

2009 ENGINE**Starting - Service Information - Journey****DESCRIPTION****REMOTE START SYSTEM**

NOTE: **Available on automatic transmission equipped vehicles only.**

Remote start conveniently starts the engine from outside the vehicle by using the Remote Keyless Entry (RKE) key fob while maintaining security. The system has a targeted range of 300 ft. (91.4 m). The vehicle must be locked, the deck lid and hood closed and the transmission in Park in order to start the engine using the Remote Start button on the key fob.

STANDARD STARTING SYSTEM

The starting system consists of:

- Starter relay
- Starter motor (including an integral starter solenoid)

Other components to be considered as part of starting system are:

- Battery
- Battery cables
- Ignition switch and key lock cylinder
- Clutch pedal position switch (manual transmission)
- Park/neutral position switch (automatic transmission)
- Wire harnesses and connections.

The Battery, Starting, and Charging systems operate in conjunction with one another, and must be tested as a complete system. For correct operation of starting/charging systems, all components used in these 3 systems must perform within specifications. When attempting to diagnose any of these systems, it is important that you keep their interdependency in mind.

The diagnostic procedures used in each of these groups include the most basic conventional diagnostic methods, to the more sophisticated On-Board Diagnostics (OBD) built into the Powertrain Control Module (PCM). Use of an induction-type milliammeter, volt/ohmmeter, battery charger, carbon pile rheostat (load tester), and 12-volt test lamp may be required.

OPERATION**REMOTE START SYSTEM**

Remote Start Operating Conditions

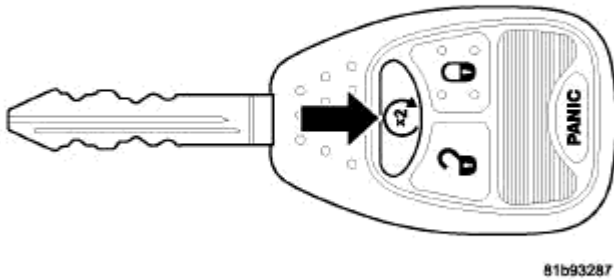
In order to operate remote start, the following conditions must be met:

- Key fob sequence must be operated within a 100 meter range of the vehicle.
- The vehicle must be in Park.
- Key is not in the ignition.
- The hazard switch off.
- Vehicle Theft Alarm or Panic is not alarming.
- Doors and hood must be closed.
- The battery voltage is normal (11 to 15 volts).

Remote Start Shut Down/Deactivate Conditions

Engine will NOT start or will shut down/deactivate during any of the following conditions:

- Key in Ignition.
- Doors or hood are opened before remote unlock.
- Hazard Switch depressed.
- Panic or theft alarm active.
- Brake applied.
- A prior remote start cranked the engine , but failed to start the engine.
- Battery voltage NOT in the normal range.
- High (run away) or Low Idle (stall) RPM.
- MIL Active.
- High Engine Coolant Temperature.
- Low Engine Oil Pressure.

**Fig. 1: KEY FOB**

Courtesy of CHRYSLER LLC

Initiate Remote Start

To Remote Start the vehicle:

1. Press remote button on the Key Fob twice within 5 seconds.

NOTE: Engine will run for 15 minutes after a remote start is initiated. After 15 minutes, the engine will shut off. The system allows for only two sequential remote starts without a key ignition cycle.

2. Unlock vehicle with Key Fob to enter the vehicle.
3. Put key in ignition, turn key to run position to exit remote start and enter a normal start without engine shut off.

Identification that Remote Start is Activated

To identify that Remote Start has been activated the following will occur:

- Horn will sound and lights will flash to acknowledge a start command was received.
- Park Lamps will turn on to indicate that the engine is running in remote start mode.

Terminate Remote Start

To terminate Remote Start, press Remote Start button on the Key Fob once.

NOTE: In order to avoid inadvertent shut downs, the one-time press to shut down the

vehicle will be disabled for two seconds after receipt of a valid remote start request.

STANDARD STARTING SYSTEM

These components form two separate circuits. A high amperage circuit that feeds the starter motor up to 300+ amps, and a control circuit that operates on less than 30 amps.

The PCM controls a double start over-ride safety that does not allow the starter to be engaged if the engine is already running.

DIAGNOSIS AND TESTING

CONTROL CIRCUIT TEST

The starter control circuit has:

- Starter motor with integral solenoid
- Starter relay
- Transmission range sensor, or Park/Neutral Position switch with automatic transmissions
- Ignition switch
- Battery
- All related wiring and connections
- Powertrain Control Module (PCM)

CAUTION: Before performing any starter tests, the ignition and fuel systems must be disabled.

- Disable ignition and fuel systems.

STARTER SOLENOID

WARNING: Check to ensure that the transmission is in the park position with the parking brake applied. This may result in personal injury or death.

1. Verify battery condition. Battery must be in good condition with a full charge before performing any starter tests. Refer to **BATTERY**.
2. Perform Starter Solenoid test BEFORE performing the starter relay test.
3. Perform a visual inspection of the starter/starter solenoid for corrosion, loose connections or faulty wiring.
4. Locate and remove the starter relay.
5. Connect a remote starter switch or a jumper wire between the remote battery positive post and terminal 87

of the starter relay connector.

- If engine cranks, starter/starter solenoid is good. Go to **STARTER RELAY**.
- If engine does not crank or solenoid chatters, check wiring and connectors from starter relay to starter solenoid and from the battery positive terminal to starter post for loose or corroded connections. Particularly at starter terminals.
- Repeat test. If engine still fails to crank properly, trouble is within starter or starter mounted solenoid, and replace starter. Inspect the ring gear teeth.

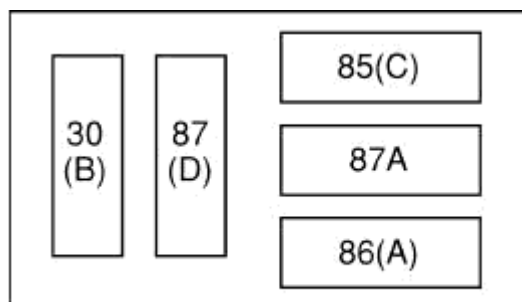
STARTER RELAY

WARNING: Check to ensure that the transmission is in the park/neutral position with the parking brake applied. This may result in personal injury or death.

RELAY TEST

Remove the starter relay as described in this group to perform the following tests:

- A relay in the de-energized position should have continuity between terminals 87A and 30, and no continuity between terminals 87 and 30. If OK, go to 2. If not OK, replace the faulty relay.
- Resistance between terminals 85 and 86 (electromagnet) should be 75 ± 5 ohms. If OK, go to 3. If not OK, replace the faulty relay.
- Connect a battery B+ lead to terminals 85 and a ground lead to terminal 86 to energize the relay. The relay should click. Also test for continuity between terminals 30 and 87, and no continuity between terminals 87A and 30. If OK, refer to **RELAY CIRCUIT TEST**. If not OK, replace the faulty relay.



80b1b41e

Fig. 2: Starter Relay Pinout
Courtesy of CHRYSLER LLC

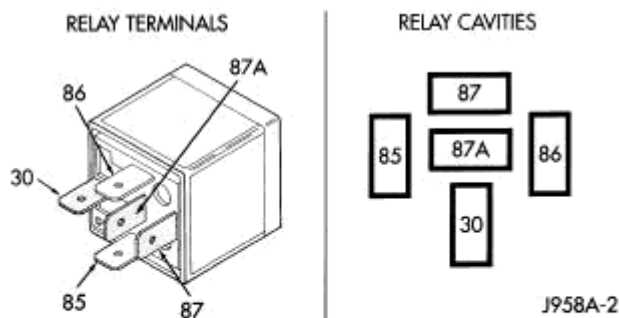


Fig. 3: Starter Relay Pinout
Courtesy of CHRYSLER LLC

30	COMMON FEED
85	COIL GROUND
86	COIL BATTERY
87	NORMALLY OPEN
87A	NORMALLY CLOSED

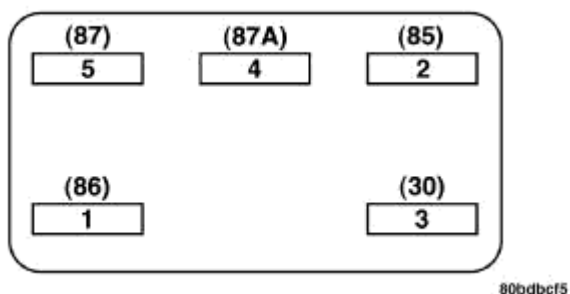


Fig. 4: Starter Relay Pinout
Courtesy of CHRYSLER LLC

CAV	FUNCTION
30	B (+)
85	IGNITION SWITCH OUTPUT
86	PCM-CONTROLLED GROUND
87	STARTER RELAY OUTPUT
87A	NO CONNECT

RELAY CIRCUIT TEST

1. The relay common feed terminal cavity (30) is connected to battery voltage and should be hot at all times. If OK, go to 2. If not OK, repair the open circuit to the PDC (Diesel Only) or the TIPM fuse as required.
2. The relay normally closed terminal (87A) is connected to terminal 30 in the de-energized position, but is not used for this application. Go to 3.
3. The relay normally open terminal (87) is connected to the common feed terminal (30) in the energized position. This terminal supplies battery voltage to the starter solenoid field coils. There should be continuity between the cavity for relay terminal 87 and the starter solenoid terminal at all times. If OK, go to 4. If not OK, repair the open circuit to the starter solenoid as required.
4. The coil battery terminal (85) is connected to the electromagnet in the relay. It is energized when the ignition switch is held in the Start position and the clutch pedal is depressed (manual trans). Check for battery voltage at the cavity for relay terminal 86 with the ignition switch in the Start position and the clutch pedal is depressed (manual trans), and no voltage when the ignition switch is released to the On position. If OK, go to 5. If not OK, check for an open or short circuit to the ignition switch and repair, if required. If the circuit to the ignition switch is OK, see **IGNITION SWITCH**.
5. The coil ground terminal (86) is connected to the electromagnet in the relay. It is grounded by the PCM if the conditions are right to start the car. For automatic trans. cars the PCM must see Park Neutral switch low and near zero engine speed (rpm). For manual trans. cars the PCM only needs to see near zero engine speed (rpm) and low clutch interlock input and see near zero engine speed (rpm). To diagnose the Park Neutral switch of the trans range sensor refer to the appropriate transaxle service information. Check for continuity to ground while the ignition switch is in the start position and if equipped the clutch pedal depressed. If not OK and the vehicle has an automatic trans. verify Park Neutral switch operation. If that checks OK check for continuity between PCM and the terminal 86. Repair open circuit as required. Also check the clutch interlock switch operation if equipped with a manual transmission. If OK, the PCM may be defective.

SAFETY SWITCHES

For diagnostics of the Transmission Range Sensor, refer to the appropriate transaxle service information for more information.

If equipped with Clutch Interlock/Upstop Switch, refer to **DIAGNOSIS AND TESTING**.

IGNITION SWITCH

After testing starter solenoid and relay, test ignition switch and wiring. Refer to **IGNITION CONTROL - SERVICE INFORMATION** or **SYSTEM WIRING DIAGRAMS** for more information. Check all wiring for opens or shorts, and all connectors for being loose or corroded.

BATTERY

For battery diagnosis and testing, refer to **BATTERY** article for procedures.

ALL RELATED WIRING AND CONNECTORS

Refer to **SYSTEM WIRING DIAGRAMS** for more information.

FEED CIRCUIT RESISTANCE TEST

Before proceeding with this operation, review Diagnostic Preparation and Starter Feed Circuit Tests. The following operation will require a voltmeter, accurate to 1/10 of a volt.

CAUTION: Ignition and Fuel systems must be disabled to prevent engine start while performing the following tests.

