

<b>2006 Acura MDX</b>
2003-06 ENGINE Engine Assembly - MDX

**2003-06 ENGINE****Engine Assembly - MDX****ENGINE REMOVAL****Special Tools Required**

Front subframe adapter EQS02BMDXSB0

**NOTE:**

- Use fender covers to avoid damaging painted surfaces.
- To avoid damaging the wiring 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.

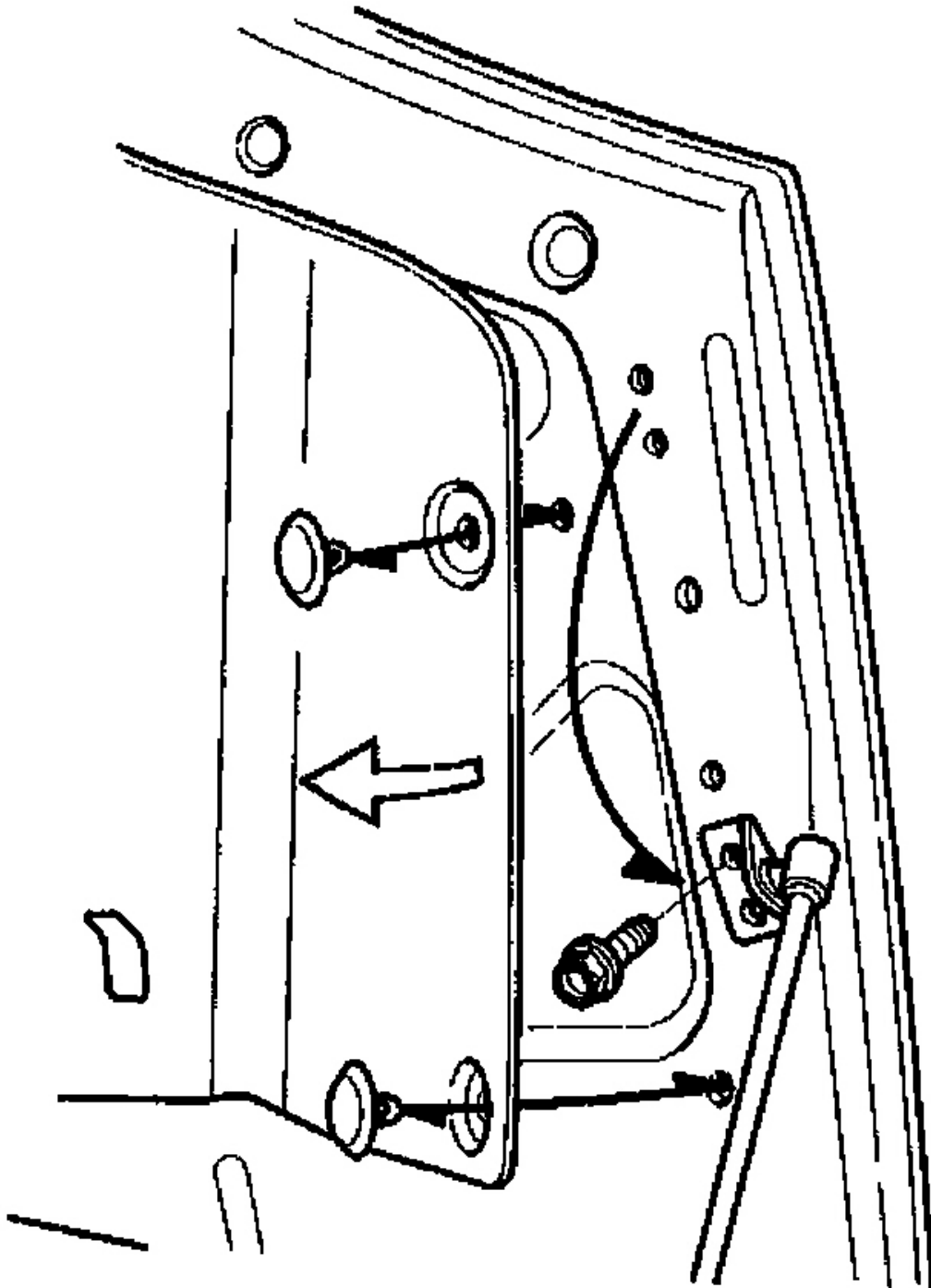
1. Remove the two clips, and pull the insulator, then remove the support struts from the engine hood. Move the engine hood to a vertical position, then reinstall the support strut as shown.

**NOTE:**

**Do not attempt to close the hood with the support strut in the vertical position, as it will damage the support strut and hood.**

**2006 Acura MDX**

2003-06 ENGINE Engine Assembly - MDX



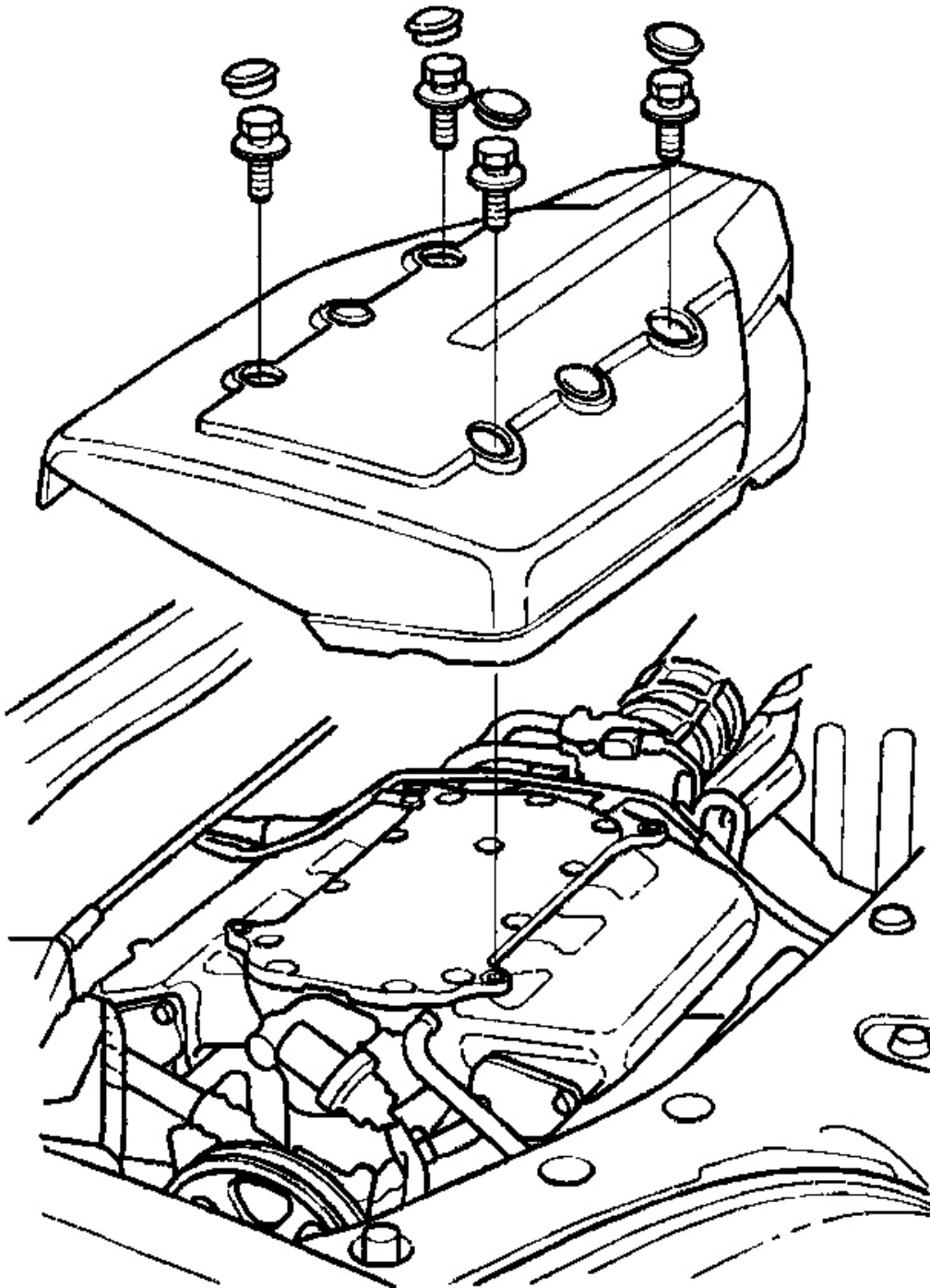
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**Fig. 1: Removing Two Clips****Courtesy of AMERICAN HONDA MOTOR CO., INC.**

2. Drain the power steering system fluid (see **FLUID REPLACEMENT** ).
3. Make sure you have the anti-theft codes for the radio and navigation system, then write down the customer's audio presets. Make sure the ignition switch is OFF.
4. Relieve fuel pressure (see **FUEL PRESSURE RELIEVING** ).
5. Disconnect the negative cable from the battery first, then the disconnect positive cable.
6. Remove the battery.
7. Remove the intake manifold cover.

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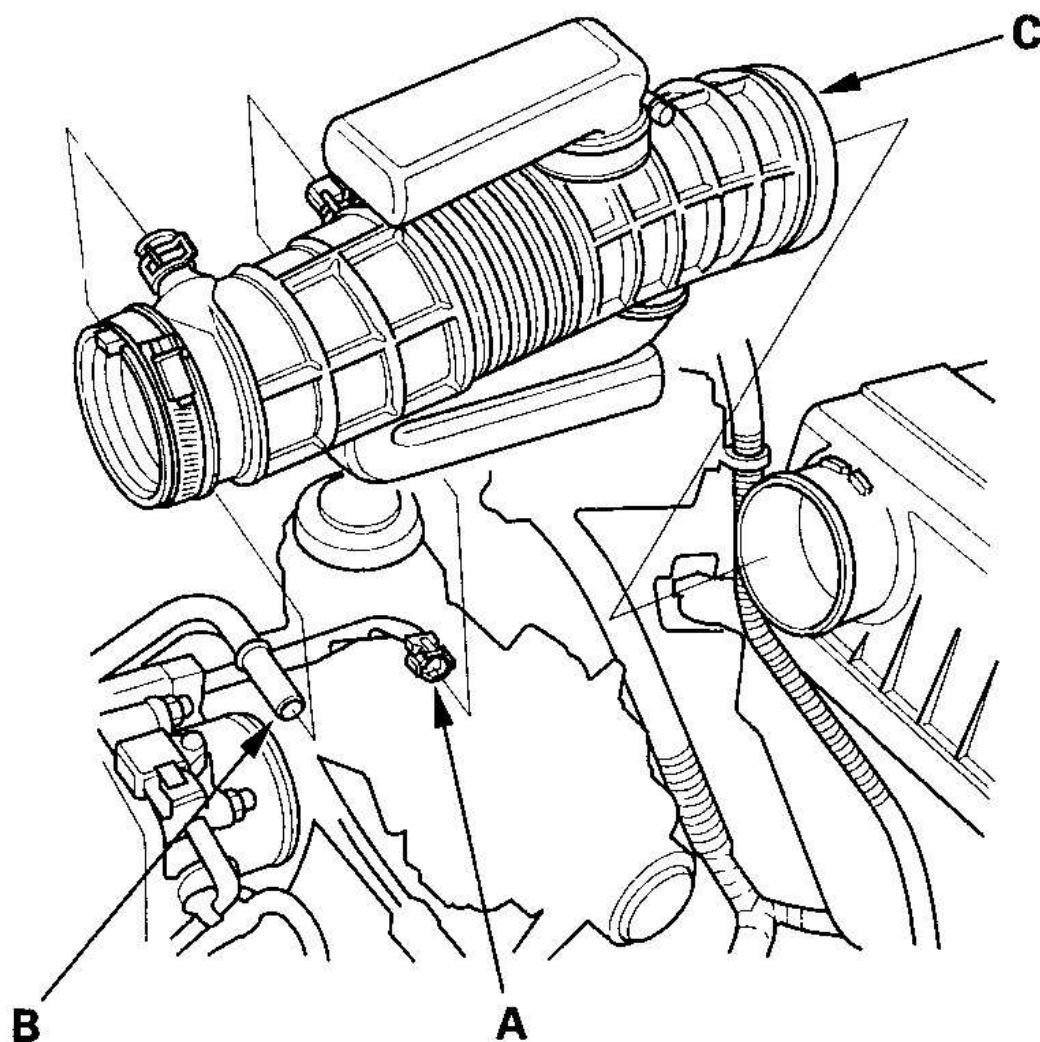


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**Fig. 2: Removing Intake Manifold Cover**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

8. Disconnect the intake air temperature (IAT) sensor 2 connector (A), and remove the breather pipe (B), then remove the intake air duct (C).

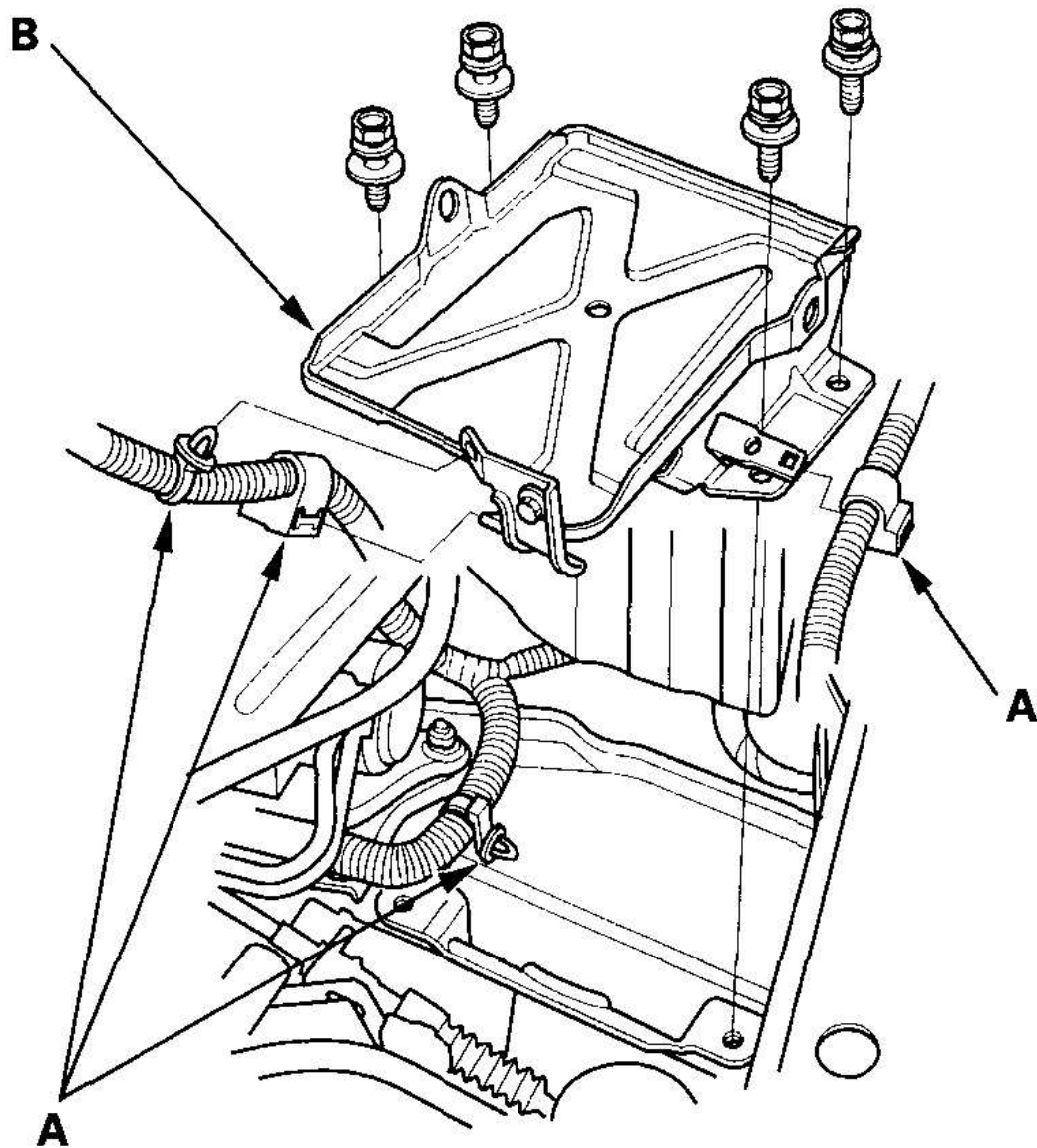


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**Fig. 3: Disconnecting Intake Air Temperature Sensor 2 Connector**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

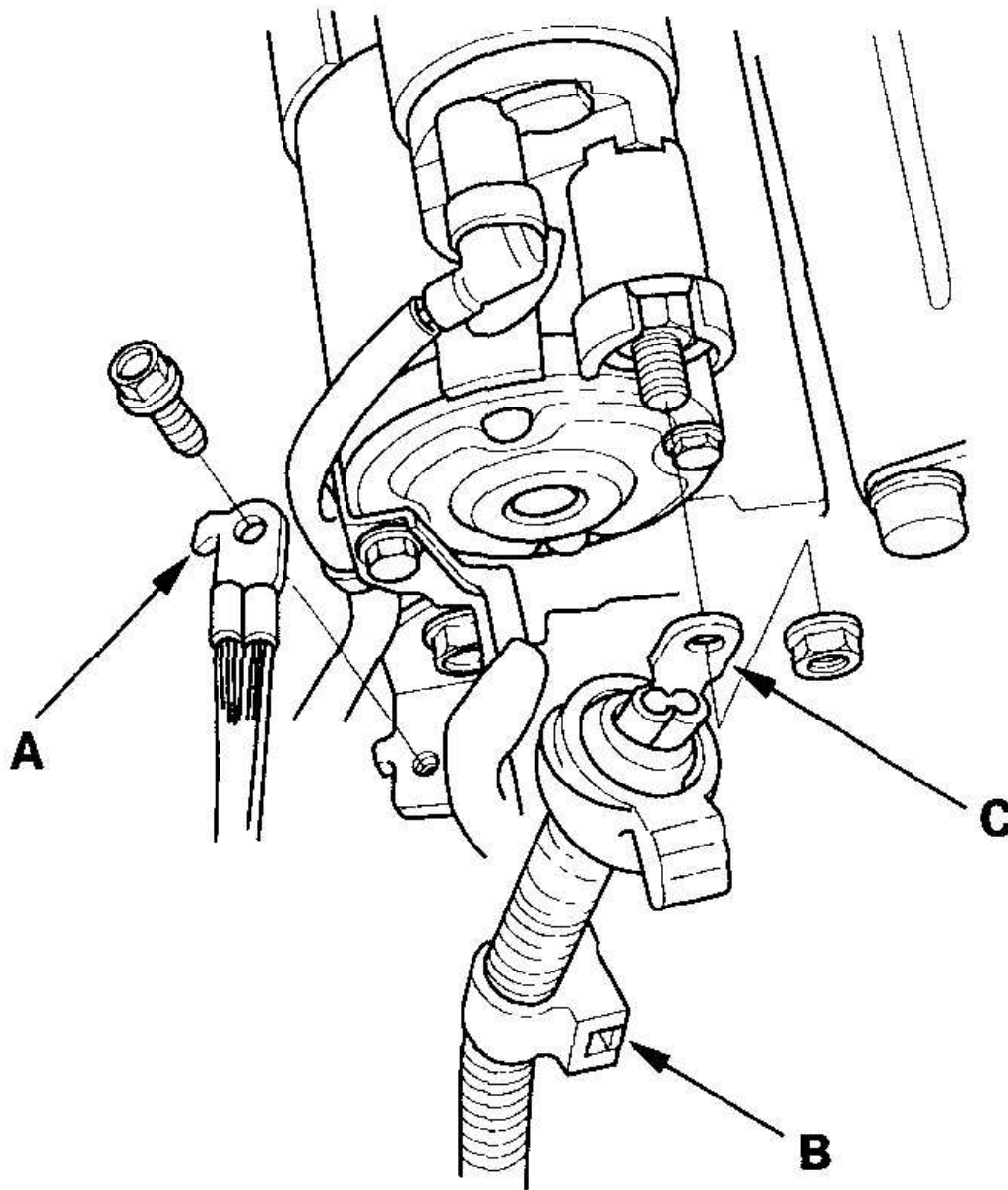
9. Remove the harness clamps (A), then remove the battery base (B).



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**Fig. 4: Removing Harness Clamps And Battery Base**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

10. Remove the ground cable (A), harness clamp (B), and starter motor cable (C).



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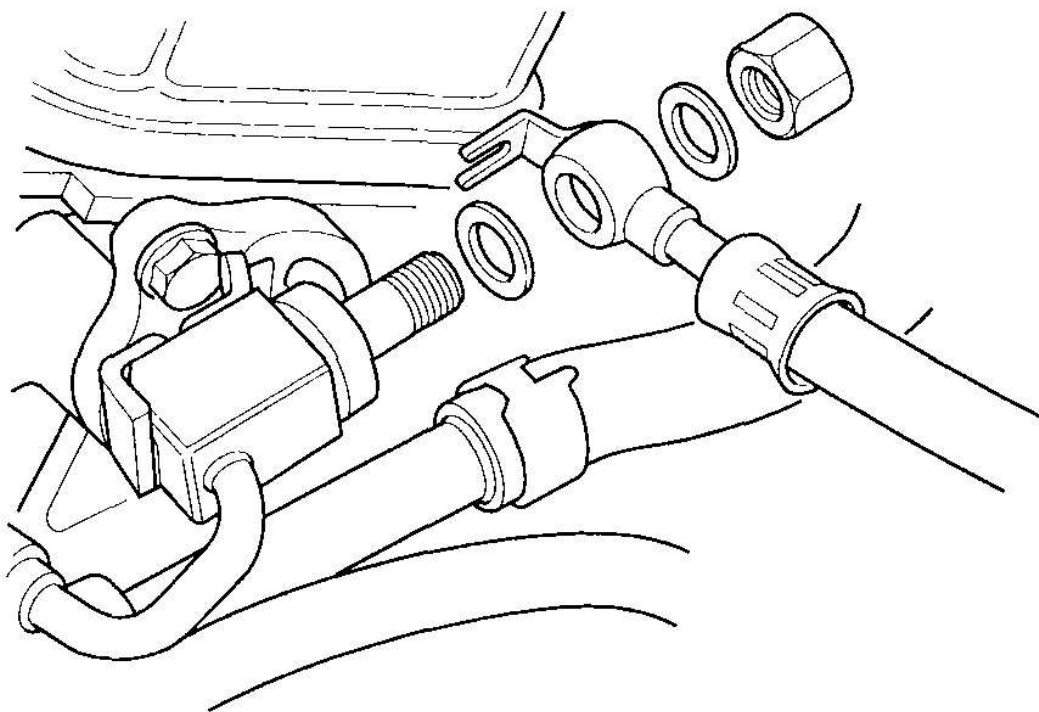
**Fig. 5: Removing Ground Cable**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Remove the shift cable bracket and the spring clip/washer, then remove the shift cable from the control lever (see step 18 in **TRANSMISSION REMOVAL** ).



12. 2003-2004 models: Remove the fuel feed hose.

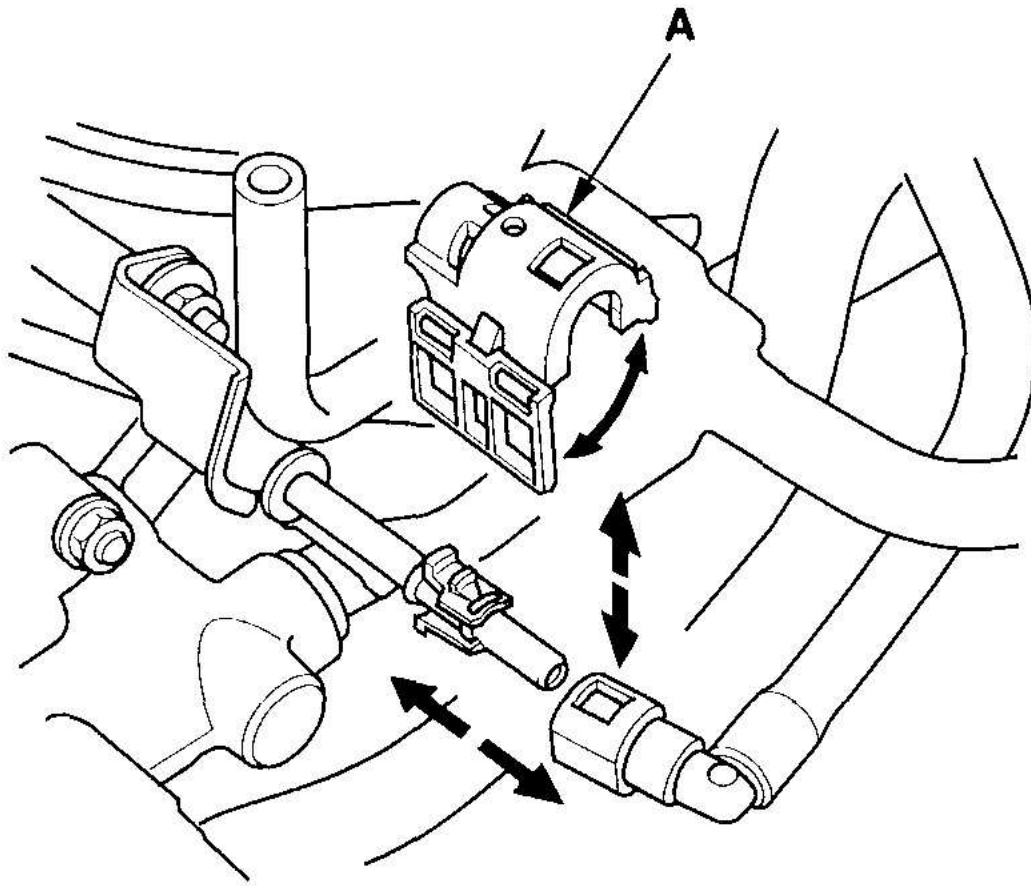


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**Fig. 6: Removing Fuel Feed Hose (2003-04 Models)**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

13. 2005-2006 models: Remove the quick-connect fitting cover (A), then disconnect the fuel feed hose (see **FUEL LINE/QUICK-CONNECT FITTING REMOVAL** ).



