

DAIHATSU

CHARADE

Chassis

SECTION 5

FRONT AXLE & SUSPENSION

5

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WR-05001

FRONT AXLE & SUSPENSION

FRONT AXLE SECTIONAL VIEW

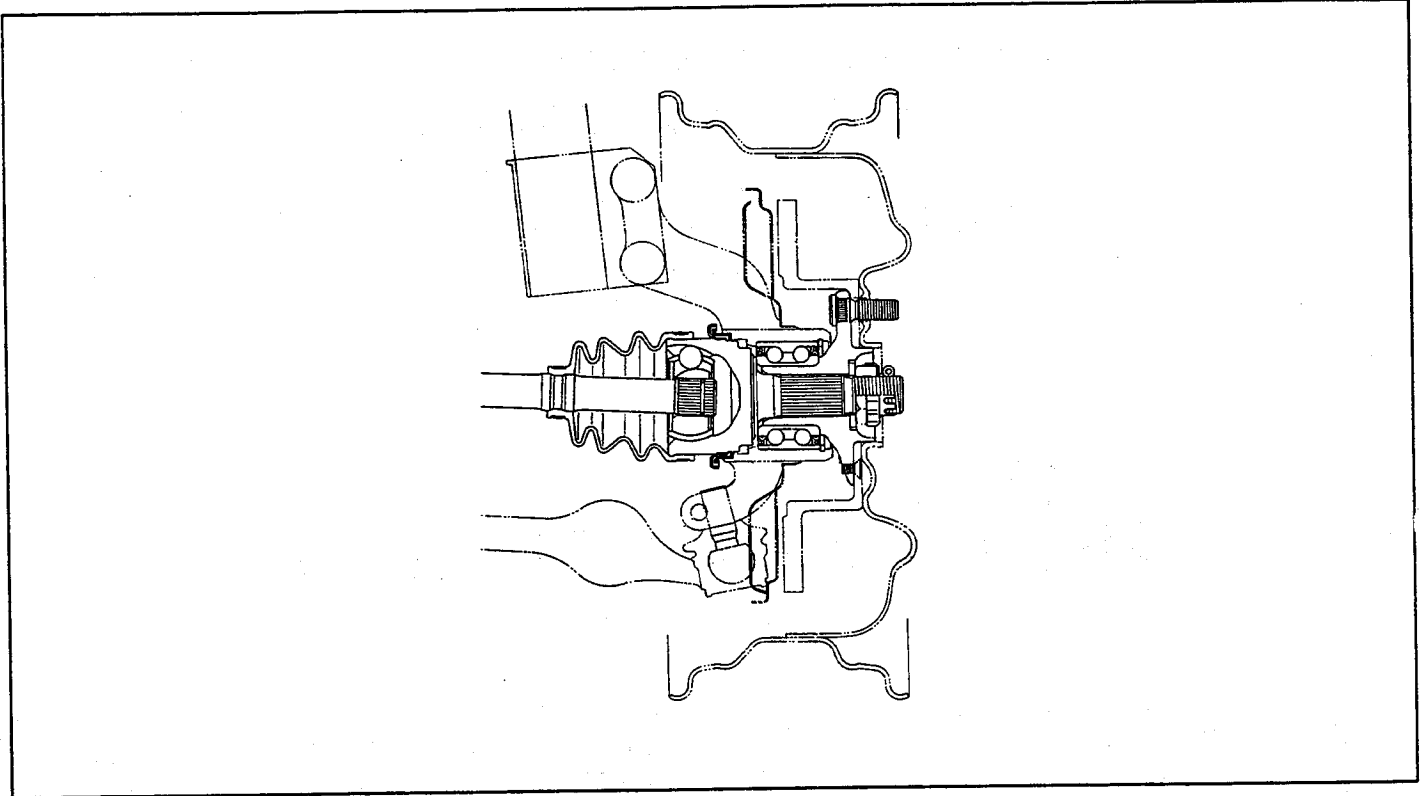


Fig. 5-1

WR-05002

COMPONENTS

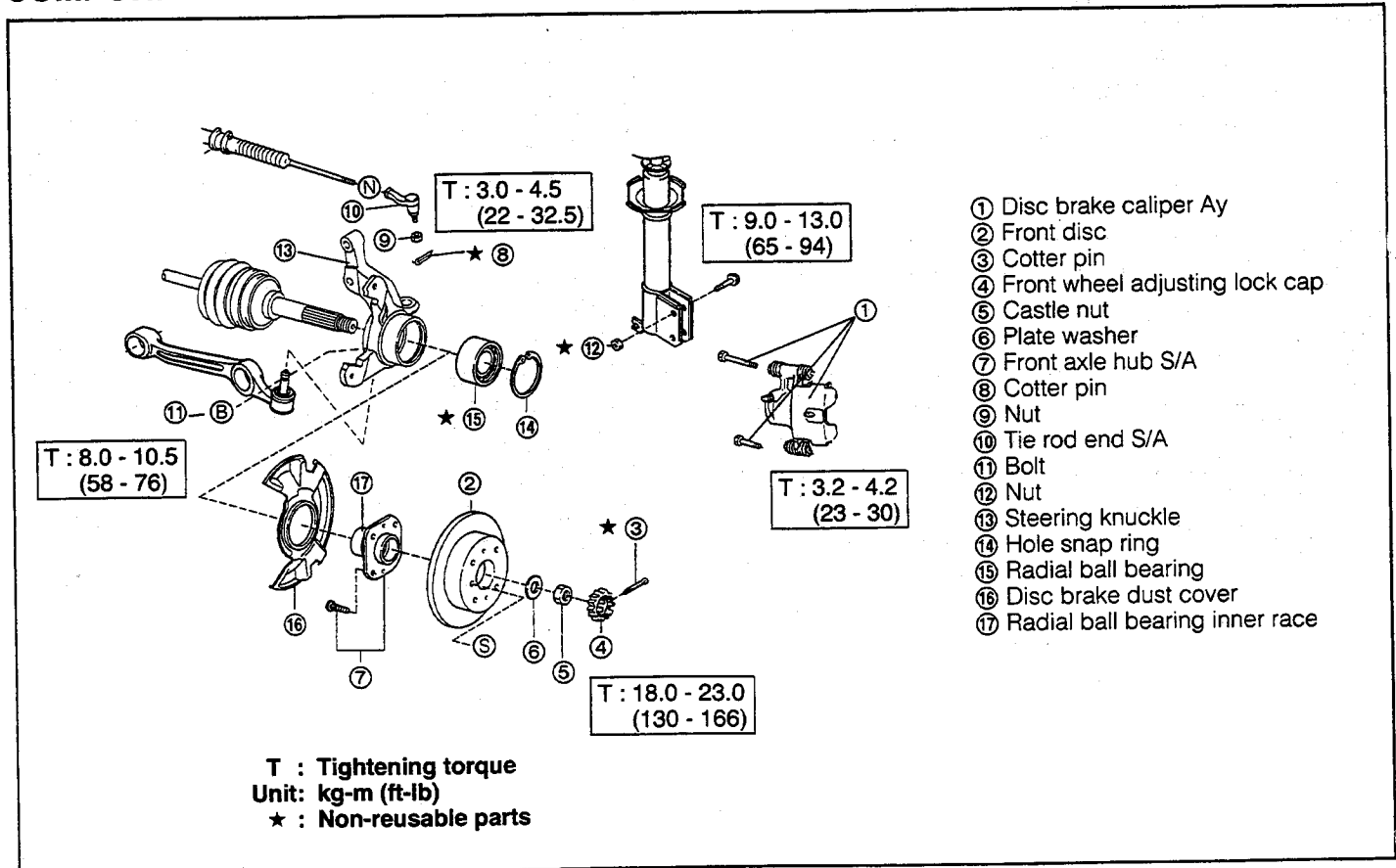


Fig. 5-2

WR-05003

REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the front wheel.

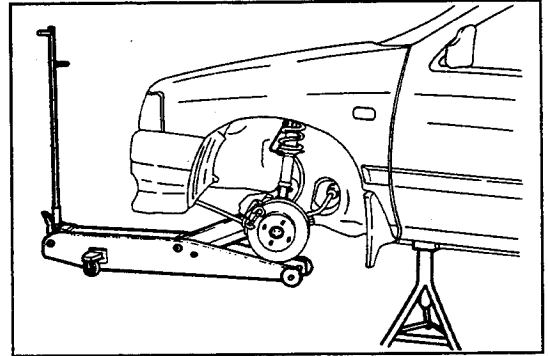


Fig. 5-3

WR-05004

3. Disc brake caliper removal
 - (1) Remove the attaching bolts of the disc brake caliper.
 - (2) Suspend the caliper.

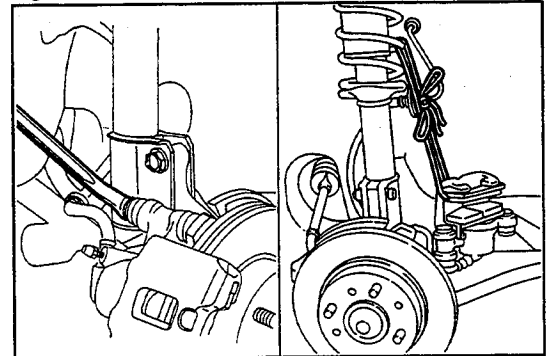


Fig. 5-4

WR-05005

4. Remove the disc rotor.

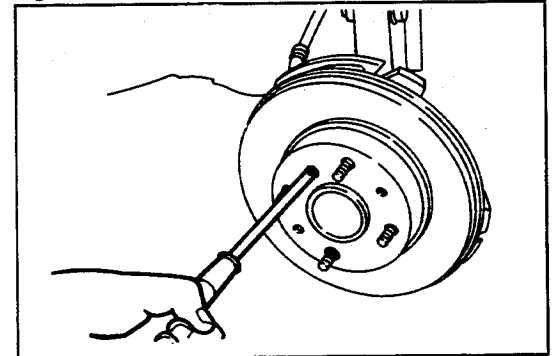


Fig. 5-5

WR-05006

5. Front axle hub removal
 - (1) Remove the cotter pin and front wheel adjusting lock cap.
 - (2) Remove the castle nut, using the following SST.

SST: 09511-87202-000

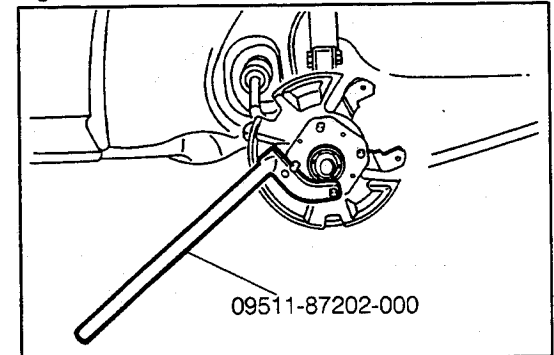


Fig. 5-6

WR-05007

- (3) Draw out the axle hub, using the following SST.

NOTE:

Do not separate the axle hub from the steering knuckle unless such separation is necessary.

SST: 09520-00031-000

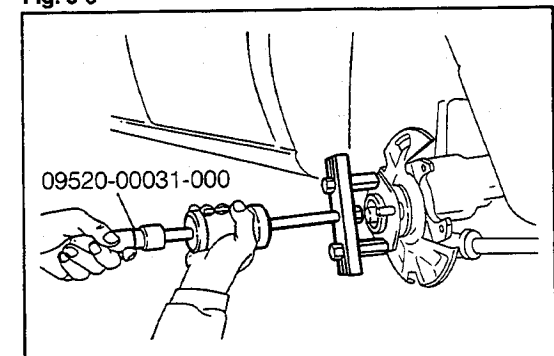


Fig. 5-7

WR-05008

FRONT AXLE & SUSPENSION

6. Tie rod end separation

- (1) Remove the cotter pin castle nut from the tie rod end.
- (2) Separate the tie rod end from the steering knuckle, using the following SST.

SST: 09611-87701-000

NOTE:

While using the SST, be very careful not to damage the boot and threaded portion.

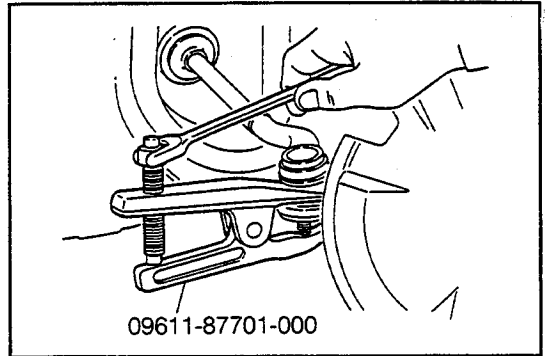


Fig. 5-8

WR-05009

7. Remove the lower ball joint attaching bolt and nut.

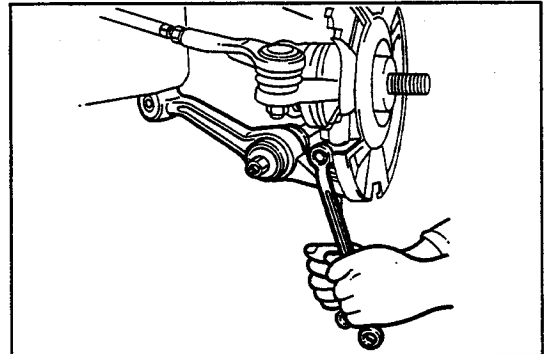


Fig. 5-9

WR-05010

8. Steering knuckle separation

Remove the attaching nuts. Leave the bolts in their inserted conditions.

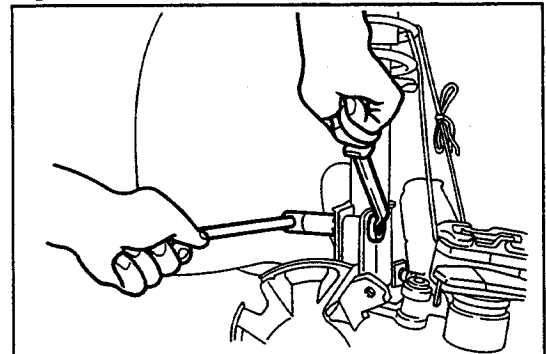


Fig. 5-10

WR-05011

9. Steering knuckle removal

- (1) While supporting the steering knuckle, draw out the attaching bolts of the shock absorber lower bracket.
- (2) Disengage the axle hub from the drive shaft. Remove the steering knuckle.

NOTE:

- Protect the drive shaft boot with cloth or the like so that it may not be damaged during the operation.
- Wind a tape or the like on the drive shaft threaded portion so that the oil seal may not be damaged.

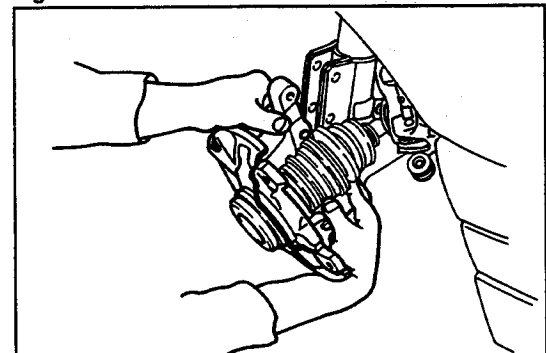


Fig. 5-11

WR-05012

10. Front axle bearing removal

- (1) Remove the dust seal from the axle hub, using a common screwdriver.
- (2) Remove the bearing inner race (outer side) from the axle hub, using the following SST.

SST: 09950-20014-000

09720-00010-000 (Use the item No.3 that is part of the set.)

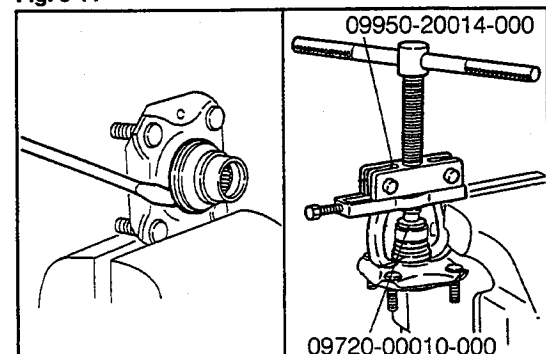


Fig. 5-12

WR-05013

(3) Detach the snap ring, using snap ring pliers.

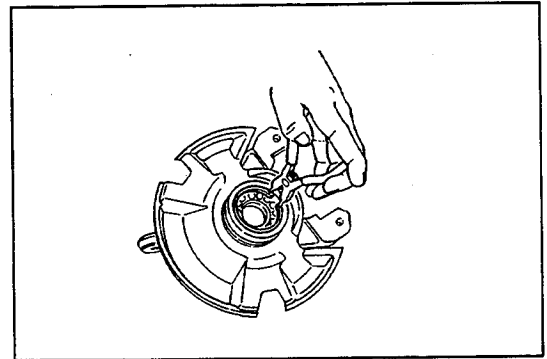


Fig. 5-13

WR-05014

(4) Remove the bearing from the steering knuckle, using a press in combination with the following SSTs.

SST: 09527-87301-000

09550-10012-000 (09554-10010-000, part of the preceding tool)

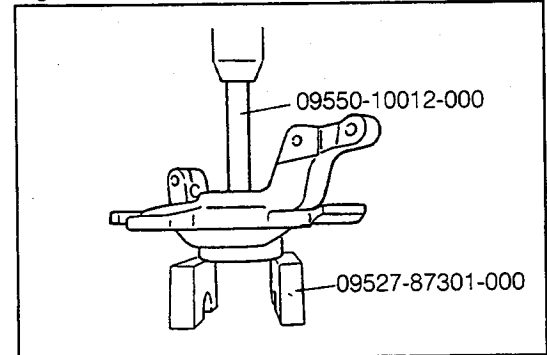


Fig. 5-14

WR-05015

INSPECTION

Inspect the following parts.

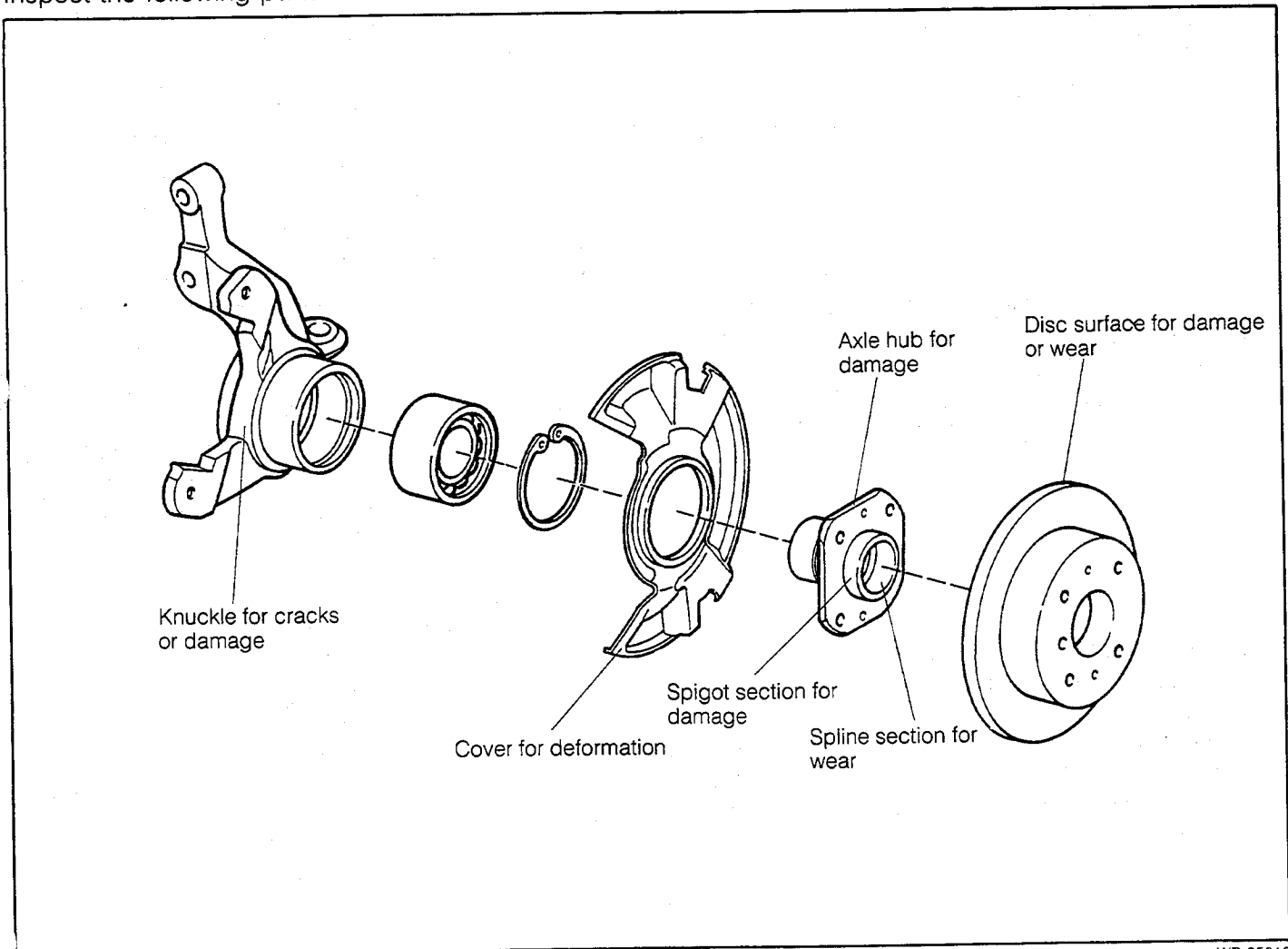


Fig. 5-15

WR-05016

FRONT AXLE & SUSPENSION

1. Disc brake cover replacement
 - (1) Separate the disc brake cover from the knuckle, using a common screwdriver or the like.

NOTE:

Do not remove the disc brake cover unless its replacement is required.

- (2) Press the disc brake cover until it comes into close contact with the knuckle, using the following SSTs.

SST: 09506-87302-000

09718-87701-000

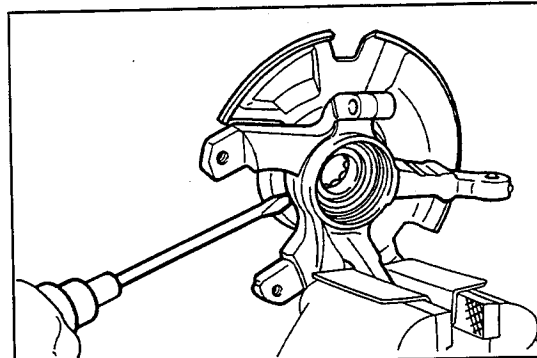


Fig. 5-16

WR-05017

- (2) Press the disc brake cover until it comes into close contact with the knuckle, using the following SSTs.

