

# ENGINE REMOVAL & INSTALLATION

## SECTION ER

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#### ENGINE REMOVAL AND INSTALLATION

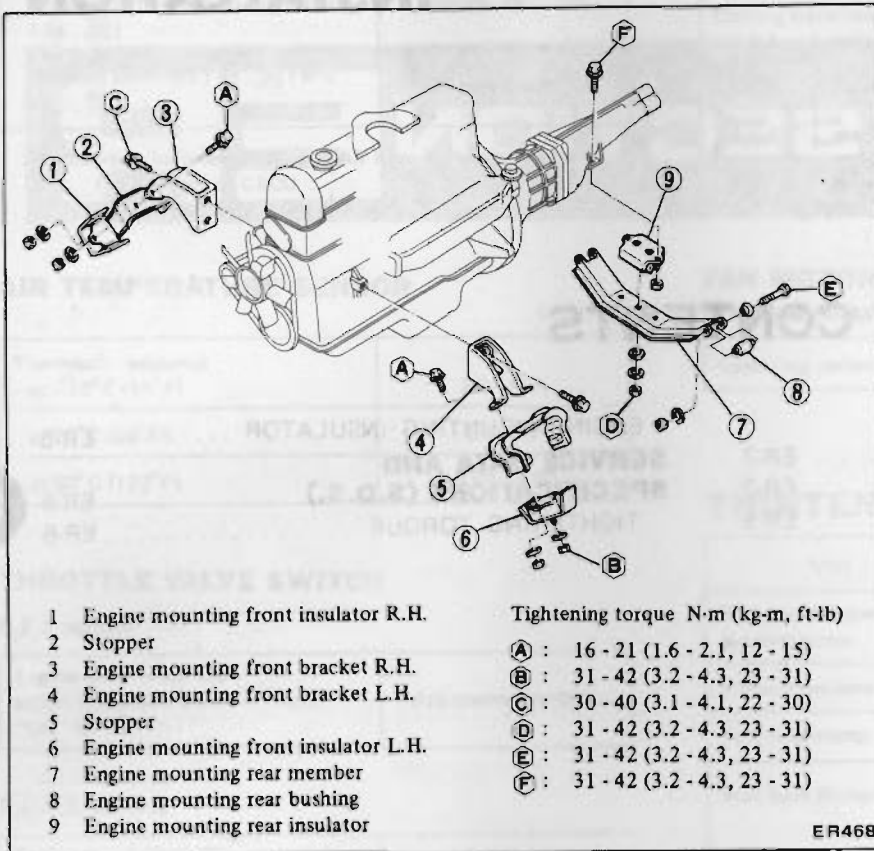
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**ER**



## ENGINE REMOVAL AND INSTALLATION

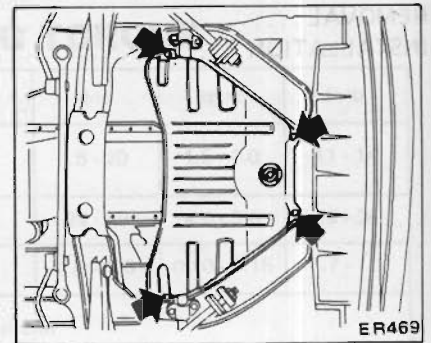


- (4) After engine stalls, crank engine twice or three times.
- (5) Turn ignition switch off.
- (6) Connect fuel pump harness connector.

If engine will not start, disconnect fuel pump harness connector and crank engine for about 5 seconds.

Then turn ignition switch off.

2. Remove battery.
3. Remove engine lower splash board.



### REMOVAL

It is much easier to remove engine and transmission as a single unit than to remove only engine from engine compartment. After removal, engine can be separated from transmission assembly and torque converter.

#### WARNING:

- a. Place wheel chocks in front of front wheels and in rear of rear wheels.
- b. Be sure to hoist engine in a safe manner.
- c. You should not remove engine until exhaust system has completely cooled off. Otherwise, you may burn yourself and/or fire may break out in fuel line.

