





CERTAIN 2012 THROUGH 2014 MODEL YEAR FOCUS ELECTRIC VEHICLES — HIGH VOLTAGE WIRE HARNESS INSPECTION AND POWERTRAIN CONTROL MODULE REPROGRAMMING

OVERVIEW

In some of the affected vehicles a "Stop Safely Now" message with a red triangle indicator may appear in the instrument cluster, followed by loss of motive power. The Malfunction Indicator Lamp (MIL) may also illuminate with Diagnostic Trouble Code (DTC) P0A0A-01 present in the Powertrain Control Module (PCM). Depending on the build date of the vehicle and based on inspection results, dealers are to update the High Voltage (HV) wire harness, clean and apply electrical grease to the Powertrain High Voltage Interlock (PT HVIL) Terminal Shunt, and reprogram the PCM.

-  **WARNING:** Service of the high voltage system on this vehicle is restricted to qualified personnel. The required qualifications vary by region. Always observe local laws and legislative directives regarding electric vehicle service. Failure to follow this instruction may result in serious personal injury or death.
-  **WARNING:** To prevent the risk of high-voltage shock, always follow precisely all warnings and service instructions, including instructions to depower the system. The high-voltage system utilizes approximately 300 volts DC, provided through high-voltage cables to its components and modules. The high-voltage cables and wiring are identified by orange harness tape or orange wire covering. All high-voltage components are marked with high-voltage warning labels with a high-voltage symbol. Failure to follow these instructions may result in serious personal injury or death.
-  **WARNING:** Never install the service disconnect plug when a high-voltage service cover is removed. Always install the cover prior to connecting the service disconnect plug. The cover prevents inadvertent contact with the high voltage which is present at several points under the cover. Failure to follow these instructions may result in serious personal injury or death.
-  **WARNING:** Disconnect the 12 volt battery before servicing the direct current to alternating current (DC-AC) inverter or alternating current (AC) powerpoint to prevent the risk of high voltage shock. Failure to follow this instruction may result in serious personal injury.

SERVICE PROCEDURE

Vehicles Built Before May 19, 2014 - Proceed to Page 2.

Vehicles Built On or After May 19, 2014 - Proceed to Page 9.



Vehicles Built Before May 19, 2014

Inspect High Voltage Wire Harness

1. Remove the two engine cover retainer pins, then remove the engine cover.
2. Inspect the HV wire harness. See Figure 1a.



FIGURE 1a

3. Are the HV wires individually wrapped in convolute? See Figures 1b and 1c.
 - Yes - HV wire harness update is not required. Proceed to Module Reprogramming on Page 11.
 - No - Proceed to Update High Voltage Wire Harness on Page 3.

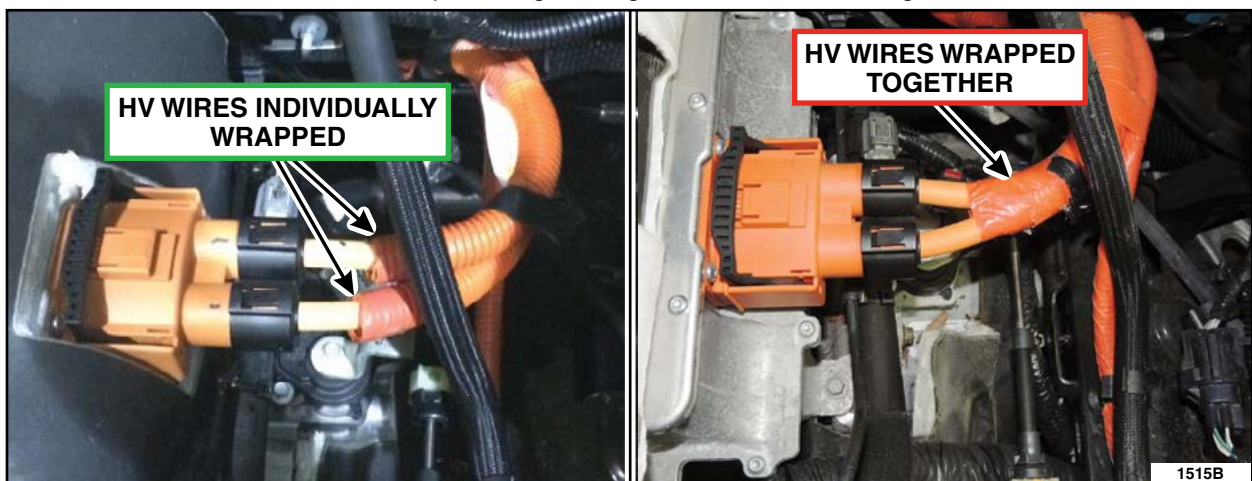


FIGURE 1b

FIGURE 1c



Update High Voltage Wire Harness

1. Disconnect the HV battery service disconnect. Please follow the Workshop Manual (WSM) procedures in Section 414-03A.
2. Disconnect the Transmission Control Module (TCM) connector. See Figure 2.

