

Fig. 10-1

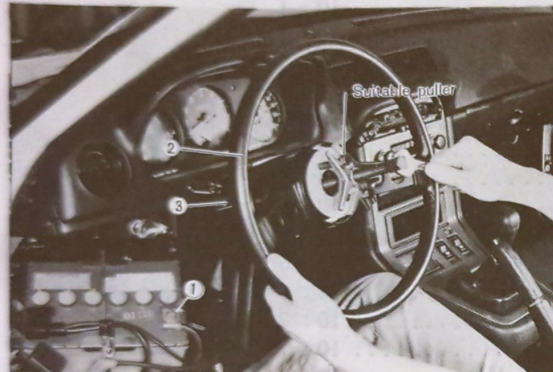


Fig. 10-2

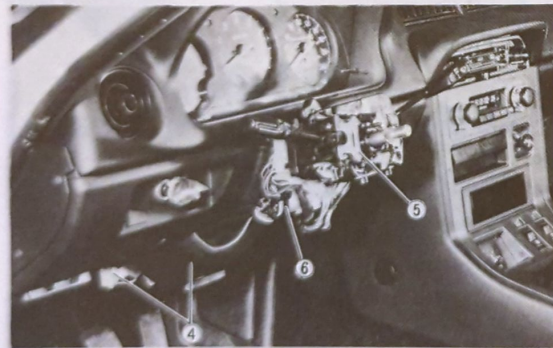


Fig. 10-3

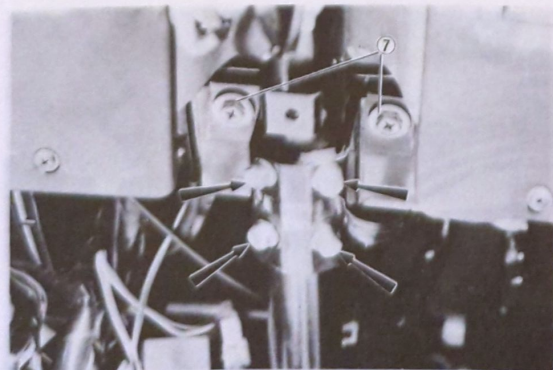


Fig. 10-4

10-A. STEERING WHEEL PLAY

Check the free play at the circumference of the steering wheel.

Standard free play: 5 ~ 20 mm (0.2 ~ 0.8 in)

To check the free play, place the front wheels straight ahead and turn the steering wheel slowly. The free play is taken when the front wheel begins to move.

If excessive play is found, the following points should be carefully checked.

1. Fitting condition of the center link ball joints
2. Looseness of the idler arm bushes
3. Looseness of the wheel bearing
4. Backlash between the sector shaft and ball nut

10-B. STEERING GEAR

10-B-1. Removing Steering Gear

1. Disconnect the battery negative cable.
2. Remove the horn cap and steering wheel.

Note:

a) Before removing the steering wheel, apply identification marks on the steering column shaft and steering wheel.

b) Do not strike the steering column shaft end with a hammer. Striking shaft will damage the bearing or collapsible shaft.

c) Use suitable puller to remove the steering wheel.

3. Remove the steering column covers.
4. Remove the air duct and disconnect the couplers of the combination switch.
5. Remove the combination switch assembly.
6. Remove the steering lock assembly referring to Par. 10-E.

7. Remove the column jacket fixing bracket.

Follow the removal procedures in the next section.

Note:

Fit the axle with the correct grease and lubricant.

