SERVICE MANUAL

DATSUN 280Z
MODEL S30 SERIES



SECTION FE

ENGINE CONTROL, FUEL & EXHAUST SYSTEMS

FE

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NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

ENGINE CONTROL SYSTEM

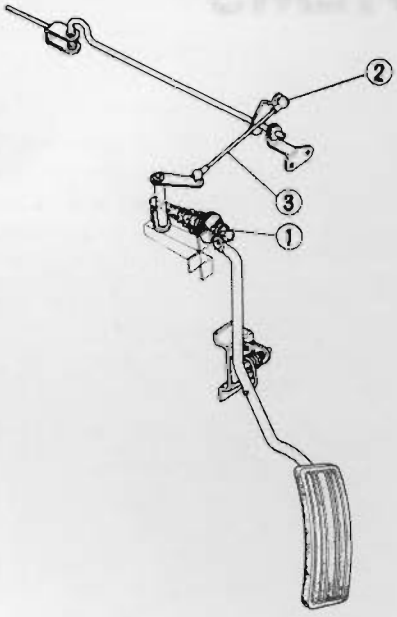
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ACCELERATOR SYSTEM

DESCRIPTION

The accelerator linkage has been constructed with minimized weight so that it will not be affected by engine vibration and will operate smoothly at all times.



FE222

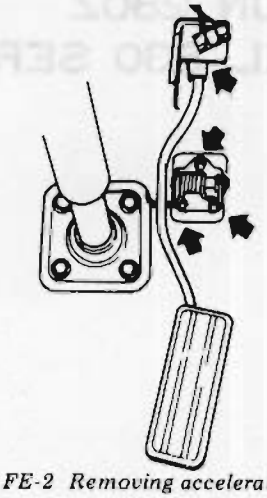
1 Ball joint No. 1
2 Ball joint No. 2
3 Joint rod

Fig. FE-1 Accelerator linkage

REMOVAL AND INSTALLATION

1. Remove three screws from accelerator pedal bracket.

2. Separate accelerator rod from pedal arm at ball joint. See Figure FE-1.

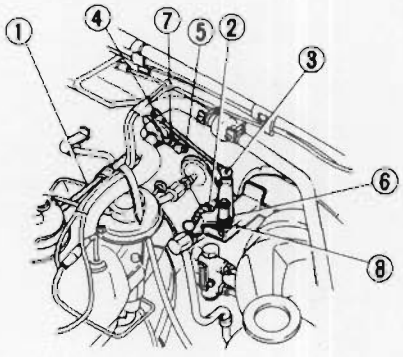


FE164

Fig. FE-2 Removing accelerator pedal arm

3. Disconnect ball joints of each rod at torsion shaft support and bell crank bracket in the engine compartment.

Joint rods can then be taken out.



1 Torsion shaft
2 Boot
3 Ball joint
4 Ball joint No. 2
5 Joint rod
6 Bell-crank
7 Torsion shaft support
8 Bell-crank bracket

FE385

Fig. FE-3 Disconnecting ball joints and joint rods

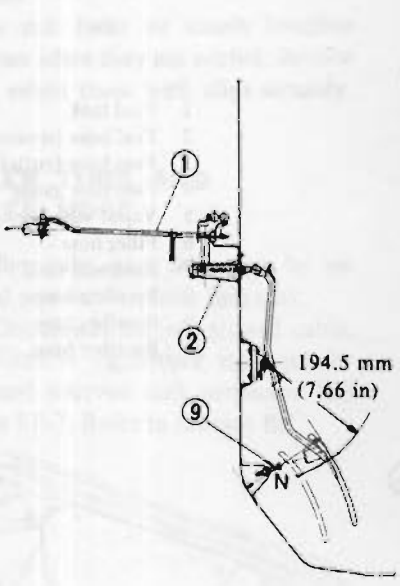
4. Installation is in the reverse sequence of removal.

INSPECTION

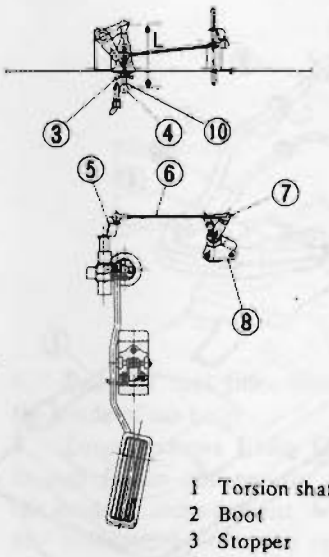
1. Check accelerator pedal return spring for rust, fatigue or damage.
   Replace if necessary.
2. Check accelerator linkage for rust, damage or looseness.
   Repair or replace if necessary.

ADJUSTMENT

LINKAGE



FE165



1 Torsion shaft
2 Boot
3 Stopper
4 Ball joint No. 1
5 Bell crank
6 Joint rod
7 Ball joint No. 2
8 Torsion shaft support
9 Pedal stopper and nut
10 Joint rod

Fig. FE-4 Accelerator linkage setting

1. Adjust the stopper bolt height "N" to 22.5 mm (0.886 in) from toe board.
2. Adjust the joint rod running through dashboard to L = 117 mm (4.61 in).
   Adjust the other joint rod ⑥ to 123 mm (4.84 in).
3. Upon completion of the above adjustment, depress accelerator pedal, and adjust stopper bolt properly so that it comes into contact with pedal when throttle shaft is in "Fully Open" position. Now, turn stopper bolt clockwise one full turn and lock stopper bolt with lock nut.

Kickdown switch

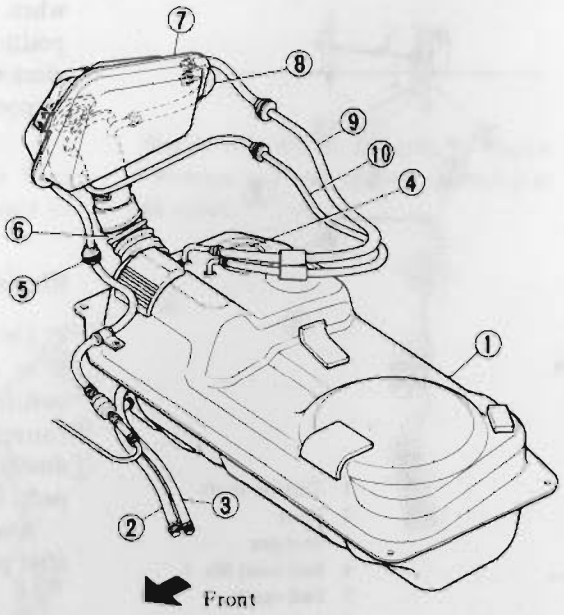
On automatic transmission models, it is necessary to adjust kickdown switch. Kickdown switch adjustment is correct if switch is actuated by kickdown switch striker when accelerator pedal is fully depressed.

