

BRAKE SYSTEM

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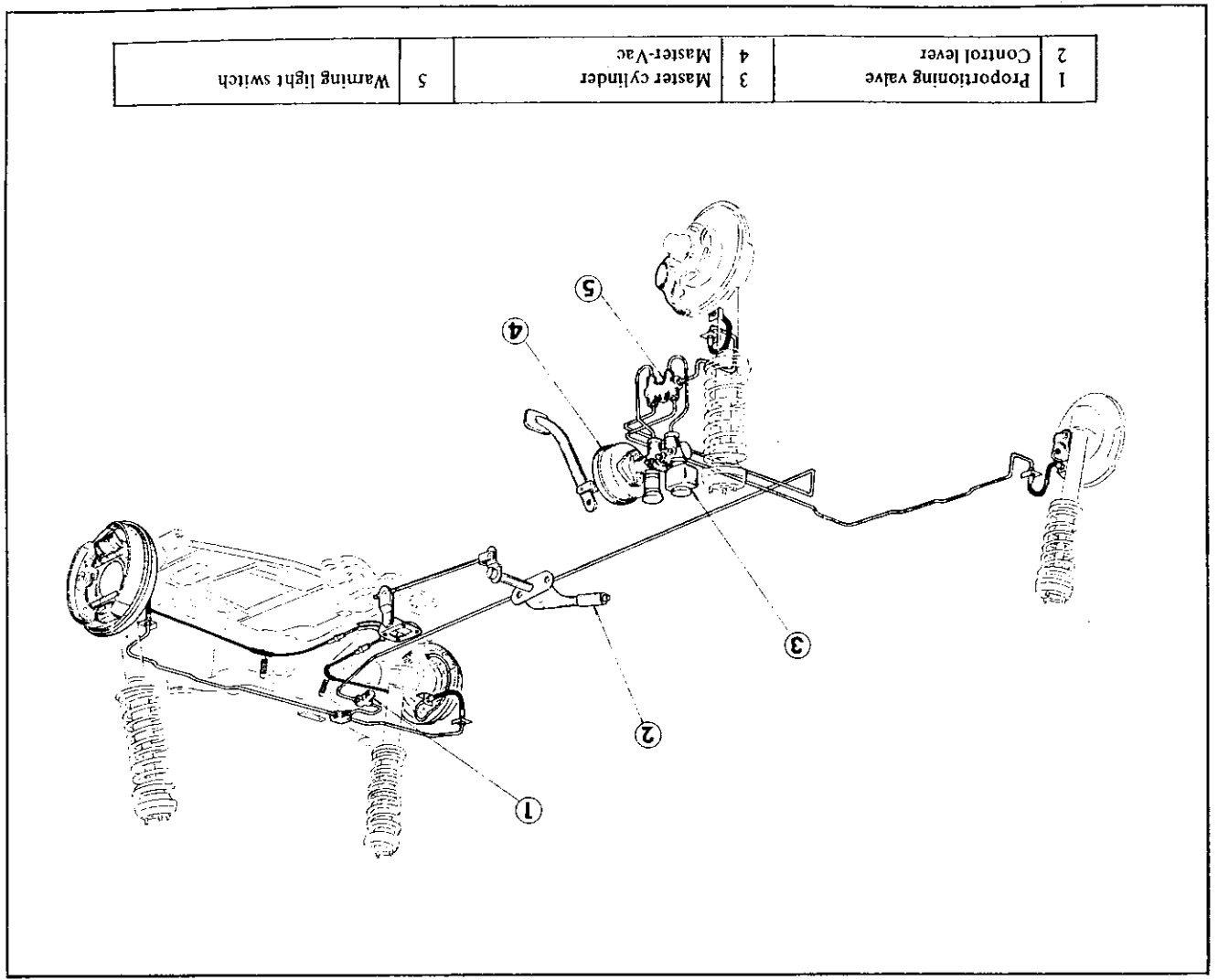


Fig. BR-1 Brake system

## DESCRIPTION

The S30 series vehicles is installing disc brake for front, drum brake for rear, and a six inch master-vac. to get great braking force.

The front disc brake is Girling-Sumitomo model S-16, and the pad is operated with two pistons. The leading-trailing type rear drum brake is equipped with auto-adjuster, and in order to get enough cooling effect, aluminum finned brake drums are used.

Moreover, the brake system is equipped with a proportioning valve to prevent skid due to early rear wheel locking.

The hand brake is of a mechanical type, which brakes rear wheels, and is operated by the control lever through linkage and wire.

The control lever is located in the seat side center, and is operated easily. The hand brake force satisfies the MVSS sufficiently, and it may also be used as an emergency brake.

## BRAKE PEDAL

The brake pedal is installed on the bracket which also supports the steering column, and the bracket is secured on the dash panel together with the master cylinder. The stop lamp switch is installed on the pedal bracket, and is operated by pedal arm.

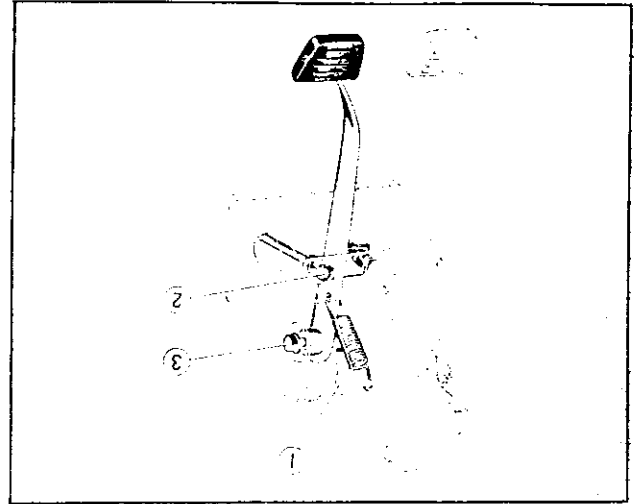


Fig. BR-2 Brake pedal mounting

## Removal

1. Remove the return spring ①.
2. Remove the clevis pin ② from the push rod, and separate the pedal from the master vac.

BR-2

## Inspection

1. Check the brake pedal for the following items, and correct or replace if required.
  - 1. Pedal bushing and sleeve for wear, deformation, and/or damage.
  - 2. Pedal arm for twisting, bending, and/or cracking.

## Reinstallation

1. Install the brake pedal in reverse sequence of removal, noting following matters.
  - 1. Be sure to fill the pedal shaft sleeve unit and clevis pin unit with multipurpose grease (MIL G-2108 or G-10924) sufficiently.
  - 2. Be sure to tighten the fulcrum pin under tightening torque of 3.5 to 4.0 kg-m (25.3 to 28.9 ft-lb).

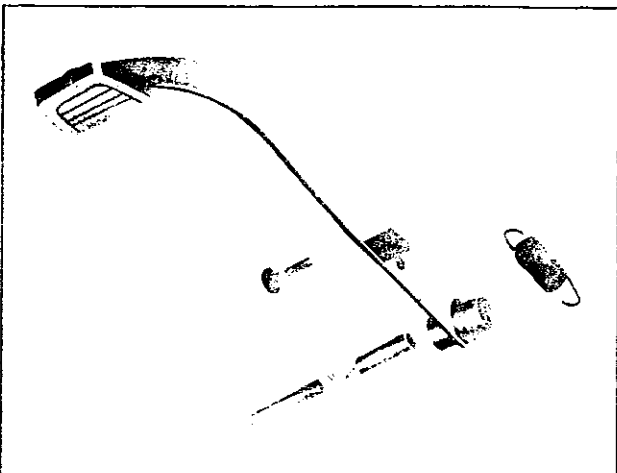
## ADJUSTMENT

## Adjusting brake pedal

1. Loosen the lock nut, turn the push rod clevis, and adjust push rod length properly so that height of pedal pad upper surface is 206 mm (8.11 in) with the pedal stopper non-effected.

2. Next, turn back the stopper, and depress the pedal so that pedal pad height is reduced from 206 mm (8.11 in) to 203 mm (7.99 in).

Fig. BR-3 Brake pedal components



3. Remove the fulcrum pin ③ and remove the pedal.

# BRAKE

Note: Install the stop lamp switch so that the installation screw end surface is flush against the bracket.

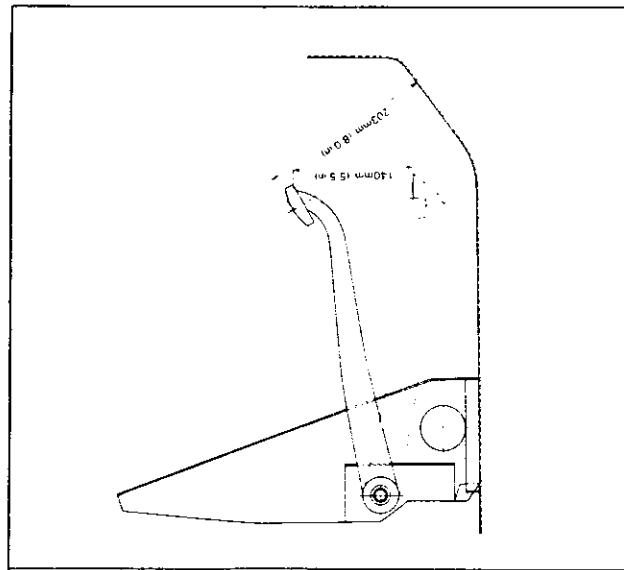


Fig. BR-4 Adjusting brake pedal

## MASTER CYLINDER

The brake system adopts a tandem type master cylinder. Even the front or rear hydraulic circuit falls into

a trouble, sufficient braking force can be obtained by another. For the front wheels, the disc brake is used, and thus, a large capacity reservoir is used.

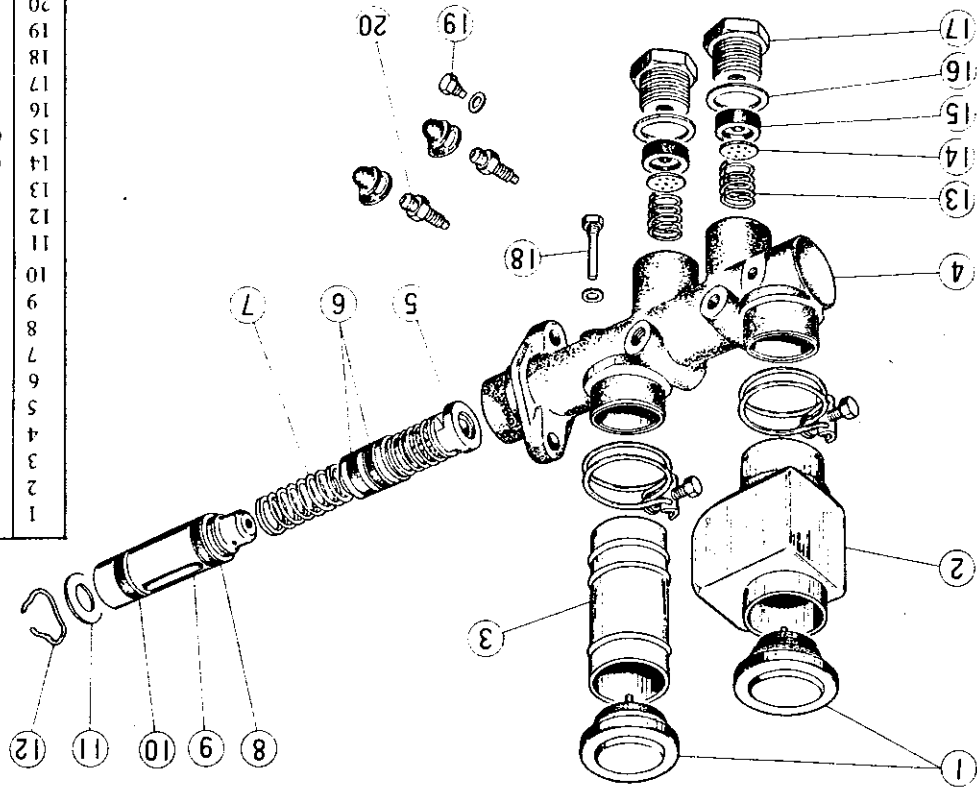
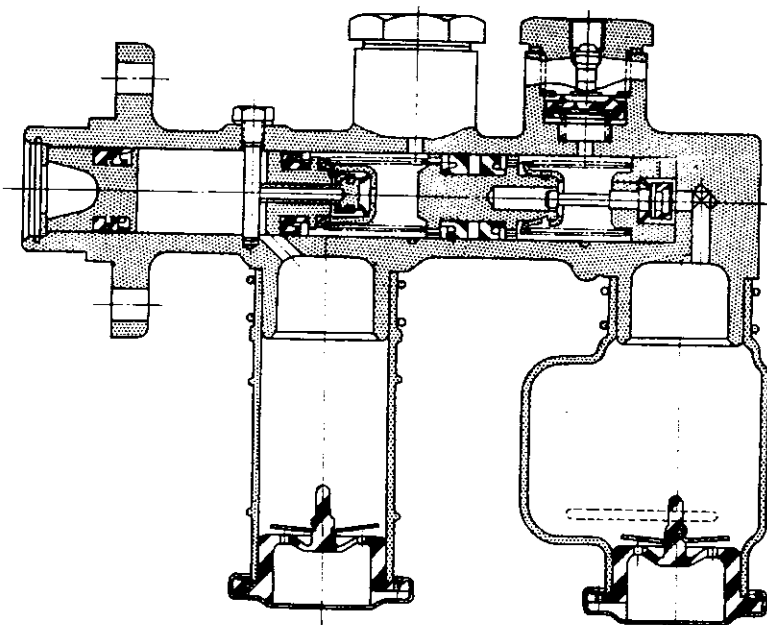


Fig. BR-5 Master cylinder

Fig. BR-6 Cross-sectional view of master cylinder



## Removal

1. Disconnect the brake tubes from the master cylinder.

2. Remove the master cylinder installation nuts, and remove the master cylinder from the master vac.

## Disassembly (Parts number refer to Figure BR-5)

1. Drain brake fluid, and remove stopper bolts (18) and (19).

2. Remove the snap ring (12), and remove the primary piston assembly, secondary piston assembly, and other parts.

3. Remove the valve cap screw (17), and remove the check valve.

**Note:** Disassemble the master cylinder carefully so that the sliding surface of the piston and piston cup are not damaged. Do not remove the fluid reservoir

BR-4

than 0.15 mm (0.006 in).

2. Replace, if the cylinder and piston clearance is more than 0.15 mm (0.006 in).

1. Check the cylinder and piston for damage and uneven wear on the sliding surface and for other defective conditions. Replace as required.

compressed air.

After the parts are cleaned, dry them with rubber parts under alcohol longer than 30 seconds. When alcohol is used, however, do not immerse they are deteriorated. Use brake fluid or alcohol.

**Note:** Do not clean rubber parts with mineral oil since

Thoroughly clean all disassembled parts, check for wear, damage, and other defective conditions, and replace if necessary.

## Inspection

unless really necessary. Moreover, do not remove the piston cup unless the piston is replaced.

# BRAKE

3. In principle replace the piston cup, packing and valves with new ones whenever the master cylinder is disassembled. Be sure to replace, if damaged, worn, weakened, or expanded.

4. Check the return springs for wear, damage and other defective conditions, and replace as required.

Primary side return spring: Standard values: (Free length x Installing load - Length)

5. Replace others, if deformed, damaged, or defective.

## Reassembly

Assemble the master cylinder in reverse sequence of disassembly, noting the following matters.

Apply brake fluid to the component parts such as cylinder bore, piston, etc., and install carefully so as not to damage them. Moreover, for rubber parts such as piston cup, etc., apply rubber grease slightly.

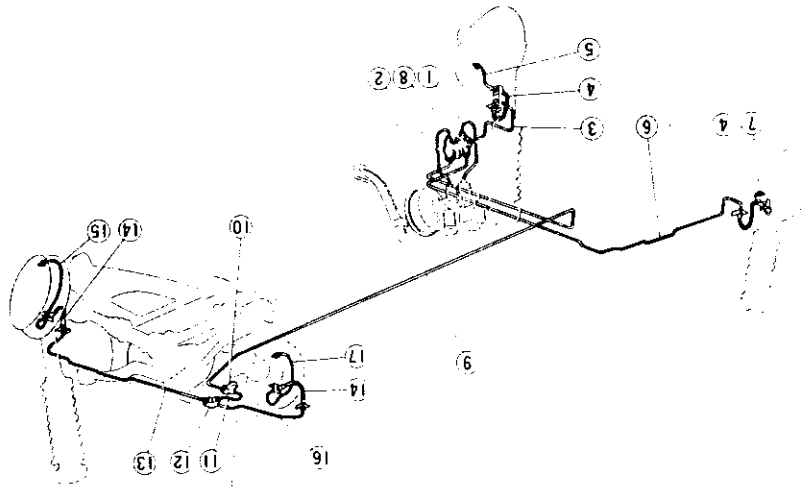
Reinstall the master cylinder in reverse sequence of removal. After air bleeding, make sure that no brake fluid leaks from the circuit. For the pedal height adjustment, refer to the paragraph pedal adjustment.

## Reinstallation

- Tightening torque  
Stopper screw  
0.4 to 0.5 kg-m (2.7 to 3.6 ft-lb)
- Valve cap  
8 to 9 kg-m (5.8 to 6.5 ft-lb)

The brake lines branched from the tandem type master cylinder are extended to the front and rear wheels, forming independent hydraulic circuits. An indicator switch is equipped for trouble alarming in brake line. In addition, the rear wheel side circuit is equipped with the proportioning valve in front of the 3-way connector so as to protect the rear wheels from locking during rapid braking. The brake line is a galvanized double-layer steel tube.

## BRAKE LINE



|   |               |    |                      |    |               |
|---|---------------|----|----------------------|----|---------------|
| 1 | Brake tube A  | 7  | Brake tube F         | 13 | Brake tube I  |
| 2 | Brake tube B  | 8  | Warning light switch | 14 | Pressure hose |
| 3 | Brake tube C  | 9  | Brake tube G         | 15 | Brake tube J  |
| 4 | Pressure hose | 10 | Proportioning valve  | 16 | Brake tube K  |
| 5 | Brake tube D  | 11 | Brake tube H         | 17 | Brake tube L  |
| 6 | Brake tube E  | 12 | 3-way connector      |    |               |

Fig. BR-7 Brake line

Check the brake lines (tubes and hoses) for crack and/or damage, and replace, if defective. When brake fluid leaks from the joint, retighten or replace.

Pay attention on the following matters when installing brake lines.

1. Provide a sufficient space between the brake lines and other parts so that the brake lines are not interfered with other parts due to vibration during driving.
2. Be careful not to warp or twist the brake hose, and particularly be careful not to interfere the brake hose to tires and suspension components.
3. Do not tighten the brake line installation flare nut forcedly or excessively.
4. Upon completion of the brake line installation, be sure to bleed the air.

## PROPORTIONING VALVE

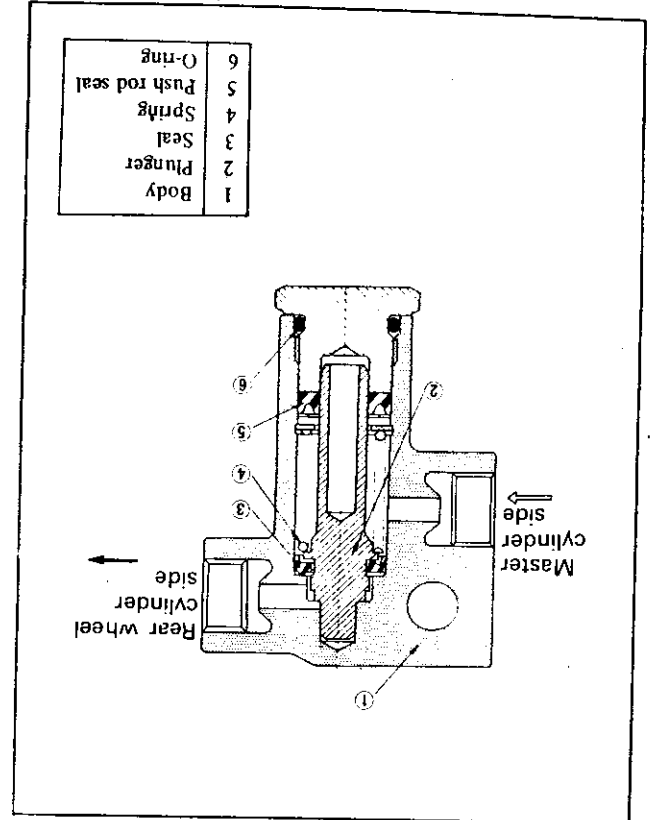


Fig. BR-8 Cross-sectional view of proportioning valve

BR-6

## Operation

1. When pressure is applied (under split point)

$P_1$ : Master cylinder oil pressure  
 $P_2$ : Rear wheel cylinder oil pressure  
 $A_1$ : Cross-sectional area of diameter  $D_1$   
 $A_2$ : Cross-sectional area of diameter  $D_2$   
 $F$ : Spring and friction forces

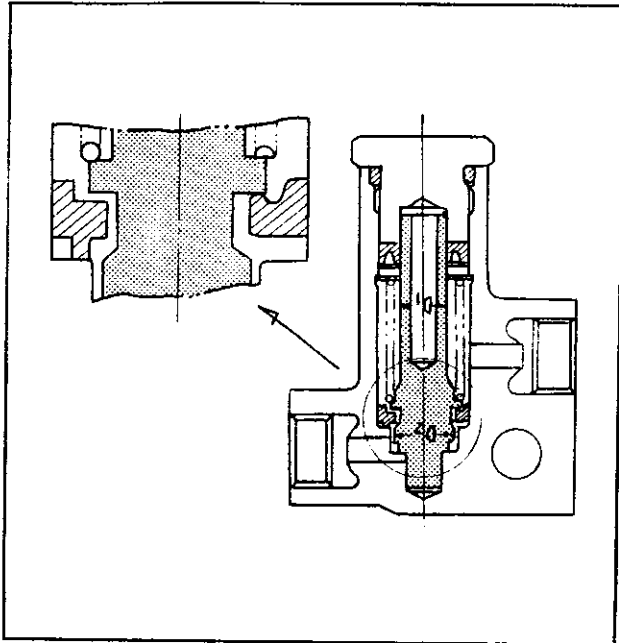
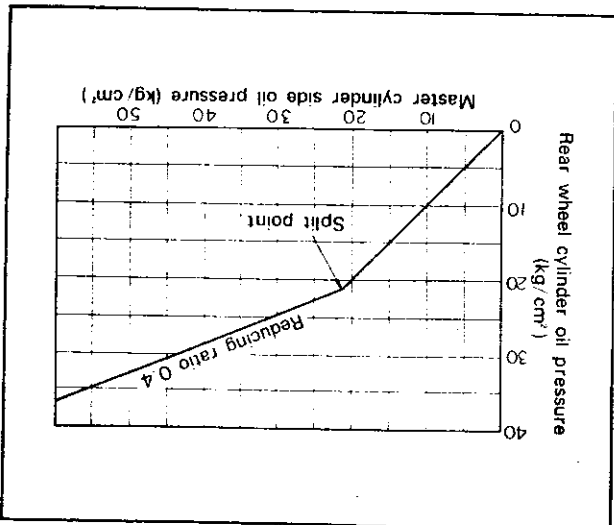


Fig. BR-10 Plunger and seal operation when pressure is applied (under split point)

The plunger is depressed downward by force of  $P_1 \times A_1$ , passage of seal is opened until it overcomes spring

Fig. BR-9 Performance curve



force  $F_1$ , and hence, oil pressure in the master cylinder side is balanced with that in the rear wheel cylinder side.

$$P_1 = P_2 \dots (1)$$

Consequently, oil pressure at the split point is expressed as follows:

$$P_s = F/A_1 \dots (2)$$

2. When pressure is applied (over split point)

When oil pressure rises to split point, the plunger lowers, and the circuit is sealed at "C" periphery. When oil pressure further rises, the plunger rises, the seal is released, the plunger finely rises and lowers so that pressures are balanced under the following equation, and thus, seal opening and closing are repeated.

$$P_2 \times A_2 = P_1(A_2 - A_1) + F \dots (3)$$

As the result, rear wheel cylinder side oil pressure rises in a ratio lower than that in the master cylinder side (reducing ratio).

$$\text{Reducing ratio} = \frac{A_2}{A_2 - A_1}$$

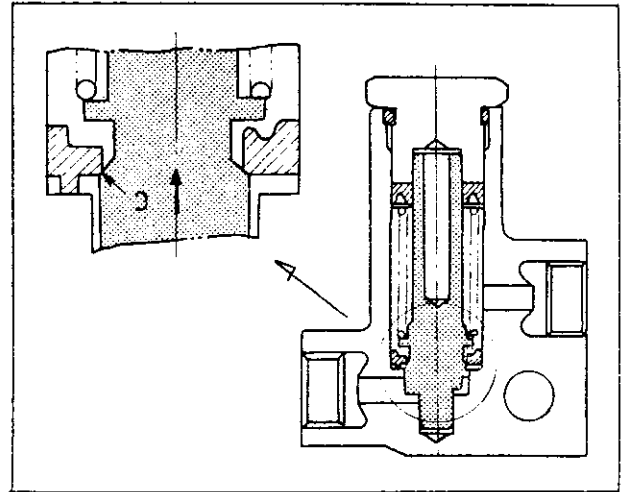


Fig. BR-11 Plunger and seal operation when pressure is applied (over split point)

3. When releasing

When master cylinder side oil pressure is reduced, the plunger drops to contact the stopper [refer to Figure BR-12(a)] depressing oil seal down. And keeping balance of equation (3) the wheel cylinder side pressure is reduced also. But on this situation the wheel cylinder side pressure drops no more.

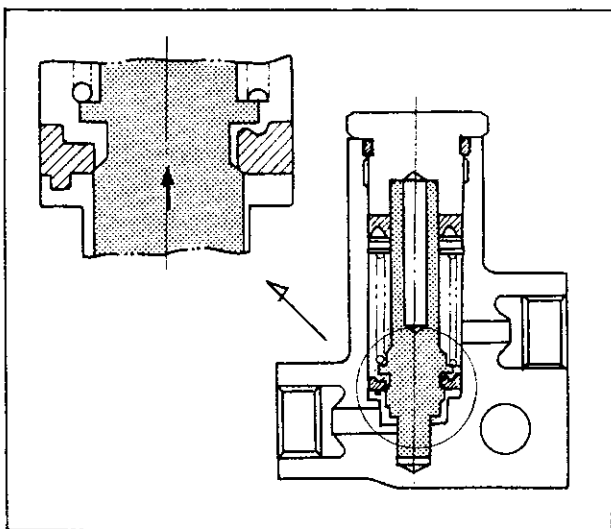


Fig. BR-12(a) Plunger and seal operation when releasing

Further being reduced master cylinder side pressure lower than the rear wheel cylinder side, the seal drops some more [refer to Figure BR-12(b)], and keeping balance of equation (1) the wheel cylinder side pressure is reduced also.

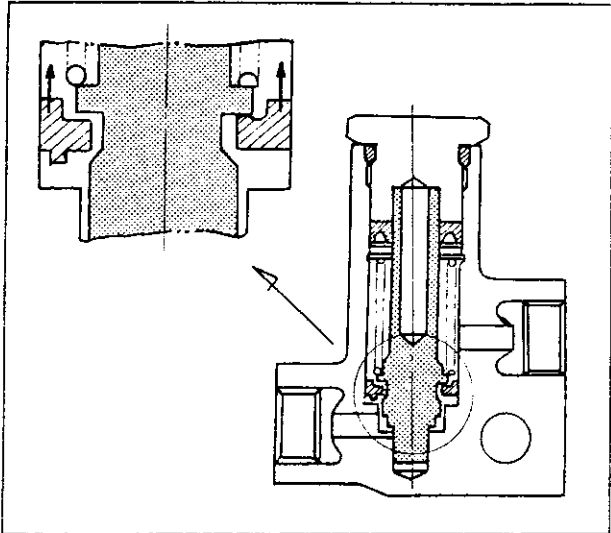


Fig. BR-12(b) Plunger and seal operation when releasing

When pressure further drops down to the split point, the plunger is pushed up by spring force, the condition recovers to the original condition, and with the balance of equation (1) being maintained, oil pressure drops. (refer to Figure BR-10)

## BRAKE LINE PRESSURE DIFFERENTIAL WARNING LIGHT SWITCH

A warning light is located on the instrument panel to warn the driver when a pressure difference of 13 to 17 kg/cm<sup>2</sup> (185 to 242 lb/sq in) exists between the front and rear brake systems.

A hydraulically actuated warning light switch is positioned in the engine compartment. Both front and rear brake systems are connected to this switch assembly. When a pressure difference of 13 to 17 kg/cm<sup>2</sup> (185 to 242 lb/sq in) occurs between the front and rear brake systems, the valves will shuttle toward the side with the low pressure. The valve contacts with the switch terminal and the ground circuit for the warning light is completed, thus the warning light lights.

The hydraulic brake problem must then be corrected and bled the brakes.

Check the warning light switch assembly for a proper operation. Check the switch assembly for fluid leakage.

DO NOT ATTEMPT TO REPAIR SWITCH FOR ANY REASON: REPLACE COMPLETE SWITCH ASSEMBLY.

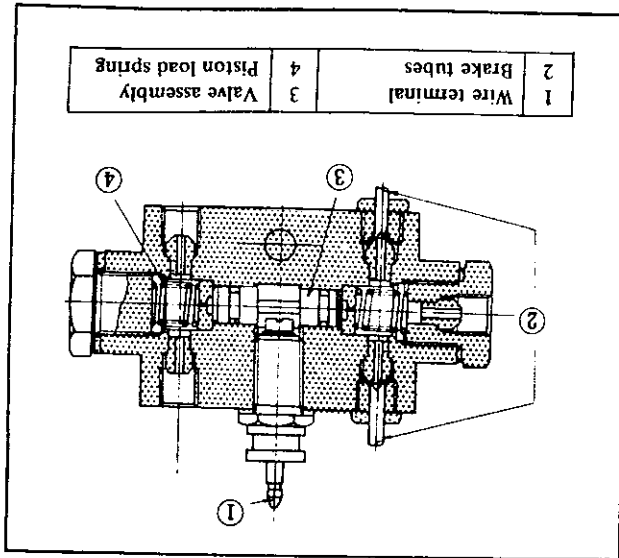


Fig. BR-14 Sectional view of warning light switch

## Inspection

Inspect the proportioning valve every two years or 50,000 km (30,000 miles) in accordance with the following instruction, and replace the valve as an assembly. With the vehicle loaded with one person (driver), drive the vehicle on dry concrete road, and rapidly brake at vehicle speed of 50 km/h (31 MPH).

1. The proportioning valve is serviceable (normal) when front and rear wheels are locked simultaneously or front wheels are locked first.

2. Proportioning valve is faulty if the rear wheels are locked before the front wheels.

## Removal and reinstallation

The proportioning valve can be removed easily by removing the installation bolts. When reinstalling, however, note the following matters:

1. Appearance of proportioning valve for S30 series is the same as 510, C30 series vehicles. However, the performance differs. Be careful not to mix up.

Note: Proportioning valve for S30 indicates the part No. E4100 on it by means of stamping.

2. When installing the brake line, be sure to face the mark "M" to the master vac side and "R" to the rear brake side.

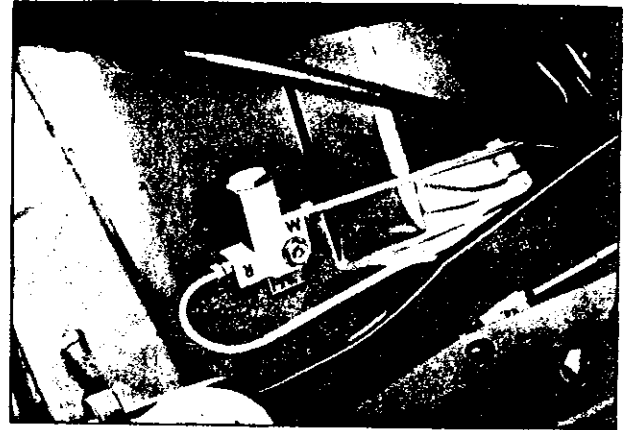


Fig. BR-13 Proportioning valve



FRONT DISC BRAKE

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During-Sumitomo Model S-16 disc brake is used. Rigidity of the caliper is high, brake pedal feeling is adequate, and the pad dragging is minimized. The pad is returned by elasticity of the piston seal. When the pad is worn, the piston operating stroke increases, slipping occurs on the piston seal surface, and thus, clearance is adjusted automatically. Moreover, in order to prevent brake squealing, a shim is inserted behind the pad.

|   |                      |    |                    |    |                     |
|---|----------------------|----|--------------------|----|---------------------|
| 1 | Anti squeal shim R.H | 6  | Piston             | 11 | Clip                |
| 2 | Pad                  | 7  | Piston seal        | 12 | Retaining pin       |
| 3 | Anti squeal shim L.H | 8  | Anti squeal spring | 13 | Caliper fixing bolt |
| 4 | Retaining ring       | 9  | Caliper assembly   | 14 | Baffle plate        |
| 5 | Dust cover           | 10 | Bleeder            |    |                     |

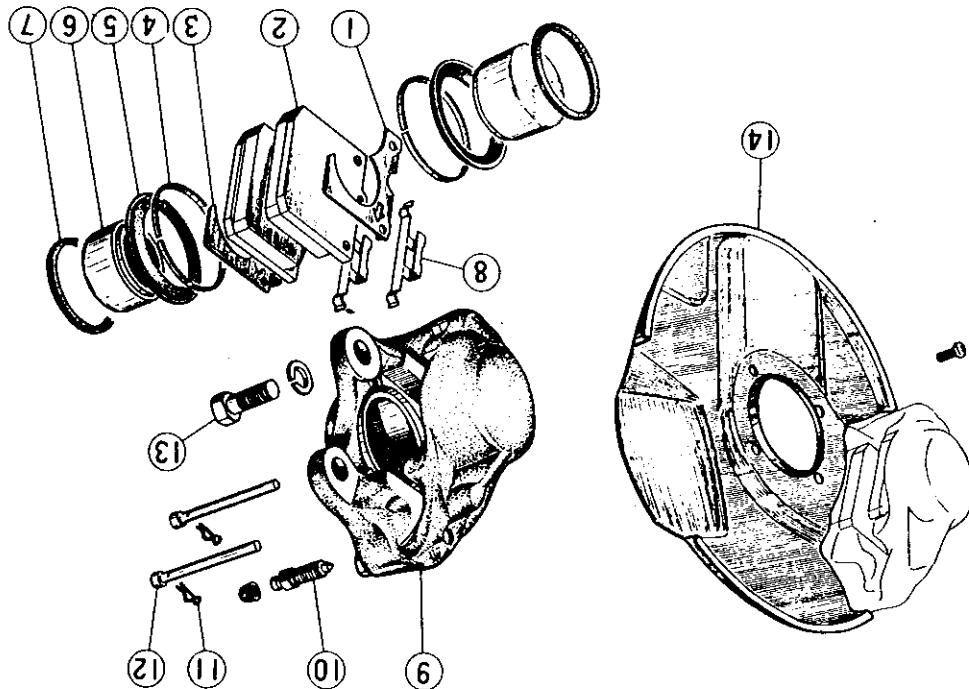


Fig. BR-15 Front disc brake

## Inspection

1. Clean the pad with carbon tetrachloride or gasoline.
2. When oil and/or grease is heavily stuck on the pad, or when deteriorated or deformed due to overheating, replace the pad with a new one.
3. When thickness of the friction material is less than 2 mm (0.0315 in), replace. (Replace, when total pad thickness is less than 7.5 mm (0.2953 in).

**Note:** Recommend pads be replaced as a set. Replacement at only one position may cause uneven brake effect. Recommend rotation of pads be made periodically.

## Reinstallation

1. Clean the calipers and piston pad installing parts.
- Note:** Do not use mineral oil. Be careful not to apply oil on the rotor.
2. Depress the piston into the cylinder so that new pad can be installed.

**Note:** Note that brake fluid may overflow from the reservoir. Recommend operation be carried out by loosening the breather to release brake fluid.

3. Install pad and anti-squeal shim, assemble the anti-squeal spring and retaining pin, and secure them with clip.

**Note:** Install the shim so that the arrow mark is met the rotor forward rotating direction.

4. When the pad is installed, depress the brake pedal several times so as to settle down the pad in its position.

## REPLACING PISTON SEAL

If brake fluid leaks from the piston unit or pad does not return properly, replace the piston seal with new one in accordance with the following instructions. It should be noted that the components should be maintained under clean state while disassembling.

## Removal

1. Remove the pad.
2. Disconnect the brake line ① and caliper installation

BR-10

## REPLACING PAD

## Removal

1. Jack up the front side of the vehicle, and remove the wheel.

2. Remove the clip ①, retaining pin ②, and anti-squeal spring ③, and remove the pad ④ together with the shim.

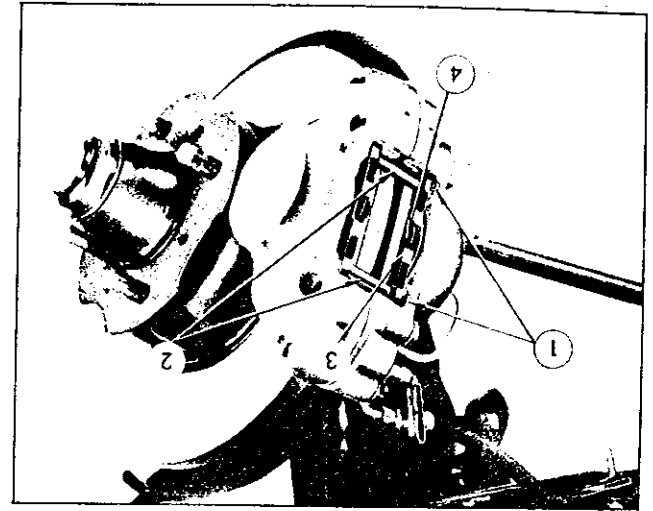
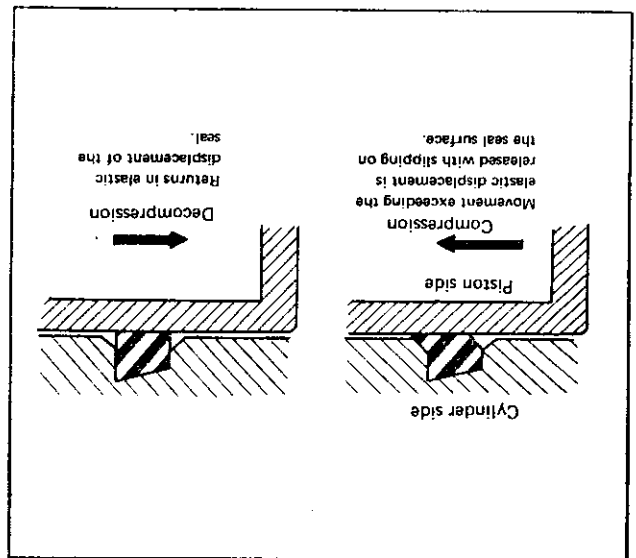


Fig. BR-17 Removing pad

Fig. BR-16 Piston seal automatic adjusting operation



## BRAKE

### Inspection

Thoroughly clean all disassembled parts, and check them for the following items.

**Note:** When cleaning rubber parts, use alcohol or brake fluid. If rubber parts are cleaned with mineral oil, they will be deteriorated.

#### 1. Calipers

If the cylinder wall is damaged or worn, replace. If the cylinder wall is rusted or foreign matters are accumulated on the cylinder wall, carefully polish with fine emery paper so that the cylinder wall is not damaged. If rusted or roughened excessively, replace.

#### 2. Pad

See paragraph covering replacement of pad.

#### 3. Piston

Replace, if unevenly worn, damaged, and/or rusted.

**Note:** The piston sliding surface is plated. Thus, although rusted or foreign matters are stuck on the sliding surface, do not use emery paper.

#### 4. Seals

Primarily, replace both piston and dust seals whenever overhauling.

**Note:** The piston seal affects not only leaking but also piston return. For this reason, replace although damage is minor.

### Reassembly

1. Install the piston seal carefully so that the seal is not damaged.

**Note:** Be sure to apply rubber grease to the piston seal before installing.

2. Install dust seal on the piston, and the piston into the cylinder. Clamp the dust seal with the retaining ring.

**Note:** When inserting the piston, apply brake fluid to the piston sliding unit.

3. After reassembly is completely accomplished on one cylinder, assemble the another side in the same manner.

bolt ②, and remove the caliper assembly from the knuckle spindle.

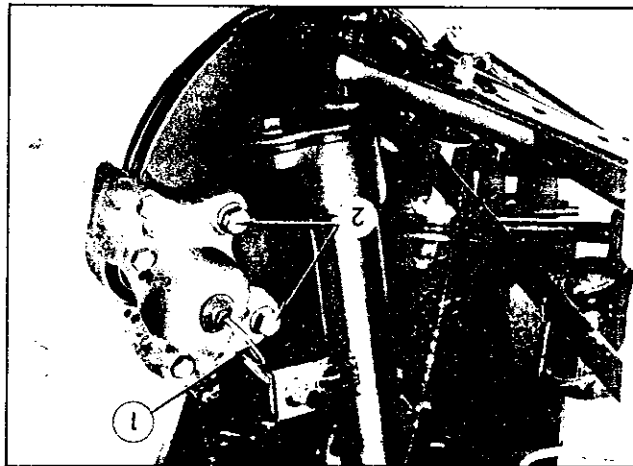


Fig. BR-18 Removing calipers

### Disassembly

1. Remove mud and dust from the caliper assembly before disassembly.

2. Remove the retaining ring ① and dust seal ② in that order. (Refer to Figure BR-15.)

3. Hold piston in one side with finger, feed air from the brake line joint, and remove the other piston.

4. Remove the piston seal from the cylinder, and clean inside.

**Note:** Remove the piston seal carefully with finger so that the cylinder wall is not damaged.

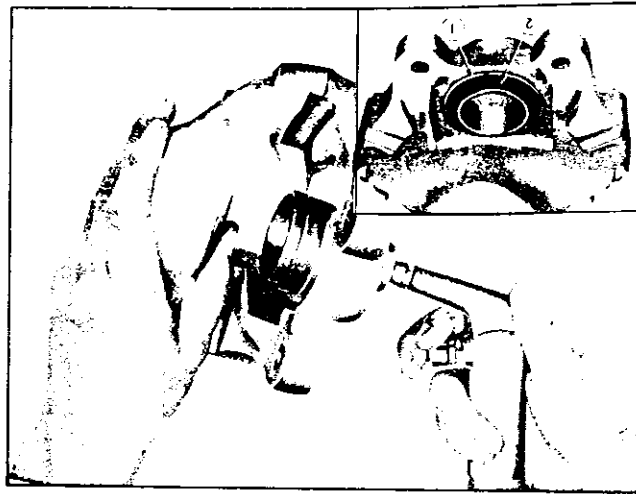


Fig. BR-19 Removing piston

## Reinstallation

Reinstallation is reverse sequence of removal. After the pad is installed completely, bleed the hydraulic line.

### Tightening torque

Caliper attaching bolt

7.3 to 9.9 kg-m (53 to 71 ft-lb)

## DISASSEMBLING CALIPERS

Do not remove the bridge bolt.

If brake fluid leaks from the bridge seal, replace a new assembly: (Be sure to replace the calipers as an assembly.)

## INSPECTING ROTOR

Remove the caliper assembly, check the rotor for deflection and damage, and correct or replace as required.

### 1. Deflection

With the wheel bearing adjusted correctly, measure deflection at the center of rotor pad contact surface using dial gauge.

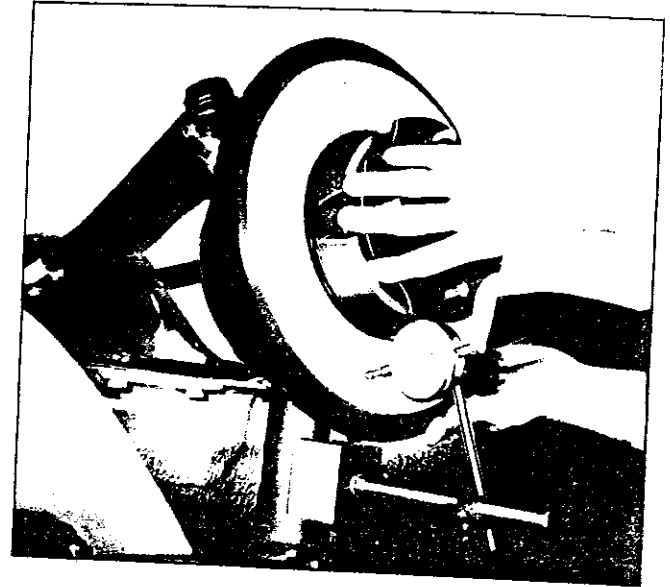


Fig. BR-20 Measuring deflection

### Deflection

Total deflection:

Less than 0.15 mm (0.0059 in)

Usage limit

0.2 mm (0.0079 in)

### 2. Parallelism

Measure thickness toward the entire periphery on the same circumference using a micrometer.

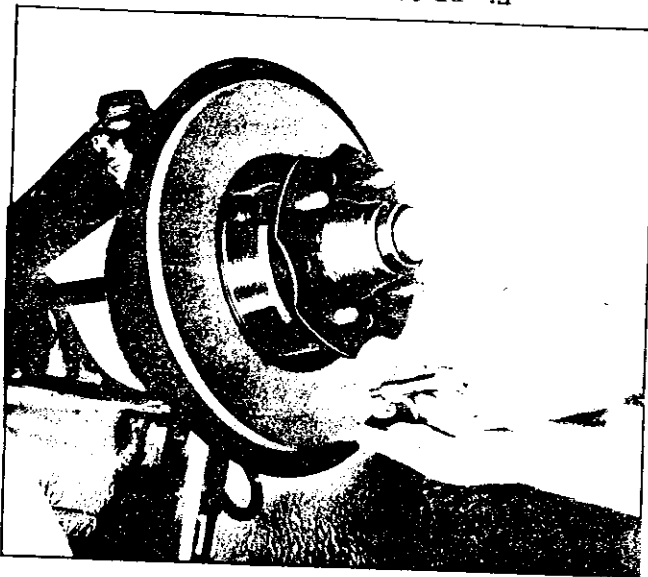


Fig. BR-21 Measuring parallelism

Parallelism (when new):

Less than 0.03 mm (0.0012 in)

Usage limit 0.07 mm (0.0028 in)

### 3. Thickness

If the rotor thickness is out of limit, replace. When correcting thickness, be sure that the thickness after correction does not exceed the limit.

Standard thickness:

12.5 mm (0.492 in)

Wear limit:

10.5 mm (0.413 in)

## ADJUSTING FRONT BRAKE

Ordinarily, adjustment is not required because clearance between pad and rotor is adjusted automatically by elasticity of the piston seal.

# BRAKE

## REAR BRAKE

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|   |                     |   |                    |    |                    |
|---|---------------------|---|--------------------|----|--------------------|
| 1 | Anti-rattle pin     | 5 | Return spring      | 9  | Fore shoe assembly |
| 2 | Brake disc          | 6 | Anti-rattle spring | 10 | Retaining shim     |
| 3 | Anchor block        | 7 | Return spring      | 11 | Dust cover         |
| 4 | After shoe assembly | 8 | Wheel cylinder     |    |                    |

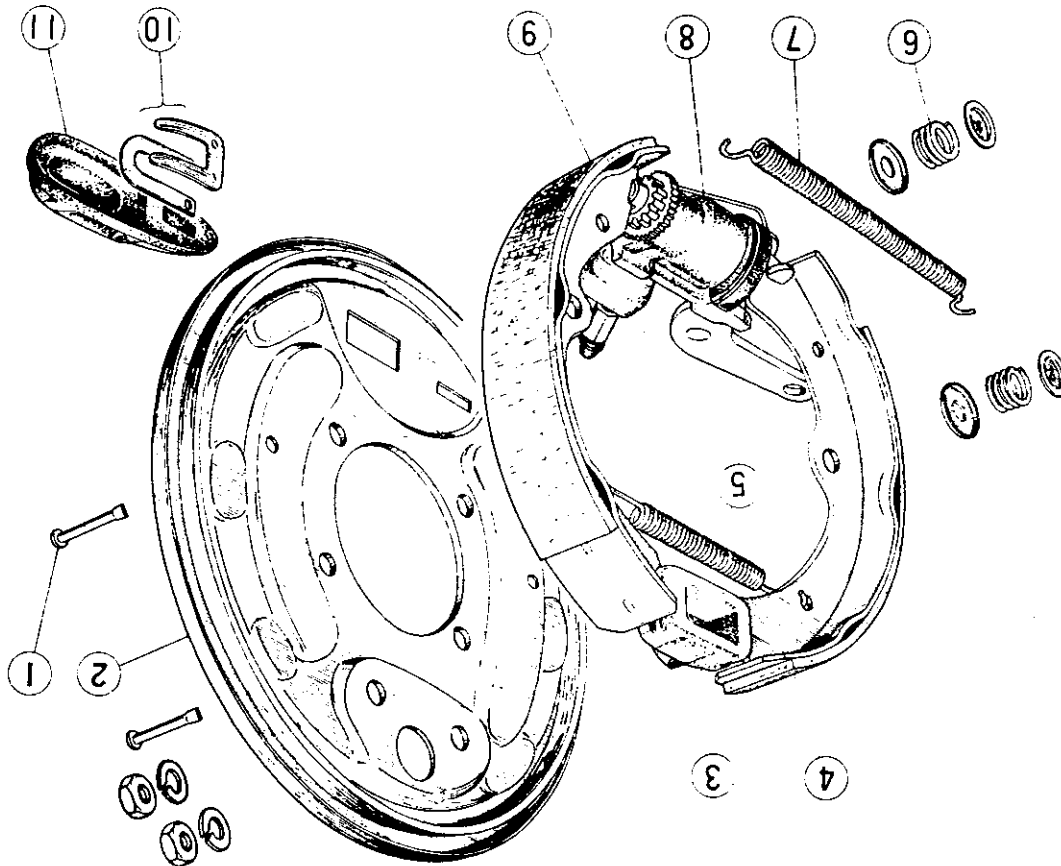


Fig. BR-22 Rear brake

The leading-trailing system rear brake adopts sliding system cylinder. When the hand brake is operated, the wheel cylinder lever turns the adjust wheel, and thus, clearance between the brake shoe and brake drum is adjusted automatically.

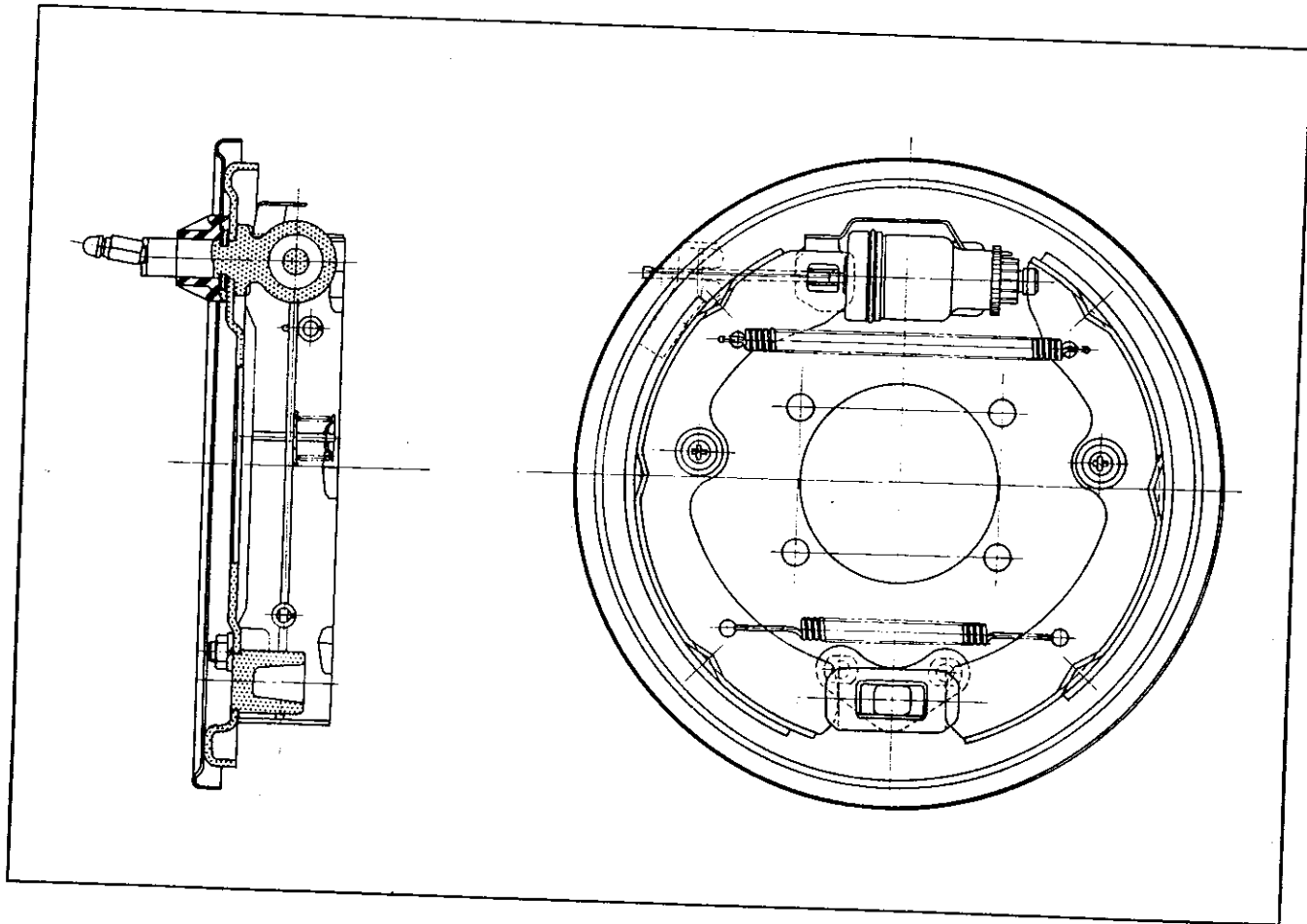


Fig. BR-23 Sectional view of rear brake

## REPLACING BRAKE SHOE

### Removal

1. Jack up the vehicle, support it with a stand, and remove the tire.
2. Remove the brake drum. When it is hard to remove the brake drum, the following instructions apply.
- (1) Remove the clevis pin (indicated by arrow mark) from the wheel cylinder lever, and disconnect the hand brake wire.
- (2) Remove the brake drum adjust hole plug, and remove the adjust lever from the adjust wheel with a screwdriver.

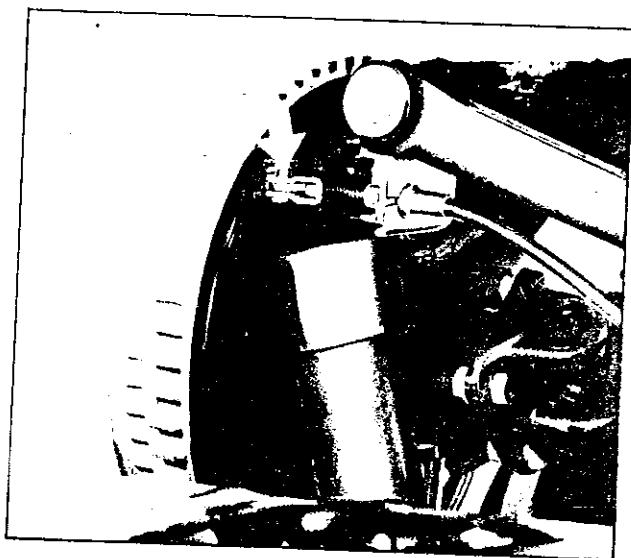
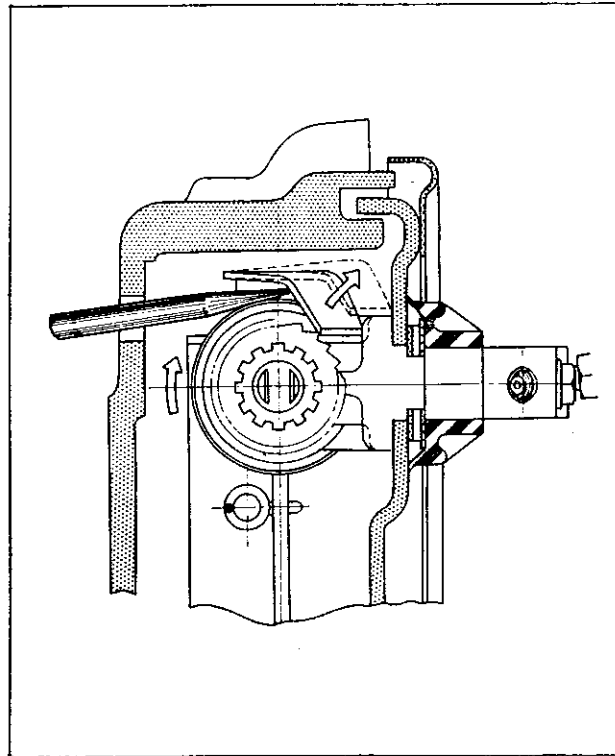


Fig. BR-24 Removing hand brake wire

(3) Turn the adjust wheel downward with a screwdriver, loosen the brake shoe, and remove the brake drum.

3. Remove the anti-rattling spring, and remove the brake shoe together with.



## Reinstallation

Before installing the brake shoe, check the wheel cylinder for operating and sliding condition, and disassemble and adjust its operation is faulty. For the details, see the paragraph covering disassembly. When replacing the brake shoe lining, be sure to match the new brake shoe lining with the mark on the brake shoe.

1. Apply brake grease to the adjust wheel, and threaded portion and sliding portion (indicated by arrow mark) of the adjust screw sufficiently.