1. To disable the Ignition and Fuel systems, disconnect the Automatic Shutdown Relay (ASD).
2. Gain access to battery terminals.
3. With all wiring harnesses and components properly connected, perform the following:
 - a. Connect the negative lead of the voltmeter to the battery negative post, and positive lead to the battery negative cable clamp. Rotate and hold the ignition switch in the START position. Observe the voltmeter. If voltage is detected, correct poor contact between cable clamp and post.
 - b. Connect positive lead of the voltmeter to the battery positive post, and negative lead to the battery positive cable clamp. Rotate and hold the ignition switch key in the START position. Observe the voltmeter. If voltage is detected, correct poor contact between the cable clamp and post.
 - c. Connect negative lead of voltmeter to battery negative terminal, and positive lead to engine block near the battery cable attaching point. Rotate and hold the ignition switch in the START position. If voltage reads above 0.2 volt, correct poor contact at ground cable attaching point. If voltage reading is still above 0.2 volt after correcting poor contacts, replace ground cable.
4. Connect positive voltmeter lead to the starter motor housing and the negative lead to the battery negative terminal. Hold the ignition switch key in the START position. If voltage reads above 0.2 volt, correct poor starter to engine ground.
 - a. Connect the positive voltmeter lead to the battery positive terminal, and negative lead to battery cable terminal on starter solenoid. Rotate and hold the ignition switch in the START position. If voltage reads above 0.2 volt, correct poor contact at battery cable to solenoid connection. If reading is still above 0.2 volt after correcting poor contacts, replace battery positive cable.
 - b. If resistance tests do not detect feed circuit failures, replace the starter motor.

STARTING SYSTEM TEST

For circuit descriptions and diagrams, refer to **SYSTEM WIRING DIAGRAMS**.

WARNING: On vehicles equipped with airbags, refer to PASSIVE RESTRAINTS before attempting steering wheel, steering column, or instrument panel component diagnosis or service. Failure to take the proper precautions could result in accidental airbag deployment and possible personal injury.

INSPECTION

Before removing any unit from the starting system for repair or diagnosis, perform the following inspections:

- **Battery** - Visually inspect the battery for indications of physical damage and loose or corroded cable

connections. Determine the state-of-charge and cranking capacity of the battery. Charge or replace the battery, if required. Refer to **BATTERY SYSTEM** for more information.

- **Ignition Switch** - Visually inspect the ignition switch for indications of physical damage and loose or corroded wire harness connections.
- **Transmission Range Sensor or Park/Neutral Switch** - Visually inspect the transmission range sensor for indications of physical damage and loose or corroded wire harness connections.
- **Starter Relay** - Visually inspect the starter relay for indications of physical damage and loose or corroded wire harness connections.
- **Starter Motor** - Visually inspect the starter motor for indications of physical damage and loose or corroded wire harness connections.
- **Starter Solenoid** - Visually inspect the starter solenoid for indications of physical damage and loose or corroded wire harness connections.
- **Wiring** - Visually inspect the wire harness for damage. Repair or replace any faulty wiring, as required. Check for loose or corroded wire harness connections at main engine ground and remote jump post.

STARTING SYSTEM DIAGNOSIS

CONDITION	POSSIBLE CAUSE	CORRECTION
STARTER FAILS TO ENGAGE.	1. Battery discharged or faulty.	1. Refer to BATTERY SYSTEM for more information. Charge or replace battery, if required.
-	2. Starting circuit wiring faulty.	2. Refer to FEED CIRCUIT RESISTANCE TEST in this service information.
-	3. Starter relay faulty.	3. Refer to RELAY TEST , in this service information . Replace relay, if necessary.
-	4. Ignition switch faulty.	4. Refer to ignition switch test, in the steering service information or SYSTEM WIRING DIAGRAMS . Replace switch, if necessary.
-	5. Park/neutral position switch (auto trans) faulty or mis-adjusted.	5. Refer to park/neutral position switch test, in appropriate TRANSMISSION SERVICE INFORMATION for more information. Replace switch, if necessary.
-	6. Clutch interlock switch (man trans) faulty.	6. Refer to clutch pedal position switch test, in PEDAL AND PAD, CLUTCH . Replace switch, if necessary.
-	7. Starter solenoid faulty.	7. Refer to STARTER SOLENOID , in this service information . Replace starter assembly, if necessary.
-	8. Starter assembly faulty.	8. If all other starting system components and circuits check ok, replace starter assembly.
-	9. Faulty teeth on ring gear.	9. Rotate flywheel 360°, and inspect teeth and ring gear replaced if damaged.

2009 Dodge Journey R/T

2009 ENGINE Starting - Service Information - Journey

-	10. PCM double start override output failure.	10. Refer to PCM diagnostic. Check for continuity between PCM and terminal 85. Repair open circuit as required. If ok, PCM may be defective.
STARTER ENGAGES, FAILS TO TURN ENGINE.	1. Battery discharged or faulty.	1. Refer to BATTERY SYSTEM for more information. Charge or replace battery as necessary.
-	2. Starting circuit wiring faulty.	2. Refer to FEED CIRCUIT RESISTANCE TEST and the feed circuit test in this service information. Repair as necessary.
-	3. Starter assembly faulty.	3. If all other starting system components and circuits check ok, replace starter assembly.
-	4. Engine seized.	4. Refer to the appropriate engine service information , for diagnostic and service procedures.
-	5. Loose connection at battery, PDC (Diesel Only), TIPM, starter, or engine ground.	5. Inspect for loose connections.
-	6. Faulty teeth on ring gear.	6. Rotate flywheel 360°, and inspect teeth and ring gear replaced if damaged.
STARTER ENGAGES, SPINS OUT BEFORE ENGINE STARTS.	1. Broken teeth on starter ring gear.	1. Remove starter. Inspect ring gear and replace if necessary.
-	2. Starter assembly faulty.	2. If all other starting system components and circuits check ok, replace starter assembly.
STARTER DOES NOT DISENGAGE.	1. Starter improperly installed.	1. Install starter. Tighten starter mounting hardware to correct torque specifications.
-	2. Starter relay faulty.	2. Refer to RELAY TEST , in this service information . Replace relay, if necessary.
-	3. Ignition switch faulty.	3. Refer to SWITCH, IGNITION . Replace switch, if necessary.
-	4. Starter assembly faulty.	4. If all other starting system components and circuits check ok, replace starter assembly.
-	5. Faulty teeth on ring gear.	5. Rotate flywheel 360°, and inspect teeth and ring gear replaced if damaged.

SPECIFICATIONS

STARTER MOTOR

2009 Dodge Journey R/T

2009 ENGINE Starting - Service Information - Journey

STARTER MOTOR

Engine Application	Power Rating	Cranking Amperage Draw Test
2.4L	1.2 Kilowatt / 1.6 Horsepower	150 - 280 Amperes
2.7L	1.2 Kilowatt / 1.6 Horsepower	100 - 300 Amperes
3.5L	1.2 Kilowatt / 1.6 Horsepower	100 - 300 Amperes
* Test at operating temperature. Cold engine, tight (new) engine, or heavy oil will increase starter amperage draw.		
**The starter is equipped with permanent magnets. Never strike the starter case to attempt to loosen a sticking/stuck armature as permanent magnets may crack or break.		

TORQUE

TORQUE SPECIFICATIONS

DESCRIPTION	N.m	Ft. Lbs.	In. Lbs.
Engine Anti-Roll to Fore/Aft Crossmember Bolt	47	35	-
Engine Anti-Roll Mount Bolts	50	37	-
Engine Anti-Roll Mount Thru Bolt	47	35	-
Fore/Aft Crossmember Front Bolts	55	40.5	-
Fore/Aft Crossmember Rear Bolts	50	37	-
Negative Battery Cable Nut	4.5	-	40
Remote Start Antenna Mounting Screws	2.5	-	22
Starter Mounting Bolts	54	40	-
Starter Solenoid Battery Nut	10	-	90
Torque Reaction Bracket Bolts	54	40	-

ANTENNA, REMOTE START

DESCRIPTION

DESCRIPTION

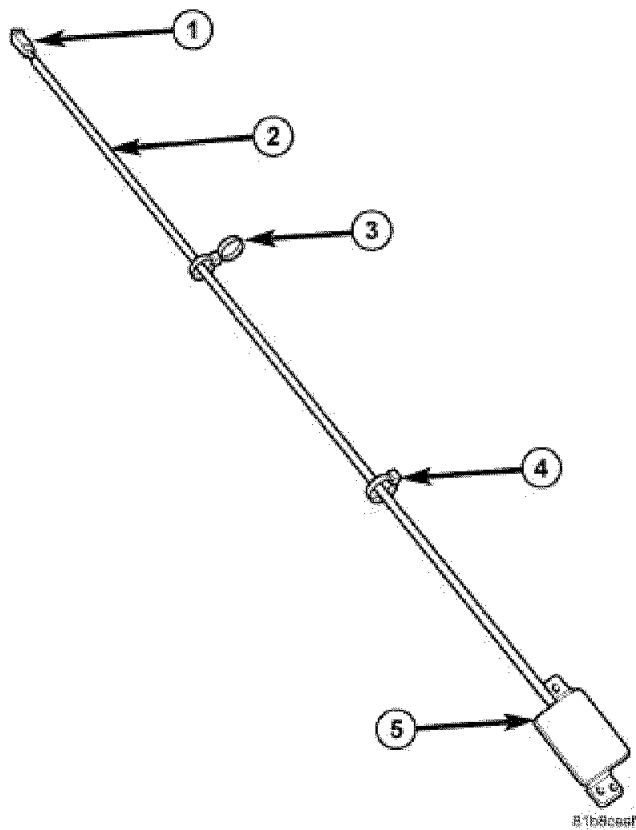


Fig. 5: Remote Start Antenna Module Assembly
Courtesy of CHRYSLER LLC

The Remote Start Antenna Module Assembly consists of an electrical connection to the Wireless Ignition Node (WIN) (1), a length of coaxial cable (2), two mounting clips (3 and 4) and a control module/antenna (5).

OPERATION

OPERATION

The remote start antenna is an external hidden antenna located at the driver's side front of dash. The antenna interfaces with the Wireless Integration Node (WIN) through a coaxial electrical cable and electrical connector. The antenna helps to amplify the signal for the Remote Keyless Entry (RKE) key fob.

REMOVAL

REMOVAL

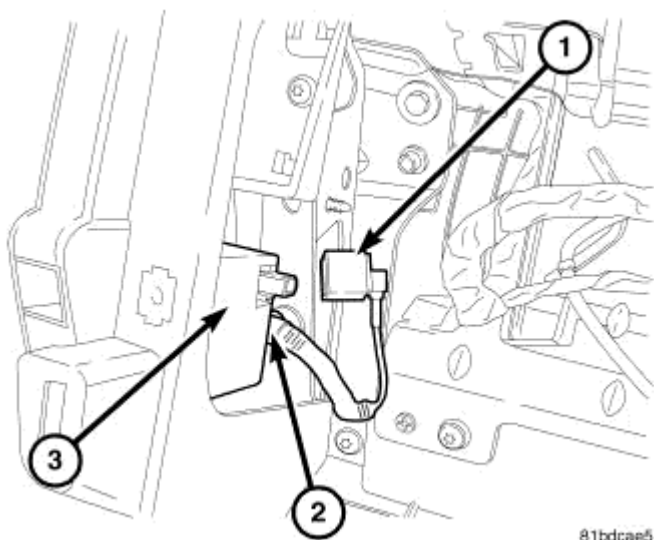


Fig. 6: Remote Start Antenna Connector

Courtesy of CHRYSLER LLC

WARNING: Wait two minutes for the system reserve capacitor to discharge before servicing any airbag components. Failure to do this may result in serious or fatal injury.

The remote start antenna is located driver's side front of dash.

