FIAT CHRYSLER AUTOMOBILES

Revised October 2018

Dealer Service Instructions for:

Safety Recall T34 / NHTSA 17V-371
PHEV Power Inverter Module

NOTE: Page 30 Step 23 (Ft. Lbs.) changed to (In. Lbs.). Parts Return section revised, part return no longer required for this campaign. Step 67 of PIM removal section has also been revised now that PIM return is not required.

Effective immediately, all repairs on involved vehicles are to be performed according to this safety recall notification. Rapid Response Transmittals (RRTs) 17-045, 17-073, 17-074 and 17-075 are no longer applicable for the involved vehicles only.

Models

2017-2018 (RU) Chrysler Pacifica PHEV

NOTE: This campaign applies only to the above Plug-In Hybrid Electric Vehicles (PHEV) built from August 12, 2016 through June 21, 2017 (MDH 081203 through 062100).

IMPORTANT: Some of the involved vehicles may be in dealer new vehicle inventory. Federal law requires you to complete this recall service on these vehicles before retail delivery. Dealers should also consider this requirement to apply to used vehicle inventory and should perform this recall on vehicles in for service. Involved vehicles can be identified by using the VIP inquiry process.

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Subject

The Power Inverter Module (PIM) on about 1,600 of the above-referenced vehicles may experience diode failure due to an over-voltage condition. PIM diode failure will cause the vehicle to lose motive power without prior warning. The vehicle will not power back on and the diode failure may be accompanied by illumination of a Malfunction Indicator Lamp (MIL). A loss of motive power could cause a crash without prior warning. In addition, an update to the On-Board Diagnostic system is necessary.

Repair

Reprogram the Powertrain Control Module (PCM), Battery Pack Control module (BPCM), On Board Charging Module (OBCM) and PIM with the latest available software. Vehicles with 700 miles or less will also require replacement of the PIM.

Parts Information

Part Number	Description
CSAJT341AA	**Kit, Power Inverter Module (PIM)**

Each package contains the following components:

Quantity	Description
1	Module, Power Inverter Assembly
1	Gasket, Inverter Module
6	Retainers, Wire Harness

Due to the small number of involved vehicles expected to require PIM replacement, no parts will be distributed initially. **Parts should be ordered only after inspection determines that PIM replacement is required.** ***Very few vehicles are expected to require a PIM replacement.*** **Material for unsold vehicles and dealer rentals will be shipped directly to those dealers that have vehicles which meet the mileage requirement.**

The PIM may be ordered only if the vehicle has 700 miles or less. A STAR Case must be submitted then contact the STAR Center to obtain parts.

Parts Return

No parts return required for this campaign.

NOTE: The removed PIM must be damaged in such a way as to prevent reuse and disposed of by the dealership.

Special Tools

The following special tools are required to perform this repair:

➢ NPN	wiTECH micro pod II
➢ NPN	Laptop Computer
➢ NPN	wiTECH Software
➢ 10084	Covers, Protective
➢ 2035100081	Covers Set, Safety
➢ 10152B	Glove Set, Protector
➢ 126-1587	Multi-Meter, Fluke Insulation Resistance Tester
➢ NPN	Coolant Hose-Pinching Pliers Quantity-2

Service Procedure

A. Record Vehicle Mileage

Record on the work order the vehicle mileage from the odometer in the instrument panel cluster. Is the vehicle mileage 700 miles or less?

- YES, vehicle mileage is 700 miles or less. Vehicles with 700 miles or less are to have the PIM replaced and have the PCM, BPCM, OBCM, and PIM reprogrammed with new software. Proceed to **section B. Power Inverter Module (PIM) Removal**. ***PIM replacement must be performed by a PHEV trained technician.***
- NO, vehicle mileage is greater than 700 miles. Vehicles with more than 700 miles are to only have the PCM, BPCM, OBCM, and PIM reprogrammed with new software, do not replace PIM. Proceed to **section D. Reprogram Power Inverter Module (PIM)**.

PIM replacement must be performed by a PHEV trained technician.

B. Power Inverter Module (PIM) Removal

NOTE: Vehicle should be positioned on a suitable hoist which will allow access to the front belly pan and engine belly pan for removal later in this procedure.

WARNING: Before performing any diagnostic or service procedure, you must thoroughly read and follow all applicable high voltage safety procedures. You must perform the high voltage power-down procedures.

- **Loss of isolation test must be performed before high voltage power-up, in cases where service has been performed on a high-voltage component.**
- **Be sure to use the proper safety equipment when working on any high voltage system or component.** ***Failure to do so may result in serious or fatal injury*.**

Wait a minimum of two minutes after performing the high voltage battery disconnect procedure before attempting to access the high voltage system. ***Failure to do so may result in serious or fatal injury*.**

Service Procedure (Continued)

WARNING: When performing any repairs that involve contact with high voltage components or systems, the technician performing repairs on the vehicle must verify that the system remains powered down during high voltage repairs. Strictly adhere to the following procedures:

- **To ensure that the vehicle is properly powered down, remove the service disconnect.**
- **The technician must always know the location of the service disconnect throughout the repair.**
- **The technician must ensure that no one reconnects the service disconnect while service is being performed.**
- **Any time the vehicle is unattended, prior to continuing with repair work, the technician must recheck that the service disconnect has not been reinstalled.**

1. Familiarize yourself with all HIGH-VOLTAGE SAFETY PROCEDURES related to personal safety and vehicle safety associated with working on a Plug-In Hybrid Electric Vehicle (PHEV). Prepare the work area according to those PROCEDURES.

2. Disconnect any Electric Vehicle Service Equipment (EVSE) or charging equipment, move the front seats forward for access to the high voltage battery service disconnect cover, turn off the ignition, remove the keys, open the hood and leave the vehicle doors open.

3. Inspect all orange high-voltage cables, and all high-voltage components labeled with the high-voltage symbol for physical damage. If damage is present, extra caution must be taken to avoid contact with uninsulated high-voltage. Do not insert probes, tools, objects or fluids into damaged high-voltage cables or components.

   NOTE: Because the high-voltage battery is used to charge the 12-volt battery via the Auxiliary Power Module (APM), disconnecting the 12-volt battery negative cable will not power down the 12-volt system. The following procedure must be performed before any repairs, disassembly, or testing requiring 12-volt power down are carried out.

Service Procedure (Continued)

NOTE: Even though the high-voltage battery manual service disconnect is removed during the 12-volt Power Down procedure, the 12-volt Power Down procedure will NOT safely and reliably power down the high-voltage system. If any high-voltage components are to be accessed, disconnected or tested, the High-Voltage Power Down procedure must first be carried out.

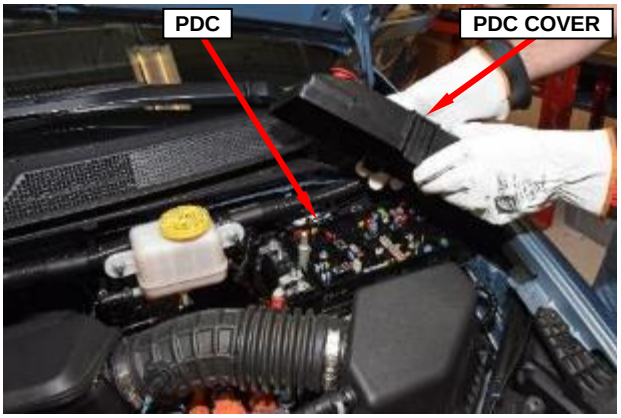


Figure 1 – Power Distribution Center

4. Remove and save the 12-volt Power Distribution Center (PDC) cover (Figure 1).

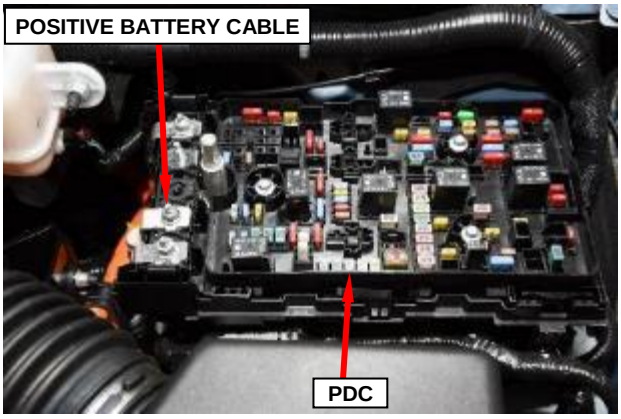


Figure 2 – Positive Battery Cable

5. Remove and save the nut securing the positive battery cable, then disconnect the positive battery cable from the 12-volt PDC (Figure 2).

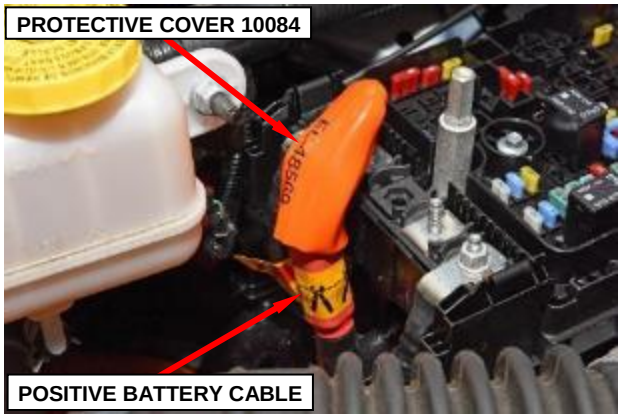


Figure 3 – Cover Cable Terminal

6. Cover the positive battery cable terminal with protective cover 10084 (Figure 3).

Service Procedure (Continued)

7. Lift the carpet away from the high-voltage manual service disconnect access cover (Figure 4).

Figure 4 – Vehicle Carpet

8. Remove and save the four screws securing the high-voltage manual service disconnect access cover to the floor then remove and save the cover (Figure 5).

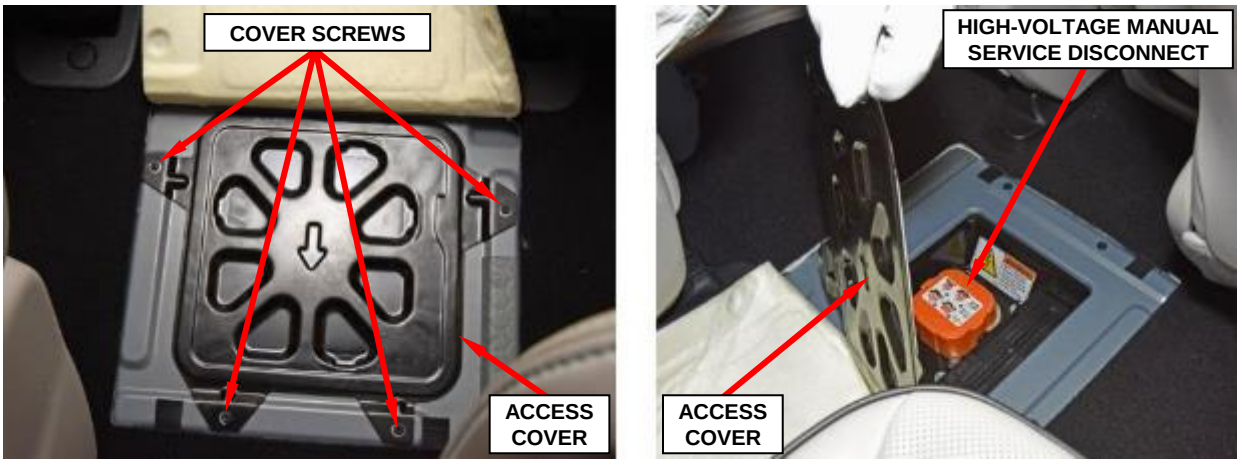


Figure 5 – High-Voltage Manual Service Disconnect Access Cover

Service Procedure (Continued)

9. Depress the lever release latch firmly. With the latch fully depressed, rotate the lever upward. The lever will stop at the 45° position (Figure 6).

   NOTE: At this stage, the High Voltage Inter-Lock (HVIL) connection has been broken and the circuit is de-energized.

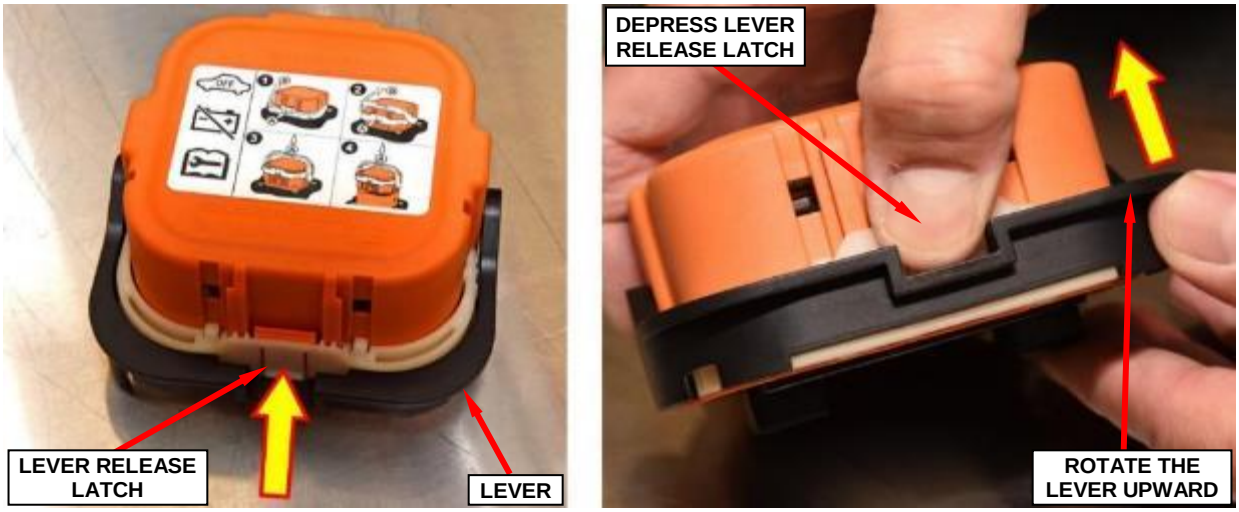


Figure 6 – High-Voltage Manual Service Disconnect First Stage Latch Release

(High-Voltage Manual Service Disconnect Removed from Vehicle for Visual Clarity)

10. Depress the locking tab and continue to rotate the lever to the end of travel, 90° position (Figure 7).

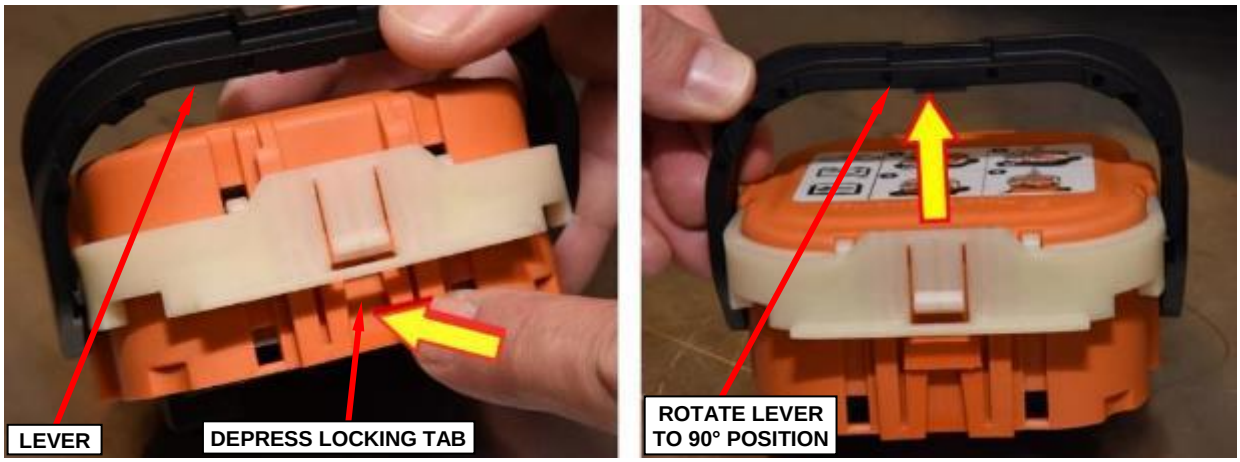


Figure 7 – High-Voltage Manual Service Disconnect Second Stage Latch Release

(High-Voltage Manual Service Disconnect Removed from Vehicle for Visual Clarity)

Service Procedure (Continued)

11. Pull straight up on the service disconnect lever to disengage and remove the high-voltage manual service disconnect from the receptacle (Figure 8).

