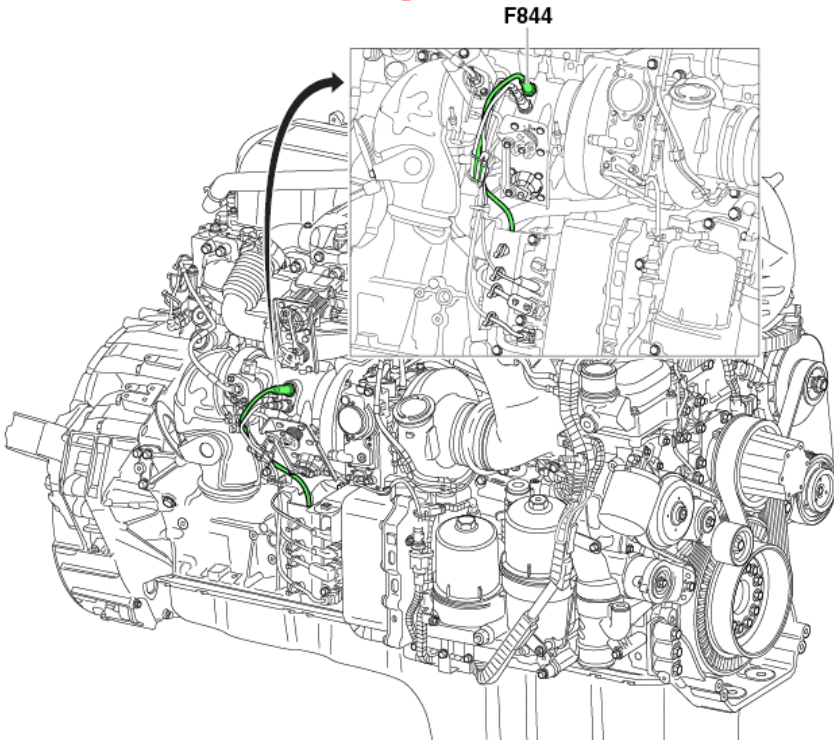
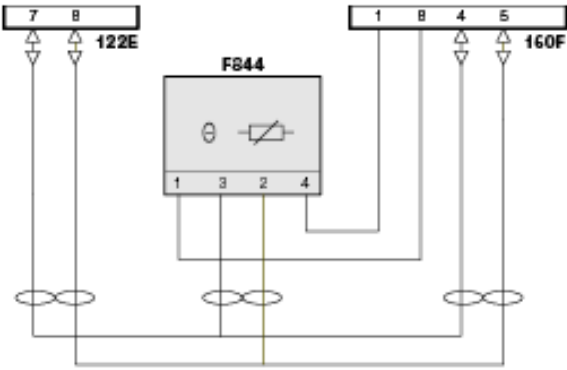
Step 3	Step ID 3865c	SRT
Replace: NOx Sensor, Before Catalyst Replace the identified faulty component. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, then this issue has been resolved. • If this related fault is still active, continue to the next step 4 in the troubleshooting process.		

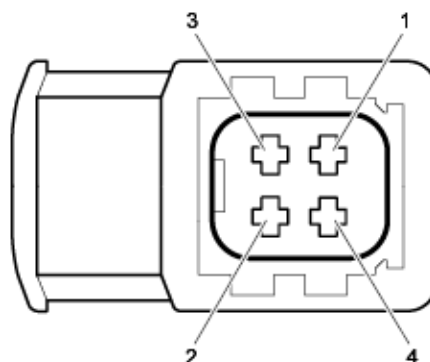
Step 4	Step ID 3865d	SRT
For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		

Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.
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P3866

Code number	P3866
Fault code description	CAN communication - Message (AT1IGC1) timeout from NOx sensor before catalyst
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: - Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN - Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control - The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. - The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much

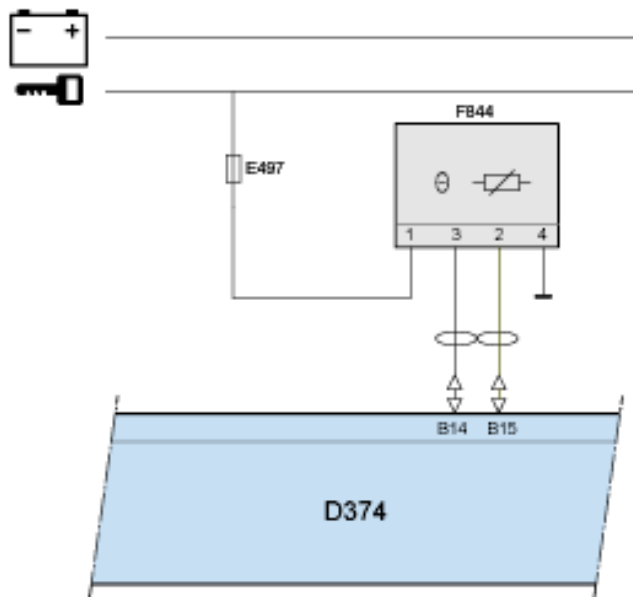
	energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram illustrates the location of the F844 NOx sensor on the engine. A green arrow points to the sensor on the exhaust manifold. An inset shows a close-up of the sensor and its wiring.
Diagnostic condition	This diagnostic runs continuously.
Set condition of fault code	This DTC sets when the CAN communication from the NOx sensor before catalyst (F844) to the EAS-3 ECU (D374) is interrupted for 5 consecutive seconds
Reset condition of fault code	This DTC changes to inactive when the fault is no longer detected.
Electrical diagram(s)	 The electrical diagram shows the F844 NOx sensor connected to the 122E and 160F connectors. The sensor has four pins: 1 (ground), 3 (power), 2 (CAN+), and 4 (CAN-).



Wiring harness connector F844 front view

122E 12-pin interface connector
 160F 8-pin interface connector
 F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground



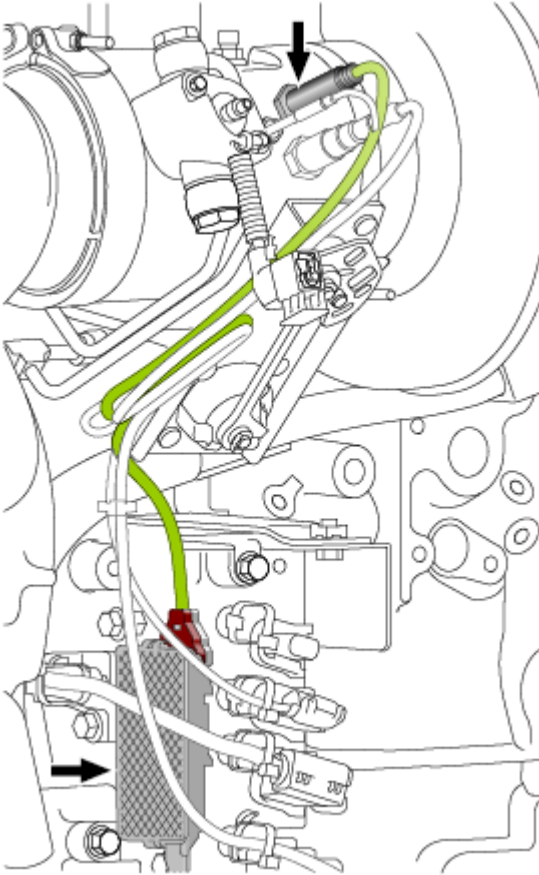
D374 EAS-3 ECU
 E497 after treatment CAN fuse
 F844 NOx sensor after catalytic convertor

