DATSUN 280Z
MODEL S30 SERIES

NISSAN

NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION FE

ENGINE CONTROL, FUEL & EXHAUST SYSTEMS

FE

ENGINE CONTROL SYSTEM ..... FE- 2
FUEL SYSTEM ..... FE- 4
EXHAUST SYSTEM ..... FE- 6

ENGINE CONTROL SYSTEM

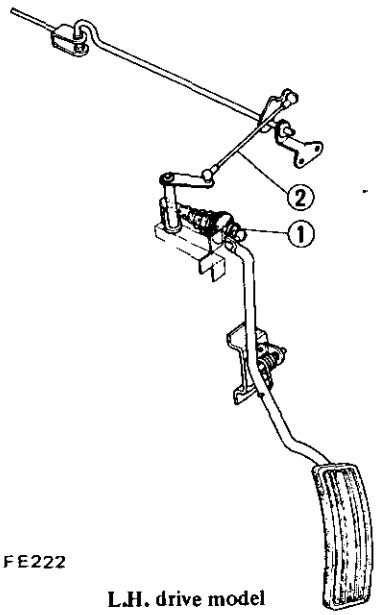
CONTENTS

ACCELERATOR SYSTEM FE-2
DESCRIPTION FE-2
REMOVAL AND INSTALLATION FE-2
INSPECTION FE-3
ADJUSTMENT FE-3

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.



L.H. drive model

1 Ball joint No. 1
2 Ball joint No. 2

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.

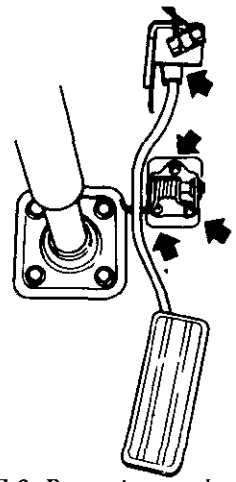


Fig. FE-2 Removing accelerator pedal arm

3. Disconnect ball joint of each rod at torsion shaft support in the engine compartment. Ball joint rods can then be taken out easily.

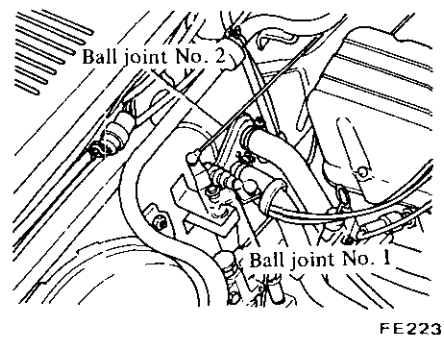


Fig. FE-3 Disconnecting ball joint rods

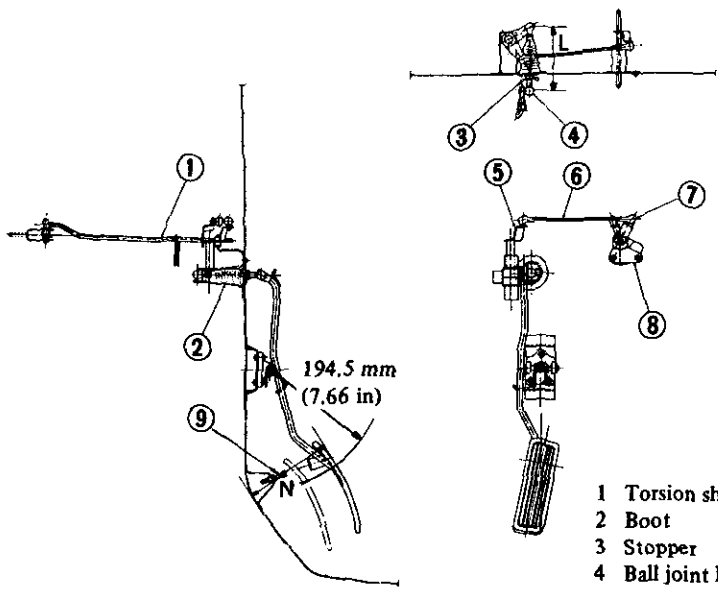
4. Installation is in the reverse sequence of removal.

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 Tension rod
7 Ball joint No. 2
8 Torsion shaft support
9 Pedal stopper and nut

Fig. FE-4 Accelerator linkage setting

1. Adjust the stopper bolt height to 22.5 mm (0.886 in) from toe board.
2. Adjust the tension rod running through dashboard to 117 mm (4.61 in).
   Adjust the other tension rod 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

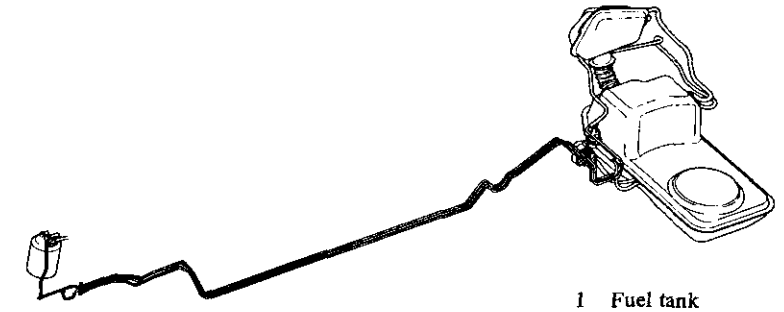
On automatic transmission models, it is necessary to adjust kickdown switch. Kickdown switch adjustment is correct if switch is actuated by kickdown switch striker when accelerator pedal is fully depressed.

