ParkSmart Refrigerant Loop Service Kits

83-145

Freightliner Service Bulletin

FLA COE
FLB COE
FLD Conventional
FLC 112 Conventional
Business Class

Century Class Conventional
Argosy COE
Cargo
Columbia

Coronado
Business Class M2
> Cascadia
108SD/114SD

Description of Revisions: *This bulletin replaces the version dated August 2012. New system identification information and parts tables have been added.*

General Information

More cost-effective refrigerant-loop service kits are now available for both sealed-unit and split-unit ParkSmart systems. A service kit must be used to repair units with failed components that are part of the sealed refrigerant loop. In most cases, replacing the entire ParkSmart unit is no longer a warrantable repair option. **Figure 1** shows the sealed-unit service kit with the case open. The split-unit is similar but does not have the condenser in it.

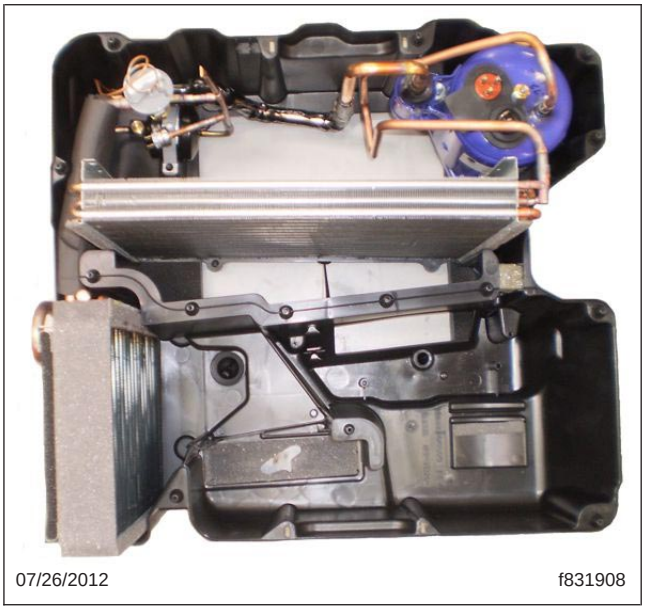

Fig. 1, Service Kit, Sealed Unit (shown with open case for clarity—split unit similar)

Determining the Vehicle's ParkSmart System

Use **Table 1**, **Table 2**, **Table 3**, **Table 4**, and **Table 5** to determine what type of ParkSmart system is installed on the vehicle being serviced and what parts are required.

Determining the Vehicle's ParkSmart System: Step 1	
Question	**Answer**
Is the vehicle equipped with a sealed-unit or a split-unit ParkSmart?	If there is no condenser on the back wall of the cab, you have a sealed unit. Use **Table 6**. If the vehicle has a split unit there is a condenser mounted on the back wall of the cab. See illustration below. For split unit use **Table 7**.

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Condenser on Back Wall of Cab

Table 1, Determining the Vehicle's ParkSmart System; Step 1

Determining the Vehicle's ParkSmart System: Step 2	
Question	**Answer**
Is the compressor equipped with spade terminals or round pin terminals?	Refer to illustration below to identify the compressor terminals.

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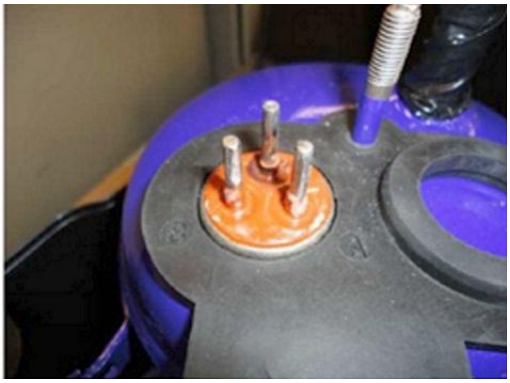
Spade Terminals



