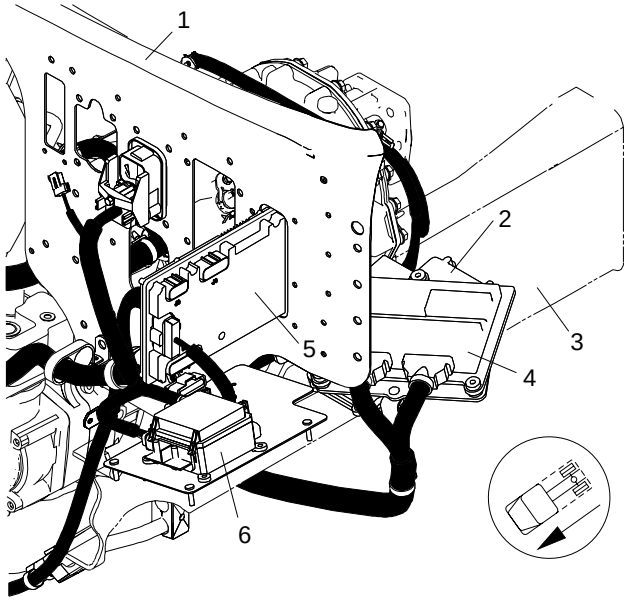
General Information

The Chassis Module (CHM) is the secondary module of the vehicle electrical system, and acts as a slave to the Bulkhead Module.

The Chassis Module is mounted to the bracket that holds the transmission control unit on the outside of the left-hand frame rail just behind the front wheel well. See **Fig. 1**. It has five harness connections. See **Fig. 2**.



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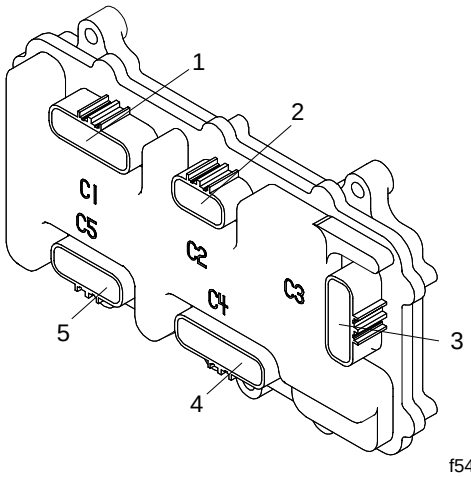
1. Frontwall
2. Chassis Module
3. Left-Hand Frame Rail
4. Transmission ECU
5. Bulkhead Module
6. Main PDM

Fig. 1, Chassis Module Mounted to Frame Rail



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1. Connection C1, Forward Chassis Harness
2. Connection C2, Forward Chassis Harness
3. Connection C3, Forward Chassis Harness
4. Connection C4, Forward Chassis Harness
5. Connection C5, Forward Chassis Harness

Fig. 2, Chassis Module

Chassis Module Removal and Installation

Removal

IMPORTANT: It is normally not necessary to replace the Chassis Module. Removing and installing the electronic Chassis Module controller should be a last resort to solving electrical problems, unless the unit needs replacing due to physical damage. Follow troubleshooting procedures in Bulkhead Module **Section 54.01, Troubleshooting 300** to help solve electrical problems involving this module before replacing either the Bulkhead Module or Chassis Module. If troubleshooting indicates a malfunction of either module, try reflashing the parameters and the software before replacing the module. Also check external wiring.

Also see **Section 54.00**, Electrical System, for more information about the vehicle electrical system in general, and **Troubleshooting 300** of that section for help in troubleshooting the entire electrical system.

1. Disconnect the negative leads from the batteries.

NOTE: The chassis module is mounted under the transmission ECU on a bracket mounted outside the left-hand frame rail aft of the front wheels. See **Fig. 1**.