1. Disconnect and isolate the battery negative cable.
2. Remove radio. Refer to **Electrical - Audio and Video/Audio and Video/RADIO - Removal** .
3. Remove instrument cluster. Refer to **Electrical - Instrument Cluster/Instrument Cluster - Removal** .
4. Remove the instrument panel top pad. Refer to **Body/Instrument Panel/PAD, Instrument Panel - Removal** .

NOTE: During removal of the remote start antenna note the routing location of the coaxial cable.

5. Disconnect remote start antenna coaxial cable connector (1) from skreem module (3).
6. Remove the mounting clip (2).

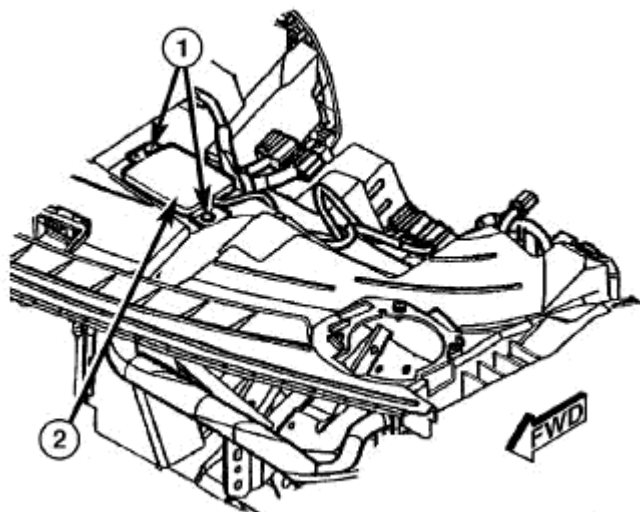


Fig. 7: LHD Remote Start Antenna
Courtesy of CHRYSLER LLC

7. Remove the mounting clip at the steering column reinforcement bracket.
8. Remove screws (1) and remove remote start antenna (2) from instrument panel assembly.

INSTALLATION

INSTALLATION

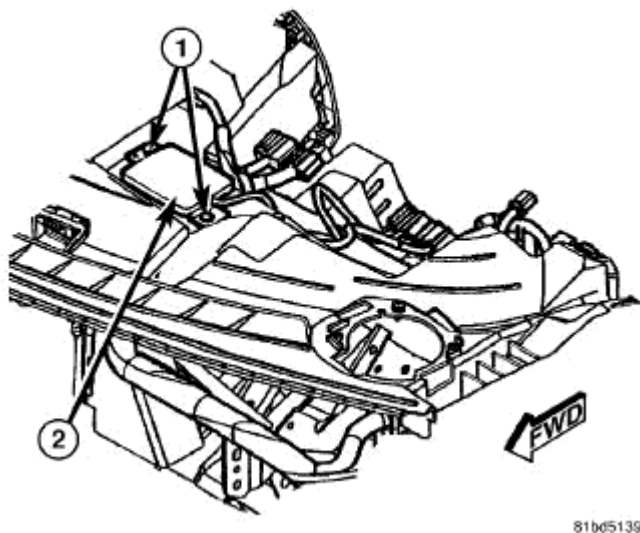


Fig. 8: LHD Remote Start Antenna
Courtesy of CHRYSLER LLC

NOTE: Make sure the remote start antenna is positioned the same way noted during the removal procedure.

1. Install the remote start antenna (2) and screws (1) to instrument panel assembly. Tighten to 2.5 N.m (22 in. lbs.).
2. Route the remote start coaxial cable in the position noted during the removal procedure.
3. Install the coaxial cable mounting clip at the steering column reinforcement bracket.

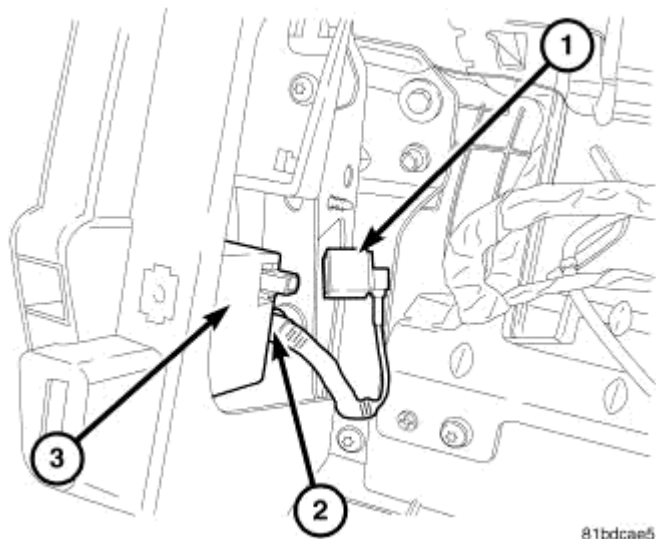


Fig. 9: Remote Start Antenna Connector
Courtesy of CHRYSLER LLC

4. Install the mounting clip (2).
5. Connect remote start antenna coaxial cable connector (1) to skreem module (3).
6. Install instrument cluster. Refer to **Electrical - Instrument Cluster/Instrument Cluster - Installation** .
7. Install radio. Refer to **Electrical - Audio and Video/Audio and Video/RADIO - Installation** .
8. Install the instrument panel top pad. Refer to **Body/Instrument Panel/PAD, Instrument Panel - Installation** .
9. Connect negative battery cable. Tighten to 5 N.m (45 in. lbs.)

STARTER

REMOVAL

2.0L TURBO DIESEL

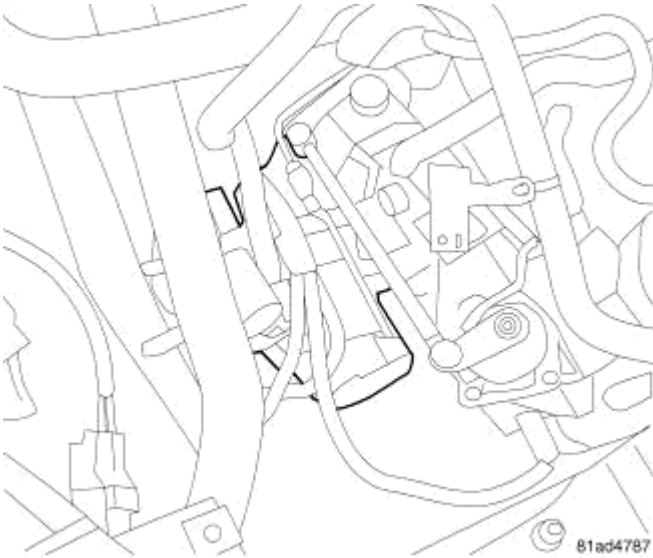


Fig. 10: Air Box

Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove the air box. Refer to **Engine/Air Intake System/BODY, Air Cleaner - Removal**.

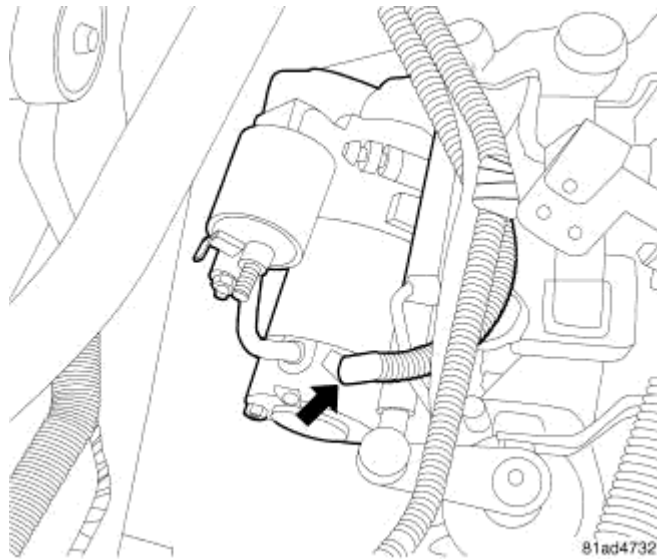


Fig. 11: Starter Cables

Courtesy of CHRYSLER LLC

3. Disconnect the battery cable from the starter.
4. Disconnect the solenoid connector from the starter.

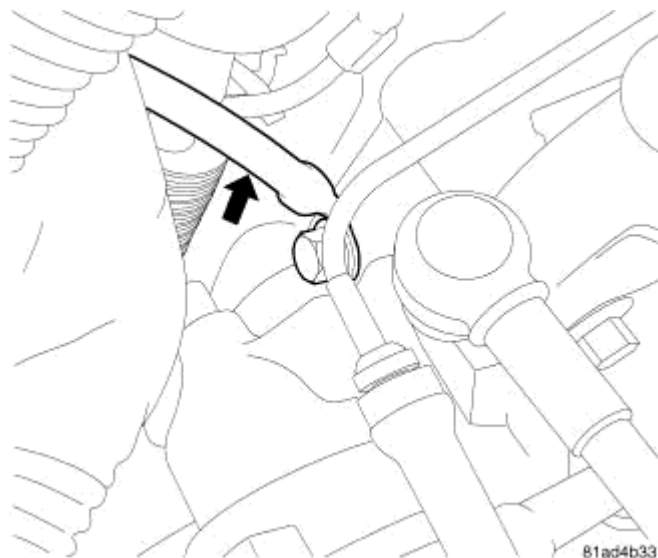


Fig. 12: Ground Cable Location
Courtesy of CHRYSLER LLC

5. Remove the upper mounting bolt and the ground cable.

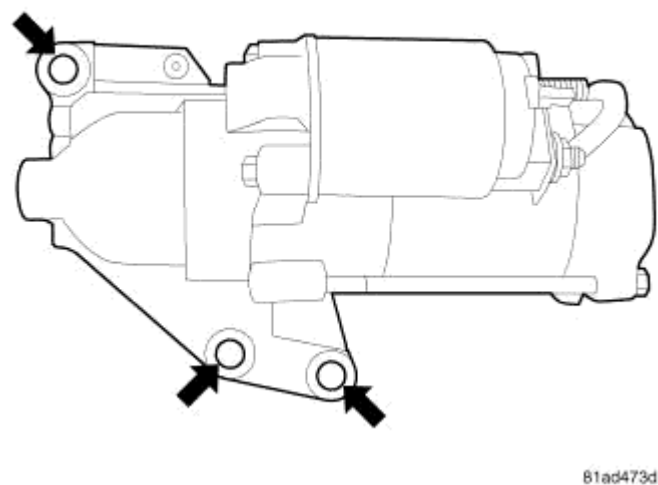


Fig. 13: Mounting Bolt Location
Courtesy of CHRYSLER LLC

6. Remove the two lower mounting bolts.
7. Remove the starter.

2.4L

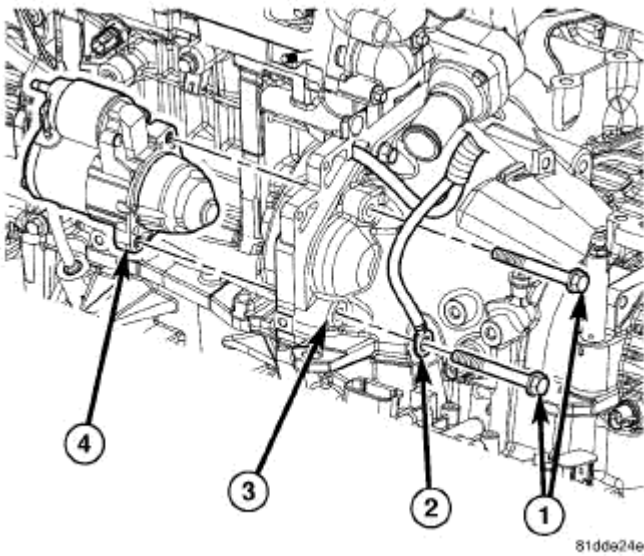


Fig. 14: Removing & Installing Starter Motor
Courtesy of CHRYSLER LLC

1. Disconnect and isolate the negative battery cable.
2. Remove throttle body. Refer to **Fuel System/Fuel Injection/THROTTLE BODY - Removal** .
3. Remove starter mounting bolts (1) and negative battery cable (2) from transmission housing (3).
4. Remove starter motor (4) from transmission housing (3).