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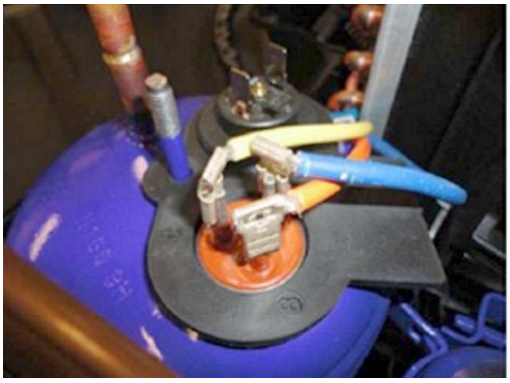
Round Pin Terminals



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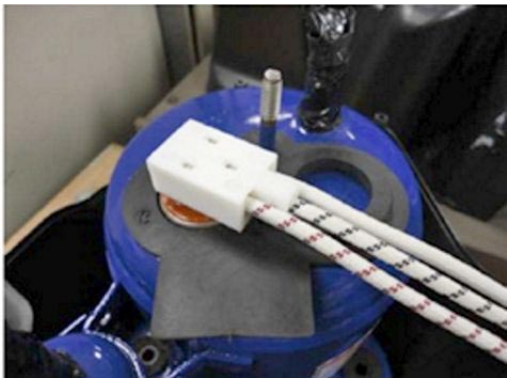
Harness Connections to Spade Terminals



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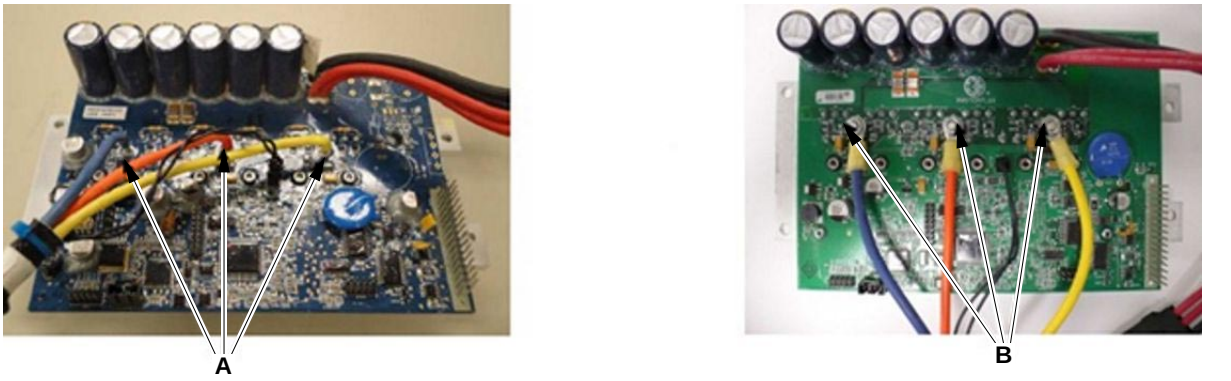
Harness Connections to Round Pin Terminals

Table 2, Determining the Vehicle's ParkSmart System: Step 2

Determining the Vehicle's ParkSmart System: Step 3	
Question	**Answer**
Is the compressor harness soldered to the controller printed circuit board (PCB) or is it attached with removable ring terminals?	Refer to illustration below to identify the PCB.

