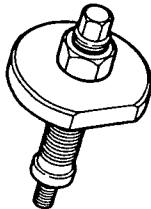


## Engine

Engine Removal/Installation.....	5-1
Cylinder Head/Valve Train.....	6-1
Engine Block.....	7-1
Engine Lubrication.....	8-1
Intake Manifold/Exhaust System.....	9-1
Cooling.....	10-1



Ref. No.	Tool Number	Description	Qty	Page Reference
①	07LAC-PW50101	Extension Shaft Puller	1	5-7



①

- WARNING**
- Make sure jacks and safety stands are placed properly and hoist brackets are attached to the correct positions on the engine (see section 1).
  - Make sure the car will not roll off stands and fall while you are working under it.

**CAUTION:**

- Use tender covers to avoid damaging painted surfaces.
- Unspecified items are common.
- Unplug the wiring connectors carefully while holding the coupler and the connector portion to avoid damage.
- Mark all wiring and hoses to avoid mis-connection. Also, be sure that they do not contact other wiring or hoses or interfere with other parts.

**NOTE:** Anti-theft radios have a coded theft protection circuit. Be sure to get the customer's code number before

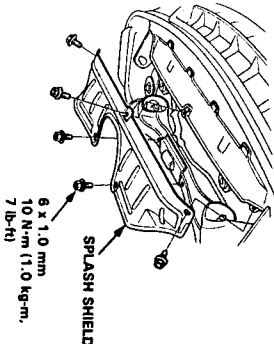
- Disconnecting the battery.
  - Removing the No. 39 (10 A) fuse in the under-hood fuse/relay box.
  - Removing the radio.
- After service, reconnect power to the radio and turn it on.
- When the word "CODE" is displayed, enter the customer's 5-digit code to restore radio operation.

1. Disconnect the battery negative terminal first, then the positive terminal.

2. Remove the radiator cap.

**WARNING** Use care when removing the radiator cap to avoid scalding by hot engine coolant or steam.

3. Raise the hoist to full height.
4. Remove the engine splash shield.



5. Drain the engine coolant (page 10-5).

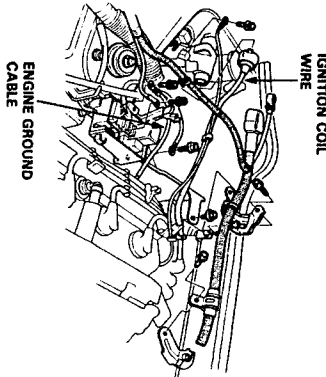
- Loosen the drain plug in the radiator.

6. Drain transmission and differential oil/fluid. Reinstall the drain plugs using new washers.

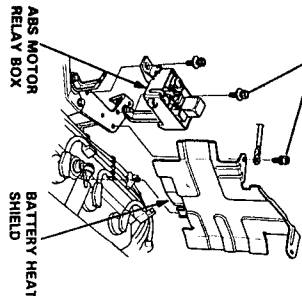
7. Drain the engine oil. Reinstall the drain bolt using a new washer.

**CAUTION:** Do not overtighten the drain bolt.

8. Lower the hoist.
9. Secure the hood as far open as possible.
10. Remove the ignition coil wire, condenser wire and engine ground cable.



11. Remove the ABS motor relay box and the battery heat shield, then remove the battery.

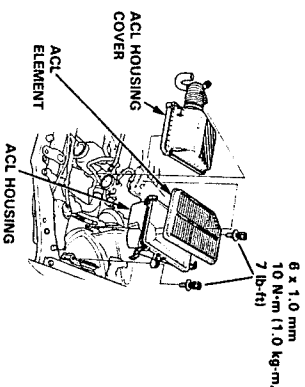


(cont'd)

## Engine Removal/Installation

(cont'd)

12. Remove the intake air duct and the air cleaner (ACL) housing.



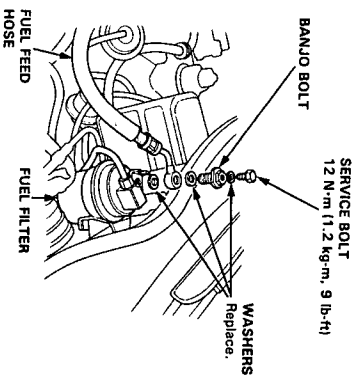
13. Relieve fuel pressure by slowly loosening the service bolt on the fuel filter about one turn (see section 11).