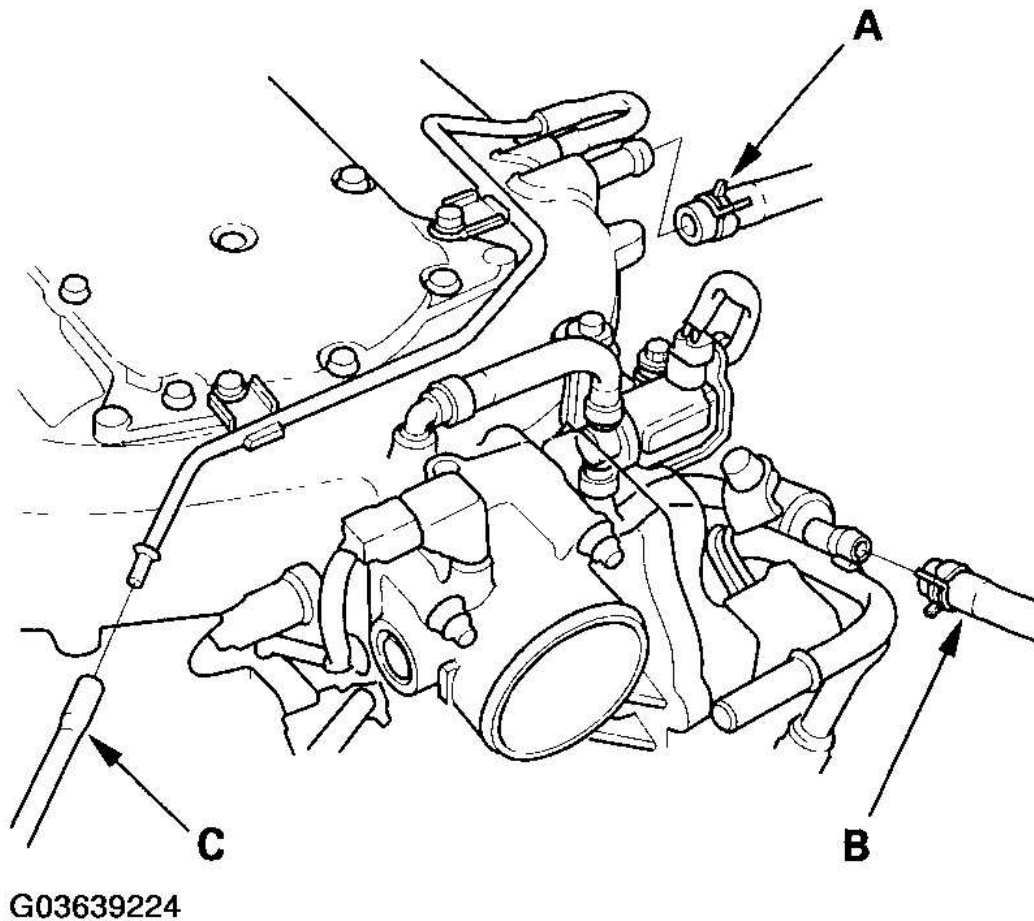


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**Fig. 7: Removing Quick-Connect Fitting Cover (2005-06 Models)**

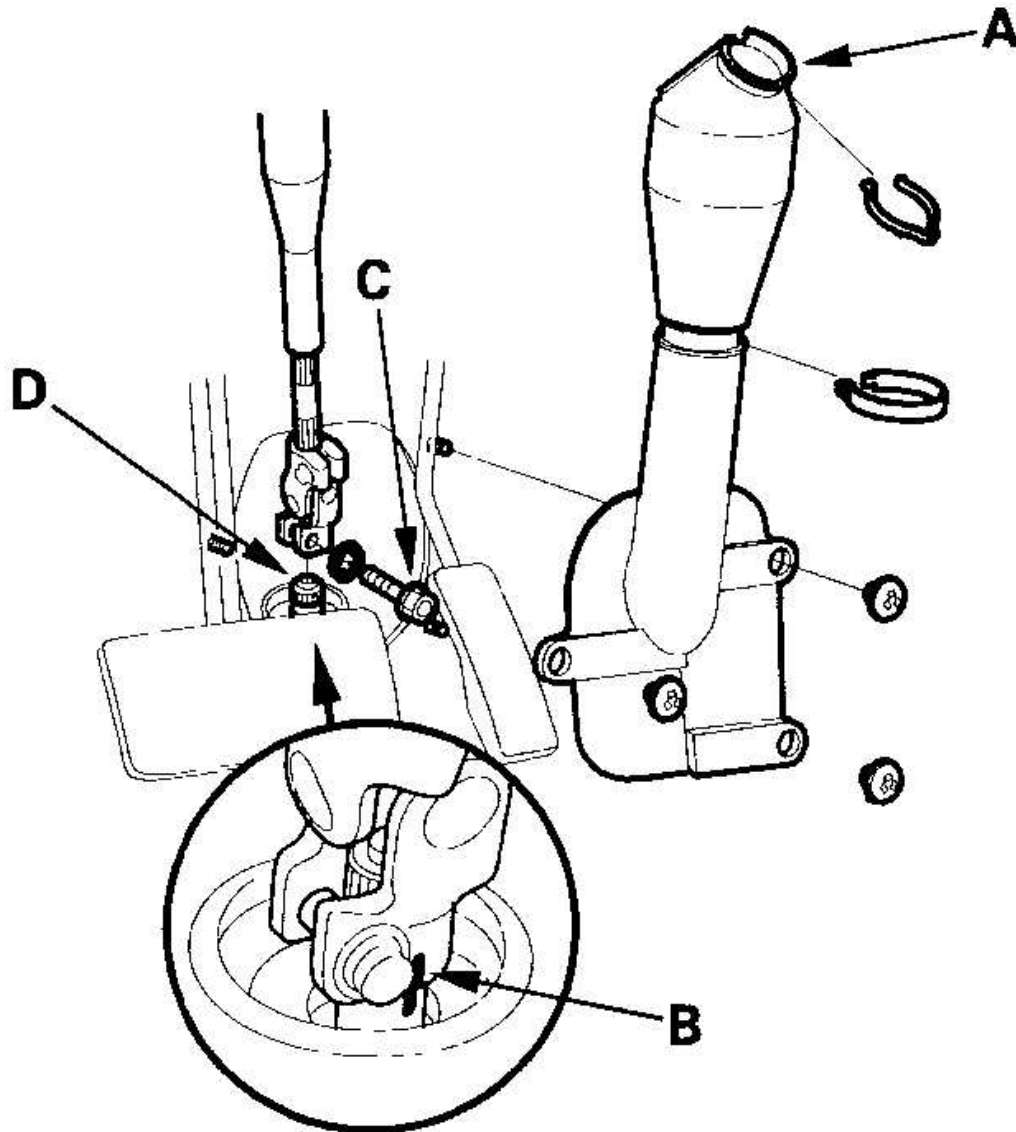
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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



**Fig. 8: Removing Brake Booster Vacuum Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

15. Remove the driver's side console lower panel, and pull the carpet to expose the steering joint cover (see **CARPET REPLACEMENT** ).
16. Remove the steering joint cover (A).



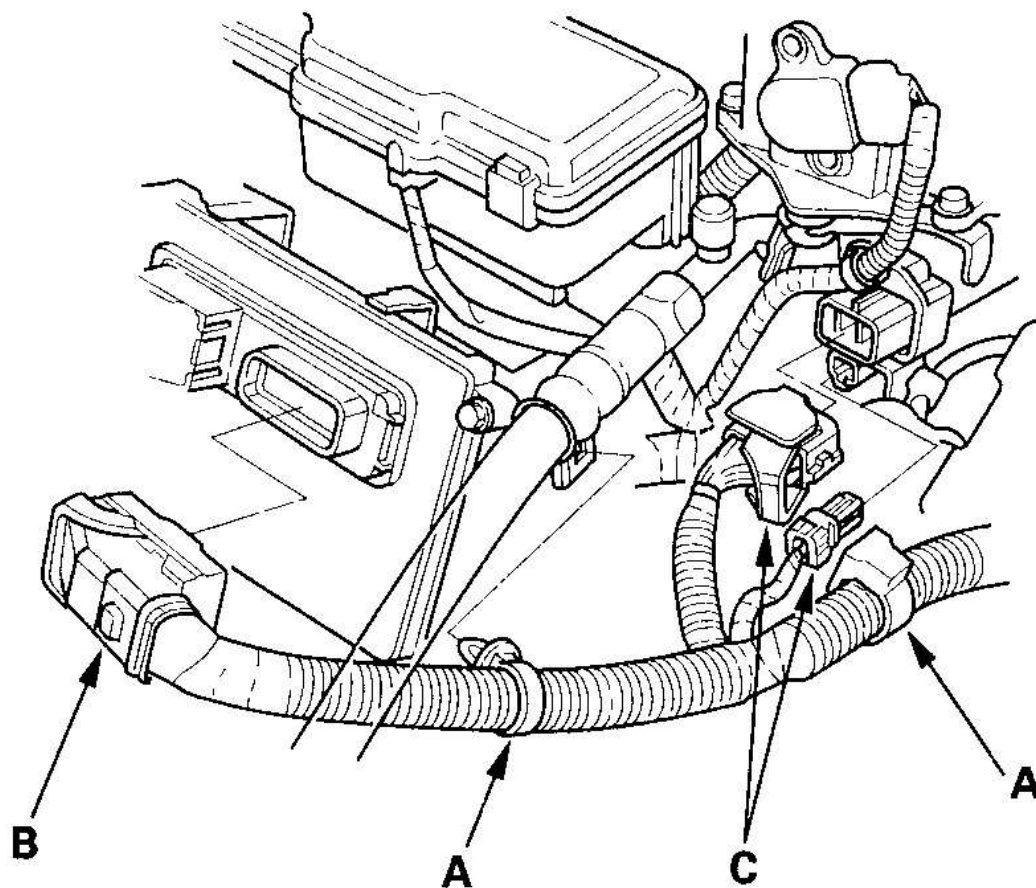
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**Fig. 9: Removing Steering Joint Cover**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

17. Lock the steering wheel. Make a reference mark (B) across the steering joint and steering gearbox pinion shaft. Remove the steering joint bolt (C), and disconnect the steering joint from the steering gearbox pinion shaft (D).

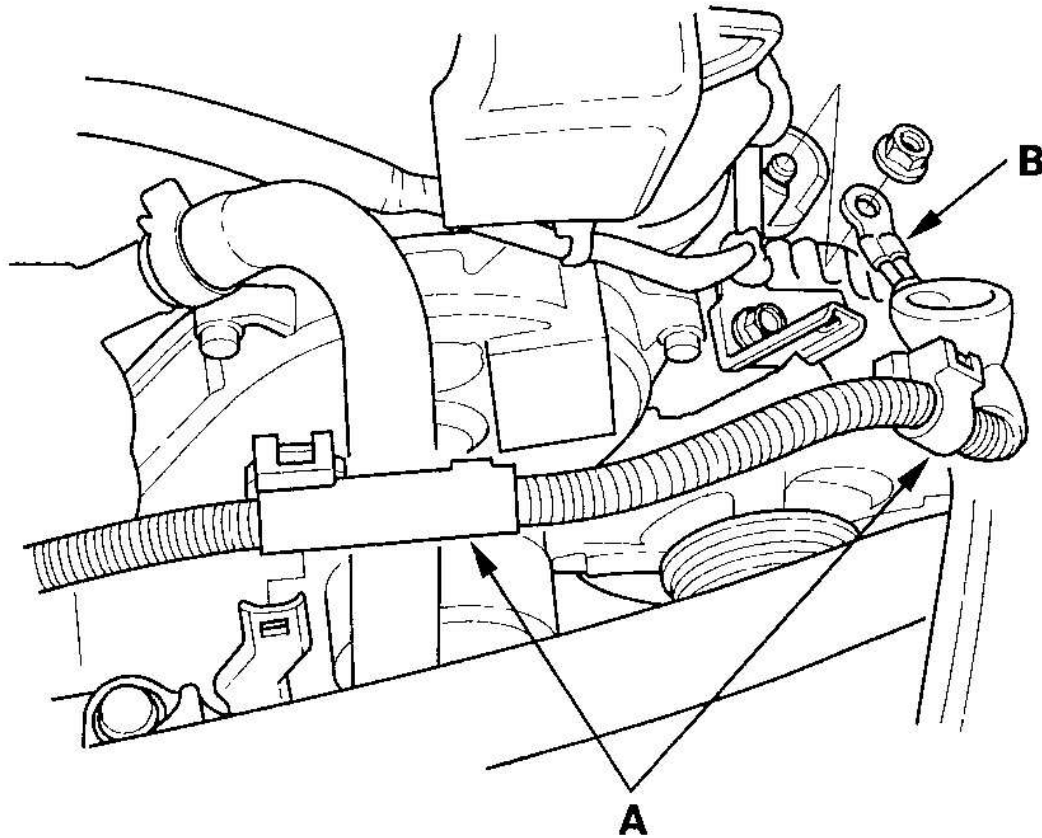
18. Remove the harness clamps (A), then disconnect the powertrain control module (PCM) connector (B) and the engine wire harness connectors (C) on the right side of the engine compartment.



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**Fig. 10: Removing Harness Clamps And Disconnecting PCM Connector**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

19. Remove the harness clamps (A), then remove the alternator cable (B).

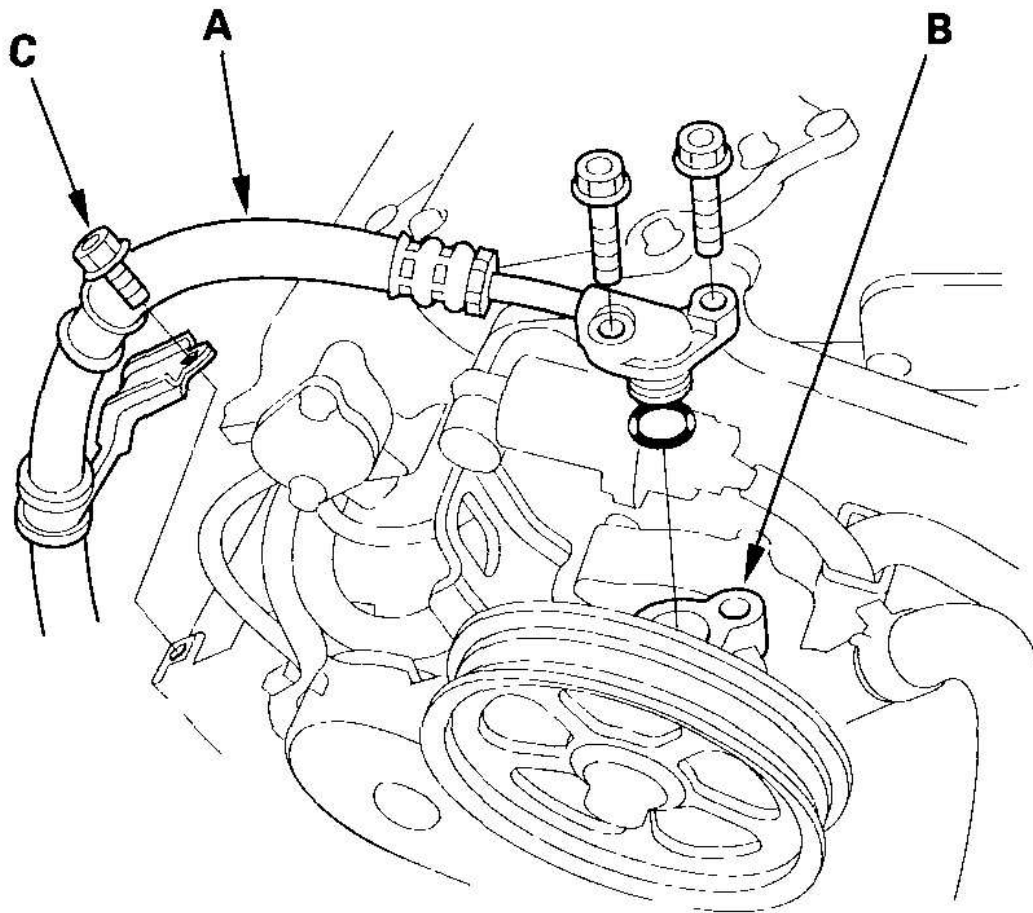


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**Fig. 11: Removing Harness Clamps And Alternator Cable**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

20. Remove the drive belt (see **DRIVE BELT INSPECTION** ).
21. Remove the power steering (P/S) pump outlet hose (A) at the pump (B) and remove the hose clamp bolt (C).

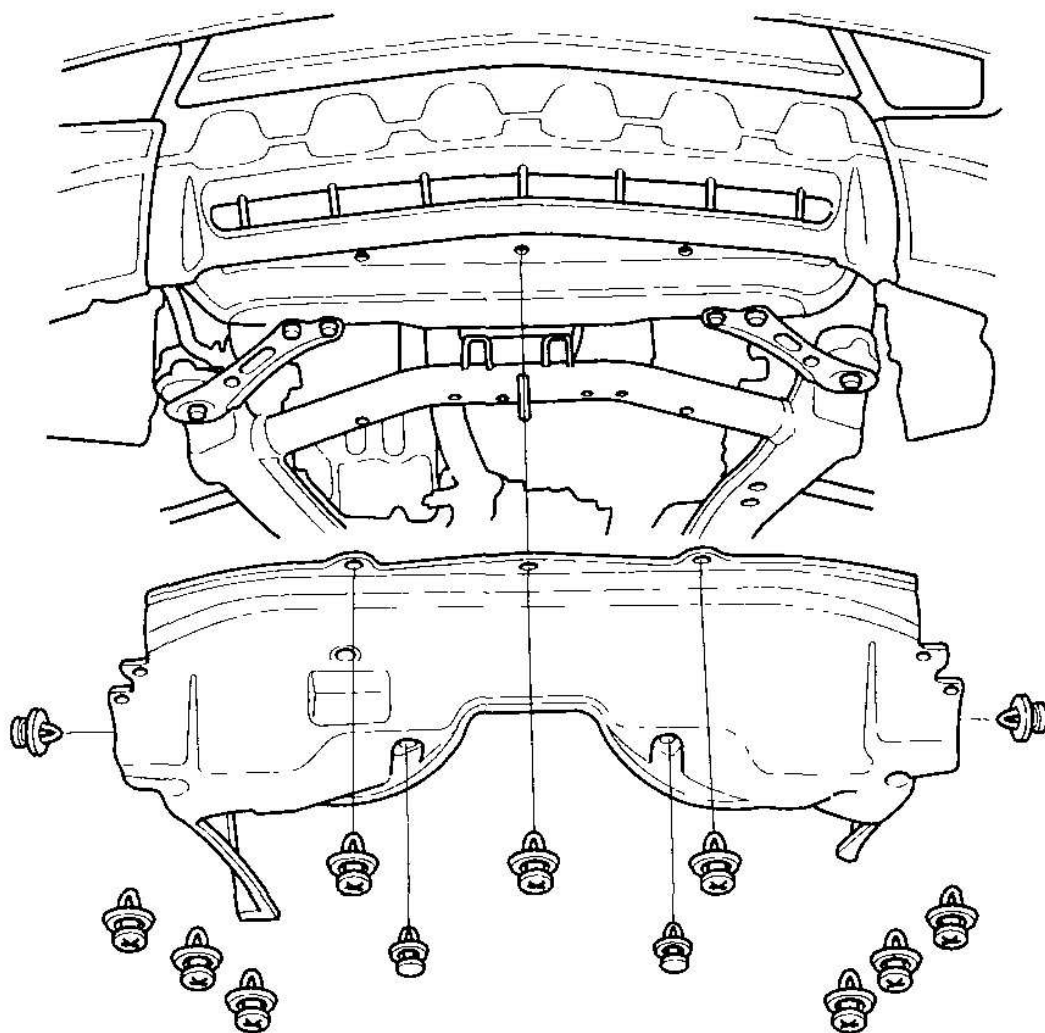




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**Fig. 12: Removing P/S Pump Outlet Hose At Pump**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

22. Remove the radiator cap.
23. Raise the vehicle on the hoist to full height.
24. Remove the front wheels.
25. Remove the splash shield.



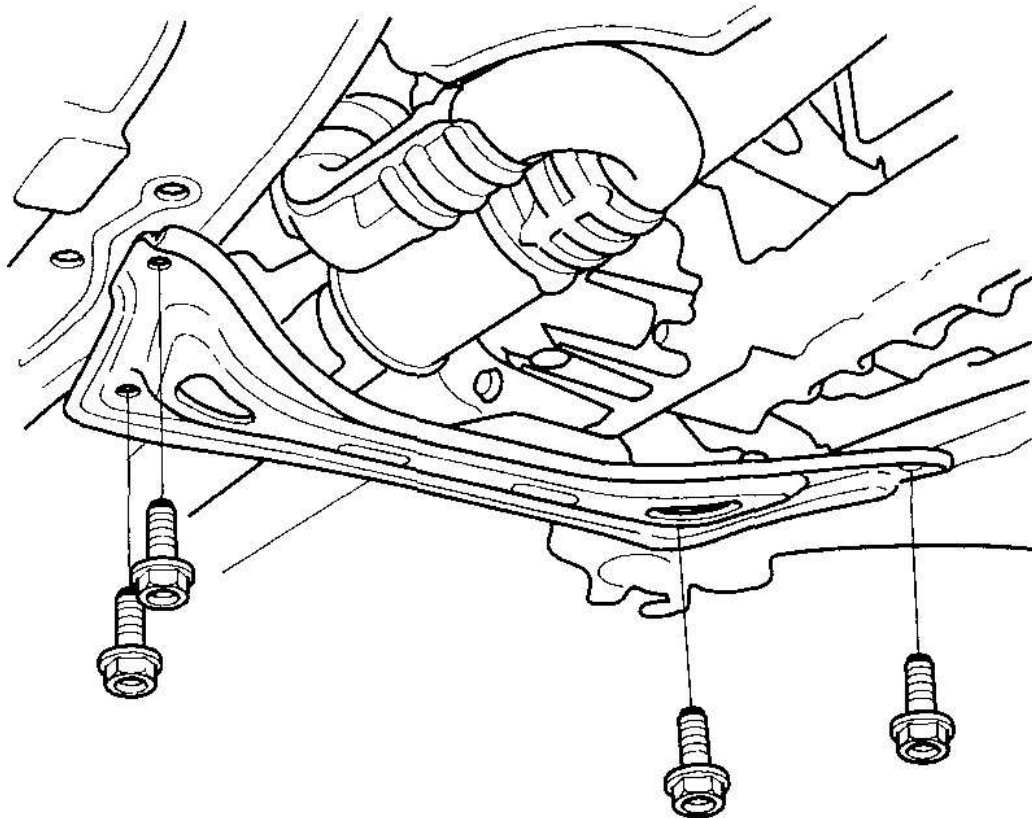
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**Fig. 13: Removing Splash Shield**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

26. Loosen the drain plug in the radiator, and drain the engine coolant (see **COOLANT CHECK** ).
27. Drain the automatic transmission fluid (ATF) (see **ATF REPLACEMENT** ).
28. Drain the engine oil (see **ENGINE OIL REPLACEMENT** ).
29. Remove the front subframe stiffener.

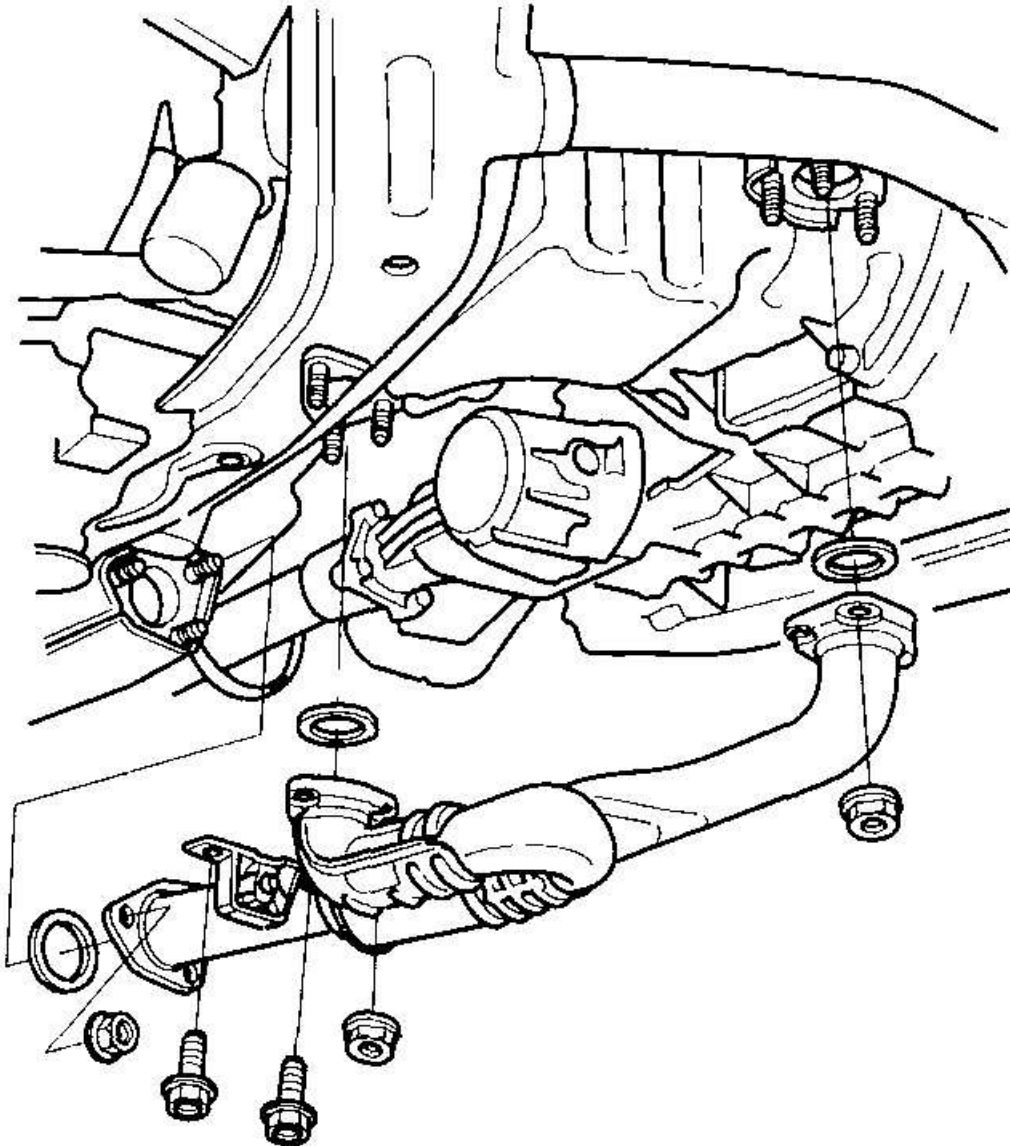




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**Fig. 14: Removing Front Subframe Stiffener**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

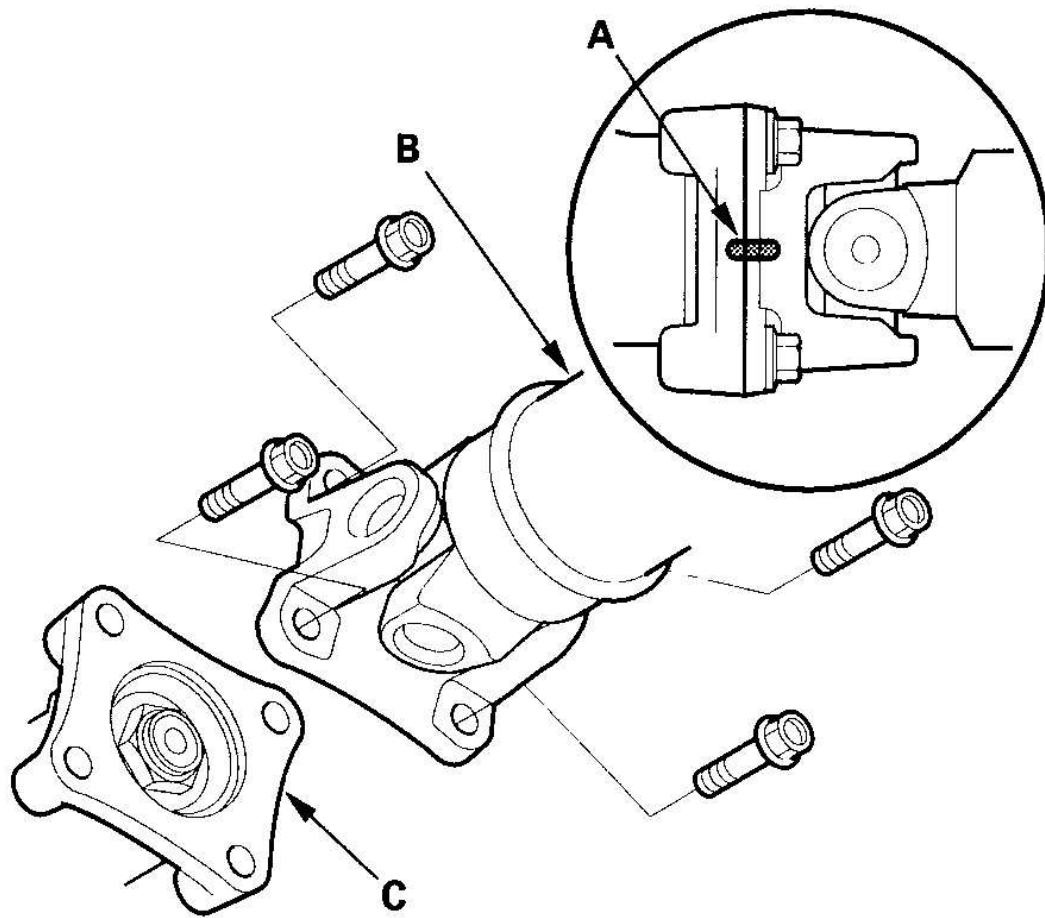
30. Remove exhaust pipe A.



