

SERVICE MANUAL

DATSUN
MODEL 330 SERIES
CHASSIS & BODY



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

SECTION WT

WHEEL AND TIRE

WT

WHEEL AND TIRE WT- 2
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WHEEL AND TIRE

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DESCRIPTION

The 330 series models are equipped

with 5J-14 and 4½J-14 wheels with a 40 mm (1.575 in) offset.

The tire and wheel usage chart is shown below.

TIRE USAGE

		Sedan		Hardtop	Station Wagon	Remarks
		Deluxe	Standard			
Wheel size	Standard	5J-14	4½J-14	5J-14		-
	Option	-	5J-14	-		
Tire size	6.95-14-4PR	-	Option	-	-	Bias ply tire (tubeless)
		-	Option			Bias ply tire (with tube)
	6.95S-14-4PR	Standard	-	Standard	-	Bias ply tire (tubeless)
		Option		Option		Bias ply tire (with tube)
	7.35S-14-4PR	-	-	-	Standard	Bias ply tire (tubeless)
		-	-	-	Option	Bias ply tire (with tube)
	6.40-14-4PR	-	Standard	-	-	Radial tire (with tube)
195/70 HR14	Option	-	Option	Option		
175SR14	-	Option	-	-		

Wheel and Tire

RECOMMENDED COLD TIRE INFLATION PRESSURE

- Notes: a. For continuous high speed driving [over 110 km/h (70 MPH)], increase tire inflation pressure 0.3 kg/cm² (4 psi) over the recommended pressure (all except Station Wagon destined for Australia).
 b. Tire inflation pressure should be measured when tire is cold.
 c. Tube for radial tire is different than that for bias ply tire.

All models (except Australia)

Unit: kg/cm² (psi)

Car model		Tire size	Car speed			
			Under 110 km/h (70 MPH)		Over 110 km/h (70 MPH)	
			1 to 3 passengers	4 to 6 passengers	1 to 3 passengers	4 to 6 passengers
Sedan and Hardtop	Deluxe	6.95S-14-4PR 195/70 HR14	1.7 (24)	1.9 (27)	2.0 (28)	2.2 (31)
	Standard	6.95-14-4PR 6.40-14-4PR	1.8 (26)	2.0 (28)	2.1 (30)	2.3 (33)
		175SR14	1.9 (27)	2.0 (28)	2.2 (31)	2.3 (33)
Station Wagon	7.35S-14-4PR	Front	1.5 (21)		1.8 (26)	
		Rear	2.1 (30)		2.4 (34)	
	195/70 HR14	Front	1.7 (24)		2.0 (28)	
		Rear	2.1 (30)		2.4 (34)	

For Australia

Unit: psi (kg/cm²)

Car model	Tire size	[Passengers × 150 lbs] + [Passengers × 30 lbs]		[Passengers × 150 lbs]		
		Under 70 MPH (110 km/h)	Over 70 MPH (110 km/h)	Under 70 MPH (110 km/h)	Over 70 MPH (110 km/h)	
Sedan and Hardtop	6.95S-14-4PR	26 (1.8)	30 (2.1)	26 (1.8)	30 (2.1)	
Station Wagon	7.35S-14-4PR	Front	22 (1.5)	24 (1.7)	22 (1.5)	24 (1.7)
		Rear	30 (2.1)	32 (2.2)	30 (2.1)	32 (2.2)

MAINTENANCE AND SERVICE

TIRE INFLATION

Correct tire pressure is very important for steering ease and riding comfort. Correct pressure also makes for a quieter ride and extends tire life;

overinflation or underinflation promotes wear at center tread or shoulder of tire.

If all tires are inspected frequently and maintained at the correct pressure, any sharp objects can be quickly detected in the tread and abnormal wear, which invites serious problem,

can be avoided.

After inflating tires, valves should be checked for leakage. Without valve caps, leakage will occur due to dirt and water, resulting in underinflation. Accordingly, whenever tire pressure is checked, be sure to tighten valve caps firmly by hand.

TIRE REPAIR

Tubeless tire

To check for leaks, apply soapy solution to tire or submerge tire and wheel in water after tire has been inflated to specified pressure. Special inspection for leaks should be carried out around the valve, wheel rim and along the tread. Note bead and rim where leakage occurs. Wipe water away from any area which leaks air bubbles and then mark the place with chalk.

After removing object which caused puncture, seal the point. When repairing a puncture, use a tire repair kit furnished by any tire dealer, following the instructions provided with the kit. If a puncture is too large or there is some damage to tire fabric, repair should be carried out by authorized tire dealer.

Tubed tire

To check for leaks, apply soapy solution to tire tube or submerge tube in water after inflating it. Special inspection for leaks should be carried out around the valve. Wipe water away from any area where air bubbles exist and then mark with chalk.

After removing object which caused puncture, seal the point. When repairing the puncture, use a tire repair kit furnished by any tire dealer, following the instructions provided with the kit. If a puncture is too large or there is some damage to tire fabric, repair should be carried out by an authorized tire dealer.

Wheel repair

Inspect wheel rim flange for bent sections or dents. If any are detected, repair should be made to secure complete sealing. The flange should be cleaned with a wire brush when rust is found on it. Furthermore, if there is excessive pitting on the rim, eliminate it with a file.

WEAR

Misalignment

When the front wheels are aligned in an excessive toe-in or toe-out condition, the tires will tend to scrape the tread rubber off and the tread will develop a feathered edge.

Center wear

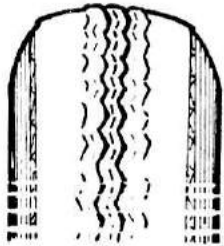
Center wear is caused by overinflation of the tire.



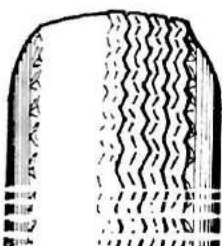
Toe-in or toe-out wear



Overinflation wear



Underinflation wear



Uneven wear

Shoulder wear

This wear may be caused by underinflation, incorrect wheel camber, or continued excessive speed around curves. In general, the first two causes are the most common. Underinflation causes wear on both sides of treads, while camber causes wear on only one side of tread.

Uneven wear

Uneven wear is caused by incorrect camber or caster, malfunctioning suspension, unbalanced wheel, out-of-round brake drum, or other mechanical conditions. To stop this abnormal wear, correct the above faulty parts.

RADIAL TIRE

Tires of radial ply construction roll with less camber thrust force and with greater cornering power on turns. This tends to cause local or rapid wear on the treads with excessive toe-in. Exercise special care in front wheel alignment during the life of tires.

Notes:

- a. Radial ply tires should not be mixed with ordinary tires since their respective characteristics differ.
- b. The same brand radial ply tires should be installed on all wheels.
- c. Only tubes designed exclusively for radial tires should be used.
- d. Snow chains should not be used because they cause damage to side walls.

WT004

Fig. WT-1 Abnormal tire wear

TIRE ROTATION

Tires tend to wear unevenly and become unbalanced after a certain running distance. Uneven tire wear often results in tire noise which is attributed to rear axle gears, bearing, etc. Front tires also tend to wear unevenly because of improperly aligned front wheels.

Accordingly, to equalize tire wear, it is necessary to rotate tires periodically as recommended in the "Periodic Maintenance". See Figures WT-2 through WT-4.

Bias and Bias belted tires

1. All the tires, including the spare tire, are of the same type.

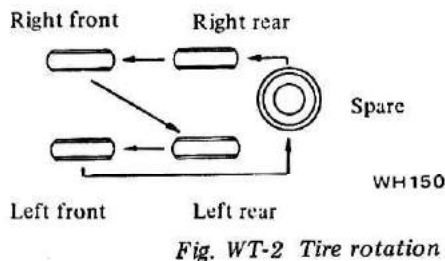
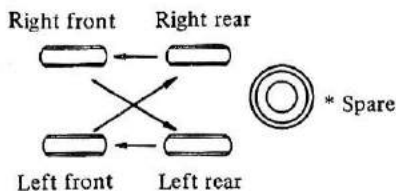


Fig. WT-2 Tire rotation

2. The spare tire is of a different brand than the 4 tires on the ground.

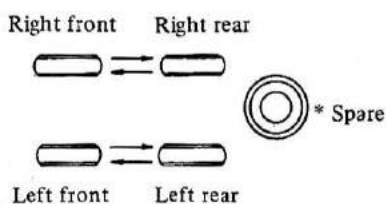


* The spare tire should be used in an emergency only.

WH151

Fig. WT-3 Tire rotation

Radial ply tires



* Regardless of tire brand the spare tire should be used in an emergency only.

WH152

Fig. WT-4 Tire rotation

Tread wear indicator

The tires are provided with "tread wear indicator" at six places around tire circumference, indicating 1.6 mm (1/16 in) tread depth. When the tires wear and then the marks appear, replace them with new ones. See Figure WT-5.

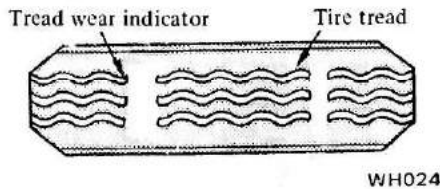


Fig. WT-5 Tread wear indicator

Changing tire

To change a tire and wheel with a jack in a safe manner, observe the following procedures:

1. Engage parking brake and block front wheels when rear wheel is being changed.
2. Remove wheel cover and loosen wheel nuts.
3. Place jack at jacking point as described in Section GI and raise car until wheel clears ground.
4. Remove wheel nuts and wheel from drum.
5. To install wheel, reverse the above steps. Tighten wheel nuts in criss-cross fashion.

Wheel nut tightening torque:
8.0 to 10.0 kg-m
(58 to 72 ft-lb)

Notes:

- a. Never get under car while it is supported only by jack. Always use safety stands to support side member of body construction when you must get beneath car.
- b. When installing a tire, be sure to align brake shoe adjuster hole in brake drum with the through hole in wheel.

INSPECTION

WHEEL BALANCE

The wheel and tire assembly should be kept balanced statically and dynamically.

Proper tire balance is necessary when driving the car at high speeds. Consequently, the wheel and tire assembly should be properly rebalanced whenever puncture is repaired.

The wheel and tire assembly becomes out of balance according to uneven tire wear. Severe acceleration and braking, or fast cornering is the cause of wear on tire, resulting in unbalance of tire and wheel assembly.

The symptom of unbalance appears as tramp, car shake and steering malfunction.

To correct unbalance, use proper wheel balancer.

Maximum allowable static unbalance:

177 gr-cm (2.5 in-oz)

Balance weight:

10 to 50 gr (0.35 to 1.8 oz)

at 10 gr (0.35 oz) interval

Note: Be sure to place correct balance weights on inner edge of rim as shown in Figure WT-6.

Do not put more than two weights on each side.

WHEEL AND TIRE

In order to ensure satisfactory steering condition as well as maximum tire life, proceed as follows:

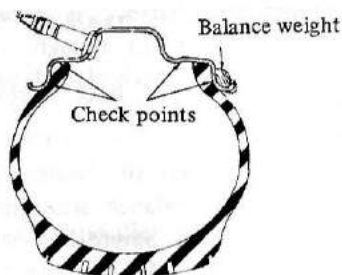
1. Check wheel rim, especially rim flange and bead seat, for rust, distortion, cracks or other faults which might cause air leaks. Function of tubeless tire depends on a good seal between tire bead and wheel rim. Thoroughly remove rust, dust, oxidized rubber or sand from wheel rim with wire brush, emery cloth or paper.

Use dial gauge to examine wheel rim for lateral and diametrical runout. See Figure WT-6.

Lateral runout limit:

Less than 1.0 mm (0.039 in)
total indicator reading

Wheel and Tire



WT005

Fig. WT-6 Wheel rim runout check points

Note: In replacing tire, take extra care not to damage tire bead, rim-flange and bead seat.

Do not use tire irons to force beads away from wheel rim-flange; that is, always use tire replacement device whenever tire is removed.

2. Discard when any of the following problem occurs:

- (1) Broken or damaged bead wire.
- (2) Ply or tread separation.
- (3) Worn fabric damage on tubeless tire.
- (4) Cracked or damaged side wall, etc.