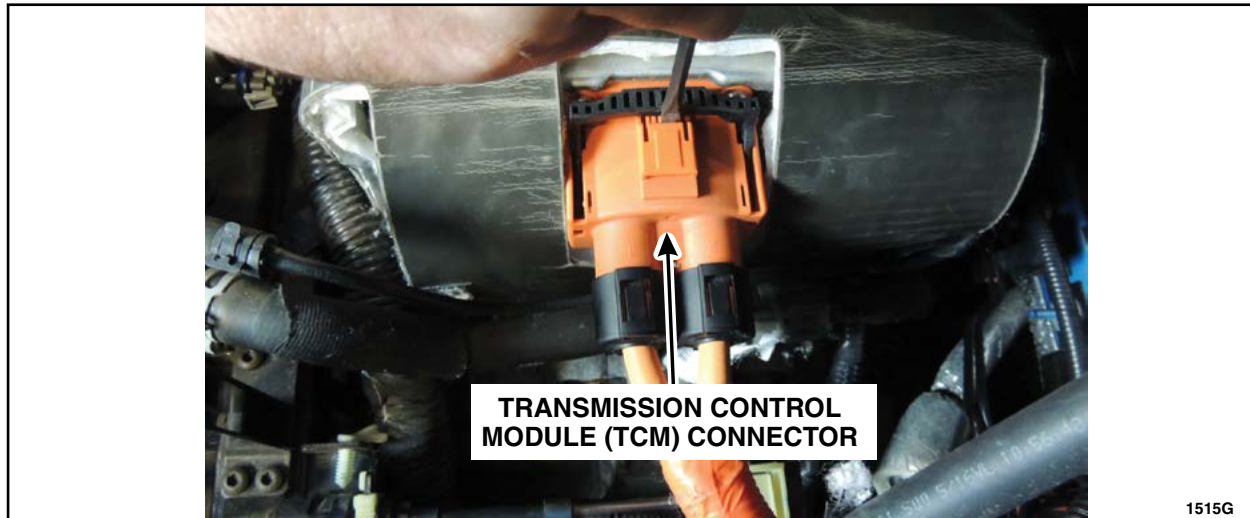


FIGURE 2

NOTE: Do not use a razor blade, utility knife or similar tool for cutting the convolute and tape. The HV wire harness can easily become damaged if round/blunt nose scissors are not used when performing this procedure. See Figure 3.

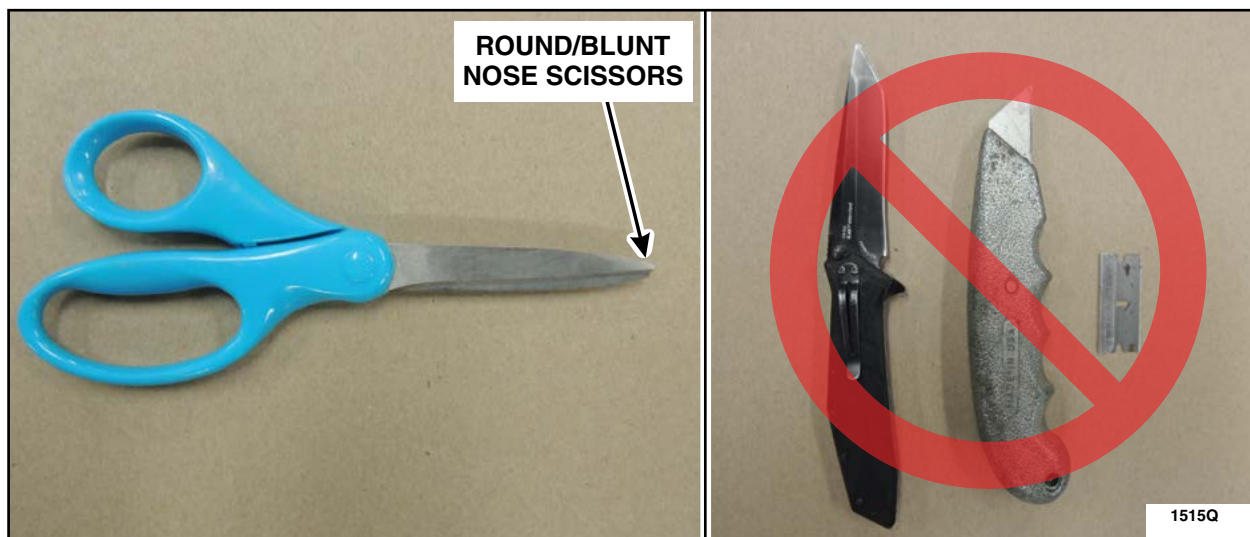


FIGURE 3



3. Using a pair of round/blunt nose scissors, cut the single convolute between the wires down to the black tape at the dash bracket and discard the cut convolute. Peel back the convolute as you cut for better visibility. See Figures 4a, 4b and 4c.