SST: 09506-87302-000

09718-87701-000

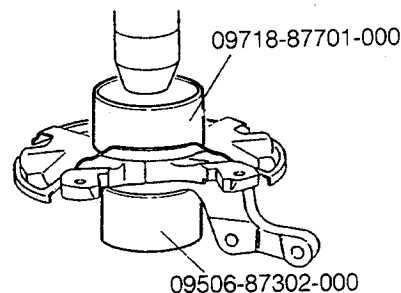


Fig. 5-17

WR-05018

INSTALLATION

1. Front axle bearing installation
 - (1) Press the bearing into position, using the following SSTs.
SST: 09506-87302-000
09550-10012-000 (09554-10010-000, part of the preceding tool)

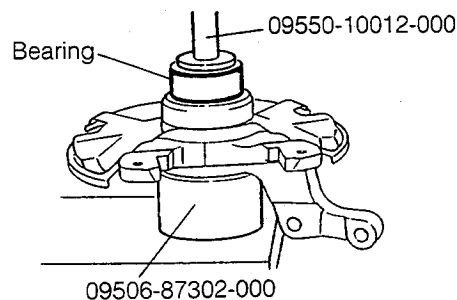


Fig. 5-18

WR-05019

- (2) Install a new snap ring, using snap ring pliers.
- (3) Press the front axle hub into position, using the following SST.
SST: 09550-10012-000 (09554-10010-000, part of the preceding tool)

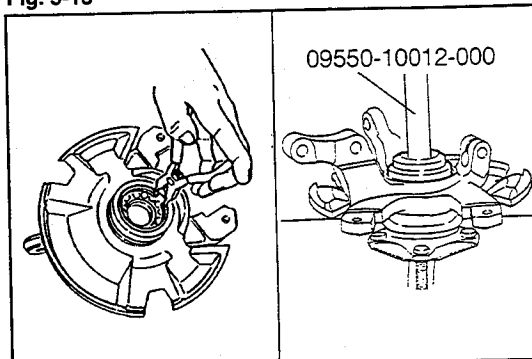


Fig. 5-19

WR-05020

2. Steering knuckle installation
 - (1) Insert the steering knuckle into the drive shaft.

NOTE:

- Be careful not to allow the drive shaft to come into contact with the oil seal at the knuckle side.
- Pay utmost attention not to damage the ball joint dust cover.

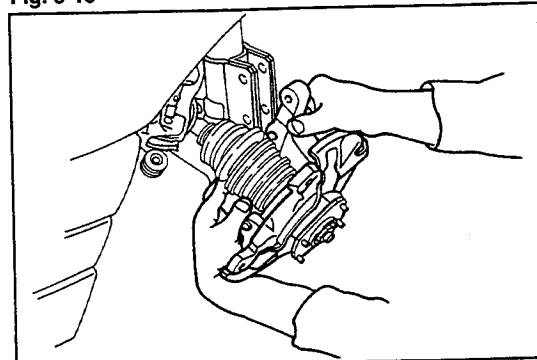


Fig. 5-20

WR-05021

FRONT AXLE & SUSPENSION

- (2) Mount the steering knuckle on the lower ball joint.
- (3) Mount the steering knuckle on the shock absorber lower bracket. Tighten the bolts and nuts.
Tightening Torque: 9.0 - 13.0 kg-m (65 - 94 ft-lb)

NOTE:

With the knuckle pushed against the lower side, tighten the bolts and nuts.

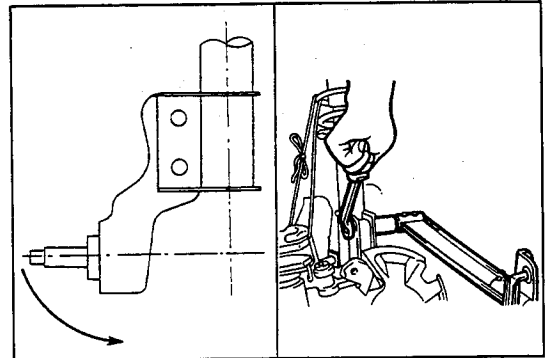


Fig. 5-21

WR-05022

- (4) Install the lower ball joint. Tighten the bolt and nut.
Tightening Torque: 8.0 - 10.5 kg-m (58 - 76 ft-lb)

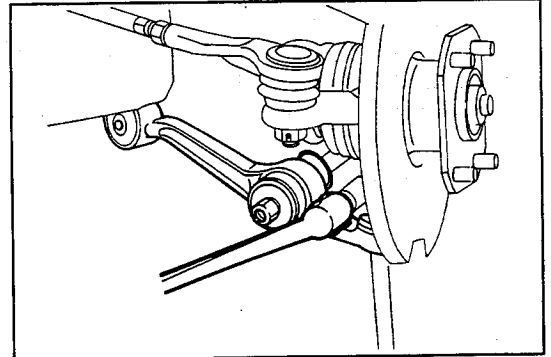


Fig. 5-22

WR-05023

- (5) Install the washer. Install the nut temporarily.

NOTE:

Be sure to install the washer in the correct direction.

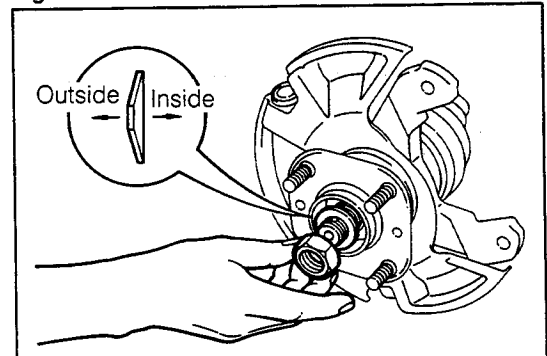


Fig. 5-23

WR-05024

3. Install the disc rotor.

NOTE:

Care must be exercised to ensure that no foreign matter lodge between the hub and the disc rotor.

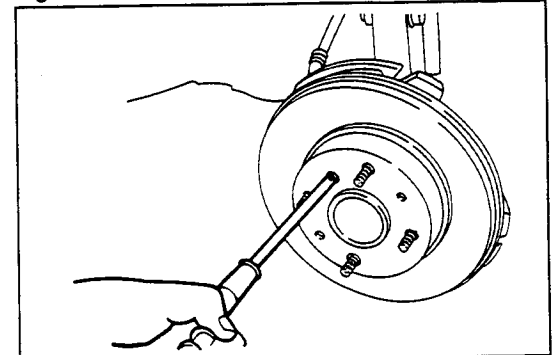


Fig. 5-24

WR-05025

4. Disc brake caliper installation

- (1) Install the pad guide plate to the steering knuckle.
- (2) Tighten the attaching bolts of the disc brake caliper.
Tightening Torque: 3.2 - 4.2 kg-m (23 - 30 ft-lb)

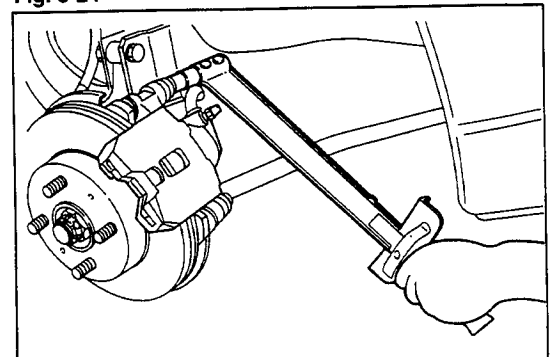


Fig. 5-25

WR-05026

FRONT AXLE & SUSPENSION

5. Tightening of castle nut using the following SST.
 - (1) Tighten the castle nut.
SST: 09511-87202-000
Tightening Torque: 18.0 - 23.0 kg-m (130 - 160 ft-lb)
 - (2) Install the front wheel adjusting lock cap and a new cotter pin.

6. Tie rod end installation
 - (1) Attach the tie rod end to the steering knuckle and tighten the castle nut.
Tightening Torque: 3.0 - 4.5 kg-m (22 - 32.5 ft-lb)
 - (2) Install a new cotter pin.

7. Install the wheel.
8. Front wheel alignment inspection and adjustment
(See page 5-38.)

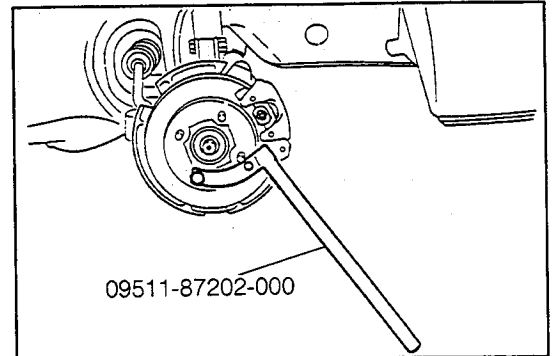


Fig. 5-26

WR-05027

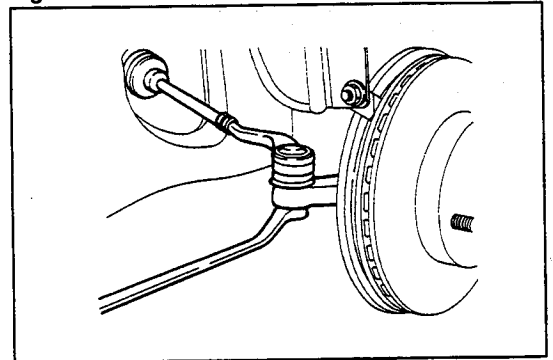


Fig. 5-27

WR-05028

WR-05029

FRONT SUSPENSION

SECTIONAL VIEW

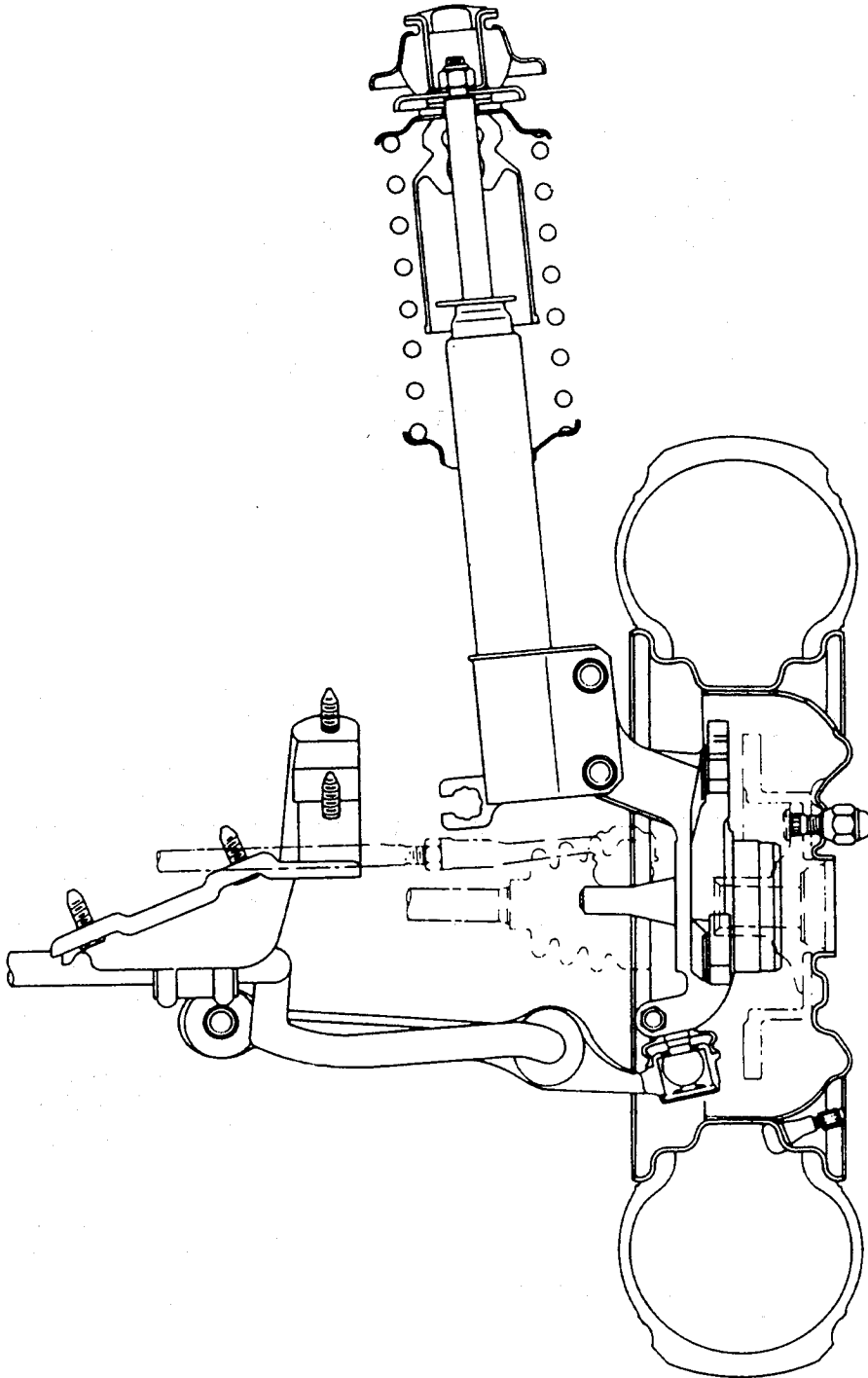


Fig. 5-28

WR-05030

FRONT AXLE & SUSPENSION

FRONT SHOCK ABSORBER

COMPONENTS

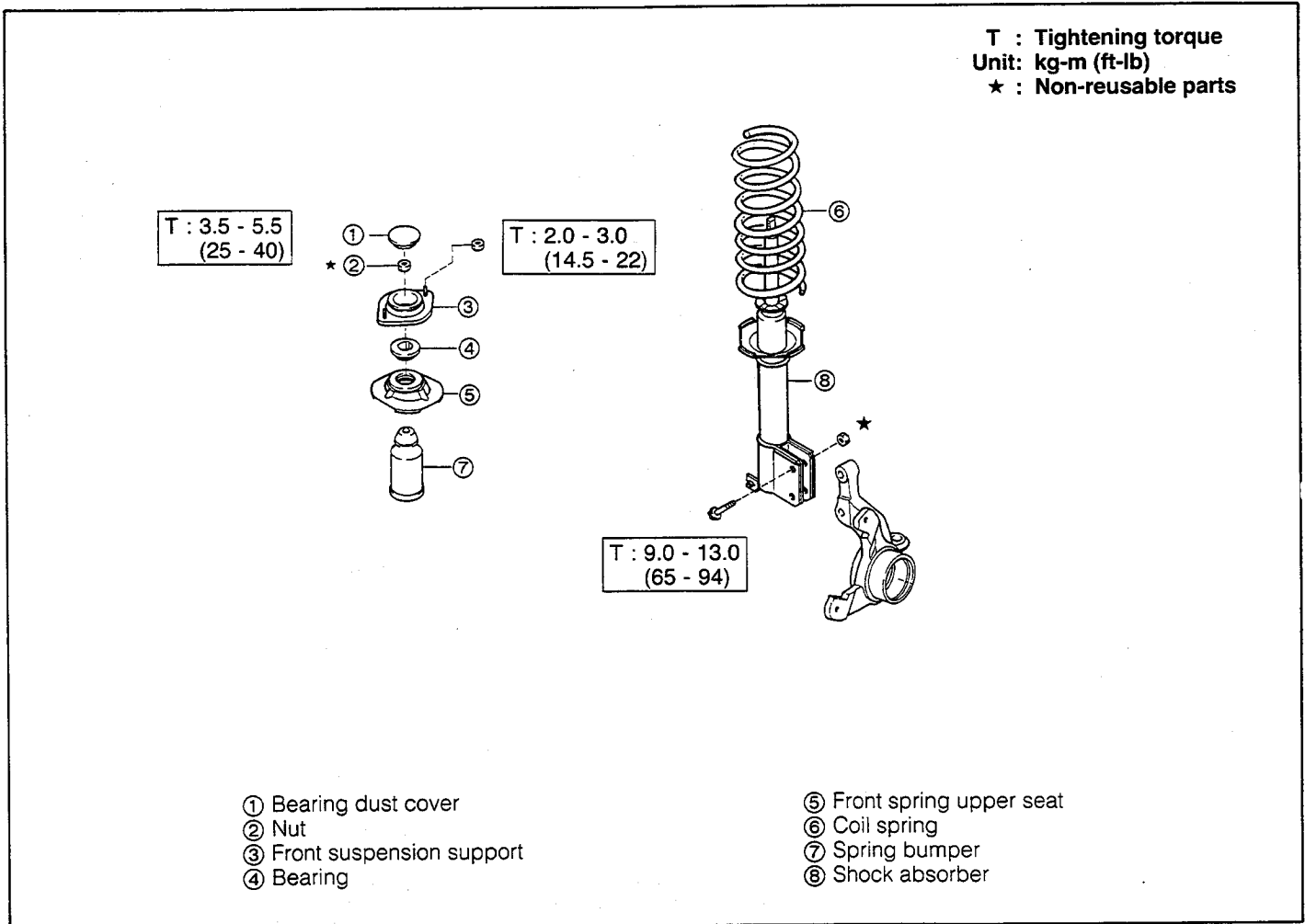


Fig. 5-29

WR-05031

REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the front wheel.

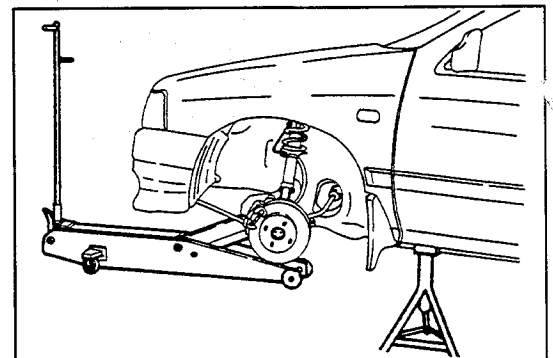


Fig. 5-30

WR-05032

3. Flexible hose removal
 - (1) Remove the clip at the shock absorber side.
 - (2) Disconnect the flexible hose at the shock absorber bracket.

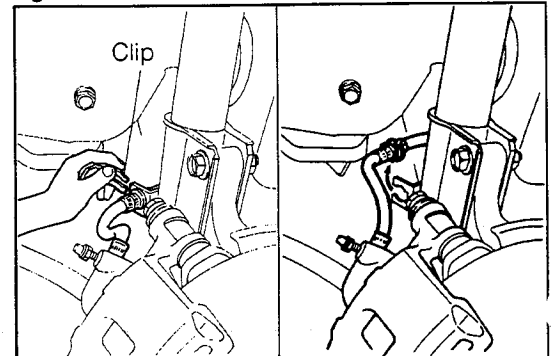


Fig. 5-31

WR-05033

4. Shock absorber removal

- (1) Remove the attaching bolts and nuts of the steering knuckle. Separate the shock absorber from the steering knuckle.

NOTE:

Before removing the left shock absorber, remove the disc brake caliper attaching bolt (upper side).

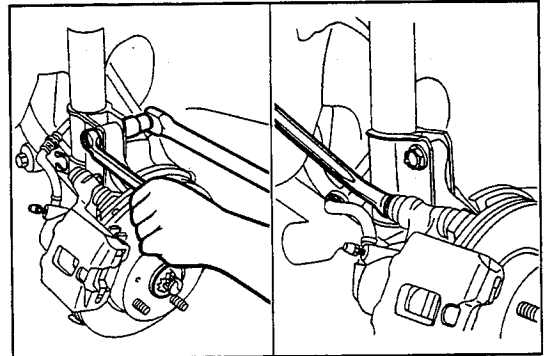


Fig. 5-32

WR-05034

- (2) Remove the two attaching nuts of the suspension support located at the fender upper section. Remove the shock absorber from the body.

NOTE:

Be sure to protect the drive shaft boot with cloth or the like so that it may not be damaged.

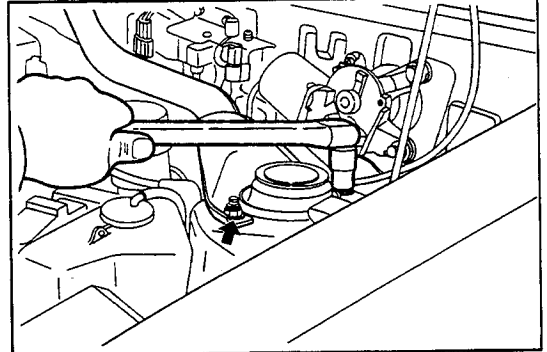


Fig. 5-33

WR-05035

DISASSEMBLY

1. Compress the coil spring, using the following SST.
SST: 09727-87701-000

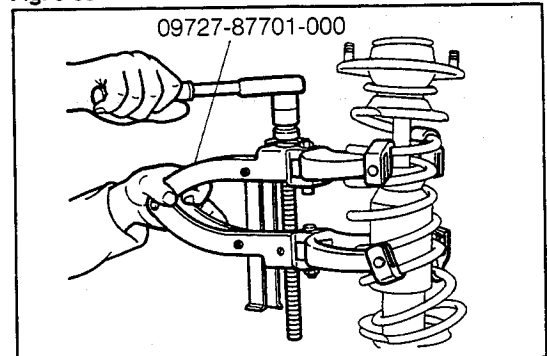


Fig. 5-34

WR-05036

2. Coil spring disassembly

- (1) Clamp the front suspension support in a vice.
- (2) Remove the bearing dust cover and loosen the nut.

NOTE:

Never remove the nut by applying impacts on it, using an impact wrench or the like.

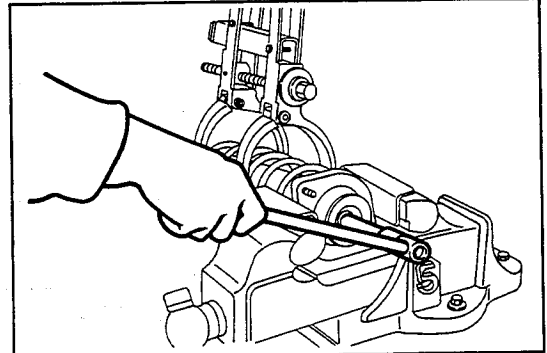


Fig. 5-35

WR-05037

FRONT AXLE & SUSPENSION

- (3) Remove the following parts; the front suspension support, bearing, front spring upper seat, coil spring and spring bumper.