    NOTE: Make sure the location of the high-voltage manual service disconnect is always known after removal. It is best practice to place the high-voltage manual service disconnect in a highly visible location when removed.

Figure 8 – High-Voltage Manual Service Disconnect and Receptacle

12. Cap the receptacle on the high-voltage battery with the appropriate cover found in safety cover set 2035100081 to prevent foreign objects from entering the receptacle (Figure 9).

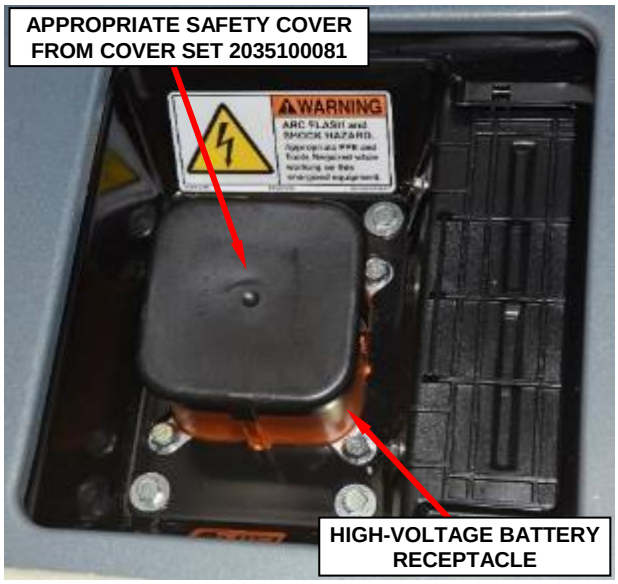


Figure 9 – High-Voltage Battery Receptacle Safety Cover

13. Check the 12-Volt system at the Power Distribution Center (PDC) with a multimeter to assure that there is less than 1-Volt present. If so, the 12-volt electrical system is now powered down.

    NOTE: A small voltage reading of less than 1-Volt is to be expected as system capacitors slowly discharge. If more than 1-Volt is still present, contact the STAR Center for service support before proceeding.

Service Procedure (Continued)

14. Disconnect the fresh air makeup hose from the air cleaner body (Figure 10).

15. Disconnect the wire harness connector from the Inlet Air Temperature (IAT) sensor (Figure 10).

16. Loosen the clean air hose clamp and disengage the clean air hose from the resonator (Figure 10).

17. Loosen the cover screws and remove the air cleaner housing cover (Figure 10).

18. Remove the air cleaner element (Figure 11).

19. Loosen the duct clamp and pull the air inlet duct straight up to disengage the locating pins from the rubber mount sockets (Figure 12).

20. Disengage the air cleaner body locating pins from the rubber mount sockets then remove and save the air cleaner body (Figure 12).

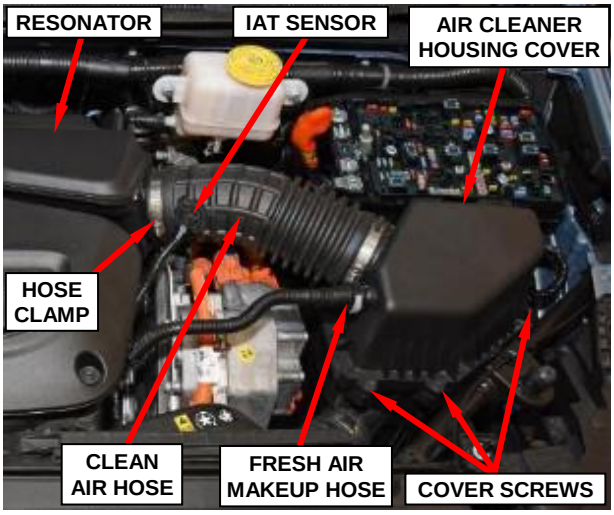


Figure 10 – Air Cleaner Assembly

Figure 11 – Air Cleaner Element

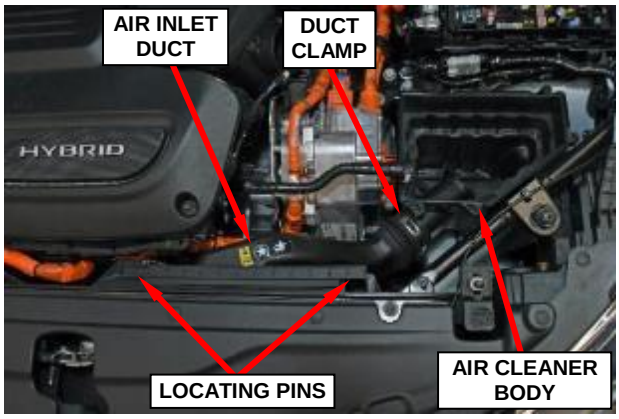


Figure 12 – Air Cleaner Body

Service Procedure (Continued)

NOTE: Use of an insulation tester such as the Fluke Multi-meter 126-1587 is recommended for PHEV circuit testing. Perform the multi-meter functionality tests per the manufacturer's directions. Verify the multi-meter is operating correctly by measuring voltage from a known good power source, such as the vehicle's 12-volt battery. If at any point during the procedure, the multi-meter settings are changed, or the probes are repositioned in the meter, verification with a known good power source must be repeated.

WARNING: High voltage Personnel Protection Equipment (PPE) Protector Glove Set 10152B must be worn for the following steps. Gloves must be worn until the PIM voltage is measured and verified to be near 0-volts.

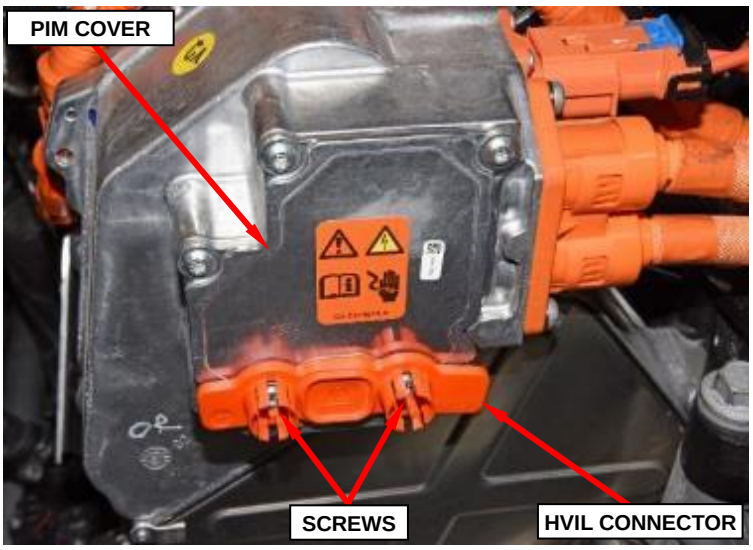


Figure 13 – HVIL Connector

21. Loosen two captive screws then remove and save the single High Voltage Inter-Lock (HVIL) connector from the PIM cover (Figure 13).

22. Loosen five captive screws then remove and save the PIM cover (Figure 14).

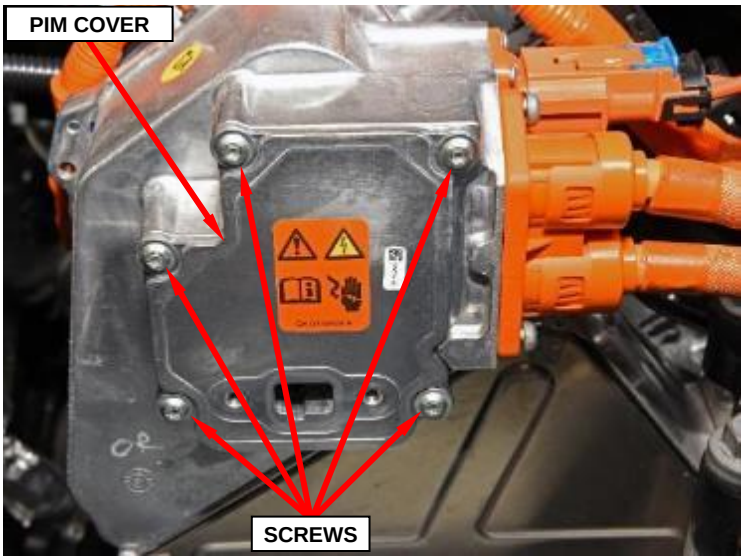


Figure 14 – PIM cover

Service Procedure (Continued)

NOTE: Always observe these precautions prior to taking a high-voltage measurement:

- **Have known good test leads.**
- **Set the range to no decimal points.**
- **Read a known good low-voltage source first.**
- **Always wear high-voltage gloves and safety glasses.**

23. Measure the voltage between the positive and negative high voltage terminals. Also, measure the voltage between each high voltage terminal and chassis ground (Figure 15). The measured voltage should be near 0-volts.

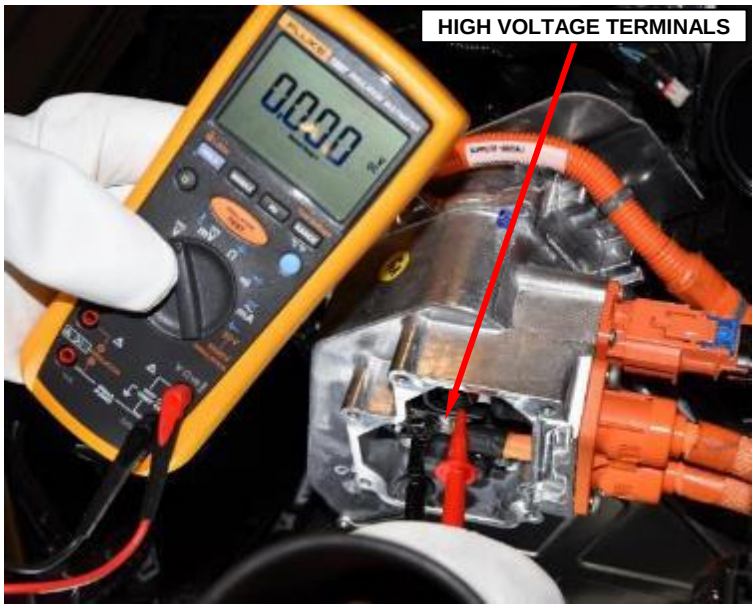


Figure 15 – Check PIM Voltage

- If the voltage measured is near 0-volts, the high-voltage components are safe to work on with the exception of the high-voltage battery internal components.
- If the voltage is not near 0-volts, an internal condition exists within the high-voltage battery that is preventing it from being powered down. **Do not attempt to carry out repairs on any of the vehicle's high-voltage components or wiring. Contact the STAR Center for service support.**

24. Measure and record the isolation resistance at the Power Inverter Module (PIM) between the positive high voltage terminal and chassis ground, also between the negative high voltage terminal and chassis ground. The measured isolation resistance should be greater than 1.1 MΩ and less than 10 MΩ. These isolation resistance values will need to be compared with those taken during High-Voltage Power-Up to verify the integrity of the repair.

Service Procedure (Continued)

25. Raise and support the vehicle.

    CAUTION: Do not position hoisting device on any suspension component, including the front or rear suspension crossmembers. Do not hoist on the front and rear bumpers, the lower radiator crossmember, the front engine mount or any part of the underbody other than the identified lifting areas.

26. Remove the four black screws (two per side) attaching the wheelhouse splash shields to the front belly pan (Figure 16).

27. Remove the six black front screws (Figure 16).

28. Remove the two push-pin fasteners (Figure 16).

29. Remove the eight silver screws (Figure 16).

30. Remove the front belly pan (Figure 16).

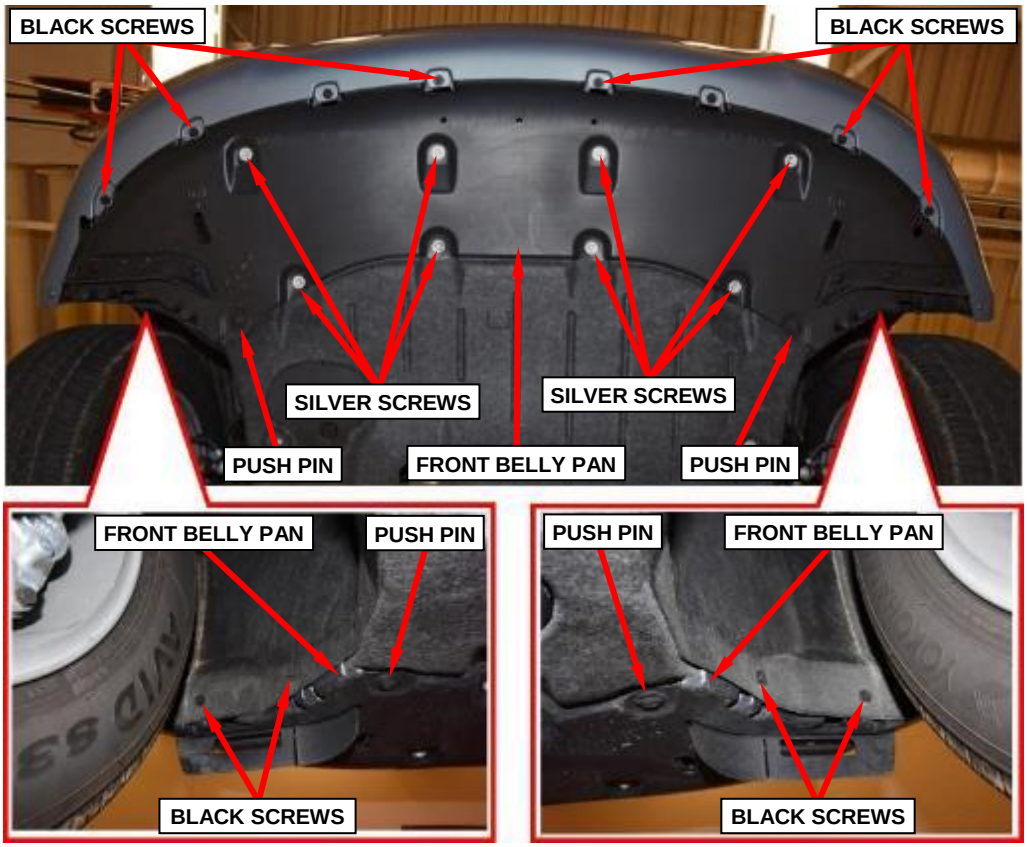


Figure 16 – Front Belly Pan

Service Procedure (Continued)

31. Remove and save the four black screws (two per side) attaching the wheelhouse splash shields to the engine belly pan (Figure 17).

