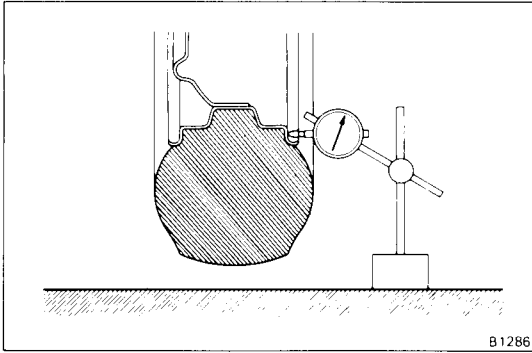


REAR AXLE AND SUSPENSION

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TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Oil leak at pinion shaft	Oil level too high or wrong grade Oil seal worn or damaged Companion flange loose or damaged	Drain and replace oil Replace oil seal Tighten or replace flange	RA-23 RA-23
Oil leak at side gear shaft	Oil level too high or wrong grade Oil seal worn or damaged Side gear shaft damaged	Drain and replace oil Replace oil seal Replace shaft	RA-26 RA-26
Noises in rear axle	Oil level low or wrong grade Excessive backlash between pinion and ring or side gear Ring gear worn or chipped Pinion or side gears worn or chipped Pinion shaft bearing worn Side bearing worn Differential bearing loose or worn	Drain and replace oil Check backlash Inspect gear Inspect gears Replace bearing Replace bearing Tighten or replace bearings	RA-28 RA-31 RA-43, 46, 49 RA-30 RA-31 RA-39
Bottoming	Vehicle overloaded Shock absorber worn out Springs weak	Check loading Replace shock absorber Replace spring	RA-56 RA-56



REAR WHEEL ALIGNMENT

1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

(a) Check the tires for wear, size and proper inflation. (See page FA-3)

(b) Check the wheel runout.

Lateral runout: Less than 1.2 mm (0.047 in.)

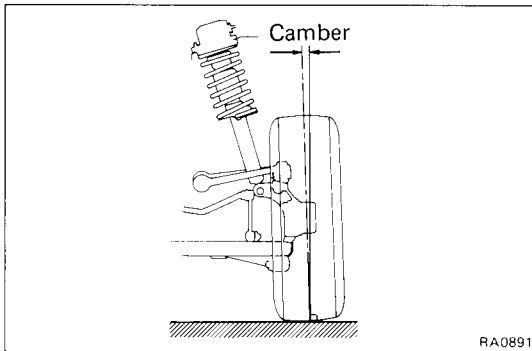
(c) Check the rear suspension for looseness.

(d) Check that the rear shock absorber and coil spring function properly by using the standard bounce test.

2. MEASURE VEHICLE HEIGHT

(See page FA-3)

If the height of the vehicle is not at standard, try to level the vehicle by shaking it down. If still not correct, check for bad springs and worn or loose suspension parts.



3. INSPECT CAMBER

Inspect right and left side camber.

Inspection STD: $-45' \pm 45'$

Left-right error: 30'

If not within specification, inspect any damaged or worn rear suspension parts and replace if necessary.

HINT: Since adjustment of camber and toe-in are done together, adjust both after measuring the toe-in.

4. INSPECT TOE-IN

(See page FA-6)

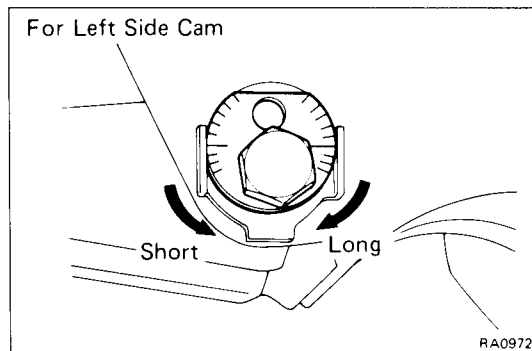
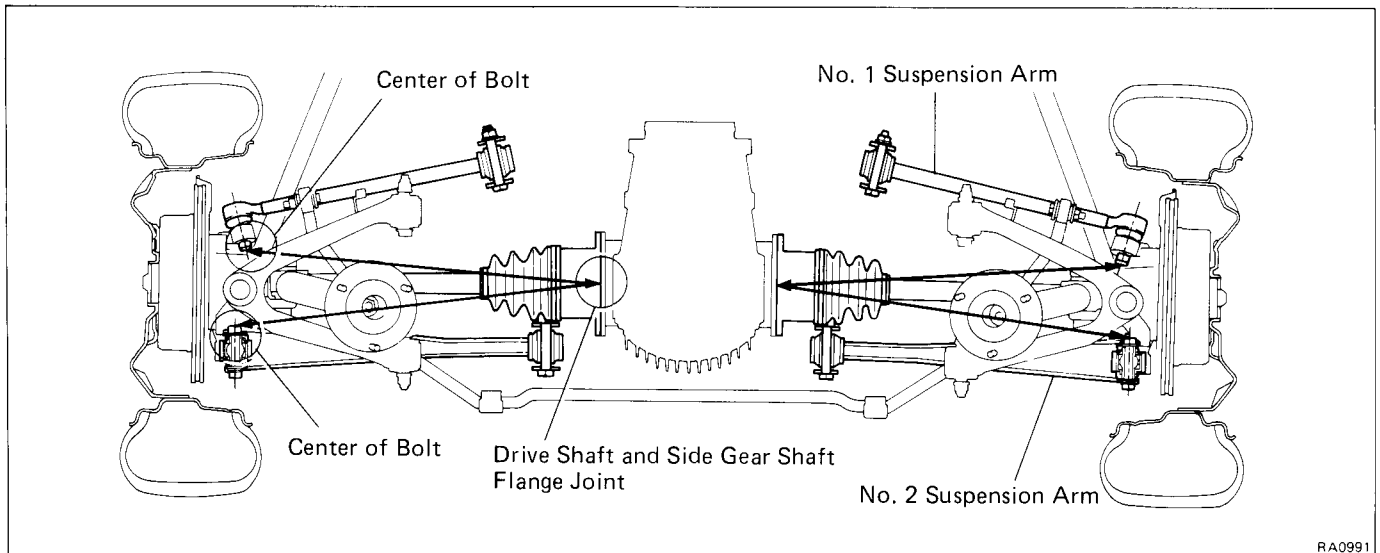
Toe-in:

Inspection STD 4 ± 2 mm (0.16 ± 0.08 in.)

If toe-in not within specification, adjust by the cam.

5. ADJUST CAMBER AND TOE-IN

- (a) Measure the length of the No.1 and No.2 lower suspension arms as shown in the illustration. Check that the lengths of right side and left side lengths are equal.



If not, by turning the adjusting cam, adjust the length of the arm until the left and right side lengths are equal.

- (b) Measure the camber and toe-in.

If camber and toe-in is still not within specification, adjust the camber and toe-in with adjusting cam.

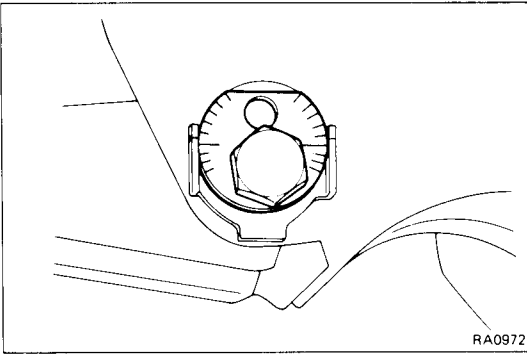
Toe-in:

Adjustment STD 4 ± 1 mm (0.16 ± 0.04 in.)

Camber:

Adjustment STD $-45' \pm 30'$

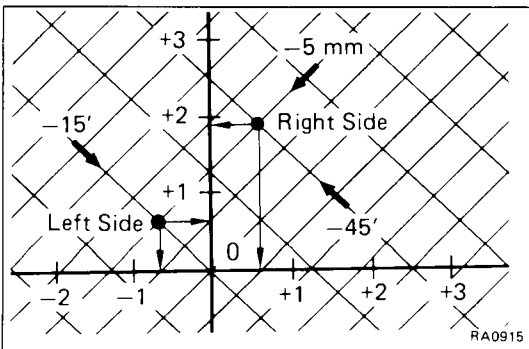
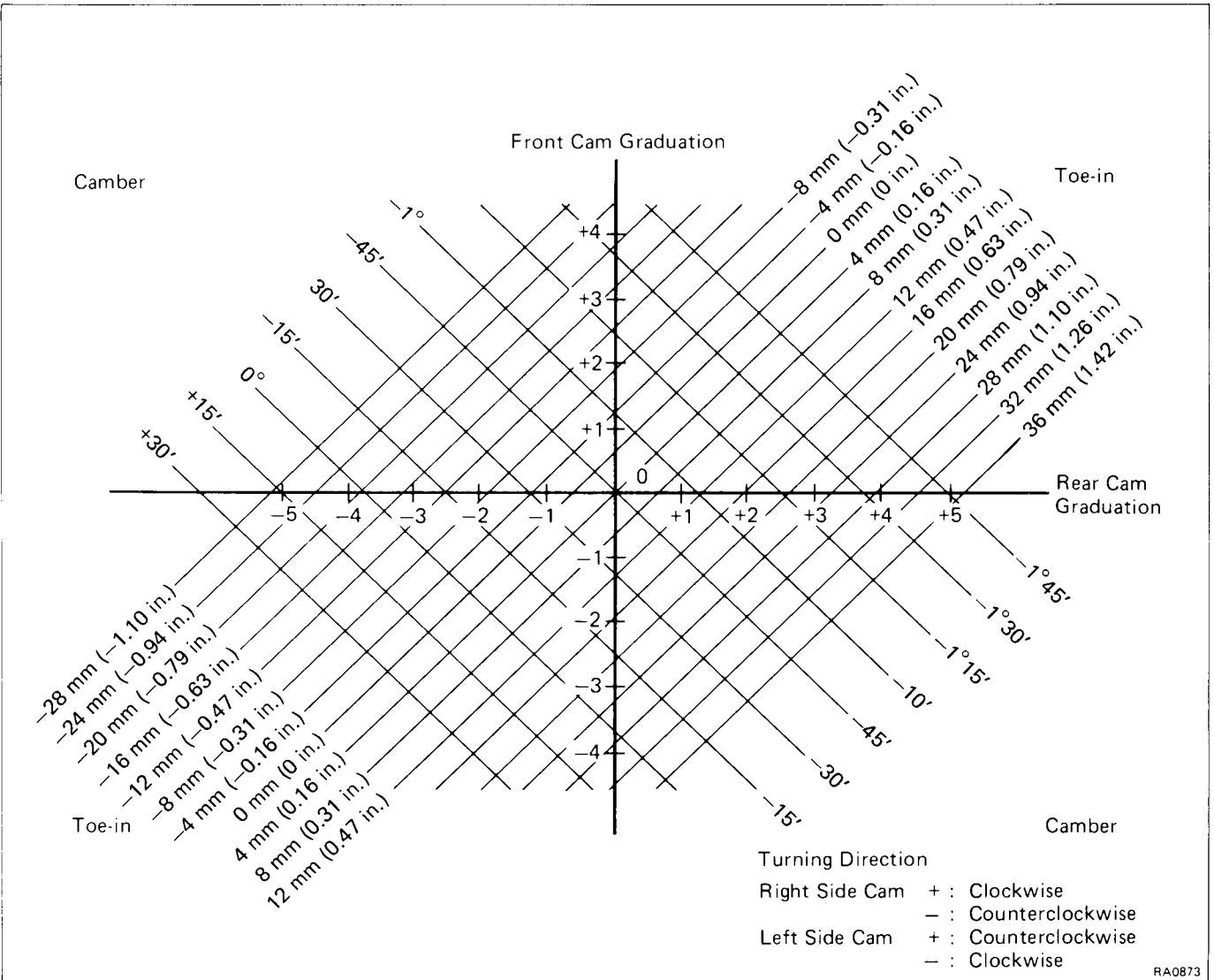
Left-right error $30'$



ADJUSTMENT CHART

How to read this chart

Mark the camber and toe-in measurements on the chart and then trace the lines to where they intersect. From that point, as shown in the example below, read the numbers from the graduation for the amounts to turn the front and rear cams.



Example

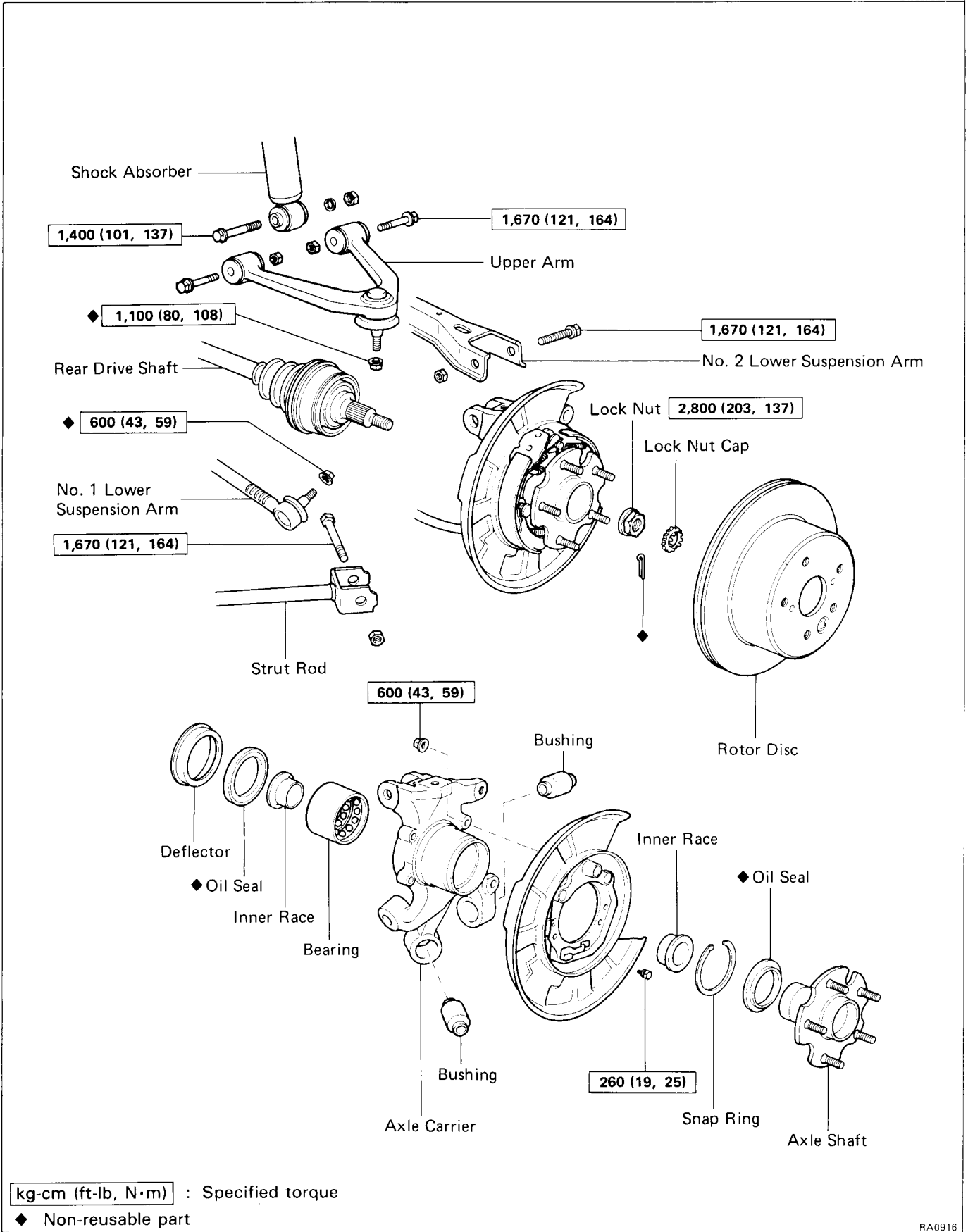
Measurements:

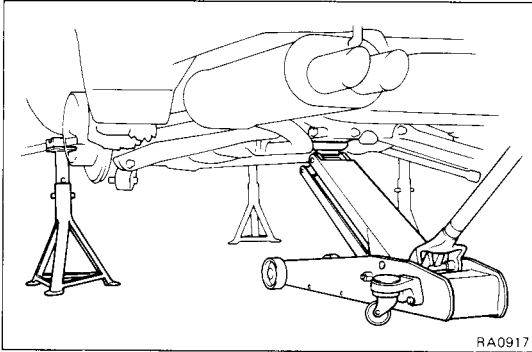
- Toe-in -4 mm (-0.16 in.)
- Camber (Right side) -1°15'
- (Left side) -45'

Amount to turn adjusting cam (by graduation):

- Right side (Front cam) +1.9 (clockwise)
- (Rear cam) +0.6 (clockwise)
- Left side (Front cam) +0.7 (counterclockwise)
- (Rear cam) -0.7 (clockwise)

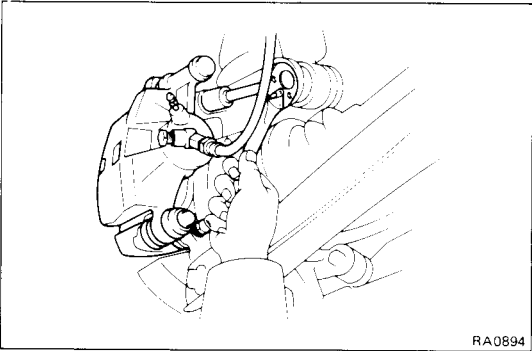
REAR AXLE HUB COMPONENT





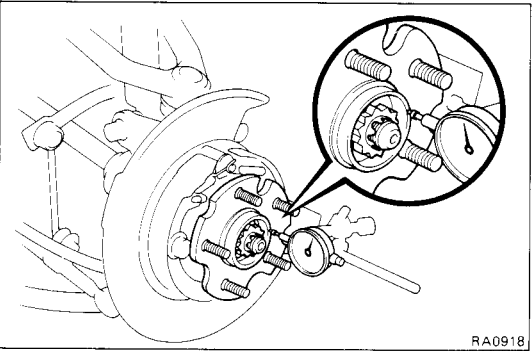
REMOVAL OF REAR AXLE HUB

1. **JACK UP AND SUPPORT VEHICLE AND REMOVE WHEEL**



2. **REMOVE BRAKE CALIPER**

Remove the brake caliper from the axle carrier and suspend it with wire.



3. **REMOVE ROTOR DISC**
(See page BR-39)

4. **CHECK BEARING PLAY IN AXIAL DIRECTION**

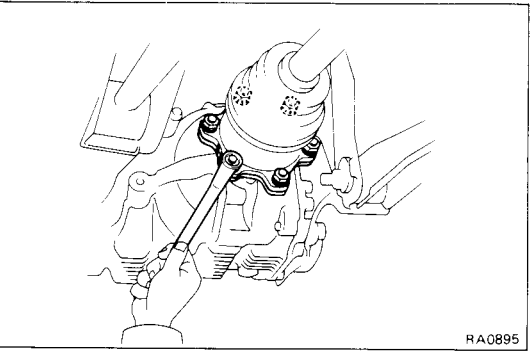
Limit: 0.05 mm (0.0020 in.)

If not within specification, disassemble and inspect axle hub.

