FACTORY MANUALS

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2015 Jeep COMPASS PATRIOT Service Manual

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Sample

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- The fault has been corrected or a duration of 24 hours has passed

The BCI also indicates managed or delayed charging status. Starting with the segment on the right side of the vehicle, each segment will flash sequentially in turn until all five segments have flashed.

This sequence will repeat until:

- Charging enabled
- A fault is detected
- The vehicle is unplugged

LOCKING CHARGE PORT COUPLING

Locking of the EVSE charge port coupling before energy transfer can take place is a regulatory requirement. When the EVSE charge port coupling is locked, the release button cannot be depressed.

The HV charging management system is responsible for commanding locking and unlocking of the charge port coupler. The lock request is initiated by the Hybrid Control Processor (HCP) located in the Power Inverter Module (PIM). HV battery charging will not take place until the HCP receives confirmation that the charge coupler is LOCKED.

When the HV charging management system determines that the following conditions are met, the HCP requests the Body Control Module (BCM) to lock the charge coupling:

- EVSE is plugged-in
- Hood is not ajar

Upon receiving the request from HCP to lock the charge coupling, the BCM will:

- Actuate the charge coupling lock actuator
- Report the status of the charge coupler as LOCKED

The Charge Port Indicator Module (CPIM), located at the charge inlet, provides a charging system indication to the customer by displaying one of three Light Emitting Diode (LED) colors (RED or GREEN or BLUE). Based on the charging status when the EVSE is plugged into the vehicle, the HV charging management system will command the appropriate LED:

- Red, Green and Blue – Initial vehicle plug in
- Green flashing – Active charging
- Blue flashing – Scheduled charge mode
- Green continuous – Charge complete
- Red continuous – Charging system fault

If all other conditions to enable charging are met, the HV charging management system will display charging indication on the BCI

A passenger door unlock request, initiated by the customer, will unlock the charge port coupling.

Sample

The large traction P2 motor, located at the transmission input, is used to propel the vehicle. The P2 motor has a direct ratio to the wheels. When the engine is running, the rotor in the P1 motor is being mechanically driven by the crankshaft of the engine. In this case the electric motor becomes a generator, creating AC power that is supplied to the PIM. The PIM converts the AC power into DC power to charge the high voltage battery.

RESOLVER OPERATION: The resolver is an electrical device that acts as a rotor position sensor. The resolvers are attached to the stator of each electric motor. It's structure is similar to the stator of the electric motor. At ignition ON, the MCP outputs a fixed excitation signal to the coils in the resolver which creates a magnetic field. The rotation of the rotor induces a voltage into the resolver coil windings. The resolver feedback signal is used to determine the angular position, speed and direction of the motor. This allows the PIM to determine which windings of the stator must be charged with the correct phase of current. If any resolver signals are lost, the vehicle will not operate.

FUNCTIONAL DESCRIPTION - BATTERY PACK CONTROL MODULE (BPCM)

The Battery Pack Control Module (BPCM) is an electronic control module integrated with the high voltage (HV) battery. The BPCM includes the Analog/Digital (A/D) circuitry for the internal input/output controls and Controller Area Network (CAN) communications. The BPCM monitors and manages the voltage, current and temperature of the HV battery.

BPCM inputs include:

- Inlet coolant temperature sensor
- Outlet coolant temperature sensor
- IDCM coolant inlet temperature sensor
- HV wake up signal
- Individual cell voltage and temperature
- Current sensor
- High Voltage Interlock Loop (HVIL) source signal
- High Voltage Interlock Loop (HVIL) return signal

The BPCM responsibilities include:

- Component protection
- Report HV battery system status
- ePT wake up
- Battery State Of Charge (SOC)
- Providing current and voltage limits during driving and charging
- Controlling the three contactors
- Maintaining the battery cells at an appropriate temperature to ensure the usage life of the battery
- Providing loss of isolation monitoring
- Providing High Voltage Interlock Loop (HVIL) monitoring