**WARNING** Do not smoke while working on the fuel system. Keep open flame away from work area. Drain fuel only into an approved container.

### CAUTION:

- Before disconnecting any fuel line, relieve the fuel pressure as described above.
- Place a shop towel over the fuel filter to prevent pressurized fuel from spraying over the engine.

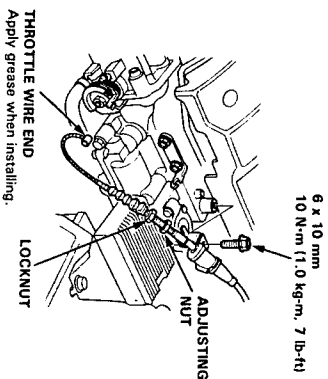
14. Remove the fuel feed hose from the fuel filter and the fuel return hose from the fuel pressure regulator (see section 11).



15. Remove the throttle cable by loosening the locknut, then slip the cable end out of the accelerator linkage.

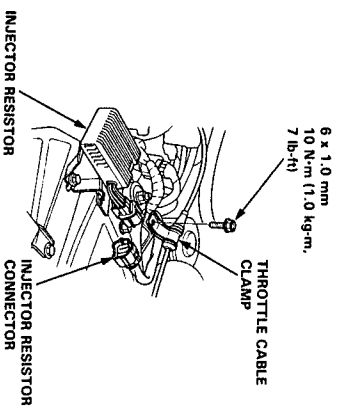
### NOTE:

- Take care not to bend the cable when removing it. Always replace any kinked cable with a new one.
- Adjust the throttle cable when installing (see section 11).

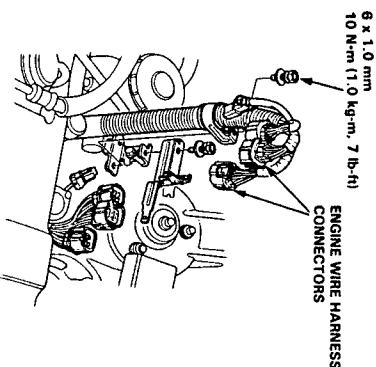


THROTTLE WIRE END  
Apply grease when installing.

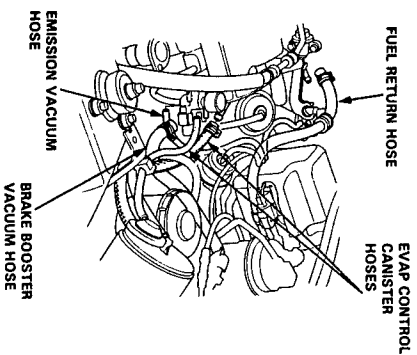
16. Remove the throttle cable clamp and the injector resistor connector.



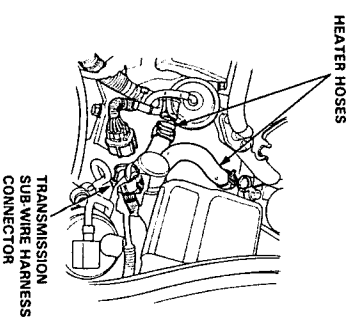
17. Remove the engine wire harness connectors and clamps.



18. Remove the fuel return hose, the evaporative emission (EVAP) control canister hoses, the emission vacuum hose and the brake booster vacuum hose.

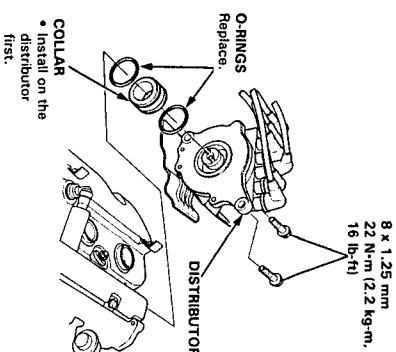


19. Remove the heater hoses and disconnect the transmission sub-wire harness connector (A/T) or back-up light switch connector (M/T).