Fig. BR-25 Adjust wheel

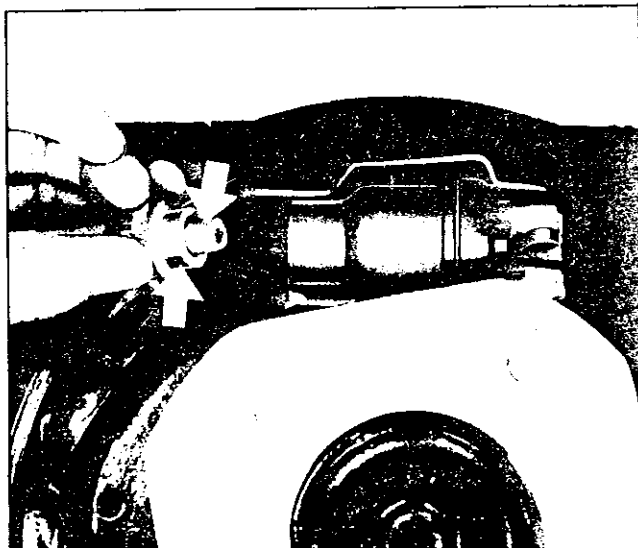


Fig. BR-26 Adjust wheel

2. Apply brake grease to the brake disc, anchor block, and wheel cylinder sliding portions (indicated by arrow marks).

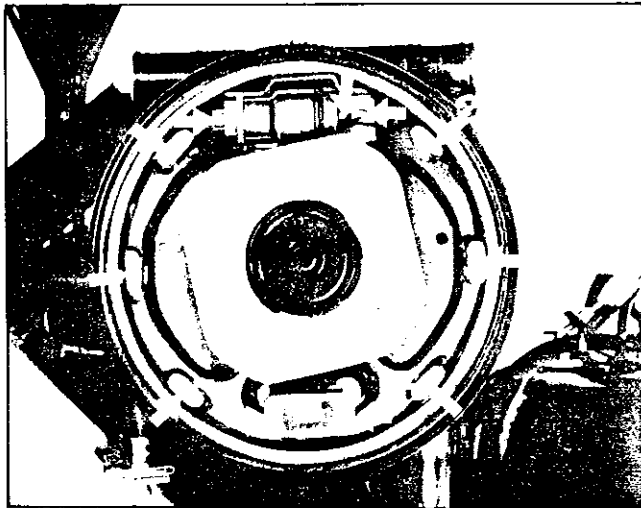


Fig. BR-27 Applying brake grease

3. Install the brake shoe, return spring, and anti-rattling spring.

Note: Be careful not to allow grease sticking on the brake shoe lining.

4. Install the brake drum, insert a screwdriver from the adjust hole, turn the adjust wheel upward, and lightly apply the brake shoe to the brake drum.

5. Reconnect the hand brake wire to the wheel cylinder lever, pull the hand lever several times, and with the automatic adjusting operation, adjust the brake shoe and brake drum clearance.

**Note:** Continue the adjustment until click is eliminated from the adjust wheel claw.

6. Install the adjust hole plug. Depress the plug head in the center powerfully and make sure that the lip has been fitted completely.

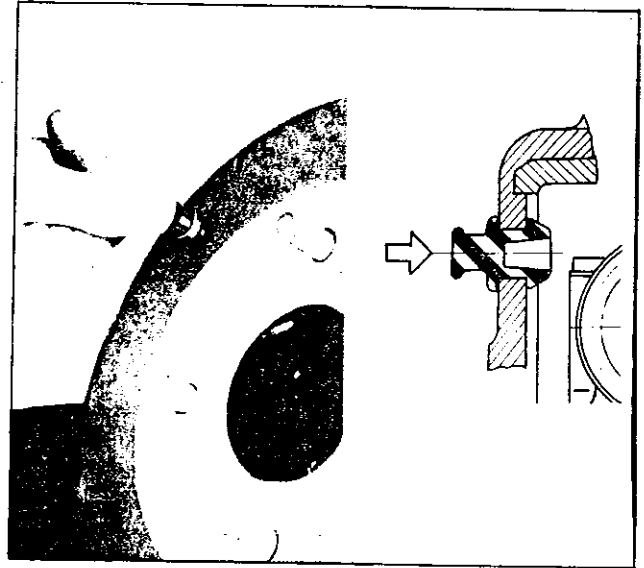


Fig. BR-28 Adjust hole plug

## DISASSEMBLY AND INSPECTION

### Removal

1. Jack up the vehicle, and remove the tire, brake drum and brake shoe.

**Note:** For the details, refer to the paragraph covering the brake shoe replacement.

2. Remove the brake tube ① and dust cover ②, drive out the lock plate ③ toward the front, withdraw the adjust plate rearward, and remove the wheel cylinder.

BR-16

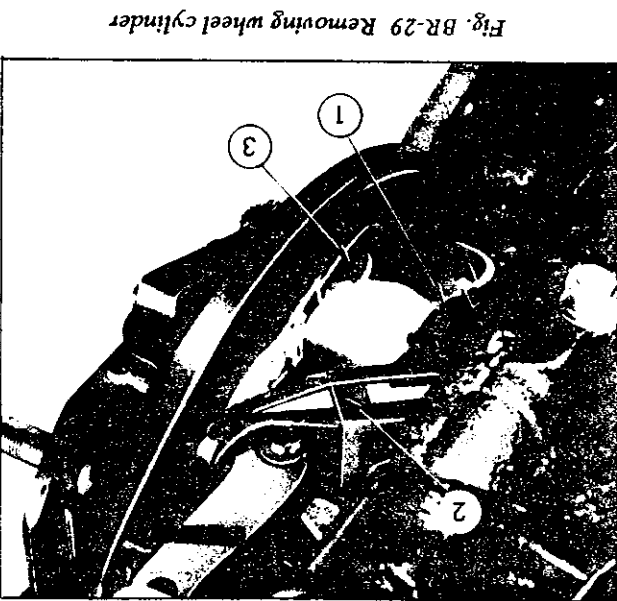


Fig. BR-29 Removing wheel cylinder

3. Remove the anchor block installation nuts from reverse side of the brake disc, and remove the anchor block.
4. When removing the brake disc, withdraw the axle shaft, and remove the attaching bolts.

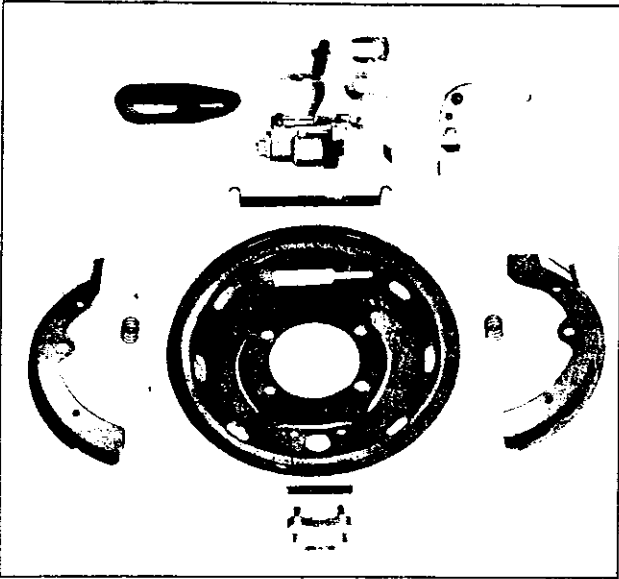


Fig. BR-30 Rear brake component parts

5. Disassemble wheel cylinder. Remove the snap ring and dust cover. Withdraw the piston, and remove the adjust wheel and adjust screw.



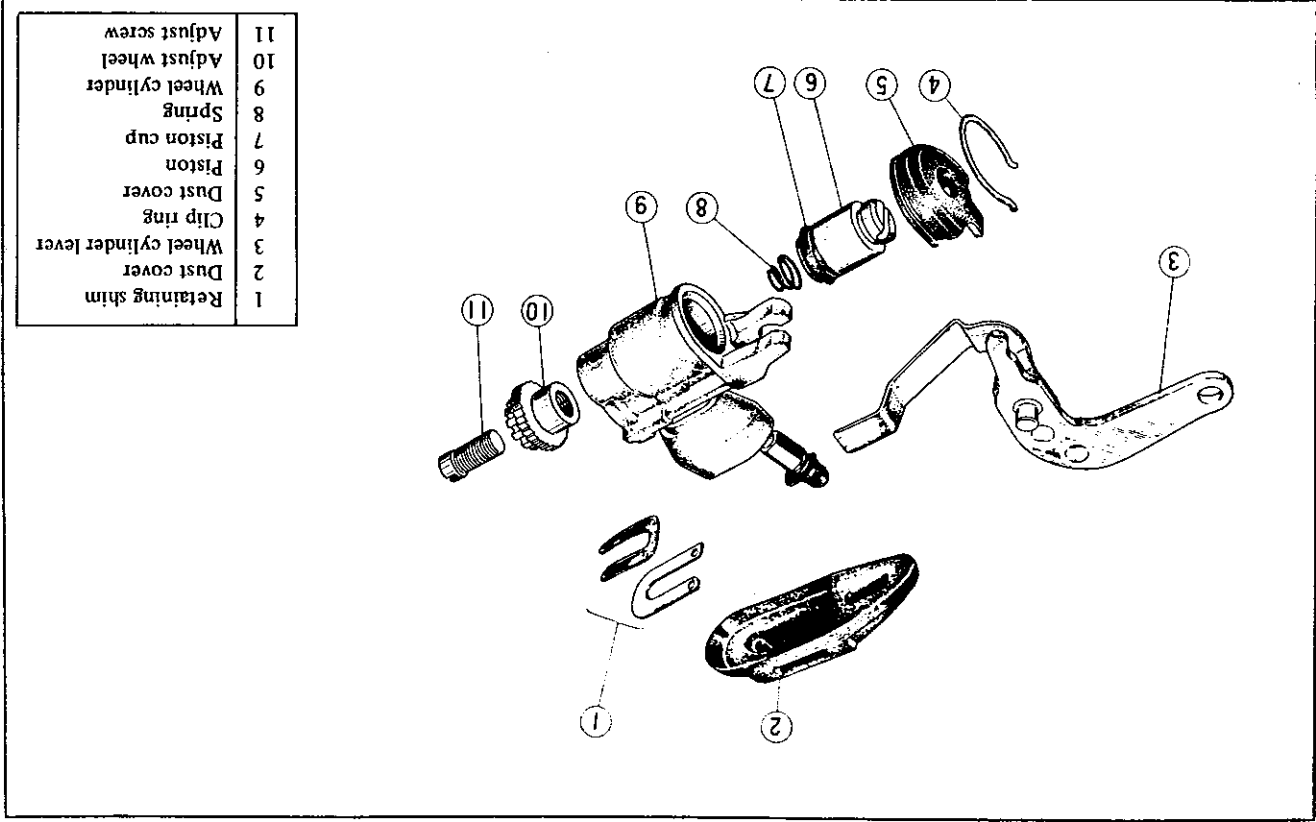


Fig. BR-31 Wheel cylinder component parts

Inspection

1. Inspect the wheel cylinder and piston in the same manner as for the master cylinder.
2. When the adjust wheel and/or adjust lever is damaged, replace.
3. Check the return spring for wear, damage, break-down, etc., and replace as required.

Return spring

|               |                    |                   |
|---------------|--------------------|-------------------|
| Free length   | 120.4 mm (4.67 in) | Anchor block side |
| Coating color | Black              | Cylinder side     |

4. Replace the brake shoe lining if cracked, floated or unevenly worn. When the brake shoe lining surface is contaminated with grease, oil, etc., clean with carbon tetrachloride or gasoline. When excessively contaminated, replace. When thickness of the brake shoe lining is less

Reassembly and reinstallation

- The rear brake is reassembled and reinstalled in reverse sequence of disassembly and removal. However, note the following matters.
1. When assembling the wheel cylinder, be sure to apply rubber grease to the piston cup and other rubber parts slightly.

6. Replace brake disc and/or other parts, if defective.

Brake drum

5. Check the brake drum, and repair or replace if unevenly worn, worn in step or other faulty condition exists.
- Standard inner diameter: 228.6 mm (8.98 in)  
Usage limit: 229.6 mm (9.04 in)  
Out-of-round drum inner diameter: 0.05 mm (0.002 in)

2. When installing the wheel cylinder to the brake disc, apply brake grease to the cylinder, disc, and adjust plate sliding surfaces and to the wheel cylinder lever fulcrum portion sufficiently so that the wheel cylinder slides smoothly.

3. Measure the wheel cylinder sliding resistance without installing the brake tube as shown in Figure BR-32, and make sure that the sliding resistance is in range from 2 to 7 kg (4.409 to 15.432 lb).

Note: When sliding is improper, the brake shoe does not return smoothly or the automatic adjuster does not operate correctly.

4. Tighten the anchor block installation nut under 1.4 to 1.8 kg-m (10.1 to 13.0 ft-lb) tightening torque.

## ADJUSTING REAR BRAKE

Ordinarily, adjustment is not required because brake shoe clearance is adjusted automatically by operating the hand brake, as well as the front brake.

## HAND BRAKE

### CONTENTS

|                      |       |
|----------------------|-------|
| Removal .....        | BR-19 |
| Inspection .....     | BR-20 |
| Reinstallation ..... | BR-20 |

The hand brake linkage is in the floor tunnel. Hence, removal and other operations must be done after re-moving the propeller shaft.

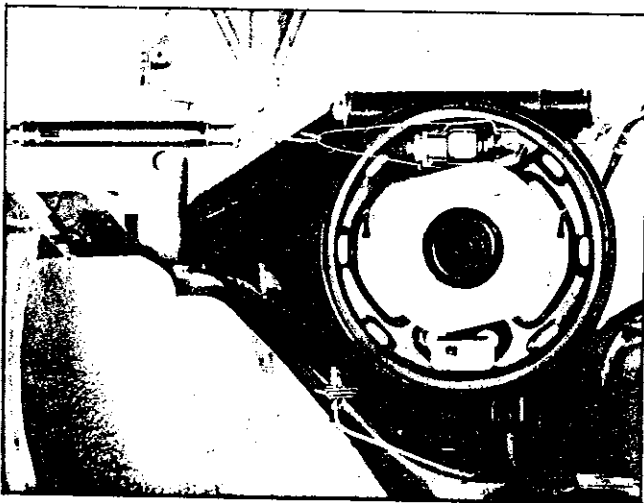
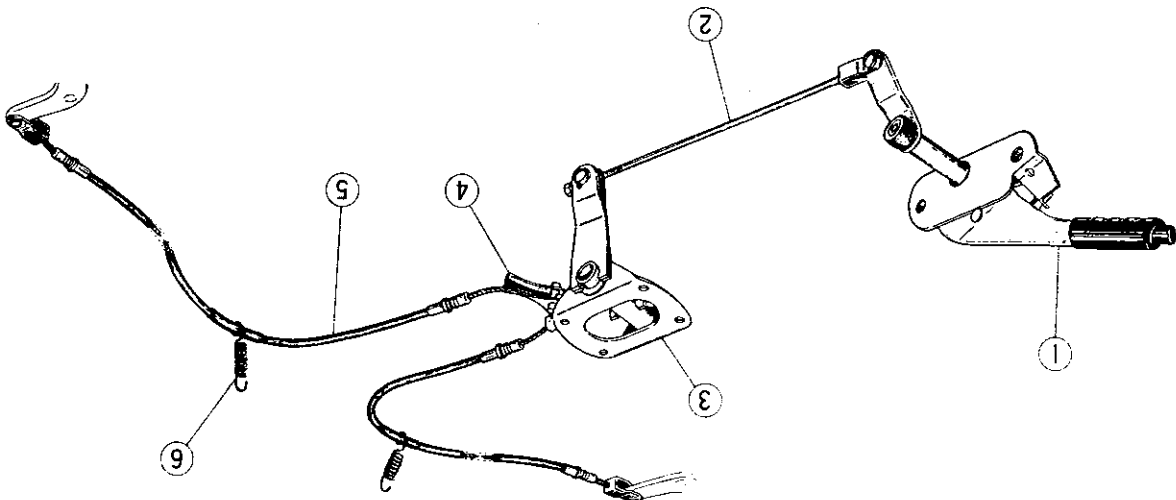


Fig. BR-32 Measuring sliding resistance

# BRAKE

Fig. BR-33 Hand brake linkage

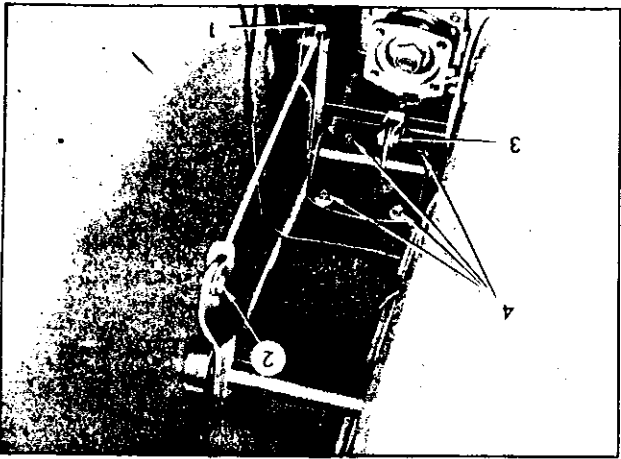
|   |               |
|---|---------------|
| 1 | Control lever |
| 2 | Front rod     |
| 3 | Center lever  |
| 4 | Equalizer     |
| 5 | Rear cable    |
| 6 | Hunger spring |



## Removal

1. Remove the lock nut and adjust nut (1) from the rear end of the front rod, the clevis pin (2) from the front end, and remove the front rod.
2. Remove the hanger spring and clevis pin (3).

Fig. BR-34 Removal of hand brake



## CHASSIS

### Inspection

Check all parts for excessive wear and damage, and replace, if necessary.

### Reinstallation

Reinstall the hand brake in reverse sequence of removal, noting the following matters.

1. Be sure to apply multi-purpose grease (MIL G2108 or G-10924) to the pivot on the control lever head and other sliding portions sufficiently.

2. When adjusting the hand brake, first, make sure that distance between the wheel cylinder lever pin hole center and buffer plate is in range from 11.5 to 12.5 mm (0.453 to 0.492 in), and reduce the linkage play with the adjust nut on the front rod.

Note: Be sure to perform this adjustment with the control lever returned.

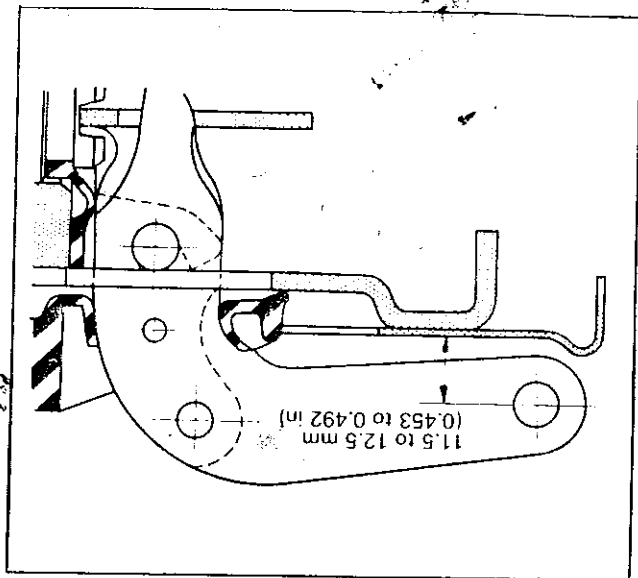


Fig. BR-37 Adjusting hand brake

3. Remove the clevis pin ⑤ and separate the rear cable from the lever.  
Remove wheel side retainers ⑥ from both sides, and remove the equalizer side retainer in the same manner.  
The rear cable can be removed.

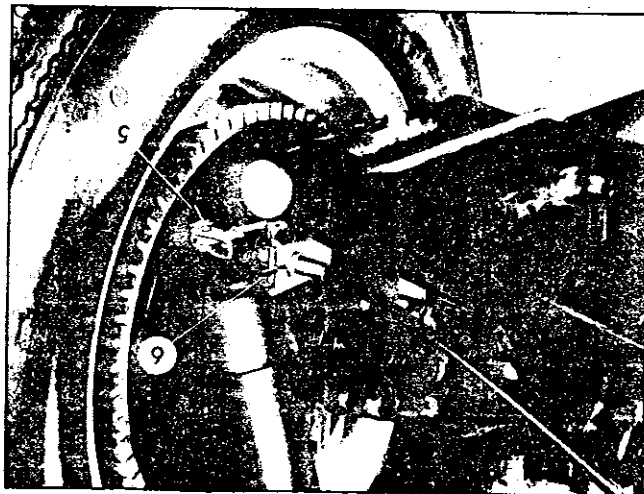


Fig. BR-35 Removing rear cable

4. Remove four bolts ④ (shown in the Figure BR-34), and remove the center arm assembly from the floor.  
Note: The nuts are secured on the floor panel by means of welding.

5. Remove the front rod end and attaching bolt ①, and remove the control lever toward the passenger's compartment.

Note: When removing the control lever, first, remove the right side seat. The boot is secured with four fasteners ②.

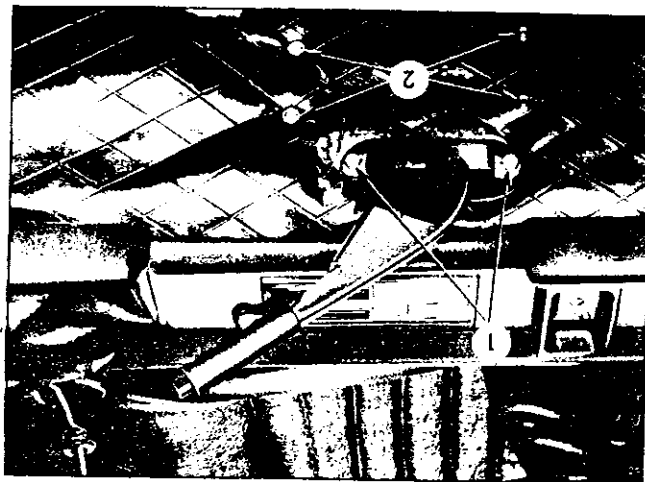


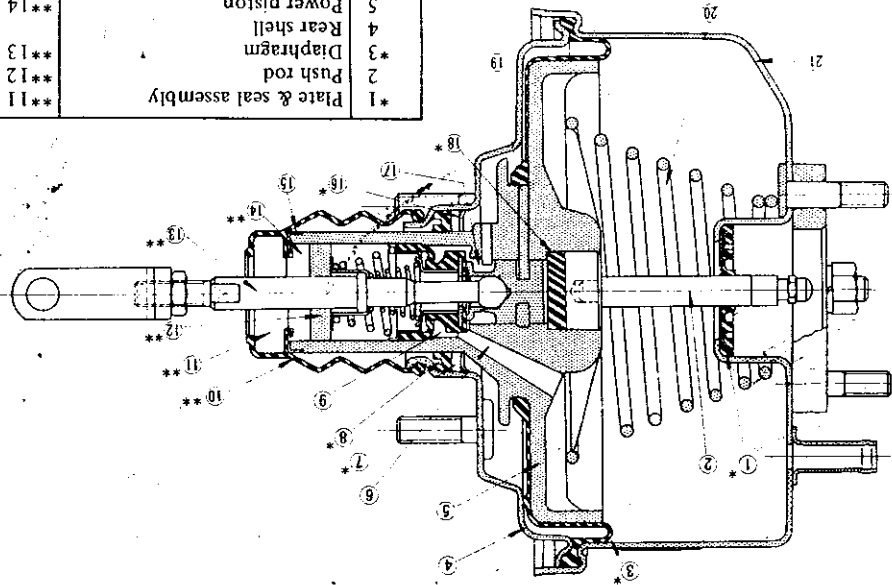
Fig. BR-36 Removing control lever

# BRAKE

## MASTER-VAC

### CONTENTS

|                                  |       |                               |       |
|----------------------------------|-------|-------------------------------|-------|
| Inspection vacuum pressure ..... | BR-22 | Disassembly .....             | BR-23 |
| Inspecting check valve .....     | BR-23 | Inspection .....              | BR-25 |
| Removal .....                    | BR-23 | Assembly and adjustment ..... | BR-25 |
|                                  |       | Reinstallation .....          | BR-26 |



|      |                         |      |                                  |
|------|-------------------------|------|----------------------------------|
| **11 | Air silencer filter     | **1  | Plate & seal assembly            |
| **12 | Air silencer filter     | 2    | Push rod                         |
| **13 | Valve operating rod     | 3    | Diaphragm                        |
| **14 | Silencer assembly       | 4    | Rear shell                       |
| 15   | Air silencer retainer   | 5    | Power piston                     |
| *16  | Retainer                | 6    | (valve body and diaphragm plate) |
| 17   | Air valve               | 7    | Vacuum route                     |
| *18  | Reaction disc           | *7   | Bearing                          |
| 19   | Stop key                | *8   | Seal                             |
| 20   | Diaphragm return spring | 9    | Vacuum valve                     |
| 21   | Front shell             | **10 | Valve body guard                 |

Fig. BR-38 Cross-sectional view of Master-Vac

Overhaul the Master-Vac every two years, replacing those rubber parts accompanied with single asterisk (\*) every two years and those with double asterisks (\*\*) and check valve every four years. The parts required in replacing are available as Master-Vac repair kit.

Note: Repair Kit A: Parts to be replaced every two years  
 Repair Kit B: Parts to be replaced every four years  
 (including the Kit A)

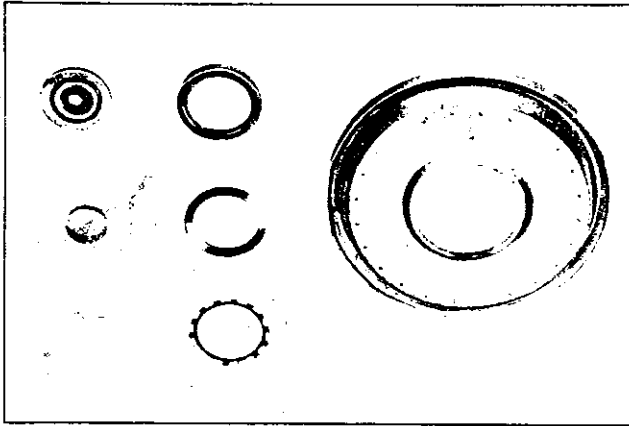


Fig. BR-39 Repair kit A

2. Increase engine speed, and stop the engine when the vacuum gauge indicates 500 mmHg (19.7 in Hg).

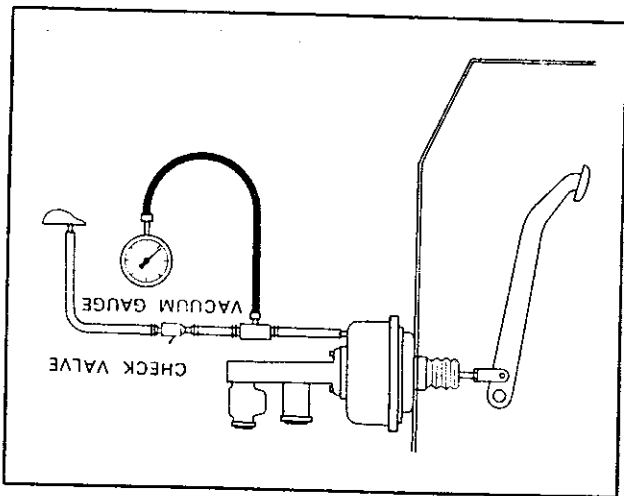


Fig. BR-41 Installing vacuum gauge

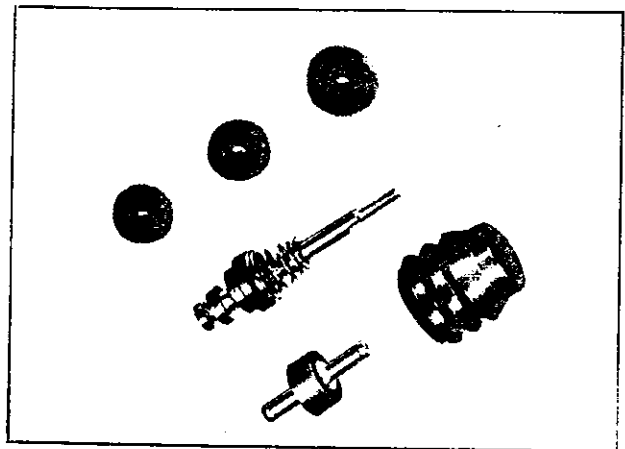


Fig. BR-40 Repair kit B

Inspecting vacuum pressure  
1. Install a vacuum gauge between the check valve and

Master-Vac.

(1) When 15 seconds are elapsed after stopping the engine without braking and pressure drops more than 25 mmHg (0.984 in Hg);

| Possible cause                                  | Corrective action  |
|-------------------------------------------------|--------------------|
| 1. Faulty check valve air-tight                 | Replace.           |
| 2. Faulty push rod seal air-tight               | Replace.           |
| 3. Faulty air-tight between valve body and seal | Repair or replace. |
| 4. Faulty valve plunger seat air-tight          | Repair or replace. |
| 5. Damaged piping or faulty joint air-tight     | Repair or replace. |

(2) When 15 seconds are elapsed after stopping the engine by applying full braking force, and pressure drops more than 25 mmHg (0.984 in Hg);

| Possible cause                                                              | Corrective action                               |
|-----------------------------------------------------------------------------|-------------------------------------------------|
| 1. Faulty check valve air-tight                                             | Replace.                                        |
| 2. Damaged diaphragm                                                        | Replace.                                        |
| 3. Dropped off reaction disc                                                | Reinstall and check the push rod for returning. |
| 4. Faulty air-tight on poppet assembly seat surface and valve body surface. | Repair or replace.                              |

Note: When a replacement is required, be sure to replace the Master-Vac as an assembly.

## Inspecting check valve

1. Remove the clip (indicated by arrow mark) and disconnect the hoses from both ends. The check valve can be removed.



Fig. BR-42 Removing check valve

2. Using a Master-Vac tester, apply vacuum pressure of 500 mmHg (19.7 in Hg) to Master-Vac side of the check valve. When pressure drops more than 10 mmHg (0.394 in Hg) within 15 seconds, replace the check valve with a new one.
3. When pressure is applied to the Master-Vac side of the check valve and the valve does not open, replace the check valve with a new one.

Note: When no Master-Vac tester is available, apply soap water to the Master-Vac side (to form soap water film), blow air from the engine side. If soap water film swells (being a soap bubble), replace the check valve with a new one. Subsequently, blow air from the Master-Vac side, and if the check valve does not open, replace.

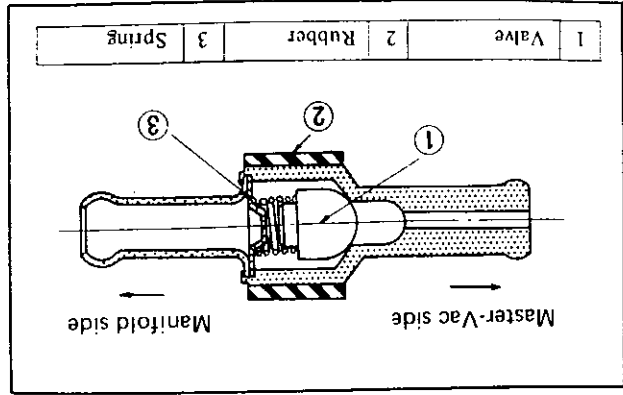


Fig. BR-43 Cross-sectional view of check valve

## Removal

1. Remove the clevis pin from the push rod connected with the brake pedal, and disengage the Master-Vac from the brake pedal.
2. Disconnect the brake tube from the master cylinder.
3. Disconnect the vacuum hose from the Master-Vac.
4. Unscrew master cylinder fixing nuts and remove the master cylinder from the Master-Vac.
5. Unscrew four fixing nuts of Master-Vac from the dash board and remove the Master-Vac.

## Disassembly

- Remove dust and mud from the Master-Vac, and disassemble it at a clean place.
1. Before disassembling the Master-Vac, put marks on the front shell, rear shell and stud assembly so that make sure their relative positions.
  2. Secure the flange and bolt assembly in a vise.
  3. Remove the clevis (1), lock nut (2) and valve body guard (3).

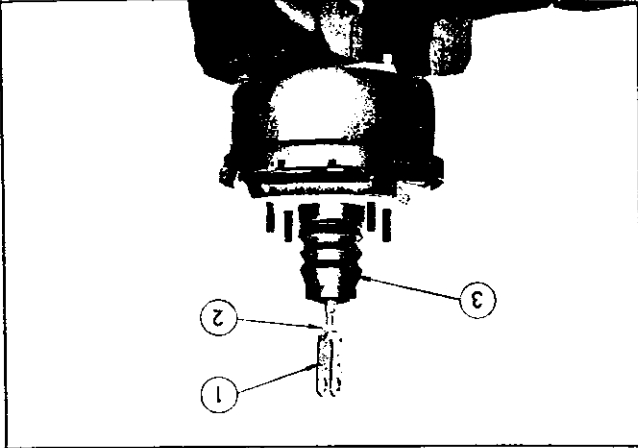


Fig. BR-44 Removing rear shell

4. When separating the front shell from the rear shell use the Master-Vac wrench set (special tool ST08050000). Push the rear shell and stud assembly down and slide them off by rotating them approximately 17 degrees counterclockwise.

Note: When the valve body and diaphragm plate are detached together with the rear shell and stud assembly from the front shell, be careful not to drop them while disassembling the Master-Vac.

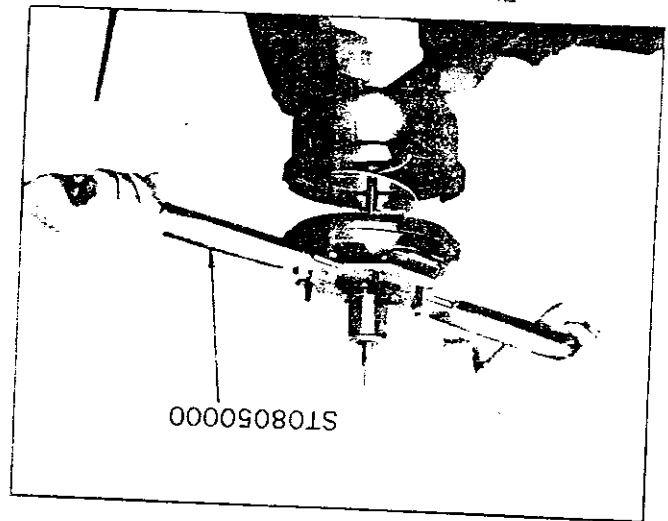


Fig. BR-45 Removing rear shell

5. Remove the push rod from the diaphragm plate.

6. Detach the valve body and diaphragm from the rear shell and stud assembly. Then the Master-Vac is disassembled in three subassemblies as shown below:

Rear shell & seal assembly  
Diaphragm plate assembly  
Front shell & stud assembly

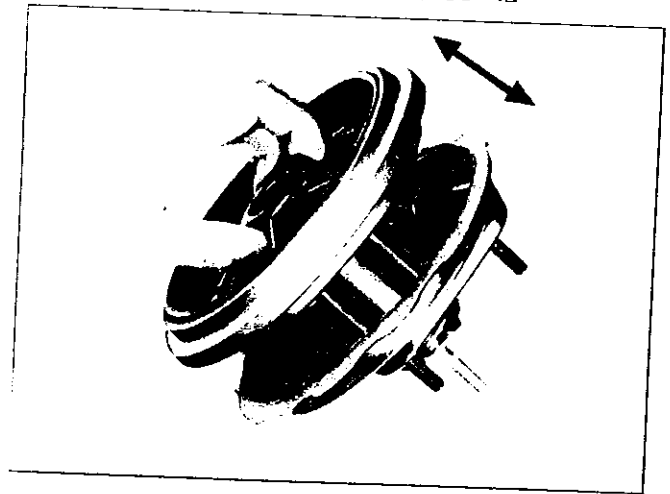


Fig. BR-46 Removing valve body

7. Disassembly of rear shell and seal assembly. Remove the retainer using a screwdriver and detach the bearing and seal.



Fig. BR-47 Removing retainer

8. Disassembly of the diaphragm plate assembly. Work on a clean bench.

(1) Pull out the diaphragm from the groove of the diaphragm plate.

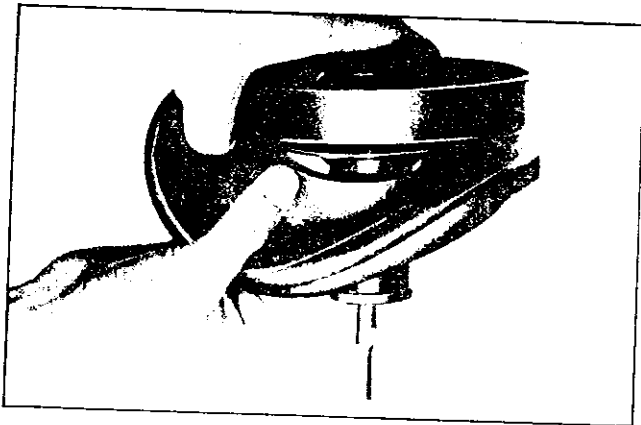


Fig. BR-48 Pulling out diaphragm

(2) Remove the air silencer retainer by tapping the periphery with a screwdriver and a hammer lightly and evenly.

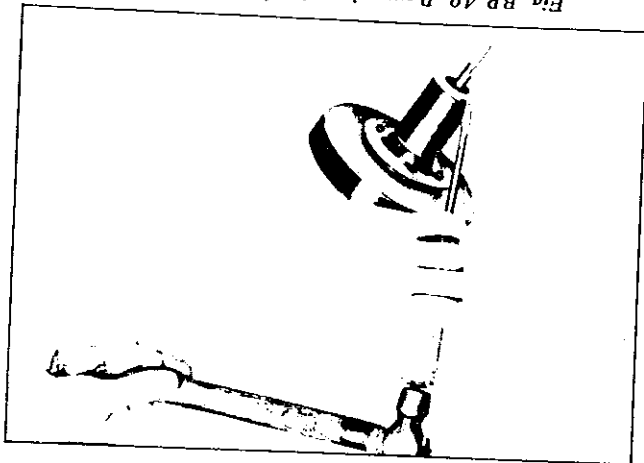


Fig. BR-49 Removing air silencer retainer

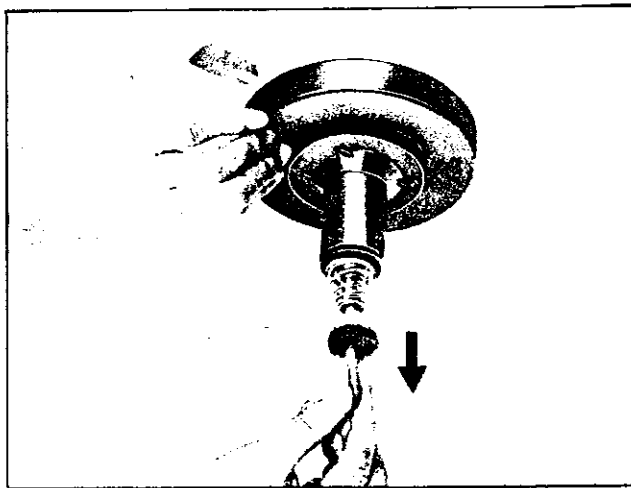


# **BRAKE**

**Note:** Do not tap rapidly, or otherwise the valve body may be cracked.

(3) Depress the valve operating rod, face the key hole downward, and give a vibration. The valve plunger stop key will come out.

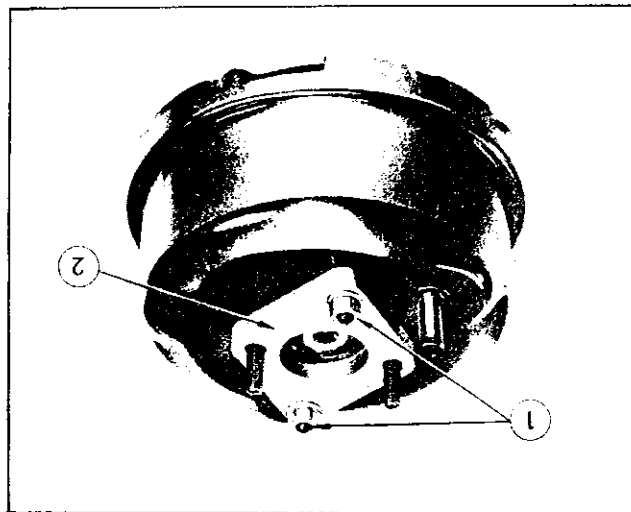
(4) After removing the valve plunger stop key, detach the valve operating rod assembly, and the air silencer filter from the valve body and diaphragm plate.



*Fig. BR-50 Removing valve operating rod assembly*

(5) Push out the reaction disc from the valve body side.

9. Disassembly of the front shell and stud assembly.



*Fig. BR-51 Removing flange*

(1) Remove the nut ① and flange ②.

BR-25

(2) Remove the plate and seal assembly.

## **Inspection**

1. Check the poppet assembly.

If wear or abnormal conditions are found, replace it as

the valve operating rod assembly.

2. Check components.

If abnormal conditions are found, replace them with

new ones.

## **Assembly and adjustment**

Assemble in reverse sequence of disassembly.

1. Apply silicon grease thinly to the following:

- Seal: lip and face contacting with the rear shell and seal assembly.
- Poppet: lip
- Reaction disc: both faces
- Diaphragm: edge contacting with front and rear shells
- Plate and seal assembly: face contacting with the front shell and the push rod
- Push rod: face contacting with the diaphragm plate

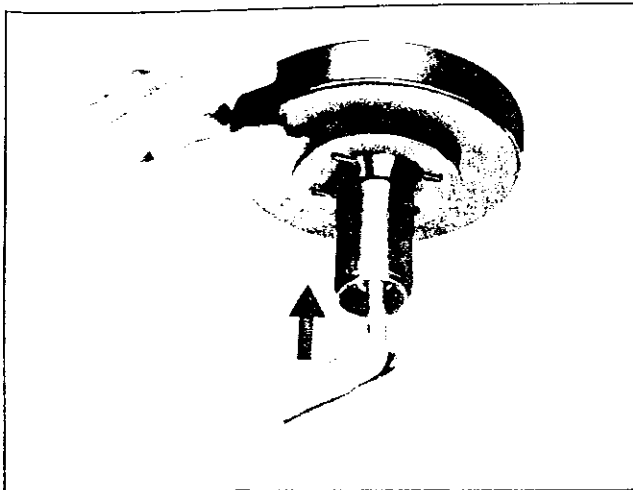
**Note:** Grease is contained in the repair kit.

2. Insert the valve operating rod assembly correctly

and perpendicularly so that it is not tilted against the

valve body. When inserting the stop key, depress the valve

operating rod assembly.



*Fig. BR-52 Inserting stop key*

Note: When adjusting the depth, face the push rod end upward so that the reaction disc is not dropped off into the master vac.



Fig. BR-54 Adjusting push rod length

3. When installing the retainer on the rear shell, use the press fit tool (special tool ST08060000) and fit it completely down to such an extent that the tool flange surface comes into contact with the bottom.

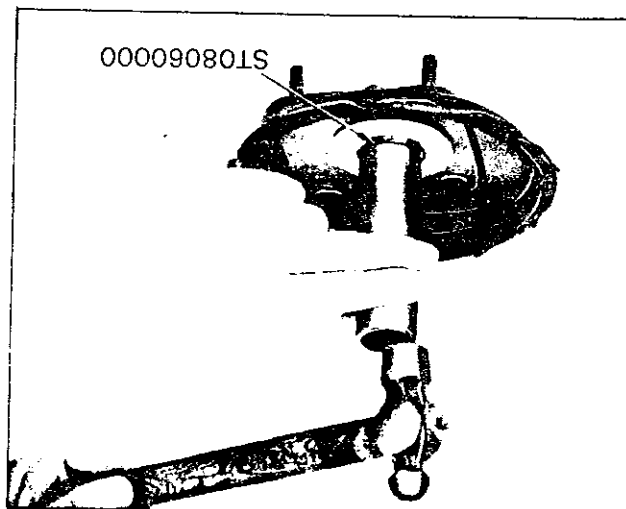


Fig. BR-53 Fitting retainer

4. Upon completion of the assembly, adjust push rod end height so that depth from the flange surface to the push rod end is 3.5 to 4.0 mm (0.1377 to 0.1575 in).

Reinstallation  
Reinstallation is reverse sequence of removal.

## SERVICE JOURNAL OR BULLETIN REFERENCE

| DATE | JOURNAL or BULLETIN No. | PAGE No. | SUBJECT |
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# SERVICE DATA AND SPECIFICATIONS

## BRAKE

|                      |                                                              |                                                |
|----------------------|--------------------------------------------------------------|------------------------------------------------|
| Brake pedal          | Pedal free height                                            | 203 mm (8.05 in)                               |
|                      | Full stroke of pedal head                                    | 140 mm (5.51 in)                               |
| Master cylinder      | Inner dia. of master cylinder                                | 22.22 mm (7/8 in)                              |
|                      | Allowable max. clearance between<br>cylinder wall and piston | 0.15 mm (0.0059 in)                            |
| Wheel cylinder       | Inner dia. of wheel cylinder                                 | 53.98 mm (2 1/8 in)                            |
|                      | Front                                                        | 22.22 mm (7/8 in)                              |
|                      | Rear                                                         | 53.98 mm (2 1/8 in)                            |
|                      | Allowable max. clearance between<br>cylinder wall and piston | 0.15 mm (0.0059 in)                            |
|                      | Rear wheel cylinder sliding resistance                       | 2 to 7 kg (4.4 to 15.4 lb)                     |
| Brake drum and rotor | Rear brake drum inner dia.                                   | 228.6 mm (9 in)                                |
|                      | Front brake rotor outer dia.                                 | 271 mm (10.67 in)                              |
|                      | Drum inside out-of-round                                     | less than 0.05 mm (0.0020 in)                  |
|                      | Limit of reconditioning drum in dia.                         | 229.6 mm (9.04 in)                             |
|                      | Run out of the rotor                                         | less than 0.15 mm (0.0059 in)                  |
|                      | Limit of reconditioning rotor in thickness                   | 10.5 mm (0.413 in)                             |
| Lining dimension     | Rear (width x thickness x length)                            | 40 x 4.1 x 219.5 mm (1.575 x 0.161 x 8.64 in)  |
|                      | Material                                                     | B701                                           |
|                      | Pad (width x thickness x length)                             | 51.6 x 10 x 78.4 mm (2.032 x 0.394 x 3.087 in) |
|                      | Pad material                                                 | M33S                                           |
| Total braking area   | Front                                                        | 161.6 cm <sup>2</sup> (25.0 sq in)             |
|                      | Rear                                                         | 351 cm <sup>2</sup> (54.4 sq in)               |
| Tightening torque    | Fulcrum pin of brake pedal                                   | 3.5 to 4.0 kg-m (25.3 to 28.9 ft-lb)           |

## CHASSIS

|                                     |                                      |
|-------------------------------------|--------------------------------------|
| Connection of brake tube .....      | 1.5 to 1.8 kg-m (10.9 to 13.0 ft-lb) |
| Rotor fixing bolts .....            | 3.9 to 5.3 kg-m (28.2 to 38.3 ft-lb) |
| Caliper to knuckle flange .....     | 7.3 to 9.9 kg-m (52.8 to 71.6 ft-lb) |
| Disc to bearing housing .....       | 2.7 to 3.7 kg-m (19.5 to 26.8 ft-lb) |
| Anchor block installation nut ..... | 1.4 to 1.8 kg-m (10.1 to 13.0 ft-lb) |
| Master cylinder stopper screw ..... | 0.4 to 0.5 kg-m (2.9 to 3.6 ft-lb)   |
| Valve cap .....                     | 8 to 9 kg-m (57.9 to 65.1 ft-lb)     |
| Spindle nut .....                   | 2.5 to 3.0 kg-m (18.1 to 21.7 ft-lb) |

## TROUBLE DIAGNOSES AND CORRECTIONS

| Troubles           | Possible causes                                                                                                                                                                                                                                                                                                                                                                                                      | Corrective action                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Locked brake pedal | Swollen master cylinder seals due to poor fluid quality or contamination by kerosene, gasoline or mineral oil.<br>Pistons or valve carrier locked by deposits of fluid, foreign matter, etc.<br>Seized master cylinder piston due to infiltrations of water through rear end due to defective boot or seals.<br>Seized pedal shaft.<br>Clogged transfer port.<br>No compensation takes place.<br>Weak return spring. | Flush the system, replace all rubber parts, refill with new fluid and air bleed the lines.<br>Clean and bleed the system.<br>Service the master cylinder, replace the piston and the boot and/or seals, to prevent water infiltration.<br>Unbind, smooth bushings, or if sliding parts are damaged to a remarkable extent, replace them and lubricate.<br>Disassemble and clean master cylinder.<br>Replace defective spring. |

# BRAKE

|              |                                                                                                                                                                                                                                                                                                                                                                                |                                    |                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                                                                                                                                                |                         |                                                                                                                                                                                                                                                                      |                                 |                                                                        |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------|
| Spongy pedal | <p>Air in brake system because of imperfect bleeding.</p> <p>Swollen hose due to deterioration.</p> <p>Hose swells under fluid pressure due to poor hose quality.</p> <p>Use of a poor quality brake fluid (boiling point of which is too low).</p> <p>Clogged reservoir filler cap vent hole. This promotes a vacuum in master cylinder that sucks air through rear seal.</p> | Pedal yields under slight pressure | <p>Deteriorated check valve.</p> <p>Fluid leaks through connection.</p> <p>Fluid leaks at wheel cylinders.</p> <p>Fluid leaks through hoses.</p> <p>Low fluid level in reservoir.</p>                                                                                                                                                                                                                                | Poor pedal reserve | <p>Master cylinder relief port clogged foreign matter.</p> <p>System has not been bled.</p> <p>Excessive clearance between shoes and drum.</p> | Excessive pedal reserve | <p>Fluid level in reservoir is too low.</p> <p>Deteriorated rubber seals in master cylinder or in wheel cylinders.</p> <p>Excessively swollen hoses due to poor hose quality.</p> <p>Thermal expansion of drums due to excessive overheating.</p>                    | Brake locked after pedal return | <p>Worn or broken return spring.</p> <p>Replace defective springs.</p> |
| Spongy pedal | <p>Bled thoroughly.</p> <p>Replace the hose and bled the system.</p> <p>Fit new hoses and bled the system.</p> <p>Replace the fluid with the specified brake fluid and bled the system.</p> <p>Clean reservoir filler cap and bled the system.</p>                                                                                                                             |                                    | <p>Fit a new check valve, make sure that there are no burrs, roughness or blow holes in master cylinder, and bled the system.</p> <p>Tighten connections, and if necessary, replace faulty parts. Bled the system.</p> <p>Replace the seals and packings being damaged. Wipe and clean brake shoe linings.</p> <p>Replace the damaged hose, and bled the system.</p> <p>Add specified fluid up to correct level.</p> |                    | <p>Clean and bled the system.</p> <p>Bled the system.</p> <p>Adjust auto-adjuster operation.</p>                                               |                         | <p>Top up with specified brake fluid, bled the system, if required.</p> <p>Replace seals and bled the system.</p> <p>Replace by designated hoses and bled the system.</p> <p>Allow drums to cool off. Check brake shoe linings and drums. Replace damaged parts.</p> |                                 |                                                                        |

# CHASSIS

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| <p>Improper brake shoe return.</p> <p>Clogged master cylinder relief port.</p> <p>Swollen or stuck rubber seals due to contamination by kerosene, mineral oil, gasoline, etc.</p> <p>Clean and bleed the system.</p> <p>Flush the system, replace all rubber parts, refill with new brake fluid and bleed the system.</p> <p>Grease brake shoe and wheel cylinder sliding surface.</p>                                                                                           | <p>Fluid leakage at one wheel cylinder only.</p> <p>Rusted or corroded edges of a wheel cylinder.</p> <p>Seized piston in wheel cylinder or caliper assembly.</p> <p>Hose obstructed due to swollen or clogged inner lining.</p> <p>Obstructed flow in metal pipe due to crushing or clogging (if the brakes on one axle are excluded, weak braking may result).</p> <p>Faulty seals at one half caliper.</p> | <p>Unbalanced brakes</p>                                           |
| <p>Wipe, clean or replace the brake shoe linings or lining pads, service the wheel cylinder and bleed the system.</p> <p>Eliminate rust and replace the boots.</p> <p>Service the wheel cylinder, replace the rear wheel cylinder piston or caliper assembly and bleed the system.</p> <p>Replace or clean the hose and bleed the system.</p> <p>Replace or clean the pipe and bleed the system.</p> <p>Take down and strip the half caliper, replace seals and dust covers.</p> | <p>Insufficient shoe-to-drum clearance.</p> <p>Weak shoe return springs.</p> <p>Brake pedal has no free travel.</p> <p>Seized master cylinder piston.</p> <p>Master cylinder flooded due to clogged relief port.</p> <p>Brake disc run-out.</p>                                                                                                                                                               | <p>Brake linings dragging all the time on drums or brake discs</p> |
| <p>Adjust clearance.</p> <p>Replace the springs.</p> <p>Set the push rod length as prescribed.</p> <p>Service the master cylinder, replace the piston and bleed the system.</p> <p>Service the master cylinder, replace the check valve if deteriorated, clean the relief port and bleed the system.</p> <p>Check brake disc for run-out, and replace defective parts, if necessary.</p>                                                                                         | <p>Fluid leakage from wheel cylinders.</p> <p>Fluid leakage from caliper cylinders.</p>                                                                                                                                                                                                                                                                                                                       | <p>Weak brakes</p>                                                 |

**BRAKE**

--Master-Vac--

This trouble mainly resulting from improper function of Master-Vac. Please check as follows:

Improper vacuum.

Required vacuum is not maintained.

Weak pressure  
thick fluid.

Dust on drums or linings soiled with oil.

Weak shoe return springs.

Drum out of round.

Correct drums by means of a lathe.

Check springs and replace as required.

Remove and clean drums thoroughly.

Fluid. Bleed the system.

Flush the system and refill with specified

diaphragm and diaphragm plate.

Clean or replace poppet rubber. Replace seal assembly-to-front shell bolts.

replace it. Replace seal or retighten plate and check the grommet for loose fit, re-fit or Wipe, clean or replace the check valve and vacuum hose.

fasten if necessary. Or replace a defective

Check the pipe or hose connections, and

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NISSAN MOTOR CO., LTD.  
TOKYO, JAPAN



DATSUN 240Z SPORTS  
MODEL S30 SERIES  
CHASSIS & BODY

WHEEL AND TIRE

SECTION WT

WHEEL AND TIRE WT-1  
TROUBLE DIAGNOSES AND CORRECTIONS WT-3



# WHEEL AND TIRE

## WHEEL AND TIRE

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|                     |      |
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| DESCRIPTION         | WT-1 |
| PERIODICAL SERVICES | WT-1 |
| Inflation of tires  | WT-1 |
| Radial tire         | WT-2 |
| Tire rotation       | WT-2 |
| INSPECTION          | WT-2 |
| Wheel balance       | WT-2 |
| Wheel               | WT-3 |

### DESCRIPTION

The disc wheel dimensions are 14 x 4-1/2 J with 15 mm (0.59 in) wheel offset. The hub bolt hole pitch diameter is 114.3 mm (4.5 in).

Tire size

| Model   | Tire size                                                                  | Disc wheel |
|---------|----------------------------------------------------------------------------|------------|
| HLS30-U | 175 SR-14 (Tubeless)<br>175 HR-14 (Tubeless)<br>6.45 H14-4PR (Tubeless)    | 14-4½J     |
| HLS30   | 6.45 H14-4PR (Tubeless)<br>165 HR-14 (Tubeless)<br>6.95 H14-4PR (Tubeless) | 14-4½J     |

Tire pressure (To be measure when tire are cold.)

|           | Under 160 km/h<br>(100 MPH)              | Over 160 km/h<br>(100 MPH)              |
|-----------|------------------------------------------|-----------------------------------------|
| 175 SR-14 | 2.0 kg/cm <sup>2</sup><br>(28 lb/sq in)  | 2.3 kg/cm <sup>2</sup><br>(32 lb/sq in) |
| 175 HR-14 | 2.0 kg/cm <sup>2</sup><br>(28 lb/sq in)  | 2.3 kg/cm <sup>2</sup><br>(32 lb/sq in) |
| 6.95 H14  | 1.7 kg/cm <sup>2</sup><br>(2.4 lb/sq in) | 2.3 kg/cm <sup>2</sup><br>(32 lb/sq in) |

### PERIODICAL SERVICES

#### Inflation of tires

Tires with proper pressure improve riding comfort and steering stability, reduce driving sound to the minimum, and extend the service life.  
The tires should be checked for proper pressure on monthly basis or more frequently depending on driving conditions, while the tires are cold.

Ordinarily, tire pressure rises 10 to 15% of that when the tire is cold during continuous driving under a constant speed due to the tire temperature rise. When measuring tire pressure accurately, first, find out whether the tire is hot or cold.  
When tire valve caps are removed, be sure to reinstall

## CHASSIS

ordinary tire. Do not mangle radial tires with an ordinary tire or viceversa. When replacing a radial tire with an ordinary tire due to unavoidable reason, use ordinary tires for front tires.

### Tire rotation

Service life of a tire is indicated by miles driven. The six positions on the tire circumference, which indicate limit of 1.6 mm (0.06 in) tread depth]. When the tire is worn to the service life, the tread wear indicator appears. (In other words, when the indicator appears, the tire has reached its service life.) Generally speaking, service life of a tire is 40,000 km (24,000 miles). When it is intended to use five tires including the spare tire evenly, conduct tire rotation in accordance with the tire shifting order shown in Figure WT-1 whenever the vehicle is driven 10,000 km (6,000 miles).

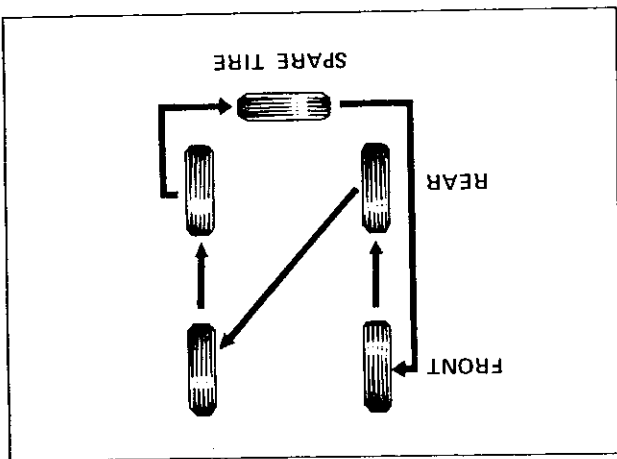


Fig. WT-1 Tire rotation

### INSPECTION

#### Wheel balance

The permissible unbalance of wheel and tire assembly is 10 gr (0.35 oz) or less [190 gr-cm (2.64 in-oz) or less] at the rim circumference. In no event should a 100 gr (3.63 oz) or heavier balance weight be attached to the wheel. Balance weights are available from 10 gr to 100 gr (0.35 oz to 3.52 oz) with every 10 gr (0.35 oz) interval.

them on the valves without fail. The valve caps assist in keeping air in the tire in case of a valve leak, and keep dust and water out of the valves.