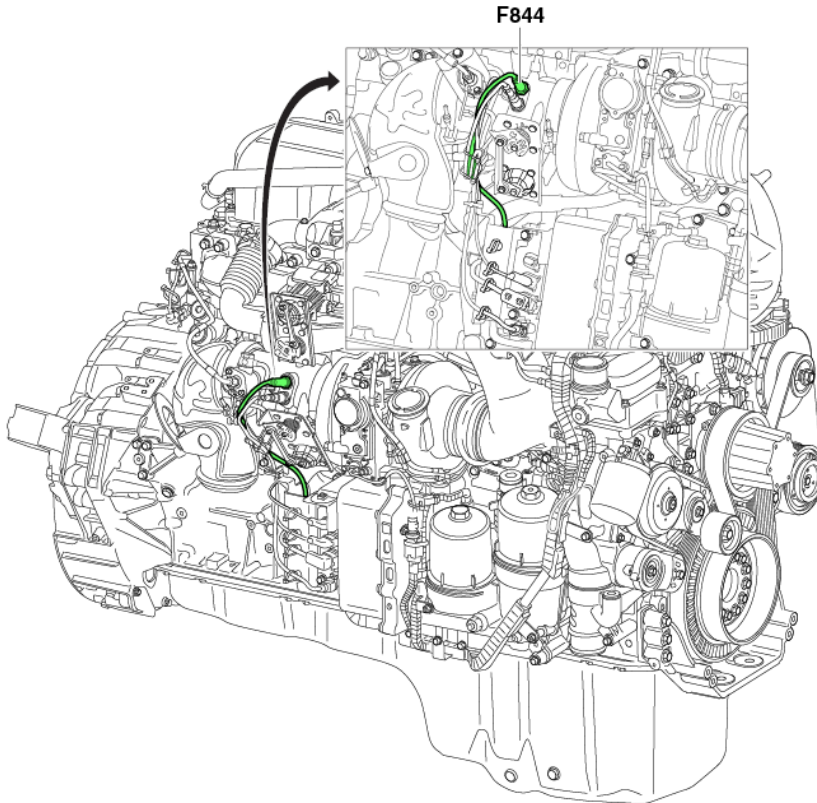
D374	F843	Function
B14	3	A-CAN high
B15	2	A-CAN low
	1	Power supply after ignition

	4 Ground																
Technical data	Component & wiring check, NOx sensor before catalyst (F844) Preparation - Ignition keyed off - Disconnect connector F844. - Measure on the front side of wiring harness connector F844. <table><thead><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr></thead><tbody><tr><td>4</td><td>1</td><td>Ubat</td><td>Key on the ignition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5 V</td><td>Key on the ignition and switch on all consumers</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td> - Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface (VCI) of DAVIE. </td></tr></tbody></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	4	1	Ubat	Key on the ignition	1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers	2	3	± 60 Ω	- Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface (VCI) of DAVIE.
Pin (+ probe)	Pin (- probe)	Value	Additional information														
4	1	Ubat	Key on the ignition														
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers														
2	3	± 60 Ω	- Key off the ignition - Disconnect the ground wire from the battery. - Disconnect the vehicle communication interface (VCI) of DAVIE.														
Possible causes	- The CAN connection between EAS-3 ECU (D374) and the sensor is interrupted. - Check the wiring.																
Additional information	- The NOx sensor before catalyst (F844) is not operational. - DEF injection is based on preprogrammed values.																
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3866a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3866b</td><td>SRT</td></tr></table> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits:	Step 1	Step ID 3866a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3866b	SRT							
Step 1	Step ID 3866a	SRT															
Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.																	
Step 2	Step ID 3866b	SRT															

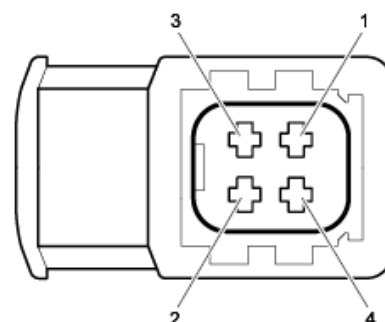
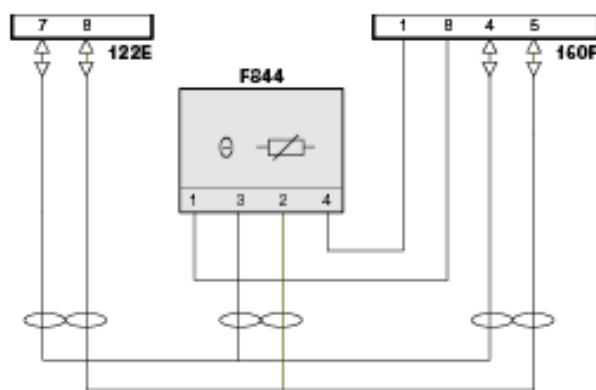
	• Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • Yes - Proceed to step 3 • No - Proceed to step 4		
	Step 3	Step ID 3866c	SRT
	For fault codes associated with the controller area network (CAN), refer to the “General Troubleshooting – CAN” instructions in Engine Rapido – Service, linked under the diagnostic trouble code information for this or similar fault codes.		
	Step 4	Step ID 3866d	SRT
	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair, with the brakes set, start the engine and allow it to run at idle for 2 minutes.		
	Back to Index		

P3867

Code number	P3867
Fault code description	Heater NOx sensor before catalyst - Performance error
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – Exhaust gas sensors Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit • This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU. The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature

	stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount
Location of component(s)	 The diagram shows a detailed view of an engine. A green arrow points to a sensor labeled F844, which is the NOx sensor before the catalyst. A black arrow points to the DEF dosing system components, including the DEF tank and dosing pump.
Diagnostic condition	This diagnostic runs after the NH3 sensor (F869) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	This DTC sets when the NOx sensor before catalyst heater is defective, and a decision is made within 1 minute.
Reset condition of fault code	- Run a stationary regeneration with DAVIE to raise temperatures and reach dew point of the NOx sensor before catalyst (F844). - Monitor the NOx sensor before catalyst (F844) operation until NOx indicates a stable value.

Electrical diagram(s)