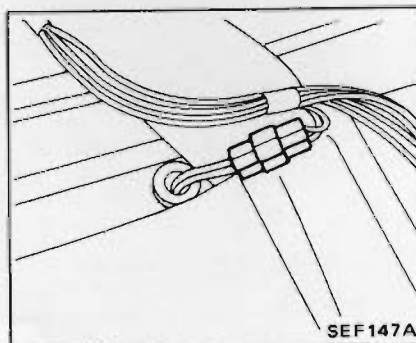
Fender covers should be used to protect car body.

1. Follow the procedure below to reduce fuel pressure to zero.

#### CAUTION:

Before disconnecting fuel hose, release fuel pressure from fuel line to eliminate danger.

- (1) Remove rear floor carpet and insulator.
- (2) Start engine.
- (3) Disconnect fuel pump harness connector with engine running.

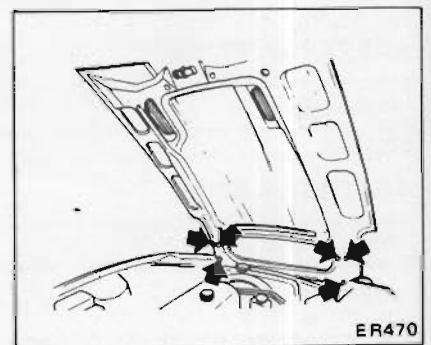


4. Drain engine coolant.
5. Remove hood as follows:

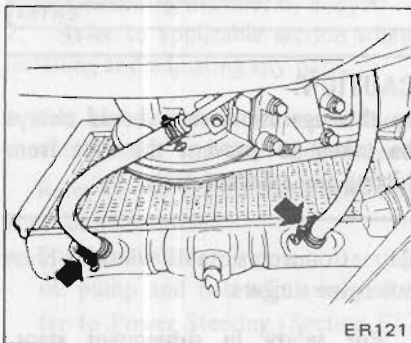
#### CAUTION:

Have an assistant help you so as to prevent damage to body.

- (1) Mark hood hinge locations on hood to facilitate proper reinstallation.
- (2) Support hood with hand and remove bolts securing it to hood hinges, taking care not to let hood slip when bolts are removed.



- (3) Remove hood assembly.
6. Disconnect radiator upper and lower hoses.
7. Remove radiator upper and lower shrouds.
8. Disconnect oil cooler hoses at oil cooler installed at the lower end of radiator and drain automatic transmission fluid (A/T models).



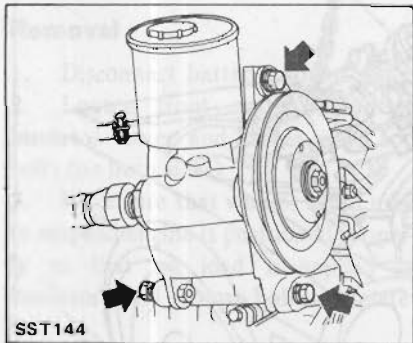
9. Remove reservoir tank hose from radiator and then remove radiator.
10. Remove power steering oil pump as follows:

**Never drain power steering oil while service/repair work is being performed.**

- (1) Remove oil pump drive belt. To remove, loosen idler pulley lock nut and adjusting bolt.

Refer to Power Steering Gear and Oil Pump (Section ST) for removal and installation.

- (2) Remove oil pump retaining bolts and fasten oil pump to hood ledge with suitable wire to facilitate removal of engine.



11. Remove air conditioner compressor as follows:

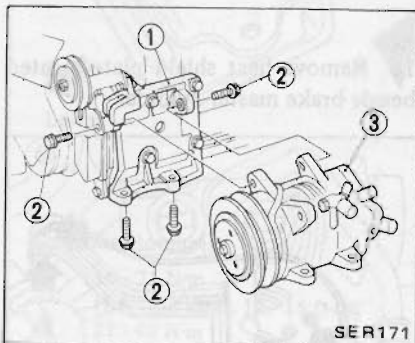
**Never discharge gas from com-**

**pressor while service/repair work is being performed.**

- (1) Remove compressor drive belt. To remove, loosen idler pulley lock nut and adjusting bolt.