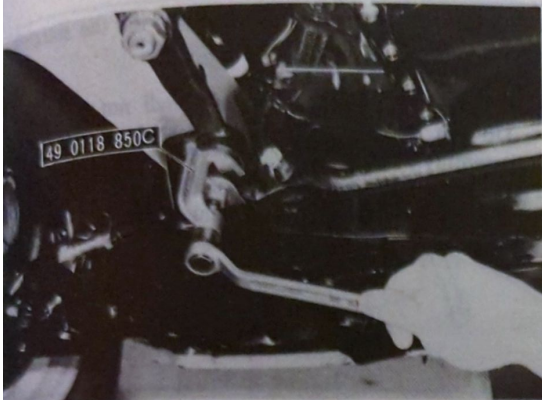


Fig. 10-5

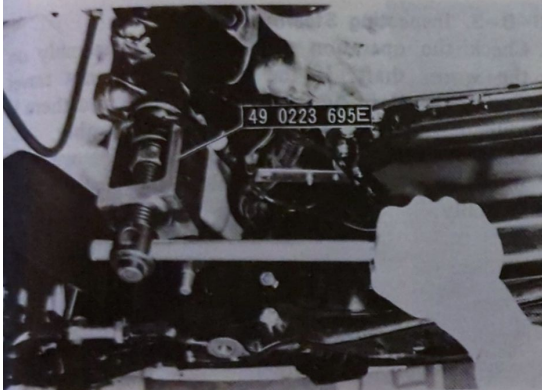


Fig. 10-6

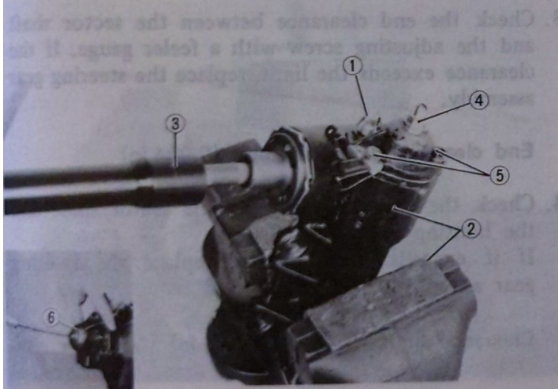


Fig. 10-7

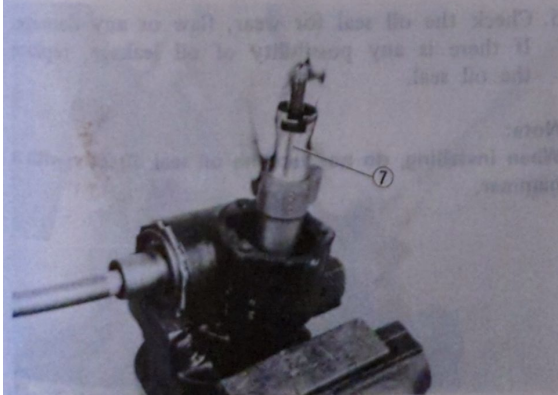


Fig. 10-8

8. Mark the bonnet hinge locations on the bonnet and remove the bonnet.
9. Raise the front end of the vehicle and support it with stands.
10. Disconnect the center link from the pitman arm with **puller** (49 0118 850C).

11. Remove the pitman arm from sector shaft with **puller** (49 0223 695E).
12. Remove the steering gear housing attaching bolts and remove the steering gear housing assembly through the engine compartment.

Note:

If the car has been in a collision, check the steering wheel for axial play before removing the steering gear assembly. If the steering column shaft is crushed or axial play occurs, replace the steering gear and column shaft as an assembly.

10-B-2. Disassembling Steering Gear

1. Drain the lubricant.
2. Hold the steering gear housing in a vise.
3. Slide the column jacket off the column shaft.
4. Loosen the adjusting screw lock nut.
5. Remove the side cover attaching bolts.
6. Remove the side cover by turning the adjusting screw clockwise through the cover.