Wiring harness connector F844 front view

122E 12-pin interface connector

160F 8-pin interface connector

F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

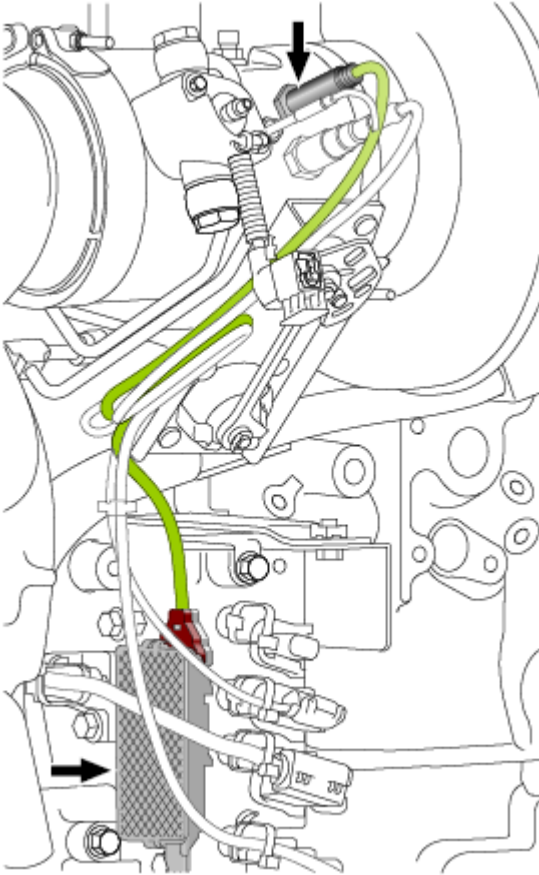
Preparation

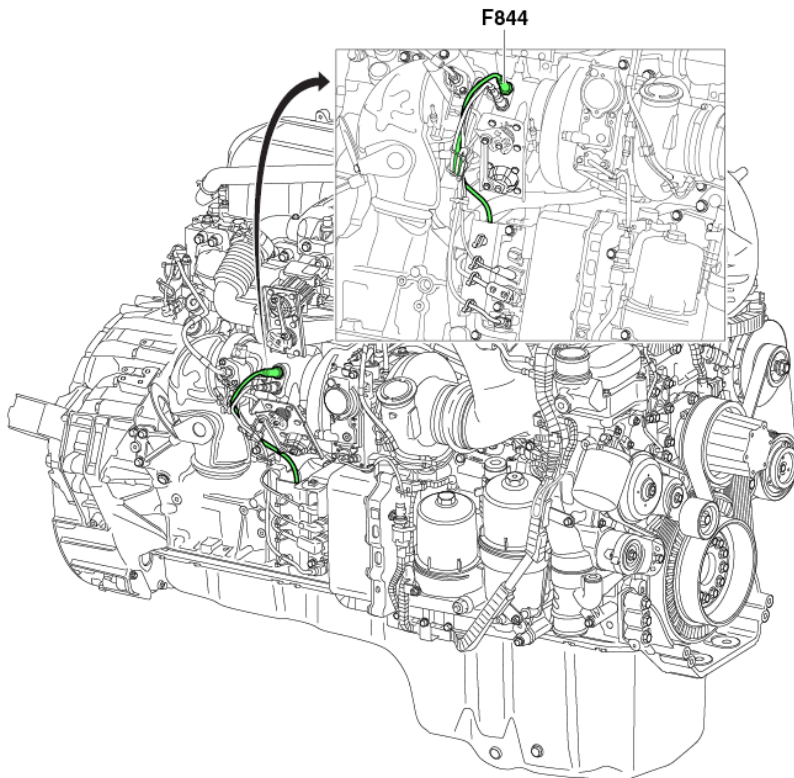
- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

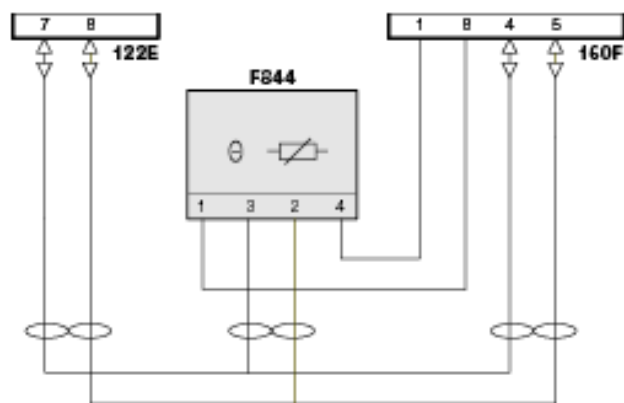
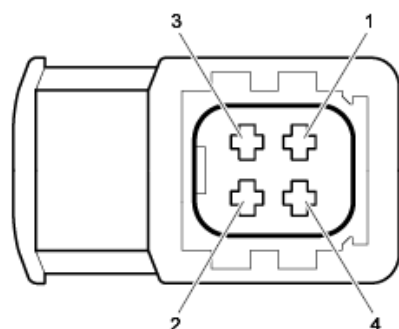
Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.

Possible causes	NOx sensor before catalyst heater malfunctioning.																				
Additional information	• The NOx sensor before catalyst (F844) is not operational. • DEF injection is based on preprogrammed values.																				
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.  • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pinout locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3867a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3867b</td><td>SRT</td></tr><tr><td colspan="3">Replace the identified component (NOx Sensor, Before Catalyst) and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3867c</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>			Step 1	Step ID 3867a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3867b	SRT	Replace the identified component (NOx Sensor, Before Catalyst) and use DAVIE to re-check for the presence of active faults. • Fault inactive – issue resolved • Fault active - Proceed to step 3			Step 3	Step ID 3867c	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
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Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.																				
	Back to Index																				

P3868

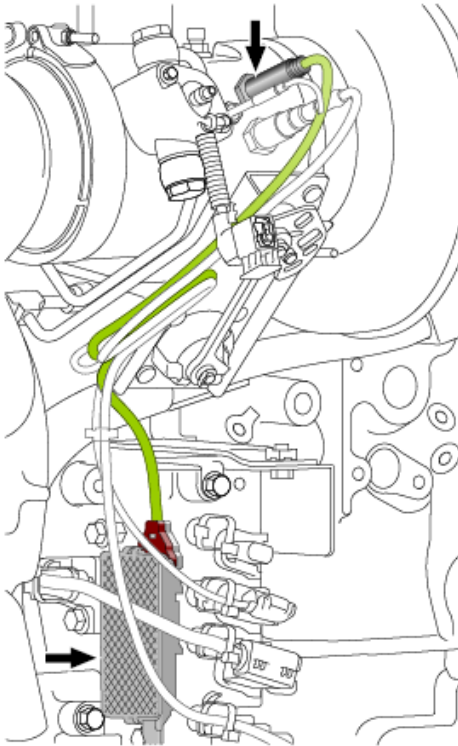
Code number	P3868
Fault code description	Heater NOx sensor before catalyst - Warm-up failed
Fault code information	2 trip MIL 3 drive cycle recovery Readiness group – Exhaust gas sensors Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit • This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU. The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature

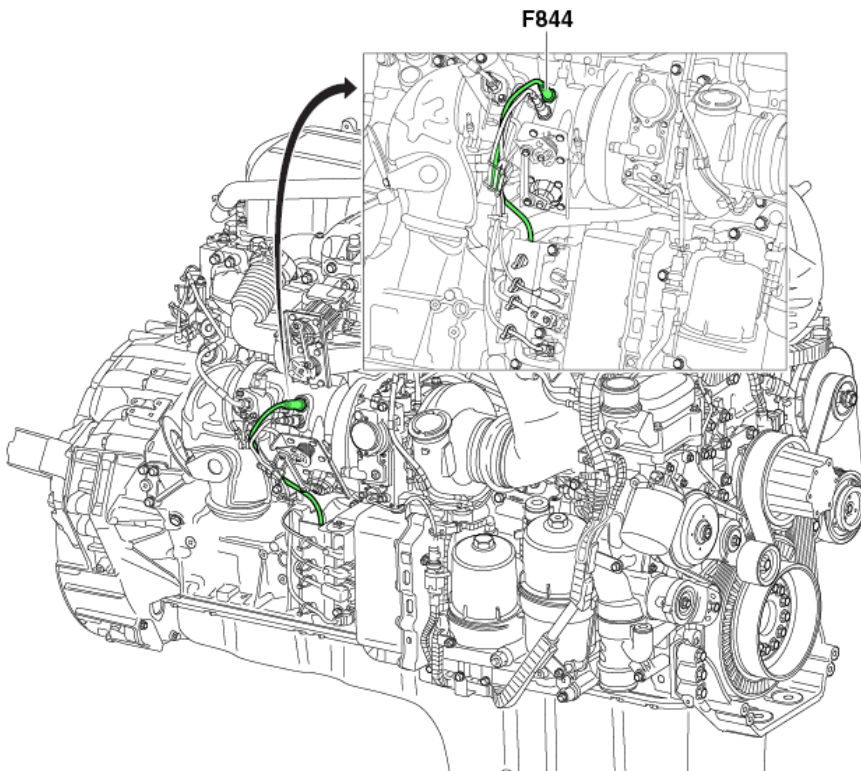
	stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount
Location of component(s)	 The diagram illustrates the engine's internal components, with a specific focus on the NOx sensor (F844) located before the catalyst. A green arrow highlights the sensor's position on the engine block, while a black arrow points to a detailed inset view of the sensor area, showing its connection to the engine's exhaust system.
Diagnostic condition	This diagnostic runs after the NH3 sensor (F869) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	The DTC sets when the sensor heater is defective and a decision is made within 5 minutes.
Reset condition of fault code	- Run a stationary regeneration with DAVIE to raise temperatures and reach dew point of the NOx sensor before catalyst (F844). - Monitor the NOx sensor before catalyst (F844) operation until NOx indicates a stable value.