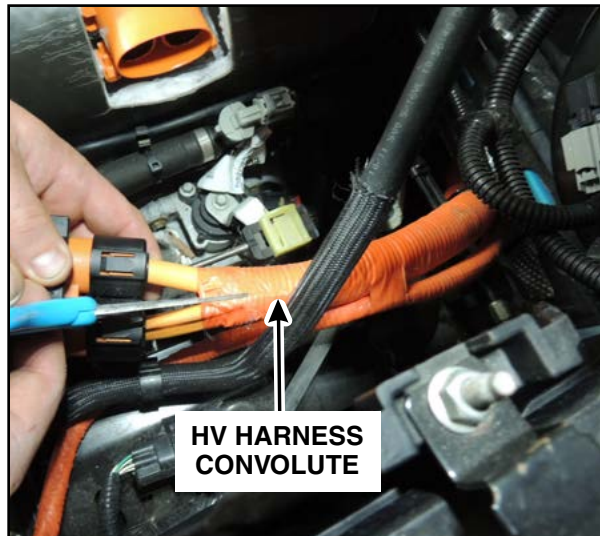


FIGURE 4a

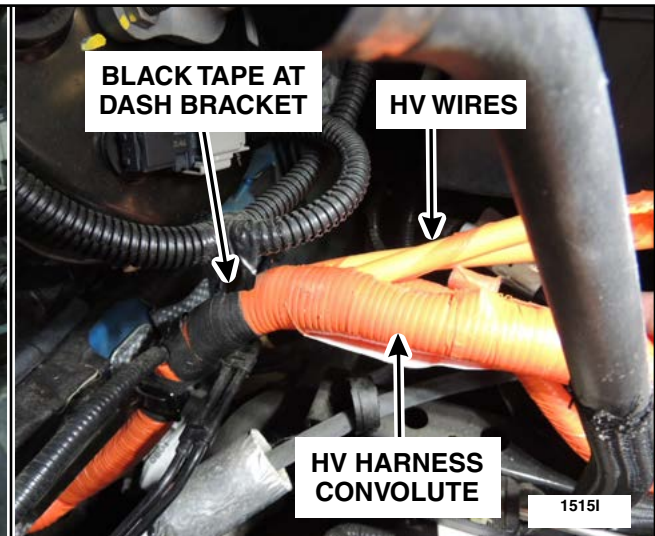


FIGURE 4b



FIGURE 4c



4. Install the abrasion sleeves individually over each HV wire. See Figures 5 and 6.



FIGURE 5

5. Install the supplied tie-straps to the HV wire harness in the sequence shown. Tie-strap "5" secures the unmodified HV wire to the nearest modified HV wire. Install the tie-straps so the straps are facing away from each other. Cut off excess length of the tie-straps. See Figure 6.

NOTE: The unmodified HV wire must be secured to only one of the modified HV wires.