TROUBLE DIAGNOSES AND CORRECTIONS

Condition	Probable cause	Corrective action
Wheel wobbles.	Improper tire pressure. Damaged tire or distorted wheel rim. Unbalanced wheel. Loose wheel nuts. Worn or damaged wheel bearing, or excessive play in wheel bearing. Improper front wheel alignment. Worn or damaged ball joint. Excessive steering linkage play or worn steering linkage. Loose steering linkage connection. Broken suspension spring. Faulty shock absorber.	Measure and adjust. Repair or replace. Balance. Tighten. Correct play or replace wheel bearing. Align. Replace. Adjust or replace. Tighten nuts to rated torque, or replace worn parts if any. Replace. Replace.
Unevenly or excessively worn tire.	Improper tire rotation. Improper tire pressure. Unbalanced wheel. Improperly adjusted brake. Improper wheel alignment. Excessively distorted or improperly installed suspension link. High speed on curves. Sudden starts and improper speed due to rapid acceleration or improper brake application.	Rotate tires periodically. Measure and adjust. Balance or replace. Adjust. Align. Repair, replace or, if necessary, reinstall. Reduce speed. Drive in a proper manner.
Tire squeals.	Improper tire pressure. Improper front wheel alignment. Distorted knuckle or suspension link.	Measure and adjust. Align. Repair or replace.

SERVICE MANUAL

DATSUN
MODEL 330 SERIES
CHASSIS & BODY

SECTION ST

STEERING SYSTEM

ST

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NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

STEERING SYSTEM

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DESCRIPTION

The steering gear is a recirculating type especially designed for easy operation and high durability.

The steering gear box and steering column are connected to each other by a universal joint. The collapsible steering column is now standard equipment. The steering column is a steel ball type which collapses upon impact. Thus, if the car should become involved in a head-on collision that throws the driver forward, the steering column will absorb the energy of his forward movement and greatly reduce

the possibility of his being injured.

The steering linkage is of a relay design.

The oil level in the gear housing should be checked and corrected at the recommended maintenance intervals. Apply the recommended multi-purpose grease to the idler side joint and ball joints in the steering linkage at the recommended maintenance intervals.

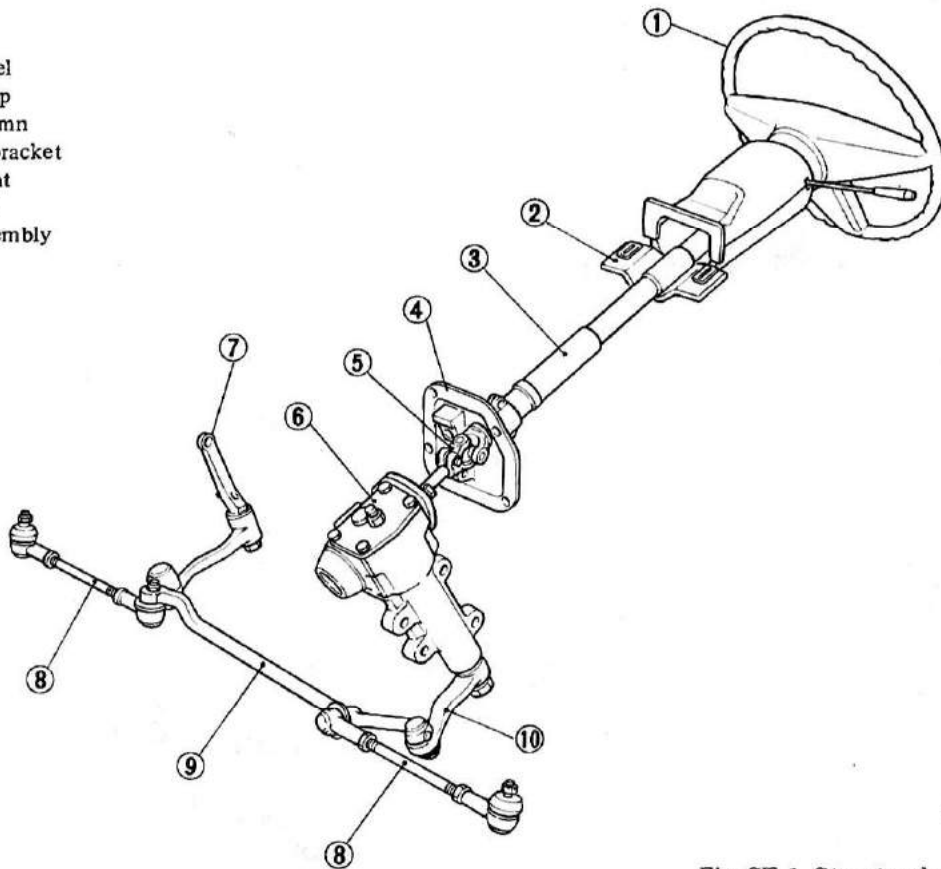
An integral type power steering system is available as an option. This unit consists essentially of an oil

pump, pressure hoses and power steering gear. The power steering gear is licensed by ZF. Hydraulic pressure is directed from the vane pump driven by the engine to the steering gear through hoses.

The oil level in the power steering system and hose connections should be checked and corrected as required at the recommended maintenance intervals. The oil to be used in this system is a "Dexron" type automatic transmission fluid.

Steering System

- 1 Steering wheel
- 2 Column clamp
- 3 Steering column
- 4 Jacket tube bracket
- 5 Universal joint
- 6 Steering gear
- 7 Idler arm assembly
- 8 Side rod
- 9 Cross rod
- 10 Gear arm



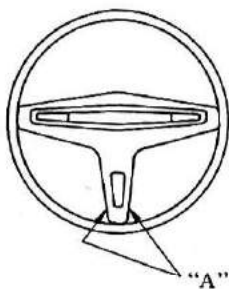
ST512

Fig. ST-1 Structural view of steering system

STEERING WHEEL

REMOVAL

1. Disconnect battery terminal.
2. Deluxe and Standard models:
Remove horn pad by unscrewing bolts from rear side of steering wheel bar. Lift horn pad from steering wheel and disconnect horn wire.
3. Custom deluxe and GL models:
Remove horn pad by pulling it up at the "A" part. See Figure ST-2.



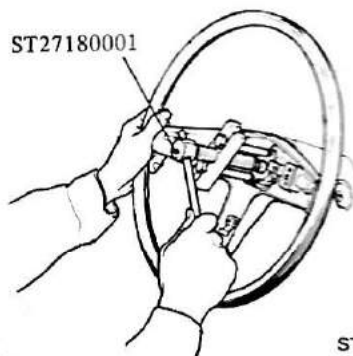
ST513

Fig. ST-2 Removing point of horn pad (Custom deluxe and GL models)

4. Remove steering wheel nut.
5. Using Steering Wheel Puller ST27180001, install puller anchor screws into threaded holes provided in steering wheel. Turn center bolt of special tool clockwise to remove steering wheel. See Figure ST-3.

Notes:

- a. Do not strike end of steering column shaft with a hammer. Striking shaft will damage bearing.
- b. Be careful not to damage cancel pole.



ST184

Fig. ST-3 Removing steering wheel

INSTALLATION

Install steering wheel in reverse order of removal. Observe following instructions.

1. Apply grease to sliding portions.
2. Install steering wheel on column shaft in a straight ahead position after facing punch mark on top of upper column shaft and tighten steering wheel nut to specified torque.

Tightening torque:
4.0 to 5.0 kg-m
(29 to 36 ft-lb)

3. On Custom deluxe and GL models, install horn pad by snapping it into steering wheel.

Note: After installing steering wheel, turn it clockwise and counterclockwise, checking for catch or drag. Also check horn operation.

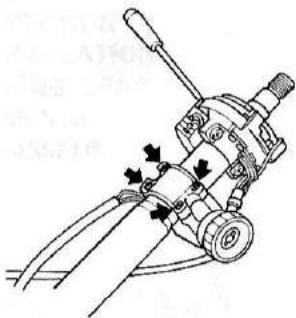
Steering System

STEERING LOCK

To make steering lock system tamper-proof, self-shear type screws are used; their heads are sheared off upon installation so that steering lock system cannot be easily removed.

REMOVAL

1. Break self-shear type screws with a drill or other appropriate tool.
2. Remove screws and dismount steering lock from steering jacket tube. See Figure ST-4.



ST514

Fig. ST-4 Removing steering lock securing screws

INSTALLATION

1. Align steering lock hole in jacket tube with mating portion of steering lock.
2. Install self-shear type screws and cut off their heads.

STEERING COLUMN

INSTRUCTIONS FOR HANDLING COLLAPSIBLE STEERING COLUMN

1. Never under any circumstances apply undue stress to steering column in an axial direction.
2. When installing, do not apply bending force to steering column.

REMOVAL

1. Remove bolt securing universal joint to worm shaft.
2. Remove steering wheel. Refer to page ST-3 for Removal.

3. Remove remote control linkage if equipped.
4. Loosen screws and remove steering column shell covers.
5. Remove turn signal switch assembly by loosening screws.
6. Support upper part of steering column and remove bolts securing column clamp to pedal & steering bracket.
7. Remove screws securing jacket tube bracket to dash panel.
8. Draw out steering column assembly from passenger compartment side.

If the car, especially the front end of the car, is damaged in a collision, inspect it as follows:

Because the steering system is such a crucial element in driving, inspect it with particular care. The collapsible type steering system should not be disassembled; if necessary, replace it as an assembly.

INSPECTION

1. When steering wheel will not turn smoothly but steering gear, steering linkage and suspension system are normal, check steering system as follows and replace any faulty parts.

(1) Check column bearings for damage or unsmoothness. If necessary, lubricate with recommended multi-purpose grease or replace entire steering column as an assembly.

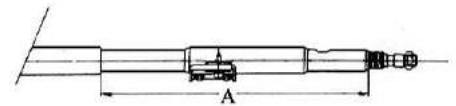
(2) Check jacket tube assembly for deformation or breakage, and replace if necessary.

(3) Check column shaft spring, and replace if damaged or weakened.

2. If car has been involved in a light collision, check following parts and replace if necessary.

(1) Jacket tube

Measure distance "A" as shown in Figure ST-5. Standard installed distance is 398 mm (15.67 in). When jacket tube is crushed, distance "A" becomes smaller.

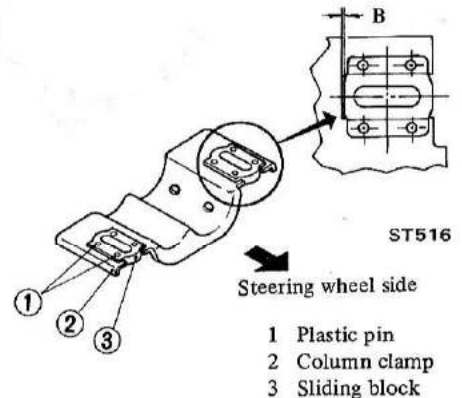


ST515

Fig. ST-5 Measuring distance "A"

(2) Column clamp

Measure distance "B" as shown in Figure ST-6. Standard distance "B" is 0 mm (0 in). When jacket tube is crushed, distance "B" becomes larger.

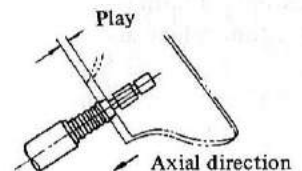


ST516

Fig. ST-6 Measuring distance "B"

(3) Steering wheel

Check steering wheel for axial play. When steering column shaft is crushed, axial play occurs. See Figure ST-7.



ST194

Fig. ST-7 Inspecting steering wheel for axial play

INSTALLATION

Install steering column in reverse order of removal.

Observe following instructions. See Figure ST-8.

Steering System

1. Before installing steering column, be sure to install column centering band on lower jacket tube to prevent eccentricity between tube and shaft.
2. Set wheels in a straight ahead position.
3. Fit steering column assembly on to worm shaft serration through dash panel and tighten bolt **(A)** temporarily.

Notes:

- a. To avoid damaging bolt or serrations, align groove in worm shaft with bolt hole in universal joint.
- b. Carefully install so that punch mark at top end of column shaft faces upward.

4. Tighten bolts **(C)** temporarily to support upper side of steering column assembly with column clamp.
5. After sliding jacket tube bracket to dash panel, tighten screws **(B)** to retain it.

Tightening torque:

0.3 to 0.4 kg-m
(2.2 to 2.9 ft-lb)

6. Tighten bolts **(C)** and then tighten bolt **(A)**.

Tightening torque:

(C) 0.9 to 1.2 kg-m
(6.5 to 8.7 ft-lb)

(A) 3.3 to 3.9 kg-m
(24 to 28 ft-lb)

7. Remove column centering band by cutting wires, and install column band in that location.
8. After installation, make sure that steering wheel turns smoothly.

Also check steering wheel turning torque when steering gear is free from steering linkage at gear arm.

