

2007 Honda Element EX

2007-08 ENGINE Engine Assembly - Element

2007-08 ENGINE

Engine Assembly - Element

SPECIAL TOOLS

Ref. No.	Tool Number	Description	Qty
①	07AAK-SNAA120	Universal Eyelet	1



①

Fig. 1: Identifying Special Tools

ENGINE REMOVAL

Special Tools Required

- Universal eyelet 07AAK-SNAA120
- Engine hanger/adaptor VSB02C000015
- Engine support hanger, A & Reds AAR-T-12566
- Subframe adapter VSB02C000016

These special tools are available through the Honda Tool and Equipment Program, 1-888-424-6857.

NOTE:

- **Use fender covers to avoid damaging painted surfaces.**
- **To avoid damaging the wires and terminals, unplug the wiring connectors carefully while holding the connector portion.**
- **Mark all wiring and hoses to avoid misconnection. Also, be sure that they do not contact other wiring or hoses, or interfere with other parts.**

1. Remove the hood.
2. Make sure you have the anti-theft code for the audio system.
3. Relieve the fuel pressure (see **FUEL PRESSURE RELIEVING**).
4. Disconnect the negative cable from the battery first, then disconnect the positive cable.
5. Disconnect the mass air flow (MAF) sensor/intake air temperature (IAT) sensor connector (A).

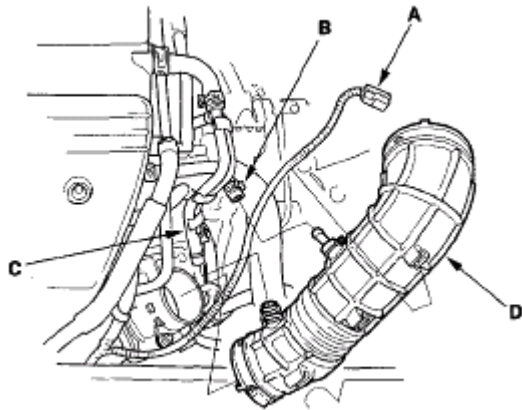


Fig. 2: Identifying Sensor/Intake Air Temperature (IAT) Sensor Connector

6. Disconnect the vacuum hose (B) and breather pipe (C), then remove the intake air duct (D).
7. Remove the battery.
8. Remove the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
9. Remove the harness clamps (A).

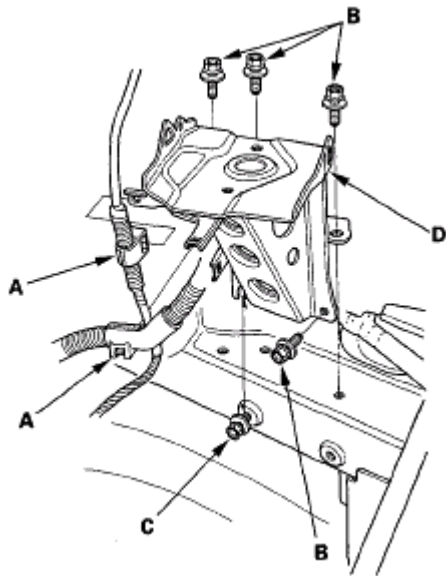


Fig. 3: Identifying Harness Clamps, Vacuum Hose And Breather Pipe

10. Remove the four bolts (B), and loosen the bolt (C) securing the battery base, then remove the battery base (D).
11. Remove the positive (+) terminals (A) and harness clamps (B) from the under-hood fuse/relay box.

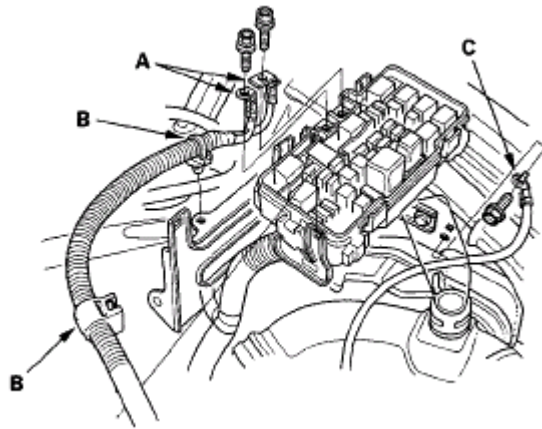


Fig. 4: Identifying Under-Hood Fuse/Relay Box And And Harness Clamps With Bolts

12. Remove the under-hood fuse/relay box from the bracket, then remove the ground cable (C).
13. Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (B) (see **FUEL LINE/QUICK-CONNECT FITTING REMOVAL**).

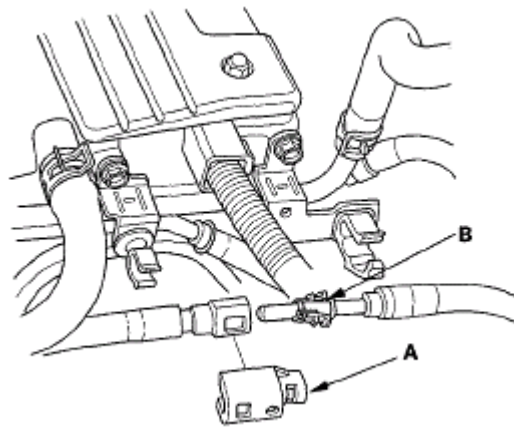


Fig. 5: Identifying Quick-Connect Fitting Cover And Fuel Feed Hose

14. Remove the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).

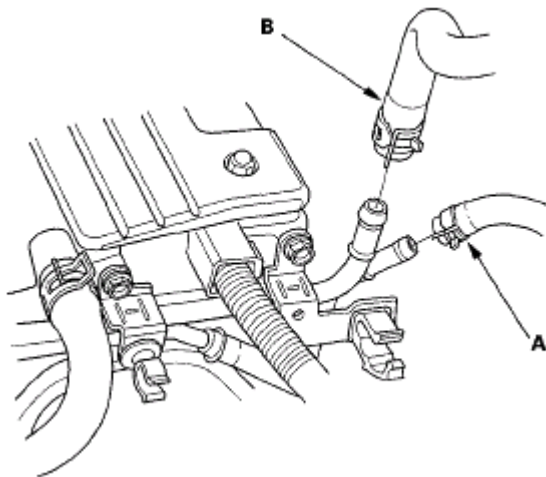


Fig. 6: Identifying Evaporative Emission (EVAP) Canister Hose And Brake Booster Vacuum Hose

15. Disconnect the engine control module (ECM)/ powertrain control module (PCM) connectors (A) and the ECM/PGM wire harness connector (B), then remove the bolt (C).

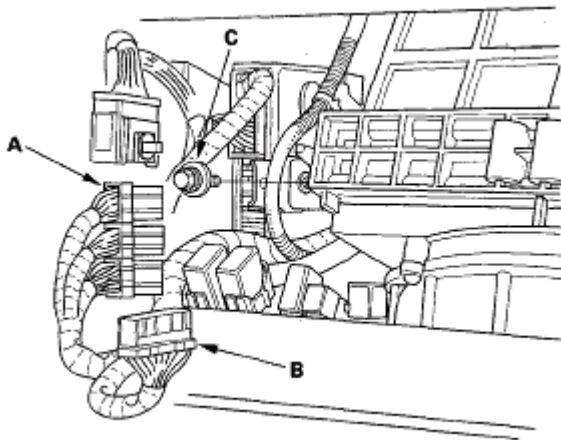


Fig. 7: Identifying Engine Control Module (ECM)/ Powertrain Control Module (PCM) Connectors

16. Remove the harness clamps (A), accelerator pedal position (APP) sensor connector (B) and grommet (C), then pull the engine wire harness through the bulkhead.

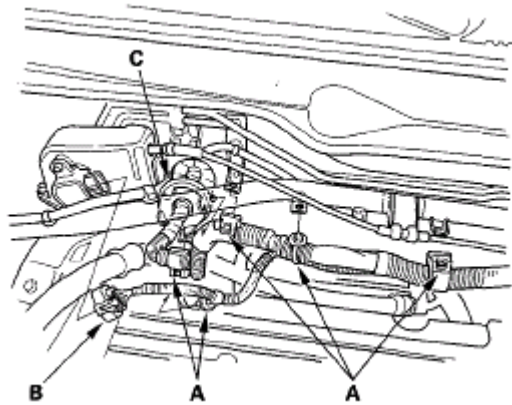


Fig. 8: Identifying Harness Clamps, Accelerator Pedal Position (APP) Sensor Connector And Grommet

17. M/T model: Remove the clutch slave cylinder and clutch line bracket mounting bolt (see step 12 in **TRANSMISSION REMOVAL**).
18. M/T model: Remove the shift cables. Do not bend the shift cable excessively (see step 11 in **TRANSMISSION REMOVAL**).
19. Remove the drive belt (see **DRIVE BELT INSPECTION**).
20. Remove the receiver line from the clamps (A).