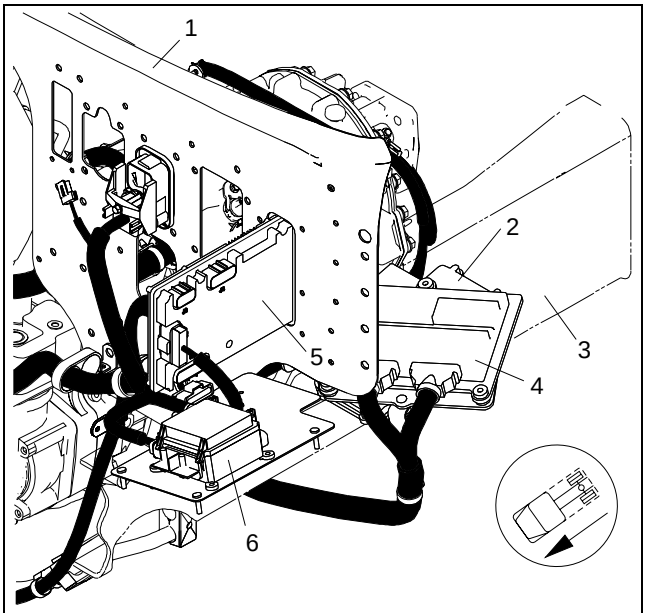
2. Unplug harness connectors C1–C5 from the chassis module. See **Fig. 2**.

NOTE: Before removing the Chassis Module from its mounting plate, take note of its orientation. Connector C3 should be toward the rear of the vehicle and connectors C1 and C5 should be toward the front.

3. Remove the mounting nuts and washers that secure the Chassis Module to the mounting plate and remove the Chassis Module.

Installation

1. Properly orient the Chassis Module on its mounting plate. See **Fig. 3**. Install the module on the mounting plate with the mounting nuts and washers.
2. Plug the wiring harness connectors into Chassis Module connectors C1–C5. See **Fig. 2**.
3. Connect the batteries.
4. Check to make sure electrical components work.



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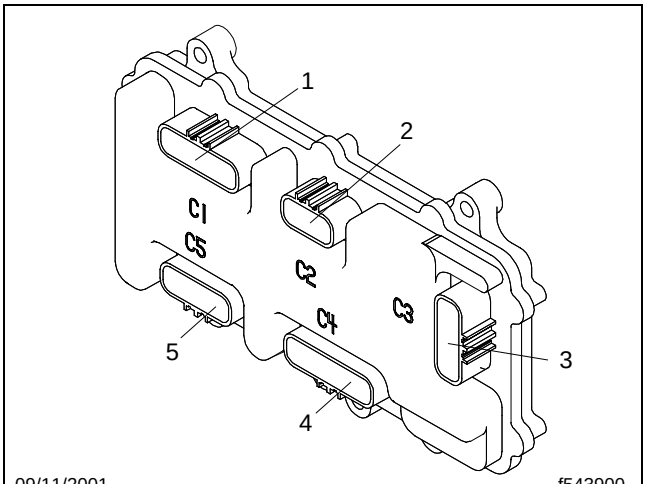
1. Frontwall
2. Chassis Module
3. Left-Hand Frame Rail
4. Transmission ECU
5. Bulkhead Module
6. Main PDM