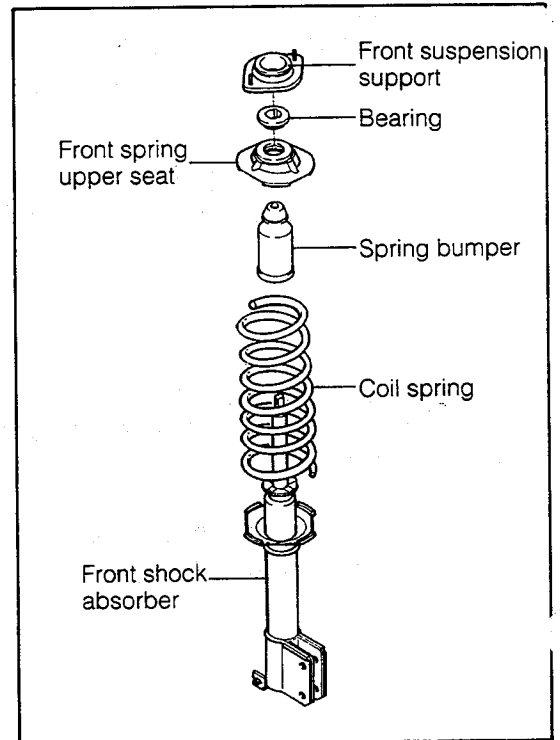


Fig. 5-36

WR-05038

INSPECTION

1. Inspect the following parts.

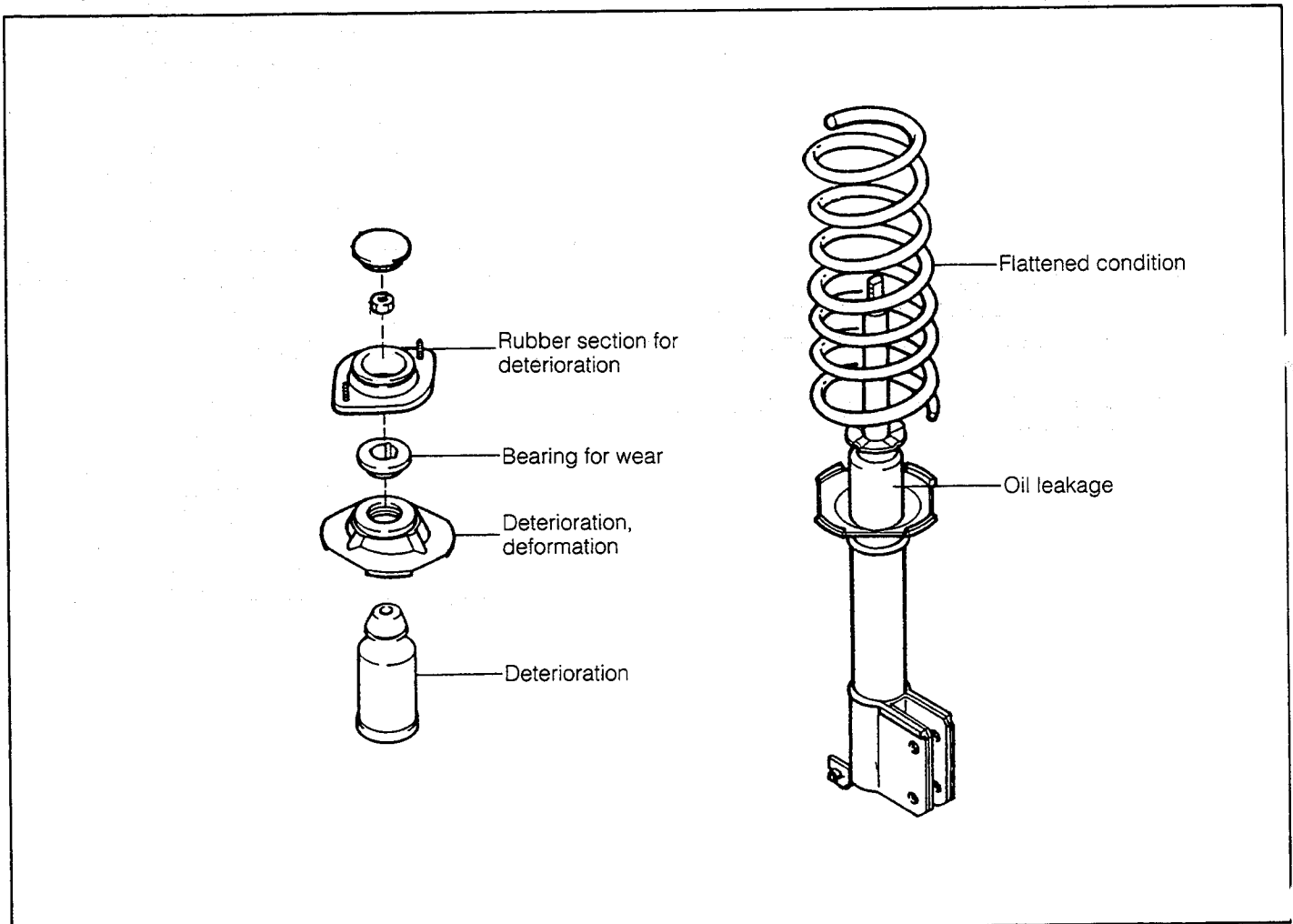


Fig. 5-37

WR-05039

2. Shock absorber operation inspection

- (1) Push or pull the piston rod of the shock absorber at a constant speed. Ensure that the force required to move the rod is uniform over the entire stroke. However, when the piston rod is pulled strongly, the pulling force may become slightly greater over the stroke 30 mm (1.2 inches) toward the end of the pulling stroke. It should be noted that this phenomenon is not abnormal.
- (2) Move the piston rod quickly in a up-and-down direction with a stroke of 5 - 10 mm (0.2 - 0.4 inch). Ensure that the force required to move the rod will not change.
- (3) If any abnormal feeling or noise is encountered during the inspection above, replace the shock absorber.

NOTE:

- Perform this inspection after the piston rod has been moved in a up-and-down direction three or four times.
- When the gas filling type shock absorber is replaced, previous to the disposal, be sure to release the gas from the shock absorber.

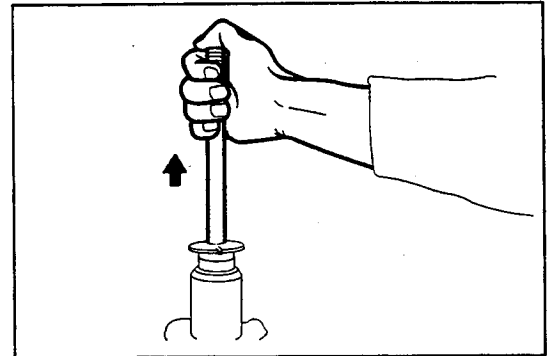


Fig. 5-38

WR-05040

ASSEMBLY

1. Assembly of coil spring

- (1) Insert the spring bumper at a point below the cut-out section of the piston rod.
- (2) Compress the coil spring, using the following SST. Install it to the shock absorber.

SST: 09727-87701-000

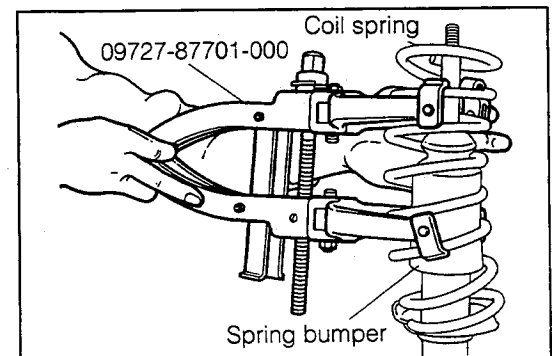


Fig. 5-39

WR-05041

- (3) Install the front spring upper seat and bearing.

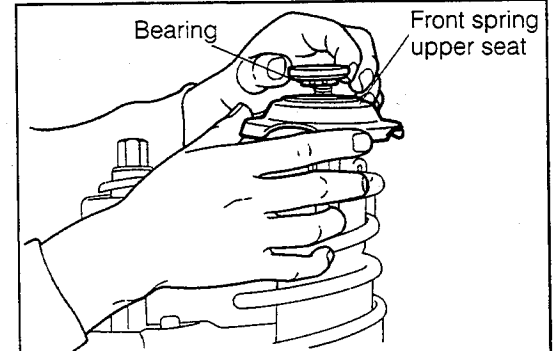


Fig. 5-40

WR-05042

- (4) Install the front suspension support.

NOTE:

Be sure to align the cut-out section of the front suspension support with that of the piston rod during the assembly.

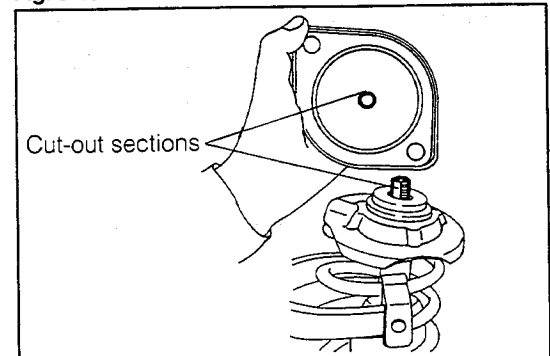


Fig. 5-41

WR-05043

FRONT AXLE & SUSPENSION

- (5) Clamp the front suspension support in a vice. Tighten the suspension support, using a new nut.
Tightening Torque: 3.5 - 5.5 kg-m (25 - 40 ft-lb)
- (6) Install the bearing dust cover.
- (7) Align the coil spring end with the recessed sections of the upper and lower seats. Proceed to remove the SST.

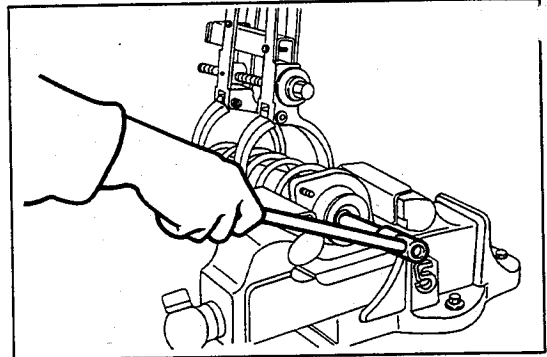


Fig. 5-42

WR-05044

INSTALLATION

1. Installation of shock absorber upper section
 - (1) Install the suspension support on the fender apron.
(Use a new nut.)
Tightening Torque: 2.0 - 3.0 kg-m (14.5 - 22 ft-lb)

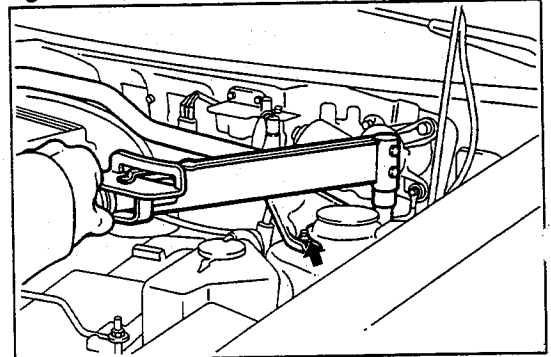


Fig. 5-43

WR-05045

2. Installation of steering knuckle section
 - (1) Mount the steering knuckle on the shock absorber lower bracket.
 - (2) Install the bolt and nut in position and tighten them.
Tightening Torque: 9.0 - 13.0 kg-m (65 - 94 ft-lb)

NOTE:

With the knuckle pushed against the lower side, tighten the bolt and nut.

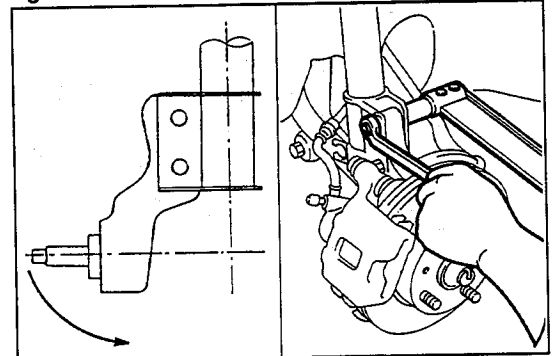


Fig. 5-44

WR-05046

NOTE:

In the case of the removal/installation of the left shock absorber, install the attaching bolt (upper side) of the disc brake caliper after the steering knuckle section has been installed.

Tightening Torque: 3.2 - 4.2 kg-m (23 - 30 ft-lb)

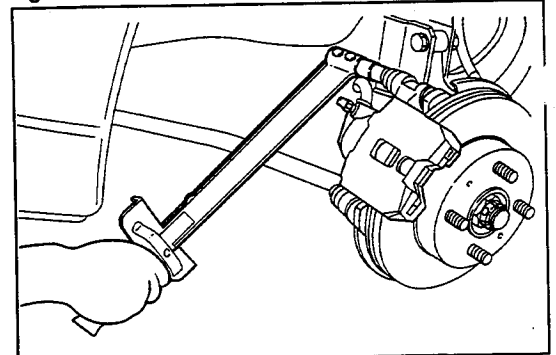


Fig. 5-45

WR-05047

3. Install the flexible hose, as follows:
 - (1) Install the flexible hose to the shock absorber bracket.
 - (2) Install the flexible hose clip.
4. Install the wheels. Jack down the vehicle.
5. Front wheel alignment inspection (See page 5-38.)

WR-05048

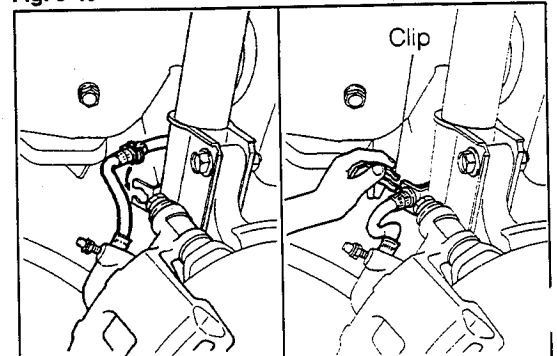


Fig. 5-46

WR-05048

**FRONT STABILIZER BAR
COMPONENTS**

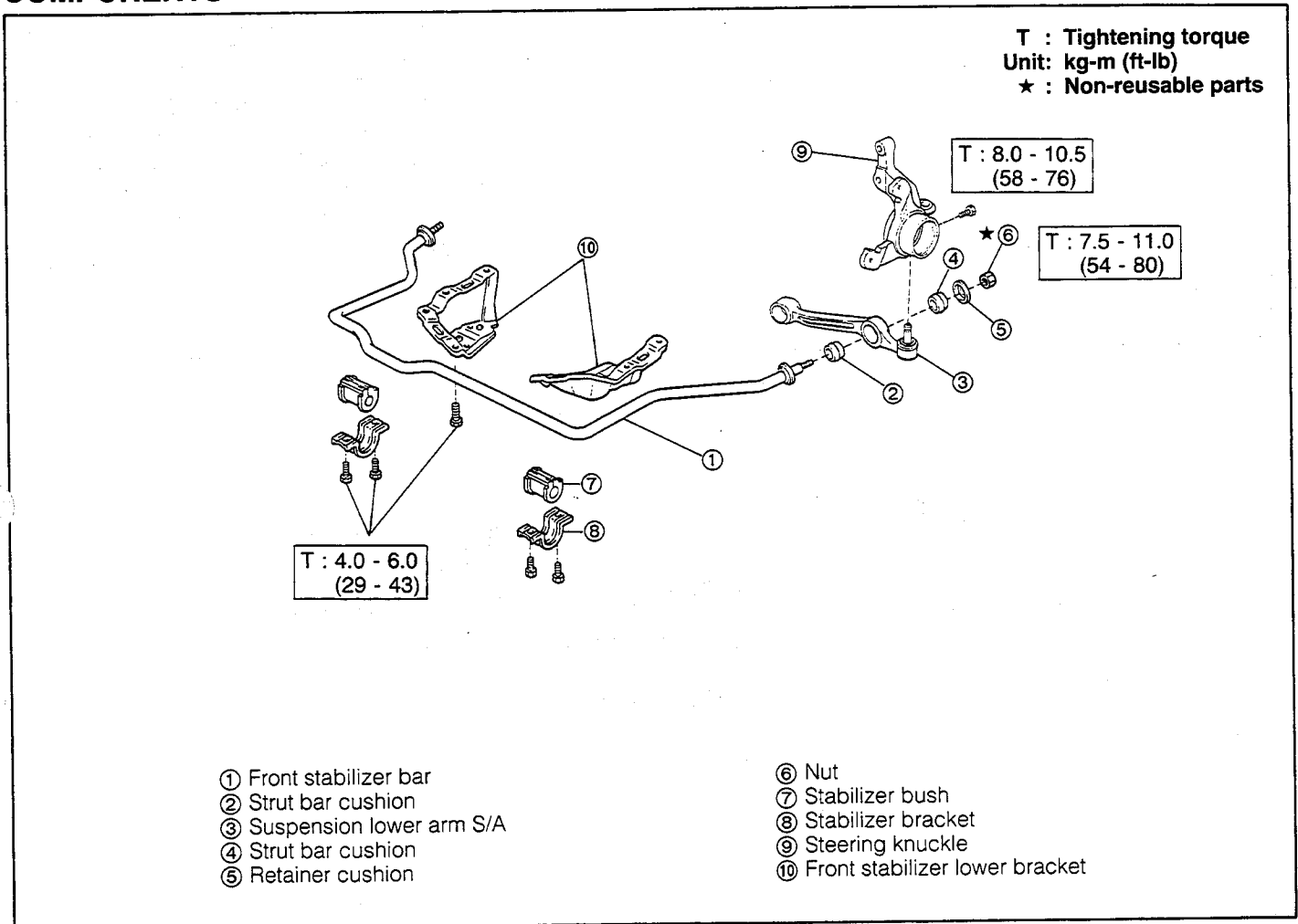


Fig. 5-47

WR-05049

REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the engine under-cover. (Vehicles mounted with Type CL-11 and CL-61 engines only)
3. Remove the stabilizer bar, as follows:
 - (1) Remove the stabilizer bar end nuts and retainer.

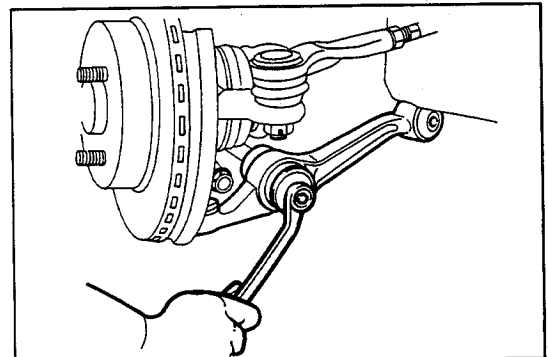


Fig. 5-48

WR-05050

- (2) Remove the attaching bolts of the stabilizer bar brackets.

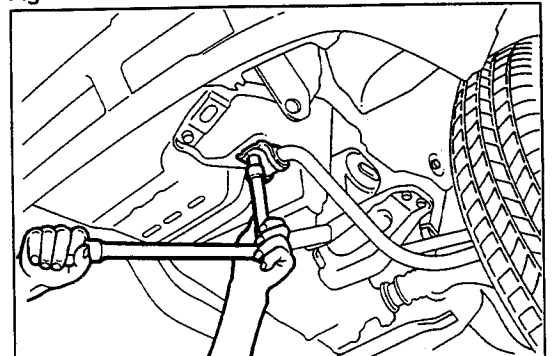


Fig. 5-49

WR-05051

FRONT AXLE & SUSPENSION

(3) Remove the stabilizer bar from the vehicle.

NOTE:

If any difficulty in removing the stabilizer bar is encountered, remove the stabilizer bar by using a jack on the tire.

(4) Remove the bush from the stabilizer bar.

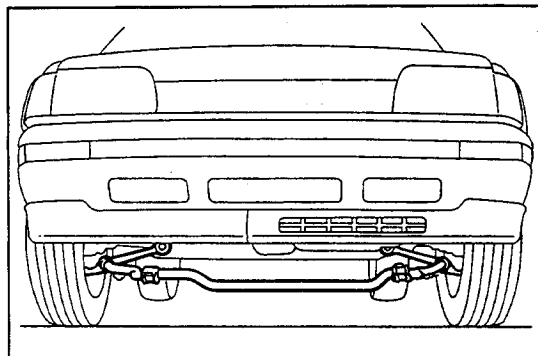


Fig. 5-50

WR-05052

INSPECTION

Inspect the following parts.

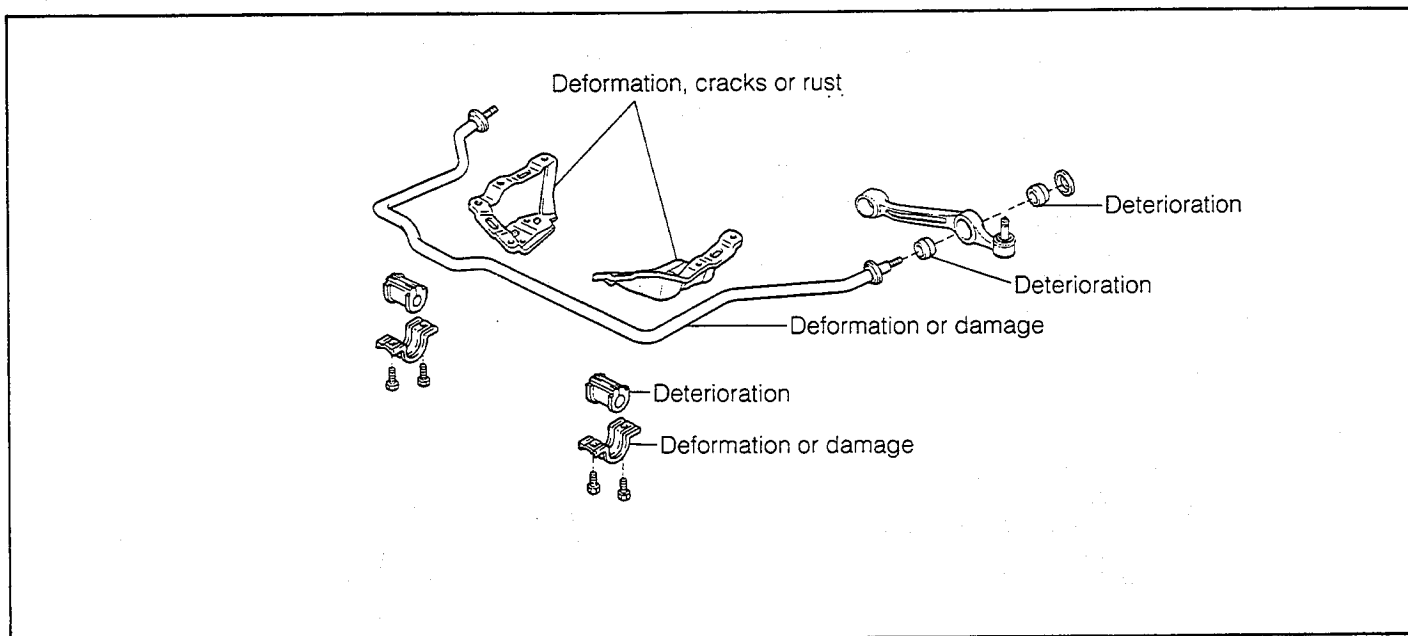


Fig. 5-51

WR-05053

INSTALLATION

1. Stabilizer bar installation

(1) Install the cushions to the stabilizer bar.

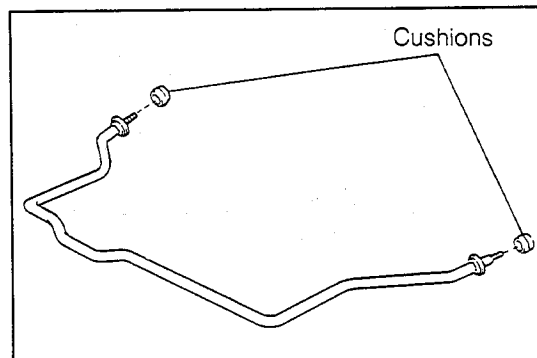


Fig. 5-52

WR-05054

(2) Install the stabilizer bar to the lower arm.

NOTE:

If the stabilizer bar end is not aligned with the lower arm attaching hole, use a jack on the tire so as to align the holes with each other.