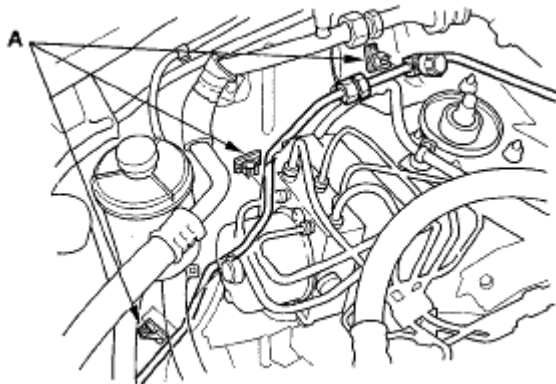


Fig. 9: Identifying Receiver Line From Clamps

21. Remove the power steering (P/S) pump without disconnecting the P/S hoses from the pump.

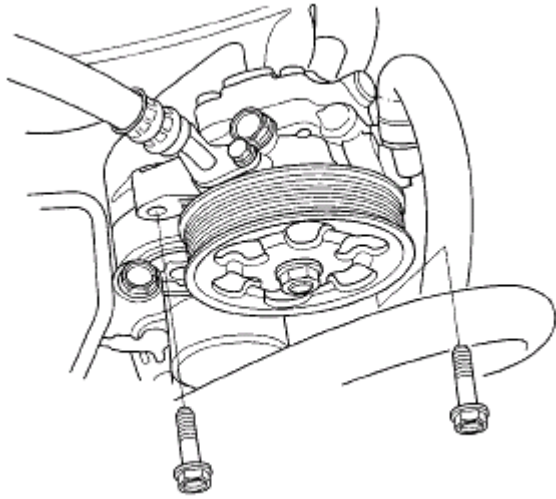


Fig. 10: Identifying Power Steering (P/S) Pump With Bolt

22. Remove the P/S hose from the bracket on the cylinder head cover.
23. Remove the radiator cap.
24. Raise the vehicle on the lift to full height.
25. Remove the front wheels.
26. Remove the splash shield.

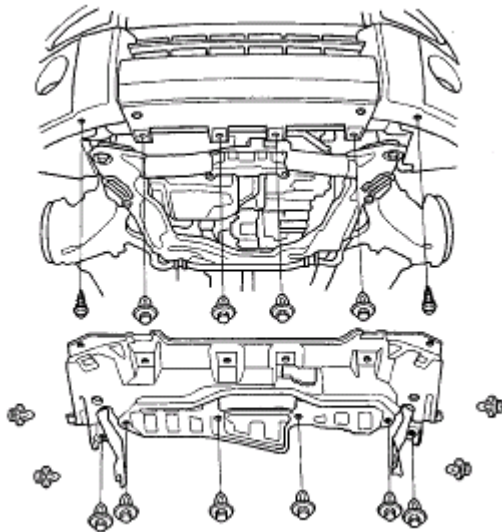


Fig. 11: Identifying P/S Hose From Bracket On Cylinder Head Cover

27. Loosen the drain plug in the radiator, and drain the engine coolant (see **COOLANT CHECK**).
28. Drain the transmission fluid:
 - Manual transmission (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**)
 - Automatic transmission (see **ATF REPLACEMENT**)

29. Drain the engine oil (see **OIL PRESSURE TEST**).
30. Disconnect the air fuel ratio (A/F) sensor connector (A) and the secondary heated oxygen sensor (secondary HO2S) connector (B), then remove the three way catalytic converter (TWO assembly (C)).

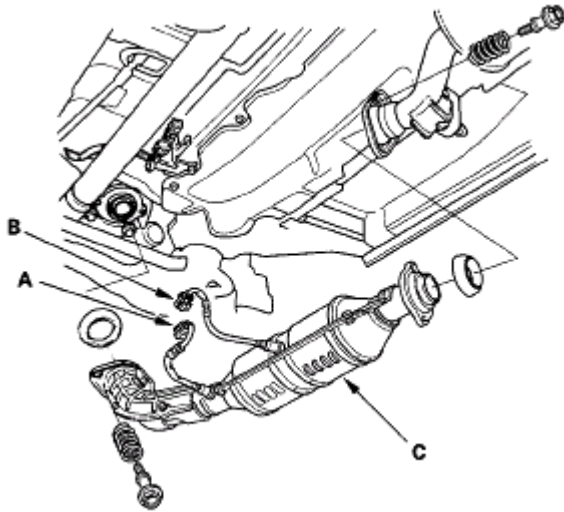


Fig. 12: Identifying Air Fuel Ratio (A/F) Sensor Connector And Secondary Heated Oxygen Sensor Connector

31. Disconnect the stabilizer links (see **STABILIZER LINK REMOVAL/INSTALLATION**).
32. Disconnect the suspension knuckle ball joints (see **LOWER ARM REPLACEMENT**).
33. Remove the driveshafts (see **DRIVESHAFT INSPECTION**). Coat all precision-finished surfaces with clean engine oil. Tie plastic bags over the driveshaft ends.
34. A/T model: Remove the shift cable. Do not bend the shift cable excessively (see step 24 in **TRANSFER ASSEMBLY REMOVAL**).
35. 4WD model: Remove the propeller shaft from the transfer assembly:
 - Manual transmission (see step 3 in **TRANSFER ASSEMBLY REMOVAL**)
 - Automatic transmission (see step 34 in **TRANSFER ASSEMBLY REMOVAL**)
36. Lower the vehicle on the lift.
37. A/T model: Remove the automatic transmission fluid (ATF) cooler hoses (A) and ATF filter mounting bolt (B).

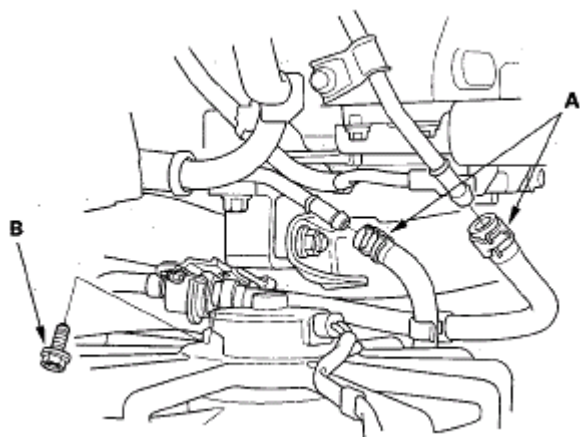


Fig. 13: Identifying Automatic Transmission Fluid (ATF) Cooler Hoses And ATF Filter Mounting Bolt

38. Remove the upper radiator hose (A) and heater hoses (B).

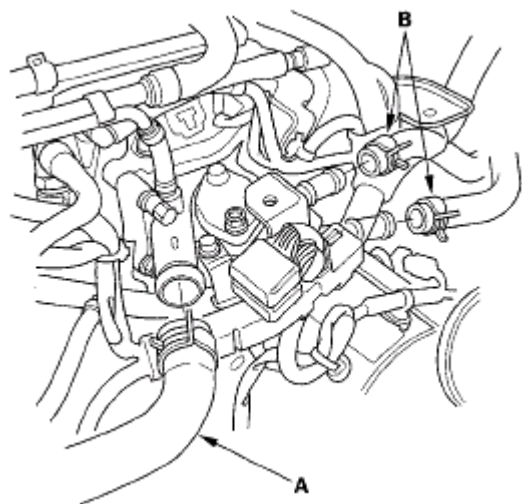


Fig. 14: Identifying Upper Radiator Hose And Heater Hoses

39. Clean any dirt off the quick connector (A), thermostat cover, and lower radiator hose.

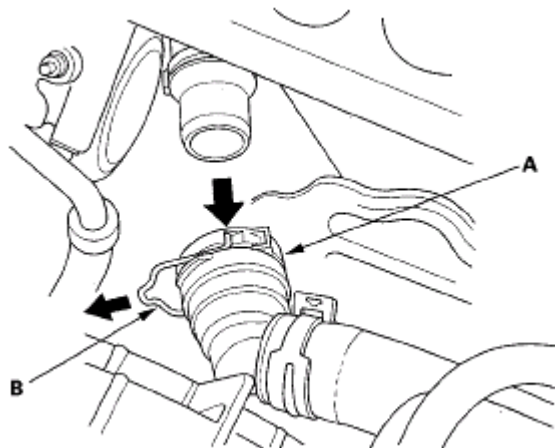


Fig. 15: Identifying Quick Connector, Thermostat Cover, And Lower Radiator Hose

40. Pull out the lock (B) by hand, then wiggle the quick connector loose, and remove it from the thermostat cover. Do not use any tools to remove the quick connector.
41. Remove the purge joint pipe (A), then attach the engine hanger/adaptor (VSB02C000015) to the threaded hole in the cylinder head.

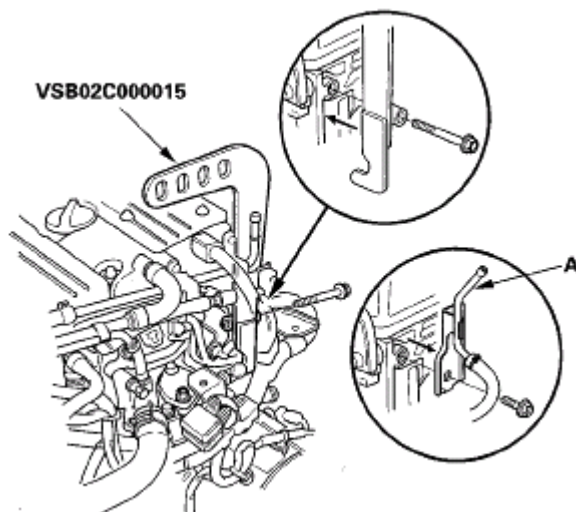


Fig. 16: Attaching Engine Hanger/Adapter

42. Install the front leg assembly (A), hook (B), and wing nut (C) onto the engine support hanger (AAR-T-12566). Carefully position the engine support hanger on the vehicle, and attach the hook to the slotted hole in the engine hanger/adaptor. Torque the wing nut by hand to lift and support the engine/transmission.

