Applies To: **2013 MDX** – From VIN 2HNYD2...DH500001 thru 2HNYD2...DH525406
**2013 TL SH-AWD** – From VIN 19UUA9...DA000001 thru 19UUA9...DA005530
**2013 ZDX** – From VIN 2YNYB1...DH500001 thru 2YNYB1...DH500365

**August 23, 2013**

# MIL Comes On With DTCs P0300 Thru P0306

**(Supersedes 13-024, dated June 5, 2013; see REVISION SUMMARY)**

## REVISION SUMMARY

This bulletin has been revised extensively. American Honda recommends that you review the bulletin thoroughly.

## SYMPTOM

The MIL comes on with at least one of the following DTCs:

- P0300 Random Misfire Detected
- P0301 No. 1 Cylinder Misfire Detected
- P0302 No. 2 Cylinder Misfire Detected
- P0303 No. 3 Cylinder Misfire Detected
- P0304 No. 4 Cylinder Misfire Detected
- P0305 No. 5 Cylinder Misfire Detected
- P0306 No. 6 Cylinder Misfire Detected

## POSSIBLE CAUSE

The cylinder bore may be out of round, causing low compression.

## CORRECTIVE ACTION

Inspect the vehicle and, if necessary, replace the engine block.

## PARTS INFORMATION

### MDX/ZDX:

A/C Discharge O-Ring (1/2 in.):
P/N 80872–ST7–000

A/C Suction O-Ring (5/8 in.):
P/N 80871–ST7–000

Castle Nut (14 mm) (two required):
P/N 90365–STX–A00

Catalytic Converter Pre-Chamber Gasket:
P/N 18393–SDB–A00

Catalytic Converter Self Locking Nut (eight required):
P/N 90212–RCA–A01

Circlip Ring (left side):
P/N 44319–STX–A01

Circlip Ring (right side):
P/N 44319–STX–A60

Coolant Pipe O-Ring (31.2 x 4.1 mm) (two required):
P/N 91314–PH7–003

Cylinder Block Assy (MDX):
P/N 10002–RYE–A10

Cylinder Block Assy (ZDX):
P/N 10002–RP6–A01

Cylinder Head Gasket (two required):
P/N 12251–RKG–004

EGR Pipe Gasket A:
P/N 18716–R70–A01

EGR Pipe Gasket B:
P/N 18719–R70–A01

Exhaust Chamber Gasket:
P/N 18115–R70–A01

Exhaust Pipe Gasket:
P/N 18302–SP0–003

Exhaust Pipe Gasket (Ishino) (two required):
P/N 18212–SA7–003

Flange Bolt (10 mm x 20 mm) (six required):
P/N 90163–S5A–000

Flange Bolt (10 mm x 25 mm) (four required):
P/N 90167–SAA–010

Flange Bolt (10 mm x 25 mm) (four required):
P/N 90113–SV3–A00

Flange Bolt (10 mm x 35 mm) (two required):
P/N 90163–SDA–A01

Flange Bolt (12 mm x 30 mm) (two required):
P/N 90169–S3V–A00

Flange Bolt (12 mm x 65 mm) (two required):
P/N 95701–12065–08

Flange Bolt (12 mm x 115 mm):
P/N 90161–SZA–A00

Flange Bolt (14 mm x 125 mm):
P/N 90161–S0X–A00

Flange Nut (12 mm) (two required):
P/N 90362–SZA–A00




Skill Level
R
REPAIR

**CLIENT INFORMATION:** The information in this bulletin is intended for use only by skilled technicians who have the proper tools, equipment, and training to correctly and safely maintain your vehicle. These procedures should not be attempted by “do-it-yourselfers,” and you should not assume this bulletin applies to your vehicle, or that your vehicle has the condition described. To determine whether this information applies, contact an authorized Acura automobile dealer.

Flange Nut (12 mm) (four required):
P/N 90371–TK4–A00

Fuel Connector Holder:
P/N 16726–RYE–A01

Fuel Line Retainer:
P/N 17711–SOX–931

Fuel Rail O-Ring:
P/N 91301–PLC–000

Head Bolts (16 required):
P/N 90005–PAA–A01

Intake Manifold Gasket:
P/N 17105–RCJ–A01

Intake Manifold Cover Gasket:
P/N 17146–R70–A01

Water Passage Gasket (front):
P/N 19411–P8A–A03

Water Passage Gasket (rear):
P/N 19412–P8A–A02

**TL:**

A/C Discharge O-Ring (1/2 in.):
P/N 80872–ST7–000

A/C Suction O-Ring (5/8 in.):
P/N 80871–ST7–000

Castle Nut (14 mm) (two required):
P/N 90363–TK4–A01

Catalytic Converter Pre-Chamber Gasket:
P/N 18393–SDB–A00

Catalytic Converter Self Locking Nut (eight required):
P/N 90212–RCA–A01

Circlip Ring (left side):
P/N 44319–SJA–A00

Circlip Ring (right side):
P/N 44319–STX–A60

Coolant Pipe O-Ring (31.2 mm X 4.1mm)
(two required):
P/N 91314–PH7–003

Cylinder Block Assembly:
P/N 10002–RK2–A03

Cylinder Head Gasket (two required):
P/N 12251–RKG–004

Damper Fork Bolt (12 X98 mm) (two required):
P/N 90121–SM4–010

EGR Pipe Gasket A:
P/N 18716–R70–A01

EGR Pipe Gasket B:
P/N 18719–R70–A01

Exhaust Chamber Gasket:
P/N 18115–R70–A01

Exhaust Pipe Gasket:
P/N 18302–SP0–003

Exhaust Pipe Gasket (Ishino) (two required):
P/N 18212–SA7–003

Flange Bolt (10 mm x 20 mm) (six required):
P/N 90163–S5A–000

Flange Bolt (10 mm x 30 mm) (two required):
P/N 90163–SDB–A00

Flange Bolt (10 mm x 34 mm) (two required):
P/N 90170–SDA–A01

Flange Bolt (10 mm x 35 mm) (two required):
P/N 90163–SDA–A01

Flange Bolt (10 mm x 80 mm) (two required):
P/N 90162–S5A–000

Flange Bolt (12 mm x 25 mm) (two required):
P/N 95701-12025-08

Flange Bolt (12 mm x 30 mm) (two required):
P/N 90176–SKN–000

Flange Bolt (12 mm x 33 mm) (two required):
P/N 90186–SDA–A00

Flange Bolt (12 mm x 45 mm) (two required):
P/N 90161–SDA–A01

Flange Bolt (12 mm x 75 mm) (two required):
P/N 90396–S5A–010

Flange Bolt (14 mm x 135 mm) (two required):
P/N 90176–SDA–A00

Flange Bolt (14 mm x 150 mm) (two required):
P/N 90177–SDA–A00

Flange Nut (12 mm) (two required):
P/N 90362–SZA–A00

Flange Nut (12 mm) (two required):
P/N 94050–12080

Flange Nut (12 mm) (four required):
P/N 90371–TK4–A00

Fuel Connector Holder:
P/N 16726–RYE–A01

Fuel Line Retainer:
P/N 17711–SOX–931

Fuel Rail O-Ring:
P/N 91301–PLC–000

Head Bolts (16 required):
P/N 90005–PAA–A01

Intake Manifold Gasket:
P/N 17105–RCJ–A01

Intake Manifold Cover Gasket:
P/N 17146–R70–A01

Self Lock Nut (12 mm) (two required):
P/N 90215–SB0–003

Water Passage Gasket (front):
P/N 19411–P8A–A03

Water Passage Gasket (rear):
P/N 19412–P8A–A02

**TL M/T:**

Circlip Ring (left side):
P/N 44319–STX–A01

## REQUIRED MATERIALS

**MDX/ZDX/TL**

Antifreeze Coolant:
(3 gallons)

ATF Fluid:
(4 quarts)

5W-20 Engine Oil:
(5 quarts)

Power Steering Fluid (MDX/ZDX):
P/N 08206-9002
(3 bottles)

Oil Filter:
P/N 15400-PLM-A02

## TOOL INFORMATION

Steering Wheel Holder:
Lower Ball Joint Remover (or equivalent):
T/N 07MAC–SL0A102

Tie Rod Ball Joint Remover (or equivalent):
T/N 07MAC-SL0A202

## WARRANTY CLAIM INFORMATION

| OP# | Description | FRT |
|---|---|---|
| 1115A3 | Connect the HDS and do the total misfire value inspection. | 0.3 hr |
| A | Do an engine compression test and, if necessary, misfire B inspection. | 0.9 hr |
| 1121F6 | Replace the engine block. (DPSM authorization required. Includes alignment). | 13.8 hrs |

Failed Part: P/N 10002-RYE-A10

Defect Code: 09999

Symptom Code: 09107

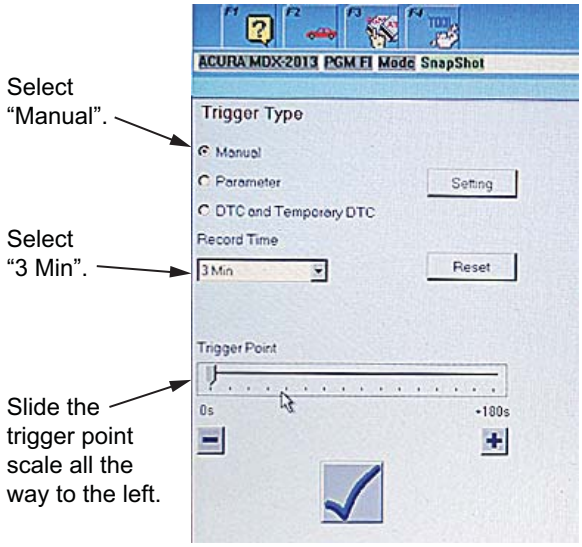
Skill Level: Repair Technician

## DIAGNOSIS

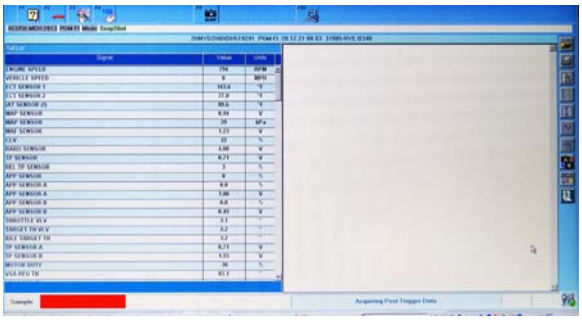
### Total Misfire Value Inspection

NOTE: If the MIL comes on in an unsold vehicle, make sure the vehicle has at least a quarter tank of fresh, premium fuel, and **do this inspection after completing the TQI procedures**.