20. Disconnect the ignition wires, then remove the distributor.

**NOTE:** When installing the distributor, first install the collar on the distributor.

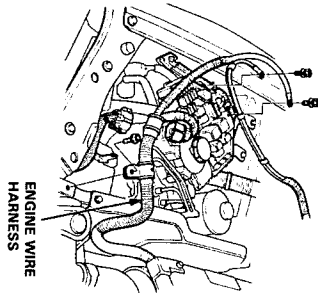


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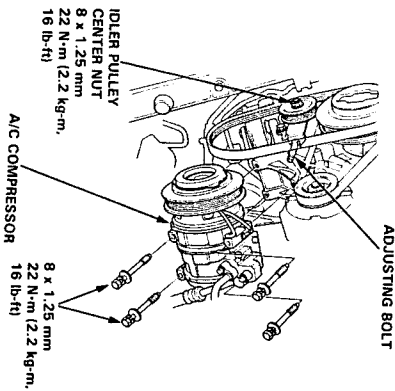
## Engine Removal/Installation

(cont'd)

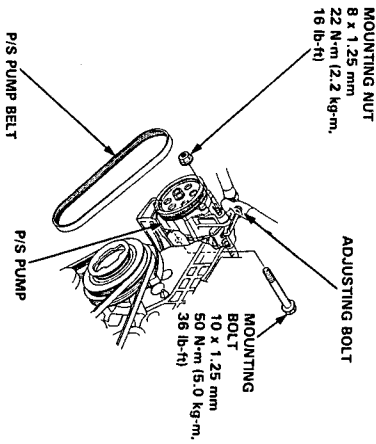
21. Remove the engine wire harness from the under-hood fuse/relay box, then remove the transmission ground cable.



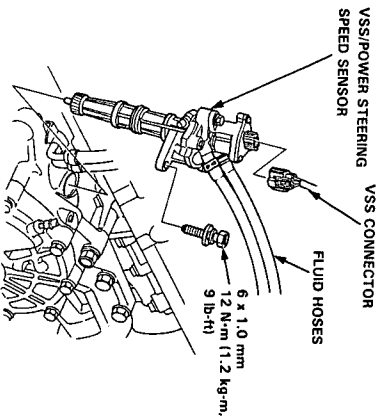
23. Loosen the idler pulley center nut and adjusting bolt, then remove the air conditioning (A/C) compressor belt and compressor.
- Do not disconnect the hoses.
  - Disconnect the connector.



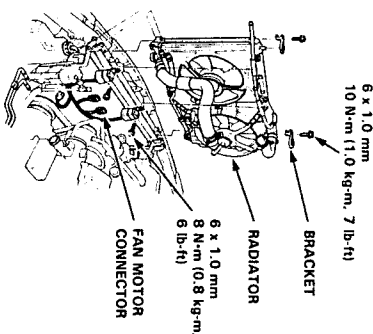
22. Loosen the adjusting bolt, then remove the mounting bolt/nut, the power steering (P/S) pump belt and pump.



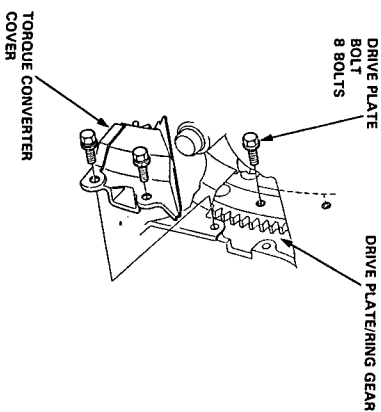
24. Remove the vehicle speed sensor (VSS)/power steering speed sensor.
- Do not disconnect the fluid hoses.