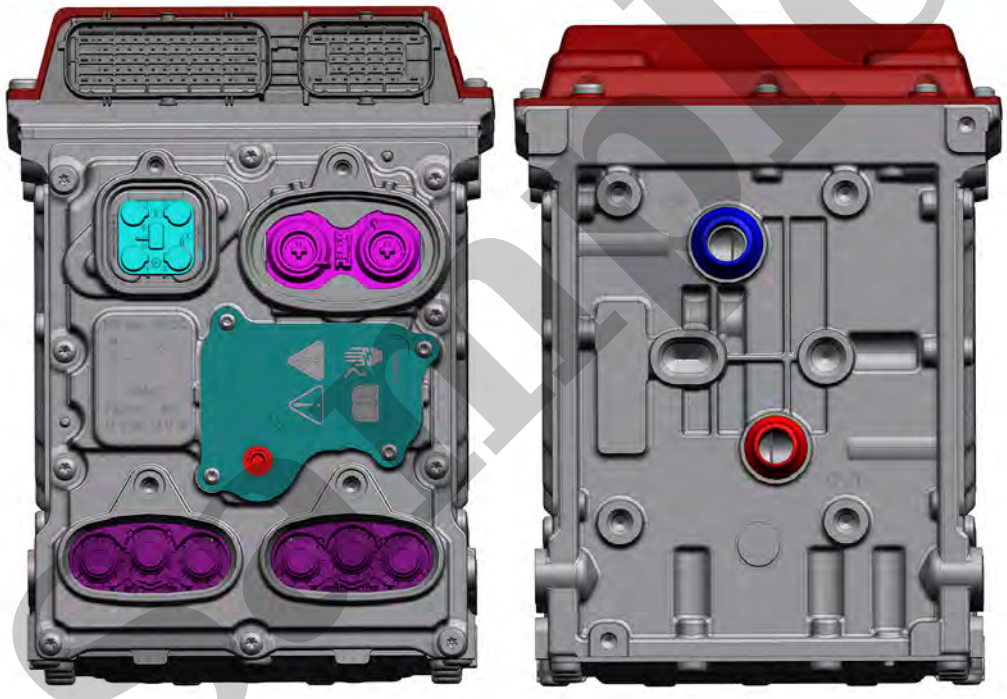
Sample

YOUR CURRENT VEHICLE

Power Inverter Module (PIM)

POWER INVERTER MODULE (PIM)

