

SECTION 4D

FRONT SUSPENSION

GENERAL DESCRIPTION	4D — 226
ON-CAR SERVICE	4D — 228
Strut Assembly	4D — 228
Wheel Bearing	4D — 231
Suspension Arm Bush	4D — 232
Inspection and Maintenance	4D — 232
TIGHTENING TORQUE	4D — 234
SPECIAL TOOLS	4D — 234

GENERAL DESCRIPTION

Strut independent suspension system is adopted and is installed on suspension arm so that roll stiffness is improved.

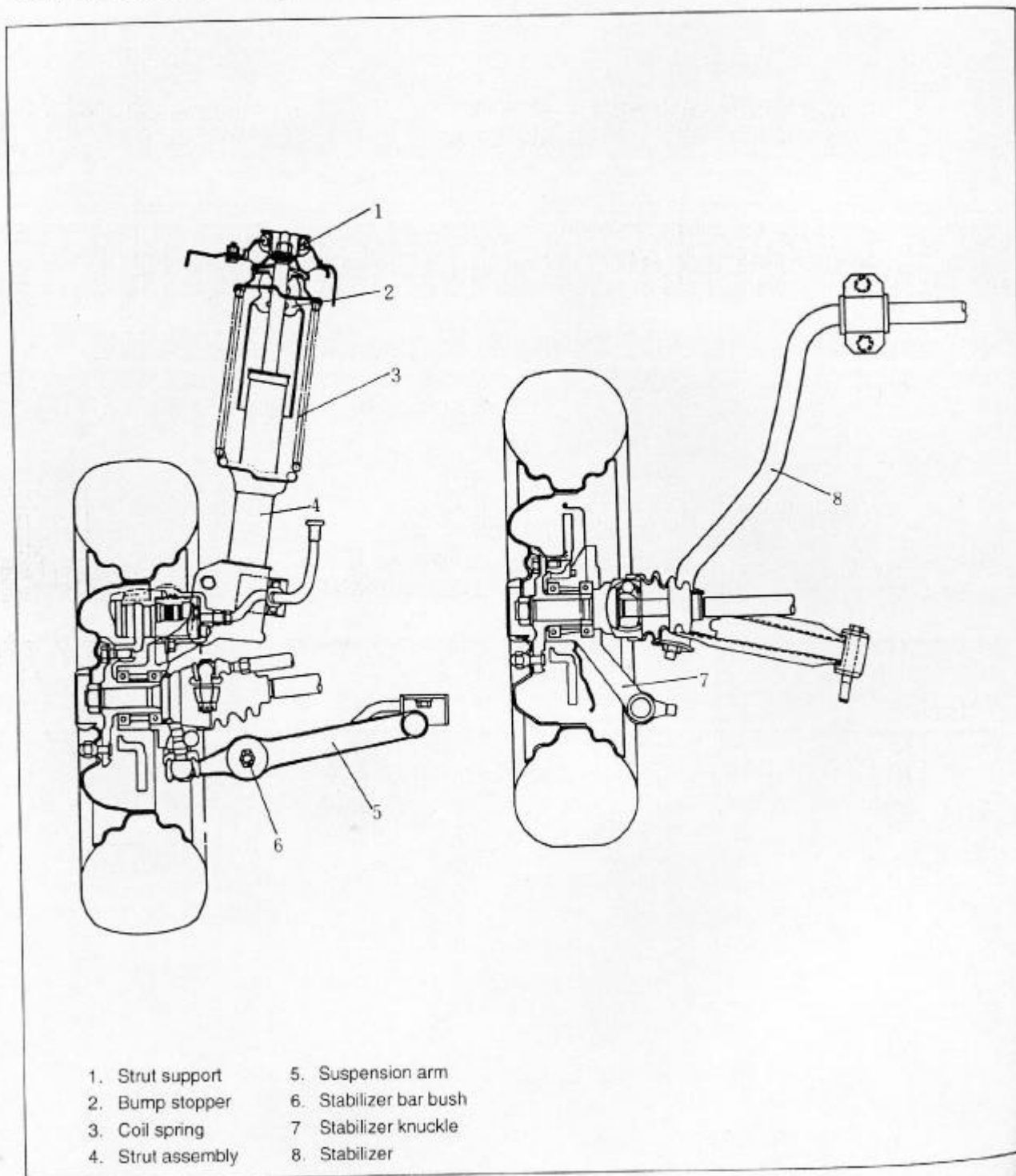


FIG. 4D — 1 FRONT SUSPENSION

INDEPENDENT SUSPENSION SYSTEM

Type

Wishbone type
Mcpherson type

Wishbone type

This consists of upper and lower control arms, steering knuckle, coil spring, ect. and is classified into parallelogram type and SLA type(short, long arm type) according to upper and lower control arm length.