Always tighten stopper nut securely after proper adjustment is obtained.

FUEL SYSTEM

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1 Fuel tank
2 Fuel hose (return)
3 Fuel hose (outlet)
4 Fuel tank gauge
5 Vapor vent line
6 Filler hose
7 Reservoir tank
8 Breather hose
9 Breather hose
10 Breather hose

FE379

Fig. FE-5 Fuel tank and fuel line

DESCRIPTION

The fuel tank is installed beneath the spare tire compartment. The fuel pump is installed in front of the fuel tank. The electronic fuel injection system requires high fuel pressure in the fuel line.

Thus, pay close attention to the fuel line. The fuel tank is equipped with a thermistor for fuel warning. When the fuel level drops below 10 liters (10⅝ U.S. qt., 8¾ Imper. qt.) the thermistor is activated and the warning lamp goes on.

A large capacity fuel strainer is also installed midway in the fuel line in the engine compartment.

For evaporative emission control, a reservoir tank and a carbon canister are also equipped. The reservoir tank is located at the right-hand rear quarter and the carbon canister in the engine compartment.

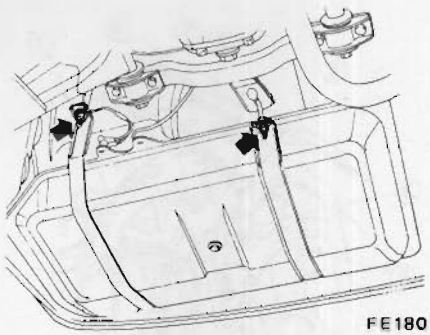
For fuel pump, fuel damper and fuel strainer, refer to Section EF.

REMOVAL AND INSTALLATION

WARNING:
When replacing fuel line parts, be sure to observe the following:
a. Put a "CAUTION: INFLAMMABLE" sign in workshop.
b. Be sure to furnish workshop with an asphyxiator.
c. Be sure to disconnect battery ground cable before conducting operations.
d. Put drained fuel in an explosion-proof container and put on lid securely.

FUEL TANK

1. Disconnect battery ground cable.
2. Remove drain plug from tank bottom, and drain fuel completely.
3. Disconnect fuel tank gauge cable through inspection hole, outlet hose and return hose from tank.
4. Remove nuts from two tank securing bands, and lower tank slightly.



FE180

Fig. FE-6 Removing nuts from tank securing bands

5. Disconnect three ventilation hoses (used to connect reservoir to tank) and filler hose from tank, and dismount tank.
6. Disconnect breather hose (used to connect filler hose to reservoir), remove reservoir installation bolts, and remove reservoir.

Note: Plug hose and pipe openings to prevent entry of dust or dirt during removal.

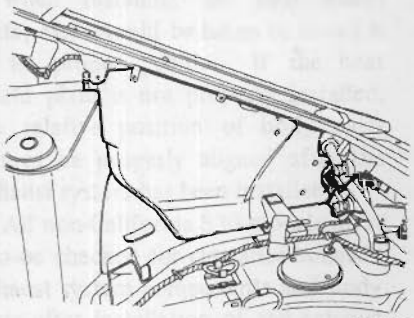
7. Installation is in the reverse sequence of removal.

Note: Install fuel filler hose after fuel tank has been mounted in place. Failure to do so could result in leakage from around hose connections.
Do not twist or smash breather hoses when they are routed. Be sure to retain them with clips securely.

FILLER TUBE AND FILLER HOSE

Filler tube and hose can be removed without lowering fuel tank.

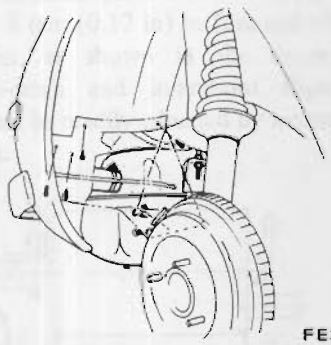
1. Disconnect battery ground cable.
2. Remove right-hand rear quarter trim and reservoir tank protector. See Figure FE-7. Refer to Section BF.



FE380

Fig. FE-7 Removing rear quarter trim

3. Loosen screws attaching fuel filler hose protector and remove it.



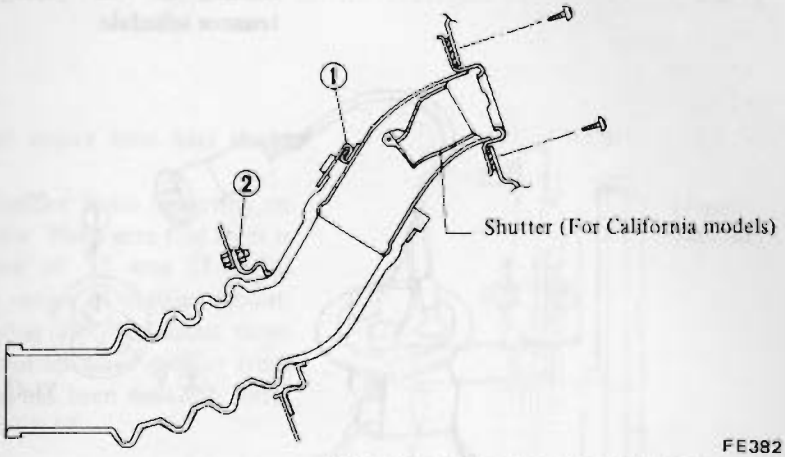
FE381

Fig. FE-8 Removing fuel filler hose protector

4. Loosen hose clamp and detach hose from fuel tank.

Note: Plug pipe opening of fuel tank to prevent entry of dust or dirt.