When inflation pressure is too high, the following troubles will result:

1. Hard ride
2. Bruised tire or damaged carcass immediately inside the tread
3. Poor traction at rear wheel resulting in uneven wear
4. Rapid tread wear at center of tire

When inflation pressure is too low, the following troubles will result:

1. Tire squeal on turns
2. Hard steering
3. Rapid and uneven wear on tire tread edges
4. Bruised tire rim and various types of rupture
5. Tire cord fatigue or breakage
6. Tramp and shimmy troubles
7. Unusual tire temperature rise
8. Car roll while turning a corner or making a sharp swerve in traffic

Tighten wheel nuts to a torque of 8.0 to 9.0 kg-m (58 to 65 ft-lb).  
Be sure to retighten wheel nuts after running 100 to 200 km (60 to 120 miles).

#### Radial tire

When comparing to the ordinary tires, camber power of a radial tire is lower and cornering power is higher, and consequently, toe-in increases excessively, causing unevenly worn tire and/or rapid tire wear. Thus, the front wheel alignment should be carried out carefully and correctly. (See Chapter FA.)

Characteristics of a radial tire differ from that of an

Wheel

When the wheel deflections toward vertical and horizontal axes at the points indicated by the asterisk (\*) in Figure WT-2 are 1.0 mm (0.04 in) or more, replace the wheel.

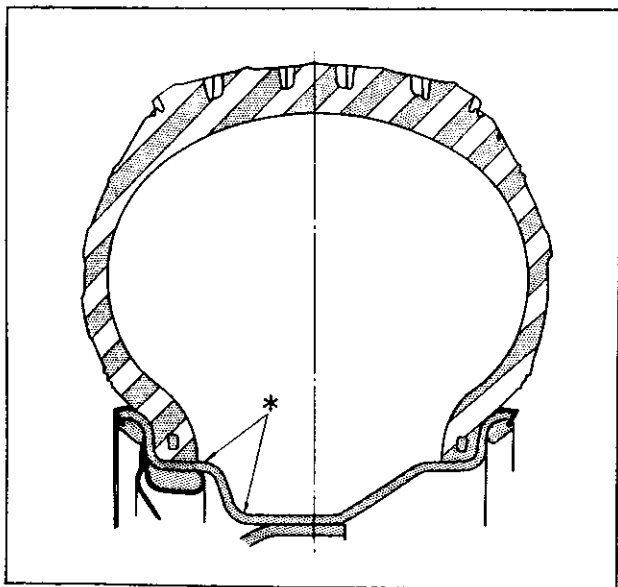


Fig. WT-2 Wheel rim run-out check points

TROUBLE DIAGNOSES AND CORRECTIONS

| Troubles       | Possible causes                                                                                                                                                                                                                                                                                                                                                                                                      | Corrective action                                                                                                                                                                                                                                                              |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wheel wobbles. | Improper tire pressure<br>Damaged tire or distorted wheel rim<br>Unbalanced wheel<br>Loose wheel nuts<br>Worn or damaged wheel bearing, or excessive play of wheel bearing<br>Improper front wheel alignment<br>Worn or damaged ball joint and link bushing<br>Excessive steering linkage play or worn steering linkage<br>Loose steering linkage connection<br>Broken suspension spring<br>Defective shock absorber | Measure and adjust correctly.<br>Repair or replace.<br>Balance correctly.<br>Retighten.<br>Correct play or replace.<br>Adjust.<br>Replace.<br>Adjust or replace.<br>Retighten the nuts with the rated tightening torque, or replace worn parts if any.<br>Replace.<br>Replace. |

|                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                     |                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|
| <p>Repair or replace if necessary.</p> <p>Realign correctly.</p> <p>Measure and adjust correctly.</p>                                                                                                                                                                                                                                                      | <p>Distorted knuckle or suspension link</p> <p>Improper front wheel alignment</p> <p>Improper tire pressure</p>                                                                                                                                                                                                                                                     | <p>Tire squeals</p>                              |
| <p>Conduct tire rotation periodically.<br/>[Standard: Every 10,000 km (6,000 miles)]</p> <p>Measure and adjust correctly.</p> <p>Balance or replace.</p> <p>Readjust correctly.</p> <p>Realign.</p> <p>Repair correctly or replace if necessary,<br/>or reinstall correctly.</p> <p>Reduce speed.</p> <p>Follow correct and proper driving<br/>manner.</p> | <p>Improper tire rotation</p> <p>Improper tire pressure</p> <p>Unbalanced wheel</p> <p>Improperly adjusted brake</p> <p>Improper wheel alignment</p> <p>Excessively distorted or improperly<br/>installed suspension link</p> <p>High speed on curves</p> <p>Sudden start and improper speeding<br/>due to rapid acceleration or improper<br/>brake application</p> | <p>Unevenly or<br/>excessively worn<br/>tire</p> |

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## SECTION ST

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## STEERING

ST-1 ..... STEERING SYSTEM  
ST-16 ..... TROUBLE DIAGNOSES  
AND CORRECTIONS  
ST-20 ..... SERVICE DATA AND  
SPECIFICATIONS

NISSAN MOTOR CO., LTD.

TOKYO, JAPAN



DATSUN 240Z SPORTS  
MODEL S30 SERIES  
CHASSIS & BODY



# STEERING

## STEERING SYSTEM

### CONTENTS

|                           |      |                         |       |
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| MAINTENANCE               | ST-2 | SIDE ROD ASSEMBLY       | ST-7  |
| STEERING WHEEL AND COLUMN | ST-3 | Removal                 | ST-7  |
| Removal                   | ST-4 | Disassembly             | ST-8  |
| Disassembly               | ST-5 | Inspection              | ST-10 |
| Inspection                | ST-6 | Assembly and adjustment | ST-11 |
| Assembly and lubrication  | ST-6 | Installation            | ST-15 |
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### DESCRIPTION

The steering assembly is a direct-acting rack-and-pinion type with a gear ratio 17.8 : 1, providing sharp, light, and accurate control under all conditions.

It consists of a rack bar and toothed pinion, both working in the plain bearing of the housing. Backlash is held to 0 mm (0 in) by the retainer and the retainer spring.

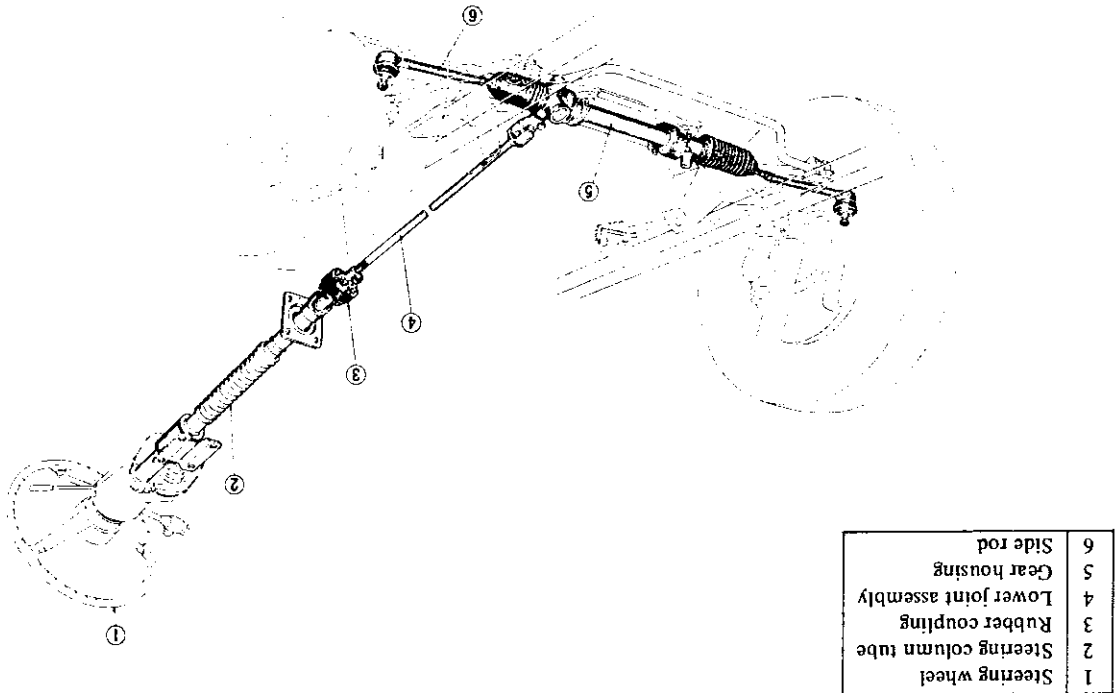


Fig. ST-1 Steering gear components

The steering wheel is a cone type which exhibits excellent safety characteristics. Between the steering wheel and gear assembly, a rubber coupling is used to prevent the vibration from the road surface, insuring excellent handling and safety, and two universal joints are used between the gear assembly and steering wheel to give the most suitable steering wheel position and angle.

These joints require no lubrication and have an excellent service life.

The collapsible steering column is designed to compress under impact. When an automobile is being driven, the forward movement of the automobile and the forward movement of the driver both constitute a form of energy or force. When an automobile is involved in a head-on collision, the primary force (forward movement of the car) is suddenly halted, while the secondary force (the driver) continues in the forward direction. A severe collision generally involves these two forces primary and secondary. The secondary impact occurs when the driver is thrust forward onto the steering wheel and column.

The collapsible column is designed to absorb primary and secondary force to the extent that the severity of the secondary impact is reduced, thereby reducing the tendency to move rearward into the driver's compartment. A split second later when the driver is thrown forward (the secondary impact), this energy is also partially absorbed by compression characteristics of the column.

When the collapsible column is installed in a car, it is no more susceptible to damage than is an ordinary column; however, when the column is removed, special care must be taken in handling this assembly. When the column is removed from the car, such actions as a sharp blow on the end of the steering shaft or switch levers, leaning on the column assembly, or dropping of the assembly could bend the steering column jacket, especially the bellows part which absorbs the energy.

The gear housing is located in front of the front suspension, and a ball joint with excellent sealing and long durability (at 510 series side rod) is used on the knuckle arm end of steering linkage.

As mentioned above, this steering assembly has simple construction. Shim adjustment or selective assembly of

## MAINTENANCE

parts, essential in the case of conventional assemblies, is not necessary. Thus, servicing is very convenient and structural strength is more than adequate.

All working parts are immersed in grease. A grease is provided to replenish the grease, enabling simple lubrication.

Due to better sealing and durability, the lubrication interval is two years or 40,000 km (24,000 miles). The grease used is a lithium base type having excellent waterproof characteristics.

Lithium base multipurpose NLGI No. 2 grease which has excellent waterproof characteristics is used for meshing portions of the rack-and-pinion, friction portions of the housing, and joined portions of the rack and side rod. Lubrication on the housing side is made through a grease nipple installed in place of the plug.

The amount of grease to be added is 10 to 15 gr (0.35 to 0.53 oz); do not use more as the dust cover or other parts will be deformed, adversely affecting the service life. After completion of lubrication, return the plug to its original position. A grease reservoir is located on the tube side, and contains lithium base multipurpose NLGI No. 0 grease. Replace the grease reservoir with grease when the level drops to one-third of the original amount. Lubrication at other than the specified period is unnecessary.

When a high-pressure grease gun is used, proceed cautiously to avoid forcing out grease from areas other than the outlet hole.

Note: The lubrication of the gear housing should be made according to following steps.

- Remove the rack-and-pinion assembly with lower joint and disassemble the rack-and-pinion.
- Thoroughly clean all parts of the assembly.
- Assemble the rack-and-pinion.
- Lubricate through the grease nipple.
- Install the rack-and-pinion assembly with lower joint.



## CHASSIS

### Removal

1. Remove the horn button by pulling rearward. Remove the steering wheel after removing the steering wheel nut.

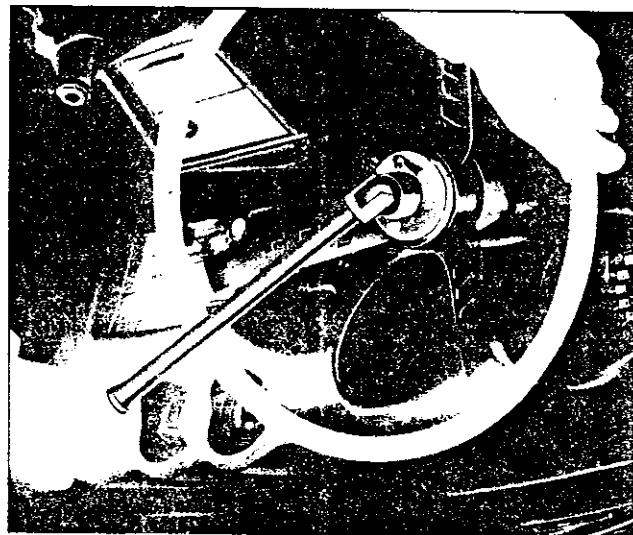


Fig. ST-3 Removing steering wheel

2. Remove upper and lower steering column shell covers by loosening six screws. Then loosen two screws retaining the turn signal and lighting switch assembly to steering column and remove the switch assembly.

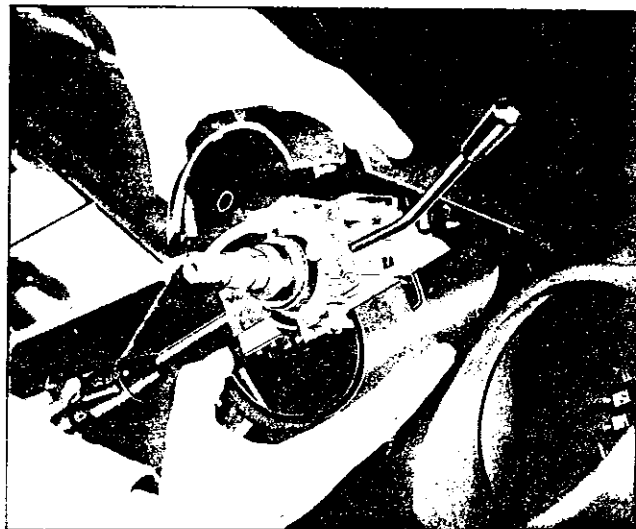


Fig. ST-4 Removing shell cover

3. Disconnect the steering column assembly from lower joint shaft at the rubber coupling by removing two bolts.

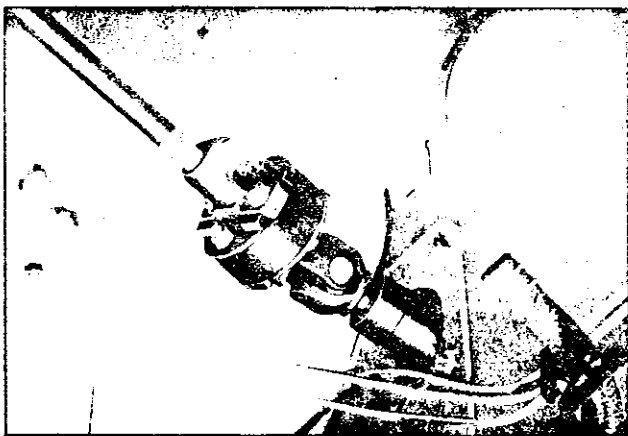


Fig. ST-5 Rubber coupling bolt

4. Remove the steering post clamp by removing four bolts.

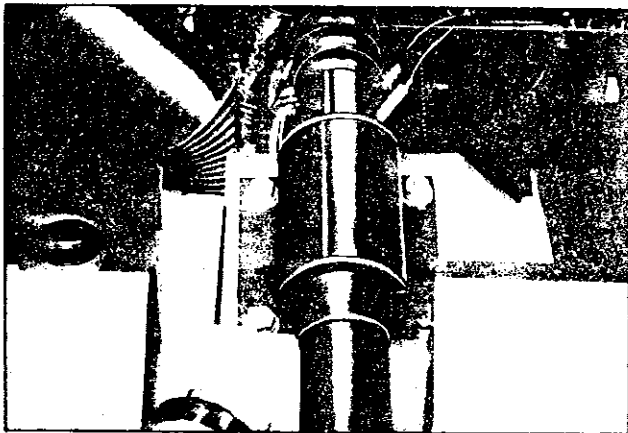


Fig. ST-6 Removing steering post clamp

5. Remove the four bolts securing the steering column grommet to the dashboard. The steering column assembly can then be removed into the room, remaining the lower steering shaft in the engine compartment.

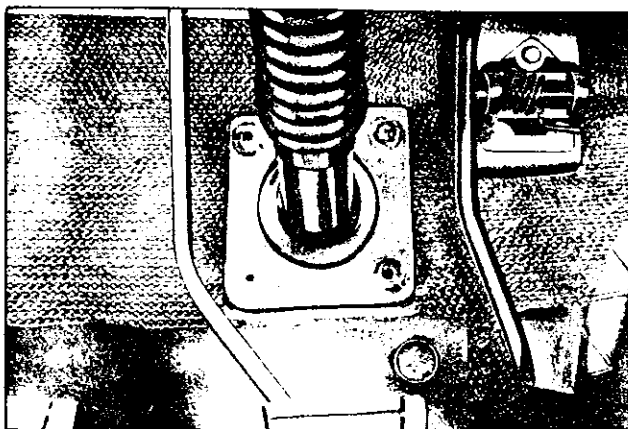


Fig. ST-7 Removing column bracket bolts

# STEERING

## Disassembly

1. To disconnect upper and lower steering columns separately, three screws placed back side of the steering post clamp have to be removed.  
The clamp can be moved by lightly hitting with a wooden hammer.
2. Remove a snap ring and spacer ring at the upper end of the upper column, and extract the upper column shaft from the steering upper column jacket.

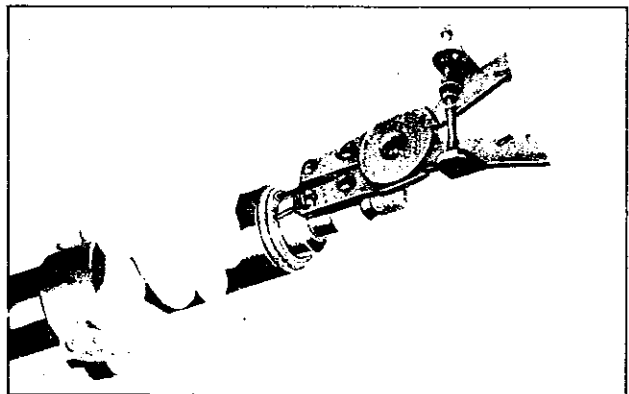


Fig. ST-8 Removing snap ring

3. Disconnect the rubber coupling from the steering lower joint.
  4. Remove the snap ring and disassemble the steering lower joint.
- Note: Do not disassemble the joint unless otherwise defects found.

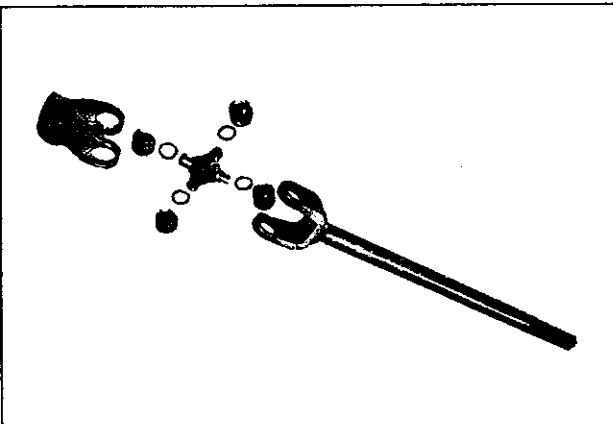
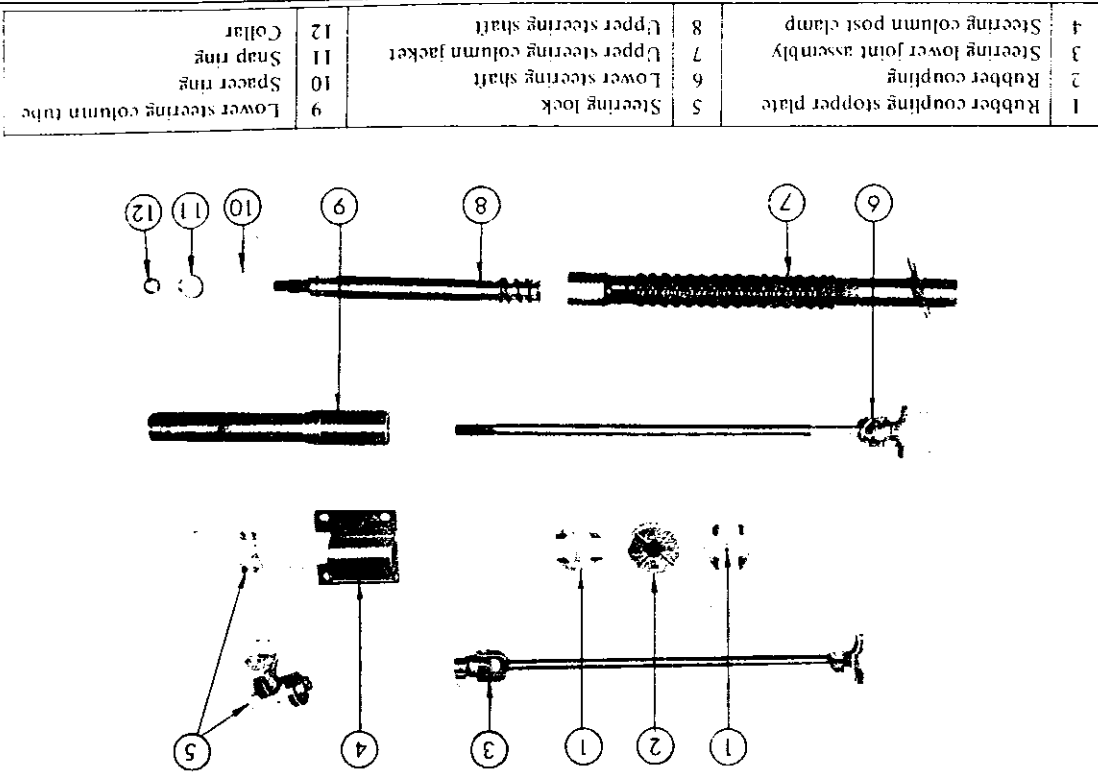


Fig. ST-9 Steering lower joint components



|   |                               |   |                              |    |                            |
|---|-------------------------------|---|------------------------------|----|----------------------------|
| 1 | Rubber coupling stopper plate | 5 | Steering lock                | 9  | Lower steering column tube |
| 2 | Rubber coupling               | 6 | Lower steering shaft         | 10 | Spacer ring                |
| 3 | Steering lower joint assembly | 7 | Upper steering column jacket | 11 | Snap ring                  |
| 4 | Steering column post clamp    | 8 | Upper steering shaft         | 12 | Collar                     |

# CHASSIS

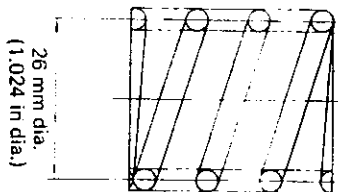
## Inspection

Thoroughly clean and examine all parts of the assembly; components showing signs of wear, chipping, or damage must be replaced with new parts.

- Note: a. If there is extraordinary damage on the steering column shaft or jacket, also check the inside of the steering gear housing.
- b. A damaged bearing must be replaced along with the steering column jacket assembly.

## Steering column shaft spring

|               |                                   |
|---------------|-----------------------------------|
| Wire diameter | 2.9 mm (0.1142 in)                |
| Free length   | 36.5 mm (1.4370 in)               |
| Coil turns    | 3                                 |
| Load x length | 30 kg (66 lb) x 18 mm (0.7087 in) |



## Assembly and Lubrication

Assembly is the reverse of disassembly. Observe the following points:

Note: When the lower steering shaft spline is fit the upper steering shaft spline, the slit of the universal joint must coincide with the punch mark located on the upper end of the upper steering shaft (See figure ST-11).

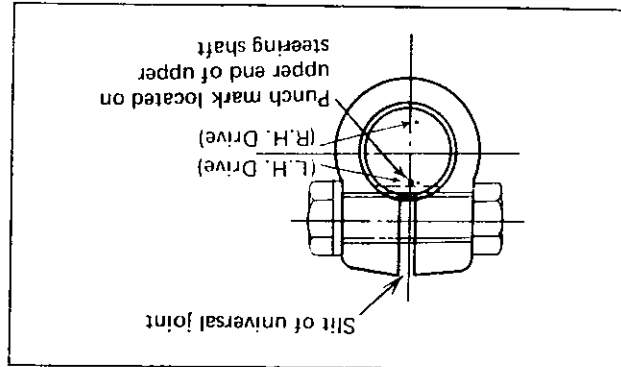


Fig. ST-11 Aligning slit with punch mark

1. When assembling, apply multipurpose NLGI No. 2 grease to the steering column shaft journal and also fill up in the dust cover.
2. When assembling the universal joint, apply multipurpose NLGI No. 2 grease to the needle bearing.

ST-6

## Tightening torque

Steering wheel nut: 4 to 5 kg-m  
(28.9 to 36.2 ft-lb)

Rubber coupling bolt: 1.5 to 1.8 kg-m  
(10.8 to 13.0 ft-lb)

## Installation

Installation is the reverse of removal.

Thrust play of journal: 0 to 0.15 mm  
(0 to 0.0059 in)

|                        |                        |                        |
|------------------------|------------------------|------------------------|
| 0.95 mm<br>(0.0374 in) | 1.05 mm<br>(0.0413 in) | 1.15 mm<br>(0.0453 in) |
|------------------------|------------------------|------------------------|

Thickness

## Snap ring oversize

# STEERING

## RACK-AND-PINION AND SIDE ROD ASSEMBLY

|    |                       |
|----|-----------------------|
| 1  | Rack                  |
| 2  | Pinion                |
| 3  | Oil seal              |
| 4  | Pinion bearing        |
| 5  | Retainer adjust screw |
| 6  | Lock nut              |
| 7  | Gear boot             |
| 8  | Lock nut              |
| 9  | Side rod spring seat  |
| 10 | Retainer spring       |
| 11 | Filler plug           |
| 12 | Retainer              |
| 13 | Side rod inner spring |
| 14 | Dust cover clamp      |
| 15 | Side rod inner socket |
| 16 | Ball stud             |
| 17 | Side rod assembly     |

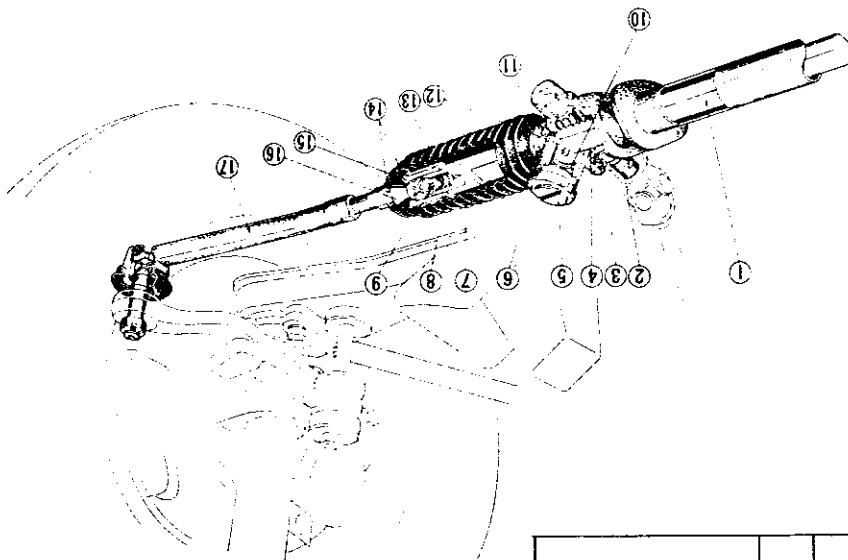


Fig. ST-12 Cross-section of rack-and-pinion with side rod assembly

## Removal

1. Jack up the vehicle and support on stands. Remove front wheels.

2. Disconnect the steering lower joint from the steering column at the rubber coupling by removing two bolts. Loosen the bolt securing the steering lower joint to the pinion, and then remove the lower joint assembly from engine compartment.

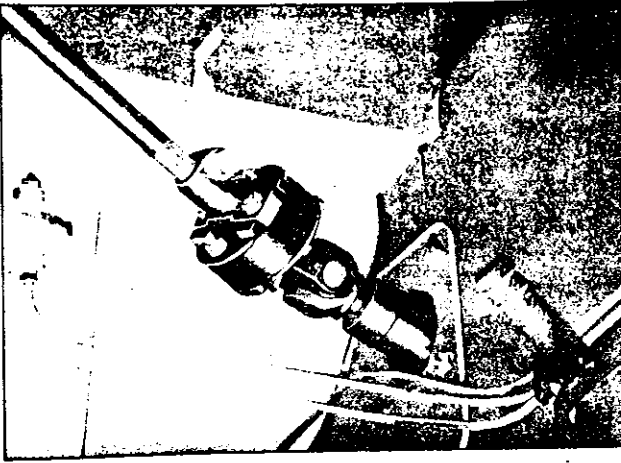


Fig. ST-13 Rubber coupling bolts

7. Remove the rack-and-pinion assembly.

## Disassembly

1. Disconnect the steering lower joint from the rack-and-pinion assembly.
2. Clamp the rack-and-pinion assembly in a vise by using patches on the steering gear housing to avoid scarring.
3. Remove the dust cover clamp and boot clamp from the steering gear boot. (Both left and right.)

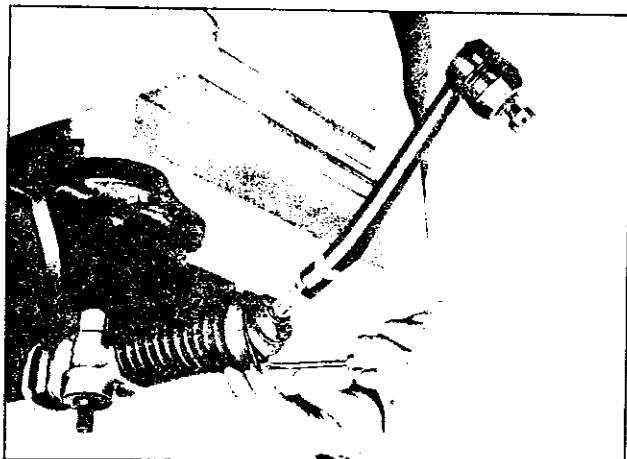


Fig. ST-17 Removing dust cover clamp

4. Loosen the stopper nut, remove the side rod inner socket, and disconnect the side rod assembly from the rack.

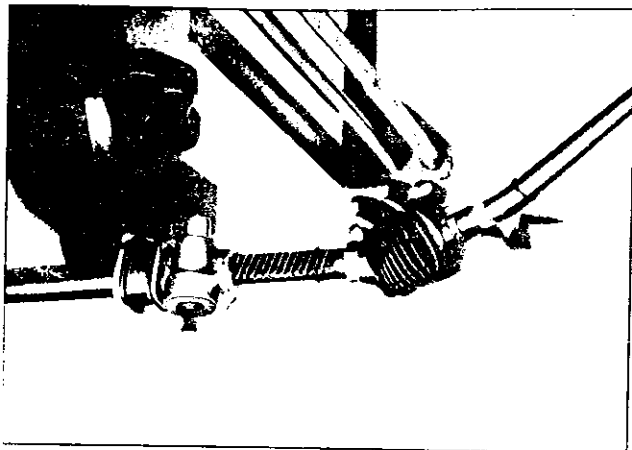


Fig. ST-18 Removing side rod assembly

3. Remove the splash-board.

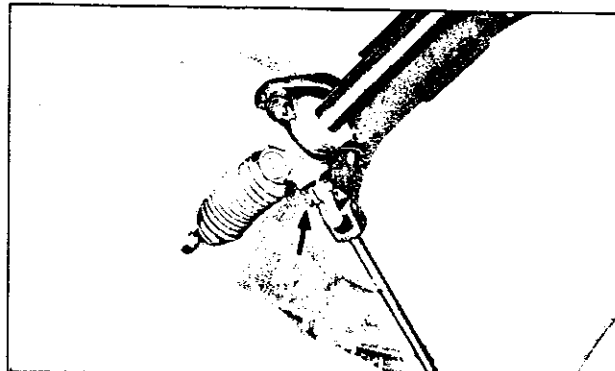


Fig. ST-14 Disconnecting lower joint from pinion

4. Remove the side rod ball stud nut and disconnect the side rod from the knuckle arm.

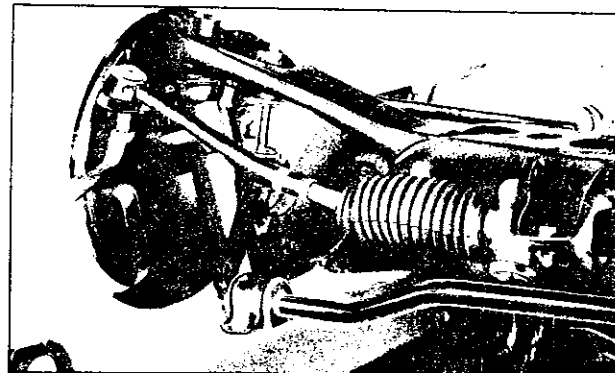


Fig. ST-15 Disconnecting side rod socket

5. Hoist the engine slightly.

Note: Be careful not to damage the accelerator linkage or drop off the control linkage.

6. Remove bolts securing the steering gear housing to the suspension member.

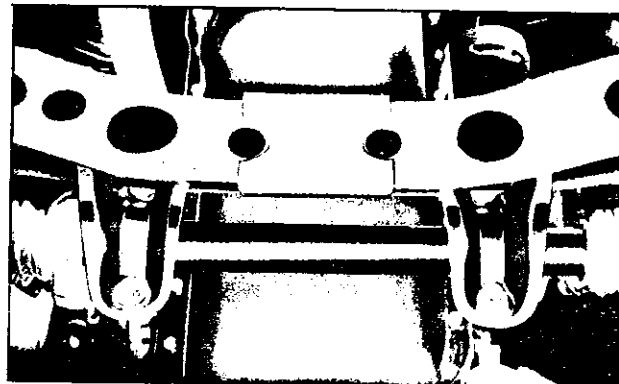


Fig. ST-16 Bolts securing housing to the suspension member

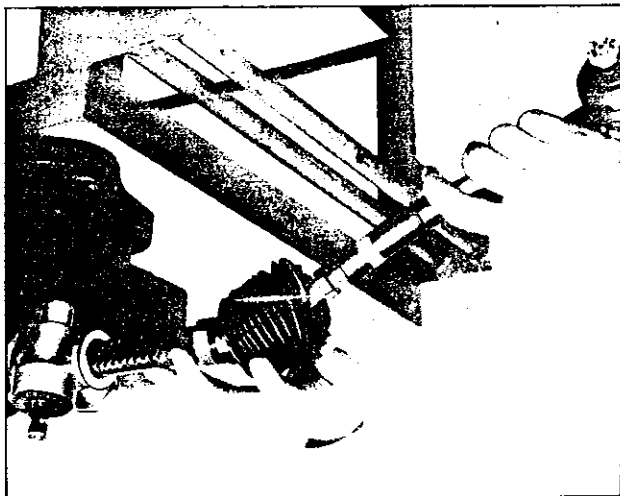


# STEERING

5. Withdraw the spring seat and side rod spring.

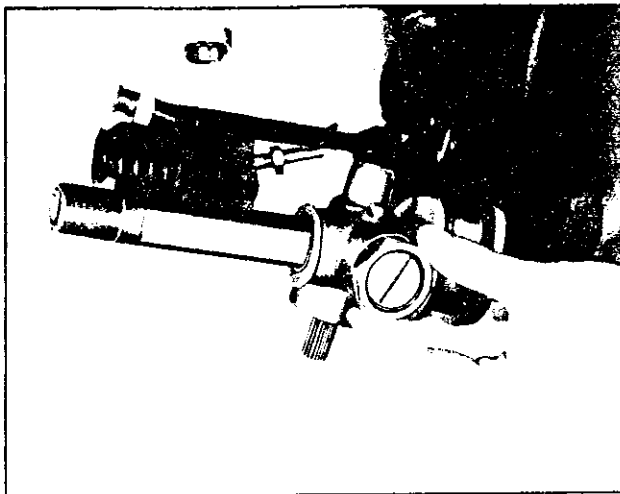
6. Detach the steering gear boots. (Both left and right hand.)

7. Loosen the side rod lock nut and disconnect the side rod outer socket assembly from the side rod ball.



*Fig. ST-19 Removing side rod outer socket*

8. Loosen the lock nut and remove the retainer adjust screw. And then take out steering gear retainer.



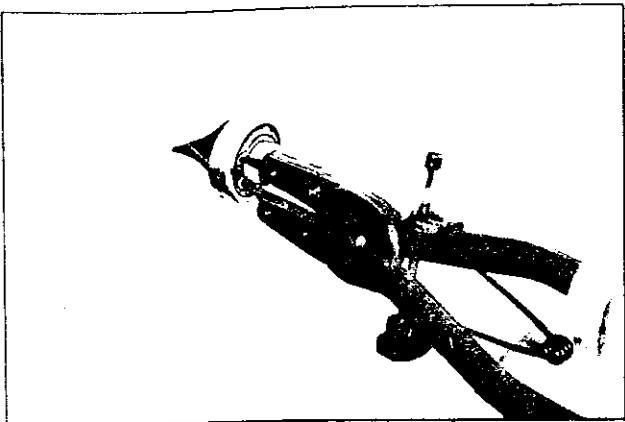
*Fig. ST-20 Removing lock nut*

9. Pry off the oil seal.

ST-9

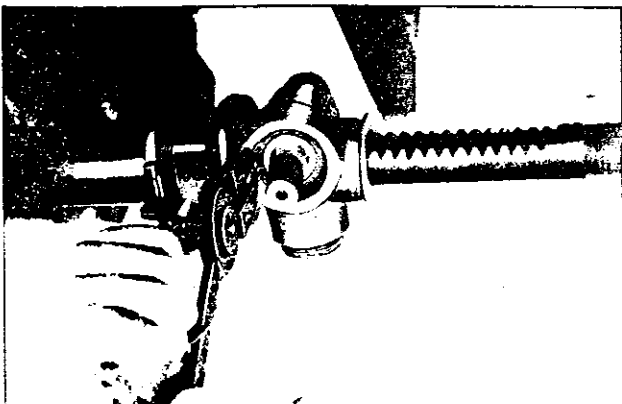
12. Remove the filler plug and draw out the rack from the steering gear housing. Remove the grease reservoir.

*Fig. ST-23 Removing snap ring*



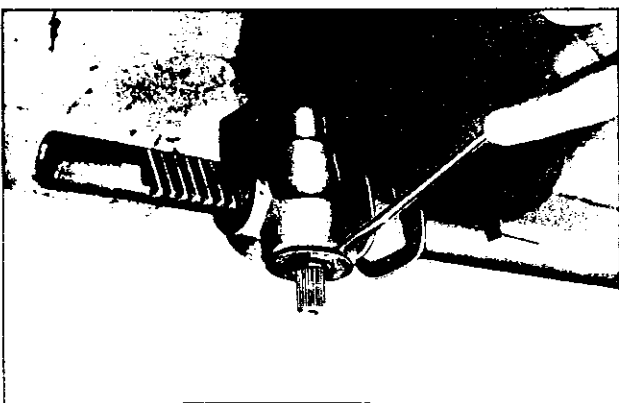
11. Remove the snap ring and draw out the bearing from the pinion.

*Fig. ST-22 Removing snap ring*



10. Remove the snap ring and draw out the steering pinion assembly.

*Fig. ST-21 Removing oil seal*



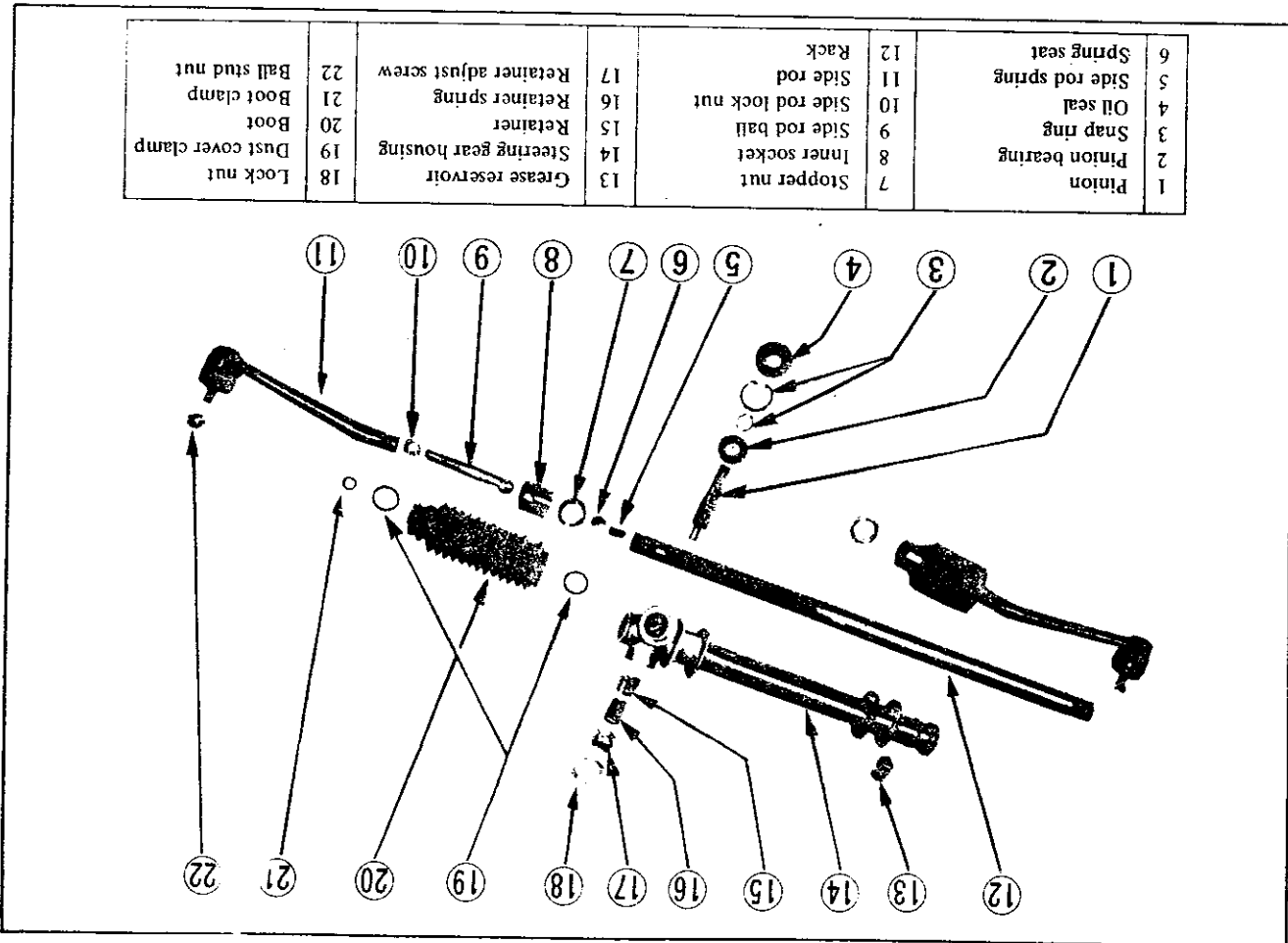


Fig. ST-24 Rack-and pinion and side rod components

## Inspection

Thoroughly clean all parts of the assembly.

## Rack

Thoroughly examine all parts of the assembly; components showing signs of wear must be replaced with new parts.  
Fractures, hollows, or roughness in the surfaces of the rack indicate unserviceability.

## Pinion

Thoroughly examine all parts of the assembly; components showing signs of damage, cracking, or wear must be replaced with new parts. A damaged bearing or oil seal must be replaced.

## Side rod ball and spring seat

Components showing signs of damage or wear must be

Side rod ball joint  
Measure the swinging torque and axial play. When values are not within the specified ranges, make replacement.

|                           |                                                         |                                                    |
|---------------------------|---------------------------------------------------------|----------------------------------------------------|
| Side rod inner ball joint | Swinging torque: 0.8 to 1.5 kg-m<br>(5.8 to 10.8 ft-lb) | Axial play: 0.06 mm (0.0024 in)                    |
| Side rod outer ball joint | Swinging torque: 0.8 to 1.5 kg-m<br>(5.8 to 10.8 ft-lb) | Axial play: 0.1 to 0.5 mm<br>(0.0039 to 0.0197 in) |

# STEERING

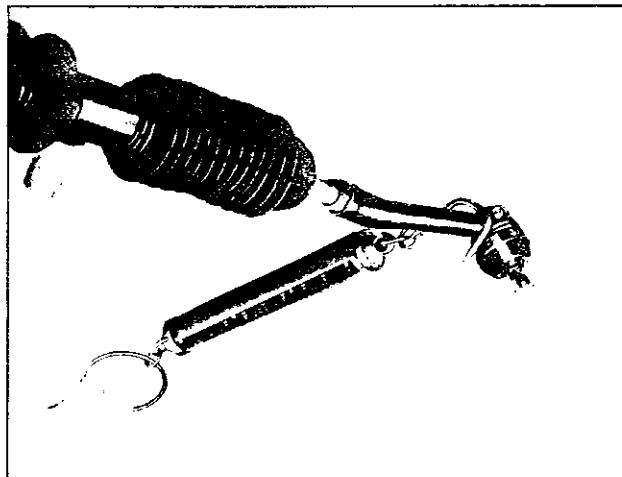


Fig. ST-25 Measuring swinging torque

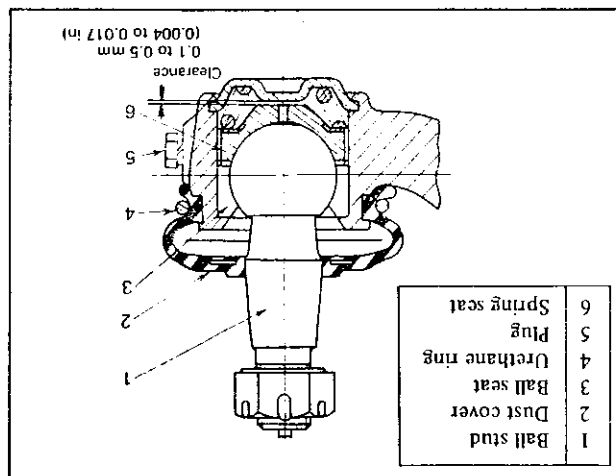


Fig. ST-26 Cross-section of ball stud

## Bearing

When the bearing is injured, cracked or worn, make replacement.

## Bushing

When the bushing is scarred, cracked, or worn, make replacement with the steering gear housing assembly.

## Oil seal

As a rule, replacement is made during overhaul.

## Spring

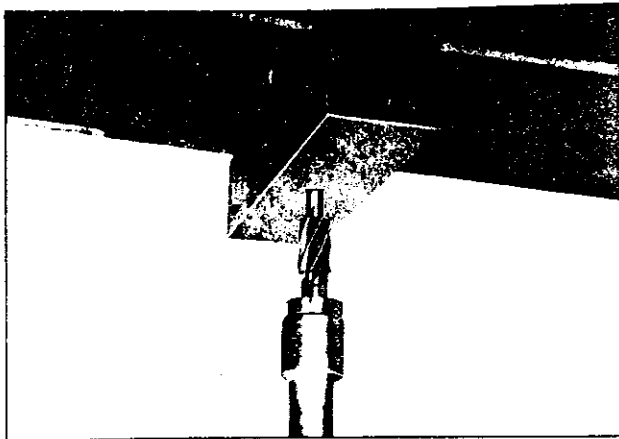
Specified values are shown below.

ST-11

2. Fit the snap ring.

Note: Use the tightest snap ring among the variations.

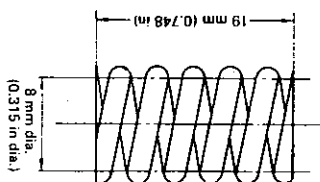
Fig. ST-27 Pressing bearing



1. Press the bearing onto the pinion gear.

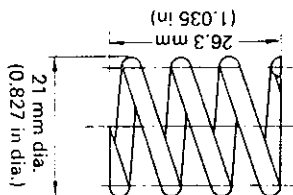
## Assembly and adjustment

|               |                                    |
|---------------|------------------------------------|
| Wire diameter | 2.6 mm (0.102 in)                  |
| Free length   | 19.0 mm (0.748 in)                 |
| Coil turns    | 6.3                                |
| Load x length | 40 kg (88 lb) x 17.0 mm (0.669 in) |



## Side rod spring

|               |                                    |
|---------------|------------------------------------|
| Wire diameter | 2.6 mm (0.102 in)                  |
| Free length   | 26.3 mm (1.035 in)                 |
| Coil turns    | 5.5                                |
| Load x length | 20 kg (44 lb) x 16.3 mm (0.642 in) |



## Retainer spring

Snap ring oversize

| Thickness                                |                                          |
|------------------------------------------|------------------------------------------|
| 1.04 to 1.09 mm<br>(0.0409 to 0.0429 in) | 1.09 to 1.14 mm<br>(0.0429 to 0.0449 in) |
| 1.14 to 1.19 mm<br>(0.0449 to 0.0469 in) | 1.19 to 1.24 mm<br>(0.0469 to 0.0488 in) |
| 1.24 to 1.29 mm<br>(0.0488 to 0.0502 in) |                                          |

3. Clamp the steering gear housing in a vise.
4. Evenly apply multipurpose NLGI No. 2 grease to teeth and friction surfaces of the rack, and lubricate the gear housing from the pinion housing side.
5. Make sure that the rack protrudes by the same amount from both ends of the housing [96 mm (3.800 in)] and that rack teeth are directed toward the pinion shaft.

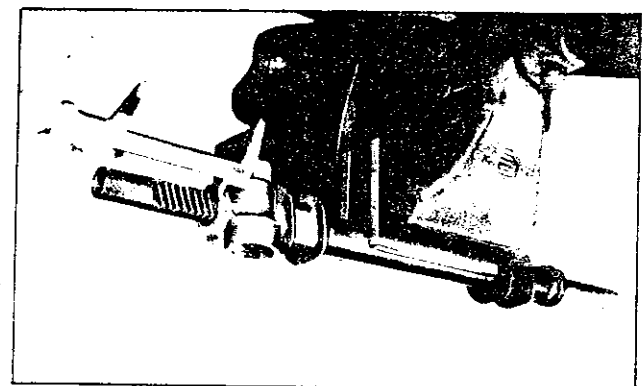


Fig. ST-28 Measuring protruding portion of rack

6. Evenly apply multipurpose NLGI No. 2 grease to the pinion teeth, end bushing, and pinion bearing.
7. Mesh the teeth of the pinion to those of the rack, and insert the pinion without damaging the bushing.

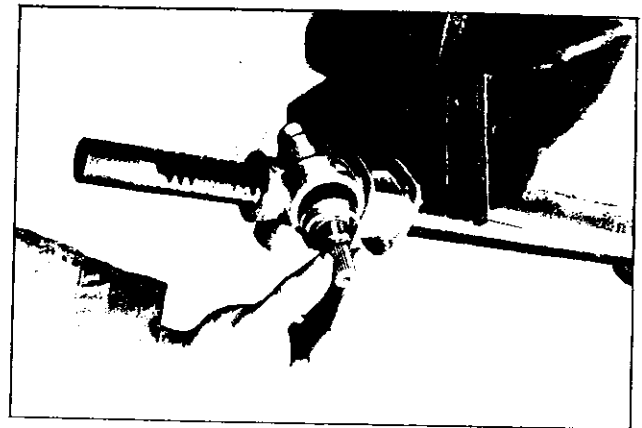


Fig. ST-29 Inserting pinion

8. Make sure that the rack extends beyond the housing by equal amounts on the left and right, with the groove on the pinion serration part directed upward.

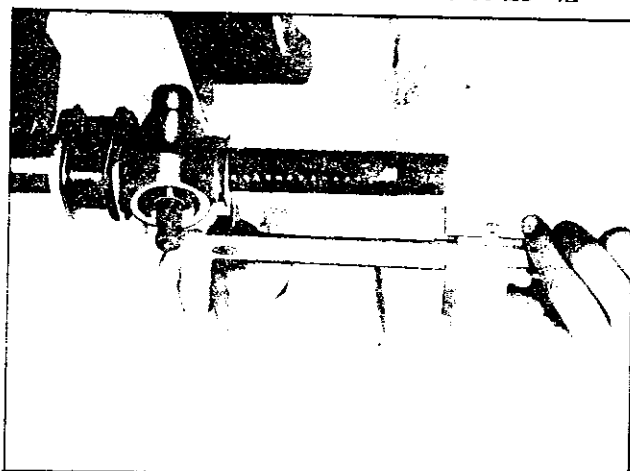


Fig. ST-30 Measuring protruding portion of rack

9. Fit the snap ring, holding the bearing outer race in place.

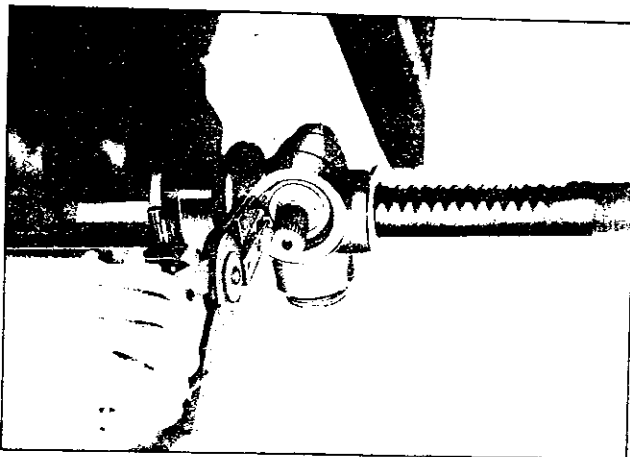


Fig. ST-31 Fitting snap ring

Note: Carefully fit the snap ring to the housing groove. Use the tightest snap ring among the variations.

Snap ring oversize

| Thickness                                |                                          |
|------------------------------------------|------------------------------------------|
| 1.55 to 1.60 mm<br>(0.0610 to 0.0630 in) | 1.60 to 1.65 mm<br>(0.0630 to 0.0650 in) |
| 1.65 to 1.70 mm<br>(0.0650 to 0.0669 in) | 1.70 to 1.75 mm<br>(0.0669 to 0.0689 in) |

# STEERING

10. Fit the oil seal.

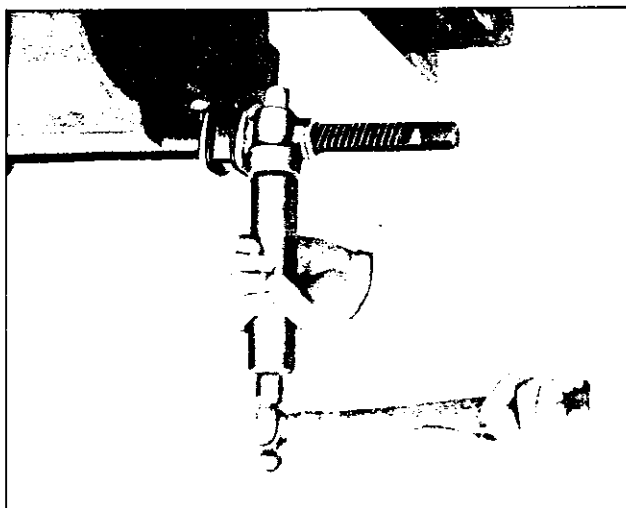


Fig. ST-32 Fitting oil seal

11. Measure thrust play of the pinion.

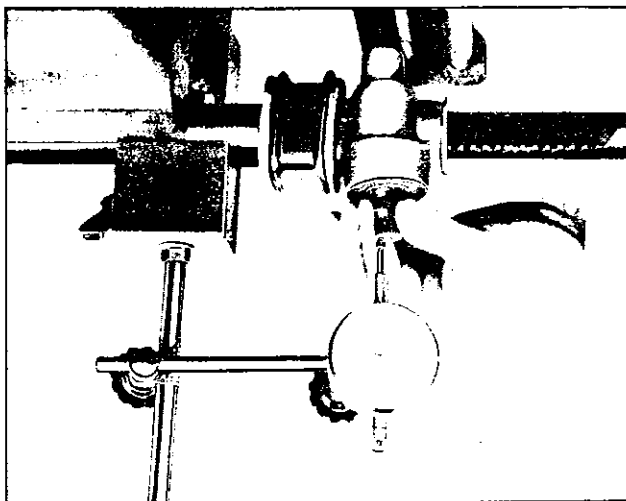


Fig. ST-33 Measuring thrust play of the pinion

Thrust play of the pinion:

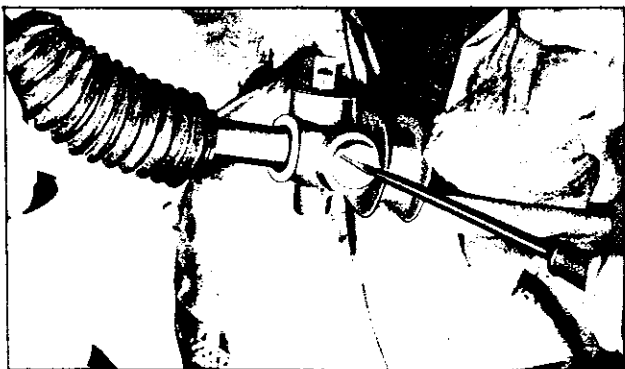
less than 0.09 mm (0.0035 in)

12. Apply an adequate amount of the multipurpose NLGI No. 2 grease to the retainer.

13. Insert the retainer and retainer spring into the retainer hole, and thread in the adjusting screw.

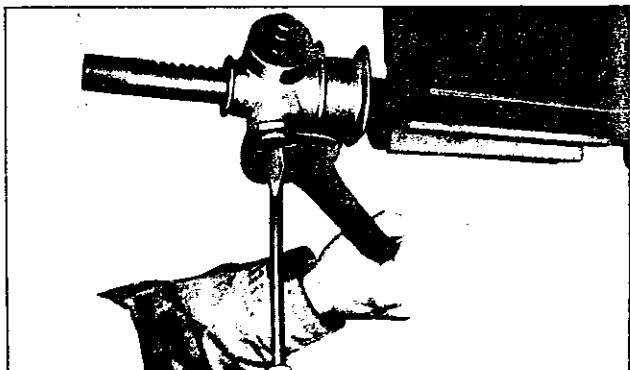
ST-13

Fig. ST-34 Threading in adjust screw



14. Fully tighten the adjusting screw and back off 20 to 25 degrees. Lock this screw with the lock nut.

Fig. ST-35 Locking retainer lock nut



Retainer floating play: 0.09 mm (0.0035 in)

Lock nut tightening torque: 4 to 6 kg-m

(28.9 to 43.4 ft-lb)

15. After tightening the lock nut, cover liquid packing (Three Bond) around the lock nut at "A".

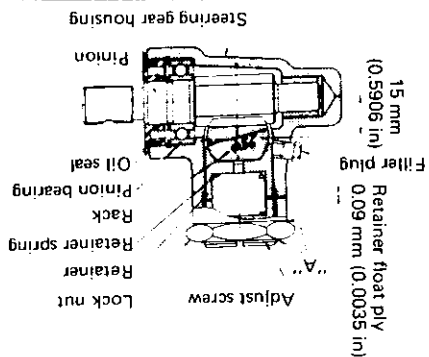


Fig. ST-36 Area to which liquid packing is covered

16. After assembly of the rack-and-pinion, measure the pinion torque, pinion angle, and preload of the ack. When these values are not correct, readjust.