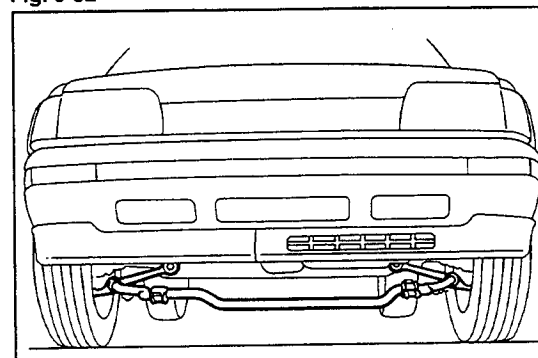


Fig. 5-53

WR-05055

- (3) Install the cushion and stabilizer bar brackets.
Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)

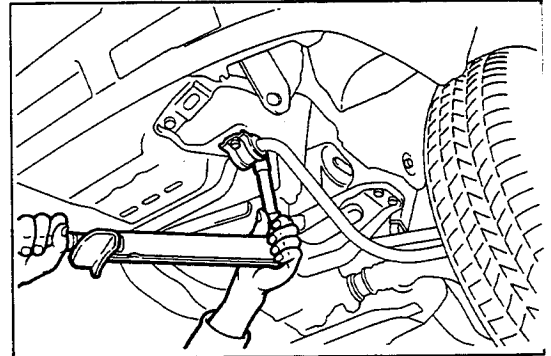


Fig. 5-54

WR-05056

- (4) Install the cushions and retainers, while paying attention to the direction of the retainer. Tighten them temporarily, using a new nuts.
(5) Rock the front section of the vehicle in an up-and-down direction two or three times so as to settle the suspension.
(6) With the vehicle in an unloaded state (the lower arm is horizontal), tighten the nuts.
Tightening Torque: 7.5 - 11 kg-m (54 - 80 ft-lb)

NOTE:

If the nut is tightened at the rebound side, the cushion twisting angle will become large, resulting in reduced riding comfort.

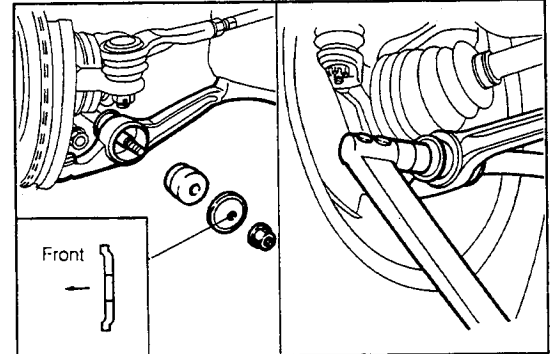


Fig. 5-55

WR-05057

2. Install the engine under-cover. (Vehicles mounted with Type CL-11 and CL-61 engines only)
3. Front wheel alignment inspection (See page 5-38.)

LOWER ARM COMPONENTS

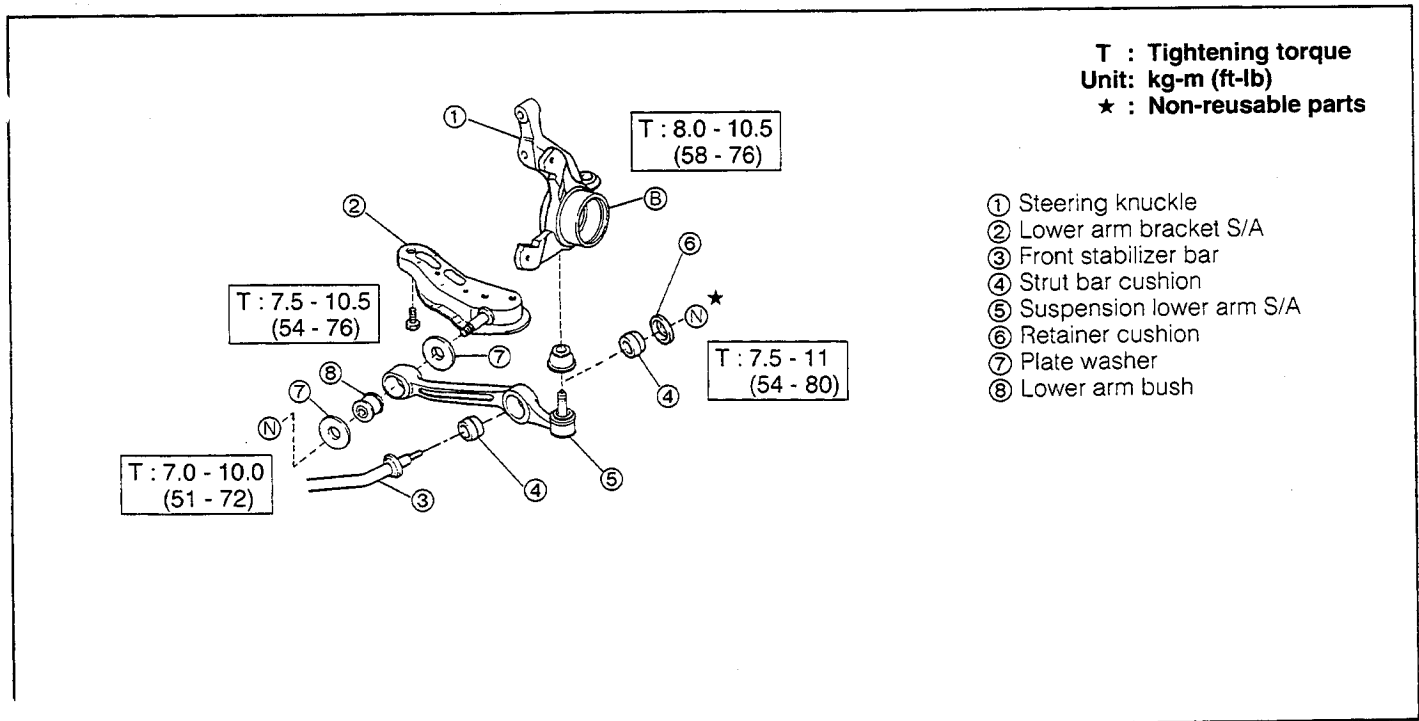


Fig. 5-56

WR-05058

FRONT AXLE & SUSPENSION

REMOVAL

1. Jack up the vehicle at the front side. Support the body with safety stands.
2. Remove the front wheel.
3. Lower arm removal.
 - (1) Remove the stabilizer bar end nut.
 - (2) Remove the attaching bolt and nut of the ball joint.

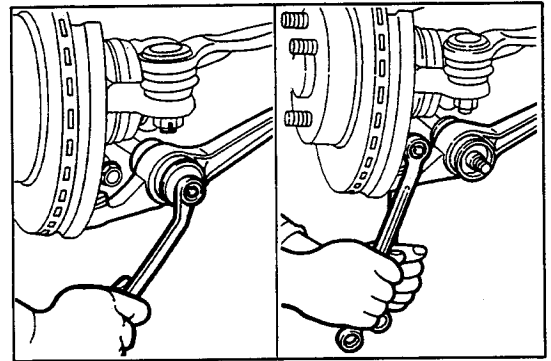


Fig. 5-57

WR-05059

- (3) Remove the attaching nut of the lower arm at the body side.

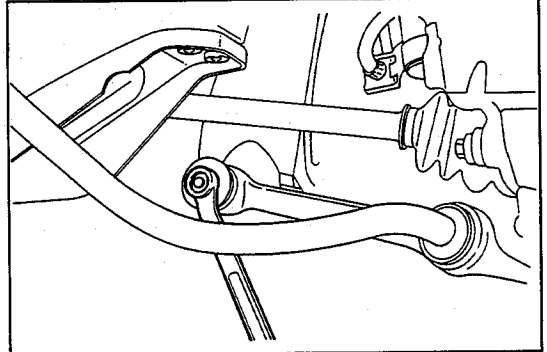


Fig. 5-58

WR-05060

- (4) Remove the attaching bolts of lower suspension brace. (TURBO and GTti grades only)
- (5) Remove the lower arm bracket.
- (6) Remove the lower arm.

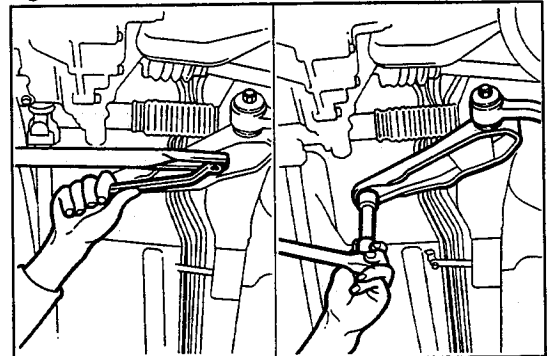


Fig. 5-59

WR-05061

INSPECTION

Inspect the following parts.

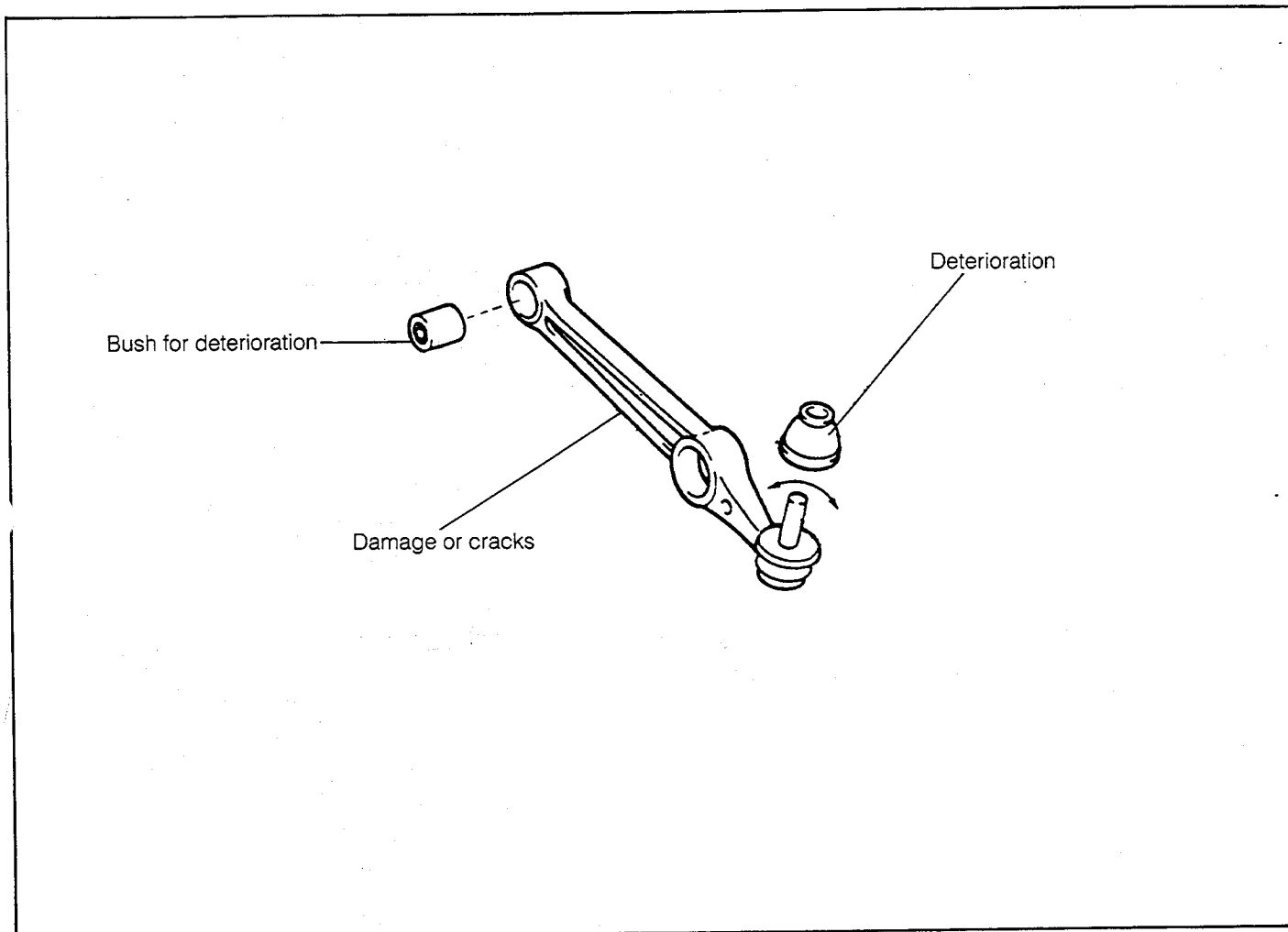


Fig. 5-60

WR-05062

1. Lower ball joint dust cover replacement

(1) Remove the dust cover, using a common screwdriver.

NOTE:

Be very careful not to damage the socket section.

(2) When assembling the lower ball joint dust cover, apply grease to the following sections.

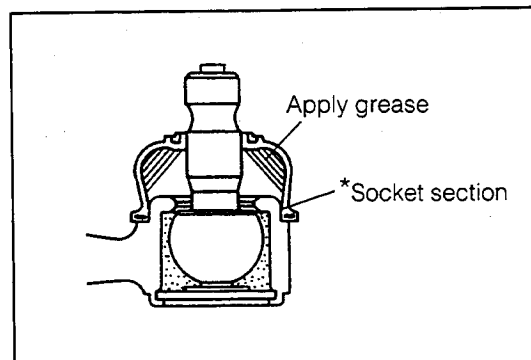


Fig. 5-61

WR-05063

(3) Press the dust cover into position, using a press in combination with the following SST.

SST: 09618-87301-000

NOTE:

Make sure that no grease or oil gets to the socket section (indicated by a "*" mark) during the press operation.

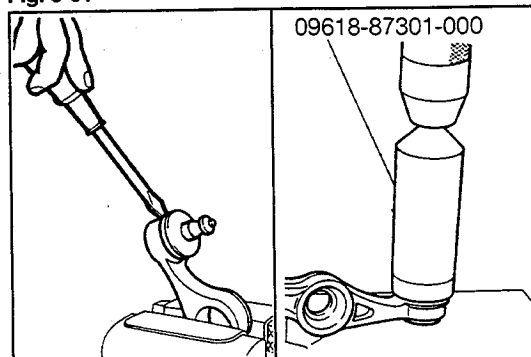


Fig. 5-62

WR-05064

FRONT AXLE & SUSPENSION

2. Lower arm bush replacement

- (1) Remove the bush, using the following SSTs.

SST: 09301-87701
09636-20010

- (2) Press the bush into position, using a press in conjunction with the following SSTs.

SST: 09301-87701
09636-20010

INSTALLATION

1. Lower arm installation

- (1) Temporarily tighten the lower arm ball joint section and stabilizer bar end nut section.

- (2) Tighten the bolt and nut of the ball joint section.
Tightening Torque: 8.0 - 10.5 kg-m (58 - 76 ft-lb)

- (3) Install the lower arm bracket.
Tightening Torque: 7.5 - 10.5 kg-m (54 - 76 ft-lb)

- (4) Tighten the lower arm attaching nut temporarily.

- (5) Installation of lower suspension brace.
(TURBO and GTi grades only)
Tightening Torque: 4.0 - 5.5 kg-m (29 - 40 ft-lb)

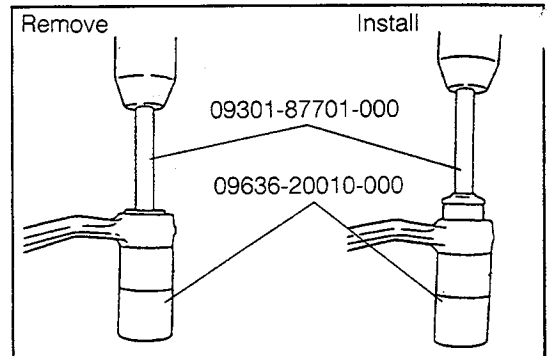


Fig. 5-63

WR-05065

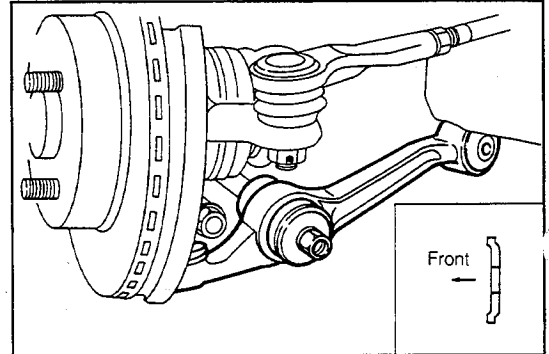


Fig. 5-64

WR-05066

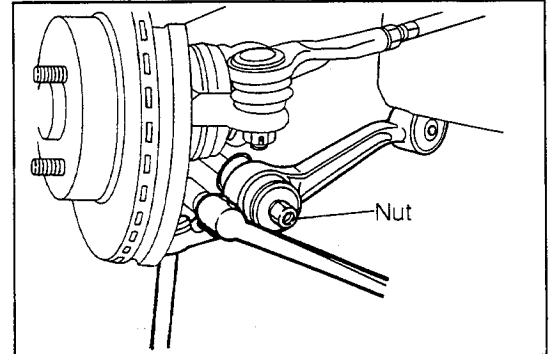


Fig. 5-65

WR-05067

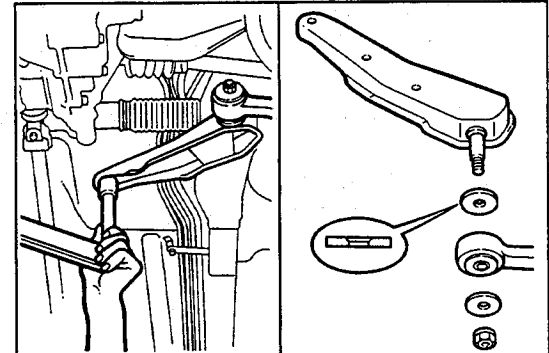


Fig. 5-66

WR-05068

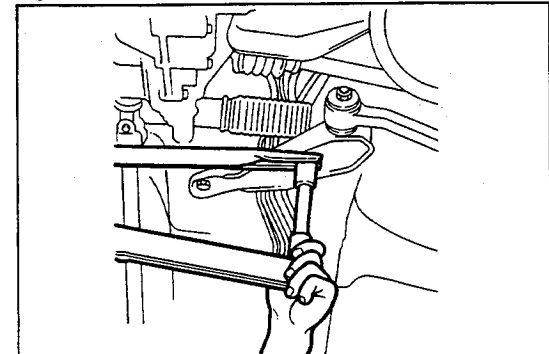


Fig. 5-67

WR-05069

FRONT AXLE & SUSPENSION

- (6) Install the front wheel.
- (7) Jack down the vehicle. Rock the front section of the vehicle in an up-and-down direction two or three times so as to settle the suspension.
- (8) With the vehicle in an unloaded state (lower arm is horizontal), tighten the nut.

(Stabilizer bar)

Tightening Torque:

7.5 - 11.0 kg-m (54 - 80 ft-lb)

(Lower arm)

Tightening Torque:

7.0 - 10.0 kg-m (51 - 72 ft-lb)

2. Front wheel alignment inspection (See page 5-38.)

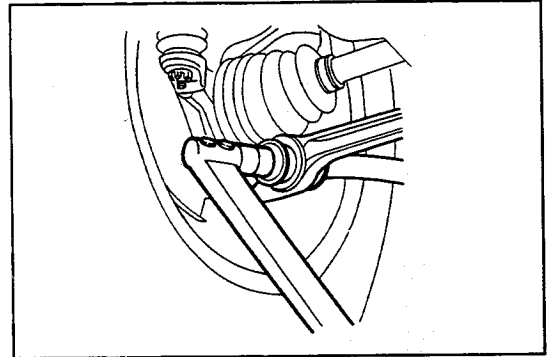


Fig. 5-68

WR-05070

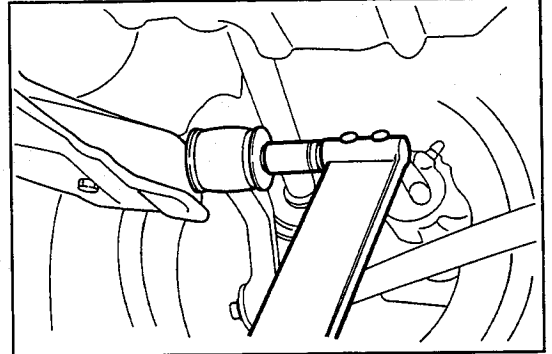


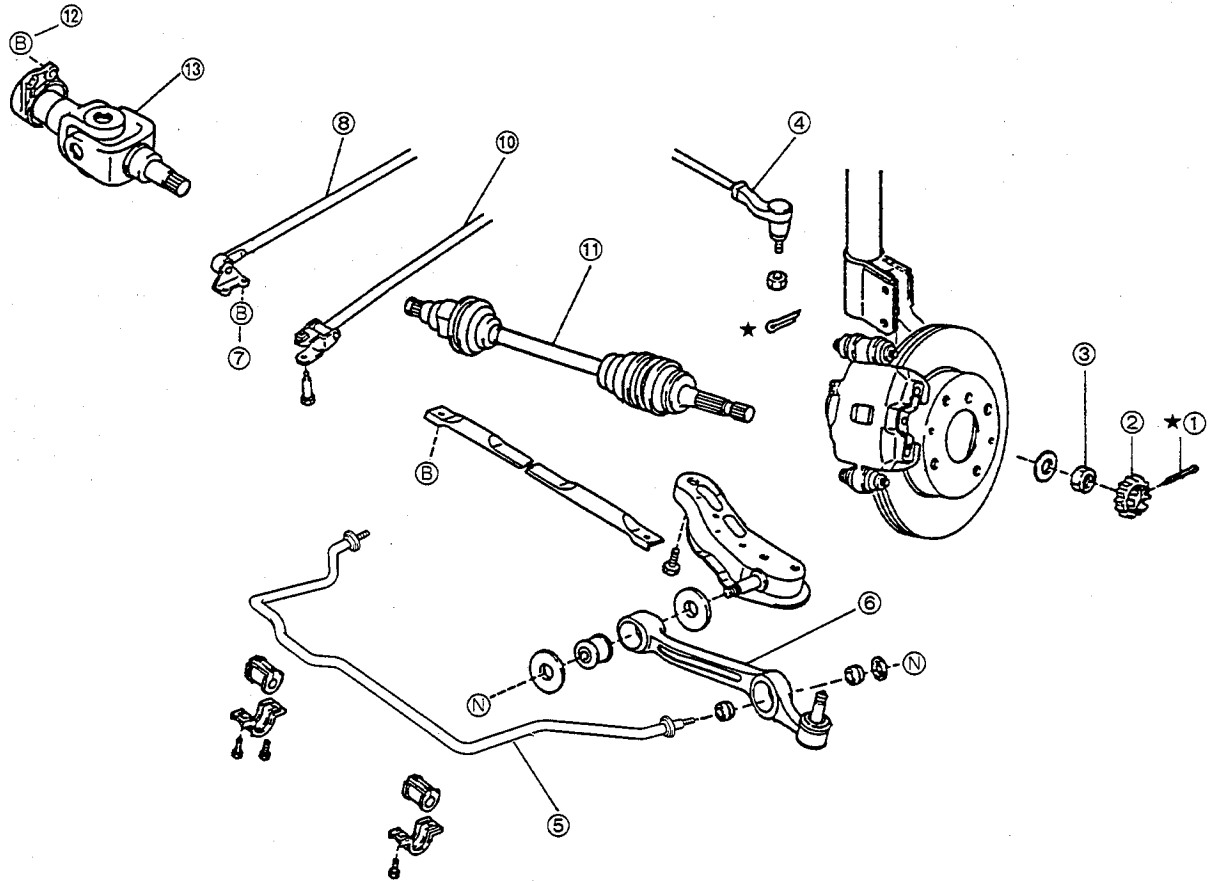
Fig. 5-69

WR-05071

FRONT AXLE & SUSPENSION

DRIVE SHAFT

DRIVE SHAFT-RELATED PARTS



★: Non-reusable parts

- ① Cotter pin
- ② Front wheel adjusting lock cap
- ③ Nut
- ④ Tie rod Ay
- ⑤ Stabilizer bar
- ⑥ Lower arm Ay
- ⑦ Bolt