5. Loosen clamp ① tightening hose with tube and rubber grommet attaching nuts ② from the inside of rear compartment.



FE382

Fig. FE-9 Cross-sectional view of fuel hose

6. Pull out fuel filler hose toward the inside of car body.
7. Loosen screws fixing filler neck to rear fender and remove it toward the inside of compartment.
8. Installation is in the reverse sequence of removal.

Note: Be sure to place stopper of clamp in place when tightening clamp to prevent hose from being pulled out.

FUEL PIPE AND RUBBER HOSE

The fuel line between fuel pump and fuel strainer is a single molded unit construction which completely eliminate fuel leakage. Fuel pipes are serviced as an assembly.

Do not disconnect any fuel line unless absolutely necessary.

1. Drain fuel from fuel tank.
2. Loosen fuel hose clamps and disconnect fuel pipe at each end.

Note: Plug hose and pipe openings to prevent entry of dust or dirt during removal.

3. Unfasten clips that hold pipe on underbody and remove pipe from car.
4. For installation of fuel hoses and clamps, refer to section "EF".

FUEL TANK GAUGE

1. Drain fuel from fuel tank.
2. Disconnect battery ground cable.
3. Loosen screws and remove inspection hole lid.
4. Disconnect wires from fuel tank gauge through inspection hole.
5. Turn fuel tank gauge counterclockwise with a screwdriver.

Note: Tank gauge is a bayonet type; To remove, turn it counterclockwise.

6. Installation is in the reverse sequense of removal.

Note: When installing fuel tank gauge, align projection of fuel tank gauge with notch in fuel tank and tighten it securely. Be sure to install fuel tank gauge with O-ring in place.

INSPECTION

FUEL TANK

Check fuel tank for cracks or deformation. If necessary, replace.

FUEL RUBBER HOSE

Inspect all hoses for cracks, fatigue, sweating or deterioration.

Replace any hose that is damaged.

FUEL PIPES

Replace any fuel pipe that is cracked, rusted, collapsed or deformed.

Note: Inspect hoses and pipes according to the periodic maintenance schedule.

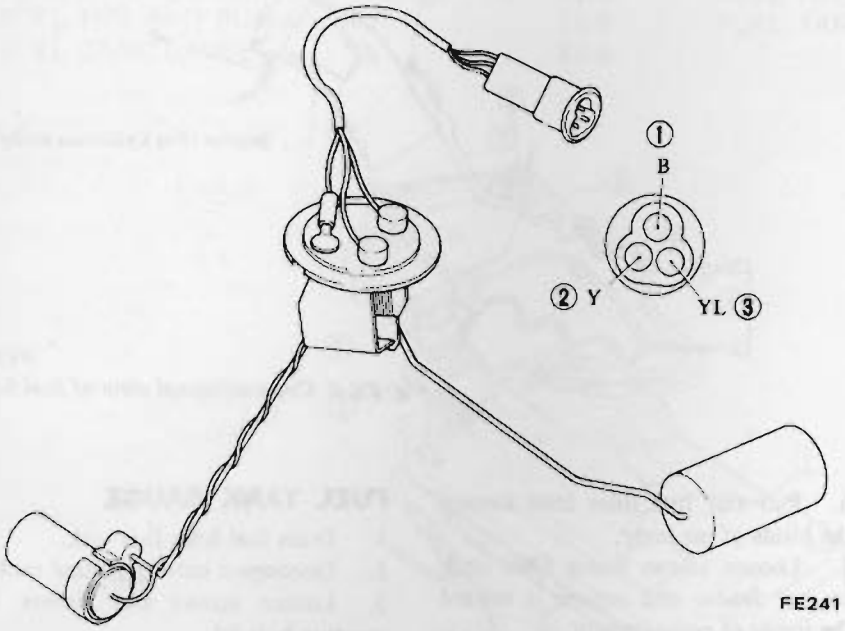


Fig. FE-10 Fuel tank gauge

FUEL TANK GAUGE

1. Test resistance between ①-② terminals with a low reading ohmmeter. Resistance should be between approximately 10 to 80Ω.
2. Check resistance between ①-③ terminals when thermistor is submerged in fuel.
3. Then remove it from fuel, and drain fuel. At this step, resistance between ①-③ terminals should be different than that in step 2.
4. If anything is distorted, replace fuel tank gauge as an assembly.

EXHAUST SYSTEM

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CALIFORNIA MODELS

Because all S30 California models are equipped with catalytic converters, it is necessary to maintain a proper clearance between the exhaust system components and adjacent parts on the car body.

The exhaust system consists essentially of a front tube, catalytic converter and center tube with a muffler. When it becomes necessary to replace any of these parts, heat shield plates should be installed before the replacement part is installed on the car body.

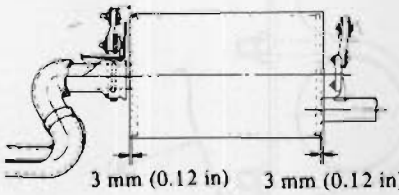
When installing the heat shield plate, care should be taken to install it in its proper position. If the heat shield plate is not properly installed, the relative position of body parts cannot be properly aligned after the exhaust system has been installed.

All non-California S30 models must also be checked for clearance between exhaust system components and body parts after installation of the exhaust system.

Installing heat shield plates

1. Muffler heat shield plate

Install muffler heat shield plate so that heat shield plate-to-muffler clearance is 3 mm (0.12 in) in fore-and-aft direction, as shown in the figure. Up-and-down and in-and-out alignment can be readily adjusted by means of seats.



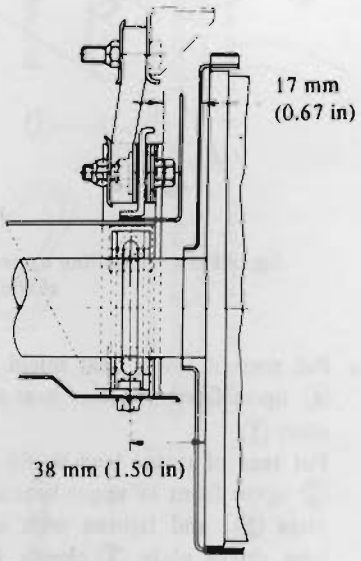
FE508

Fig. FE-11 Heat shield plate-to-muffler clearance

2. Exhaust center tube heat shield plate.

- Install muffler front mounting on center tube. Make sure that there is a distance of 38 mm (1.50 in) between center of muffler mounting securing bolt and front outer face of muffler when muffler front mounting has been installed. Refer to Figure FE-12.