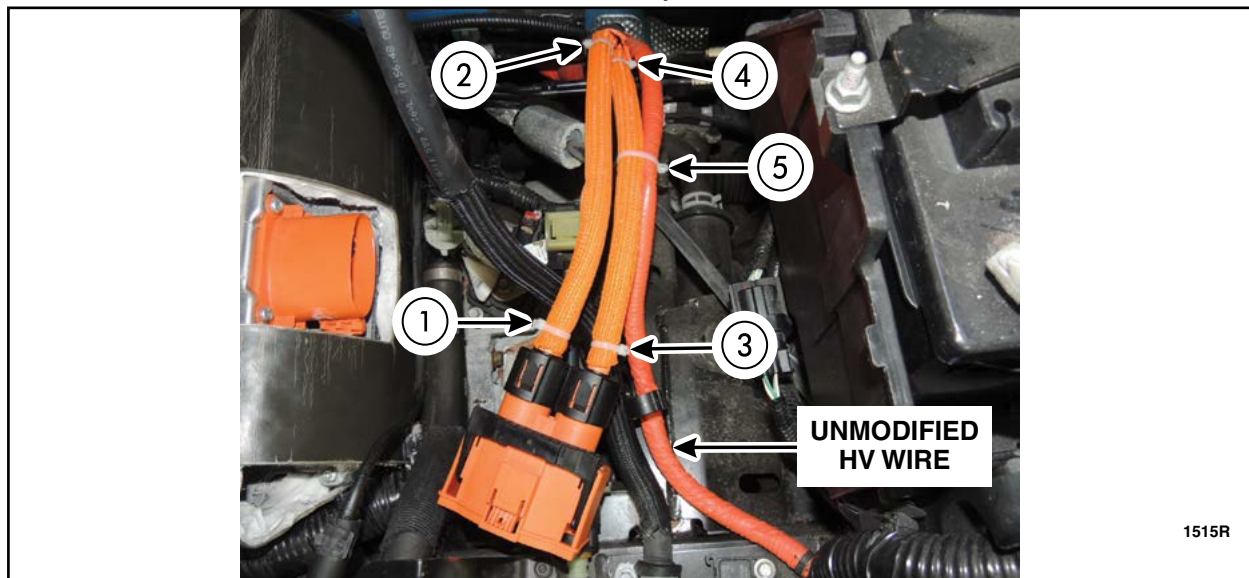


FIGURE 6



6. Remove the four TCM connector terminal springs using a terminal release tool, pick or bent paper clip. Each TCM terminal contains two springs. See Figure 7.

NOTICE: Do not scratch or damage the terminal surface or spring grooves.

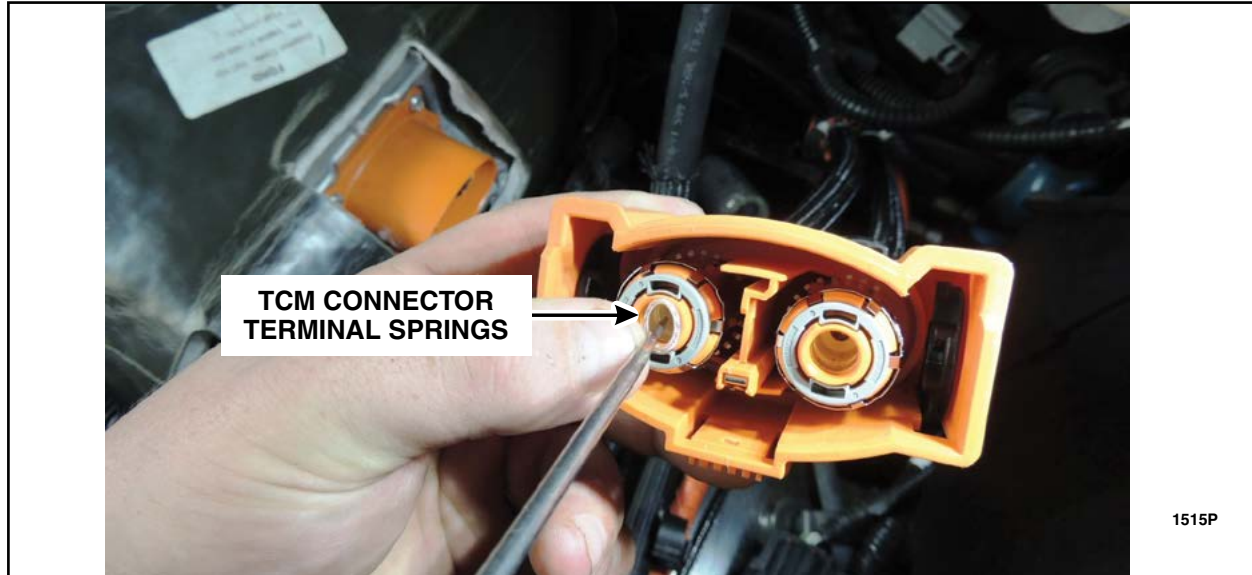


FIGURE 7

7. Install the four *new* TCM connector terminal springs using a terminal release tool, pick or bent paper clip. Place the springs into their correct position and seat in the grooves. See Figure 8.