32. Remove and save the push pin fastener (Figure 17).

33. Remove and save the ten silver screws then remove and save the engine belly pan (Figure 17).

34. Lower the vehicle.

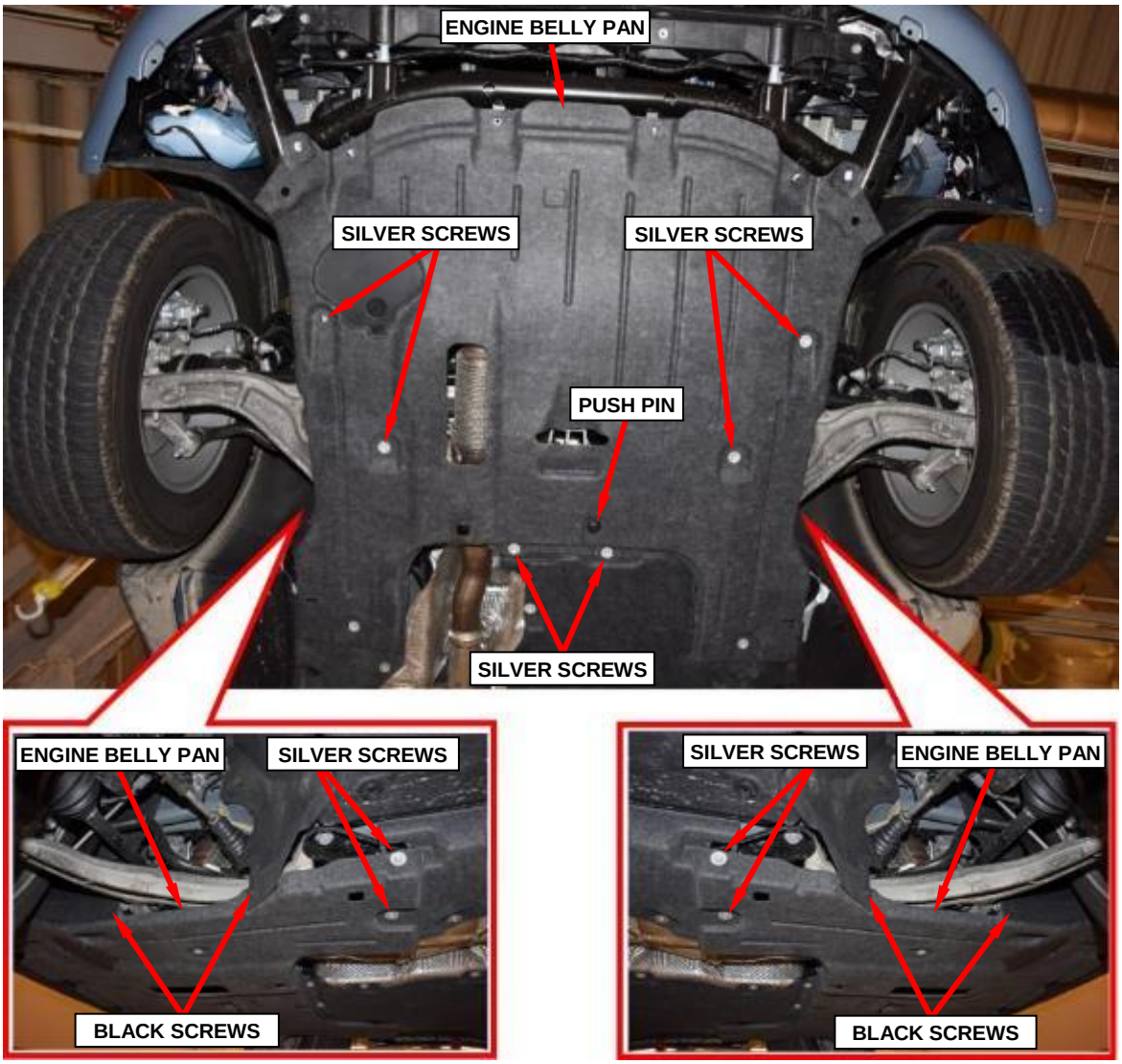


Figure 17 – Engine Belly Pan

Service Procedure (Continued)

35. Loosen the cap on the power electronics cooling system pressurized coolant reservoir to relieve any residual pressure (Figure 18):
    a. Rotate the cap counterclockwise to align the slots (Figure 18).
    b. Insert a screwdriver into the slots and continue rotating the cap counterclockwise (Figure 18).

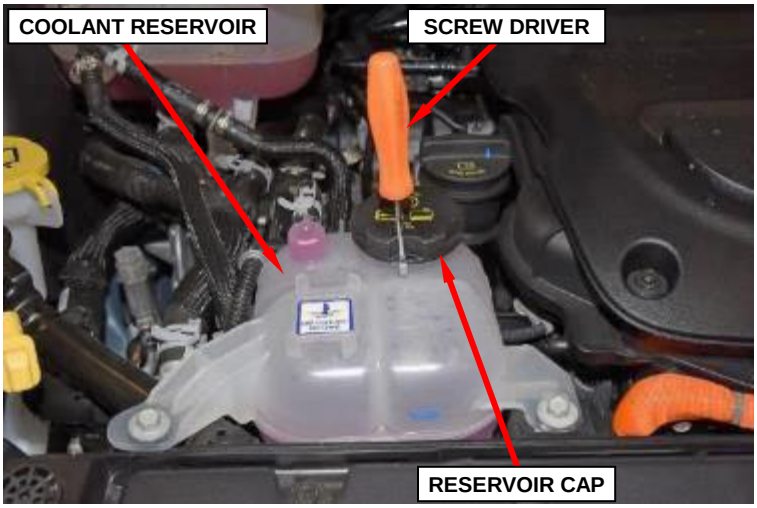


Figure 18 – Power Electronics Coolant Reservoir

CAUTION: Do not allow coolant to come in contact with any high voltage component electrical connections. Engine coolant will create a conductive path and cannot be effectively removed resulting in a loss of isolation and replacement of the contaminated high voltage component.

36. Place a suitable container under the PIM coolant inlet and outlet hoses.

37. Using suitable hose-pinching pliers, clamp-closed the coolant inlet and outlet hoses near the PIM (Figure 19).

38. Loosen the clamps and remove the coolant inlet and outlet hoses from the PIM. Cap the coolant hose ends and the nipples on the PIM (Figure 19).

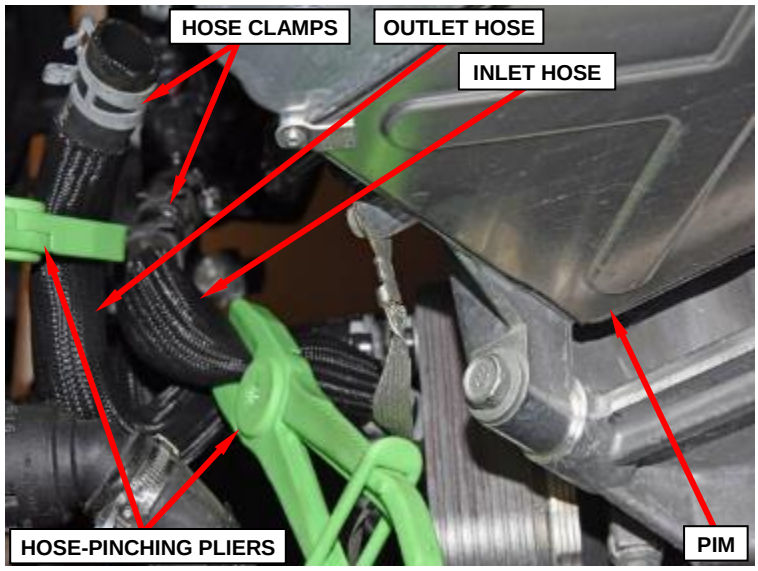


Figure 19 – PIM Coolant Inlet And Outlet Hoses

Service Procedure (Continued)

39. Remove and save the bolts from the engine cover (Figure 20).

40. Pull upward on the engine cover to release the cover grommets from the ball studs and remove the engine cover (Figure 20).

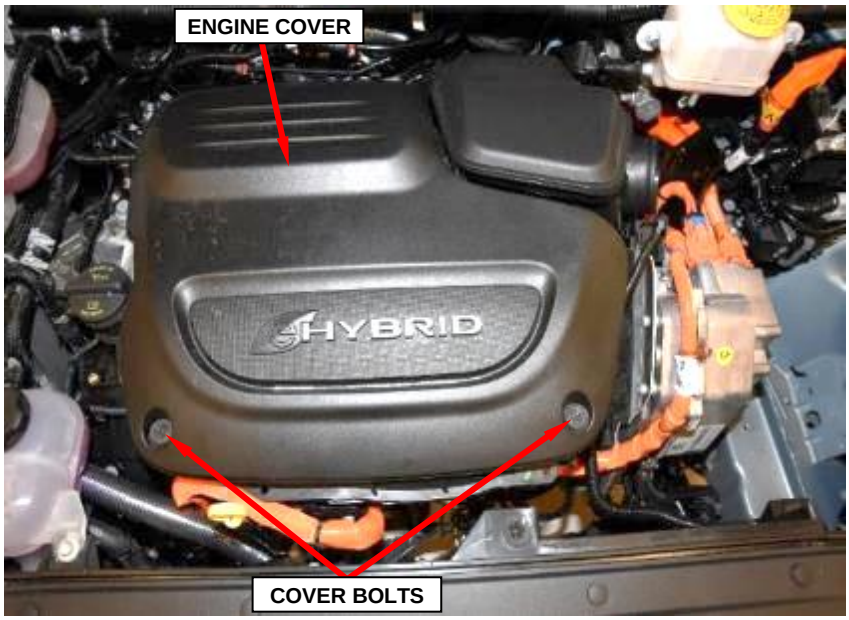


Figure 20 – Engine Cover

41. Remove and save the bolt from the resonator (Figure 21).

42. Pull the resonator straight up to release the resonator grommet from the ball stud on the right cylinder head cover. Disengage and remove the resonator from the throttle body inlet (Figure 21).

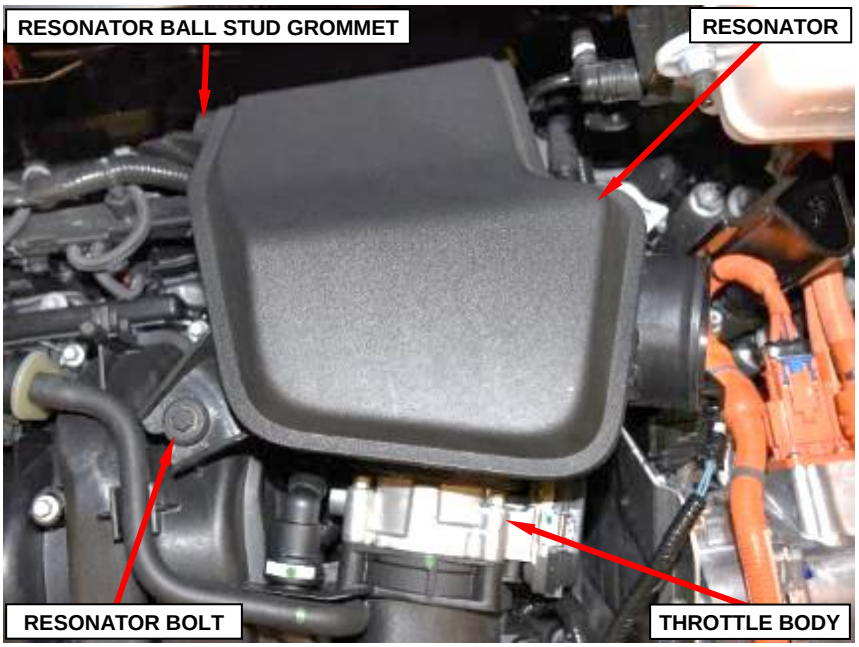


Figure 21 – Resonator

Service Procedure (Continued)

43. Remove and save the high voltage battery cable terminal bolts (Figure 22).

44. Loosen the two captive screws securing the high voltage battery cable connector housing to the PIM (Figure 22).

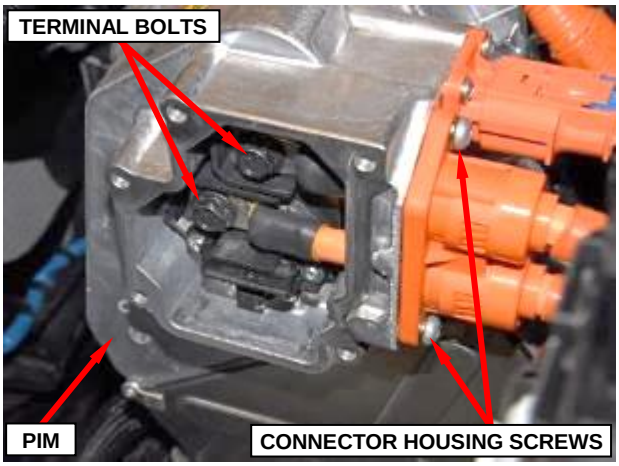


Figure 22 – High Voltage Battery Cables

45. Remove and save the nut securing the high-voltage battery cable retainer (Figure 23).

46. Disengage the high voltage battery cable connector housing from the PIM, (Figure 23).

    NOTE: Ensure the wave washers remain on the high voltage battery cable connector housing during removal of the cables from the PIM housing. If the wave washers are dislodged, reseat them (Figure 24).

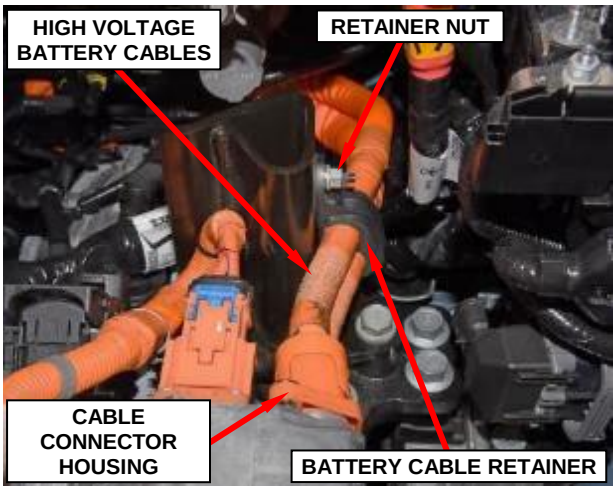


Figure 23 – Battery Cables Retainer

47. Cover the high-voltage cable terminals with protective covers 10084 (Figure 24) then reposition the high voltage harness to a safe location.