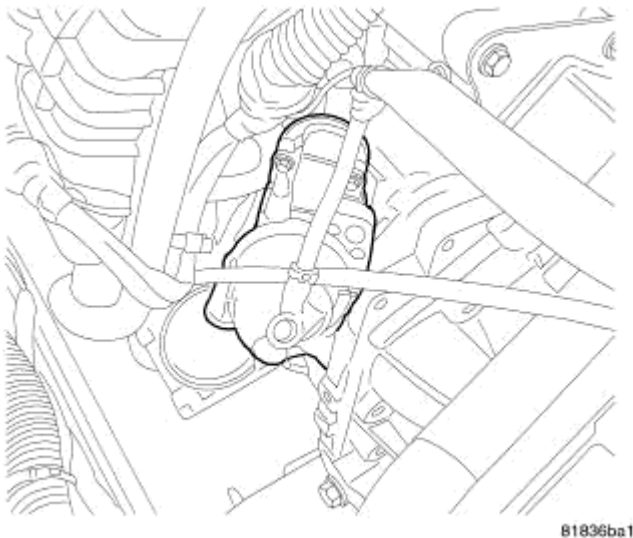


Fig. 15: Rotate Starter
Courtesy of CHRYSLER LLC

5. Position starter to move past the intake manifold.

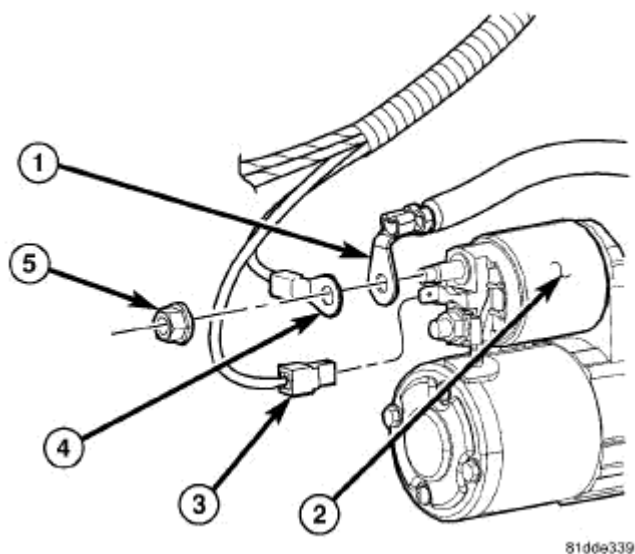


Fig. 16: Removing & Installing 2.4L Electrical Connection
Courtesy of CHRYSLER LLC

6. Remove battery cable nut (5), ignition sense wire (4) and battery cable (1) from solenoid stud.
7. Disconnect electrical connector (3) from starter solenoid (2).
8. Remove starter from vehicle.

2.7L

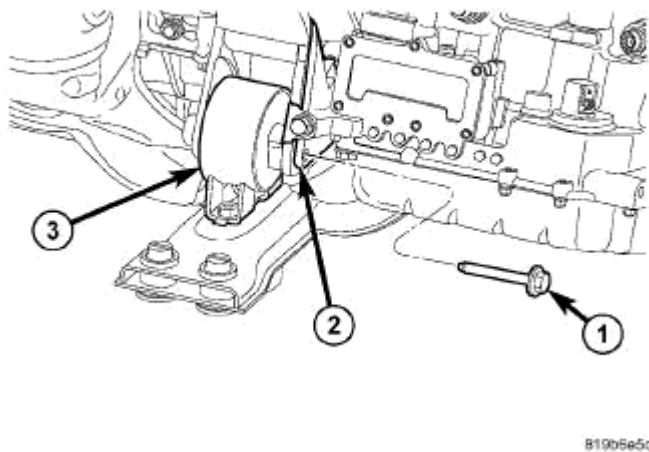


Fig. 17: Front Mount Through Bolt
Courtesy of CHRYSLER LLC

1. Disconnect and isolate negative battery cable.

2. Remove the front mount through bolt (1).

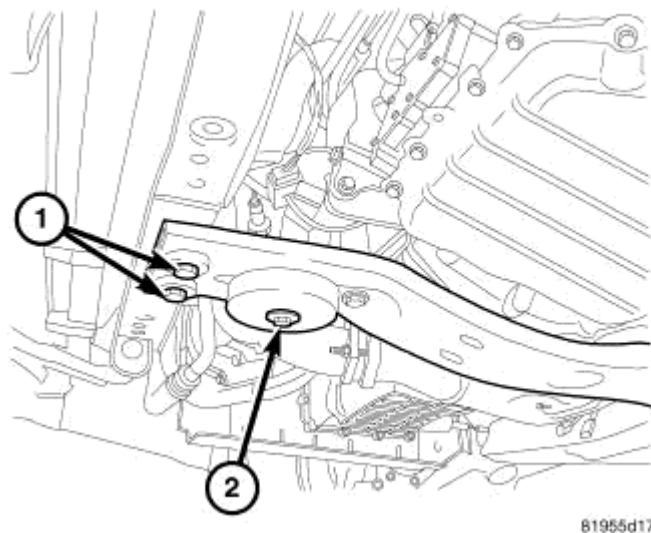


Fig. 18: Engine Mount Bolt & Cross Member Bolts
Courtesy of CHRYSLER LLC

3. Remove lower engine anti-roll mount bolt (2)
4. Remove crossmember mounting bolts (1).

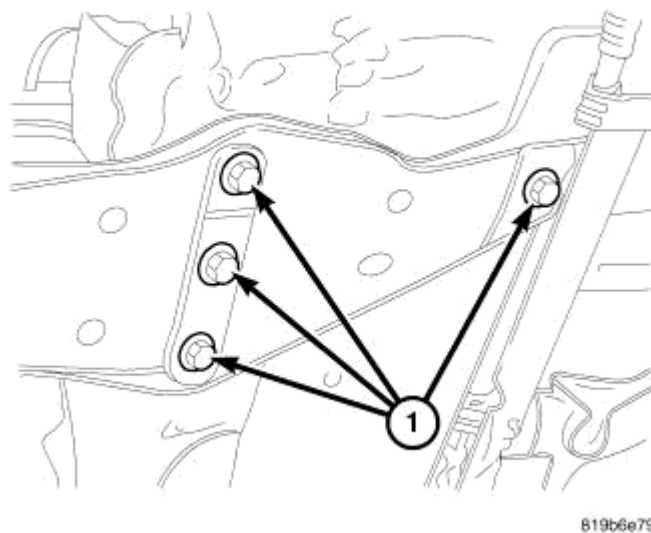


Fig. 19: Crossmember Mounting Bolts
Courtesy of CHRYSLER LLC

5. Remove crossmember mounting bolts (1).
6. Remove crossmember from vehicle.

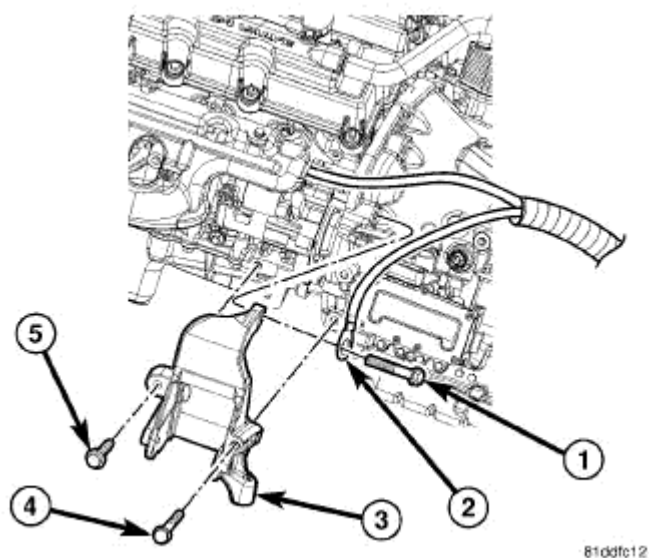


Fig. 20: 2.7L Torque Reaction Bracket
Courtesy of CHRYSLER LLC

7. Remove torque reaction bracket transmission to starter bolt (1).
8. Remove negative battery cable (2).
9. Remove torque reaction bracket to transmission bolt (4).
10. Remove torque reaction bracket to engine bolt (5).
11. Remove torque reaction bracket (3) from vehicle.

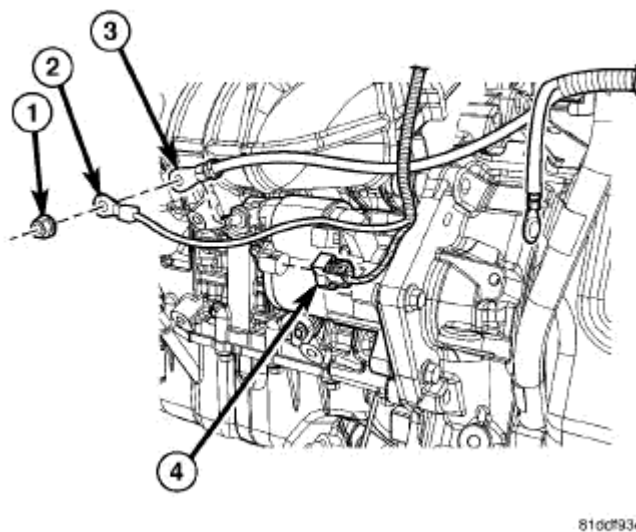


Fig. 21: Removing & Installing 2.7L Electrical Connector
Courtesy of CHRYSLER LLC

12. Remove battery cable nut (1), ignition sense wire (2) and battery cable (3) from solenoid stud.
13. Disconnect electrical connector (4) from starter solenoid.

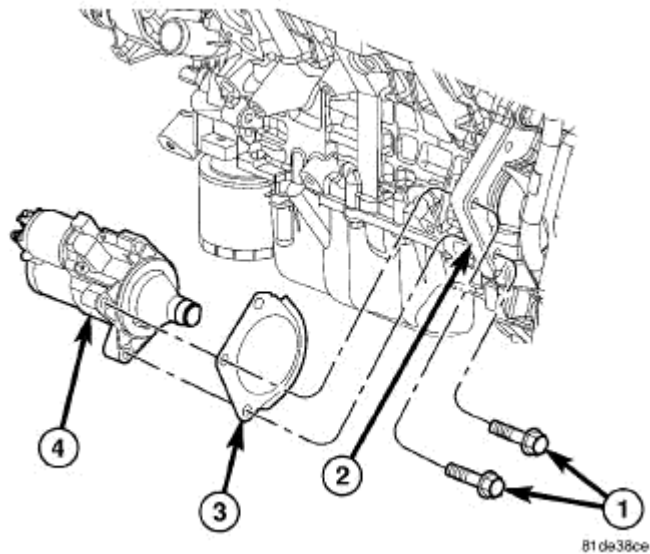


Fig. 22: Removing & Installing 2.7L Starter Motor
Courtesy of CHRYSLER LLC

14. Remove starter mounting bolts (1) from transmission housing (2).
15. Remove starter motor (4) and dust shield (3) from transmission housing (2).
16. Remove starter motor (4) from vehicle.