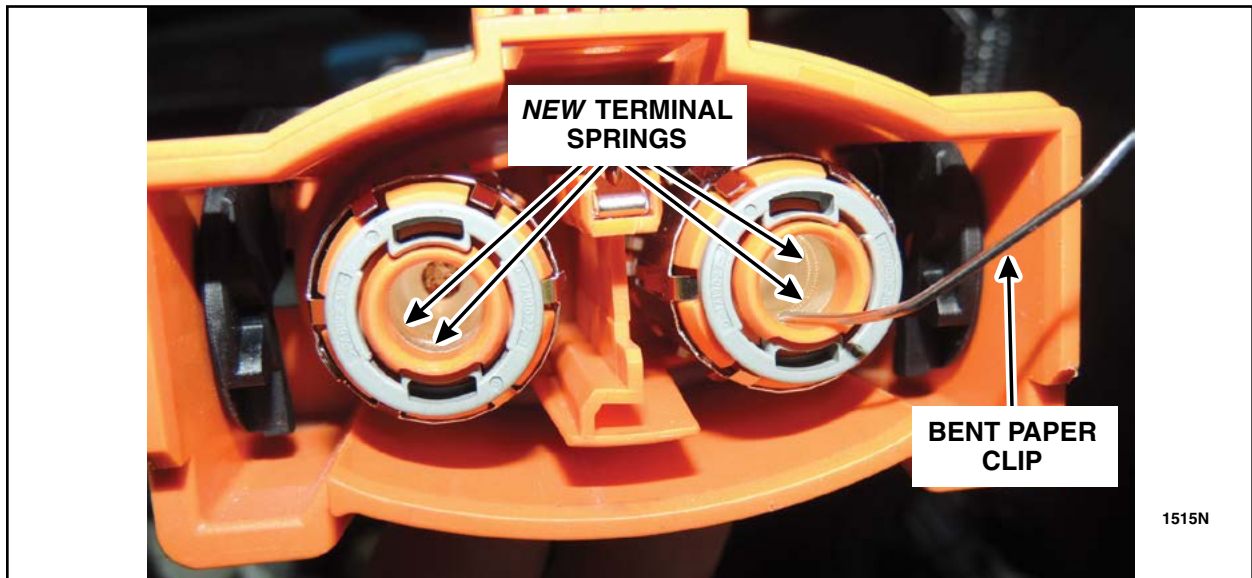


FIGURE 8



8. Turn the TCM connector upside down and locate the Powertrain High Voltage Inter-Lock (PT HVIL) Terminal Shunt locking tab access hole. Using an angled pick, depress the tab while pulling the shunt out of the connector and discard the shunt. See Figure 9.

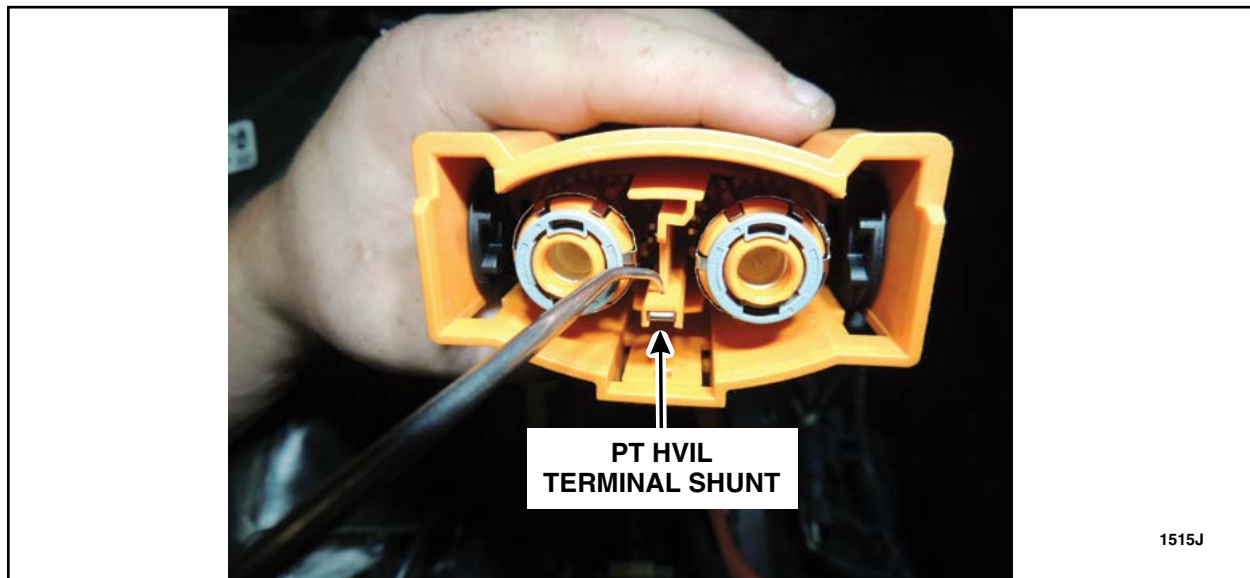


FIGURE 9

NOTICE: Use latex gloves for this portion of the repair. Be careful not to touch the gold surface of the *new* shunt.

NOTICE: Do not compress the *new* shunt when installing into the TCM connector.

9. Install the *new* PT HVIL Terminal Shunt by slowly sliding into the slotted opening until an audible "click" is heard and the shunt is locked in place. See Figure 10.