1. **Make sure the engine is cold**; connect the HDS to the vehicle and check that the ECT SENSOR 1 temperature value is less than 100 °F (38 °C).
2. Go to PGM-FI, then select Snapshot. Set the HDS to the following snapshot settings:
   - Trigger Type - Manual
   - Record Time - 3 minutes
   - Trigger Point - 0 (all the way to the left)

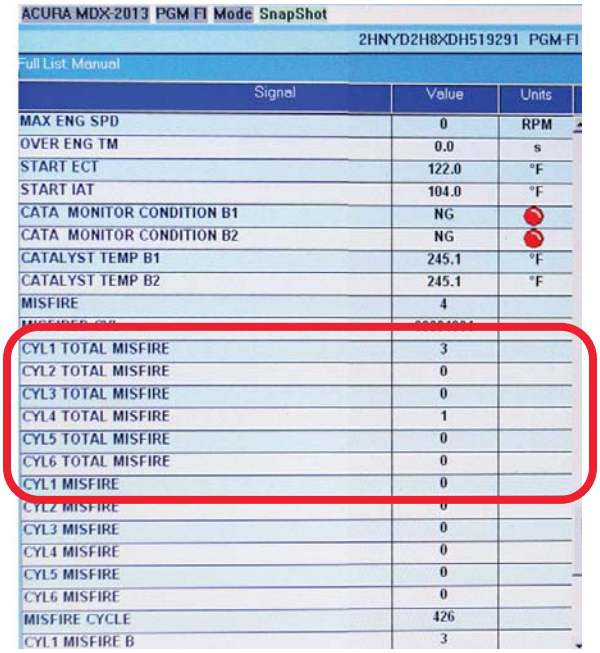



3. Start the engine, then start recording data. Let the engine idle with the transmission in Park for 3 minutes.



4. After 3 minutes, turn the engine off.

5. In the OBS snapshot file, scroll down and review each cylinder's TOTAL MISFIRE value.
   - If each of the cylinders TOTAL MISFIRE values are 5 or less, the vehicle is OK.
   - If any cylinder's TOTAL MISFIRE value is more than 5, go to Engine Compression Test.



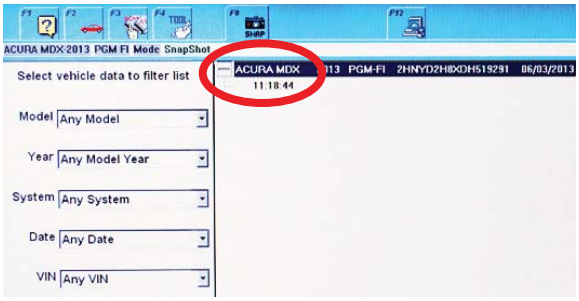

**Engine Compression Test and Misfire B Inspection**

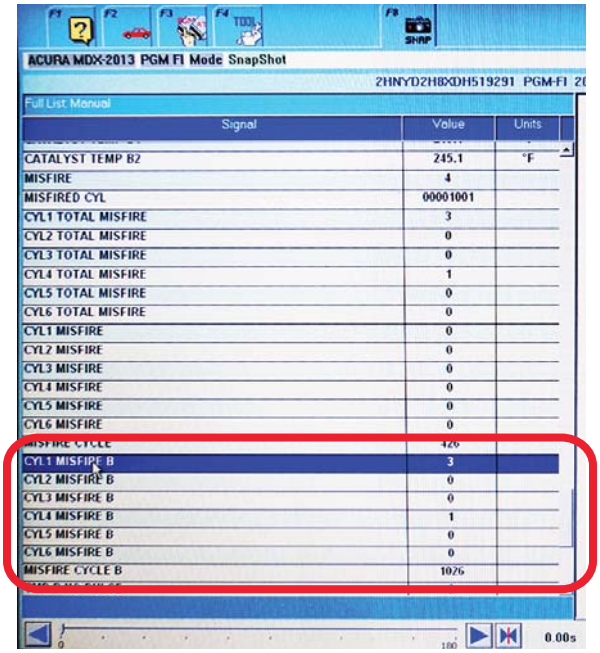
1. Let the engine cool down so that the ECT SENSOR 1 temperature value is less than 100 °F (38 °C).
2. Print out page 1 of the job aid *Engine Compression Test and Cylinder Leakage Test (V6)*.
3. Do steps 2 through 12 from the job aid, and record the compression value for each cylinder in the space provided.

   NOTE:
   - **Do not warm up the engine** for the engine compression test.
   - Make sure that you use a compression gauge that measures up to 300 psi.
4. Find the amount of variation between the highest and lowest cylinder reading.
   - If the variation between the cylinders is 30 PSI or more, go to REPAIR PROCEDURE.
   - If the variation between the cylinders is 29 PSI or less, go to step 5.

5. Check each cylinder's MISFIRE B data recorded in the OBS snapshot file.

   NOTE: Do the engine compression test first because if you only check the MISFIRE B value, you may not properly diagnose the vehicle.
   - If the MISFIRE B value is 10 or less, the vehicle is OK.
   - If the MISFIRE B value on any cylinder is more than 10, this bulletin does not apply. Continue with normal troubleshooting for the cause of the misfire.



## REPAIR PROCEDURE

The following electronic service manual procedures have been used in full or in part within this service bulletin. For more detail on these procedures, and torque specifications for some components, refer to the appropriate electronic service manual.

- Engine Oil Replacement
- Battery Terminal Disconnection and Reconnection
- A/C System Recovery/Charging
- Fuel Pressure Relieving
- Shift Cable Replacement
- Steering Gearbox Removal
- Transfer Assembly Removal
- Coolant Replacement
- Drive Belt Removal/Installation
- Front Undercover Replacement
- Splash Shield Replacement
- Hydraulic Power Steering Fluid Check/Replacement
- Air Cleaner Removal/Installation
- Fuel Line/Quick-Connect Fitting Removal
- Front Bulkhead Cover Replacement
- Front Stabilizer Link Removal/Installation
- Front Knuckle/ Hub Bearing Unit Replacement
- Cylinder Head Cover Removal
- Intake Manifold Removal and Installation
- Warm Up TWC Removal/Installation
- Transmission Shift Cable Removal and Installation
- Cylinder Head Removal and Installation
- Cam Chain Removal and Installation
- Valve Adjustment
- Propeller Shaft Removal
- Alternator Removal and Installation
- Ignition coil and Spark Plug Removal and Installation
- Exhaust Pipe and Muffler Replacement
- A/C System Evacuation

**TL Only:**

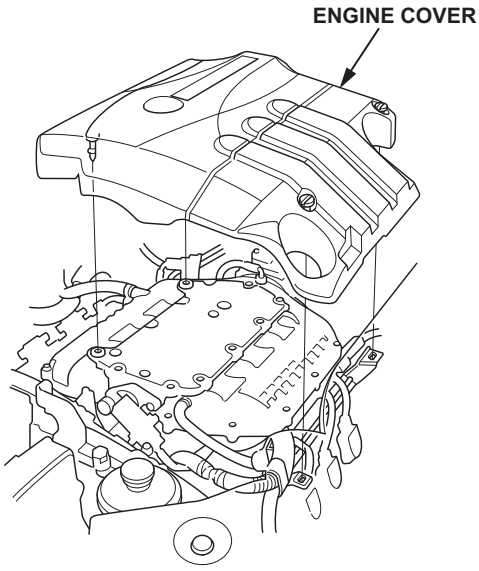
- Strut Brace Removal/Installation
- Damper Fork Removal/Installation

### Engine/transmission assembly removal

- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging any wires and terminals, unplug the circuit connectors carefully while holding the connector portion.

1. Relieve the fuel pressure.
2. Wait until the engine is cool, then carefully remove the radiator cap.
3. Loosen the drain plug on the radiator, and drain the engine coolant.
4. Drain the power steering system fluid, then plug the fluid reservoir and the return hose.
5. Do the battery removal procedure.
6. Remove the engine cover. (TL has multiple covers).