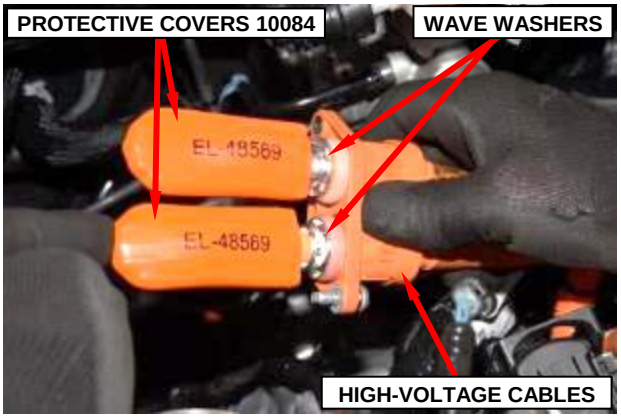


Figure 24 – Protective Covers 10084

Service Procedure (Continued)

48. Disengage the four wire harness retainers securing the Electric Air Compressor (EAC) wire harness to the PIM (Figure 25).

49. Disengage the wire harness retainer securing the EAC wire harness to the harness support bracket (Figure 26).

50. Slide the EAC electrical connector locking clip rearward (Figure 26).

51. Depress the EAC electrical connector release tab while pulling the EAC electrical connector rearward to disconnect the EAC electrical connector from the PIM (Figure 26). Reposition the EAC wire harness to a safe location.

52. Remove and save the two nuts and one bolt securing the harness support bracket, then remove and save the bracket (Figure 26).

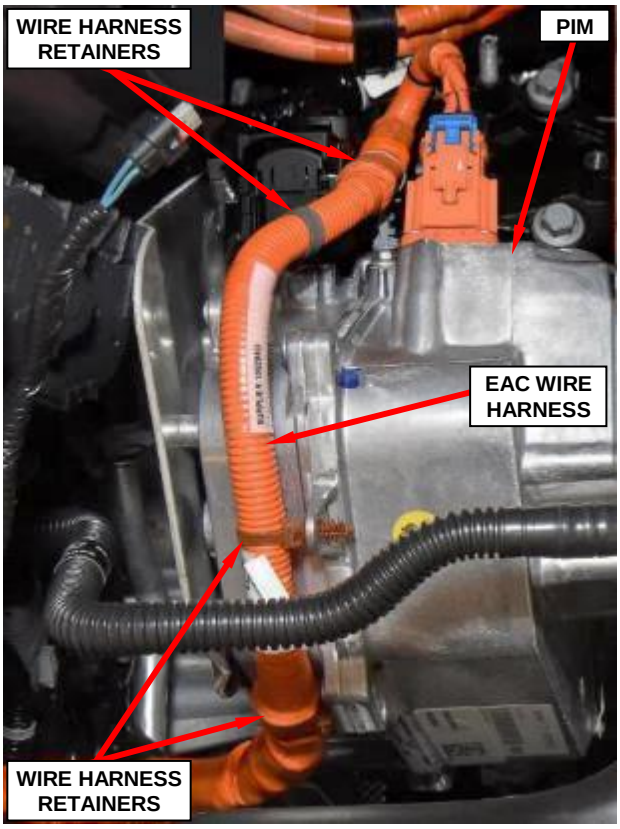


Figure 25 – EAC Wire Harness Retainers

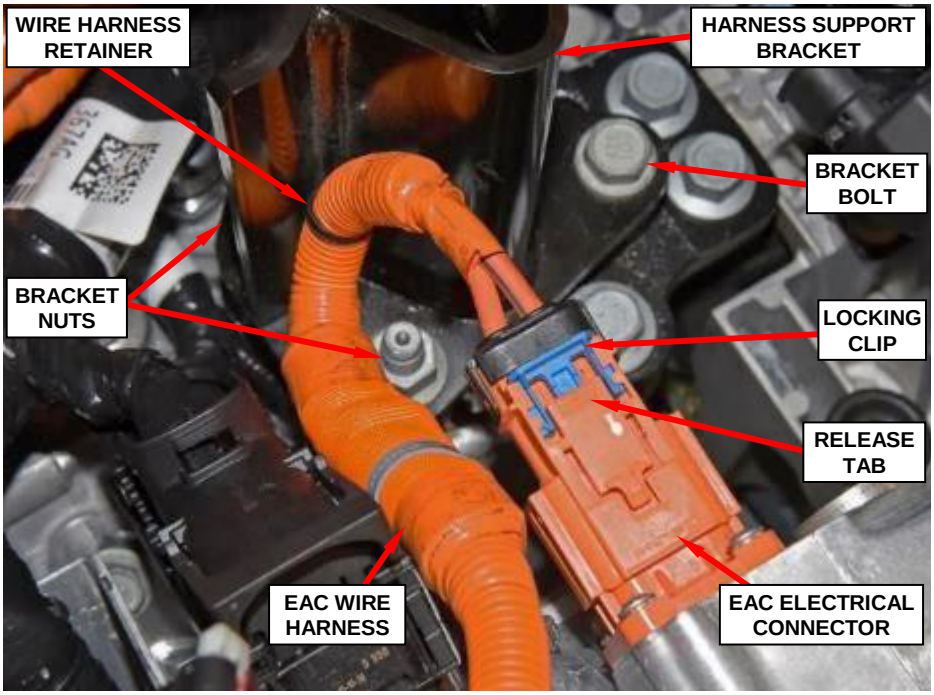


Figure 26 – EAC Electrical Connector and Mount Bracket

Service Procedure (Continued)

53. Remove and save the stud-nut securing the chassis ground cable to the PIM. Reposition the chassis ground cable from the PIM (Figure 27).

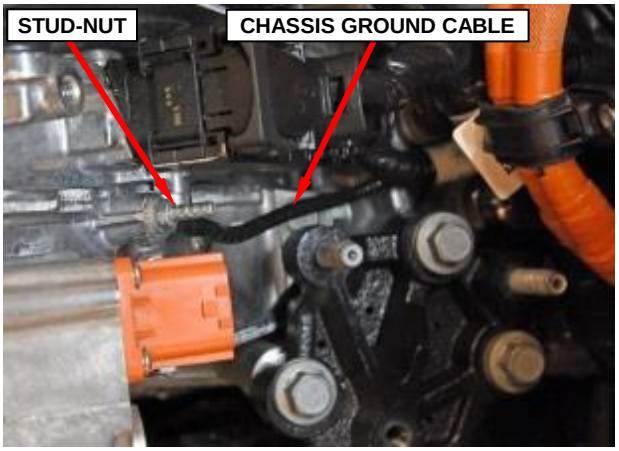


Figure 27 – Chassis Ground Cable

54. Unlock and disconnect the processor wire harness connectors from the PIM (Figure 28). Reposition the connectors.

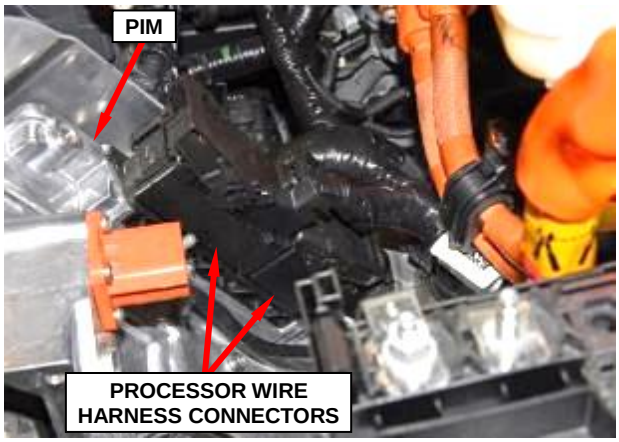


Figure 28 – Processor Connectors

55. Remove and save the bolt securing the chassis ground cable to the PIM (Figure 29). Reposition the chassis ground cable.

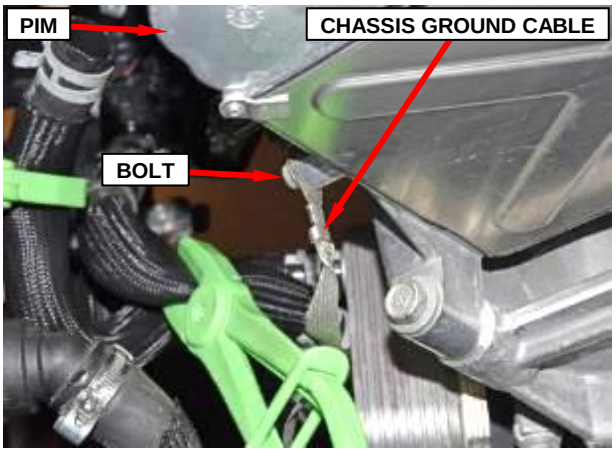


Figure 29 – Chassis Ground Cable

Service Procedure (Continued)

56. Disengage the three retainers securing the engine wire harness to the PIM heatshield then reposition the engine wire harness (Figure 30).

57. Remove and save the four screws from the PIM heatshield then remove and save the PIM heatshield (Figures 30 and 31).

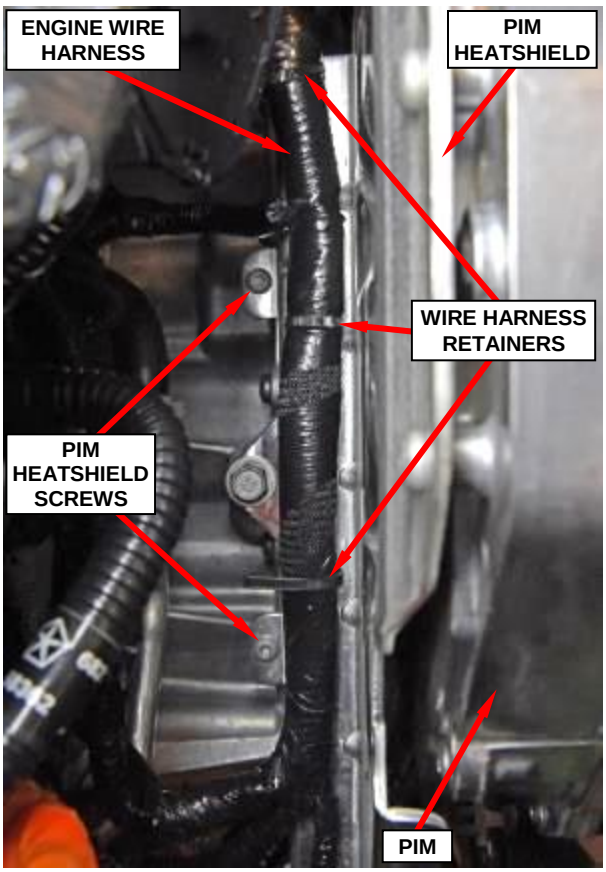


Figure 30 – Engine Wire Harness

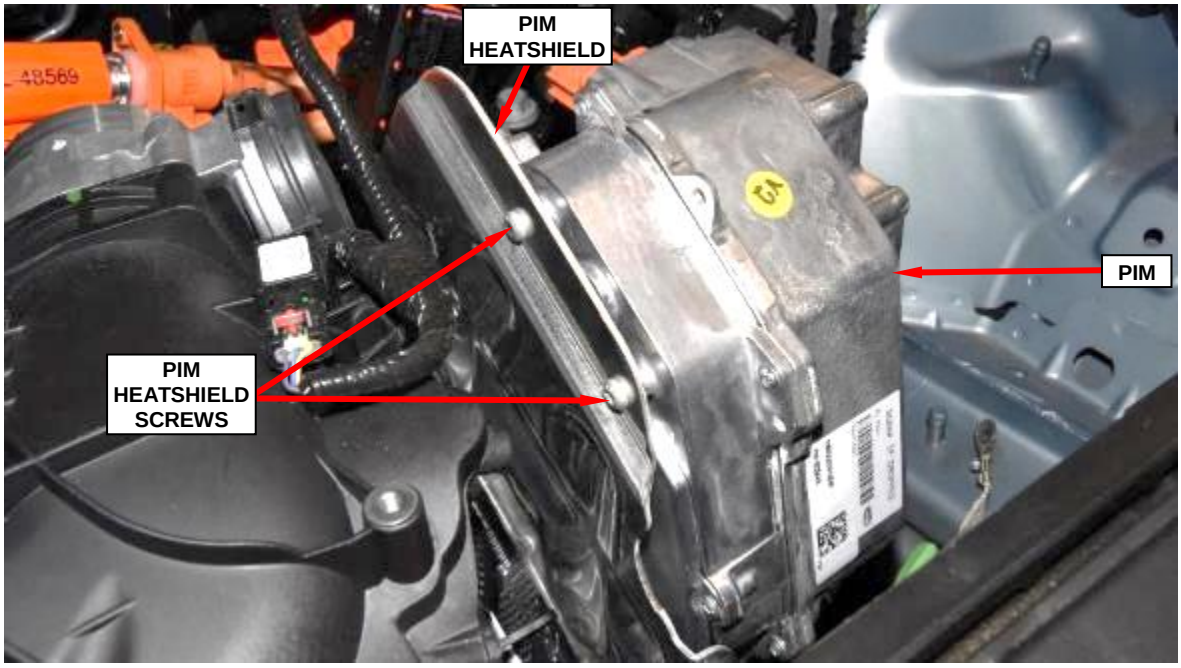


Figure 31 – PIM Heat Shield

Service Procedure (Continued)

58. Loosen the two captured screws then remove and save the HVIL connector from the PIM e-Motor terminal cover (Figure 32).