Pinion rotation torque: 8 to 20 kg-cm  
(7 to 17 in-lb)  
Rack preload: 8 to 18 kg (17.6 to 39.7 lb)

Note: Rotate or slide smoothly over the entire range of the stroke.

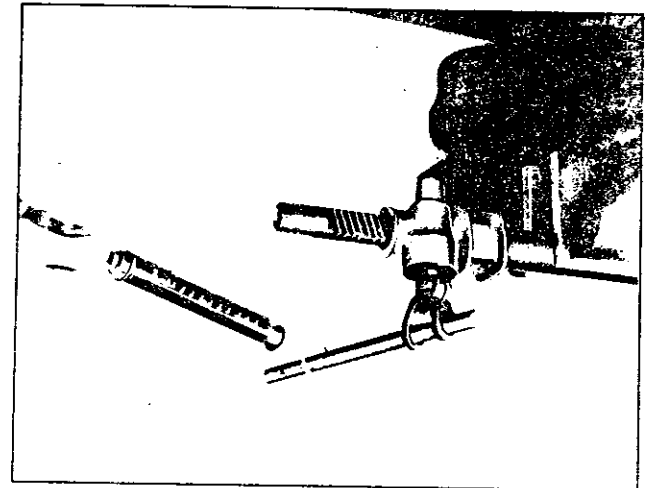


Fig. ST-37 Measuring pinion rotation torque

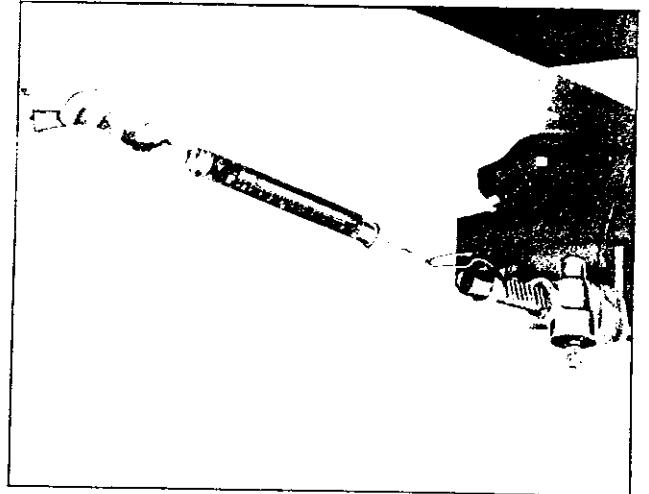


Fig. ST-38 Measuring rack preload

17. Fit a dust cover clamp on each end of the housing.
18. Thread the stopper nut over the threaded portion of the rack.

ST-14

19. Apply an adequate amount of grease to the ball joint friction portion of the side rod assembly.

20. Assemble the spring and ball seat, and fit the inner socket portion of the side rod assembly to the rack. Note: Make sure that the boot is carefully positioned toward the ball stud end.

The side rod assembly for the left side has an L-mark. (No mark is used for the right side.)

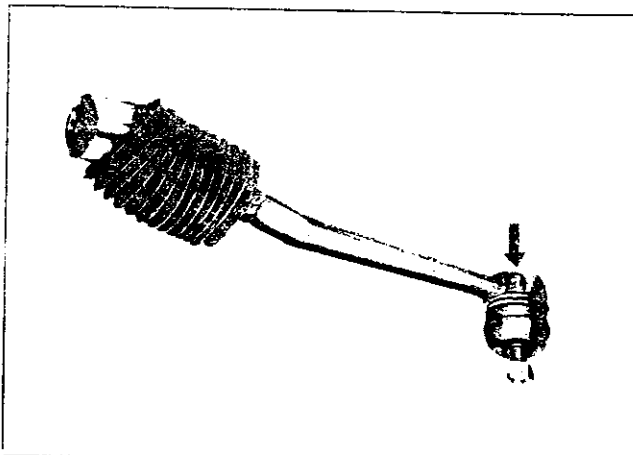


Fig. ST-39 L-mark

21. Tighten the inner socket portion until the ball seat reaches the rack end, back off the inner socket 20 to 25 degrees, and lock with the stopper nut.

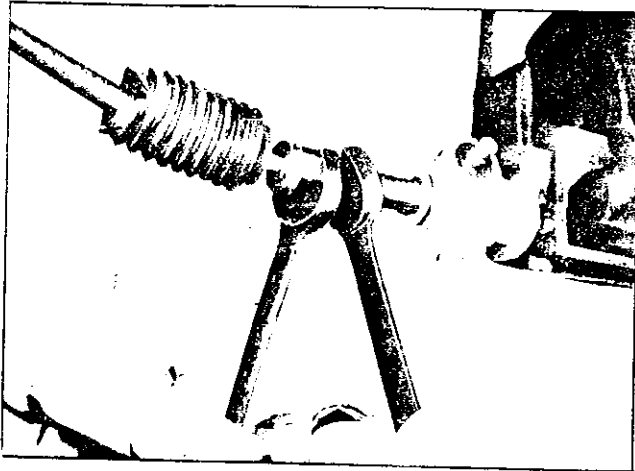


Fig. ST-40 Locking the stopper nut

Stopper nut tightening torque:  
8 to 10 kg-m (57.8 to 72.3 ft-lb)

22. After assembly of the side rod, measure the swinging torque and axial play of the side rod assembly.

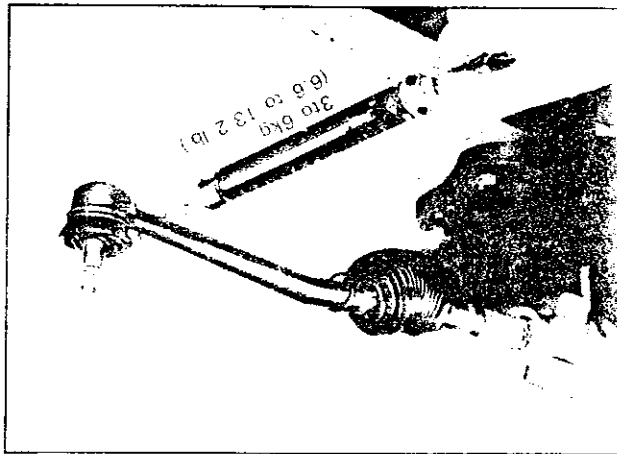


Fig. ST-41 Measuring swinging torque of side rod assembly

Side rod inner ball joint axial play

Side rod inner ball joint swinging torque:  
(at the side rod end)

3 to 6 kg (6.6 to 13.2 lb)

23. Measure the rack stroke.

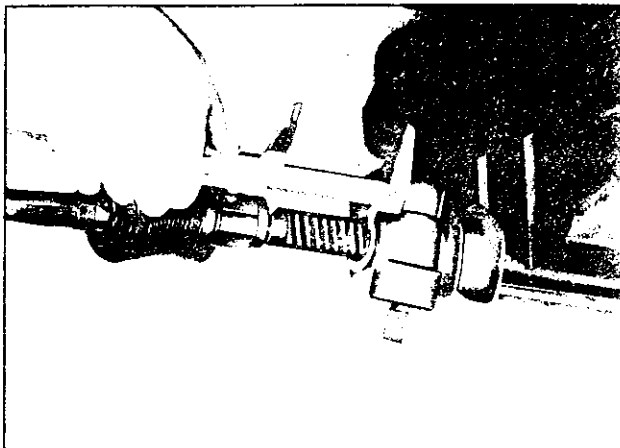


Fig. ST-42 Measuring rack stroke

Rack stroke:  
60.7 mm (2.390 in)

24. Install a grease nipple at both ends of the rack-and-pinion housing, and apply multipurpose NLGI No. 2 grease to each joint.

ST-15

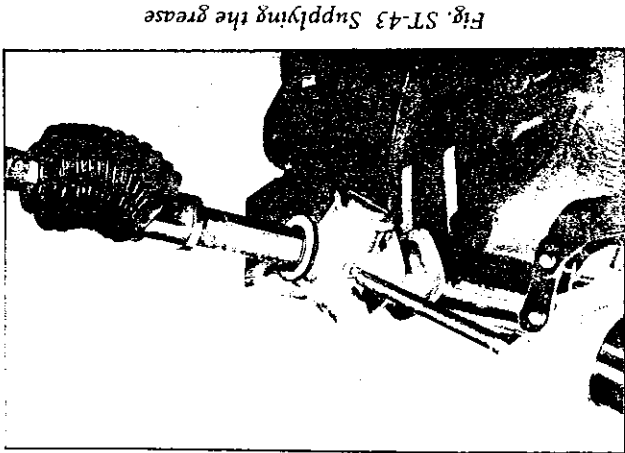


Fig. ST-43 Supplying the grease

Note: Lubrication of the rack ends is made so that a small quantity of new grease appears at the boot grease outlet hole, and lubrication of the pinion housing so that a small amount of grease appears between the rack and housing.  
Do not apply excessive amounts of grease.

25. Remove the grease nipple and install the filler plug.

26. Fit the boot.

27. Fill the grease reservoir with multipurpose NLGI No. 0 grease, and attach the reservoir to the rack housing.

28. Adjust the side rod length. (Both left and right).

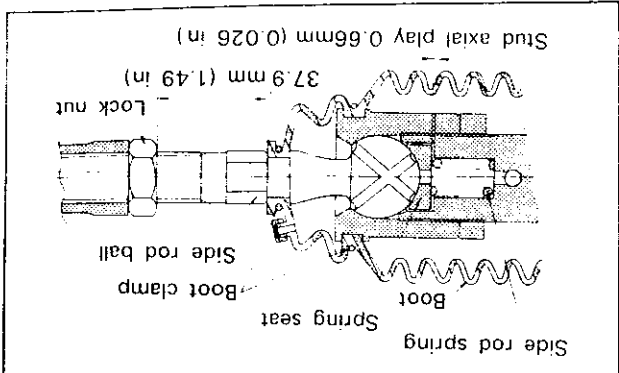


Fig. ST-44 Side rod

29. Fit the steering lower joint to the rack-and-pinion assembly and tighten the lower joint lower bolt.

Lower joint lower bolt: 4 to 5 kg-m  
(29 to 36 ft-lb)

## Installation

Installation is the reverse of removal, taking care that the housing brackets are correctly positioned with the paint mark placed front.

# CHASSIS

## TROUBLE DIAGNOSES AND CORRECTIONS

Troubles in the Front Axle and Front Suspension are discussed at this point, because they are generally associated with steering troubles.

### 1. Vibration, shock, and shimmying of steering wheel

**Vibration:** Too much backlash of the steering gear, wear of linkage parts or the rubber coupling, and vibration of front wheels are, in many cases, transmitted to the steering wheel. This is very noticeable when traveling over rough roads.

**Shock:** When the front wheels are traveling over bumpy roads, shock is transmitted to the steering wheel. This is also very much noticeable when traveling over rough roads.

**Shimmying:** This is abnormal vibration of the front suspension group and the entire steering linkage, and occurs when a specific speed is attained.

| Possible causes                                                          | Corrective action      |
|--------------------------------------------------------------------------|------------------------|
| Improper tire pressure or insufficient tightening of wheel nuts.         | Adjust or tighten.     |
| Difference in height of right and left tire treads.                      | Replace tires.         |
| Incorrect adjustment or wear of front wheel bearing.                     | Adjust or replace.     |
| Collapsing or twisting of front spring.                                  | Replace.               |
| Incorrect wheel alignment.                                               | Adjust.                |
| Incorrect adjustment of brakes (binding).                                | Adjust.                |
| Wear of rubber bushings for fitting transverse link and compression rod. | Replace.               |
| Deformation of steering linkage and suspension link.                     | Replace.               |
| Excessive clearance of side rod inner or outer ball joint.               | Replace.               |
| Loose side rod lock nut.                                                 | Tighten more.          |
| Imbalance of vehicle level.                                              | Correct the imbalance. |



## STEERING

2. Wandering of vehicle in one direction  
 When driving with hands off the steering wheel over a flat road, the car gently pulls to one side of the road.  
 Note: Defective rear suspension may also be the cause of this tendency. Refer to information concerning the rear suspension.

| Possible causes                                                   | Corrective action                 |
|-------------------------------------------------------------------|-----------------------------------|
| Improper tire pressure.                                           | Adjust.                           |
| Imbalance and deformation of loadwheel.                           | Correct the imbalance or replace. |
| Uneven wear of tires and insufficient tightening.                 | Replace or tighten.               |
| Faulty wheel alignment.                                           | Adjust.                           |
| Wear of bushings for fitting transverse link and compression rod. | Replace.                          |
| Loose steering post clamp.                                        | Retighten.                        |
| Wear of steering column bearing.                                  | Replace steering column assembly. |
| Breakage or collapsing of steering column shaft spring.           | Replace.                          |
| Loose rubber coupling bolts or wear of rubber coupling.           | Retighten or replace.             |
| Excessive serration play.                                         | Replace.                          |
| Wear of lower joint journal.                                      | Replace.                          |
| Insufficient tightening of steering gear housing.                 | Retighten.                        |
| Wear of suspension ball joint.                                    | Replace.                          |
| Improper adjustment of retainer. (Too much backlash)              | Adjust.                           |
| Malfunction of shock absorber (inside strut) or loose bolts.      | Replace or tighten.               |
| Imbalance of vehicle level.                                       | Correct the imbalance.            |

### 3. Instability of vehicle

| Possible causes                                                          | Corrective action |
|--------------------------------------------------------------------------|-------------------|
| Improper tire pressure.                                                  | Adjust.           |
| Wear of rubber bushings for fitting transverse link and compression rod. | Adjust.           |
| Incorrect wheel alignment.                                               | Adjust.           |
| Wear and deformation of steering linkage and suspension link.            | Replace.          |

## CHASSIS

### SERVICE DATA AND SPECIFICATIONS

#### SPECIFICATION

|                                             |                                       |
|---------------------------------------------|---------------------------------------|
| Type                                        | Rack-and-pinion type                  |
| Turns of steering wheel (lock to lock)      | 2.7 m (8.9 ft)                        |
| Steering gear ratio                         | 17.8 : 1                              |
| Turning angle of front wheel - inside       | 33° ± 30'                             |
| - outside                                   | 31° 42' ± 30'                         |
| Minimum turning radius                      | 4.8 m (16.0 ft)                       |
| Rack stroke                                 | 60.7 mm (2.390 in)                    |
| Number of pinion teeth                      | 7                                     |
| Center distance between the rack-and-pinion | 15 mm (0.591 in)                      |
| Lubrication period                          | Two years or 40,000 km (24,000 miles) |

#### SERVICE DATA

|                                      |                 |                                     |
|--------------------------------------|-----------------|-------------------------------------|
| Steering column shaft spring         | - Wire diameter | 2.9 mm (0.1142 in)                  |
|                                      | - Free length   | 36.5 mm (1.4370 in)                 |
|                                      | - Coil turns    | 3                                   |
|                                      | - Load x length | 25 kg (55 lb) x 18 mm (0.7087 in)   |
| Retainer spring dimension            | - Wire diameter | 2.6 mm (0.102 in)                   |
|                                      | - Free length   | 26.3 mm (1.035 in)                  |
|                                      | - Coil turns    | 5.5                                 |
|                                      | - Load x length | 20 kg (44 lb) x 16.3 mm (0.642 in)  |
| Side rod spring dimension            | - Wire diameter | 2.6 mm (0.102 in)                   |
|                                      | - Free length   | 19.0 mm (0.748 in)                  |
|                                      | - Coil turns    | 6.3                                 |
|                                      | - Load x length | 40 kg (88 lb) x 17.0 mm (0.669 in)  |
| Side rod inner ball joint axial play |                 | 0.06 mm (0.0024 in)                 |
| Side rod outer ball joint axial play |                 | 0.1 to 0.5 mm (0.0039 to 0.0197 in) |
| Pinion thrust play                   |                 | less than 0.3 mm (0.0118 in)        |
| Retainer float play                  |                 | 0.09 mm (0.0035 in)                 |
| Rack stroke                          |                 | 60.7 mm (2.390 in)                  |

[illegible]

**SERVICE JOURNAL OR BULLETIN REFERENCE**

| STEERING                                  |                                      |
|-------------------------------------------|--------------------------------------|
| Side rod inner ball joint swinging torque | 0.8 to 1.5 kg-m (5.8 to 10.8 ft-lb)  |
| Side rod outer ball joint swinging torque | 0.8 to 1.5 kg-m (5.8 to 10.8 ft-lb)  |
| Pinion rotation torque                    | 8 to 20 kg-cm (7 to 17 in-lb)        |
| Rack preload                              | 8 to 18 kg (17.6 to 39.7 lb)         |
| TIGHTENING TORQUE                         |                                      |
| Steering wheel nut                        |                                      |
| Rubber coupling bolt                      | 1.5 to 1.8 kg-m (10.8 to 13.0 ft-lb) |
| Lower joint bolt                          | 4 to 5 kg-m (28.9 to 36.2 ft-lb)     |
| Retainer lock nut                         | 4 to 6 kg-m (28.9 to 43.4 ft-lb)     |
| Side rod inner socket stopper nut         | 8 to 10 kg-m (52.8 to 72.3 ft-lb)    |
| Side rod lock nut                         | 9 kg-m (65.1 ft-lb)                  |
| Side rod ball stud nut                    | 5.5 to 7.6 kg-m (39.8 to 54.9 ft-lb) |



**NISSAN MOTOR CO., LTD.**  
TOKYO, JAPAN



**DATSUN 240Z SPORTS**  
MODEL S30 SERIES  
**CHASSIS & BODY**

**ENGINE CONTROL,  
FUEL & EXHAUST  
SYSTEM**

**SECTION FE**

**ENGINE CONTROL SYSTEM** ..... FE-1  
**FUEL AND EXHAUST SYSTEM** ..... FE-2

**FE**

# ENGINE CONTROL SYSTEM

## ACCELERATOR LINKAGE

### Description

The accelerator linkage with the minimized weight has been constructed so that it is not affected by the engine vibration and operated smoothly.

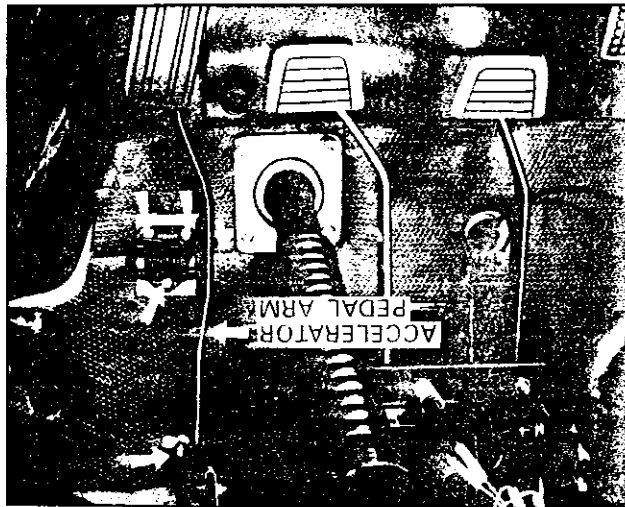


Fig. FE-1 Accelerator pedal arm removal

### Adjustment

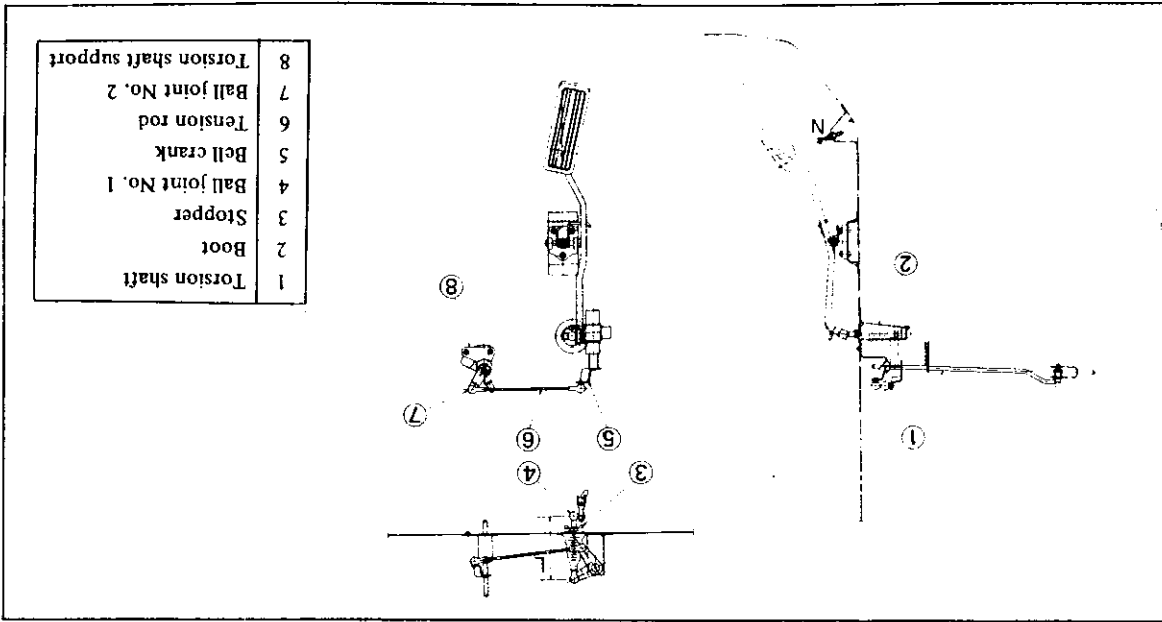


Fig. FE-2 Accelerator linkage setting

1. Remove three screws from the accelerator pedal bracket.
  2. Separate the accelerator rod from the pedal arm at the ball joint.
  3. Remove two bolts from the torsion shaft support in the engine compartment and remove the accelerator linkage.
- Reinstallation is carried out in reverse sequence of removal.

### Removal

1. Properly adjust the screw on the ball joint No. 1 so that the dimension "L" is correctly aligned to 108 mm (4.25 in).
2. Adjust the screw on the ball joint No. 2 properly so that the length of the tension rod (length between both end ball joint centers) is correctly aligned to 182 mm (7.17 in).
3. Install the accelerator linkage on the vehicle, and readjust the tension rod length so that the throttle shaft of the carburetor is correctly positioned in "Fully Close"
4. Upon completion of the above adjustment, depress the accelerator pedal, and adjust the stopper bolt properly so that it comes into contact with the pedal when the throttle shaft is positioned in the "Fully Open" position. Now, turn the stopper bolt clockwise in one full turn and lock the stopper bolt with the lock nut.

## FUEL AND EXHAUST SYSTEM

### CONTENTS

|                |      |               |      |
|----------------|------|---------------|------|
| EXHAUST SYSTEM | FE-2 | FUEL SYSTEM   | FE-4 |
| Description    | FE-2 | FUEL TANK     | FE-4 |
| Removal        | FE-3 | Description   | FE-4 |
| Inspection     | FE-4 | Removal       | FE-4 |
|                |      | FUEL LINE     | FE-5 |
|                |      | FUEL STRAINER | FE-5 |

## EXHAUST SYSTEM

### Description

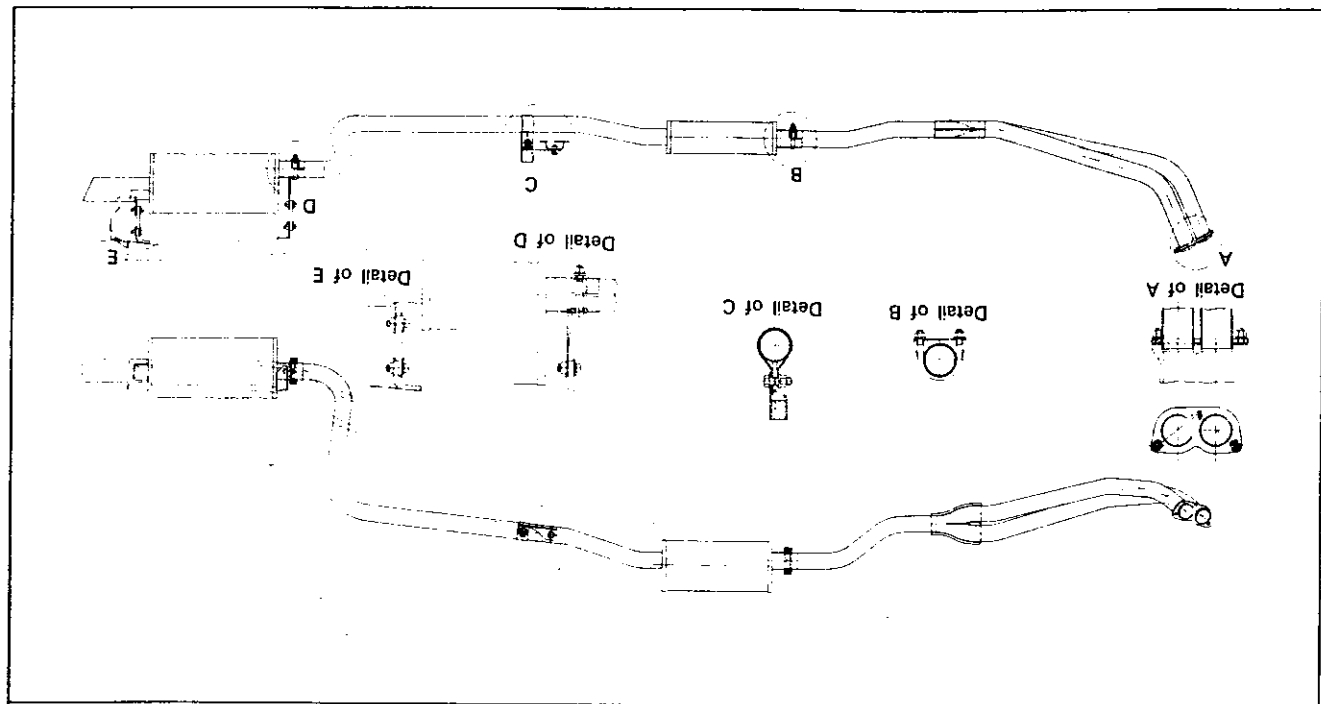


Fig. FE-3 Exhaust system

# ENGINE CONTROL, FUEL & EXHAUST SYSTEM

The exhaust system consists of three units providing front tube, pre-muffler and center tube, and main muffler and tail pipe. As seen in the Figure FE-3, the exhaust system is mounted at the points "C", "D" and "E" and clamped at the points "B" and "D" with U-bolts.

## Removal

1. Remove three front tube and exhaust manifold connecting bolts.

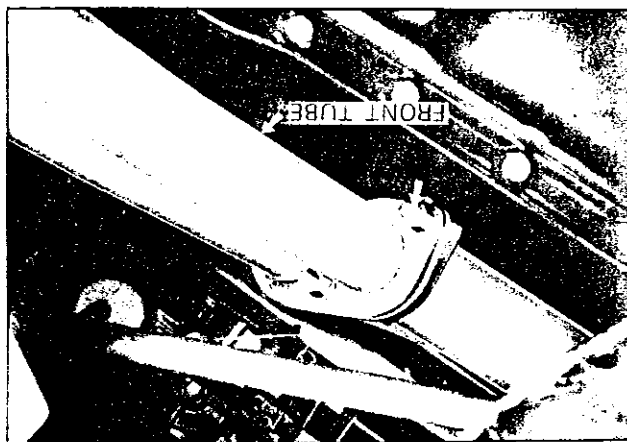


Fig. FE-4 Removing front tube

2. Remove the exhaust hanger strap (the point "E" shown in the Figure FE-3).

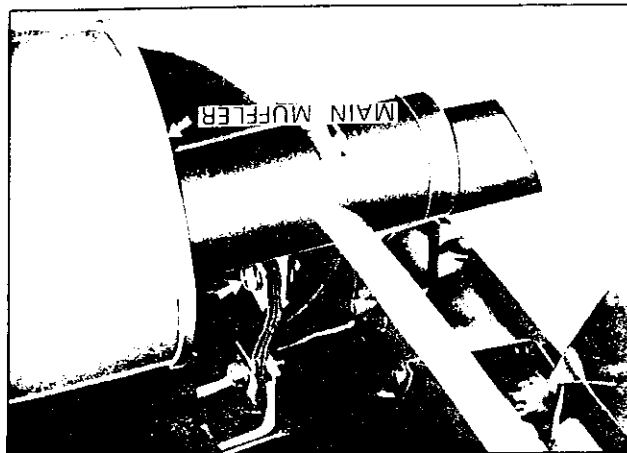
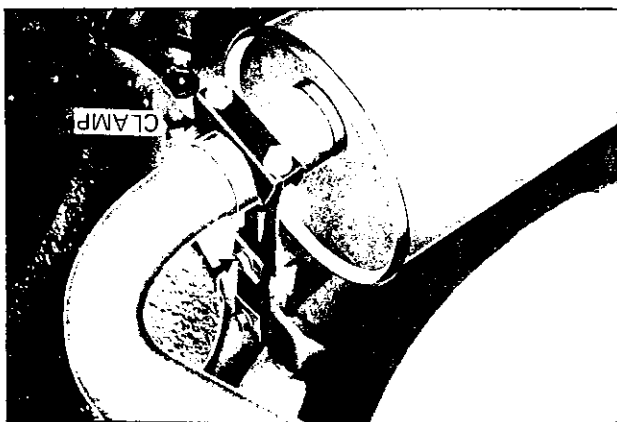


Fig. FE-5 Removing exhaust hanger strap (point "E")

3. Remove the exhaust hanger strap (the point "D" shown in the Figure FE-3).

FE-3

Fig. FE-6 Removing exhaust hanger strap (point "D")



4. Remove the bolt (the point "C" shown in the Figure FE-3.) and dismount the exhaust system.

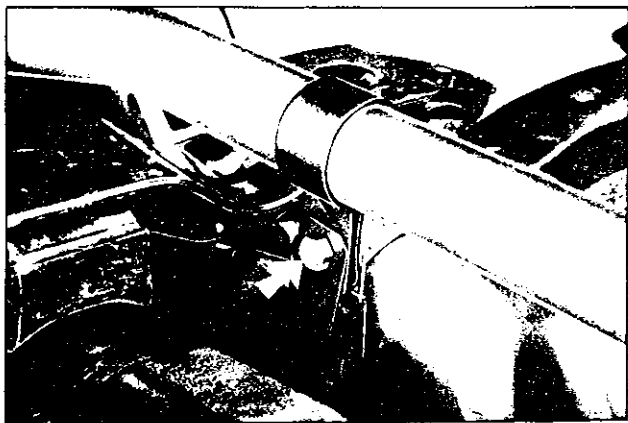


Fig. FE-7 Removing the bolt (point "C")

5. Remove the U-bolts (the points "B" and "D" shown in the Figure FE-3), and separate the exhaust system into three sections.

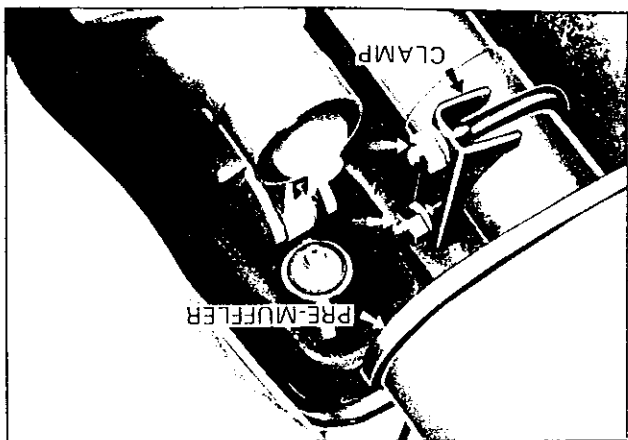


Fig. FE-8 Removing U-bolt (point "B")



## CHASSIS

### Inspection

1. Check the tube and muffler for deformation and damage, and replace as required.
2. Check the insulator rubber and mounting bracket for
3. Upon completion of the reinstallation, check the exhaust system for exhaust gas leaking and exhaust noise.

## FUEL SYSTEM FUEL TANK

### Description

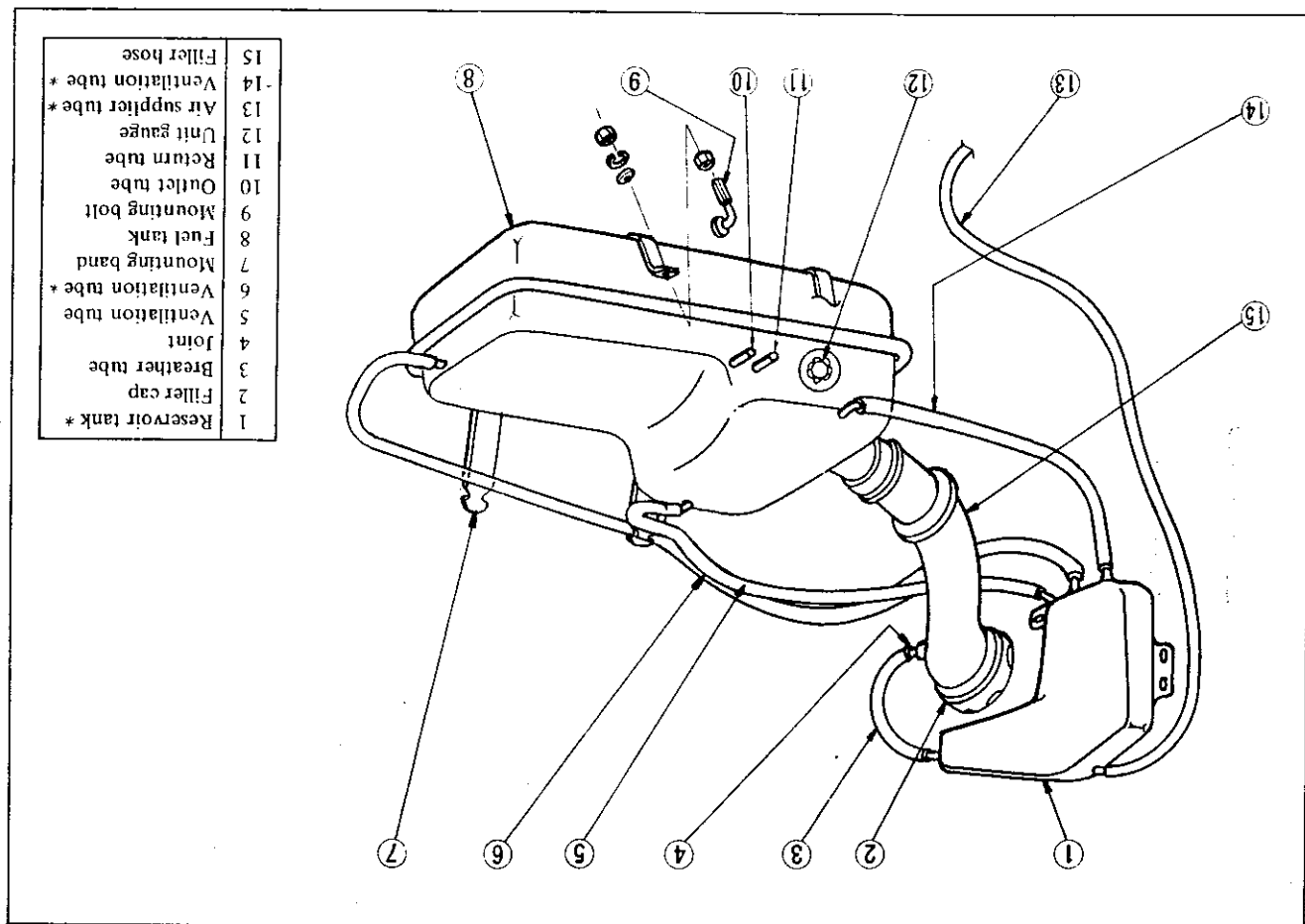


Fig. FE-9 Fuel tank ( \* for California, U.S.A.)

heating. (for California, U.S.A.)

### Removal

1. Remove the drain plug from the tank bottom, and drain fuel completely.
2. Disconnect the unit gauge cable, outlet tube and return tube hoses from the tank.

The fuel tank is installed beneath the rear floor with two bands, and approximately half of it is located beneath the spare tire housing. The fuel tank capacity is 60 liters (15.9 US gal).

The fuel inlet is in the filler lid located in the rear right side panel, and the filler cap is of a hermetic type. The bayonet type unit gauge is installed on the front surface of the tank. A reservoir as shown in the Figure FE-9 is provided so as to relief expansion and bubbles due to

ENGINE CONTROL, FUEL & EXHAUST SYSTEM

## FUEL LINE

The fuel line between the fuel strainer and fuel tank is a molded single unit, and with this construction, fuel leaking is completely prevented. Moreover, the fuel line is provided with a fuel return pipe, and thus, vapor lock and similar phenomenon is prevented.

## FUEL STRAINER

The fuel strainer is a Nylon cartridge type strainer which can be replaced easily. The replacement period is 40,000 km (24,000 miles).

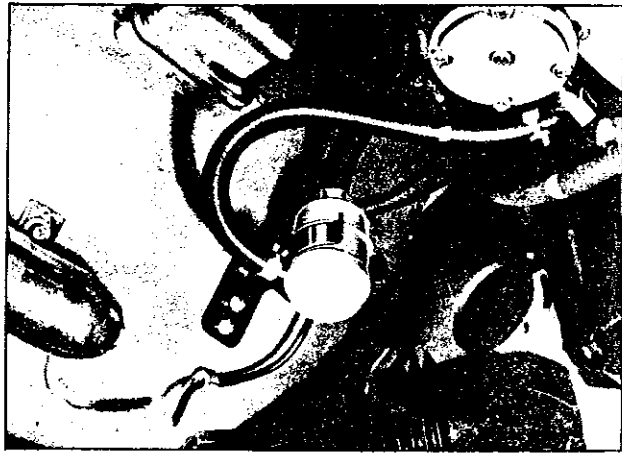


Fig. FE-11 Fuel strainer

3. Remove nuts from two tank securing bands, and slightly lower the tank.

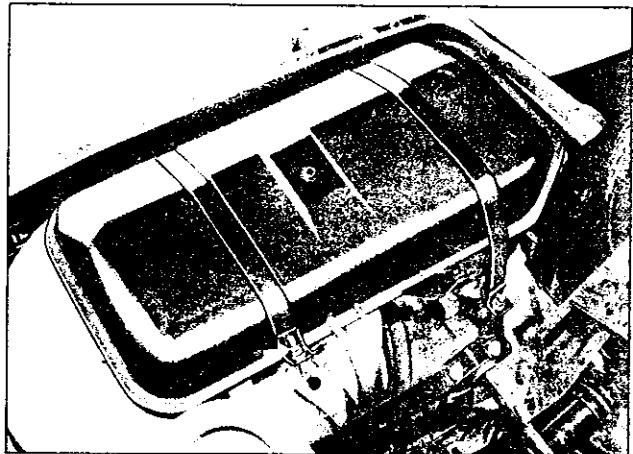


Fig. FE-10 Fuel tank mounting

4. Disconnect three ventilation tubes (used to connect the reservoir to the tank) and filler hose from the tank, and dismount the tank.
5. Disconnect the breather tube and air supplier tube (used to connect the filler hose to the reservoir), remove three reservoir installation bolts, and remove the reservoir.

[illegible]

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CHASSIS

**SERVICE JOURNAL OR BULLETIN REFERENCE**

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TOKYO, JAPAN



DATSUN 240Z SPORTS  
MODEL S30 SERIES  
CHASSIS & BODY

## SECTION BF

### BODY

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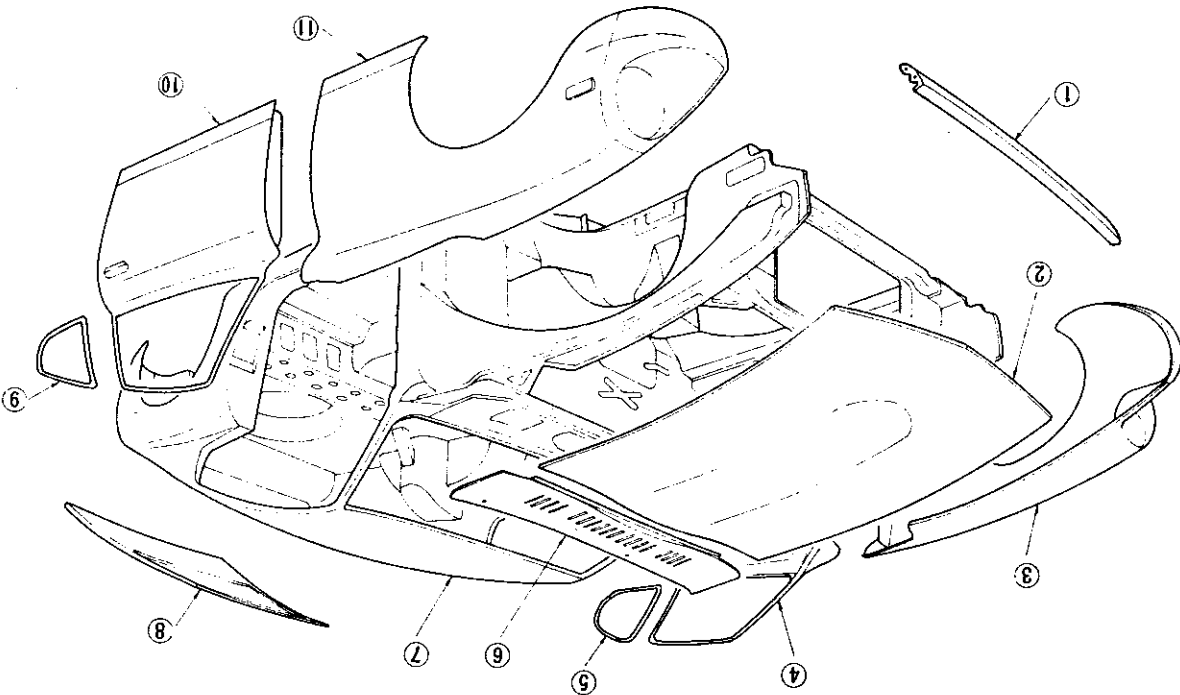
# BODY

## BODY

### Description

The body adopts a unit construction system. With construction, the weight has been reduced to the minimum and rigidity and safety have been highly improved. In order to utilize the rider's compartment effectively, the fuel tank is located beneath the floor and

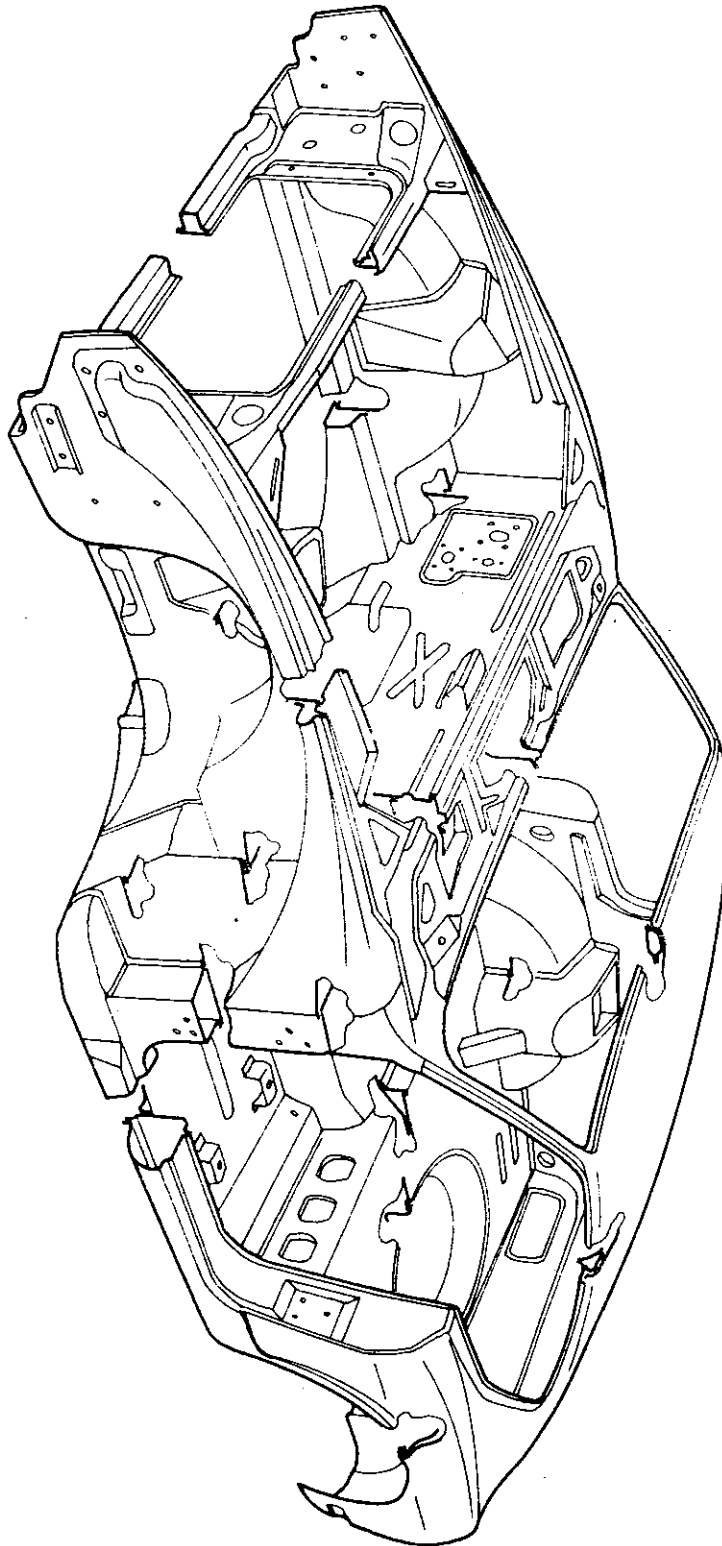
a spare tire is contained in the spare tire housing sunk below the floor level. Thus, flat floor space behind the seats is largely provided for luggage. In addition, the rear of the body is provided with a large tail gate.



|   |                   |    |                   |
|---|-------------------|----|-------------------|
| 1 | Front apron       | 7  | Body main unit    |
| 2 | Hood              | 8  | Tail gate         |
| 3 | Front fender (RH) | 9  | Side window (LH)  |
| 4 | Door (RH)         | 10 | Door (LH)         |
| 5 | Side window (RH)  | 11 | Front fender (LH) |
| 6 | Cowl top grill    |    |                   |

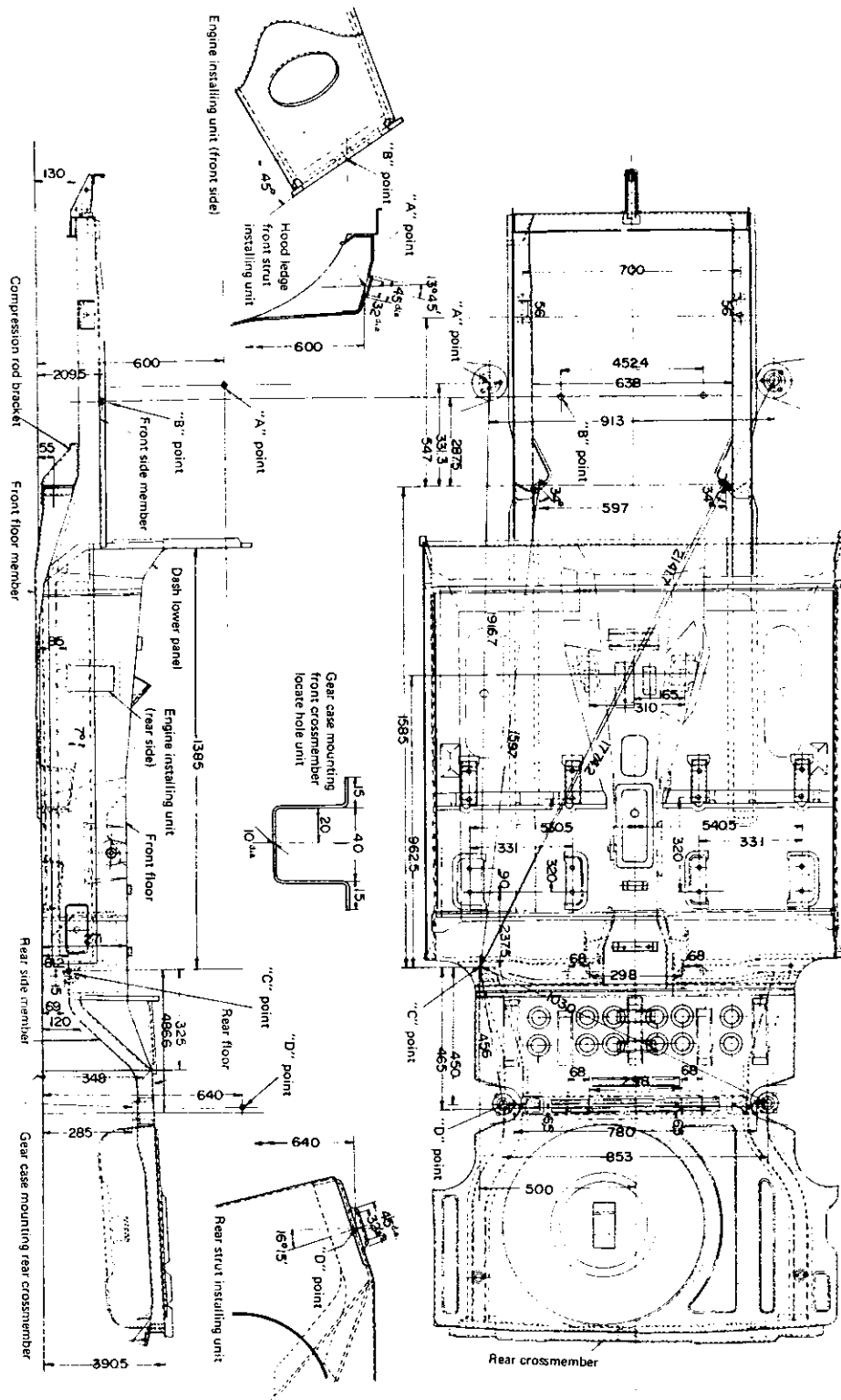
Fig. BF-1 Body structure

Fig. BF-2 Outline of body



BODY

Fig. BF-3 Standard body dimensions



(UNIT : mm)



FRONT END AND FRONT FENDER

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| RADIATOR GRILL | BF-5 |
| BUMPER         | BF-5 |

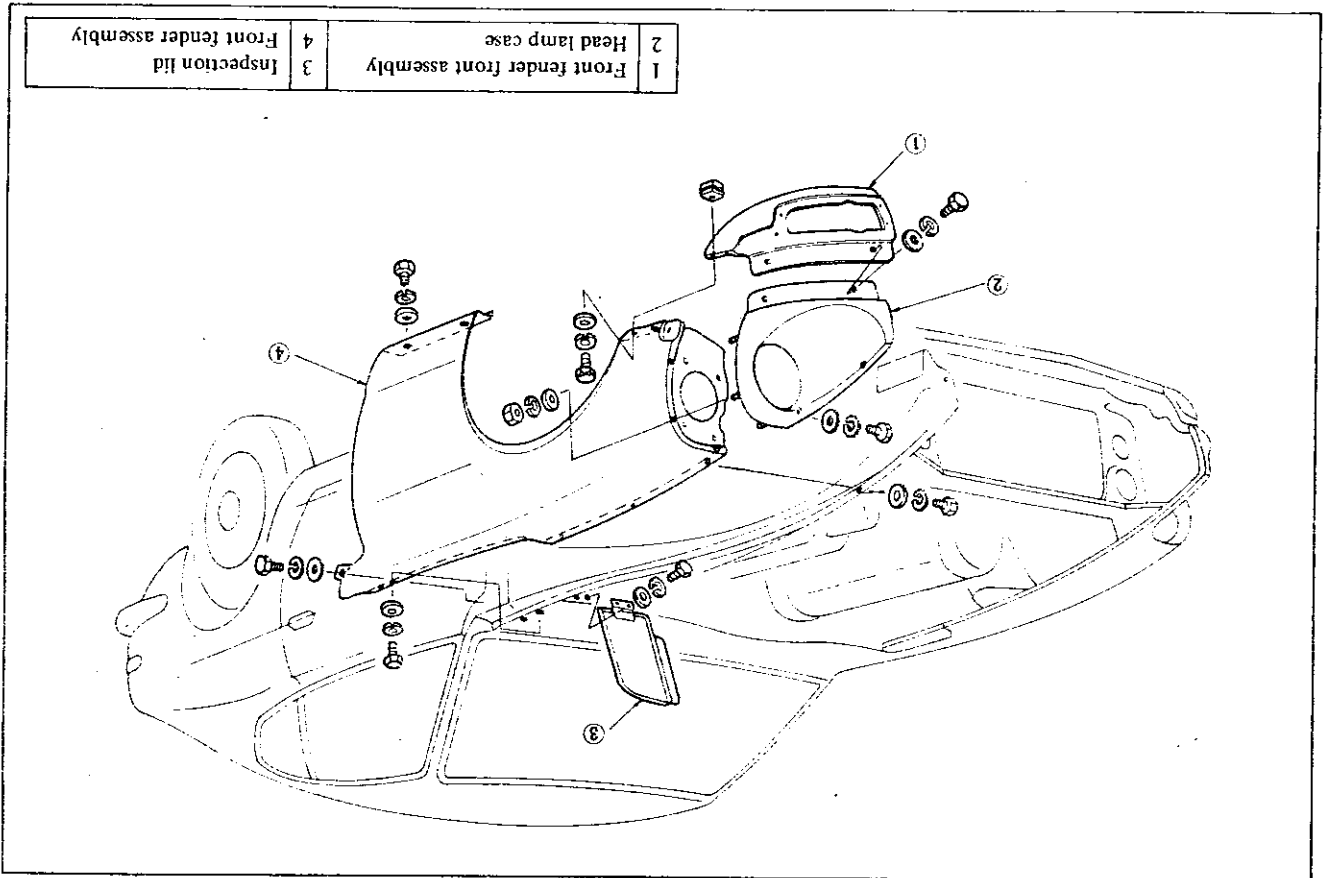


Fig. BF-4 Removing front fender

FRONT FENDER

Removal

1. Remove the front bumper.
2. Disconnect the battery cable from the battery terminal, and remove the head lights and side flasher lamps.
3. Remove the inspection lid and cowl top grill.
4. Remove the front fender front assembly.
5. Remove the head light cases.

## BODY

### RADIATOR GRILL

1. Remove the front bumper, and remove the radiator grill installation screws.

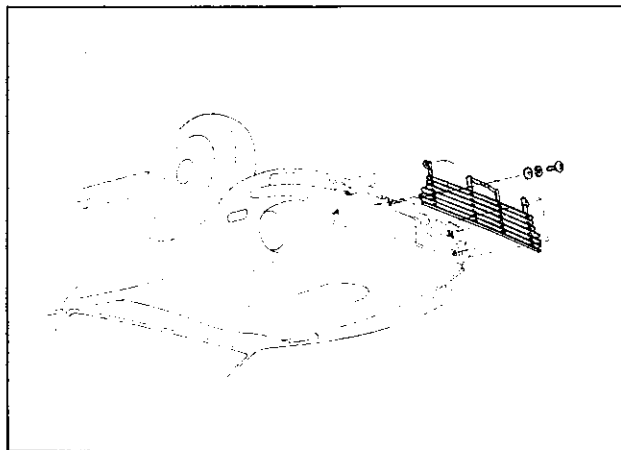


Fig. BF-6 Removing radiator grill

2. Reinstall the radiator grill in reverse sequence of removal.

### COWL TOP GRILL

1. Remove the windshield wiper blades together with the arms.
2. Remove the set screws, and remove the cowl top grill toward the front.