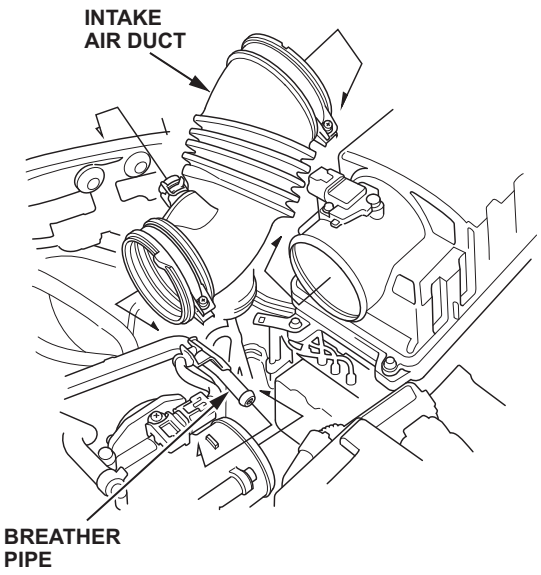
***MDX/ZDX shown:***




7. Evacuate the A/C system.
8. Separate the A/C suction line at the right strut tower junction and cover the lines with tape.

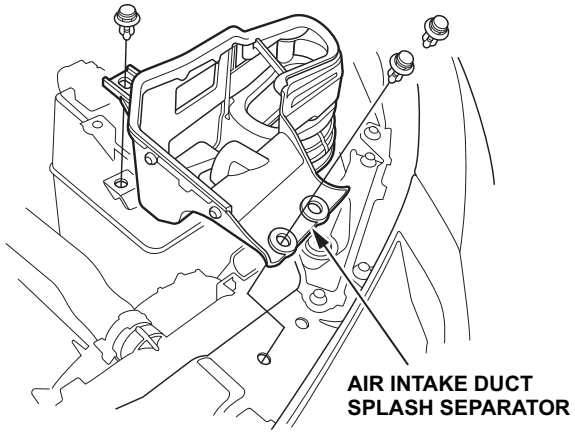
9. Disconnect the breather pipe, then remove the intake air duct.

***MDX/ZDX shown:***




**TL only:** Remove the splash separator.

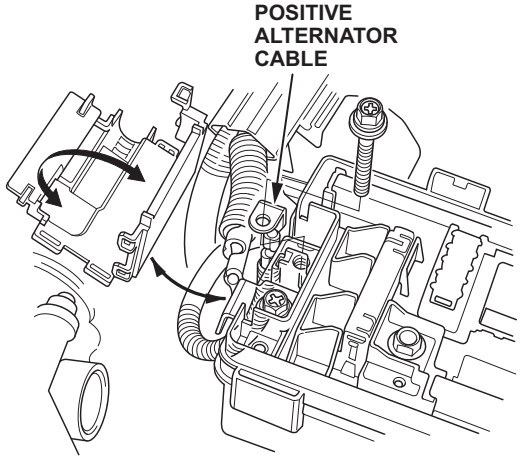
***TL only:***




10. Remove the air cleaner assembly.

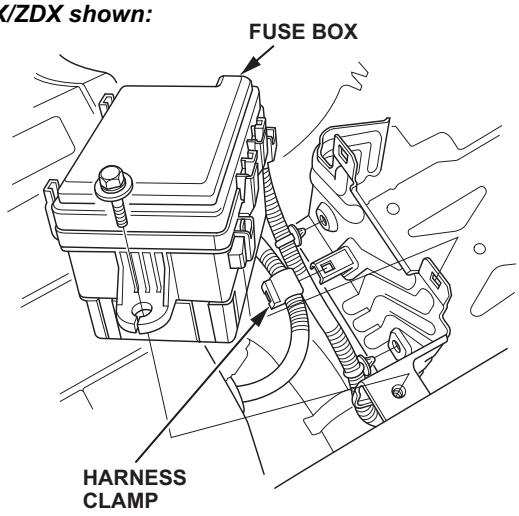
11. Disconnect the cable from the main under-hood fuse box.

***MDX/ZDX shown:***



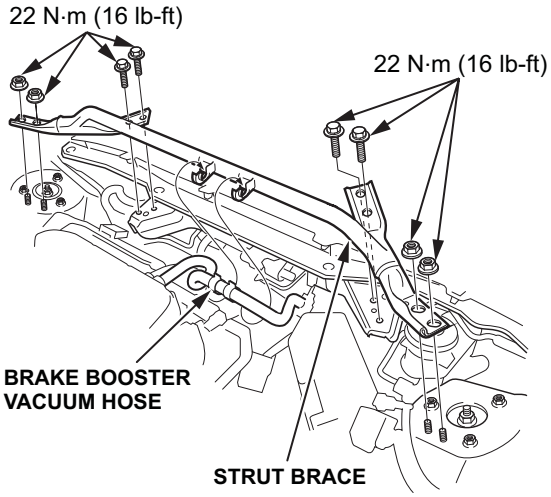

12. Remove the main under-hood fuse box, then remove the harness clamp.

***MDX/ZDX shown:***



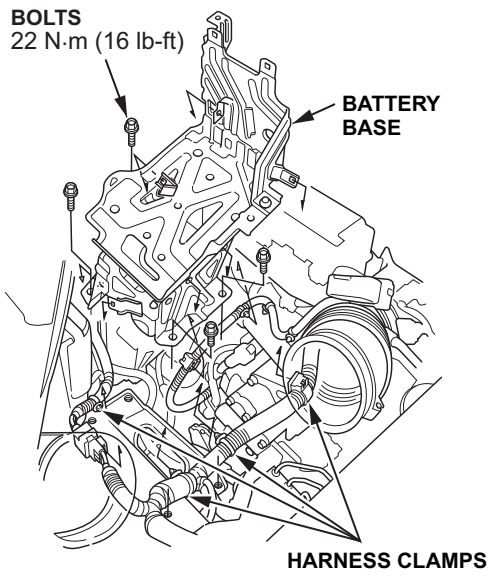

**TL only:** Remove the strut brace.

***TL only:***

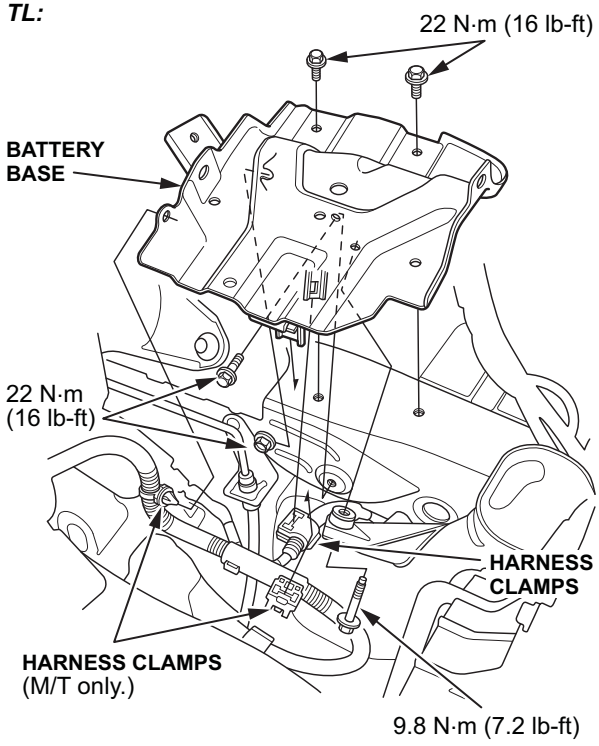


13. Remove the harness clamps, then remove the battery base.

***MDX/ZDX:***

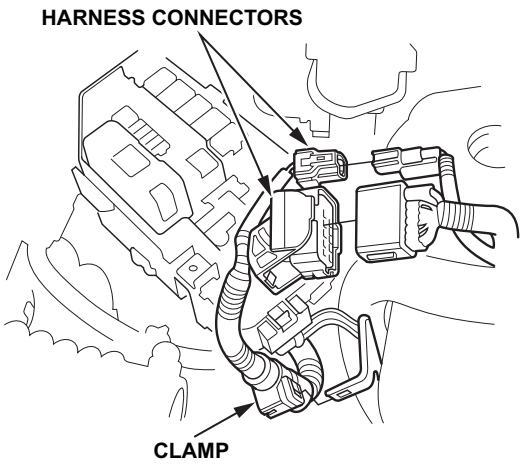



***TL:***



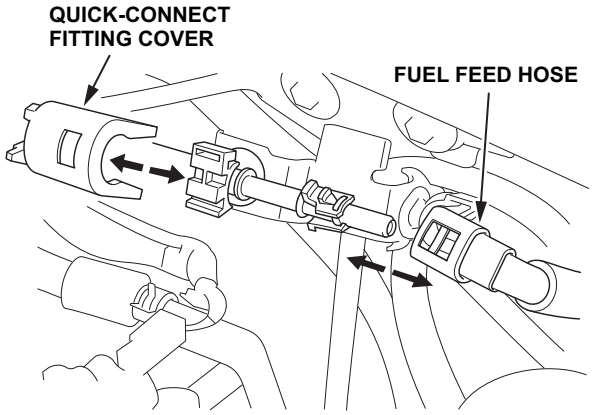

**TL only:** Remove the harness clamp, then disconnect the harness connectors.

***TL only:***

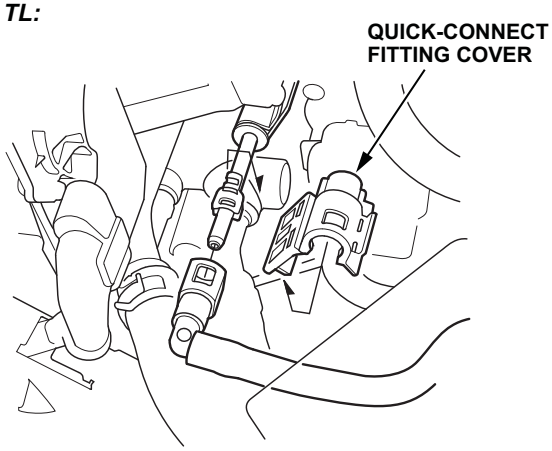



14. Remove the transmission shift cable from the transmission only.
15. Remove the quick-connect fitting cover, then disconnect the fuel feed hose.