59. Loosen the four captured screws then remove and save the PIM e-Motor terminal cover (Figure 33).

60. Loosen the six captured e-Motor electrical terminal bolts to prepare for PIM removal (Figure 34).

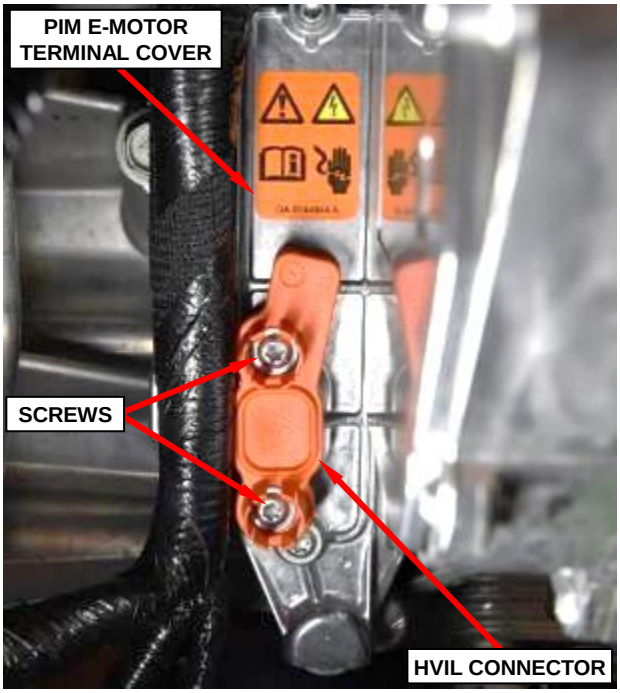


Figure 32 – HVIL Connector

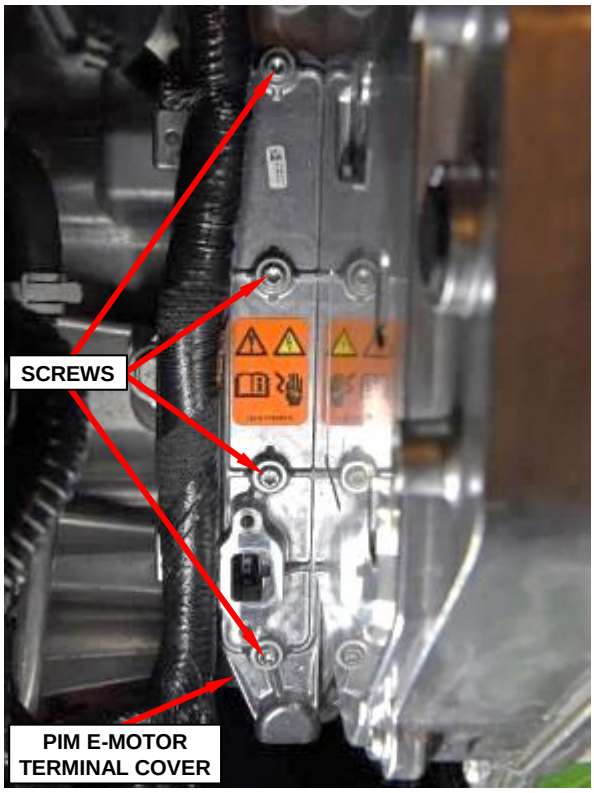


Figure 33 – E-Motor Terminal Cover

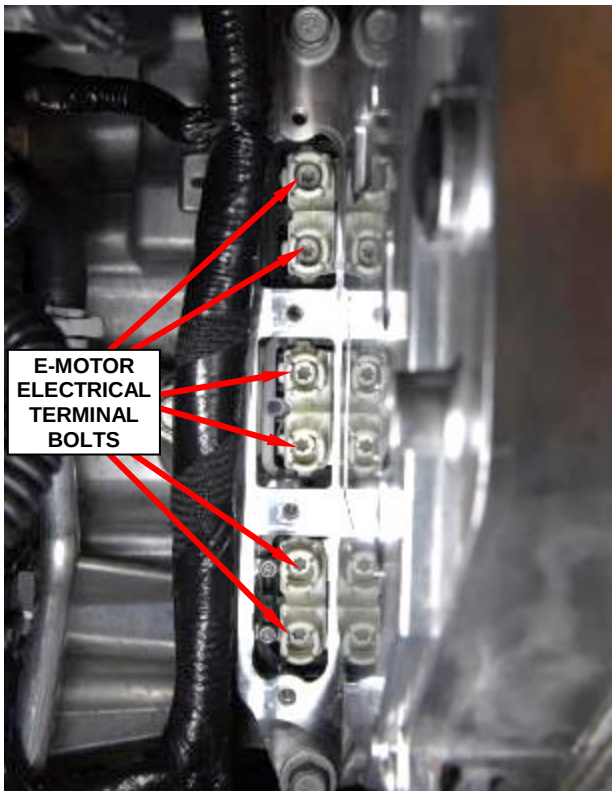


Figure 34 – E-Motor Terminal Bolts

Service Procedure (Continued)

61. Carefully position a floor jack under transmission to support the transmission.

62. Remove three bolts from the left side transmission mount bracket (Figure 35).

63. Lower the transmission approximately one inch.

64. Remove and save the five bolts securing the PIM to the transmission housing (Figure 36).

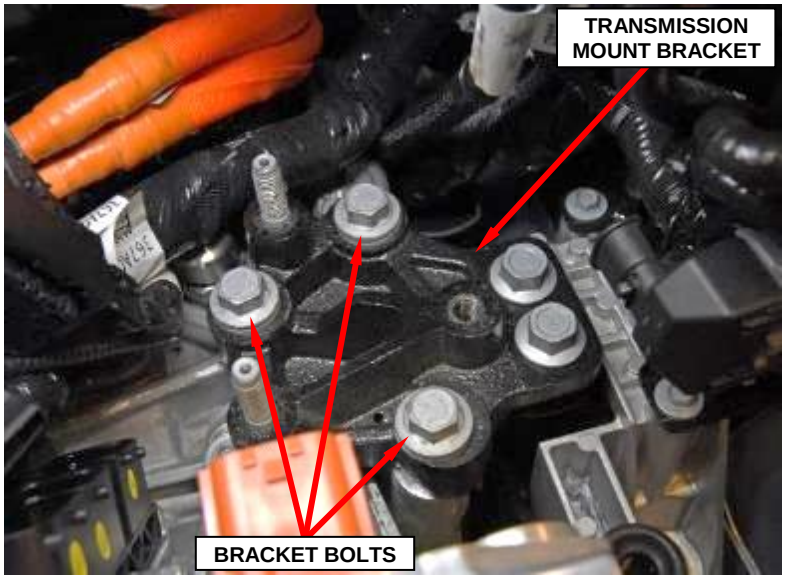


Figure 35 – Left Side Transmission Mount Bracket

65. Remove and save the PIM from the transmission housing (Figure 36).

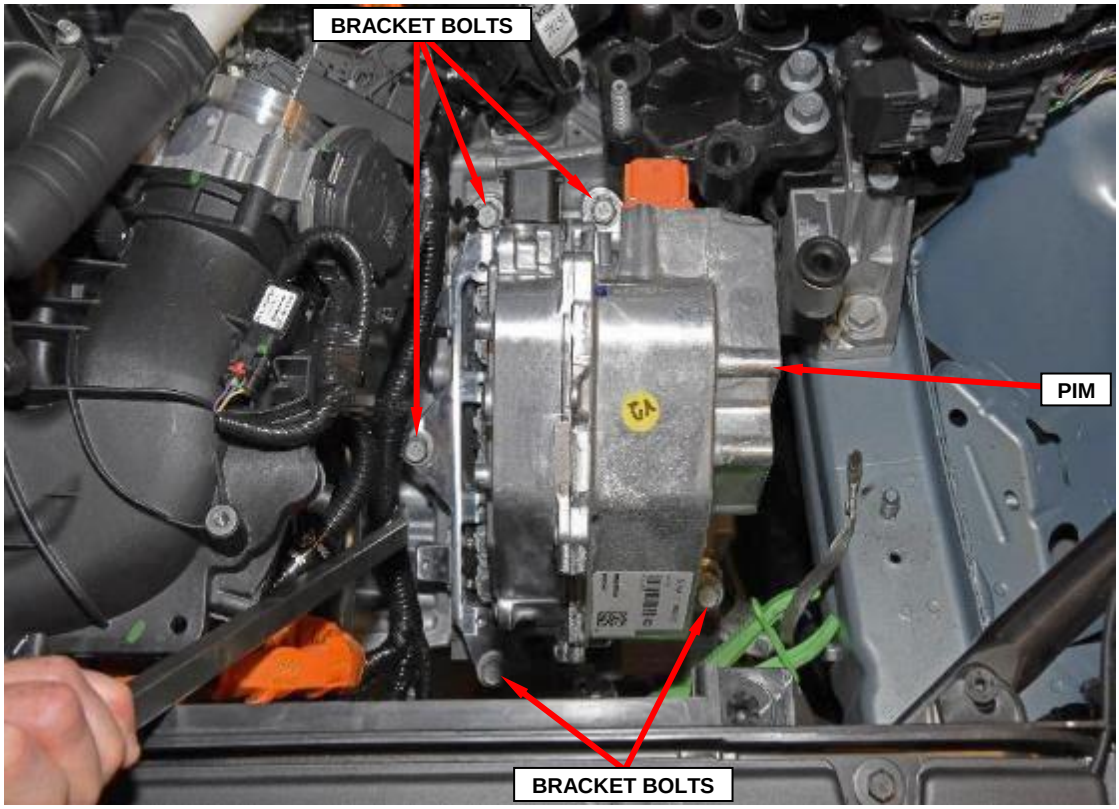


Figure 36 – PIM to Transmission Bolts

Service Procedure (Continued)

66. Remove and discard the PIM carrier gasket (Figures 37 and 38).

67. Destroy and discard, the PIM, e-Motor terminal cover, both HVIL connectors, and PIM cover.

68. Proceed to **section C. Power Inverter Module (PIM) Installation**

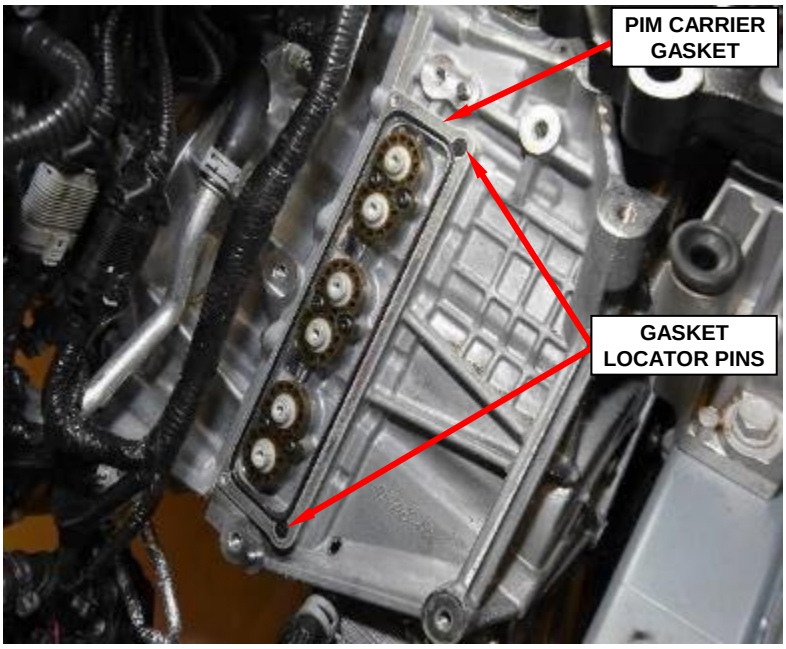


Figure 37 – PIM Carrier Gasket

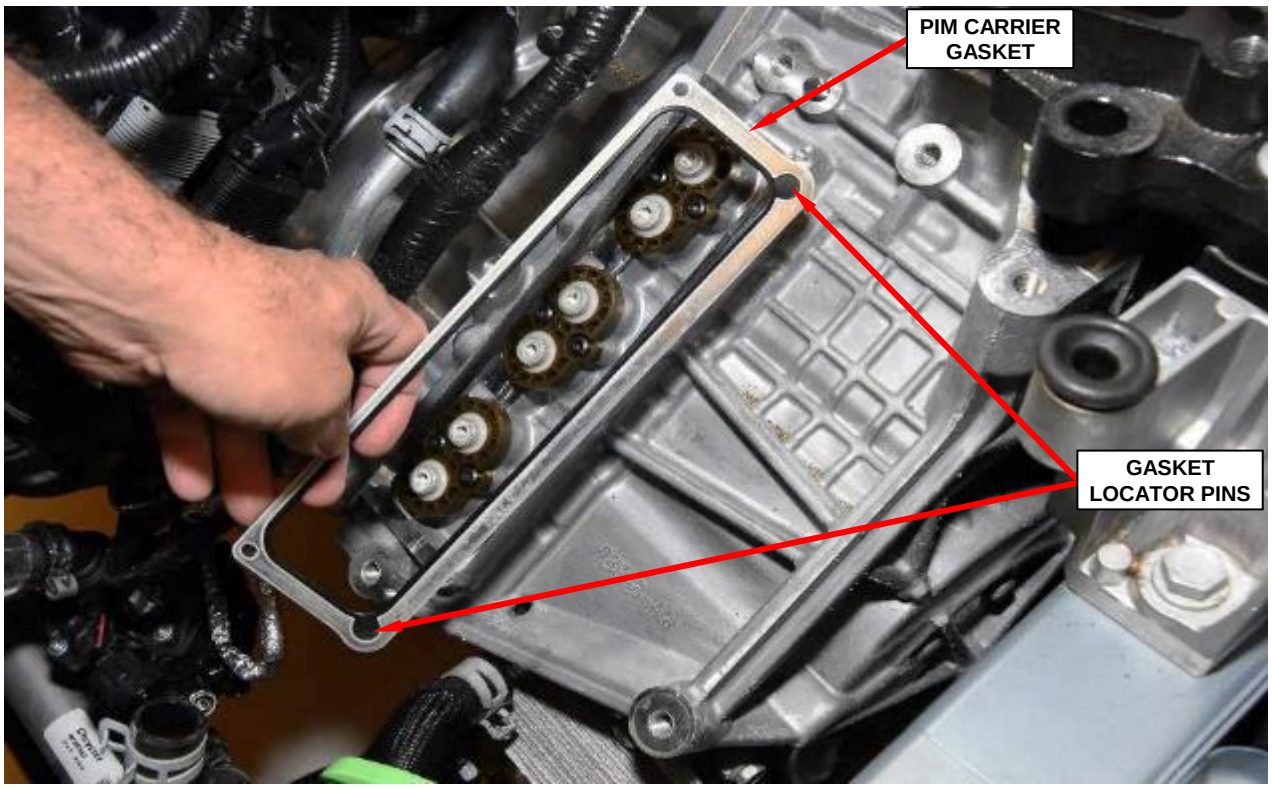


Figure 38 – PIM Carrier Gasket

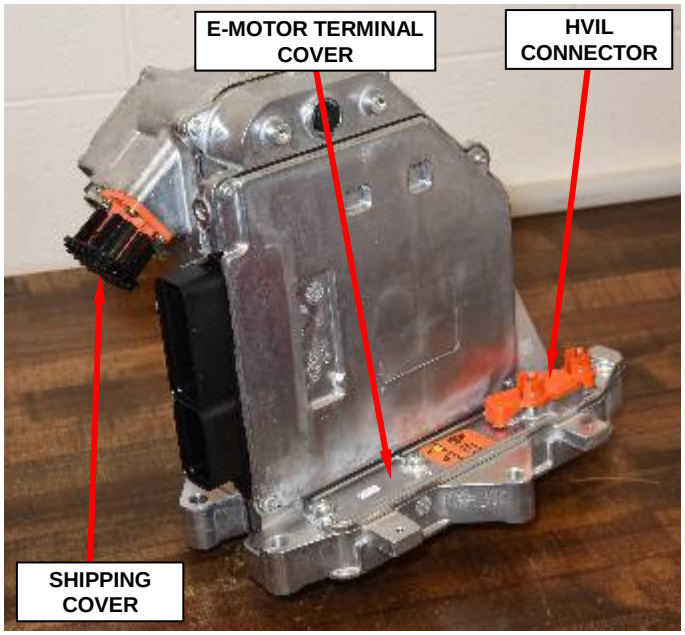
Service Procedure (Continued)

C. Power Inverter Module (PIM) Installation

The following covers must be removed from the new PIM to prepare the new PIM for installation:

- Shipping Conver
- HVIL Connector
- E-Motor Terminal Cover
- PIM Cover

NOTE: Use the new PIM covers for installation of the new PIM. Do not reuse the old used covers.