5. **CHECK AXLE SHAFT FLANGE RUNOUT**

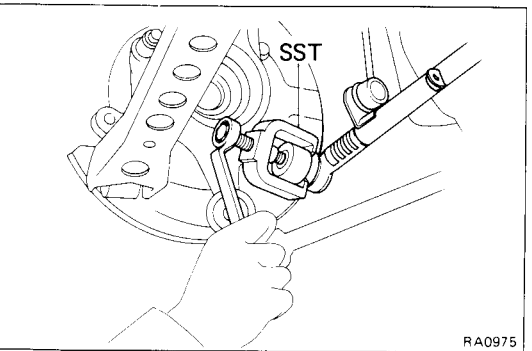
Limit: 0.05 mm (0.0020 in.)

If not within specification, replace the axle shaft.



6. **REMOVE REAR DRIVE SHAFT**
(See page RA-16)

7. **REMOVE PARKING BRAKE ASSEMBLY**
(See page BR-39)

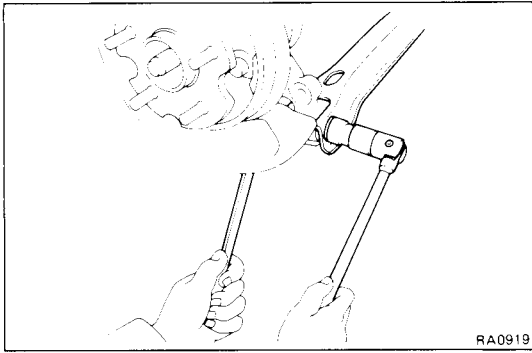


8. **DISCONNECT NO.1 LOWER SUSPENSION ARM FROM AXLE CARRIER**

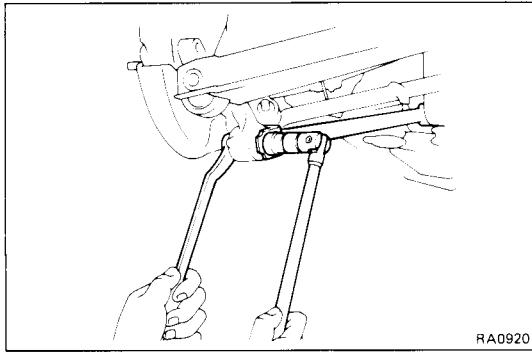
(a) Remove the nut from axle carrier.

(b) Using SST, disconnect the No. 1 lower suspension arm from the axle carrier.

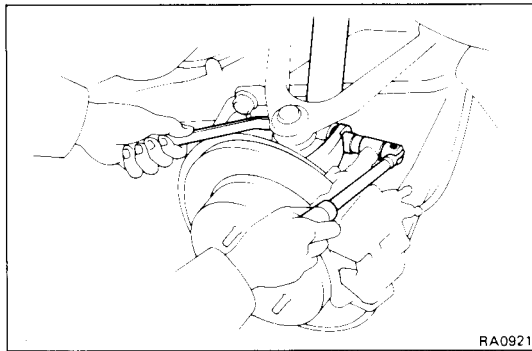
SST 09611-22012



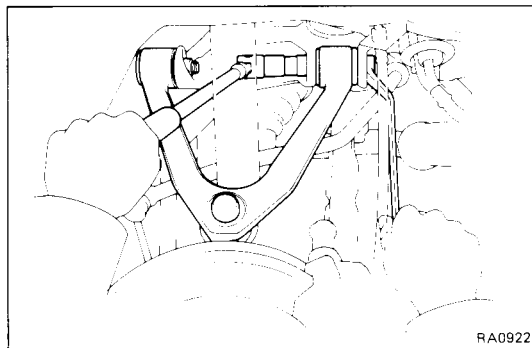
9. DISCONNECT NO.2 LOWER SUSPENSION ARM FROM AXLE CARRIER



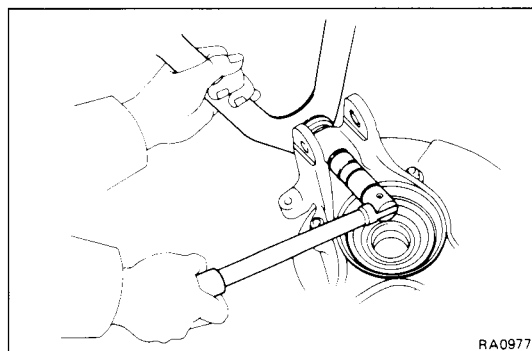
10. DISCONNECT STRUT ROD FROM AXLE CARRIER



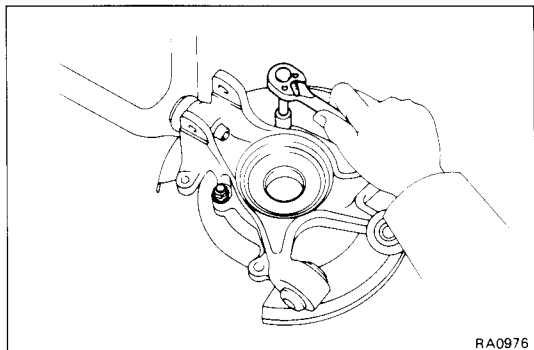
11. DISCONNECT SHOCK ABSORBER FROM AXLE CARRIER



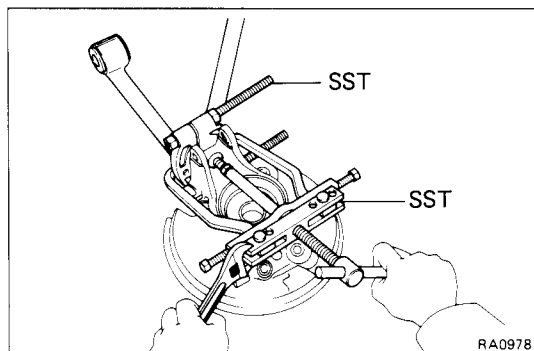
12. DISCONNECT UPPER ARM FROM BODY AND REMOVE AXLE HUB ASSEMBLY



13. REMOVE UPPER ARM FROM AXLE CARRIER
(a) Remove the upper arm mounting nut.

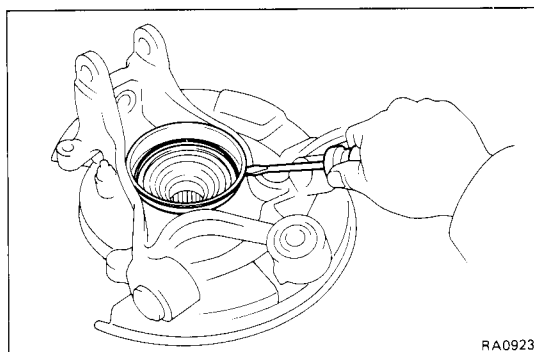


(b) Separate the backing plate and axle carrier.



(c) Using SST, remove the upper arm from the axle carrier.

SST 09950-00020, 09950-20017

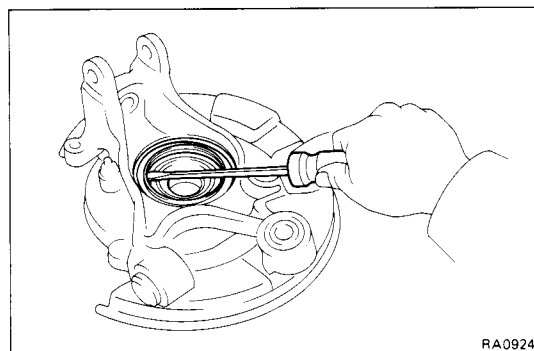


DISASSEMBLY OF REAR AXLE HUB

(See page RA-6)

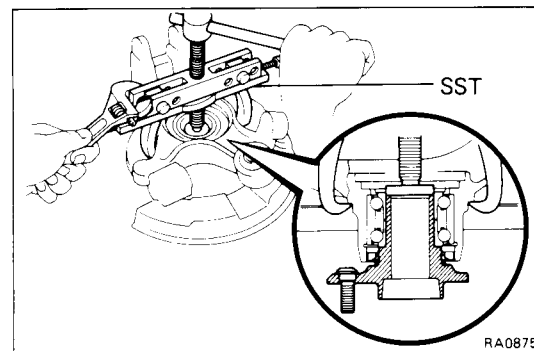
1. REMOVE DUST DEFLECTOR

Using a screwdriver, remove the deflector from the axle caliper.



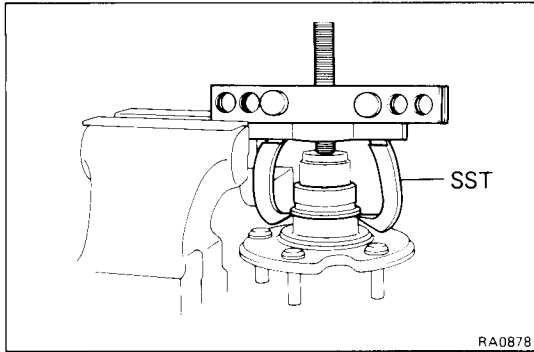
2. REMOVE INNER OIL SEAL

Using a screwdriver, remove the inner oil seal.



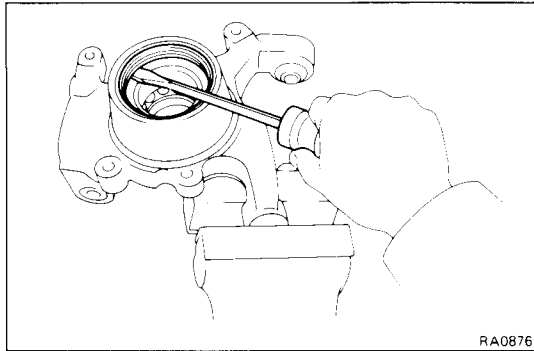
3. REMOVE AXLE SHAFT FROM AXLE CARRIER

(a) Using SST, remove the axle shaft from the axle carrier.
SST 09950-20017



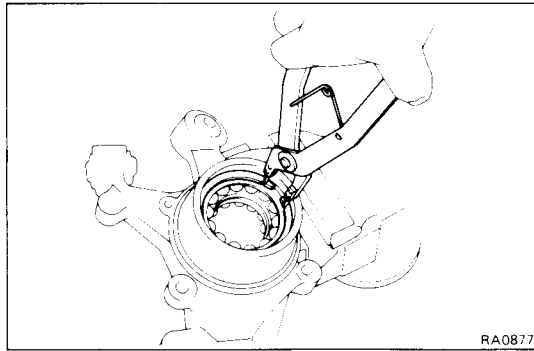
- (b) Using SST, remove the bearing inner race (outside) from the axle hub.

SST 09950-20017



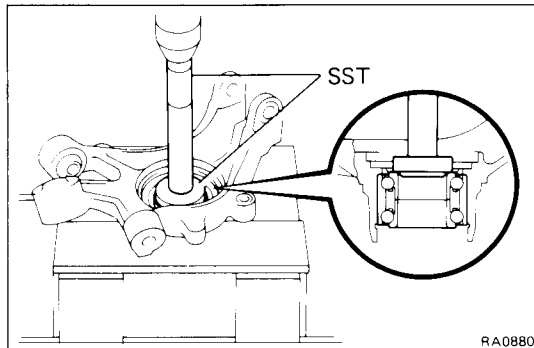
4. REMOVE OUTER OIL SEAL

- Using a screwdriver, remove the oil seal from the axle carrier.



5. REMOVE BEARING

- (a) Using snap ring pliers, remove the snap ring.

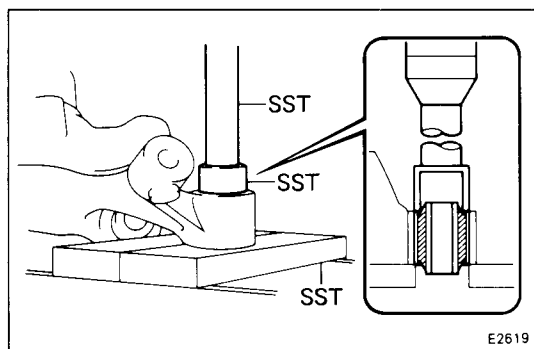


- (b) Using SST, press out the bearing outer race from the axle carrier.

SST 09608-35014 (09608-06020, 09608-06100)

NOTICE: Always replace the bearing as an assembly.

- (c) Remove the bearing inner race (inside) and two bearings from the bearing outer race.

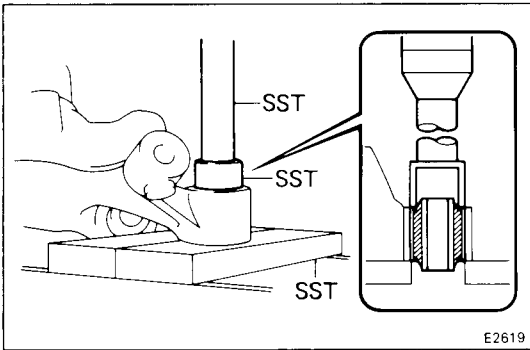


6. IF NECESSARY, REPLACE LOWER CONTROL ARM BUSHING

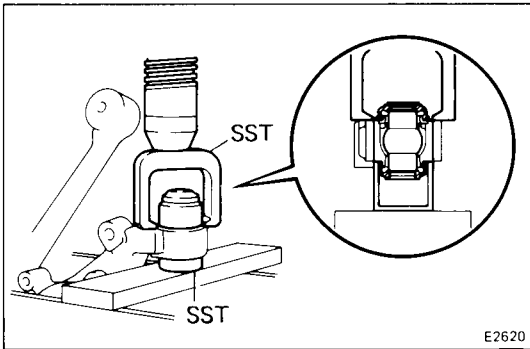
- (a) Using SST, press out the lower control arm bushing.

SST 09527-20011

09710-14012 (09710-00030, 09710-00050)

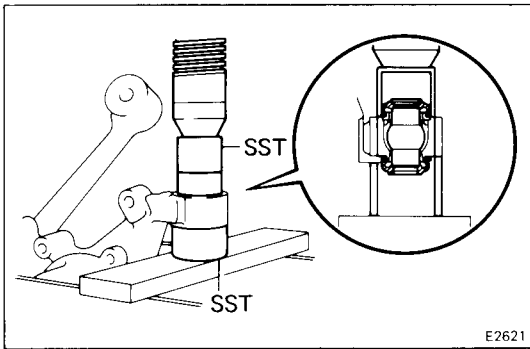


- (b) Using SST, press in a new lower control arm bushing.
SST 09527-20011
09710-14012 (09710-00030, 09710-00050)

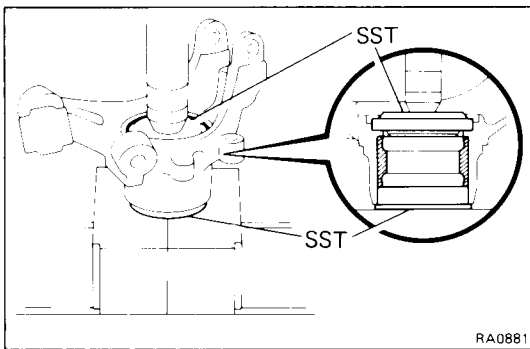


7. IF NECESSARY, REPLACE LOWER BALL BUSHING

- (a) Using SST, press out the lower ball bushing.
SST 09710-30020 (09710-03040, 09710-03070)



- (b) Using SST, press in a new lower ball bushing.
SST 09710-30020 (09710-03070, 09710-03100)

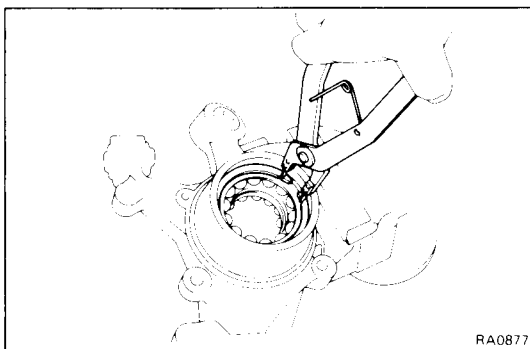


ASSEMBLY OF REAR AXLE HUB

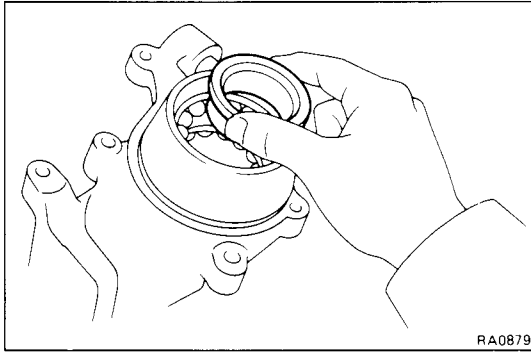
(See page RA-6)

1. INSTALL BEARING

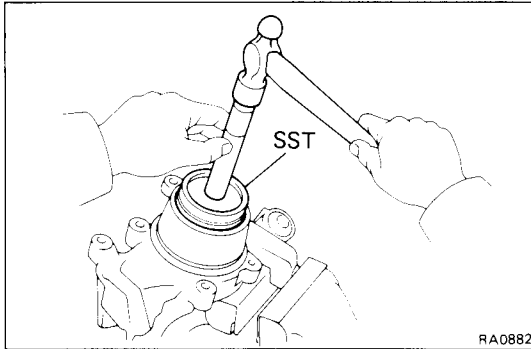
- (a) Using SST, press in a new bearing outer race to the axle carrier.
SST 09608-32010, 09608-35014 (09608-06180)



- (b) Install a new bearing into the bearing outer race.
- (c) Using snap ring pliers, install the snap ring.

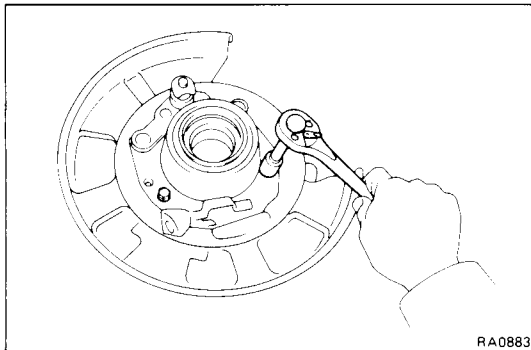


- (d) Coat the bearings and hub inside with MP grease.
- (e) Install two new bearing inner races.



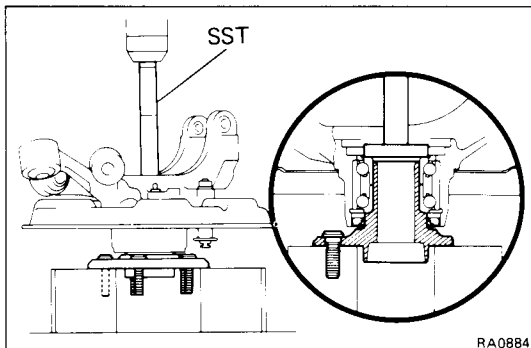
2. INSTALL OUTER OIL SEAL

- (a) Using SST, drive in a new oil seal to the axle carrier.
SST 09608-32010
- (b) Apply MP grease between the oil seal lip and oil seal.