Steering wheel turning torque:

Less than 1.0 kg (2.2 lb) at circumference of steering wheel

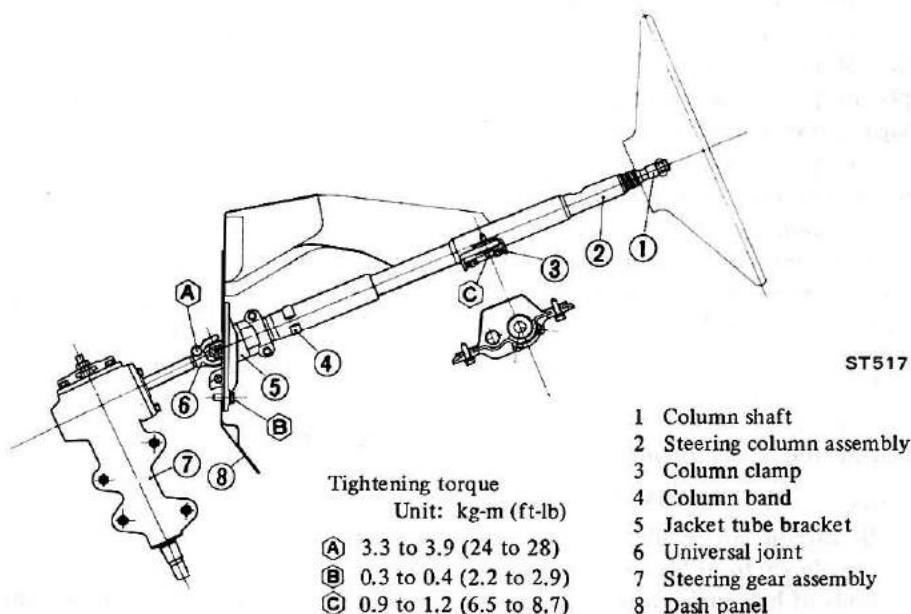


Fig. ST-8 Installing steering column assembly

STEERING GEAR

REMOVAL

1. Remove bolt securing universal joint to worm shaft.
2. Remove column assembly. Refer to page ST-4 for Removal.
3. Remove nut and lock washer securing steering gear arm (pitman arm) to sector shaft. Using Steering Gear Arm Puller ST27200001, remove steering gear arm from sector shaft. See Figure ST-9.

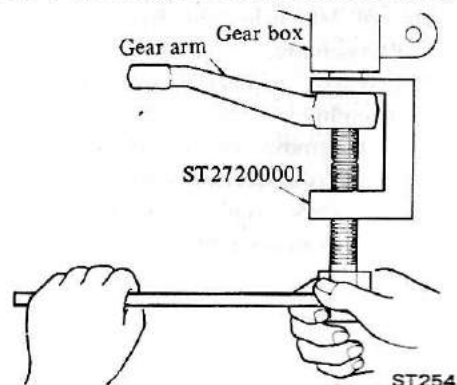


Fig. ST-9 Removing steering gear arm

4. Remove bolts securing steering gear housing to body side member, and withdraw steering gear housing.

DISASSEMBLY

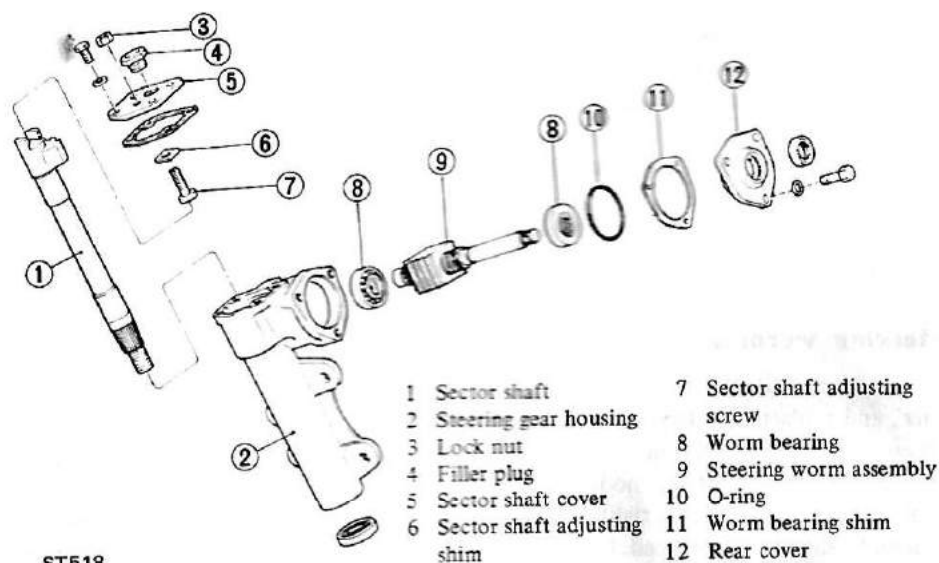


Fig. ST-10 Structural view of steering gear

Steering System

1. Remove filler plug and thoroughly drain steering gear oil.
2. Mount steering gear in a vise, placing patches on steering gear housing to prevent scarring.
3. Loosen sector shaft adjusting screw lock nut and remove sector shaft cover securing bolts.

After removing sector shaft with cover, remove cover from sector shaft by turning screw clockwise.

4. Remove rear cover securing bolts and detach rear cover.
5. Withdraw worm bearing shims and steering worm assembly.

Notes:

- a. Be careful not to allow ball nut to run down to either end of worm. Ends of ball guides will be damaged if nut is rotated until it stops at end of worm.
- b. Do not detach ball nut from worm shaft assembly. If necessary, replace entire unit as an assembly.
- c. Do not remove sector shaft needle bearings from steering gear housing. If necessary, replace entire gear housing as an assembly.

INSPECTION

Wash all disassembled parts in cleaning solvent and check for condition.

Sector shaft

1. Check gear tooth surface for pitting, burrs, cracks or any other damage, and replace if damaged.
2. Check sector shaft for distortion of its serration, and if necessary replace. In this case, be sure to check gear housing and steering worm assembly for deformation.

Steering worm assembly

1. Inspect ball nut gear tooth surface, and replace if pitting, burrs, wear or any other damage is found.
2. Ball nut must rotate smoothly on worm gear. If found too tight, entire assembly should be replaced. Check as follows:

(1) Move ball nut to either end of worm gear, and gradually stand worm shaft and ball nut assembly until ball nut moves downward on worm gear under its own weight.

(2) In above test, if ball nut does not move freely over entire stroke, assembly may be damaged. Replace with a new one.

Note: In this inspection, be careful not to damage ball nut guide tube.

Bearings

1. Inspect worm bearing for wear, pitting or any other damage. Replace as required.

Note: When replacing worm bearing, replace it as a set of bearing and outer race.

2. If sector shaft needle bearings are found worn or damaged, replace as an assembly of gear housing and bearings.

Oil seals

Discard any oil seal which has once been removed. Replace oil seal if sealing lip is deformed or cracked. Also discard oil seal if spring is fatigued or dislocated.

ASSEMBLY AND ADJUSTMENT

Assemble steering gear in reverse order of disassembly. Observe following instructions.

1. Clean all parts.
2. Lubricate bearing turning surface, gear surface, gear tooth and other sliding parts with clean gear oil.
3. Fill space between sealing lips of new oil seal with recommended multi-purpose grease, and fit it to gear housing and rear cover.

Notes:

- a. To facilitate installation, coat seal contacting face of oil seal with gear oil.
- b. Press oil seal into place with its lettered side facing outside of gear housing or rear cover.

Adjustment of worm bearing preload .

4. Properly position steering worm assembly in gear housing with worm bearings. Install rear cover on gear housing with O-ring and worm bearing shims.

Tightening torque:

1.5 to 1.8 kg-m
(11 to 13 ft-lb)

Note: Be sure to install the thickest shim on gear housing side.

Standard shim thickness is 1.5 mm (0.059 in).

Available worm bearing shim

No.	Thickness mm (in)
1.	0.762 (0.0300)
2.	0.254 (0.0100)
3.	0.127 (0.0050)
4.	0.050 (0.0020)

5. Selecting suitable bearing shims, adjust worm bearing preload with Drive Pinion Preload Gauge ST3127S000 so that initial turning torque is 4.0 to 6.0 kg-cm (56 to 83 in-oz). See Figure ST-11.

Notes:

- a. Rotate worm shaft a few turns in both directions to settle worm bearing in, and measure preload.
- b. In case of readjustment, initial turning torque is 4.0 to 6.0 kg-cm (56 to 83 in-oz).
- c. When adjusting worm bearing preload, add and then remove shim(s) until correct adjustment is achieved.

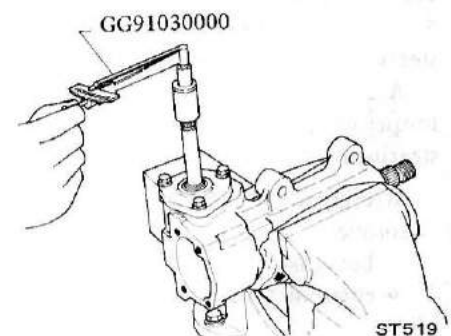


Fig. ST-11 Measuring initial turning torque

Steering System

Adjustment of sector shaft end play

6. Insert adjusting screw with adjusting shim into T-shaped groove at sector shaft head and, choosing suitable adjusting shim, adjust the end play between sector shaft and adjusting screw until it is within 0.01 to 0.03 mm (0.0004 to 0.0012 in). See Figure ST-12.

Available sector shaft adjusting screw shims

No.	Thickness mm (in)
1.	1.575 (0.0620)
2.	1.550 (0.0610)
3.	1.525 (0.0600)
4.	1.500 (0.0591)
5.	1.475 (0.0581)
6.	1.450 (0.0571)

Note: When installing adjusting shim, pay attention to which face is upper and which is lower. See Figure ST-12.

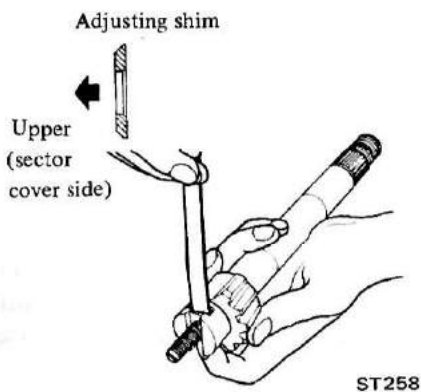


Fig. ST-12 Measuring end play between sector shaft and adjusting screw

7. Rotate worm shaft by hand until ball nut is in the center of travel, then install sector shaft together with adjusting screw in gear housing, ensuring that center gear of sector shaft engages with center gear of ball nut.

Note: Be careful not to damage sealing lips of oil seal during this operation.

8. Install sector shaft cover to gear housing by turning adjusting screw counterclockwise. When installing cover, be sure to apply sealant to each face of sector shaft cover packing.

9. Pull sector shaft toward cover approximately 2 to 3 mm (0.08 to 0.12 in) by turning adjusting screw counterclockwise and tighten sector shaft cover fixing bolts to 1.5 to 1.8 kg-m (11 to 13 ft-lb).

10. Push sector shaft against ball nut gear by gradually turning adjusting screw clockwise until sector shaft gear lightly meshes with ball nut gear. Then temporarily secure adjusting screw with lock nut.

11. Install gear arm to sector shaft and move sector shaft several times from side of gear arm, ensuring that it turns smoothly.

12. Adjust backlash at neutral position of steering gear by turning adjusting screw in or out so that movement of gear arm top end is less than 0.1 mm (0.004 in).

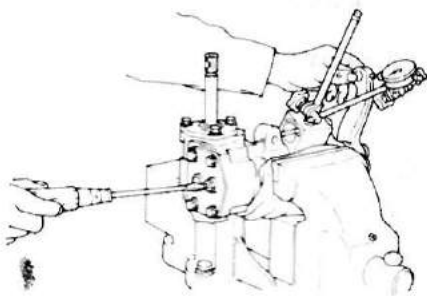


Fig. ST-13 Measuring backlash

13. Turn adjusting screw clockwise approximately 1/8 to 1/6 rotation and then, after moving sector shaft several times, tighten lock nut to 3.2 to 3.7 kg-m (23 to 27 ft-lb).

14. Measure initial turning torque of worm shaft assembly at center portion of its travel.

Turning torque:

8.5 to 12.5 kg-cm
(118 to 174 in-oz)

If found to be outside of above turning torque specifications, readjust adjusting screw until correct turning torque is obtained.

15. Pour approximately 0.33 liter ($\frac{3}{4}$ U.S. pt, $\frac{5}{8}$ Imp.pt) of recommended gear oil into assembly through filler hole and install filler plug.

INSTALLATION

Install steering gear in reverse order of removal. Observe following instructions.