3.5L

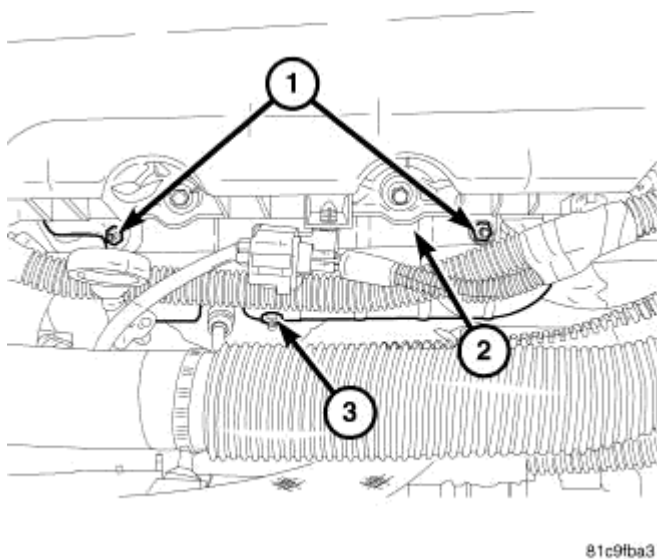


Fig. 23: Position Heat Shield
Courtesy of CHRYSLER LLC

1. Disconnect and isolate negative battery cable.
2. Remove heat shield nuts (1), (3) and position heat shield (2) aside.

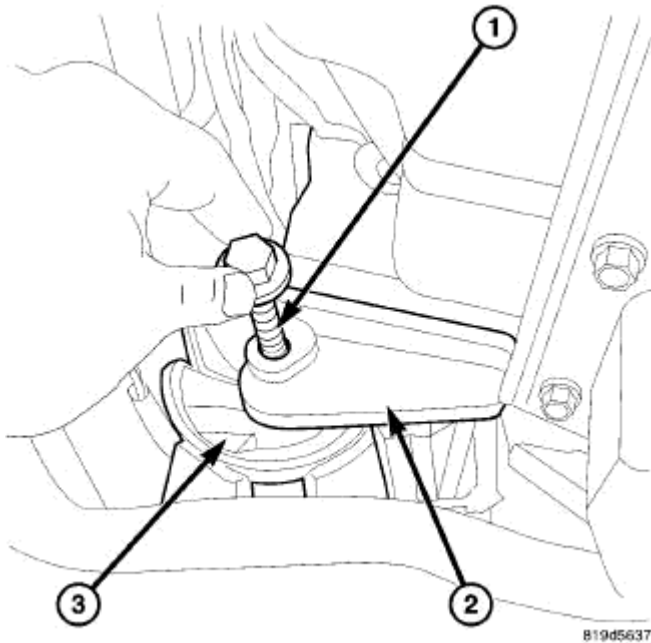


Fig. 24: Crossmember Through Bolt
Courtesy of CHRYSLER LLC

3. Remove belly pan, if equipped.
4. Remove front mount through bolt (1) from transmission bracket (2) and mount (3).

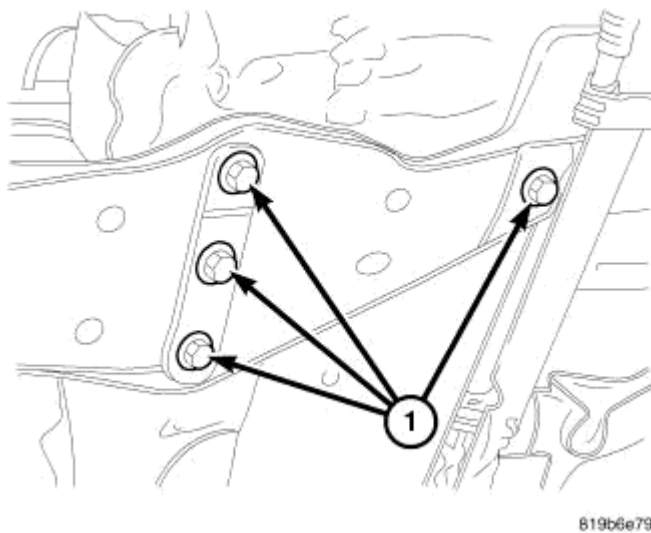
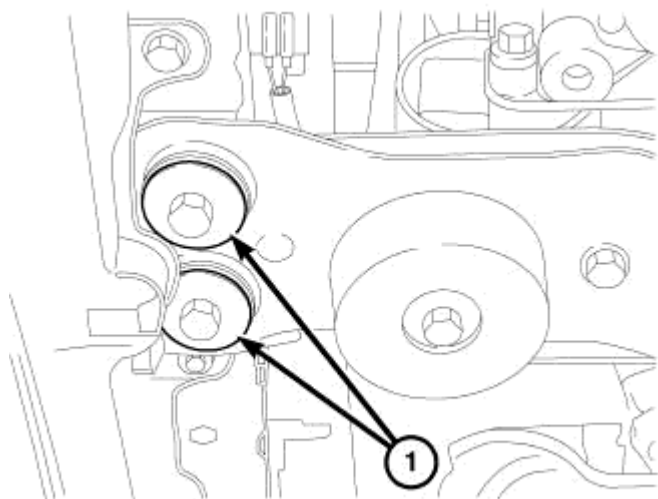


Fig. 25: Crossmember Mounting Bolts
Courtesy of CHRYSLER LLC

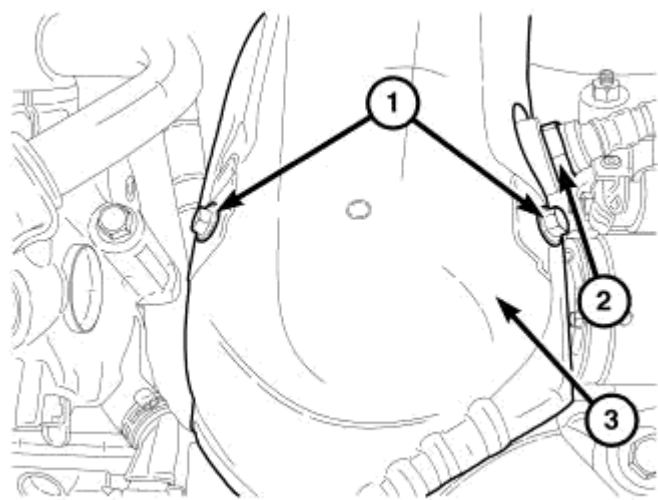
5. Remove rear bolts (1) from transmission crossmember.



819b6e8a

Fig. 26: Transmission Crossmember Bolts
Courtesy of CHRYSLER LLC

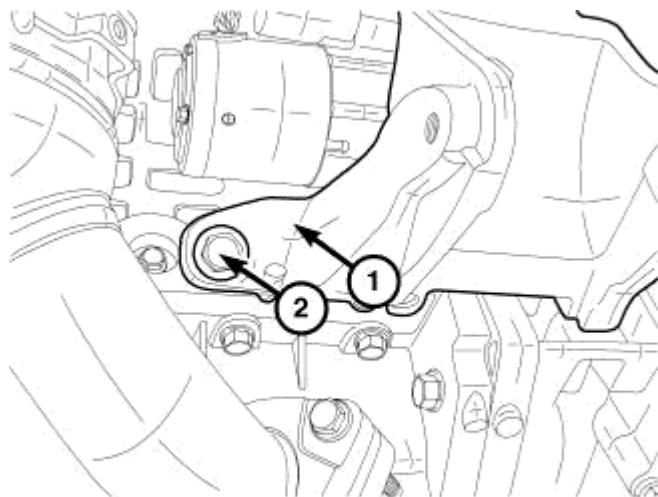
6. Remove front bolts (1) from transmission crossmember.
7. Remove transmission crossmember.



81c9fba7

Fig. 27: Heat Shield
Courtesy of CHRYSLER LLC

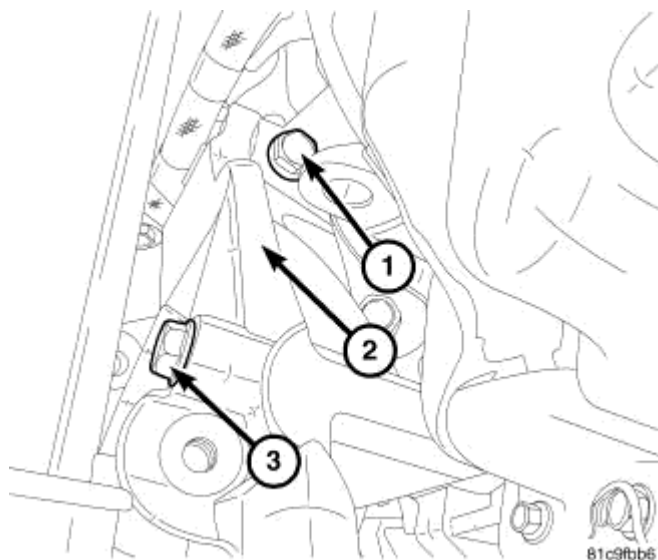
8. Remove heat shield bolts (1) and remove heat shield (3).
9. Remove oxygen sensor (2) and position aside.



81c9fbb2

Fig. 28: Transmission Mount 1
Courtesy of CHRYSLER LLC

10. Remove bolt (2) from transmission bracket (1).



81c9fbb6

Fig. 29: Transmission Mount 2
Courtesy of CHRYSLER LLC

11. Remove bolts (1), (3) and transmission bracket (2) from transmission housing.

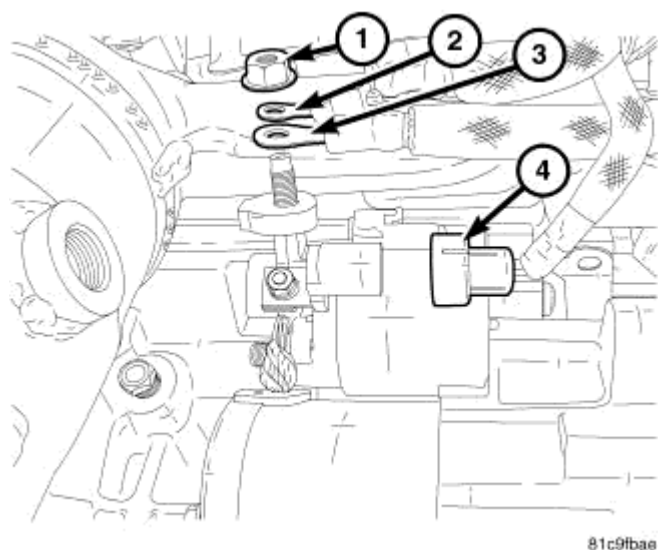


Fig. 30: 3.5L Starter Electrical Connections
 Courtesy of CHRYSLER LLC

12. Remove battery cable nut (1), ignition wire (2) and battery cable (3) from starter solenoid stud.
13. Disconnect electrical connector (4) from starter solenoid.

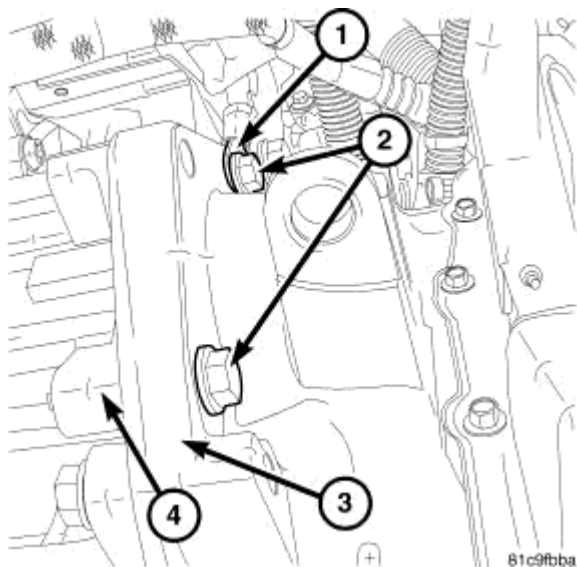
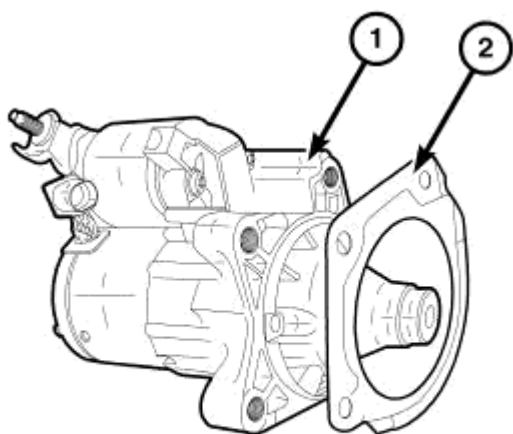


Fig. 31: 3.5L Starter Removal
 Courtesy of CHRYSLER LLC

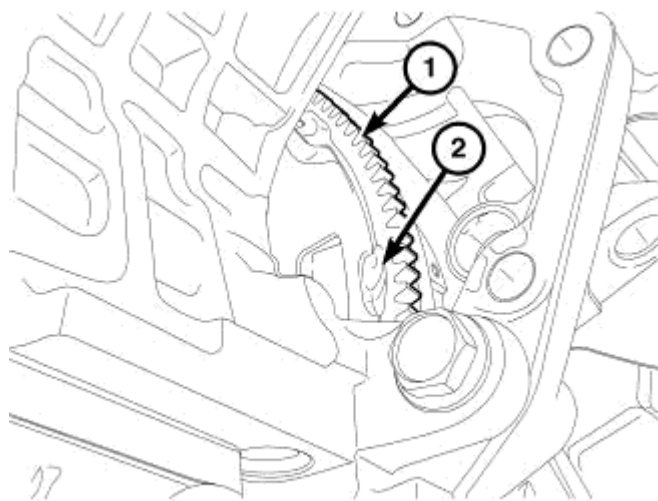
14. Remove starter mounting bolts (2) and ground wire (1) and remove the starter (4) from the transmission housing (3).