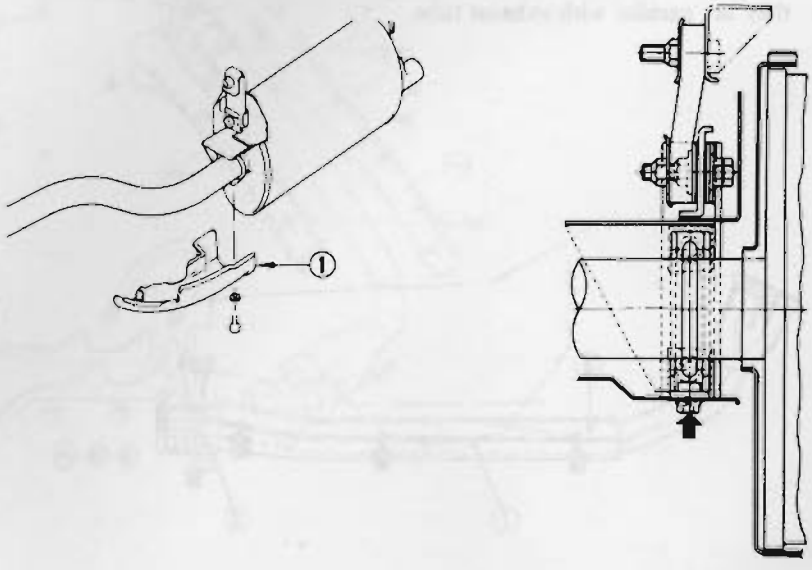
Note: The above distance can also be obtained when distance between front outer face of muffler heat shield plate and rear end face of mounting rubber is 17 mm (0.67 in).



FE255

Fig. FE-12 Installing muffler front mounting

- Install lower heat shield plate ① on lower face of muffler front bracket, and secure with bolt. Refer to Figure FE-13.



FE266

Fig. FE-13 Installing lower heat shield plate

- Tighten upper heat shield plate ② together with lower heat shield plate ① by means of clamp at position indicated by arrow, and secure to exhaust tube.

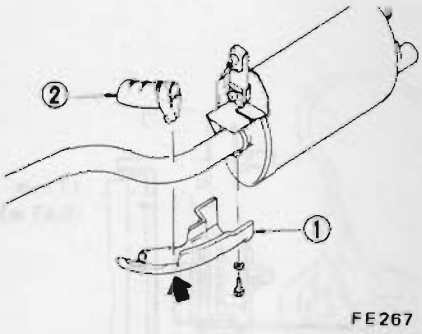


Fig. FE-14 Installing upper heat shield plate

- Put rear of lower heat shield plate ④ upon front of lower heat shield plate ①
  Put rear of upper heat shield plate ③ upon front of upper heat shield plate ②, and tighten with upper heat shield plate ③ clamp. Refer to Figure FE-15.
  Align brackets of upper and lower heat shield plates ③ and ④, and tighten with bolts evenly. Install lower heat shield plate ⑤ to assembly.

Note: Upper and lower heat shield plates ③ and ④ must be adjusted in fore-and-aft direction so that they are parallel with exhaust tube.

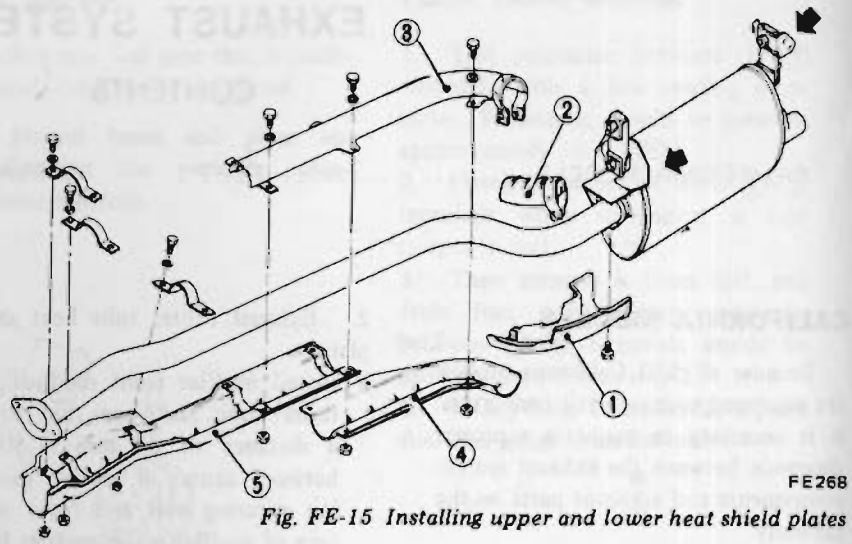


Fig. FE-15 Installing upper and lower heat shield plates

3. Upper and lower catalytic converter heat shield plates.
   These shield plates can be installed in accordance with standard shop practice.

4. Exhaust front tube heat shield plate.

- Install upper and lower heat shield plates ⑥ and ⑦ on their brackets, and tighten securely with bolts. Make sure that distance between rear face of exhaust front tube and rear end of heat shield plate is 108 mm (4.25 in). If necessary, adjust until correct distance is obtained. Refer to Figure FE-16.

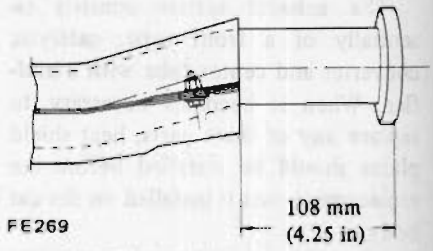


Fig. FE-16 Mounting position of exhaust front tube heat shield plate

- Snugly tighten front tube mounting bracket and U-bolt on front tube. Align and install exhaust front tube on car body, and tighten securely.
- Install lower heat shield plate ⑧ on lower face of exhaust tube mounting bracket, and tighten with bolt at weld nut hole.
  Note that front end of plate ⑧ is secured at two places together with rear bracket of heat shield plates ⑥ and ⑦.