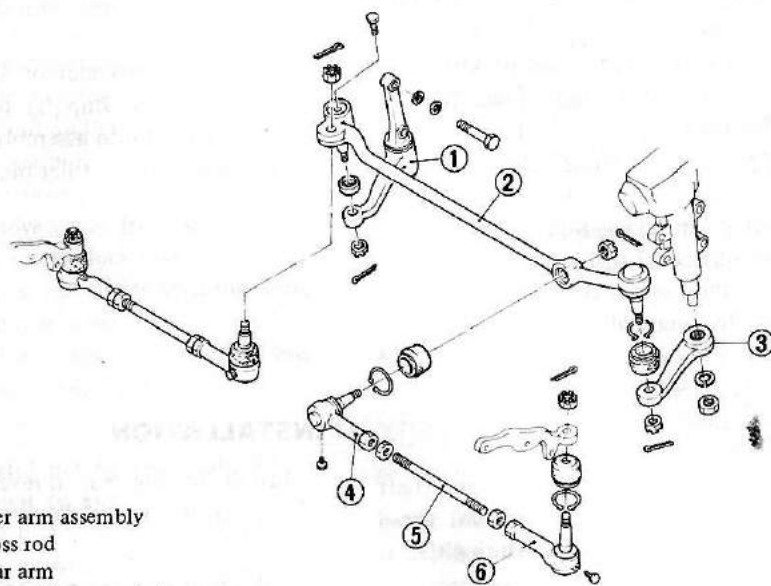
1. Position steering gear and universal joint in place; then install and tighten bolts securing steering gear housing to body side member. Tighten to 3.2 to 4.3 kg-m (23 to 31 ft-lb).

Tighten bolt securing universal joint to worm shaft to 3.3 to 3.9 kg-m (24 to 28 ft-lb).

Notes:

- a. Align groove in worm shaft with bolt hole in universal joint yoke, and pass bolt through undercut section of worm shaft.
- b. Align four grooves of gear arm serrations with four projections of sector shaft serrations, and install and tighten lock washer and nut to torque of 14 to 18 kg-m (101 to 130 ft-lb).

STEERING LINKAGE



- 1 Idler arm assembly
- 2 Cross rod
- 3 Gear arm
- 4 Side rod inner socket
- 5 Side rod bar
- 6 Side rod outer socket

ST521

Fig. ST-14 Structural view of steering linkage

REMOVAL

1. Jack up front of car and support it with suitable safety stands.
2. Remove cotter pins and nuts, fastening side rod ball studs to knuckle arms.
3. To detach side rod ball studs from knuckle arms, insert Steering Ball Joint Puller KV48100200 between them and separate by striking top of this tool with a hammer.

If this operation must be done without this tool, strike knuckle arm boss with a copper hammer, backing up the opposite side of it with a large hammer. Ball stud will then be freed from knuckle arm. Do not strike ball stud head, ball socket of side rod or side rod with a hammer in this operation.

4. Remove cross rod ball studs from gear arm, and idler arm from cross rod in same manner as described in step 3 above.

Cross rod and side rods can be removed as an assembly.

5. Remove idler assembly from side member by removing fixing bolts.

Note: Steering linkage assembly can be removed from car by removing

gear arm from sector shaft using Steering Gear Arm Puller ST27200001 and by removing idler assembly from side member.

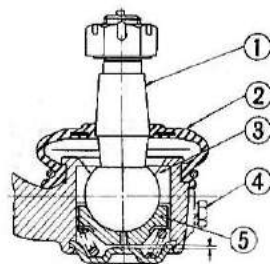
INSPECTION AND REPAIR

Ball joints

1. When ball stud is worn and axial play is excessive, replace with a new one.

Axial play:
0.1 to 0.5 mm
(0.004 to 0.020 in)

Swing torque:
Less than 0.5 kg-m (3.6 ft-lb)



ST179

0.1 to 0.5 mm
(0.004 to 0.020 in)

- 1 Ball joint
- 2 Dust cover
- 3 Ball seat
- 4 Plug
- 5 Spring seat

Fig. ST-15 Sectional view of ball stud (side rod)

2. When dust cover is broken or deformed, clamp on dust cover is fatigued or dislocated, or when grease leakage is found, repair as follows:

(1) Remove dust cover, check operation, axial play and swing torque of ball stud. Also check ball stud for rust or damage and neck portion for scratches. Replace ball joint assembly, if necessary.

(2) Clean internal portion of ball joint and install a new dust cover and clamp.

(3) Apply recommended multi-purpose grease to ball joint through grease nipple. Check operation of ball stud, replace as an assembly if necessary.

Note: At the recommended intervals, check grease and renew if necessary. To renew grease, replace plug with a grease nipple and apply recommended multi-purpose grease to ball joints through grease nipple, as shown in Figure ST-15, until grease is forced out through dust cover-to-joint socket clearance.

Cross rod and side rods

Check side rods and cross rod for breakage, bending or cracks, and replace if necessary.

Idler arm assembly

Check rubber bushing of idler arm and nylon bushing of cross rod joint for breakage, wear or play, and replace if necessary.

Fixing location

Check fixing location (nuts and cotter pins) for looseness, play or breakage. When looseness or play is found, check for wear on tapered portion of ball stud, gear arm or idler arm.

Grease

Check for dust or water in grease.

Steering System

ASSEMBLY AND ADJUSTMENT

Assemble steering linkage in reverse order of disassembly. Observe following instructions.

Ball joints

Before installing a new dust cover, be sure to pack with recommended multi-purpose grease.

Tightening torque:

Ball stud:

5.5 to 10 kg-m
(40 to 72 ft-lb)

Notes:

- When tightening ball stud, be careful not to allow grease to get on its tapered section.
- Tighten nut to 5.5 to 6.0 kg-m (40 to 43 ft-lb), and align cotter pin holes in tightening direction.
- Be sure to insert new cotter pin in place and bend it securely.

Cross rod and side rods

- When side rod sockets and side rod bar are separated, adjust side rod length correctly.

Adjustment should be done between ball stud centers. See Figure ST-16.

Standard distance between inner and outer ball stud centers:

354.4 mm (13.95 in)

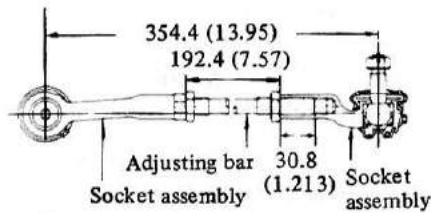
Notes:

- Be sure to screw adjusting bar into socket evenly.
- Make sure that adjusting bar is screwed a minimum of 25 mm (0.98 in) into socket.

- Tightening torque:

Side rod adjusting bar lock nut
(after toe-in adjustment):

7.7 to 10.5 kg-m
(56 to 76 ft-lb)



Unit: mm (in)

ST343

Fig. ST-16 Standard side rod length

Note: Lock adjusting bar lock nut so that ball joint on outer socket (knuckle arm side) is 0° on right side rod assembly and 90° on left side rod with respect to that on inner socket (cross rod side).

INSTALLATION

Install steering linkage in reverse order of removal. Observe following instructions.

- Tightening torque:

Ball stud:

5.5 to 10 kg-m
(40 to 72 ft-lb)

Idler body to frame bolts:

3.2 to 4.3 kg-m
(23 to 31 ft-lb)

Gear arm to sector shaft:

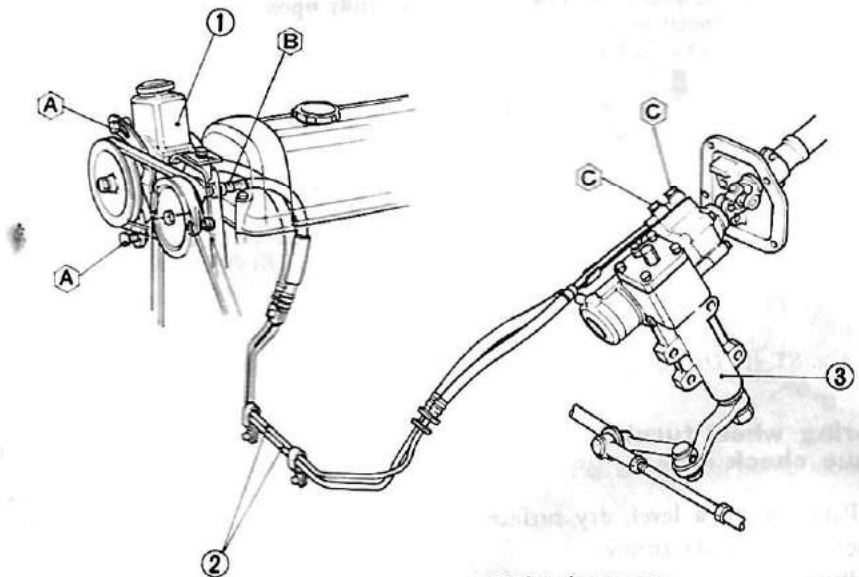
16 to 18 kg-m
(116 to 130 ft-lb)

Note: Tighten nut to 5.5 to 6.0 kg-m (40 to 43 ft-lb) and align cotter pin holes in tightening direction.

- Check wheel alignment, and adjust if necessary. See Front Axle section.

Note: When adjusting toe-in, lock adjusting bar lock nut so that ball joint on outer socket (knuckle arm side) is 0° on right side rod assembly and 90° on left side rod with respect to that on inner socket (cross rod side).

POWER STEERING GEAR



Tightening torque

Unit: kg-m (ft-lb)

(A) 1.9 to 2.6 (14 to 19)

(B) 3 to 5 (22 to 36)

(C) 5 to 7 (36 to 51)

ST522

Fig. ST-17 Structural view of power steering system

Steering System

MAINTENANCE AND ADJUSTMENT

Fluid level

1. Check oil level in reservoir by checking dip stick on "HOT" side at normal operating temperature or "COLD" side when engine is cold.

Note: Normal operating temperature is 60 to 80°C (140 to 176°F).

2. Check fluid level and leakage at the recommended interval.

Recommended oil is Automatic Transmission Fluid "Dexron Type". See Section GI "Recommended Lubricant".

Pump belt adjustment

Adjust oil pump belt tension. It is correct if deflection is 8 to 12 mm (0.315 to 0.472 in) when thumb pressure of 10 kg (22 lb) is applied midway between idler pulley and oil pump pulley.

Oil pump belt tension:
8 to 12 mm
(0.315 to 0.472 in)
at 10 kg (22 lb)

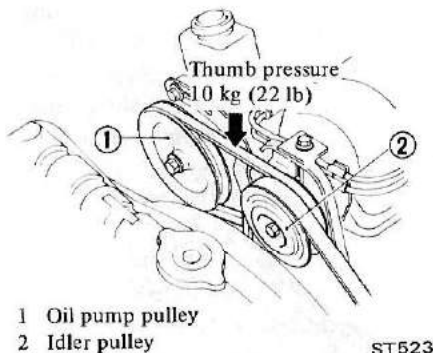


Fig. ST-18 Oil pump belt tension

Steering wheel turning torque check

1. Park car on a level, dry surface and set parking brake firmly.
2. Bring power steering oil up to adequate operating temperature. [Approximately 40 to 60°C (104 to 140°F)].

Note: It is easy to bring power steering oil up to adequate operating

temperature by idling engine and at the same time turning steering wheel from left to right for about two minutes. Alternatively, drive car several miles.

3. Check steering wheel turning torque when steering wheel has been turned 360° from straight-ahead position.

Steering wheel turning torque:
about 3.0 kg (6.6 lb) at
circumference of steering wheel

Note: Tires must be inflated to normal pressure.

Hydraulic system check

A fluid pressure test will show if pump or steering gear is causing problems.

Before conducting hydraulic system test, carefully check belt tension and condition of driving pulley.

1. Disconnect pressure line hose at oil pump output port, and install Pressure Gauge ST27091000 calibrated to 100 kg/cm² (1,422 psi), and shut-off valve as shown in Figure ST-19. Gauge must be between shut-off valve and oil pump.

Note: Be sure that shut-off valve is fully open.

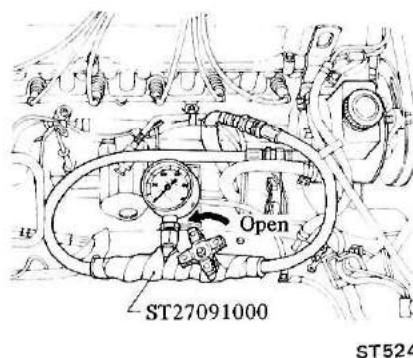


Fig. ST-19 Installing pressure gauge

2. Check fluid level, adding oil if necessary.
3. Connect tachometer to engine.
4. To warm up fluid, start engine and operate it at idling speed for at least two minutes.

Note: Be sure that all connections are tight.

5. Move steering wheel from right to left several times to expel any air from system.

6. Increase engine speed to 1,000 rpm, then slowly close shut-off valve.

With valve fully closed, pump pressure should be at maximum.