DESCRIPTION



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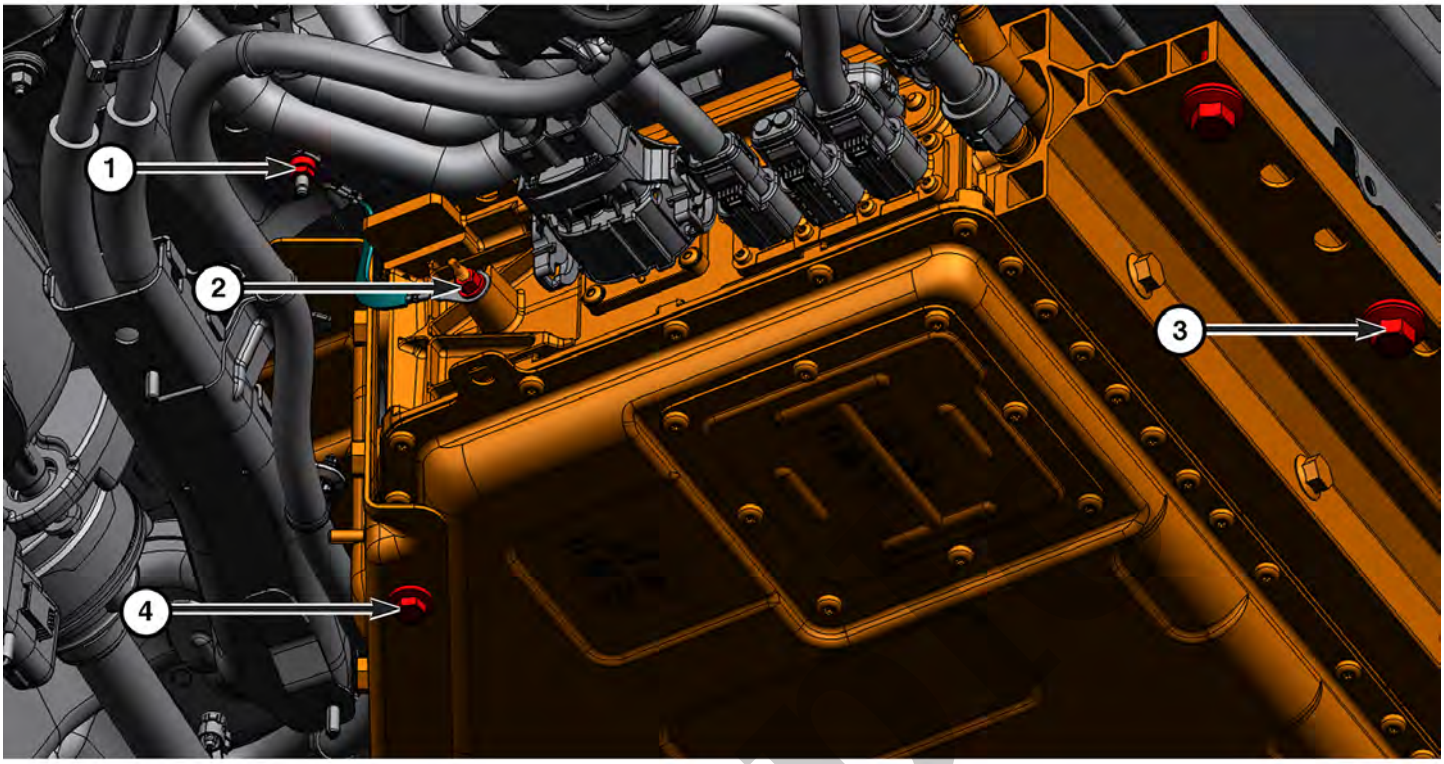
Sample

The Hybrid Control Processor (HCP) is integral to the Power Inverter Module (PIM). The HCP provides the strategy for charging the 12 volt battery and the Power Pack Unit (PPU). The HCP monitors the High Voltage (HV) system, B+, switched ignition, crankshaft pulse signals and Controller Area Network (CAN) bus circuits for any concerns. The HCP can also detect any internal failures, high temperature and resolve failures.

The HCP monitors the RPM of the MGU and compares them to the Engine RPM for belt slip. The HPC can increase or decrease the torque of the MGU to compensate through the PIM and the HV connection.