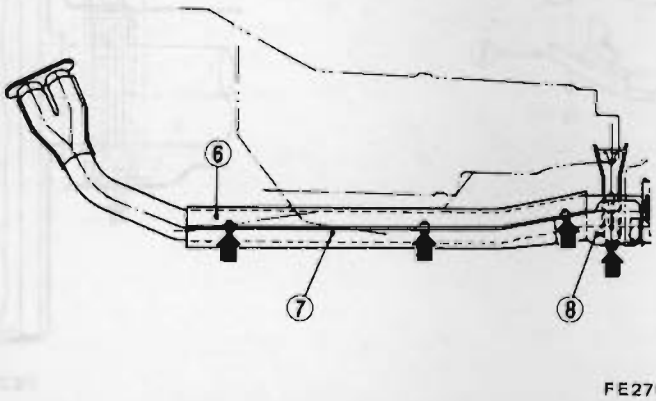


Fig. FE-17 Exhaust front tube heat shield plate

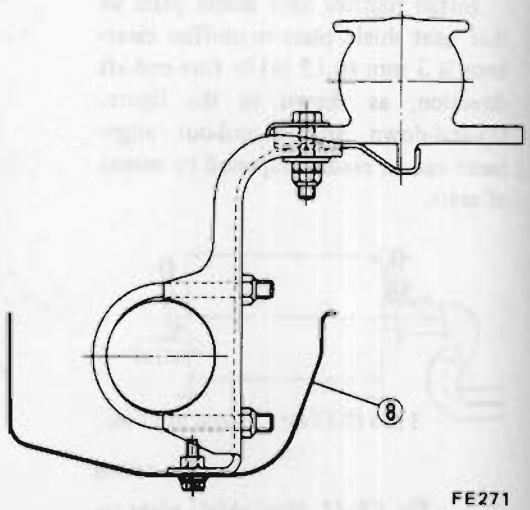
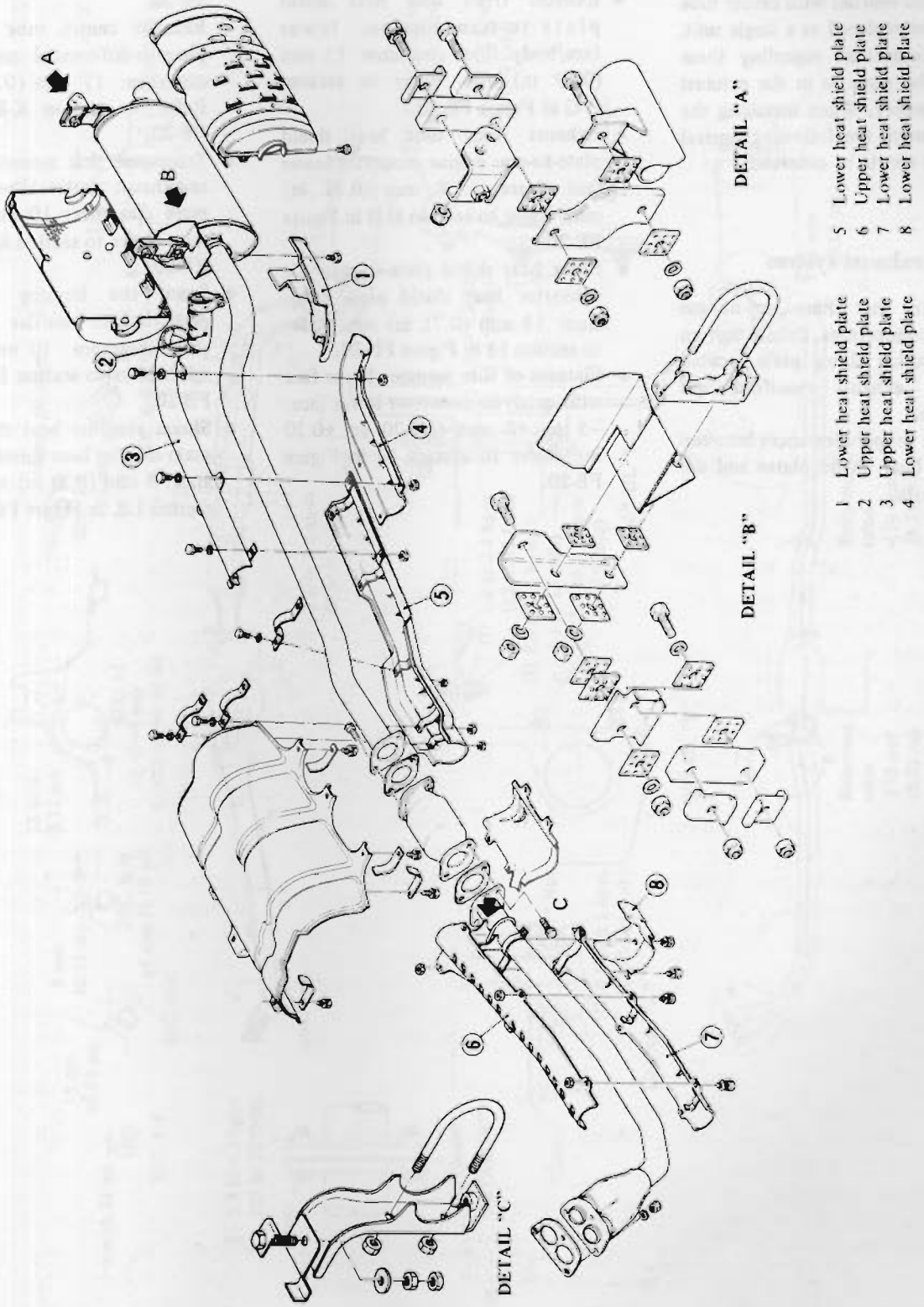


Fig. FE-18 Exhaust front tube mounting bracket



FE509

Fig. FE-19 Exploded view of exhaust system (California models)