***MDX/ZDX:***



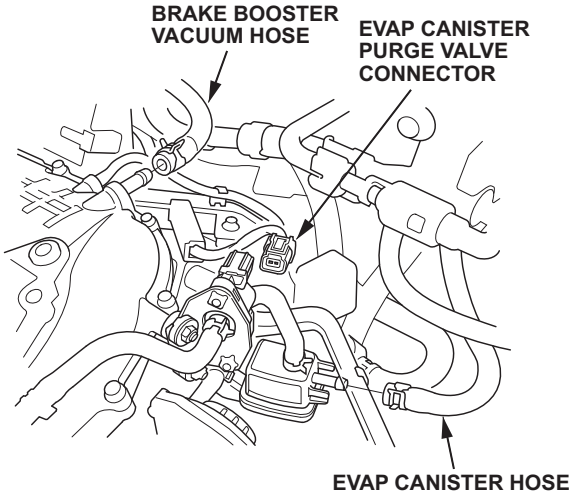

***TL:***



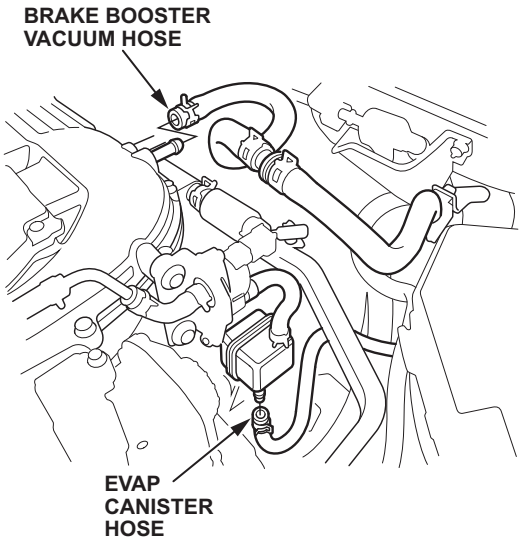
16. Disconnect the EVAP canister purge valve connector.

17. Disconnect the brake booster vacuum hose and EVAP canister hose.

***MDX/ZDX:***



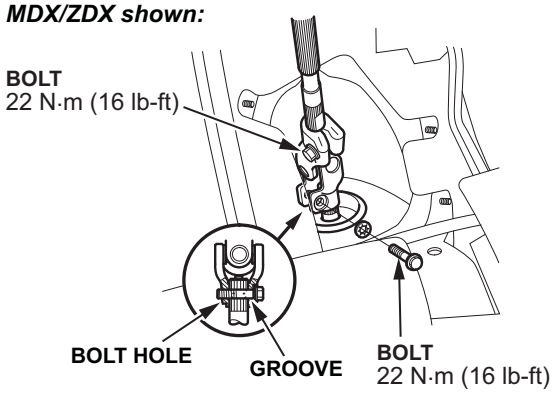

***TL:***




18. Remove the steering joint cover, then disconnect the steering joint from the steering gearbox pinion shaft.

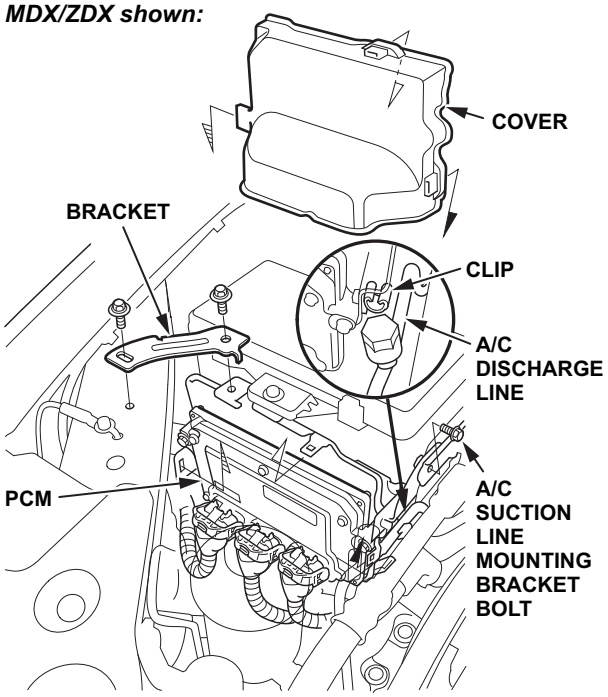
    NOTE: Hold the steering wheel with the steering wheel holder tool.

***MDX/ZDX shown:***



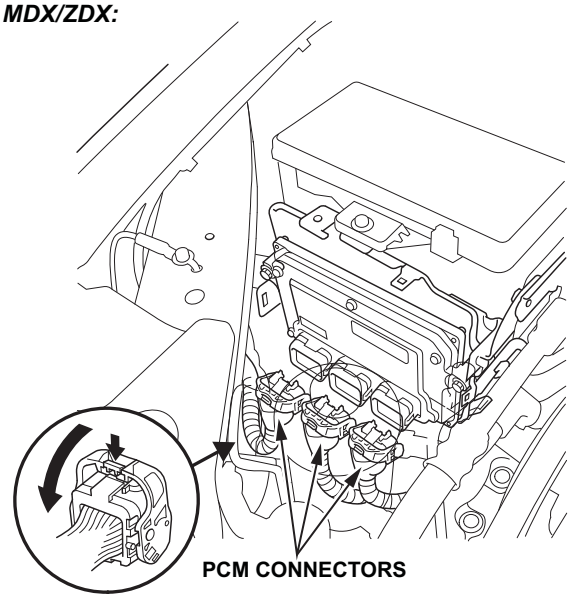

19. Remove the PCM cover.

***MDX/ZDX shown:***



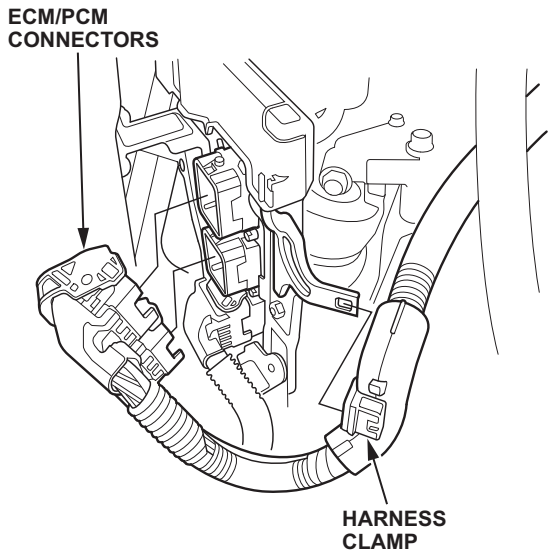
20. Disconnect the PCM connectors.