Always tighten stopper nut securely after proper adjustment is obtained.

FUEL SYSTEM

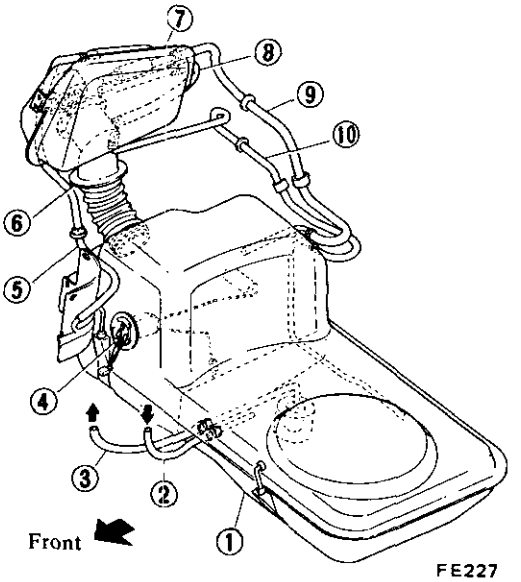
CONTENTS

DESCRIPTION FE-4
REMOVAL AND INSTALLATION FE-4
FUEL TANK FE-4
FUEL PIPE AND RUBBER HOSE FE-5
FUEL TANK GAUGE FE-5
INSPECTION FE-5
FUEL TANK FE-5
FUEL RUBBER HOSE FE-5
FUEL PIPES FE-5
FUEL TANK GAUGE FE-5



FE226

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



FE227

Fig. FE-5 Fuel tank and fuel line

DESCRIPTION

The fuel tank is installed beneath the spare tire housing. The fuel pump is installed beside 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 rear quarter and the carbon canister in the engine compartment.

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

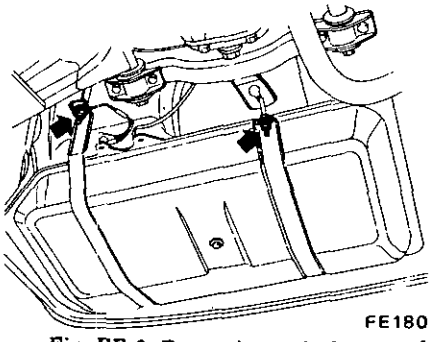
REMOVAL AND INSTALLATION

FUEL TANK

1. Disconnect battery ground cable.
2. Remove drain plug from tank bottom, and drain fuel completely.

Note: Fuel vapors are highly explosive. Keep flames or sparks away from vicinity of empty fuel tank.

3. Disconnect fuel tank gauge cable, 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.

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. Disconnect wire from fuel tank gauge.
4. Turn fuel tank gauge counterclockwise with a screwdriver.

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

5. 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.**

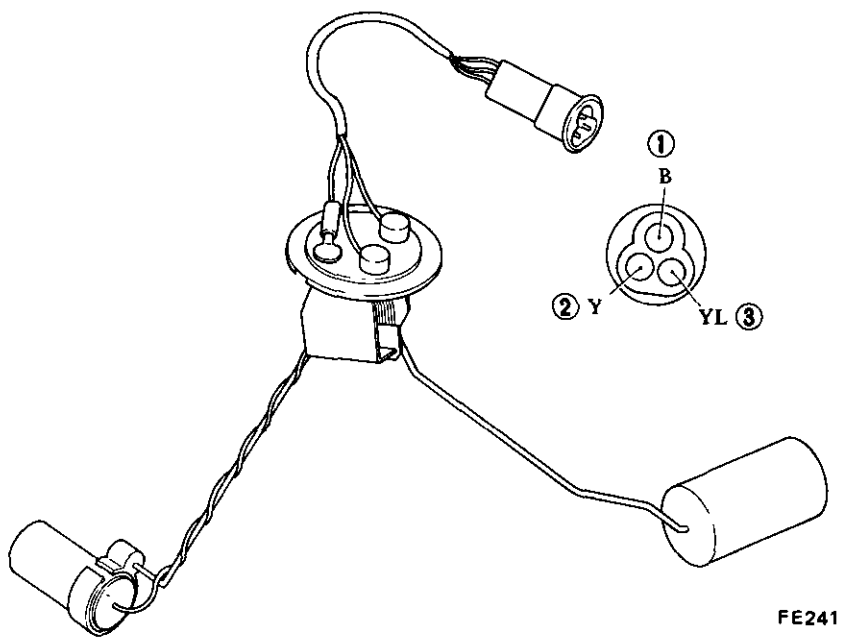


Fig. FE-7 Fuel tank gauge

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

CONTENTS

CALIFORNIA MODELS ..... FE- 6 NON-CALIFORNIA MODELS FE-11

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 (0.118 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.

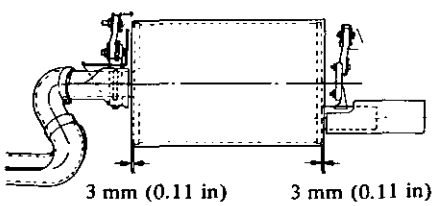


Fig. FE-8 Heat shield plate-to-muffler clearance

2. Exhaust center tube heat shield plate.

- Install muffler front mounting on center tube. Make sure that there is a distance of 38 mm (1.469 in) between center of muffler mounting securing bolt and front outer face of muffler when muffler front mounting has been installed. Refer to Fig. FE-9.