Normal pressure:
78 to 84 kg/cm²
(1,110 to 1,190 psi) at
1,000 rpm

Note: Do not close shut-off valve for more than fifteen seconds, as this would abnormally increase lubricant temperature and cause undue pump wear.

7. If pressure increases beyond upper limit, pressure relief valve of oil pump is not functioning properly. Replace as an assembly.

8. If, with shut-off valve fully closed, pressure drops below lower limit, the problem is in pump. Replace as an assembly.

Bleeding hydraulic system

1. Fill oil reservoir to proper level and let oil remain undistributed for at least two minutes.

2. Raise front end of car until wheels clear ground.

3. With engine off, quickly turn steering wheel all the way to right and left several times, lightly touch wheel stoppers.

4. Add oil if necessary.

5. Start engine and operate it at idling speed.

Repeat above procedure until pump will bleed at reservoir tank.

6. With steering wheel fully turned to right, open bleeder screw to expel air.

Close bleeder screw when oil flows out.

Do not use bleeder screw if not necessary.

Bleeder screw tightening torque:

0.7 to 0.9 kg-m
(5.1 to 6.5 ft-lb)

Steering System

7. Lowering car until it just touches ground, turn steering wheel to the right and left several times.

Check oil leakage at or around pressure line hose connectors. Retighten or replace if necessary.

8. Check oil level and refill as required.

9. If air bleeding is insufficient, following problems will occur.

- Oil reservoir will be extremely foamy.
- Pump will be noisy.

10. If above problems arise, allow car to stand a few minutes with engine off and repeat above procedure.

- Check belt tightness and check for a bent or loose pulley.
- Check to make sure hoses are not touching any other parts of car, particularly sheet metal.
- Check oil level, filling to proper level if necessary. This step is extremely important as low oil level and/or air in the oil are the most frequent causes of pump noise.
- Check for presence of air in oil. If air is present, attempt to bleed system as described in steps 1 through 8. If it becomes obvious that pump will not bleed after a few trials, proceed as outlined under "HYDRAULIC SYSTEM CHECK".

Oil removal

- With engine off, disconnect pressure line hoses at connector. Drain oil.
- Raise front end of car until front wheels clear ground.
- Turn steering wheel slowly to the right and left until all oil is totally drained. Do not reuse oil.

Backlash adjustment (Over-Center adjustment)

This adjustment should always be checked and corrected, if necessary, and the car should be road tested before removing the steering gear for replacement.

1. Disconnect gear arm from steering gear and remove steering wheel horn pad.

2. Count number of steering wheel turns through full travel and locate wheel at its center of travel. Punch mark on upper end of column shaft should be upward.

3. Turn steering wheel one complete turn from its center, and attach socket to steering wheel nut. With Drive Pinion Preload Gauge ST3127S000, slowly turn steering wheel nut less than 20 degrees to determine torque required for column shaft rotation.

4. Also read required turning torque when steering wheel is in center position and is turned 180 degrees.

5. Turn steering wheel 180 and 360 degrees in both directions, and read required turning torques at four points.

6. Torque readings should be as follows:

1) When steering wheel is turned 180 degrees, turning torque should be 1 to 2 kg-cm (14 to 28 in-oz) higher than at 360 degrees.

2) When steering wheel is in its center position, required turning torque should be 4 to 5 kg-cm (56 to 69 in-oz) higher than at 360 degrees.

7. If readings are within specified values, backlash adjustment is not necessary.

8. If readings are not within above specified values, remove column assembly and adjust backlash on steering gear unit alone.

9. To adjust, loosen lock nut and turn adjusting screw until worm shaft turning torque is within specified values described below. After adjustment has been made, tighten lock nut.

1) When steering wheel is turned 360 degrees in either direction from its center position, turning torque should be 7 to 12 kg-cm (97 to 167 in-oz).

2) When steering wheel is turned 180 degrees, turning torque should be 1 to 2 kg-cm (14 to 28 in-oz) higher than at 360 degrees.

3) When steering wheel is in its center position, required turning torque should be 4 to 5 kg-cm (56 to 69 in-oz) higher than at 360 degrees.

Note: When steering wheel is turned 360 degrees or more, turning torque should be within 7 to 12 kg-cm (97 to 167 in-oz).

REMOVAL AND INSTALLATION

When removing and installing, pay attention to the following:

- When hoses are disconnected, cap or tape their ends to prevent entrance of dirt.
- Check hydraulic circuit pressure and turning force of steering wheel after replacing oil pump, hoses or steering gear assembly.
- In installing hoses, be careful to leave sufficient clearance between hoses and surrounding parts.

OIL PUMP

Removal

- Disconnect hoses at pump. Install caps at hose fittings to prevent drainage of oil from pump.
- Disconnect oil pump fixing bolts and remove pump belt. Pump belt can be removed after removal of air conditioning compressor drive belt.
- Remove pump from engine.

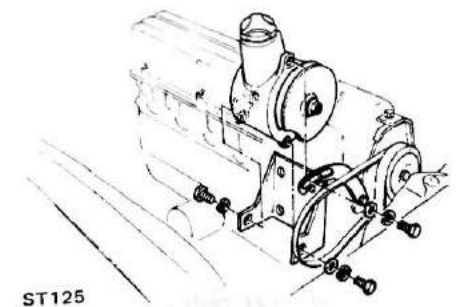


Fig. ST-20 Oil pump mounting

- Remove drive pulley attaching nut.
- Remove pulley from shaft with a suitable universal puller.

Note: Do not hammer pulley or shaft as this will damage pump.

Steering System

Installation

Install oil pump in reverse order of removal.

POWER STEERING GEAR

Removal

1. Remove air cleaner.
2. Remove bolt securing universal joint to worm shaft.
3. Disconnect hoses at steering gear.

Install caps at hose fittings and open hose ends to prevent drainage of oil from hoses and gear unit.

4. Remove nut and lock washer securing steering gear arm to sector shaft. Using Steering Gear Arm Puller ST27200001, remove steering gear arm from sector shaft. See Figure ST-9.
5. Remove bolts securing steering gear housing to body side member, and withdraw steering gear assembly.

Installation

Install steering gear in reverse order of removal. Observe following instructions.

1. Position steering gear and universal joint in place; then install and tighten bolts securing steering gear housing to body side member.
2. Tighten bolt securing universal joint to worm shaft.

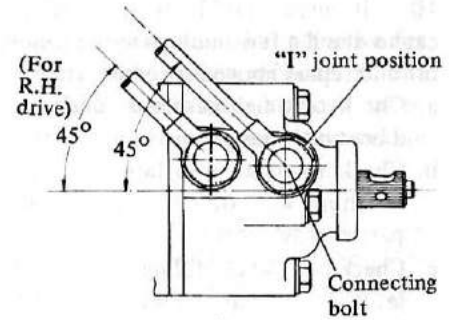
Notes:

- a. Align groove in worm shaft with bolt hole in universal joint yoke, and pass bolt through undercut section of worm shaft.
- b. Align four grooves of gear arm serrations with four projections of sector shaft serrations, and install and tighten lock washer and nut to torque of 14 to 18 kg-m (101 to 130 ft-lb).

3. Install hoses.

Notes:

- a. When tightening connector bolt during installation of hoses on gear assembly, be careful not to turn "I" joint in tightening direction.
- b. Be sure to place a copper washer on top and bottom of "I" joint when tightening connector bolt.
- c. Install "I" joint at 45 degrees to center of gear assembly.



ST525

Fig. ST-21 Installing "I" joint

SERVICE DATA AND SPECIFICATIONS

SPECIFICATIONS

Steering column type		Collapsible column
Steering gear type		
Manual steering		Recirculating ball type
Power steering		Integral type
Oil pump		
Type		Vane type
Maximum revolution	rpm	6,000
Maximum pressure	kg/cm ² (psi)	89 (1,260)
Steering wheel turns (Lock to lock)		
Vehicle	Manual steering	4.7
	Power steering	3.8
Turning angle of front wheel		
– inside	degrees	37°30' to 38°30'
– outside	degrees	29°30' to 30°30'
Steering gear ratio		
Manual steering		19.0 to 22.5
Power steering		17.0
Oil capacity		
Manual steering	liters (US pt, Imp. pt)	0.33 (¾, ⅝)
Power steering	liters (US pt, Imp. pt)	
R.H. drive		1.3 (2 ¾, 2 ¼)
L.H. drive		1.5 (3 ⅛, 2 ⅝)
		Automatic transmission fluid "Dexron type"

SERVICE DATA

Steering wheel play	mm (in)	Less than 35 (1.38)
Steering column		
Steering wheel axial play	mm (in)	0 (0)
Manual steering gear		
Worm shaft turning torque		
Steering gear assembly (at neutral position)		
	kg-cm (in-oz)	8.5 to 12.5 (118 to 174)
Worm bearing preload	kg-cm (in-oz)	4.0 to 6.0 (56 to 83)

Steering System

Worm bearing shim			
Standard total thickness	mm (in)	.....	1.5 (0.059)
Adjusting shim thickness	mm (in)	.....	0.762 (0.0300)
			0.254 (0.0100)
			0.127 (0.0050)
			0.050 (0.0020)
Sector shaft shim			
End play between sector shaft and adjusting screw	mm (in)	.....	0.01 to 0.03 (0.0004 to 0.0012)
Adjusting shim thickness	mm (in)	.....	1.575 (0.0620)
			1.550 (0.0610)
			1.525 (0.0600)
			1.500 (0.0591)
			1.475 (0.0581)
			1.450 (0.0571)
Gear backlash at gear arm top end			
	mm (in)	.....	Less than 0.1 (0.004)
Steering linkage			
Ball joint stud			
Axial play	mm (in)	.....	0.1 to 0.5 (0.004 to 0.020)
Swing torque	kg-m (ft-lb)	.....	Less than 0.5 (3.6)
Power steering			
Oil pump belt tension	mm (in)	.....	8 to 12 (0.315 to 0.472) at 10 kg (22 lb)
Steering wheel turning torque (at circumference of steering wheel)	kg (lb)	.....	About 3.0 (6.6)
Oil pump pressure	kg/cm ² (psi)	.....	78 to 84 (1,110 to 1,190) at 1,000 rpm
Backlash adjustment			
Turning torque	kg-cm (in-oz)		
o (As compared with steering wheel turned 360°)			
180°	.....		1 to 2 (14 to 28) Higher
Center	.....		4 to 5 (56 to 69) Higher
o 360° (When steering gear assembly alone is turned)			7 to 12 (97 to 167)

Tightening torque

Column shaft

Steering wheel nut	kg-m (ft-lb)	.....	4.0 to 5.0 (29 to 36)
Column clamp bolts	kg-m (ft-lb)	.....	0.9 to 1.2 (6.5 to 8.7)
Jacket tube bracket to dash panel	kg-m (ft-lb)	.....	0.3 to 0.4 (2.2 to 2.9)
Universal joint to worm shaft	kg-m (ft-lb)	.....	3.3 to 3.9 (24 to 28)

Steering System

Manual steering gear

Gear arm nut	kg-m (ft-lb)	14 to 18 (101 to 130)
Steering housing to body	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Rear cover bolts	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Sector shaft cover bolts	kg-m (ft-lb)	1.5 to 1.8 (11 to 13)
Sector shaft adjusting screw lock nut	kg-m (ft-lb)	3.2 to 3.7 (23 to 27)

Steering linkage

Idler body to frame	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Ball stud nuts	kg-m (ft-lb)	5.5 to 10 (40 to 72)
Side rod bar lock nuts	kg-m (ft-lb)	7.7 to 10.5 (56 to 76)
Idler arm (idler shaft) nut	kg-m (ft-lb)	8 to 12 (58 to 87)

Power steering

Oil pump installing bolts	kg-m (ft-lb)	1.9 to 2.6 (14 to 19)
Gear arm nut	kg-m (ft-lb)	14 to 18 (101 to 130)
Steering housing to body	kg-m (ft-lb)	3.2 to 4.3 (23 to 31)
Sector shaft adjusting screw lock nut	kg-m (ft-lb)	2.9 to 3.5 (21 to 25)
Hose to oil pump	kg-m (ft-lb)	3.0 to 5.0 (22 to 36)
Hose to gear housing	kg-m (ft-lb)	5.0 to 7.0 (36 to 51)

TROUBLE DIAGNOSES AND CORRECTIONS

MANUAL STEERING

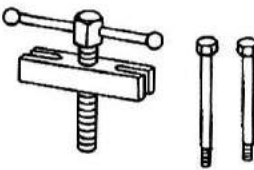
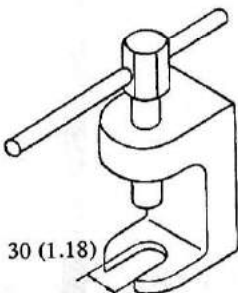
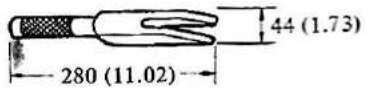
Refer to TROUBLE DIAGNOSES AND CORRECTIONS in "Front Axle & Front Suspension" Section.