***MDX/ZDX:***



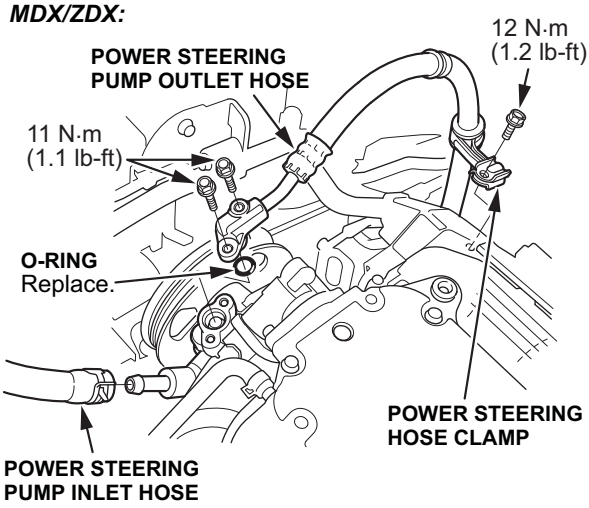

**TL:** Remove the harness clamp and disconnect the PCM connectors.

***TL:***



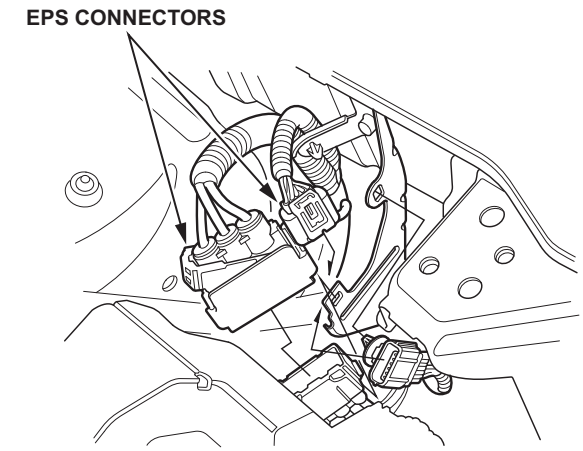

21. Disconnect the power steering pump inlet hose.

***MDX/ZDX:***



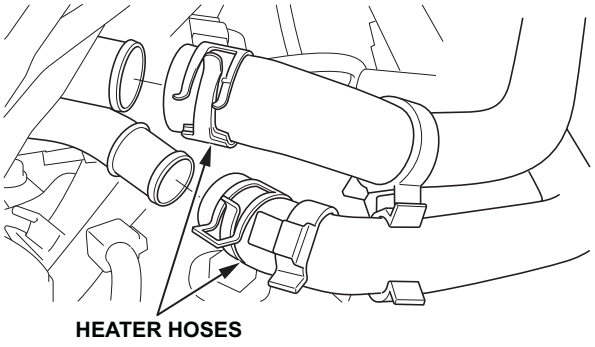

**TLonly:** Disconnect the EPS connectors.

***TL only:***



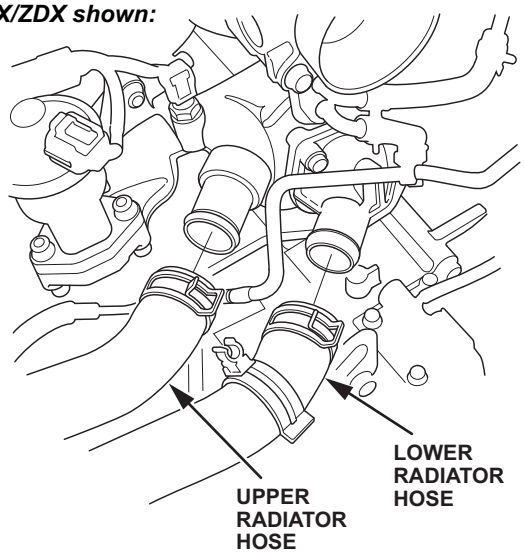

22. Disconnect the heater hoses.

***MDX/ZDX shown:***



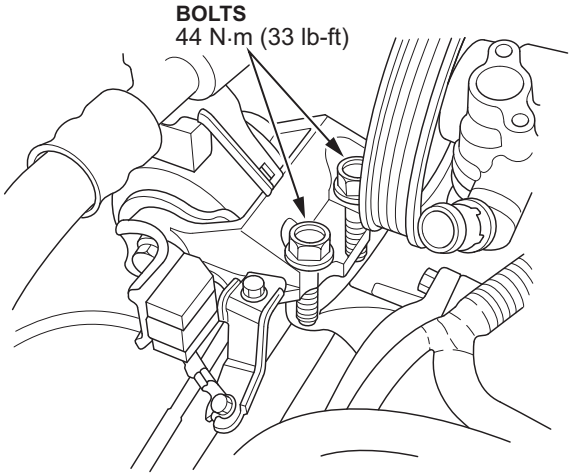
23. Disconnect the upper radiator hose and the lower radiator hose at the engine.

***MDX/ZDX shown:***

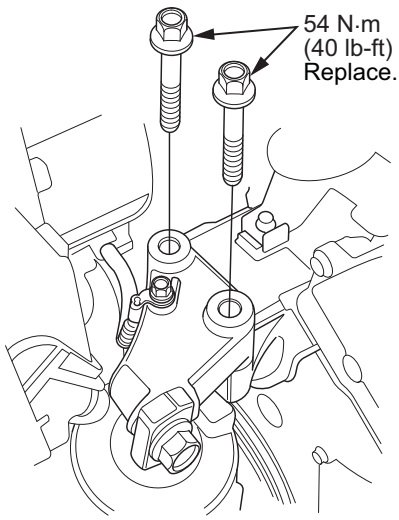



24. Remove the mounting bolts from the upper half of the side engine mount bracket.

***MDX/ZDX:***




***TL:***

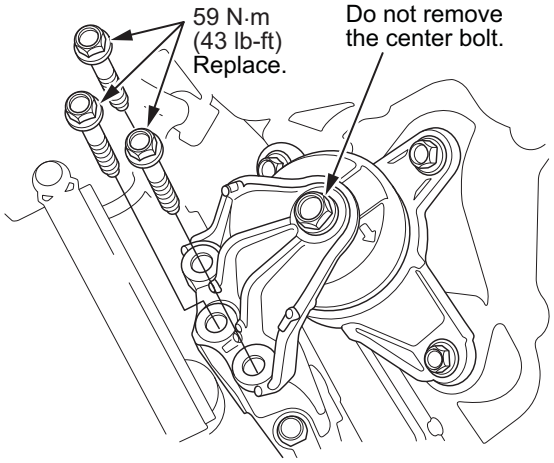



**TL only:** Remove the upper transmission mount bracket mounting bolts.

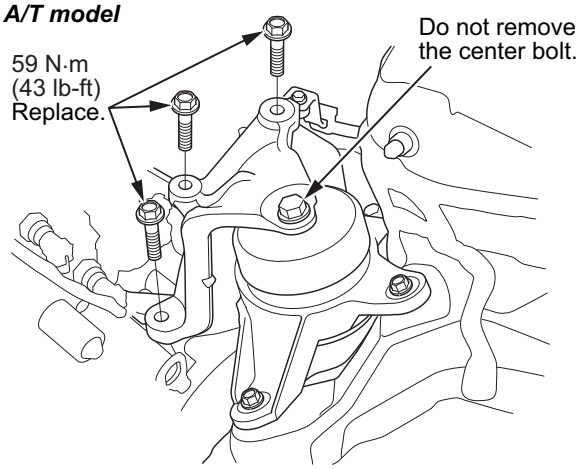
NOTE: Do not remove the center mount bolt from the upper transmission mount. If the bolt is removed, the upper transmission mount must be replaced as an assembly.

***TL only:***

***M/T model***



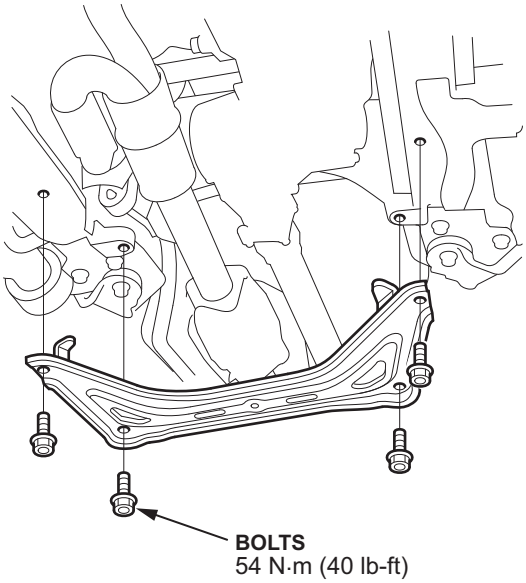

***A/T model***



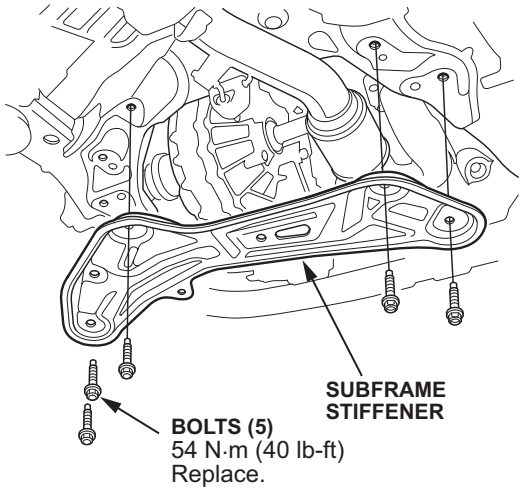

25. Make sure the engine/transmission is completely free of any vacuum hoses, fuel hoses, coolant hoses, and electrical connections.
26. Raise the vehicle on the lift.
27. Remove the front wheels.
28. Remove the splash shield and the front undercover.
29. Drain the engine oil.
30. Drain the ATF.