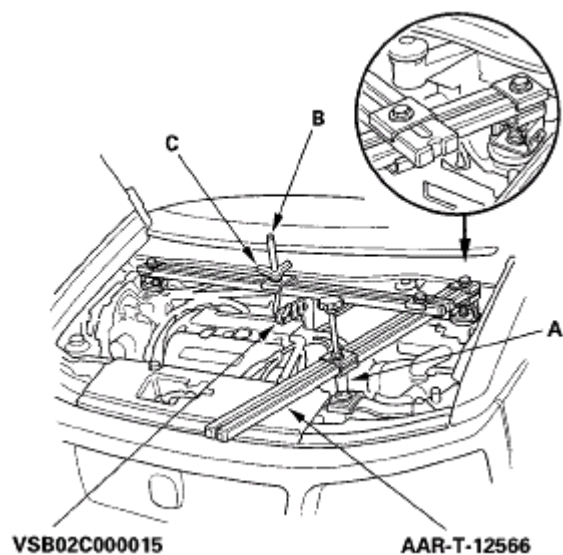


Fig. 17: Identifying Front Leg Assembly, Hook, And Wing Nut Onto Engine Support Hanger

- 43. Raise the vehicle on the lift to full height.
- 44. Remove the rear mount mounting bolts.

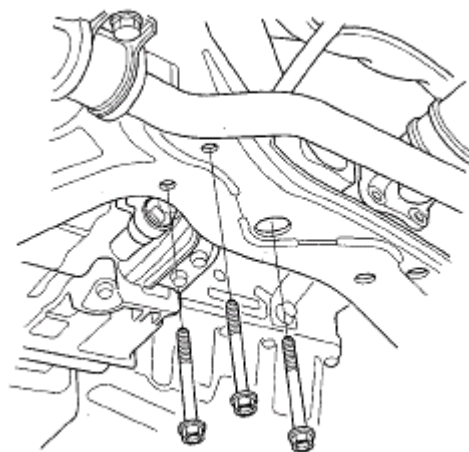


Fig. 18: Identifying Rear Mount Mounting Bolts

- 45. Remove the front mount mounting bolt.

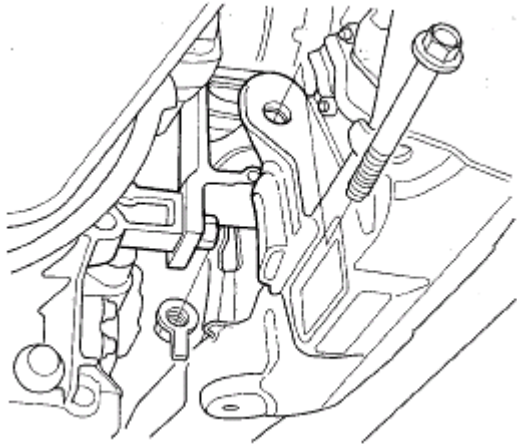


Fig. 19: Identifying Front Mount Mounting Bolt

46. Make the appropriate reference lines at positions (A) and (B) that line up with the center of each subframe mounting bolt (C).

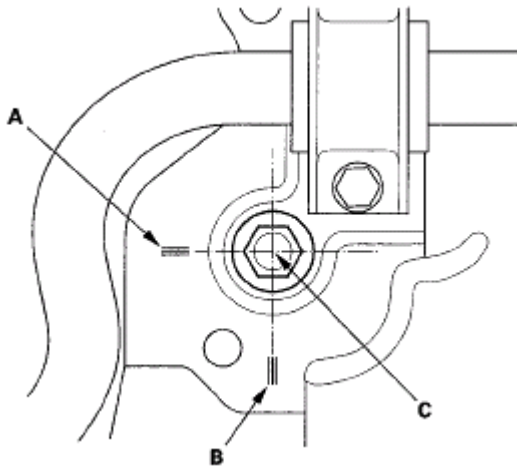


Fig. 20: Identifying Subframe Mounting Bolt

47. Attach the subframe adapter (VSB02C000016) to the subframe by hanging the belt (A) over the front of the subframe (B), then secure the belt with its stop (C).

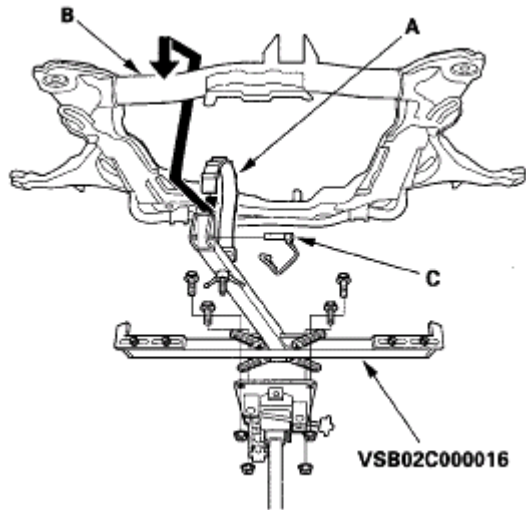


Fig. 21: Attaching Subframe Adapter To Subframe By Hanging Belt

48. Raise the jack and line up the slots in the arms with the bolt holes on the corner of the jack base, then attach them securely with the bolts.
49. Remove the four subframe mounting bolts, then lower the subframe.

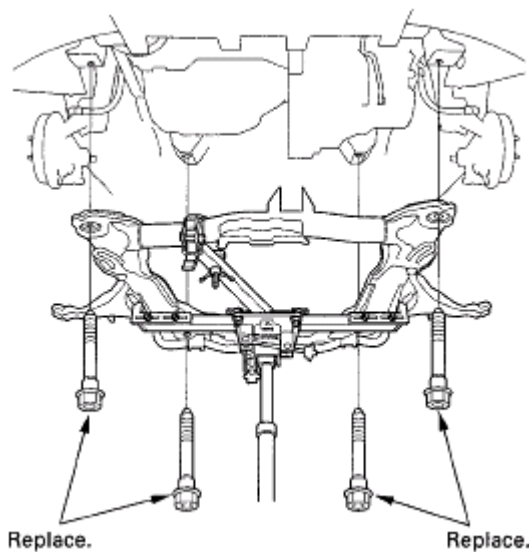


Fig. 22: Identifying Subframe Mounting Bolts

50. Remove the A/C compressor without disconnecting the A/C hoses.

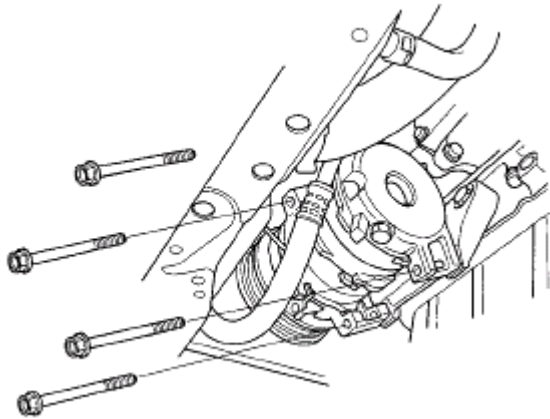


Fig. 23: Identifying A/C Hoses And A/C Compressor Bolt

51. Lower the vehicle on the lift.
52. Install the universal eyelet (07AAK-SNAA120) (A) to the side engine mount bracket with 5 mm (0.2 in.) spacer (B).

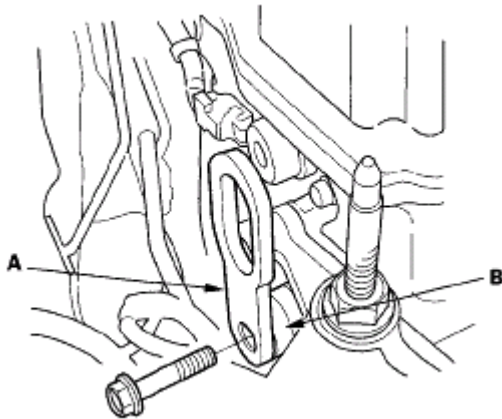


Fig. 24: Identifying Side Engine Mount Bracket With Spacer

53. A/T model: Remove the engine wire harness bracket mount bolts (A), then harness clamps (B).

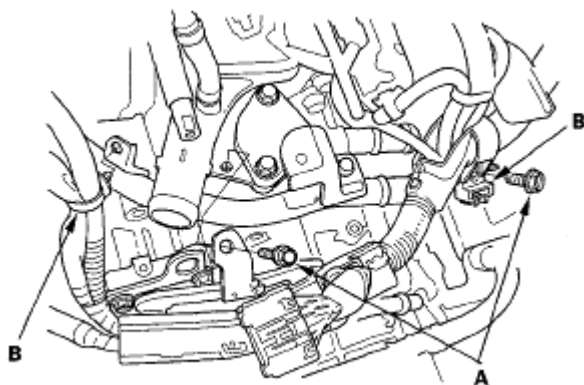


Fig. 25: Identifying Engine Wire Harness Bracket Mount Bolts And Harness Clamps

54. Attach the chain hoist to the engine/transmission as shown.

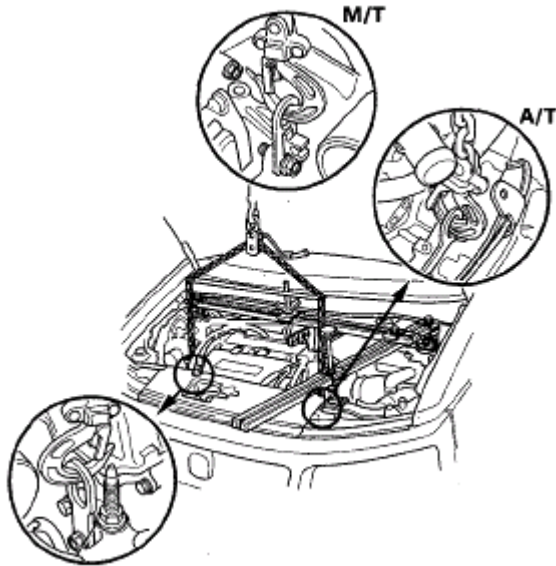


Fig. 26: Attaching Chain Hoist To Engine/Transmission

- 55. Remove the engine support hanger from the vehicle.
- 56. M/T model: Remove the transmission mount bracket support bolt and nuts.