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 (0.669 in).

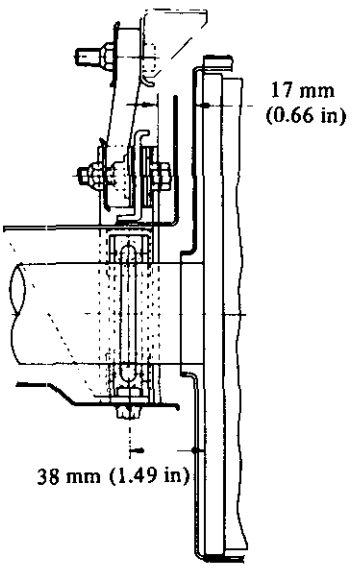
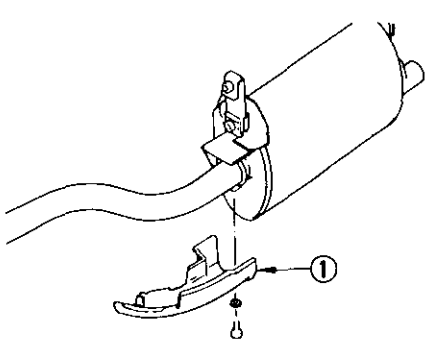


Fig. FE-9 Installing muffler front mounting

- Install lower heat shield plate ① on lower face of muffler front bracket, and secure with bolt. Refer to Fig. FE-10.



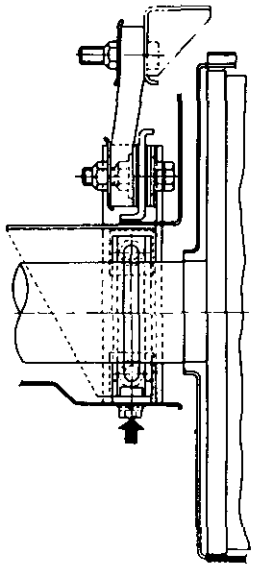


Fig. FE-10 Installing lower heat shield plate

- 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.

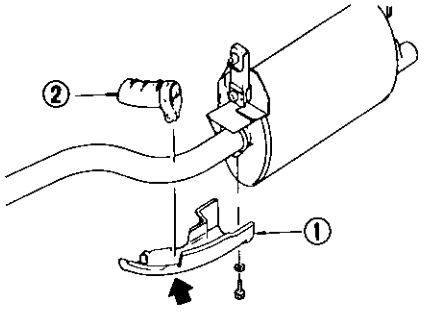


Fig. FE-11 Installing upper heat shield plate

- 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-12.
  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.

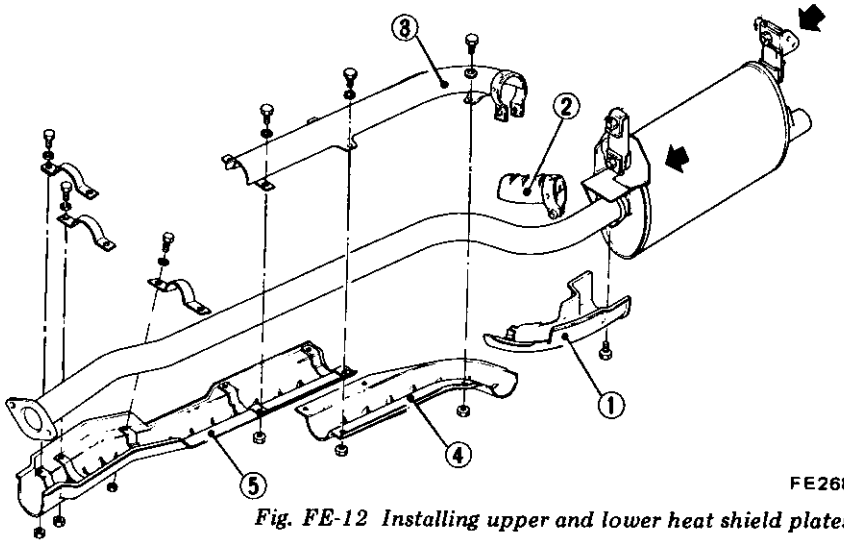


Fig. FE-12 Installing upper and lower heat shield plates

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 Fig. FE-13.

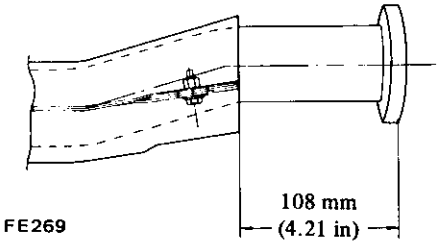


Fig. FE-13 Mounting position of exhaust front tube heat shield plate

- 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.