- ⑧ Extension rod S/A
- ⑨ Lower suspension brace
(Vehicles mounted with Type CB-80 engine only)
- ⑩ Shift & select shaft S/A
- ⑪ Front drive shaft Ay
- ⑫ Bolt
- ⑬ Front drive bearing shaft Ay
(Vehicles mounted with Type CB-80 engine only)

Fig. 5-70

WR-05072

OPERATION PRIOR TO REMOVAL

1. Jack up the vehicle.
2. Drain the transmission fluid.
3. Remove the front wheels.

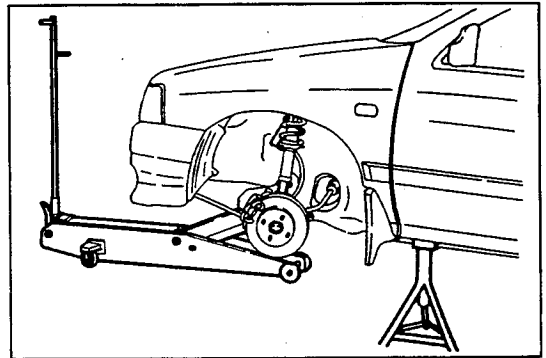


Fig. 5-71

WR-05073

REMOVAL

1. Pull out the cotter pin. Remove the front wheel adjusting lock cap.

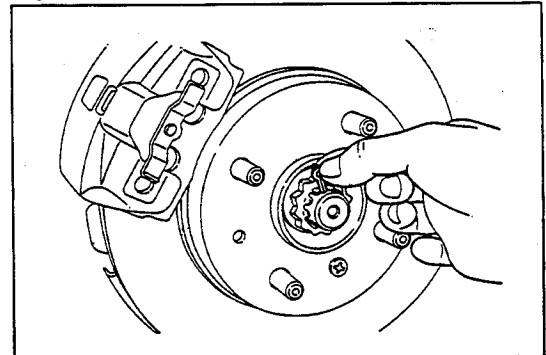


Fig. 5-72

WR-05074

2. Remove the nut, using the following SST.
SST: 09511-87202-000

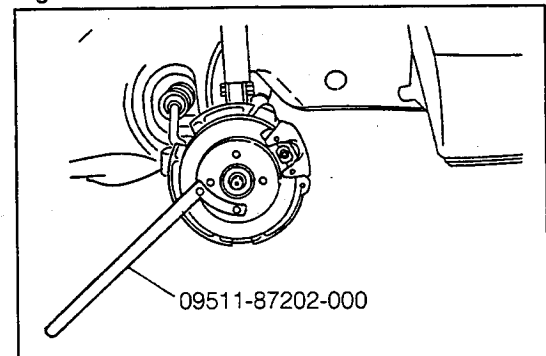


Fig. 5-73

WR-05075

3. Disconnect the tie rod, using the following SST.
SST: 09611-87701-000

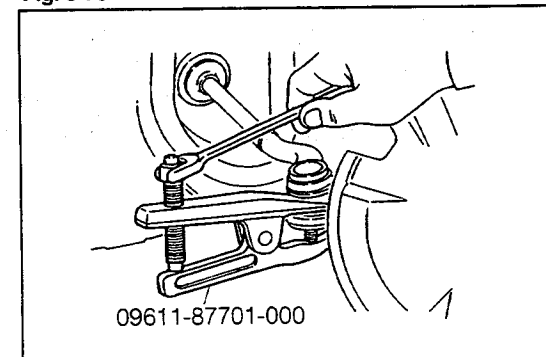


Fig. 5-74

WR-05076

4. Remove the stabilizer bar.

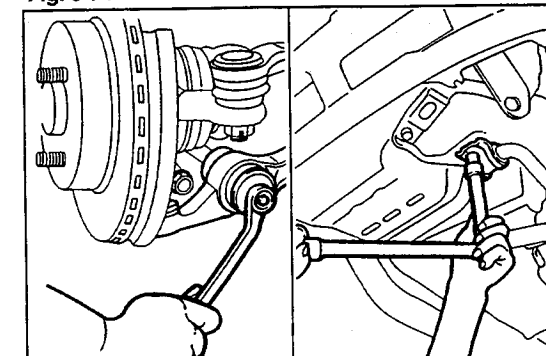


Fig. 5-75

WR-05077

FRONT AXLE & SUSPENSION

5. Remove the lower arm. (Bracket side only)

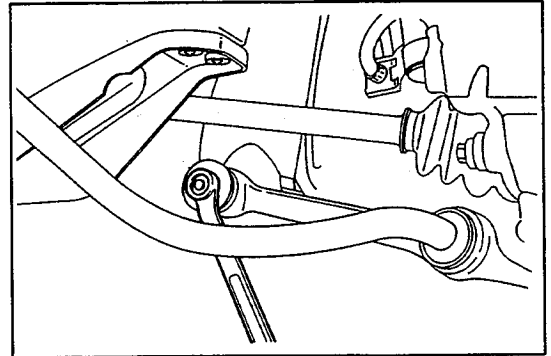


Fig. 5-76

WR-05078

6. Remove the bolts. Separate the extension rod subassembly and shift & select shaft subassembly from the transmission.

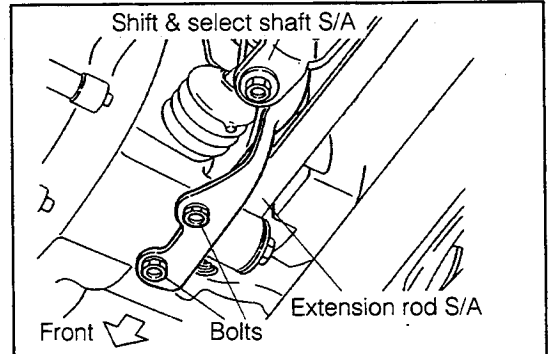


Fig. 5-77

WR-05079

7. Pull out the front drive shaft, using the following SST.

SST: 09648-87201-000

NOTE:

1. As for the inboard side of the drive shaft, no stopper is provided at the inside. Therefore, be sure to support the inboard joint section by your hand during the removal.

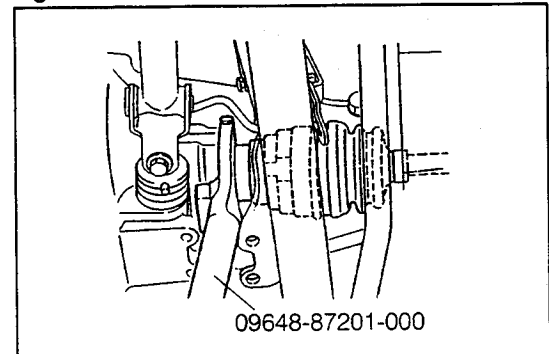


Fig. 5-78

WR-05080

2. As for the right side of vehicles mounted with Type CB-80 engine, insert a crowbar into between the protruding section of the bearing shaft and the drive shaft. Then, take out the front drive shaft, being very careful not to deform the dust cover of the drive shaft.

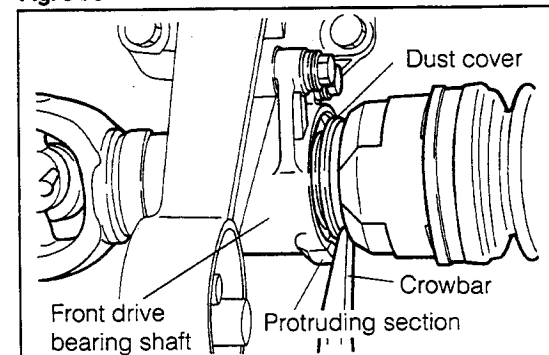


Fig. 5-79

WR-05081

9. Remove the two bolts. Remove the front drive shaft bearing shaft assembly. (Vehicles mounted with Type CB-80 engine only)

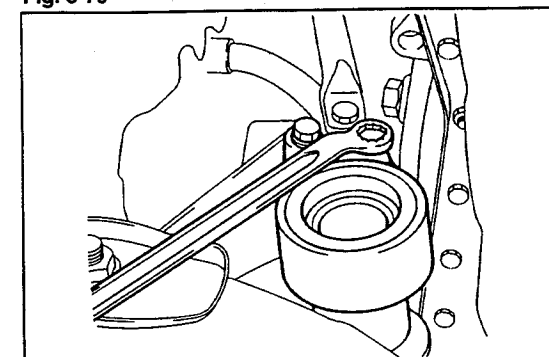


Fig. 5-80

WR-05082

INSPECTION

inspect the following sections.

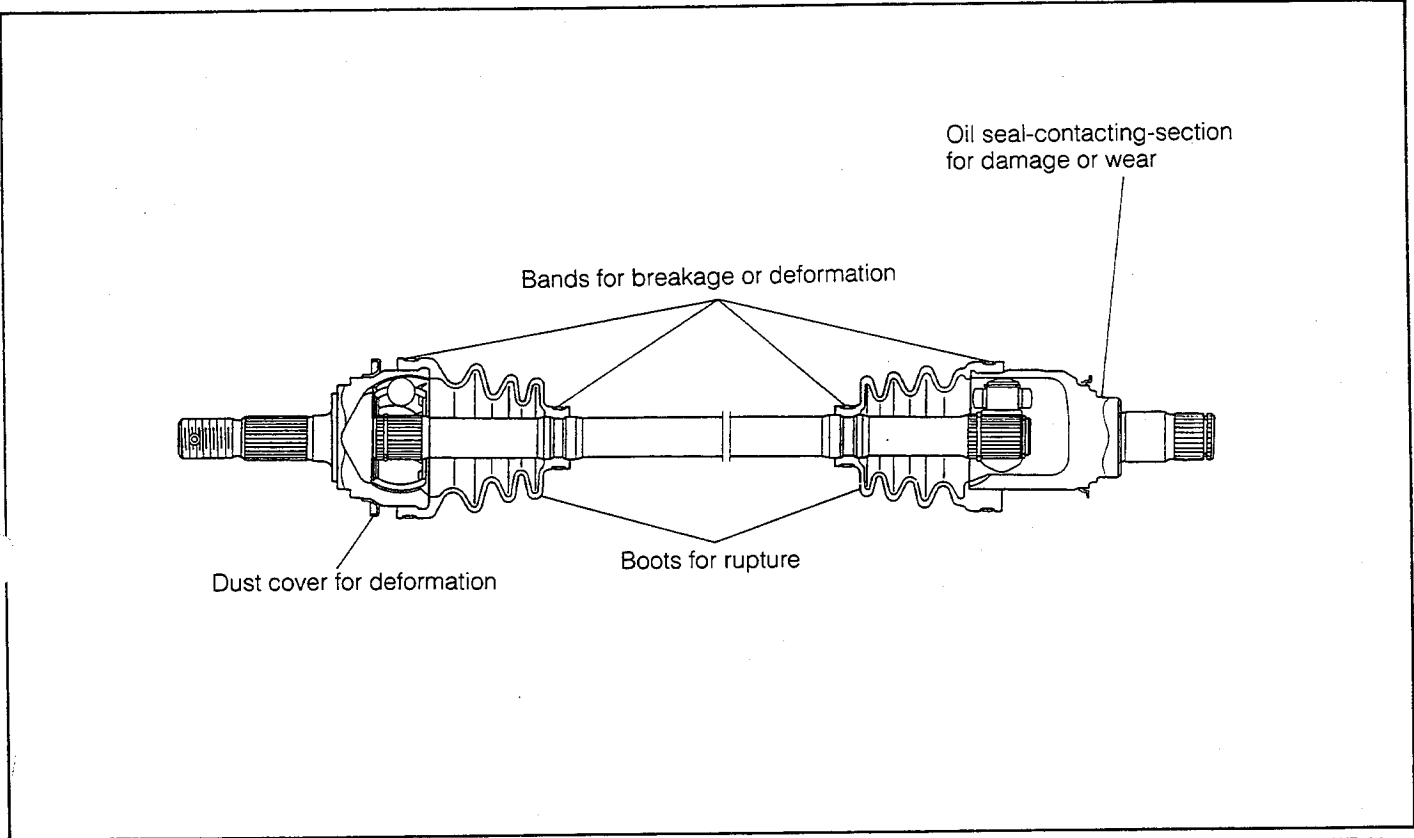


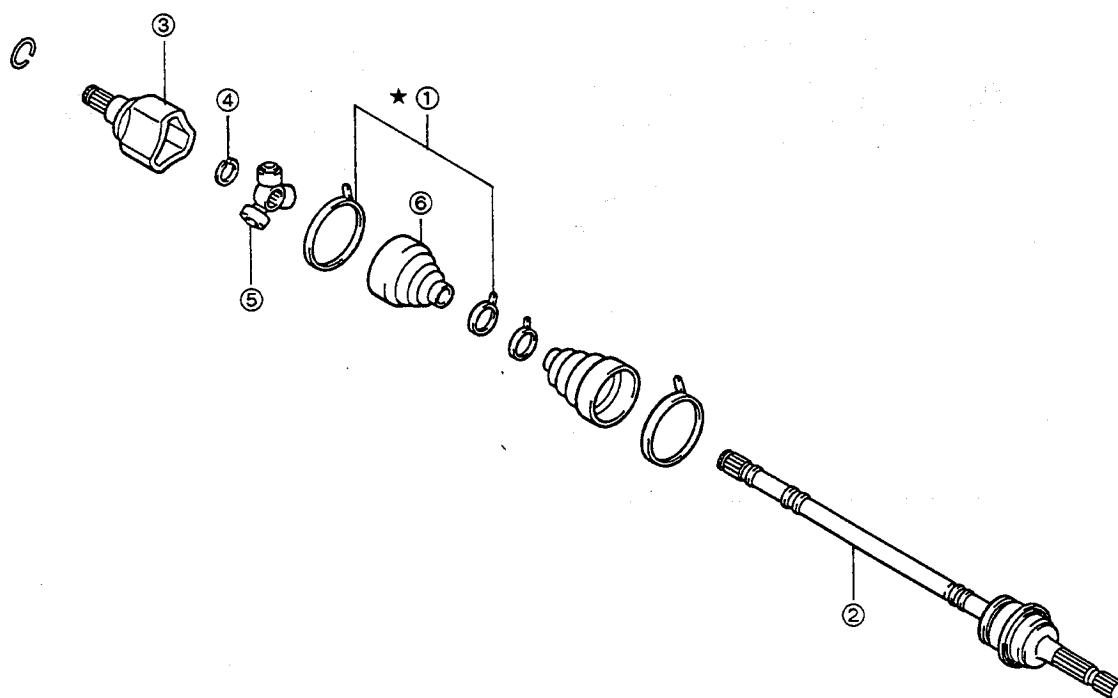
Fig. 5-81

WR-05083

FRONT AXLE & SUSPENSION

COMPONENTS

NOTE:
When replacing the parts of the drive shaft, each of the boot, the inboard joint and the outboard joint (with the front axle shaft) should be replaced only as a complete unit.



★: Non-reusable parts

- ① Boot band
- ② Outboard joint S/A
- ③ Front axle inboard joint S/A
- ④ Shaft snap ring
- ⑤ Inboard joint tripod Ay
- ⑥ Front axle joint boot

Fig. 5-82

WR-05084

DISASSEMBLY

1. Pry up the boot band clip with a common screwdriver. Detach the boot.

NOTE:

Be very careful not to damage the boot.

2. Put a mating mark on the inboard joint and shaft, as shown in the figure. Remove the front axle inboard joint subassembly.

NOTE:

Put mating marks by painting. (Never use a punch to put mating marks.)

3. Detach the shaft snap ring, using a snap ring expander.

4. Remove the inboard joint tripod assembly, as follows:
 - (1) Put a mating mark at the tip end of the tripod and shaft, using a punch.

- (2) Pull out the tripod from the shaft, using a brass bar.

NOTE:

Be sure to apply the brass bar to the tripod boss section, not to the roller section.

5. Remove the front axle joint boot.

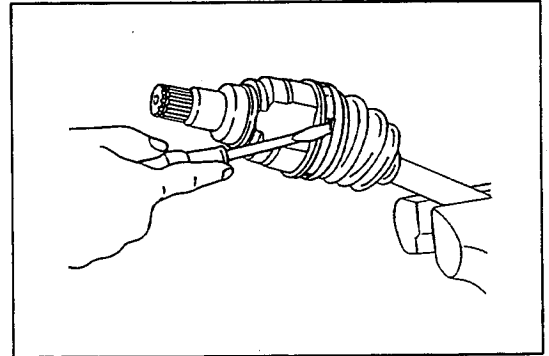


Fig. 5-83

WR-05085

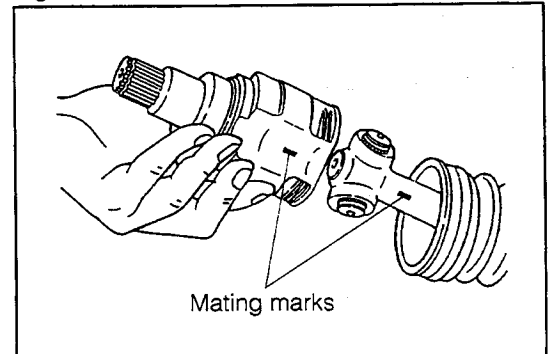


Fig. 5-84

WR-05086

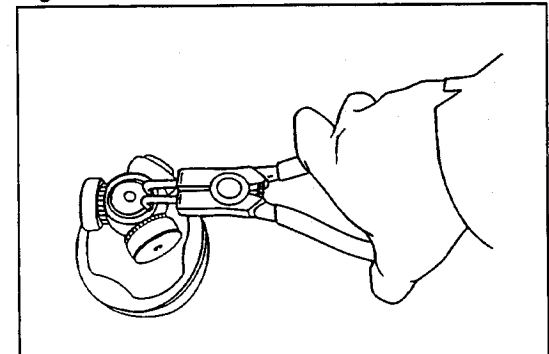


Fig. 5-85

WR-05087

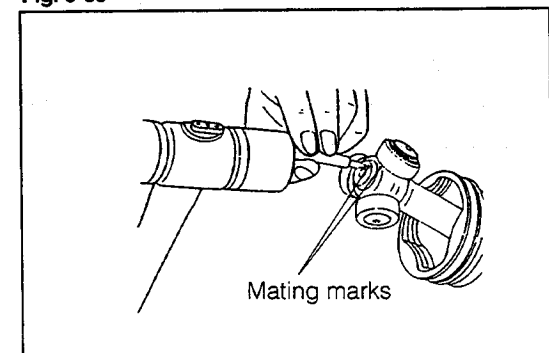


Fig. 5-86

WR-05088

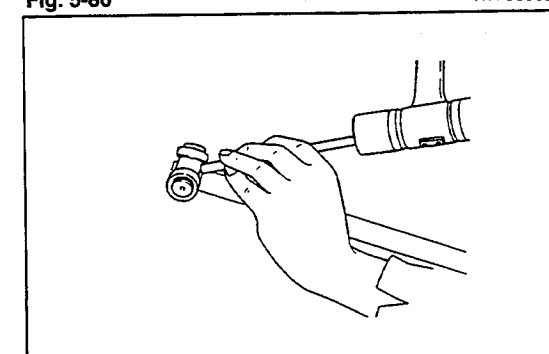


Fig. 5-87

WR-05089

FRONT AXLE & SUSPENSION

INSPECTION

Inspect the following sections.

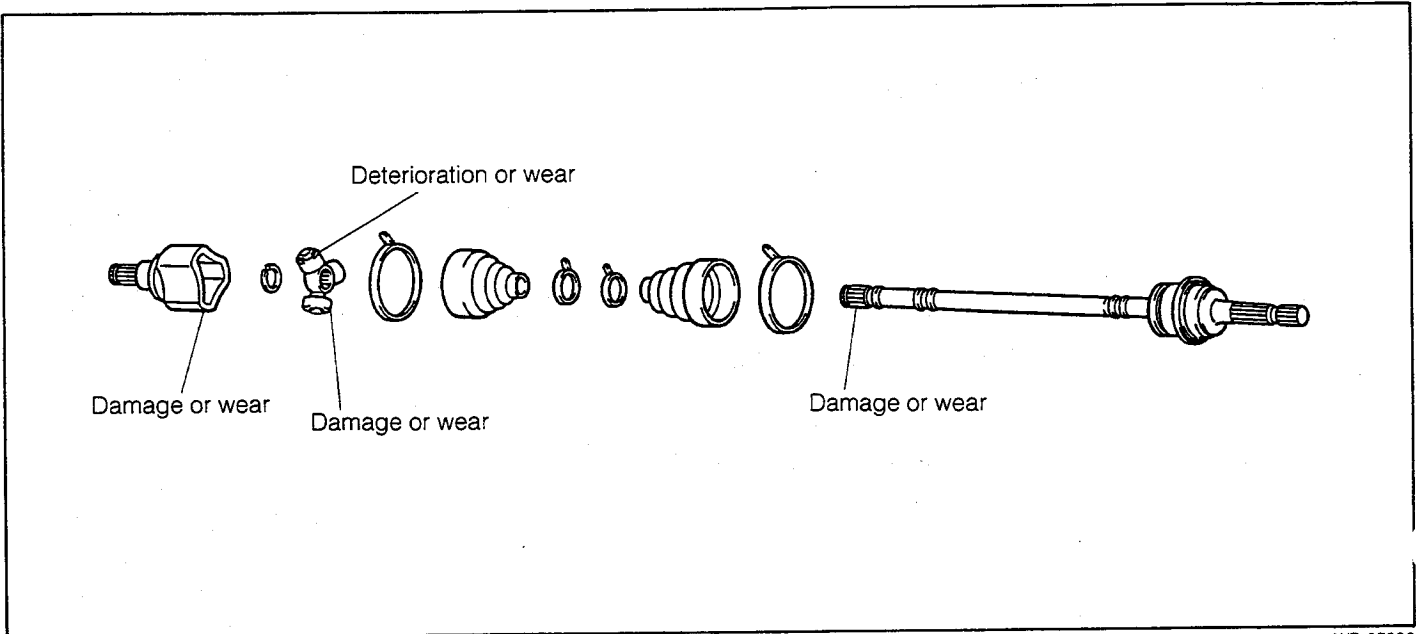


Fig. 5-88

WR-05090

ASSEMBLY

1. Assemble the front axle joint boot in position.
2. Assemble the inboard joint tripod assembly, as follows:
 - (1) Face the non-splined side of the tripod toward the outboard joint.
 - (2) Align the mating marks which were put during the disassembly.

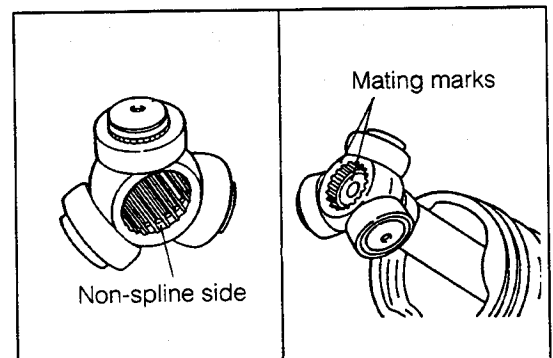


Fig. 5-89

WR-05091

- (3) Drive the tripod assembly into the shaft lightly, using a brass bar.