Electrical diagram(s)	  Wiring harness connector F844 front view 122E 12-pin interface connector 160F 8-pin interface connector F844 NOx sensor before catalytic convertor <table><tr><th>F844</th><th>122E</th><th>160F</th><th>Function</th></tr><tr><td>3</td><td>7</td><td>4</td><td>A-CAN high</td></tr><tr><td>2</td><td>8</td><td>5</td><td>A-CAN low</td></tr><tr><td>1</td><td></td><td>8</td><td>Power supply after ignition</td></tr><tr><td>4</td><td></td><td>1</td><td>Ground</td></tr></table>	F844	122E	160F	Function	3	7	4	A-CAN high	2	8	5	A-CAN low	1		8	Power supply after ignition	4		1	Ground
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1		8	Power supply after ignition																		
4		1	Ground																		
Technical data	Component & wiring check, NOx sensor before catalyst (F844) Preparation • Ignition keyed off • Disconnect connector F844. • Measure on the front side of wiring harness connector F844. <table><tr><th>Pin (+ probe)</th><th>Pin (- probe)</th><th>Value</th><th>Additional information</th></tr><tr><td>4</td><td>1</td><td>U_{bat}</td><td>Key on the ignition</td></tr><tr><td>1</td><td>Battery negative pole</td><td>>0.5 V</td><td>Key on the ignition and switch on all consumers</td></tr><tr><td>2</td><td>3</td><td>± 60 Ω</td><td> • Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) </td></tr></table>	Pin (+ probe)	Pin (- probe)	Value	Additional information	4	1	U _{bat}	Key on the ignition	1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers	2	3	± 60 Ω	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI)				
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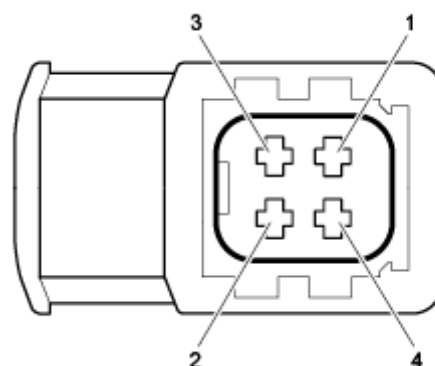
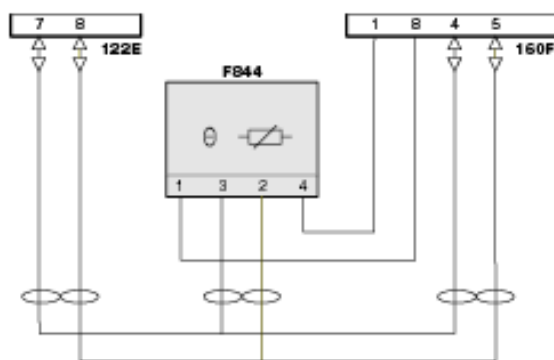
	of DAVIE.																				
Possible causes	NOx sensor before catalyst heater malfunctioning.																				
Additional information	- The NOx sensor before catalyst (F844) is not operational. - DEF injection is based on preprogrammed values.																				
Diagnostic Step-by-Step	  Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. - Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. - For specific electrical component information and pinout locations, always refer to the technical data. - It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. - Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3868a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3868b</td><td>SRT</td></tr><tr><td colspan="3">Replace the identified component (NOx Sensor, Before Catalyst) and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 3 </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3868c</td><td>SRT</td></tr><tr><td colspan="3">For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.</td></tr></table>			Step 1	Step ID 3868a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3868b	SRT	Replace the identified component (NOx Sensor, Before Catalyst) and use DAVIE to re-check for the presence of active faults. - Fault inactive – issue resolved - Fault active - Proceed to step 3			Step 3	Step ID 3868c	SRT	For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.		
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For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the Engine Support Call Center at 1-800-477-0251.																					
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: - Exhaust Temperature Before SCR - Exhaust Temperature After SCR - Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.																				
	Back to Index																				

P3869

Code number	P3869
Fault code description	NOx sensor before catalyst - Short circuit and/or open circuit.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group - None Freeze frame type -Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature

	stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram shows a detailed view of an engine. A green arrow points to the NOx sensor before catalyst (F843) located on the left side of the engine. Another green arrow points to the DEF dosing system (F844) located on the right side of the engine. A black arrow points to the DEF dosing system (F844).
Diagnostic condition	This diagnostic runs after the NOx sensor before catalyst (F843) reaches the dew point. The dew point is reached 105 seconds after the temperature before the DOC is higher than 150°C [302°F].
Set condition of fault code	The DTC sets when the NOx sensor before catalyst (F843) is reporting a short to high source or open load for 10 consecutive seconds.
Reset condition of fault code	- To validate the repair, start and operate the engine to raise exhaust temperatures. This can be done by either driving the vehicle or initiating a stationary regeneration with DAVIE. - The exhaust gas temperature must be above 150°C [302°F] before the sensor can run its internal diagnostics

Electrical diagram(s)



Wiring harness connector F844 front view

122E 12-pin interface connector

160F 8-pin interface connector

F844 -NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

Preparation

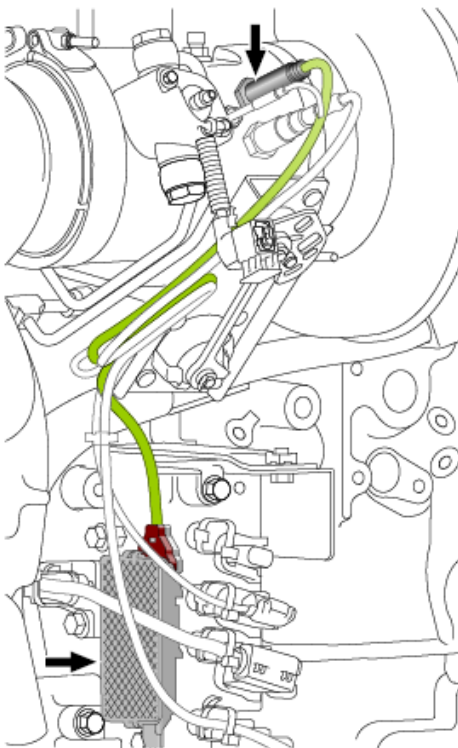
- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

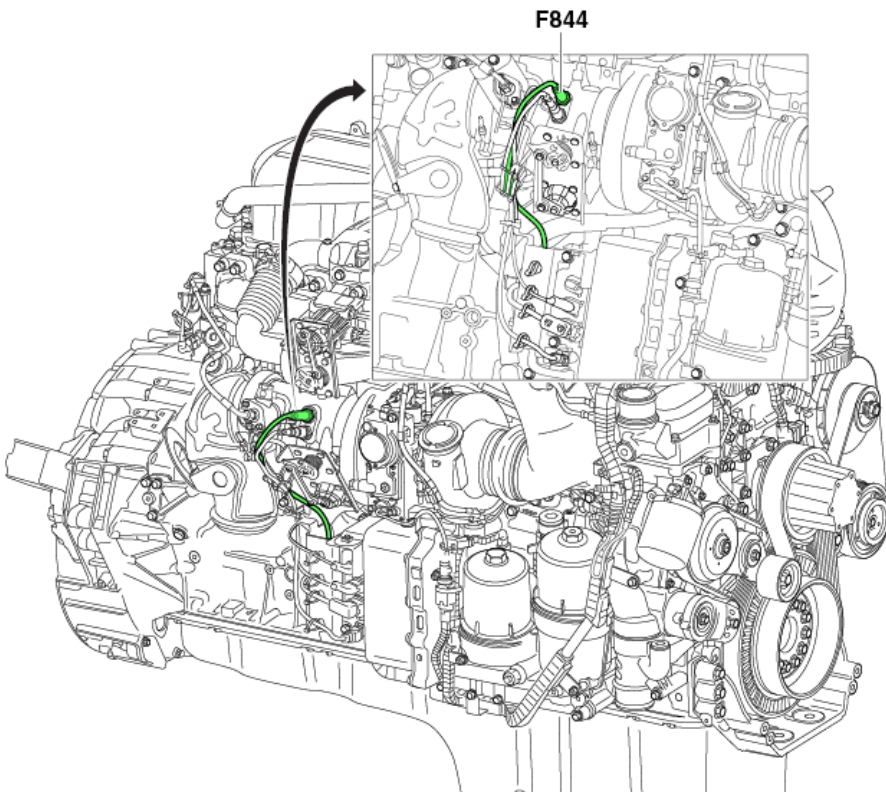
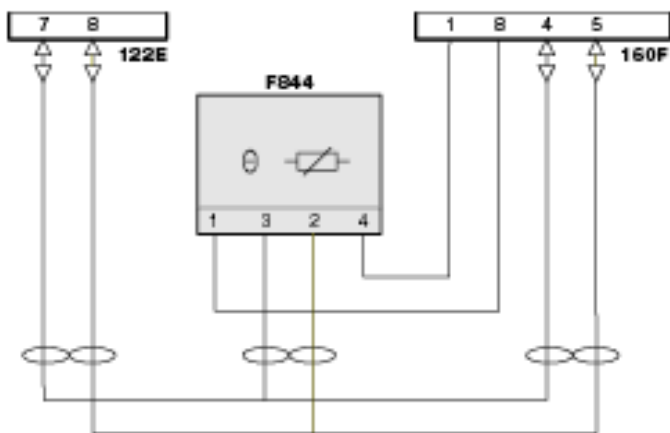
Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	Key off the ignition Disconnect the ground cable from the