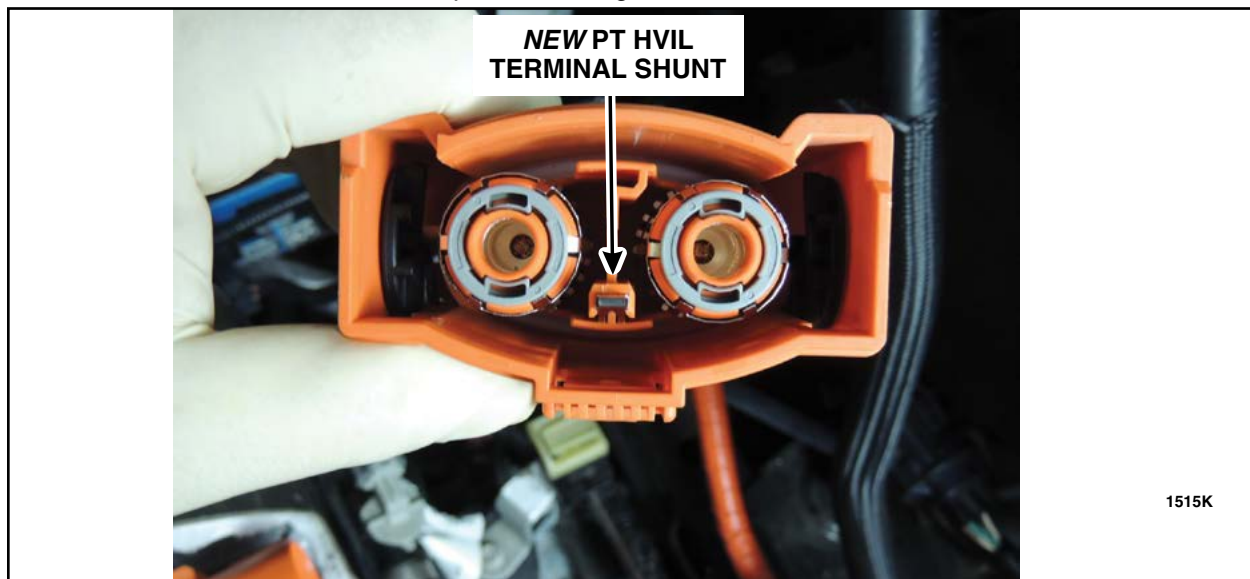


FIGURE 10



10. Using a lint free cloth, lightly wipe all surfaces of the shunt after installation. Apply Motorcraft Electrical Grease XG-12 to the *new* PT HVIL Terminal Shunt. See Figure 11.

NOTE: Apply the grease to the PT HVIL Terminal Shunt only.

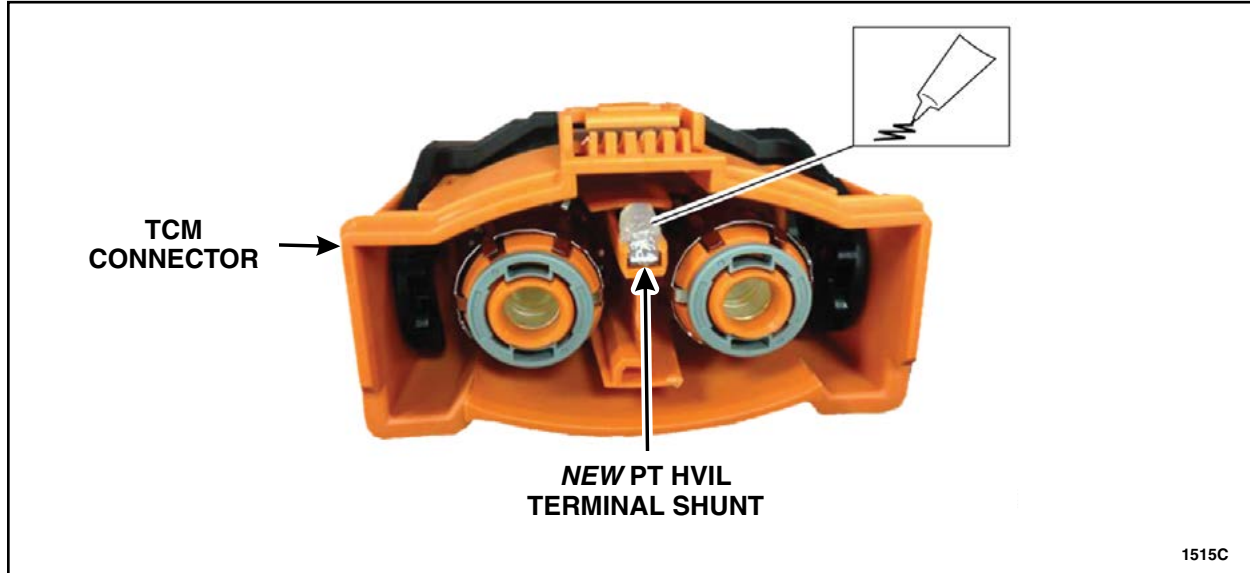


FIGURE 11

11. Connect and disconnect the TCM connector. See Figure 2.
12. Verify all components remain in the correct position. See Figures 8 and 10.
13. Reconnect the TCM connector. See Figure 2.
14. Install the engine cover and the two engine cover retainer pins.
15. Connect the HV battery service disconnect. Please follow the WSM procedures in Section 414-03A.
16. Proceed to Module Reprogramming on Page 11.