NOTE:

Be sure to apply the brass bar to the boss section of the tripod, not to the roller section.

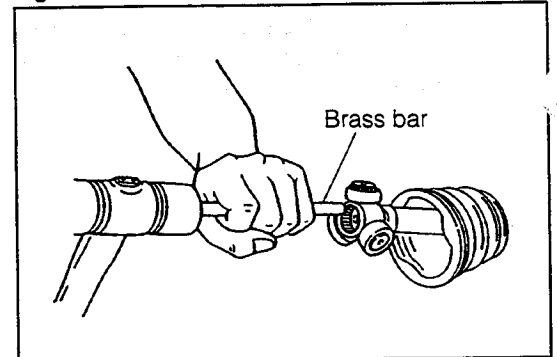


Fig. 5-90

WR-05092

3. Attach the shaft snap ring in position, using a snap ring expander.

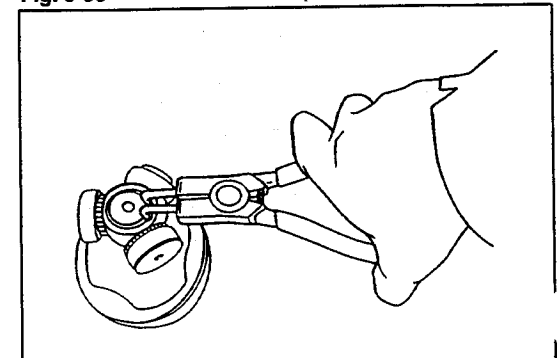


Fig. 5-91

WR-05093

4. Assemble the front axle inboard joint, as follows:

(1) Pack the inboard joint with joint grease.

NOTE:

Use the grease which has been provided in the boot kit of the replacement parts.

(2) Install the inboard joint, aligning the mating marks which were put during the disassembly.

5. Prior to assembling the boot of the front axle outboard joint, pack the outboard joint with joint grease.

NOTE:

1. Use the grease which has been provided in the boot kit of the replacement parts.

2. On vehicles other than those mounted with Type CB-80 engine, it should be noted that the grease to be used for the inboard joint differs from that to be used for the outboard joint.

Grease for inboard joint ... Yellow

Grease for outboard joint ... Black

6. Assemble a new boot band, as shown in the figure.

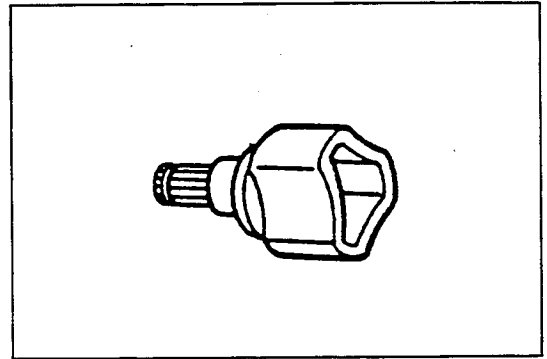


Fig. 5-92

WR-05094

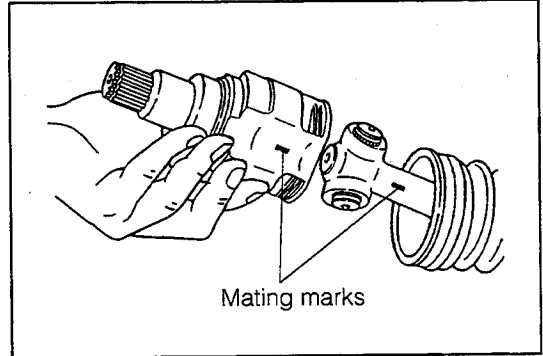


Fig. 5-93

WR-05095

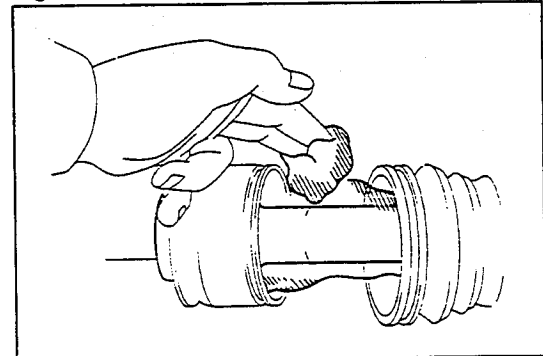


Fig. 5-94

WR-05096

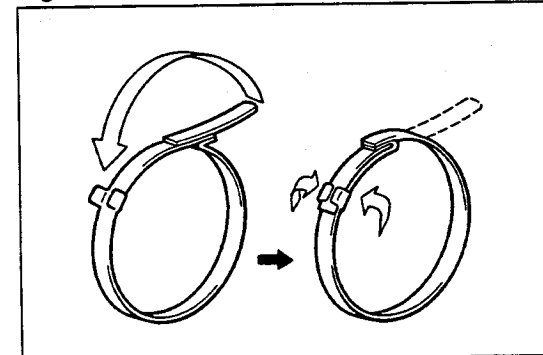


Fig. 5-95

WR-05097

INSTALLATION

Grease applying points

1. Apply chassis grease to the whole serrated section of the front axle hub installation section.

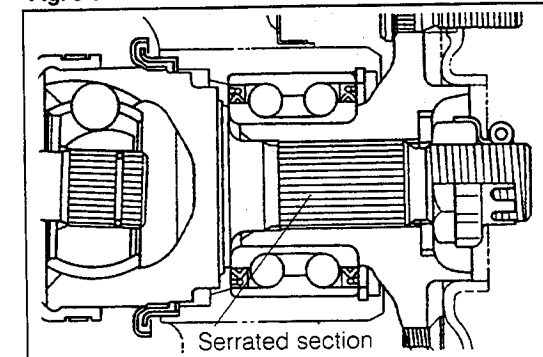


Fig. 5-96

WR-05098

FRONT AXLE & SUSPENSION

2. Install the front drive bearing shaft in position.
(Vehicles mounted with Type CB-80 engine only)
Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

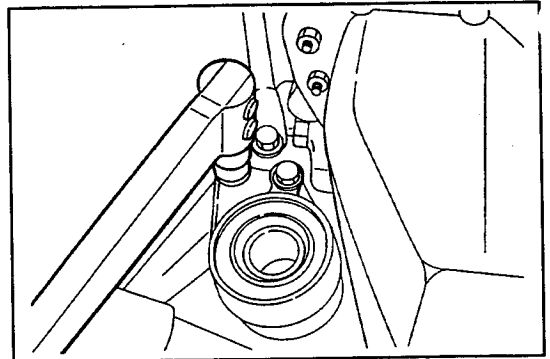


Fig. 5-97

WR-05099

3. Install the front drive bearing shaft in position.
NOTE:
Be very careful not to damage the oil seal during the installation.

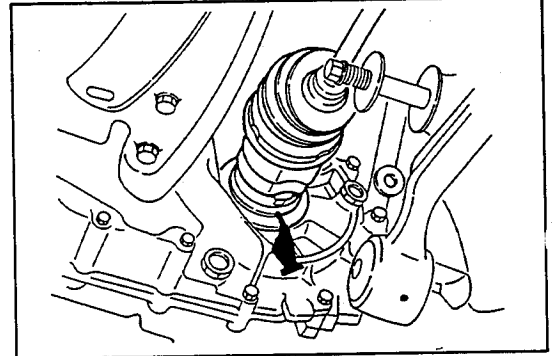


Fig. 5-98

WR-05100

4. Install the shift & select shaft subassembly and extension rod subassembly in position.
Tightening Torque: 1.0 - 1.6 kg-m (7.2 - 11.6 ft-lb)

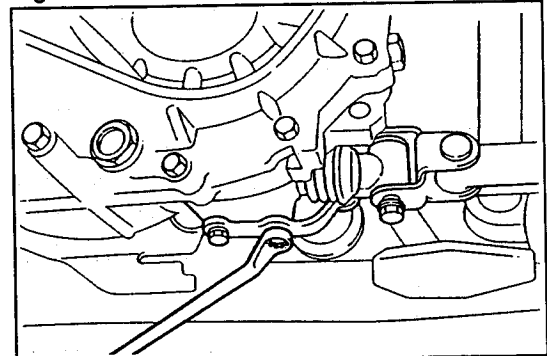


Fig. 5-99

WR-05101

5. Install the bracket side of the lower arm assembly in position.
Tightening Torque: 7.0 - 10.0 kg-m (51 - 72 ft-lb)

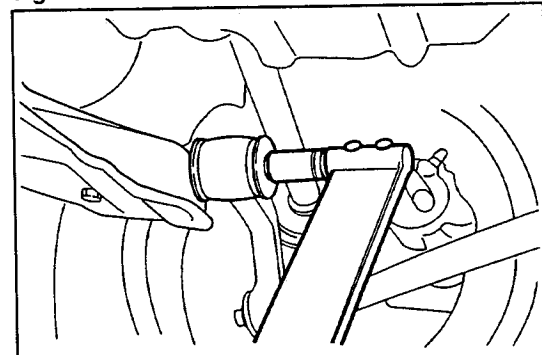


Fig. 5-100

WR-05102

6. Install the stabilizer bar to the lower arm assembly.
Tightening Torque: 7.5 - 11.0 kg-m (54 - 80 ft-lb)
7. Install the stabilizer lower bracket to the body.
Tightening Torque: 4.0 - 6.0 kg-m (29 - 43 ft-lb)

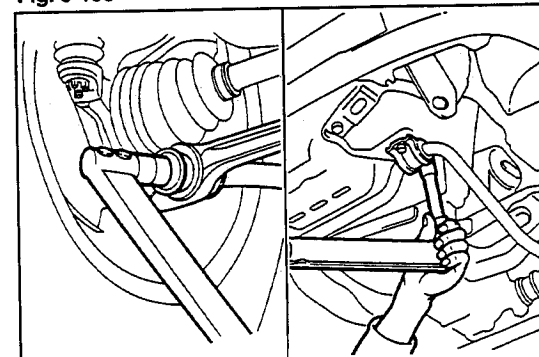


Fig. 5-101

WR-05103

FRONT AXLE & SUSPENSION

9. Install the tierod assembly to the steering knuckle.
Tightening Torque: 3.0 - 4.5 kg-m (22 - 33 ft-lb)

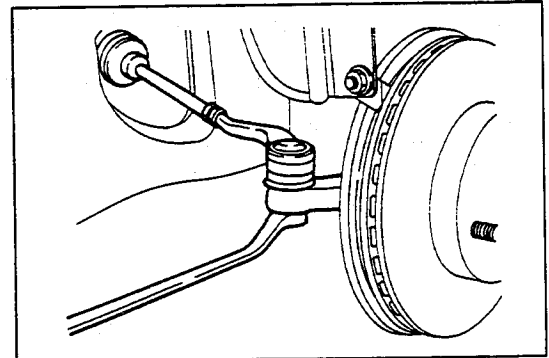


Fig. 5-102

WR-05104

9. Install the drive shaft to the front axle hub. Secure the axle hub, using the following SST.
SST: 09511-87202-000

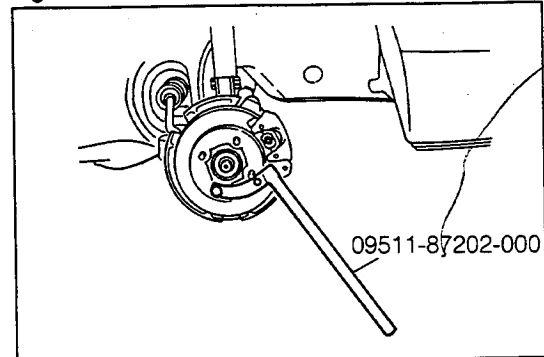


Fig. 5-103

WR-05105

10. Tighten the nut.
Tightening Torque:
18.0 - 23.0 kg-m (130 - 166 ft-lb)

NOTE:

1. When this nut is tightened to the specified torque, the specified preload of the front wheel is attained.
2. Assemble the spring washer in such a way that its recessed side comes to the hub side.

11. Install the front wheel adjusting lock cap to the nut.
12. Install the cotter pin, as shown in the right figure.

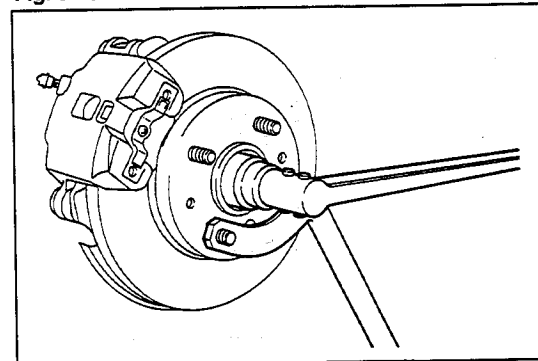


Fig. 5-104

WR-05106

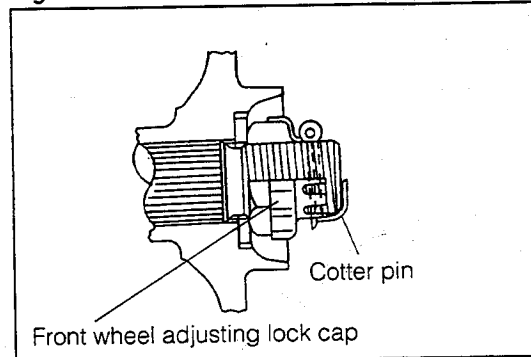


Fig. 5-105

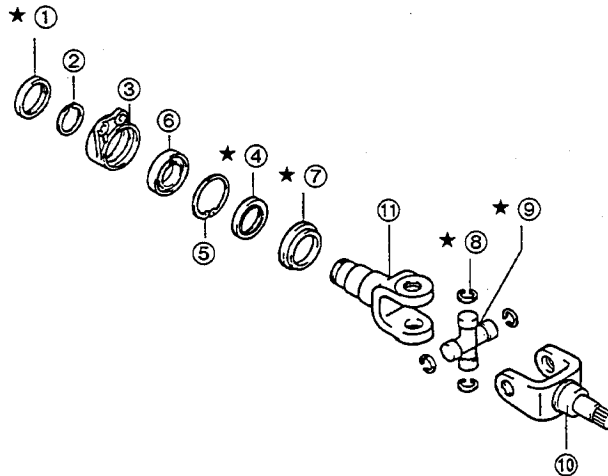
WR-05107

FRONT AXLE & SUSPENSION

FRONT DRIVE BEARING SHAFT

(Vehicles Mounted with Type CB-80 Engine Only)

COMPONENTS



★: Non-reusable parts

- ① Oil seal
- ② Shaft snap ring
- ③ Drive shaft bearing bracket
- ④ Oil seal
- ⑤ Hole snap ring
- ⑥ Radial ball bearing

- ⑦ Dust deflector
- ⑧ Hole snap ring
- ⑨ Universal joint spider S/A
- ⑩ Universal joint No.2 yoke
- ⑪ Universal joint yoke S/A

Fig. 5-106

WR-05108

INSPECTION

Inspect the following parts.

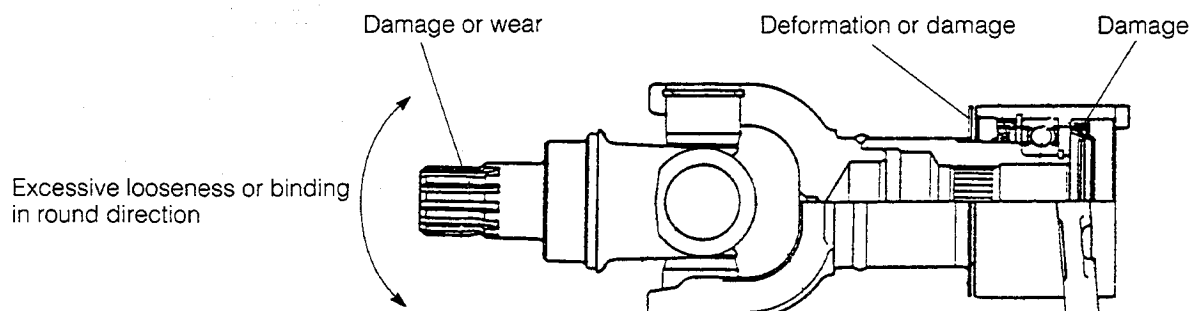


Fig. 5-107

WR-05109

DISASSEMBLY

1. Remove the oil seal, using a common screwdriver.
2. Detach the shaft snap ring, using a snap ring expander.

3. Remove the drive shaft bearing bracket, using the following SSTs.

SST: 09334-87201-000

SST: 09608-87501-000

4. Remove the another oil seal, using a common screwdriver.
5. Detach the hole snap ring, using a snap ring expander.

6. Remove the radial ball bearing, using the following SSTs.

SST: 09547-87301-000

SST: 09608-87501-000

7. Remove the dust deflector, using a brass bar and a hammer. Be careful not to damage the dust deflector during the removal.

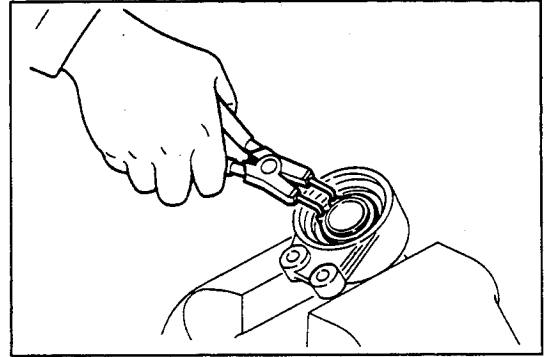


Fig. 5-108

WR-05110

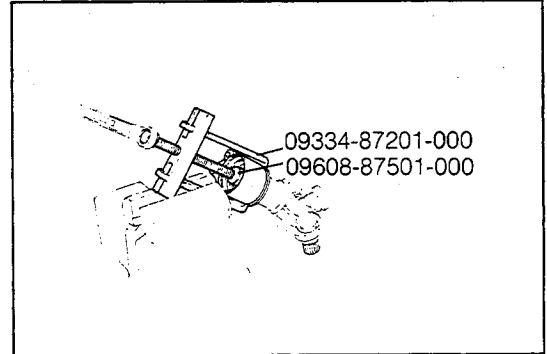


Fig. 5-109

WR-05111

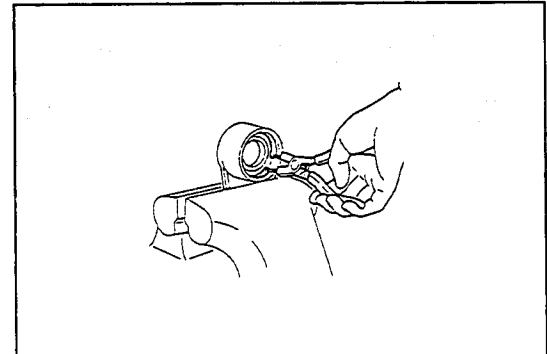


Fig. 5-110

WR-05112

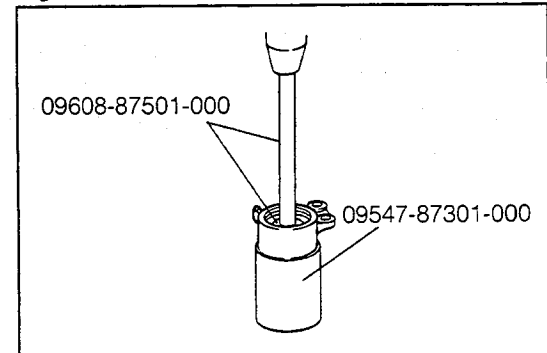


Fig. 5-111

WR-05113

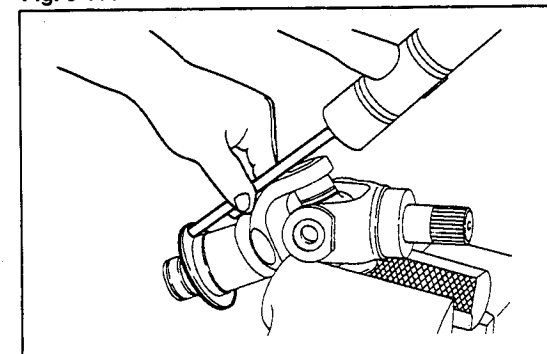


Fig. 5-112

WR-05114

FRONT AXLE & SUSPENSION

8. Put a mating mark on the yoke and universal yoke.
9. Detach the hole snap ring, using a snap ring expander.

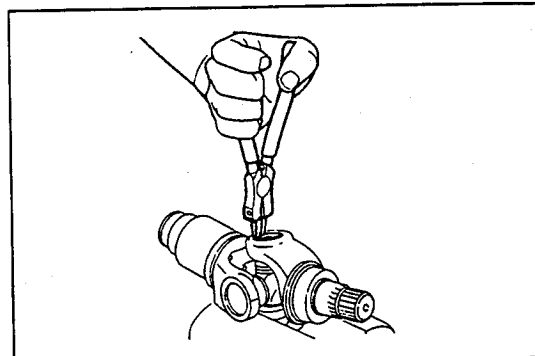


Fig. 5-113

WR-05115

10. Remove the universal joint spider subassembly, following the procedure given below.

- (1) Push off the spider bearing cap, using a vice in combination with a 19 mm socket and the following SST.

SST: 09628-10020-000

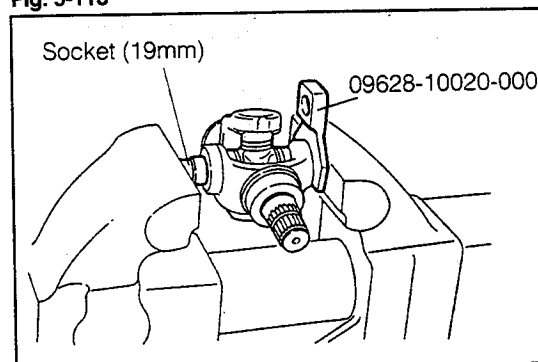


Fig. 5-114

WR-05116

- (2) Clamp the pushed-out cap in a vice. Remove the bearing cap from the yoke No.2 by tapping the yoke No.2 lightly.
- (3) Tap the spider from the side of the cap removed, thus pushing out the another cap.

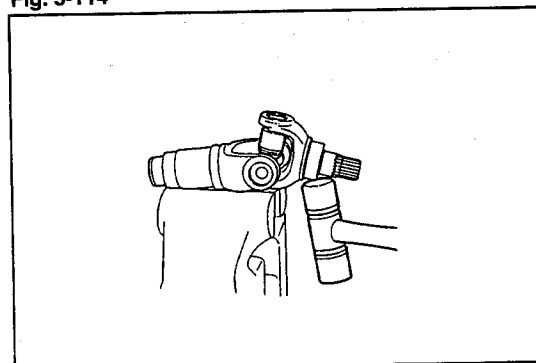


Fig. 5-115

WR-05117

- (4) Clamp the cap in a vice. Remove the cap by tapping the yoke No.2 lightly. Separate the yoke No.2 from the universal joint yoke subassembly.
- (5) Remove the remaining caps, following the same procedure.