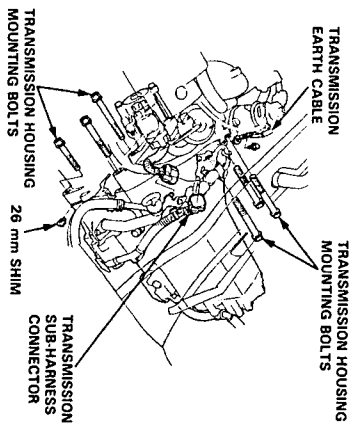
25. Remove the radiator.
- Disconnect the connectors and automatic transmission fluid (ATF) cooler hoses.



26. Remove the torque converter cover (A/T). Remove the drive plate bolts one at a time while rotating the crankshaft pulley.



27. Remove the transmission housing mounting bolts and the 26 mm shim.

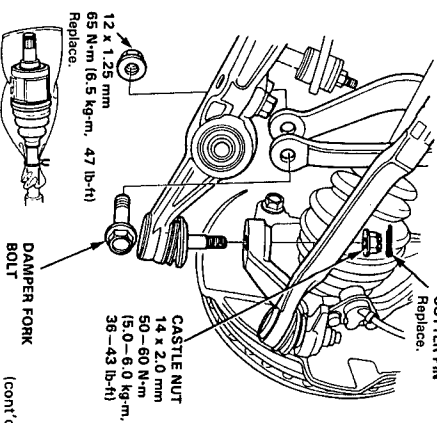


28. Remove the transmission sub-harness connector.

30. Disconnect the suspension lower arm ball joints with the special tool. Refer to section 18 for the proper procedure.

31. Remove the driveshafts.

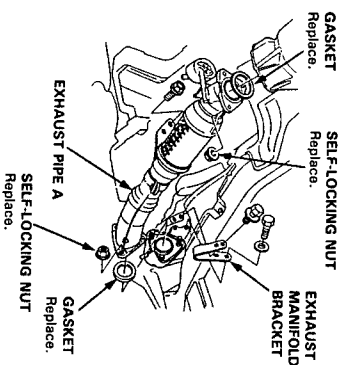
- NOTE:
- Coat all precision finished surfaces with clean engine oil or grease.
  - Tie the plastic bags over the driveshaft ends.



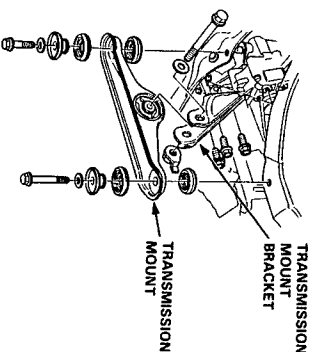
## Engine Removal/Installation

(cont'd)

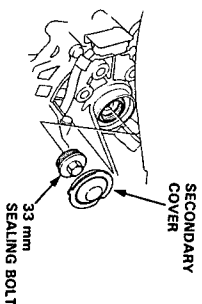
32. Raise the hoist.
33. Remove the exhaust pipe A.



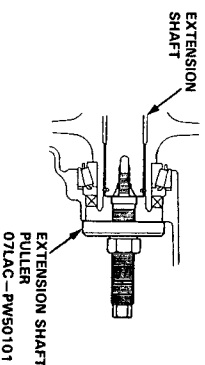
34. Remove the transmission mount and mount bracket.



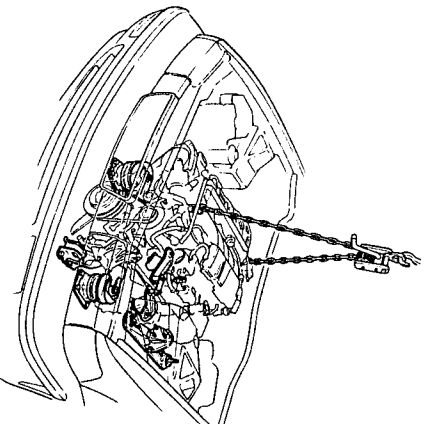
35. Shift the manual transmission to 1st gear or automatic transmission to **P** position.
36. Remove the secondary cover and 33 mm sealing bolt.