7. Remove the sector shaft from the gear housing, being careful not to damage the shaft.

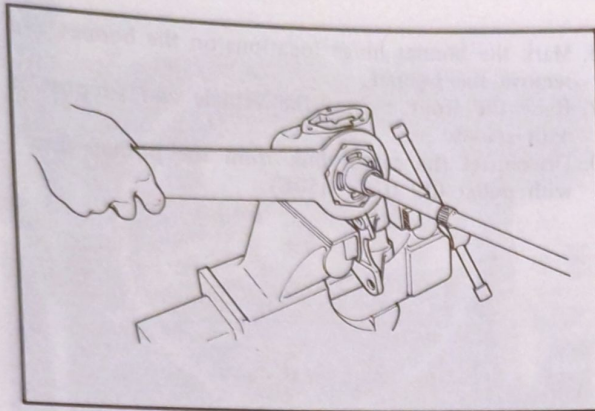


Fig. 10-9

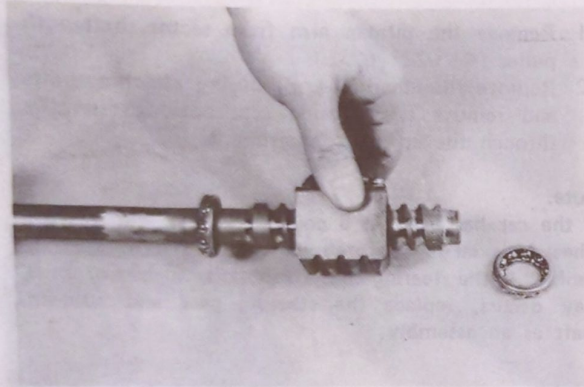


Fig. 10-10

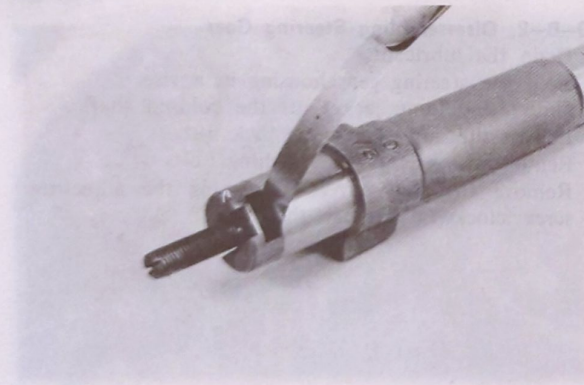


Fig. 10-11



Fig. 10-12

8. Unscrew the end cover lock nut with the suitable wrench.
9. Loosen the end cover.
10. Remove the worm shaft and ball nut assembly. **Do not disassemble the worm shaft and ball nut assembly.**
11. Remove the oil seal with suitable tool. **Do not remove the oil seal unless completely necessary.**

10-B-3. Inspecting Steering Gear

1. Check the operation of the ball nut assembly on the worm shaft. If the ball nut does not travel smoothly and freely on the worm shaft and there is roughness, replace the steering gear assembly.
2. Check the worm bearings and cups for wear or any damage. If defective, replace the steering gear assembly.

3. Check the end clearance between the sector shaft and the adjusting screw with a feeler gauge. If the clearance exceeds the limit, replace the steering gear assembly.

End clearance limit: 0.1 mm (0.004 in)

4. Check the clearance between the sector shaft and the housing bore. If it exceeds specifications, replace the steering gear assembly.

Clearance limit: 0.1 mm (0.004 in)

5. Check the oil seal for wear, flaw or any damage. If there is any possibility of oil leakage, replace the oil seal.

Note:

When installing, do not tap the oil seal directly with a hammer.

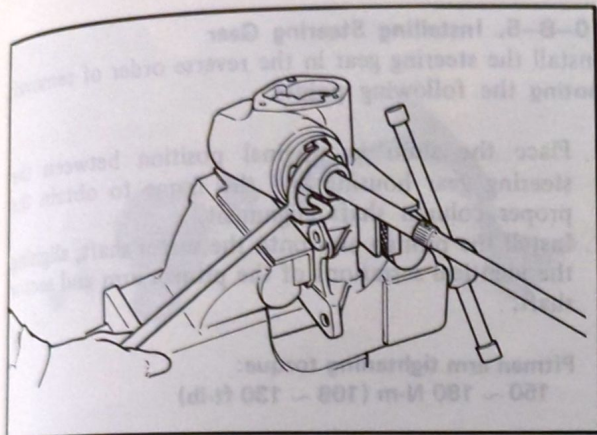


Fig. 10-13

10-B-4. Assembling Steering Gear

1. Install the oil seal with suitable tool (if removed). **When installing, do not tap the oil seal directly with a hammer.**
2. Install the worm shaft and ball nut assembly into the gear housing.
3. Screw in the end cover until the preload of the worm shaft becomes 2 ~ 5 N (0.44 ~ 1.1 lb).

To measure the preload, attach the attachment (49 0180 510A) to the column shaft end and pull the spring scale squarely and then, take a reading of the scale when the shaft starts to turn.