Fig. 1, Chassis Module Mounted to Frame Rail



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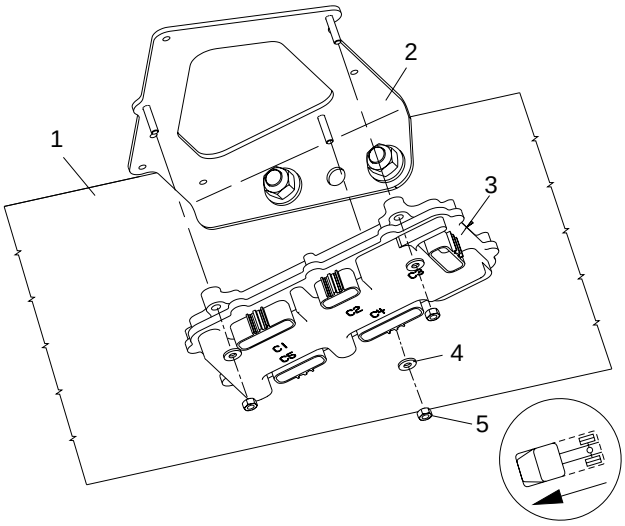
1. Connection C1, Forward Chassis Harness
2. Connection C2, Forward Chassis Harness
3. Connection C3, Forward Chassis Harness
4. Connection C4, Forward Chassis Harness
5. Connection C5, Forward Chassis Harness

Fig. 2, Chassis Module Connectors

Chassis Module Removal and Installation



1. Left-Hand Frame Rail
2. Transmission ECU Mounting Bracket
3. Chassis Module
4. Washer, 1/4-inch Stainless Steel
5. Hexnut, 1/4–20

Fig. 3, Chassis Module Installation

Specifications

For an isometric view of the Chassis Module, see **Fig. 1**.

For a side view of the Chassis Module with pinout assignments, see **Fig. 2**.

For forward chassis harness pinouts at connector C1, see **Table 1**.

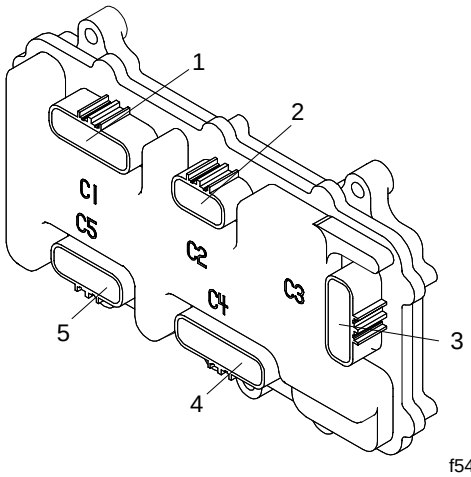
For forward chassis harness pinouts at connector C2, see **Table 2**.

For forward chassis harness pinouts at connector C3, see **Table 3**.

For forward chassis harness pinouts at connector C4, see **Table 4**.

For forward chassis harness pinouts at connector C5, see **Table 5**.

For power supply fuses and associated outputs for the Chassis Module, see **Table 6**.



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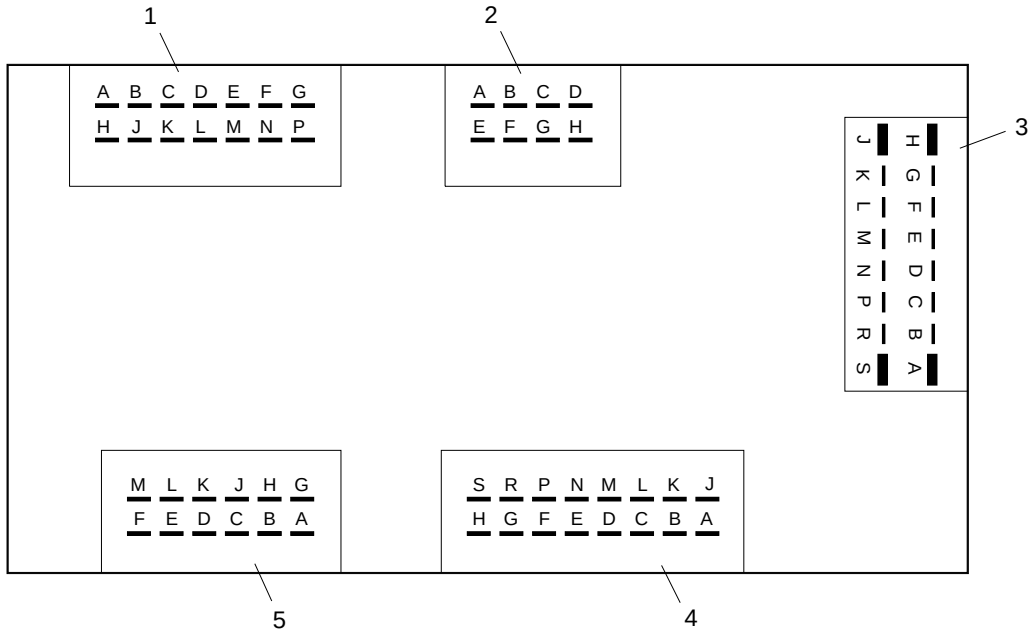
1. Connection C1, Forward Chassis Harness
2. Connection C2, Forward Chassis Harness
3. Connection C3, Forward Chassis Harness
4. Connection C4, Forward Chassis Harness
5. Connection C5, Forward Chassis Harness