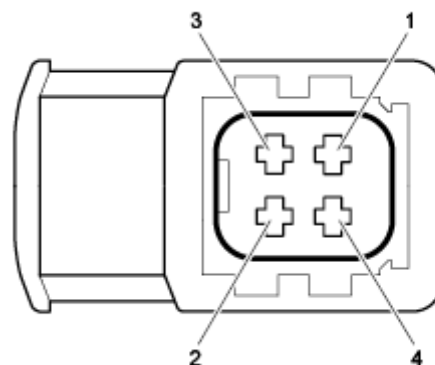
	battery. Disconnect the vehicle communication interface (VCI) of DAVIE.																				
Possible causes	• A damaged NOx sensor after catalyst (F843). • Short circuit to supply or an open circuit.																				
Additional information	• NOx sensor before catalyst (F843) is not operational. • AdBlue injection is based on engine NOx model.																				
Diagnostic Step-by-Step	 Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components. • Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors. • For specific electrical component information and pin out locations, always refer to the technical data. • It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors. • Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section. <table><tr><td>Step 1</td><td>Step ID 3869a</td><td>SRT</td></tr><tr><td colspan="3">Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.</td></tr></table> <table><tr><td>Step 2</td><td>Step ID 3869b</td><td>SRT</td></tr><tr><td colspan="3"> Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • No: Proceed to step 3. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, and then this issue has been resolved. • If this related fault is still active, continue to step 3. </td></tr></table> <table><tr><td>Step 3</td><td>Step ID 3869c</td><td>SRT</td></tr><tr><td colspan="3"> Replace: NOx Sensor, Before Catalyst Replace the identified component. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, and then this issue has been </td></tr></table>			Step 1	Step ID 3869a	SRT	Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.			Step 2	Step ID 3869b	SRT	Electrical Checks Ensure that the ignition key/switch has been set to OFF before disconnecting related cables. Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits: • Supply and signal voltages (12V). • Cable continuity (no opens or shorts). Are measured electrical values outside of expected range or limits? • No: Proceed to step 3. • Yes: Make the appropriate repairs or component replacements. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, and then this issue has been resolved. • If this related fault is still active, continue to step 3.			Step 3	Step ID 3869c	SRT	Replace: NOx Sensor, Before Catalyst Replace the identified component. Use DAVIE to re-check for the presence of active faults. • If this related fault is no longer active, and then this issue has been		
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	resolved. If this related fault is still active, continue to step 4.		
	Step 4	Step ID 3869d	SRT
	Contact the PACCAR Engine Support Call Center For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.		
Verification Drive Cycle	To validate the repair: With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics. With the brakes set, start the engine and allow it to run at idle for 2 minutes.		
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P3870

Code number	P3870
Fault code description	NOx sensor before catalyst - Supply voltage not correct
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group - None Freeze frame type -Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature

	stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram shows a detailed view of an engine. A green arrow points to a component labeled F844, which is part of the DEF dosing system. A black arrow points to the DEF dosing system, which is located near the engine's intake manifold.
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	The fault is set when the power supply does not correspond to the sensor type.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.
Electrical diagram(s)	 The electrical diagram shows the F844 component connected to two connectors. The 122E connector has pins 7 and 8, which are connected to pins 1 and 3 of the F844 component. The 160F connector has pins 1, 3, 4, and 5, which are connected to pins 2 and 4 of the F844 component.



Wiring harness connector F844 front view

122E 12-pin interface connector
160F 8-pin interface connector
F844 -NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

Preparation

- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	Key off the ignition Disconnect the ground cable from the battery. Disconnect the vehicle communication interface (VCI) of DAVIE.

Possible causes

- Wrong NOx sensor after catalyst (F843) installed.
- Monitor the NOx sensor after catalyst (F843), and check the values.

Additional information

- The NOx sensor after catalyst (F843) is not operational.
- DEF injection is based on preprogrammed values.

Diagnostic Step-by-Step



Perform the troubleshooting steps below using the breakout harness, if necessary, to check electrical components, such as sensors, electrical control units, and harnesses. Back probing is not recommended, as it could damage the harness. The ignition should always be in the OFF position when connecting or disconnecting electrical components in order to reduce the likelihood of damage to electrical components.



- Disconnecting the EAS connectors during the troubleshooting process will result in multiple errors.
- For specific electrical component information and pin out locations, always refer to the technical data.
- It is necessary to exit the fault code menu in DAVIE and run the diagnostic test again to identify a change in errors.
- Remember that the truck's operational or mechanical issues may be the root cause of both active and inactive fault codes. Refer to the 'possible causes' section.

Step 1

Step ID 3870a

SRT

Visually inspect all applicable connectors (bent, broken, corroded or loose pins) and harnesses for corrosion, damage, and rubbing during each step of the diagnostic procedure. Proceed to step 2.

Step 2

Step ID 3870b

SRT

Electrical Checks

Ensure that the ignition key/switch has been set to OFF before disconnecting related cables.

Based on the fault message provided, confirm that the following electrical values are within specified ranges or limits:

- Supply and signal voltages (12V).
- Cable continuity (no opens or shorts).

Are measured electrical values outside of expected range or limits?

- No: Proceed to step 3.
- Yes: Make the appropriate repairs or component replacements.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active, continue to step 3

Step 3

Step ID 3870c

SRT

Replace: NOx Sensor, Before Catalyst

Replace the identified component.

Use DAVIE to re-check for the presence of active faults.

- If this related fault is no longer active, then this issue has been resolved.
- If this related fault is still active, continue to step 4.

Step 4

Step ID 3870d

SRT

Contact the PACCAR Engine Support Call Center

For further assistance in diagnosing this issue or for confirmation prior to the replacement of suspect components, contact the PACCAR Engine Support Call Center at 1-800-477-0251.