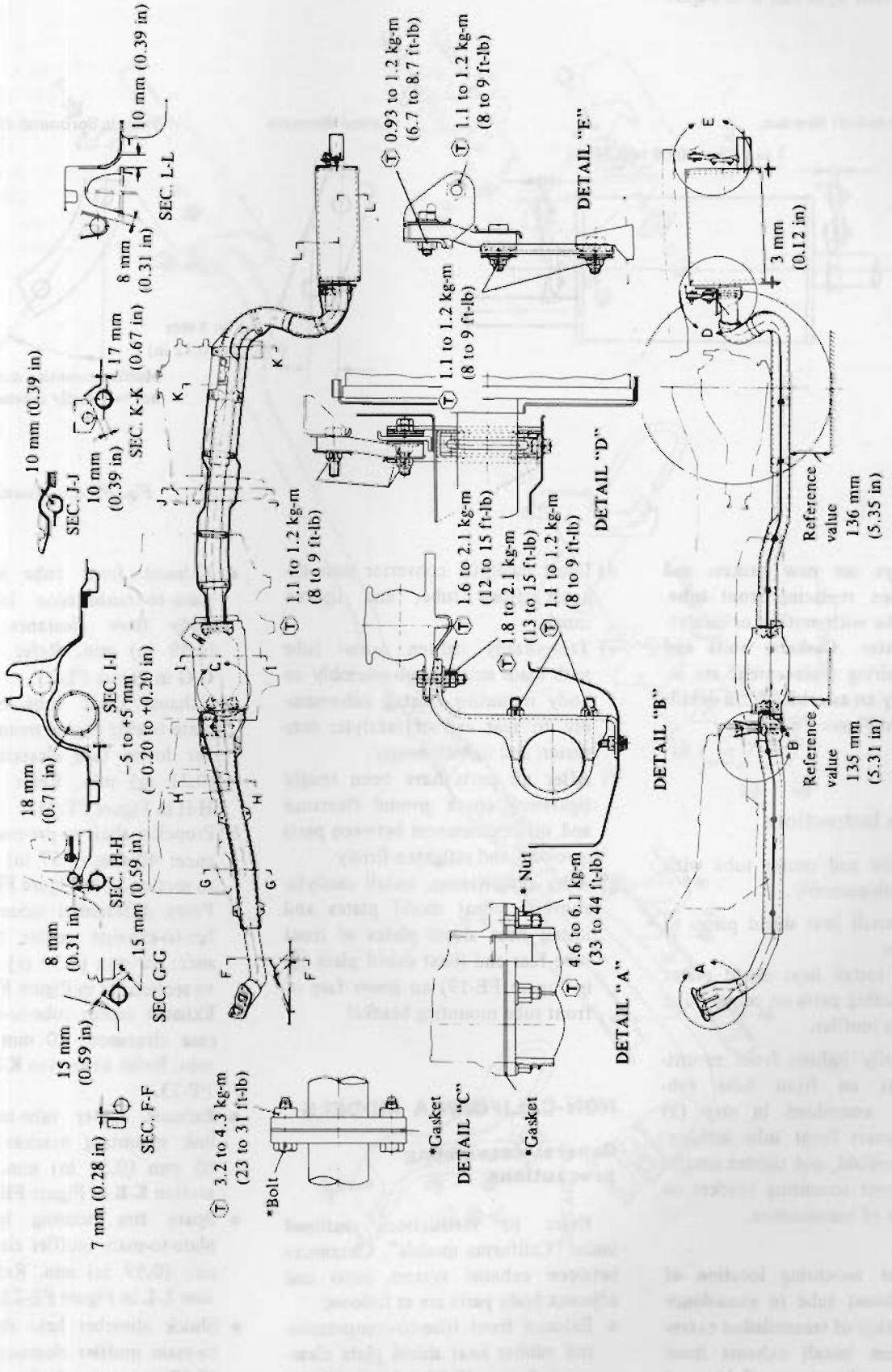
Installing exhaust system

This section deals with installation procedures for the exhaust system assembly. The front tube, catalytic converter and muffler with center tube alone can be replaced as a single unit. General precautions regarding these units are the same as in the exhaust system assembly. When installing the exhaust system, the following general precautions should be observed:

Installing exhaust system

a) Make sure that there are no gas leaks at connections. Evenly tighten nuts securing fixing plate located between exhaust manifold and front tube.
b) Maintain proper clearances between exhaust heat shield plates and adjacent parts.

- Exhaust front tube-to-compression rod rubber heat shield plate clearance: 7 mm (0.28 in) min. Refer to section F-F in Figure FE-20.
- Exhaust front tube heat shield plate-to-transmission lower face/body floor clearance: 15 mm (0.59 in) min. Refer to section G-G in Figure FE-20.
- Exhaust front tube heat shield plate-to-rear engine mounting lower face clearance: 8 mm (0.31 in) min. Refer to section H-H in Figure FE-20.
- Floor heat shield plate-to-catalytic converter heat shield plate clearance: 18 mm (0.71 in) min. Refer to section I-I in Figure FE-20.
- Flatness of side member lower face with catalytic converter lower face: −5 to +5 mm (−0.20 to +0.20 in). Refer to section I-I in Figure FE-20.
- Front differential mounting member-to-exhaust center tube clearance: 10 mm (0.39 in) min. Refer to section J-J in Figure FE-20.
- Exhaust center tube heat shield plate-to-differential case lower face clearance: 17 mm (0.67 in) min. Refer to section K-K in Figure FE-20.
- Transverse link mounting bracket-to-exhaust center tube heat shield plate clearance: 10 mm (0.39 in) min. Refer to section K-K in Figure FE-20.
- Spare tire housing heat shield plate-to-main muffler heat shield plate clearance: 10 mm (0.39 in) min. Refer to section L-L in Figure FE-20.
- Shock absorber heat sield plate-to-main muffler heat shield plate clearance: 8 mm (0.31 in) min. Refer to section L-L in Figure FE-20.



FE510

Fig. FE-20 Exhaust system (California models)

c) Before mounting tubes, install all associated parts on front tube and center tube with main muffler. Refer to details B, D and E in Figure FE-20.

- Be sure that mounting insulators are not subject to undue stress due to misaligned piping.
- Muffler mounting should be installed within specified limit in Figure FE-21.