Fig. 1, Chassis Module (isometric view)



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1. Connection C1, Forward Chassis Harness
2. Connection C2, Forward Chassis Harness
3. Connection C3, Forward Chassis Harness
4. Connection C4, Forward Chassis Harness
5. Connection C5, Forward Chassis Harness

Fig. 2, Chassis Module With Pinout Assignments

Specifications

Forward Chassis Harness Pinouts at Connector C1			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C1-A	—	—	See C1-H
C1-B	—	—	—
C1-C	—	—	—
C1-D	—	—	—
C1-E	—	—	—
C1-F	—	—	—
C1-G	—	—	See C3-N
C1-H	Reverse Light—Right Side Upper	Digital Output	120E
C1-J	—	—	See C1-H
C1-K	—	—	—
C1-L	Right Upper Brake Light	Digital Output	36K
C1-M	—	—	—
C1-N	Left Upper Brake Light	Digital Output	36J
C1-P	—	—	See C3-R

Table 1, Forward Chassis Harness Pinouts at Connector C1

Forward Chassis Harness Pinouts at Connector C2			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C2-A	Dash Fan 1—High-Speed Relay	Digital Output	40H
C2-B	—	—	—
C2-C	—	—	—
C2-D	—	—	—
C2-E	—	—	See C3-R
C2-F	License Plate Lamp	Digital Output	23C
C2-G	—	—	—
C2-H	—	—	See C3-N

Table 2, Forward Chassis Harness Pinouts at Connector C2

Forward Chassis Harness Pinouts at Connector C3			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C3-A	Fuel/Water Separator Heater	Digital Output	196
C3-B	J1587– Data Bus	Data Bus	1587–
C3-C	—	—	See C3-D
C3-D	Reverse Light—Left Side Upper	Digital Output	120D
C3-E	Spare Input CAS1—Low Air	Digital Input (Active Low)	18

Specifications

Forward Chassis Harness Pinouts at Connector C3			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C3-F	Spare Input CAS0—Park Brake	Digital Input (Active Low)	125S
C3-G	Service Brake	Digital Input (Active Low)	36
C3-H	Ground	Power Ground	GND
C3-J	Main Battery Power (VBAT2)	Power	14G
C3-K	Turn Lights—Front Right	Digital Output	38R
C3-L	Right Low Beam	Digital Output	21L
C3-M	Ignition	Digital Input (Active High)	376C
C3-N	Turn Lights—Left Side, Fender	Digital Output	38E
C3-P	—	—	—
C3-R	Turn Lights—Right Side, Fender	Digital Output	38F
C3-S	J1587+ Data Bus	Data Bus	1587+