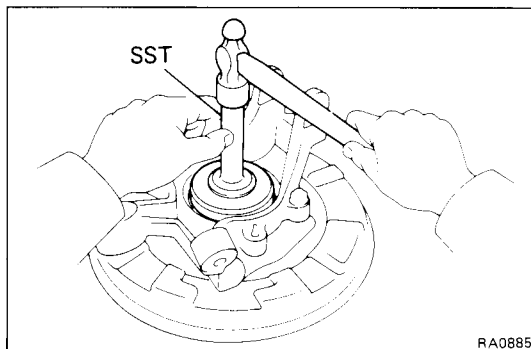
3. INSTALL BACKING PLATE TO AXLE CARRIER

- Torque: Nut 600 kg-cm (43 ft-lb, 59 N·m)
Bolt 260 kg-cm (19 ft-lb, 25 N·m)



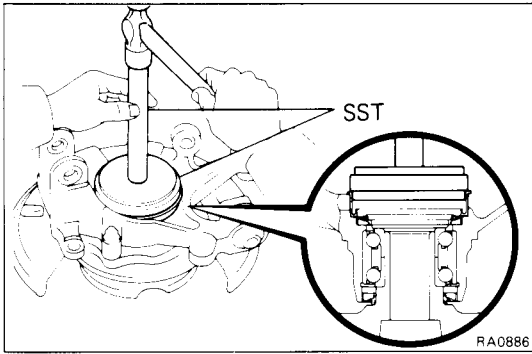
4. INSTALL AXLE SHAFT

- Using SST, install the axle shaft to the axle carrier.
SST 09608-35014 (09608-06020, 09608-06180)



5. INSTALL INNER OIL SEAL

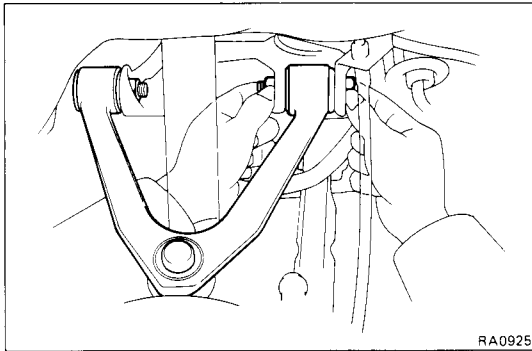
- (a) Using SST, drive in a new oil seal to the axle carrier.
SST 09223-15010
- (b) Apply MP grease between the oil seal lip, oil seal and bearing.



6. INSTALL DUST DEFLECTOR

Using SST, drive in a new dust deflector into the axle carrier.

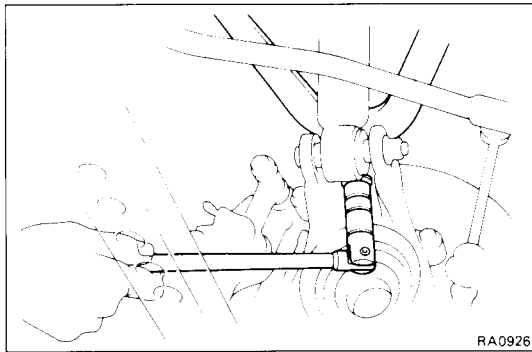
SST 09218-56020, 09608-35014 (09608-06020)



INSTALLATION OF REAR AXLE HUB

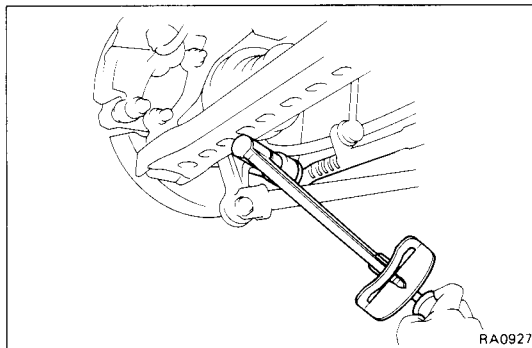
(See page RA-6)

1. TEMPORARILY CONNECT UPPER ARM TO BODY



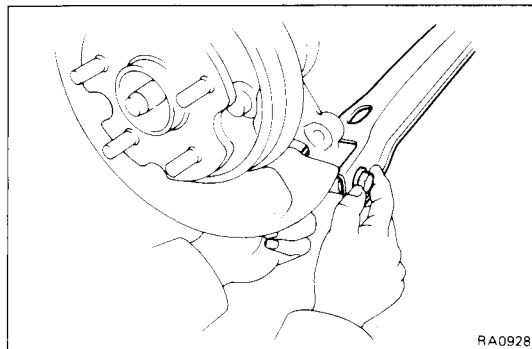
2. TEMPORARILY CONNECT AXLE HUB ASSEMBLY TO UPPER ARM

Temporarily install a new nut.

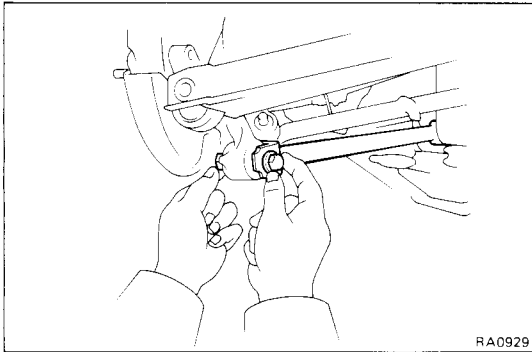


3. CONNECT NO.1 LOWER SUSPENSION ARM

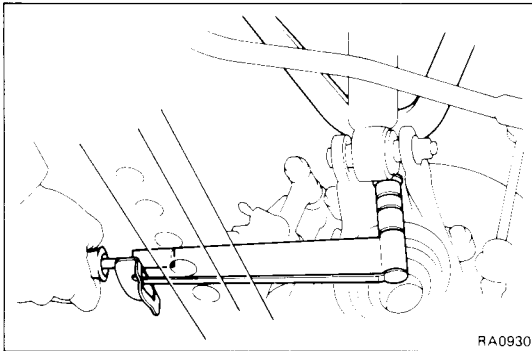
Torque: 600 kg-cm (43 ft-lb, 59 N·m)



4. TEMPORARILY CONNECT NO.2 LOWER SUSPENSION ARM

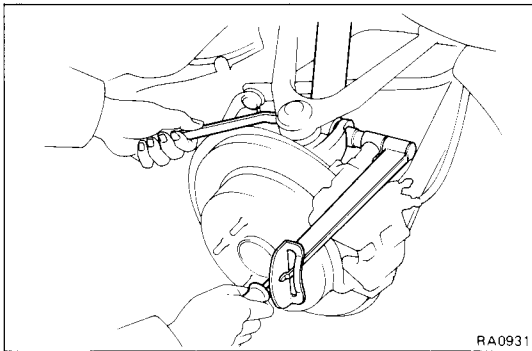


5. TEMPORARILY CONNECT STRUT ROD



6. TORQUE UPPER ARM MOUNTING NUT

Torque: 1,100 kg-cm (80 ft-lb, 108 N·m)



7. CONNECT SHOCK ABSORBER

Torque: 1,400 kg-cm (101 ft-lb, 137 N·m)

8. INSTALL PARKING BRAKE ASSEMBLY

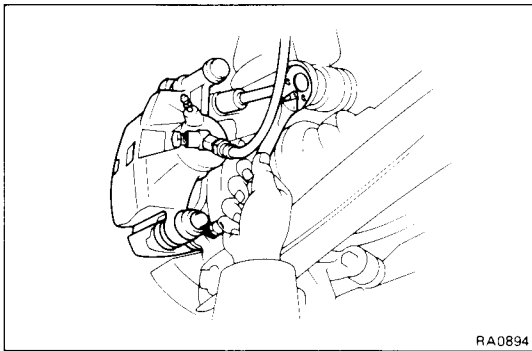
(See page BR-43)

9. INSTALL ROTOR DISC

(See page BR-45)

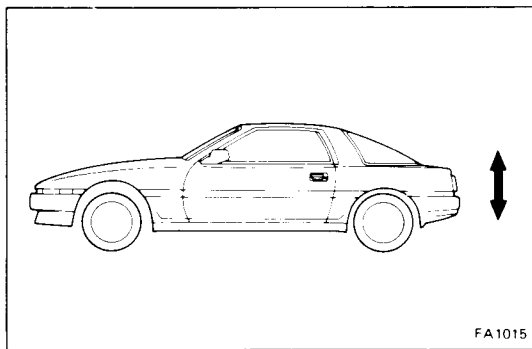
10. INSTALL REAR DRIVE SHAFT

(See page RA-21)



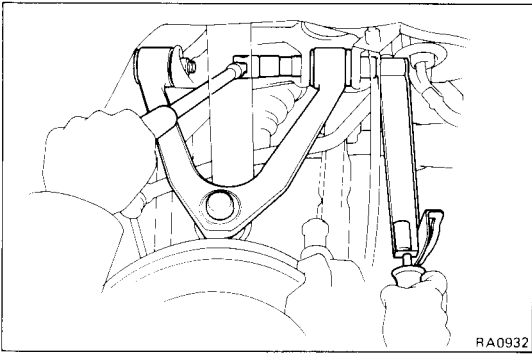
11. INSTALL BRAKE CALIPER

Torque: 475 kg-cm (34 ft-lb, 47 N·m)



12. TORQUE SUSPENSION PARTS

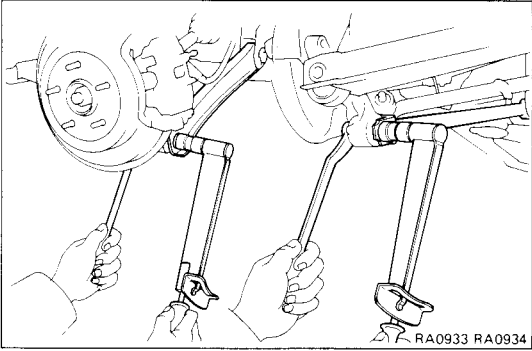
- (a) Install the wheel and lower the vehicle.
- (b) Bounce the vehicle up and down to stabilize the suspension.



(c) Torque the suspension mounting bolts and nuts with the vehicle weight on the suspension.

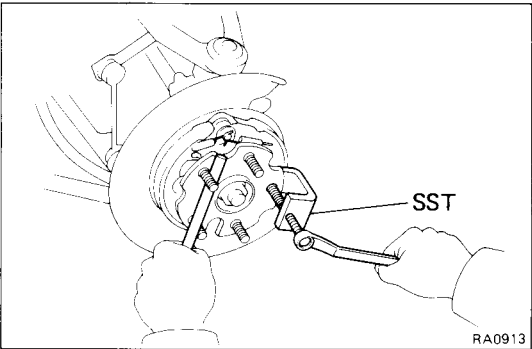
Torque:

Upper arm × body
1,670 kg-cm (121 ft-lb, 164 N·m)



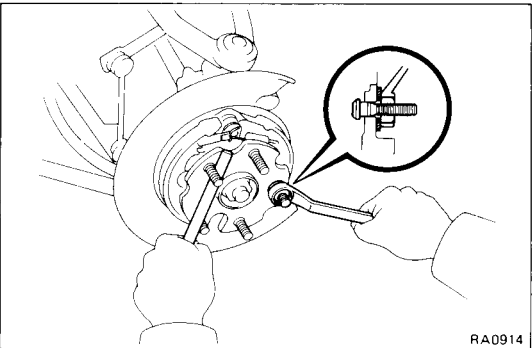
No.2 lower suspension arm × axle carrier
1,670 kg-cm (121 ft-lb, 164 N·m)

Strut rod × axle carrier
1,670 kg-cm (121 ft-lb, 164 N·m)

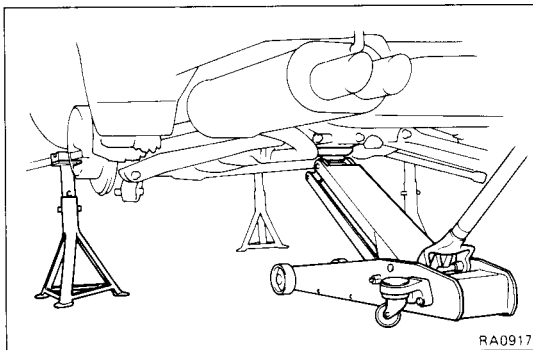
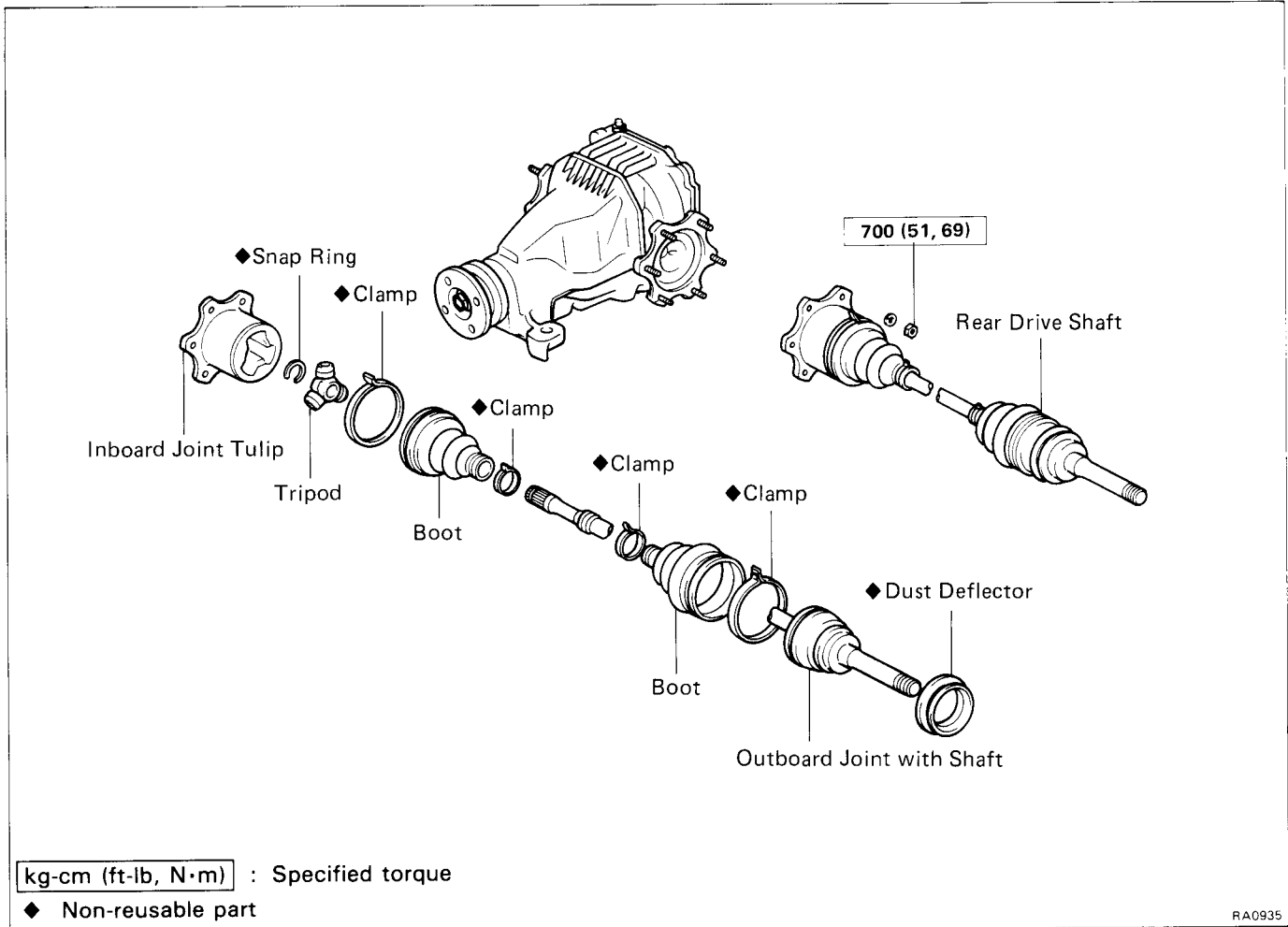


REPLACEMENT OF REAR AXLE HUB BOLT

1. JACK UP AND SUPPORT VEHICLE
2. REMOVE WHEEL, BRAKE CALIPER AND ROTOR DISC
3. REMOVE HUB BOLT
Using SST, remove the hub bolt.
SST 09650-17011
4. INSTALL HUB BOLT
Using a washer and nut(10 mm), install the new hub bolt.
5. INSTALL ROTOR DISC AND BRAKE CALIPER
Torque: 475 kg-cm (34 ft-lb, 47 N·m)
6. INSTALL WHEEL

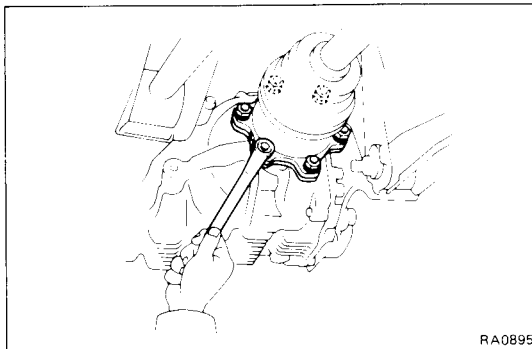


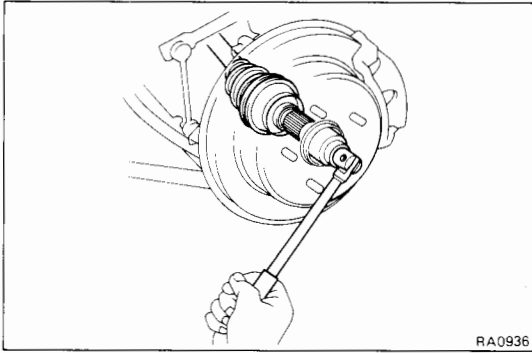
REAR DRIVE SHAFT COMPONENTS



REMOVAL OF REAR DRIVE SHAFT

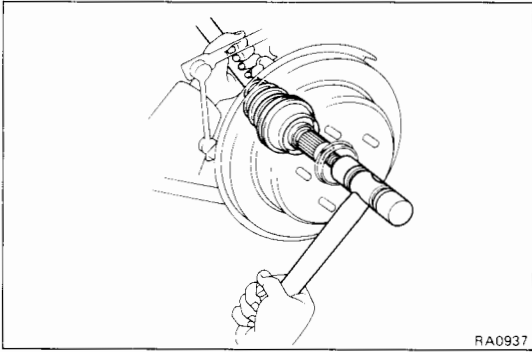
1. JACK UP AND SUPPORT VEHICLE
2. REMOVE WHEEL
3. DISCONNECT REAR DRIVE SHAFT FROM DIFFERENTIAL
 - (a) Using a jack, raise the No. 2 suspension arm until it is horizontal.
 - (b) Place the matchmarks to the rear drive shaft and side gear shaft flange.
 - (c) Remove the six nuts, while depressing the brake pedal.





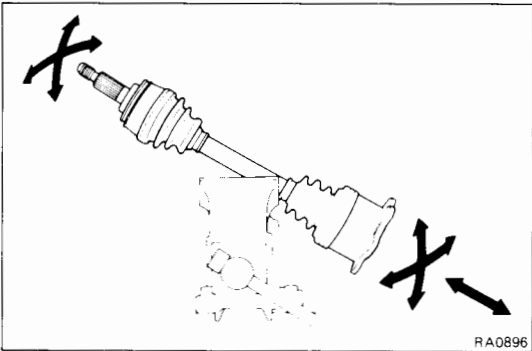
4. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT

- (a) Remove the cotter pin and lock nut cap.
- (b) Loosen the bearing lock nut while depressing the brake pedal.



5. REMOVE REAR DRIVE SHAFT

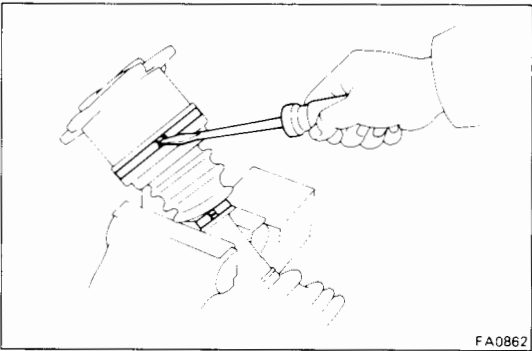
Using a plastic hammer, remove the rear drive shaft.