Vehicles Built On or After May 19, 2014

Clean and Apply Electrical Grease to the PT HVIL Terminal Shunt

1. Disconnect the High Voltage (HV) battery service disconnect. Please follow the Workshop Manual (WSM) procedures in Section 414-03A.
2. Remove the two engine cover retainer pins, then remove the engine cover.
3. Disconnect the Transmission Control Module (TCM) connector. See Figure 12.

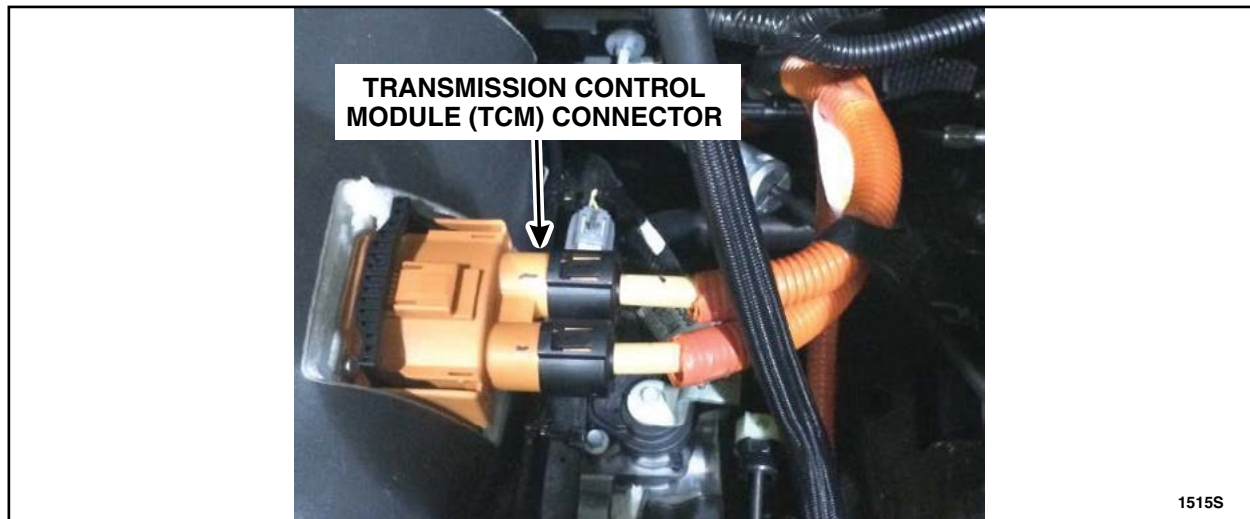


FIGURE 12

4. Using a lint free cloth, lightly wipe all surfaces of the Powertrain High Voltage Inter-Lock (PT HVIL) Terminal Shunt. Apply Motorcraft Electrical Grease XG-12 to the (PT HVIL) Terminal Shunt. See Figure 13.

NOTE: Apply the grease to the PT HVIL Terminal Shunt only.