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**Fig. 15: Removing Exhaust Pipe A**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

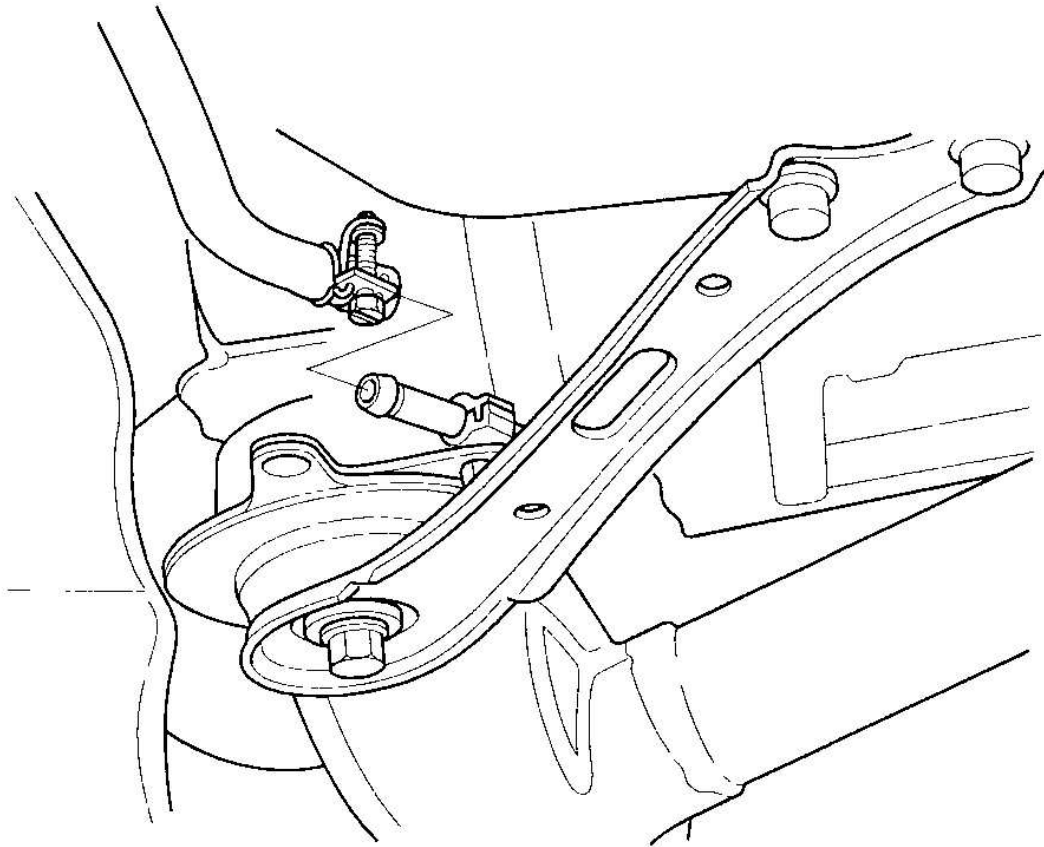
31. Make reference marks (A) on the propeller shaft (B) and transfer shaft flange (C), then separate the propeller shaft from the transfer shaft flange.



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**Fig. 16: Marking Reference Marks On Propeller Shaft And Transfer Shaft Flange**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

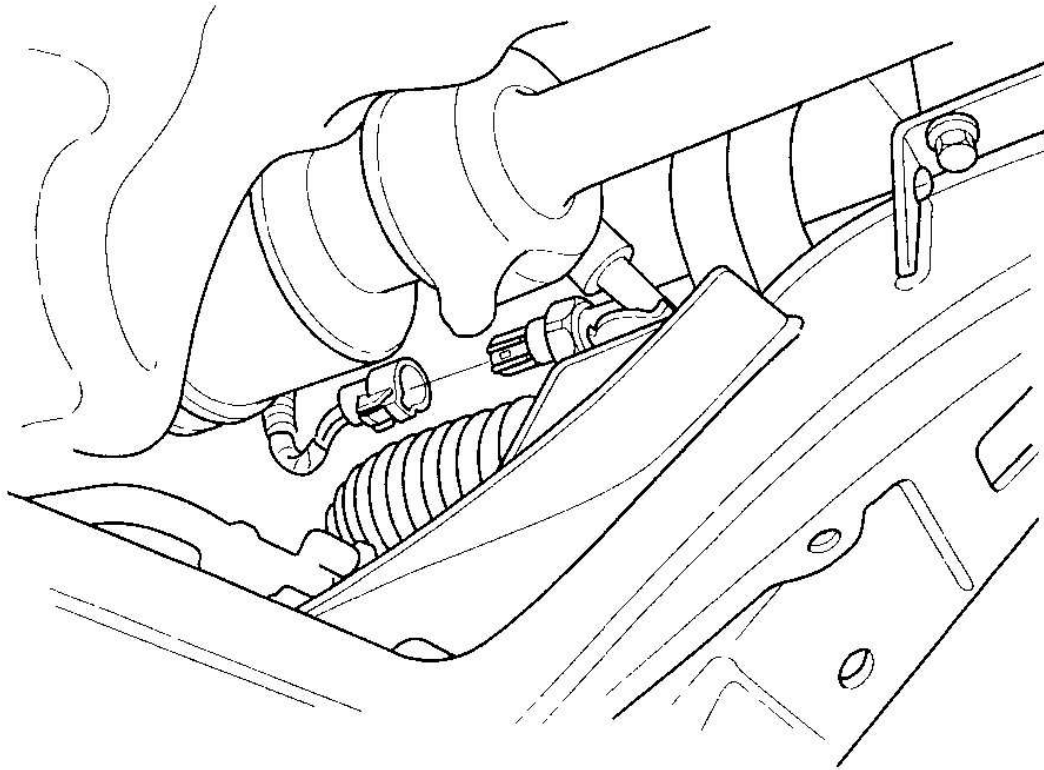
32. Remove the transfer assembly (see **TRANSFER ASSEMBLY REMOVAL** ).
33. Disconnect the stabilizer links (see **STABILIZER LINK REMOVAL/INSTALLATION** ).
34. Separate the tie-rod end ball joints from the knuckles (see step 12 in **STEERING GEARBOX REMOVAL** ).
35. Separate the knuckles from the lower arms (see **LOWER ARM REMOVAL/INSTALLATION** ).
36. Remove the driveshafts (see step 10 in **FRONT DRIVESHAFT REMOVAL** ). Coat all precision-finished surfaces with new engine oil. Tie plastic bags over the driveshaft ends.
37. Remove the P/S hose, then plug the line and the hose.



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**Fig. 17: Removing P/S Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

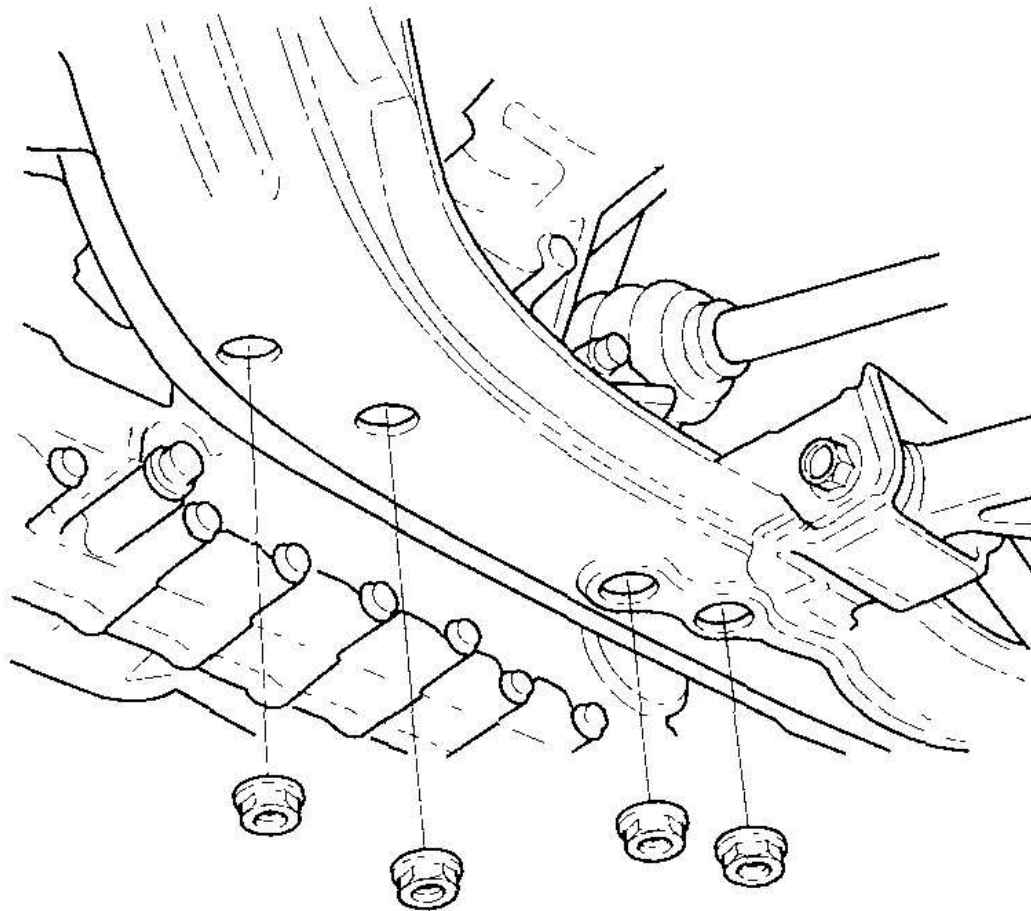
38. Disconnect the power steering pressure switch connector.



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**Fig. 18: Disconnecting Power Steering Pressure Switch Connector**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

39. Remove the transmission lower front mount nuts and transmission lower rear mount nuts.

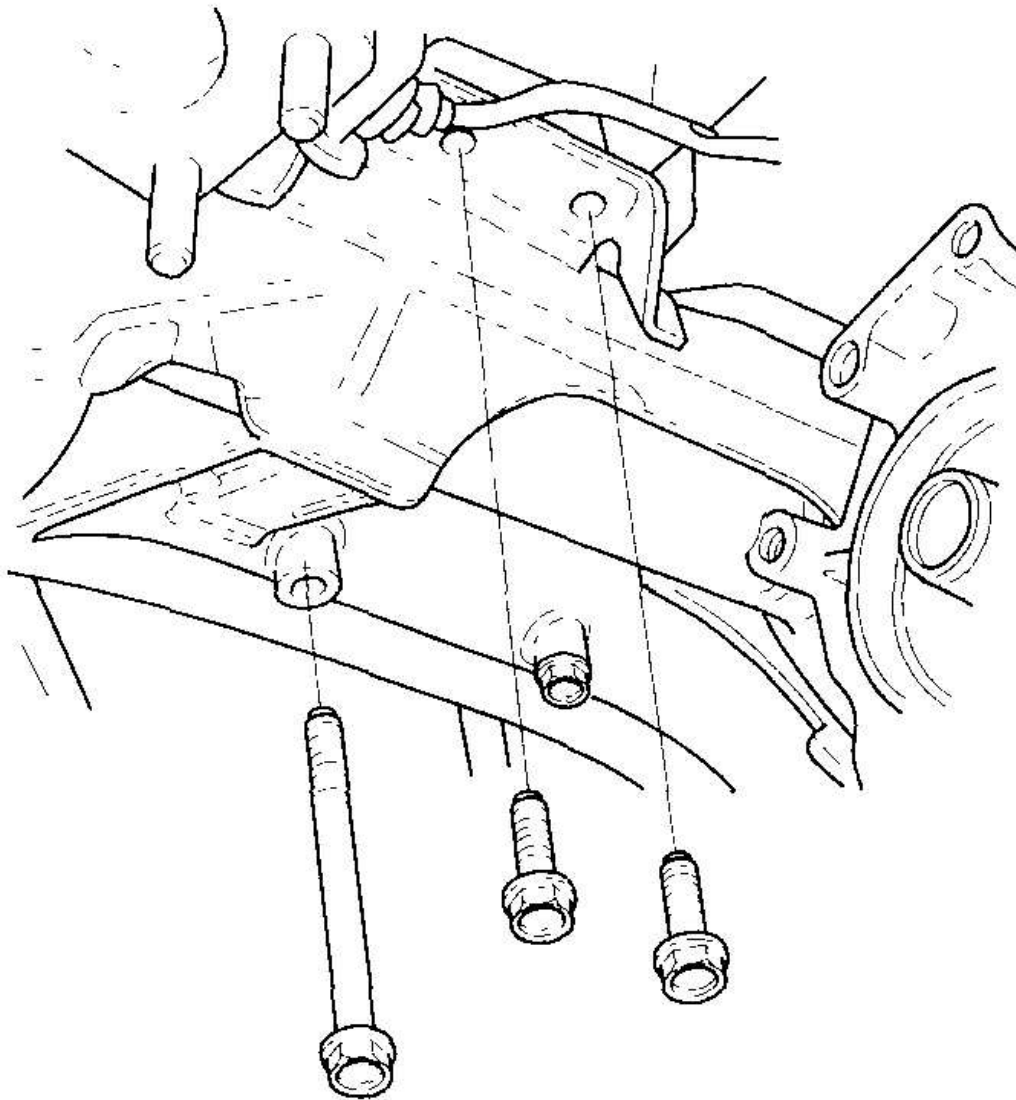


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**Fig. 19: Removing Transmission Lower Front And Rear Mount Nuts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

40. Remove the rear engine mount bolts.



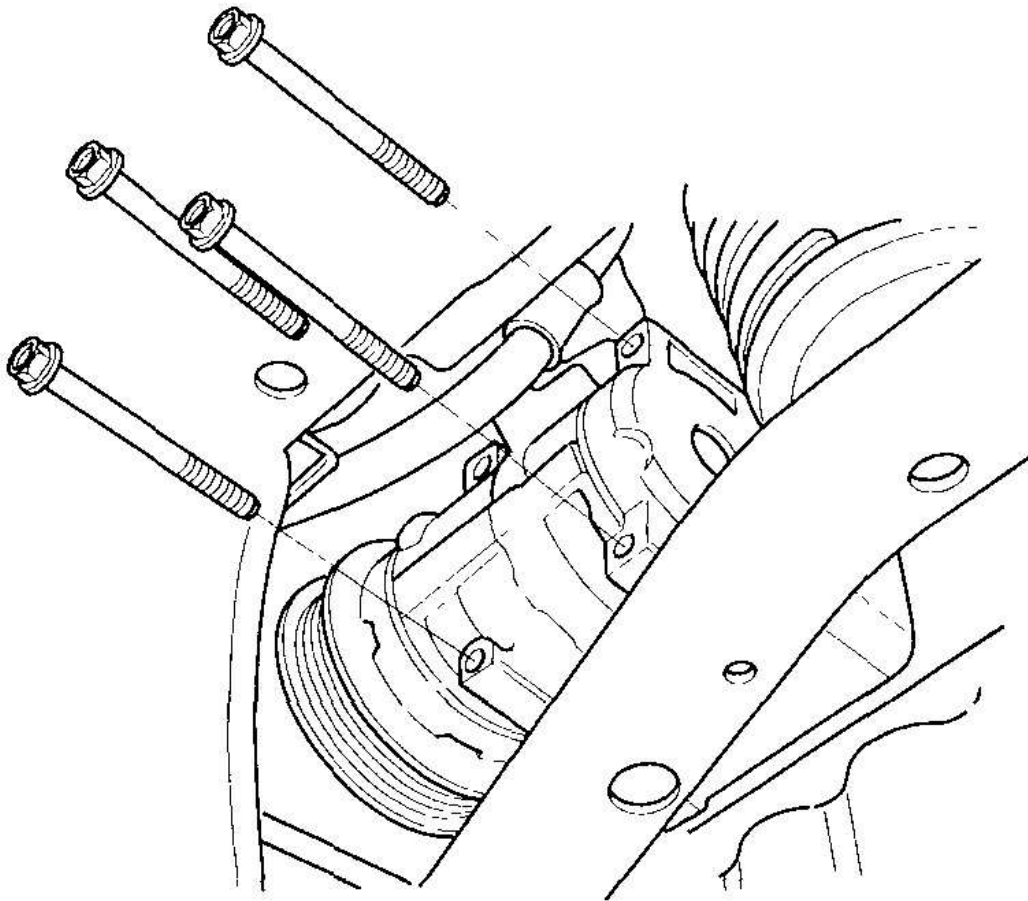


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**Fig. 20: Removing Rear Engine Mount Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

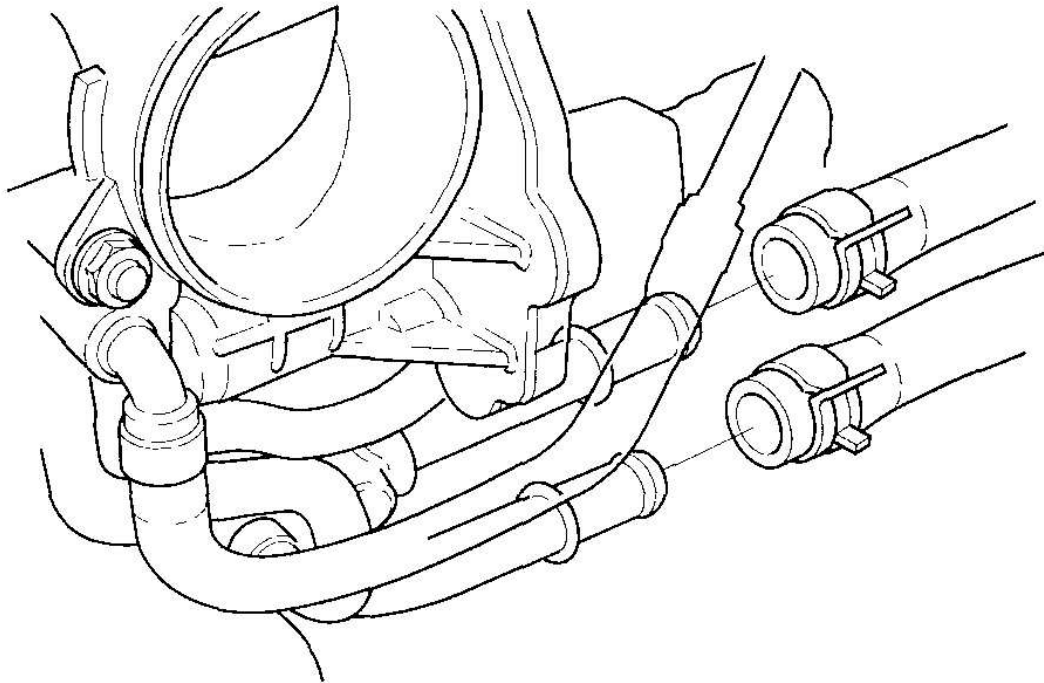




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**Fig. 21: Removing A/C Compressor Without Disconnecting A/C Hoses**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

42. Lower the vehicle on the hoist.
43. Remove the heater hoses.

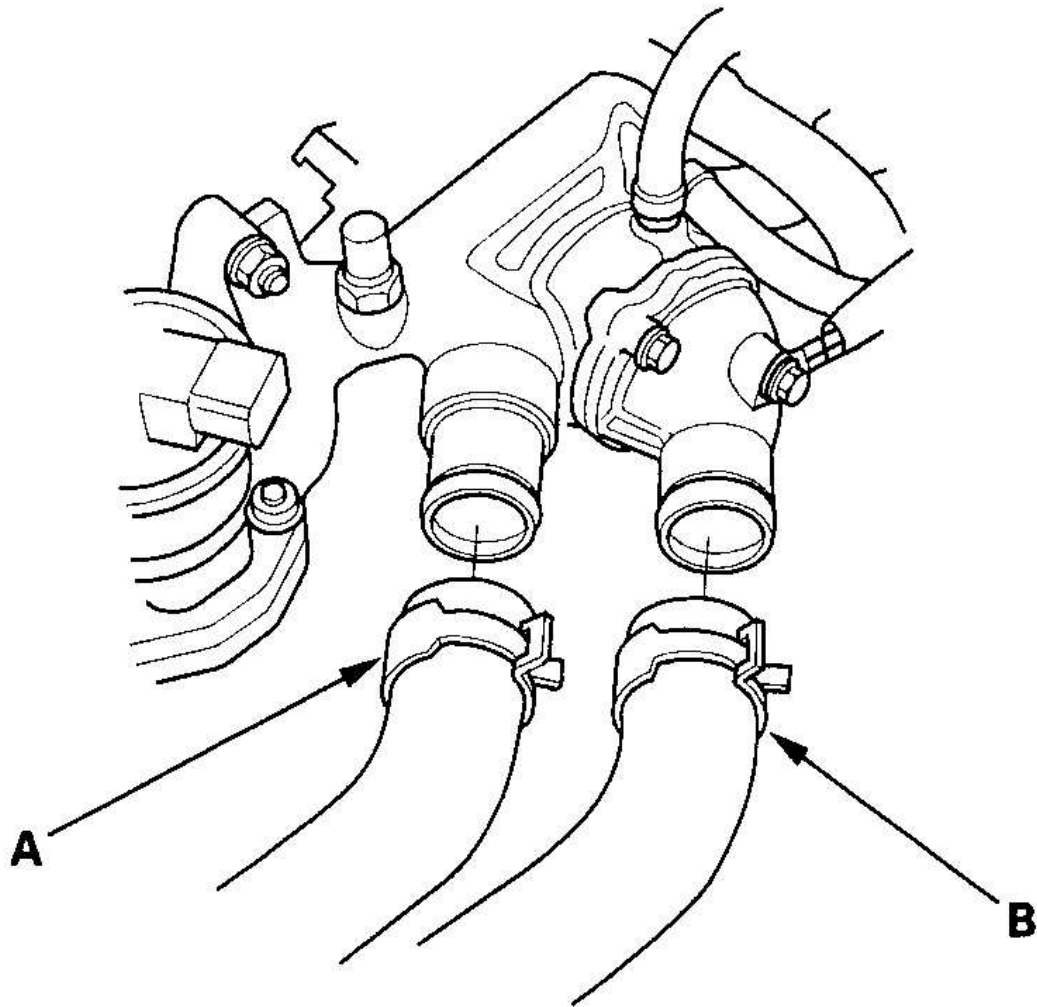


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**Fig. 22: Removing Heater Hoses**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

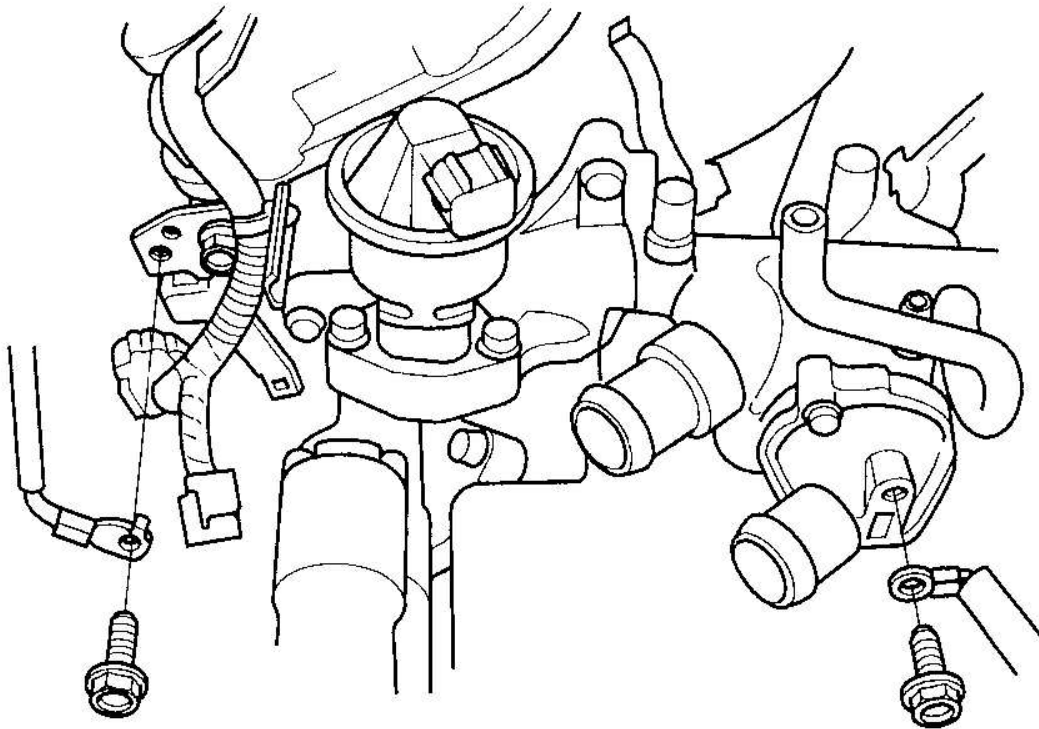
44. Remove the upper radiator hose (A) and lower radiator hose (B).