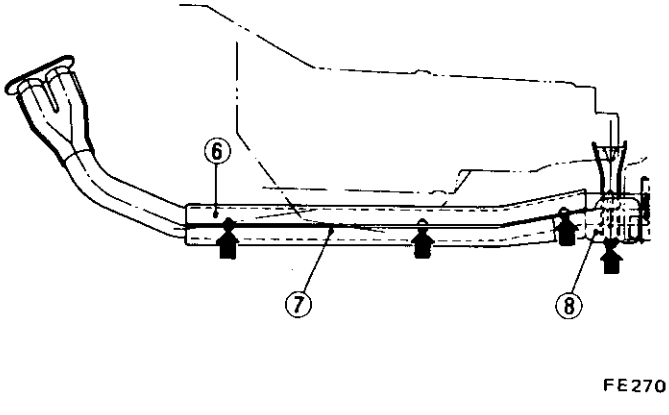


Fig. FE-14 Exhaust front tube heat shield plate

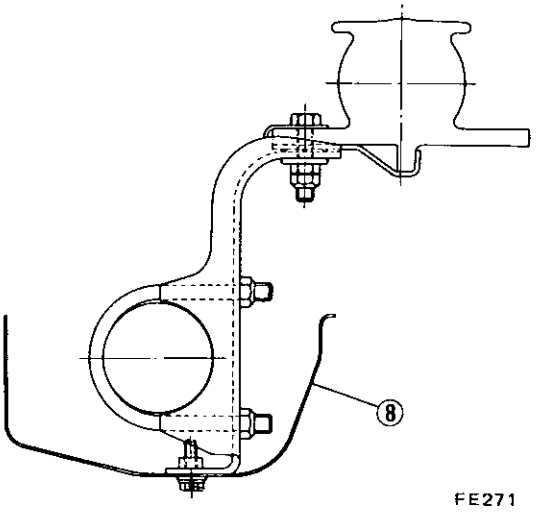
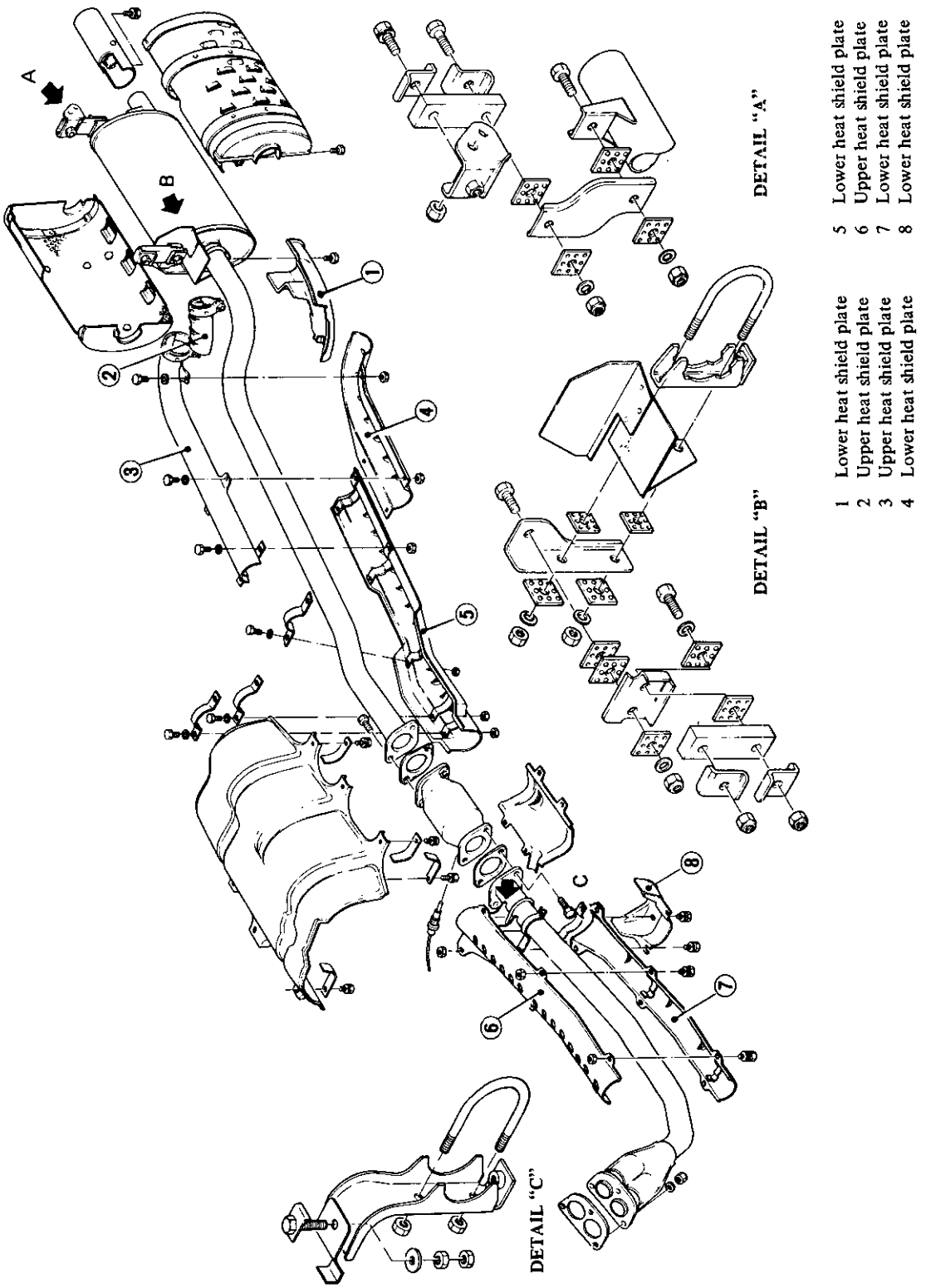