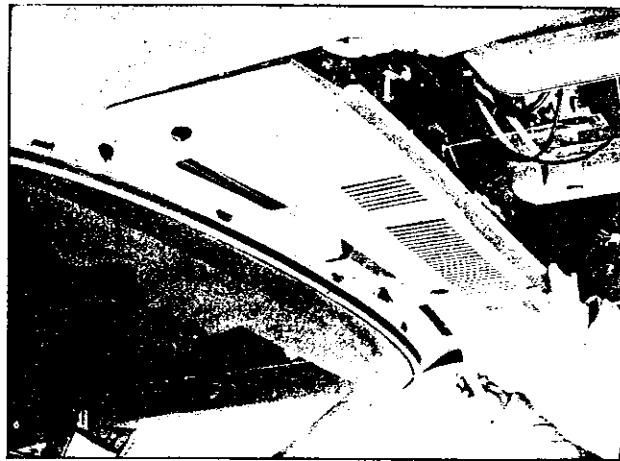


Fig. BF-5 Removing cowl top grill

### BUMPER

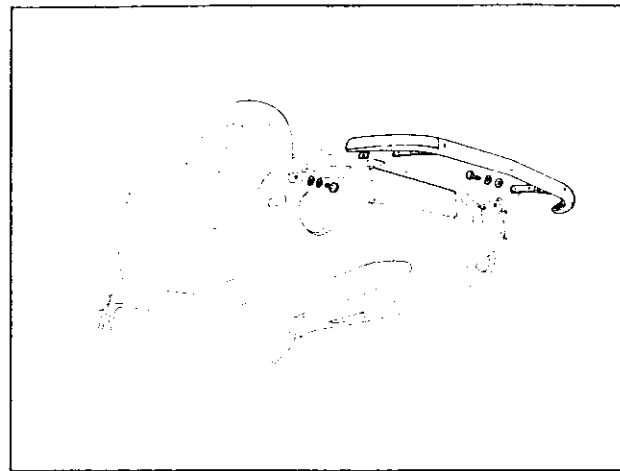


Fig. BF-7 Removing front bumper

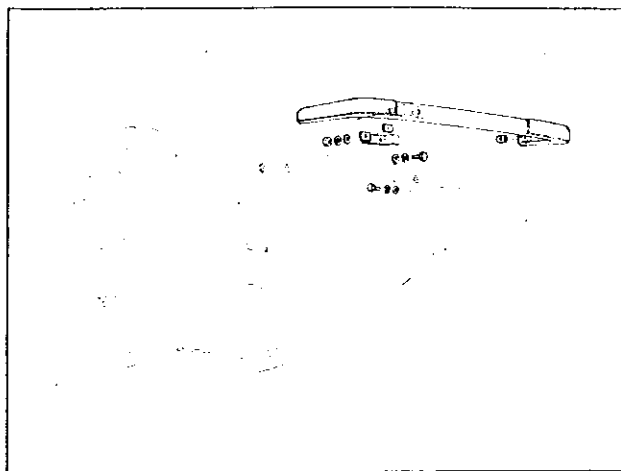


Fig. BF-8 Removing rear bumper

# BODY

## HOOD

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| Removal    | BF-7 | BF-7 |
| Adjustment | BF-7 | BF-7 |

The hood adopts a large size single sheet construction. The hood can be opened widely, and thus, the engine compartment can be inspected easily.

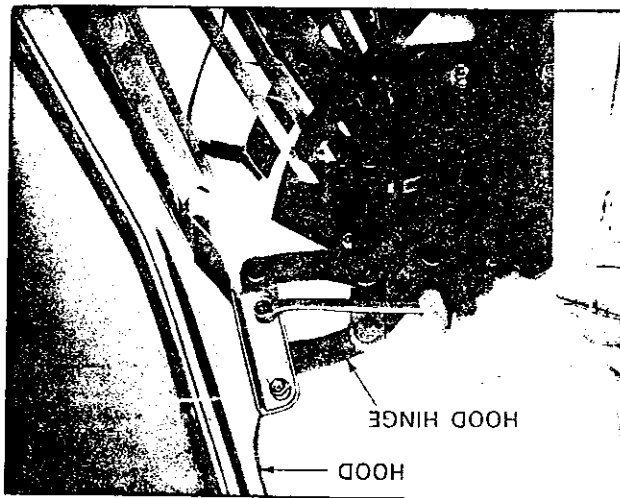


Fig. BF-9 Removing hood

1. Open the hood and remove bolts from both sides.
2. Hold the hood from both sides with two persons, and remove it.

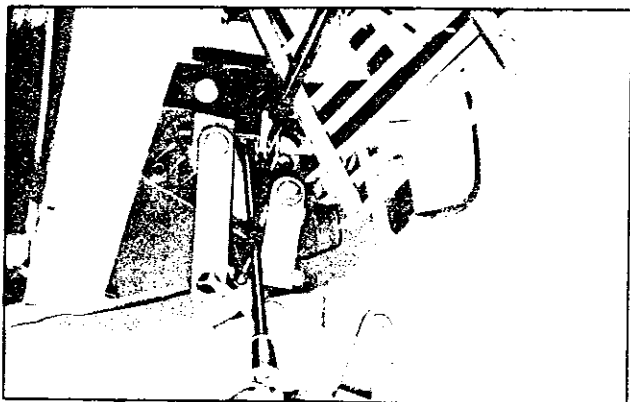


Fig. BF-10 Removing hood torsion bar

### Removal

### HOOD LOCK

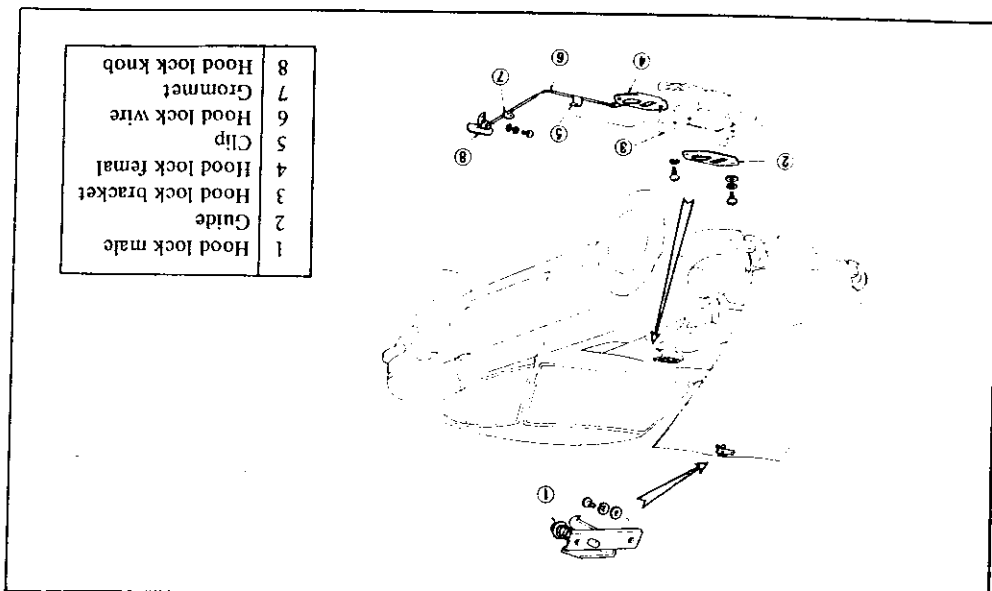


Fig. BF-11 Structural view of hood lock

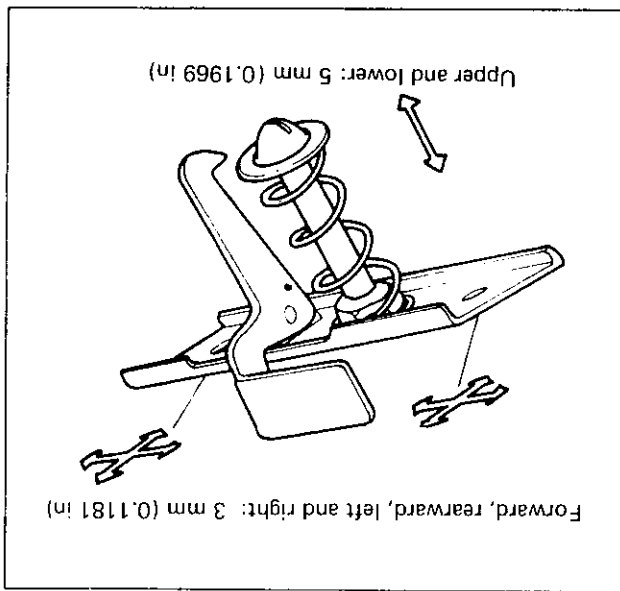
Removal

1. Open the hood, and remove the hood lock male.
  2. Remove the clamp from the hood lock bracket, and remove the ball caulked on the hood lock control cable from the lever of the hood lock female.
  3. Remove the hood lock female and guide from the hood lock bracket.
  4. Remove the hood lock control from the dash side.
- Note: When removing the hood lock control only, the caulked clamp must be opened because the grommet is used commonly with the speedometer cable.

Adjustment

1. When the dovetail of the hood lock male is not coincided with the guide hole, loosen and properly adjust the hood lock male installation bolt.
2. When the lock engagement is too shallow or too deep, adjust the dovetail height properly.

Fig. BF-12 Adjusting hood lock



WINDSHIELD GLASS

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| Reinstallation         | BF 8  |
| TAIL GATE GLASS        | BF 10 |
| SIDE WINDOW            | BF 9  |

FRONT WINDSHIELD GLASS

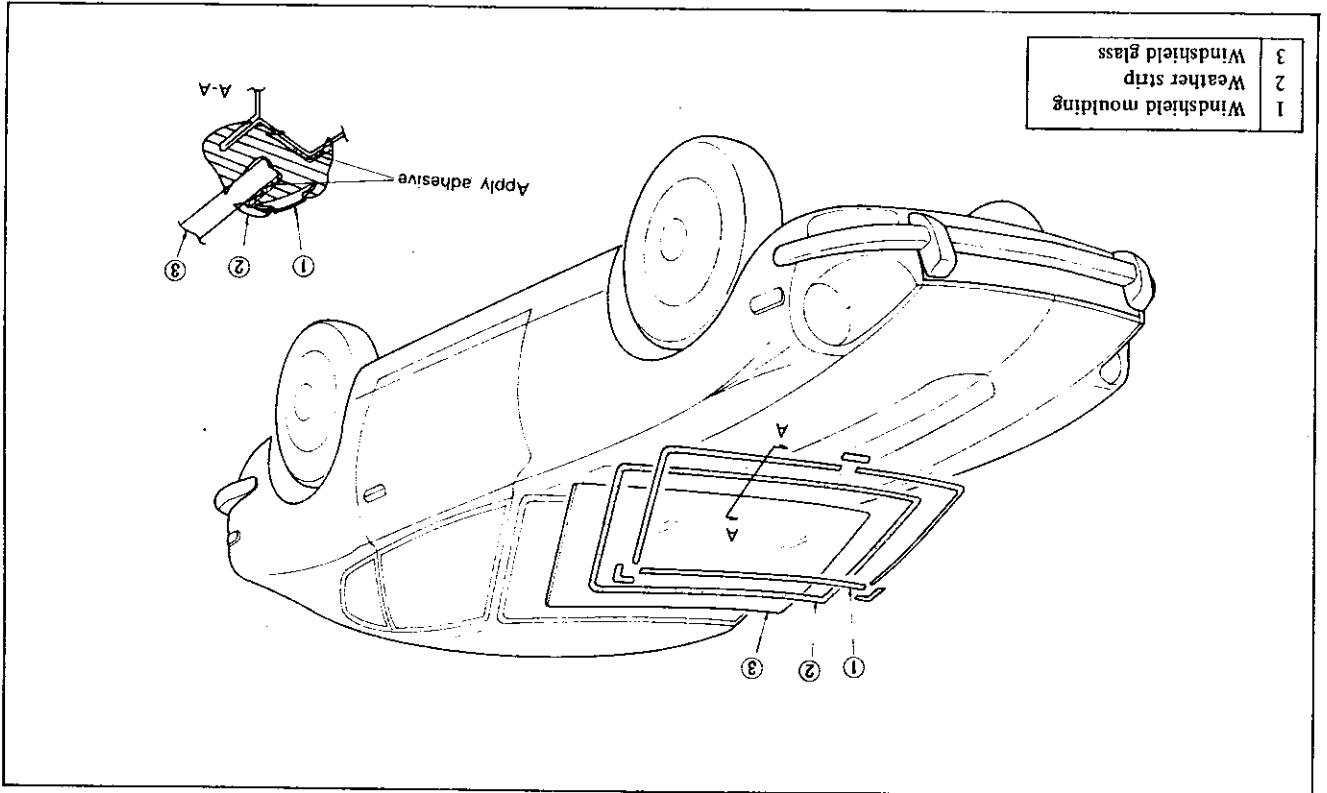


Fig. BF-13 Front windshield glass

Removal

1. Remove the rear view mirror.
2. Remove the instrument panel garnish.
3. Remove the windshield wiper blades together with the arms.
4. Remove the windshield molding.

Note: Be careful not to deform the moulding.

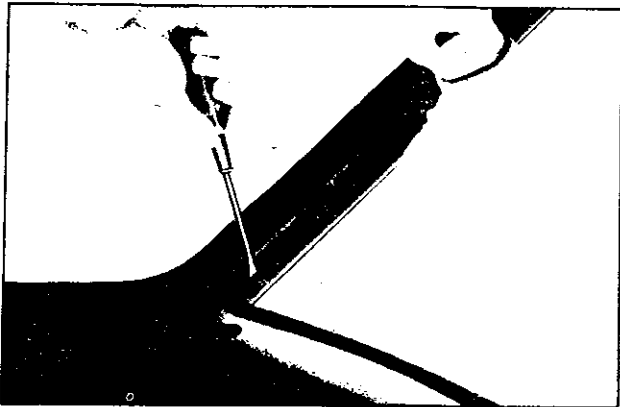


Fig. BF-14 Removing front windshield glass

Note: Recommend the windshield glass removing be started from the upper side portion.

Reinstallation

1. For the installation, use string and spatula shown in Figure BF-15.

5. Detach the adhesion in the windshield flange side by applying a spatula or ordinary (-) headed screw driver from the outside.
6. Depressing the weather strip toward outside, lightly tap and remove the windshield glass to the outside.

Note: The operation should be carried out by two persons, one of them works at outside and the other works at inside.

5. Pull the string (a person working at inside) in such a manner that the weather strip correctly engages with the flange. At the same time, lightly tap the glass (a person working at outside) by hand and assist the person working at inside.

Note: When the weather strip is not fitted into the flange correctly but mounted on the flange, correctly fit the weather strip into the flange by the use of a spatula.

6. Tap the overall glass area lightly to settle the weather strip down on the flange evenly and tightly.

7. Apply adhesive to the entire periphery.

8. Install the windshield moulding.

9. Install the windshield wiper blades and arms.

10. Install the instrument panel garnish.

11. Install the rear view mirror.

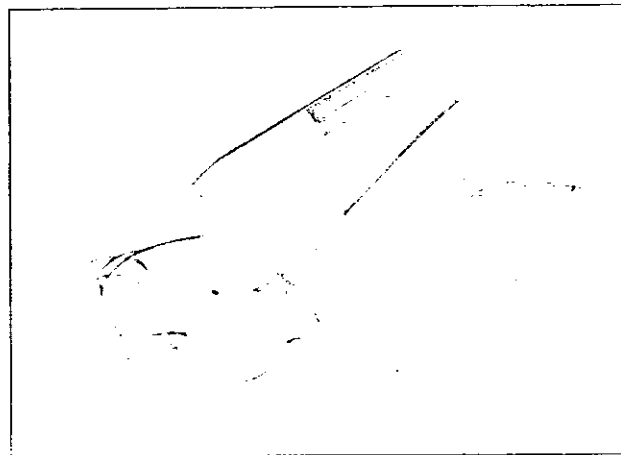


Fig. BF-15 Tools for installation of windshield glass

2. Apply adhesive to the appropriate portions on the weather strip as shown in Figure BF-13, and apply the weather strip to the windshield glass.

3. Apply string into the groove of the weather strip.

4. Set the windshield glass to the windshield flange from the outside, put the string into the compartment

side.

## SIDE WINDOW

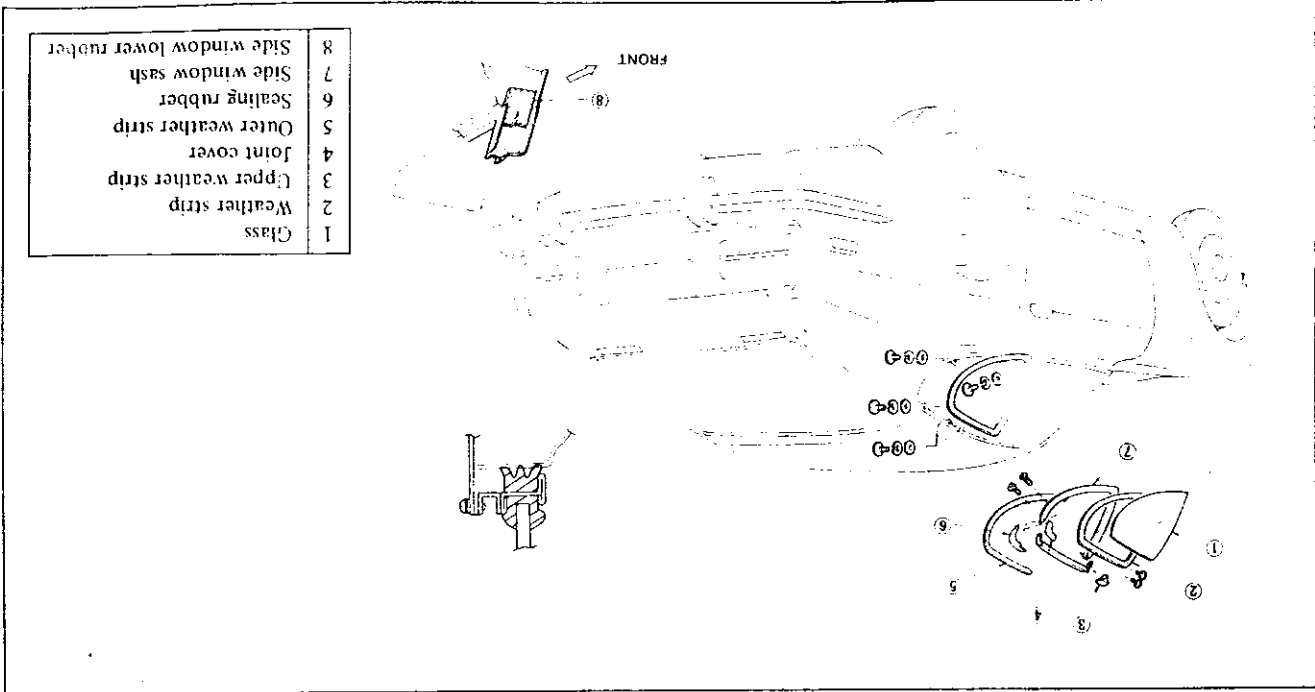


Fig. BF-16 Structural view of side window

# BODY

## TAIL GATE GLASS

For the tail gate glass removal and installation, the instructions for windshield glass apply. However, sealing agent is used in lieu of adhesive.

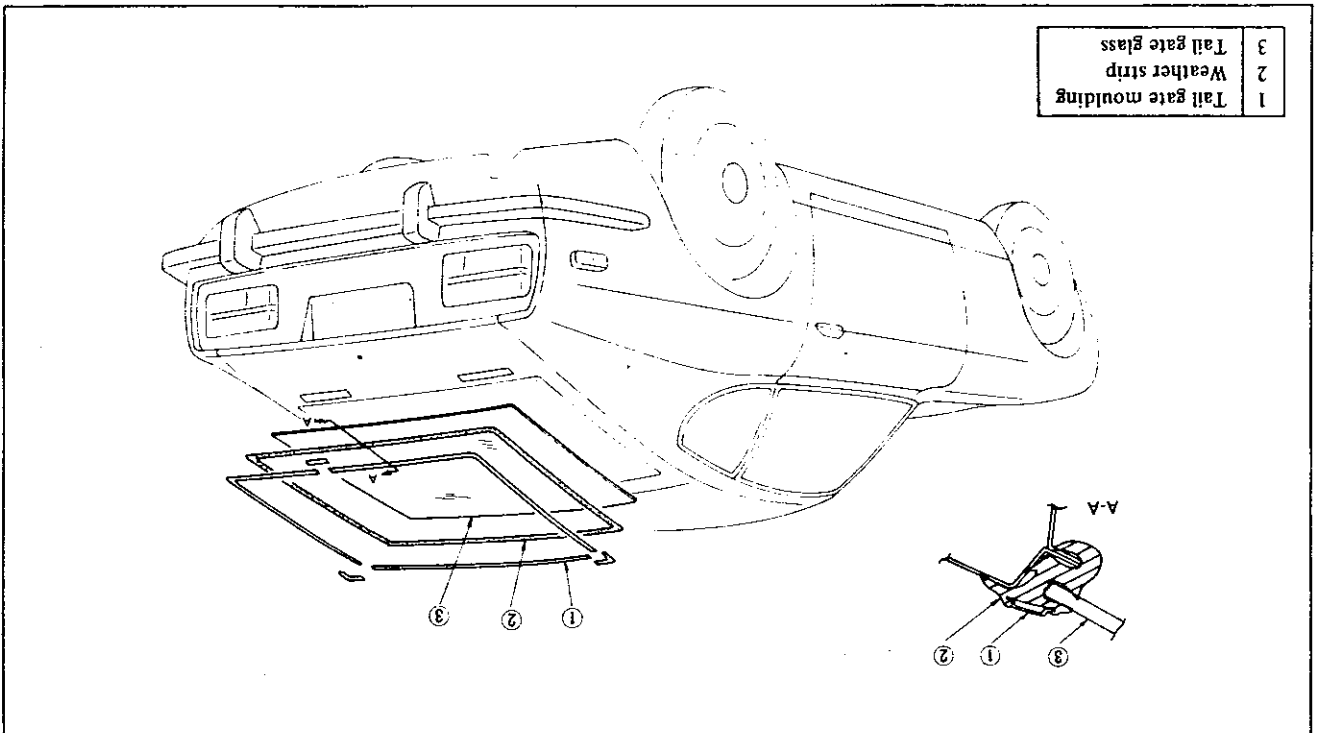


Fig. BF-17 Structural view of tail gate glass

## DOOR

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| BF-11 | Reinstallation           | BF-12 | Adjustment                |
| BF-12 | DOOR LOCK STRIKER        | BF-12 | DOOR REGULATOR HANDLE     |
| BF-13 | DOOR LOCK INSIDE LEVER   | BF-13 | DOOR ASSISTANT STRAP      |
| BF-13 | Reinstallation           | BF-13 | DOOR LOCK INSIDE LEVER    |
| BF-13 | Removal                  | BF-13 | DOOR SASH                 |
| BF-17 | Adjustment of door glass | BF-17 | Removal                   |
| BF-16 | DOOR GLASS               | BF-16 | DOOR WINDOW REGULATOR AND |
| BF-16 | Removal                  | BF-16 | DOOR OUTER MIRROR         |
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| BF-18 | DOOR LOCK INSIDE LEVER   | BF-18 | Removal                   |
| BF-18 | Reinstallation           | BF-18 | DOOR LOCK                 |
| BF-19 | DOOR TRIM                | BF-19 | Removal                   |
| BF-15 | DOOR SEALING SCREEN      | BF-20 | Reinstallation            |
| BF-10 |                          |       |                           |

The door, eliminating front side glass ventilation window, adopts curved glass, obtaining wide rider compartment space. The door main unit is rigidly constructed, the outer panel is provided with two stiffeners, and thus, together with the highly rigid inside panel shape, the strength, rigidity, and safety of the rider compartment are highly improved.

For both sides, one each block door lock is installed. The window glass regulator which supports the window glass is of an X-shape double arm type. The side handle is buried in the door, eliminating projection from the interior and improving the safety.

DOOR

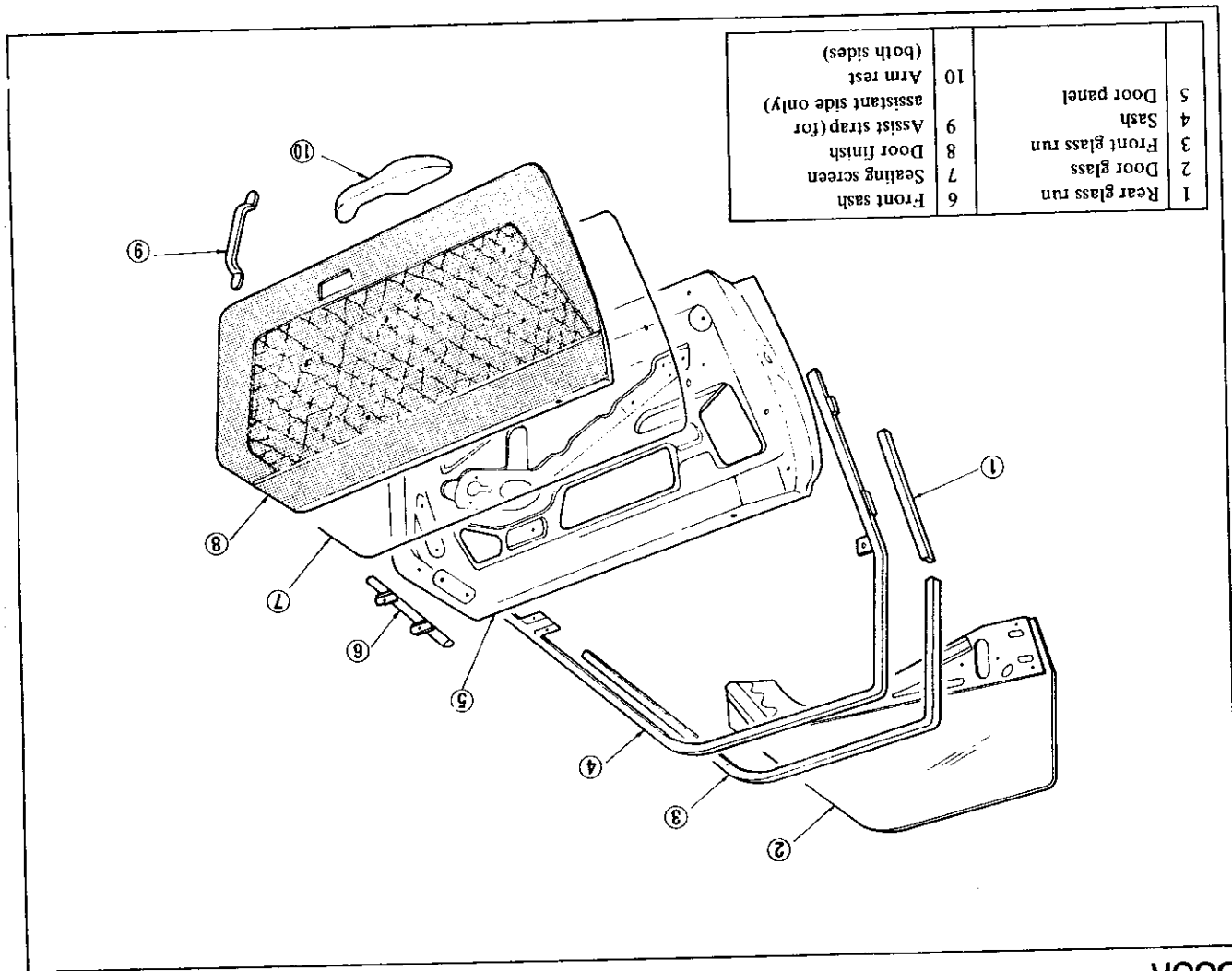


Fig. BF-18 Structural view of door

Removal

- The door may be removed with or without hinges installed on the door. Remove the door with the hinges installed on the door when adjustment is required later. The following instructions are for removal of door with the hinges installed on the door.
1. Disconnect the battery cable from the battery terminal.
  2. Disconnect the horn relay from the dash side (driver's seat side only).



## BODY

3. Remove the hood lock control installation bracket (driver's seat side only).

4. Remove the dash side trim.

5. With the door opened fully, support the door by applying a stand beneath the door or by means of a jack so that the door is dropped down.

**Note:** Apply a piece of rag between the door and the stand or jack so as to protect the door panel from scarring.

6. Remove the door hinge installation bolts from the body side.

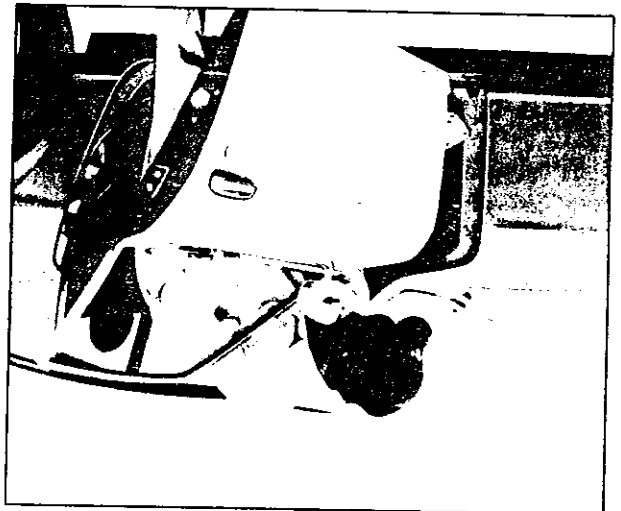


Fig. BF-19 Removing the door

When removing the door without the hinges (the hinges are remained on the body), remove the door side installation bolts from the hinges and remove the door from the hinges.

## Reinstallation

Reinstall the door in reverse sequence of removal.

Door hinge installation bolt tightening bolt 0.9 to 1.1 kg-m (6.5 to 8.0 ft-lb).

**Note:** a. Before installing the door, be sure to apply grease to the hinge link.

b. When the door squeaks during opening and

BF-12

## Adjustment

1. When adjusting the door alignment, adjust the body side installation bolts on the hinge. The door side installation bolts on the hinges are not adjustable.

Adjusting stroke: 3 mm (0.1181 in) to upper, lower, forward and rearward

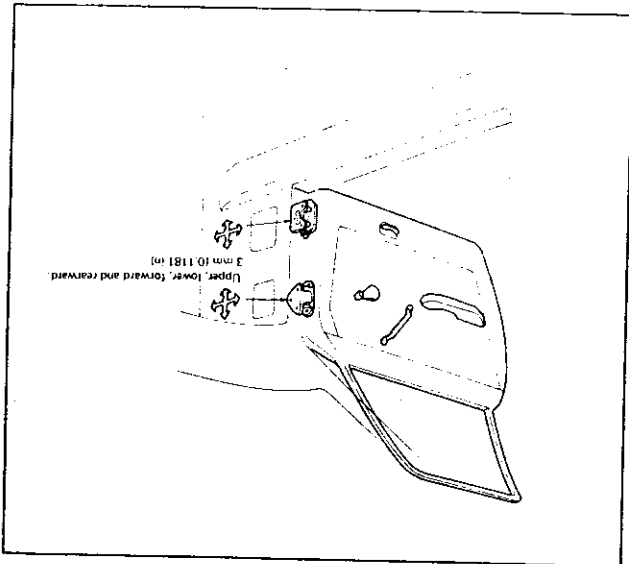


Fig. BF-20 Adjusting door hinge

## DOOR LOCK STRIKER

1. Adjust the door position when closed.
2. Adjust the door lock striker correctly so that the door can be closed lightly and securely.

3. Adjust the door lock striker position with three striker installation screws. A dovetail used to protect the door from lowering is tightened together with the striker. Adjust the dovetail also when adjusting the door lock striker.

Adjusting stroke: 3 mm (0.1181 in) to upper, lower, right and left directions

Note: Recommend the tool shown in the Figure BF-22 be made and used for this operation.

2. Remove the door handle from the door.

## Reinstallation

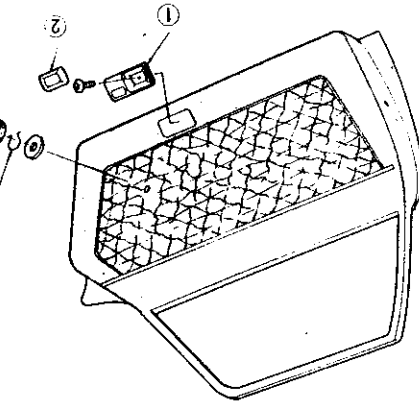
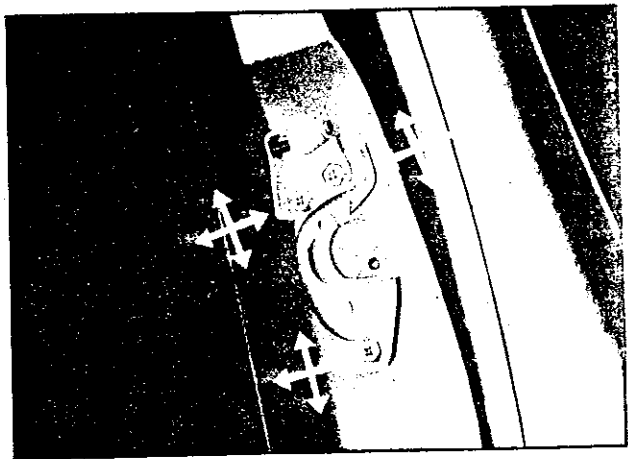
Reinstall the door regulator handle in reverse sequence of removal.

## DOOR REGULATOR HANDLE

### Removal

1. Raising the door regulator handle forward, withdraw the pin.

Fig. BF-21 Adjusting striker



|   |                       |
|---|-----------------------|
| 1 | Escutcheon            |
| 2 | Cover                 |
| 3 | Door regulator handle |
| 4 | Spring clip           |

Fig. BF-22 Removing door regulator handle

## DOOR LOCK INSIDE LEVER

1. Remove the cover, screw, and escutcheon in that sequence with an ordinary (-) headed screw driver.

ESCUTHEON

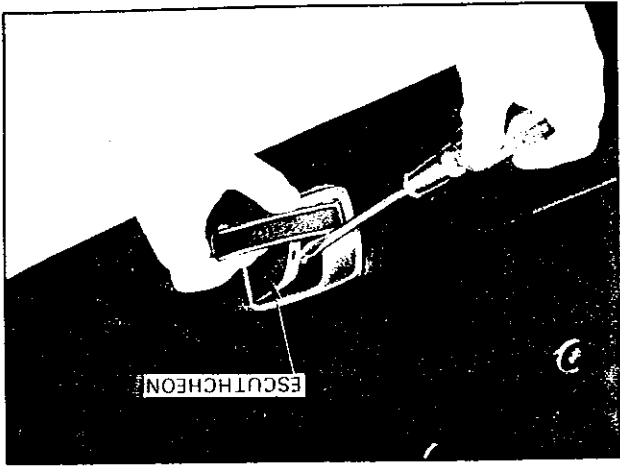


Fig. BF-23 Removing cover

DOOR ASSISTANT STRAP

Removal

1. Raise the cover with an ordinary [(-) headed] screw driver.
2. Remove the installation screws with a cross-headed screw driver.
3. Remove the assistant strap.

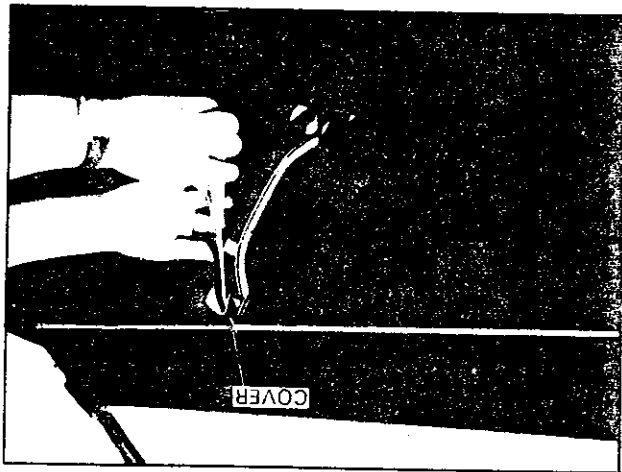
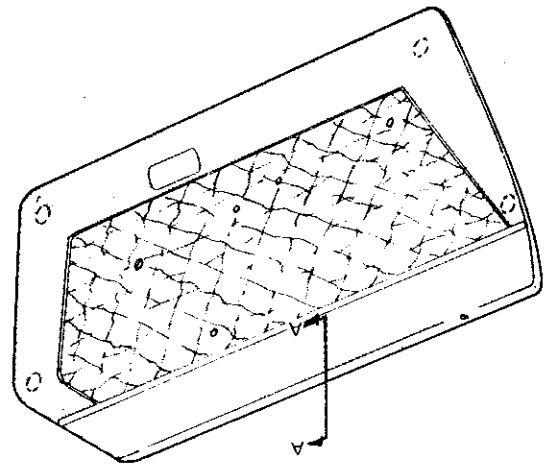


Fig. BF-24 Removing assist strap cover

DOOR TRIM



|   |            |    |            |
|---|------------|----|------------|
| 5 | Urethane   | 10 | Door trim  |
| 4 | Leather    | 9  | Door panel |
| 3 | Brush      | 8  | Cap        |
| 2 | Panel      | 7  | Clip       |
| 1 | Hard board | 6  | Moulding   |

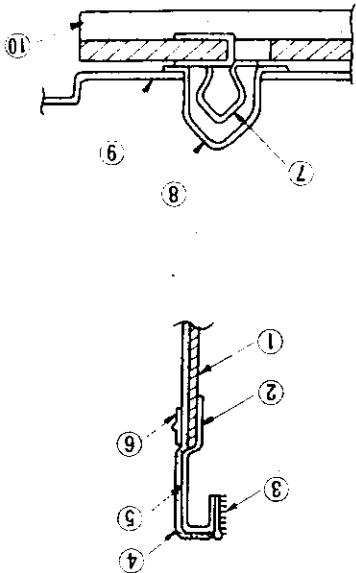


Fig. BF-25 Removing door trim

## Removal

1. Remove the inside handle, escutcheon, and regulator handle from the door.
2. Remove the arm rest, assistant strap, and door lock knob from the door.
3. Insert an ordinary [(-) headed] screw driver between the door finish and door inner panel, and unhook the door finish clips from the door panel.
4. Raising the door finish, remove it.

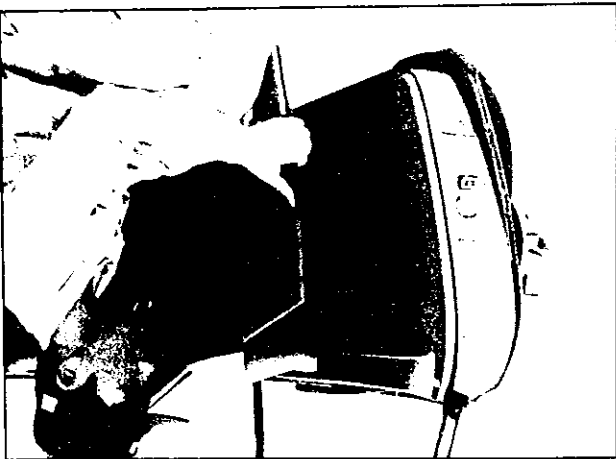


Fig. BF-26 Removing door finish

## DOOR SEALING SCREEN

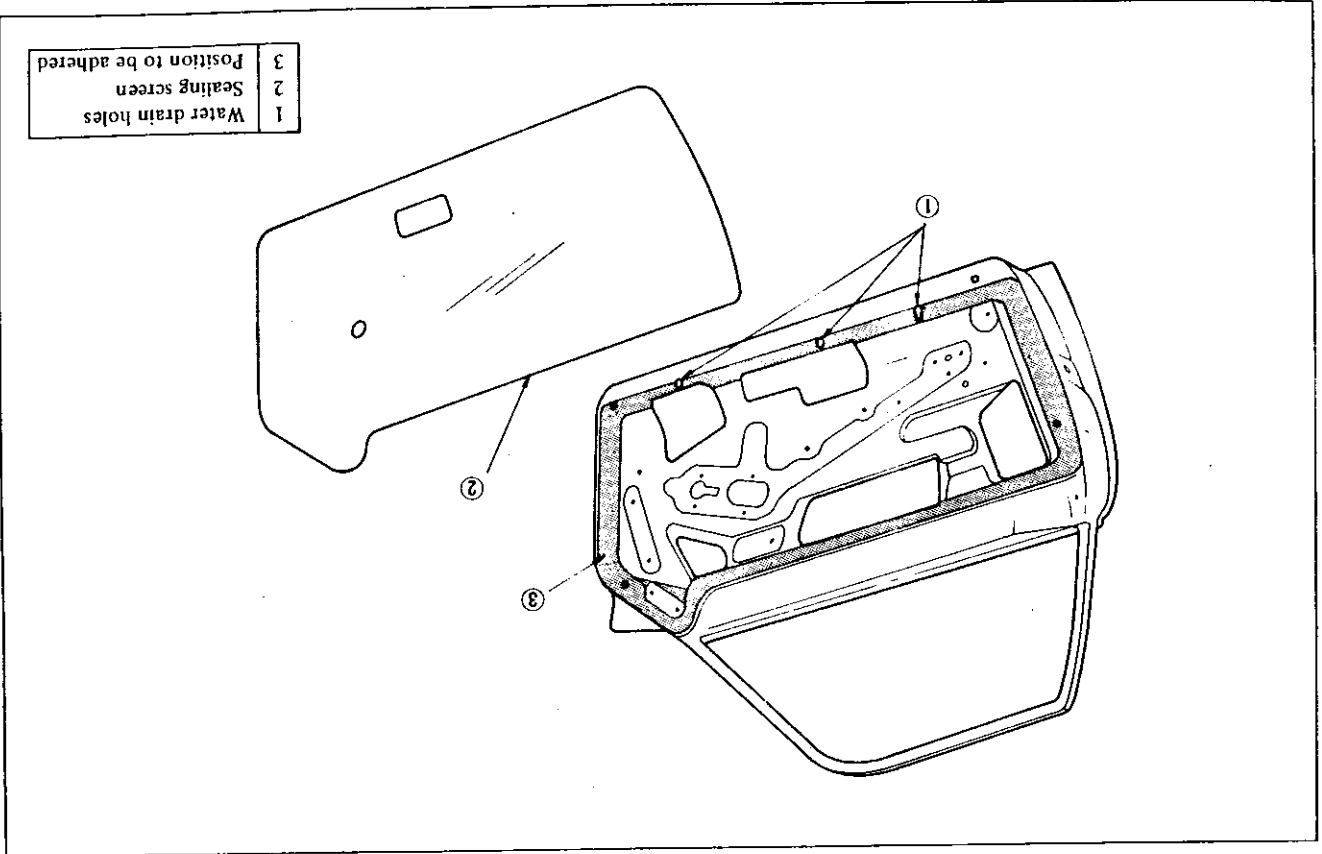


Fig. BF-27 Installing door sealing screen

## Installation

1. Apply adhesive to the panel, and stick the sealing screen on the panel.
2. Be careful not to choke the water drain hole on the inner panel.
3. Stick the sealing screen carefully and correctly so that the adhered surface is not wrinkled.
4. Remove the door glass assembly. (For the details, refer to page BF-17.)
5. Loosen the nuts by applying tool from the opening on the door inner panel.
6. Remove the outer mirror.

## DOOR OUTER MIRROR

### Removal

1. Remove the door components up to extent of the

## DOOR WINDOW REGULATOR AND DOOR GLASS

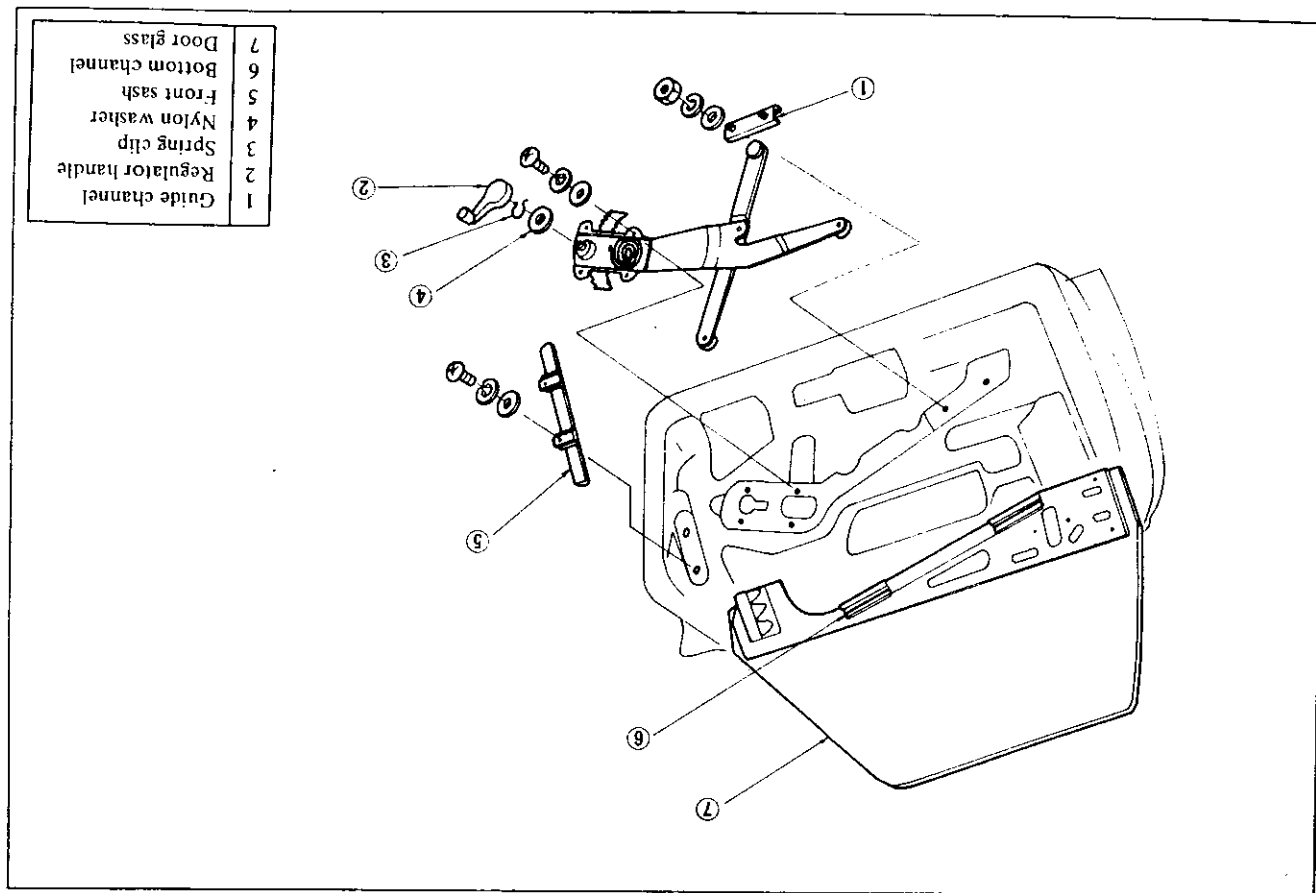


Fig. BF-28 Door window regulator and door glass

## Removal

1. Remove the door components up to extent of the door sealing screen.

2. Remove the door outside moulding and glass bumper with an ordinary [(-) headed] screw driver.

3. Raise the glass to the top, slide the front window sash downward, and remove it.

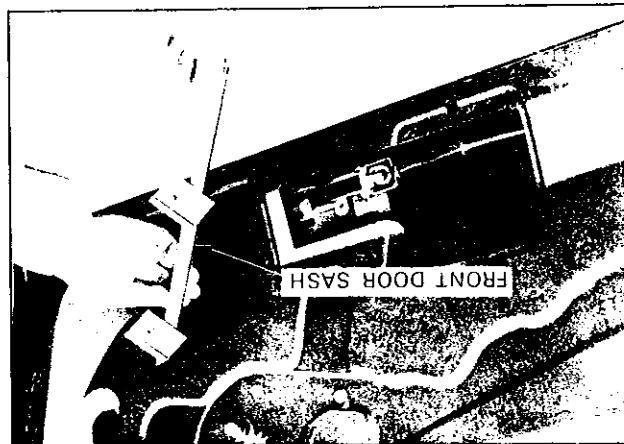


Fig. BF-29 Removing front door sash

4. Lower the window glass down to a half level, and remove the bottom channel from the regulator roller.
5. Raising the rear end of the glass slightly, remove it upward.
6. Remove the regulator assembly and glass guide channel.

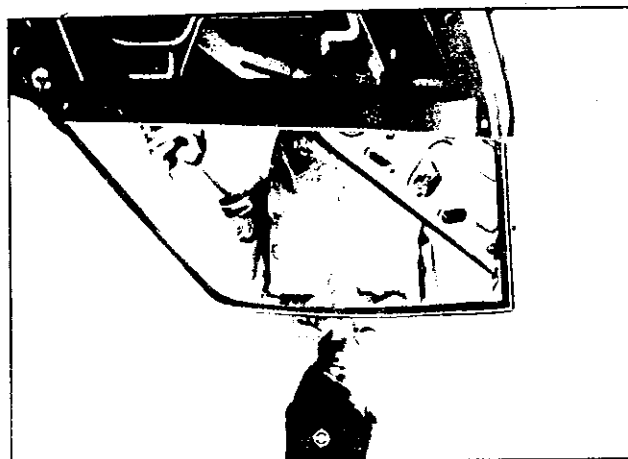


Fig. BF-30 Removing door glass

BF-17

## Adjustment of door glass

1. Install the door outside moulding and glass bumper before adjusting the glass alignment.

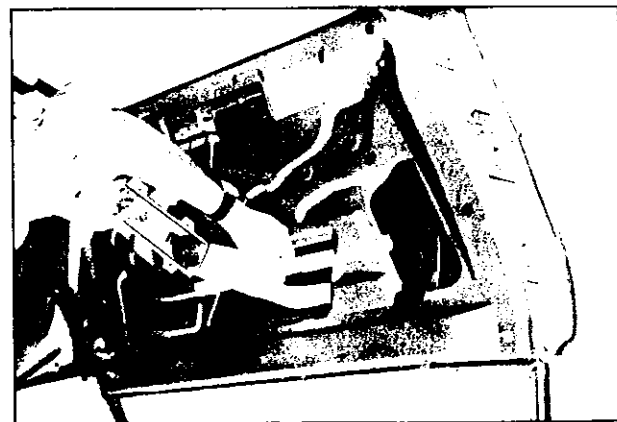


Fig. BF-31 Removing door window regulator

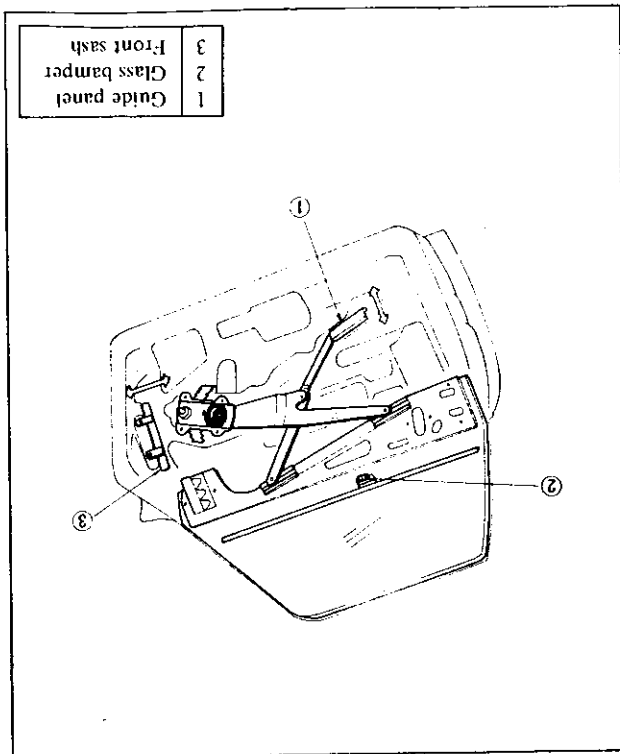


Fig. BF-32 Adjusting door glass

2. Adjust the guide channel and front sash properly so that the window glass rises and lowers smoothly along the front sash.

3. Slide the window glass up and down, and make sure that the rear edge of glass is connected applied to the sash. If not, move the guide channel downward, secure it temporarily, and tighten completely after ensuring that
4. Be sure to install the front sash and in parallel.

## DOOR SASH

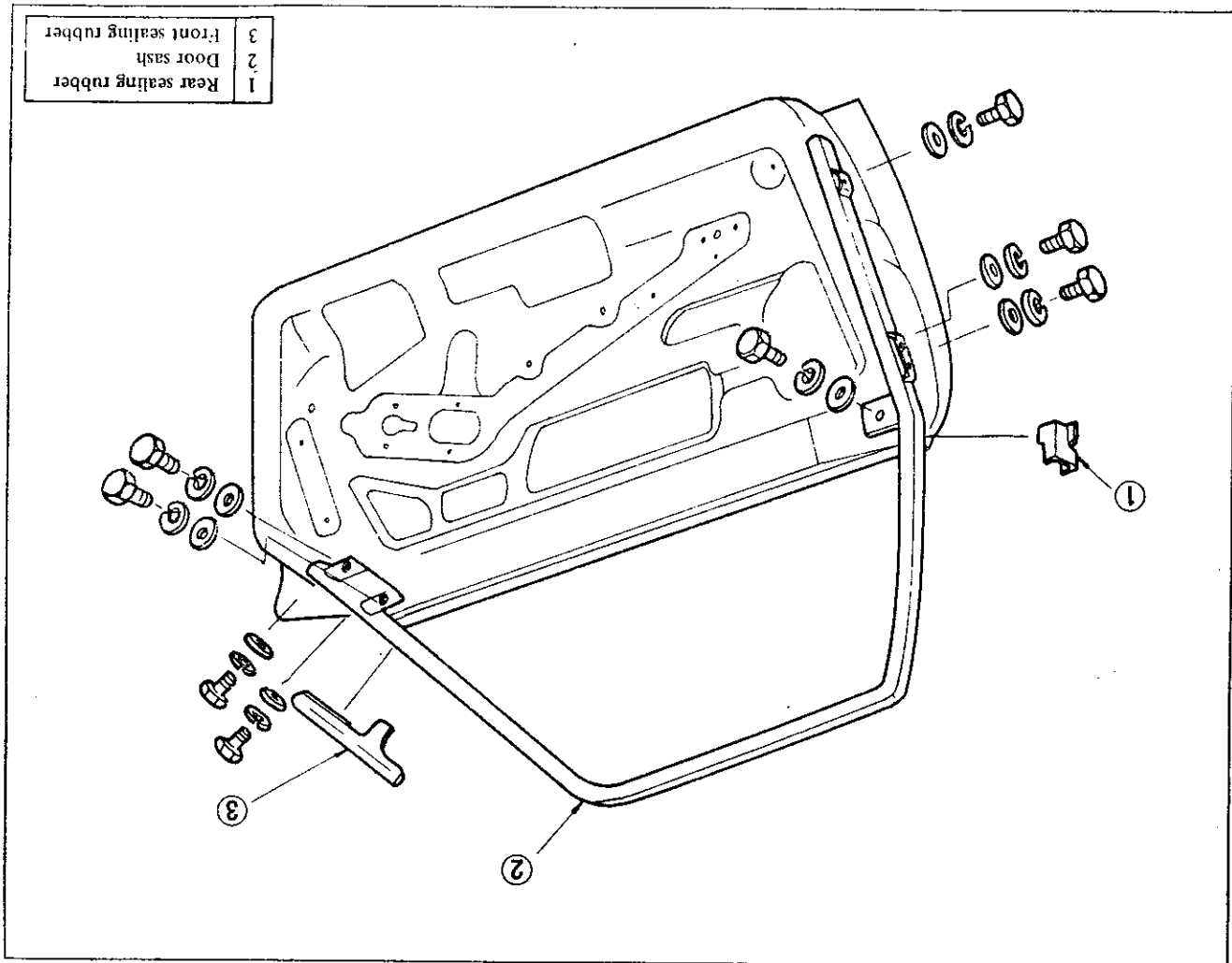


Fig. BF-33 Removing door sash

## Removal

1. Remove the door components up to extent of the door glass.

2. Remove both the front and rear sealing rubbers.

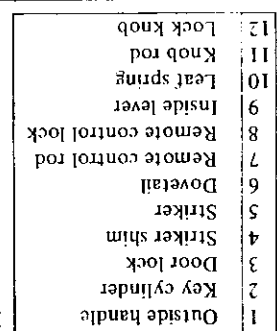
3. Remove the door sash.

## Reinstallation

Note: The door sash can be adjusted slightly. Adjust as required.



8F-19



-



the door lock main unit, remove the lock main unit from the opening on the inside panel.

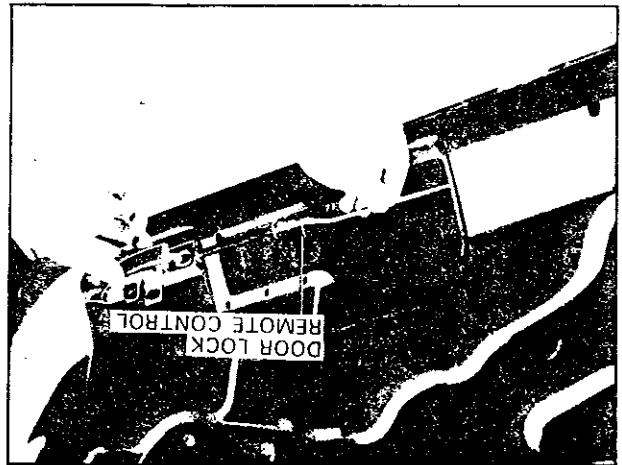
7. Remove the key cylinder installation plate clip, and remove the key cylinder.

8. Remove the nut from inside of the door, and remove the outside handle.

### Reinstallation

Install the door lock in reverse sequence of removal.