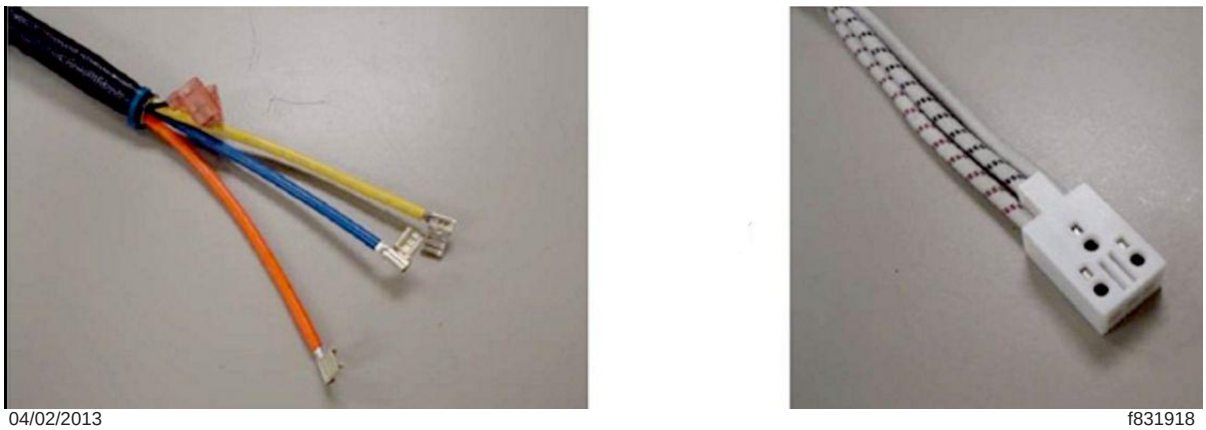


A. Soldered Harness Connection

B. Ring Terminal Harness Connection

Table 3, Determining the Vehicle's ParkSmart System: Step 3

Determining the Vehicle's ParkSmart System: Step 4	
Question	**Answer**
Is the compressor harness equipped with flag terminals or a cluster block connector?	Refer to illustration below to identify the compressor harness style.

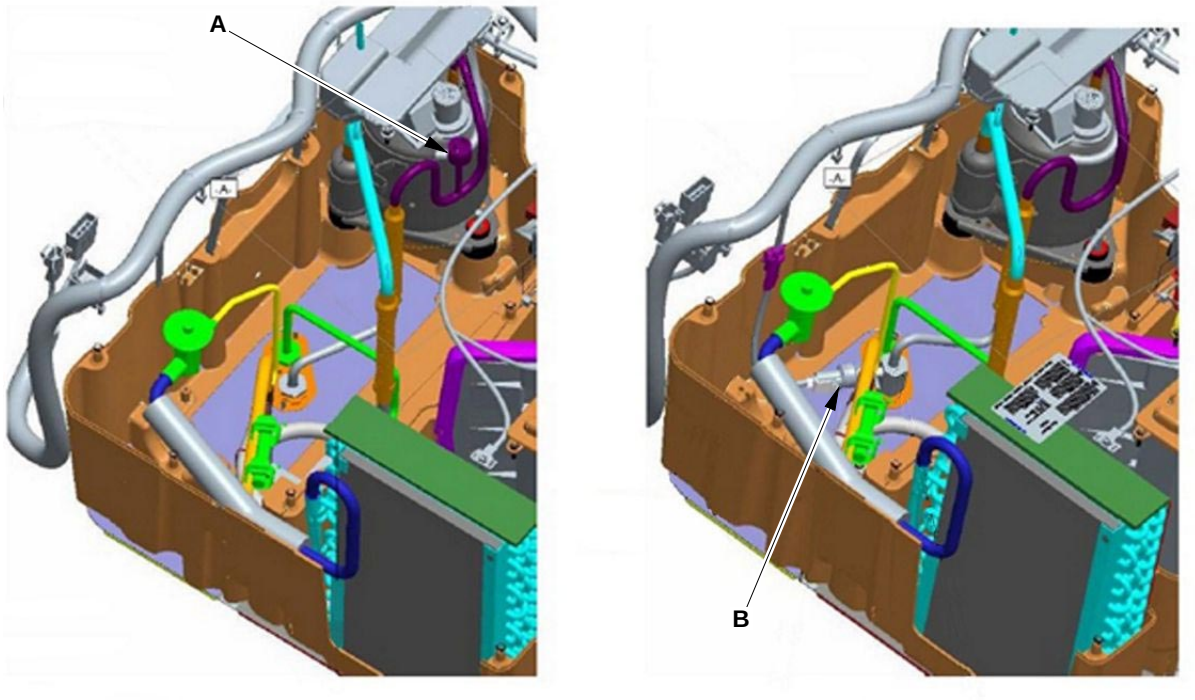


Flag Terminal Connectors

Cluster Block Connector

Table 4, Determining the Vehicle's ParkSmart System: Step 4

Determining the Vehicle's ParkSmart System: Step 5	
Question	**Answer**
Is the unit equipped with a high-pressure switch or a binary switch (Split Unit only)?	Refer to illustration below to determine whether or not the system is equipped with a binary switch.