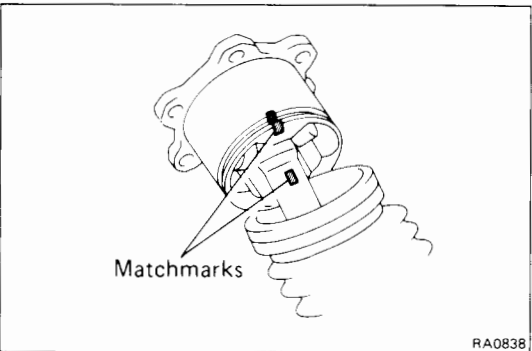
DISASSEMBLY OF REAR DRIVE SHAFT

1. CHECK REAR DRIVE SHAFT

- (a) Check to see there is no play in the inboard and outboard joints.
- (b) Check to see that the inboard joint slides smoothly in the thrust direction.
- (c) Check to see that there is no noticeable play in the radial direction of the universal joints.
- (d) Check the damage of the boot.



2. REMOVE INBOARD JOINT BOOT CLAMPS

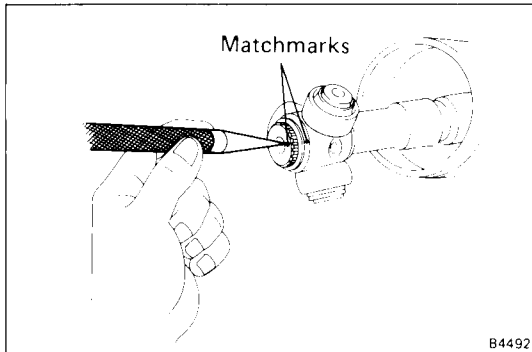


3. DISASSEMBLE INBOARD JOINT TULIP

- (a) Place matchmarks on the inboard joint tulip and tripod.

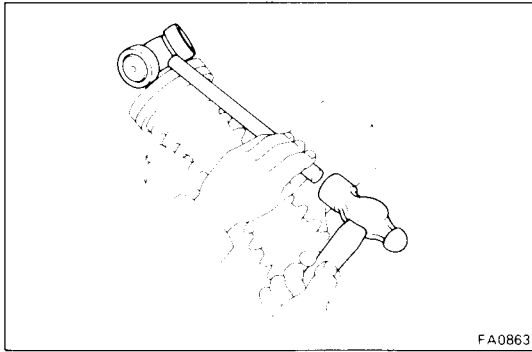
NOTICE: Do not punch the marks.

- (b) Remove the inboard joint tulip from the rear drive shaft.

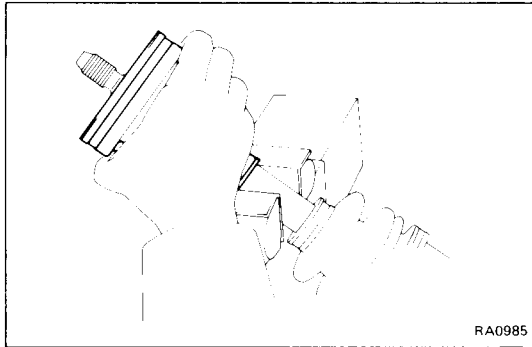


4. DISASSEMBLE TRIPOD JOINT

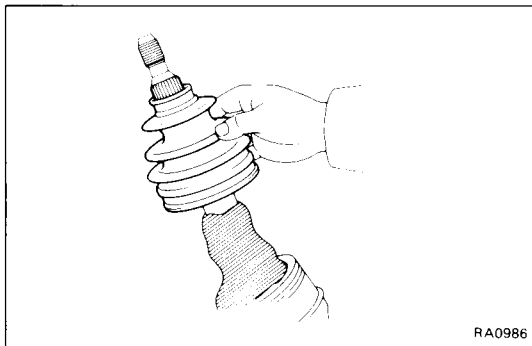
- (a) Using snap ring pliers, remove the snap ring.
- (b) Using a punch and hammer, place matchmarks on the shaft and tripod.



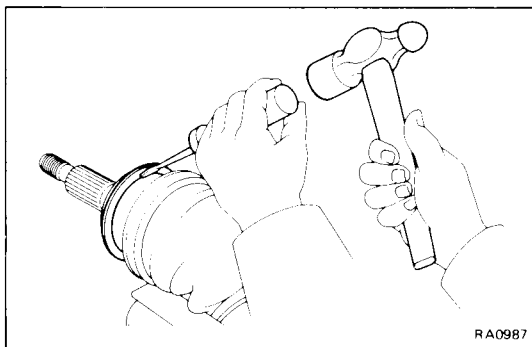
- (c) Using a brass bar and hammer, remove the tripod joint from the drive shaft.



5. REMOVE INBOARD JOINT BOOT



- #### 6. REMOVE OUTBOARD JOINT BOOT CLAMPS AND BOOT
- NOTICE:** Do not disassemble the outboard joint.



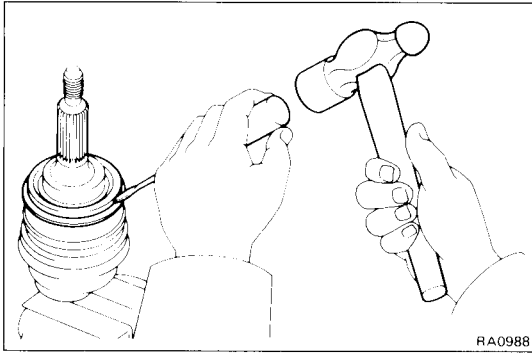
7. REMOVE DUST DEFLECTOR

Using a screwdriver and hammer, remove the dust deflector.

ASSEMBLY OF REAR DRIVE SHAFT

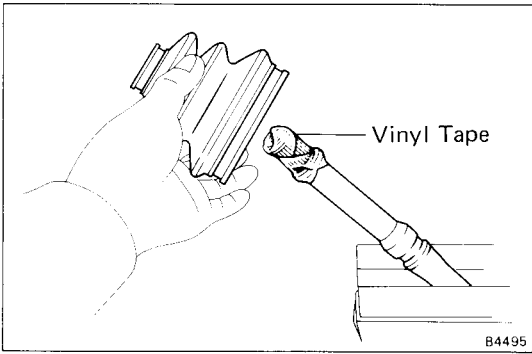
1. INSTALL DUST DEFLECTOR

Using a hammer and screwdriver, install a new dust deflector.

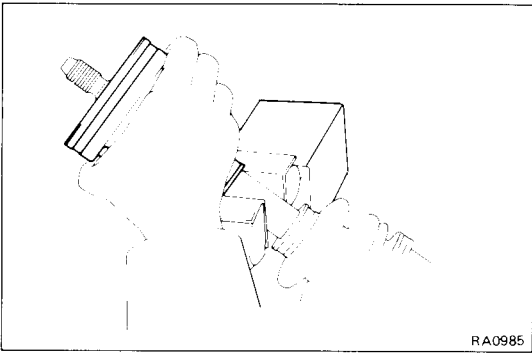


2. TEMPORARILY INSTALL BOOT AND NEW CLAMPS TO OUTBOARD JOINT

HINT: Before installing the boot, wrap vinyl tape around the spline of the to prevent damage the boot.

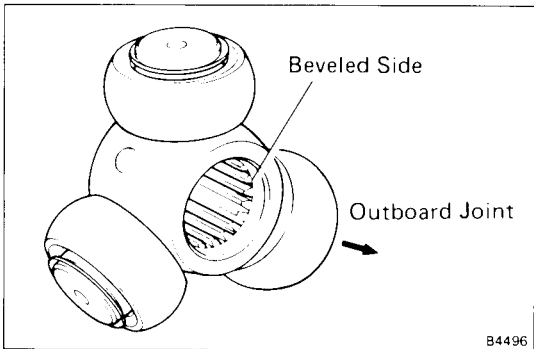


3. TEMPORARILY INSTALL BOOT AND NEW CLAMPS FOR INBOARD JOINT TO REAR DRIVE SHAFT

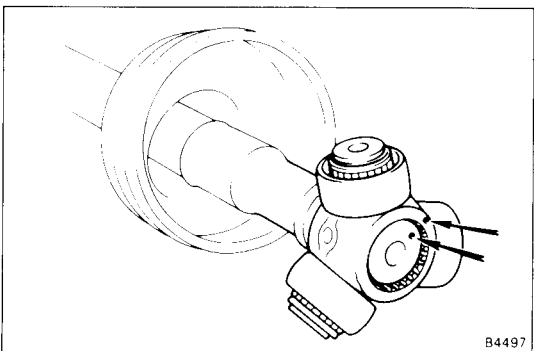


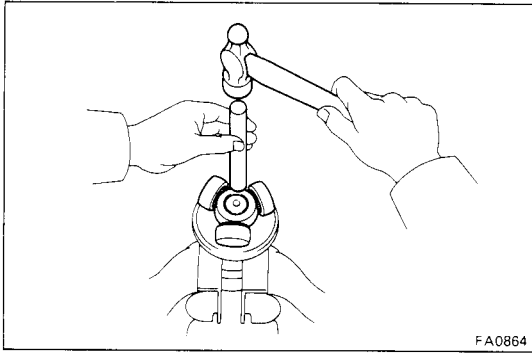
4. ASSEMBLE TRIPOD JOINT

(a) Place the beveled side of the tripod axial spline toward the outboard joint.

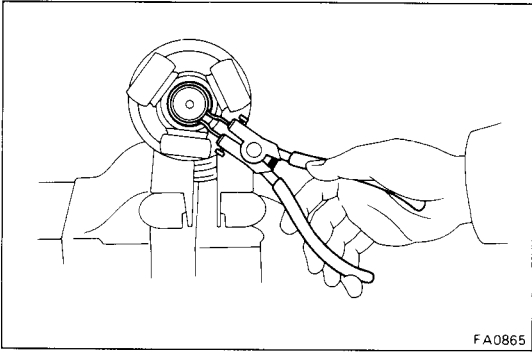


(b) Align the matchmarks placed before disassembly.

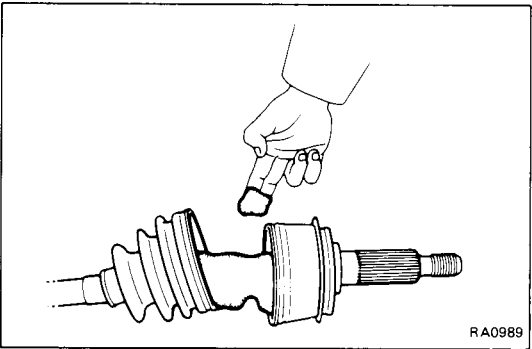




- (c) Using a brass bar and hammer, tap in the tripod joint to the rear drive shaft.



- (d) Using snap ring pliers, install the snap ring.

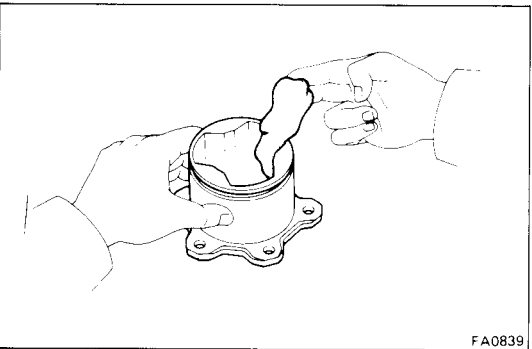


5. ASSEMBLE BOOT TO OUTBOARD JOINT

Before assembling the boot, an adequate amount of grease.

HINT: Use the grease supplied in the boot kit.

Grease capacity: 155 — 165 g (0.34 — 0.36 lb)

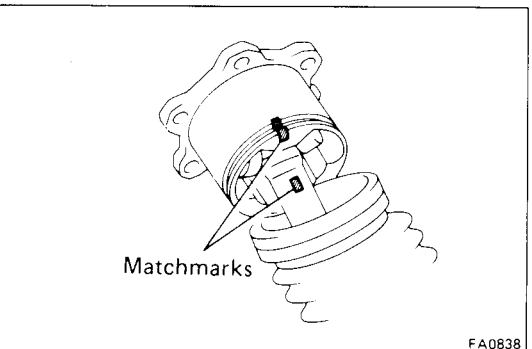


6. ASSEMBLE INBOARD JOINT TULIP

(a) Pack in grease to the inboard tulip and boot.

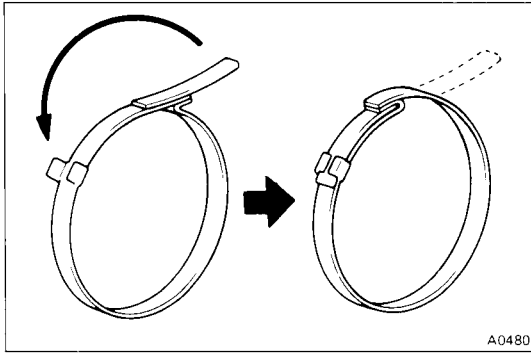
HINT: Use the grease supplied in the boot kit.

Grease capacity: 270 — 280 g (0.60 — 0.62 lb)



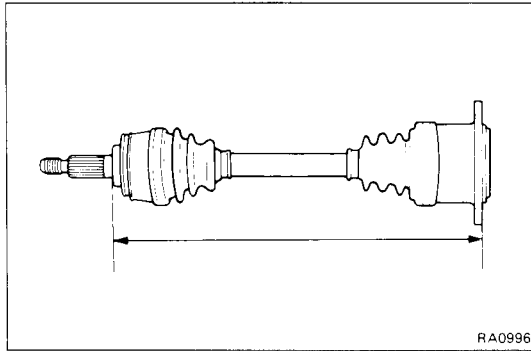
(b) Align the matchmarks placed before disassembly.

(c) Install the boot to the inboard tulip.



7. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS

- (a) Be sure the boot is on the shaft groove.
- (b) Bend the band and lock it as shown in the figure.



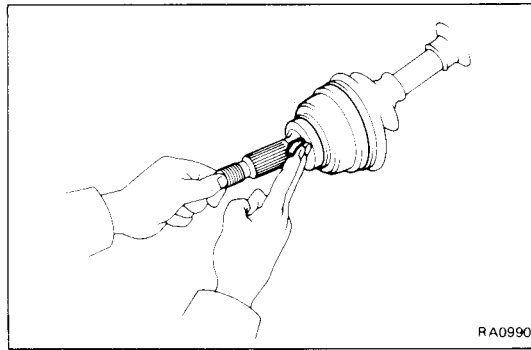
- (c) Insure that the boot is not stretched or contracted when the drive shaft is at standard length.

Standard length:

551.8 — 554.8 mm (21.724 — 21.842 in.)

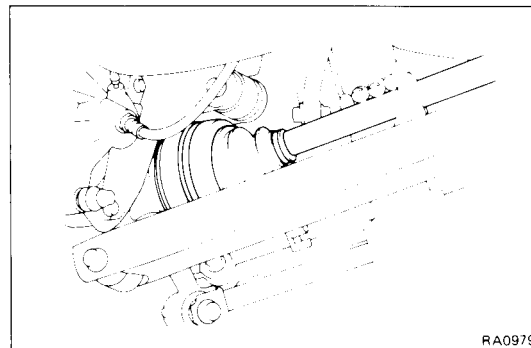
INSTALLATION OF REAR DRIVE SHAFT

(See page RA-16)



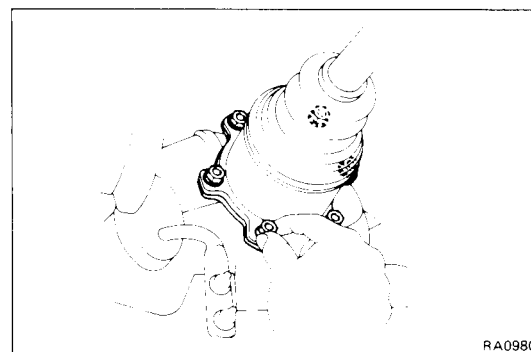
1. INSTALL REAR DRIVE SHAFT

- (a) Apply MP grease to the outboard joint shaft.
- (b) Using a jack, raise the No. 2 suspension arm until it is horizontal.

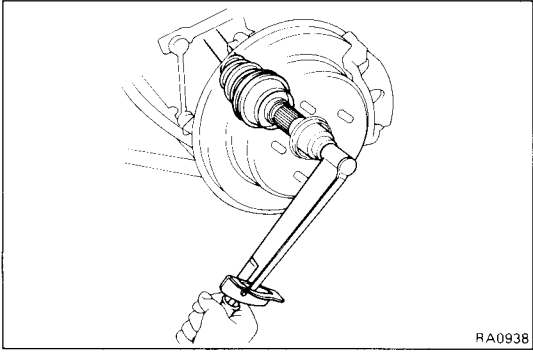


- (c) First insert the outboard joint shaft to the axle hub, and then install it to the side gear shaft.

HINT: Do not damage the boots.



- (d) Temporarily install the six washers and nuts.

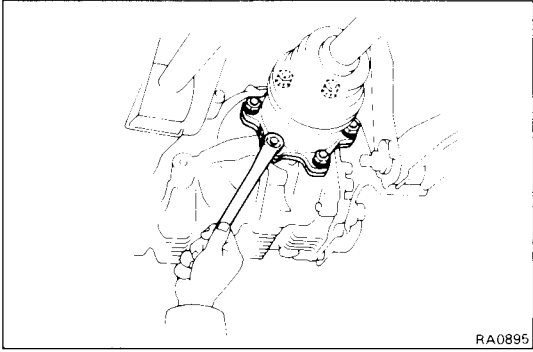


2. INSTALL BEARING LOCK NUT, LOCK NUT CAP AND COTTER PIN

- (a) Apply engine oil to the thread of nut.
- (b) Torque the bearing lock nut while depressing the brake pedal.

Torque: 2,800 kg-cm (203 ft-lb, 275 N·m)

- (c) Install the lock nut cap and a new cotter pin.