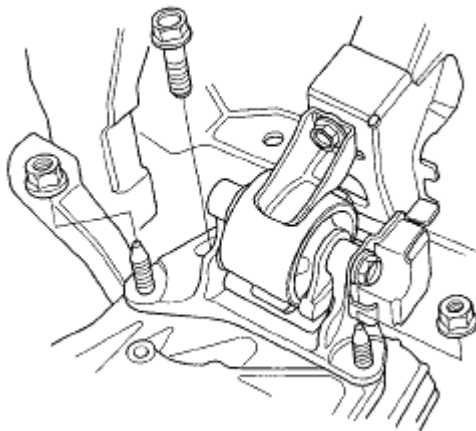


Fig. 27: Identifying Transmission Mount Bracket Support Bolt And Nuts

57. A/T model: Remove the transmission mount bracket support bolt and nuts.

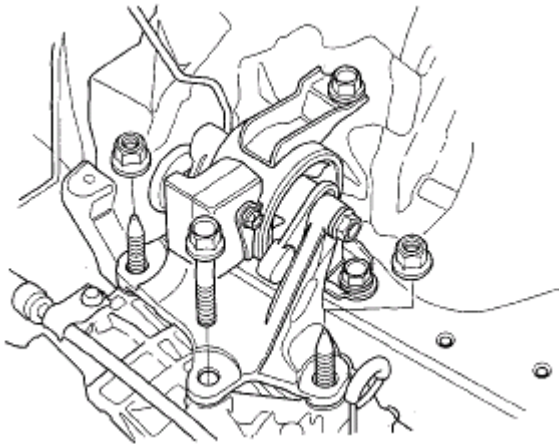


Fig. 28: Identifying Transmission Mount Bracket Support Bolt And Nuts

58. Remove the upper engine mount bracket bolt and nut.

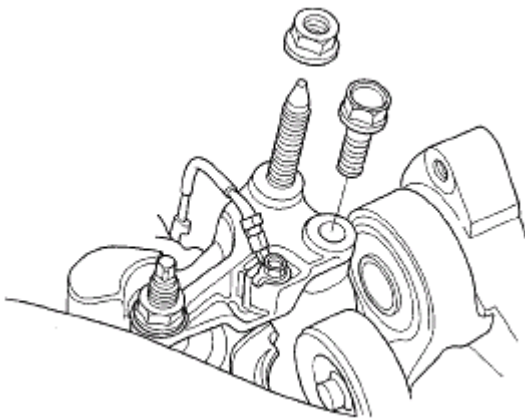


Fig. 29: Identifying Upper Engine Mount Bracket Bolt And Nut

59. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
60. Slowly lower the engine about 150 mm (6 in.). Check once again that all hoses and wires are disconnected from the engine/transmission.
61. Lower the engine/transmission all the way. Remove the chain hoist, universal eyelet and engine hanger/adaptor.

NOTE: Carefully position the A/C compressor.

62. Raise the vehicle all the way, then remove the engine/transmission from under the vehicle.

ENGINE INSTALLATION

Special Tools Required

2007 Honda Element EX

2007-08 ENGINE Engine Assembly - Element

- Universal eyelet 07AAK-SNAA120
- Engine hanger/adaptor VSB02C000015
- Engine support hanger, A & Reds AAR-T-12566
- Subframe adapter VSB02C000016

These special tools are available through the Honda Tool and Equipment Program, 1-888-424-6857.

1. Install the accessory brackets, and torque their bolts to the specified torque.

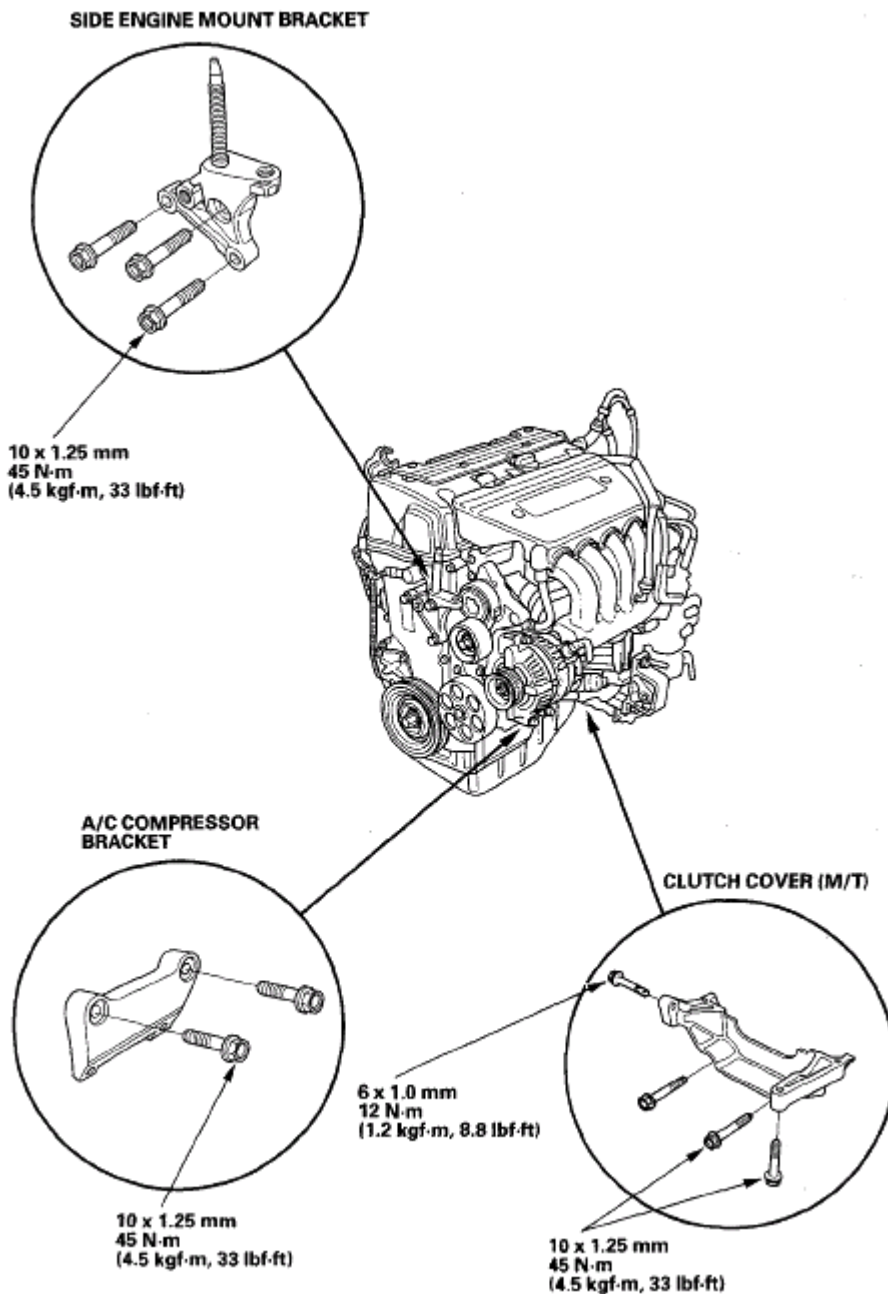
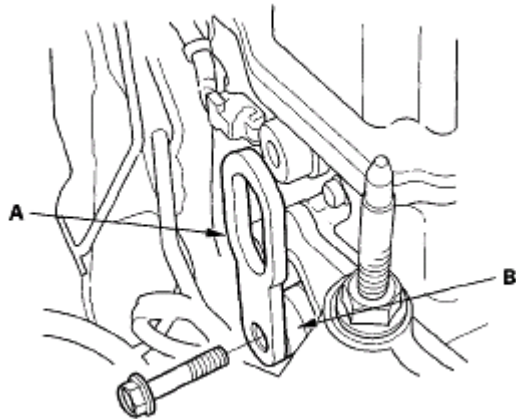


Fig. 30: Identifying Side Engine Mount Bracket Bolts

2. Raise the vehicle on a lift.
3. Install the universal eyelet (07AAK-SNAA120) (A) to the side engine mount bracket with 5 mm (0.2 in.) spacer (B).