A. High Pressure Switch Installations

B. Binary Switch Installations

Table 5, Determining the Vehicle's ParkSmart System: Step 5

NOTE: The DTNA Aftermarket Resource Center (ARC) has a training video available that demonstrates the service loop replacement procedures. Go to**www.DTNAARC.com** to view the video.

Sealed Unit Change Information

For units manufactured before July 2011, the kit includes the sealed refrigerant loop in a redesigned case. The new case has improved condensate drainage and an access panel for compressor testing. See **Table 6** for sealed unit replacement parts. When using this kit, it is necessary to transfer the following components from the original unit to the new one:

- main harness
- heater core
- blower motor assembly

- blend door
- blend door actuator
- controller and harness (if not being replaced)
- temperature sensors
- foam strip from the top of the condenser

Follow the instructions in **Section 83.03** of the *Cascadia Workshop Manual* when removing and installing individual components.

Sealed Unit Service Kit Installation

NOTE: When installing the main harness, it may not wrap around the case exactly the way it did on the early model case due to design changes. This is not a problem, as there is adequate clearance in the cabinet.

1. Park the vehicle on a level surface, shut down the engine and set the parking brakes. Chock the tires.
2. Disconnect the starting batteries at the negative post.
3. Disconnect the auxiliary batteries at the negative post.

NOTICE

Do not attempt to remove the new refrigerant loop from the new case that it is shipped in. Doing so will damage the refrigerant loop and render the part useless.

4. Remove the ParkSmart from the vehicle. For instructions, refer to **Subject 83.03, 120** of the *Cascadia Workshop Manual*.
5. On the workbench, transfer all of the removable parts from the original unit to the new case containing the new refrigerant loop. For instructions on removing and installing individual parts, refer to **Section 83.03** of the *Cascadia Workshop Manual*.
6. Install the new ParkSmart in the vehicle. For instructions refer to **Subject 83.03, 120** of the *Cascadia Workshop Manual*.

Split Unit Change Information

For ParkSmart units built from July 2011, the kit includes the non-repairable refrigerant loop in a new case with sealed connections for the external refrigerant lines. In some cases, a new wiring harness and internal controller are also needed. See **Table 7**. When using this kit, it is necessary to transfer the following components from the original unit to the new case:

- main harness
- heater core
- blower motor assembly
- blend door
- blend door actuator
- controller and harness (if not being replaced)
- temperature sensors

Follow the instructions in **Section 83.03** of the *Cascadia Workshop Manual* when removing and installing individual components.

Split Unit Service Kit Installation

⚠ WARNING

The ParkSmart system uses a non-conductive compressor oil. Use only polyvinylether (PVE) refrigerant oil in this system. The refrigerant system has enough oil capacity to be recovered four times over the life of the unit. Oil should never need to be added, but if it does, the correct type must be used to prevent a dangerous electrical short from occurring in the compressor. When handling this oil, observe the following guidelines.

- Keep the oil free of contaminants.
- Do not expose the air conditioning system or the oil container to air for more than five minutes. The oil has a high moisture absorption capacity and the oil container should be sealed immediately after each use.
- Use care when handling. Spilled oil could damage painted surfaces, plastic parts, and other components such as drive belts.
- Never mix PVE oil with other types of refrigerant oil.

Failure to follow these guidelines could lead to component damage or severe electrical shock to anyone touching the system components.

1. Park the vehicle on a level surface, shut down the engine and set the parking brakes. Chock the tires.

NOTE: The ParkSmart has only one charging port. Use the high-side hose from the charging machine to service the system.