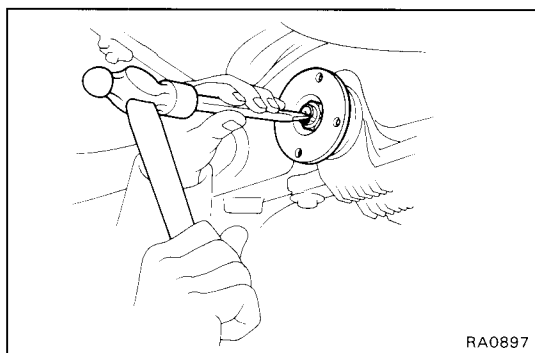
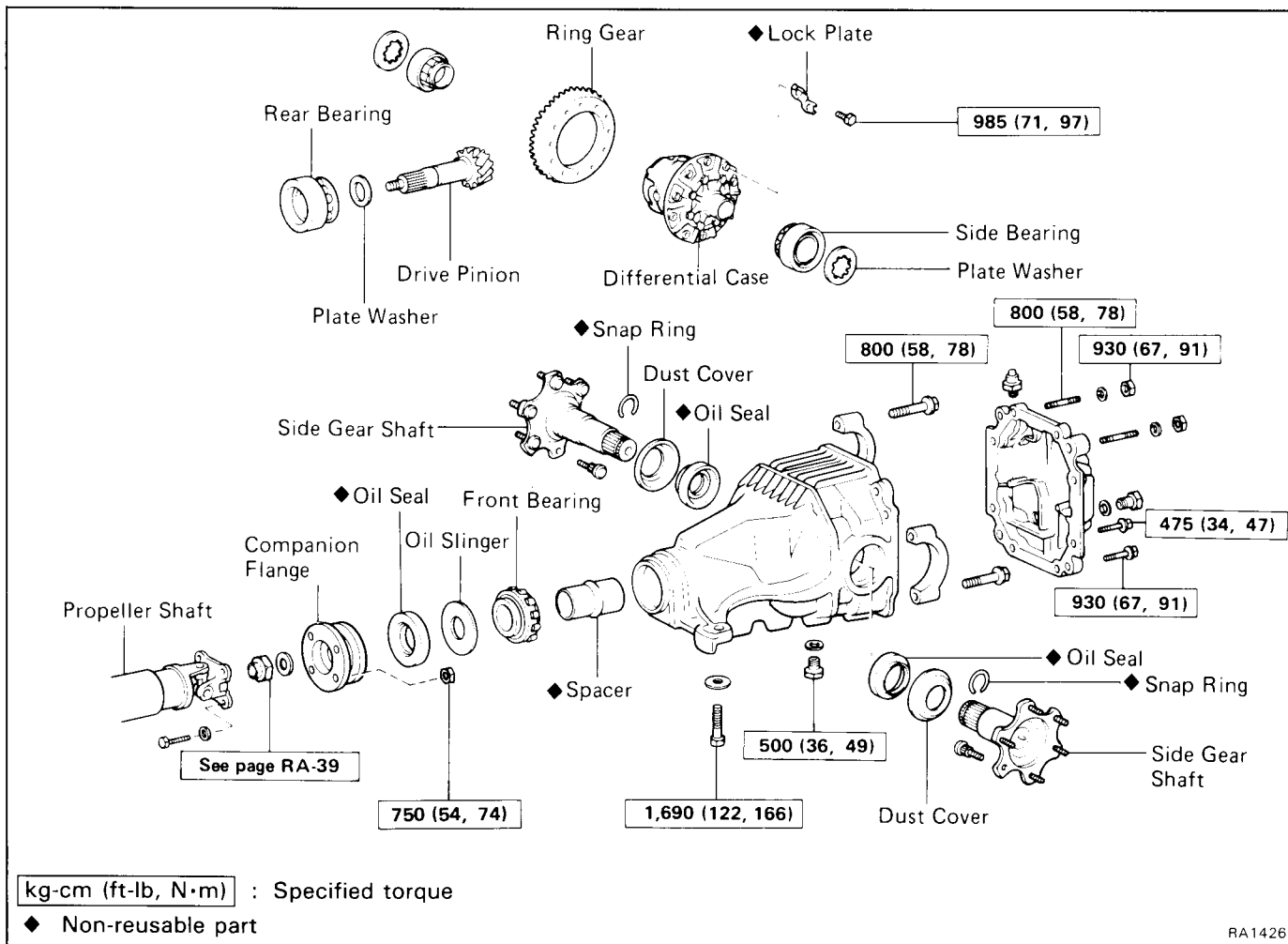
3. TORQUE NUTS HOLDING REAR DRIVE SHAFT TO DIFFERENTIAL SIDE GEAR SHAFT

Torque the six nuts while depressing the brake pedal.

Torque: 700 kg-cm (51 ft-lb, 69 N·m)

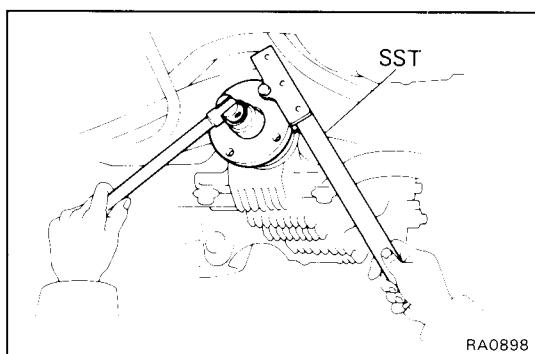
4. INSTALL WHEEL AND REMOVE STANDS

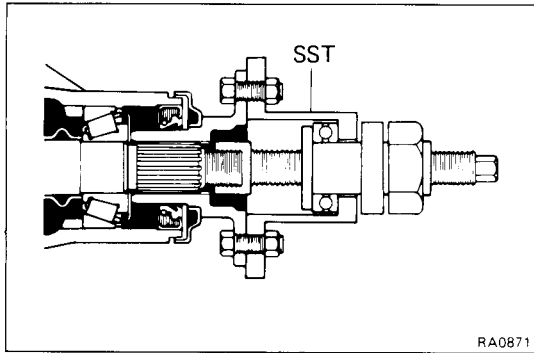
DIFFERENTIAL COMPONENTS



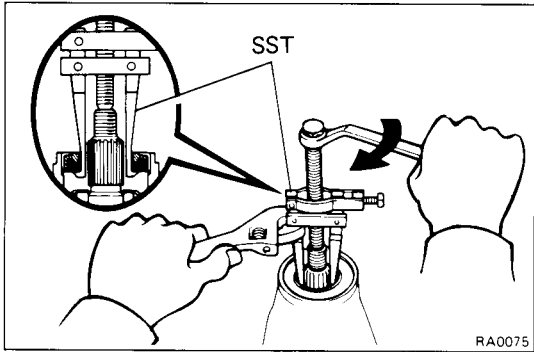
ON-VEHICLE REPLACEMENT OF FRONT OIL SEAL

1. DISCONNECT PROPELLER SHAFT
(See page PR-3)
2. REMOVE COMPANION FLANGE
 - (a) Using a hammer and chisel, loosen the staked part of the nut.
 - (b) Using SST to hold the flange, remove the nut.
SST 09330-00021



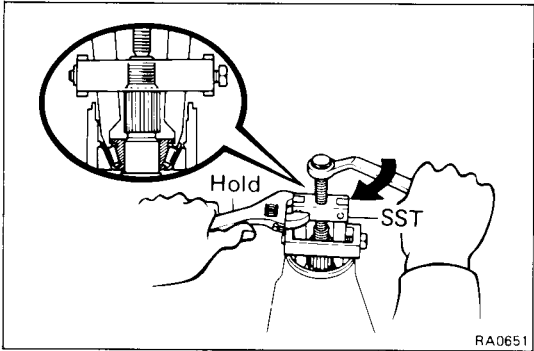


- (c) Using SST, remove the companion flange.
SST 09557-22022



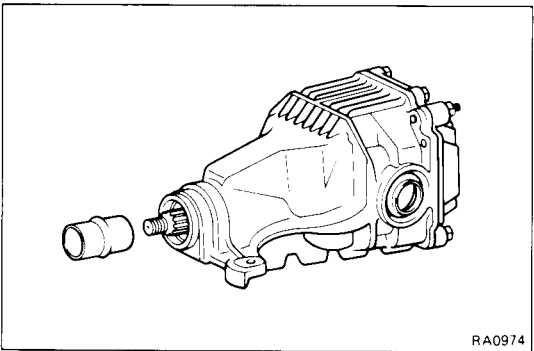
3. REMOVE FRONT OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09308-10010
(b) Remove the oil slinger.



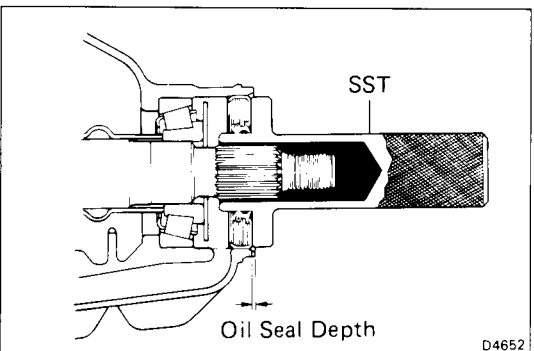
4. REMOVE FRONT BEARING AND BEARING SPACER

- (a) Using SST, remove the front bearing.
SST 09556-22010
(b) Remove the bearing spacer.
If the front bearing is damaged or worn, replace the bearing.



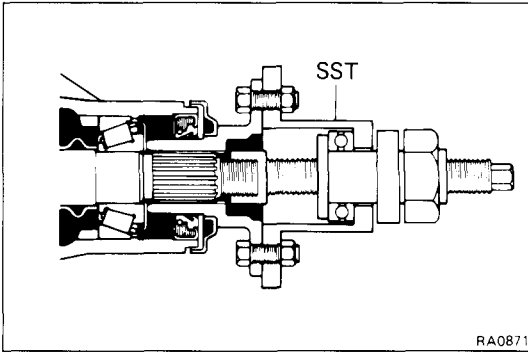
5. INSTALL NEW BEARING SPACER AND FRONT BEARING

- (a) Install a new bearing spacer on the shaft.
(b) Install the front bearing on the shaft.



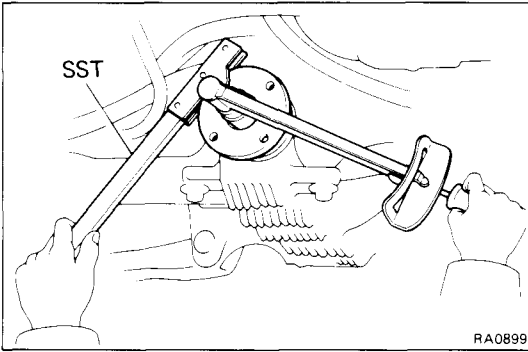
6. INSTALL OIL SLINGER AND NEW OIL SEAL

- (a) Install the oil slinger facing as shown.
(b) Using SST, drive in a new oil seal.
SST 09554-30011
Oil seal drive in depth: 1.5 mm (0.059 in.)
(c) Apply MP grease to the oil seal lip.



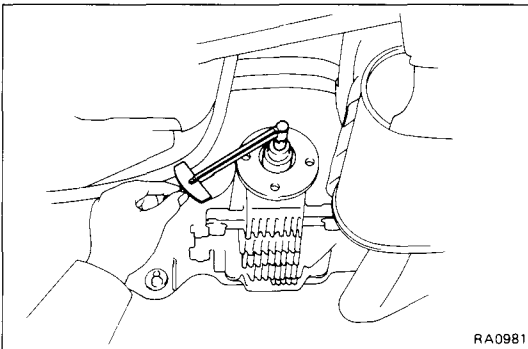
7. INSTALL COMPANION FLANGE

(a) Using SST, install the companion flange on the shaft.
SST 09557-22022



(b) Coat the threads of a new nut with MP grease.
(c) Using SST to hold the flange, tighten the nut.
SST 09330-00021

Torque: 1,850 kg-cm (134 ft-lb, 181 N·m)



8. CHECK FRONT BEARING PRELOAD

Using a torque wrench, measure the preload of the back-lash between the drive pinion and ring gear.

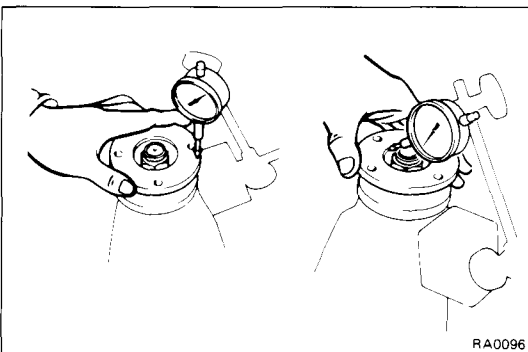
Preload:

New bearing	10 — 16 kg-cm (8.7 — 13.9 in.-lb, 1.0 — 1.6 N·m)
Reused bearing	5 — 8 kg-cm (4.3 — 6.9 in.-lb, 0.5 — 0.8 N·m)

- If preload is greater than specification, replace the bearing spacer.
- If preload is less than specification, retighten the nut 130 kg-cm (9 ft-lb, 13 N·m) at a time until the specified preload is reached.

If the maximum torque is exceed while retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the pinion nut to reduce the preload.

Maximum torque: 3,450 kg-cm (250 ft-lb, 338 N·m)



9. CHECK RUNOUT OF COMPANION FLANGE

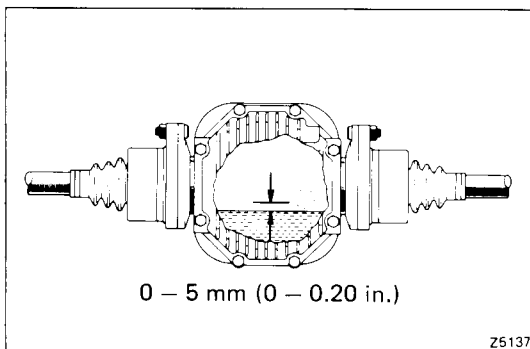
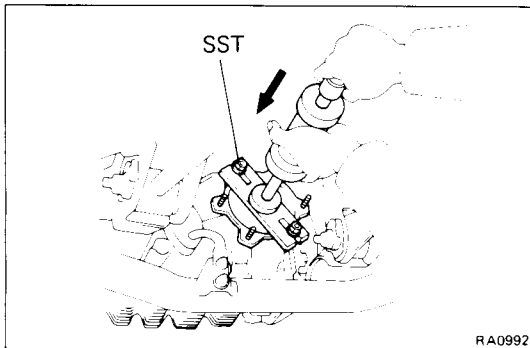
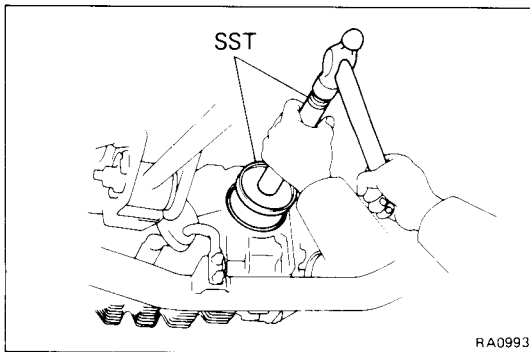
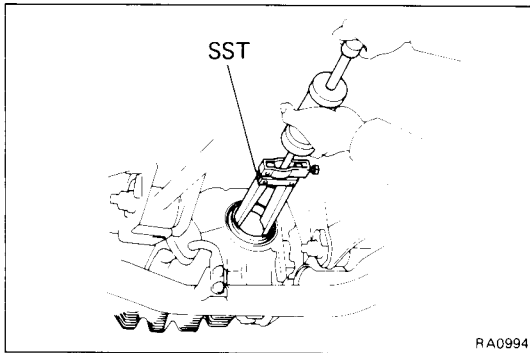
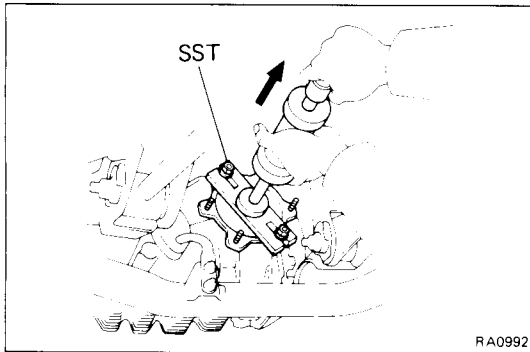
Using a dial indicator, measure the lateral and radial runout of the companion flange.

Maximum lateral runout: 0.1 mm (0.004 in.)
Maximum radial runout: 0.1 mm (0.004 in.)

If the runout is greater than the maximum, inspect the bearings.

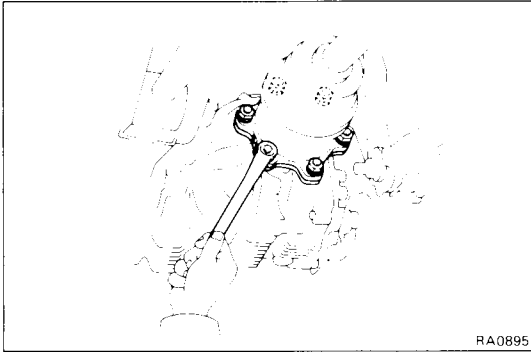
10. STAKE DRIVE PINION NUT

11. CONNECT PROPELLER SHAFT
(See page PR-9)



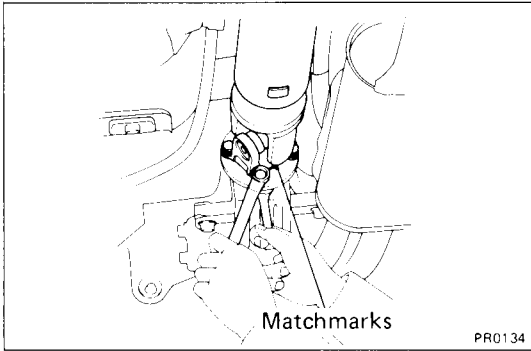
ON-VEHICLE REPLACEMENT OF SIDE GEAR SHAFT OIL SEAL

1. DRAIN DIFFERENTIAL OIL
2. REMOVE REAR DRIVE SHAFT
(See page RA-16)
3. REMOVE SIDE GEAR SHAFT
 - (a) Using SST, remove the side gear shaft.
SST 09520-24010
 - (b) Remove the snap ring from the side gear shaft.
4. REMOVE SIDE GEAR SHAFT OIL SEAL
Using SST, remove the oil seal.
SST 09308-00010
5. INSTALL SIDE GEAR SHAFT OIL SEAL
 - (a) Using SST, drive in the oil seal.
SST 09608-10010, 09608-35014 (09608-06020)
 - (b) Apply MP grease to the oil seal lip.
6. INSTALL SIDE GEAR SHAFT
 - (a) Install a new snap ring to the side gear shaft.
 - (b) Using SST, drive in the side gear shaft to the differential.
SST 09520-24010
7. INSTALL DRIVE SHAFT
(See page RA-21)
8. CHECK DIFFERENTIAL OIL
Fill with hypoid gear oil if necessary.
 Oil grade: API GL-5 hypoid gear oil or LSD oil (LSD only)
 Viscosity: Above -18°C (0°F) SAE 90
 Below -18°C (0°F) SAE 80W-90 or 80W
 Capacity: 1.3 liters (1.4 US qts, 1.1 Imp.qts)



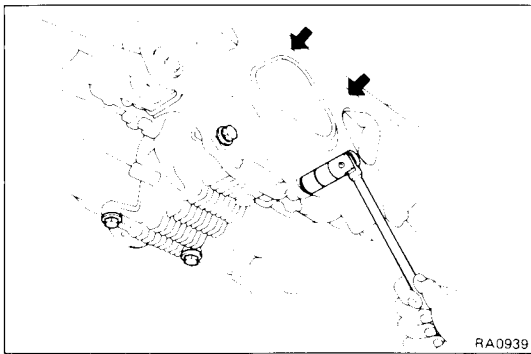
REMOVAL OF DIFFERENTIAL

1. DRAIN DIFFERENTIAL OIL
2. DISCONNECT REAR DRIVE SHAFT



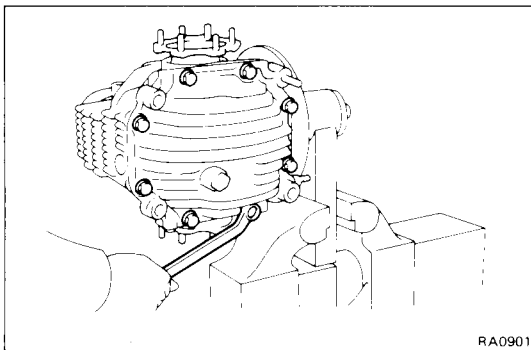
3. DISCONNECT PROPELLER SHAFT FROM DIFFERENTIAL
 - (a) Place matchmarks on the propeller shaft flange and companion flange.
 - (b) Remove the four bolts and nuts.