**Fig. 31: Identifying Side Engine Mount Bracket And Spacer**

4. Position the engine/transmission under the vehicle. Be sure that they are properly aligned. Carefully lower the vehicle until the engine/transmission are properly positioned in the engine compartment. Make sure the vehicle is not resting on any part of the engine/transmission. Support the engine/transmission with a chain hoist (A) and carefully raise the engine/transmission into place.

NOTE: Reinstall the mounting bolts/support nuts in the sequence given in the following steps. Failure to follow this sequence may cause excessive noise and vibration, and reduce engine mount life.

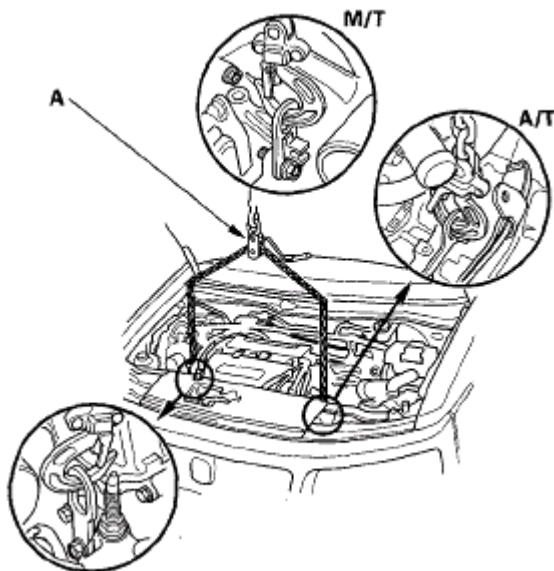


Fig. 32: Supporting Engine/Transmission With Chain Hoist

5. M/T model: Torque the transmission mount bracket support bolt and nuts.

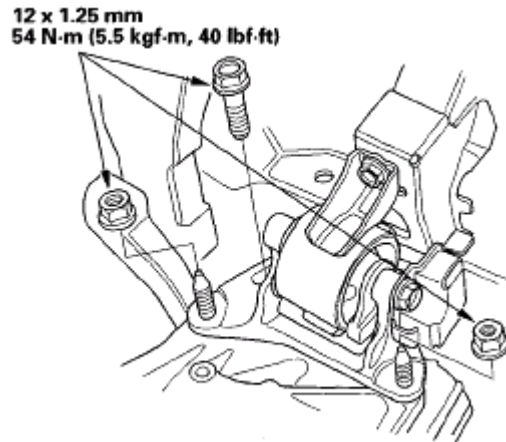


Fig. 33: Identifying Transmission Mount Bracket Support Bolt And Nuts - M/T Model

6. A/T model: Torque the transmission mount bracket support bolt and nuts.

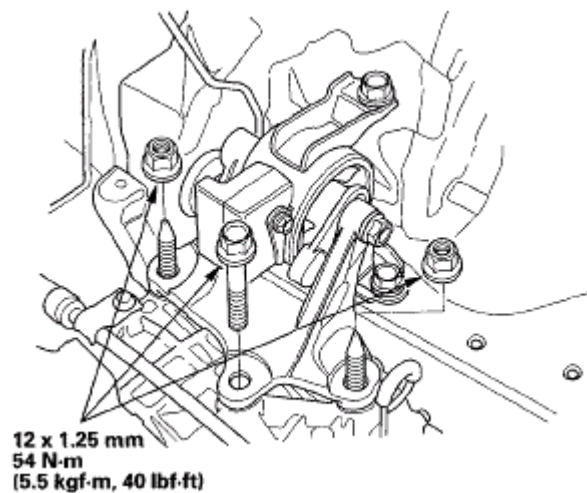


Fig. 34: Identifying Transmission Mount Bracket Support Bolt And Nuts - A/T Model

7. Torque the upper engine mount bracket bolt and nut.

2007 Honda Element EX

2007-08 ENGINE Engine Assembly - Element

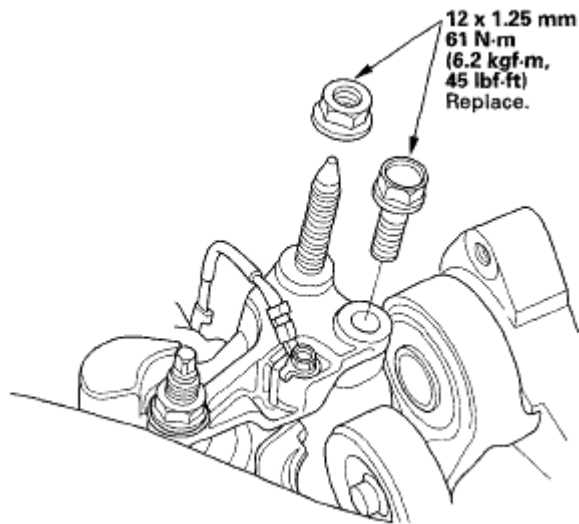


Fig. 35: Identifying Upper Engine Mount Bracket Bolt And Nut

8. Remove the purge joint pipe (A), then attach the engine hanger/adapter (VSB02C000015) to the threaded hole in the cylinder head.

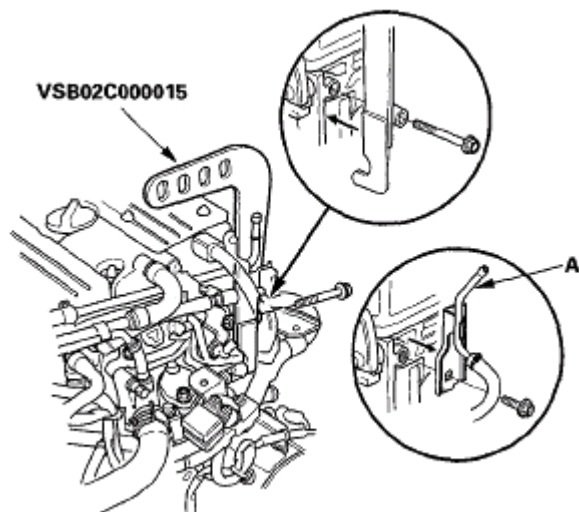


Fig. 36: Attaching Engine Hanger/Adapter

9. Install the front leg assembly (A), hook (B), and wing nut (C) onto the engine support hanger (AAR-T-12566). Carefully position the engine support hanger on the vehicle, and attach the hook to the slotted hole in the engine hanger/adapter. Torque the wing nut by hand to lift and support the engine/transmission.

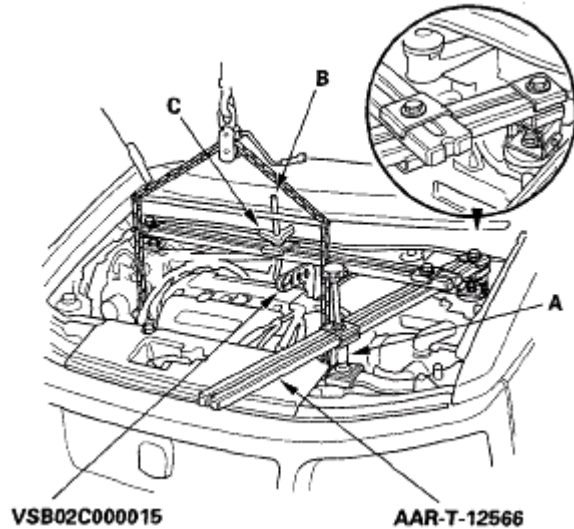


Fig. 37: Identifying Front Leg Assembly, Hook, And Wing Nut

10. Remove the chain hoist and universal eyelet, then raise the vehicle on the lift to full height.
11. Install the A/C compressor.

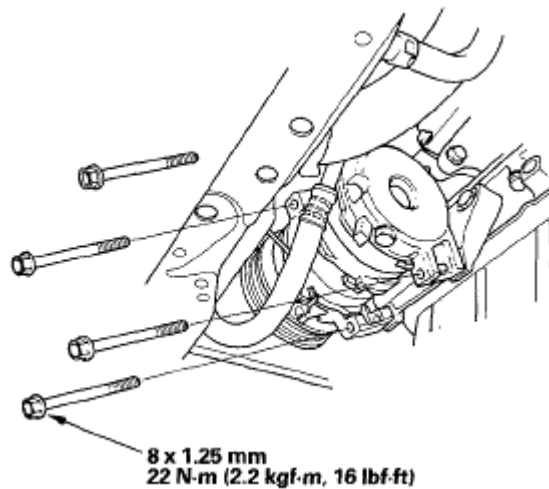


Fig. 38: Identifying A/C Compressor And Bolts

12. Attach the subframe adapter (VSB02C000016) to the subframe by hanging the belt (A) over the front of the subframe (B), then secure the belt with its stop (C). Raise the subframe up to the body with a jack.