81c9fbbe

Fig. 32: 3.5L Starter Shield
Courtesy of CHRYSLER LLC

15. Remove starter motor dust shield (2) from starter (1).



81c9fbe6

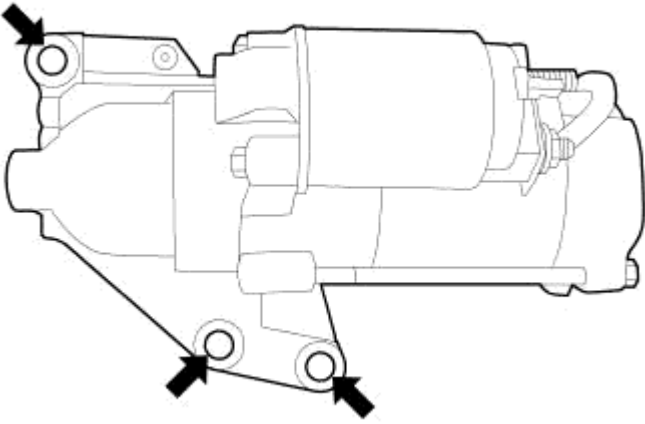
Fig. 33: Flywheel Inspection
Courtesy of CHRYSLER LLC

NOTE: If the flywheel is damaged refer to the appropriate transmission service information for flywheel replacement.

16. Rotate and fully inspect flywheel gears (1) and welds (2) for damage.

INSTALLATION

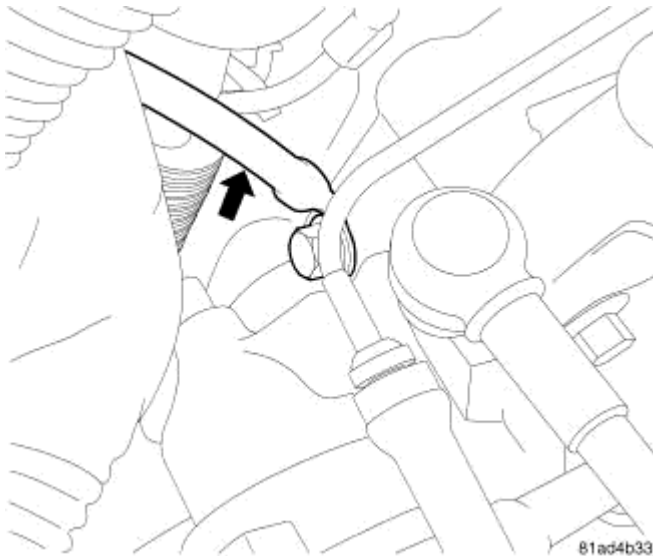
2.0L TURBO DIESEL



81ad473d

Fig. 34: Mounting Bolt Location
Courtesy of CHRYSLER LLC

1. Install the starter.
2. Install the two lower starter mounting bolts.



81ad4b33

Fig. 35: Ground Cable Location
Courtesy of CHRYSLER LLC

3. Install the upper starter mounting bolt and the ground cable.
4. Tighten the bolts to 54 N.m (40 ft. lbs.).

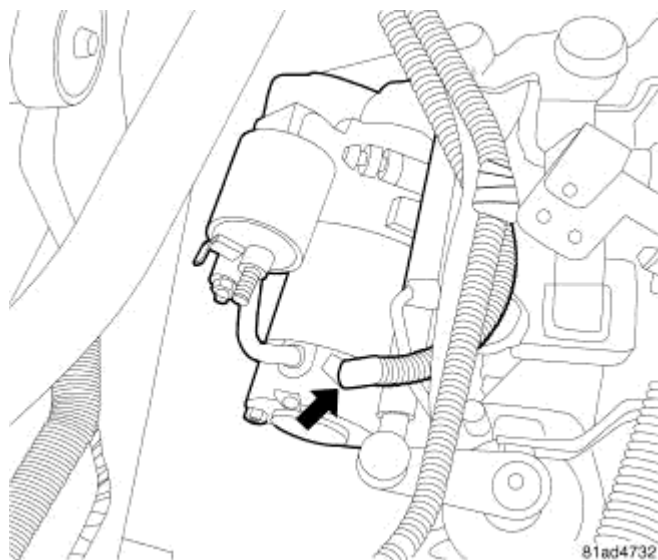


Fig. 36: Starter Cables
Courtesy of CHRYSLER LLC

5. Connect the battery cable to the starter.
6. Connect the solenoid connector to the starter.
7. Install the air box. Refer to **Engine/Air Intake System/BODY, Air Cleaner - Installation**.
8. Connect the negative battery cable.

2.4L

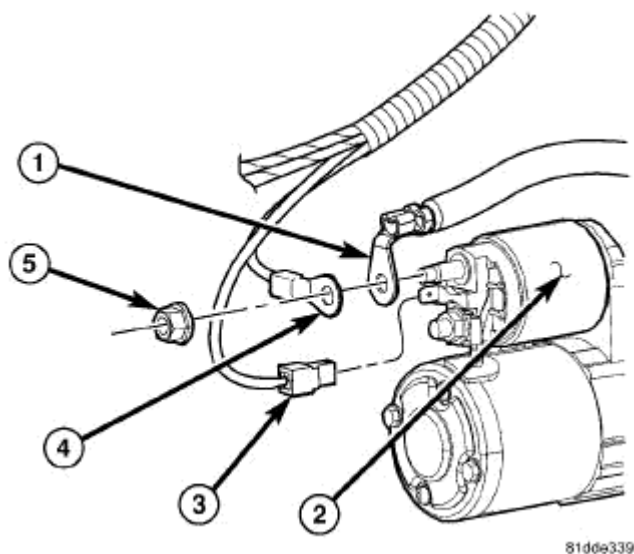


Fig. 37: Removing & Installing 2.4L Electrical Connection
Courtesy of CHRYSLER LLC

1. Install starter to vehicle.

2. Connect electrical connector (3) to starter solenoid (2).
3. Install battery cable (1), ignition sense wire (4) and battery cable nut (5) to solenoid stud. Tighten nut to 10 N.m (90 in. lbs.).

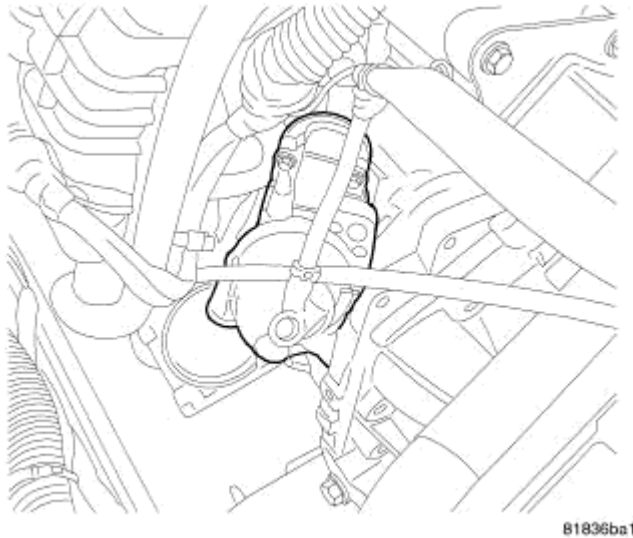


Fig. 38: Rotate Starter
Courtesy of CHRYSLER LLC

4. Position starter motor past the intake manifold.

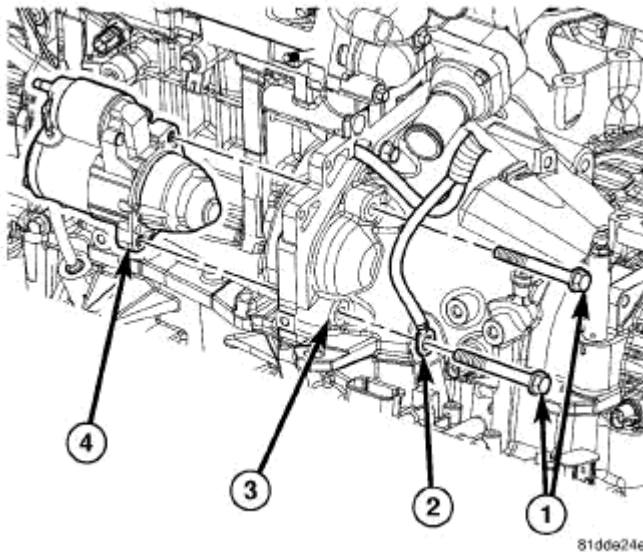


Fig. 39: Removing & Installing Starter Motor
Courtesy of CHRYSLER LLC

5. Install starter motor (4) to transmission housing (3).
6. Install negative battery cable (2) and starter mounting bolts (1) to transmission housing (3). Tighten bolts

to 54 N.m (40 ft. lbs.).

7. Install throttle body. Refer to **Fuel System/Fuel Injection/THROTTLE BODY - Installation**.
8. Connect negative battery cable, tighten nut to 4.5 N.m (40 in. lbs.).

2.7L

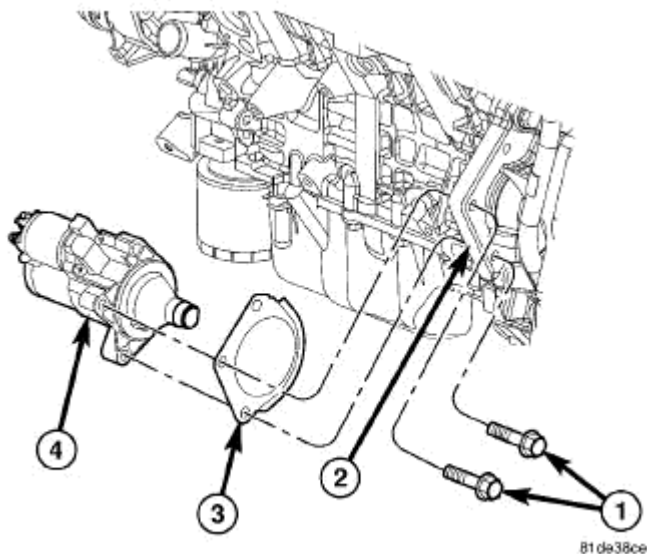


Fig. 40: Removing & Installing 2.7L Starter Motor
Courtesy of CHRYSLER LLC

1. Install starter motor (4) and dust shield (3) to transmission housing (2).
2. Install starter mounting bolts (1) to transmission housing (2). Tighten bolts to 54 N.m (40 ft. lbs.).