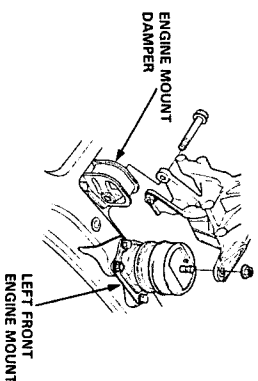
37. Remove the extension shaft from the differential using the special tool as shown.



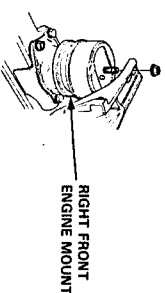
38. Attach a chain hoist to the engine.



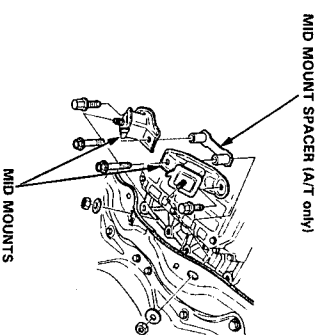
39. Remove the left front engine mount nut and engine mount damper bolt.



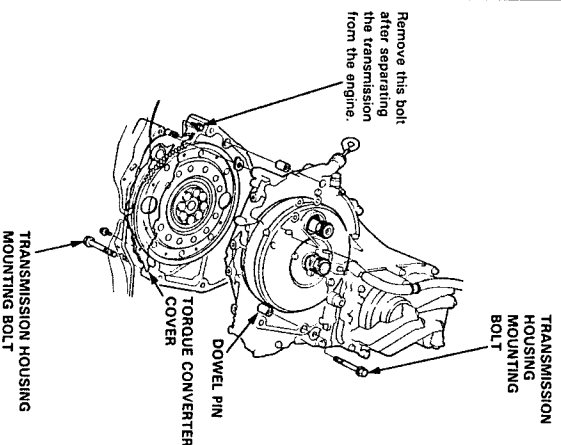
40. Remove the right front engine mount nut.



41. Remove the mid mounts.



42. Remove the transmission housing mounting bolts and clutch cover (M/T) or torque converter cover (A/T), then separate the engine and the transmission.
  - Attach the transmission jack with a rubber pad or wooden block.



43. Install the mid mounts to the transmission and retorque the mounting bolts.
44. Raise the chain hoist to remove all slack from the chain.
45. Check that the engine is completely free of vacuum hoses, fuel and coolant hoses, and electrical wiring.
46. Slowly raise the engine approximately 150 mm (6 in).
47. Raise the engine all the way and remove it from the car.



(cont'd)

## Engine Removal/Installation

(cont'd)

48. Install the engine in the reverse order of removal.

### NOTE:

- If engine block and/or differential case are replaced, the 26 mm shim thickness must be adjusted (see section 15).
- Fill the opening of the drive pinion and extension shaft with Super High Temp Urea Grease (P/N 08798-9002) and apply the same grease to the splines before installing the transmission (see section 13 (M/T) and 14 (A/T)).
- After service, reconnect power to the radio and turn it on, the word "CODE" will be displayed. Enter the customer's 5-digit code to restore radio operation.

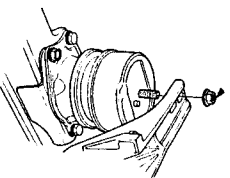
After the engine is in place:

- Torque the engine mount bolts and nuts in sequence shown below.

**CAUTION:** Failure to tighten the bolts in the proper sequence can cause excessive noise and vibration, and reduce bushing life; check that the bushings are not twisted or offset.

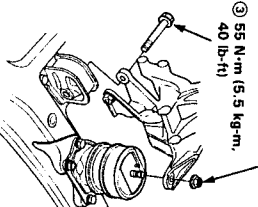
### RIGHT FRONT ENGINE MOUNT

- ⑤ 75 N·m (7.5 kg-m, 54 lb-ft)



### LEFT FRONT ENGINE MOUNT

- ③ 55 N·m (5.5 kg-m, 40 lb-ft)
- ④ 75 N·m (7.5 kg-m, 54 lb-ft)



- Check that the spring clip on the end of each driveshaft clicks into place.