POWER STEERING

Condition	Probable cause	Corrective action
Oil pressure does not build up.	Pump drive belt slipping on pulley. Pump malfunctioning. Oil leaking through hose joints. Oil leaking through power steering.	Readjust belt tension. Replace. Replace or retighten copper washer. Replace gear assembly.
Steering wheel moves heavily.	Lack of oil in oil pump.* Air present in oil. Oil pressure too low. Wheel alignment out of specifications or air pressure in tires too low.* Steering gears improperly engaged.* Steering column out of alignment.* Worn or damaged ball joint at suspension and steering linkage.* Idler arm dragging.*	Refill. Bleed air. See "Hydraulic system check". Re-align or inflate tires to correct pressure. Replace gear assembly. Repair or replace. Replace. Repair or replace.
Steering wheel fails to return.	Refer to items marked "*" above. Front wheel caster improperly adjusted. Internal gears dragged or gouged.	Readjust. Replace gear assembly.
Steering effort is not the same in both directions.	Oil leakage in steering gear. Stuffy oil passage in steering gear.	Replace gear assembly. Replace gear assembly.
Unstable running.	Wheel bearing not properly adjusted. Stuck or damaged control valve in steering gear. Front wheel alignment not properly. Excessive steering gear play. Play at suspension and linkage ball joint.	Readjust. Replace gear assembly. Readjust. Readjust backlash or replace gear assembly. Replace.
Noisy pump.	Lack of oil in oil pump. Hoses or oil filter clogged. Loose pulley. Belt noisy or slapping. Broken pump part.	Refill. Clean or, if necessary, replace. Repair. Readjust tension. Replace.

Steering System

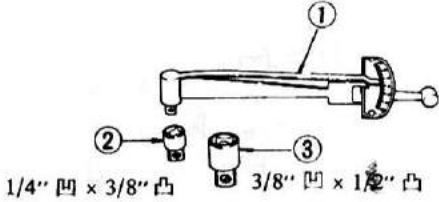
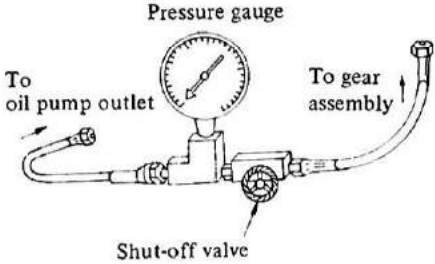
SPECIAL SERVICE TOOLS

No.	Tool number & tool name	Description Unit: mm (in)	For use on	Reference page or Figure No.
1.	ST27180001 Steering wheel puller	<p>This tool is used to drive out steering wheel. Caution: Do not hammer on steering column shaft.</p>  <p style="text-align: right;">SE116</p>	330 230 B210 610 710 C110 C130 S30	Fig. ST-3
2.	ST27200001 Steering gear arm puller	<p>This tool is used to remove steering gear arm from steering sector shaft. Note: Strike side of gear arm with double hammer to facilitate removal.</p>  <p style="text-align: right;">SE117</p>	330 230 620	Fig. ST-9 Page ST-12
3.	KV48100200 Steering ball joint puller (Former tool number ST27850000)	<p>This tool is placed between knuckle arm and steering ball joint to facilitate disengagement of ball joint section.</p>  <p style="text-align: right;">SE089</p>	All models	Page ST-8



NISSAN

Steering System

No.	Tool number & tool name	Description Unit: mm (in)	For use on	Reference page or Figure No.
4.	<p>ST3127S000 Drive pinion pre-load gauge</p> <p>1 GG91030000 Torque wrench</p> <p>2 HT62940000 Socket adapter</p> <p>3 HT62900000 Socket adapter</p>	<p>This tool is used to measure steering worm shaft preload.</p> <div style="text-align: center;">  </div> <p style="text-align: right;">SE329</p>	All models	Fig. ST-11 Page ST-11
5.	<p>ST27091000 Pressure gauge</p>	<p>This tool is used to measure pressure from oil pump.</p> <div style="text-align: center;">  </div> <p style="text-align: right;">ST123</p>	330 230	Fig. ST-19

SERVICE MANUAL

DATSUN
MODEL 330 SERIES
CHASSIS & BODY

SECTION FE

ENGINE CONTROL, FUEL & EXHAUST SYSTEMS

FE

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FUEL SYSTEM	FE- 5
EXHAUST SYSTEM	FE- 7



NISSAN MOTOR CO., LTD.
TOKYO, JAPAN

ENGINE CONTROL SYSTEM

CONTENTS

DESCRIPTION	FE-2	ADJUSTMENT	FE-4
ACCELERATOR CONTROL SYSTEM	FE-3	ENGINE CONTROL AND IDLING	
REMOVAL AND INSTALLATION	FE-3	CONTROL SYSTEMS (DIESEL ENGINE)	FE-4
ADJUSTMENT	FE-3	DESCRIPTION	FE-4
CHOKE CONTROL SYSTEM		REMOVAL AND INSTALLATION	FE-4
(GASOLINE ENGINE)	FE-3	ADJUSTMENT	FE-4
REMOVAL AND INSTALLATION	FE-3		

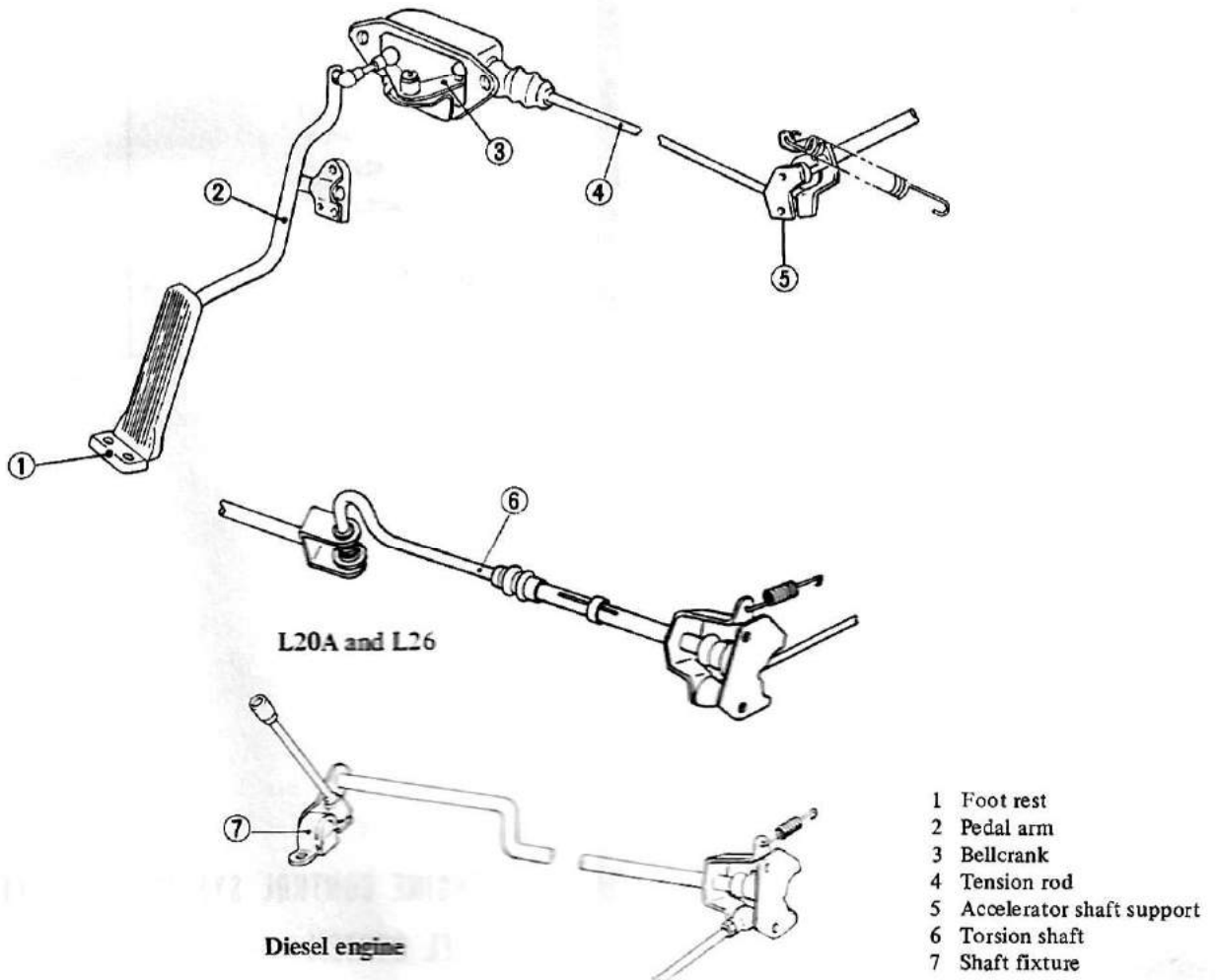
DESCRIPTION

The accelerator linkage is a tension rod type that provides smooth, positive speed control with minimum

pedal effort.

The carburetor throttle is virtually free from the effect of engine vibra-

tion for safe, smooth driving. The torsion shaft connected to the carburetor is a sliding type.



- 1 Foot rest
- 2 Pedal arm
- 3 Bellcrank
- 4 Tension rod
- 5 Accelerator shaft support
- 6 Torsion shaft
- 7 Shaft fixture

FE251

Fig. FE-1 Engine control system

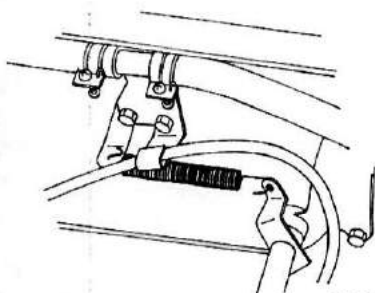
ACCELERATOR CONTROL SYSTEM

REMOVAL AND INSTALLATION

1. Remove return spring and ball joint from torsion shaft assembly.
2. On cars equipped with air conditioner, remove throttle lever assembly from torsion shaft by removing cotter pin.
3. Remove setting screws connecting torsion shaft to venturi on diesel powered models.
4. Back off two bolts which secure accelerator shaft support in position; at the same time, loosen shaft fixture machine screw. Torsion shaft will then be taken out easily.
5. Back off four machine screws holding bellcrank cover in position. Take out bellcrank assembly together with tension rod.
6. Turn screws out at bottom of accelerator foot rest.
7. Remove three screws and remove pedal bracket together with pedal arm.
8. Remove engine control wire (diesel engine equipped models).
9. To install, reverse order of removal.

Notes:

- a. Check accelerator rod for freedom from bending along its entire length. Also check for wear on friction surfaces or cracks in ball joint. Repair or replace if necessary.
- b. Check return spring for damage or any other fault which might interfere with proper spring function. It should also be inspected for weak tension. Discard spring if its tension is beyond specified limit.
- c. Install return spring as shown in Figure FE-2.



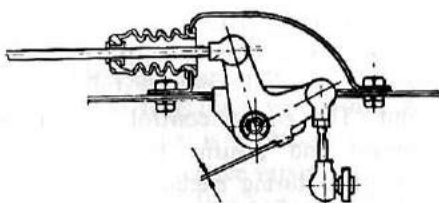
FE252
Fig. FE-2 Return spring

- d. Always replace sliding type torsion shaft and pipe as an assembly.

ADJUSTMENT

Observe following instructions during installation.

1. Adjust clearance between bellcrank stopper and bracket to 1 to 1.5 mm (0.039 to 0.059 in). Without disturbing above setting, adjust length of accelerator rod on its ball end until accelerator pedal setting angle is 68 degrees.

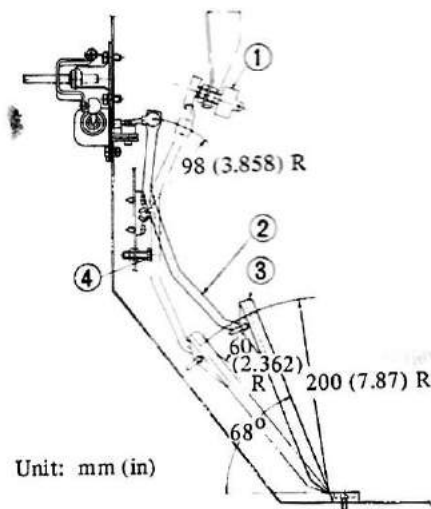


1 to 1.5 mm (0.039 to 0.059 in)

FE253

Fig. FE-3 Adjusting control linkage

2. While holding accelerator foot rest down with throttle fully open, turn stopper screw until it slightly bears against pedal arm. Screw in stopper one full turn and secure with lock nut.