31. Remove the front subframe stiffener.

***MDX/ZDX:***

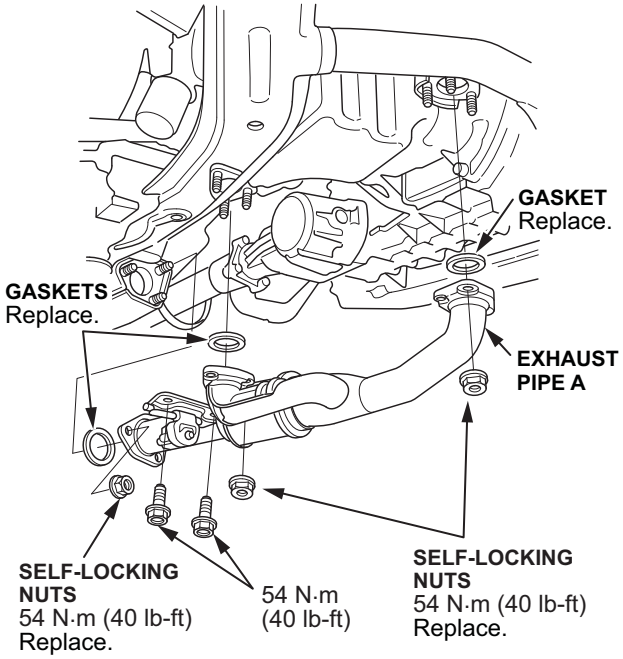



***TL:***




32. Remove exhaust pipe A.

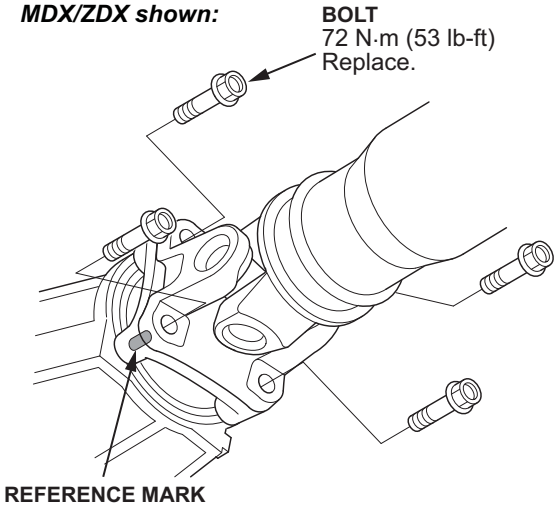
***MDX/ZDX shown:***




33. Remove the propeller shaft. Make a reference mark across the No.1 propeller shaft and transfer companion flange.

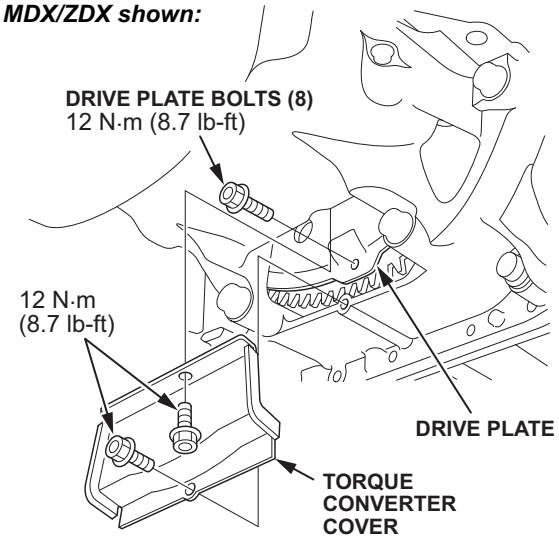
    NOTE: You will need reference marks to reinstall the propeller shaft.

***MDX/ZDX shown:***



34. Remove the torque converter cover from the transmission.

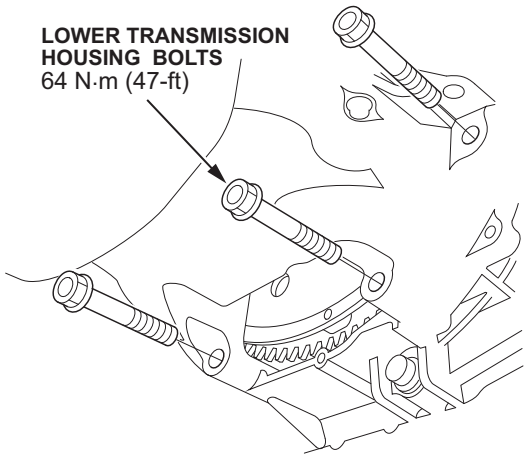
***MDX/ZDX shown:***




35. Remove the drive plate bolts from the torque converter.

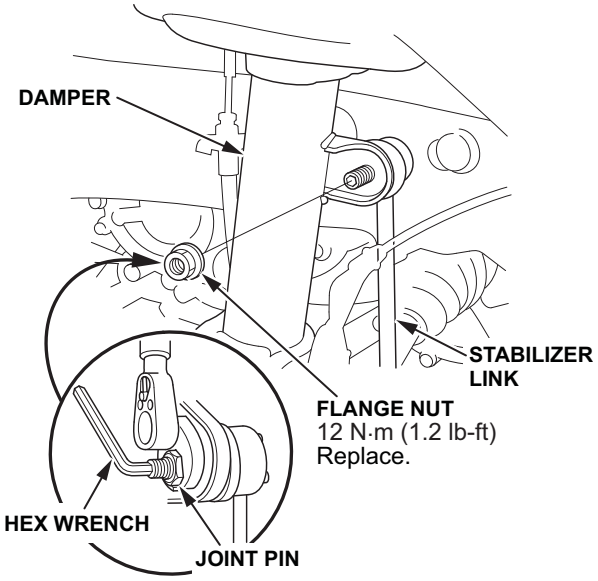
36. Remove the lower transmission housing bolts.

***MDX/ZDX shown:***



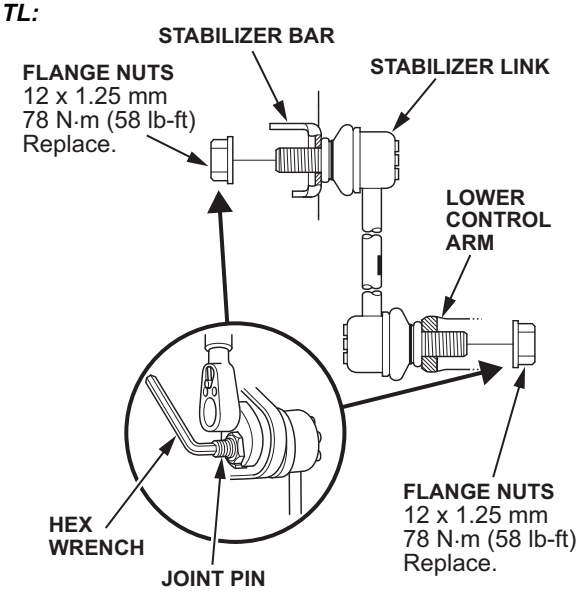

37. Separate the stabilizer links from the dampers.

***MDX/ZDX:***



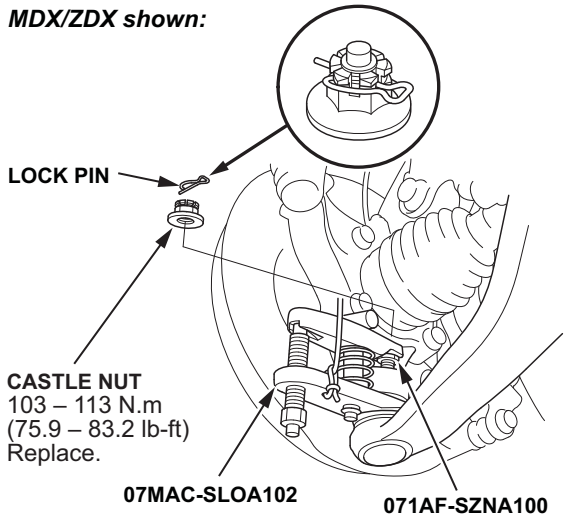

**TL**: Separate the stabilizer links from the lower control arms.

***TL:***



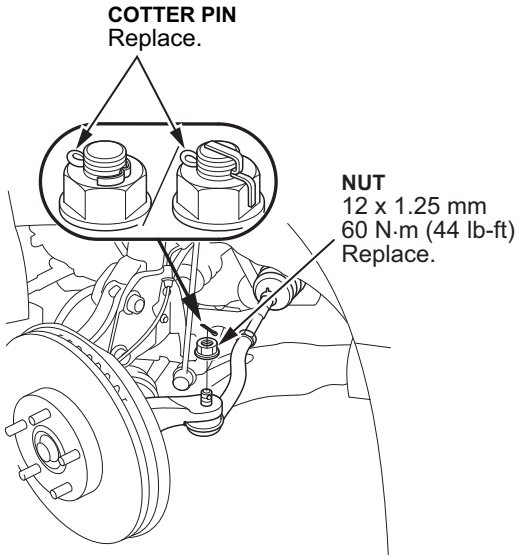
38. Separate the knuckles from the lower control arms.