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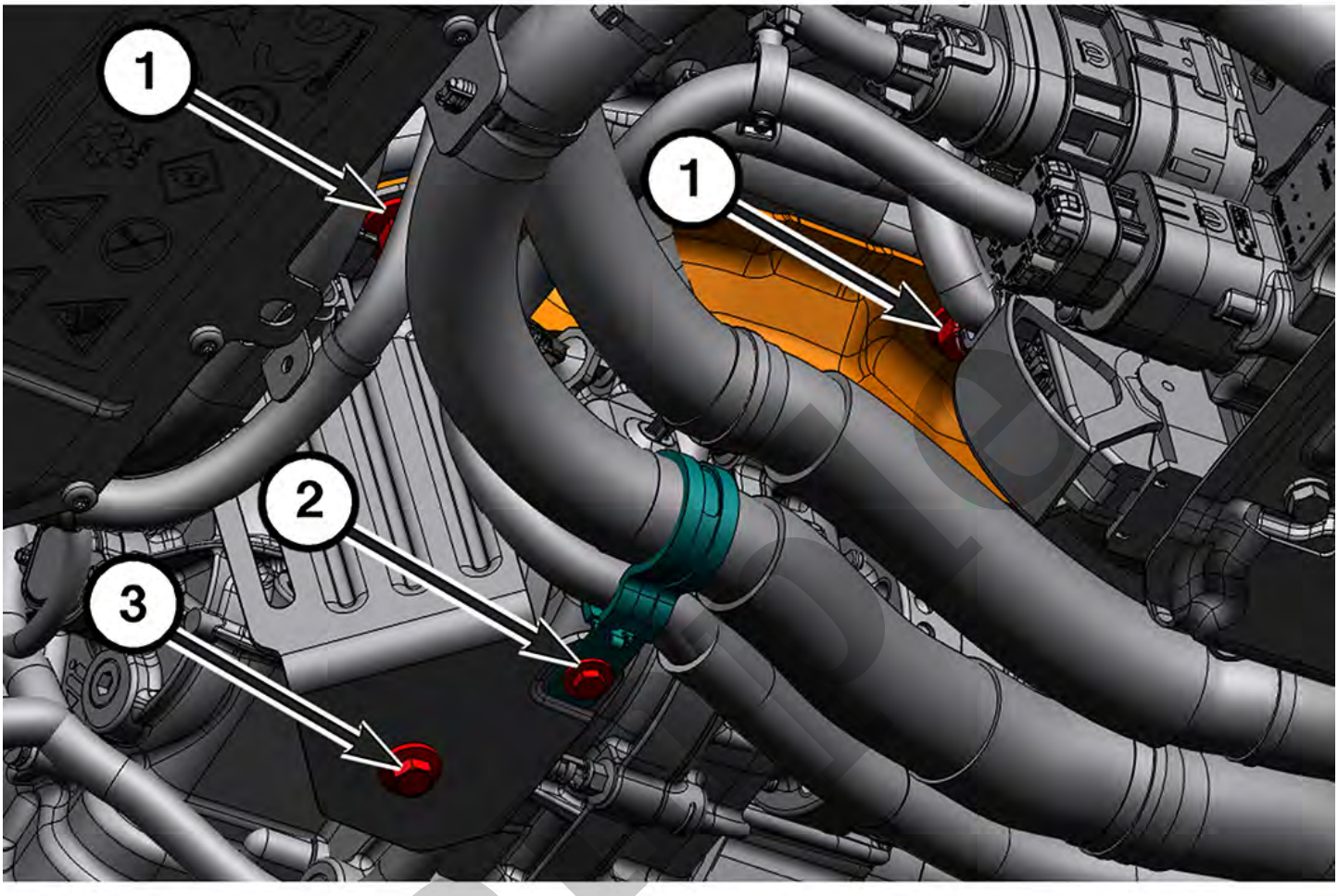
CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	High Voltage Battery Chassis Ground Cable to Body	**9 N·m (80 In. Lbs.)**	–
2	High Voltage Battery Chassis Ground Cable to Battery	**9 N·m (80 In. Lbs.)**	–
3	High Voltage Battery to Underbody	**80 N·m (59 Ft. Lbs.)**	–
4	Skidplate to Battery	**25 N·m (18 Ft. Lbs.)**	