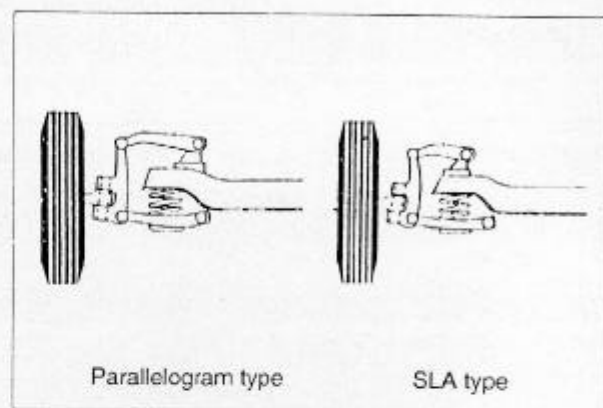


FIG. 4D — 2 WISHBONE TYPE

Macpherson type

Upper control arm is removed with shock absorber tube fixed to steering knuckle. As the configuration is simple and the number of parts is small, this is economic system and requires small space so that effective volume of engine room can be enlarged. This system is widely adopted as front suspension of front wheel drive(FF) car.

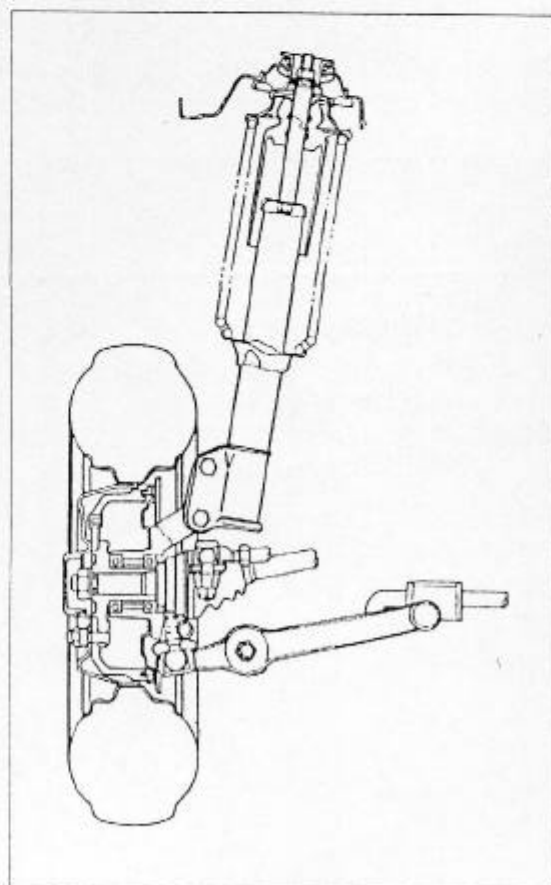


FIG. 4D — 3 MACPHERSON TYPE (STRUT TYPE)