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**Fig. 23: Removing Upper And Lower Radiator Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

45. Remove the ground cables.

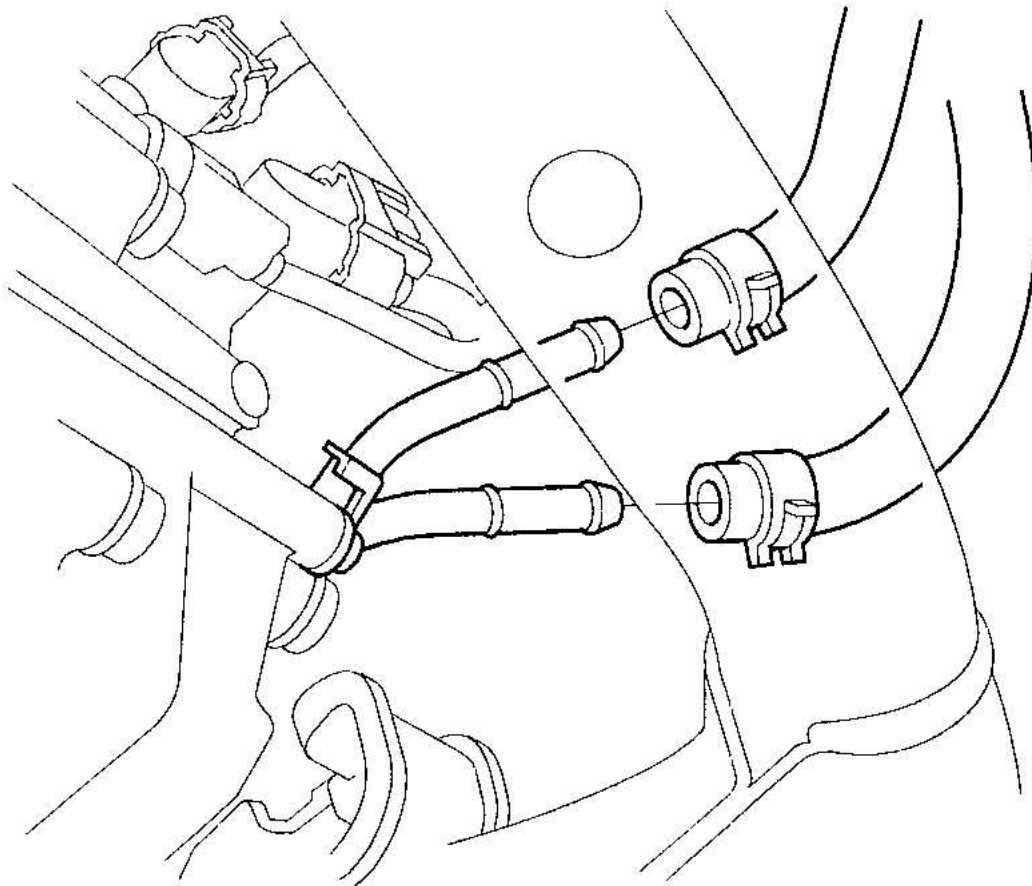


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**Fig. 24: Removing Ground Cables**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

46. Remove the ATF cooler hoses, then plug the ATF cooler hoses and lines.

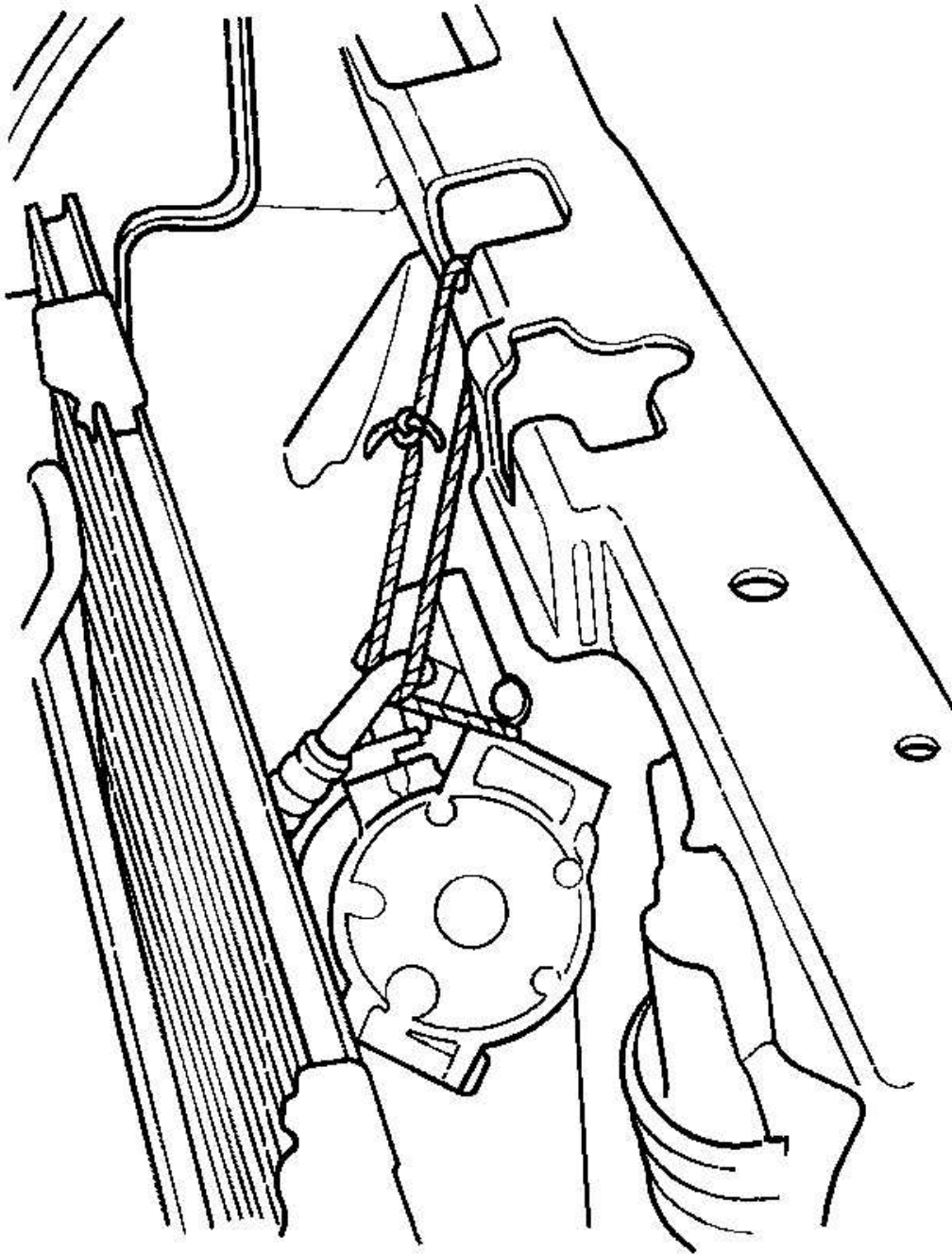


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**Fig. 25: Removing ATF Cooler Hoses**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

47. Remove the radiator (see **RADIATOR AND FAN REPLACEMENT** ).
48. Hang the A/C compressor with a rope as shown in **Fig. 26** .



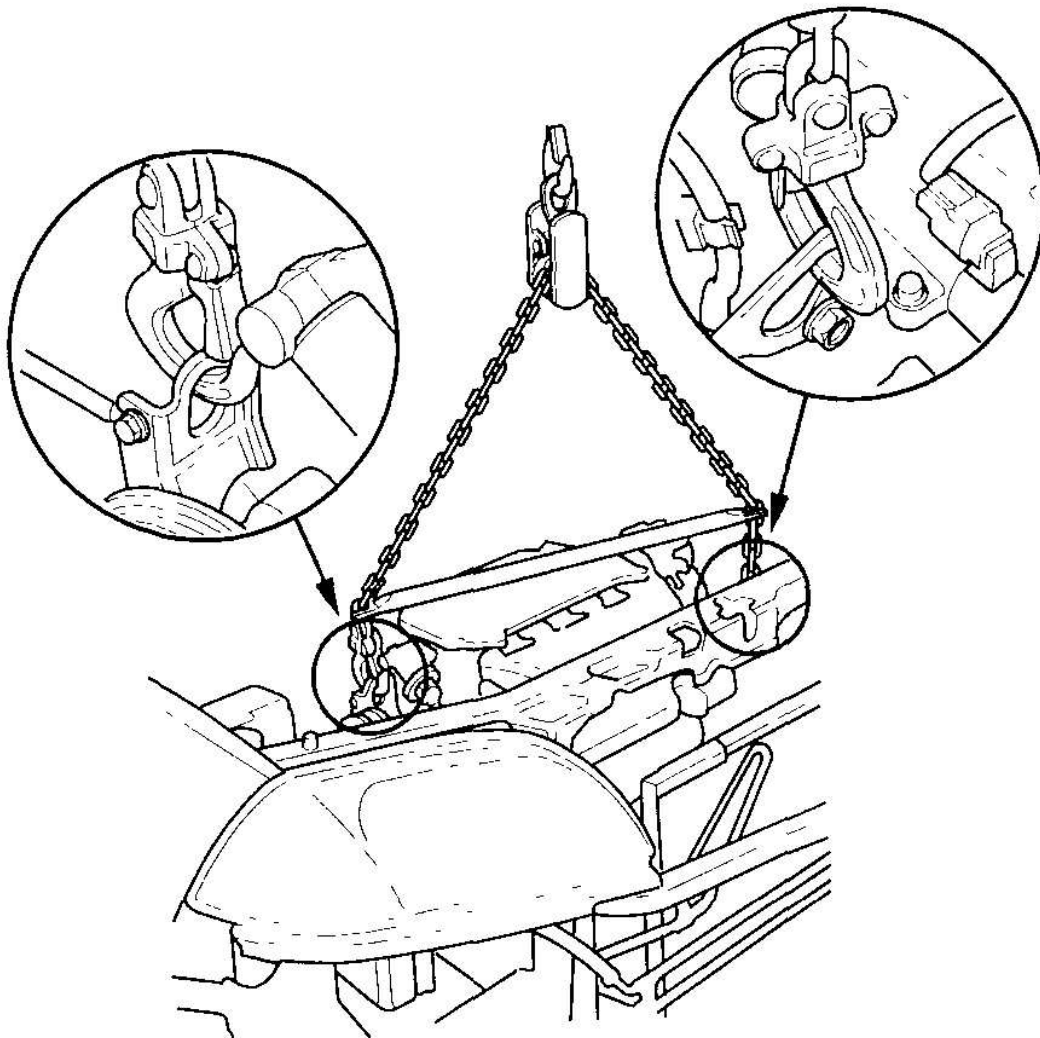
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**Fig. 26: Hanging A/C Compressor With Rope**



Courtesy of AMERICAN HONDA MOTOR CO., INC.

49. Attach the chain hoist to the engine as shown in **Fig. 27** .



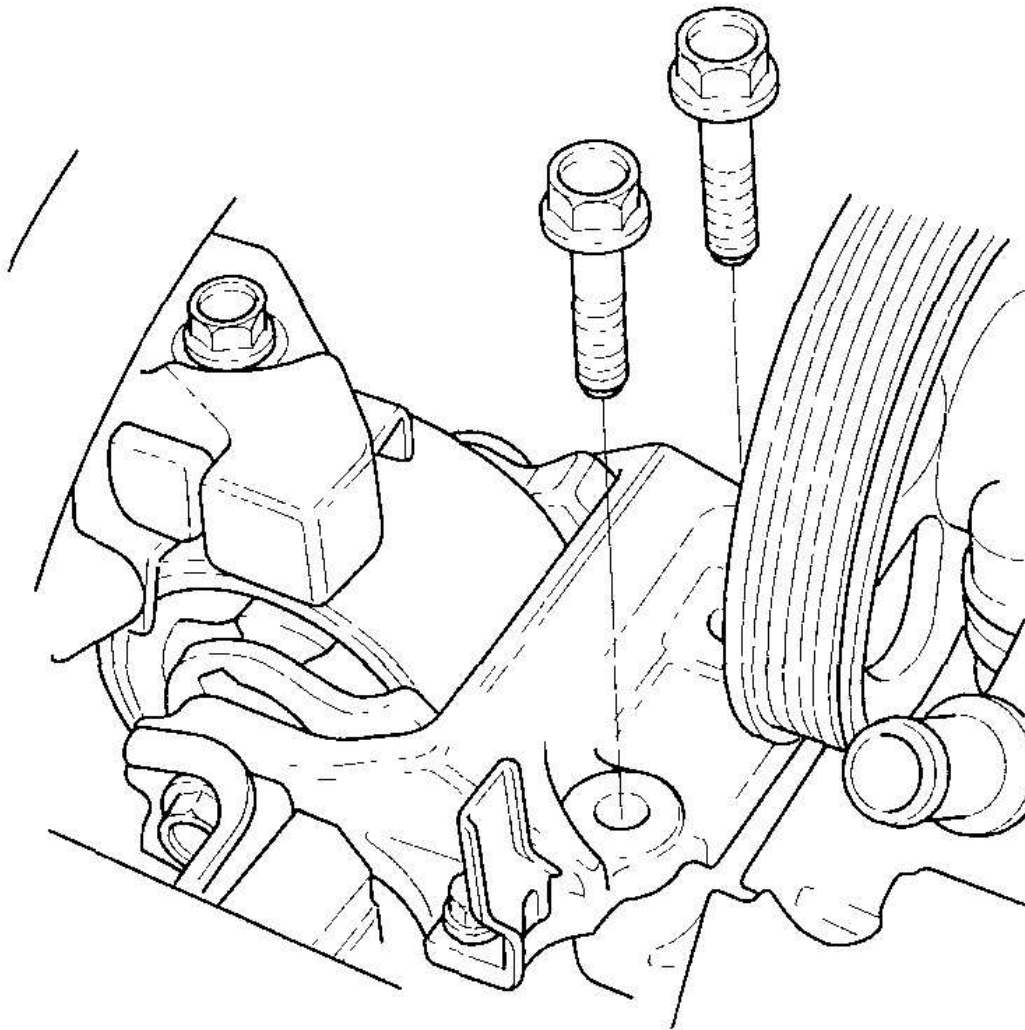
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**Fig. 27: Attaching Chain Hoist To Engine**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

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

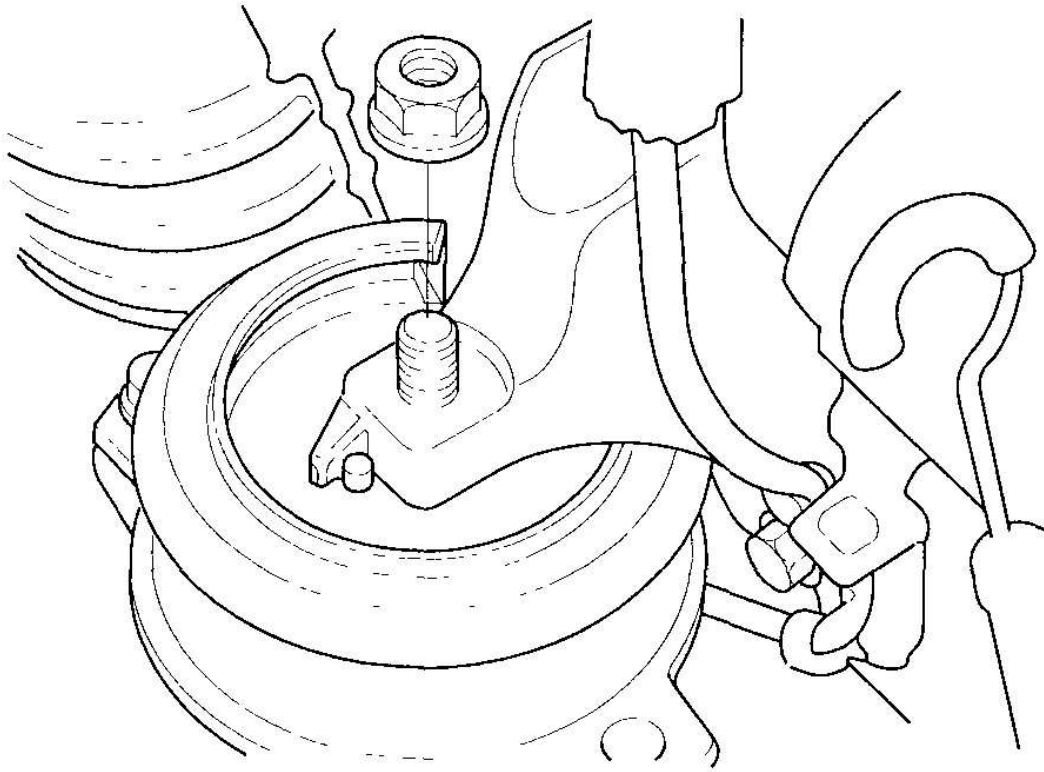




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**Fig. 28: Removing Mounting Bolts**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

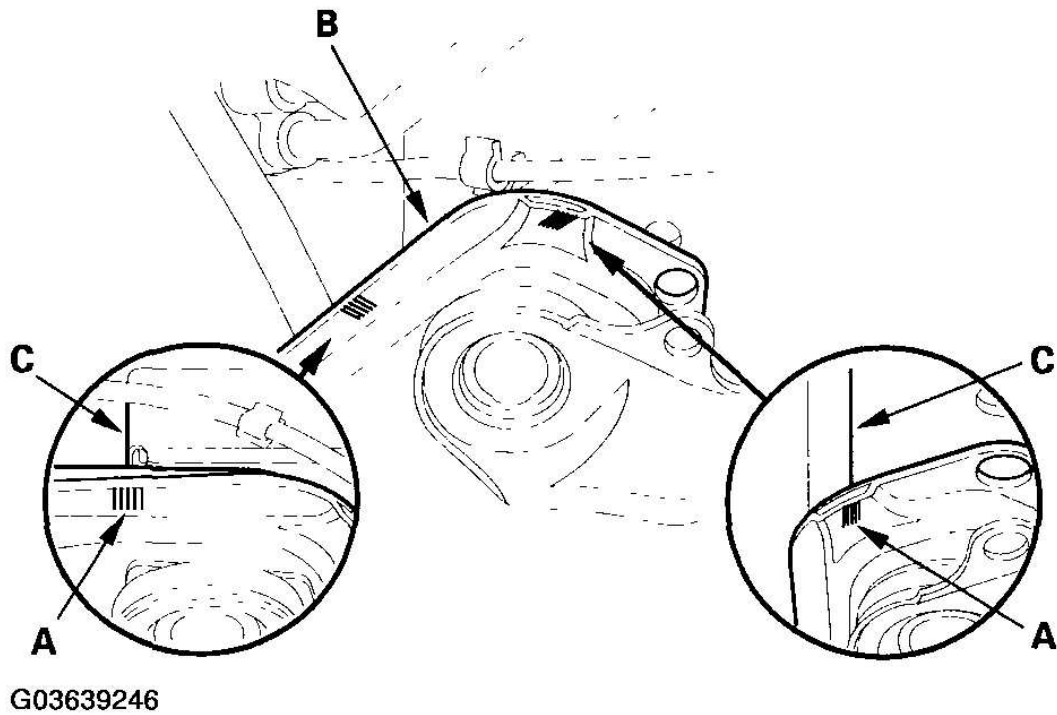
51. Remove the front engine mount nut.



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**Fig. 29: Removing Front Engine Mount Nut**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

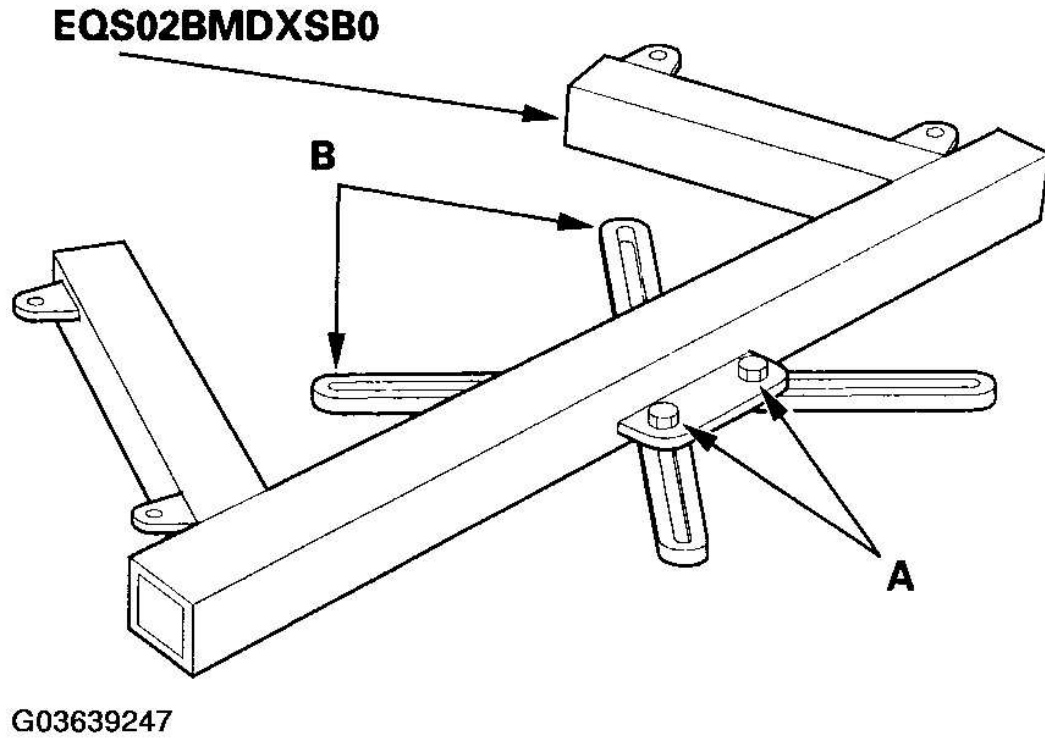
52. Make sure the hoist brackets are positioned properly. Raise the vehicle on the hoist to full height.
53. Make the appropriate reference lines (A) at both ends of the subframe (B) that line up with the edge (C) of the body.



**Fig. 30: Marking Appropriate Reference Lines At Both Ends Of Subframe Lining Up With Edge Of Body**

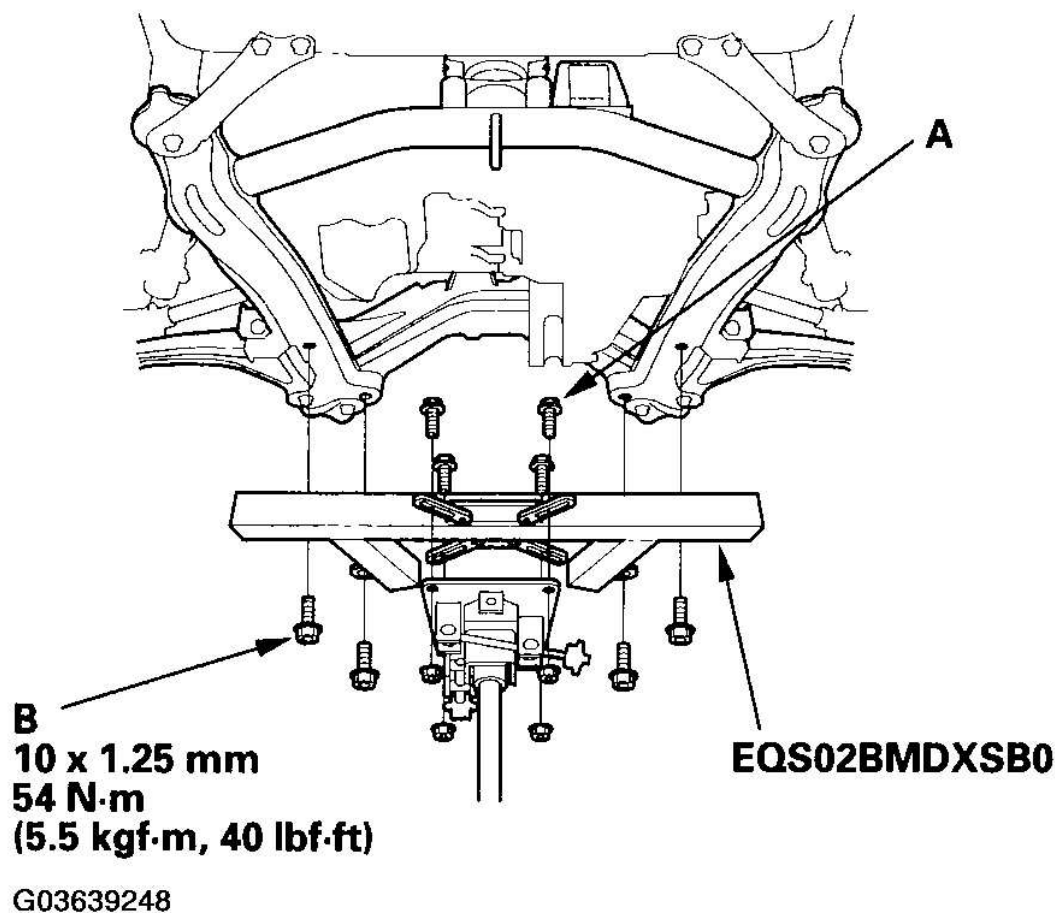
Courtesy of AMERICAN HONDA MOTOR CO., INC.