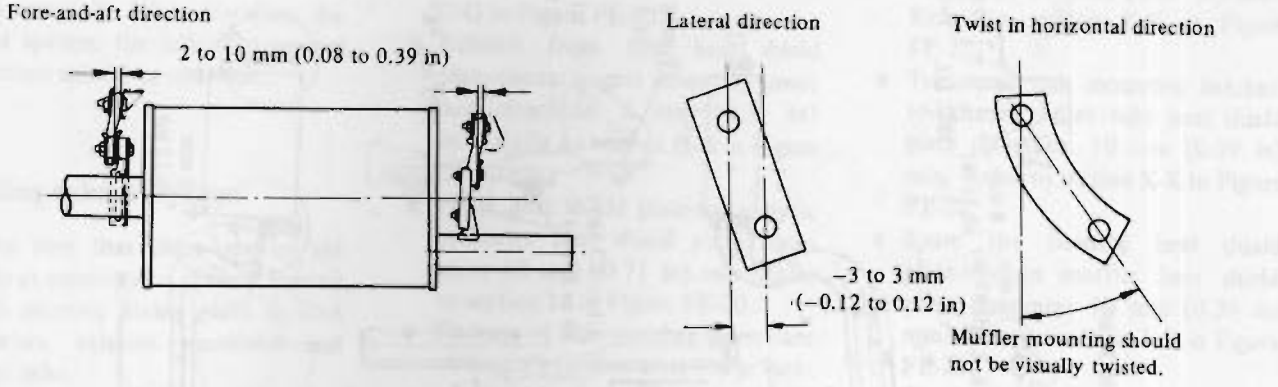


Fig. FE-21 Mounting rubbers

Note: Always use new gaskets and bolts when replacing front tube, center tube with muffler or catalytic converter. Gaskets, bolts and nuts requiring replacement are indicated by an asterisk "*" in details A and C in Figure FE-20.

Installation instructions

a) Front tube and center tube with muffler sub-assembly.

- Snugly install heat shield plates to front tube.
- Securely install heat shield plates and mounting parts on center tube with main muffler.

b) Temporarily tighten front mounting parts on front tube sub-assembly assembled in step (a) above. Insert front tube into exhaust manifold, and tighten snugly.

c) Install front mounting bracket on extension of transmission.

Note: Adjust mounting location of front exhaust tube in accordance with location of transmission extension. Then install exhaust front tube on exhaust manifold, and tighten to specified torque.

d) Insert catalytic converter into exhaust front tube, and tighten snugly.

e) Temporarily tighten center tube with main muffler sub-assembly on body mounting. Install sub-assembly to rear end of catalytic converter, and tighten snugly.

f) After all parts have been snugly tightened, check ground clearance and other clearances between parts involved, and retighten firmly.

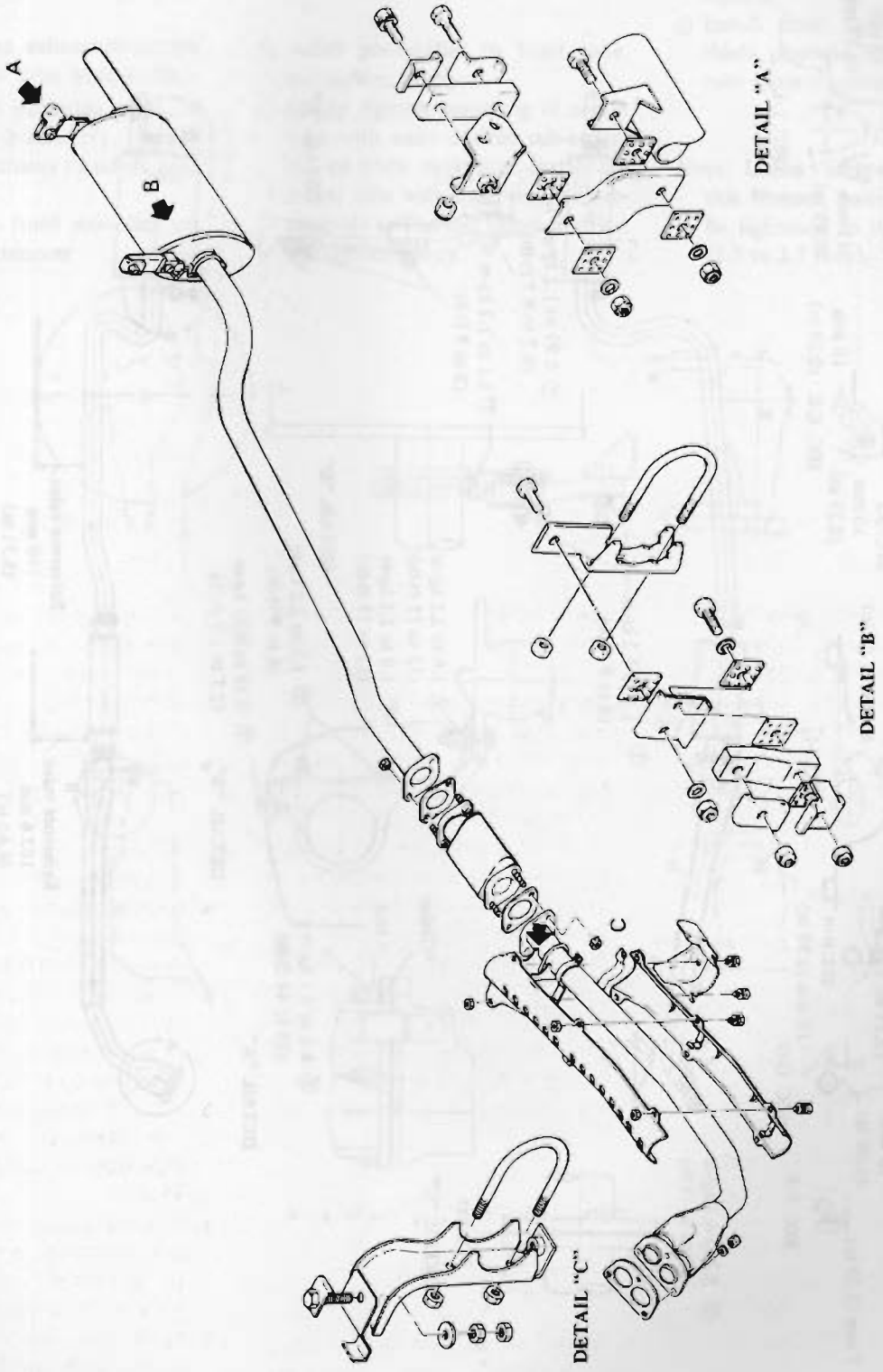
g) After retightening, install catalytic converter heat shield plates and install heat shield plates of front tube rear end (heat shield plate ⑧ in Figure FE-19) on lower face of front tube mounting bracket.