4. SUPPORT DIFFERENTIAL WITH TRANSMISSION JACK



5. REMOVE DIFFERENTIAL

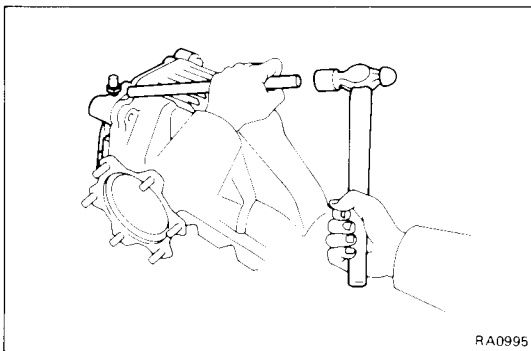
Remove the four differential mounting bolts and two nuts, remove the differential from the body.



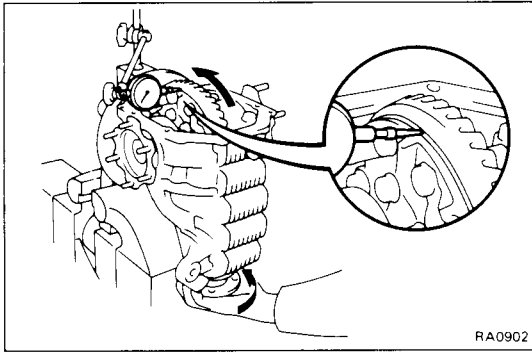
INSPECTION OF DIFFERENTIAL CARRIER

1. REMOVE DIFFERENTIAL CARRIER COVER

(a) Remove the eight bolts from carrier cover.



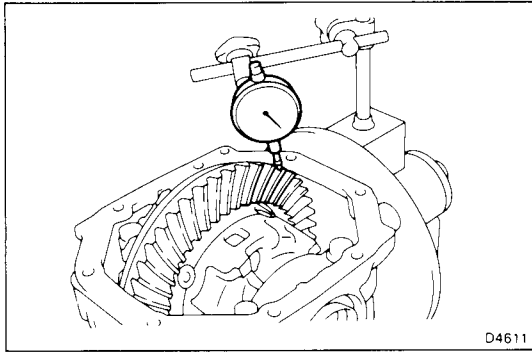
(b) Using a brass bar and hammer, separate the cover and carrier.



2. CHECK RING GEAR RUNOUT

If the runout is greater than maximum, replace a new ring gear.

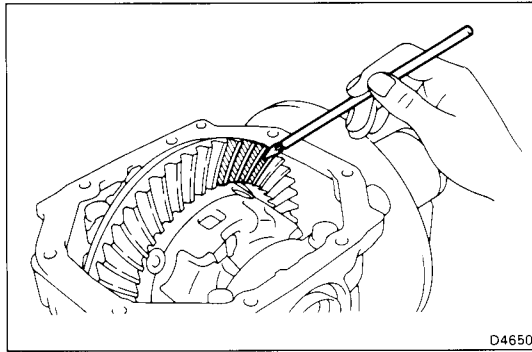
Maximum runout: 0.10 mm (0.004 in.)



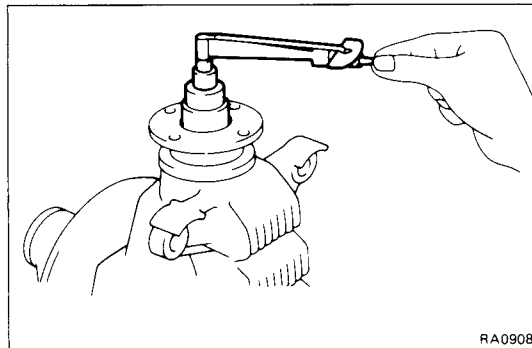
3. CHECK RING GEAR BACKLASH

If the backlash is not within specification, adjust the side bearing preload or repair as necessary.

Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)



4. CHECK TOOTH CONTACT (See page RA-37)



5. MEASURE DRIVE PINION PRELOAD

Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

Preload (at starting):

5 – 8 kg-cm (4.3 – 6.9 in.-lb, 0.5 – 0.8 N·m)

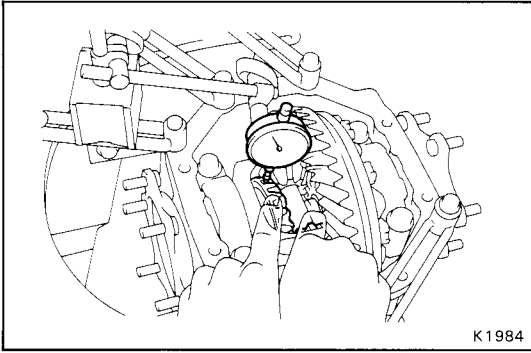
6. CHECK TOTAL PRELOAD

Using a torque wrench, measure the total preload.

Total preload: In addition to drive pinion preload

4 – 6 kg-cm (3.5 – 5.2 in.-lb, 0.4 – 0.6 N·m)

If necessary, disassembly and inspect a differential.



**7. (CONVENTIONAL 2 PINION TYPE ONLY)
CHECK SIDE GEAR BACKLASH**

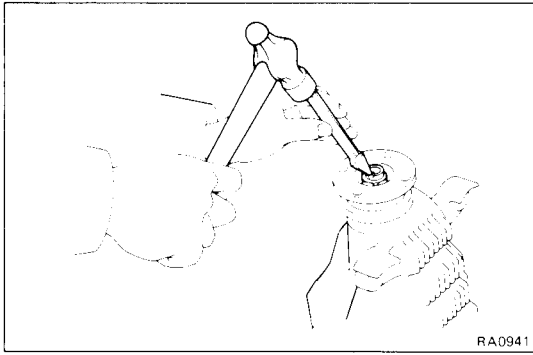
Measure the side gear backlash while holding one pinion gear toward the case.

**Standard backlash: 0.05 — 0.20 mm
(0.0020 — 0.0079 in.)**

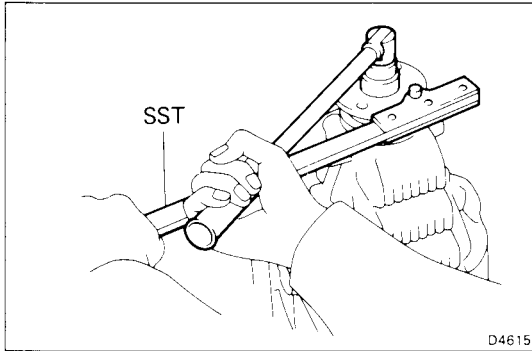
If the backlash is out of specification, install the correct thrust washers. (See page RA-44)

DISASSEMBLY OF DIFFERENTIAL CARRIER**1. REMOVE COMPANION FLANGE**

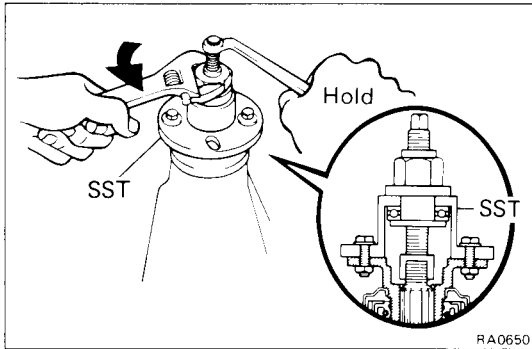
(a) Using a hammer and chisel, loosen the staked part of the nut.



(b) Using SST to hold the flange, remove the nut.
SST 09330-00021



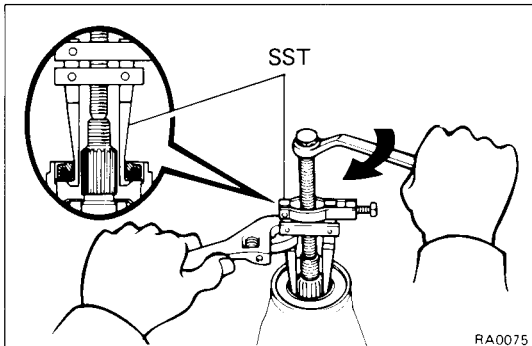
(c) Using SST, remove the companion flange.
SST 09557-22022

**2. REMOVE FRONT OIL SEAL AND OIL SLINGER**

(a) Using SST, remove the oil seal from the housing.

SST 09308-10010

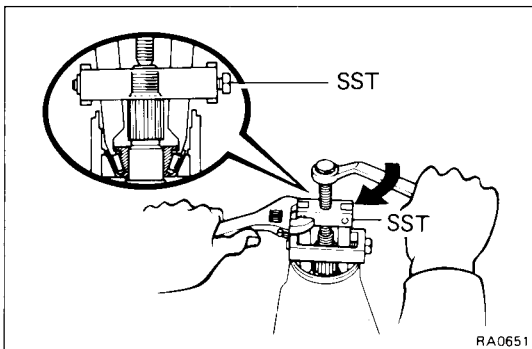
(b) Remove the oil slinger.

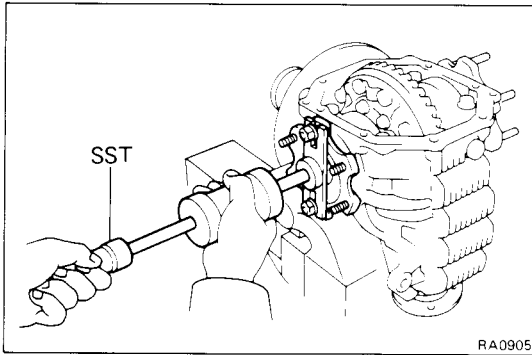
**3. REMOVE FRONT BEARING AND BEARING SPACER**

(a) Using SST, remove the bearing from the housing.

SST 09556-22010

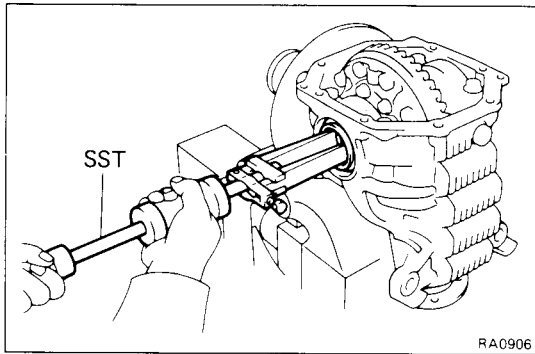
(b) Remove the bearing spacer.





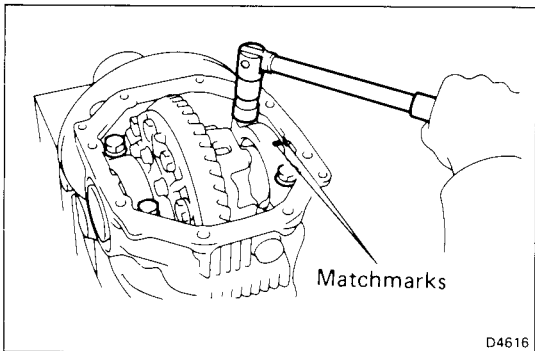
4. REMOVE SIDE GEAR SHAFT

Using SST, pull out the side gear shaft from the differential.
SST 09520-24010



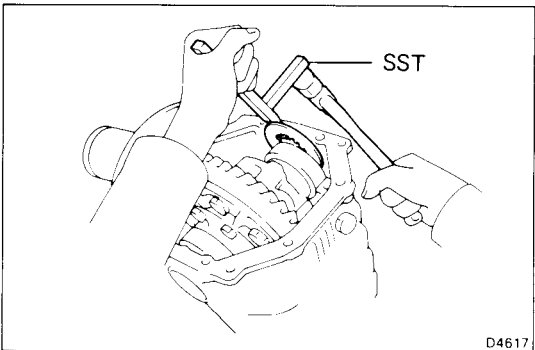
5. REMOVE SIDE GEAR SHAFT OIL SEAL

Using SST, remove the oil seal from the housing.
SST 09308-00010



6. REMOVE DIFFERENTIAL CASE

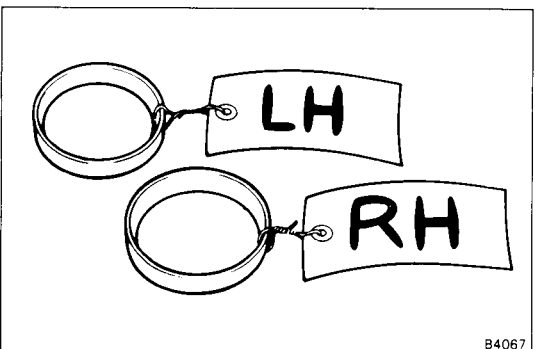
- (a) Place matchmarks on the bearing cap and differential carrier.
- (b) Remove the two bearing caps.



- (c) Using SST, remove the two side bearing preload adjusting plate.

SST 09504-22011

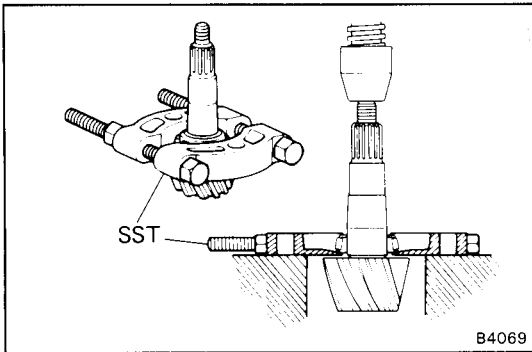
HINT: Measure the adjusting plate washer and note the thickness.



- (d) Remove the differential case and bearing outer race from the carrier.

HINT: Tag the bearing outer races to show the location for reassembly.

7. REMOVE DRIVE PINION FROM DIFFERENTIAL CARRIER

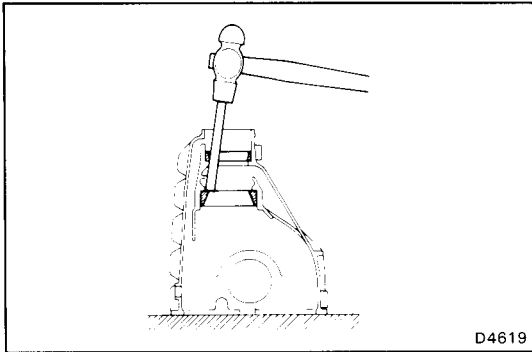


8. REMOVE DRIVE PINION REAR BEARING

Using SST and a press, remove the bearing from the drive pinion.

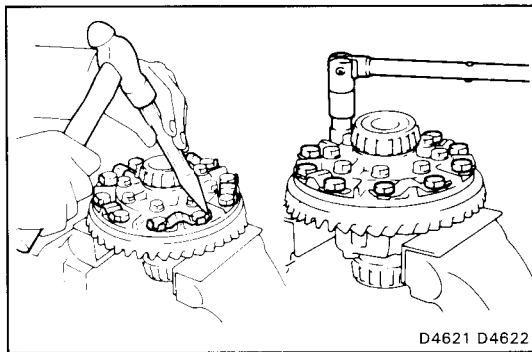
SST 09950-00020

HINT: If the drive pinion or ring gear are damaged replace them a set.



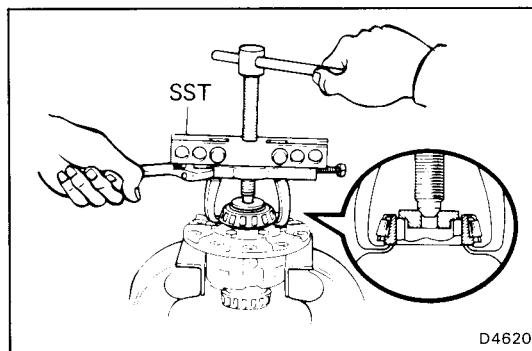
9. REMOVE FRONT AND REAR BEARING OUTER RACE

Using a hammer and brass bar, drive out the outer race from the carrier.



10. REMOVE RING GEAR

- (a) Remove the ring gear set bolts and lock plate.
- (b) Place matchmarks on the ring gear and differential case.
- (c) Using a plastic or copper hammer, tap on the ring gear to separate it from the differential case.



11. REMOVE SIDE BEARING

Using SST, remove the side bearing from the differential case.

SST 09950-20017

12. DISASSEMBLE DIFFERENTIAL CASE

(Conventional type: See page RA-43, 46)

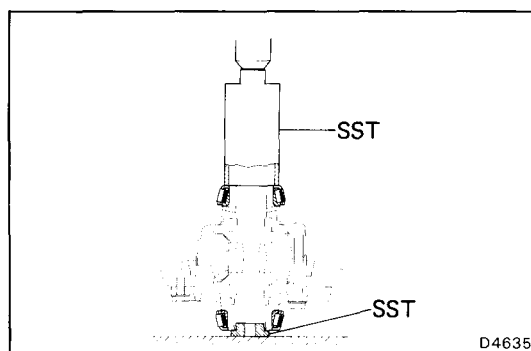
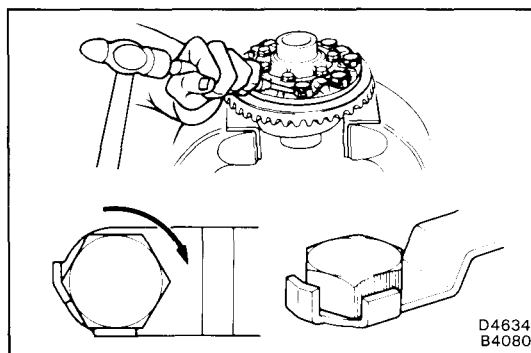
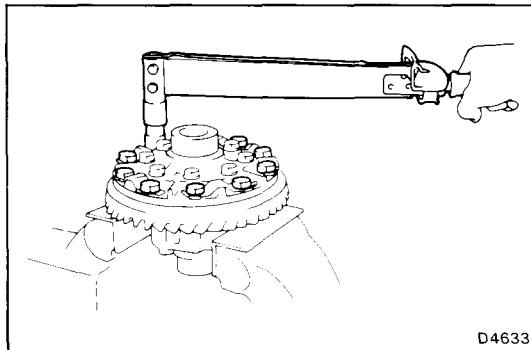
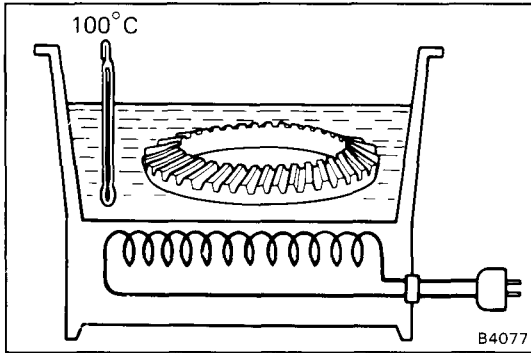
(LSD type: See page RA-49)

ASSEMBLY OF DIFFERENTIAL CARRIER

(See page RA-23)

1. ASSEMBLE DIFFERENTIAL CASE

(Conventional type: See page RA-44, 47)
(LSD type: See page RA-53)



2. INSTALL RING GEAR

- (a) Clean the contact surface of the differential case.
- (b) Heat the ring gear to about 100°C (212°F) in an oil bath.

NOTICE: Do not heat the ring gear above 110°C (230°F).