PIM Right Side

PIM Left Side

Service Procedure (Continued)

NOTE: The technician must strictly adhere to the following procedures:

- **The technician must know the location of the service disconnect throughout the repair.**
- **The technician must ensure that no one reconnects the service disconnect while service is being performed.**
- **Any time the vehicle is unattended, prior to continuing with repair work, the technician must recheck that the service disconnect has not been reinstalled.**
- **A new PIM to transmission gasket included in this recall kit must be utilized whenever a PIM is replaced.**

1. Install the **new** PIM carrier gasket to the transmission housing while ensuring that that gasket locator pins are seated in the holes on the transmission housing (Figures 37 and 38).

   NOTE: Ensure that the gasket locator pins are facing the transmission and are fully seated into the holes in the transmission housing (Figure 38). If the gasket is not installed correctly, water will enter the high voltage area and cause a loss of mobility.

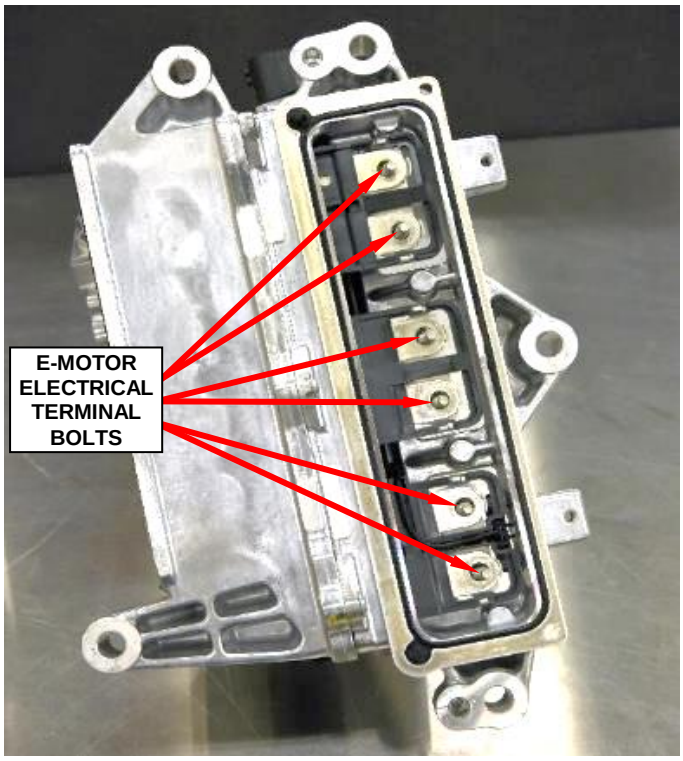


Figure 39 – PIM Carrier Gasket

CAUTION: Do not install a PIM that is missing any of the six captured e-Motor electrical terminal bolts (Figure 39). If any fastener is missing and not accounted for in the dunnage, the PIM must be returned to Mopar as there is a risk it is inside the PIM.

Service Procedure (Continued)

2. Install the **new** PIM to the transmission housing with five bolts. Tighten the bolts in the sequence shown to 62 N·m (46 Ft. Lbs.) (Figure 40).

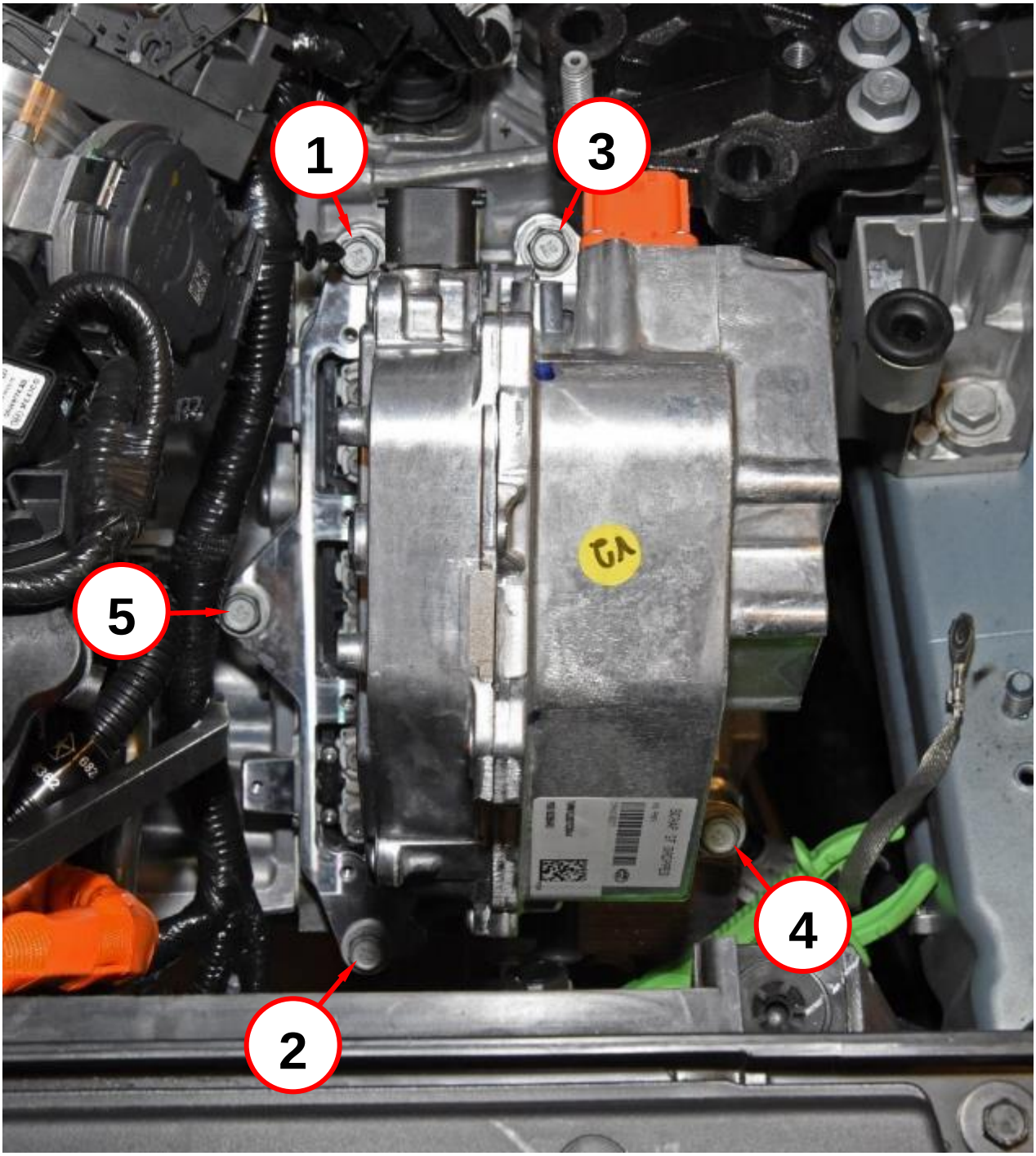


Figure 40 – PIM to Transmission Bolts Torque Sequence

Service Procedure (Continued)

3. Using the floor jack, raise the transmission and install the three bolts to the LH engine (transmission) mount bracket. Tighten the bolts to 105 N·m (77 Ft. Lbs.) (Figure 35). Remove the floor jack from the vehicle.

4. Tighten the six captured e-Motor electrical terminal bolts to 11 N·m (97 In. Lbs.) (Figure 34).

5. Install the **new** PIM e-Motor terminal cover to the PIM. Tighten the four captured screws to 7.8 N·m (69 In. Lbs.) (Figure 33).

   CAUTION: Ensure the cover gasket is properly seated in the groove prior to assembly onto the PIM. If not seated properly, the gasket will be damaged when the cover fasteners are tightened.

6. Install the **new** High Voltage Interlock (HVIL) connector to the PIM e-Motor terminal cover. Tighten the two captured screws to 7.8 N·m (69 In. Lbs.) (Figure 32).

7. Install the PIM heatshield with four screws. Tighten the screws to 11 N·m (97 In. Lbs.) (Figures 30 and 31).

8. Position the engine wire harness and engage the three wire harness retainers to the PIM heatshield (Figure 30). **New** wire harness retainers are supplied with the PIM kit to replace any damaged retainers.

9. Position the chassis ground cable to the PIM then install and tighten the chassis ground cable bolt to 9 N·m (80 In. Lbs.) (Figure 29).

10. Connect and lock the processor wire harness connectors to the PIM (Figure 28).

11. Position the chassis ground cable to the PIM. Install the chassis ground cable stud-nut and tighten to 9 N·m (80 In. Lbs.) (Figure 27).

12. Install the harness support bracket to the transmission mount with two nuts and one bolt. Tighten the bolt and nuts to 115 N·m (85 Ft. Lbs.) (Figure 26).

Service Procedure (Continued)

13. Connect the Electric Air Conditioning (EAC) wire harness electrical connector to the PIM (Figure 26).

14. Slide the EAC electrical connector locking clip forward to lock the EAC electrical connector to the PIM (Figure 26).

15. Position the wire harness and engage the wire harness retainer securing the EAC wire harness to the transmission mount bracket (Figure 26).

16. Position the wire harness and engage the four EAC wire harness retainers to the PIM (Figure 25).

    NOTE: New wire harness retainers are supplied with the PIM kit to replace any damaged retainers.

17. Remove the protective covers 10084 from the high-voltage cable terminals (Figure 24).

    NOTE: Ensure the wave washers remain on the high voltage battery cable connector housing during installation of the cables to the PIM housing. If the wave washers are dislodged, reseat them (Figure 24).

18. Install the high voltage battery cable connector housing into the PIM and tighten the two screws to 11 N·m (97 In. Lbs.) (Figures 23 and 22).

19. Install the high voltage battery cable terminal bolts and tighten to 25 N·m (18 Ft. Lbs.) (Figure 41).

    CAUTION: Tightening of high voltage battery cable terminal bolts to proper torque specification is critical otherwise damage to PIM and/or high voltage battery cables may occur.

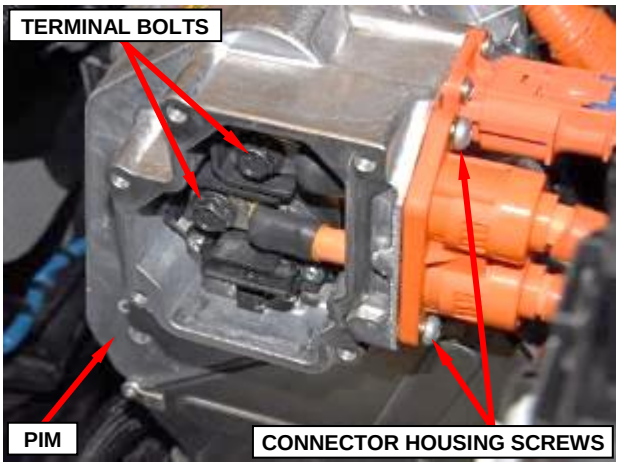


Figure 41 – High Voltage Battery Cables

Service Procedure (Continued)

20. Position the high voltage harness to the harness support bracket and tighten the nut to 11 N·m (97 In. Lbs.) (Figure 23).

21. Lubricate the rubber grommet on the resonator with Mopar® Rubber Bushing Installation Lube.

22. Install the resonator to the throttle body inlet. Push the resonator down onto the ball stud on the right cylinder head cover until the rubber grommet is fully seated (Figure 21).

23. Install the bolt securing the resonator to the intake manifold and tighten to 3.5 N·m (31 In. Lbs.) (Figure 21).

24. Lubricate the rubber grommets on the engine cover with Mopar® Rubber Bushing Installation Lube.

25. Align the rubber grommets of the engine cover to the ball studs and press firmly downwards (Figure 20).

26. Install the bolts securing the engine cover to the intake manifold and tighten to 10 N·m (7 Ft. Lbs.) (Figure 20).

Service Procedure (Continued)

27. Measure the isolation resistance at the Power Inverter Module (PIM) between the positive high voltage terminal and chassis ground. Also between the negative high voltage terminal and chassis ground. The measured isolation resistance should be greater than 1.1 MΩ and less than 10 MΩ. Compare these isolation resistance values with those taken during High-Voltage Power-Down to verify the integrity of the repair. Typically, the measured isolation resistance for this vehicle is between 7.7 MΩ and 8.6 MΩ.

    - If the measured isolation resistance is between 7.8 MΩ and 8.6 MΩ, it is safe to continue the High Voltage Power Up procedure.
    - If the measured isolation resistance is outside of the 7.8 MΩ and 8.6 MΩ range, a loss of isolation condition exists within the high-voltage circuitry. Do not continue the High Voltage Power Up procedure until the condition causing the loss of isolation is corrected.

28. Install the **new** PIM high voltage terminal cover and tighten the five captured screws to 7.8 N·m (69 In. Lbs.) (Figure 14).

    CAUTION: Ensure the cover gasket is properly seated in the groove prior to assembly onto the PIM. If not seated properly, the gasket will be damaged when the cover fasteners are tightened.

29. Install the single High Voltage Inter-Lock (HVIL) connector to the PIM cover and tighten the two captive screws to 7.8 N·m (69 In. Lbs.) (Figure 13).

30. Remove the safety cover from the high-voltage battery receptacle (Figure 9).

31. Inspect the mounting interface surface of the high-voltage Manual Service Disconnect (MSD) and the receptacle wall to ensure they are clean, and that there are no surface contaminants or foreign objects within the receptacle (Figure 8).

Service Procedure (Continued)

32. Align the polarization feature of the high-voltage manual service disconnect with the receptacle on the high-voltage battery (Figure 8).

33. Push the high-voltage manual service disconnect evenly into the receptacle with the lever in the upright 90° position.

    NOTE: With the high-voltage manual service disconnect properly aligned with the receptacle, the lever will be released and allowed to rotate to the lock position. Do not force the lever.

34. Rotate the lever while maintaining a slight force on the high-voltage manual service disconnect. The lever will engage the receptacle and draw the high-voltage manual service disconnect down onto the receptacle as the lever is rotated (Figure 42).

35. Rotate the lever downward until it is fully engaged and locked by the lever release latch. An audible "click" will be heard as the lever latches into position (Figure 42).

36. Gently pull the high-voltage manual service disconnect upward to ensure that it is fully seated in the receptacle and locked. If the manual service disconnect can be removed, repeat **steps 33 – 34**.