ON-CAR SERVICE

STRUT ASSEMBLY

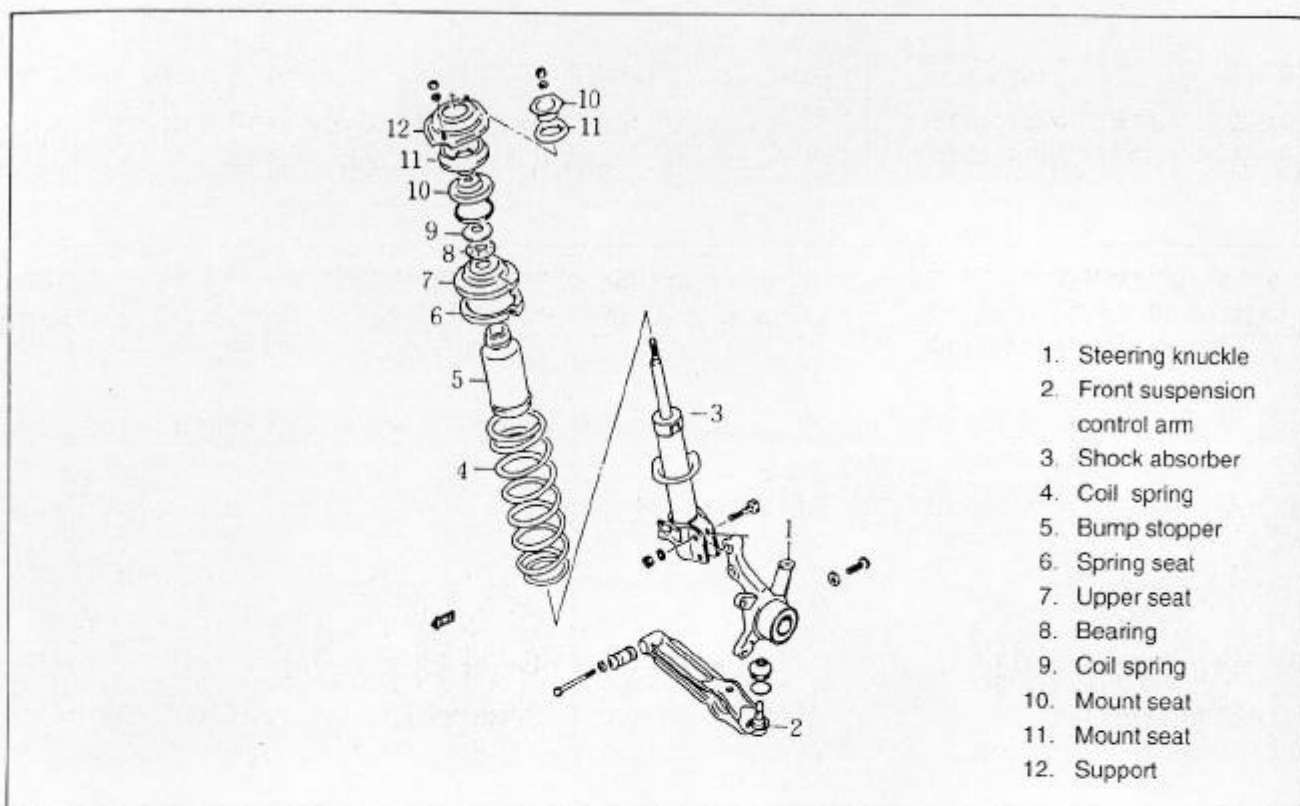


FIG. 4D — 4 STRUT ASSEMBLY

Removal

1. Lift the front of the vehicle and mount it on a jack support.
2. Remove front wheels.
3. Remove brake hose E-ring and bolts and nuts from strut bracket.

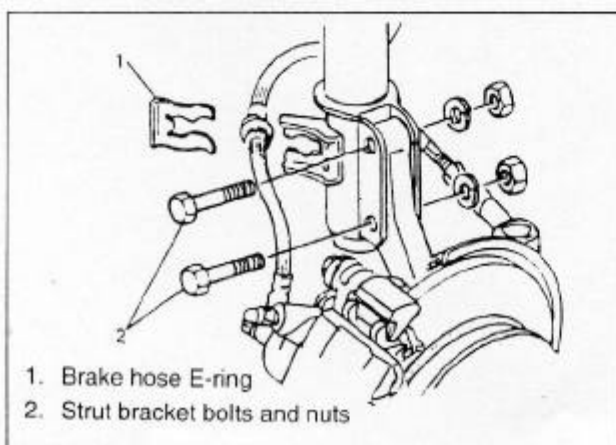


FIG. 4D — 5 STRUT ASSEMBLY

4. Removing strut support nuts, disassemble strut assembly.

CAUTION

Take care not to damage brake hose.