54. Loosen the four bolts (A) holding the adjustable arms (B) of the front subframe adapter to its center plate.



**Fig. 31: Loosening Adjustable Arms Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

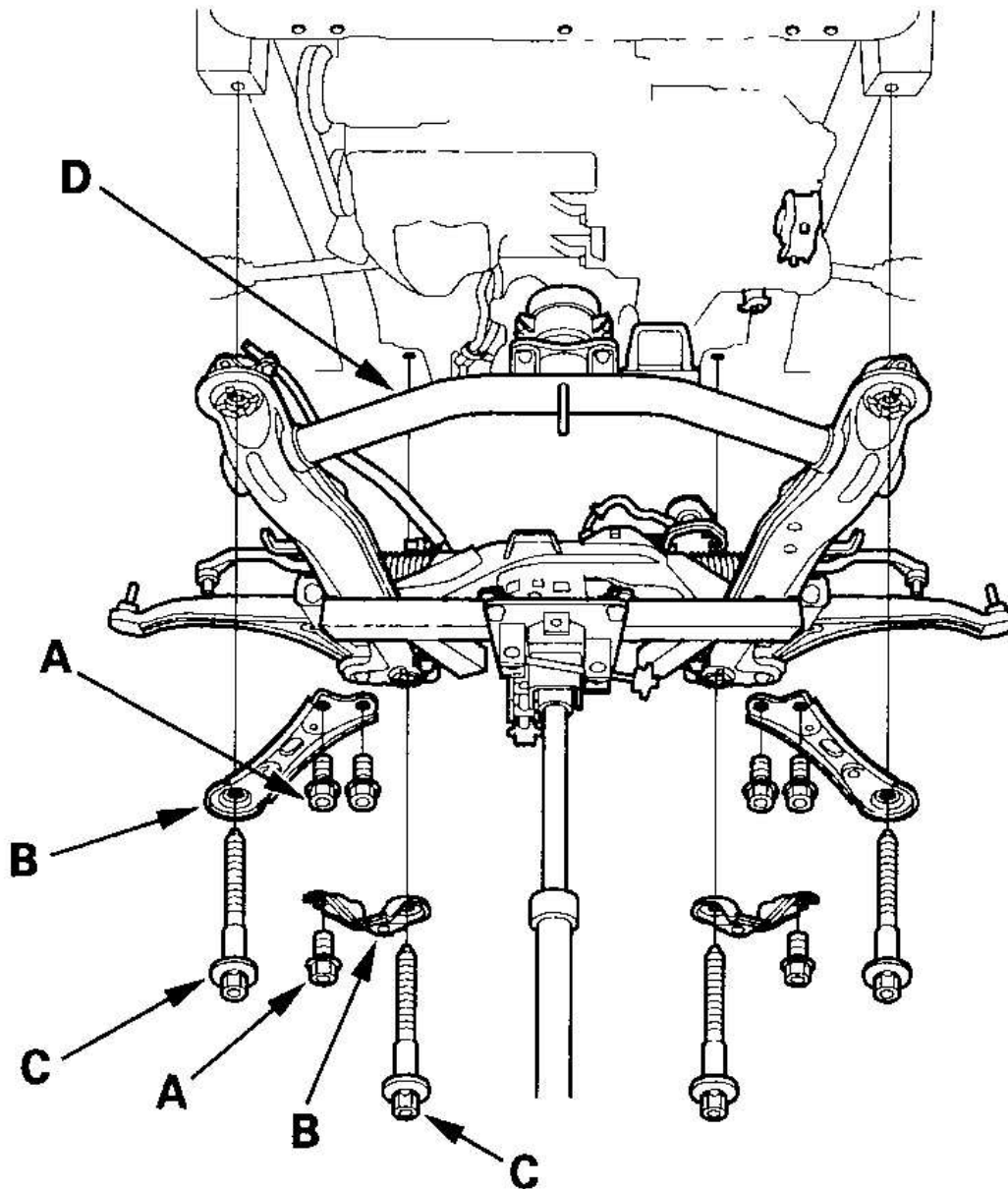
55. Line up the slots in the arms with the bolt holes on the corner of the jack base, then attach the adapter to the jack base with the bolts (A) that came with the jack. Tighten all bolts securely.



**Fig. 32: Attaching Adapter To Jack Base**

**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

56. Raise the jack to vehicle height, then attach the adapter to the front subframe using the subframe stiffener mounting bolts (B) and bolt holes.
57. Remove the six 12 x 1.25 mm bolts (A) securing the subframe stiffeners (B), the four subframe mounting bolts (C), and the stiffeners, then lower the front subframe (D).



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**Fig. 33: Removing Bolts**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

58. Check that the engine/transmission is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
59. Slowly lower the engine/transmission assembly about 150 mm (6 in.). Check once again that all hoses

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and wires are disconnected from the engine/transmission.

60. Lower the engine/transmission assembly all the way. Remove the chain hoist from the engine.
61. Remove the engine/transmission assembly from under the vehicle.

## ENGINE INSTALLATION

### Special Tools Required

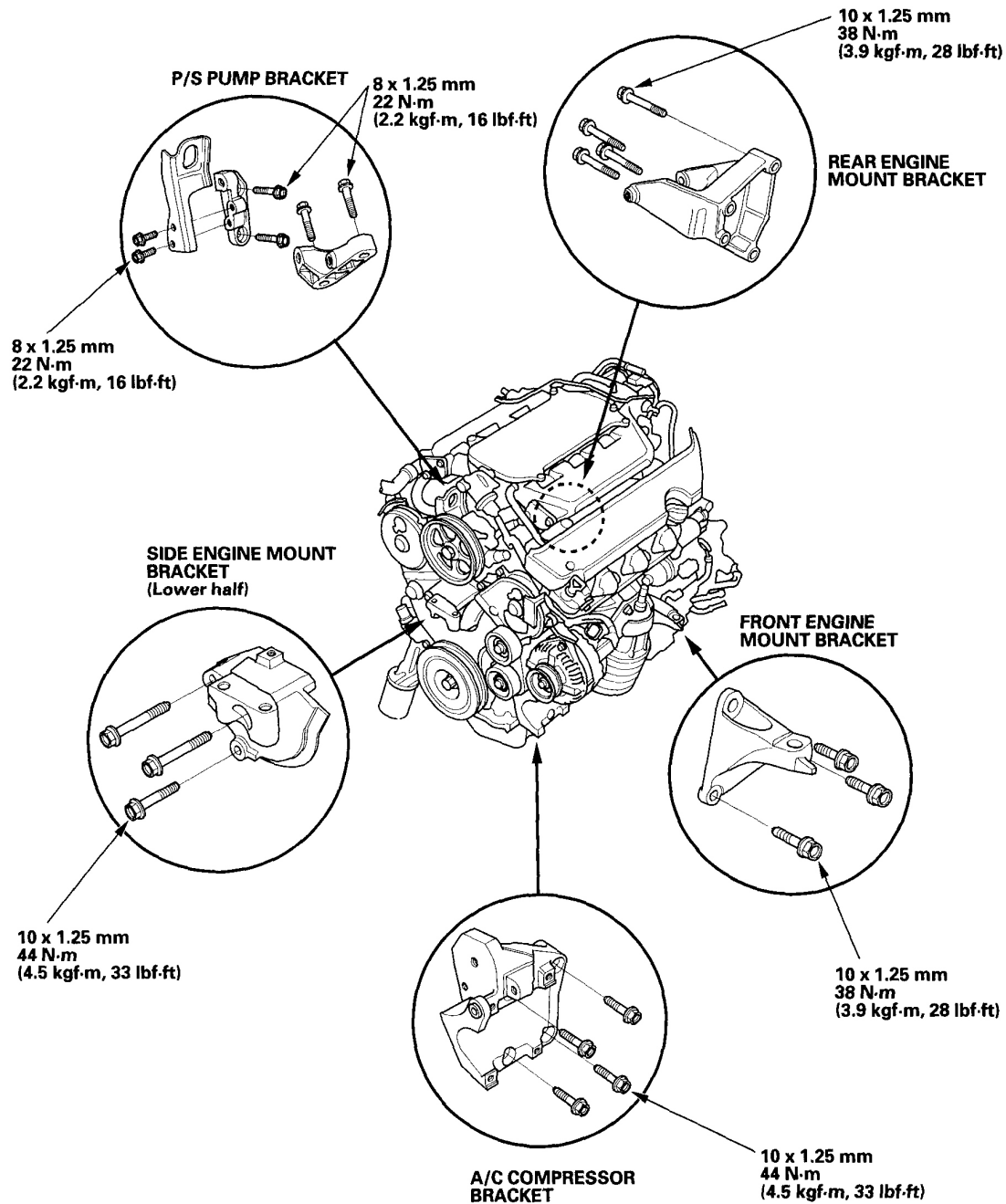
Front subframe adapter EQS02BMDXSB0

1. Install the accessory brackets and tighten their bolts to the specified torques.



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**Fig. 34: Installing Accessory Brackets Bolts**

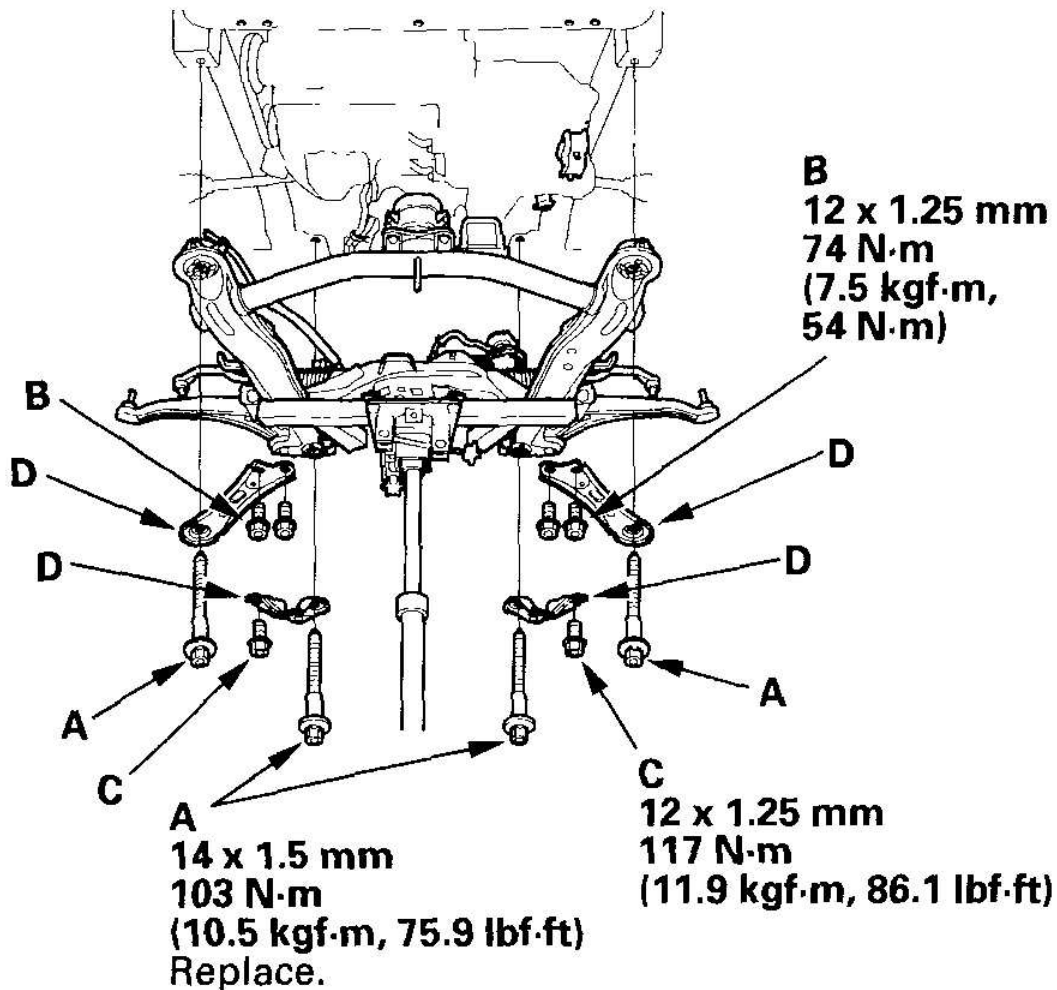
Courtesy of AMERICAN HONDA MOTOR CO., INC.

2. Position the engine/transmission assembly under the vehicle. Attach the chain hoist to the engine, then lift the engine into position in the vehicle.

**NOTE:** Reinstall the mounting bolts/support nuts in the sequence given. Failure to

**follow this sequence may cause excessive noise and vibration, and reduce bushing life.**

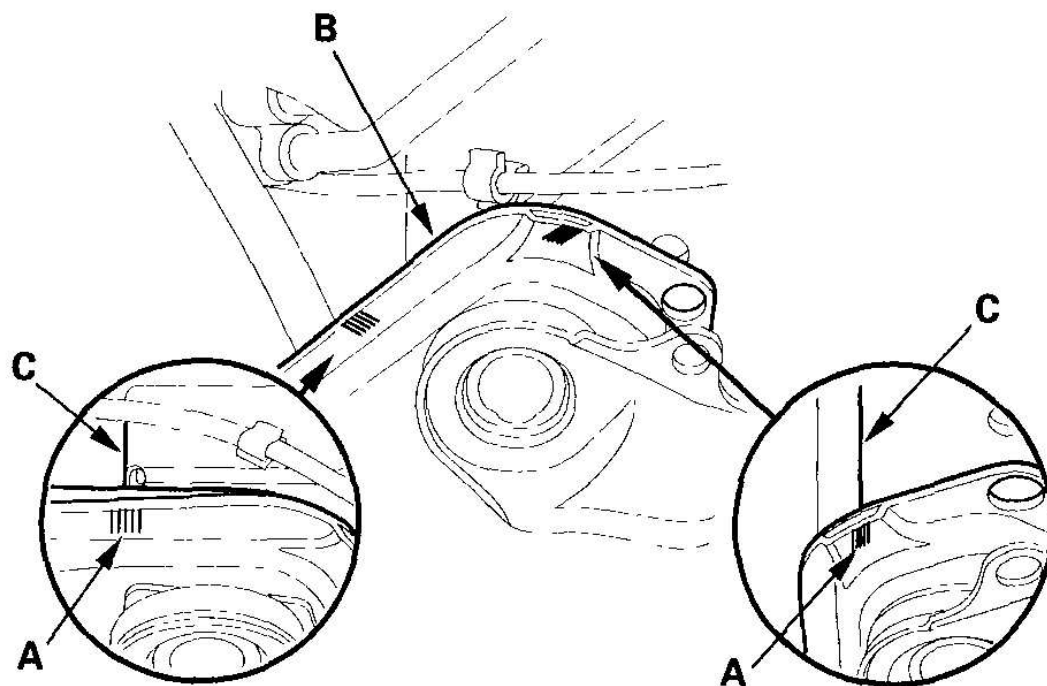
3. Support the front subframe with the front subframe adapter and a jack, and lift it up to the body.
4. Loosely install the four front subframe mounting bolts (A) and the six 12 x 1.25 mm bolts (B), (C) with the stiffeners (D).



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**Fig. 35: Installing Front Subframe Mounting Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

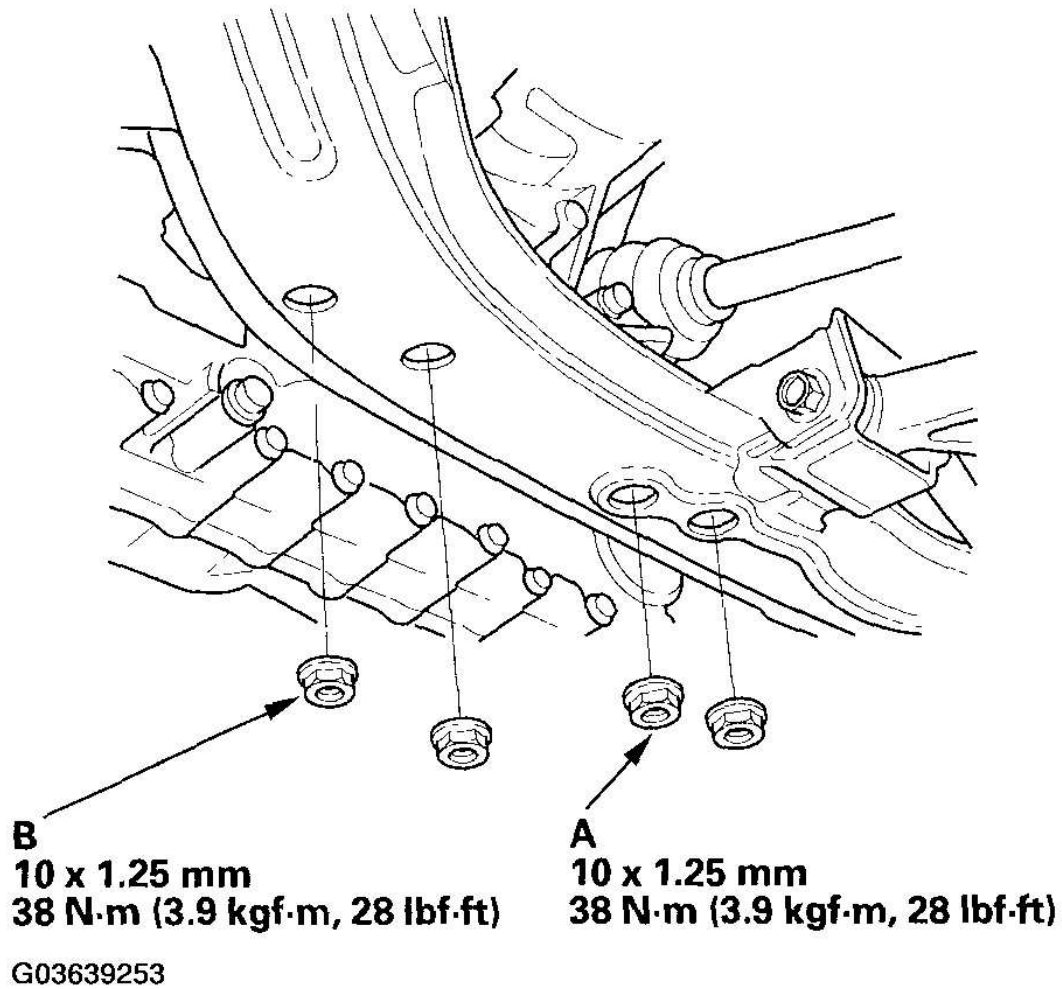
5. Align all reference marks (A) on the front subframe (B) with the edge of the body (C), then tighten the bolts on the front subframe to the specified torque.



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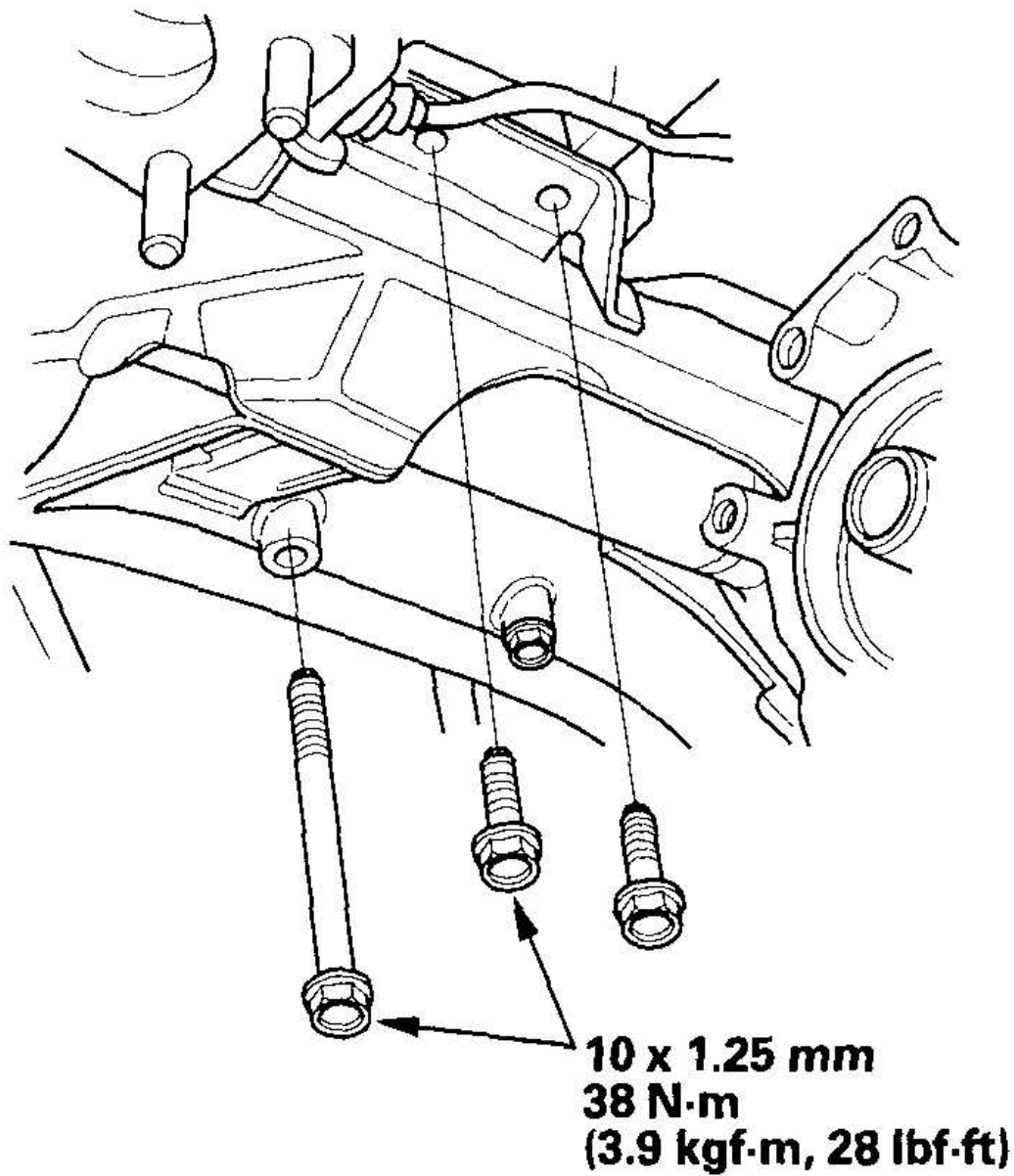
**Fig. 36: Aligning All Reference Marks On Front Subframe With Edge Of Body**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

6. Remove the front subframe adapter and a jack.
7. Tighten the transmission lower rear mount nuts (A) and transmission lower front mount nuts (B).



**Fig. 37: Tightening Transmission Lower Rear And Front Mount Nuts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

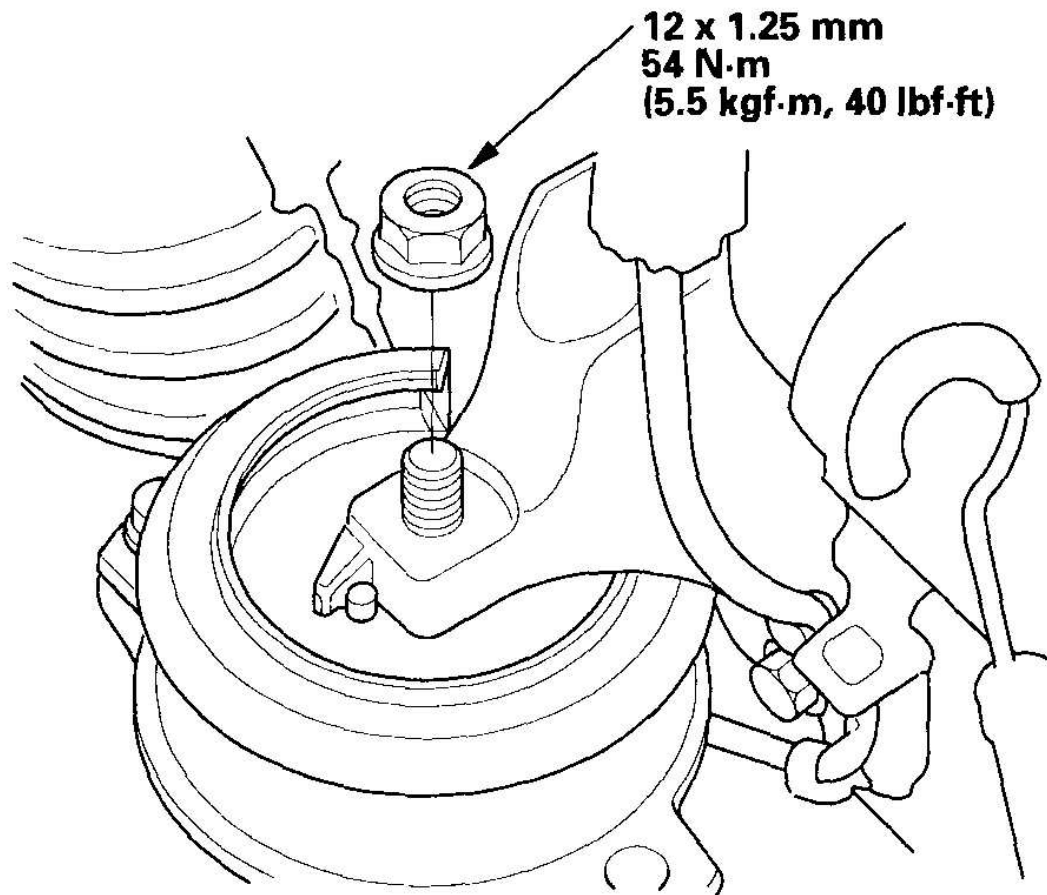
8. Tighten the rear engine mount bolts.