2. Recover the refrigerant from the system as follows.
   - 2.1 Remove the cap form the service port at the back of the sleeper.
   - 2.2 Identify the refrigerant using the "Refrigerant Identification" procedures listed in **Subject 83.03, 250** of the *Cascadia Workshop Manual*.

   IMPORTANT: Push down firmly on the hose connectors until a clicking sound is heard. This will ensure that the coupler is locked.

   - 2.3 Wearing protective goggles and nonleather gloves, attach the refrigerant recovery and charging machine hose to service port.
   - 2.4 Follow the refrigerant recovery and charging machine manufacturer’s instructions, and recover all of the refrigerant from the refrigerant system.

   IMPORTANT: Always comply with all federal and local regulations regarding refrigerant recovery and disposal. You may be subject to substantial penalties for improper procedures.
3. Disconnect the starting batteries at the negative post.
4. Disconnect the auxiliary batteries at the negative post.

NOTICE

Do not attempt to remove the new refrigerant loop from the new case that it is shipped in. Doing so may damage the refrigerant loop and render the part useless.

5. Remove the ParkSmart from the vehicle. For instructions refer to **Subject 83.03, 120** of the *Cascadia Workshop Manual*.
6. On the workbench, transfer all of the removable parts from the original unit to the new case containing the new refrigerant loop. For instructions on removing and installing individual parts, refer to **Section 83.03** of the *Cascadia Workshop Manual*.
7. Install the new ParkSmart unit in the vehicle. For instructions refer to **Subject 83.03, 120** of the *Cascadia Workshop Manual*.
8. Evacuate and charge the system as follows.
   - 8.1 Make sure the vacuum pump has been properly maintained.
   - 8.2 Attach the refrigerant recovery and charging machine hose, or a vacuum pump, to the valve.

   IMPORTANT: Push down firmly on the hose connector until a clicking sound is heard. This will ensure that the coupler is locked.

   - 8.3 Follow the refrigerant recovery and charging machine manufacturer's instructions, and evacuate the refrigerant system.
   - 8.4 Using a 6-cfm pump, the system should be evacuated for a minimum of 10 minutes. Evacuate the system for a longer period of time if using a smaller pump. Make sure that the vacuum level reaches a point where water would boil and does not go back toward zero, then proceed with charging and leak testing the system

   NOTE: The correct charge for the vehicle is shown on the sticker near the charging port.

   - 8.5 Charge the system on the high side following the refrigerant recovery and charging machine manufacturer's instructions.
   - 8.6 Start the ParkSmart system and use the information in **C02.01** of the *Cascadia Troubleshooting Manual* to evaluate the system performance.
   - 8.7 Disconnect the hose.
   - 8.8 Recover the refrigerant that is in the hose.

Parts

Parts are available through the PDC.

Sealed Unit Replacement Parts					
Option	**Procedure**	**ParkSmart in Truck**	**Part Number**	**Part Description**	**Notes**
1	Replace ParkSmart with refrigerant loop kit.	Production Rev 3 ParkSmart with spade terminals on compressor and soldered-on compressor harness on controller printed circuit board (PCB)	BSM 1000308542	Refrigerant Loop Kit with old-style spade terminals on compressor	This option is for trucks which still have the original style ParkSmart the truck was built with, and the original style controller PCB with soldered-on compressor harness. BSM 1000308542 is no longer produced. When stock runs out, BSM 1000393251 will need to be used.
2	Replace ParkSmart with refrigerant loop kit, replace controller PCB and compressor harness	Production Rev 3 ParkSmart with spade terminals on compressor and soldered-on compressor harness on controller circuit board	BSM 1000393251	Refrigerant Loop Kit with round pin terminals on compressor	After BSM 1000308542 is no longer available, this option is for trucks which still have the original style Parksmart the truck was built with, and the original style controller PCB with soldered-on compressor harness.
			BSM 1000394255	Controller PCB with studs for attaching compressor harness	
			BSM 1000338843	Cluster block compressor harness	
3	Replace ParkSmart with refrigerant loop kit, replace compressor harness	Production Rev 3 ParkSmart with spade terminals on compressor and updated controller circuit board with removable (ring terminal) compressor harness	BSM 1000393251	Refrigerant Loop Kit with round pin terminals on compressor	This option is for trucks that still have the original style Parksmart the truck was built with, but have had the controller PCB replaced with a new-style controller that has a removable compressor harness attached with ring terminals.
			BSM 1000338843	Cluster block compressor harness	
4	Replace ParkSmart with refrigerant loop kit.	Aftermarket Rev 3 ParkSmart with round pin terminals on compressor	BSM 1000393251	Refrigerant Loop Kit with round pin terminals on compressor	This option is for trucks that already have a ParkSmart with round pin style compressor terminals.