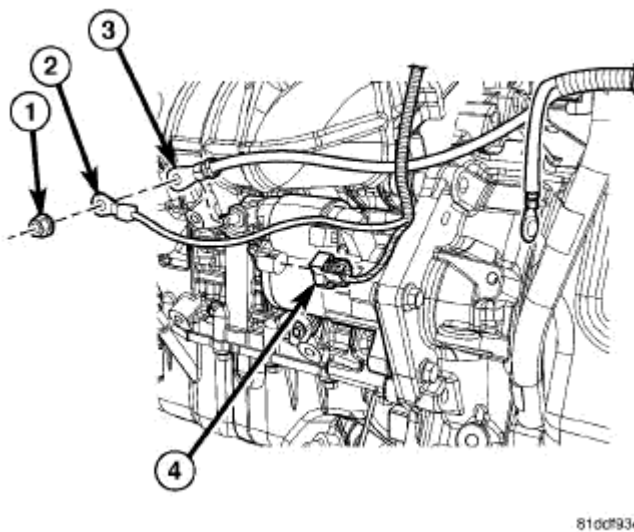


Fig. 41: Removing & Installing 2.7L Electrical Connector

Courtesy of CHRYSLER LLC

3. Install battery cable (3), ignition sense wire (2) and battery cable nut (1) to solenoid stud. Tighten nut to 10 N.m (90 in. lbs.).
4. Connect electrical connector (4) to starter solenoid.

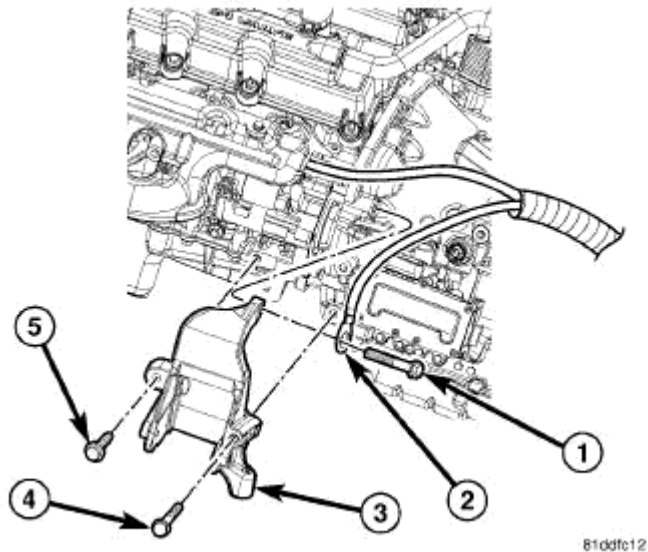


Fig. 42: 2.7L Torque Reaction Bracket
Courtesy of CHRYSLER LLC

5. Install torque reaction bracket (3) to vehicle.
6. Install torque reaction bracket to engine bolt (5). Hand tighten bolt.
7. Install torque reaction bracket to transmission bolt (4). Hand tighten bolt.
8. Install negative battery cable (2).
9. Install torque reaction bracket transmission to starter bolt (1). Hand tighten bolt.

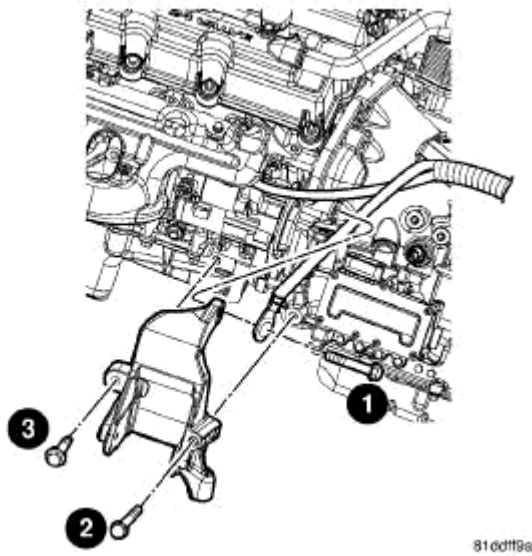


Fig. 43: 2.7L Mandatory Torque Sequence
Courtesy of CHRYSLER LLC

CAUTION: The torque reaction bracket bolts need to be tightened using a mandatory torque sequence. Failure to tighten bolts using the mandatory torque sequence provided may result in damage to the fasteners, bracket, and threaded bolts holes for the engine and transmission.

10. Tighten bolts in a mandatory torque sequence to 54 N.m (40 ft. lbs.).

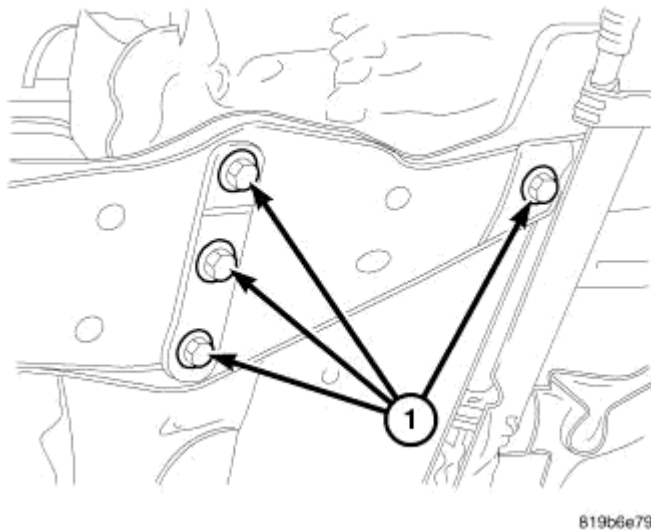


Fig. 44: Crossmember Mounting Bolts
Courtesy of CHRYSLER LLC

11. Install crossmember to vehicle. Tighten bolts (1) to 50 N.m (37 ft. lbs.).

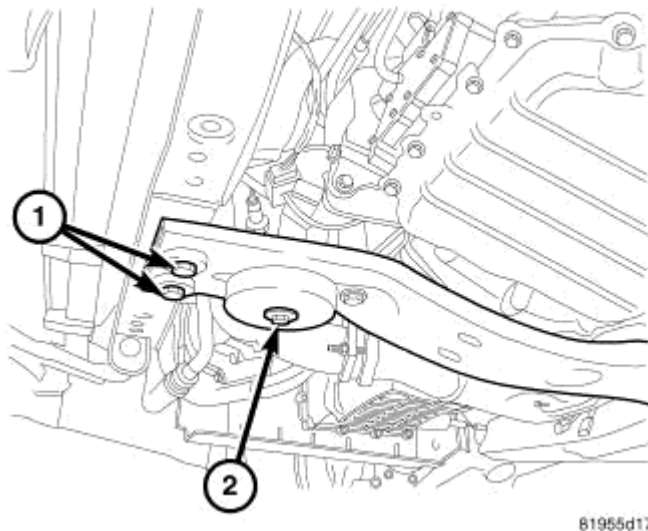


Fig. 45: Engine Mount Bolt & Cross Member Bolts
Courtesy of CHRYSLER LLC

12. Install lower engine anti-roll mount bolt (2) and tighten bolt to 47 N.m (35 ft. lbs.).
13. Install crossmember bolts (1) and tighten bolts to 55 N.m (40.5 ft. lbs.).

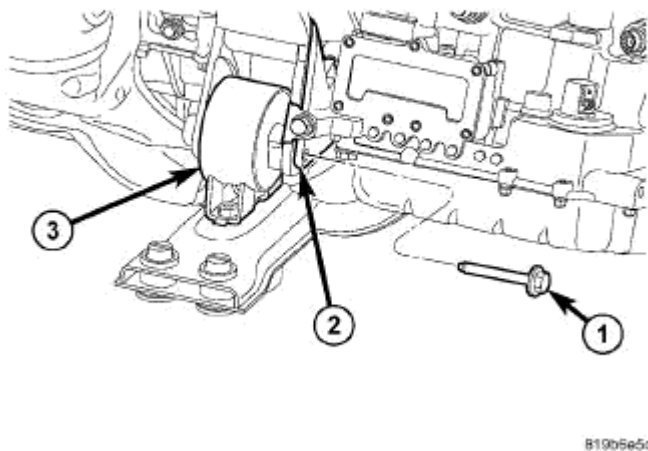
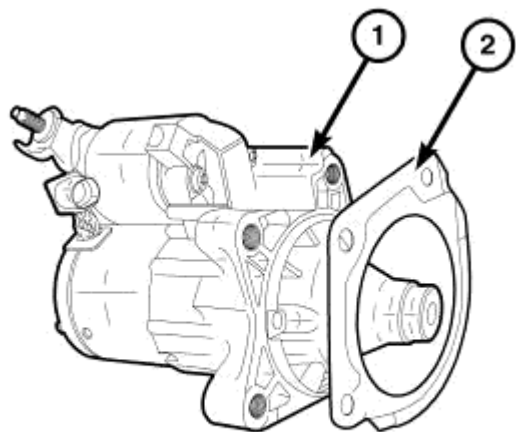


Fig. 46: Front Mount Through Bolt
Courtesy of CHRYSLER LLC

14. Install mount through bolt (1) and tighten to 47 N.m (35 ft. lbs.).
15. Connect negative battery cable, tighten nut to 4.5 N.m (40 in. lbs.).

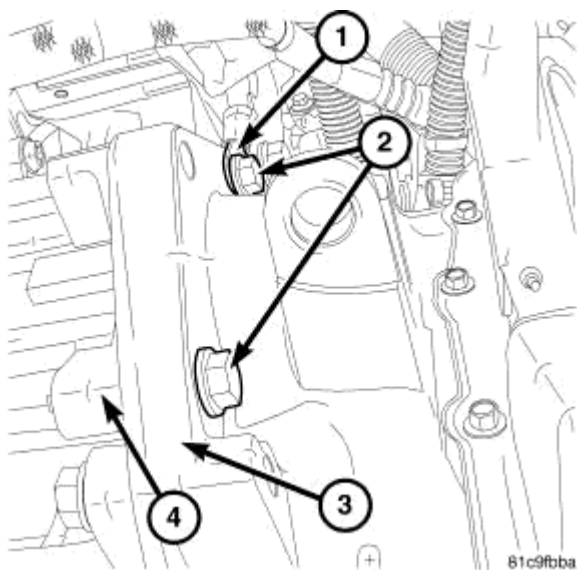
3.5L



81c9fbbe

Fig. 47: 3.5L Starter Shield
Courtesy of CHRYSLER LLC

1. Install starter motor dust shield (2) to starter (1).



81c9fbba

Fig. 48: 3.5L Starter Removal
Courtesy of CHRYSLER LLC

2. Position starter (4) into transmission housing (3), install ground wire (1) and starter mounting bolts (2). Tighten bolts to 54 N.m (40 ft. lbs.).

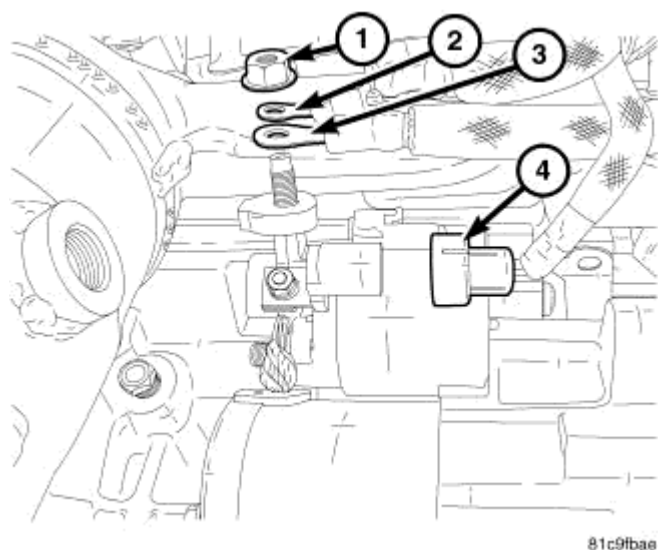


Fig. 49: 3.5L Starter Electrical Connections
Courtesy of CHRYSLER LLC

3. Install battery cable (3), ignition wire (2) and battery cable nut (1) to starter solenoid stud. Tighten nut to 10 N.m (90 in. lbs.).
4. Connect electrical connector (4) to starter solenoid.