4. After adjusting the preload, tighten the end cover lock nut with suitable wrench and recheck the preload.

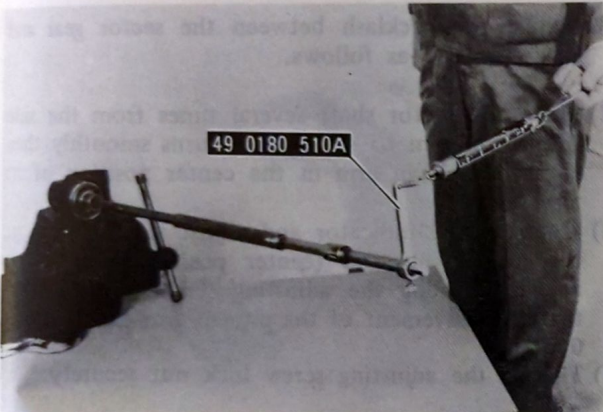


Fig. 10-14

5. Turn the worm shaft and place the rack in the center position of the worm.
6. Install the adjusting screw and shim into the slot at the end of the sector shaft, and install them into the gear housing, being careful not to damage the oil seal. **Make sure the center of the sector gear is in alignment with the center of the worm shaft rack.**

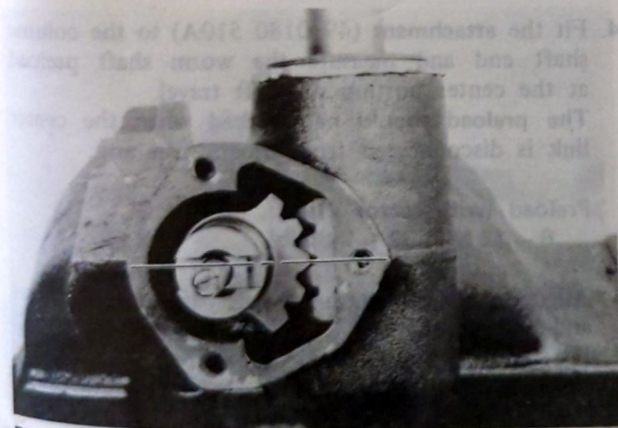


Fig. 10-15

7. Apply sealing agent to side cover and place the side cover onto the adjusting screw, then turn the adjusting screw counter-clockwise until it is screwed into proper position.
8. Tighten the side cover attaching bolts.
9. Temporarily tighten the adjusting screw lock nut. **The adjustment of the backlash between the sector gear and rack is explained in Par. 10-B-5.**
10. Install the column jacket onto the end cover.