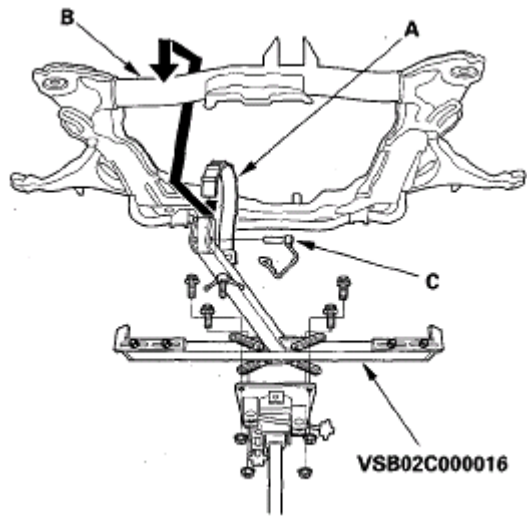


Fig. 39: Attaching Subframe Adapter To Subframe By Hanging Belt

13. Loosely install the new subframe mounting bolts (four). Remove the jack and the subframe adapter.
14. Align the reference marks (A) with the center of the subframe mounting bolts (B), then torque the subframe mounting bolts (four) to the specified torque.

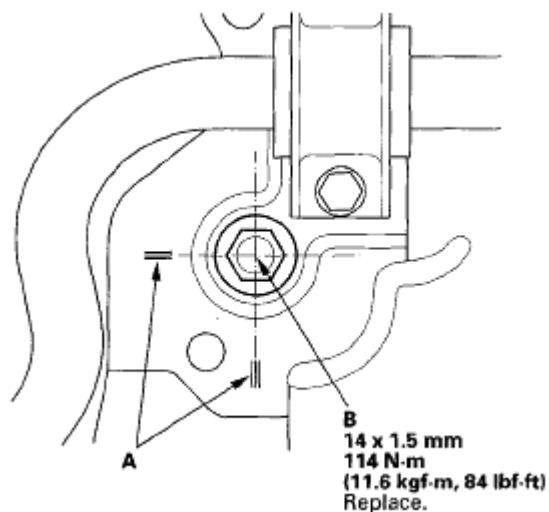


Fig. 40: Aligning Reference Marks With Center Of Subframe Mounting Bolts (With Torque Specifications)

15. Torque the front mount mounting bolt.

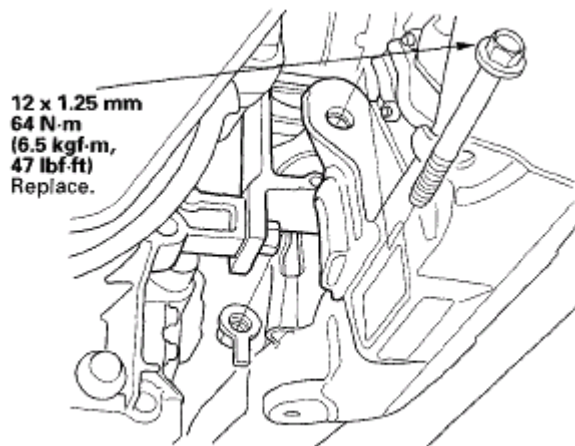


Fig. 41: Identifying Front Mount Mounting Bolt (With Torque Specifications)

16. Torque the rear mount mounting bolts.

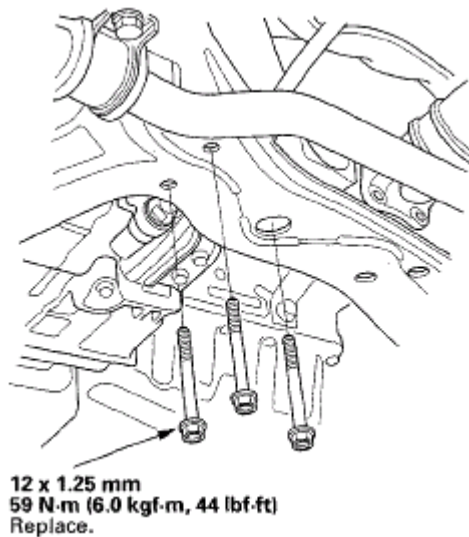


Fig. 42: Identifying Rear Mount Mounting Bolts (With Torque Specifications)

17. 4WD model: Install the propeller shaft on the transfer assembly:
 - Manual transmission (see step 3 in **TRANSFER ASSEMBLY INSTALLATION**)
 - Automatic transmission (see step 18 in **TRANSFER ASSEMBLY INSTALLATION**)
18. A/T model: Install the shift cable (see step 25 in **TRANSMISSION INSTALLATION**).
19. Install a new set ring on the end of the left driveshaft and the intermediate shaft then install the driveshafts. Make sure the ring "clicks" into place on the differential and the right driveshaft.
20. Connect the suspension knuckle ball joints (see **LOWER ARM REPLACEMENT**).
21. Connect the stabilizer links (see **STABILIZER LINK REMOVAL/INSTALLATION**).
22. Install the three way catalytic converter (TWO assembly (A) using new gaskets (B).

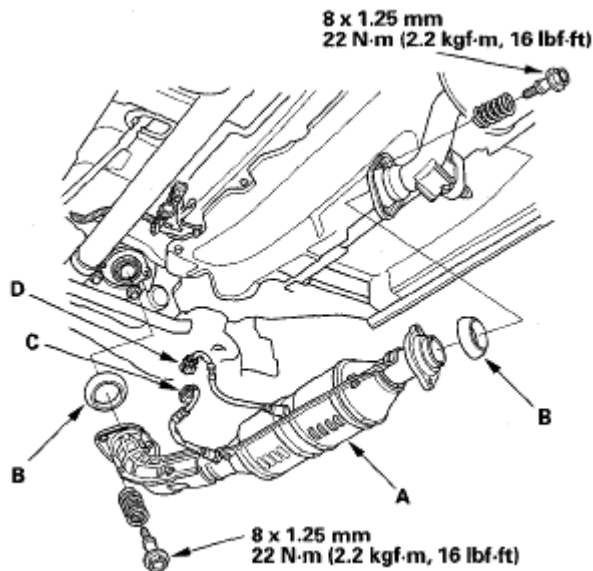


Fig. 43: Identifying Three Way Catalytic Converter Assembly Bolts (With Torque Specifications)

23. Connect the air fuel ratio (A/F) sensor connector (C) and the secondary heated oxygen sensor (secondary HO2S) connector (D).
24. Install the splash shield.

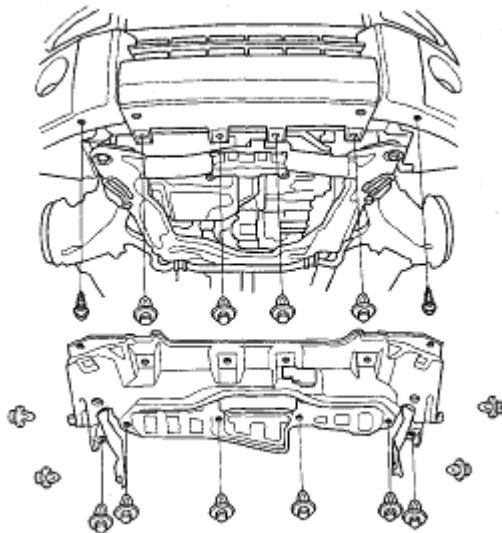


Fig. 44: Identifying Air Fuel Ratio (A/F) Sensor Connector

25. Install the front wheels.
26. Lower the vehicle on the lift.
27. Remove the engine support hanger and engine hanger/adapter, then install the purge joint pipe.
28. Install the upper radiator hose (A) and heater hoses (B).

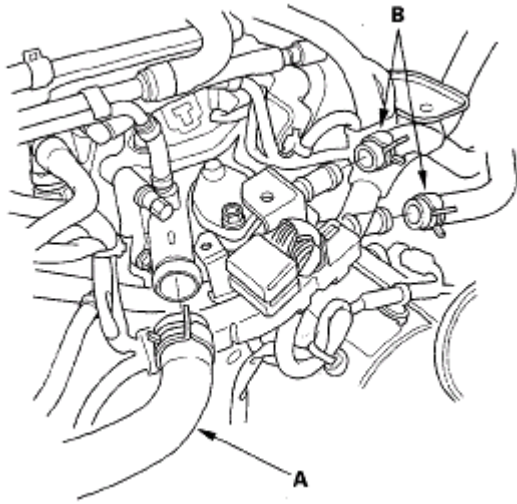


Fig. 45: Identifying Upper Radiator Hose And Heater Hoses

29. Check the quick connector (A) and set ring (B) for cracks or damage. If the connector and/or set ring are cracked or damaged, replace the connector.

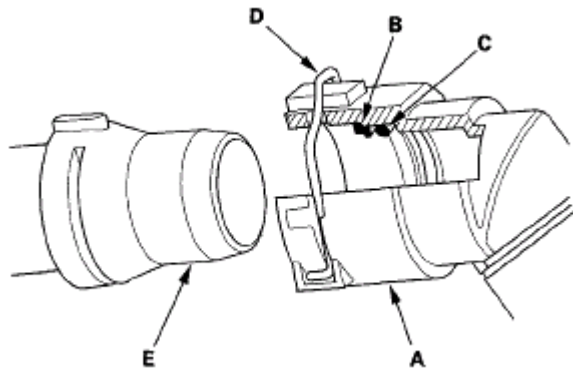


Fig. 46: Identifying Quick Connector And Set Ring

30. Make sure the set ring is in place inside the quick connector. If the set ring is off the connector, replace the quick connector.
31. Replace the O-ring (C) in the quick connector.
32. Check the lock (D) for damage or deformation. If the lock is damaged or deformed, replace it. When installing the new lock to the connector, push it straight down along the groove.
33. Clean the connecting surface of the thermostat cover (E), then apply clean engine coolant around the connecting surface.
34. Push the lock (A) down, then push the quick connector (B) onto the thermostat cover until you hear it click.