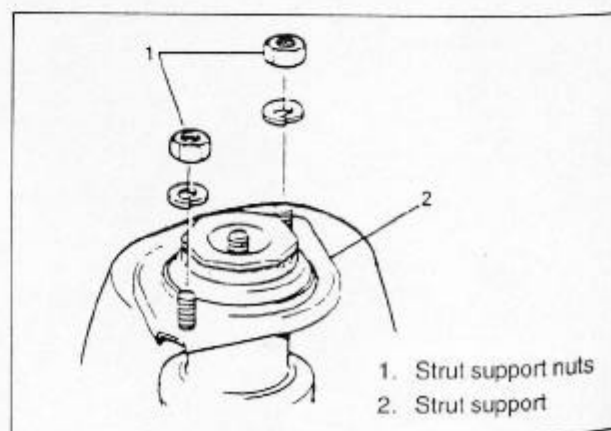


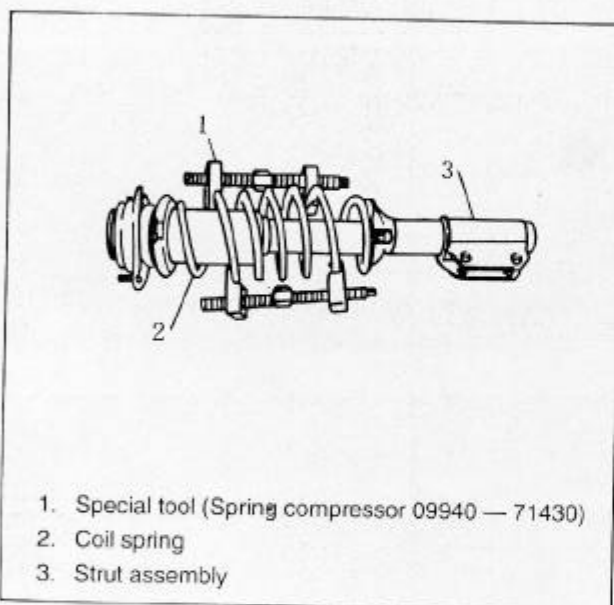
FIG. 4D — 6

Disassembly

1. Remove strut nut by compressing coil spring with special tool.

CAUTION

- Remove nut after compressing spring sufficiently.
- When using special tool, insert spring into arm slot of tool in order not to be come off.
- During compressing spring, do not make spring end point to operator or dangerous direction.



1. Special tool (Spring compressor 09940 — 71430)
2. Coil spring
3. Strut assembly

FIG. 4D — 7 COMPRESSING SPRING

Inspection

Checking each part in figure.

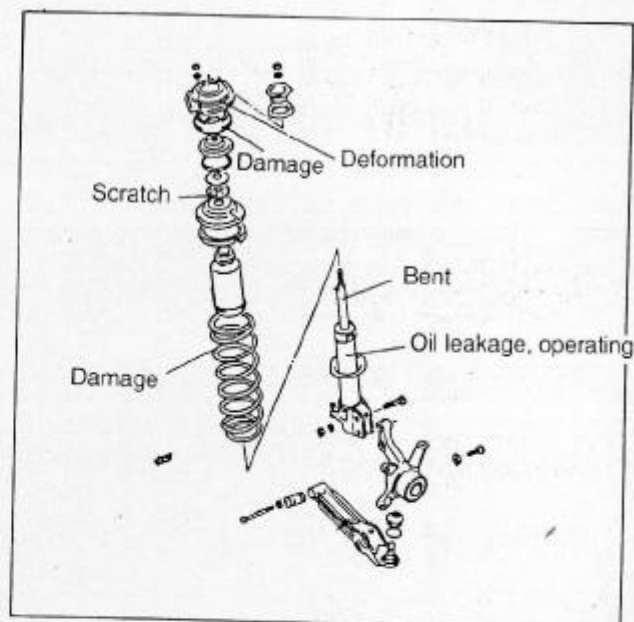


FIG. 4D — 8 CHECKING STRUT ASSEMBLY

Assembly

It is the reverse of disassembly procedures. Take care of the followings.

- When installing thrust bearing and bearing dust seal, apply grease on whole contact surface.

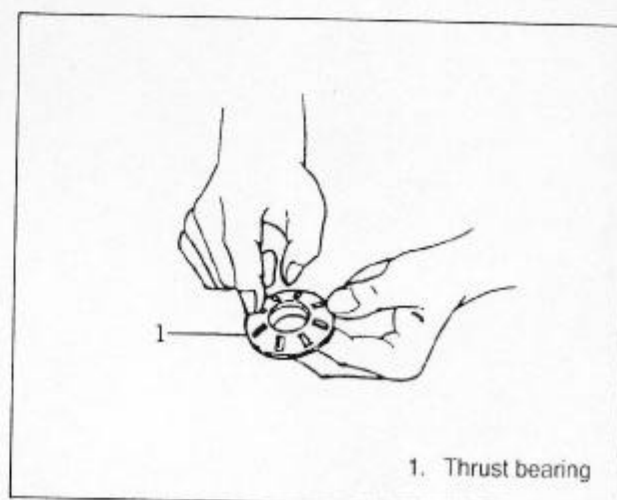


FIG. 4D — 9 APPLYING GREASE

- When installing thrust bearing, bearing dust seal shall not be jammed or overlapped.