***MDX/ZDX shown:***



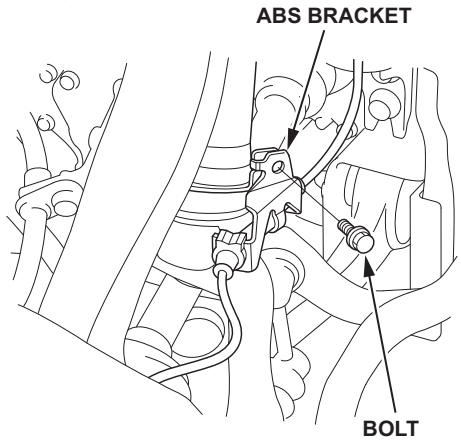

39. Separate the tie-rod end ball joints from the knuckles.

***MDX/ZDX shown:***



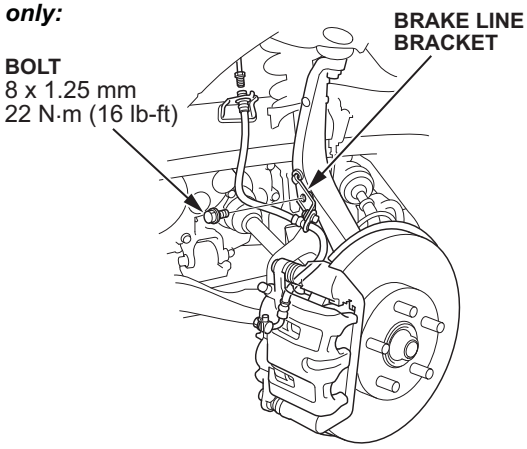

**TL only:** Remove the ABS bracket from the damper.

***TL only:***



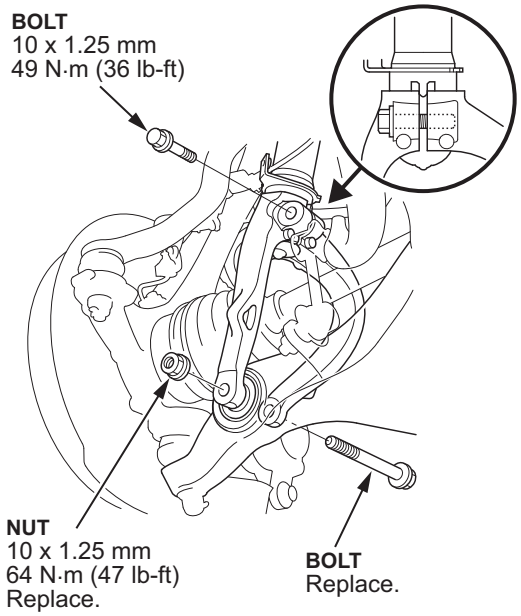

**TL only:** Remove the brake line bracket from the damper.

***TL only:***



**TL only:** Remove the damper fork.

***TL only:***

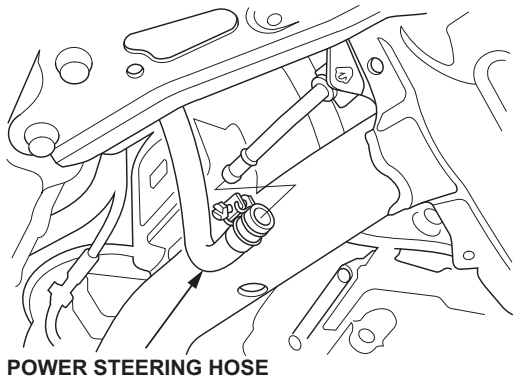



40. Remove the left driveshaft from the transmission and the right driveshaft from the intermediate shaft and hang them with straps from the body.

    NOTE: Coat all the precision-finished surfaces with new oil. Tie plastic bags over the driveshaft ends.

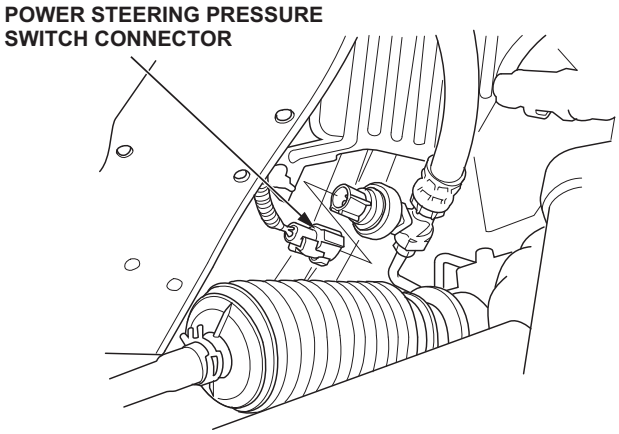
41. Disconnect the power steering hose, then plug the line and hose.

***MDX/ZDX only:***



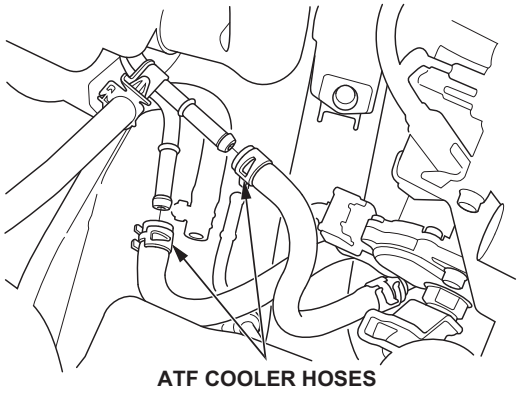

42. Disconnect the power steering pressure switch connector.

***MDX/ZDX only:***




43. Disconnect the ATF cooler hoses from the radiator cooler, then plug the ATF cooler hoses and lines.

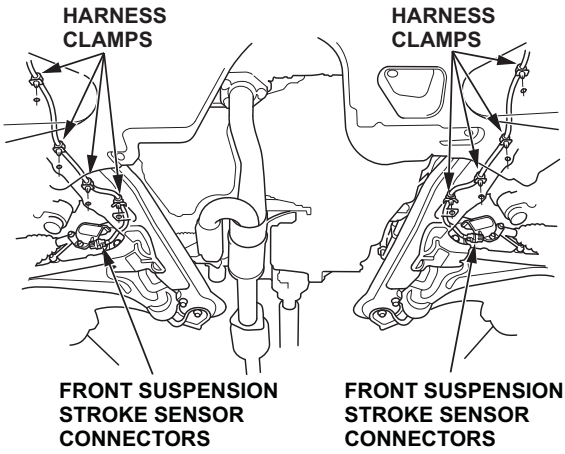
***MDX/ZDX shown:***




44. Remove the A/C high pressure line from the compressor and cover the lines with tape.

45. *With active damper system/with headlight leveling system left side*: Disconnect the front suspension stroke sensor connectors and remove the harness clamps on both sides.

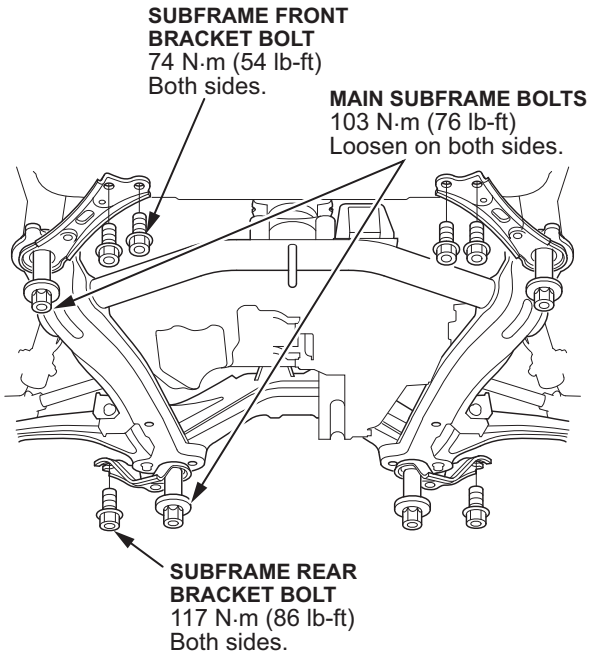
***MDX/ZDX only:***



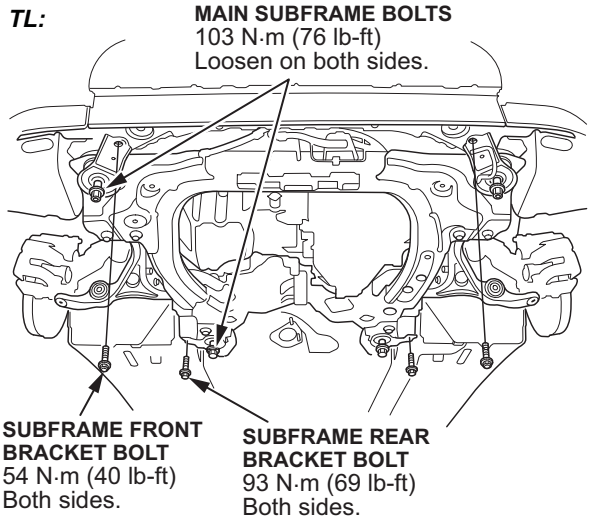

46. Check that the engine/transmission and subframe are completely free of any hardware, electrical connections, and components.

47. Prepare the subframe assembly for removal.
    - Remove the four 12 mm X 1.25 mm bolts for both the subframe front brackets.
    - Remove and the two 12 mm X 1.25 mm bolts for both the subframe rear brackets.
    - Loosen but **do not** remove the four 14 mm X 1.5 mm main subframe bolts.

***MDX/ZDX:***

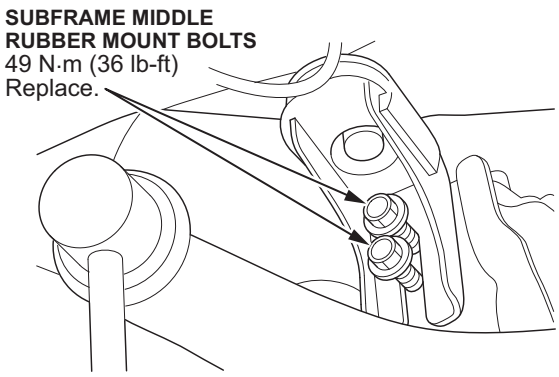



***TL:***



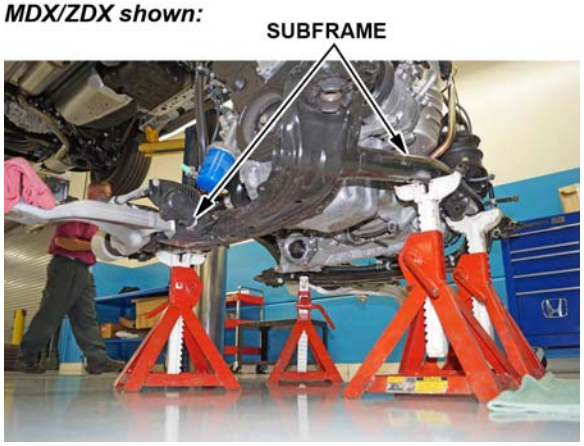
**TL only:** Loosen and remove the subframe middle rubber mount bolts.

***TL only:***




48. Set up four equal-sized jack stands (or equivalent equipment) under the vehicle's subframe immediate area.
49. Lower the vehicle until it is just above the jack stands.
50. Position the jack stands (or equivalent equipment) so that they are equally spaced in the front and the back of the subframe.
51. Lower the vehicle until the subframe sits on the jackstands.