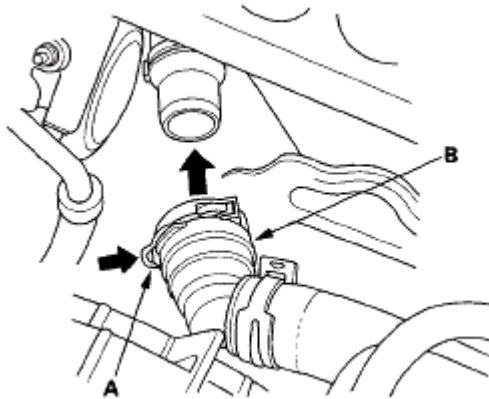


Fig. 47: Pushing Lock And Quick Connector

35. A/T model: Install the harness clamps (A), then install the engine wire harness bracket mount bolts (B).

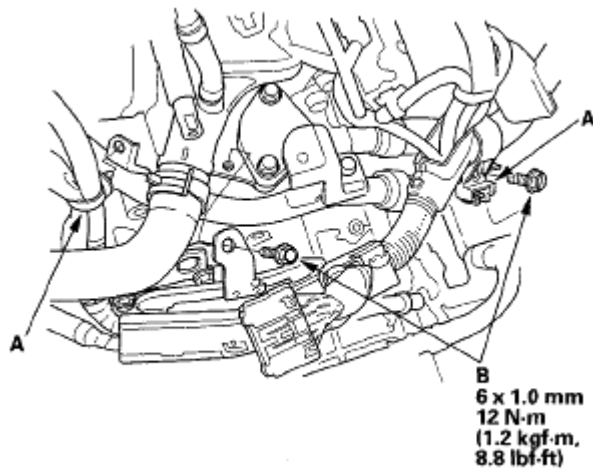


Fig. 48: Identifying Harness Clamps And Engine Wire Harness Bracket Mount Bolts

36. A/T model: Install the automatic transmission fluid (ATF) cooler hoses (A) and ATF filter mounting bolt (B).

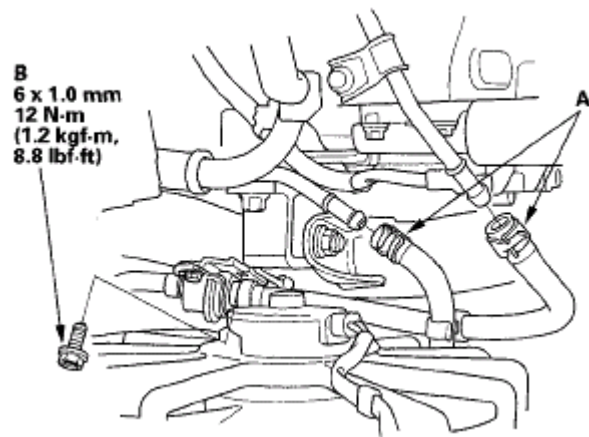


Fig. 49: Identifying ATF Filter Mounting Bolt And Automatic Transmission Fluid (ATF) Cooler Hoses

37. Install the power steering (P/S) pump.

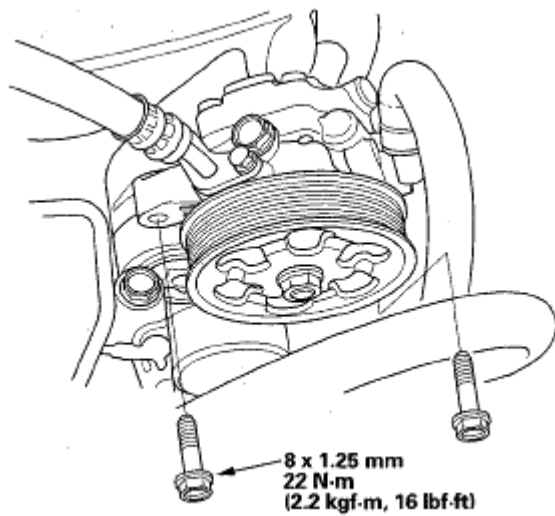


Fig. 50: Identifying Power Steering (P/S) Pump Bolt (With Torque Specifications)

38. Install the P/S hose to the bracket on the cylinder head cover.
39. Install the receiver line to the clamps (A).

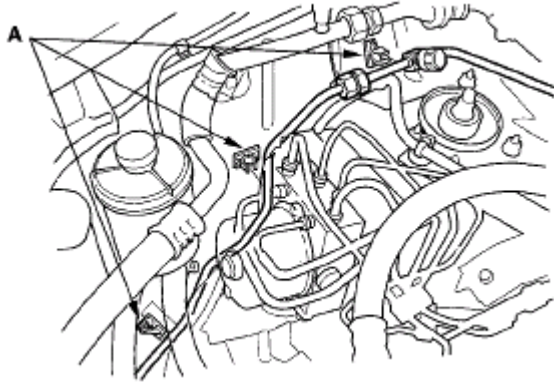


Fig. 51: Identifying Receiver Line To Clamps

40. Install the drive belt (see **DRIVE BELT INSPECTION**).
41. M/T model: Install the shift cables (see step 26 in **TRANSMISSION INSTALLATION**).
42. M/T model: Install the clutch slave cylinder and clutch line bracket mounting bolt (see step 25 in **TRANSMISSION INSTALLATION**).
43. Push the engine control module (ECM)/powertrain control module (PCM) connector through the bulkhead, then install the grommet (A).

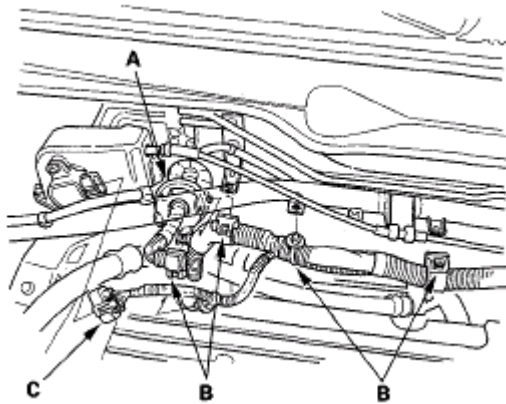


Fig. 52: Identifying Engine Control Module (ECM)/Powertrain Control Module (PCM) Connector

44. Install the harness clamps (B) and accelerator pedal position (APP) sensor connector (C).
45. Connect the ECM/PCM connectors (A) and ECM/PCM wire harness connector (B), then install the bolt (C).

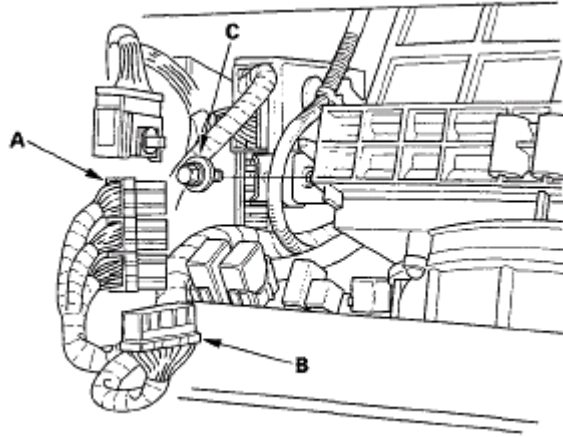


Fig. 53: Identifying ECM/PCM Connectors And ECM/PCM Wire Harness Connector

46. Install the evaporative emission (EVAP) canister hose (A) and brake booster vacuum hose (B).

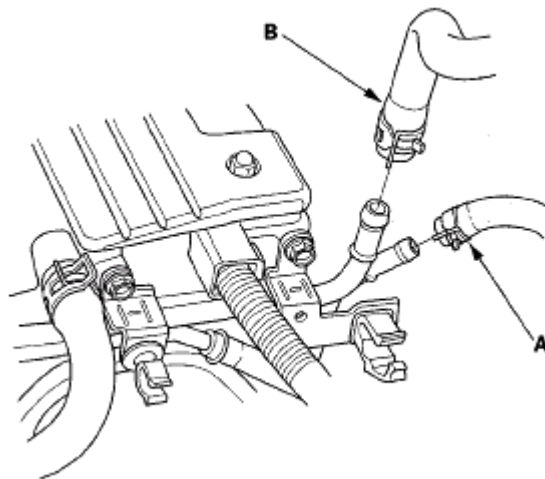


Fig. 54: Identifying Evaporative Emission (EVAP) Canister Hose And Brake Booster Vacuum Hose

47. Connect the fuel feed hose (A) (see **FUEL LINE/QUICK-CONNECT FITTING INSTALLATION**), then install the quick-connect fitting cover (B).

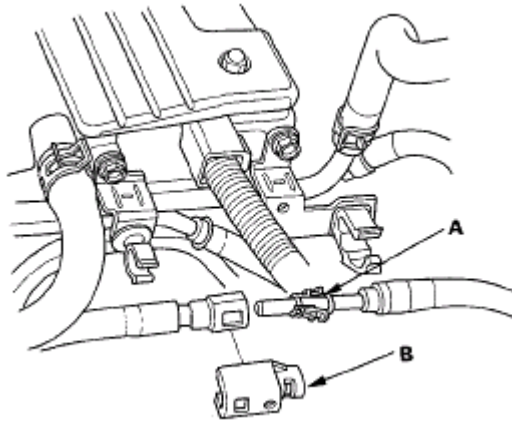


Fig. 55: Identifying Fuel Feed Hose And Quick-Connect Fitting Cover

48. Install the under-hood fuse/relay box to the bracket, then install the positive (+) terminals (A) and harness clamps (B) to the under-hood fuse/relay box.