- (c) Clean the contact surface of the ring gear with cleaning solvent.
- (d) Then quickly install the ring gear on the differential case.
- (e) Align the matchmarks on the ring gear and differential case.
- (f) Coat the ring gear set bolts with gear oil.
- (g) Temporarily install the lock plates and set bolts.
- (h) After the ring gear cools down enough, tighten the set bolts uniformly and a little at a time.

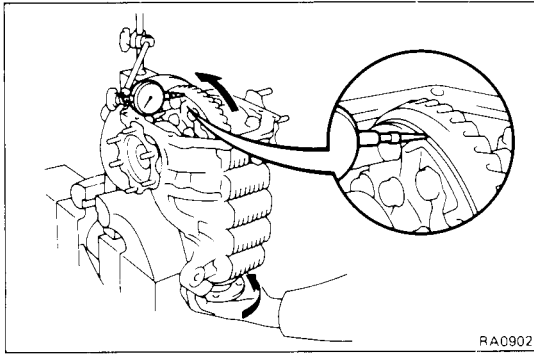
Torque: 985 kg-cm (71 ft-lb, 97 N·m)

- (h) Using a hammer and drift punch, stake the lock plate.
- HINT:** Stake one claw flush with the flat surface of the nut. For the claw contacting the protruding portion of the nut, stake the half on the tightening side.

3. INSTALL NEW SIDE BEARING

Using SST and a press, install a new side bearing into the differential case.

SST 09316-60010 (09316-00010)
09608-30012 (09608-04060)

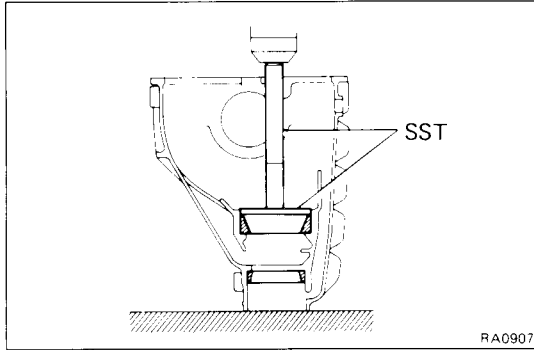


RA0902

4. INSPECT RING GEAR RUNOUT

Maximum runout: 0.1 mm (0.004 in.)

Install the differential case onto the carrier and tighten the adjusting nut to where there is no play in the bearing.



RA0907

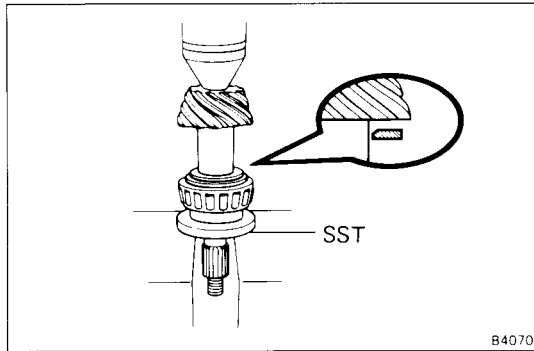
5. INSTALL FRONT AND REAR BEARING OUTER RACE

Using SST, drive in a new outer race to the carrier.

SST 09608-35014

Front (09608-06020, 09608-06110)

Rear (09608-06020, 09608-06180)



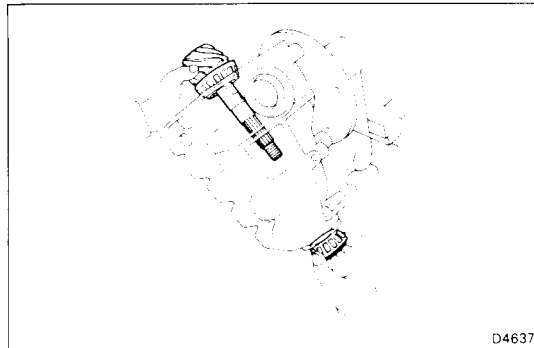
B4070

6. INSTALL DRIVE PINION REAR BEARING

(a) Install the washer on the drive pinion with the chamfered end facing the pinion gear.

(b) Using SST, press in the reused washer and rear bearing onto the drive pinion.

SST 09506-30012

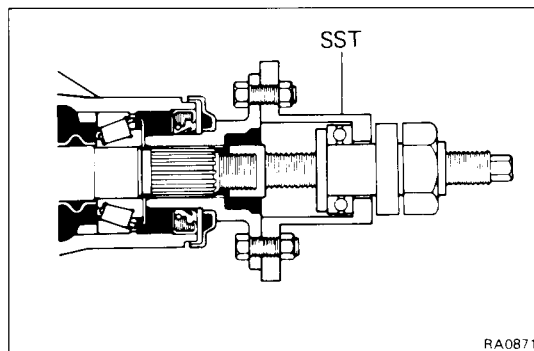


D4637

7. TEMPORARILY ADJUST DRIVE PINION PRELOAD

(a) Install the drive pinion and front bearing.

HINT: Assemble the spacer, oil slinger and oil seal after adjusting the gear contact pattern.

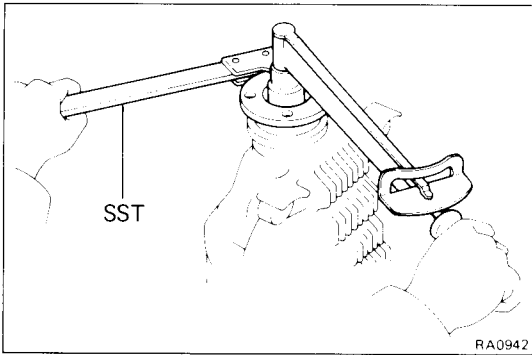


RA0871

(b) Using SST, install the companion flange.

Coat the threads of the nut with MP grease.

SST 09557-22022

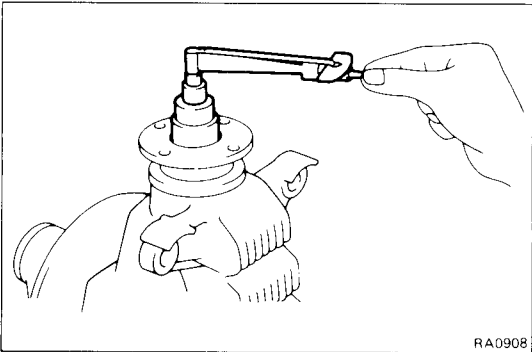


- (c) Adjust the drive pinion preload by tightening the companion flange nut.

Using SST to hold the flange, tighten the nut.

SST 09330-00021

NOTICE: As there is no spacer, tighten a little at a time, being careful not to overtighten it.

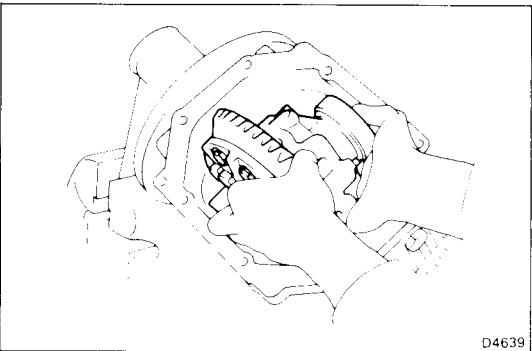


- (d) Using a torque wrench, measure the preload.

Preload:

New bearing 10 — 16 kg-cm
(8.7 — 13.9 in.-lb, 1.0 — 1.6 N·m)

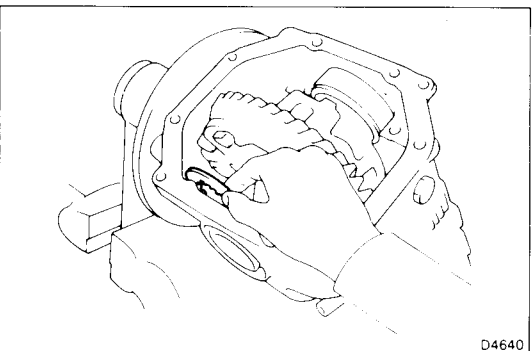
Reused bearing 5 — 8 kg-cm
(4.3 — 6.9 in.-lb, 0.5 — 0.8 N·m)



8. INSTALL DIFFERENTIAL CASE IN CARRIER

- (a) Place the bearing outer races on their respective bearings. Make sure the left and right races are not interchanged.

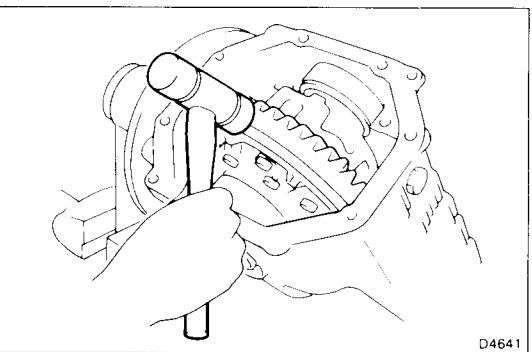
- (b) Install the differential case in the carrier.



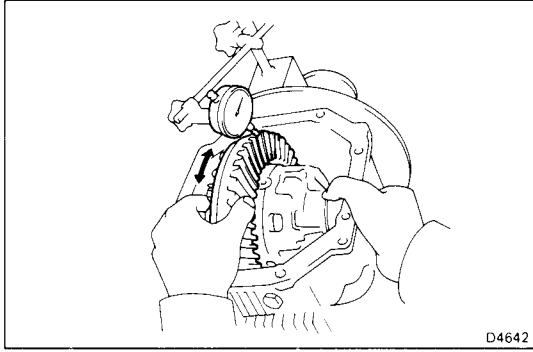
9. ADJUST RING GEAR BACKLASH

- (a) Install only the plate washer on the ring gear back side.

HINT: Insure that the plate has a backlash.

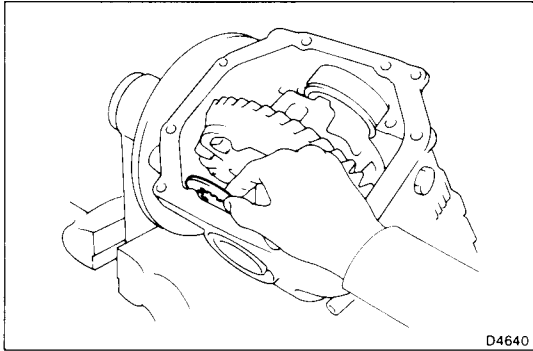


- (b) Snug down the washer and bearing by tapping on the ring gear with a plastic hammer.

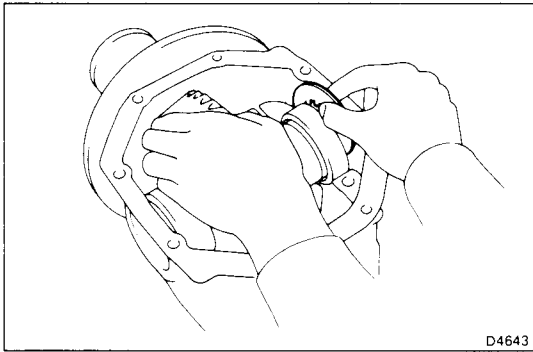


- (c) Hold the side bearing boss on the teeth surface of the ring gear and measure the backlash.

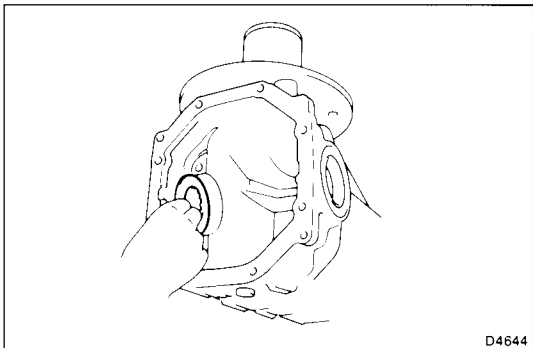
Backlash (reference): 0.10 mm (0.0039 in.)



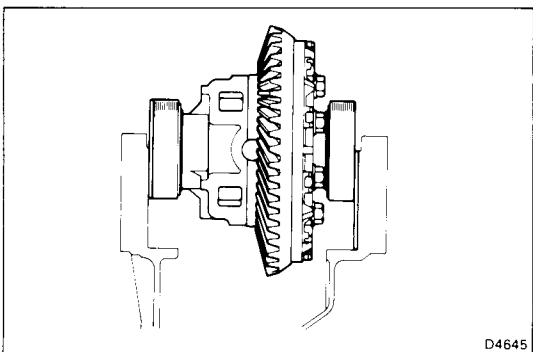
- (d) Select a ring gear back plate washer using the backlash as reference. (See page RA-33)



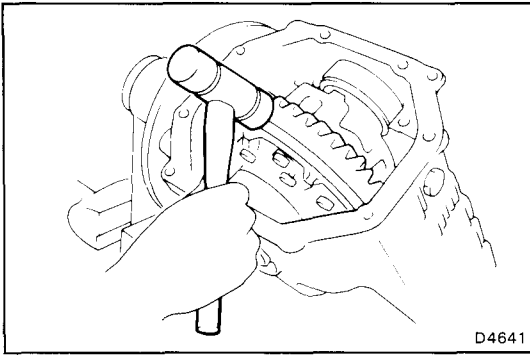
- (e) Select a ring gear teeth side washer of a thickness which eliminates any clearance between the outer race and case.



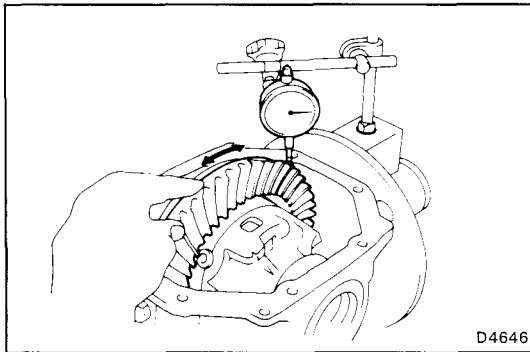
- (f) Remove the plate washers and differential case.
 (g) Install the plate washer into the lower part of the carrier.



- (h) Place the outer plate washer onto the differential case together with the outer race, and install the differential case with the outer race into the carrier.



- (i) Using a plastic hammer, snug down the washer and bearing by tapping the ring gear.

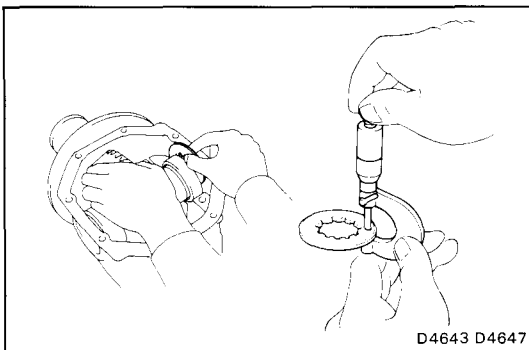


- (j) Using a dial indicator, measure the ring gear backlash.
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

- (k) If not within specification, adjust by either increasing or decreasing the number of washers on both sides by an equal amount.

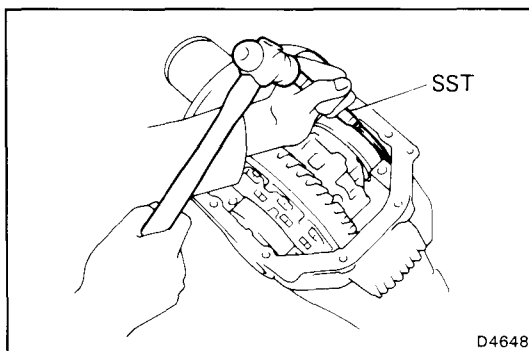
HINT: There should be no clearance between the plate washer and case.

Insure that there is ring gear backlash.



10. ADJUST SIDE BEARING PRELOAD

- (a) After adjustment with the backlash as reference, remove the ring gear teeth plate washer and measure the thickness.

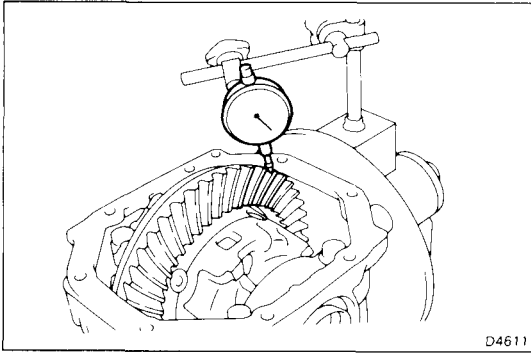


- (b) Install a new washer of 0.06 – 0.09 mm (0.0024 – 0.0035 in.) thicker than the washer removed.

HINT: Select a washer which can be pressed in 2/3 of the way by finger.

- (c) Using SST and a plastic hammer, tap in the side washer.

SST 09504-22011



(d) Recheck the ring gear backlash.

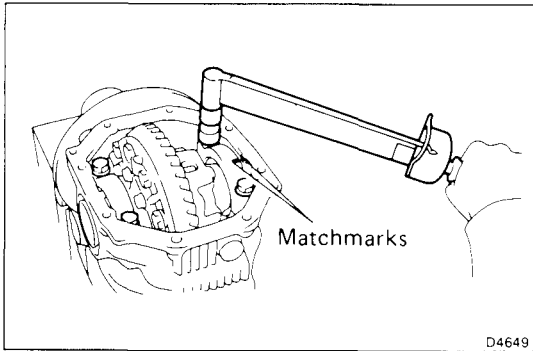
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

(e) If not within standard, adjust by either increasing or decreasing the washers on both sides by equal amount.

HINT: The backlash will change about 0.02 mm (0.0008 in.) with 0.03 mm (0.0012 in.) alteration of the side washer.

Washer thickness

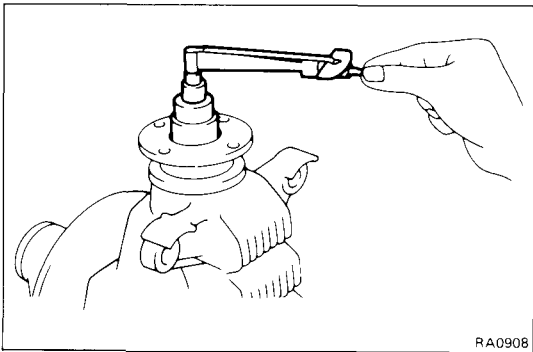
Thickness		mm (in.)
2.57 – 2.59 (0.1012 – 0.1020)	2.90 – 2.92 (0.1142 – 0.1150)	3.23 – 3.25 (0.1272 – 0.1280)
2.60 – 2.62 (0.1024 – 0.1031)	2.93 – 2.95 (0.1154 – 0.1161)	3.26 – 3.28 (0.1283 – 0.1291)
2.63 – 2.65 (0.1035 – 0.1043)	2.96 – 2.98 (0.1165 – 0.1173)	3.29 – 3.31 (0.1295 – 0.1303)
2.66 – 2.68 (0.1047 – 0.1055)	2.99 – 3.01 (0.1177 – 0.1185)	3.32 – 3.34 (0.1307 – 0.1315)
2.69 – 2.71 (0.1059 – 0.1067)	3.02 – 3.04 (0.1189 – 0.1197)	3.35 – 3.37 (0.1319 – 0.1327)
2.72 – 2.74 (0.1071 – 0.1079)	3.05 – 3.07 (0.1201 – 0.1209)	3.38 – 3.40 (0.1331 – 0.1339)
2.75 – 2.77 (0.1083 – 0.1091)	3.08 – 3.10 (0.1213 – 0.1220)	3.41 – 3.43 (0.1343 – 0.1350)
2.78 – 2.80 (0.1094 – 0.1102)	3.11 – 3.13 (0.1224 – 0.1232)	3.44 – 3.46 (0.1354 – 0.1362)
2.81 – 2.83 (0.1106 – 0.1114)	3.14 – 3.16 (0.1236 – 0.1244)	3.47 – 3.49 (0.1366 – 0.1374)
2.84 – 2.86 (0.1118 – 0.1126)	3.17 – 3.19 (0.1248 – 0.1256)	
2.87 – 2.89 (0.1130 – 0.1138)	3.20 – 3.22 (0.1260 – 0.1268)	



11. INSTALL SIDE BEARING CAPS

Align the marks on the cap and carrier.