**Note:** Be sure to screw the door knob lock into the rod after installing the door finish.



6. Remove the door lock main unit installation screw, and removing the outside handle rod from the opening on

## TAIL GATE

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| Adjustment .....              | BF-22 |
| Removing tail gate lock ..... | BF-22 |

### Description

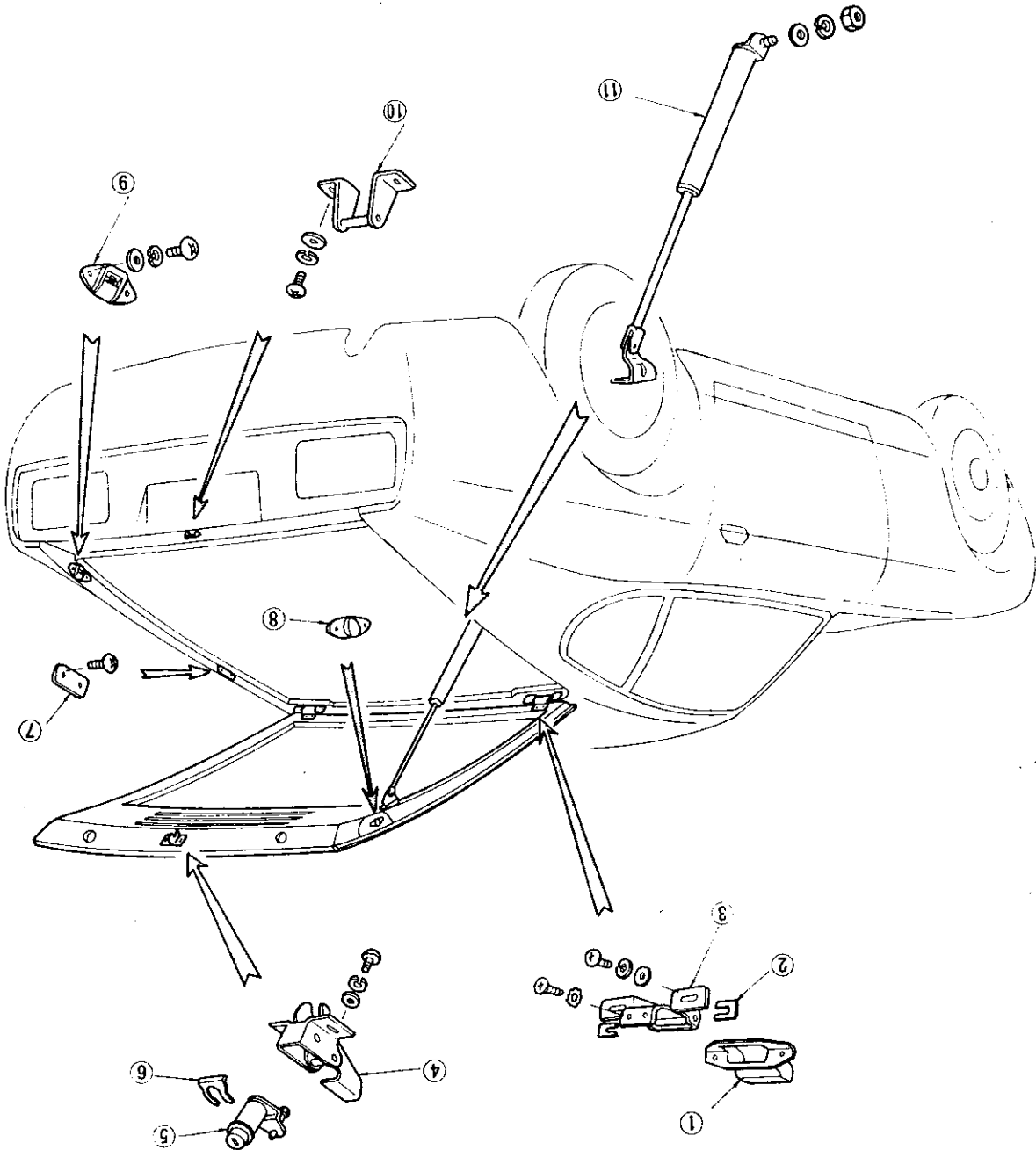
The tail gate opened upward adopts a single-sheet construction, and thus, luggages can be loaded and unloaded conveniently.

The tail gate stay adopts a gas spring (filled with nitrogen gas) increasing the operating smoothness and improving the external appearance.

**Note:** The gas spring is filled with highly compressed nitrogen gas. Do not disassemble the tail gate stay.

Fig. BF-37 Structural view of tail gate

|    |                 |
|----|-----------------|
| 4  | Tail gate lock  |
| 3  | Tail gate hinge |
| 2  | Shim            |
| 1  | Seal cover      |
| 5  | Key cylinder    |
| 6  | Leaf clip       |
| 7  | Bumper rubber   |
| 8  | Dovetail        |
| 9  | Down stopper    |
| 10 | Striker         |
| 11 | Tail gate stay  |



BODY

## Removal

1. Open the tail gate and remove the tail gate stay.

Note: Do not disassemble the tail gate stay because it adopts the high pressure gas spring.

2. Hold a piece of rag between the tail gate and roof, and securely support the tail gate.

3. Remove the hinge and tail gate installation screws.

4. Hold the tail gate from both sides (two persons are required), and remove it.

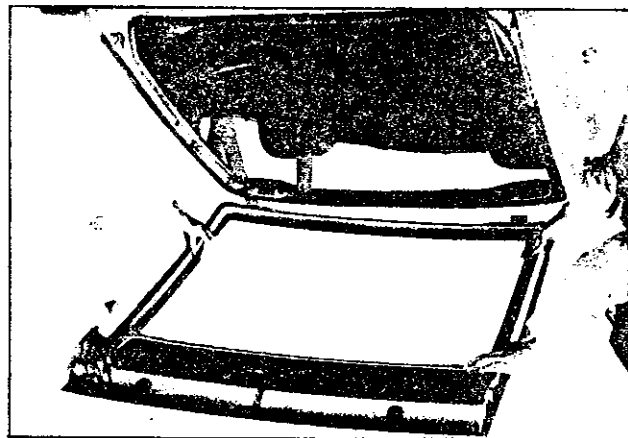


Fig. BF-38 Removing tail gate

## Removing tail gate lock

1. Remove the lock from the tail gate.
2. Remove the trim, insert hand into the gate, remove the leaf clip, and remove the key cylinder.
3. Remove the license plate lamp, and remove the striker.
4. The down stopper and rubber bumper can be removed simply by loosening the installation screws.

## Adjustment

### Tail gate hinge

1. Adjust the tail gate position at the section between the hinge and and body.

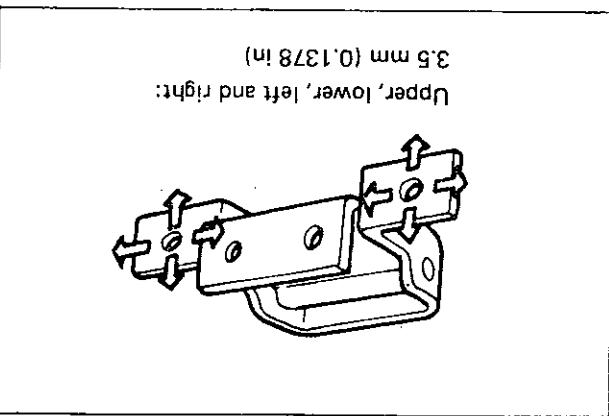


Fig. BF-39 Adjusting tail gate hinge

### Tail gate lock

For the front and rear directions, adjust the tail gate lock at the lock proper, and for the upper and lower directions, at the striker. Moreover, the adjustable range toward the left and right sides is 5 mm (0.1969 in).

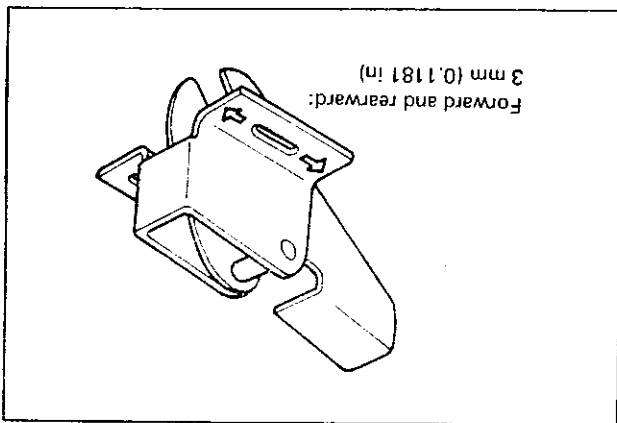


Fig. BF-40 Lock proper

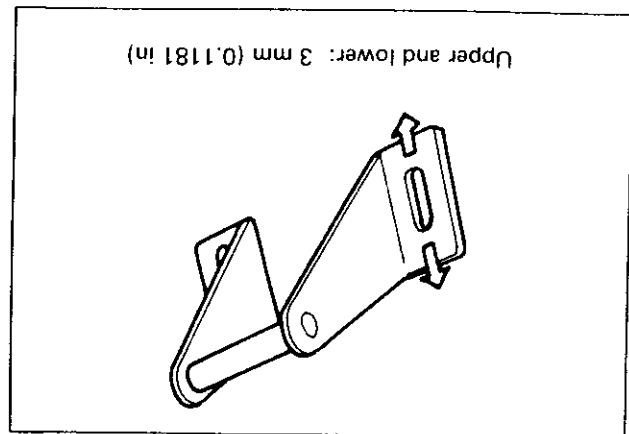
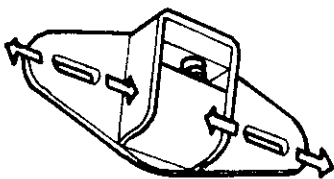


Fig. BF-41 Striker

Down stopper

The down stopper is adjustable to the front and rear directions only. For the upper and lower directions, the adjustable range is 5 mm (0.1969 in).



Forward and rear: 2.5 mm (0.0984 in)

Fig. BF-42 Down stopper

REAR PANEL FINISHER

|   |                 |
|---|-----------------|
| 1 | Clipped point   |
| 2 | Left finisher   |
| 3 | Center finisher |
| 4 | Right finisher  |
| 5 | Plastic rivet   |
| 6 | Rear panel      |
| 7 | Finisher        |
| 8 | Plastic rivet   |

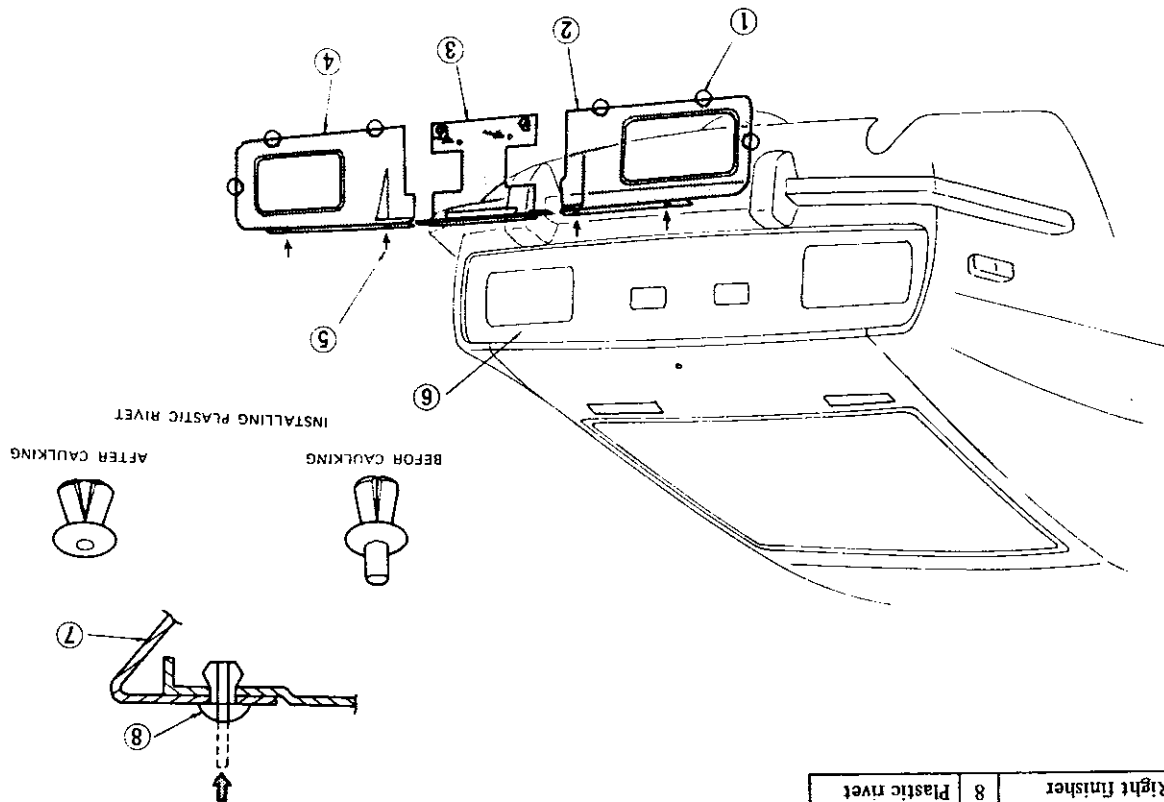


Fig. BF-43 Rear panel finisher

The finisher is split into three pieces providing the bottom is secured with clip installed on the body side, and the top is secured with plastic rivets.

## Removal

1. Remove the plastic rivet from the finisher.

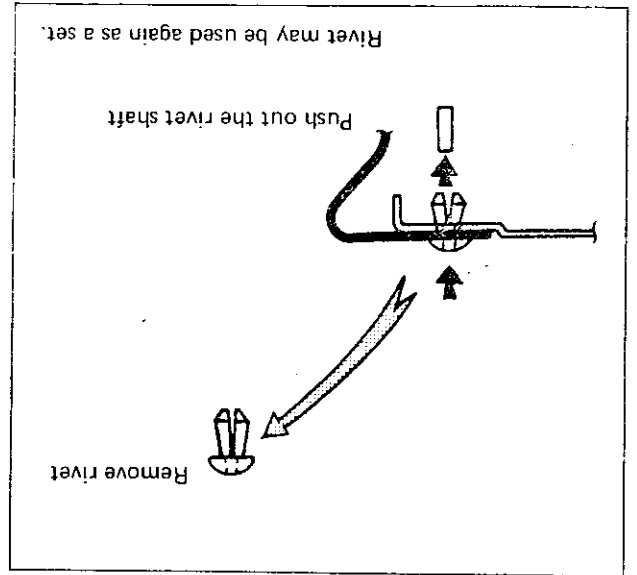


Fig. BF-44 Removing plastic rivet

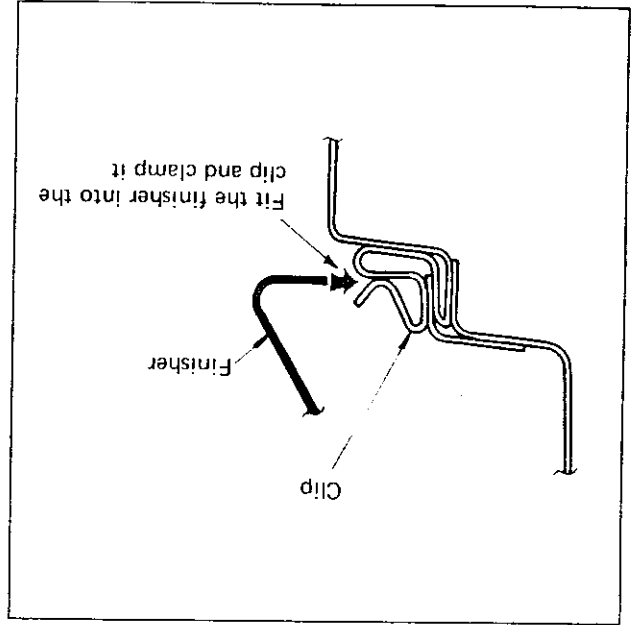


Fig. BF-45 Fitting finisher clip

2. Remove the license plate lamp.
3. Pulling the finisher, remove it from the clip unit.
4. Tilt and withdraw the finisher, and remove it from the license plate unit.

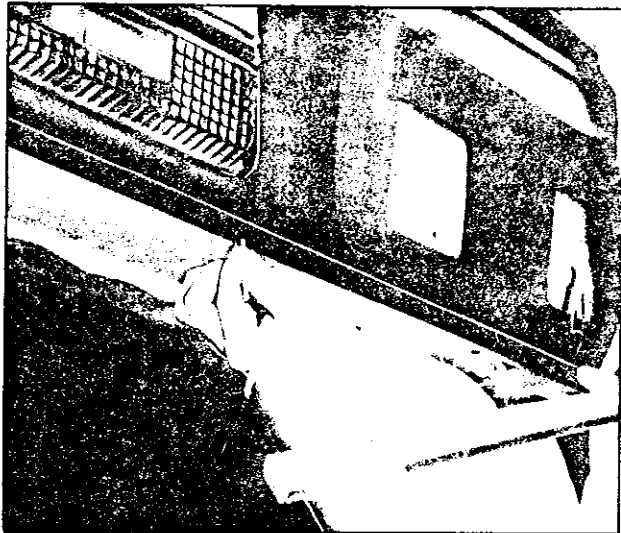


Fig. BF-46 Removing rear panel finisher

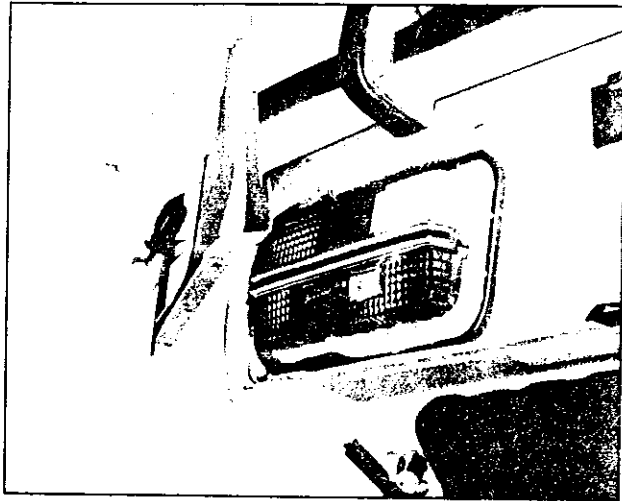


Fig. BF-47 Removing rear panel finisher

Note: Be careful not to scar the painted surface of the body with the finisher flange.

# INSTRUMENT PANEL

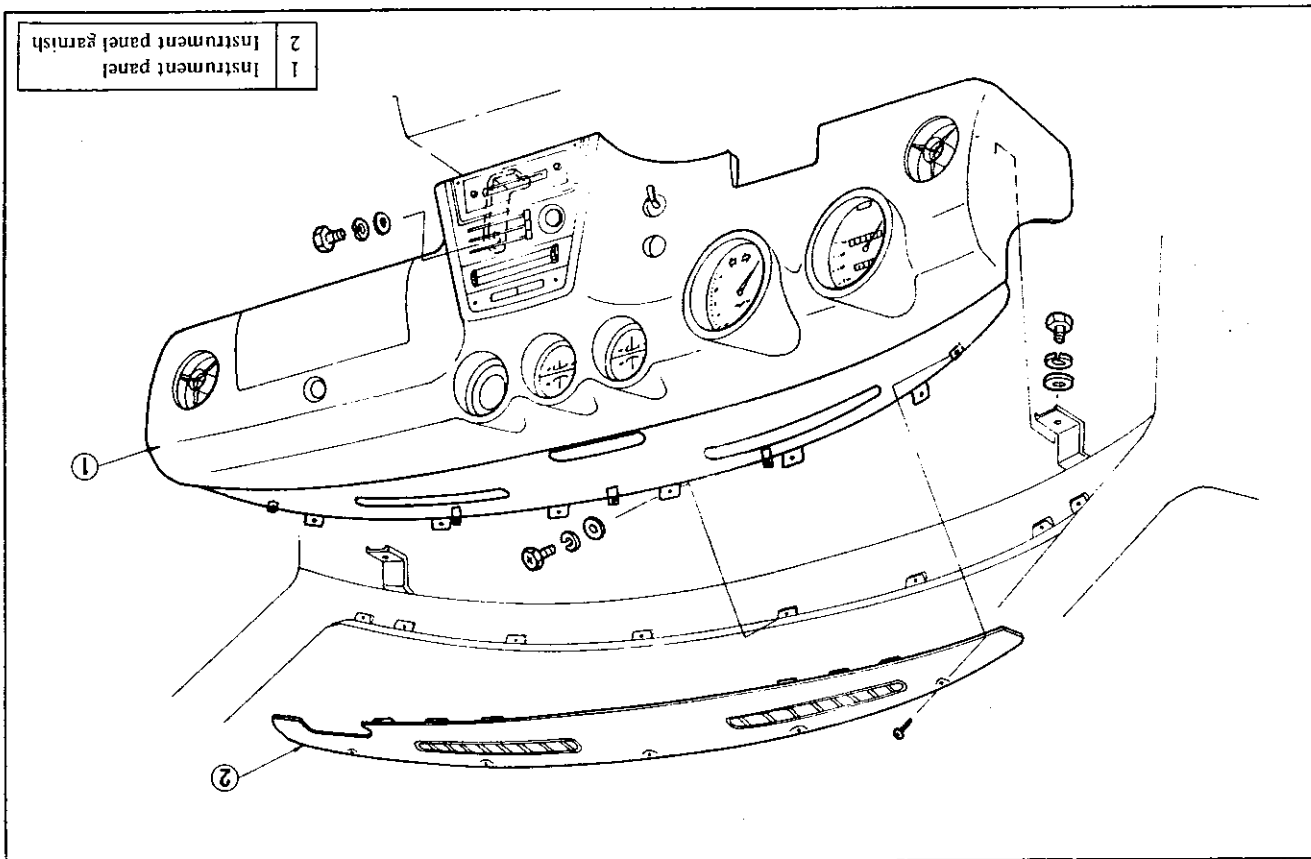


Fig. BF-48 Removing instrument

## Removal

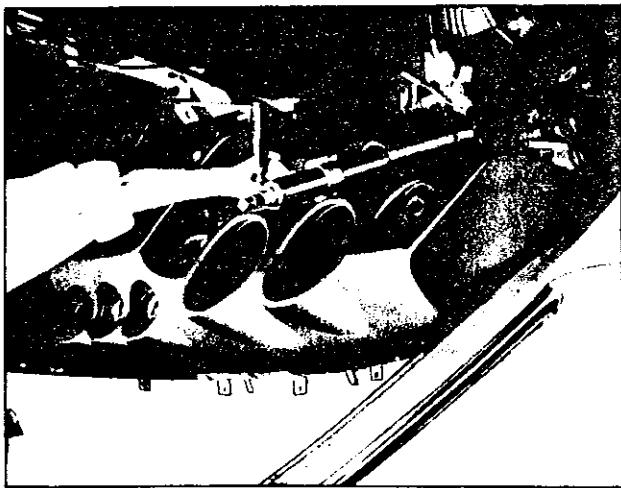
1. Disconnect the battery cable from the battery terminal. [Either (+) or (-) terminal]
2. Disconnect the instrument harness from the engine compartment harness.
3. Disconnect the speedometer cable from the speedometer.



Fig. BF-49 Removing instrument

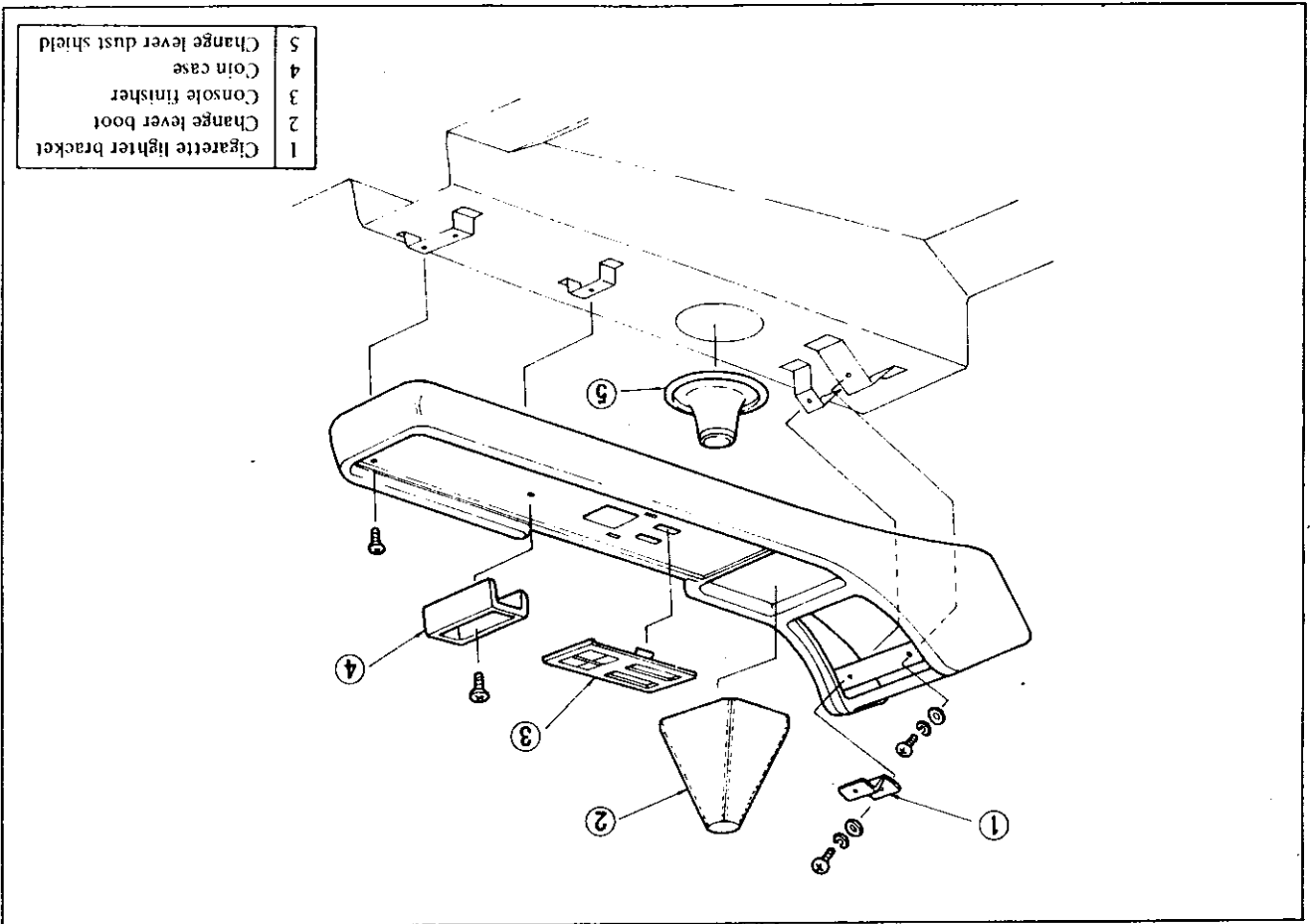
4. Disconnect the heater control cable at the heater side.
5. Remove the steering wheel shell cover.
6. Remove the instrument garnish with a cross-headed screw driver.
7. Remove the floor console.
8. Remove the screws from the instrument panel top and bottom and both sides of the console unit, raise the instrument panel slightly, and remove it toward the rear.

Fig. BF-50 Removing instrument



## FLOOR CONSOLE

Fig. BF-51 Removing floor console



## BODY

1. The floor console is installed on the floor with installation screws together with the floor console.

3. Install the change lever dust cover by fitting it to the floor.

## SEAT

### CONTENTS

Removal ..... BF-30  
SEAT SLIDE ..... BF-30  
SEAT BACK TILTING (Inclination) ..... BF-30  
SEAT ELEVATION ..... BF-30

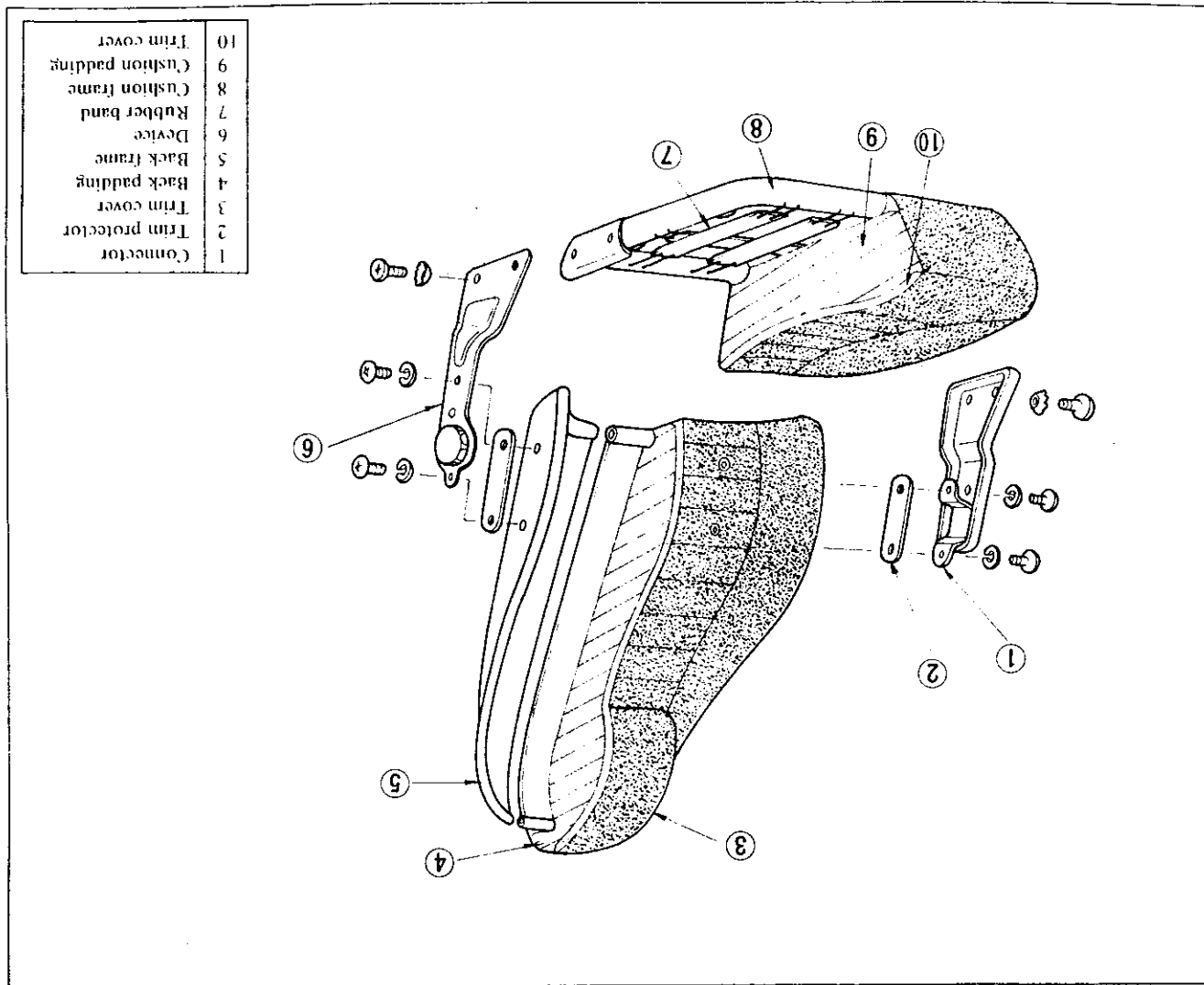


Fig. BF-52 Structural view of seat



The bucket type separate seats completely hold driver and assistant even during a rapid cornering, and the seat back is a high seat back which combines the seat back and head rest.

## Removal

1. Loosen the seat installation nuts by inserting hand beneath the seat riser, and remove the seat.

## Seat slide

Driver's Seat.....The total slide stroke is 180 mm (7.09 in) 100 mm (3.93 in) is forward, 80 mm (3.15 in) is rearward, and the adjusting pitch is 20 mm (0.787 in).

Assistant Driver's Seat.....The total slide stroke is 120 mm (4.72 in), 60 mm (2.362 in) is forward and rearward and the adjusting pitch is 20 mm (0.787 in).

The slide adjust levers are arranged in the body center side.

## Seat back tilting (Inclination)

The total adjustable angle is 10° (5° each forward and rearward), the adjusting pitch is stepless, and the inclination can be adjusted without leaving the seat.

## Seat elevation

Both seats can be adjusted 20 mm (0.787 in) each upward and downward. The seat elevation is adjusted with the spacer indicated in dotted line in Figure BF-53. When it is desired to raise the seat, place the spacer on the seat riser. Contrarily, when desired to lower the seat, remove the spacer.

Note: When spacers are used, be sure to apply same number of spacers to each seat riser.

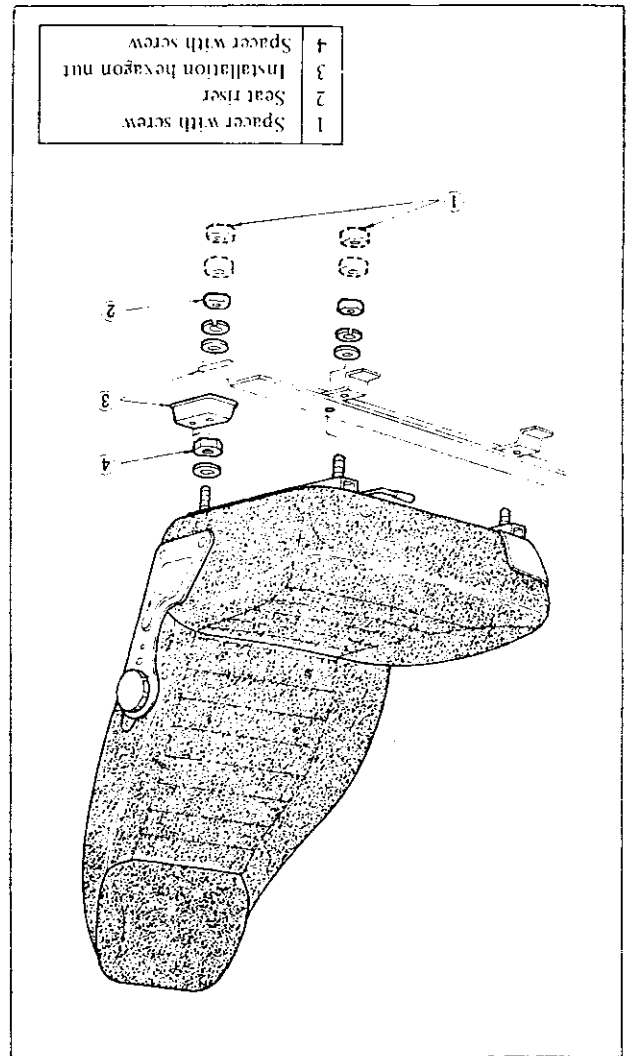


Fig. BF-53 Removing and reinstalling seat

# INTERIOR TRIMS

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|                            |       |                                     |       |
|----------------------------|-------|-------------------------------------|-------|
| DASH SIDE TRIM .....       | BF-29 | FRONT FLOOR MAT AND INSULATOR ..... | BF-30 |
| Removal .....              | BF-29 | LUGGAGE BELTS .....                 | BF-30 |
| DASH INSULATOR .....       | BF-29 | REAR FLOOR TRIMS .....              | BF-30 |
| DASH SIDE DRAIN HOSE ..... | BF-29 | INSIDE REAR VIEW MIRROR .....       | BF-30 |
| BODY SIDE TRIM .....       | BF-29 | BODY SEALING .....                  | BF-31 |

## DASH SIDE TRIM

### Removal

1. Remove the flasher unit installation screws.
2. Remove the horn relay installation screws.
3. Raise the trim dash side holding clip.
4. Remove the rubber grommet.
5. Remove the dash side trim.

## DASH INSULATOR

The dash insulator has been adhered and connected with clips toward the entire area so that sound is insulated effectively. For this reason, the insulator can be removed only by peeling it off. When the insulator is removed once, replace it with new one.

## BODY SIDE TRIM

Except for the body side front trim, all trims are installed with plastic rivets.

The body side front trim is installed with clips.

Fig. BF-55 body side trim

## DASH SIDE DRAIN HOSE

1. Remove the hose clamp.
2. Remove the grommet from the dash side.

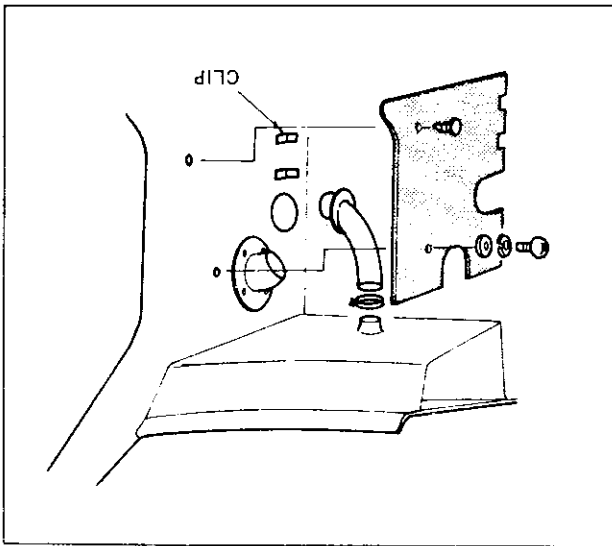
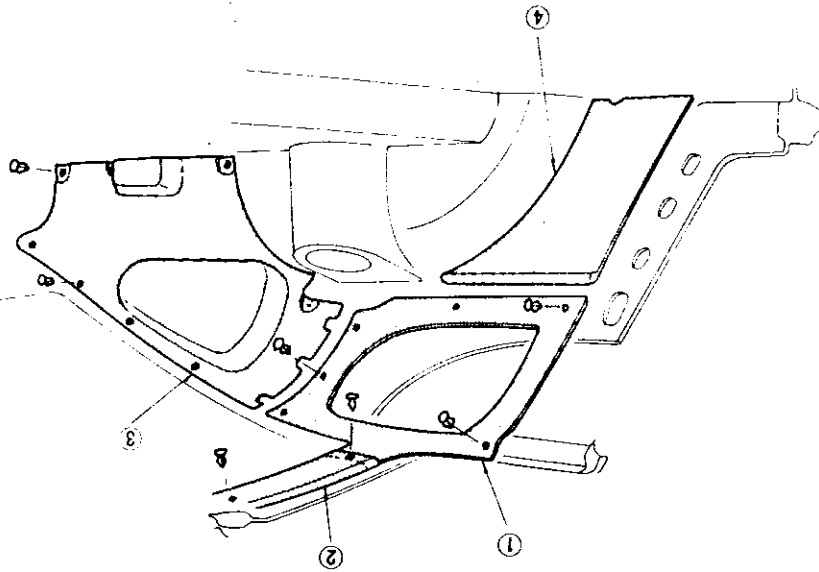


Fig. BF-54 Dash side trim and drain hose

|   |                       |
|---|-----------------------|
| 1 | Quarter panel garnish |
| 2 | Tail rail garnish     |
| 3 | Body side rear trim   |
| 4 | Body side front trim  |



# FRONT FLOOR MAT AND INSULATOR

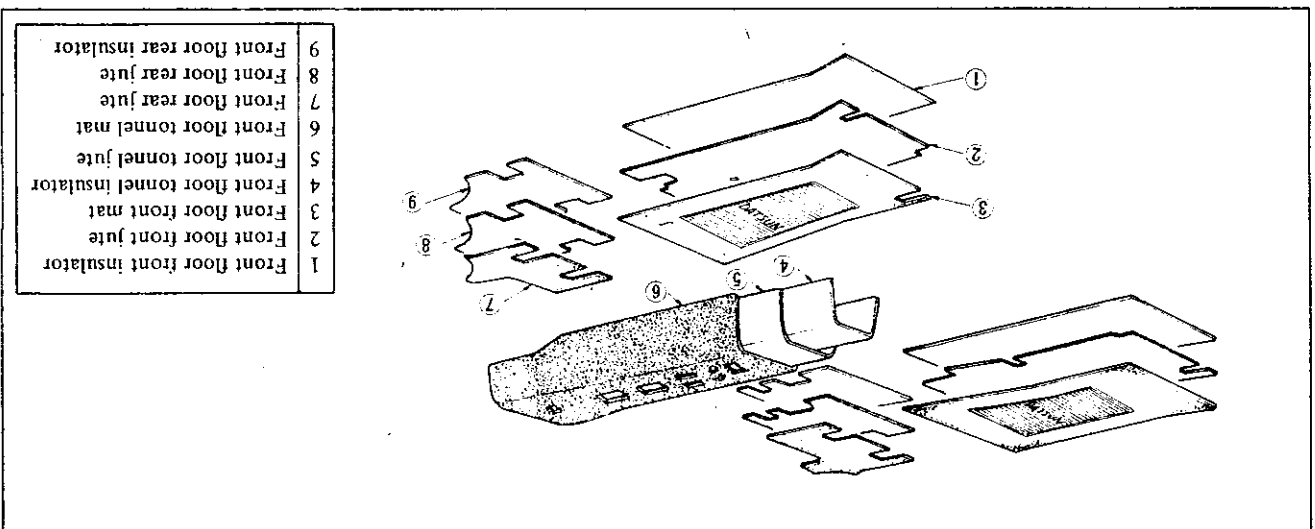


Fig. BF-56 Floor mat and insulator

## REAR FLOOR TRIMS

1. Install the luggage stopper with self-tapping screws.
2. Install the rear floor mat on the floor with fasteners.
3. Install the seat riser trim with adhesive.
4. Install the rear suspension strut cap by means of fitting.
5. Install the luggage belts with machine screws.

## INSIDE REAR VIEW MIRROR

Install the rear view mirror on the body through a drop-off system mechanism.

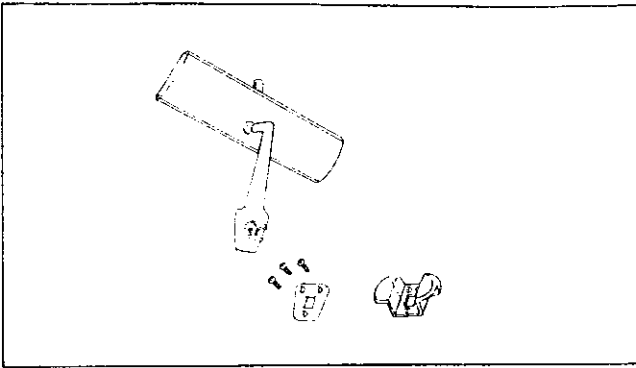


Fig. BF-58 Removing inside rear view mirror

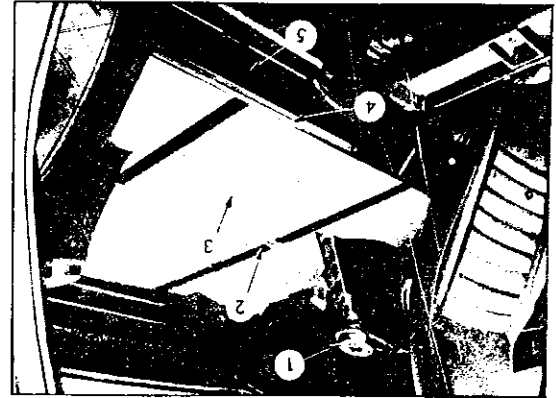


Fig. BF-57 Rear floor trim and luggage belt

|   |                           |
|---|---------------------------|
| 1 | Rear suspension strut cap |
| 2 | Luggage belt              |
| 3 | Rear floor mat            |
| 4 | Luggage stopper           |
| 5 | Seat riser trim           |

# BODY

## BODY SEALING

Sealer is applied to the individual panel joints, and thus, the body sealing is secured.

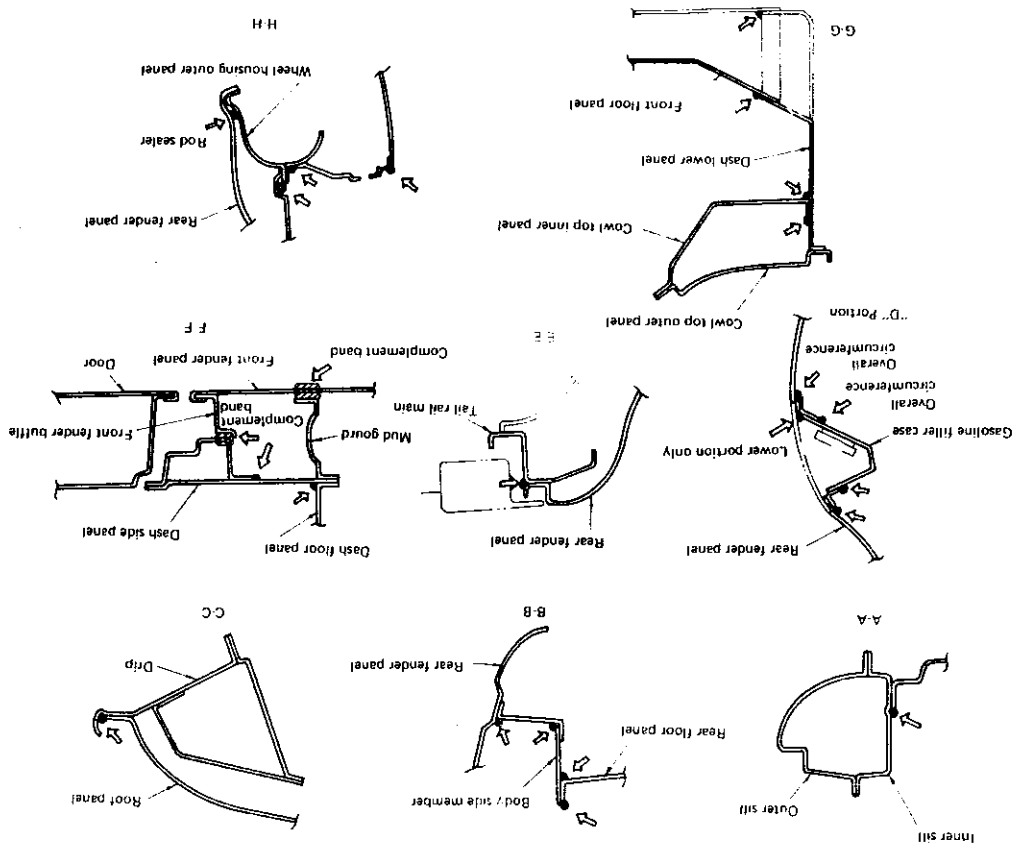
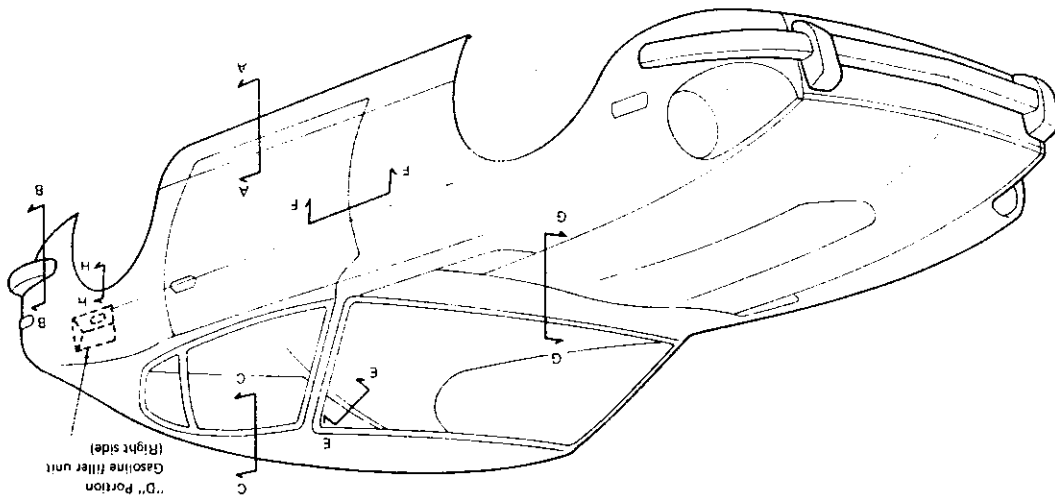
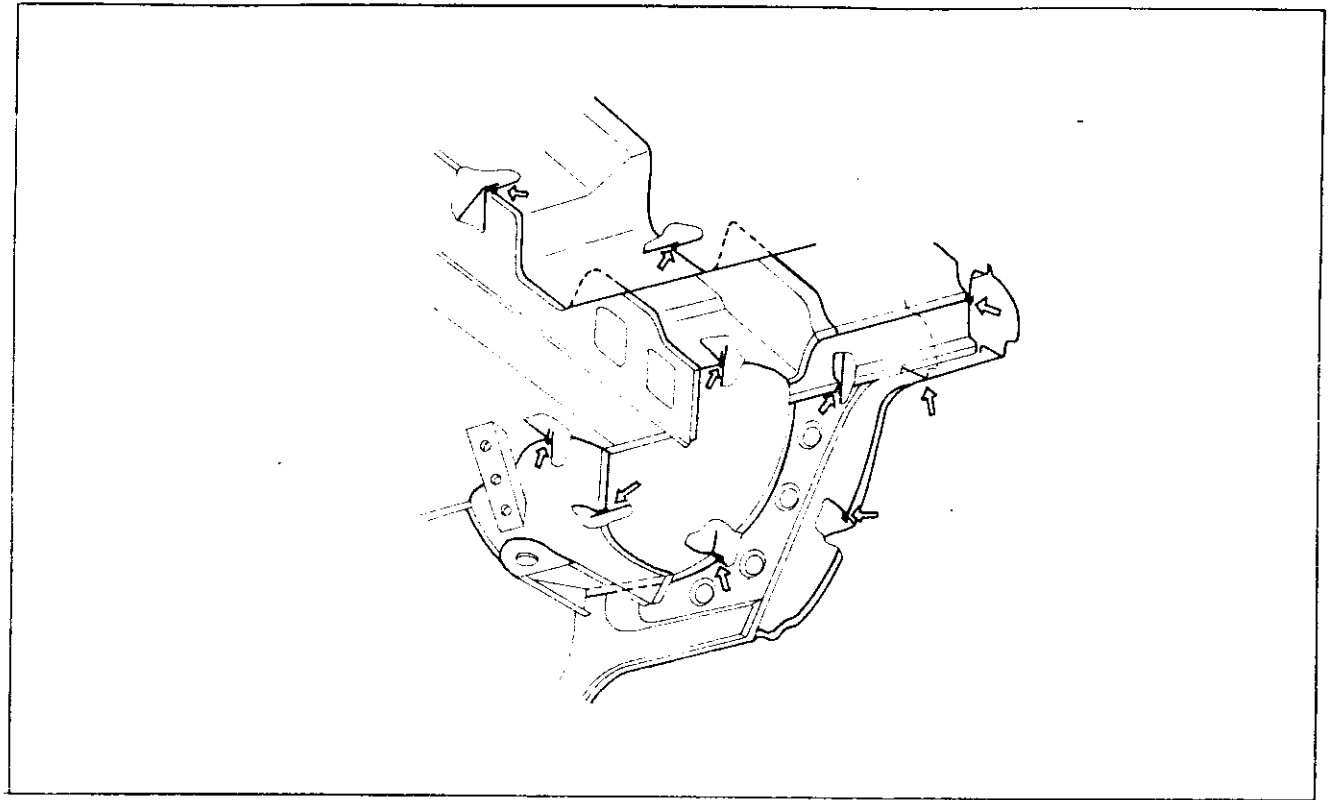
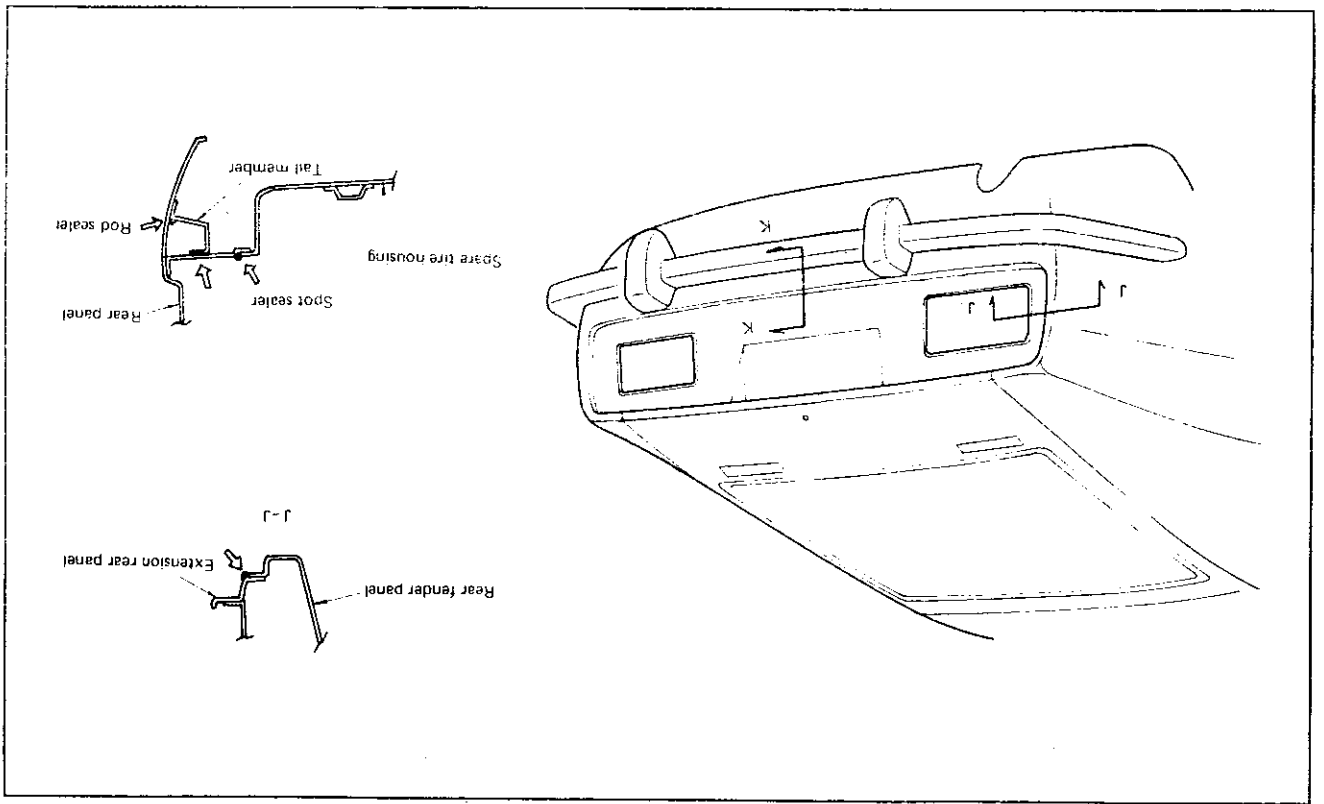


Fig. BF-59 Sealing body panel joint

# BODY





[illegible]

**SERVICE JOURNAL OR BULLETIN REFERENCE**

**BODY**

# SECTION BE

## BODY ELECTRICAL

|       |                     |
|-------|---------------------|
| BE-1  | WIRING              |
| BE-5  | LAMPS               |
| BE-9  | METERS              |
| BE-15 | WINDSHIELD WIPER    |
| BE-18 | WINDSHIELD WASHER   |
| BE-19 | SWITCH              |
| BE-22 | HORN AND HORN RELAY |
| BE-24 | RADIO               |
| BE-27 | CLOCK               |

# DATSUN 240Z SPORTS

## MODEL S30 SERIES

### CHASSIS & BODY



NISSAN MOTOR CO., LTD.  
TOKYO, JAPAN





# WIRING

## CONTENTS

|                            |      |                     |      |
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| ENGINE COMPARTMENT HARNESS | BE-1 | Wiring instructions | BE-1 |
| INSTRUMENT HARNESS         | BE-2 | BE-2                |      |
| BODY HARNESS               | BE-3 | BE-3                |      |

## ENGINE COMPARTMENT HARNESS

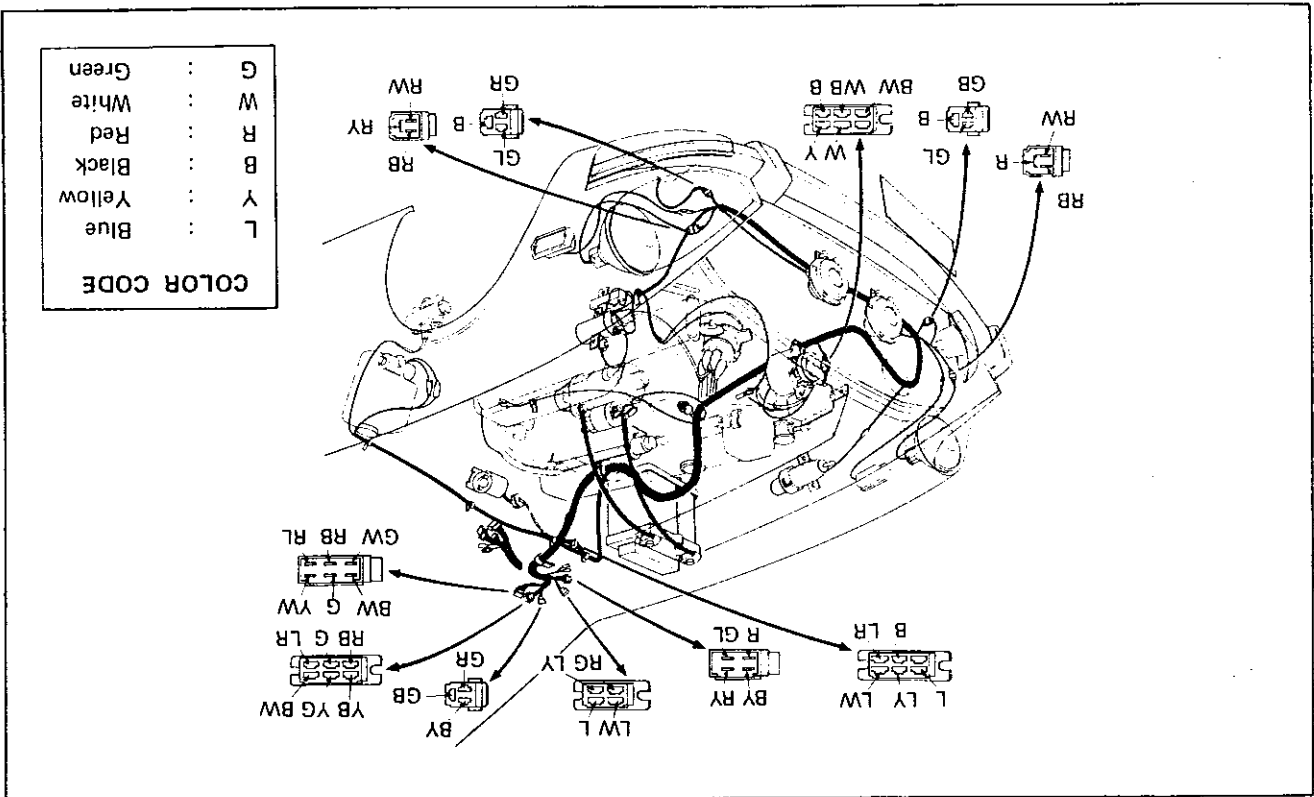


Fig. BE-1 Engine compartment harness

## Wiring instructions

1. Connect the engine compartment harness to the instrument harness at the bottom of instrument.
2. Through the dash panel, extend the harness to the radiator support in the engine compartment along the right side of the hood ledge.
3. Extend the harness to the left side of the body
4. Through the radiator support, connect the wire to the ignition coil along the left hand hood ledge.

For details, see the above shown figure.