Sample



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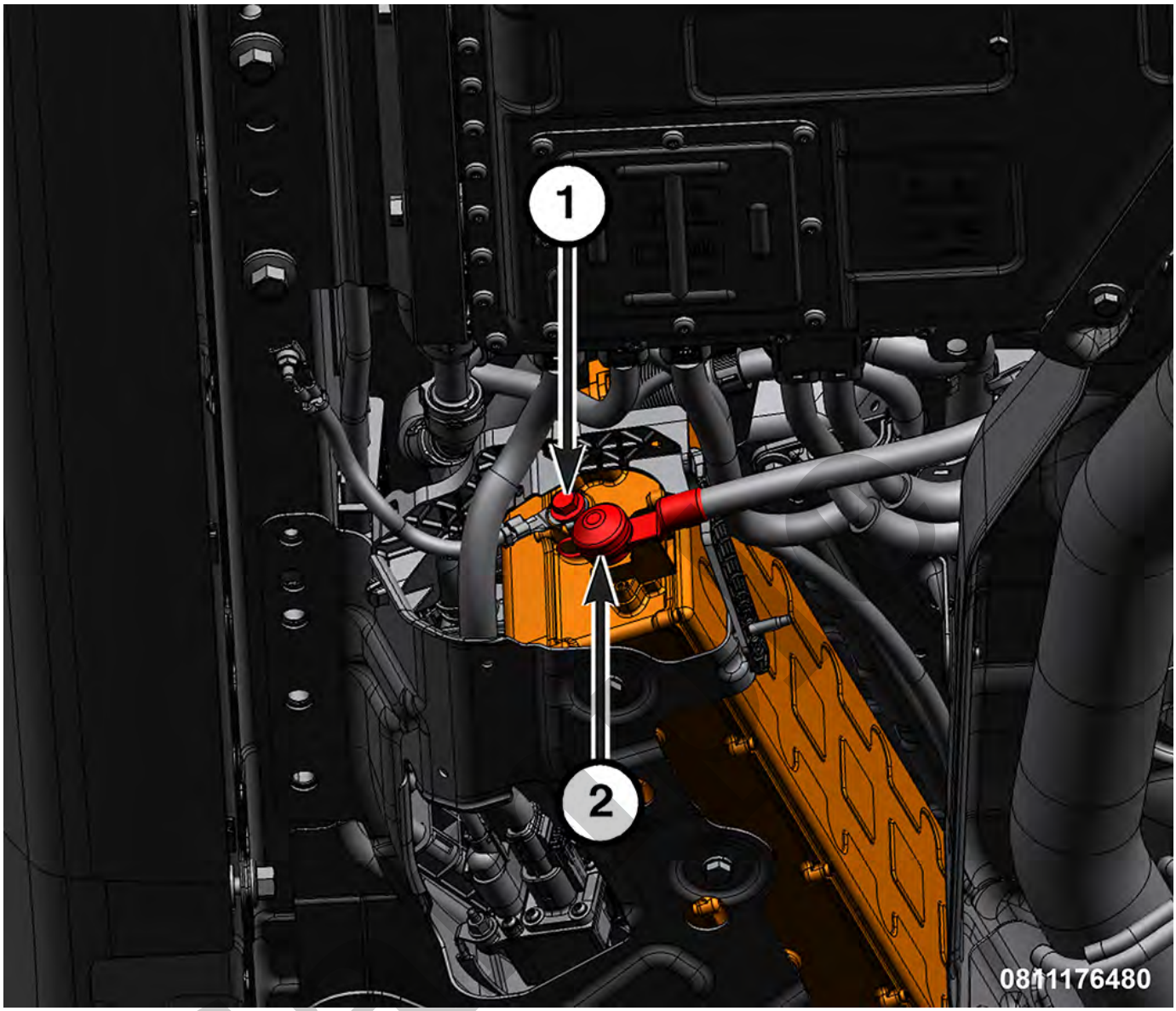
CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	LV Connector Blocker Bracket to Body	**25 N·m (18 Ft. Lbs.)**	–
2	High Voltage Harness to Skidplate	**8 N·m (71 In. Lbs.)**	–
3	Tcase Skid Plate to Support Bracket	**18 N·m (13 Ft. Lbs.)**	–
–	Charging Port Ground Eyelet	**9 N·m (80 In. Lbs.)**	–
–	Charging Port Wire Harness Trough	**2 N·m (17 In. Lbs.)**	–
–	High Voltage Battery Fuse Service Door Nuts	**4 N·m (35 In. Lbs.)**	–