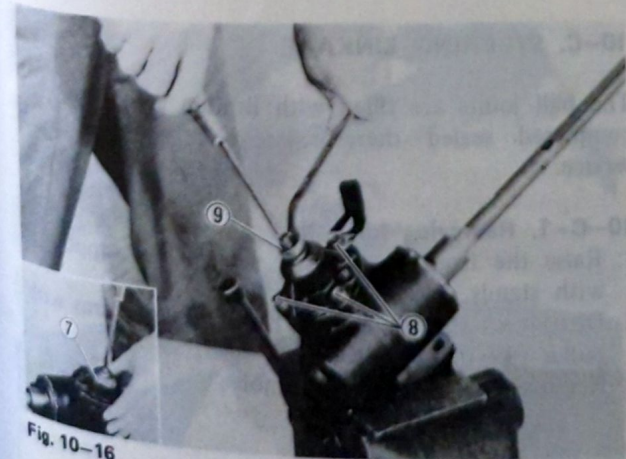


Fig. 10-16

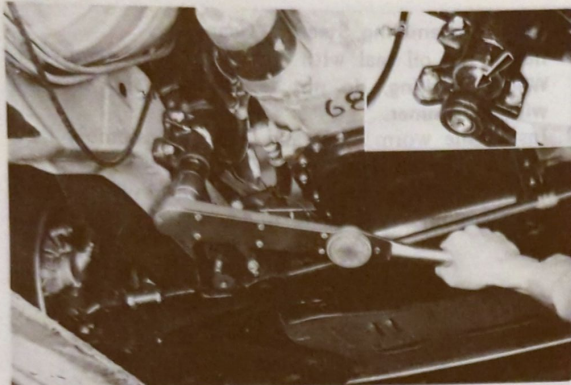


Fig. 10-17

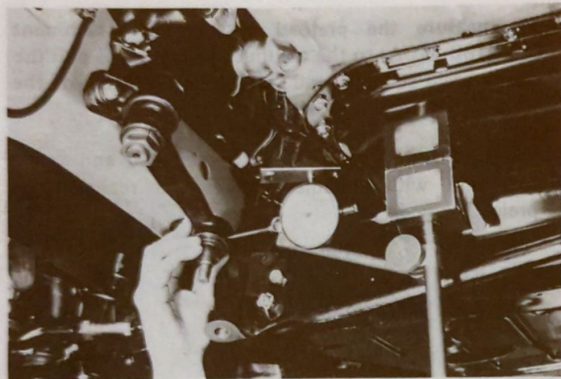


Fig. 10-18

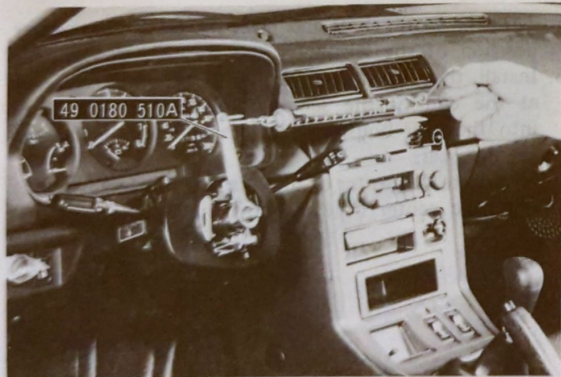


Fig. 10-19

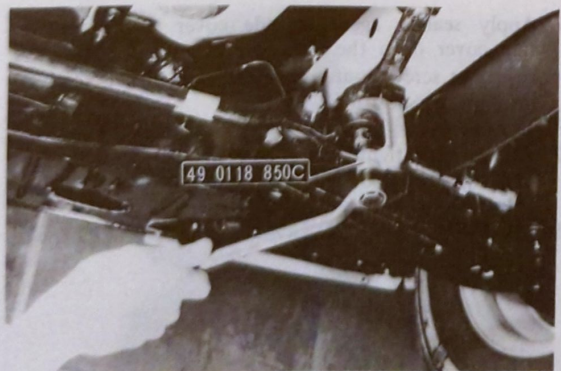


Fig. 10-20

10-B-5. Installing Steering Gear

Install the steering gear in the reverse order of removal, noting the following points.

1. Place the shim in original position between the steering gear housing and the frame to obtain the proper column shaft alignment.
2. Install the pitman arm onto the sector shaft, aligning the identical serrations of the pitman arm and sector shaft.

Pitman arm tightening torque:
150 ~ 180 N-m (108 ~ 130 ft-lb)

3. Adjust the backlash between the sector gear and rack, proceed as follows.

- 1) Move the sector shaft several times from the side of pitman arm to see that it turns smoothly then stop the pitman arm in the center position of its travel range.
- 2) Mount a dial indicator and adjust the backlash at the neutral position (center position) of pitman arm by turning the adjusting screw in or out so that the movement of the pitman arm end becomes 0 mm.
- 3) Tighten the adjusting screw lock nut securely.

4. Fit the attachment (49 0180 510A) to the column shaft end and measure the worm shaft preload at the center portion of shaft travel.

The preload should be checked when the center link is disconnected from the pitman arm.

Preload (with sector shaft):
6 ~ 12 N (1.32 ~ 2.65 lb)

5. Align the identification marks on the steering wheel and column shaft.
6. Fill the gear housing with lubricant (A.P.I. Service GL-4, SAE 90).

10-C. STEERING LINKAGE

The ball joints are filled with lithium grease and are completed sealed therefore require no lubrication service.

10-C-1. Removing Idler Arm

1. Raise the front end of the vehicle and support it with stands.
2. Disconnect the center link from the idler arm with puller (49 0118 850C).
3. Remove the idler arm assembly.