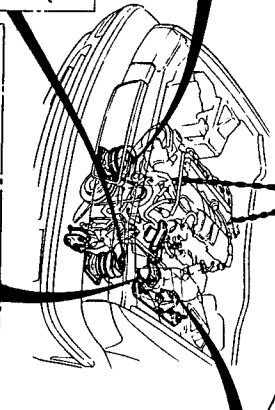
### CAUTION: Use new spring clips.

- Bleed air from the cooling system at the bleed bolt with the heater valve open.
- Adjust the throttle cable tension.
- Check the clutch pedal freeplay.
- Check that the transmission shifts into gear smoothly.
- Adjust the tension of the following drive belts:
  - Alternator belt (see section 23).
  - Power steering pump belt (see section 17).
  - A/C compressor belt (see section 22).
- Clean battery posts and cable terminals with sandpaper, assemble, then apply grease to prevent corrosion.
- Inspect for fuel leakage.
  - After assembling fuel line parts, turn on the ignition switch (Do not operate the starter) so that the fuel pump operates for approximately two seconds and the fuel line is pressurized. Repeat this operation two or three times and check for fuel leakage at any point in the fuel line.

Engine Mount Bolts and Nuts Torque Sequence:

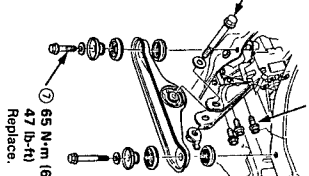
**CAUTION:** After loosening the special bolts, be sure to replace them with new ones.

- ⑧ 55 N·m (5.5 kg-m, 40 lb-ft)



### TRANSMISSION MOUNT

- ⑥ 55 N·m (5.5 kg-m, 40 lb-ft)

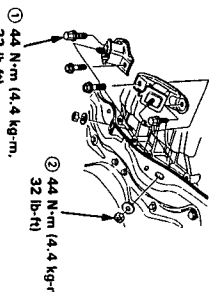


- ⑦ 55 N·m (5.5 kg-m, 40 lb-ft)

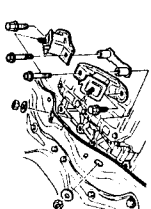
Replace.

### M/T:

### A/T:



- ① 44 N·m (4.4 kg-m, 32 lb-ft)

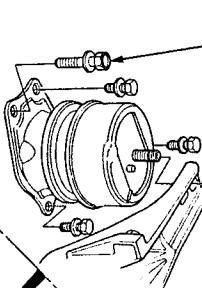


- ② 44 N·m (4.4 kg-m, 32 lb-ft)

Mount and Bracket Bolts/Nuts Torque Value Specifications:

- 12 x 1.25 mm 75 N·m (7.5 kg-m, 54 lb-ft)

- 10 x 1.25 mm 60 N·m (6.0 kg-m, 43 lb-ft)



### RIGHT FRONT ENGINE MOUNT

- 12 x 1.25 mm 55 N·m (5.5 kg-m, 40 lb-ft)

- 12 x 1.25 mm 55 N·m (5.5 kg-m, 40 lb-ft)

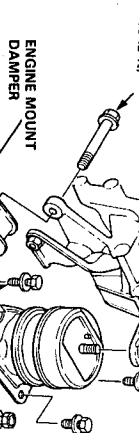
- 12 x 1.25 mm 65 N·m (6.5 kg-m, 47 lb-ft)

- 12 x 1.25 mm 55 N·m (5.5 kg-m, 40 lb-ft)

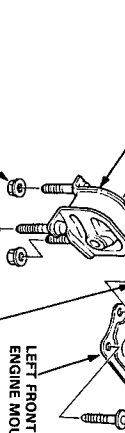
Replace.