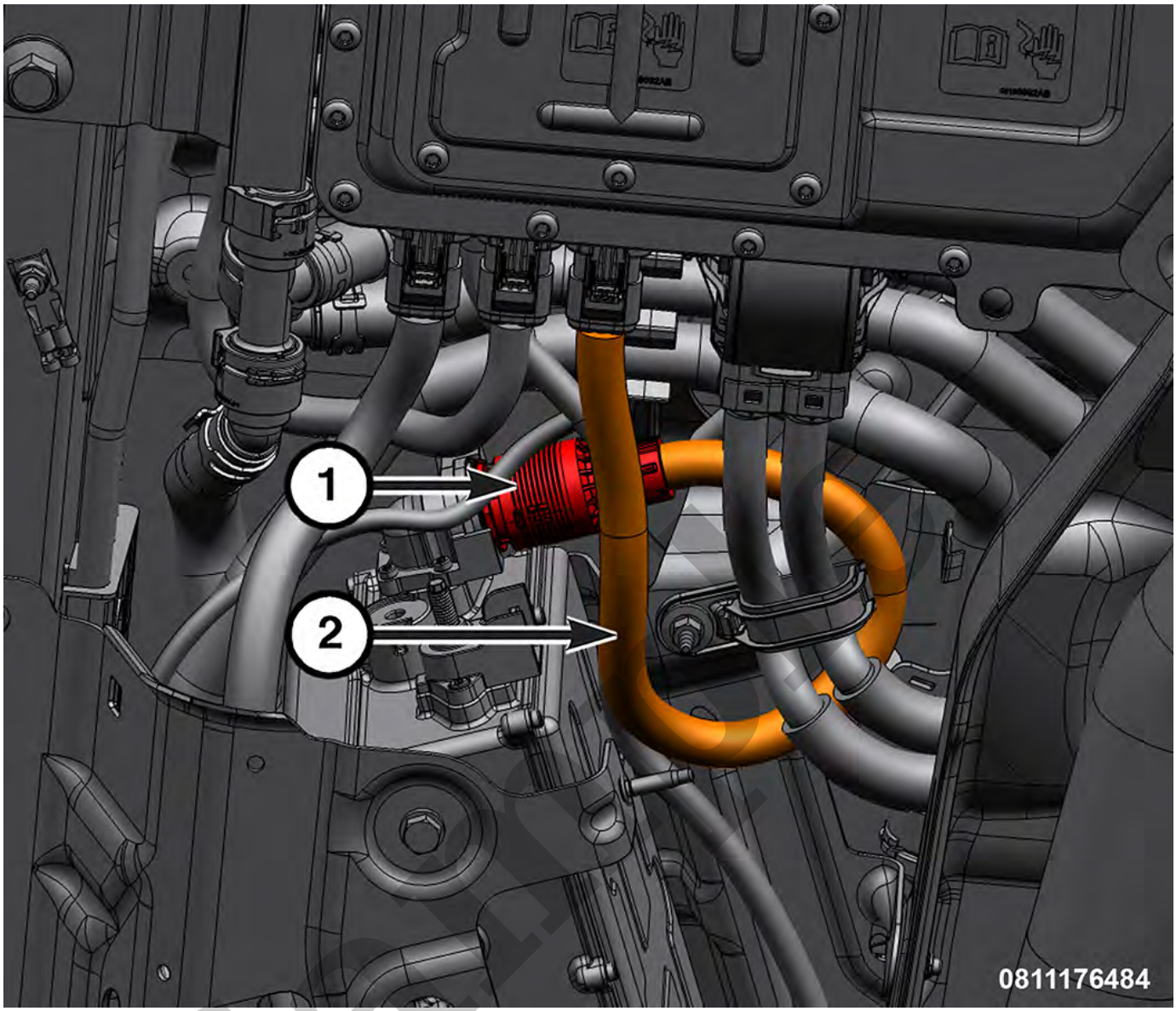
Sample



1 - Ground Wire to IDCM
2 - B(+) Cable to IDCM

7. Remove the bolt that secures the ground to the IDCM.

8. Remove the nut that secures the B(+) cable to the IDCM.