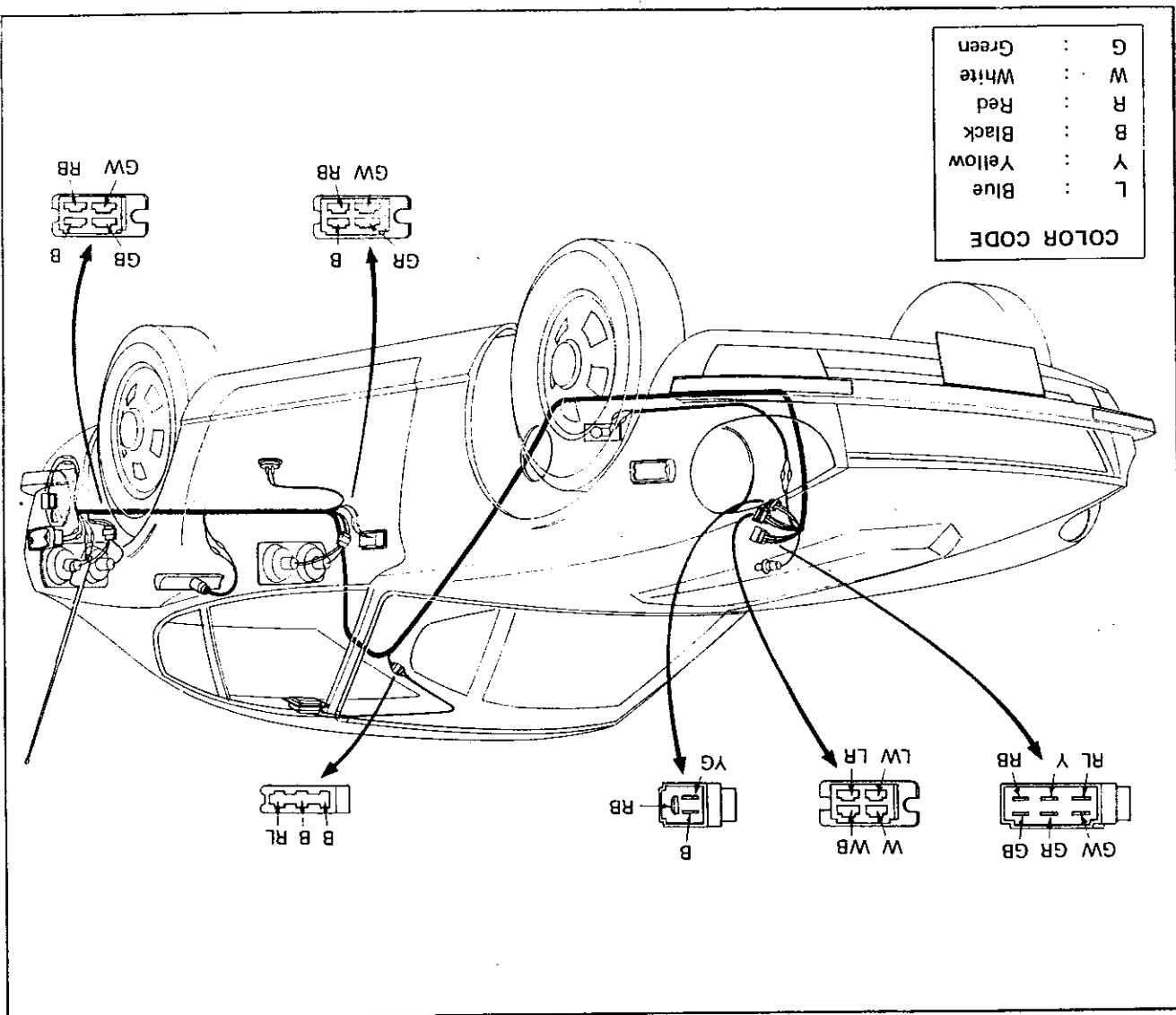
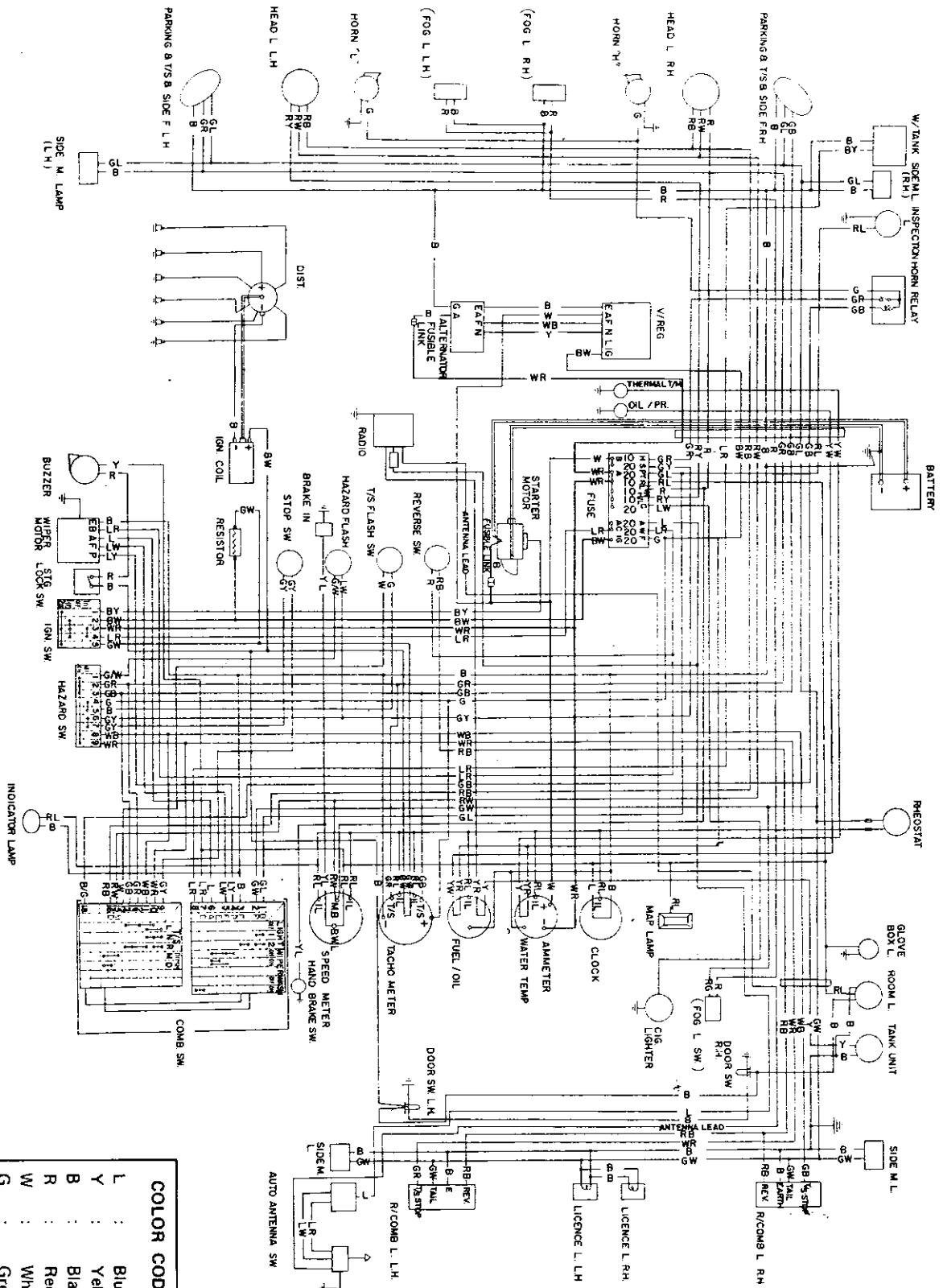


Fig. BE-3 Body harness

## Wiring instructions

1. Connect the body harness to the instrument harness at the bottom of the instrument panel.
2. Extend the harness to the wheel housing along the right side floor edge.
3. Extend the harness to the tail lamps by passing it between the inner panel and outer panel.
4. Branch the harness at rear side of the rear pillar, and extend the branched harness to the room lamp through the rear pillar.
5. Branch the harness at bottom of the tail lamp, and penetrate through the rear floor, extend to the fuel tank unit gauge along the inside of the right hand side member.
6. For details, see the above shown figure.

| COLOR CODE |        |
|------------|--------|
| L          | Blue   |
| Y          | Yellow |
| B          | Black  |
| R          | Red    |
| W          | White  |
| G          | Green  |



# BODY ELECTRICAL

## LAMPS

### CONTENTS

|                                |      |
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| BULB SPECIFICATIONS            | BE-5 |
| HEAD LAMP                      | BE-6 |
| FRONT PARKING/TURN SIGNAL LAMP | BE-7 |
| LICENSE PLATE LAMP             | BE-7 |
| SIDE MARKER REFLEX REFLECTOR   | BE-5 |
| (For U.S.A., Canada)           |      |
| REAR COMBINATION LAMPS         | BE-8 |

### BULB SPECIFICATIONS

|                                       | Specification                                      | Quantity              | Color                               | Remarks                                                          |
|---------------------------------------|----------------------------------------------------|-----------------------|-------------------------------------|------------------------------------------------------------------|
| Head lamp unit                        | 12V-50/40W                                         | 2                     | White                               |                                                                  |
| Side clearance and turn signal lamp   | 12V-23W/7W                                         | 2                     | Amber                               |                                                                  |
| Side marker lamp                      | 12V-7.5W                                           | 4                     | Amber                               | Front side: 2 bulbs<br>Rear side: 2 bulbs                        |
| License plate lamp                    | 12V-7.5W                                           | 2                     | White                               |                                                                  |
| Rear combination lamps                | 12V-7W<br>12V-23W<br>12V-23W<br>12V-23W<br>12V-23W | 2<br>2<br>2<br>2<br>2 | Red<br>Red<br>Red<br>Amber<br>White |                                                                  |
| Back up lamp                          | 12V-23W                                            | 2                     | White                               |                                                                  |
| Meter illuminating lamp               | 12V-3W                                             | 6                     | White                               |                                                                  |
| Brake warning lamp                    | 12V-3W                                             | 1                     | Red                                 |                                                                  |
| Turn signal pilot lamp                | 12V-3W                                             | 2                     | Green                               | Used also for hazard pilot lamp                                  |
| Head lamp main (high) beam pilot lamp | 12V-3W                                             | 1                     | Blue                                |                                                                  |
| Hazard lamp                           | 12V-23W                                            | 4                     | Amber                               | Used also for front and rear side clearance and turn signal lamp |
| Room lamp                             | 12V-10W                                            | 1                     | Milky white                         |                                                                  |
| Engine compartment inspection lamp    | 12V-8W                                             | 1                     | Milky white                         |                                                                  |
| Glove box illumination lamp           | 12V-3W                                             | 1                     | White                               |                                                                  |
| Clock illumination lamp               | 12V-3W                                             | 1                     | White                               |                                                                  |

# HEAD LAMP

1. Removing the head lamp:  
Remove four screws from the inside of the wheel opening.

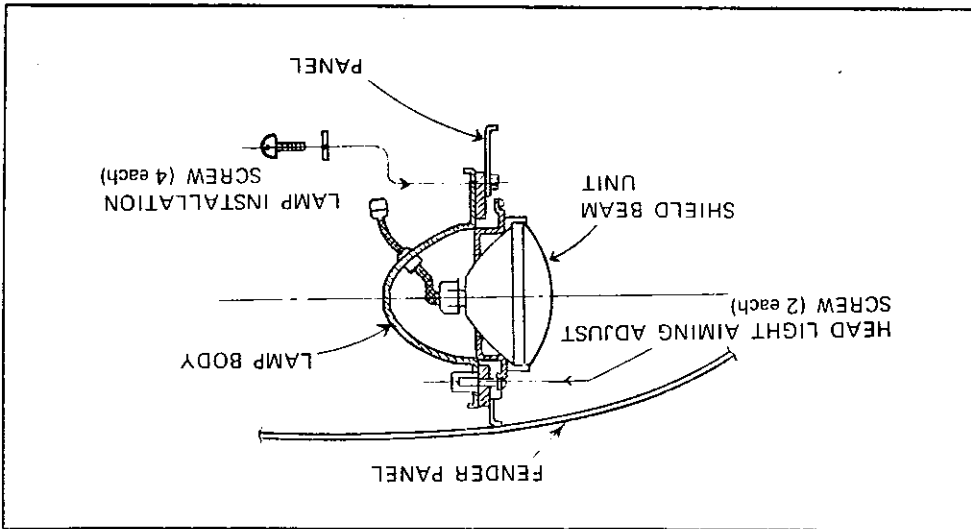


Fig. BE-4 Removing head lamp

2. Head light aiming adjustment and adjusting values (unladen condition)

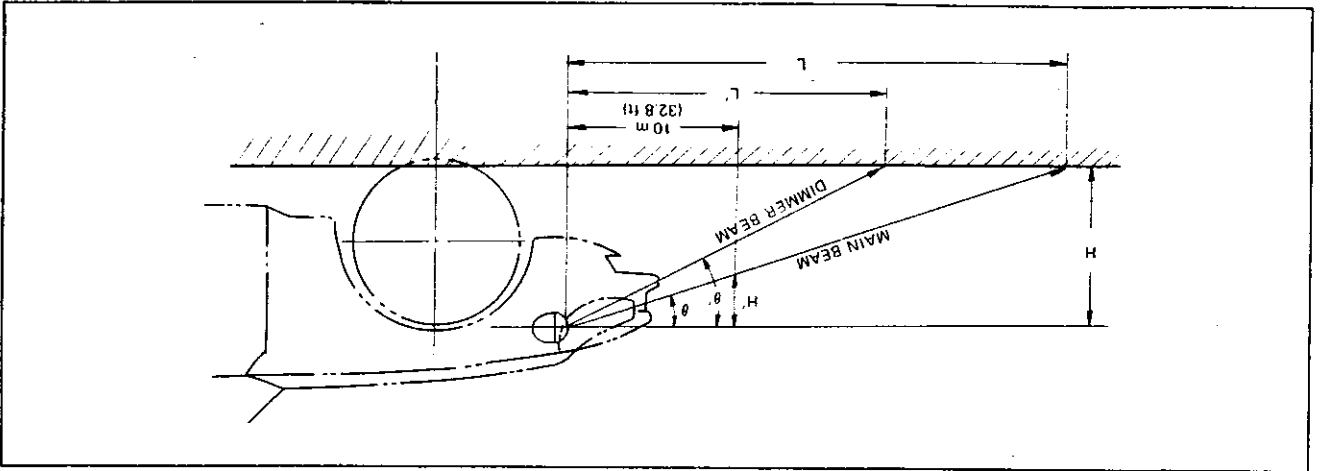


Fig. BE-5 Adjusting head light aiming

Adjusting values

| Dimensions/Angle | Values to which adjusted |
|------------------|--------------------------|
| H                | 622.0 mm (24.5 in)       |
| $\theta$         | 45°                      |
| $\theta'$        | 1°35'                    |
| L                | 47.5 m (155.5 ft)        |
| L'               | 22.5 m (73.8 ft)         |
| H'               | 130.9 mm (5.15 in)       |

# BODY ELECTRICAL

## FRONT PARKING / TURN SIGNAL LAMP

| Territory | Bulb capacity |    | Turn signal lamp | Lens color |
|-----------|---------------|----|------------------|------------|
|           | 23W           | 7W |                  |            |
| U.S.A.    | 23W           | 7W | White            | Amber      |
| Canada    | 23W           | 7W | White            | Amber      |

### Replacing bulb:

Turn the socket from the rear side, and remove it.

## LICENSE PLATE LAMP

### Replacing the bulb:

Remove the lamp cover after removing three set

screws.

## SIDE MARKER REFLEX REFLECTOR

(For U.S.A., CANADA)

Front and rear ..... 7.5W

|   |           |
|---|-----------|
| 1 | Lens      |
| 2 | Set screw |

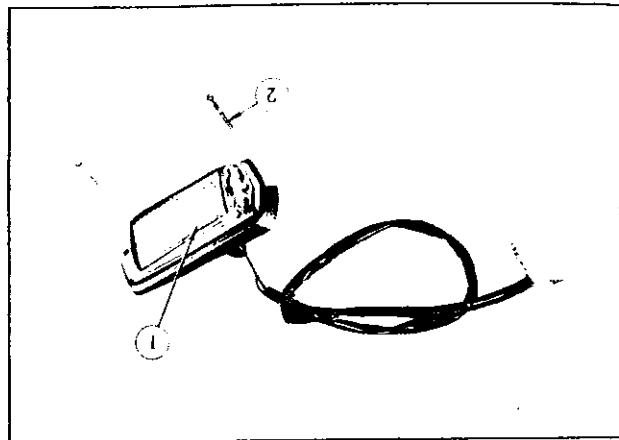


Fig. BE-8 Front side marker lamp

BE-7

Fig. BE-9 Rear side marker lamp

|   |            |
|---|------------|
| 1 | Limb       |
| 2 | Lens (Red) |
| 3 | Bulb       |
| 4 | Adapter    |

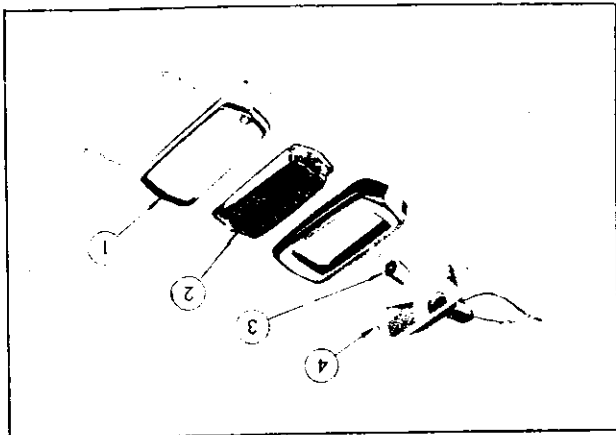


Fig. BE-7 License plate lamp installation

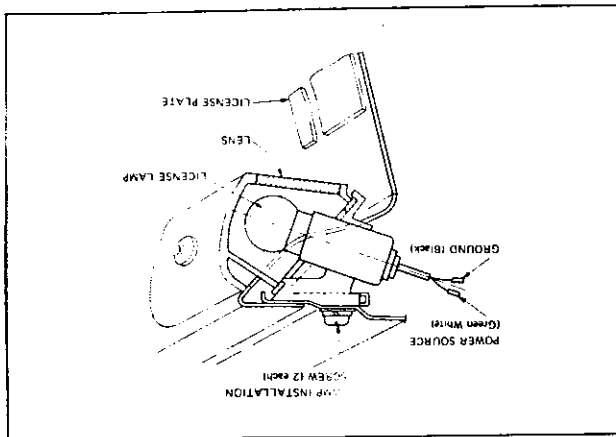
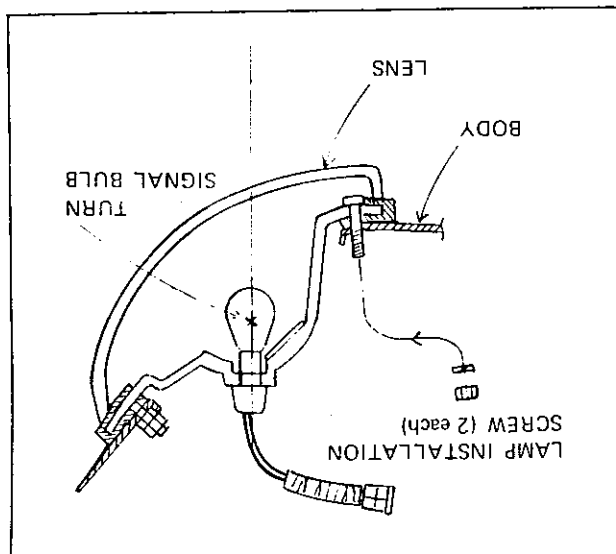


Fig. BE-6 Replacing front parking/turn signal lamp





REAR COMBINATION LAMPS

Specification

|                       |               |
|-----------------------|---------------|
| Rear combination lamp | Bulb capacity |
| Tail lamp             | 7W            |
| Stop lamp             | 23W           |
| Turn signal lamp      | 23W           |
| Back up lamp          | 23W           |

Replacing bulb

Remove the rear panel trim (secured with plastic rivets in eight places), replace the bulb from the rear side of the socket.

Replacing the rear combination lamp assembly

Remove the finisher from the outside of the body, remove eight rear combination lamp installation

screws, and remove the rear combination lamp assembly.

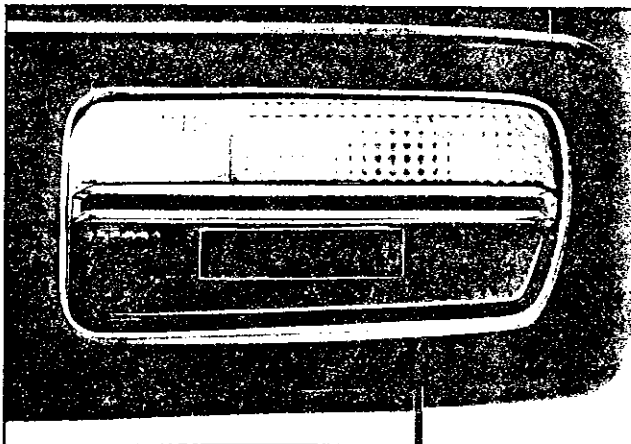


Fig. BE-10 Rear combination lamp

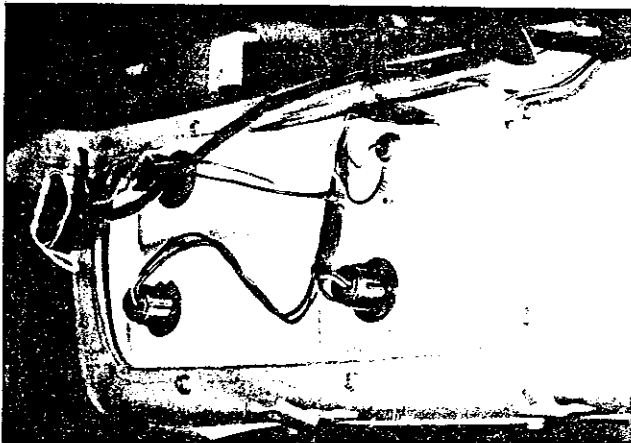


Fig. BE-11 Replacing rear combination lamp bulb

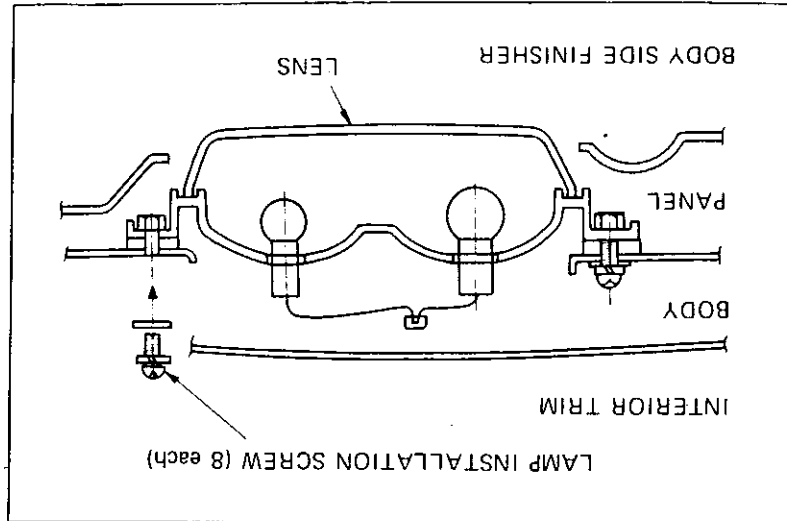


Fig. BE-12 Installing rear combination lamp assembly

METERS

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| BE-9  | TACHOMETER                         | Removal | BE-9  |
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| BE-10 | OIL PRESSURE GAUGE                 | Removal | BE-10 |
| BE-10 | AMMETER AND FUEL GAUGE             | Removal | BE-10 |
| BE-11 | INSTRUMENT UNIT CIRCUIT DIAGRAM    | Removal | BE-11 |
| BE-12 | (Speedometer, Tachometer, Ammeter, |         | BE-12 |
| BE-12 | Oil Pressure Gauge and Others)     |         | BE-12 |
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| BE-13 | CORRECTION                         |         | BE-13 |

SPEEDOMETER

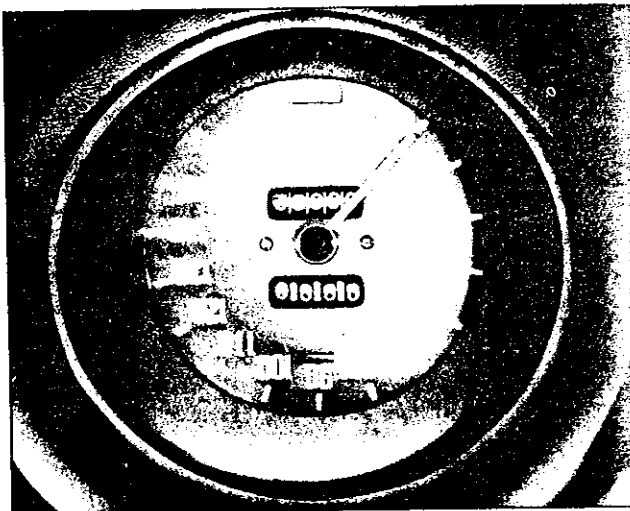


Fig. BE-13 Speedometer

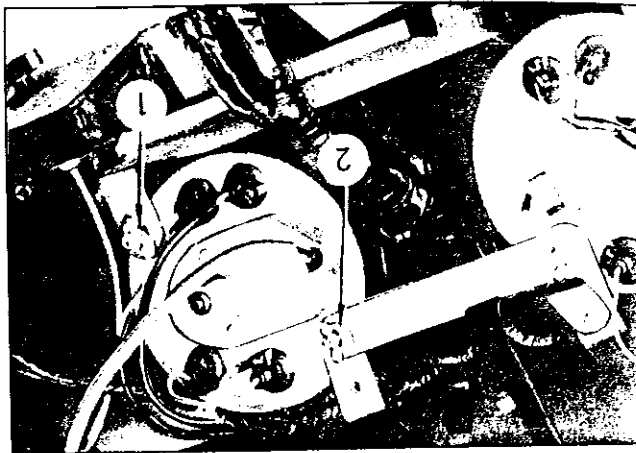


Fig. BE-14 Removing speedometer

- Loosen the wing nuts on the meter brackets [1] and [2] in Figure BE-14 ] on the upper and lower sides of the reverse side of the speedometer, and withdraw the speedometer from the instrument panel.
- Note: a. When loosening the wing nuts, use a pair of pliers.
- b. In order to facilitate the operation, remove the heater air duct.
- c. See Figure BE-15 for details of the speedometer support bracket and mounting bracket.

Removal

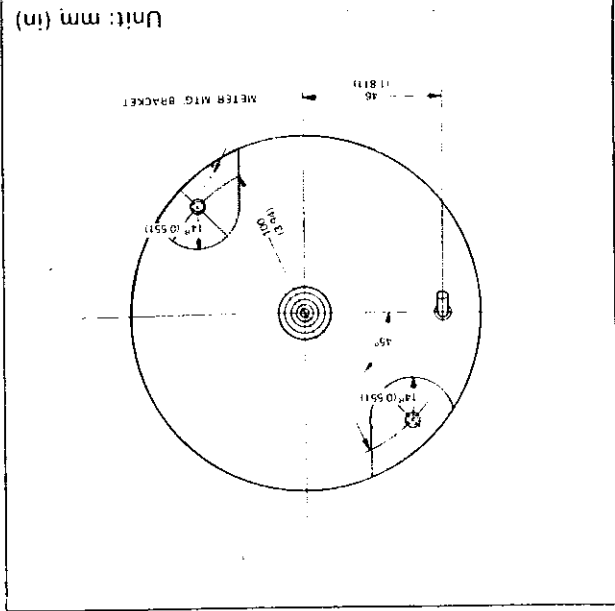


Fig. BE-15 Details of speedometer installation brackets

# TACHOMETER

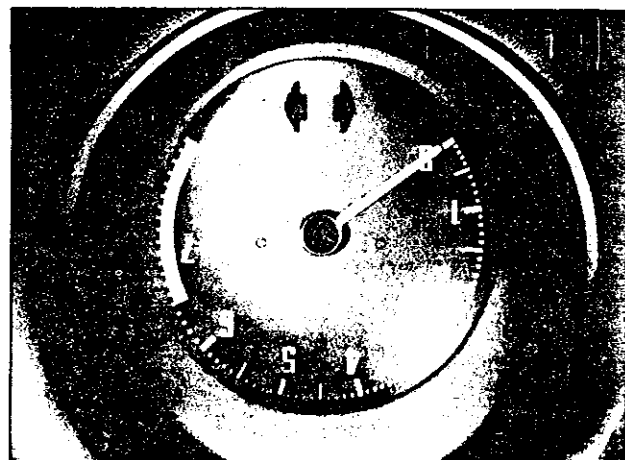


Fig. BE-16 Tachometer

Yellow zone: 6,500 to 7,000 rpm  
 Red zone: 7,000 to 8,000 rpm  
 (Engine rpm: Indicated in range 0 to 8000 rpm)

## Removal

Remove the tachometer in the same manner as for the speedometer.

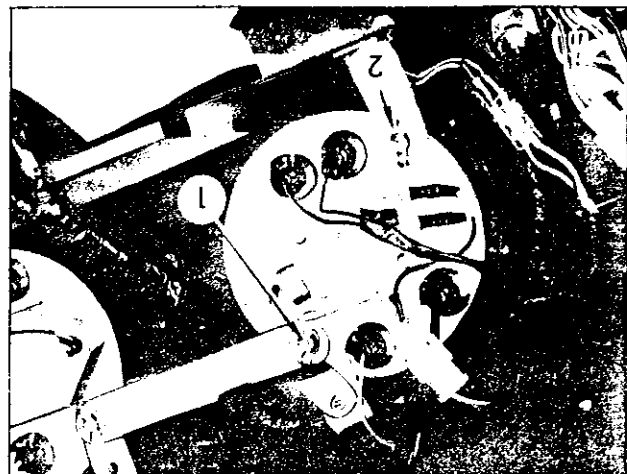


Fig. BE-17

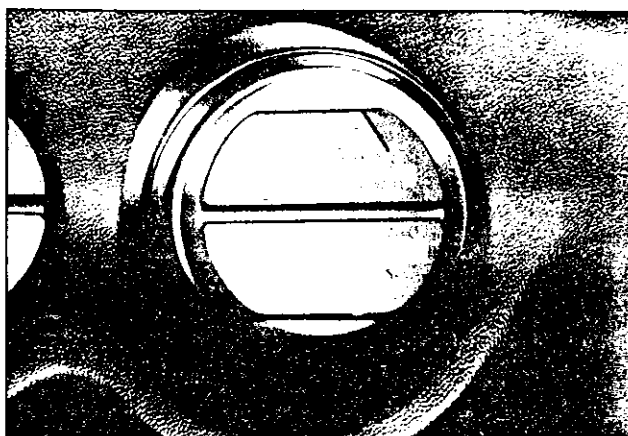
Note: See Figure BE-17 for details of the tachometer support bracket and mounting bracket.

BE-10

## Removal

1. Remove the center console finisher.

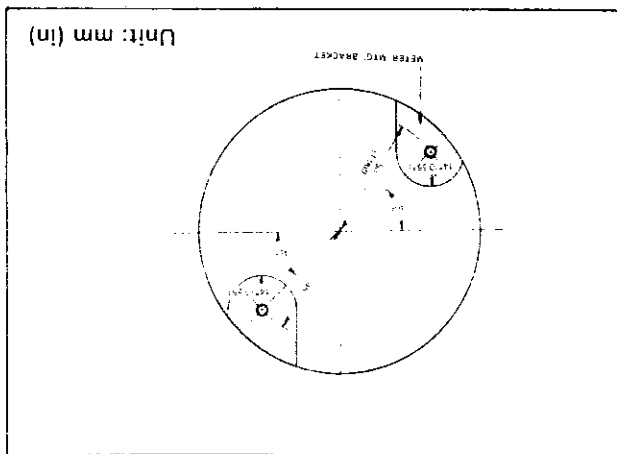
Fig. BE-19 Water temperature gauge and oil pressure gauge



The water temperature gauge and oil pressure gauge are combined. The water temperature gauge indicates water temperature in range from 120 to 250°F, and oil pressure gauge indicates oil pressure in range from 0 to 140 lb/sq in. A voltage regulator (meter regulator) is built in the meter unit to compensate thermal effect.

## WATER TEMPERATURE GAUGE OIL PRESSURE GAUGE

Fig. BE-18 Details of tachometer installation brackets



## AMMETER AND FUEL GAUGE

The ammeter and fuel gauge are combined to a single unit. The ammeter indicates in range from -45 to +45A. "E" and "F" marks on the fuel gauge represent respectively "Empty" [5 liters (18.9 US gal, 122.7 Imp gal)] and "Full" [60 liters (227 US gal, 273 Imp gal)].

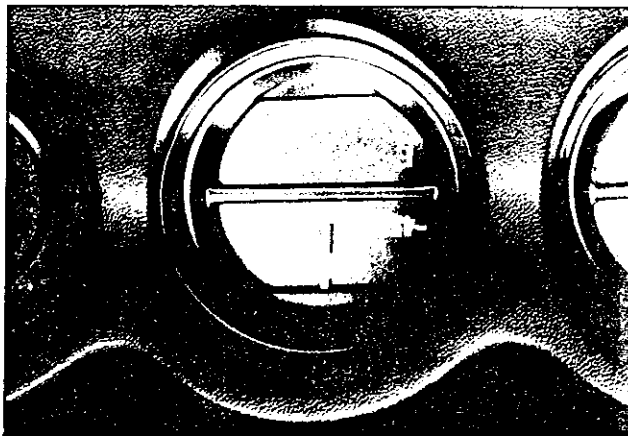


Fig. BE-22 Ammeter and fuel gauge

## Removal

Remove the ammeter and fuel gauge unit in the same manner as for the oil pressure gauge and water temperature gauge. To be more specifically, when removing the ammeter and fuel gauge unit, remove the meter bracket, and remove hexagonal cross-headed screws [① and ② in Figure BE-23] from reverse side of the meter.

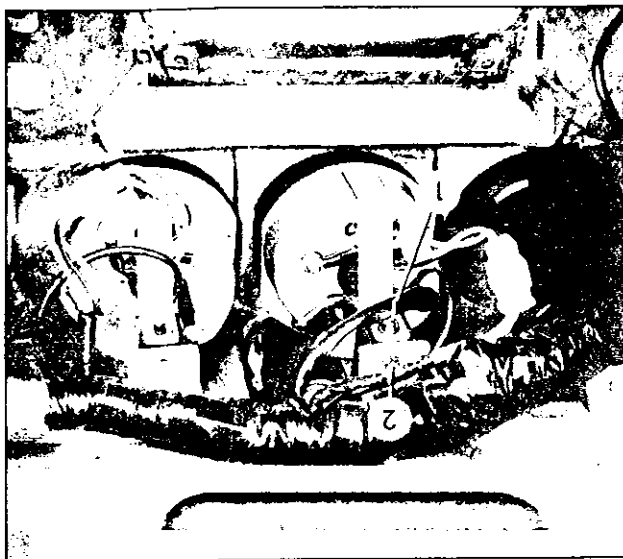


Fig. BE-23 Removing ammeter and fuel gauge

2. Inserting hand into the opening where the center console finisher has been removed, loosen hexagonal cross-headed screws [① and ② in Figure BE-21] use pair of pliers, and remove the unit from the reverse side of the instrument panel.

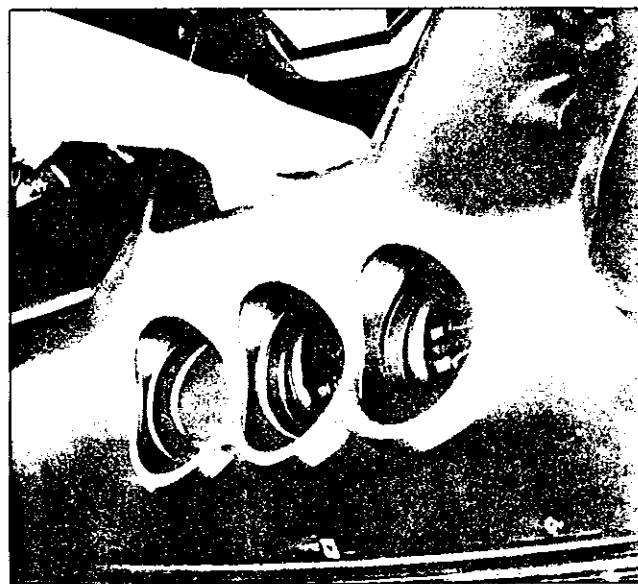


Fig. BE-20 Removing center console finisher

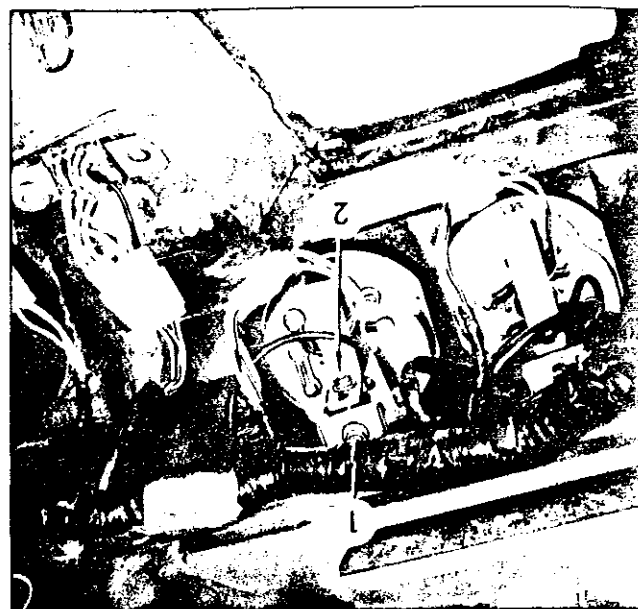


Fig. BE-21 Removing water temperature gauge and oil pressure gauge

# INSTRUMENT UNIT CIRCUIT DIAGRAM

(Speedometer, Tachometer, Ammeter, Oil Pressure Gauge and Others)

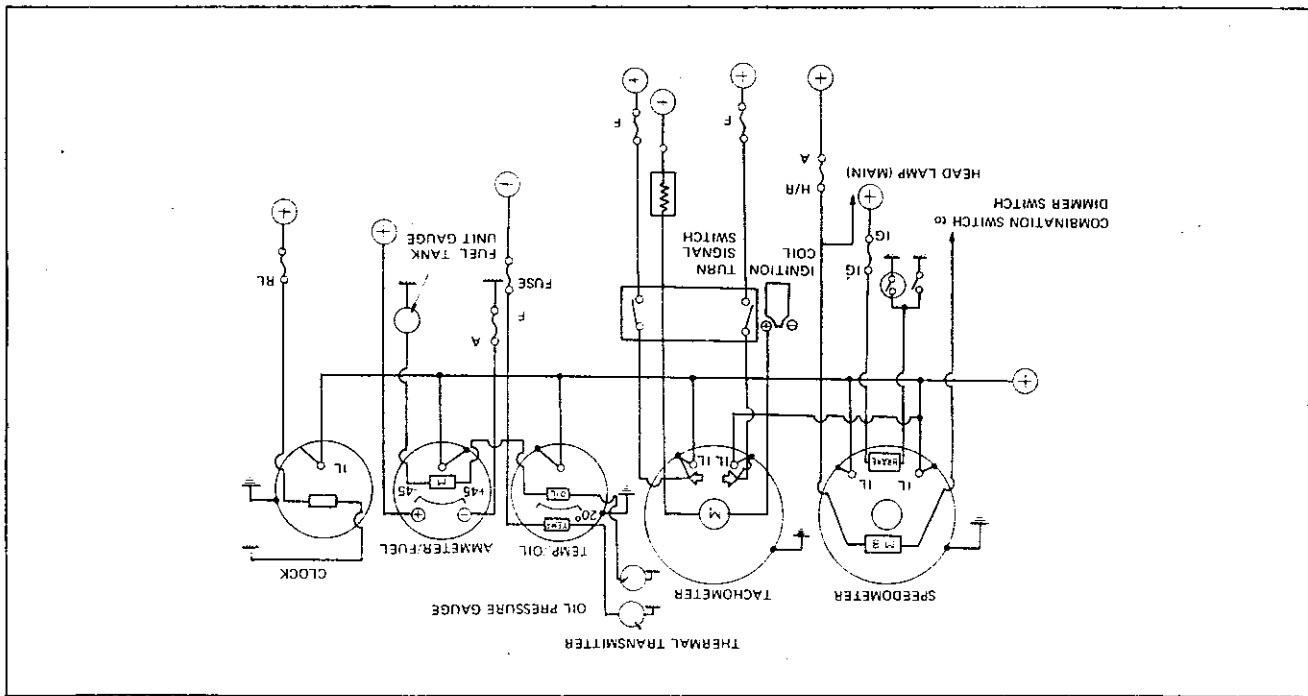


Fig. BE-24 Circuit diagram of instrument unit

## ILLUMINATION CONTROL

The illumination control is a variable resistor

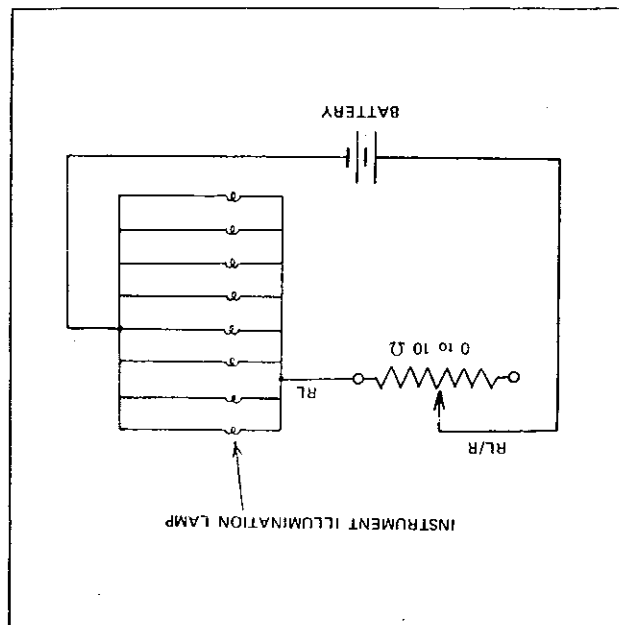


Fig. BE-25 Circuit diagram of illumination control

(Rheostat) with which the meter illumination can be controlled (none step) to get proper brightness so that the meters can be seen clearly.

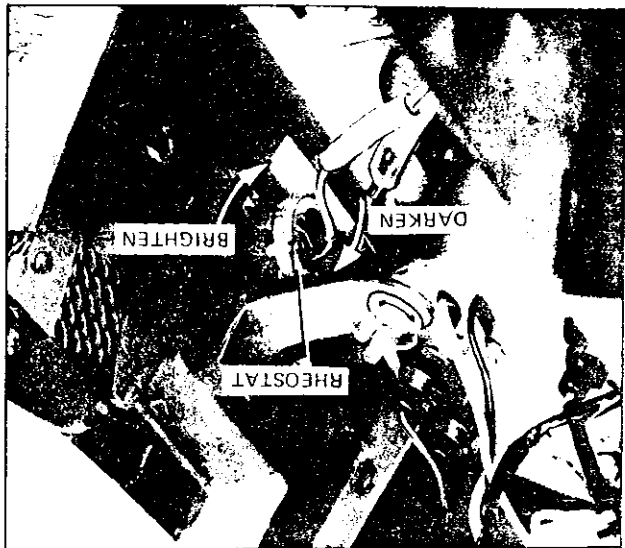


Fig. BE-26 Removing illumination control

# BODY ELECTRICAL

## TROUBLE DIAGNOSES AND CORRECTIONS

### Speedometer

| Troubles                                  | Possible causes                                                                                                                                  | Method of inspection                                                                                                                                                         | Corrective action                                                                                                                                       |
|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Both pointer and odometer do not operate. | Faulty speedometer cable union<br>Broken speedometer cable<br>Damaged speedometer drive gear<br>Defective speedometer<br>Rusted cable            | Check the union nut for tightness.<br>Check the speedometer cable.<br>Check the drive gear<br>Remove the speedometer unit, and check.<br>Make sure that the cable is rusted. | Retighten the union nut.<br>Replace the cable<br>Replace the drive gear and pinion assembly.<br>Replace the meter unit.<br>Replace the cable.           |
| Pointer deflects excessively.             | Improperly installed speedometer cable (bent excessively)<br>Broken speedometer cable<br>Damaged speedometer drive gear<br>Defective speedometer | Check the cable for installing condition.<br>Check the cable for condition.<br>Check the drive gear.<br>Remove the speedometer unit, and check.                              | Correct bending radius to more than 100 mm (3.9 in).<br>Replace the cable.<br>Replace the drive gear/pinion assembly.<br>Check and replace if required. |
| Pointer unstable.                         | Improperly tightened speedometer union nut<br>Defective speedometer cable<br>Damaged speedometer drive gear<br>Defective speedometer             | Check the union nut for tightening condition.<br>Check the speedometer cable.<br>Check the drive gear.<br>Remove and check the speedometer unit.                             | Retighten or repair if required.<br>Replace cable.<br>Replace speedometer unit.                                                                         |
| Unusual noise                             | Excessively bent speedometer cable, lack of lubricant, or twisted speedometer cable.<br>Defective speedometer                                    | Check the cable for excessive bending.<br>Replace the cable for excessive bending.                                                                                           | Replace the cable.<br>Replace the meter.                                                                                                                |

Water temperature gauge

|                                                             |                                                 |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------|-------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Even the switch is turned on, the pointer does not operate. | Blown off fuse<br>Defective thermal transmitter | Defective meter unit or faulty wiring | <p>Check the fuse.</p> <p>Apply a test lamp (approximately 12V-3W) using DC12V in series to the lead wire yellow/white) which connected to the thermal transmitter, and ground another wire from the test lamp. Then pointer deflects.</p> <p>When above described inspection is conducted and the pointer still does not operate, remove the meter unit, connect the unit with a test lamp (12V-3W) in series, and apply DC12V.</p> <p>o If the pointer deflects;</p> <p>o If the pointer does not deflect;</p> <p>Repair the wiring.<br/>Replace the meter unit.</p> |
|-------------------------------------------------------------|-------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Fuel gauge

|                                                                 |                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                    |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| When the source switch is closed, the pointer does not operate. | Blown off fuse<br>Defective tank unit grounding<br>Defective meter unit or wiring | <p>Defective tank unit grounding</p> <p>Apply a test lamp (12V-3W) using DC12V to the tank unit lead wire in series and ground the tank, then pointer deflects.</p> <p>When above described inspection is conducted and the meter pointer does not deflect, remove the meter unit, apply a test lamp (12V-3W) to the unit in series, and apply DC12V.</p> <p>o The pointer deflects to "F".</p> <p>o The pointer does not deflect after repairing.</p> <p>Correct the wiring.<br/>Replace the meter unit.</p> | <p>The pointer indicates a point constantly regardless of actual fuel level.</p> <p>Defective tank unit</p> <p>When the lead wire to the tank is disconnected at the tank unit terminal, the pointer returns to "E".</p> <p>Replace tank unit.</p> |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# BODY ELECTRICAL

|  |                                |                                                                                                                                                                                                                                                                                                                                  |                                                           |
|--|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
|  | Defective meter unit or wiring | <p>When the above described inspection is conducted and the pointer of the meter still does not deflect, remove the meter unit, apply a test lamp (12V-3W) to the unit in series, and apply DC12V.</p> <ul style="list-style-type: none"> <li>o The pointer deflects to "F".</li> <li>o The pointer does not deflect.</li> </ul> | <p>Correct the wiring.</p> <p>Replace the meter unit.</p> |
|--|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|

## Ammeter

|                     |                                   |                                         |                                          |
|---------------------|-----------------------------------|-----------------------------------------|------------------------------------------|
| Improper indication | Lack of alternator capacity (45A) | Measure the alternator charging voltage | Repair the voltage regulator/alternator. |
|---------------------|-----------------------------------|-----------------------------------------|------------------------------------------|

## WINDSHIELD WIPER

### CONTENTS

|                     |       |                                           |       |
|---------------------|-------|-------------------------------------------|-------|
| Main specifications | BE-16 | Windshield wiper installing position      | BE-16 |
| Motor performance   | BE-16 | Windshield wiper motor connecting diagram | BE-17 |

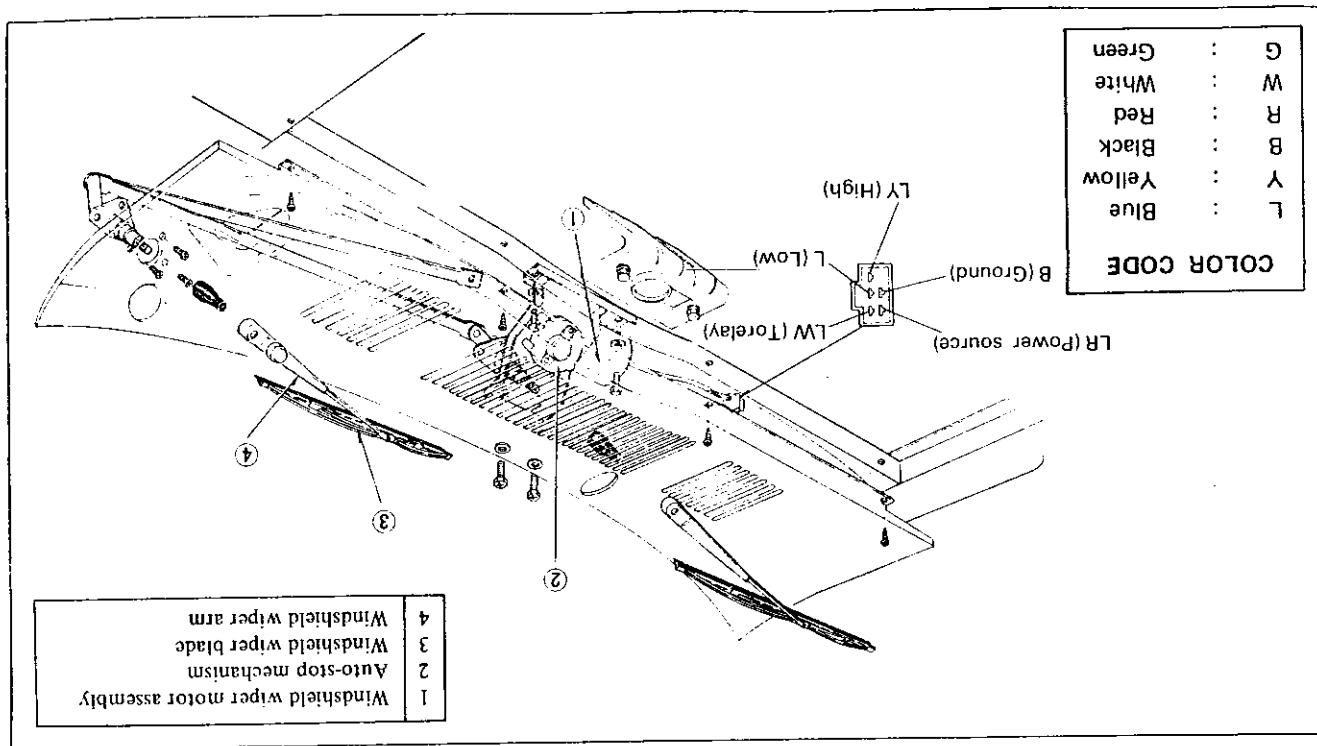


Fig. BE-27 Structure of windshield wiper



# BODY

## Main specifications

|                         |                                              |
|-------------------------|----------------------------------------------|
| Wiping system           | Parallel interlock system (tandem type)      |
| Wiping angle            | 86° (Driver side) 96° (Assistant side)       |
| Rise-up angle           | 4° 30' (Driver side) 5° 30' (Assistant side) |
| Blade length            | 460 mm (18 in)                               |
| Arm installation method | Tapered serration                            |

Cross-sectional view of blade rubber:

10.5 mm (0.413 in)  
0.76 mm (0.0299 in)  
10.6 mm

## Motor performance

| Item                               | Specification           |                |                         |                |
|------------------------------------|-------------------------|----------------|-------------------------|----------------|
| Rated voltage                      | 12V                     |                |                         |                |
| Test voltage                       | 13.5V                   |                |                         |                |
| Starting voltage                   | Less than 8V            |                |                         |                |
| Unloaded speed                     | LOW                     |                | HIGH                    |                |
|                                    | 56 rpm                  | Less than 2.5A | 78 rpm                  | Less than 2.5A |
| 10 kg-cm (8.7 in-lb) loaded speed  | 52 rpm                  | Less than 3A   | 68 rpm                  | Less than 3.5A |
| 40 kg-cm (34.7 in-lb) loaded speed | 40 rpm                  | Less than 6A   | 50 rpm                  | Less than 7.5A |
| Locking torque                     | 135 kg-cm (117.2 in-lb) | or greater     | 125 kg-cm (108.5 in-lb) | or greater     |
| Locking current                    | Less than 25A           |                |                         |                |

## Windshield wiper installing position

Install the windshield wiper blade in such a position that the blade comes into contact with the weather strip upper line tightly.  
Tighten the windshield wiper blade arm lock nut under 80 to 100 kg-cm (70 to 87 in-lb) tightening torque.

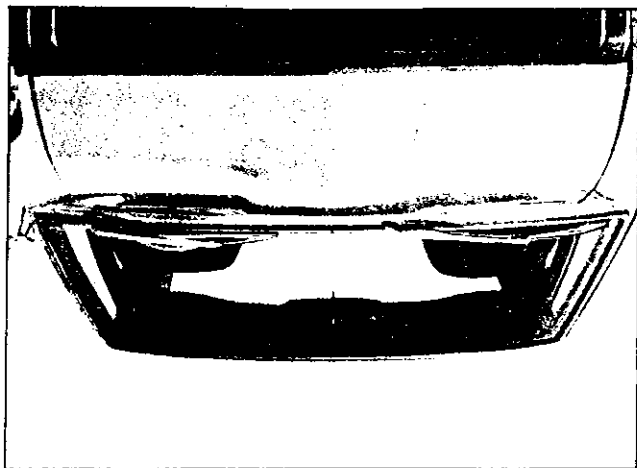


Fig. BE-28

# BODY ELECTRICAL

Windshield wiper motor connecting diagram

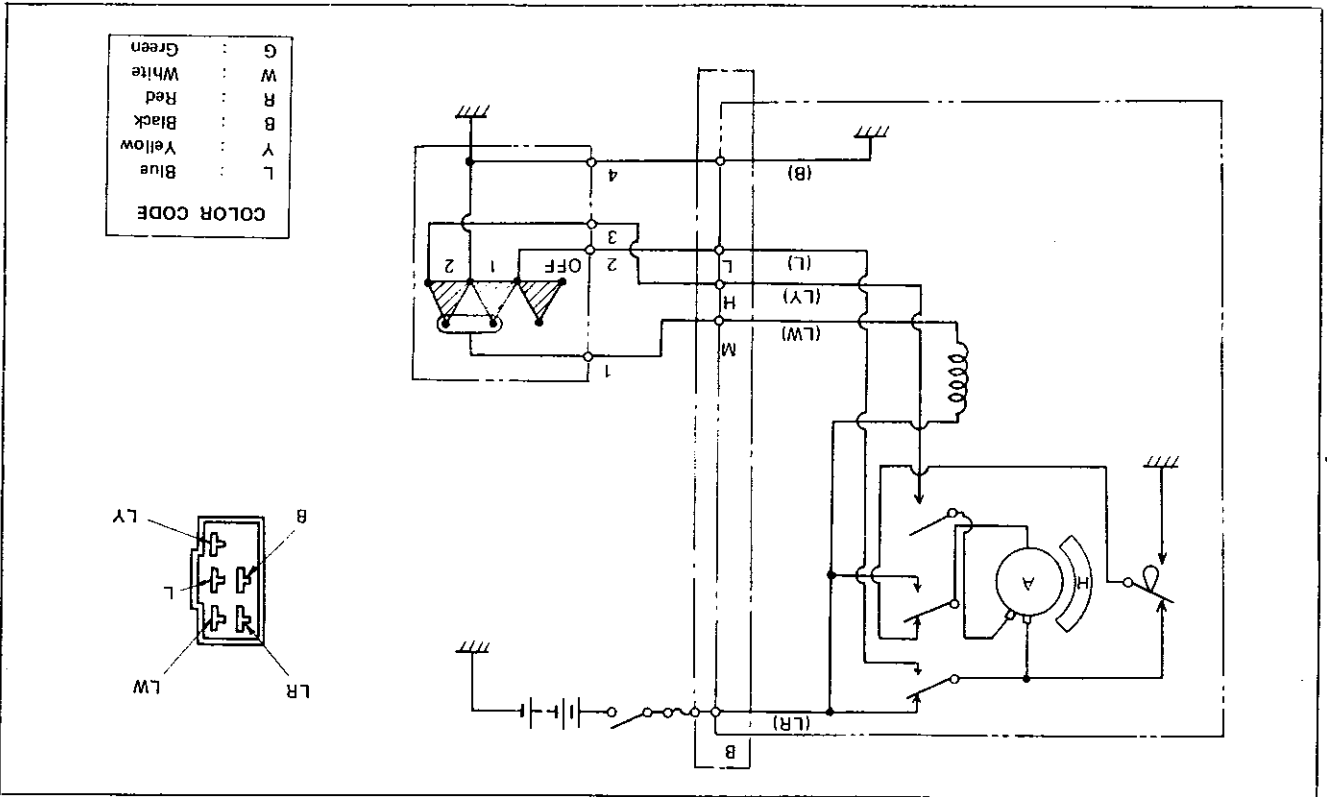
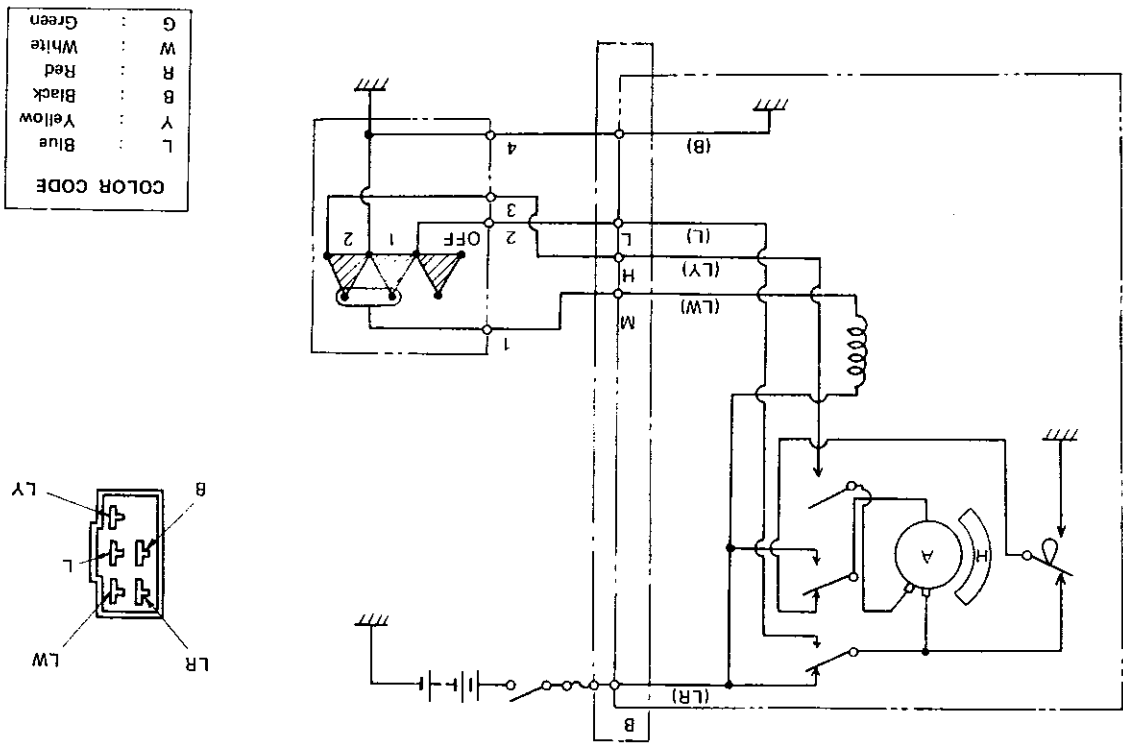


Fig. BE-29 Wiper blade operating range

WINDSHIELD WASHER

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| TROUBLE DIAGNOSES AND |       |
| CORRECTIONS .....     | BE-19 |

REMOVAL

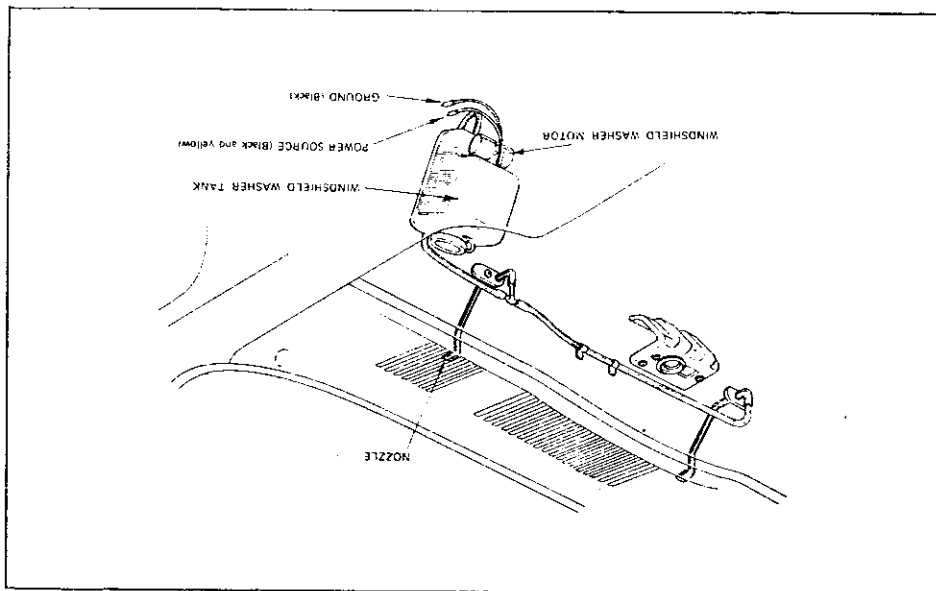


Fig. BE-30 Structural view of windshield washer

Adjusting washer nozzle

When reassembling washer nozzle or washer fluid is not sprayed properly, adjust the nozzle direction using a pair of pliers so that fluid is sprayed in range indicated by asterisk mark (\*) in Figure BE-31.