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**Fig. 38: Tightening Rear Engine Mount Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

9. Lower the vehicle on the hoist.
10. Tighten the front engine mount nut.



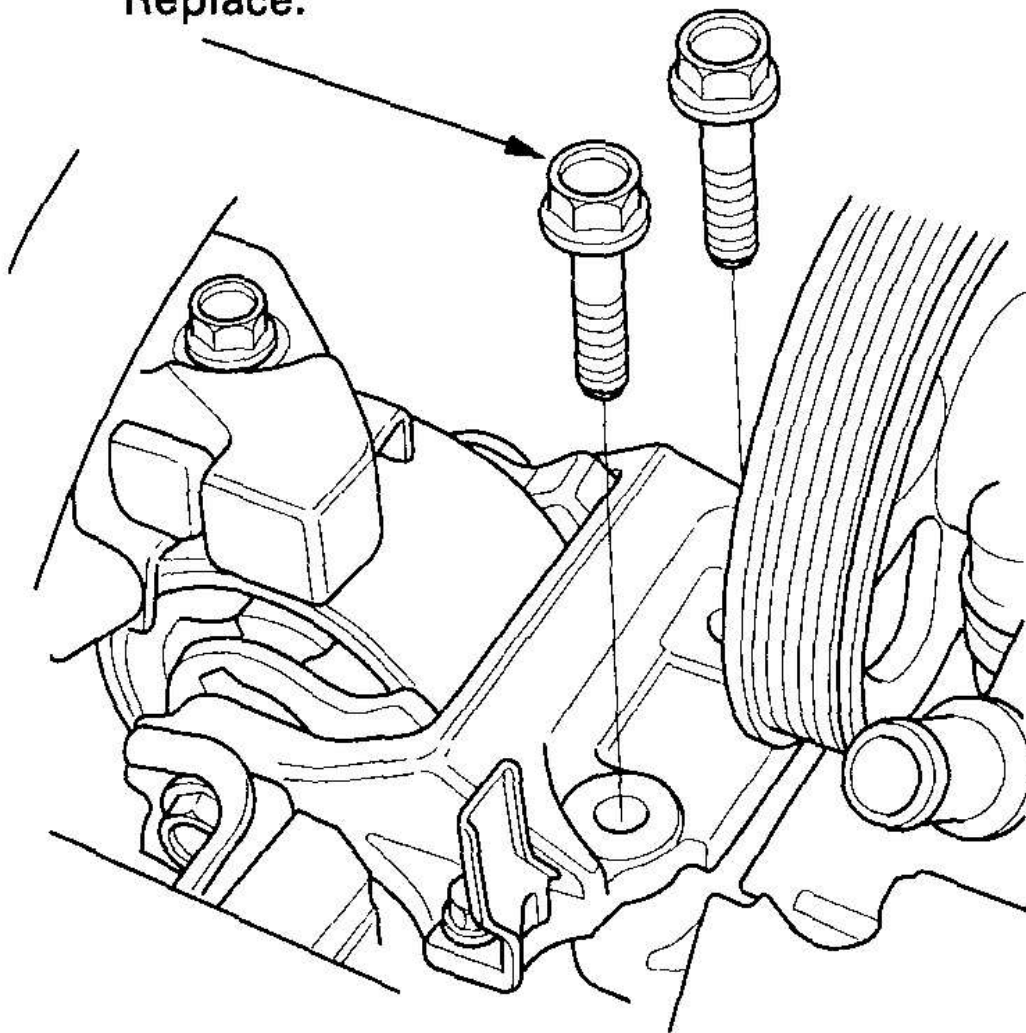
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**Fig. 39: Tightening Front Engine Mount Nut**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

11. Tighten the upper half of the side engine mount bracket bolts.



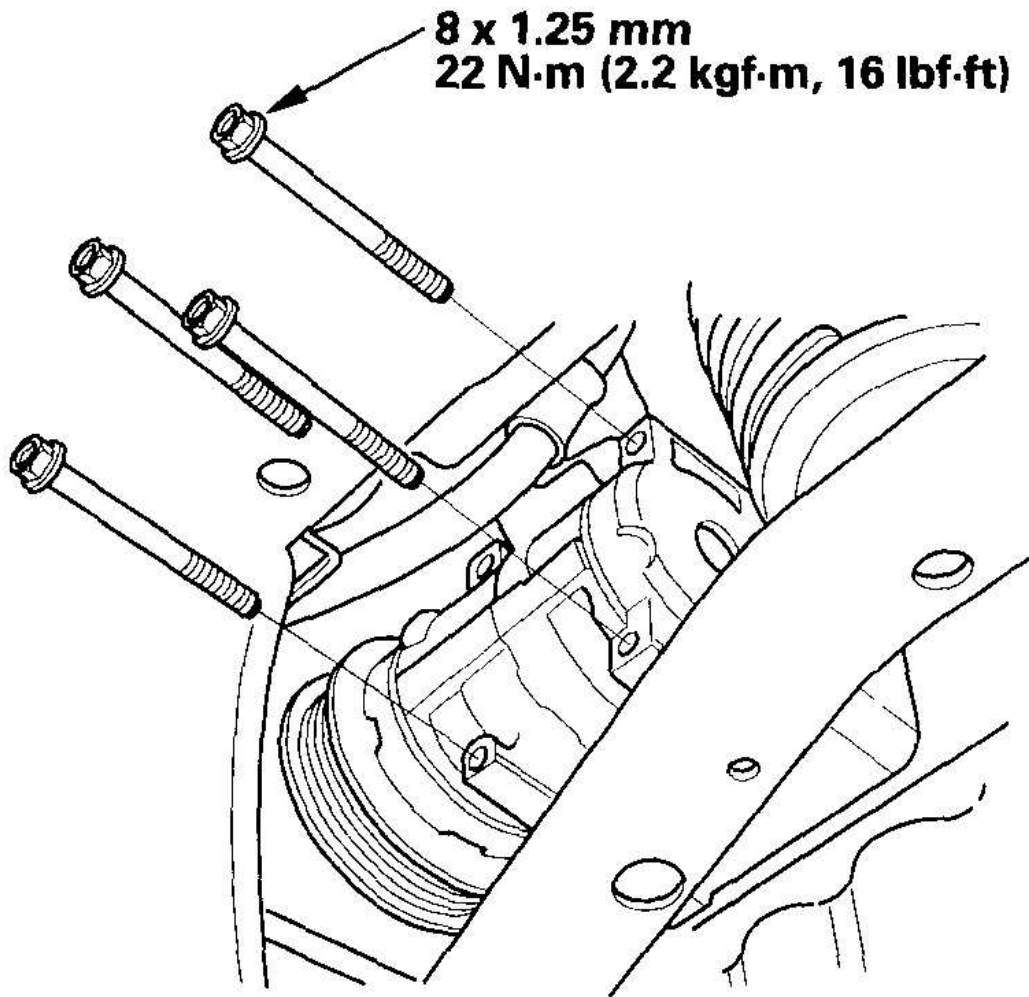
**10 x 1.25 mm**  
**44 N·m (4.5 kgf·m, 33 lbf·ft)**  
**Replace.**



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**Fig. 40: Tightening Upper Half Of Side Engine Mount Bracket Bolts**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

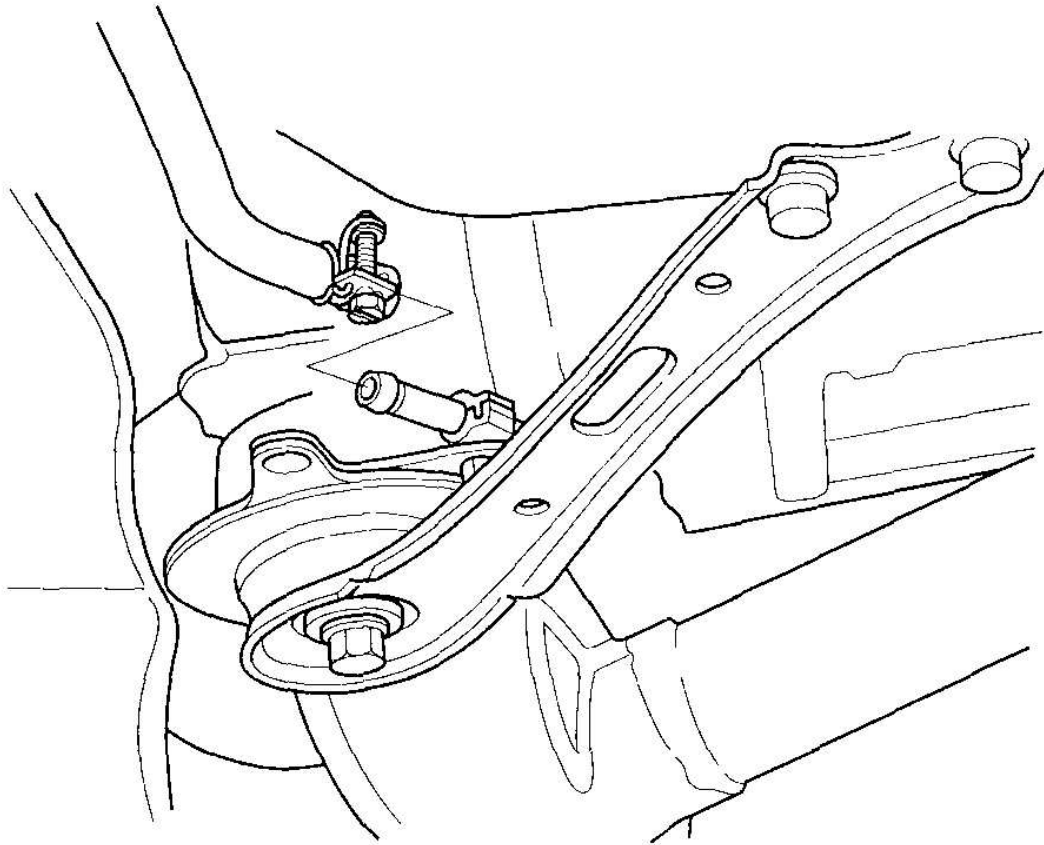
12. Remove the chain hoist from the engine.
13. Raise the vehicle on the hoist to full height.
14. Install the A/C compressor.



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**Fig. 41: Installing A/C Compressor**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

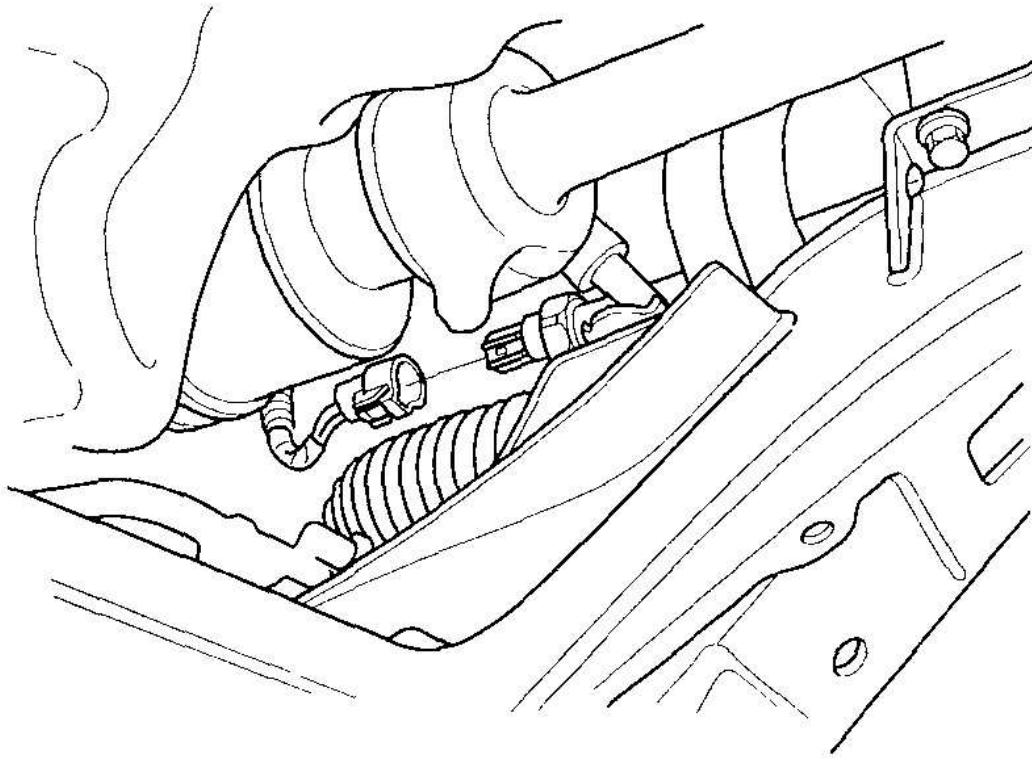
15. Install the power steering (P/S) hose.



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**Fig. 42: Installing Power Steering P/S Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

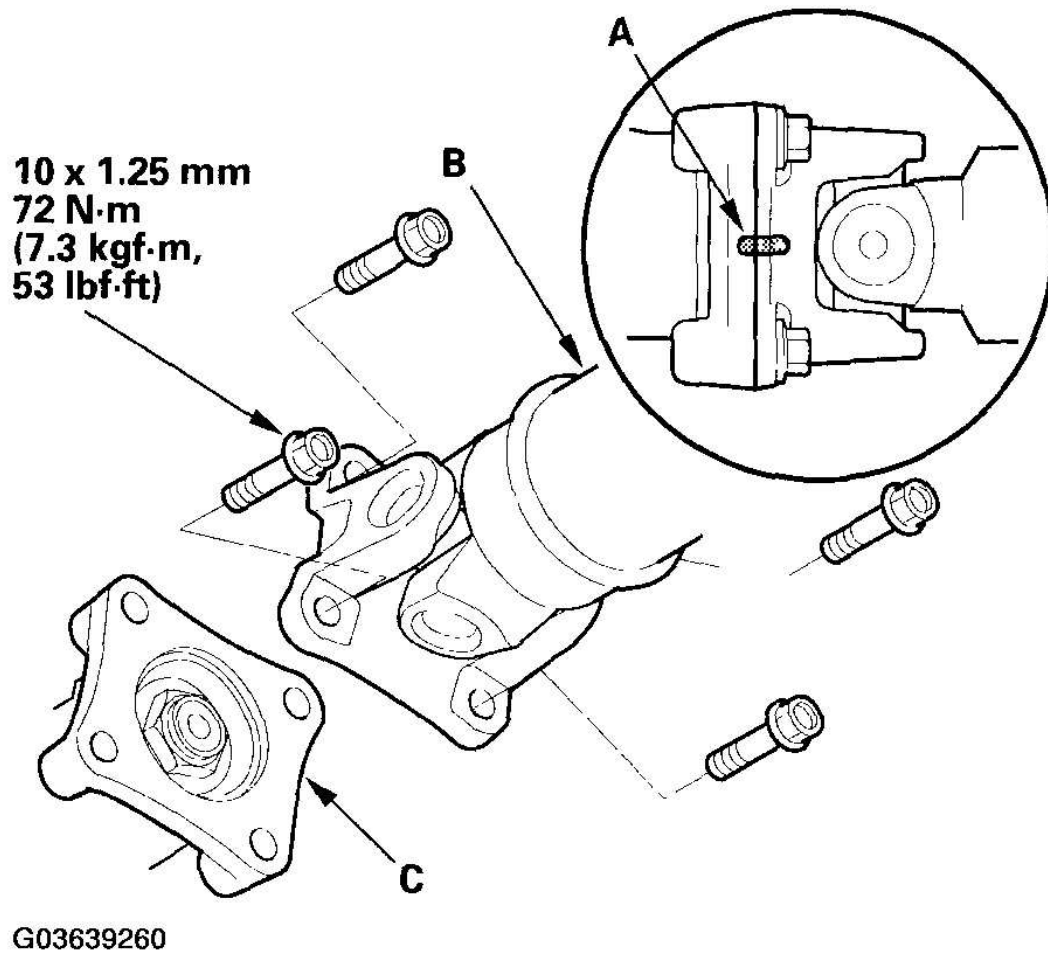
16. Connect the power steering pressure switch connector.



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**Fig. 43: Connecting Power Steering Pressure Switch Connector**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

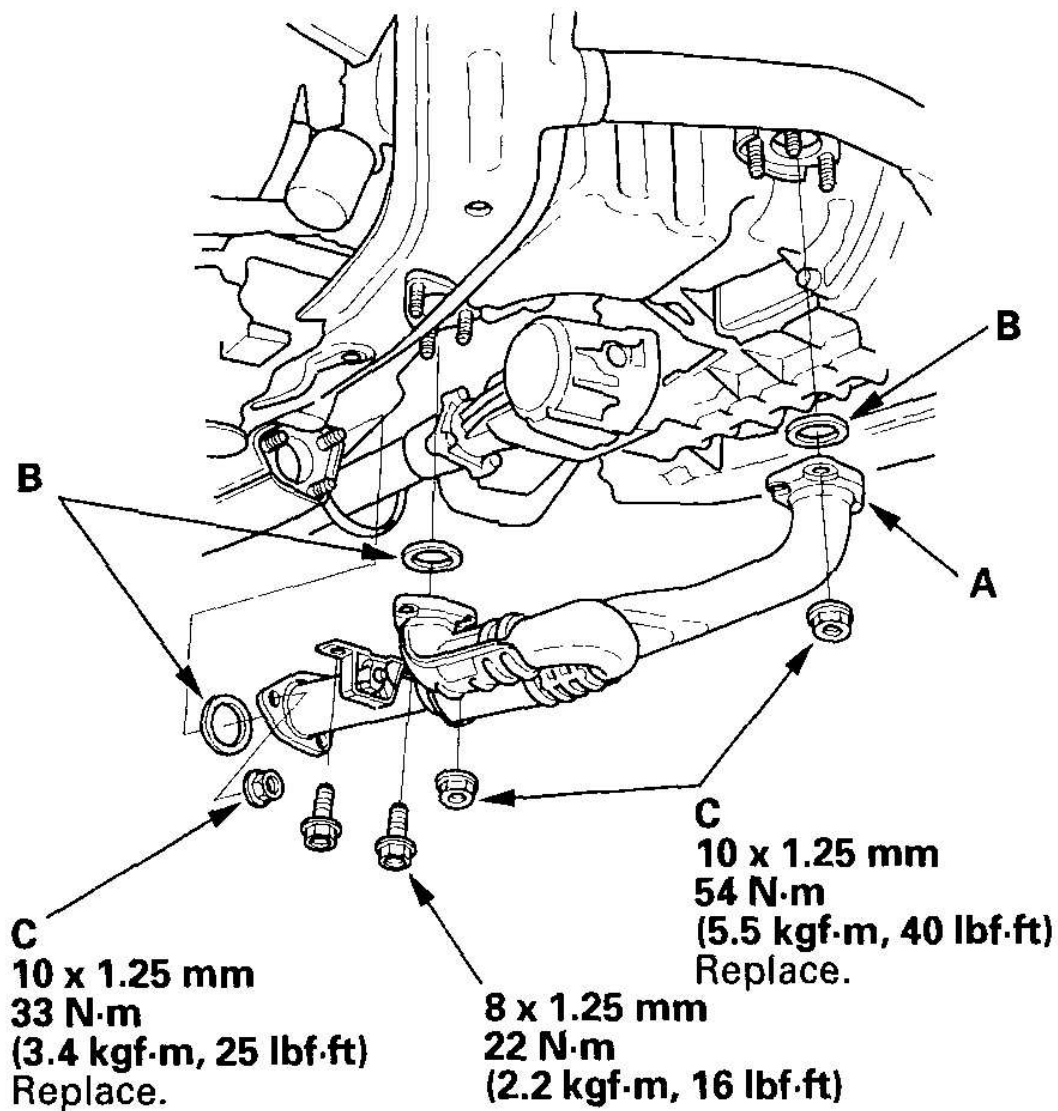
17. Install a new set ring on the end of each driveshaft, then install the driveshafts. Make sure each ring "clicks" into place on the differential and intermediate shafts.
18. Connect the suspension lower arm ball joints (see **LOWER ARM REMOVAL/INSTALLATION** ).
19. Connect the tie-rod end ball joints (see step 22 in **STEERING GEARBOX INSTALLATION** ).
20. Connect the stabilizer links (see **STABILIZER LINK REMOVAL/INSTALLATION** ).
21. Install the transfer assembly (see **TRANSFER ASSEMBLY INSTALLATION** ).
22. Install the shift cable (see **SHIFT CABLE REPLACEMENT** ).
23. Align the reference marks (A) on the propeller shaft (B) and transfer shaft flange (C), then install the propeller shaft.



**Fig. 44: Aligning Reference Marks On Propeller Shaft And Transfer Shaft Flange**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

24. Install exhaust pipe A using new gaskets (B) and new self locking nuts (C).



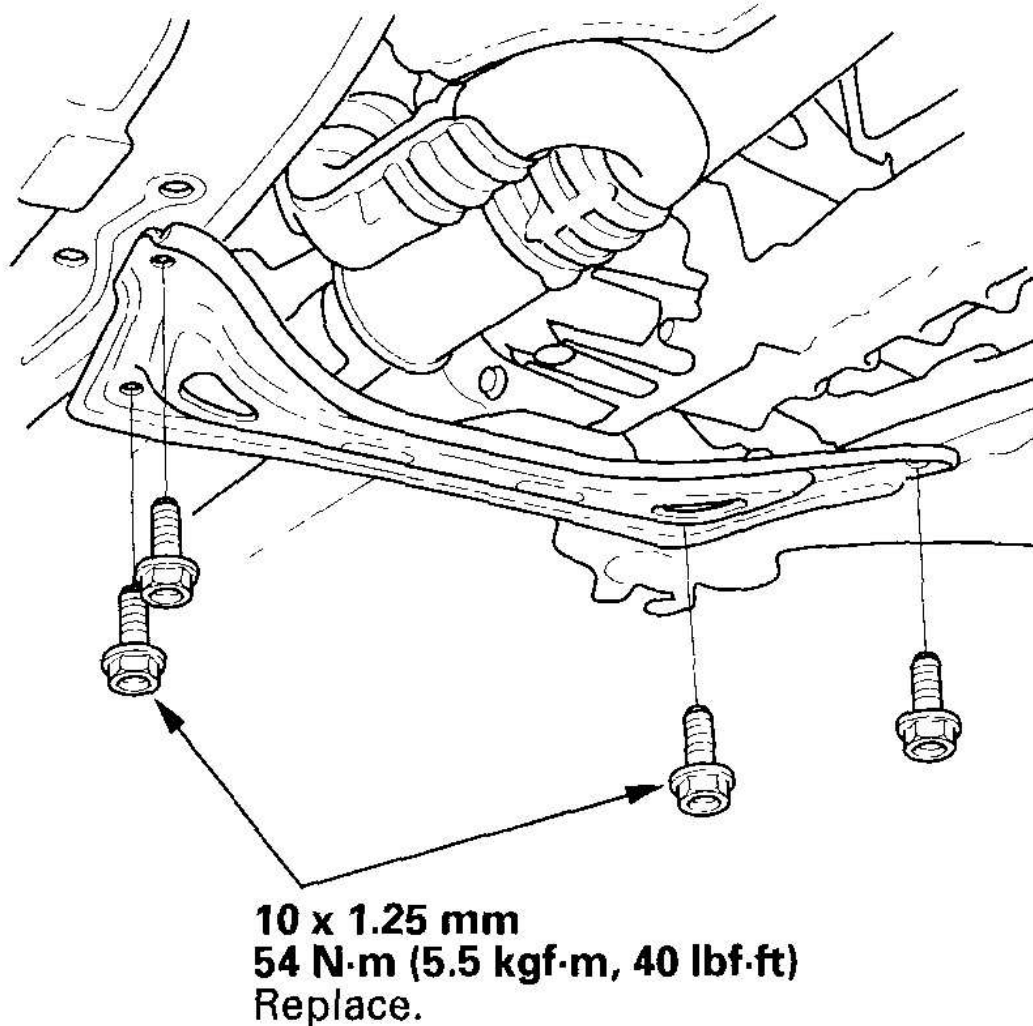


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**Fig. 45: Installing Exhaust Pipe A**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

25. Install the front subframe stiffener.

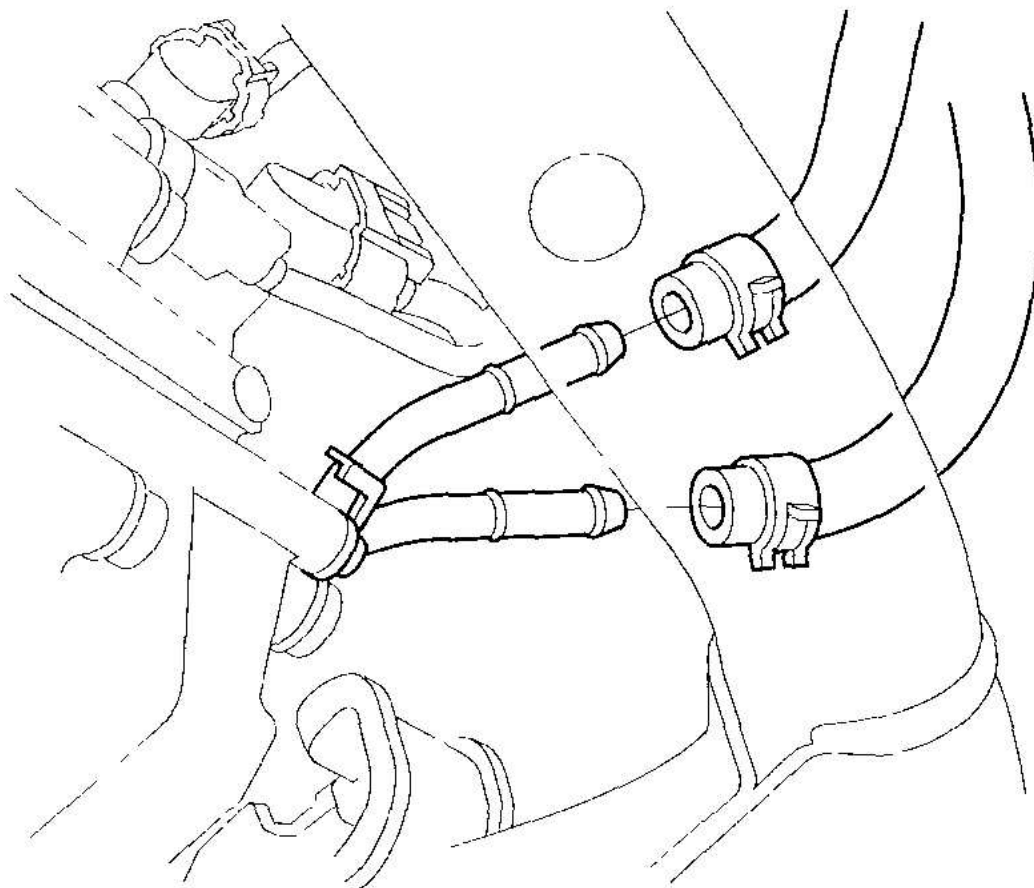




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**Fig. 46: Installing Front Subframe Stiffener**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