Refer to Air Conditioning (Section HA) for removal.

- (2) Remove compressor retaining bolts and fasten compressor to hood ledge with suitable wire to facilitate removal of engine.

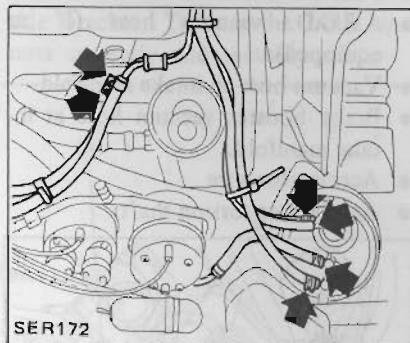


- 1 Compressor bracket
- 2 Compressor retaining bolt
- 3 Compressor

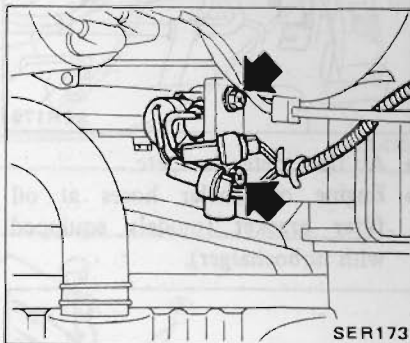
12. Disconnect following cables, wires, harness and hoses at the engine connection end.

- Wire to alternator.

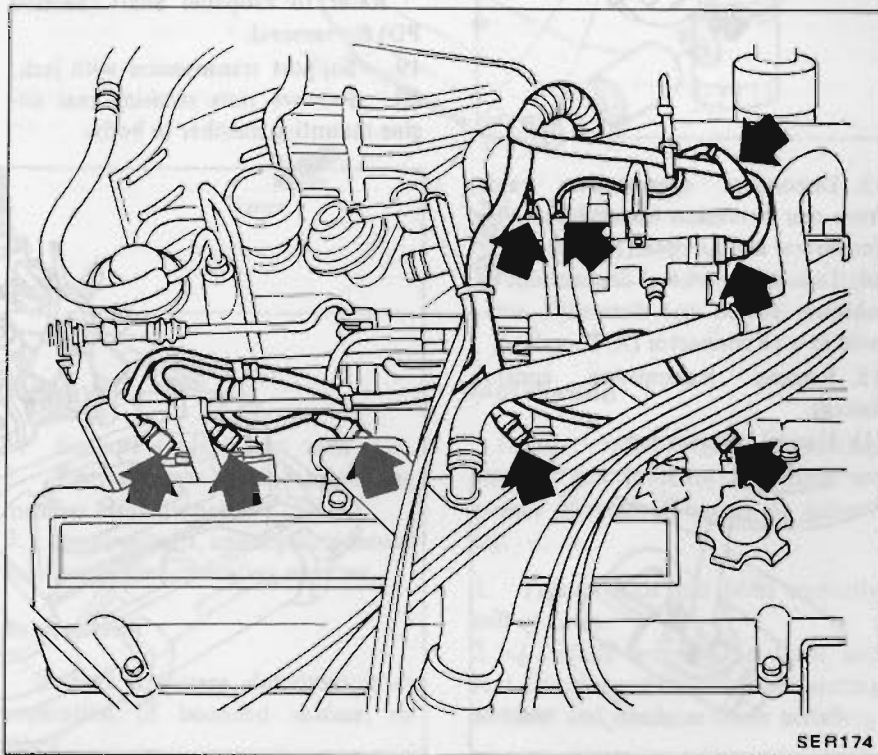
- Wire to oil pressure sending unit.
- Wire and cable to starter motor.
- Wire to auxiliary cooling fan.
- Heater inlet and outlet hoses.
- Fuel hoses and canister hoses.



- V.C.M. from bracket (models equipped with turbocharger).