Washer tank capacity 1.5 liters (3.96 US gal, 3.30 Imp gal).

Precautions for usage of washer

Do not operate the windshield washer continuously for longer than 30 seconds or without fluid. (When the windshield washer is operated incorrectly, malfunction will result.)

Ordinarily, limit operating time within 10 seconds.

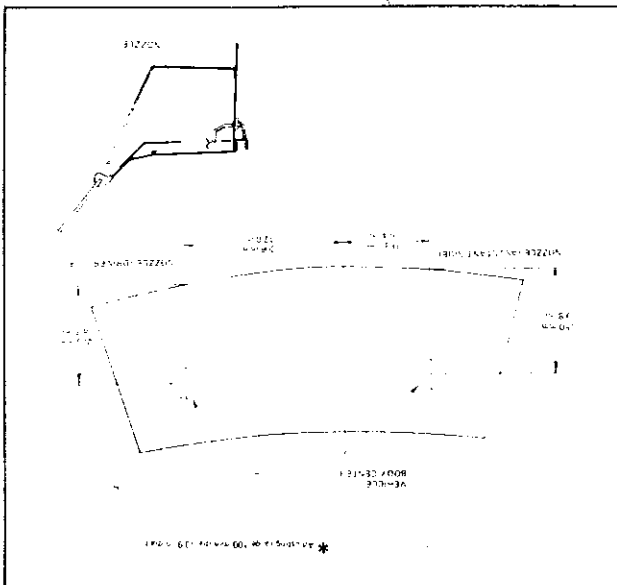


Fig. BE-31 Adjusting washer nozzle

# BODY ELECTRICAL

## TROUBLE DIAGNOSES AND CORRECTIONS

| Troubles                             |                                                               | Possible causes                                                                      | Method of inspection                                                                                                                                                                                                                                                              | Corrective action                                                                      |
|--------------------------------------|---------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| Fluid does not come out.             | No motor operating sound                                      | Blown off fuse<br>Improper contact of each lead wire joint<br>Defective washer motor | Check the fuse box.<br>Check the motor unit and switch unit for proper joint contact.<br>Connect (+) and (-) terminals of the battery respectively to motor lead wires (blue) and (blue/red) with separate cables, and see if the motor operates. If not, the motor is defective. | Replace fuse if required.<br>Correct if required.<br>Replace the motor with a new one. |
|                                      | Fluid does not come out.<br>not come out.<br>sound is audible | Motor<br>Incorrect piping<br>Lack of washer fluid                                    | With the windshield washer switch turned on, measure voltage between two motor lead wires, and if the battery voltage is not detected, check the individual joints.<br>Check fluid level in tank.                                                                                 | Correct.<br>Refill fluid.                                                              |
| The windshield washer does not stop. |                                                               | Defective switch.<br>Short circuit.                                                  | With the windshield washer switch turned off, check the circuit between the wiper switch (yellow/blue) and (black) terminals for continuity. If there is continuity, the switch is defective.<br>Check wiring.                                                                    | Replace the switch with a new one.<br>Repair wiring.                                   |

## SWITCH

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| HAZARD SWITCH .....                 | BE-21 |
| STEERING LOCK AND STARTER SWITCH .. | BE-21 |
| WARNING BUZZER .....                | BE-22 |

COMBINATION SWITCH

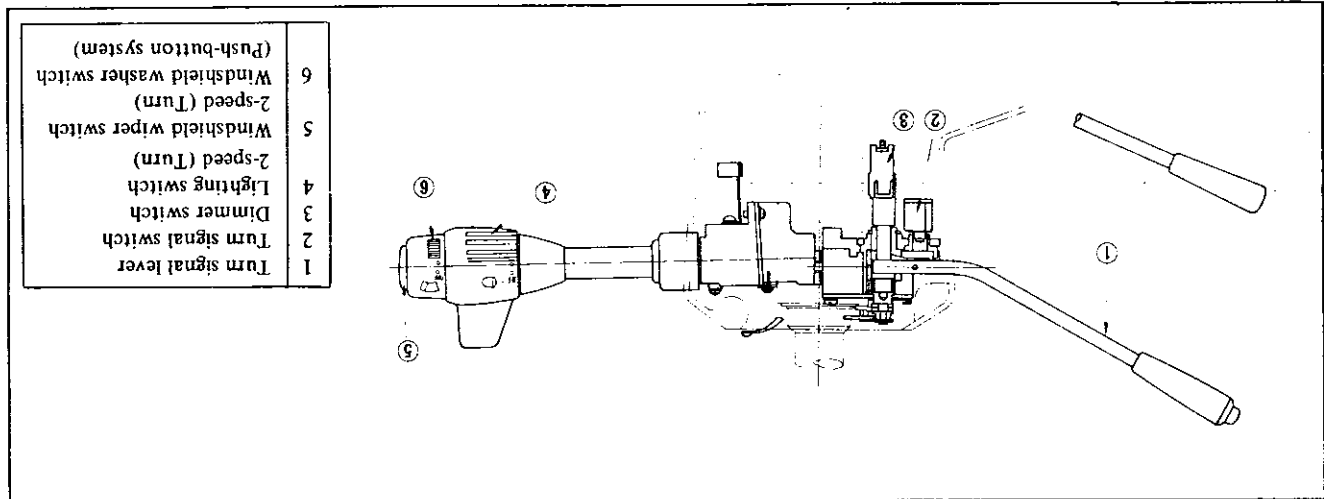


Fig. BE-32 Structural view of combination switch

The combination switch is split into two compartments; one consists of lighting switch, wiper switch, turn signal switch and washer switch, and the other consists of

Each switch operating force

|                          |                                 |
|--------------------------|---------------------------------|
| Turn signal switch       | 0.2 to 0.6 kg (0.44 to 1.32 lb) |
| Dimmer switch            | 0.3 to 0.8 kg (0.66 to 1.76 lb) |
| Windshield wiper switch  | 1 to 3.3 kg (2.2 to 7.3 lb)     |
| Passing switch           | 0.2 to 0.6 kg (0.44 to 1.32 lb) |
| Lighting switch          | 0.2 to 0.6 kg (0.44 to 1.32 lb) |
| Windshield washer switch | 0.7 to 1.3 kg (1.54 to 2.87 lb) |

Combination switch connection circuit  
(1) Lighting/windshield wiper switch side

Conjunction table of Lighting Switch:

| Terminal position | Battery | parking lamp | Dimmer switch | Earth |
|-------------------|---------|--------------|---------------|-------|
| OFF               |         |              |               |       |
| First step        | 6.1A    |              |               |       |
| Second step       | 6.1A    |              |               |       |

Conjunction of Wiper Switch:

| Terminal position | High | Low | Medium | Earth |
|-------------------|------|-----|--------|-------|
| OFF               |      |     |        |       |
| First step        |      | 5A  | 5A     | 5A    |
| Second step       |      | 5A  |        |       |

Fig. BE-33

(2) Turn signal lever side

Conjunction table of Dimmer Switch:

| Termi-<br>nal | Lever<br>position | Earth |      | Main switch |      | Dimmer switch |      |
|---------------|-------------------|-------|------|-------------|------|---------------|------|
|               |                   | 9.2A  | 9.2A | 9.2A        | 9.2A | 9.2A          | 9.2A |
|               |                   |       |      |             |      |               |      |

Conjunction table of Turn Signal Switch :

| Termi-<br>nal | Lever<br>position | Flasher |      | Stop switch |      | Front left |      | Front right |      | Rear left |      | Rear right |      |
|---------------|-------------------|---------|------|-------------|------|------------|------|-------------|------|-----------|------|------------|------|
|               |                   | 2.2A    | 5.8A | 2.2A        | 5.8A | 5.8A       | 5.8A | 5.8A        | 5.8A | 5.8A      | 5.8A | 5.8A       | 5.8A |
|               |                   |         |      |             |      |            |      |             |      |           |      |            |      |

Fig. BE-34

HAZARD SWITCH

This switch is a tumbler switch. When removing, remove the installation screw from the switch boss portion.  
When removing, use the tumbler switch replacer (special tool ST08900000).

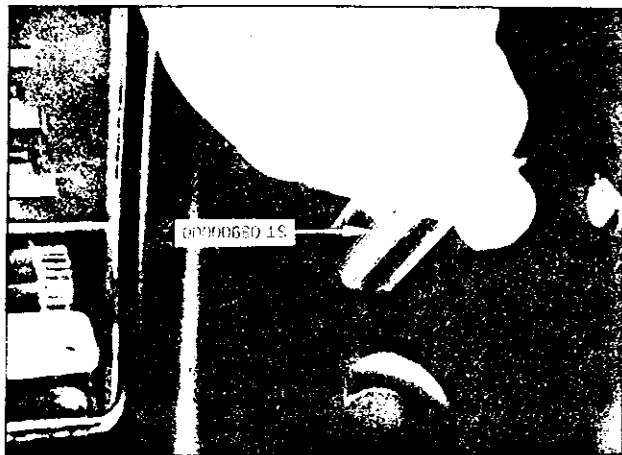
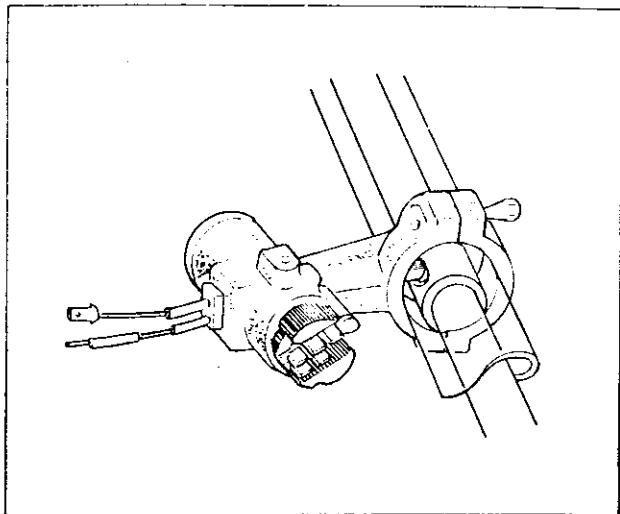


Fig. BE-35

STEERING LOCK

Fig. BE-36 Steering lock



The steering lock is combined with the ignition switch to a single unit which contains warning buzzer micro-switch for reminding the drive to lock the steering. The microswitch is connected to a warning buzzer.

## WARNING BUZZER

(It operates if the door is unlocked with the key inserted in the steering lock)

The warning buzzer is installed on the steering support. When removing the warning buzzer, disconnect steering lock side microswitch cables, and remove two warning buzzer installation screws.

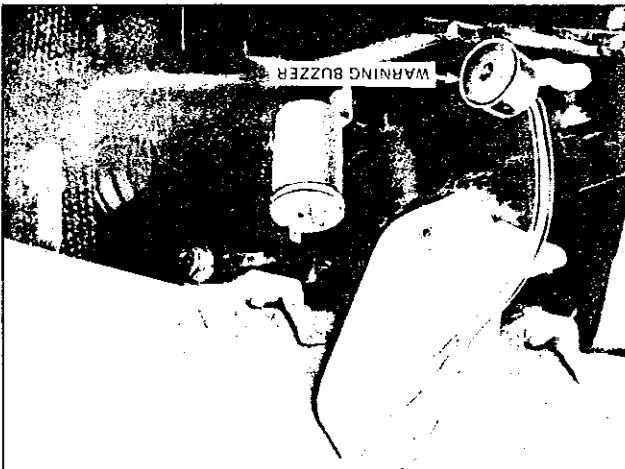


Fig. BE-37 Removing warning buzzer

## HORN AND HORN RELAY

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#### TROUBLE DIAGNOSES AND

CORRECT ..... BE-23

Adjusting horn volume ..... BE-23

The horn is installed on the top of front crossmember. High tone horn is installed in the driver side and low tone

horn is installed in the assistant side facing toward front. The horn relay is installed on the left side dash side panel.

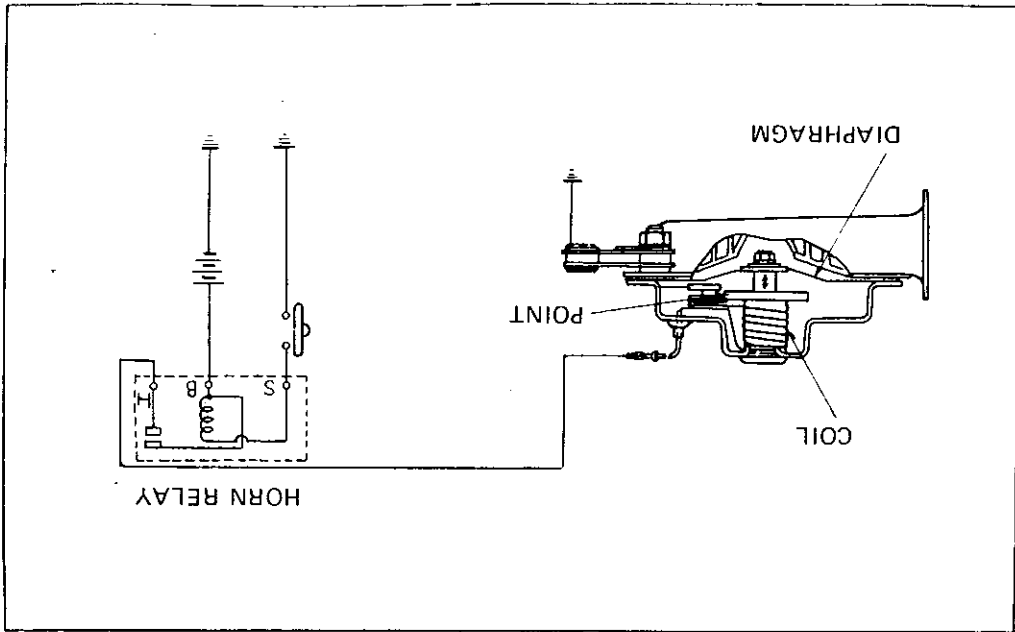


Fig. BE-38 Horn and horn relay circuit diagram

Adjusting horn volume

1. Apply voltage meter and connect cables as shown in Figure BE-39.

2. Turn on the switch, make sure that the voltmeter indicates 12 to 12.5V, and adjust as described below so that the ammeter indicates approximately 3A.

3. Lock nut in reverse side of the body

- (1) Turn the lock nut in counterclockwise ..... Volume and current increases.

- (2) Turn the lock nut in clockwise ..... Volume and current reduces.

4. When a proper volume is obtained through the above described method, raise the voltage to 14 or 15V, and further adjust the volume to better sound.

5. A proper sound obtained at range from 12 to 15V is the best adjusting point.  
Lock the nut at that position.

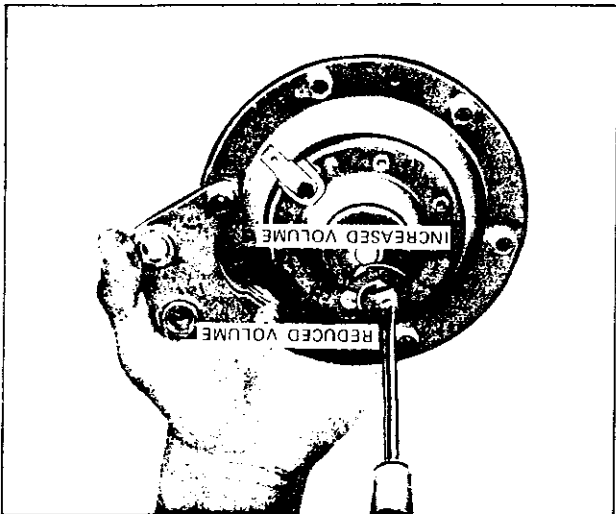


Fig. BE-40 Adjusting horn volume

TROUBLE DIAGNOSES AND CORRECTIONS

| Troubles                   | Possible causes                                                   | Method of inspection                                                                                                                     | Corrective action     |
|----------------------------|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| The horn does not operate. | Excessively discharged battery                                    | Measure specific gravity of electrolyte.                                                                                                 | Charge if discharged. |
|                            | The battery is normal.                                            |                                                                                                                                          |                       |
|                            | Broken lead wire between horn relay (S) terminal and horn button. | The horn does not sound although the horn relay terminal (S) is grounded, but sounds when the terminals (B) and (H) are short-circuited. |                       |



|                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                 |                                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| <p>Reduced volume and/or tone quality</p>                                                                                                                            | <ul style="list-style-type: none"> <li>• Improper fuse wire contact</li> <li>• Broken cable</li> <li>• Improper horn button contact</li> <li>• Worn horn point</li> <li>• Broken resistance circuit cable</li> </ul>                                                                                                           |                                                                                                                                                                                                 | <p>Correct.<br/>Repair.<br/>Repair.<br/>Adjust or replace.<br/>Replace the resistance with a new one.</p> |
| <p>The horn sounds continuously.</p>                                                                                                                                 | <ul style="list-style-type: none"> <li>• Defective horn relay</li> <li>• Short-circuited horn button and horn relay terminal (S).</li> </ul>                                                                                                                                                                                   | <p>The horn does not stop although the horn relay (S) terminal is disconnected.<br/>When the horn stops through the above disconnection, check the horn button unit particularly carefully.</p> | <p>Replace horn relay.<br/>Replace horn button (Switch).</p>                                              |
| <ul style="list-style-type: none"> <li>• Improper horn button contact</li> <li>• Defective horn relay</li> <li>• Defective horn</li> <li>• Blown off fuse</li> </ul> | <p>The horn does not sound although the horn relay terminals (B) and (H) are short-circuited, and the horn still does not sound although the battery (+) terminal is connected to the horn terminal directly.<br/>When the horn sounds through the above inspection, check the fuse for wear, fusing, or improper contact.</p> | <p>Replace.</p>                                                                                                                                                                                 |                                                                                                           |

## RADIO

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| Installing antenna .....          | BE-26 |
| Antenna specifications .....      | BE-27 |
| Auto-antenna switch circuit ..... | BE-27 |

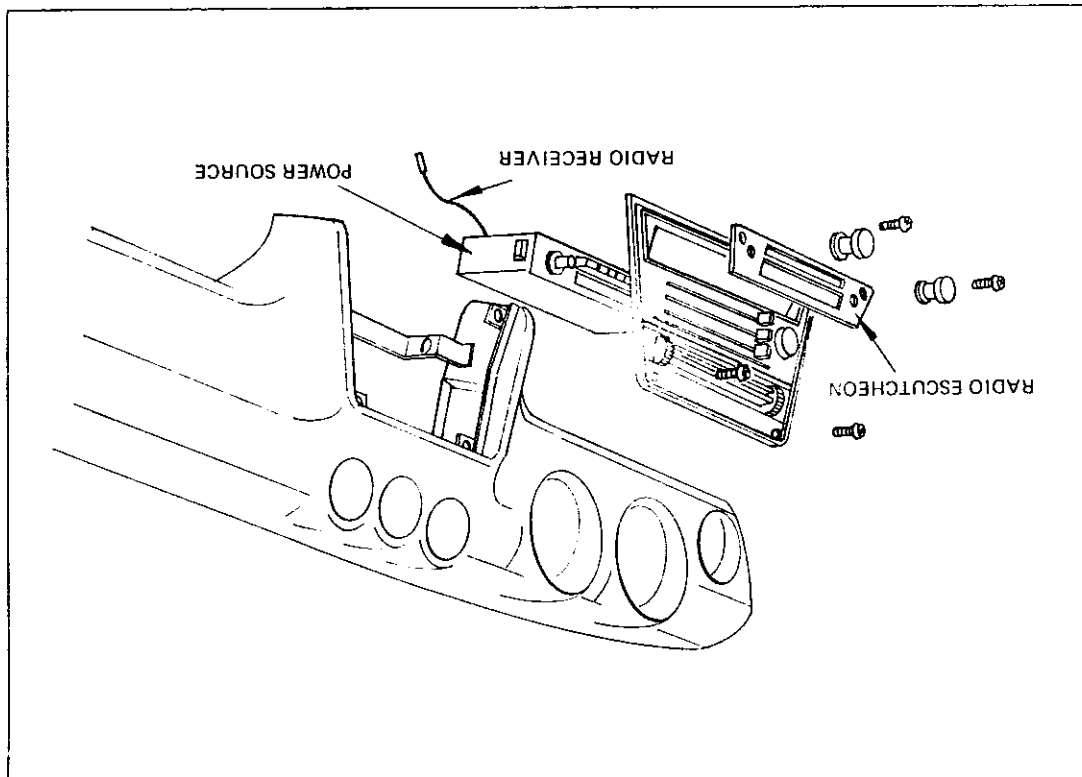


Fig. BE-41 Structural view of radio

published by Hitachi, Ltd.

### Installation

When installing the radio receiver proper, first, install the radio on the instrument console finisher, and fit it into the instrument console. The radio manufacturer is Hitachi, Ltd.

The radio receiver proper is a special unit designed for the Model S30 vehicles. The radio receiver unit is fitted into the instrument console box in flush. The speaker is fitted into the left of the rear side inner. The antenna is a power-drive antenna, and the length is 1,020 mm (40.5 in) when fully extended. For the detail of Radio refer to "All transistor car Radio MODEL TM-1081ZA service manual" which is

### Radio specifications

|                        |                 |
|------------------------|-----------------|
| Model                  | TM-1081ZA       |
| Manufacturer           | Hitachi, Ltd.   |
| Receiving system       | AM              |
| Circuit system         | Superheterodyne |
| Receiving frequency    | 535 to 1,605 KC |
| Intermediate frequency | 455 KC          |

# BODY

|                     |                                            |
|---------------------|--------------------------------------------|
| Maximum sensitivity | Less than 20 db                            |
| Maximum output      | 6W                                         |
| Speaker             | 130 mm (5.12 in) PM Type (Impedance: 4 Ω ) |
| Rated current       | 90 mA                                      |
| Rated voltage       | 12V (—) grounded                           |
| Used transistors    | 10 transistors, 5 diodes, and 2 thermistor |

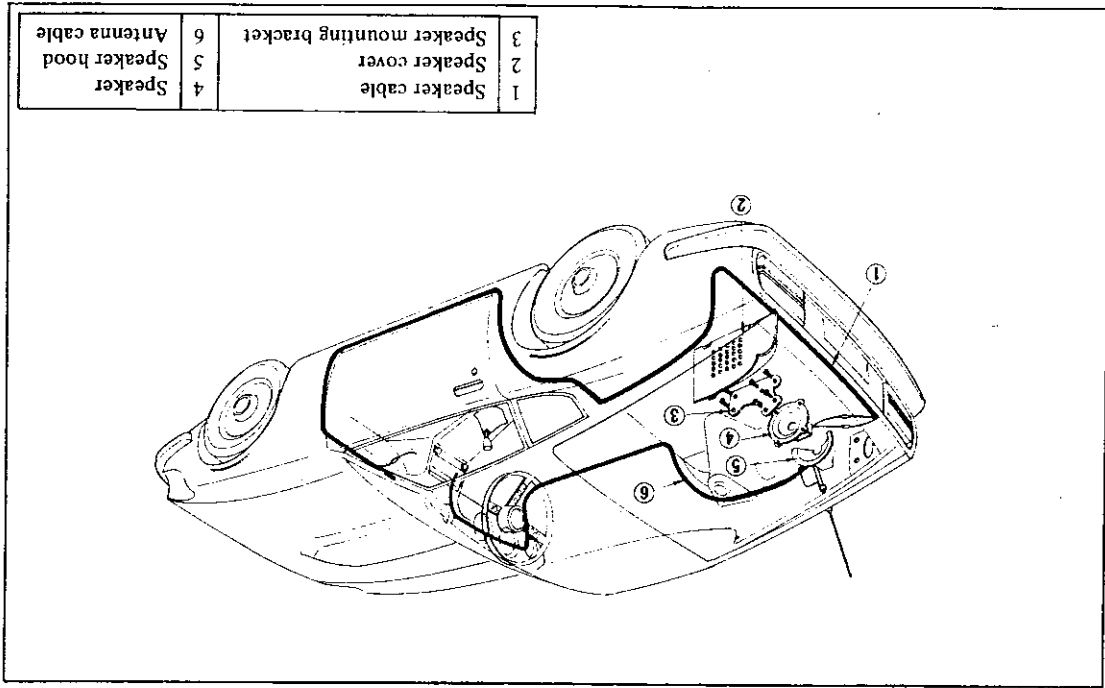


Fig. BE-42 Installing speaker and antenna

## Installing antenna

First, install the speaker main unit and speaker hood on the speaker mounting bracket. With the speaker installed on the bracket, install the speaker mounting bracket on the body.

## Installing speaker

1. Insert the antenna into the antenna installation hole on the left side rear fender from the passenger compartment side.

2. Install the antenna mounting bracket on the body side.

3. Install the antenna upper unit from the outside of the rear fender.

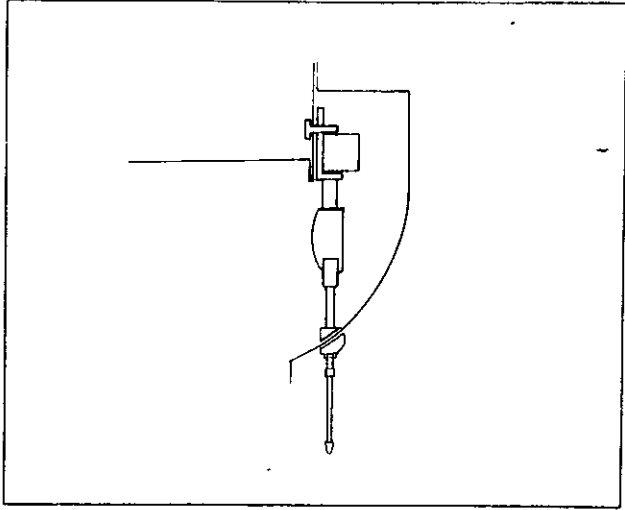
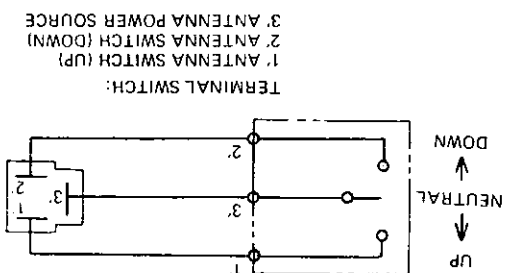


Fig. BE-43 Installing antenna

Antenna specifications

|                         |                                         |
|-------------------------|-----------------------------------------|
| Model                   | RO-74                                   |
| Locking current         | Less than 6A                            |
| Operating voltage range | 10.5 to 16.0V<br>(Starting voltage: 9V) |
| Rated current           | Less than 6A                            |
| Rated voltage           | 12V (-) grounded                        |

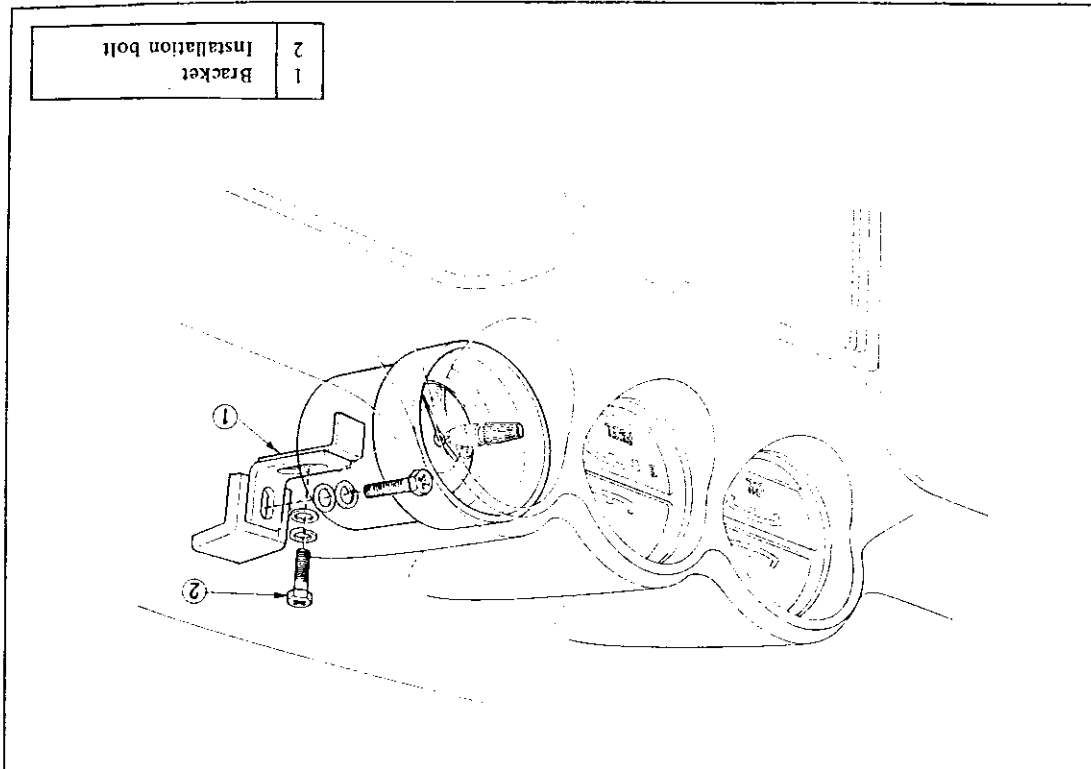
Auto-antenna switch circuit



CLOCK

CONTENTS

Installation ..... BE-28  
Adjusting clock ..... BE-28



[illegible]

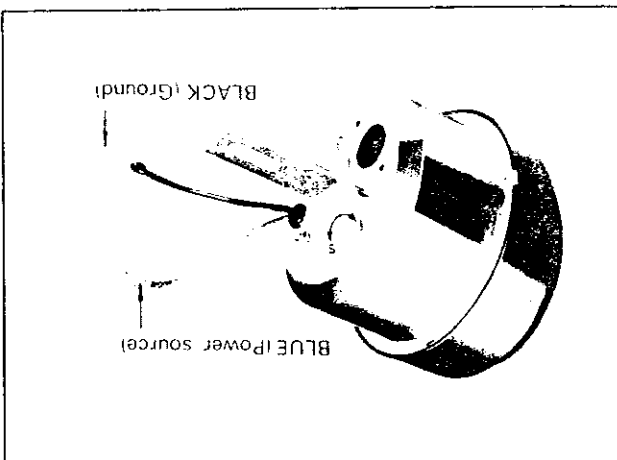
SERVICE JOURNAL OR BULLETIN REFERENCE

Remove the vinyl cover, and adjust the adjusting screw shown in the above figure. When the adjusting screw is turned to "F", the clock gain and retard when turned to "S".

Recommend the adjustment be not made unless the clock is out of order considerably.

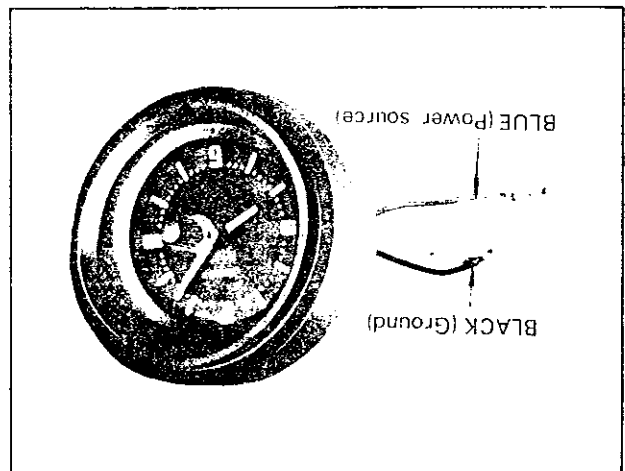
Be sure to reinstall the vinyl cover after adjustment. (The vinyl cover protects the clock from dust and other foreign matters.)

Fig. BE-47 Adjusting clock



## Adjusting clock

Fig. BE-46 Clock



1. Remove the center console finisher.
2. Remove the radio mask, and install the clock thereon.
3. Secure the radio bracket on the L-shape bracket in the instrument panel side with screws.

## Installation

**BODY ELECTRICAL**

**SERVICE JOURNAL OR BULLETIN REFERENCE**

[illegible]

**SECTION SE**  
**SERVICE EQUIPMENT**

SPECIAL SERVICE TOOL SE-1

**DATSUN 240Z SPORTS**  
**MODEL S30 SERIES**  
**CHASSIS & BODY**



**NISSAN MOTOR CO., LTD.**  
TOKYO, JAPAN

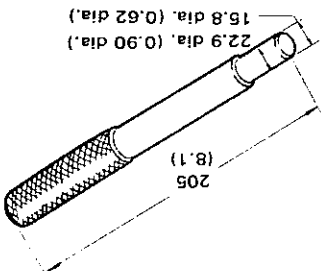
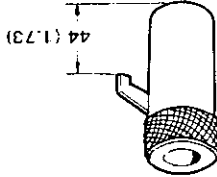
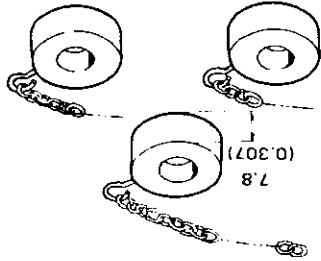
# SERVICE EQUIPMENT

## SPECIAL SERVICE TOOL

| Tool number<br>(Former tool number) | Tool name | Figure | Description | S30 special service tool set | S10 special service tool set | Applied model | S.M. reference page (See Fig. No.) |
|-------------------------------------|-----------|--------|-------------|------------------------------|------------------------------|---------------|------------------------------------|
|-------------------------------------|-----------|--------|-------------|------------------------------|------------------------------|---------------|------------------------------------|

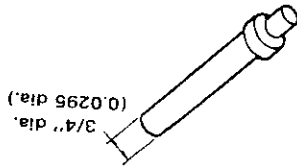
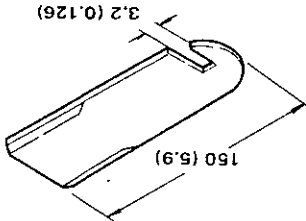
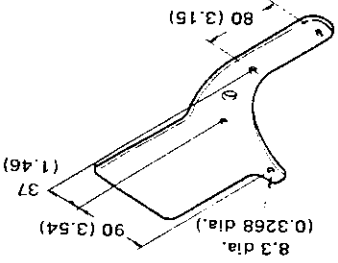
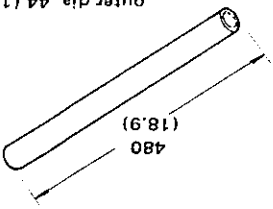
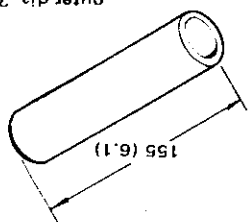
### Clutch and transmission

S30 special service tool set number ST09290000  
S10 special service tool set number ST09110000

|                            |                                |                                                                                      |                                                                         |                                                             |            |  |  |
|----------------------------|--------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------|------------|--|--|
| ST20630000<br>(ST44450000) | Clutch aligning bar            |  | For centering the clutch disk                                           | 130<br>HA30<br>S21                                          | Fig. CL-14 |  |  |
| ST20240000                 | Height gauge                   |   | For measuring the diaphragm spring height (Use with the distance piece) | New                                                         | Fig. CL-6  |  |  |
| ST20051000                 | Clutch assembly base plate     |    | For measuring the diaphragm spring height (Use with the distance piece) | 130<br>S30<br>S10<br>S21<br>4W73<br>60<br>41<br>C240<br>C80 | Fig. CL-5  |  |  |
| ST20058001                 | Clutch assembly distance piece |    | For measuring the diaphragm spring height (Use with the base plate)     | S10<br>S21                                                  | Fig. CL-5  |  |  |



# CHASSIS

| Tool number<br>(Former tool number) | Tool name                      | Figure<br>mm (inch)                                                                  | Description                                                                      | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model                                            | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|--------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|------------------------------------|------------------------------------|-------------------------------------------------------------|-----------------------------------------------|
| ST20052000                          | Clutch assembly<br>center pole |  | For measuring the dia-<br>phragm spring height<br>(Use with the height<br>gauge) |                                    |                                    | 130<br>C30<br>510<br>521<br>4W73<br>60<br>41<br>C240<br>C80 | Fig. CL-6                                     |
| ST20500000                          | Diaphragm adjust<br>wrench     |  | For measuring the dia-<br>phragm spring height                                   |                                    |                                    | HA30<br>C30<br>C10<br>510<br>SP(R)                          | Fig. CL-7                                     |
| ST23810000                          | Setting plate adaptor          |   | Setting plate of the<br>transmission gear                                        |                                    |                                    | 130<br>HA30<br>SP(R)                                        | Fig. TM-11                                    |
| ST23800000                          | Transmission<br>adaptor        |    | For assembly of the<br>main drive gear                                           |                                    |                                    | 130                                                         | Fig. TM-39                                    |
| ST30600000                          | Drift B                        |    | For assembly of the<br>counter drive gear                                        |                                    |                                    | 130<br>HA30<br>SP(R)<br>B10                                 | Fig. TM-40<br>Fig. TM-47                      |

# SERVICE EQUIPMENT

| Tool number<br>(Former tool number) | Tool name          | Figure<br>mm (inch) | Description                                       | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model     | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|--------------------|---------------------|---------------------------------------------------|------------------------------------|------------------------------------|----------------------|-----------------------------------------------|
| ST22360000<br>(ST43910000)          | Drift C            |                     | For assembly of the<br>counter bearing            | ●                                  |                                    | 130<br>HA30<br>SP(R) | Fig. TM-60                                    |
| ST23530000                          | Solid punch        |                     | For removal of the con-<br>trol arm retaining pin | ●                                  |                                    | SP(R)                | Fig. TM-64                                    |
| ST23500000<br>(ST44260000)          | Fork rod pin punch |                     | For removal of the<br>fork rod retaining pin      | ●                                  |                                    | 130<br>HA30<br>SP(R) | Fig. TM-11                                    |

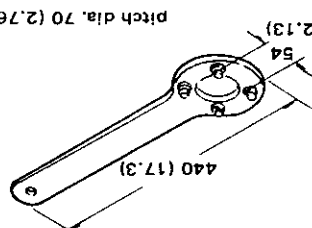
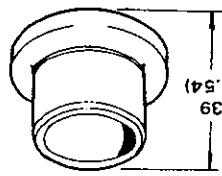
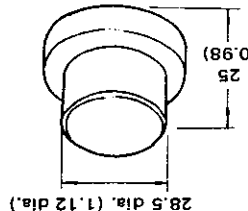
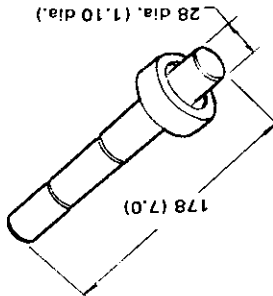
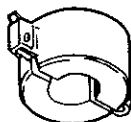
## Differential carrier

|                            |                                             |  |                                                            |  |  |                   |           |
|----------------------------|---------------------------------------------|--|------------------------------------------------------------|--|--|-------------------|-----------|
| ST06270000<br>(ST37400510) | Gear carrier, strut,<br>gear box attachment |  | Setting tool of gear<br>carrier<br>(Use with engine stand) |  |  | 510<br>C10<br>C30 | Fig. PD-3 |
|----------------------------|---------------------------------------------|--|------------------------------------------------------------|--|--|-------------------|-----------|

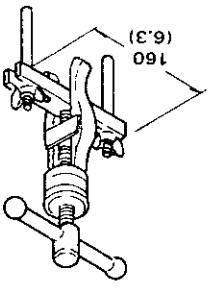
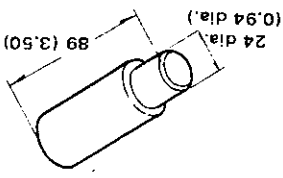
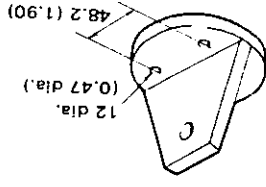
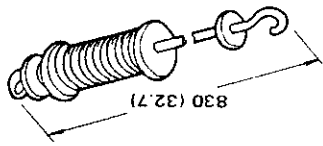
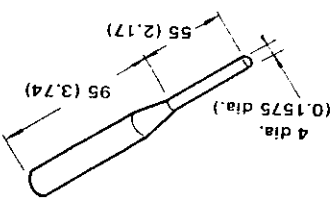
## SE-4

| Tool number<br>(Former tool number) | Tool name                                                    | Figure | mm (inch) | Description                                                                                         | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model         | S.M. refer-<br>ence page<br>(See<br>Fig. No.)       |
|-------------------------------------|--------------------------------------------------------------|--------|-----------|-----------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------|--------------------------|-----------------------------------------------------|
| ST30030000<br>(ST49280000)          | Drive pinion rear<br>bearing inner bear-<br>ing replacer set |        |           | For assembly and disas-<br>sembly of the drive pinion<br>bearing inner race                         |                                    |                                    | S10<br>C10<br>C30<br>521 | Fig. TM-21<br>Fig. TM-23<br>Fig. TM-24<br>Fig. PD-9 |
| ST30610000<br>(ST49290000)          | Drive pinion outer<br>race drift kit                         |        |           | For assembly of the<br>drive pinion bearing<br>outer race                                           |                                    |                                    | S10<br>C30               | Fig. PD-10                                          |
| ST31210000<br>(ST49300000)          | Gear carrier height<br>gauge assembly                        |        |           | For height adjustment<br>of the drive pinion                                                        |                                    |                                    | 510                      | Fig. PD-19                                          |
| ST31500000<br>(ST49310000)          | Drive pinion collar                                          |        |           | Dummy shaft for measure<br>of the drive pinion pre-<br>load (Use with gear<br>carrier height gauge) |                                    |                                    | 510<br>C30               | Fig. PD-21                                          |

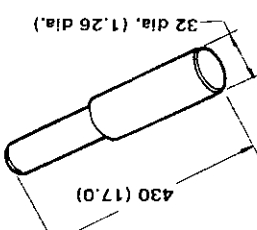
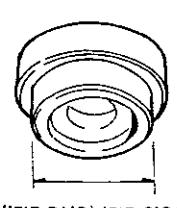
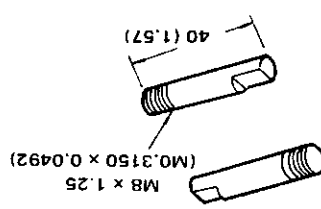
## SERVICE EQUIPMENT

| Tool number<br>(Former tool number) | Tool name                          | Figure<br>mm (inch)                                                                  | Description                                                 | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model                        | S.M. reference<br>page<br>(See<br>Fig. No.) |
|-------------------------------------|------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------|------------------------------------|-----------------------------------------|---------------------------------------------|
| ST31530000<br>(ST47340000)          | Drive pinion flange<br>wrench      |  | For removal of the drive<br>pinion nut                      |                                    |                                    | 130<br>HA30<br>C30<br>C10<br>S10<br>S21 | Fig. PD-7                                   |
| ST31850000<br>(ST49660000)          | Dummy spacer                       |  | Dummy shaft for height<br>adjustment of the drive<br>pinion |                                    | ●                                  | C30                                     | Fig. PD-21                                  |
| ST33012000<br>(ST46862000)          | Adaptor                            |   | For disassembly of the<br>side bearing                      |                                    | ○                                  | S10<br>C30                              | Fig. PD-11                                  |
| ST33230000<br>(ST49260000)          | Gear carrier side<br>bearing drift |    | For assembly of the side<br>bearing                         |                                    |                                    | S10<br>C30                              | Fig. PD-17                                  |
| ST33270000<br>(ST49320000)          | Gear carrier oil seal<br>drift     |     | For assembly of the oil<br>seal                             |                                    | ○                                  | S10<br>C30                              | Fig. PD-14                                  |

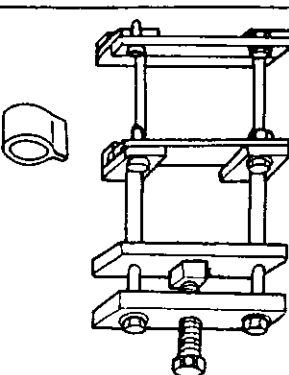
# CHASSIS

| Tool number<br>(Former tool number) | Tool name                                | Figure<br>mm (inch)                                                                                                                                     | Description                                                        | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model  | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------|------------------------------------|-------------------|-----------------------------------------------|
| ST33290000<br>(ST49240000)          | Gear carrier oil seal<br>puller          | <br>160 (6.3)                                                       | For disassembly of the oil<br>seal                                 | ○                                  |                                    | S10<br>C30        | Fig. PD-6                                     |
| ST33710000<br>(ST49230000)          | Gear carrier side<br>retainer attachment | <br>24 dia.<br>(0.94 dia.)<br>89 (3.50)                             | For disassembly of the<br>side retainer                            | ○                                  |                                    | S10<br>C30        | Fig. PD-5                                     |
| ST33730000<br>(ST49250000)          | Gear carrier side<br>flange stand        | <br>12 dia.<br>(0.47 dia.)<br>48.2 (1.90)<br>pitch dia. 75 (2.95 in) | For removal of the side<br>flange<br>(Use with sliding hammer)     | ○                                  |                                    | S10<br>C30        | Fig. PD-4                                     |
| ST36230000<br>(ST46780000)          | Sliding hammer                           | <br>830 (32.7)                                                        | Sliding hammer use with<br>rear axle stand or side<br>flange stand |                                    |                                    | All               | Fig. RA-22<br>Fig. PD-4                       |
| ST23510000<br>(ST49270000)          | Differential locking<br>pin punch        | <br>4 dia.<br>(0.1575 dia.)<br>95 (3.74)<br>55 (2.17)                 | For removal of pinion<br>mate shaft lock pin                       | ○                                  |                                    | S10<br>C10<br>C30 | Fig. PD-12                                    |

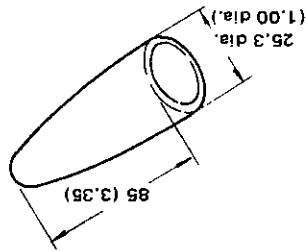
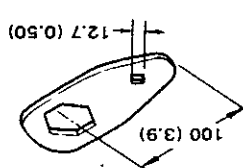
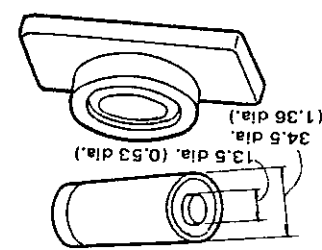
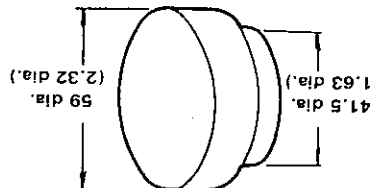
# SERVICE EQUIPMENT

| Tool number<br>(Former tool number) | Tool name           | Figure                                                                               | Description                                          | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|---------------------|--------------------------------------------------------------------------------------|------------------------------------------------------|------------------------------------|------------------------------------|------------------|-----------------------------------------------|
| ST30650000                          | Pilot bearing drift |  | For disassembly of the<br>pilot bearing              | ●                                  |                                    | New              | Fig. PD-8                                     |
| ST33252000<br>(DT-49942000)         | Adaptor             |   | For assembly of the<br>front oil seal                | ●                                  |                                    | New              | Fig. PD-12                                    |
| ST33720000<br>(DT-4933)             | Side retainer guide |    | The guide pin for assem-<br>bly of the side retainer |                                    | ○                                  | New              | Fig. PD-22                                    |

## Front axle and suspension

|            |                               |                                                                                   |                                                                   |   |  |                          |           |
|------------|-------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|---|--|--------------------------|-----------|
| ST35650000 | Coil spring<br>compressor set |  | For assembly and disas-<br>sembly of the coil spring              | ● |  | New<br>S10<br>C30<br>C10 | Fig. FA-3 |
|            |                               |                                                                                   | coil spring max. dia. 165 (6.5)<br>stroke 50 to 239 (1.97 to 9.4) |   |  |                          |           |

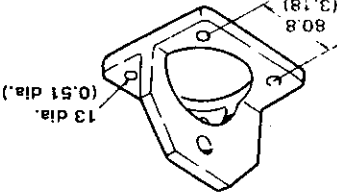
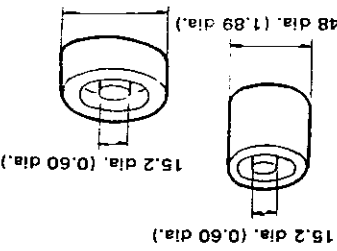
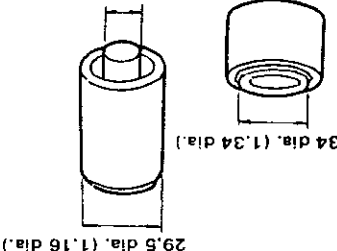
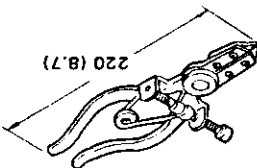
# CHASSIS

| Tool number<br>(Former tool number) | Tool name                                    | Figure<br>mm (inch)                                                                  | Description                                | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model  | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|------------------------------------|------------------------------------|-------------------|-----------------------------------------------|
| ST35540000                          | Gland packing<br>guide                       |  | For assembly of the<br>gland packing       | ●                                  |                                    | New               | Fig. FA-35                                    |
| ST35500000<br>(ST4913A000)          | Gland packing<br>wrench                      |  | For tightening gland<br>packing            |                                    | ○                                  | S10<br>C10<br>C30 | Fig. FA-31<br>Fig. FA-37                      |
| ST36710000                          | Front transverse<br>link bushing<br>replacer |   | For assembly and disas-<br>sembly          | ●                                  |                                    | New               | Fig. FA-46                                    |
| ST35300000                          | Front wheel bearing<br>drift                 |    | For assembly of the front<br>wheel bearing | ●                                  |                                    | New               | Fig. FA-19                                    |

# SERVICE EQUIPMENT

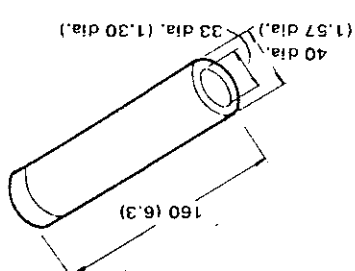
| Tool number<br>(Former tool number) | Tool name | Figure | Description | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|-----------|--------|-------------|------------------------------------|------------------------------------|------------------|-----------------------------------------------|
|-------------------------------------|-----------|--------|-------------|------------------------------------|------------------------------------|------------------|-----------------------------------------------|

## Rear axle and suspension

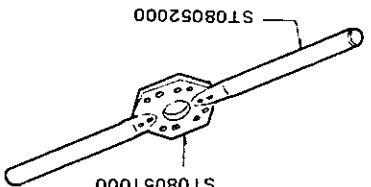
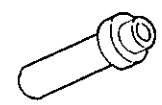
|                            |                                                  |                                                                                      |                                                                            |   |   |                          |                          |
|----------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------|---|---|--------------------------|--------------------------|
| ST07640000<br>(ST46790000) | Rear axle stand                                  |  | For removal of the rear axle shaft<br>(Use with sliding hammer)            |   |   | S10<br>C10<br>C30<br>B10 | Fig. RA-21<br>Fig. RA-22 |
| ST33260000<br>(ST49150000) | Differential mounting member insulator drift set |   | For assembly and disassembly of the differential mounting member insulator |   | ○ | S10<br>C30               | Fig. RA-6                |
| ST38800000                 | Rear transverse link bushing replacer            |    | For assembly and disassembly of the rear transverse link bushing           | ● |   | New                      | Fig. RA-5                |
| ST38300000<br>(ST49210000) | Drive shaft snap ring plier                      |    | For removal of the drive shaft snap ring                                   |   | ○ | S10<br>C30               | Page<br>RA-11            |



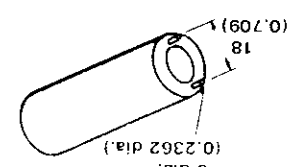
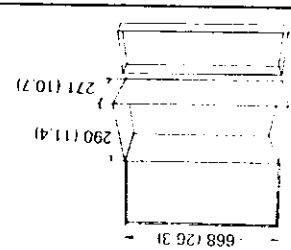
# CHASSIS

| Tool number<br>(Former tool number) | Tool name                              | Figure<br>mm (inch)                                                                  | Description                                               | S30 special<br>service tool<br>set | S10 special<br>service tool<br>set | Applied<br>model | S.M. refer-<br>ence page<br>(See<br>Fig. No.) |
|-------------------------------------|----------------------------------------|--------------------------------------------------------------------------------------|-----------------------------------------------------------|------------------------------------|------------------------------------|------------------|-----------------------------------------------|
| ST37780000                          | Rear axle shaft<br>outer bearing drift |  | For assembly of the rear<br>wheel bearing<br>(outer side) | ●                                  |                                    | New              | Page<br>RA-10                                 |

## Master - Vac.

|            |                           |                                                                                      |                                                |   |  |     |            |
|------------|---------------------------|--------------------------------------------------------------------------------------|------------------------------------------------|---|--|-----|------------|
| ST08050000 | Master-vac.<br>wrench set |  | For disassembly of the<br>master-vac.          | ● |  | C30 | Fig. BR-45 |
| ST08060000 | Press fit tool            |    | For assembly of the front<br>oil seal retainer | ● |  | C30 | Fig. BR-53 |

## Body electrical

|  |                                          |                                                                                    |                                                            |   |  |  |            |
|--|------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------|---|--|--|------------|
|  | Tumbler switch<br>replacer               |  | For assembly and disas-<br>sembly of the tumbler<br>switch | ● |  |  | Fig. BE-35 |
|  | Tool box for special<br>service tool set |  |                                                            | ● |  |  |            |

[illegible]

**SERVICE JOURNAL OR BULLETIN REFERENCE**

## SERVICE EQUIPMENT

[illegible]

**SERVICE JOURNAL OR BULLETIN REFERENCE**

## CHASSIS

[illegible]

**SERVICE JOURNAL OR BULLETIN REFERENCE**

## SERVICE EQUIPMENT