- | | |
|-------------------|-----------------|
| 1 Kickdown switch | 3 Foot rest |
| 2 Pedal arm | 4 Stopper screw |

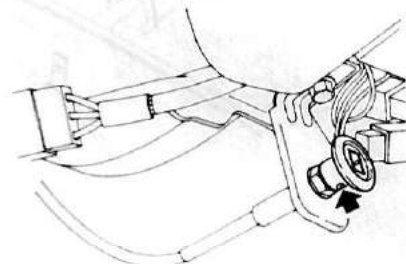
Fig. FE-4 Adjusting pedal stroke

3. On cars equipped with automatic transmission, install kickdown switch. Switch plunger should be fully depressed when pedal arm contacts stopper by stepping down on foot rest.
4. Apply a light coat of multi-purpose grease to all sliding or friction surfaces except ball joints. The entire linkage should be inspected whether foot rest returns to normal height smoothly when releasing foot from it. This test should be made with engine running. Added care should be taken in checking items that affect proper linkage function.

CHOKE CONTROL SYSTEM (GASOLINE ENGINE)

REMOVAL AND INSTALLATION

1. Remove screw securing choke knob to knob control, and remove knob. See Figure FE-5.



FE254

Fig. FE-5 Removing knob

2. Loosen lock screw retaining outer case clamp and wire end on carburetor side.
3. Pull choke wire into engine compartment.

Note: Do not remove inner choke wire from outer case.

4. To install, reverse order of removal.

ADJUSTMENT

Adjust choke valve in such a way that it opens fully when choke knob is pushed in all the way and closes when knob is fully pulled out.

Notes:

- a. Be careful not to bend inner wire when adjusting.
- b. Be careful not to deform or damage outer case.

ENGINE CONTROL AND IDLING CONTROL SYSTEMS (DIESEL ENGINE)

DESCRIPTION

The engine control system is a wire type. To stop the engine, pull the engine control knob fully.

The idling control system is also a wire type. To increase the engine idling speed, turn the idling control knob clockwise.

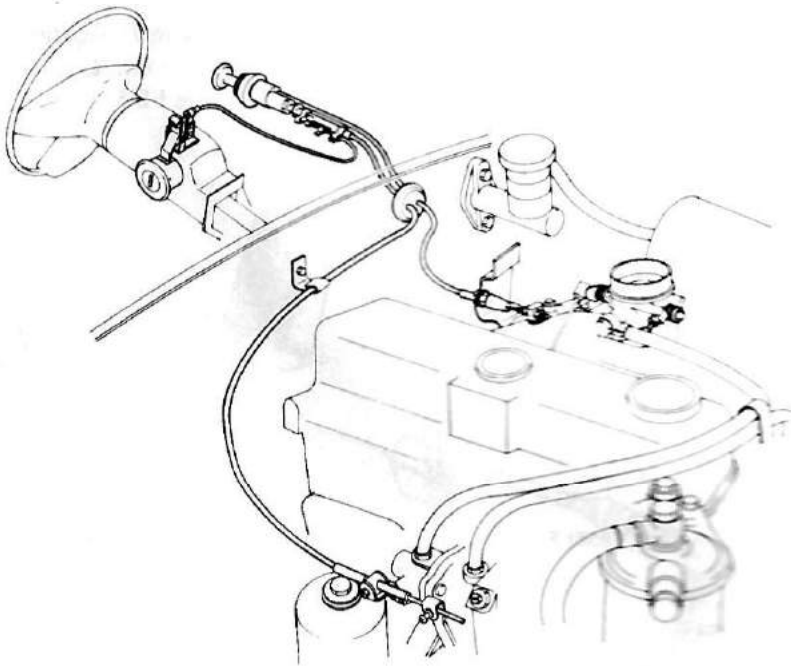
On left hand drive models, the engine and idling control systems are mechanically interlocked with the steering lock device. The steering lock device is actuated only when the engine control knob is fully pulled out. The engine control knob is released and returns to the Neutral position during engine starting when the knob is turned counterclockwise.

REMOVAL AND INSTALLATION

- 1. Disconnect idling control wire from accelerator lever.
- 2. Remove two setscrews securing excess control wire at injection pump.
- 3. Remove column cover, and remove setscrews at steering lock. (Left hand drive models)
- 4. Remove control switch knob by turning it counterclockwise.
- 5. Remove gimp nut.
- 6. To install, reverse order of removal.

ADJUSTMENT

- 1. After installing engine control wire on injection pump stop lever, adjust engine control wire length with adjusting nut at stopping lever so that no free travel exists.
- 2. Pull and push engine control knob to ensure that injection pump stop lever operates smoothly.
- 3. After adjusting accelerator wire length and accelerator pedal height, adjust idling control wire length with adjusting nut at accelerator lever so that accelerator pedal keeps its original position when turning idling control knob fully counterclockwise.



FE255

Fig. FE-6 Engine control and idling control systems

FUEL SYSTEM

CONTENTS

DESCRIPTION	FE-5	FUEL STRAINER	FE-7
FUEL TANK	FE-7	ELECTRIC FUEL PUMP	FE-7
REMOVAL	FE-7	REMOVAL	FE-7
INSTALLATION	FE-7	INSPECTION OF FUEL LINE	FE-7
FUEL PIPING	FE-7		

DESCRIPTION

The fuel tank is not the same on all models due to different capacity and installation requirements; 67 liters (17 $\frac{3}{4}$ U.S. gal., 14 $\frac{3}{4}$ Imper. gal.) for Sedan and Hardtop, and 60 liters (15 $\frac{3}{8}$ U.S. gal., 13 $\frac{1}{4}$ Imper. gal.) for Station Wagon. On the Sedan, the tank is mounted at the rear of the rear seatback with two fuel tank straps.

The 60 liter (15 $\frac{3}{8}$ U.S. gal., 13 $\frac{1}{4}$ Imper. gal.) fuel tank is mounted beneath the rear floor with bolts. A fuel return tube is provided on all models so as to reduce vapor lock to a minimum. The suction and return lines are located beneath the rear floor and is routed through the right side member to the fuel strainer and engine,

along and through the hoodledge and engine compartment.

The fuel strainer is a cartridge type.

The electric fuel pump is located between the suction line and fuel strainer on models (except Station Wagon) equipped with a power steering system and/or an air conditioning system.

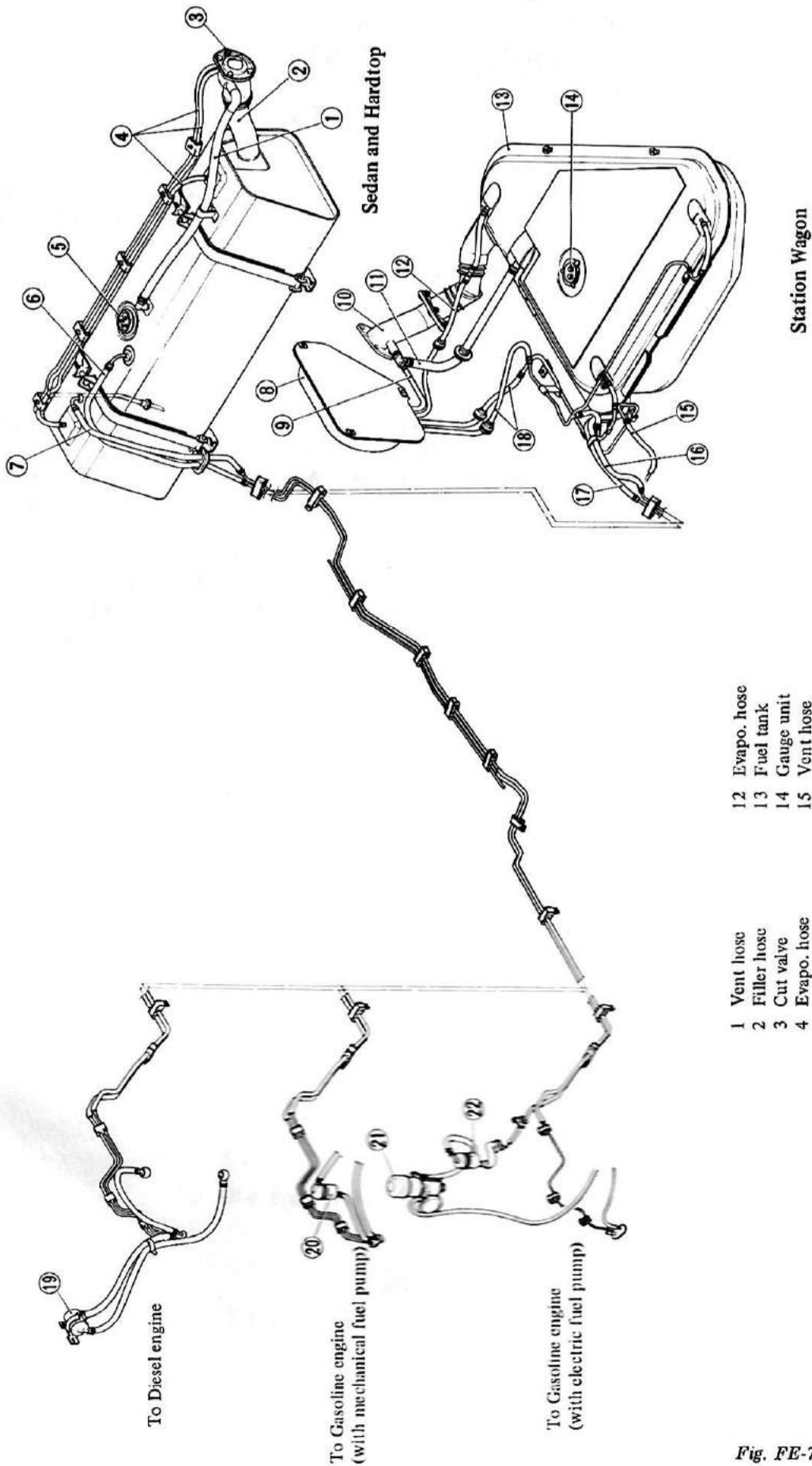


Fig. FE-7 Fuel tank and piping

FUEL TANK

REMOVAL

Sedan and Hardtop

1. Drain fuel from fuel tank.
2. Disconnect wires at fuel tank gauge unit.
3. Loosen clamps and remove fuel filler hose, breather tube and vent hose.
4. Loosen clamps and remove suction and return lines.
5. Remove nuts, bolts and straps, and remove fuel tank.

Station Wagon

1. Drain fuel from fuel tank.
2. Remove spare tire.
3. Remove inspection hole cap from rear floor to gain access to fuel tank gauge unit. Disconnect wires at gauge unit.
4. Remove clip bolt, then remove clip retaining breather tube to side member. Loosen clamp and pull hose off.
5. Loosen clamp and remove filler hose.
6. Loosen clamps and remove body side vent hose and tank side tube.
7. Remove bolts holding fuel tank in place; take fuel tank out.
8. Remove fuel gauge unit by turning it counterclockwise.

Notes:

- a. Do not spill fuel on trunk compartment.
- b. Plug filler opening to prevent entry of moisture and airborne dust and dirt.

INSTALLATION

To install, reverse order of removal. Carefully observe the following:

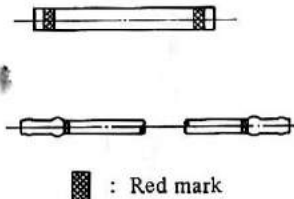
1. Install hose clamps securely. However, do not overtighten to avoid damaging hose.
2. Always install fuel gauge unit, O-ring first.
3. Be sure to install felt packings when installing fuel tank.
4. Install filler hose after fuel tank has been mounted. Failure to do so can cause leakage at hose connection.
5. Check all fuel line connections for leaks with engine running.

FUEL PIPING

All fuel pipes can be easily disconnected as an assembly by unfastening clamps and clips. Do not disconnect any fuel line unless absolutely necessary.

Notes:

- a. Plug hose and pipe openings to prevent entry of dust or dirt while removing.
- b. Both fuel discharge and return pipes are of same size for gasoline-powered models. To prevent confusion, return lines are marked with a red paint mark on their surfaces. Be careful not to confuse discharge with return lines during assembly.