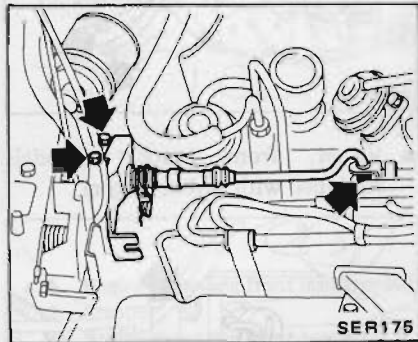


- E.F.I. harness and connector.

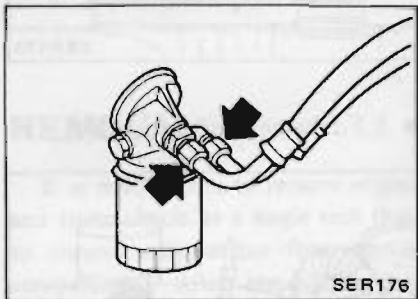




- High tension cable (Between ignition coil and distributor).
- Harness to distributor.
- Wires to thermal transmitter and cylinder head temperature sensor.
- F.I.C.D. vacuum hose.
- A.S.C.D. vacuum hose (If so equipped).
- Vacuum hose to intake manifold.
- Brake booster vacuum hose at intake manifold.
- Accelerator wire
- Accelerator torsion shaft.

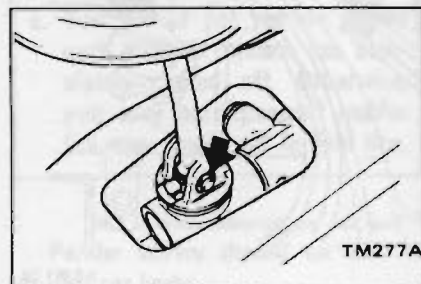


- Air flow meter duct, etc.
- Engine oil cooler hoses at oil filter bracket (models equipped with turbocharger).

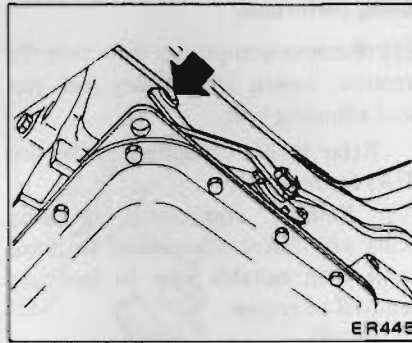


13. Disconnect speedometer cable from rear extension housing and wire for reverse lamp switch.
14. Disconnect wire at connections of inhibitor switch and downshift solenoid at wire connector (A/T models).
15. Remove transmission control linkage.

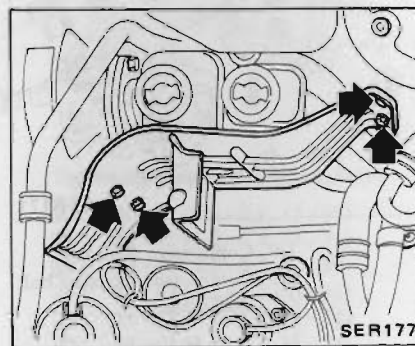
(1) Manual transmission



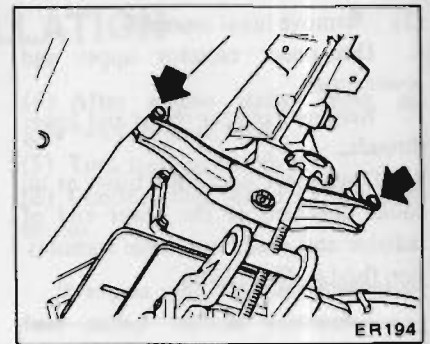
(2) Automatic transmission



16. Remove heat shield plate located beside brake master cylinder.



17. Remove exhaust front tube.  
Refer to Exhaust Systems (Section FE) for removal.
18. Remove propeller shaft.  
Refer to Propeller Shaft (Section PD) for removal.
19. Support transmission with jack.
20. Remove nuts securing rear engine mounting member to body.



**CAUTION:**

In this operation, care should always be taken to prevent the unit from hitting any adjacent parts.