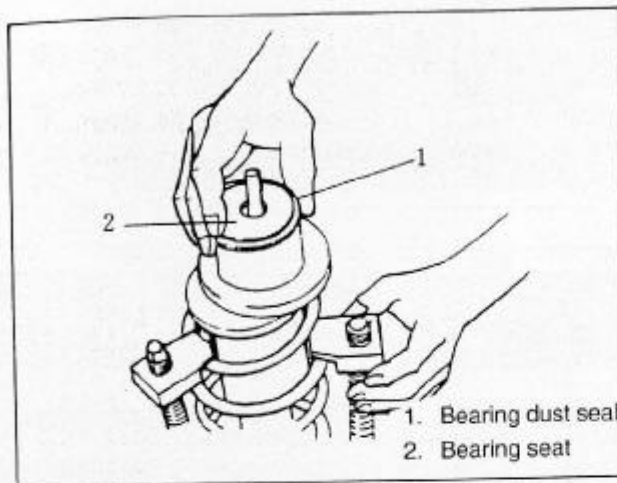


FIG. 4D — 10 INSTALLING THRUST BEARING

- Install spring to be safely seated in spring seat.

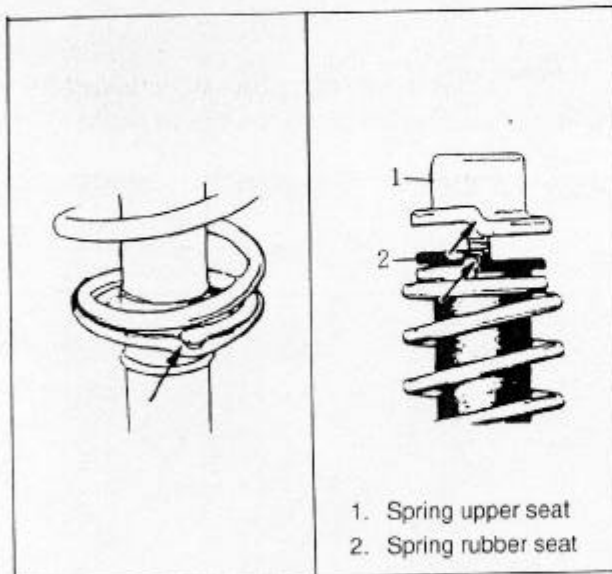


FIG. 4D — 11 INSTALLING COIL SPRING

Installation

It is the reverse of removal procedures.

Removing Steering Knuckle, Hub and Lower Arm

1. Release wheel nut a little.
2. Remove self-locking nut.
3. Install support using jack.
4. Remove caliper assembly.
5. Remove wheel hub using special tools.