NON-CALIFORNIA MODELS

General assembling precautions

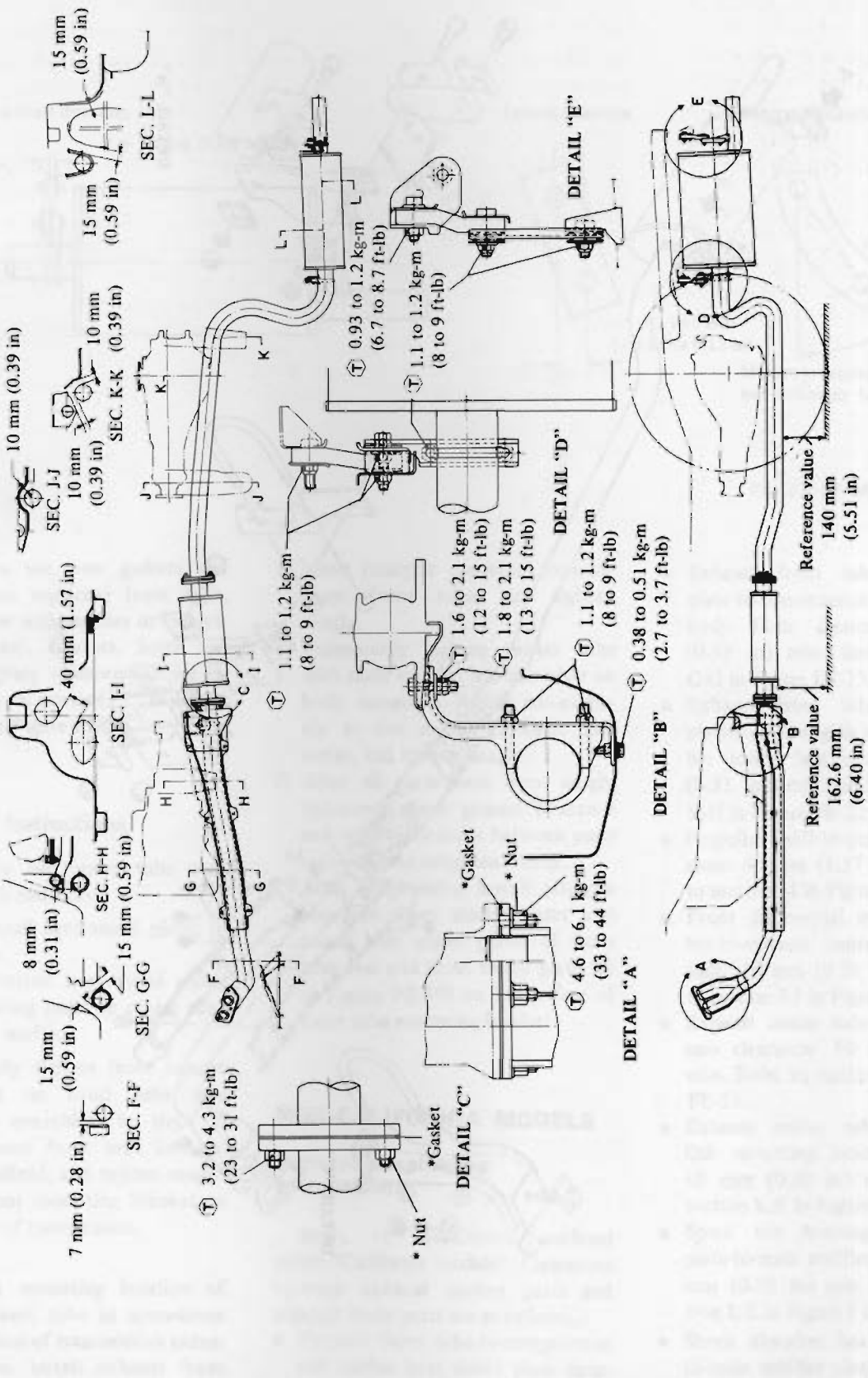
Refer to instructions outlined under "California models". Clearances between exhaust system parts and adjacent body parts are as follows:

- Exhaust front tube-to-compression rod rubber heat shield plate clearance: 7 mm (0.28 in) min. Refer to section F-F in Figure FE-23.
- Exhaust front tube heat shield plate-to-transmission lower face/body floor clearance: 15 mm (0.59 in) min. Refer to section G-G in Figure FE-23.
- Exhaust front tube heat shield plate-to-rear engine mounting member lower face clearance: 8 mm (0.31 in) min. Refer to section H-H in Figure FE-23.
- Propeller shaft-to-pre-muffler clearance: 40 mm (1.57 in) min. Refer to section I-I in Figure FE-23.
- Front differential mounting member-to-exhaust center tube clearance: 10 mm (0.39 in) min. Refer to section J-J in Figure FE-23.
- Exhaust center tube-to-differential case clearance: 10 mm (0.39 in) min. Refer to section K-K in Figure FE-23.
- Exhaust center tube-to-transverse link mounting bracket clearance: 10 mm (0.39 in) min. Refer to section K-K in Figure FE-23.
- Spare tire housing heat shield plate-to-main muffler clearance: 15 mm (0.59 in) min. Refer to section L-L in Figure FE-23.
- Shock absorber heat shield plate-to-main muffler clearance: 15 mm (0.59 in) min. Refer to section L-L in Figure FE-23.



FE275

Fig. FE-22 Exploded view of exhaust system (Non-California models)



FE276

Fig. FE-23 Exhaust system (Non-California models)

Installing exhaust system

a) Front tube and center tube with muffler sub-assembly.

- Snugly tighten heat shield plate on front tube.
- Securely tighten exhaust mounting parts on center tube with muffler.

b) Snugly tighten mounting parts on front tube sub-assembly. Install front tube to exhaust manifold, and tighten snugly.

c) Install exhaust front mounting on transmission extension.

Note: Adjust mounting location of exhaust front tube as required in accordance with location of transmission extension.

d) Install pre-muffler to front tube, and tighten snugly.

e) Snugly tighten mounting of center tube with main muffler sub-assembly on body mounting. Install the center tube with main muffler sub-assembly to rear end of pre-muffler, and tighten snugly.

f) After all parts have been snugly tightened, check ground clearance and clearances between parts involved. If nothing is wrong, re-tighten.

g) Install front tube rear end heat shield plates to lower face of front tube mounting bracket.

Note: Unless otherwise indicated in this Manual, bolts and nuts should be tightened to 0.38 to 0.51 kg-m (2.7 to 3.7 ft-lb).