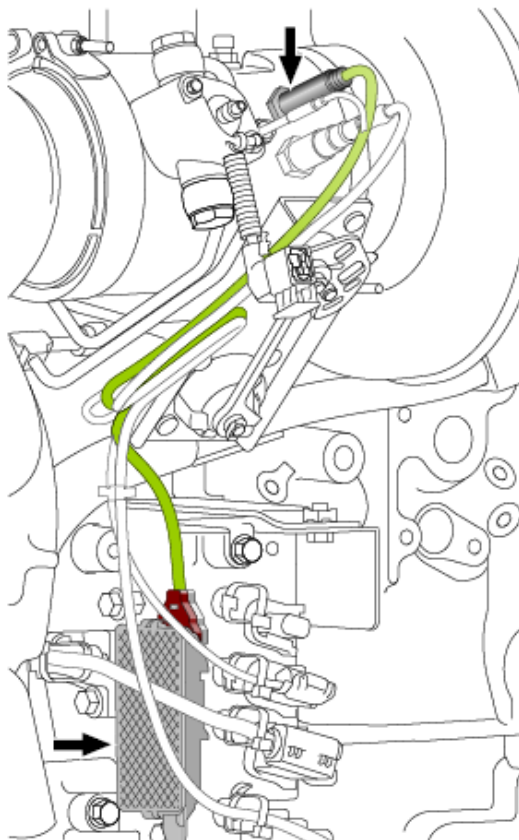
Verification Drive Cycle

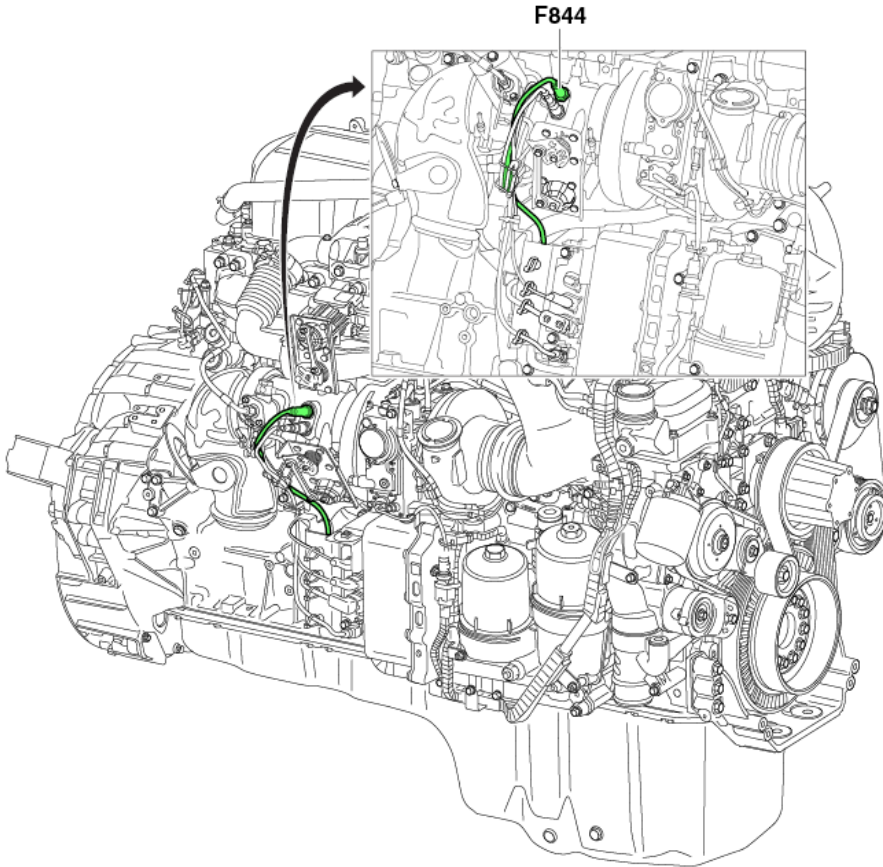
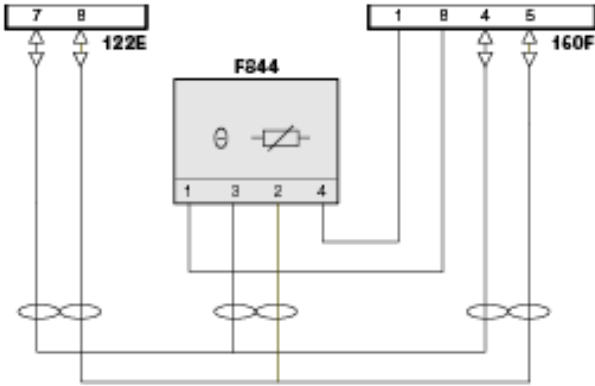
To validate the repair:

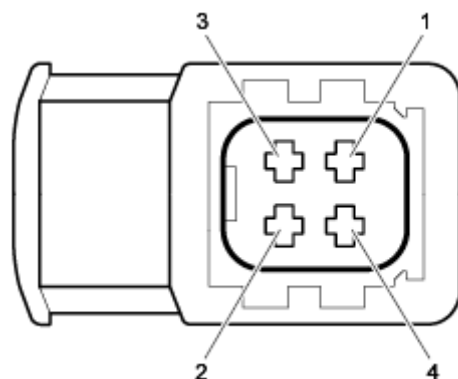
With the brakes set, turn the key to the ON position with the engine off, and allow 10 seconds for the system to initialize and run diagnostics.

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P3871

Code number	P3871
Fault code description	CAN communication-Message (AT1IGC1) timeout for NOx sensor before catalyst.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C [1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays

	at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram shows a side view of a diesel engine. A green arrow points to a sensor labeled 'F844' located on the upper part of the engine block. A black arrow points from this sensor to a larger, more detailed inset diagram of the sensor assembly, which shows various components and wiring connections.
Diagnostic condition	This diagnostic runs for the first 30 seconds after the ignition is keyed on.
Set condition of fault code	This DTC is set when the CAN communication from the NOx sensor before catalyst (F844) to the EAS-3 (D374) is interrupted for 5 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive as soon as the error is no longer detected.
Electrical diagram(s)	 The electrical diagram shows the wiring for the NOx sensor F844. The sensor has four terminals labeled 1, 3, 2, and 4. Terminal 1 is connected to terminal 7 of a connector labeled 122E. Terminal 3 is connected to terminal 1 of a connector labeled 160F. Terminal 2 is connected to terminal 3 of the same 160F connector. Terminal 4 is connected to terminal 5 of the same 160F connector. There are also ground symbols connected to the wiring paths.



Wiring harness connector F844 front view

122E 12-pin interface connector
 160F 8-pin interface connector
 F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

Preparation

- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.

Possible causes

- Breakdown in communication in the CAN network
- Interruption, short circuit to ground, or short circuit to supply in the CAN network wiring

Additional information

No additional information available.

Diagnostic Step-by-Step

Please refer "General troubleshooting – CAN".