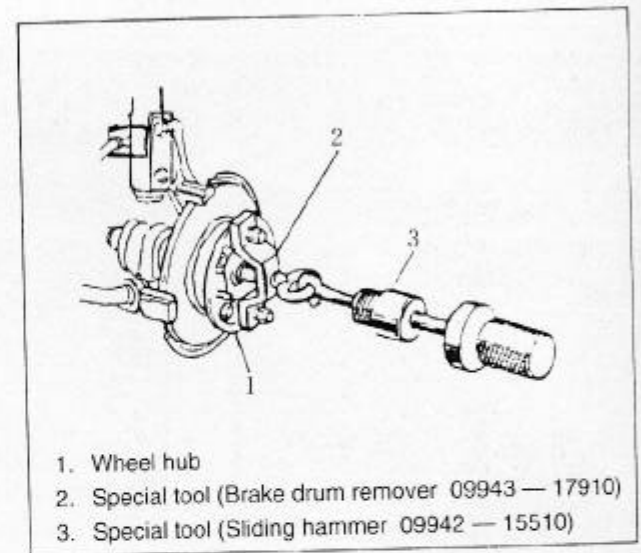


FIG. 4D — 12 REMOVING FRONT HUB

6. Remove tie rod end using special tool.

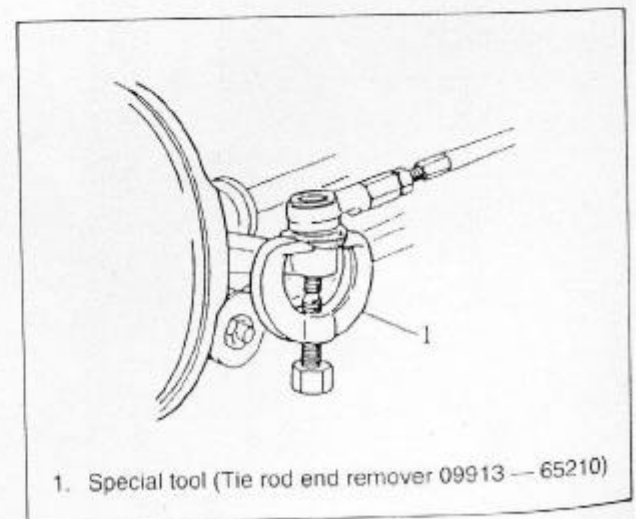


FIG. 4D — 13 REMOVING TIE ROD END

7. Remove bolts and nuts from thrust bracket.
8. Remove suspension arm ball joint.
9. Remove steering knuckle.
10. Remove suspension arm by disconnecting suspension arm and stabilizer.

CAUTION

Hang up caliper assembly with steel wire or string in order not to brake hose be damaged.

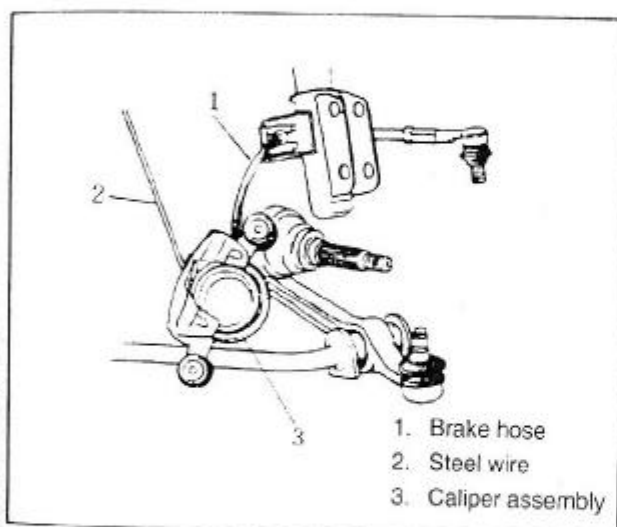


FIG. 4D — 14 PROTECTING BRAKE HOSE

WHEEL BEARING

Replace the bearing which has any play.

- Using brass bar, hit and pull out outer and inner bearing with hammer.

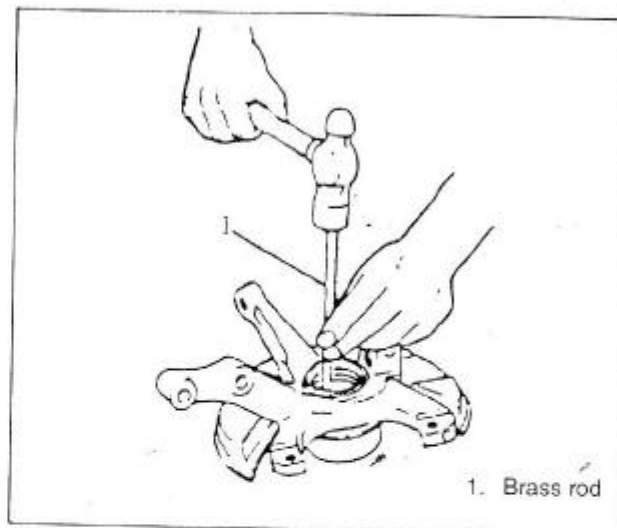


FIG. 4D — 15 REMOVING BEARING

- After filling up inner of hub and bearing with grease, press-fit bearing using special tool.



FIG. 4D — 16 PRESS-FITTING BEARING

CAUTION

- To help assembling hub press-fitting bearing and attach spacer on which grease is applied.
- When installing outer bearing, point seal should face out.