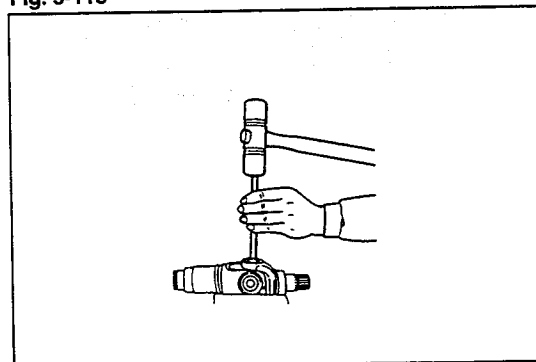


Fig. 5-116

WR-05118

11. Disconnect the universal joint No.2 yoke from the universal joint yoke subassembly.

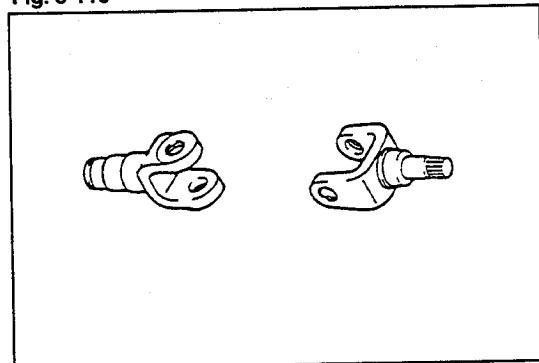


Fig. 5-117

WR-05119

INSPECTION

inspect the following sections.

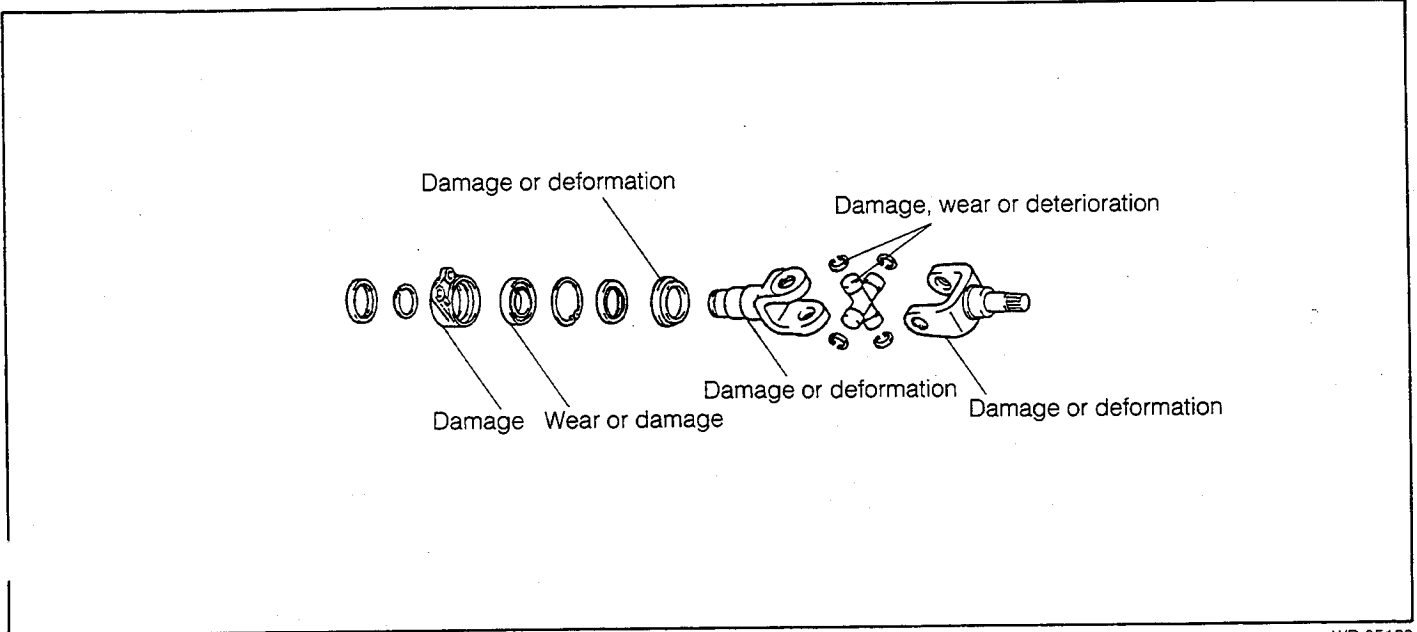


Fig. 5-118

WR-05120

ASSEMBLY

Grease applying points

Apply MP grease to the points shown in the right figure.

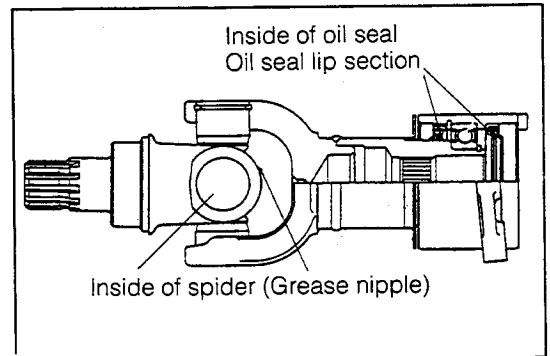


Fig. 5-119

WR-05121

1. Assemble the universal joint yoke spider subassembly, following the procedure given below.

(1) Assemble the spider to the universal joint yoke subassembly. Push them in a vice from both sides until the bearing cap becomes flush with the end surface of the yoke subassembly.

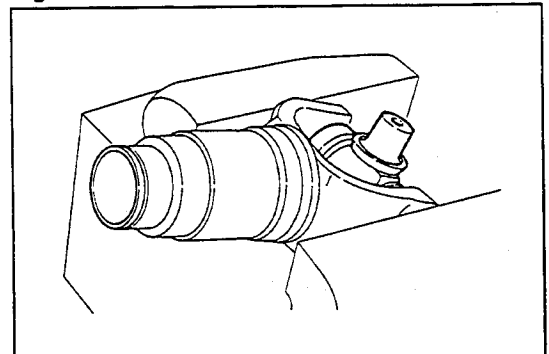


Fig. 5-120

WR-05122

(2) Using a 19 mm socket, push the spider cap in a vice until the snap ring can be inserted in position.

(3) Install the universal joint yoke No.2 to the spider. Assemble it in the sequence (1) and (2) described above.

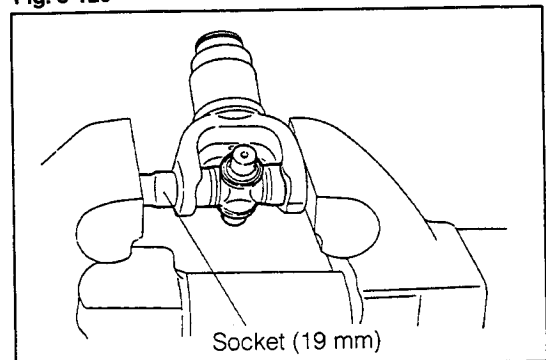


Fig. 5-121

WR-05123

FRONT AXLE & SUSPENSION

2. Assemble the hole snap ring, using a snap ring expander, in accordance with the procedure given below.
 - (1) Select a proper snap ring so that the play of the spider in the axial direction will not exceed 0.05 mm (0.002 inch) and the thickness of the snap ring becomes the same at both sides.

Reference: Snap Ring Availability

Part number	Thickness
90045-21046-000	1.45 mm (0.057 inch)
90045-21047-000	1.50 mm (0.059 inch)
90045-21048-000	1.55 mm (0.061 inch)

- (2) Assemble the selected snap ring.
- (3) Check the spider bearing for excessive looseness.

3. Install the dust deflector, using the following SST.
SST: 09547-87501-000

4. Assemble the radial ball bearing, using the following SSTs.
SST: 09547-87301-000
SST: 09608-87501-000

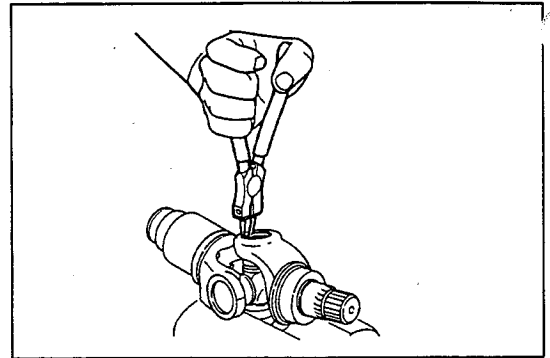


Fig. 5-122

WR-05124

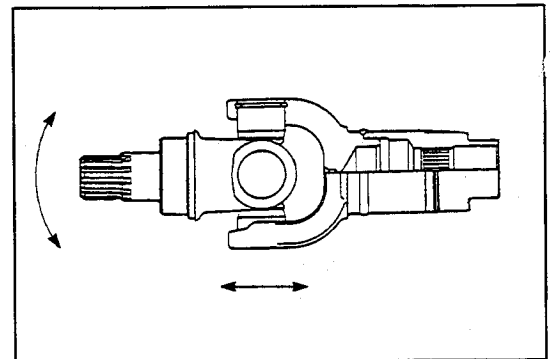


Fig. 5-123

WR-05125

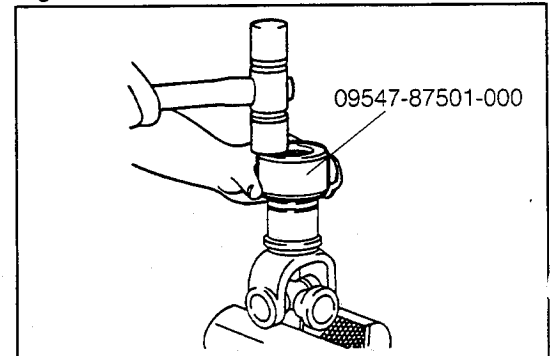


Fig. 5-124

WR-05126

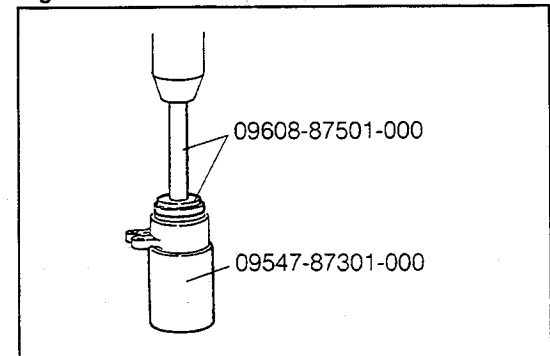


Fig. 5-125

WR-05127

FRONT AXLE & SUSPENSION

5. Attach the hole snap ring, using a snap ring expander.

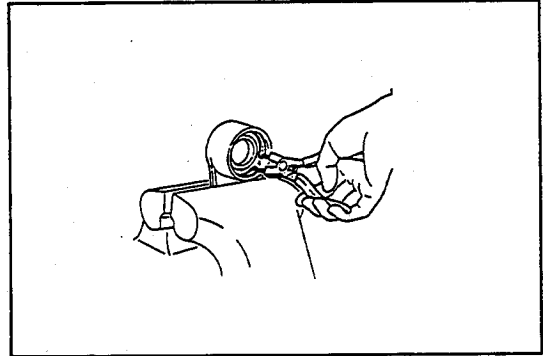


Fig. 5-126

WR-05128

6. Install the oil seal, using the following SST.
SST: 09608-87501-000

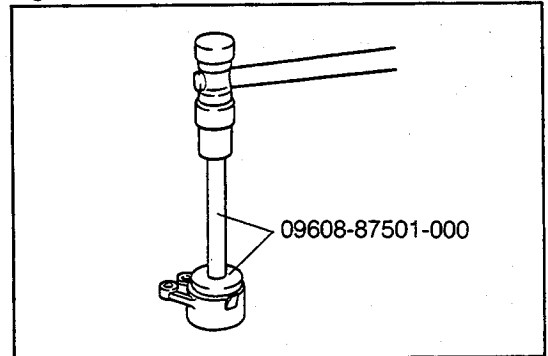


Fig. 5-127

WR-05129

7. Install the drive shaft bearing bracket, using the following SSTs.

SST: 09506-30011-000

SST: 09608-87501-000

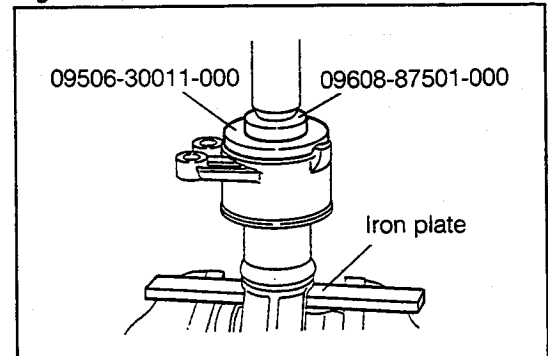


Fig. 5-128

WR-05130

8. Attach the shaft snap ring, using a snap ring expander.

9. Assemble the oil seal, using the following SST.

SST: 09608-87501-000

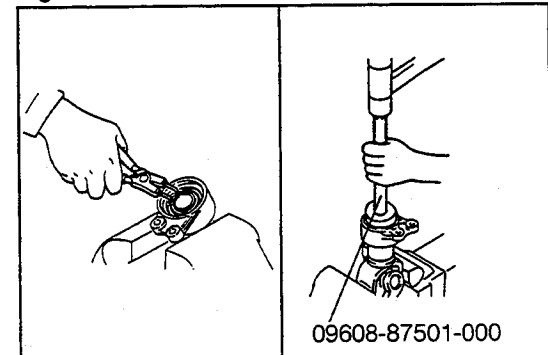


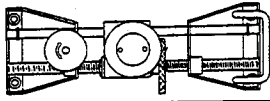
Fig. 5-129

WR-05131

FRONT AXLE & SUSPENSION

WHEEL ALIGNMENT (FRONT AND REAR)

TOOLS AND INSTRUMENTS

	Shape	Nomenclature	Use
Tools		CCK gauge compensator CCK-IN Supplied by Banzai, Ltd.	Attachment for camber, caster and kingpin gauge
	Brake pusher, hexagon wrench key (width across flats: 8 mm)		
Instruments	Turning radius gauge, tire pressure gauge, camber, caster, kingpin gauge and dial gauge		

WR-05132

CHECKS PRIOR TO WHEEL ALIGNMENT MEASUREMENT

1. Checking Tires for Wear
2. Checking Tires for Air Pressure

Tire	Air inflation pressure kg/cm ² (psi)	
	G-100	G-101
6.00.12.4PR	1.9 (27)	1.9 (27)
145/80R13 74S, 145SR13	1.8 (26)	2.0 (29)
155/80R13 78S, 155SR13	1.8 (26)	2.0 (29)
165/70R13 79S, 165/70SR13	1.8 (26)	2.0 (29)
175/60R14 78H	1.8 (26)	
185/60R14 82H (Pirelli)	1.8 (26)	

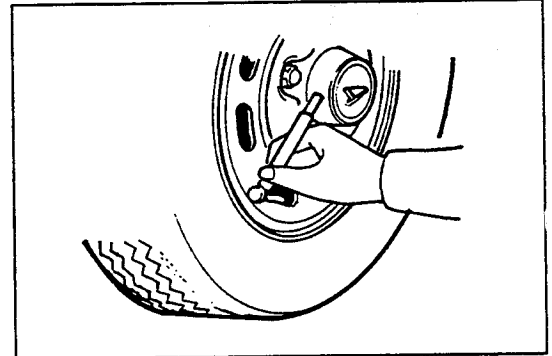


Fig. 5-130

WR-05133

3. Checking Tires for Runout
(Up-and-down and right-and-left directions)
Maximum Limit: 3.0 mm (0.12 inch)
2. mm
4. Checking Bolts of Related Sections for Tightened Condition

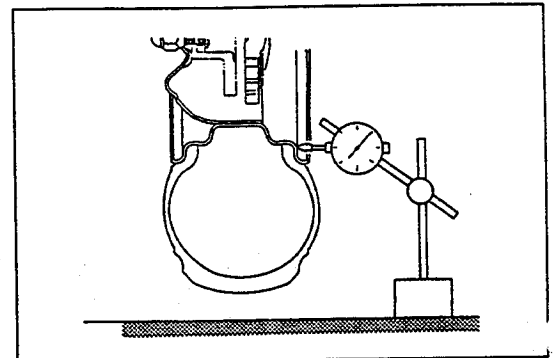


Fig. 5-131

WR-05134

5. Checking Related Sections for Excessive Play
 - (1) Jack up the vehicle. Alternately push and pull the upper and lower parts of each tire. Ensure that the tire exhibits no excessive play.
 - (2) If the tire exhibits an excessive play, perform the following check while the brake pedal is being depressed.
 - The excessive play disappears:
This indicates that the front wheel bearing is loose.
 - The excessive play still persists:
This indicates that the knuckle section, axle carrier section or suspension is loose.

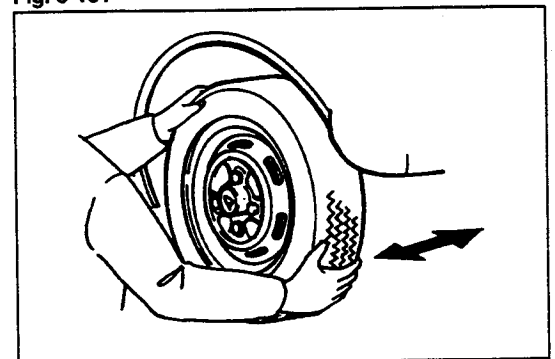


Fig. 5-132

WR-05135

- (3) If the wheel bearing is judged as being loose, proceed to check the play in the axial direction, using the following SST.

SST: 09510-87301-000

(Front and rear wheel bearings)

Specified Value: Not to exceed 0.2 mm (0.008 inch)

Maximum Limit: 0.05 mm (0.002 inch)

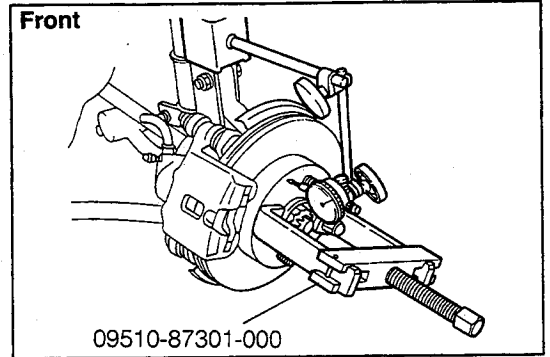


Fig. 5-133

WR-05136

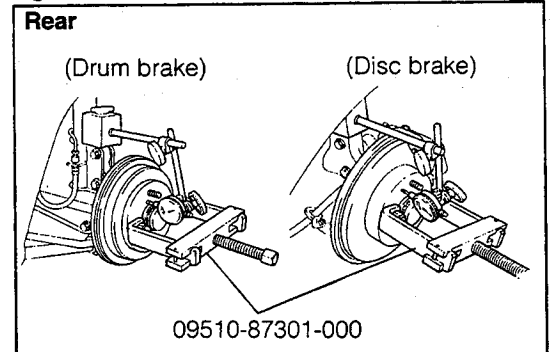


Fig. 5-134

WR-05137

CHECKS AND ADJUSTMENT OF FRONT WHEEL ALIGNMENT

1. Turning Radius Gauge Set

- (1) Set the turning radius gauge to the zero point. Proceed to lock the gauge.
- (2) Place the vehicle on the gauge in such a way that the center of the tire-to-floor contact surface may be aligned with the center of the turning radius gauge.

NOTE:

- Perform the check on a level floor.
- When a portable type turning radius gauge is employed, a plate having the same thickness as that of the gauge should be placed under the rear wheel so that the vehicle levelness may be maintained.
- Make sure that the wheels are in their straightahead conditions.
- Keep the vehicle in an unloaded state. In order to prevent the vehicle from moving during the check, be sure to apply the foot brake, using a brake pedal pusher or the like.
- Remove the stop lamp fuse so as to prevent the stop lamp from glowing.

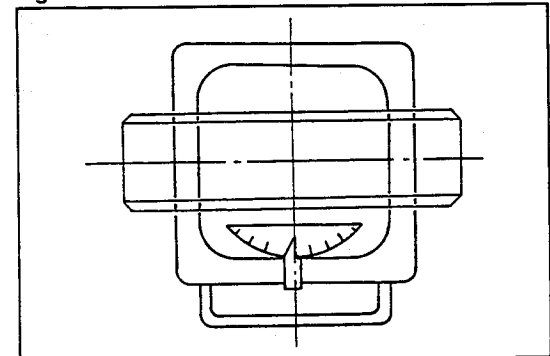


Fig. 5-135

WR-05138

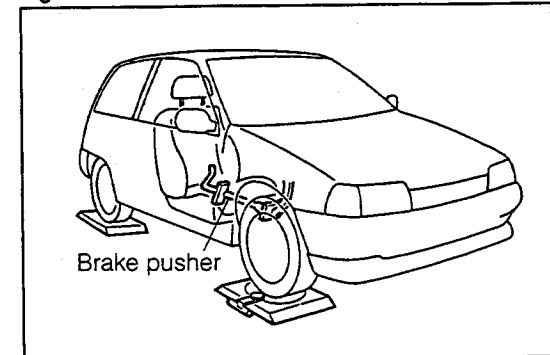


Fig. 5-136

WR-05139

FRONT AXLE & SUSPENSION

2. Checking Wheel Turning Angle

- (1) Measure the wheel turning angle, using a turning radius gauge.

Specified Value:

Inner side	$39^{\circ}55' \pm 2^{\circ}$
Outer side	$35^{\circ}39' 0^{\circ} \pm 2^{\circ}$

- (2) If the wheel turning angle differs between the right and left sides, correct the turning angle.

3. Correction Wheel Turning Angle

- (1) Slacken the lock nuts of the tie rod ends.
 (2) Make the length indicated in the right figure equal between the right and left sides.

NOTE:

- Make sure that the boot is not twisted during the correction.
- Make sure that the tie rods at the right and left sides are turned by the same amount.

4. Checking Camber, Caster and Kingpin Angles

- (1) In the case of steel wheels, perform the measurement, using the following SST (attachment).

SST: 09722-87702-000

- (2) In the case of aluminum wheels, perform the measurement, using the CCK (Camber, Caster, Kingpin) gauge compensator (available in the market).

NOTE:

The CCK gauge compensator can be used for the measurement on steel wheels, too.

- (3) Installation procedure for the CCK gauge compensator, and the camber, caster and kingpin gauge.