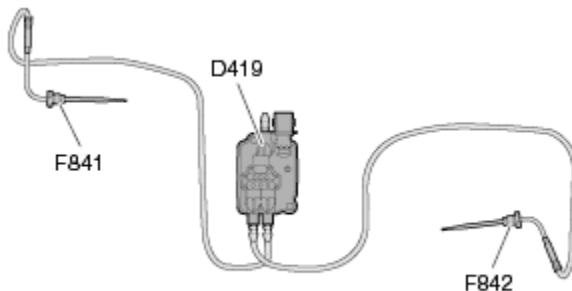
Verification Drive Cycle

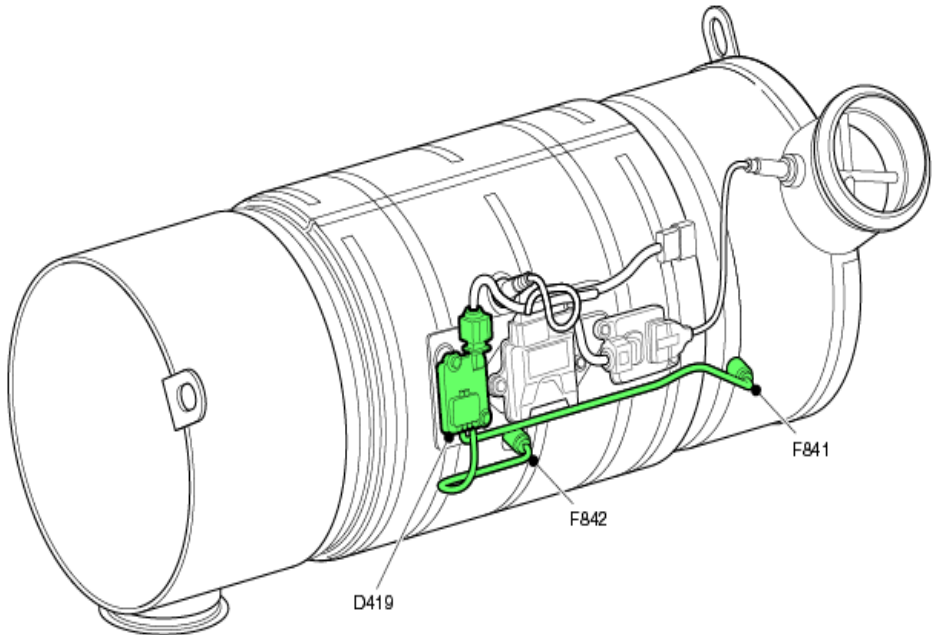
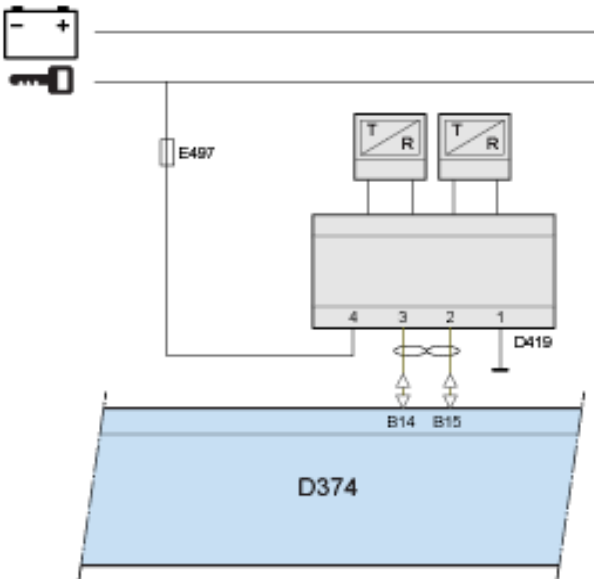
To validate the repair:

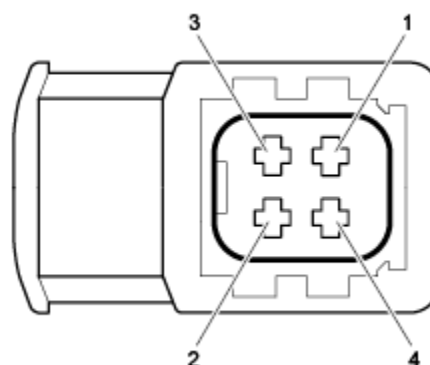
Drive the vehicle at a minimum speed of 80 km/h [50 mph] in the highest gear possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load.

	Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible.
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P3872

Code number	P3872
Fault code description	CAN communication-Message (AT1IGC1) timeout for SCR.
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	 The diagram illustrates the wiring for the exhaust temperature sensors. Sensor F841 (before SCR catalyst) and sensor F842 (after SCR catalyst) are connected to the ECU SCR catalyst temperature sensors D419. The sensors are shown as thermocouples with wires leading to a central control unit labeled D419. • Sensor, exhaust temperature before SCR catalyst (F841) • Sensor, exhaust temperature after SCR catalyst (F842) General • Thermocouple sensors; • The temperature sensors are connected to the ECU SCR catalyst temperature Sensors (D419). The signal of the temperature sensors is transmitted to the A-CAN by the ECU SCR catalyst temperature sensors (D419).The temperature sensors cannot be disconnected or replaced separately from the ECU SCR catalyst temperature sensors (D419). Sensor, exhaust temperature before SCR catalyst (F841) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determines whether DEF injection is required • Determines whether the DEF pump can be activated • Determines the start and quantity of DEF dosing • Determine whether a DEF catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures Sensor, exhaust temperature after SCR catalyst (F842) • Measure the exhaust gas temperature before the SCR catalytic converter. Effect of the output signal on the system • Determine whether an SCR catalytic converter is present • Protects the SCR catalyst from reaching excessive temperatures • Determines the dew point of NOx sensor after catalyst (F843)

Location of component(s)	 The diagram shows a cylindrical component, likely a catalyst housing, with a circular access panel on the right. Three components are highlighted in green: D419 (a small electronic control unit), F841 (a fuse), and F842 (another fuse). Wires connect these components to the internal wiring of the housing.
Diagnostic condition	This diagnostic runs continuously when the ignition is on.
Set condition of fault code	This DTC is set when the CAN communication from the temperature sensors SCR catalyst ECU (D419) to the EAS-3 (D374) is interrupted for 2.5 consecutive seconds.
Reset condition of fault code	This DTC changes to inactive as soon as the error is no longer detected.
Electrical diagram(s)	 The electrical diagram shows the power supply and communication lines for the components. A battery symbol is connected to a fuse E497. The fuse E497 is connected to the power input (pin 4) of the D419 module. The D419 module has two temperature sensors (T/R) connected to its pins 3 and 2. The D419 module is connected to the D374 module via a CAN bus, with pins 1 and 2 of D419 connected to pins B14 and B15 of D374. The D374 module is represented by a blue parallelogram.



Wiring harness connector D419 front view

D374 EAS-3 ECU

D419 catalytic converter temperature sensors ECU

E497 after treatment CAN fuse

D374	D419	Function
B14	3	A-CAN High
B15	2	A-CAN Low
	1	Ground
	4	Power supply

Technical data

Component and wiring check, ECU temperature sensors SCR catalyst (D419)

Preparation

- Disconnect connector D419.
- Ignition switched on.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	
1	Battery negative pole	>0.5V	Switch on all consumers

Component & wiring check, A-CAN

Preparation

- Ignition switched off.
- Disconnect connector D419.
- Measure on connector D419.

Pin (+ probe)	Pin (- probe)	Value	Additional information
2	3	$\pm 60 \Omega$	

Possible causes

- Breakdown in communication in the CAN network
- Interruption, short circuit to ground, or short circuit to supply in the CAN network wiring

Additional information

No additional information is available.

Diagnostic Step-by-Step

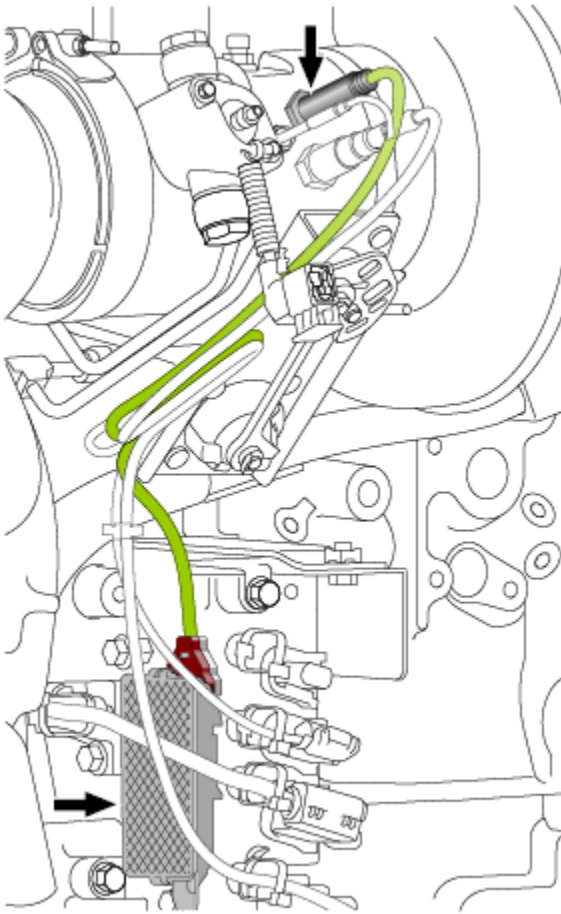
Please refer "General troubleshooting – CAN".