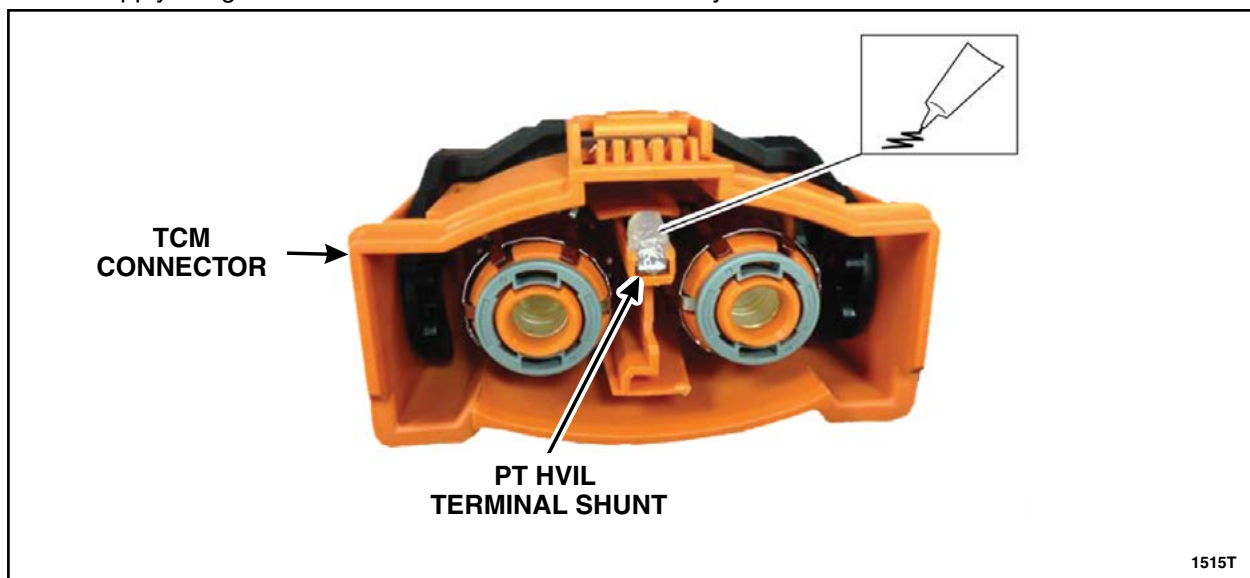


FIGURE 13



5. Connect the TCM connector. See Figure 12.
6. Install the engine cover and the two engine cover retainer pins.
7. Connect the HV battery service disconnect. Please follow the WSM procedures in Section 414-03A.
8. Proceed to Module Reprogramming on Page 11.



Module Reprogramming - All Vehicles

NOTE: Reprogram appropriate vehicle modules before performing diagnostics and clear all Diagnostic Trouble Codes (DTCs) after programming. For DTCs generated after reprogramming, follow normal diagnostic service procedures.

1. Connect a battery charger to the 12V battery.
2. Reprogram the Powertrain Control Module (PCM) using Integrated Diagnostic System (IDS) release 93.03 or higher.

NOTE: A coordinated reflash is required when reprogramming the PCM. When PCM reprogramming is initiated, the IDS will check for software updates on certain onboard modules (Anti-lock Brake System (ABS) module, Transmission Control Module (TCM), etc.). The IDS will automatically install updates in these modules if they are not at the latest level. If the coordinated reflash is interrupted, undesired vehicle operation may result.

NOTE: Calibration files may also be obtained at www.motorcraftservice.com.

NOTE: Follow the IDS on-screen instructions to complete the reprogramming procedure.

3. Disconnect the battery charger from the 12V battery, once reprogramming has completed.

Important Information for Module Programming

NOTE: When programming or reprogramming a module, use the following basic checks to ensure programming completes without errors.

- Make sure the 12V battery is fully charged before carrying out the programming steps and connect IDS/scan tool to a power source.
- Inspect Vehicle Communication Module (VCM) and cables for any damage. Make sure scan tool connections are not interrupted during programming.
- A hardwired connection is strongly recommended.
- Turn off all unnecessary accessories (radio, heated/cooled seats, headlamps, interior lamps, HVAC system, etc.) and close doors.
- Disconnect/depower any aftermarket accessories (remote start, alarm, power inverter, CB radio, etc.).
- Follow all scan tool on-screen instructions carefully.
- Disable IDS/scan tool sleep mode, screensaver, hibernation modes.
- Create all sessions Key On Engine Off (KOEO). Starting the vehicle before creating a session will cause errors within the programming inhale process.



**Recovering a module when programming has resulted in a blank module:
NEVER DELETE THE ORIGINAL SESSION!**

- a. Obtain the original IDS that was used when the programming error occurred during Module Reprogramming (MR) or Programmable Module Installation (PMI).
- b. Disconnect the VCM from the Data Link Connector (DLC) and the IDS.
- c. Reconnect the VCM to IDS and then connect to the DLC. Once reconnected, the VCM icon should appear in the corner of the IDS screen. If it does not, troubleshoot the IDS to VCM connection.
- d. Locate the ORIGINAL vehicle session when programming failed. This should be the last session used in most cases. If not, use the session created on the date that the programming failed.

NOTE: If the original session is not listed in the previous session list, click the "Recycle Bin" icon at the lower right of the previous session screen. This loads any deleted sessions and allows you to look through them. Double-click the session to restore it.

- e. Once the session is loaded, the failed process should resume automatically.
- f. If programming does not resume automatically, proceed to the Module Programming menu and select the previously attempted process, PMI or MR.
- g. Follow all on-screen prompts/instructions.
- h. The last screen on the IDS may list additional steps required to complete the programming process. Make sure all applicable steps listed on the screen are followed in order.