Fig. FE-15 Exhaust front tube mounting bracket



FE272

Fig. FE-16 Exploded view of exhaust system (California models)

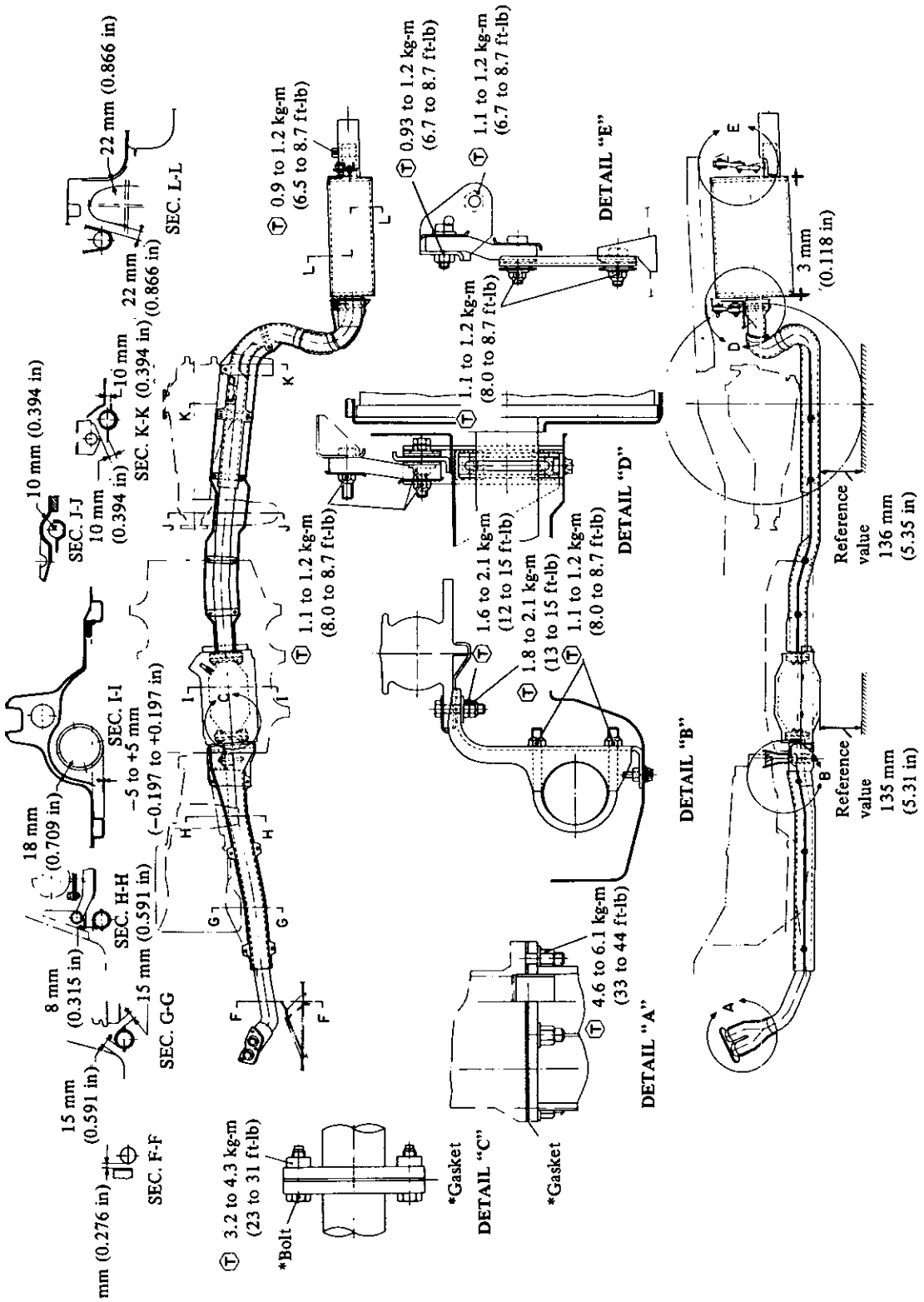
Installing exhaust system

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 (0.276 in) min. Refer to section F-F in Fig. FE-17.
- Exhaust front tube heat shield plate-to-transmission lower face/body floor clearance: 15 mm (0.591 in) min. Refer to section G-G in Fig. FE-17.
- Exhaust front tube heat shield plate-to-rear engine mounting lower face clearance: 8 mm (0.315 in) min. Refer to section H-H in Fig. FE-17.
- Floor heat shield plate-to-catalytic converter heat shield plate clearance: 18 mm (0.709 in) min. Refer to section I-I in Fig. FE-17.
- Flatness of side member lower face with catalytic converter lower face: −5 to +5 mm (−0.197 to +0.197 in). Refer to section I-I in Fig. FE-17.
- Front differential mounting member-to-exhaust center tube clearance: 10 mm (0.394 in) min. Refer to section J-J in Fig. FE-17.
- Exhaust center tube heat shield plate-to-differential case lower face clearance: 10 mm (0.394 in) min. Refer to section K-K in Fig. FE-17.
- Transverse link mounting bracket-to-exhaust center tube heat shield plate clearance: 10 mm (0.394 in) min. Refer to section K-K in Fig. FE-17.
- Spare tire housing heat shield plate-to-main muffler heat shield plate clearance: 22 mm (0.866 in) min. Refer to section L-L in Fig. FE-17.
- Shock absorber heat shield plate-to-main muffler heat shield plate clearance: 24 mm (0.945 in) min. Refer to section L-L in Fig. FE-17.