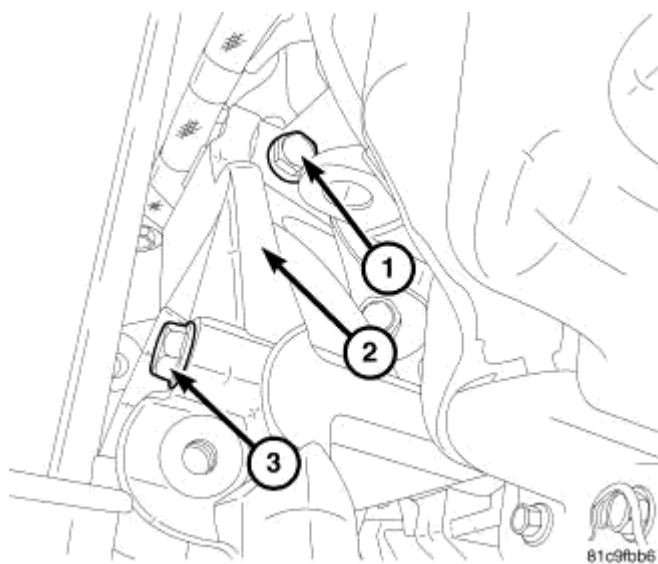
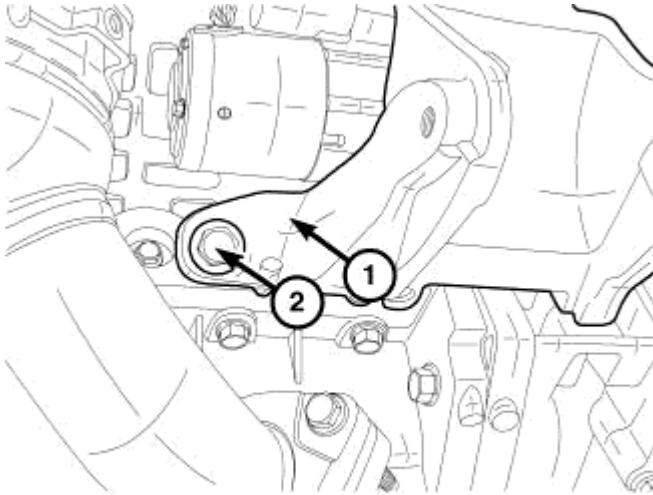


Fig. 50: Transmission Mount 2
Courtesy of CHRYSLER LLC

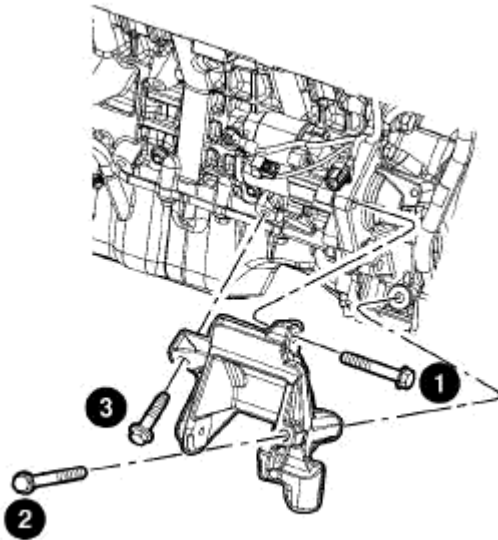
5. Install transmission bracket (2) and bolts (1), (3) to transmission housing. Hand tighten bolts.



81c9fbb2

Fig. 51: Transmission Mount 1
Courtesy of CHRYSLER LLC

6. Install bolt (2) to transmission bracket (1). Hand tighten bolt.



81da35dc

Fig. 52: 3.5L TBR Mandatory Torque Sequence
Courtesy of CHRYSLER LLC

CAUTION: The torque reaction bracket bolts need to be tightened using a mandatory torque sequence. Failure to tighten bolts using the mandatory torque sequence provided may result in damage to the fasteners, bracket, and threaded bolts holes for the engine and transmission.

7. Tighten bolts in a mandatory torque sequence to 50 N.m (37 ft. lbs.).

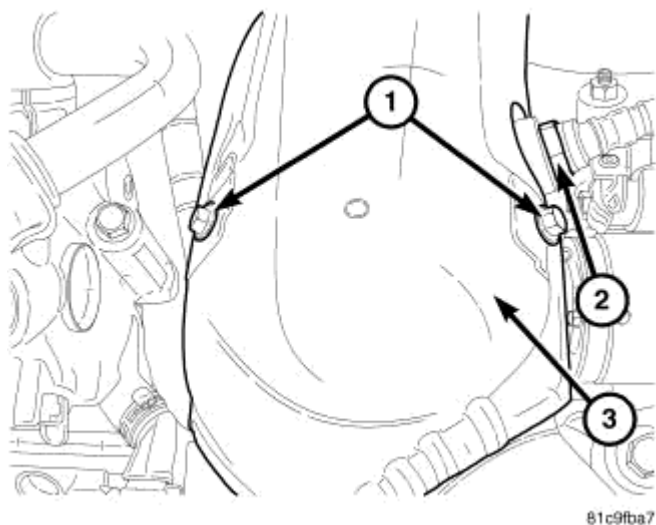


Fig. 53: Heat Shield

Courtesy of CHRYSLER LLC

8. Install oxygen sensor (2) and tighten to 41 N.m (30 ft. lbs).
9. Install heat shield (3) and bolts (1). Tighten bolts to 12 N.m (106 in. lbs).

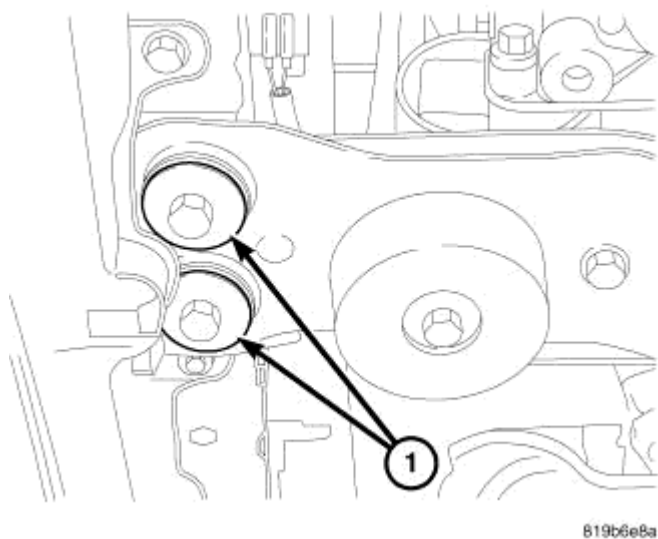


Fig. 54: Transmission Crossmember Bolts

Courtesy of CHRYSLER LLC

10. Install bolts (1) to transmission crossmember. Tighten bolts to 55 N.m (40.5 ft. lbs.).

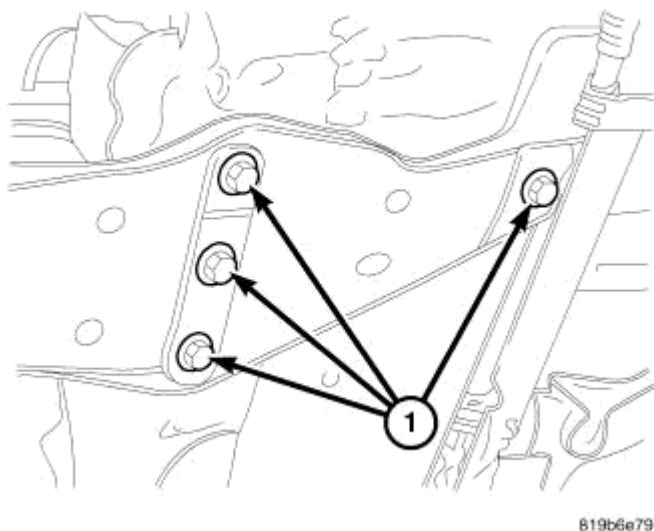


Fig. 55: Crossmember Mounting Bolts
Courtesy of CHRYSLER LLC

11. Install bolts (1) to transmission crossmember. Tighten bolts to 50 N.m (37 ft. lbs.).

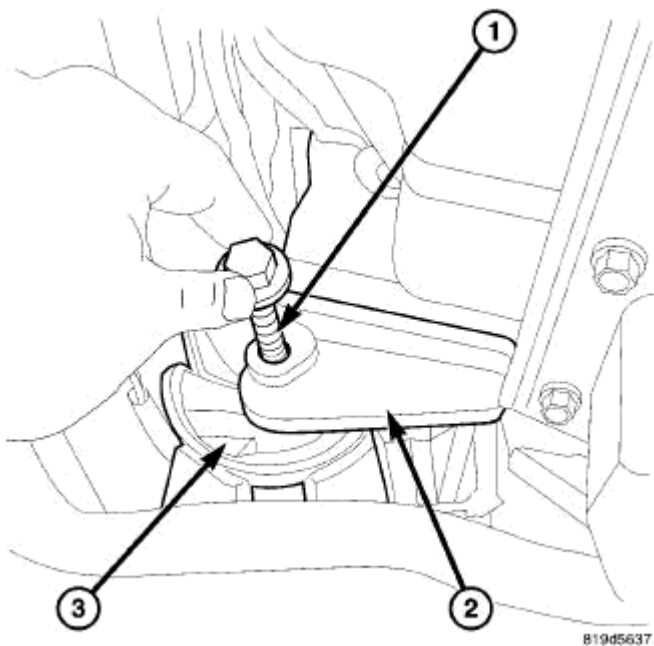
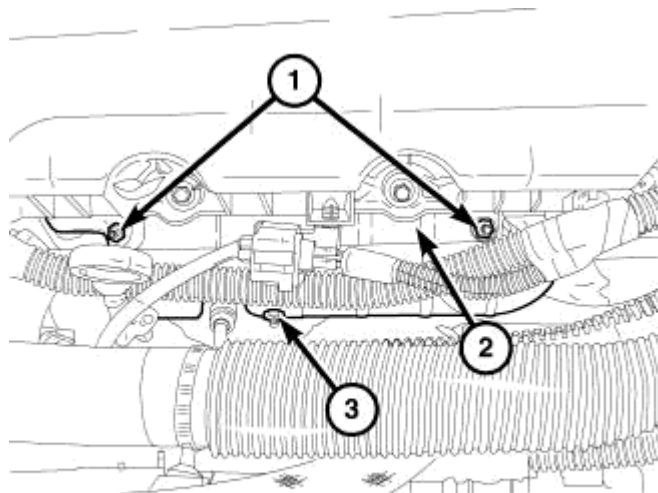


Fig. 56: Crossmember Through Bolt
Courtesy of CHRYSLER LLC

12. Install front mount through bolt (1) to transmission bracket (2) and mount (3). Tighten bolt to 47 N.m (35 ft. lbs.).
13. If equipped, install belly pan.



81c9fba3

Fig. 57: Position Heat Shield
Courtesy of CHRYSLER LLC

NOTE: Make sure the lower heat shield is installed to the lower stud before the upper heat shield is install. The upper heat shield stacks on top of the lower heat shield, and both shields are held together by the lower nut.

14. Position heat shield (2) over the studs and install heat shield nuts (1), (3). Tighten nuts to 12 N.m (106 in. lbs).
15. Connect negative battery cable, tighten nut to 5 N.m (45 in. lbs.).