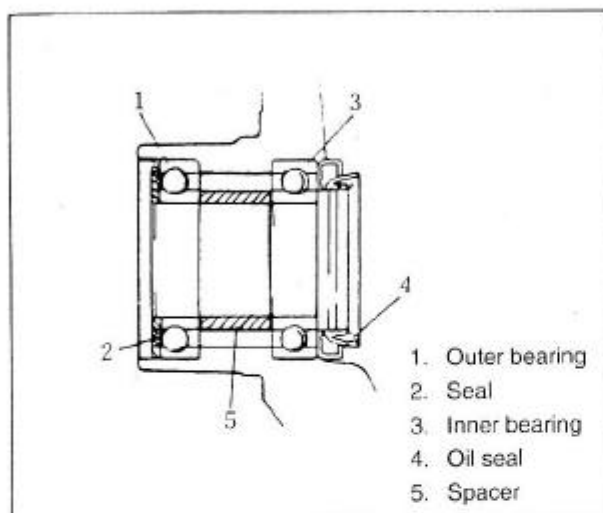


FIG. 4D — 17 HUB BEARING, SEAL

SUSPENSION ARM BUSH

Replace worn bush.

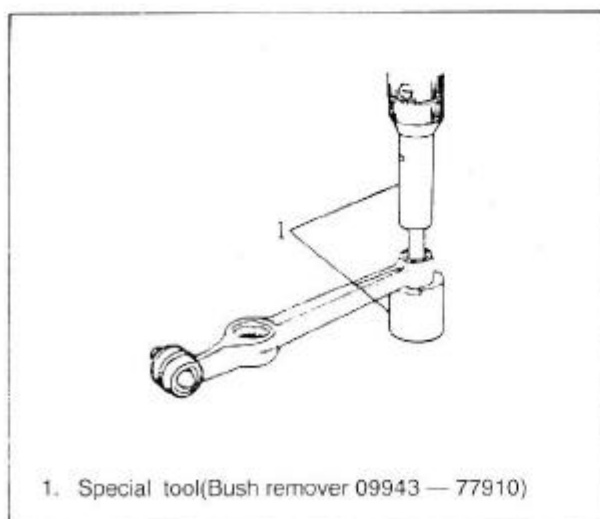


FIG. 4D — 18 REMOVING BUSH

INSPECTION AND MAINTENANCE**Ball Joint**

Check visually dust boot of ball joint for crack or damage. If any, lubricating performance can be lowered from deterioration of grease due to inclusion of sand, dust ect.

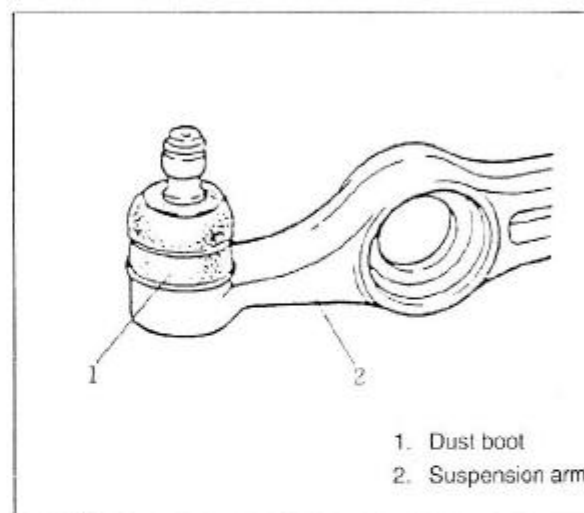


FIG. 4D — 19 INSPECTING BALL JOINT

Installation

It is the reverse of removal procedures. Take care of the followings.

- When installing ring to disc plate, check the direction

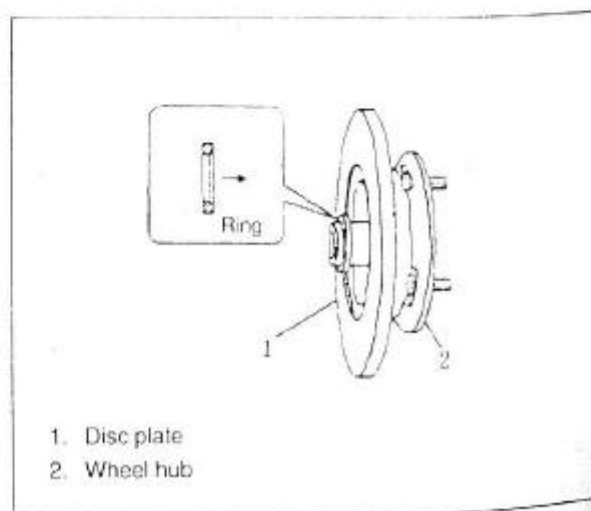


FIG. 4D — 20 DISC PLATE, WHEEL HUB

- Install disc and hub using special tool.