FE273

Fig. FE-17 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 Fig. FE-17.

- Be sure that mounting insulators are not subject to undue stress due to misaligned piping.
- Muffler mounting should be installed within specified limit in Fig. FE-18.

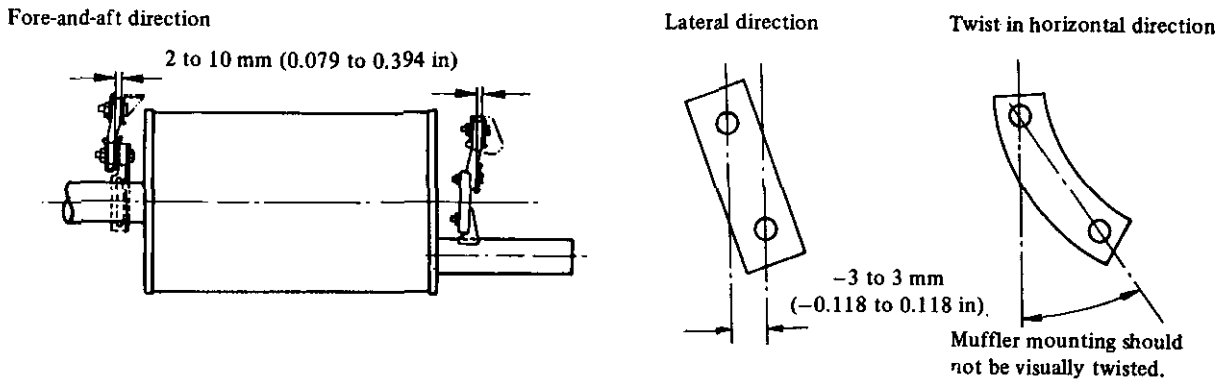


Fig. FE-18 Mounting rubbers

CAUTION:

Always use new gaskets and bolts when replacing front tube, center tube with muffler or catalytic converter. Gaskets and bolts requiring replacement are indicated by an asterisk "*" in details A, B and C in Fig. FE-17.

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) Install temperature sensor harness on catalytic converter. 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.

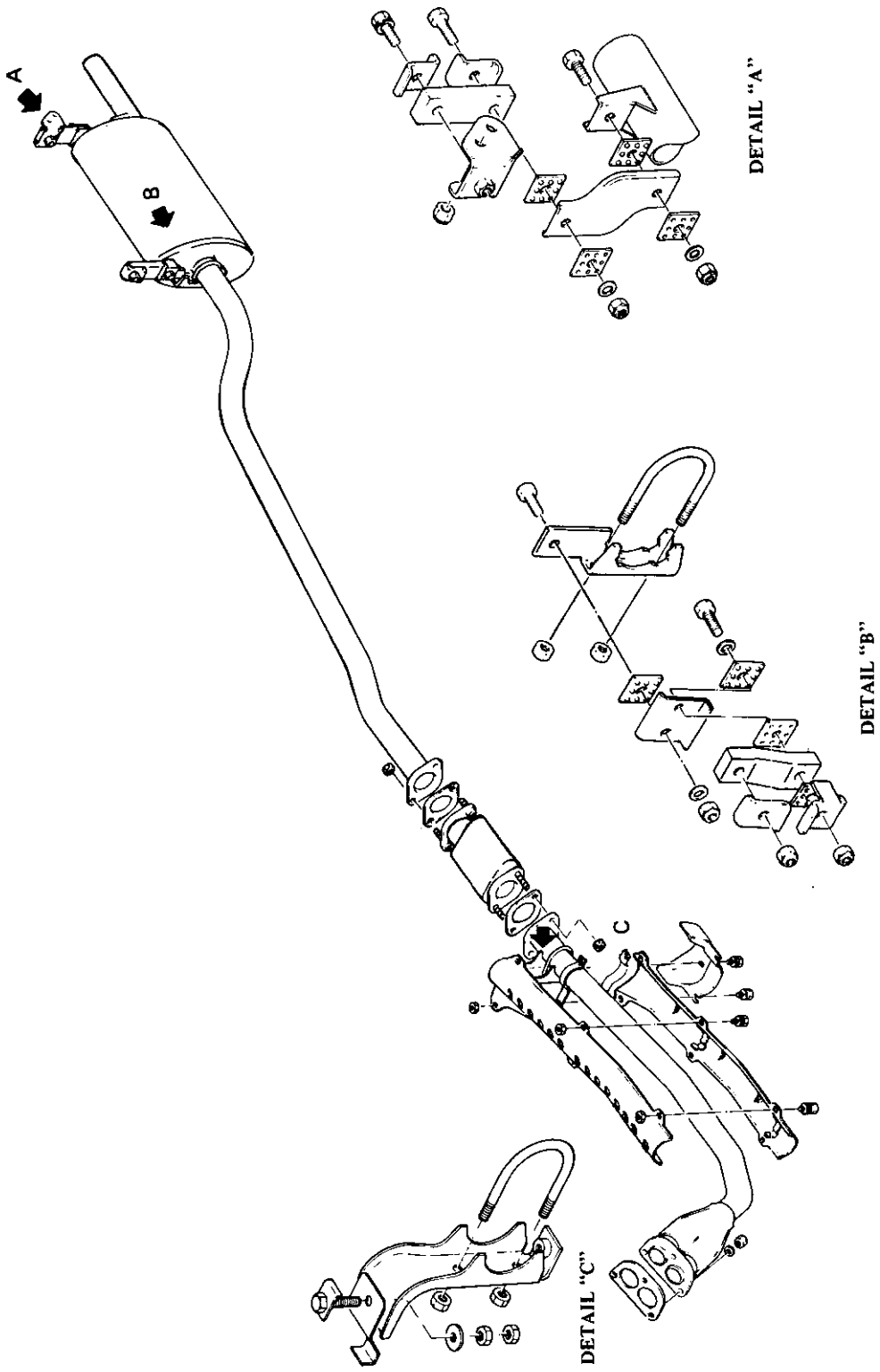
g) After retightening, install catalytic converter heat shield plates and install heat shield plates of front tube rear end (heat shield plate (8) in Fig. 9) on lower face of front tube mounting bracket.