- 12 x 1.25 mm 75 N·m (7.5 kg-m, 54 lb-ft)

- 12 x 1.25 mm 55 N·m (5.5 kg-m, 40 lb-ft)



### ENGINE MOUNT DAMPER



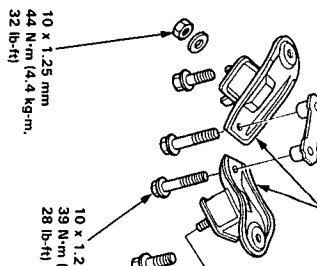
### LEFT FRONT ENGINE MOUNT

- 10 x 1.25 mm 39 N·m (3.9 kg-m, 28 lb-ft)

- 10 x 1.25 mm 60 N·m (6.0 kg-m, 43 lb-ft)

### MID MOUNT SPACER (A/T only)

### MID MOUNTS



- 10 x 1.25 mm 44 N·m (4.4 kg-m, 32 lb-ft)

- 10 x 1.25 mm 39 N·m (3.9 kg-m, 28 lb-ft)

(cont'd)

# Engine Removal/Installation

(cont'd)

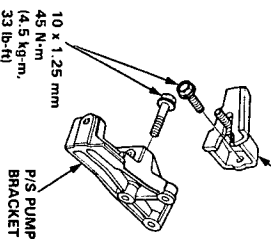
Additional Torque Value Specifications:

NOTE: For manifold replacement, refer to section 9.

TRANSMISSION HOOK

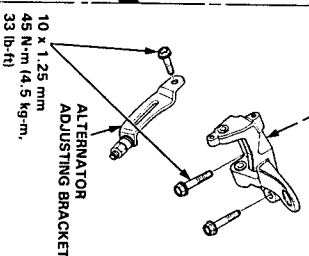
ENGINE/TRANSMISSION CONNECTING BOLT  
12 x 1.25 mm  
M/T with 26 mm shim: 75 N·m (7.5 kg-m, 54 lb-ft)  
without 26 mm shim: 65 N·m (6.5 kg-m, 47 lb-ft)  
A/T: 75 N·m (7.5 kg-m, 54 lb-ft)

P/S PUMP  
ADJUSTING  
BRACKET

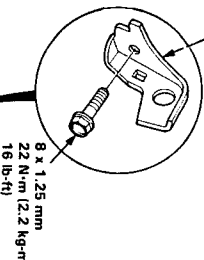


10 x 1.25 mm  
45 N·m  
(4.5 kg-m,  
33 lb-ft)

ALTERNATOR BRACKET

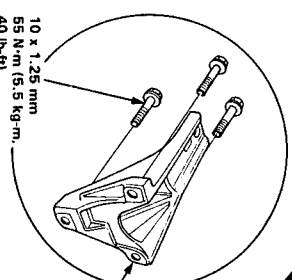


10 x 1.25 mm  
45 N·m (4.5 kg-m,  
33 lb-ft)



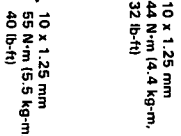
8 x 1.25 mm  
22 N·m (2.2 kg-m,  
16 lb-ft)

RIGHT FRONT ENGINE  
MOUNT BRACKET



10 x 1.25 mm  
55 N·m (5.5 kg-m,  
40 lb-ft)

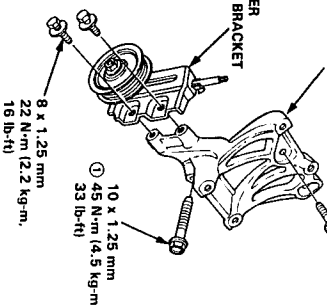
LEFT FRONT ENGINE  
MOUNT BRACKET



10 x 1.25 mm  
55 N·m (5.5 kg-m,  
40 lb-ft)

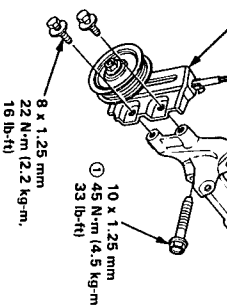
BRACKET A

A/C BRACKET



10 x 1.25 mm  
45 N·m (4.5 kg-m,  
33 lb-ft)

A/C IDLER  
PULLEY BRACKET



8 x 1.25 mm  
22 N·m (2.2 kg-m,  
16 lb-ft)

NOTE: When installing the A/C bracket, tighten the bolts on the oil pan first, then those on the engine block.

## Cylinder Head/Valve Train

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