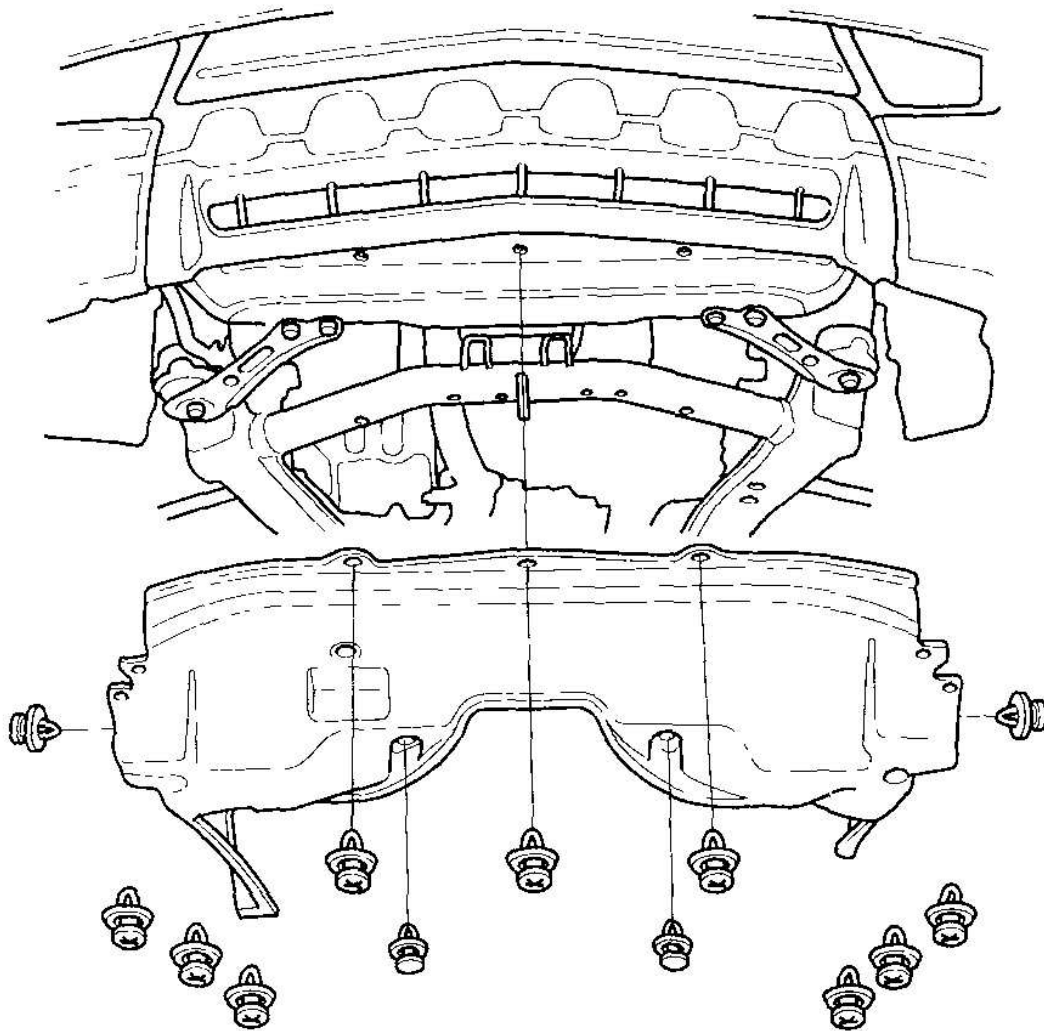
26. Install the automatic transmission fluid (ATF) cooler hoses.



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**Fig. 47: Installing Automatic Transmission Fluid Cooler Hoses**  
**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

27. Install the splash shield.

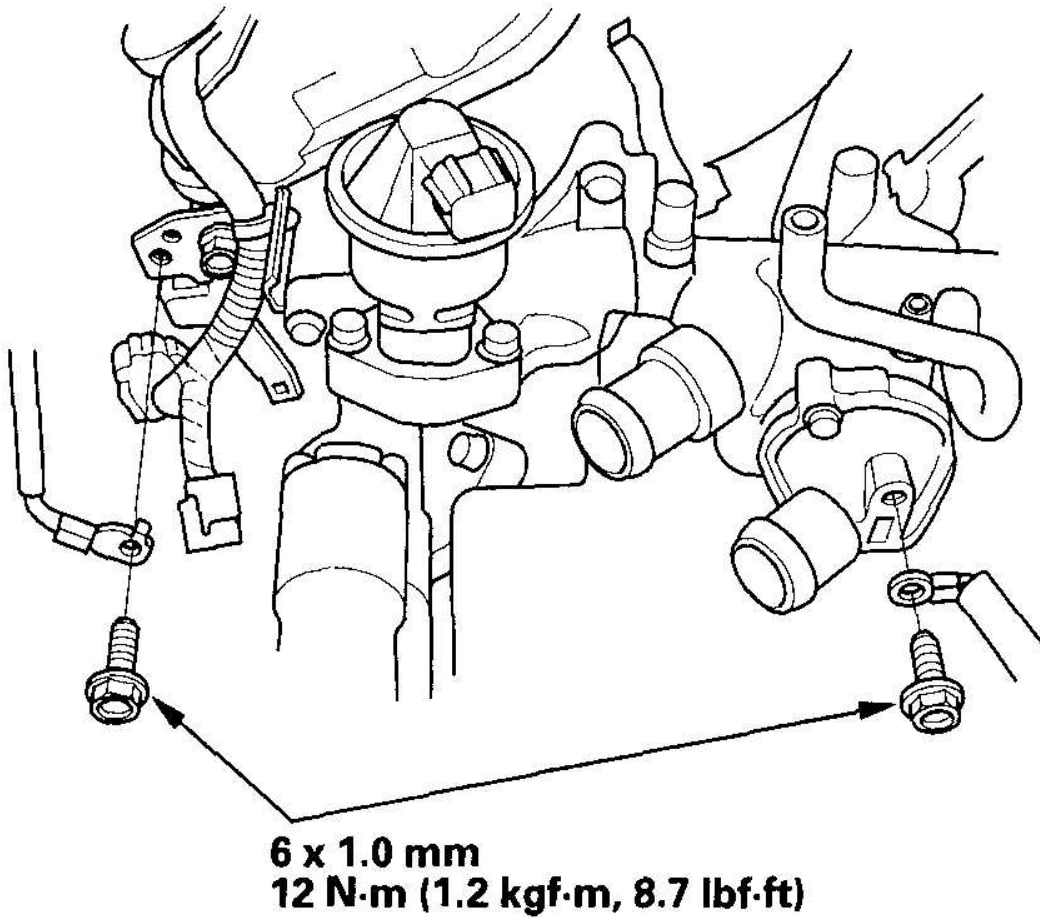


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**Fig. 48: Installing Splash Shield**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

28. Install the front wheels.
29. Lower the vehicle on the hoist.
30. Install the radiator (see **RADIATOR AND FAN REPLACEMENT** ).
31. Install the ground cables.

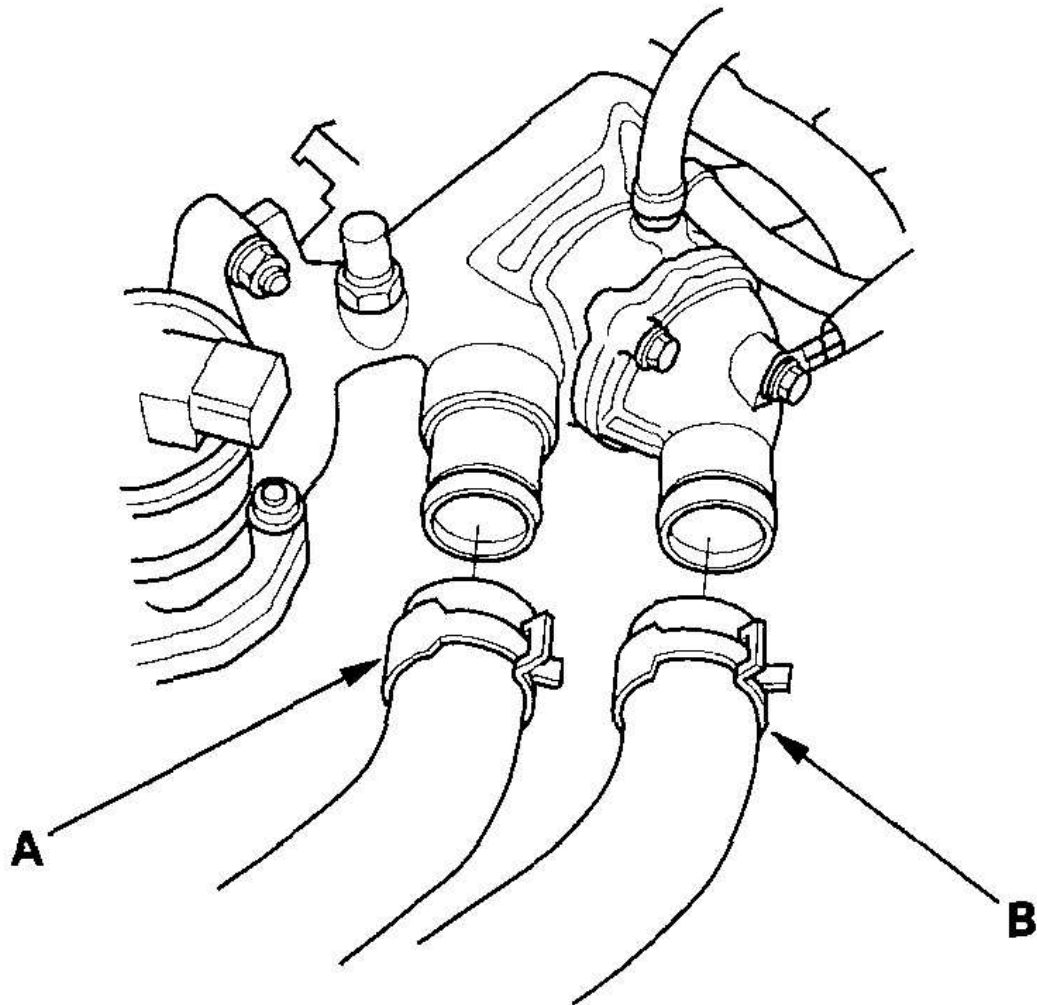


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**Fig. 49: Installing Ground Cables**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

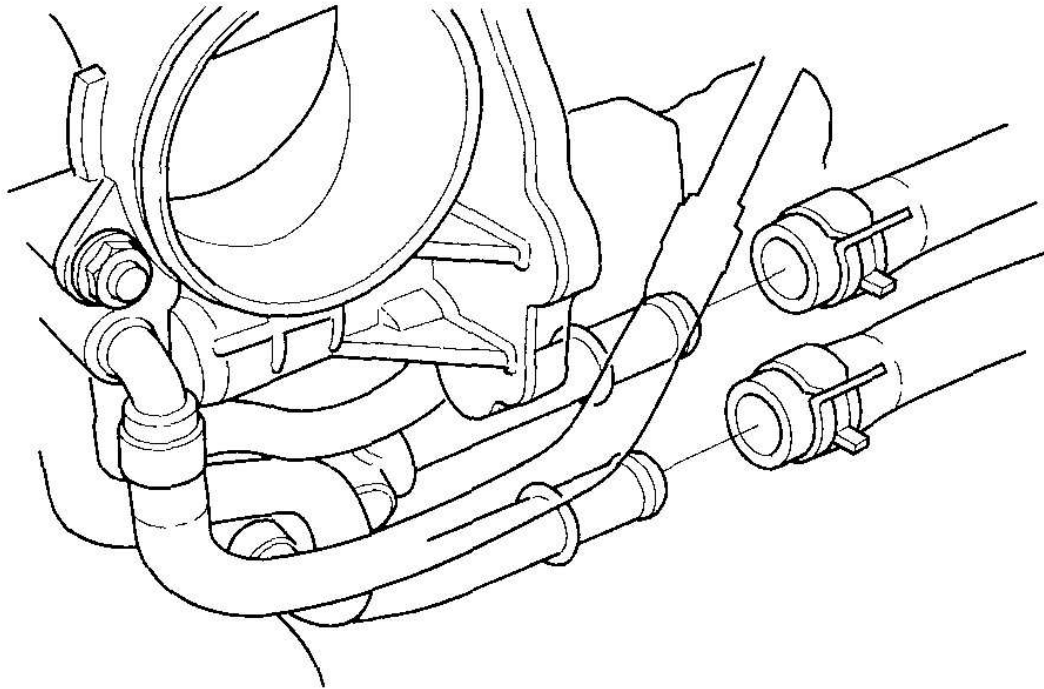
32. Install the upper radiator hose (A) and lower radiator hose (B).



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**Fig. 50: Installing Upper And Lower Radiator Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

33. Install the heater hoses.



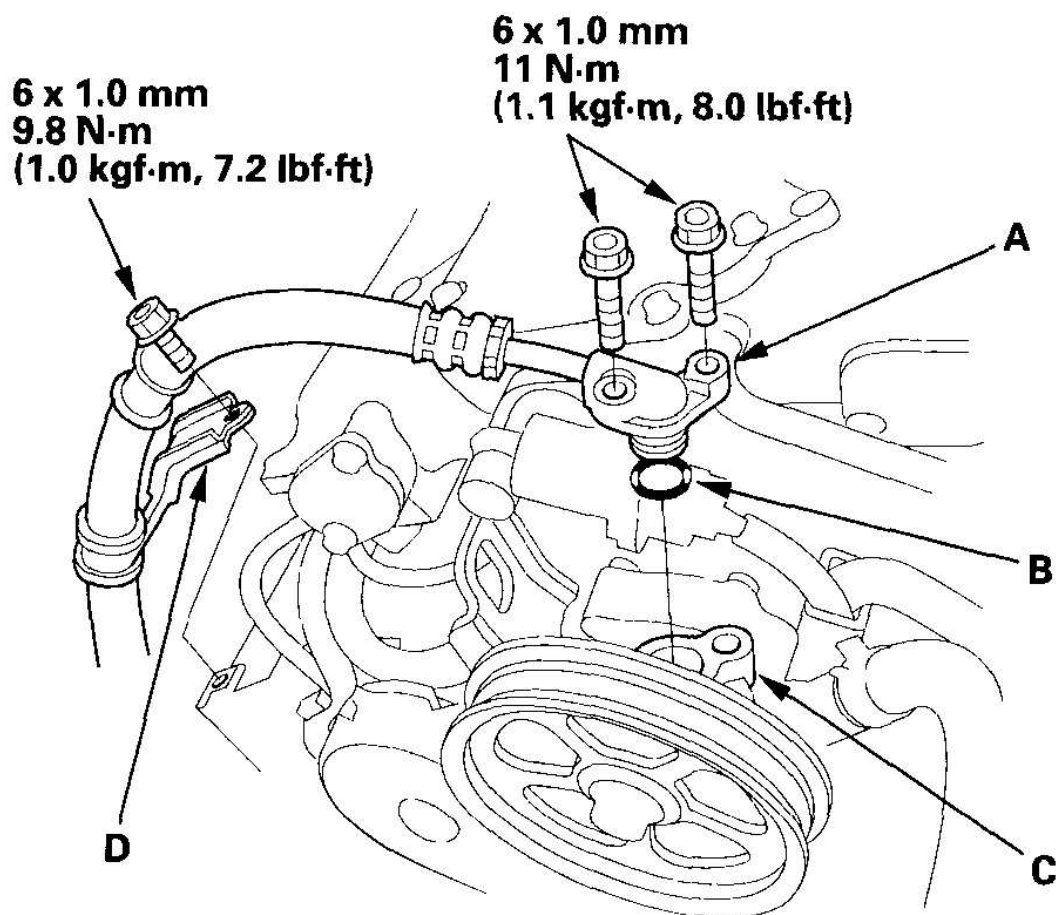
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**Fig. 51: Installing Heater Hoses**

**Courtesy of AMERICAN HONDA MOTOR CO., INC.**

34. Install the power steering pump outlet hose (A) with a new O-ring (B) to the pump (C), and secure the hose clamp (D) with the bolt.

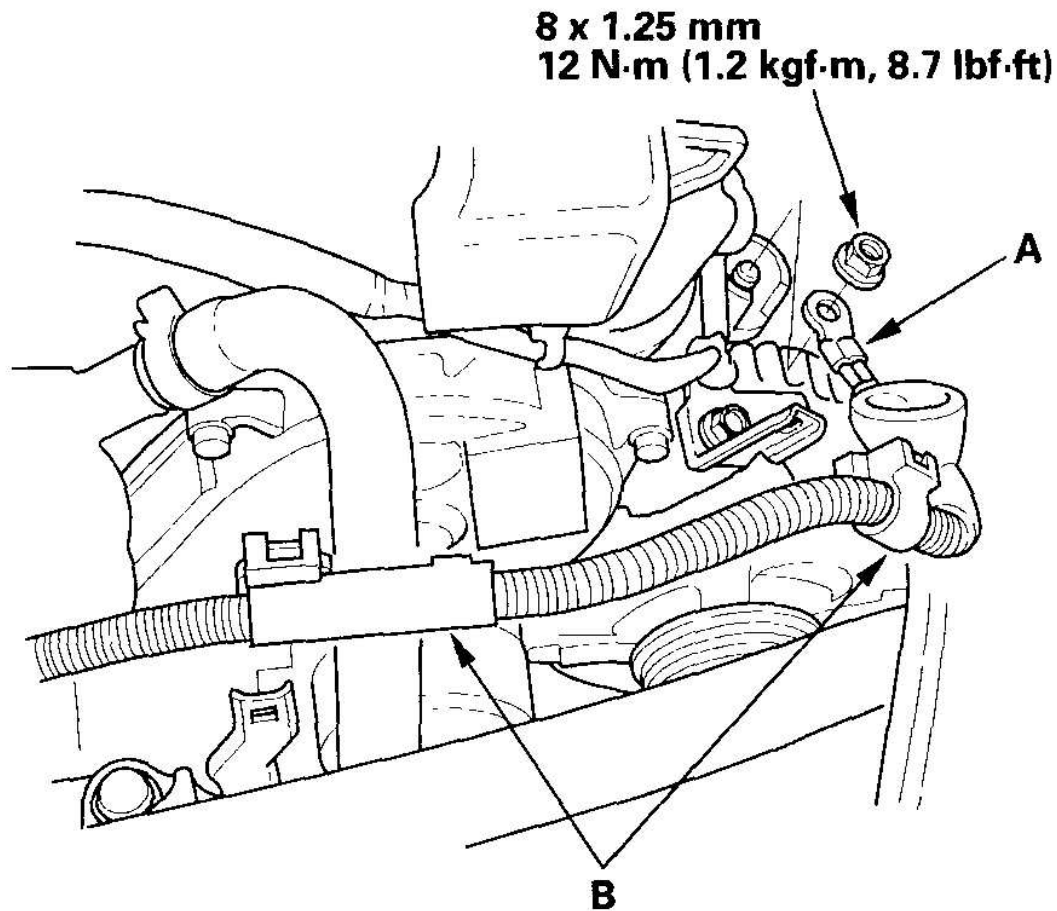




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**Fig. 52: Installing Power Steering Pump Outlet Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

35. Install the drive belt (see **DRIVE BELT INSPECTION** ).
36. Install the alternator cable (A), then install the harness clamps (B).

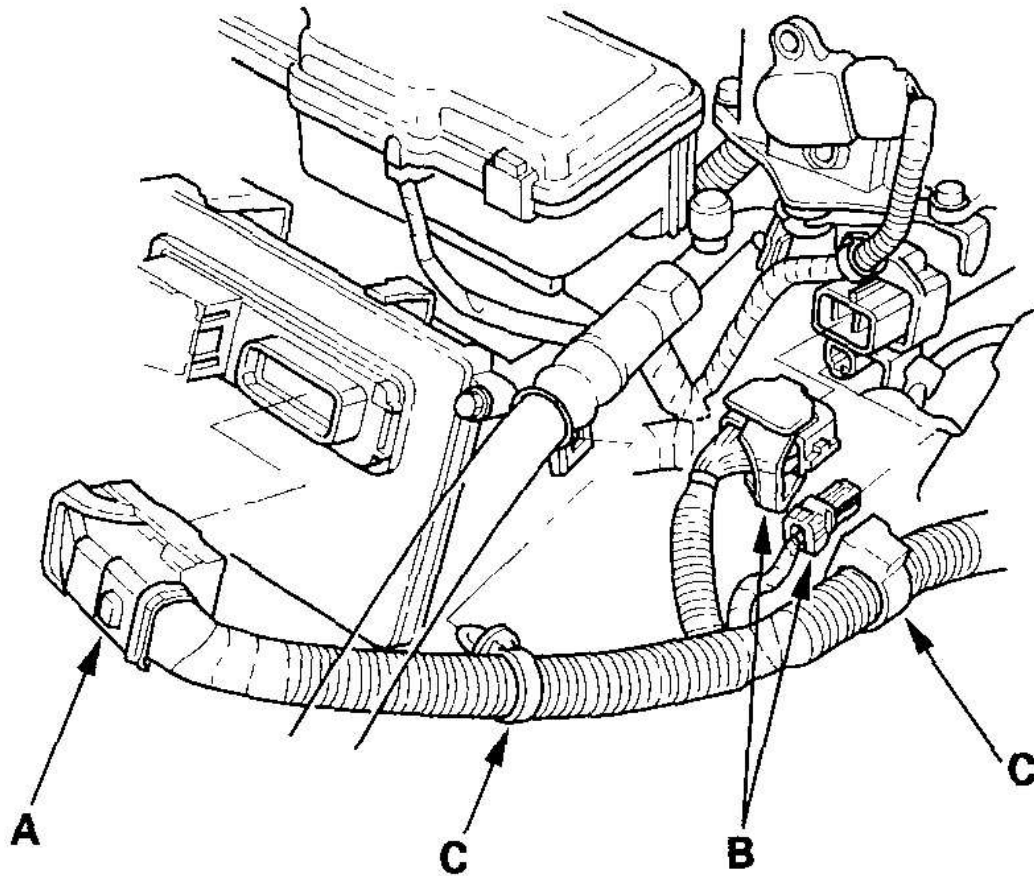


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**Fig. 53: Installing Alternator Cable**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

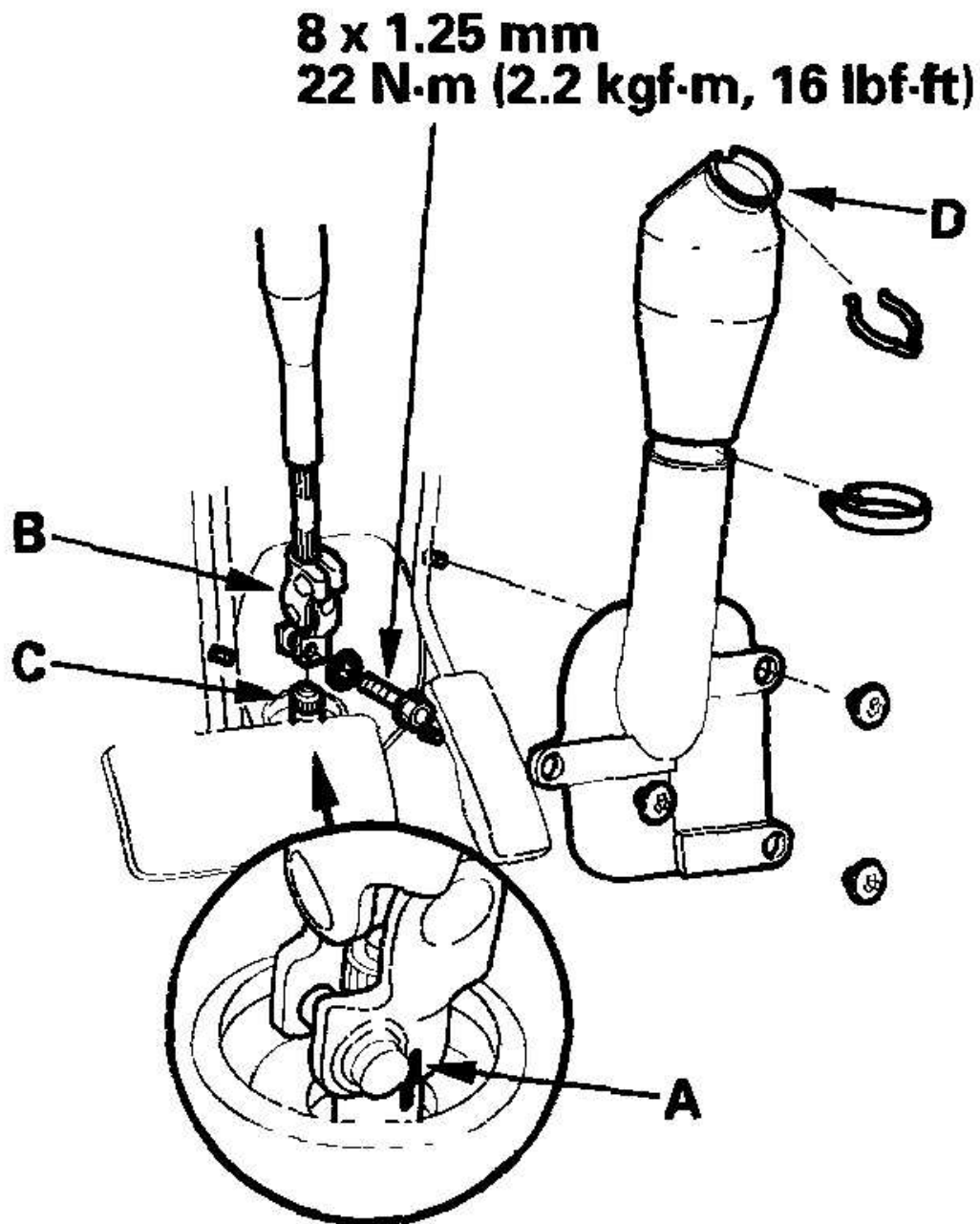
37. Connect the powertrain control module (PCM) connector (A) and the engine wire harness connectors (B) on the right side of the engine compartment.