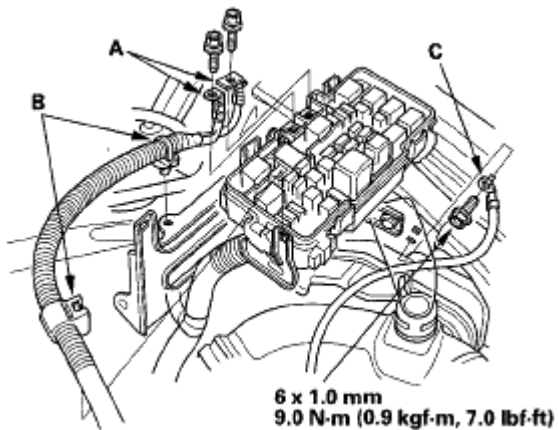


Fig. 56: Identifying Under-Hood Fuse/Relay Box Clamps And Bolts

49. Install the ground cable (C).
50. Install the battery base (A), then install the harness clamps (B).

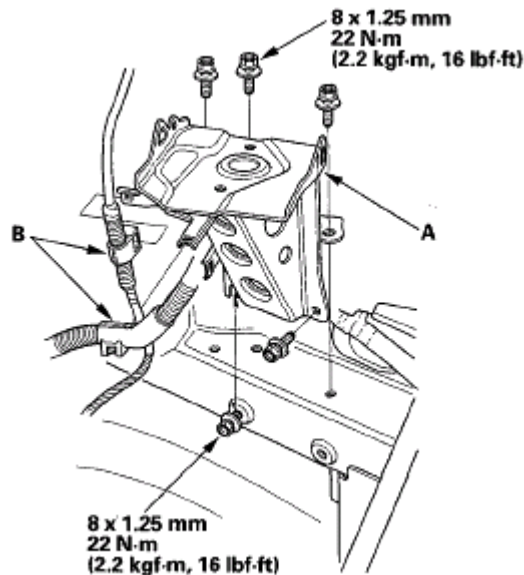


Fig. 57: Identifying Battery Base And Ground Cable (With Torque Specifications)

51. Install the air cleaner assembly (see **AIR CLEANER REMOVAL/INSTALLATION**).
52. Install the intake air duct (A), then connect the mass airflow (MAF) sensor/intake air temperature (IAT) sensor connector (B), and install the vacuum hose (C) and breather pipe (D).

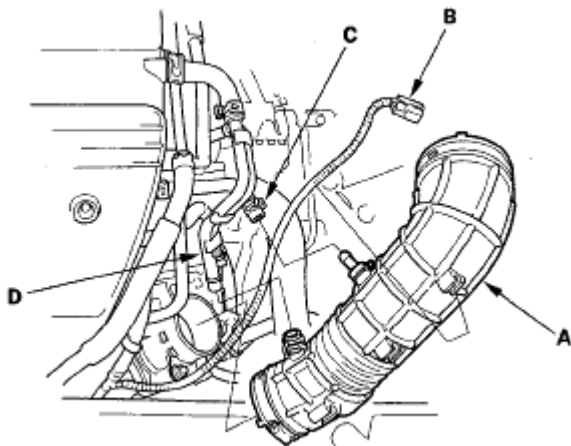


Fig. 58: Identifying Intake Air Duct And Mass Airflow (MAF) Sensor/Intake Air Temperature (IAT) Sensor Connector

53. Install the battery. Clean the battery posts and cable terminals, then assemble them and apply grease to prevent corrosion.
54. Install the hood and adjust it (see **HOOD ADJUSTMENT**).
55. A/T model: Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.
56. M/T model: Check that the transmission shifts into gear smoothly.

2007 Honda Element EX

2007-08 ENGINE Engine Assembly - Element

57. Inspect for fuel leaks. Turn the ignition switch ON (II) (do not operate the starter) so the fuel pump runs for about 2 seconds and pressurizes the fuel line. Repeat this operation three times, then check for fuel leakage at any point in the fuel line.
58. Refill the engine with engine oil (see **OIL PRESSURE TEST**).
59. Refill the transmission with fluid:
 - Manual transmission (see **TRANSMISSION FLUID INSPECTION AND REPLACEMENT**)
 - Automatic transmission (see **ATF REPLACEMENT**)
60. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 7 in **COOLANT REPLACEMENT**).
61. Do the ECM/PCM reset procedure (see **ECM/PCM RESET**).
62. Do the ECM/PCM idle learn procedure (see **ECM/PCM IDLE LEARN PROCEDURE**).
63. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see **CRANK (CKP) PATTERN CLEAR/CRANK (CKP) PATTERN LEARN**).
64. Inspect the idle speed (see **IDLE SPEED INSPECTION**).
65. Inspect the ignition timing (see **IGNITION TIMING INSPECTION**).
66. Enter the anti-theft code for the audio system.
67. Do the power window control unit reset procedure (see **RESETTING THE POWER WINDOW CONTROL UNIT**).
68. Set the clock.

ENGINE MOUNT REPLACEMENT

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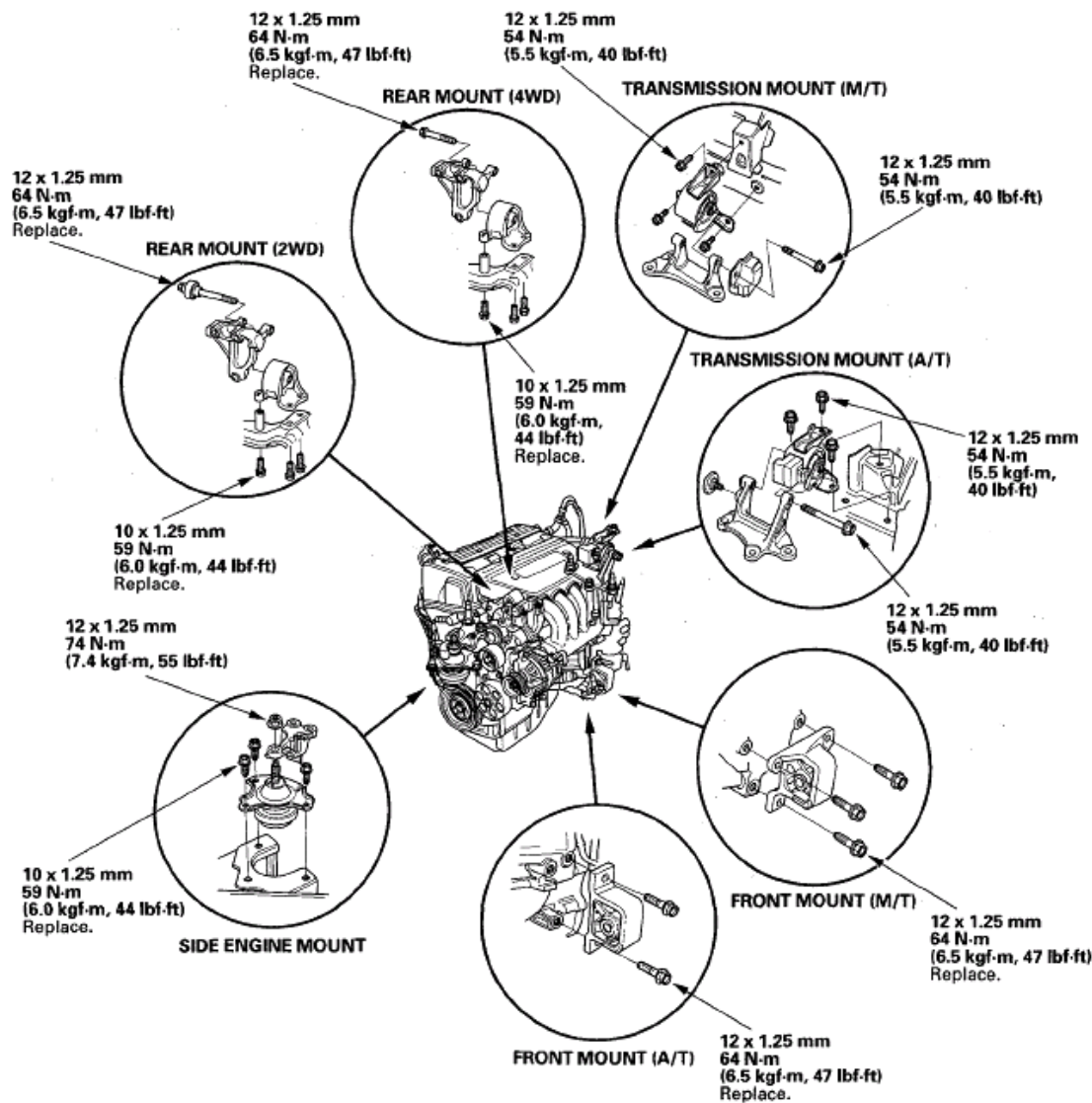


Fig. 59: Identifying Engine Mount Components (With Torque Specifications)