***MDX/ZDX shown:***




52. Remove the four 14 mm X 1.5 mm main subframe bolts.
53. Make sure the engine/transmission and subframe are completely free of any hardware, electrical connections, and components.
54. Slowly raise the vehicle. Make sure there are no components catching on the body.

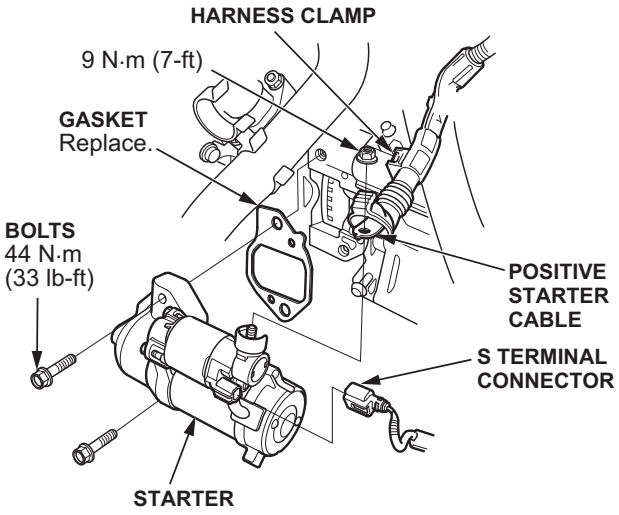
    NOTE: Pay close attention to the propeller shaft; it may get snagged on the sway bar.

***MDX/ZDX shown:***


55. Install a rubber hose on the drain port located at rear of the engine block and drain the remaining coolant.
56. Remove both cylinder heads.

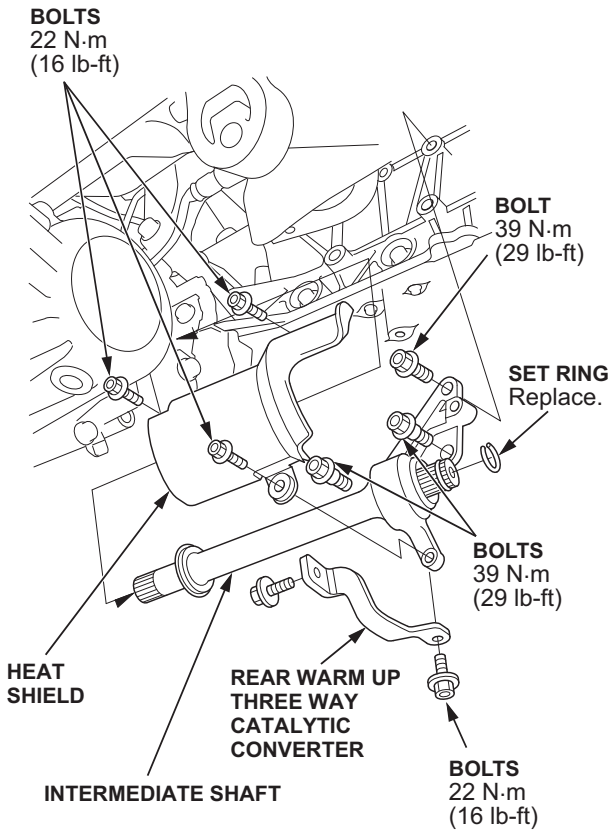
    NOTE: You can remove each head as an assembly.
57. Remove the starter.

***MDX/ZDX shown:***



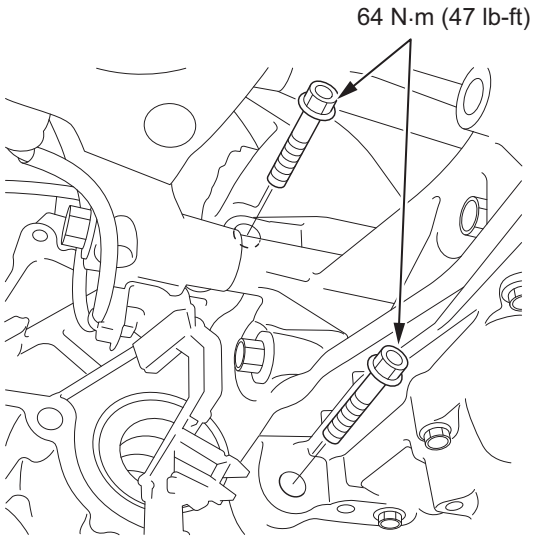
58. Remove the intermediate shaft.

***MDX/ZDX shown:***




59. Remove the rear transmission housing bolts.

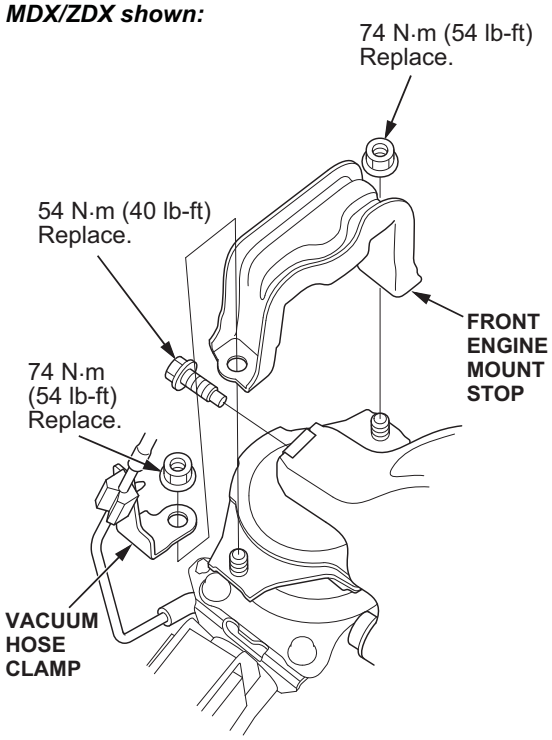
***MDX/ZDX shown:***




60. Support the transmission using a jack. Make sure to use either a piece of wood or rubber to avoid damaging the transmission housing.

61. Remove the engine front and rear mount bolts.

***MDX/ZDX shown:***



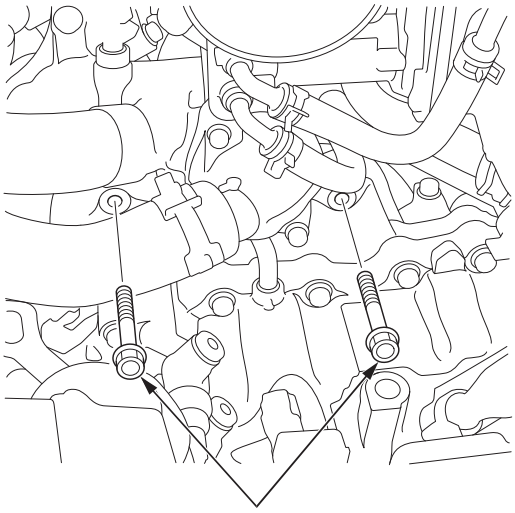

62. Use a cherry picker and straps to support the engine block for separation.

    NOTE: There are several different ways to support the block. Use the one that best works for you.

***MDX/ZDX shown:***

63. Remove the upper transmission housing mounting bolts.

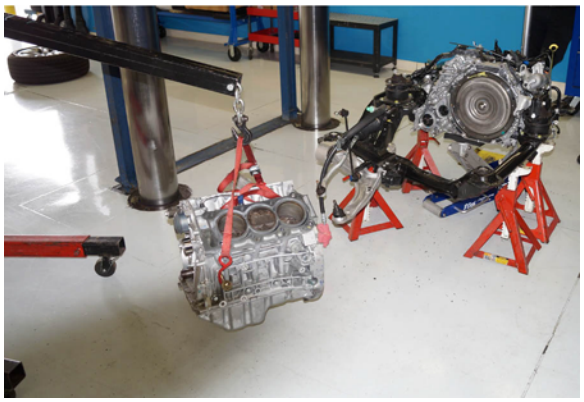
***MDX/ZDX shown:***



64 N·m (47 lb-ft)

64. Lift the engine block from the subframe assembly, being careful not to shift the transmission off the jack.

***MDX/ZDX shown:***



65. Transfer any remaining components from the old engine block to the new engine block including:
    - Front and rear engine mount brackets
    - Timing belt idler pulleys
    - Torque converter flex plate
66. Use a cherry picker and straps to support the new engine block to reattach it to the transmission.
67. Reattach the engine block and the transmission in reverse order of removal.
68. Reinstall the front mount bolt and torque it to **54 N•m (40 lb-ft).**
69. Reinstall the the rear mount bolt and torque it to **54 N•m (40 lb-ft)**.
70. Reinstall the intermediate shaft.
71. Reinstall the cylinder heads and all the associated components.
72. Slowly lower the vehicle until it is right above the engine/transmission assembly.

    NOTE: Make sure there are no components sticking out that may get caught on the body when the vehicle is being lowered.
73. Position the subframe to reinstall it to the body.
74. Insert the four main subframe bolts and the bolts for the subrfame brackets. Tighten them until they are snug.

    NOTE: Do not torque the bolts because subframe adjustment is necessary once the vehicle has been lifted.
75. Raise the vehicle fully.
76. Adjust the subframe using the appropriate tool and torque all bolts.
77. Reinstall remaining components in the reverse order of removal.
78. Refill all fluids and do an alignment.