21. Connect suitable wires of hoist to engine slingers.

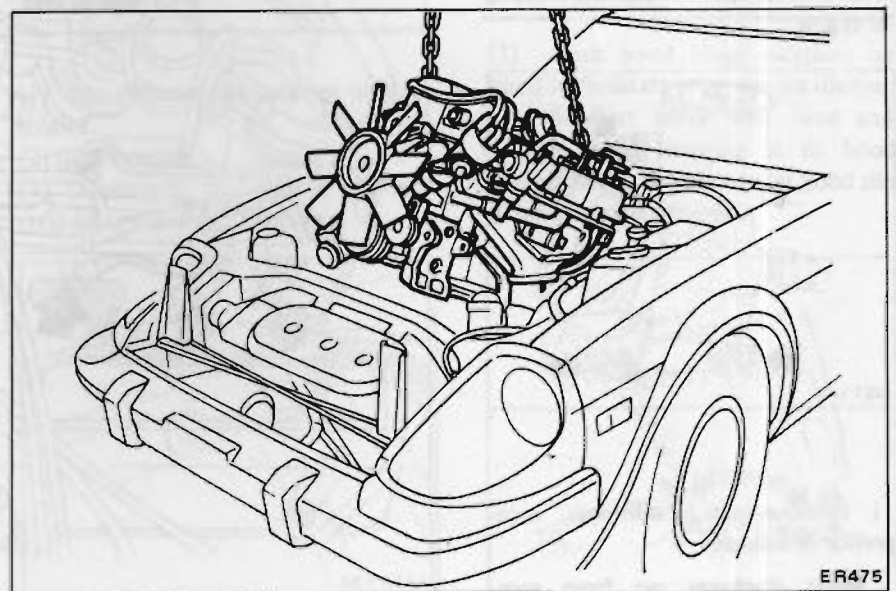
For safety in subsequent steps, tension of wire or chain should be slacked against engine.

22. Remove nuts securing engine mounting front insulator to front suspension crossmember.

23. Raise engine with transmission, and remove it from car.

**CAUTION:**

- a. Before raising engine together with transmission, make sure that all hoses and wires connected thereto are disconnected or removed.
- b. When raising engine, be especially careful not to knock it against adjacent parts.



## INSTALLATION

Install in the reverse order of removal, observing the following:

When installing, be sure to check that electrical harnesses are connected correctly.

1. When installing, first secure rear engine mounting member to body.
2. Refer to applicable section when installing and adjusting any parts.

- For installation of air conditioner compressor and belt adjustment. Refer to Air Conditioning (Section HA) for adjustment.
- For installation of power steering oil pump and belt adjustment. Refer to Power Steering (Section ST) for adjustment.

3. When installing exhaust front tube on exhaust manifold, be sure to use new gasket.
4. When installing hood following engine installation, be sure that it is properly centered and that hood lock operates securely. Refer to Hood (Section BF) for adjustment.
5. Add enough engine coolant.
6. On automatic transmission models, add the same amount of automatic transmission fluid as was drained.

## ENGINE MOUNTING INSULATOR

### FRONT INSULATOR

#### Removal

1. Disconnect battery ground cable.
2. Loosen front engine mounting insulator lower and upper nuts and bolts (on both sides).
3. Make sure that wire or chain used to suspend engine is positioned properly so that no load is applied to insulators, and remove bolts completely.
4. Lift up engine, and separate insulators from engine mounting brackets.

#### Inspection

If there is damage, deterioration or

separation of bounded surface, replace.