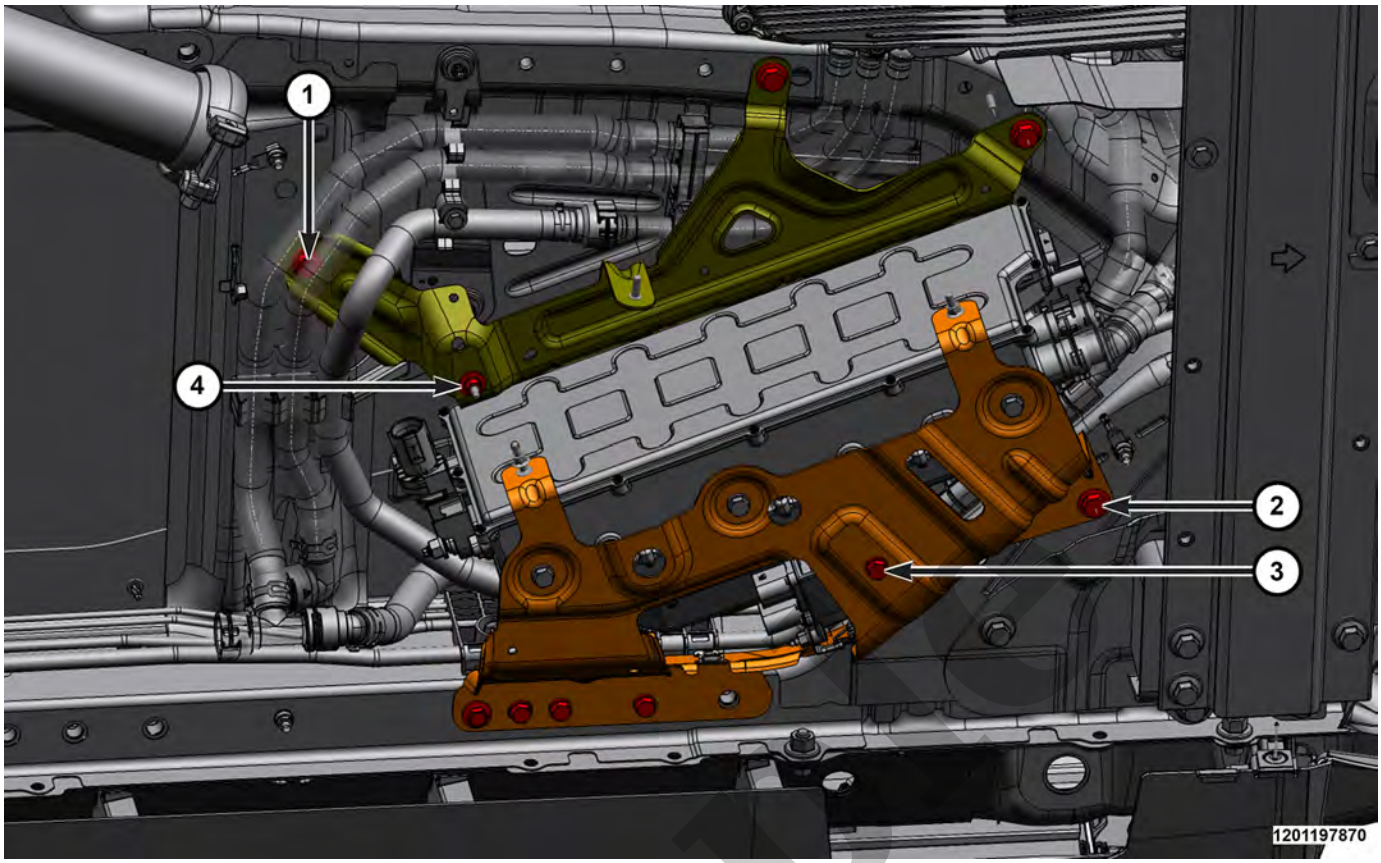


1 - High Voltage Cable Connector
2 - High Voltage Cable

CAUTION

Do not twist the connector. Squeeze the tabs and pull straight back. Twisting the connector will damage the IDCM.