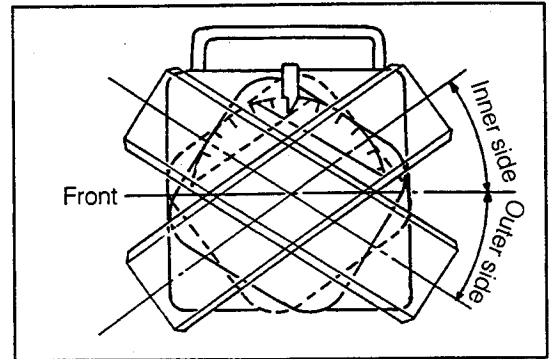


Fig. 5-137

WR-05140

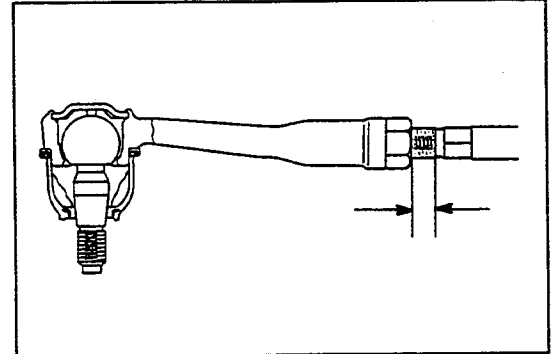


Fig. 5-138

WR-05141

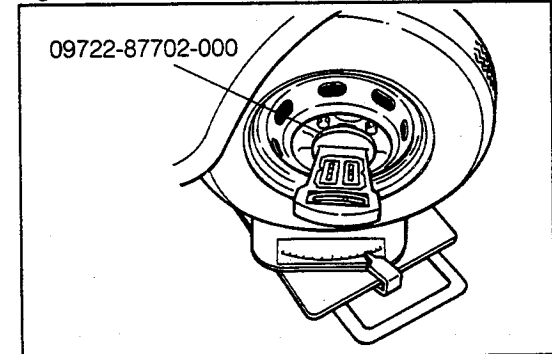


Fig. 5-139

WR-05142

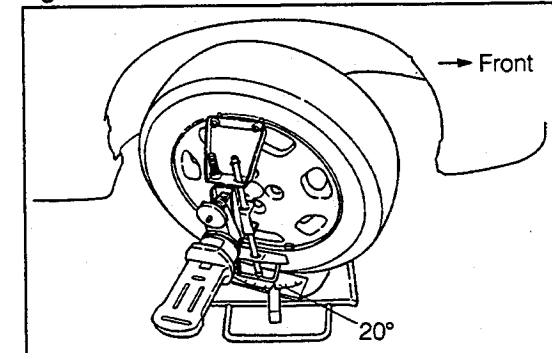


Fig. 5-140

WR-05143

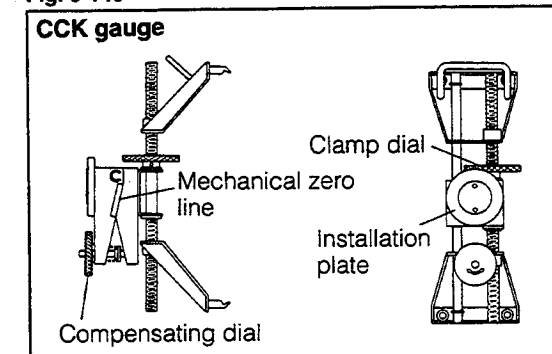


Fig. 5-141

WR-05144

- Jack up the vehicle.
- Before installing the CCK gauge to the wheel, set the CCK gauge compensator to the mechanical zero line by turning the compensating dial of the compensator.

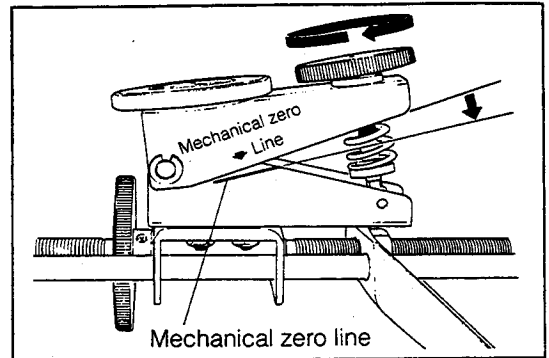


Fig. 5-142

WR-05145

- While turning the clamp dial of the CCK gauge compensator, hook the four pawls to the wheel edges securely. While pushing the compensator, lock the compensator positively by turning the clamp dial.

NOTE:

In order to prevent the wheel edges from being scratched, affix tapes or the like on the wheel edge sections to which the four pawls of the compensator are hooked.

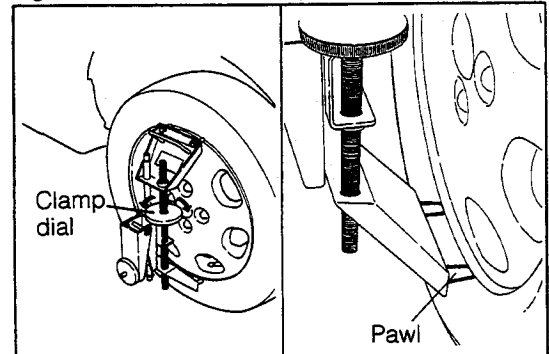


Fig. 5-143

WR-05146

- Set the camber caster and kingpin gauge to the installation plate of the CCK gauge compensator. At this point, align the set lines on the gauge and compensator with each other.

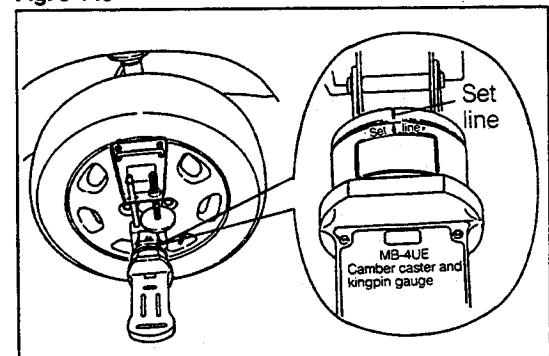


Fig. 5-144

WR-05147

- Turn the wheel so that the level air bubble in the gauge may come to the central position. At this position, turn the caster adjusting screw of the gauge so that the caster air bubble may be aligned with the graduation zero position.

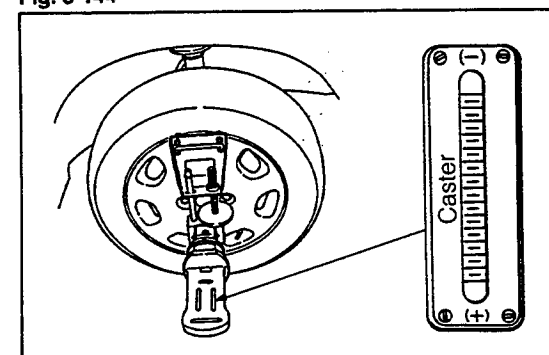


Fig. 5-145

WR-05148

- Turn the wheel 180 degrees so that the gauge may be turned over. Proceed to align the set lines on the gauge and compensator with each other. Next, turn the wheel so that the level air bubble in the gauge may come to the central position.

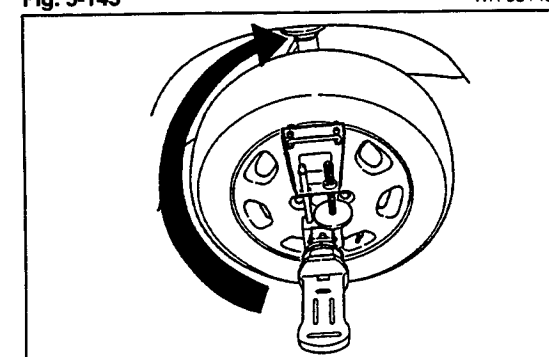


Fig. 5-146

WR-05149

FRONT AXLE & SUSPENSION

- Record the caster reading of the gauge. Turn the compensating dial of the compensator so that it may be aligned with the 1/2 of the recorded caster reading.

NOTE:

Be sure not to tamper the caster adjusting screw of the gauge.

- Repeat the steps described in Fig 5-86 and Fig. 5-87.
Ensure that the air bubble of the caster gauge registers the same reading when the wheel is turned 180 degrees in a normal direction and in a reversed direction.
- Jack down the wheel on the turning radius gauge. Rock the vehicle in an up-and-down direction so as to settle the suspension.

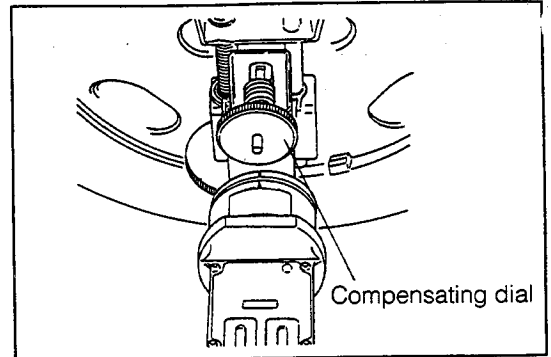


Fig. 5-147

WR-05150

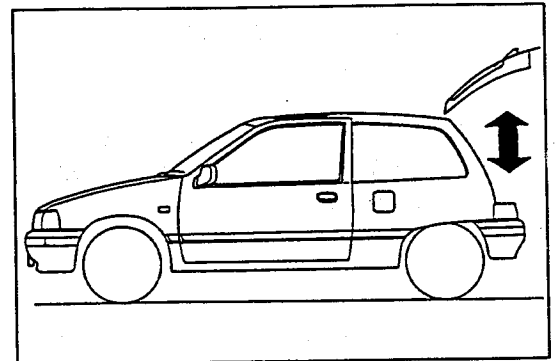


Fig. 5-148

WR-05151

(4) Camber check

- Ensure that the wheels are in their straight-ahead conditions.
- Align the level air bubble with the central position.
- Take the camber reading of the gauge.

Specified Value: $0^{\circ}20' \pm 1^{\circ}$

$0^{\circ}20' + 40'$
 $- 20'$

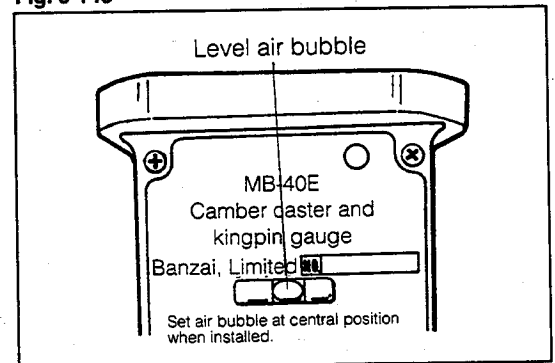


Fig. 5-149

WR-05152

(5) Checking caster and kingpin angles

(Right wheel)

- Turn the steering wheel to the right side, until the right front tire comes at a point where the turning radius gauge registers 20 degrees.
- Turn each of the caster and kingpin adjusting screws so that the respective air bubble may be aligned with the zero point.
- Turn the steering wheel to the left side, until the right front tire comes at a point where the turning radius gauge registers 20 degrees.
- Take the gauge readings of the caster and kingpin angles.

Specified Value: Caster $2^{\circ}55' \pm 1^{\circ}$

Kingpin angle $12^{\circ} \pm 30'$

(Left wheel)

- Perform the check, following the same procedure as with the right wheel. However, the turning direction of the steering wheel must be reversed.

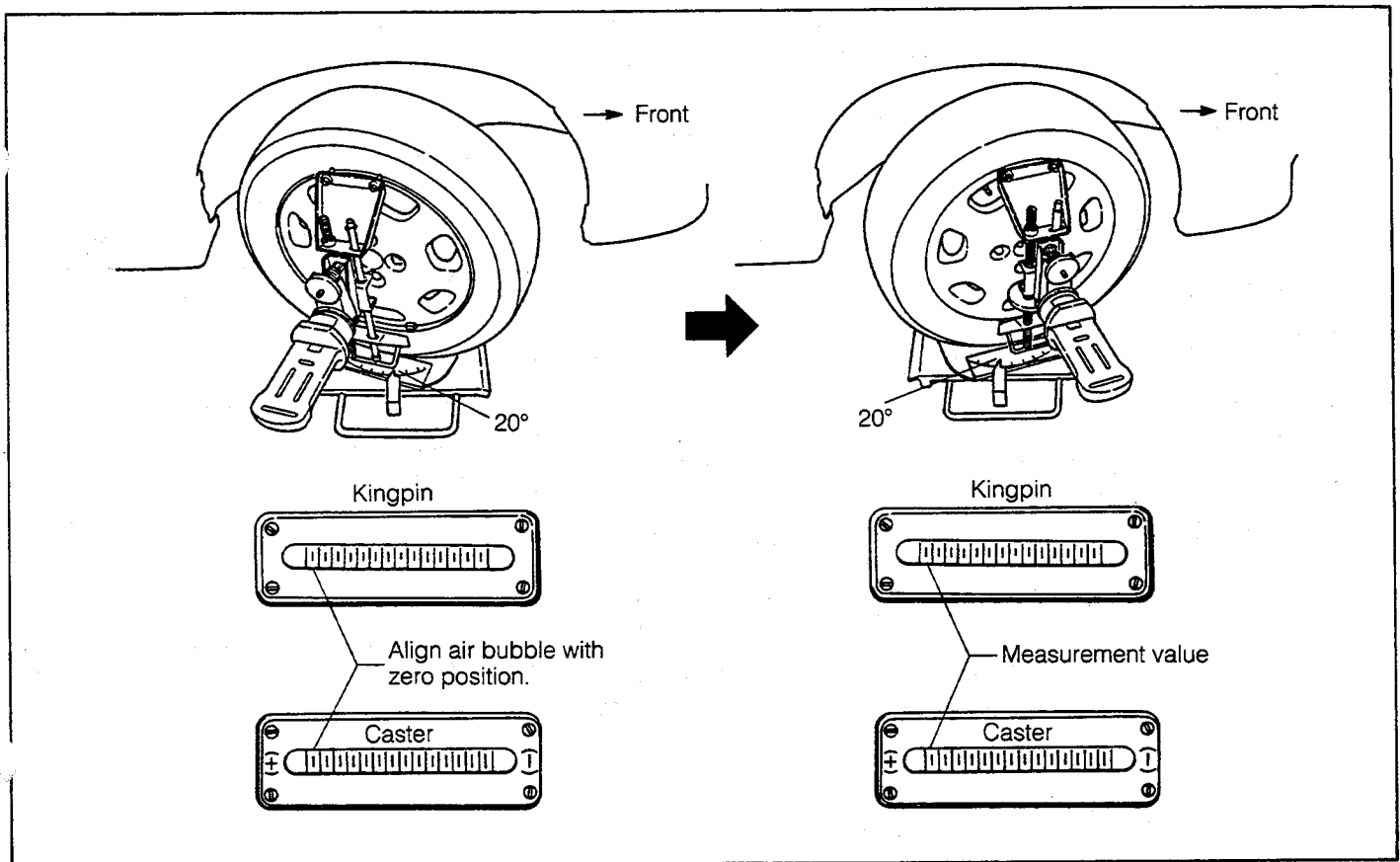


Fig. 5-150

WR-05153

5. Toe-In Measurement

- (1) Rock the vehicle so that the vehicle height may stabilize.
- (2) Move the vehicle forward about five meters so that the front wheels may become in their straight-ahead conditions.

NOTE:

Do not move the vehicle backward during the measurement.

- (3) Align the height of the toe-in gauge pointers with the center height of the front wheels.
- (4) Put a mark on the tread center of each front wheel tire at the rear side. Measure the distance between the two marks (Dimension A) in the figure.

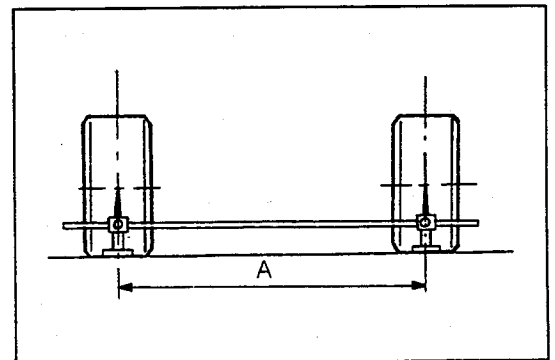


Fig. 5-151

WR-05154

FRONT AXLE & SUSPENSION

- (5) Slowly move the vehicle forward by pushing the vehicle, until the wheels turn 180 degrees.

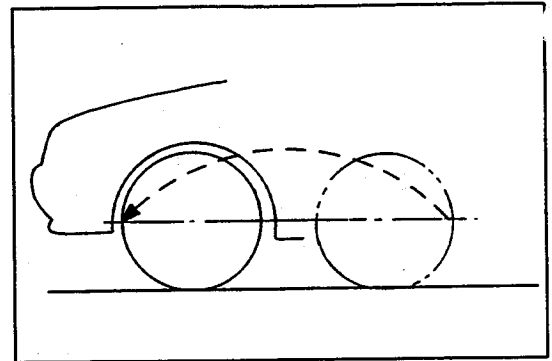


Fig. 5-152

WR-05155

- (6) Measure the distance (Dimension B) between the two marks which were put in the preceding step. This measurement is performed at the front side of the vehicle.

Calculate the amount of toe-in, i.e. (Dimension A - Dimension B).

Specified Value: $-1 - +3$ mm ($-0.04 - +0.12$ inch)

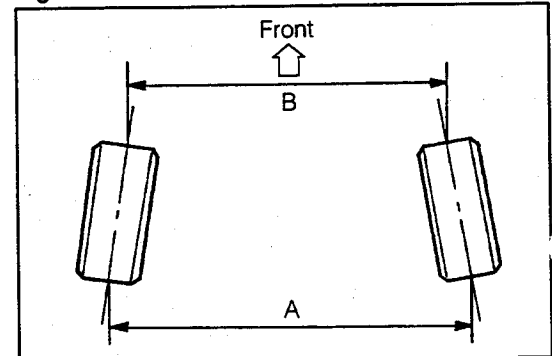


Fig. 5-153

WR-05156

6. Toe-In Adjustment

- (1) Slacken the lock nuts of the tie rod ends.
- (2) Perform the toe-in adjustment by turning the tie rod ends.

NOTE:

- Care must be exercised to ensure that the boot is not twisted during the adjustment.
- When adjusting the toe-in, the tie rods at the right and left sides should be turned by the same amount.
- The length indicated in the right figure must be the same amount.

(If the length differs between the right and left sides, a difference occurs in the wheel turning angle between the right and left sides.)

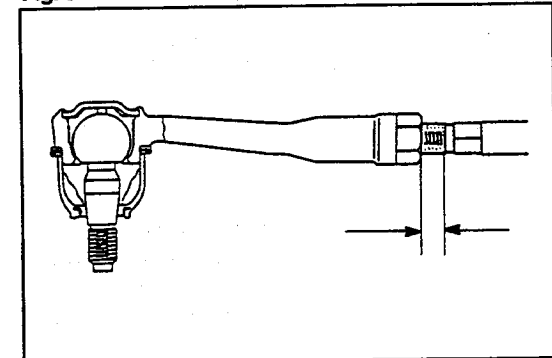


Fig. 5-154

WR-05157

7. Sideslip Check

Check the sideslip, using a sideslip tester.

Specified Value: $-3 - +3$ mm ($-0.12 - +0.12$ inch)

Per 1 meter (3.28 ft)

WR-05158

$-4 \sim +4$

CHECK AND ADJUSTMENT OF REAR TOE-IN

1. Toe-In Check

- (1) Rock the vehicle so that the vehicle height may stabilize.
- (2) Move the vehicle forward about five meters so that the front wheels may become in their straight-ahead conditions.
- (3) Align the height of the toe-in gauge pointers with the center height of the rear wheels.
- (4) Put a mark on the tread center of each rear wheel tire at the rear side. Measure the distance between the two marks (Dimension A) in the figure.

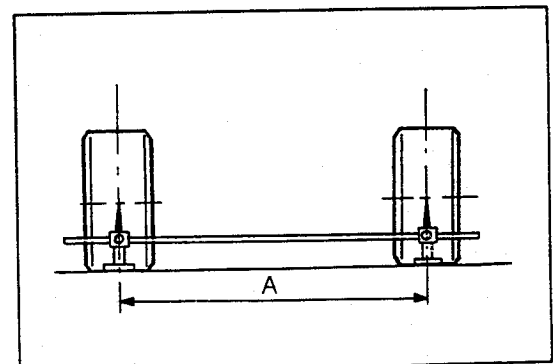


Fig. 5-155

WR-05159

- (5) Slowly move the vehicle forward by pushing the vehicle, until the wheels turn 180 degrees.

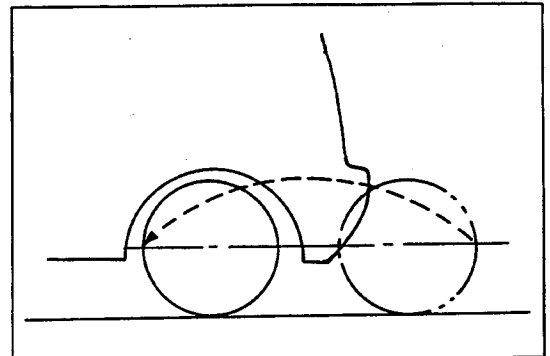


Fig. 5-156

WR-05160

- (6) Measure the distance (Dimension B) between the two marks which were put in the preceding step. This measurement is performed at the front side of the rear wheels.
- (7) Calculate the amount of toe-in, i.e. (Dimension A – Dimension B).
- Specified Value: +4 - +8 mm (+0.16 - +0.31)**

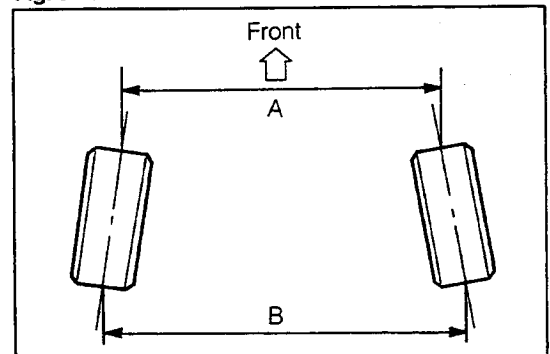


Fig. 5-157

WR-05161

2. Toe-In Adjustment

- (1) Slacken the set bolt of the toe adjusting cam.

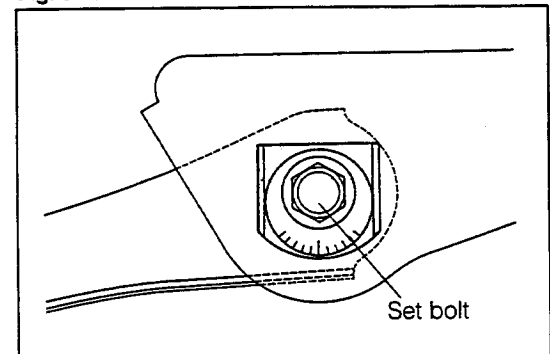


Fig. 5-158

WR-05162

- (2) Insert a hexagon wrench key into the hexagonal hole provided at the back side of the toe adjusting cam. Turn the hexagon wrench key.
(Inside: IN, Outside: OUT)

(Reference)

When each of the adjusting cams provided at both sides is turned by one graduation, the toe-in will change approximately 5 mm (0.20 inch).

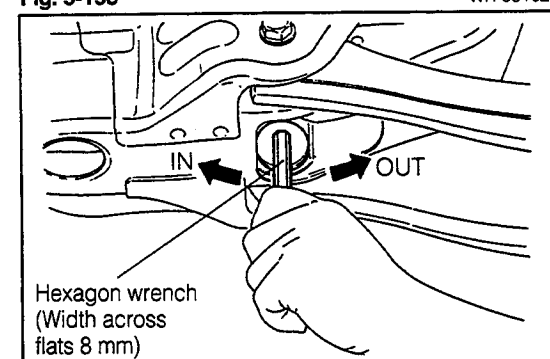


Fig. 5-159

WR-05163

3. Sideslip Check

Check the sideslip, using a sideslip tester.

Specified Value: 1 - 7 mm (-0.04 - 0.28 inch)
Per 1 meter (3.28 ft)