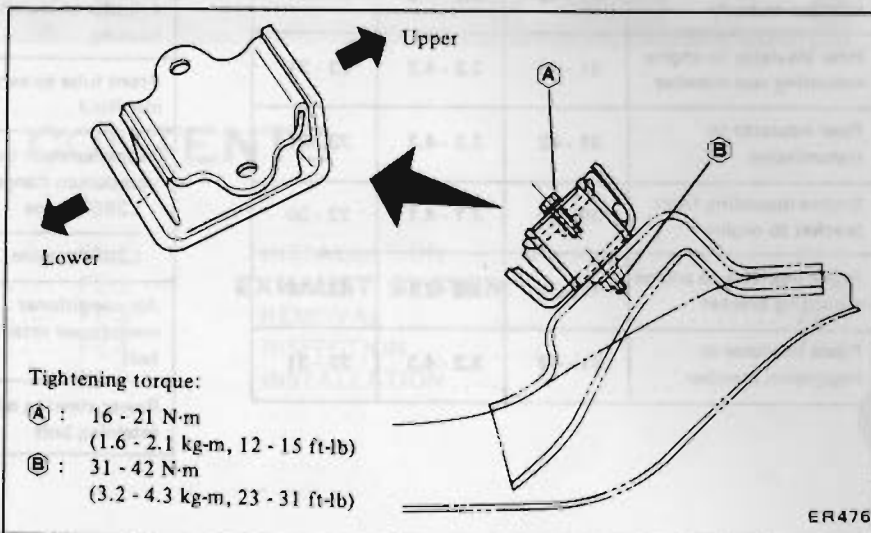
#### Installation

Install front insulators in reverse order of removal, noting the following:

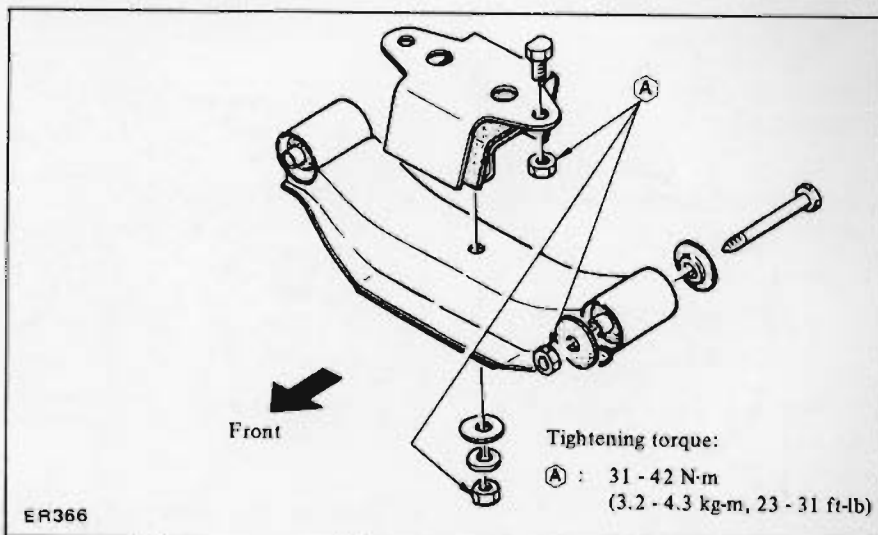
1. Both the left and right front

insulators are used commonly. However, when installing them, pay attention to their upper and lower directions.

2. The shape of the right side bracket differs from that of the left side bracket. Tighten the bolts and nuts correctly and securely.



### REAR INSULATOR



#### Removal

1. Support transmission with jack.
2. Remove rear engine mounting member insulator bolts.
3. Remove bolts, and separate insulator from engine mounting member.

#### Inspection

If there is damage, deterioration or separation of bounded surface, replace.

#### Installation

Install rear engine mounting member and insulator in reverse sequence of removal, noting the following:

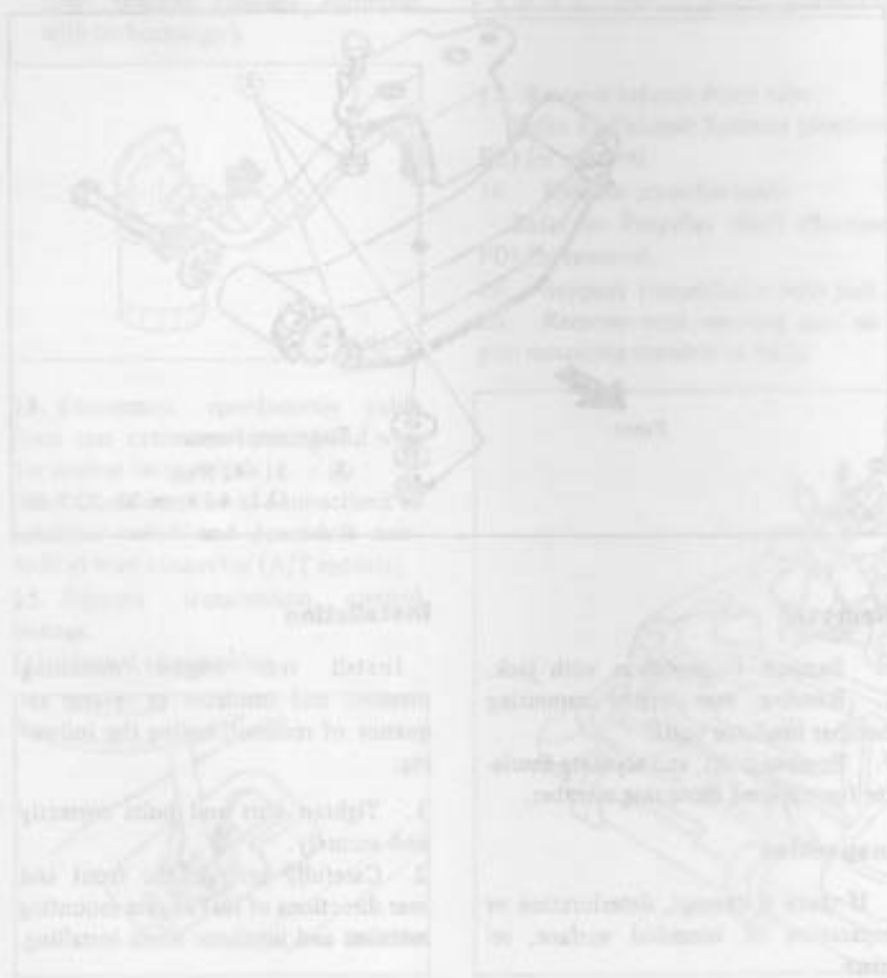
1. Tighten nuts and bolts correctly and securely.
2. Carefully arrange the front and rear directions of rear engine mounting member and insulator when installing.

## SERVICE DATA AND SPECIFICATIONS (S.D.S.)

### TIGHTENING TORQUE

Unit	N·m	kg·m	ft·lb
Engine mounting rear member to body	31 - 42	3.2 - 4.3	23 - 31
Rear insulator to engine mounting rear member	31 - 42	3.2 - 4.3	23 - 31
Rear insulator to transmission	31 - 42	3.2 - 4.3	23 - 31
Engine mounting front bracket to engine	30 - 40	3.1 - 4.1	22 - 30
Front insulator to engine mounting bracket	16 - 21	1.6 - 2.1	12 - 15
Front insulator to suspension member	31 - 42	3.2 - 4.3	23 - 31

Unit	N·m	kg·m	ft·lb
Clutch operating cylinder to clutch housing	30 - 40	3.1 - 4.1	22 - 30
Front tube to exhaust manifold	45 - 60	4.6 - 6.1	33 - 44
Propeller shaft to companion flange			
L28E engine	34 - 44	3.5 - 4.5	25 - 33
L28ET engine	39 - 44	4.0 - 4.5	29 - 33
Air conditioner compressor retaining bolt	44 - 54	4.5 - 5.5	33 - 40
Power steering oil pump retaining bolt	19 - 25	1.9 - 2.6	14 - 19



**CAUTION**  
 Do not use a torque wrench to tighten the bolts on the engine mounting rear member. The bolts should be tightened by hand.

**ENGINE MOUNTING INSULATOR**

When installing the engine mounting insulator, be sure to use the correct size and type of insulator. The insulator should be placed between the engine mounting rear member and the body of the vehicle.

When installing the engine mounting front bracket, be sure to use the correct size and type of bracket. The bracket should be attached to the engine and the front suspension member.

When installing the front insulator, be sure to use the correct size and type of insulator. The insulator should be placed between the engine mounting front bracket and the front suspension member.