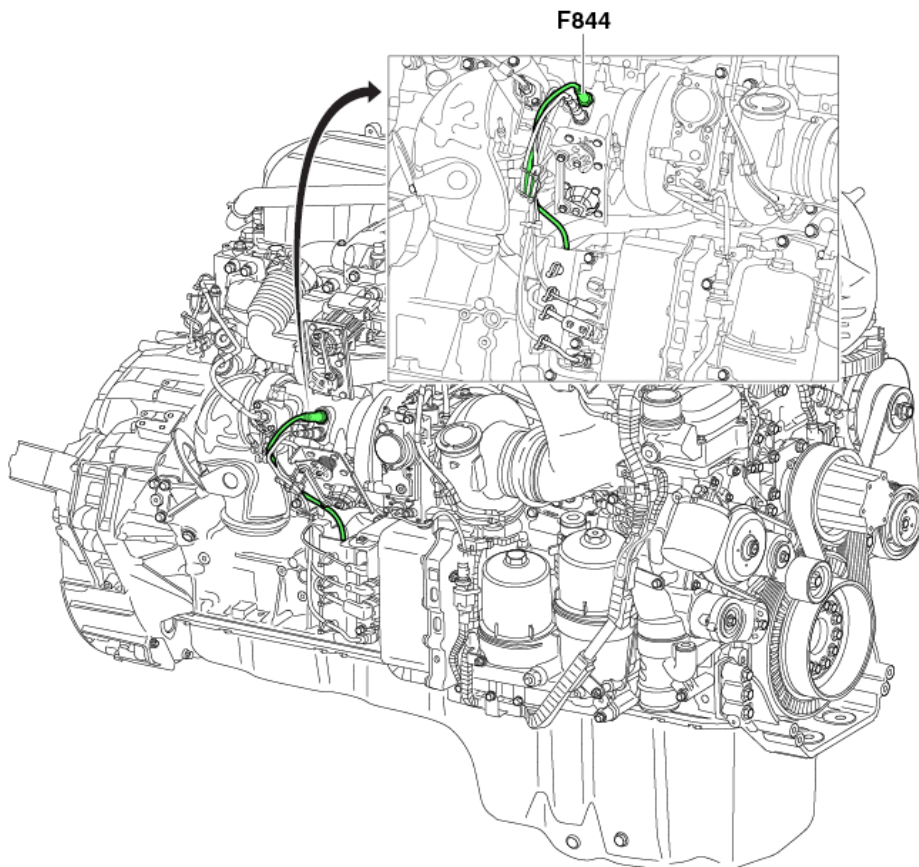
Verification Drive Cycle

To validate the repair:
Drive the vehicle at a minimum speed of 80 km/h [50 mph] in the highest gear

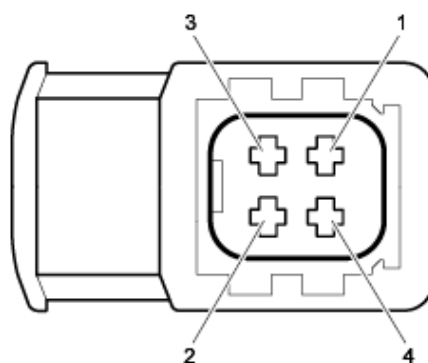
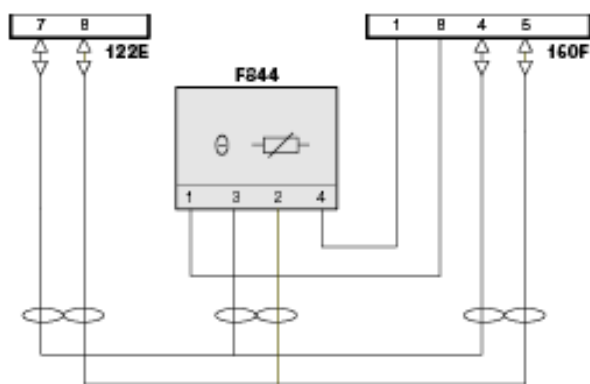
	possible with the engine speed between 1100 and 1500 rpm and set the cruise control. This test is best performed with a loaded vehicle/trailer, but if load is unavailable, turn as many engine power consumers on to produce engine load. Perform this test for roughly 5 to 8 km [3 to 5 miles] or in 3 separate 1.5 km [1 mile] increments if a steady 5 to 8 km [3 to 5 miles] is unachievable. Use a flat road, if possible.
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P3873

Code number	P3873
Fault code description	CAN communication – Message (AT1IGC1) timeout from NOx sensor before catalyst
Fault code information	1 trip MIL 3 drive cycle recovery Readiness group – None Freeze frame type – Comprehensive
Description of component(s)	The NOx concentration emitted by the engine is measured in the exhaust gases after the BPV valve. The NOx sensor before catalyst consists of: • Electronic control unit This unit communicates with the PCI ECU and EAS-3 ECU via A-CAN • Sensor element The sensor element contains an internal heater. The sensor cannot be separated from the electronic control unit.  Sensor heating control • The first stage starts when the ignition is keyed on. The sensor is heated to approximately 100°C [212°F], and any condensate evaporates from the sensor. • The second stage starts after the 'dew point' message is received from the PCI ECU The sensor is heated to its operating temperature of approximately 800°C

	[1472°F]. The PCI ECU determines the 'dew point' by calculating how much energy (heat by burning fuel in the engine) is pumped through the exhaust. If the 'dew point' message is not/no longer received, the sensor temperature stays at/drops to the standby temperature of approximately 100°C [212°F]. Effect on the system: - Controls the engine NOx emission. - Determines the DEF dosing amount by the EAS-3 system Higher measured engine NOx emission results in higher DEF dosing amount.
Location of component(s)	 The diagram shows a detailed view of an engine. A green arrow points to a component labeled 'F844' located near the exhaust manifold. Another green arrow points to a component located near the bottom of the engine, likely the DEF dosing system. A black arrow points to the exhaust manifold area.
Diagnostic condition	This diagnostic runs for the first 30 seconds after the ignition is keyed on.
Set condition of fault code	This DTC is set when the CAN communication from the NOx sensor after catalyst (F843) to the EAS-3 (D374) is interrupted for 2.5 consecutive seconds.
Reset condition of fault code	This fault code will change to inactive immediately after the diagnostic runs and passes.

Electrical diagram(s)



Wiring harness connector F844 front view

122E 12-pin interface connector

160F 8-pin interface connector

F844 NOx sensor before catalytic convertor

F844	122E	160F	Function
3	7	4	A-CAN high
2	8	5	A-CAN low
1		8	Power supply after ignition
4		1	Ground

Technical data

Component & wiring check, NOx sensor before catalyst (F844)

Preparation

- Ignition keyed off
- Disconnect connector F844.
- Measure on the front side of wiring harness connector F844

Pin (+ probe)	Pin (- probe)	Value	Additional information
4	1	Ubat	Key on the ignition
1	Battery negative pole	>0.5 V	Key on the ignition and switch on all consumers
2	3	$\pm 60 \Omega$	• Key off the ignition • Disconnect the ground wire from the battery. • Disconnect the vehicle communication interface (VCI) of DAVIE.

Possible causes	CAN wiring, see "General troubleshooting - CAN"
Additional information	No additional information available.
Diagnostic Step-by-Step	Please refer "General troubleshooting – CAN"
Verification Drive Cycle	To validate the repair: Perform the same procedure outlined for the Steady State cycle. Using DAVIE, select the following Monitor values to record: • Exhaust Temperature Before SCR • Exhaust Temperature After SCR • Pump Module Once the SCR temperatures have reached a minimum of 536°F (280°C), continue the remainder of this cycle with the high idle. The monitored Pump Module value will indicate when dosing starts. Allow dosing to occur for a minimum of 15 minutes. Check the recorded values after the driving has been completed to verify temperatures and dosing.
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