Table 3, Forward Chassis Harness Pinouts at Connector C3

Forward Chassis Harness Pinouts at Connector C4			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C4-A	Module Wake-Up Signal	Digital Input/Output	—
C4-B	Address Identification A	Analog Input	481
C4-C	Left Park Lamp	Digital Output	102A
C4-D	Left Marker Lamp	Digital Output	46E
C4-E	Address Identification C	Analog Input	481
C4-F	Turn Lights—Front Left	Digital Output	38L
C4-G	J1939+ Data Bus	Data Bus	1939+
C4-H	Ground (Address Identification D)	Signal Ground	—
C4-J	Main Battery Power (VBAT3)	Power	14G
C4-K	Right High Beam	Digital Output	21H
C4-L	Right Park Lamp	Digital Output	102B
C4-M	Right Marker Lamp	Digital Output	46F
C4-N	Address Identification B	Analog Input	—
C4-P	Main Battery Power (VBAT1)	Power	14G
C4-R	J1939– Data Bus	Data Bus	1939–
C4-S	Ground	Power Ground	GND

Table 4, Forward Chassis Harness Pinouts at Connector C4

Specifications

Forward Chassis Harness Pinouts at Connector C5			
Connector Pin	**Signal Name**	**Signal Type**	**Circuit Number**
C5-A	Driver-Side Emergency Door Latch	Digital Input (Active Low) Analog Input	489V
C5-B	Rear Emergency Door Vandalock	Digital Input (Active Low) Analog Input	489P
C5-C	—	—	—
C5-D	—	—	—
C5-E	—	—	—
C5-F	Vandalock Input—Passenger-Side Emergency Door/Lift Door	Digital Input	489J
C5-G	Passenger-Side Emergency Door Latch	Digital Input	489W
C5-H	Stop Arm Relay	Digital Output	489A
C5-J	Backup Alarm	Digital Output	122A
C5-K	—	—	—
C5-L	Dash Fan 1—Low-Speed Relay	Digital Output	40G
C5-M	Crossing Arm Relay	Digital Output	489B

Table 5, Forward Chassis Harness Pinouts at Connector C5

Power Supply Fuses and Associated Outputs for the Chassis Module				
CHM Power Input	**CHM Power Input Pin**	**Fuse Supplying CHM Power Input**	**CHM Outputs Supplied**	**CHM Output Pin**
Power In			**Power Out**	
VBAT1	C4.P	Fuse 19 (30A)	Right Low Beam	C3.L
			Turn Lights—Right Side, Fender	C3.R
			Turn Lights—Right Side, Fender	C1.P
			Right Upper Brake Light	C1.L
			Left Upper Brake Light	C1.N
			Turn Lights—Front Right	C3.K
			Reverse Light—Left Side Upper	C3.D
			Turn Lights—Right Side, Fender	C2.E

Specifications

Power Supply Fuses and Associated Outputs for the Chassis Module				
CHM Power Input	**CHM Power Input Pin**	**Fuse Supplying CHM Power Input**	**CHM Outputs Supplied**	**CHM Output Pin**
Power In			**Power Out**	
VBAT2	C3.J	Fuse 17 (30A)	Left Park Lamp	C4.C
			Right Park Lamp	C4.L
			Left Marker Lamp	C4.D
			Right Marker Lamp	C4.M
			Trailer Marker Relay	C2.F
			Right High Beam	C4.K
			Reverse Light—Right Side Upper	C1.H
			Turn Lights—Left Side, Fender	C3.N
			Turn Lights—Front Left	C4.F
VBAT3	C4.J	Fuse 13 (30A)	Fuel Water Separator Heater	C3.A
			Stop Arm Relay	C5.H
			Backup Alarm	C5.J
			Dash Fan 1—Low-Speed Relay	C5.L
			Crossing Arm Relay	C5.M

Table 6, Power Supply Fuses and Associated Outputs for the Chassis Module

NOTE: The power supply to the Bulkhead Module microprocessor is supplied from any of the five VBAT inputs (VBAT1, VBAT2, VBAT3, VBAT4, or VBAT5) through an internal diode network. The same is true for the Chassis Module with its input VBAT1, VBAT2, or VBAT3. In theory, if any one of the module's VBAT inputs is supplying power, the module will be functional.