NON-CALIFORNIA MODELS

General assembling precautions

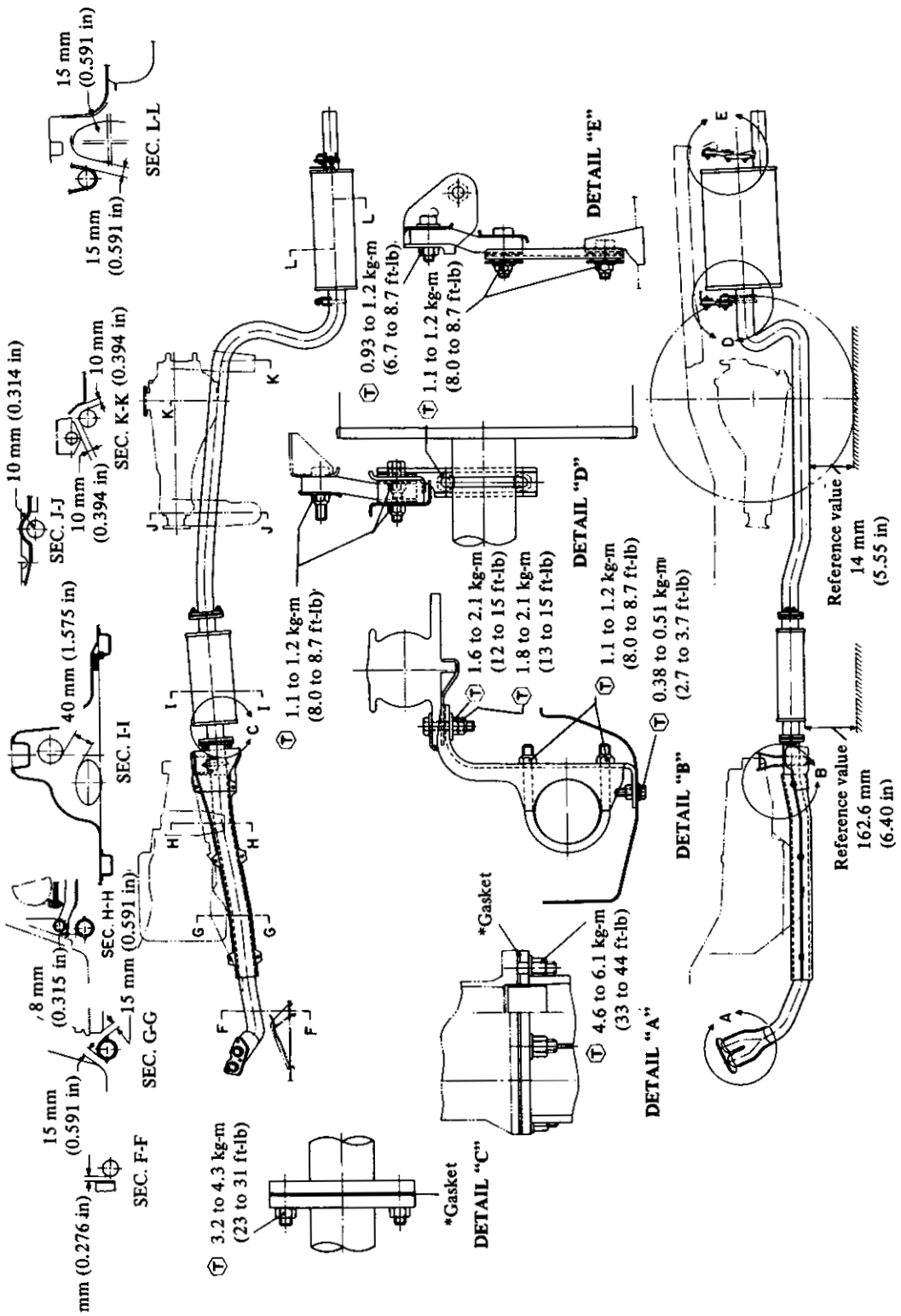
Refer to instructions outlined under "California models". Clearances between exhaust system parts and adjacent body parts are as follows:

- Exhaust front tube-to-compression rod rubber heat shield plate clearance: 7 mm (0.276 in) min. Refer to section F-F in Fig. FE-20.
- Exhaust front tube heat shield plate-to-transmission lower face/body floor clearance: 15 mm (0.591 in) min. Refer to section G-G in Fig. FE-20.
- Exhaust front tube heat shield plate-to-rear engine mounting member lower face clearance: 8 mm (0.315 in) min. Refer to section H-H in Fig. FE-20.
- Propeller shaft-to-pre-muffler clearance: 40 mm (1.575 in) min. Refer to section I-I in Fig. FE-20.
- Front differential mounting member-to-exhaust center tube clearance: 10 mm (0.394 in) min. Refer to section J-J in Fig. FE-20.
- Exhaust center tube-to-differential case clearance: 10 mm (0.394 in) min. Refer to section K-K in Fig. FE-20.
- Exhaust center tube-to-transverse link mounting bracket clearance: 10 mm (0.394 in) min. Refer to section K-K Fig. FE-20.
- Spare tire housing heat shield plate-to-main muffler clearance: 15 mm (0.591 in) min. Refer to section L-L in Fig. FE-20.
- Shock absorber heat shield plate-to-main muffler clearance: 15 mm (0.591 in) min. Refer to section L-L in Fig. FE-20.



FE275

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



FE276

Fig. FE-20 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.

CAUTION:

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).

509 Debby Lane
Adamsville, AL 35005
http://www.zcarcreations.com
cborden@zcarcreations.com

NISSAN FACTORY SERVICE MANUAL CDROM END-USER LICENSE AGREEMENT

NOTICE TO USER: THIS IS A CONTRACT. BY PURCHASING AND USING THE SERVICE MANUAL ON CDROM, YOU ACCEPT ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT.

This End User License Agreement accompanies the Service Manual on CDROM product and related explanatory materials. Please read this Agreement carefully. By purchasing and using the Service Manual on CDROM, you are implying that you have carefully read, agree with, and will adhere to the conditions set forth in this agreement. If you do not wish to accept the terms of this End User Agreement please do not use the Service Manual on CDROM. You will not be permitted to use the Service Manual on CDROM without consenting to this end user agreement.

Upon your acceptance of this Agreement, Z Car Creations, LLC grants to you a nonexclusive license to use the Service Manual on CDROM, provided that you agree to the following:

USE OF SOFTWARE

You may install the contents of the CD on a hard disk or other storage device for personal use only. Each Service Manual on CDROM comes with a single user license. Under no circumstances should the contents of the Service Manual CDROM be placed on a server for purposes of distributing or allowing access to the material over a network.

COPYRIGHT AND TRADEMARK RIGHTS

The Service Manual CDROM is owned by Z Car Creations, LLC and its structure and organization, all graphics and coding are considered intellectual property of Z Car Creations, LLC. The manual content itself is property of Nissan Motors. The Service Manual on CDROM is also protected by United States Copyright Law and International Treaty provisions. This Agreement does not grant you any intellectual property or resale rights to the Service Manual CDROM.

RESTRICTIONS

You agree not to modify, adapt, translate, reverse engineer, decompile or disassemble the PDF file on the Service Manual CDROM. The Service Manual on CDROM is licensed and distributed by Z Car Creations, LLC for single user utilization of its contents only. Licensed users will be permitted to use the contents of the Service Manual CDROM for multimedia presentation to an audience from a single machine using a large display or projection device but the Service Manual CDROM may not otherwise be distributed, sold to or made accessible to multiple users.

NO WARRANTY

The software is being delivered to you AS IS and Z Car Creations, LLC makes no warranty as to its use or performance. Z CAR CREATIONS, LLC DOES NOT AND CANNOT WARRANT THE PERFORMANCE OR RESULTS YOU MAY OBTAIN BY USING THE SERVICE MANUAL CDROM OR DOCUMENTATION, NOR MAKES ANY WARRANTIES, EXPRESS OR IMPLIED, AS TO NONINFRINGEMENT OF THIRD-PARTY RIGHTS, MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE. IN NO EVENT WILL Z CAR CREATIONS, LLC BE LIABLE TO YOU FOR ANY CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES FOR ANY REASON.

509 Debby Lane
Adamsville, AL 35005
http://www.zcarcreations.com
cborden@zcarcreations.com

GOVERNING LAW AND GENERAL PROVISIONS

This Agreement will be governed by the laws of the State of Alabama, USA, excluding the application of its conflicts of law rules. This Agreement will not be governed by the United Nations Convention on Contracts for the International Sale of Goods, the application of which is expressly excluded. If any part of this Agreement is found void and unenforceable, it will not affect the validity of the balance of the Agreement, which shall remain valid and enforceable according to its terms. You agree that the Service Manual on CDROM will not be shipped, transferred or exported into any country or used in any manner prohibited by the United States Export Administration act or any other export laws, restrictions or regulations. This Agreement shall automatically terminate upon failure by you to comply with its terms. This Agreement may only be modified in writing signed by and authorized officer for Z Car Creations, LLC.

Craig Borden
Z Car Creations, LLC
509 Debby Lane
Adamsville, AL 35005
USA

YOUR ACCEPTANCE OF THE FOREGOING AGREEMENT IS IMPLIED UPON PURCHASING AND USING THE SERVICE MANUAL CDROM.