Table 6, Sealed Unit Replacement Parts

Split Unit Replacement Parts					
Option	**Procedure**	**ParkSmart in Truck**	**Part Number**	**Part Description**	**Notes**
1	Replace ParkSmart with refrigerant loop kit.	Trucks built since April 9, 2012, or any unit that has been updated to a split unit ParkSmart with round pin terminals on compressor, removable (ring terminal) compressor harness, and binary switch	BSM 1000352824	Split unit refrigerant loop with round pin terminals on compressor and binary switch	Trucks built with A22-69027-001
2	Replace ParkSmart with refrigerant loop kit, replace unit harness, and add binary switch jumper harness	Trucks built prior to April 9, 2012 with a removable (ring terminal) compressor harness and round pin terminals on compressor	BSM 1000352824	Split unit refrigerant loop with round pin terminals on compressor and binary switch	Trucks built with last few weeks of A22-69027-000 production
			BSM 1000345678	binary switch jumper harness	
			BSM 1000345079	main harness for binary switch configuration	
3	Replace ParkSmart with refrigerant loop kit, replace unit harness, add binary switch jumper harness, replace controller PCB and compressor harness	Trucks built prior to April 9, 2012 with soldered-on compressor harness on controller circuit board	BSM 1000352824	Split unit refrigerant loop with round pin terminals on compressor and binary switch	Most trucks built with A22-69027-000
			BSM 1000345678	binary switch jumper harness	
			BSM 1000345079	main harness for binary switch configuration	
			BSM 1000385968	Rev 5 Controller Circuit Board (PCB)	
			BSM 1000338843	Cluster Block Compressor Harness	

Table 7, Split Unit Replacement Parts

Warranty

This procedure is warrantable only if the described condition exists and the repair is performed within the applicable base or extended coverage warranty period. If a failure is not found, this procedure is considered preventive and warranty does not apply.

Normal warranty applies. See **Table 8** for QuickClaim damage code and labor allowance information. Refer to this service bulletin by number at the beginning of the claim comments. See **Table 9** for OWL VMRS codes and labor allowance information. Enter this service bulletin number in the *Service Bulletin #:* field.

QuickClaim Damage Code and Labor Allowance			
Damage Code	**SRT Code**	**Description**	**Time: Hours**
689-000A08590	689-5012A	HVAC, ParkSmart Sealed Unit, Refrigerant Loop R/R	4.5
689-000A08590	689-5012B	HVAC, ParkSmart Split Unit, Refrigerant Loop R/R	5.5

Table 8, QuickClaim Damage Code and Labor Allowance

OWL VMRS Codes and Labor Allowance					
Primary Failed Part	**Component Code**	**Cause Code**	**SRT Code**	**Description**	**Time: Hours**
BSM 1000308542	001-003-068	18	689-5012A	HVAC, ParkSmart Sealed Unit, Refrigerant Loop R/R	4.5
BSM 1000352824	001-003-068	18	689-5012B	HVAC, ParkSmart Split Unit, Refrigerant Loop R/R	5.5

Table 9, OWL VMRS Codes and Labor Allowance