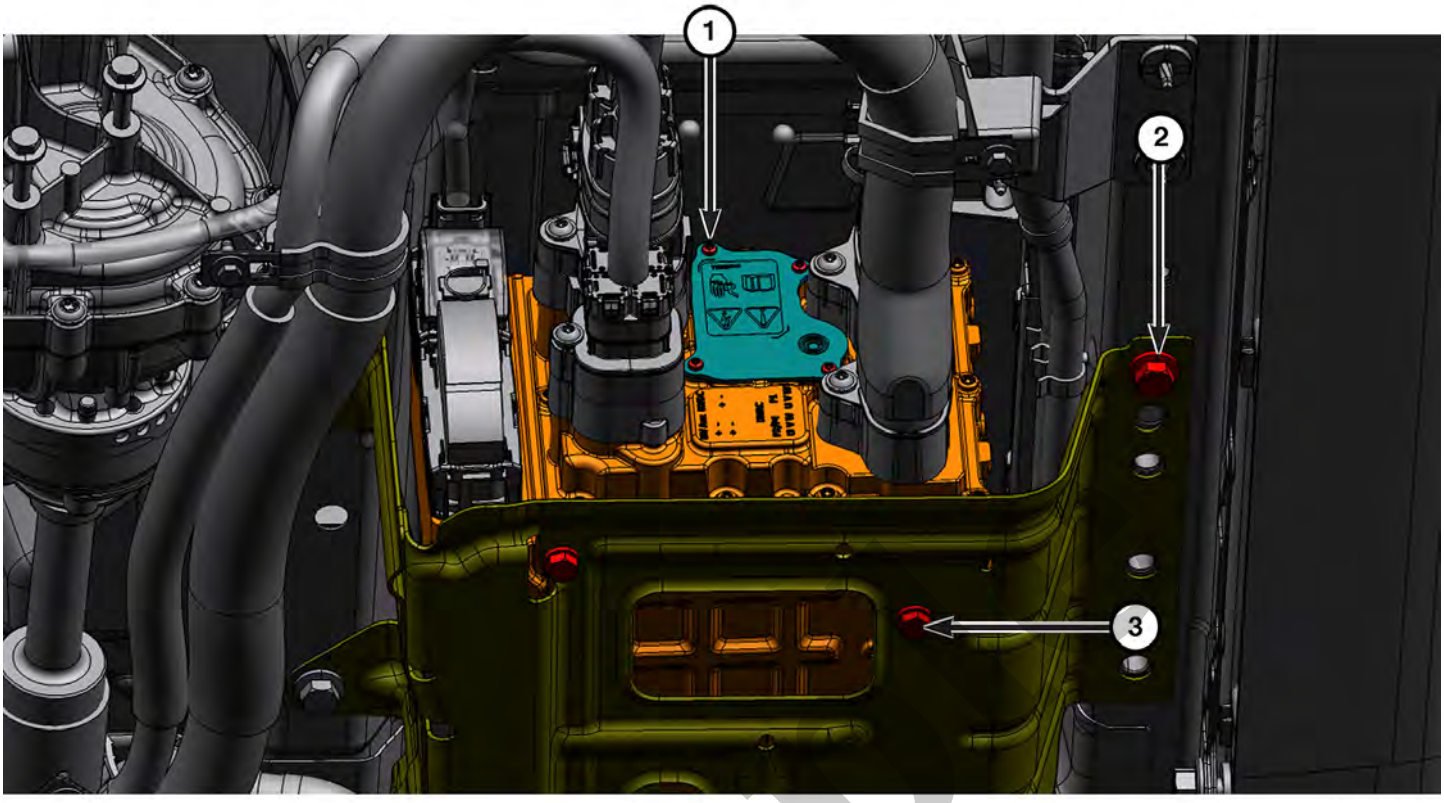
13. Disconnect the high voltage cable connector and remove the high voltage cable from the vehicle.



1 - Upper IDCM Bracket to Body Bolt
2 - IDCM Bracket to Frame Bolts
3 - ECH Mounting Bolt
4 - IDCM Bracket Nut

18. Remove the bolt securing the ECH to the lower IDCM bracket.
19. Remove the bolts securing the IDCM bracket to the vehicle and lower the assembly to gain access to the three bolts that secure the IDCM to the upper bracket.
20. Remove the fasteners and remove the IDCM and bracket from the vehicle.

Sample



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CALLOUT	DESCRIPTION	SPECIFICATION	COMMENT
1	Fuse Cover Plate Screws	**4 N·m (35 In. Lbs.)**	–
2	PIM Bracket to Body	**25 N·m (18 Ft. Lbs.)**	–
3	PIM Bracket to PIM	**25 N·m (18 Ft. Lbs.)**	–
–	Electric Air Conditioner (EAC) Fuse Nuts	**4 N·m (35 In. Lbs.)**	–
–	Electric Coolant Heater (ECH) Fuse Nuts	**4 N·m (35 In. Lbs.)**	–

Sample