FE257

Fig. FE-8 Fuel hose

FUEL STRAINER

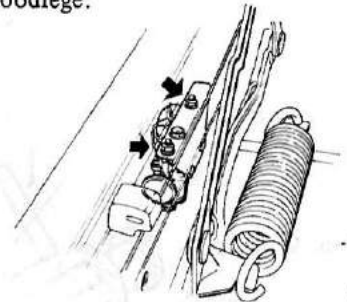
Remove fuel strainer and replace it. For details, refer to "Maintenance Schedule".

ELECTRIC FUEL PUMP

The electric fuel pump is located between right fender and tire house inner.

REMOVAL

1. Remove blind cover from right tire house, and disconnect electric wire.
2. Loosen clamps and disconnect fuel hoses at suction and discharge ports.
3. Remove two nuts from right hoodlege.



FE258

Fig. FE-9 Electric fuel pump

4. Remove electric fuel pump through access hole in tire house.

INSPECTION OF FUEL LINE

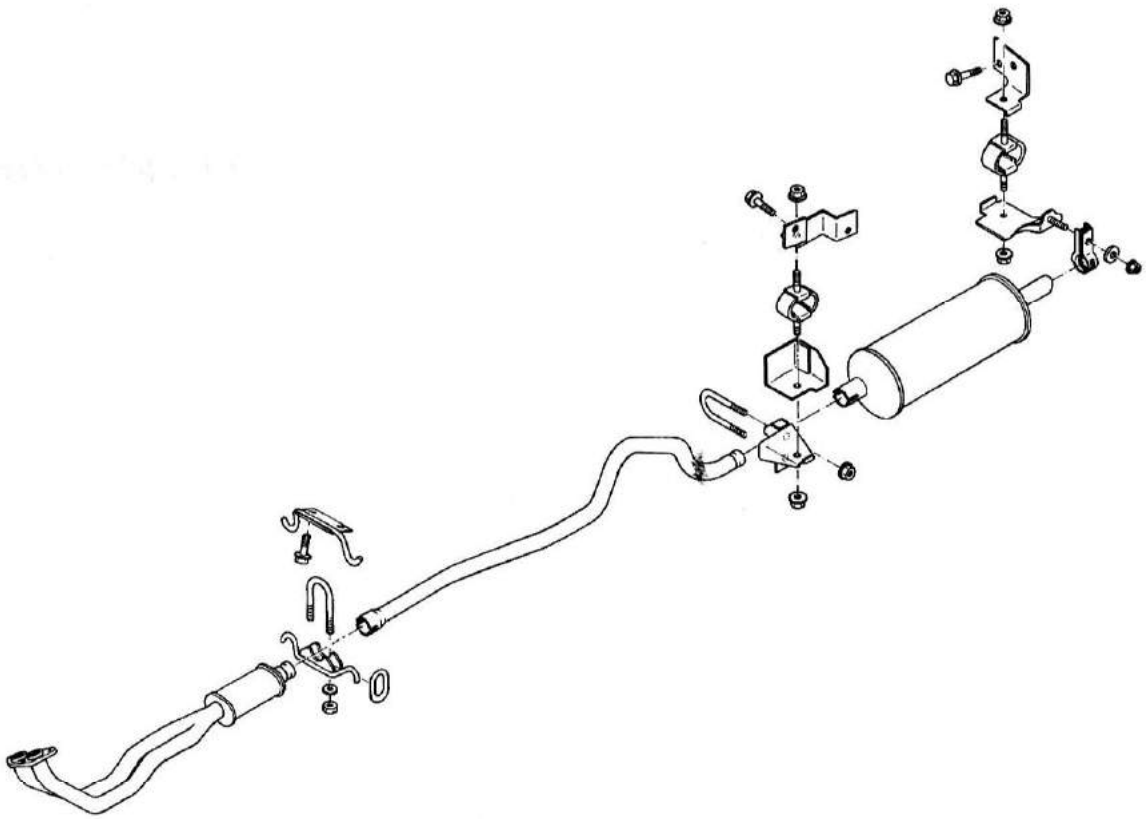
1. Check fuel tank for cracks or distortion; if necessary, replace.
2. Inspect all hoses for cracks, fatigue, sweating or deterioration. Replace all unserviceable hoses.
3. See if fuel tubes are not cracked, rusted, collapsed or distorted. If necessary, replace.

EXHAUST SYSTEM

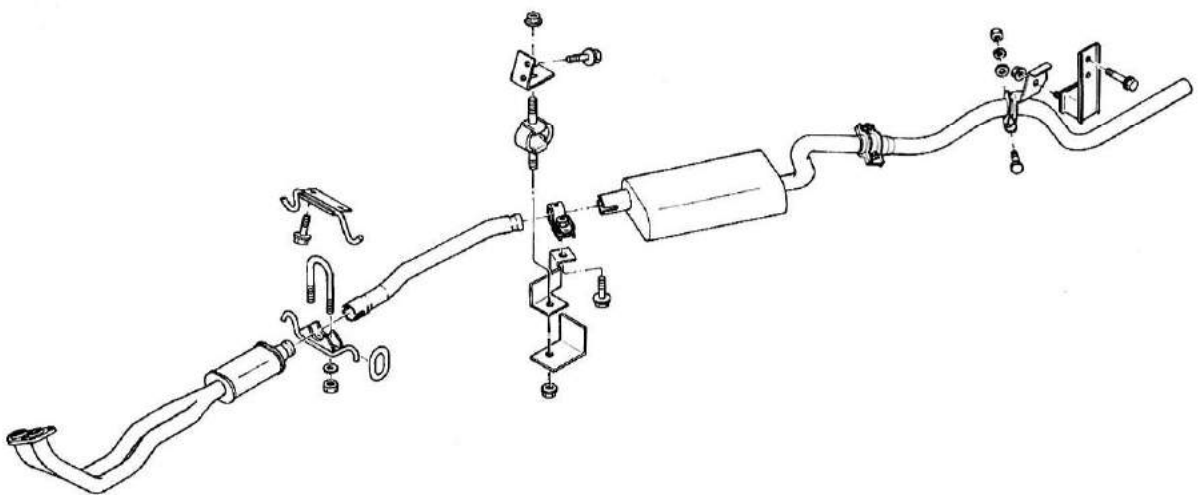
CONTENTS

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INSPECTION	FE-9		

Sedan and Hardtop



Station Wagon



Z·ONE·DATSUN FE259
Fig. FE-10 Exhaust system

REMOVAL

See Figure FE-10 for location of exhaust tube parts requiring removal.

Note: There is no set order for removal of exhaust tube parts. It is, however, good practice to remove hard-to-remove parts first, then easy-to-remove parts. Be careful not to drop exhaust tube.

INSPECTION

1. Check muffler and tubes for cracks or damage.

Replace any part if it is damaged beyond repair.

2. Replace any bracket or hanger rubber parts if they are cracked, fatigued, or sweated.

INSTALLATION

1. Wipe clean all contact portions; allow them to dry thoroughly.

2. To install, reverse order of removal.

Notes:

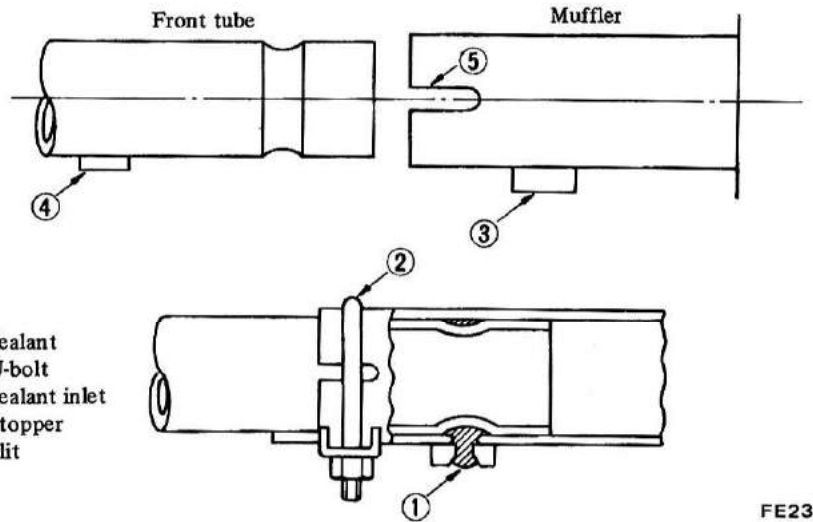
a. Insert each exhaust tube into place until stopper touches mating tube, then clamp securely. See Figure FE-11.

b. Do not re-use old gasket between exhaust manifold and exhaust tube after removal.

3. Squeeze sealant out of injector and apply to contact face of exhaust tube.

(1) Use Nissan Exhaust Sealant Kit 20720-N2225. See Figure FE-12.

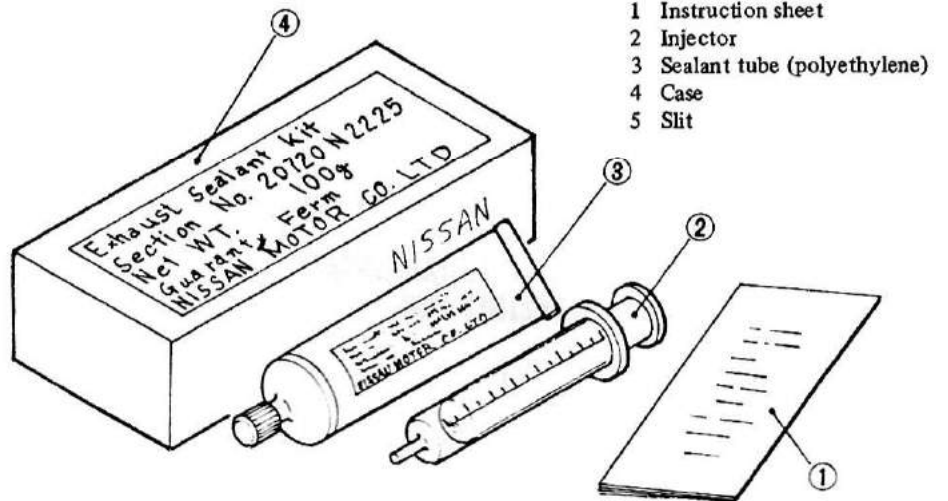
(2) Apply about 5 cc (0.3 cu in) of sealant to injector. See Figure FE-13.



- 1 Sealant
- 2 U-bolt
- 3 Sealant inlet
- 4 Stopper
- 5 Slit

FE238

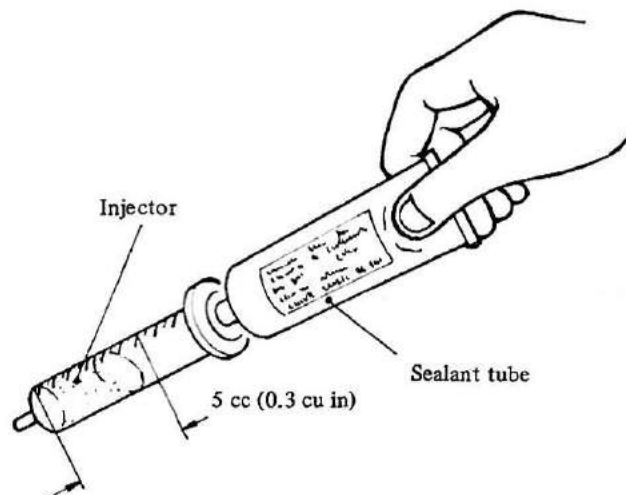
Fig. FE-11 Contact portion of muffler and tube



- 1 Instruction sheet
- 2 Injector
- 3 Sealant tube (polyethylene)
- 4 Case
- 5 Slit

FE109

Fig. FE-12 Sealant kit

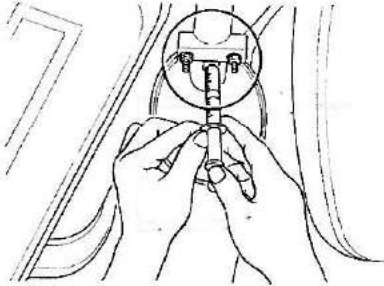


FE162

Fig. FE-13 Applying sealant to injector

Engine Control, Fuel & Exhaust Systems

(3) Install injector so that neck bears against guide securely. Inject sealant slowly. Do not allow sealant to flow out of clearance between injector and guide. See Figure FE-14.



FE239

Fig. FE-14 Injecting sealant

Stop injecting sealant when it begins to flow out of slit.

This indicates that bead requires no further sealant. Excessive sealant can cause clogging of tube.

After injecting, wash injector thoroughly in clean water to remove all traces of sealant.

4. After filling, let engine idle slowly for 10 minutes to harden sealant with

heat of exhaust gas. Then check sealing condition before driving car. After this, do not accelerate engine for about 20 to 30 minutes.

Note: With engine running, check all the connection for leaks, and entire system for unusual noise, etc.