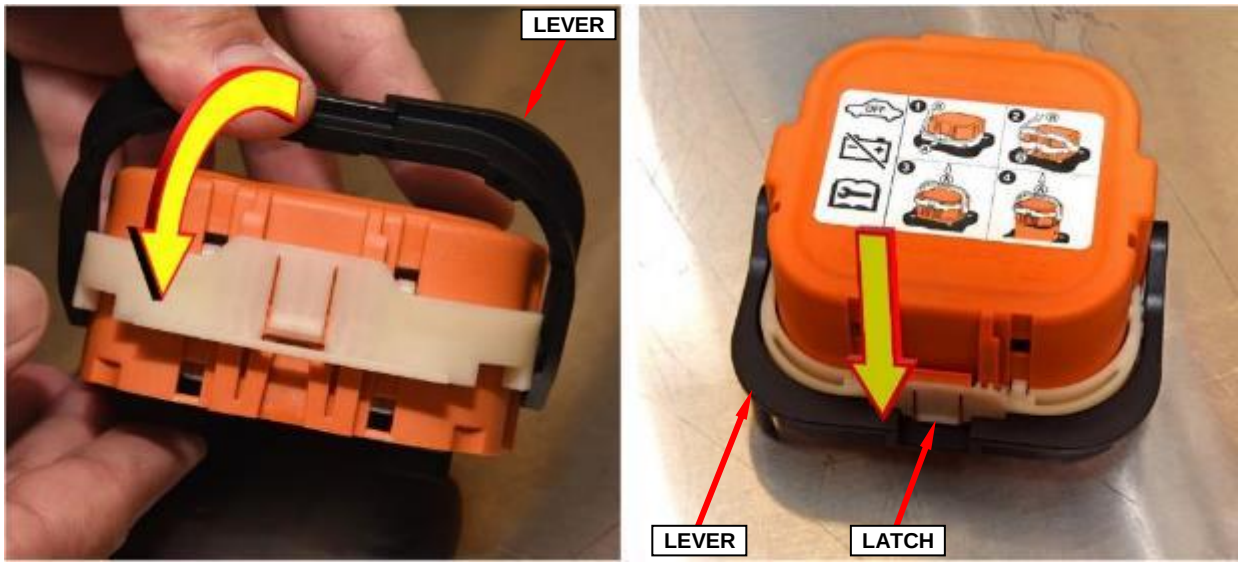


Figure 42 – High-Voltage Manual Service Disconnect Latch Engagement

(High-Voltage Manual Service Disconnect Removed from Vehicle for Visual Clarity)

Service Procedure (Continued)

37. Position the high-voltage manual service disconnect access cover over the floor opening. Install the four retaining screws and tighten to 2.5 N·m (22 In. Lbs.) (Figure 5).

    NOTE: The clearance between the top of the high-voltage manual service disconnect and the bottom of the access cover is such that the access cover will not seat properly on the floor if the high-voltage service disconnect is not fully seated.

38. Install the carpet and floor mat over the high-voltage manual service disconnect access cover (Figure 4).

39. Install the coolant inlet and outlet hoses to the PIM and position the clamps (Figure 19). The PIM coolant upper fitting is outlet and lower fitting is inlet.

40. Remove the hose-pinching pliers from the coolant inlet and outlet hoses (Figure 19).

41. Lubricate the air cleaner body rubber mounting sockets with Mopar® Rubber Bushing Installation Lube.

42. Install the air cleaner body straight down until the locating pins engage with the rubber mounting sockets are fully seated (Figure 12).

43. Install the air inlet duct and engage the locating pins (Figure 12).

44. Tighten the air inlet duct to air cleaner body clamp to 5 N·m (44 In. Lbs.) (Figure 12).

45. Install the air cleaner element into the air cleaner housing (Figure 11).

46. Install the air cleaner housing cover onto the air cleaner housing. Tighten the cover retaining screws to 5 N·m (44 In. Lbs.) (Figure 10).

47. Tighten the clean air tube clamp at the resonator to 5 N·m (44 In. Lbs.) (Figure 10).

48. Connect the wire harness connector to the Inlet Air Temperature (IAT) sensor (Figure 10).

Service Procedure (Continued)

49. Connect the fresh air makeup hose to the air cleaner body (Figure 10).

50. Remove the protective cover 10084 from the 12-volt positive battery cable (Figure 3).

51. Connect the positive battery cable to the 12-volt Power Distribution Center (PDC) and tighten the nut to 9 N·m (80 In. Lbs.) (Figure 2).

52. Install the 12-volt PDC cover (Figure 1).

53. Raise and support the vehicle.

54. Install the engine belly pan to the vehicle and secure with the push pin fastener (Figure 17).

55. Install eight silver M6 screws attaching the belly pan front belly pan. Tighten the screws to 6 N·m (53 In. Lbs.) (Figure 17).

56. Install four black M4.8 screws attaching the wheelhouse splash shields to the engine belly pan. Tighten the screws to 2.8 N·m (25 In. Lbs.) (Figure 17).

57. Install the front belly pan to the vehicle and secure with two push-pin fasteners (Figure 16).

58. Install the eight silver M6 screws attaching the front belly pan to the vehicle. Tighten the screws to 6 N·m (53 In. Lbs.) (Figure 16).

59. Install four black M4.8 screws attaching the wheelhouse splash shields to the front belly pan. Tighten the screws to 2.8 N·m (25 In. Lbs.) (Figure 16).

60. Install six black M4.8 screws attaching the front belly pan to front fascia. Tighten the screws to 2.8 N·m (25 In. Lbs.) (Figure 16).

61. Lower the vehicle.

Service Procedure (Continued)

NOTE: The replacement PIM contains generic bootloader software and must be flashed with latest software release available on wiTECH before the module or vehicle will function.

62. Proceed now to **Page 41, Section D. Reprogram Multiple Control Modules** and complete the software reprogramming steps for all modules before continuing with the next step of this procedure.

NOTE: The following wiTECH screen image is an example of a newly installed PIM with bootloader software causing the Auxiliary Hybrid Control Processor (AHCP) to display solid red (Figure 43). It is normal for a blank PIM with generic Bootloader software to cause the AHCP to display solid red. This indicates that the PIM is not communicating on the Controller Area Network (CAN) bus. There is nothing wrong with this PIM, therefore continue with the software flash procedure.

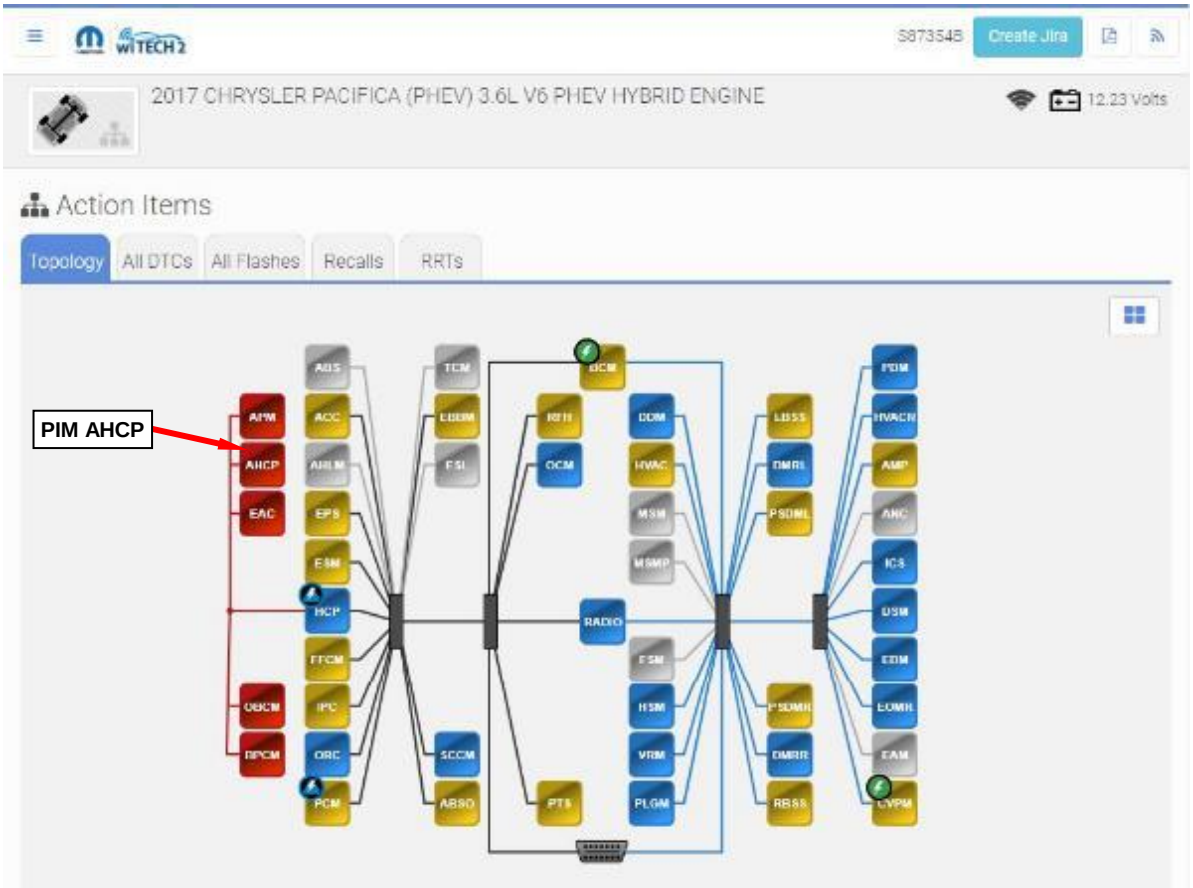


Figure 43 – wiTECH Screen Image Is An Example Of A Newly Installed PIM With Bootloader Software Causing The AHCP To Display Solid Red. There Is Nothing Wrong With This PIM, Therefore Continue With The Software Flash Procedure.

Service Procedure (Continued)

63. Add MS.12106 engine coolant to the power electronics cooling system pressurized coolant reservoir through the filler neck until the coolant level reaches the MAX level of the coolant reservoir (Figure 44).

    CAUTION: Only deionized or distilled water can be used in the PHEV cooling systems. The use of tap water is prohibited as this can damage the components.

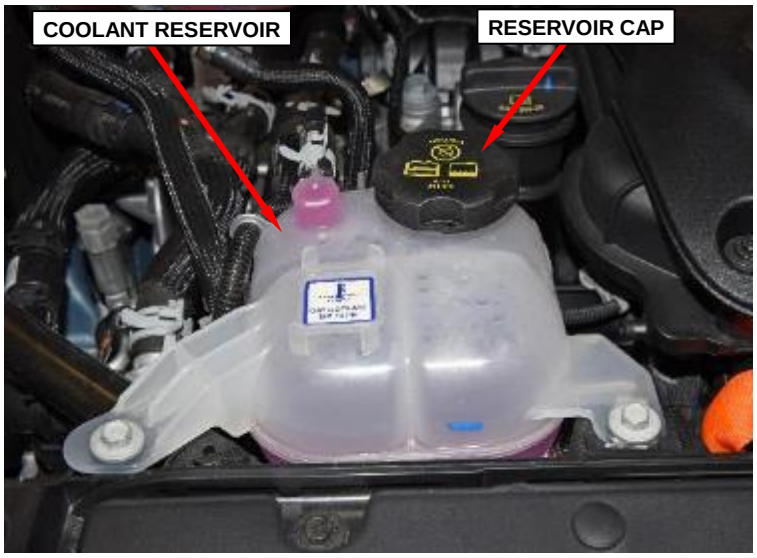


Figure 44 – Power Electronics Coolant Reservoir

    NOTE: A 50/50 mixture of an ethylene glycol based antifreeze formulated with Organic Acid Technology (OAT) and deionized or distilled water is required such as Mopar® US - 68163849AB, Canada – 65175339AC 50/50 Prediluted Antifreeze/Coolant or equivalent meeting the requirements of FCA Material Standard MS.12106.

64. Install a battery charger and verify that the charging rate provides 13.0 to 13.5 volts. Do not allow the charger to time out during the flash process. Set the battery charger timer (if so equipped) to continuous charge.

65. Connect the wiTECH micro pod II to the vehicle data link connector

66. Place the ignition in the "**RUN**" position.

67. Open the wiTECH 2.0 website.

Service Procedure (Continued)

68. Enter your "**User id**" your "**Password**" and your "**Dealer Code**", then select "**Finish**" at the bottom of the screen.

69. Starting at the "**Vehicle Selection**" screen, select the appropriate vehicle.

70. From the "**Action Items**" screen, select the "**Topology**" tab.

71. From the "**Topology**" tab, select the "**HCP**" icon.

72. From the "**HCP**" screen, select the "**MISC functions**" tab.

73. From the "**MISC functions**" tab, select "**Low Temp Coolant Fill - Passive**" then follow the wiTECH screen instructions to complete the routine.

74. Monitor the reservoir coolant level for the next 5 minutes and add additional coolant if required to maintain the minimum indicated coolant level.

    NOTE: Do not allow the coolant reservoir to empty while running this routine.

75. Allow the coolant level to stabilize for 30 seconds. If the coolant level drops during the stabilization period, and no leaks are present, repeat fill process.

76. Add engine coolant through the reservoir filler neck as required until the coolant level reaches the MAX level of the PIM coolant reservoir. Tighten the cap on the pressurized coolant reservoir.

77. Switch ignition to the OFF position.

78. Using Mopar® SVT275 Cooling Pressure Tester or an equivalent, pressure test the PIM coolant system and check for leaks.

Service Procedure (Continued)

79. Raise the vehicle until the front tires are approximately 30 cm (12 in.) from the ground.

80. Enter the vehicle and make sure the vehicle doors are closed to prevent the Automatic Shift to Park function from engaging during the test.

81. Switch off the Electronic Stability Control (ESC), if equipped.

82. Place the ignition in the "**RUN**" position.

83. From the wiTECH "**Action Items**" screen, select the "**Topology**" tab.

84. From the "**Topology**" tab, select the "**HCP**" icon.

85. From the "**HCP**" screen, select the "**MISC functions**" tab.

86. From the "**MISC functions**" tab, select "**Resolver Offset Learn**" then follow the wiTECH screen instructions to complete the routine.

87. Obtain the vehicle key code:
    a. Sign into Dealer Connect.
    b. Select the "**Service**" Tab.
    c. From the "**Repair Information**" section, select "**Key Code**".
    d. On the "**Key Code Inquiry Criteria**" screen, enter the vehicle "**VIN**", "**Reason Code**" 3-Vehicle Repair, "**Password"**, and accept the "**Dealer Policy**" agreement.
    e. Record the 4-digit authorization PIN number for use during the "**Immobilizer ECUs Replaced**" routine.

    NOTE: The vehicle key code will be required for the Launch Immobilizer ECUs Replaced routine.

Service Procedure (Continued)

88. From the "**Action Items**" screen, select the "**Topology**" tab.

89. From the "**Topology**" tab, select the "**BCM**" icon.

90. From the "**BCM**" screen, select the "**MISC functions**" tab.

91. From the "**MISC functions**" tab, select "**Immobilizer ECUs Replaced**" then follow the wiTECH screen instructions to complete the routine.

    NOTE: The vehicle key code will be required during the Launch Immobilizer ECUs Replaced routine.

92. Select the "**Clear All DTCs**" tab, then click "**Clear All DTCs**" and then select "**Close**".

93. Create and save a Vehicle Scan Report (VSR) before proceeding. Both pre and post scan reports **will be required** for submission to warranty.

    a. From the left column in the analysis section, select "**Reports**".

    b. On the reports page, select "**Scan Report**".

    c. Select "**ECU Summary**" from the dropdown menu on the right.

    d. Select "**Printer Friendly**" then save file type as "**PDF**". Name the file with the last eight digits of the vehicle VIN.