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**Fig. 54: Connecting Powertrain Control Module Connector**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

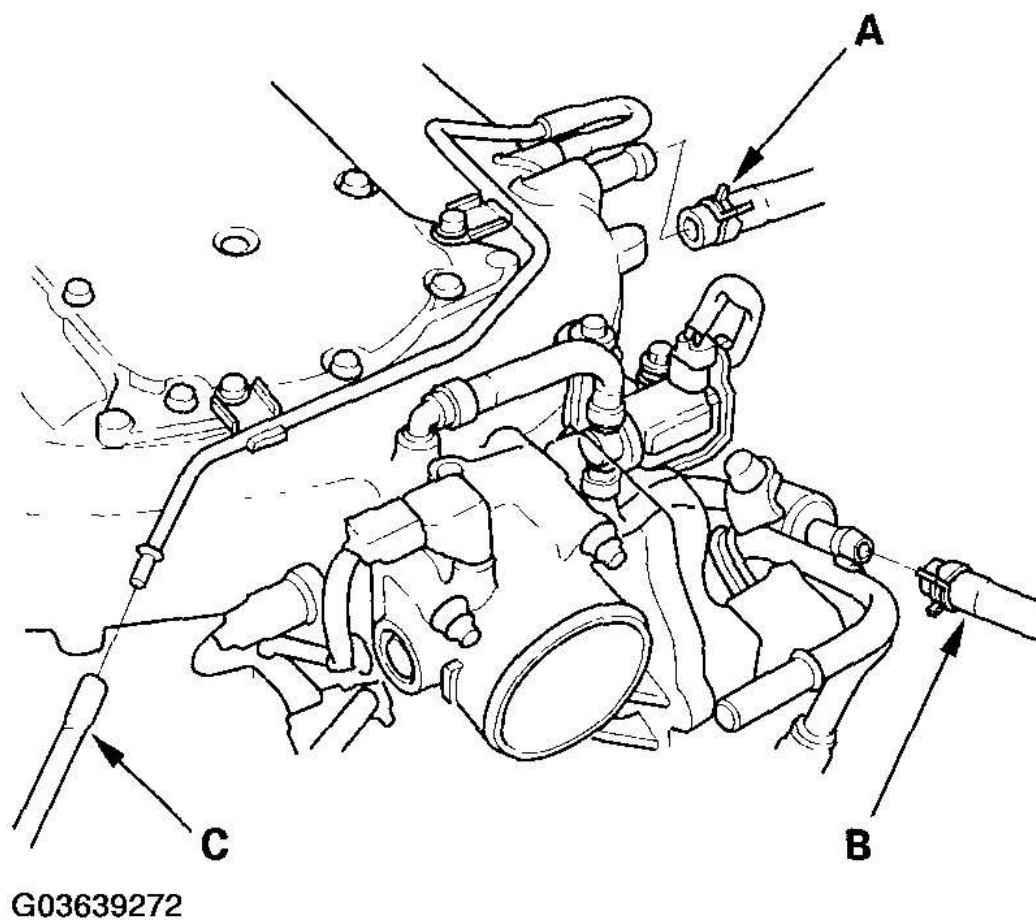
38. Install the harness clamps (C).
39. Align the reference marks (A) on the steering joint and steering gearbox pinion shaft. Connect the steering joint (B) to the steering gearbox pinion shaft (C). Tighten the steering joint bolt.



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**Fig. 55: Aligning Reference Marks On Steering Joint And Steering Gearbox Pinion Shaft**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

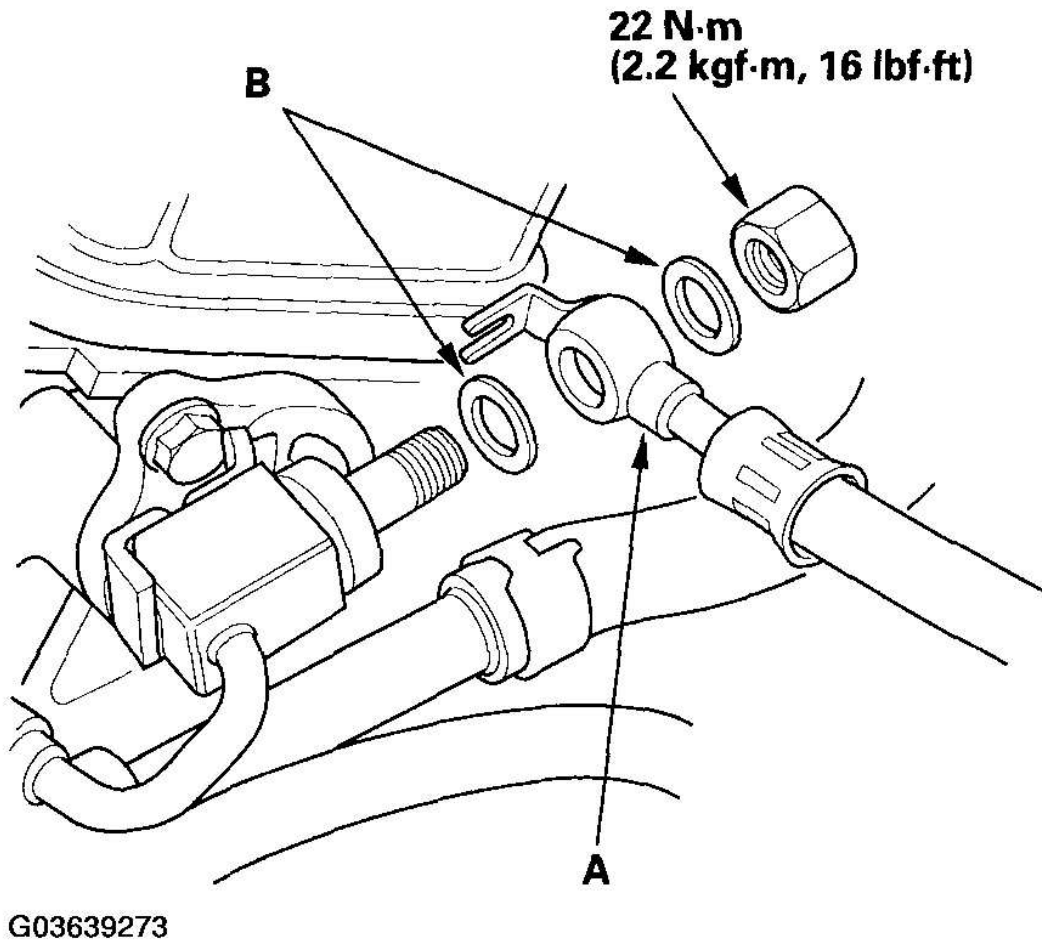
40. Install the steering joint cover (D).
41. Install the carpet (see **CARPET REPLACEMENT** ) and driver's side console lower panel.
42. Install the brake booster vacuum hose (A), evaporative emission (EVAP) canister hose (B), and vacuum hose (C).



**Fig. 56: Installing Brake Booster Vacuum Hose**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

43. 2003-2004 models: Install the fuel feed hose (A) with new washers (B).

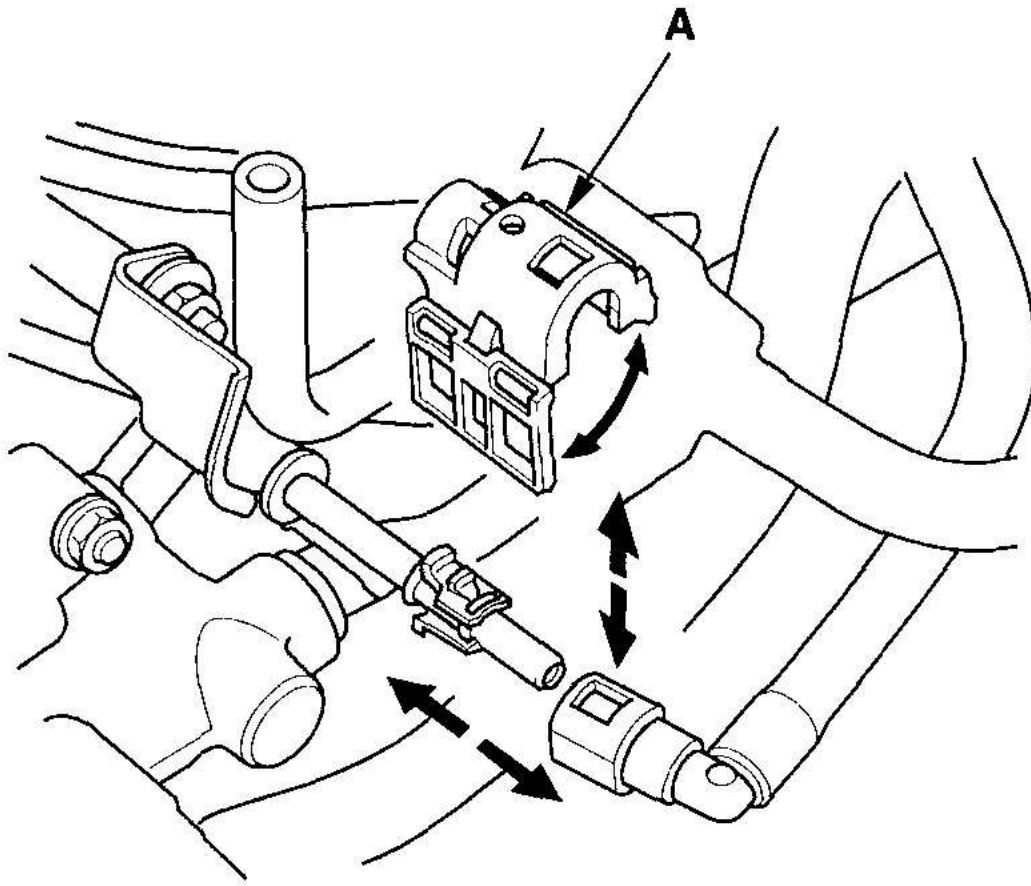




**Fig. 57: Installing Fuel Feed Hose (2003-04 Models)**  
 Courtesy of AMERICAN HONDA MOTOR CO., INC.

44. 2005-2006 models: Connect the fuel feed hose (see **FUEL LINE/QUICK-CONNECT FITTING INSTALLATION** ), then install the quick-connect fitting cover (A).

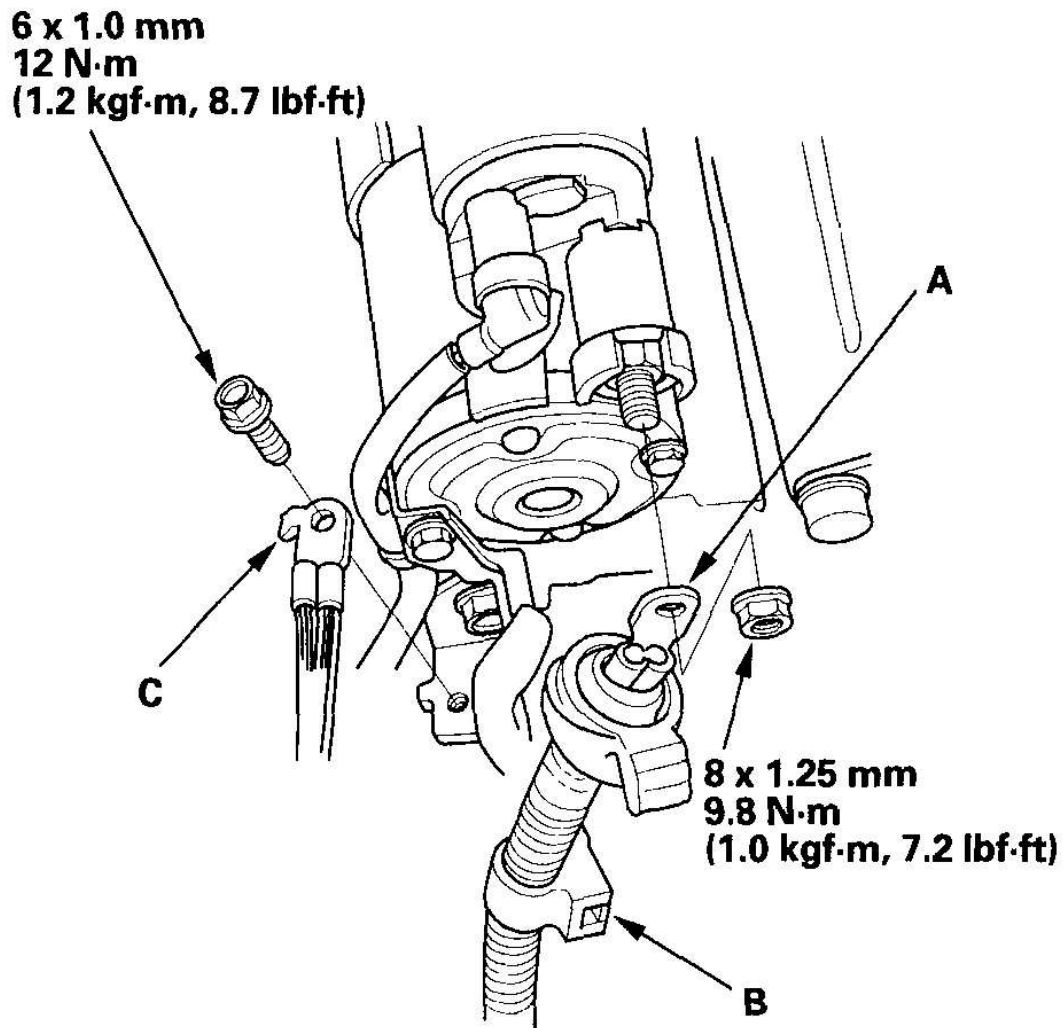




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**Fig. 58: Connecting Fuel Feed Hose (2005-06 Models)**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

45. Install the shift cable with the spring clip/washer, then install the shift cable bracket (see step 45 ).
46. Install the starter motor cable (A), harness clamp (B), and ground cable (C).

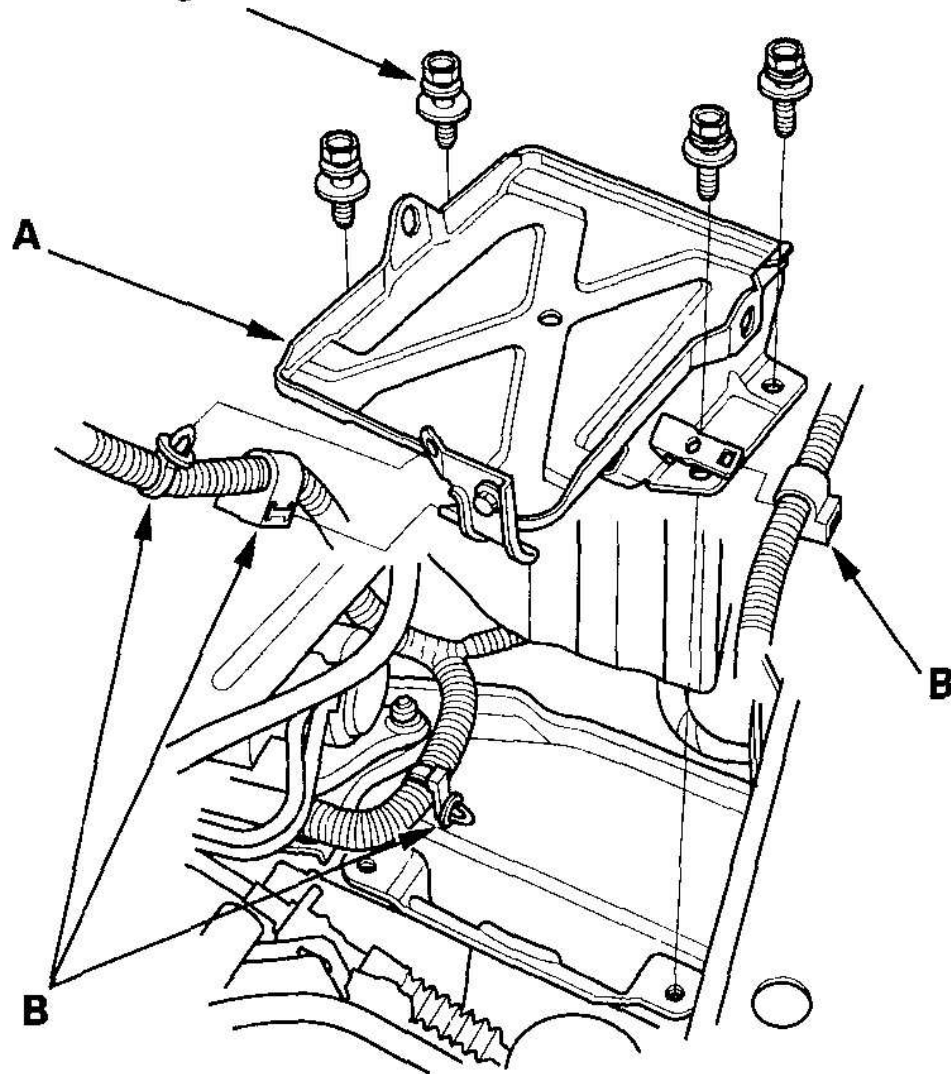


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**Fig. 59: Installing Starter Motor Cable**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

47. Install the battery base (A), then install the harness clamps (B).

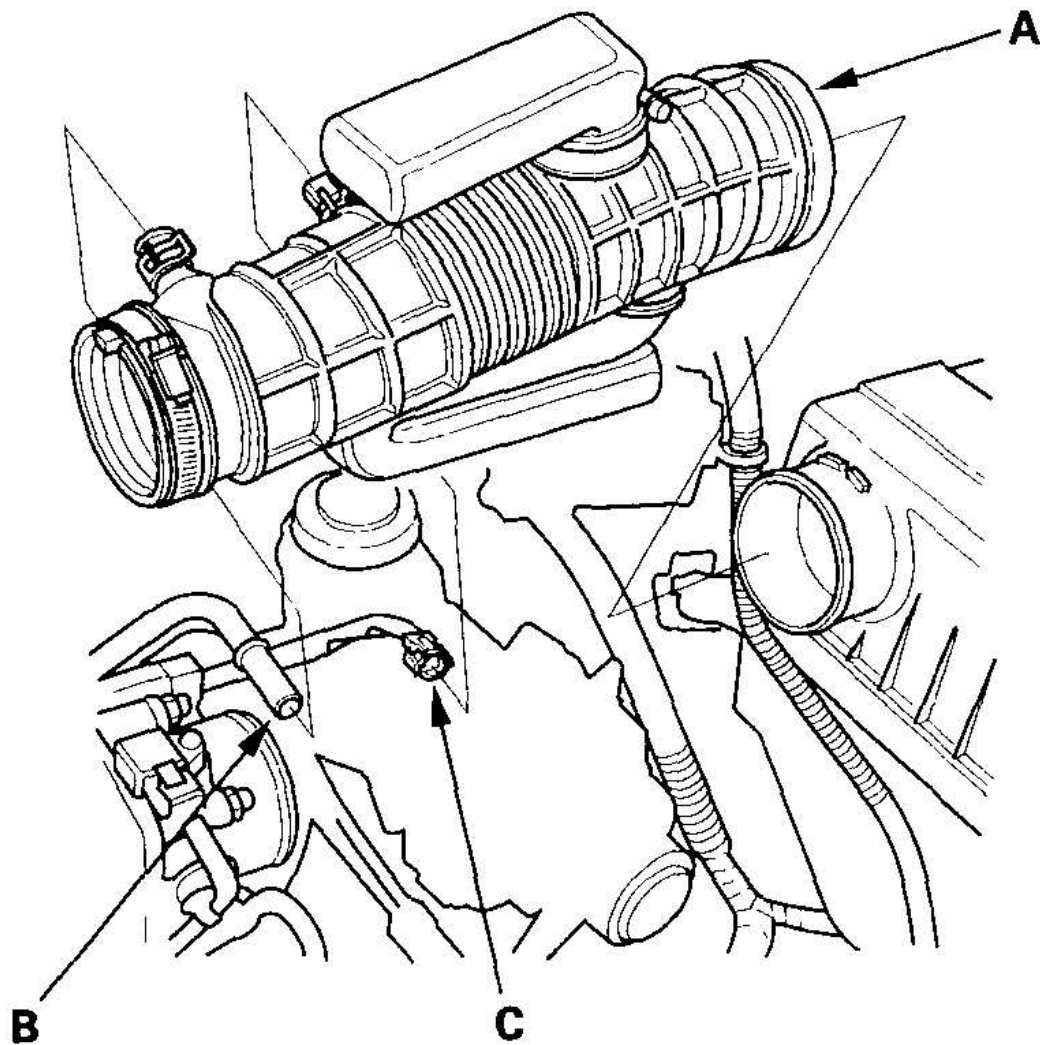
**8 x 1.25 mm  
22 N·m (2.2 kgf·m, 16 lbf·ft)**



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**Fig. 60: Installing Battery Base And Harness Clamps**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

48. Install the intake air duct (A), then install the breather pipe (B).

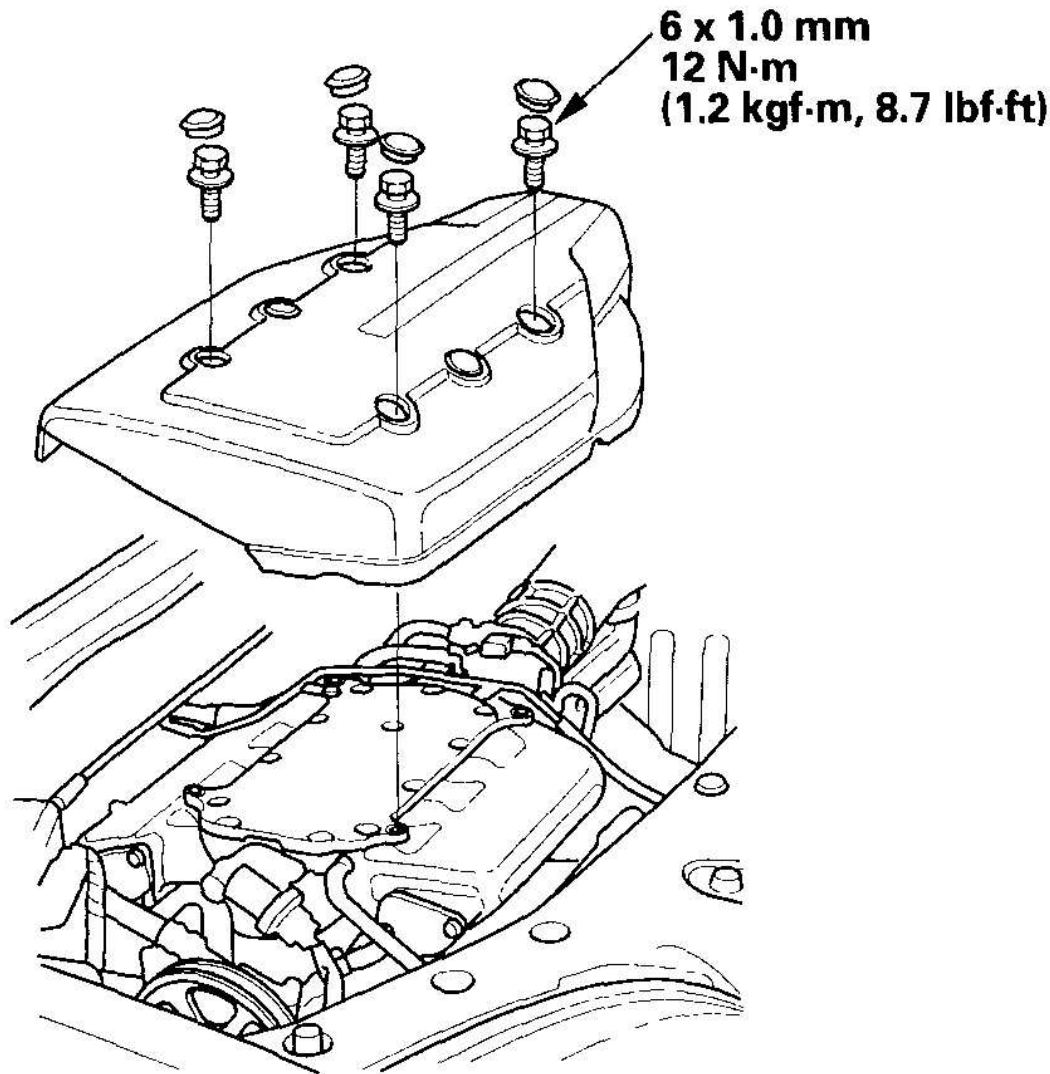


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**Fig. 61: Installing Intake Air Duct**

Courtesy of AMERICAN HONDA MOTOR CO., INC.

49. Connect the intake air temperature (IAT) sensor 2 connector (C).
50. Install the intake manifold cover.



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**Fig. 62: Installing Intake Manifold Cover**  
Courtesy of AMERICAN HONDA MOTOR CO., INC.

51. Install the battery. Clean the battery posts and cable terminals with sandpaper, then assemble them and apply grease to prevent corrosion.
52. 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 two or three times, then check for fuel leakage at any point in the fuel line.
53. Move the shift lever to each gear, and verify that the A/T gear position indicator follows the transmission range switch.

## 2006 Acura MDX

2003-06 ENGINE Engine Assembly - MDX

54. Refill the engine with new engine oil (see **ENGINE OIL REPLACEMENT** ).
55. Refill the transmission with ATF (see **ATF REPLACEMENT** ).
56. Refill the radiator with engine coolant, and bleed air from the cooling system with the heater valve open (see step 8 in **COOLANT REPLACEMENT** ).
57. Refill the power steering system fluid (see **FLUID REPLACEMENT** ).
58. Do the powertrain control module (PCM) reset procedure (see **HDS CLEAR COMMAND** ).
59. Do the crankshaft position (CKP) pattern clear/CKP pattern learn procedure (see **HDS CLEAR COMMAND** ).
60. Inspect the idle speed (see **IDLE SPEED INSPECTION** ).
61. Inspect the ignition timing (see **IGNITION TIMING INSPECTION** ).
62. Check the wheel alignment (see **WHEEL ALIGNMENT** ).
63. Enter the anti-theft codes for the radio and the navigation system, then enter the customer's audio presets.
64. Do the power window control unit reset procedure (see **RESETTING THE POWER WINDOW CONTROL UNIT** ).
65. Set the clock.