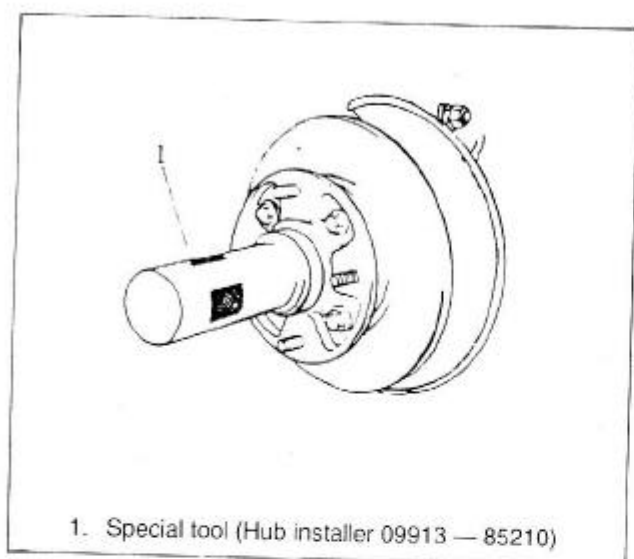


FIG. 4D — 21 INSTALLING HUB

- Drive shaft nut

Tighten drive shaft nut using torque wrench to specified torque or less and stamp the nut with punch to prevent being loose.

Drive shaft nut (self-locking nut) tightening torque(kg • cm)	1500 — 2000
---	-------------

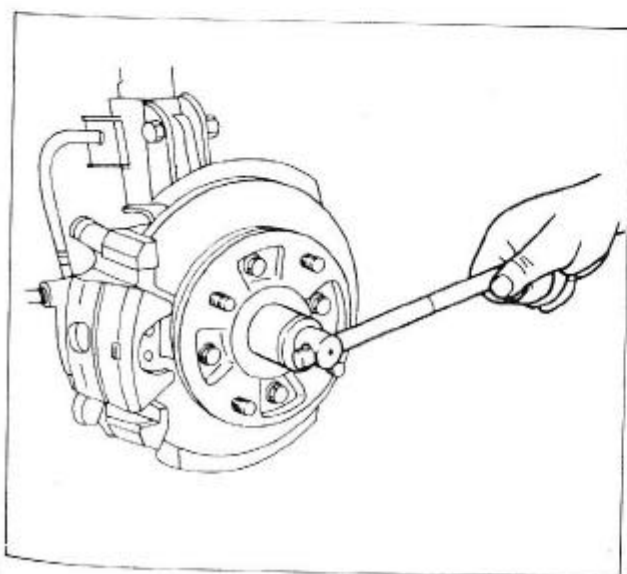


FIG. 4D — 22 INSTALLING DRIVE SHAFT NUT

TIGHTENING TORQUE

Tightening Parts	Tightening Torque(kg · cm)
Strut support nut	180 — 280
Strut bracket bolt and nut	700 — 900
Tie rod end nut	350 — 550
Drive shaft self-locking nut	1500 — 2000

SPECIAL TOOLS

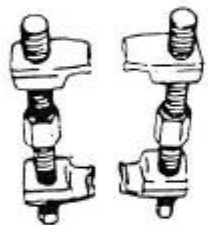
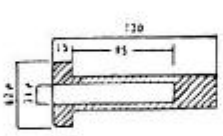




<p>1</p>  <p>09940 — 71430 Spring compressor</p>	<p>2</p>  <p>09913 — 85210 Front hub installer</p>	<p>3</p>  <p>09942 — 15510 Sliding hammer</p>	<p>4</p>  <p>09943 — 17910 Brake drum remover</p>
<p>5</p>  <p>09943 — 77910 Control bush remover</p>	<p>6</p>  <p>09913 — 65210 Tie rod end remover</p>		

FIG. 4D — 23