94. Turn the ignition to the "**OFF**" position and then remove the wiTECH micro pod II device from the vehicle.

95. Lower the vehicle.

96. Remove the battery charger from the vehicle.

97. Return the vehicle to the customer.

98. Complete proof of correction form for California Residents.

    NOTE: If PIM was replaced and software updated, claim LOP 08-T3-41-82 plus any applicable software flash Related Operation LOPs.

D. Reprogram Multiple Control Modules

NOTE: The wiTECH scan tool must be used to perform this Safety Recall. The wiTECH software is required to be at the latest release level before performing this procedure.

NOTE: The high voltage Power Inverter Module (PIM), Powertrain Control Module (PCM), Battery Pack Control module (BPCM) and the On Board Charging Module (OBCM) must be updated to the latest available software calibration level after completing this Safety Recall.

NOTE: If this flash process is interrupted/aborted, the flash should be restarted.

NOTE: It is normal for the high voltage charging lamp on the dash to flash like there is a charging system failure while performing software updates.

1. Install a battery charger and verify that the charging rate provides 13.0 to 13.5 volts. Do not allow the charger to time out during the flash process. Set the battery charger timer (if so equipped) to continuous charge.

2. Connect the wiTECH micro pod II to the vehicle data link connector

3. Place the ignition in the "**RUN**" position.

NOTE: The following procedure steps are based on using the wiTECH 2.0 scan tool. If an earlier version of the wiTECH scan tool is used, procedure steps may be different.

4. Open the wiTECH 2.0 website.

5. Enter your "**User id**" your "**Password**" and your "**Dealer Code**", then select "**Finish**" at the bottom of the screen.

6. Starting at the "**Vehicle Selection**" screen, select the vehicle to be updated.

Service Procedure (Continued)

7. Create and save a Vehicle Scan Report (VSR) before proceeding. Both pre and post scan reports **will be required** for submission to warranty.
   a. From the left column in the analysis section, select "**Reports**".
   b. On the reports page, select "**Scan Report**".
   c. Select "**ECU Summary**" from the dropdown menu on the right.
   d. Select "**Printer Friendly**" then save file type as "**PDF**". Name the file with the last eight digits of the vehicle VIN.

   NOTE: The PIM contains two processors, Hybrid Control Processor (HCP) and Auxiliary Hybrid Control Processor (AHCP). The HCP and AHCP are combined into one PIM software update. The software update must begin with updating the HCP. The AHCP will update immediately following the HCP.

8. From the "**Action Items**" screen, select the "**All Flashes**" tab.
   - Select "**HCP**" by clicking the arrow on the right side of the screen. Read the special flash instructions, then select "**OK**". Continue with **Step 9**.
   - If "**HCP**" is not displayed as one of the available flashes, the PIM software is already at the current software level and does not require updating. Proceed to **Step 11**.

9. From the "**Flash ECU Agreement**" page, agree to terms by "**Checking the Box**".

10. Select "**Flash ECU**" and then follow the wiTECH screen instructions to complete the flash.

11. Once the software is confirmed to be at the latest available calibration level, select "**View DTCs**".

12. Select the "**Clear All DTCs**" tab, then click "**Clear All DTCs**" and then select "**Close**".

Service Procedure (Continued)

13. From the "**Action Items**" screen, select the "**All Flashes**" tab.
    - Select "**PCM**" by clicking the arrow on the right side of the screen. Read the special flash instructions, then select "**OK**". Continue with **Step 14**.
    - If "**PCM**" is not displayed as one of the available flashes, the PCM software is already at the current software level and does not require updating. Proceed to **Step 18**.

14. From the "**Flash ECU Agreement**" page, agree to terms by "**Checking the Box**".

15. Select "**Flash ECU**" and then follow the wiTECH screen instructions to complete the flash.

16. Once the software is confirmed to be at the latest available calibration level, select "**View DTCs**".

17. Select the "**Clear All DTCs**" tab, then click "**Clear All DTCs**" and then select "**Close**".

18. From the "**Action Items**" screen, select the "**All Flashes**" tab.
    - Select "**BPCM**" by clicking the arrow on the right side of the screen. Read the special flash instructions, then select "**OK**". Continue with **Step 19**.
    - If "**BPCM**" is not displayed as one of the available flashes, the BPCM software is already at the current software level and does not require updating. Proceed to **Step 23**.

19. From the "**Flash ECU Agreement**" page, agree to terms by "**Checking the Box**".

20. Select "**Flash ECU**" and then follow the wiTECH screen instructions to complete the flash.

21. Once the software is confirmed to be at the latest available calibration level, select "**View DTCs**".

22. Select the "**Clear All DTCs**" tab, then click "**Clear All DTCs**" and then select "**Close**".

Service Procedure (Continued)

23. From the "**Action Items**" screen, select the "**All Flashes**" tab.
    - Select "**OBCM**" by clicking the arrow on the right side of the screen. Read the special flash instructions, then select "**OK**". Continue with **Step 24**.
    - If "**OBCM**" is not displayed as one of the available flashes, the OBCM software is already at the current software level and does not require updating. Proceed to **Step 28**.

24. From the "**Flash ECU Agreement**" page, agree to terms by "**Checking the Box**".

25. Select "**Flash ECU**" and then follow the wiTECH screen instructions to complete the flash.

26. Once the software is confirmed to be at the latest available calibration level, select "**View DTCs**".

27. Select the "**Clear All DTCs**" tab, then click "**Clear All DTCs**" and then select "**Close**".

    NOTE: An additional key cycle may be necessary to move active DTCs to stored DTCs then it will be necessary to clear all DTCs again.

28. **If PIM was replaced**, return now to **Page 37, Step 63** of **Section C. Power Inverter Module (PIM) Installation** to perform PHEV cooling system purge and Immobilizer learn procedures. **If the PIM was not replaced**, continue with the next step.

29. Create and save a Vehicle Scan Report (VSR) before proceeding. Both pre and post scan reports **will be required** for submission to warranty.
    a. From the left column in the analysis section, select "**Reports**".
    b. On the reports page, select "**Scan Report**".
    c. Select "**ECU Summary**" from the dropdown menu on the right.
    d. Select "**Printer Friendly**" then save file type as "**PDF**". Name the file with the last eight digits of the vehicle VIN.

Service Procedure (Continued)

30. Turn the ignition to the "**OFF**" position and then remove the wiTECH micro pod II device from the vehicle.

31. Remove the battery charger from the vehicle.

32. Return the vehicle to the customer.

33. Complete proof of correction form for California Residents.

    NOTE: If PIM was not replaced, claim LOP 08-T3-41-81 plus any applicable software flash Related Operation LOPs.

Complete Proof of Correction Form for California Residents

This recall is subject to the **State of California Registration Renewal/Emissions Recall Enforcement Program**. Complete a Vehicle Emission Recall Proof of Correction Form **(Form No. 81-016-1053)** and **supply it to vehicle owners residing in the state of California** for proof that this recall has been performed when they renew the vehicle registration.

Process Steps to obtain the California Proof of Correction form:

a. Access the "**DealerCONNECT**" website.

b. Select the "**Service**" tab.

c. Under the "**Publications**" heading, select the "**ePublishing**" link.

d. Sign in using your **Dealer Code** and **Password**.

e. Select the "**Proof of Correction form**".

Completion Reporting and Reimbursement

Claims for vehicles that have been serviced must be submitted on the DealerCONNECT Claim Entry Screen located on the Service tab. Claims paid will be used by FCA to record recall service completions and provide dealer payments.

Use the following labor operation numbers and time allowances:

	Labor Operation Number	Time Allowance
Inspect PCM, BPCM, OBCM and PIM Software Levels	08-T3-41-81	0.2 hours
Replace Power Inverter Module (PIM) and Inspect PCM, BPCM, OBCM and PIM Software Levels	08-T3-41-82	2.9 hours
Related Operation		
Reprogram PCM With New Software	08-T3-41-52	0.1 hours
Reprogram BPCM With New Software	08-T3-41-53	0.1 hours
Reprogram OBCM With New Software	08-T3-41-54	0.1 hours
Reprogram PIM With New Software (PIM contains HCP and AHCP)	08-T3-41-55	0.4 hours

Add the cost of the recall parts package plus applicable dealer allowance to claim.

NOTE: See the Warranty Administration Manual, Recall Claim Processing Section, for complete recall claim processing instructions.

Completion Reporting and Reimbursement (Continued)

Additional Services	Number	Allowance
Wash Vehicle	95-08-34-50	[redacted] MAX
Loaner Vehicle – CTP Pacifica	95-08-34-51 (Loaner must be a Pacifica to receive this amount)	[redacted] per day
Concierge Loaner Delivery or Remote Service Call	95-08-34-52 (Includes Fuel and Commute Time)	[redacted] MAX
Customer Vehicle Fuel Fill/Charge High Voltage Battery	95-08-34-53	[redacted] MAX
Loaner – Enterprise Pacifica w/ Full-Service Solution	95-08-34-54	Allowance*

*** Submit Invoice Amount – Validation of Charges Will Occur Upon Claim Submission.**

NOTE: For Remote flash activity at the customer's location please follow the document "Performing Off-Site Software Updates to Support Recall T34" that is available on COMDASH and the Dealer Resource Guide.

Dealer Notification

To view this notification on DealerCONNECT, select "Global Recall System" on the Service tab, then click on the description of this notification.

Owner Notification and Service Scheduling

All involved vehicle owners known to FCA are being notified of the service requirement by first class mail. They are requested to schedule appointments for this service with their dealers. A generic copy of the owner letter is attached.

Vehicle Lists, Global Recall System, VIP and Dealer Follow Up

All involved vehicles have been entered into the DealerCONNECT Global Recall System (GRS) and Vehicle Information Plus (VIP) for dealer inquiry as needed.

GRS provides involved dealers with an updated VIN list of their incomplete vehicles. The owner's name, address and phone number are listed if known. Completed vehicles are removed from GRS within several days of repair claim submission.

To use this system, click on the **"Service"** tab and then click on **"Global Recall System."** Your dealer's VIN list for each recall displayed can be sorted by: those vehicles that were unsold at recall launch, those with a phone number, city, zip code, or VIN sequence.

Dealers must perform this repair on all unsold vehicles *before* retail delivery. Dealers should also use the VIN list to follow up with all owners to schedule appointments for this repair.

Recall VIN lists may contain confidential, restricted owner name and address information that was obtained from the Department of Motor Vehicles of various states. Use of this information is permitted for this recall only and is strictly prohibited from all other use.

Additional Information

If you have any questions or need assistance in completing this action, please contact your Service and Parts District Manager.

Customer Services / Field Operations
FCA US LLC

This notice applies to your vehicle,

[Model Year and Model]
VIN XXXXXXXXXXXXXXXXX

T34/NHTSA 17V-371

LOGO

VEHICLE PICTURE

YOUR SCHEDULING OPTIONS

1. **RECOMMENDED OPTION**
   Call your authorized Chrysler / Dodge / Jeep® / RAM Dealership

2. **Call the FCA Recall Assistance Center at 1-800-853-1403. An agent can confirm part availability and help schedule an appointment**

3. **Visit our Recall Website, recalls.mopar.com or scan below.**

QR Code

You can find your nearest dealer and review all your scheduling options from this website. You will be asked to provide your Vehicle Identification Number (VIN) to protect and verify your identity. The last eight characters of your VIN are provided above.

DEALERSHIP INSTRUCTIONS
Please reference Safety Recall T34.

IMPORTANT SAFETY RECALL

PHEV Power Inverter Module

Dear [Name],

This notice is sent to you in accordance with the National Traffic and Motor Vehicle Safety Act.

FCA has decided that a defect, which relates to motor vehicle safety, exists in certain [2017 - 2018 Chrysler Pacifica] Plug-In Hybrid Electric Vehicles (PHEV).

WHY DOES MY VEHICLE NEED REPAIRS?

The Power Inverter Module (PIM) on your vehicle [1] may experience diode failure due to an over-voltage condition. PIM diode failure will cause the vehicle to lose motive power without prior warning. The vehicle will not power back on and the diode failure may be accompanied by illumination of a Malfunction Indicator Lamp (MIL). **A loss of motive power could cause a crash without prior warning.** In addition, an update to the On-Board Diagnostic system is necessary.

HOW DO I RESOLVE THIS IMPORTANT SAFETY ISSUE?

FCA will repair your vehicle [2] free of charge (parts and labor). To do this, your dealer will reprogram the Powertrain Control Module (PCM), Battery Pack Control module (BPCM), On Board Charging Module (OBCM) and the PIM with the latest available software. In a small number of vehicles, the PIM may need to be replaced, based on inspection. In addition, your dealer will require your vehicle for proper check-in, preparation, and check-out during your visit. Your time is important to us; please be aware that these steps may require more time. The estimated repair time is one hour or possibly longer if PIM replacement is required. We recommend that you schedule a service appointment to minimize your inconvenience. Please bring this letter with you to your dealership.

TO SCHEDULE YOUR FREE REPAIR CALL 1-800-853-1403
OR YOUR CHRYSLER, DODGE, JEEP OR RAM DEALER TODAY

CALIFORNIA RESIDENTS

The State of California requires the completion of emission recall repairs prior to vehicle registration renewal. Your dealer will provide you with a Vehicle Emission Recall Proof of Correction Form after the recall service is performed. Be sure to save this form since the California Department of Motor Vehicles may require that you supply it as proof that the recall has been performed.

WHAT IF I ALREADY PAID TO HAVE THIS REPAIR COMPLETED?

If you have already experienced this specific condition and have paid to have it repaired, you may visit **www.fcarecallreimbursement.com** to submit your reimbursement request online. [3] Once we receive and verify the required documents, reimbursement will be sent to you within 60 days. If you have had previous repairs performed and/or already received reimbursement, you may still need to have the recall repair performed.

We apologize for any inconvenience, but are sincerely concerned about your safety. Thank you for your attention to this important matter.

Customer Assistance/Field Operations
Fiat Chrysler Automobiles US LLC

FIAT CHRYSLER AUTOMOBILES

Mr. Mrs. Customer
1234 Main Street
Hometown, MI 48371

[1] If you no longer own this vehicle, please help us update our records. Call the FCA Recall Assistance Center at 1-800-853-1403 to update your information.

[2] If your dealer fails or is unable to remedy this defect without charge and within a reasonable time, you may submit a written complaint to the Administrator, National Highway Traffic Safety Administration, 1200 New Jersey Ave., S.E., Washington, DC 20590, or you can call the toll-free Vehicle Safety Hotline at 1-888-327-4236 (TTY 1-800-424-9153), or go to safercar.gov.

[3] You can also mail in your original receipts and proof of payment to the following address for reimbursement consideration: FCA Customer Assistance, P.O. Box 21-8004, Auburn Hills, MI 48321-8007, Attention: Recall Reimbursement.

Note to lessors receiving this recall notice: Federal regulation requires that you forward this recall notice to the lessee within 10 days.