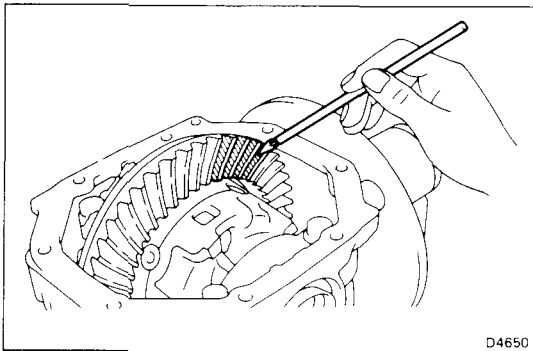
Torque: 800 kg-cm (58 ft-lb, 78 N·m)



12. MEASURE TOTAL PRELOAD

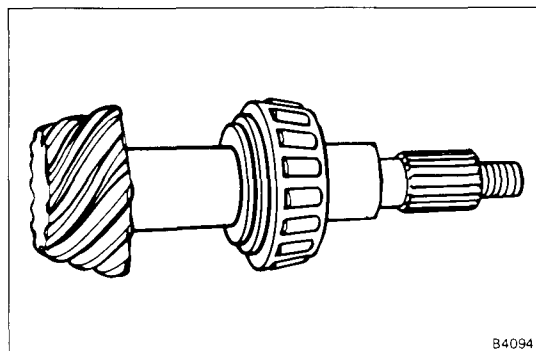
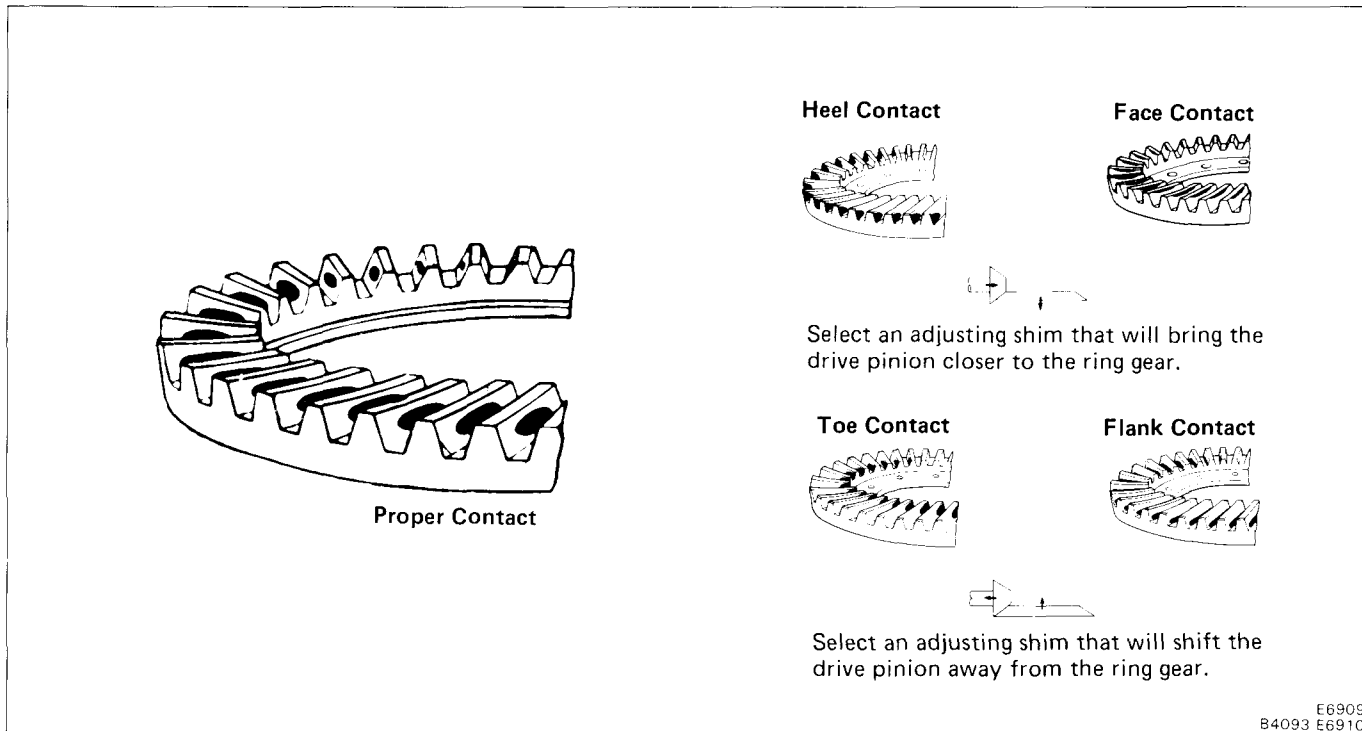
Using a torque wrench, measure the total preload.

**Total preload: In addition to drive pinion preload
4 – 6 kg-cm (3.5 – 5.2 in.-lb, 0.4 – 0.6 N·m)**



13. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

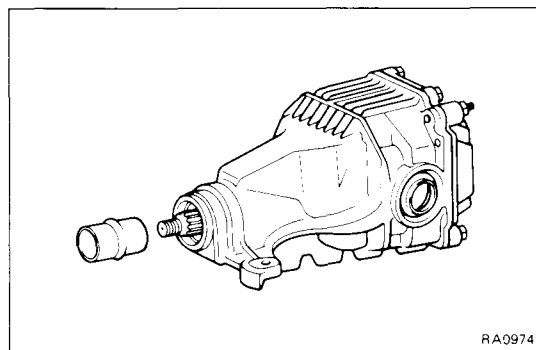
- (a) Coat 3 or 4 teeth at three different position on the ring gear with red lead.
- (b) Hold the companion flange firmly and rotate the ring gear in both directions.
- (c) Inspect the tooth pattern.



If the teeth are not contacting properly, use the following chart to select a proper washer for correction.

Washer thickness

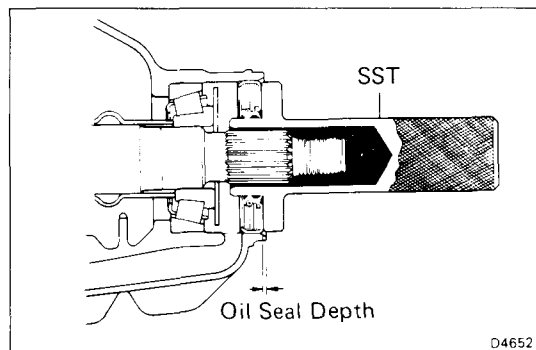
Thickness		mm (in.)	
1.70	(0.0669)	2.03	(0.0799)
1.73	(0.0681)	2.06	(0.0811)
1.76	(0.0693)	2.09	(0.0823)
1.79	(0.0705)	2.12	(0.0835)
1.82	(0.0717)	2.15	(0.0846)
1.85	(0.0728)	2.18	(0.0858)
1.88	(0.0740)	2.21	(0.0870)
1.91	(0.0752)	2.24	(0.0882)
1.94	(0.0764)	2.27	(0.0894)
1.97	(0.0776)	2.30	(0.0906)
2.00	(0.0787)	2.33	(0.0917)



14. REMOVE COMPANION FLANGE
(See page RA-30)

15. REMOVE FRONT BEARING (See page RA-30)

16. INSTALL NEW BEARING SPACER AND FRONT BEARING



17. INSTALL OIL SLINGER AND NEW FRONT OIL SEAL

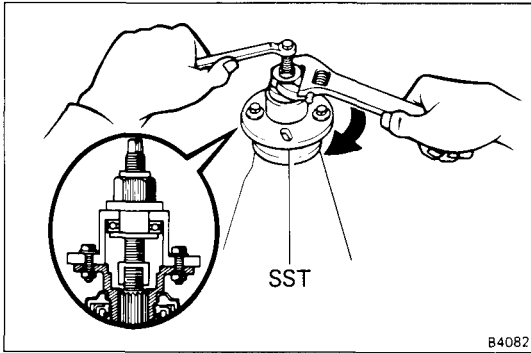
(a) Install the oil slinger.

(b) Using SST, drive in a new oil seal.

SST 09554-30011

Oil seal drive in depth: 1.5 mm (0.059 in.)

(c) Apply MP grease to the oil seal lip.

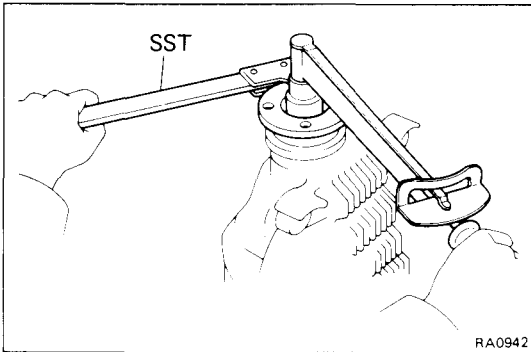


B4082

18. INSTALL COMPANION FLANGE

(a) Using SST, install the companion flange on the shaft.

SST 09557-22022



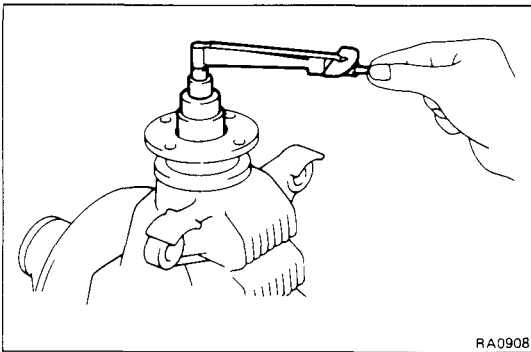
RA0942

(b) Coat the threads of a new nut with MP grease.

(c) Using SST to hold the flange, tighten the nut.

SST 09330-00021

Torque: 1,850 kg-cm (134 ft-lb, 181 N·m)



RA0908

19. CHECK FRONT BEARING PRELOAD

Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

Preload:

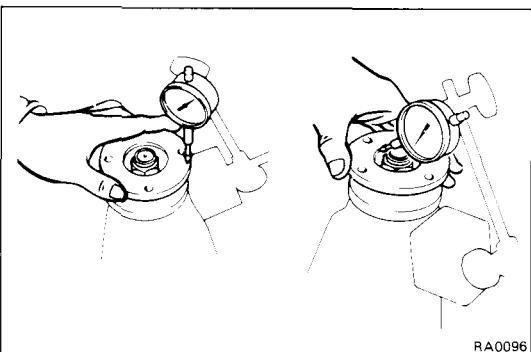
New bearing 10 – 16 kg-cm
(8.7 – 13.9 in.-lb, 1.0 – 1.6 N·m)

Reused bearing 5 – 8 kg-cm
(4.3 – 6.9 in.-lb, 0.5 – 0.8 N·m)

- If preload is greater than specification, replace the bearing spacer.
- If preload is less than specification, retighten the nut 130 kg-cm (9 ft-lb, 13 N·m) at a time until the specified preload is reached.

If the maximum torque is exceeded while retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the pinion nut to reduce the preload.

Maximum torque: 3,450 kg-cm (250 ft-lb, 338 N·m)



RA0096

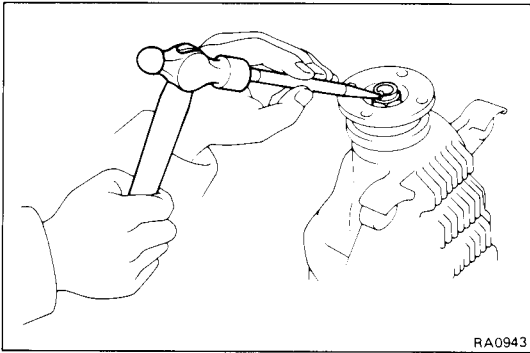
20. CHECK RUNOUT OF COMPANION FLANGE

Using a dial indicator, measure the lateral and radial runout of the companion flange.

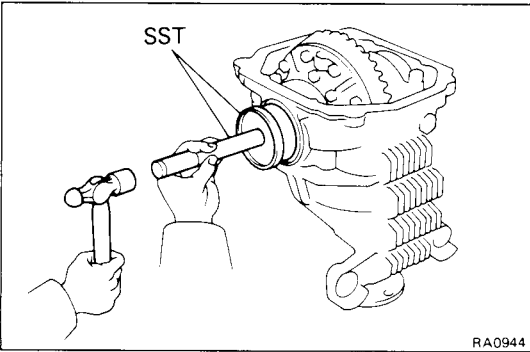
If the runout is greater than the maximum, inspect the bearing.

Maximum lateral runout: 0.1 mm (0.004 in.)

Maximum radial runout: 0.1 mm (0.004 in.)



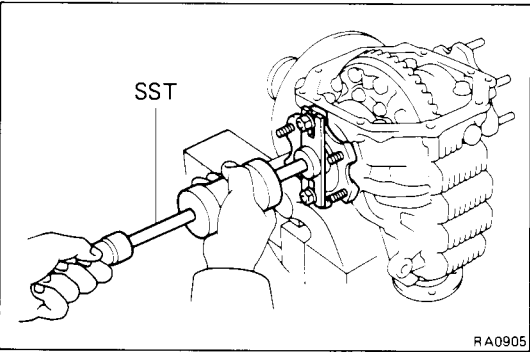
21. STAKE DRIVE PINION NUT



22. INSTALL SIDE GEAR SHAFT OIL SEAL

- (a) Coat the oil seal lip with MP grease.
- (b) Using SST, drive in the oil seal until it is flush with the carrier end surface.

SST 09608-10010 and 09608-35014 (09608-06020)

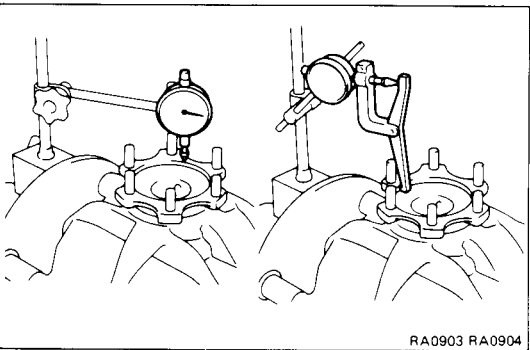


23. INSTALL SIDE GEAR SHAFT

- (a) Install a new snap ring to the side gear shaft.
- (b) Using SST, drive in the side gear shaft until it contacts the pinion shaft.

SST 09520-24010

HINT: As the LSD cannot be checked visually, check that the shaft is fully inserted by confirming the should it makes when it is tapped.

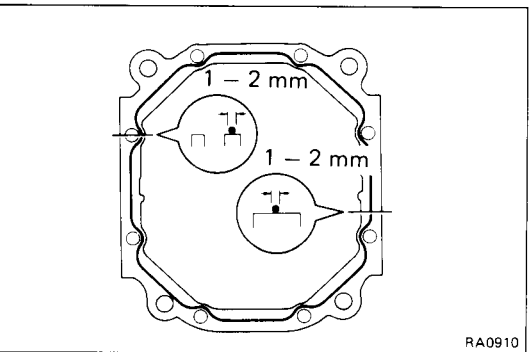


24. MEASURE SIDE GEAR SHAFT RUNOUT

Maximum lateral runout: 0.2 mm (0.008 in.)

Maximum radial runout: 0.2 mm (0.008 in.)

If the runout is greater than the maximum, replace the side gear shaft.

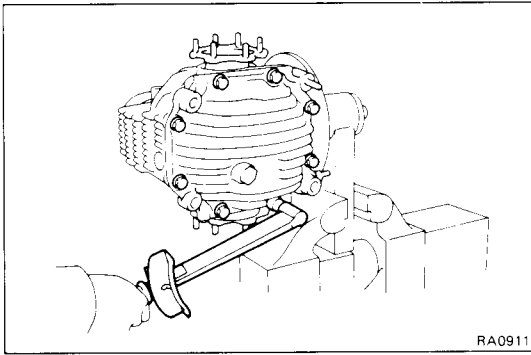


25. INSTALL DIFFERENTIAL CARRIER COVER

- (a) Clean contacting surfaces of any residual packing material using gasoline or alcohol.
- (b) Apply seal packing to the carrier.

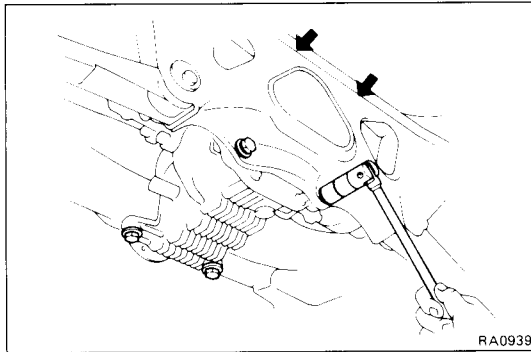
Seal packing: Part No. 08826-00090, **THREE BOND 1281** or equivalent

HINT: Install the carrier cover within 3 minutes after applying seal packing.



(c) Torque the set bolts.

Torque: 475 kg-cm (34 ft-lb, 47 N·m)



INSTALLATION OF DIFFERENTIAL

(See page RA-23)

1. INSTALL DIFFERENTIAL

Position the differential and torque the bolts and nuts.

Torque:

Stud bolts	800 kg-cm (58 ft-lb, 78 N·m)
Rear nuts	930 kg-cm (67 ft-lb, 91 N·m)
Rear bolts	930 kg-cm (67 ft-lb, 91 N·m)
Front bolts	1,690 kg-cm (122 ft-lb, 166 N·m)

2. INSTALL REAR DRIVE SHAFT

(See page RA-21)

3. CONNECT PROPELLER SHAFT

(See page PR-9)

4. FILL DIFFERENTIAL WITH GEAR OIL

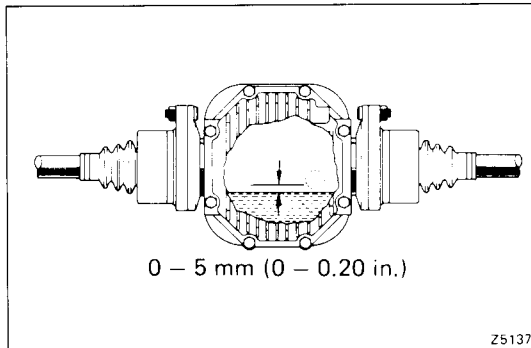
Oil grade: API GL-5 hypoid gear oil or for LSD oil (LSD only)

Viscosity: Above -18°C (0°F) SAE 90

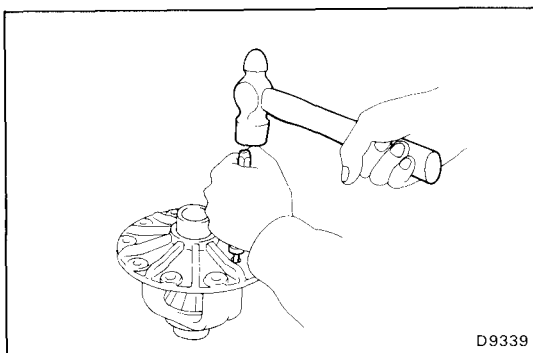
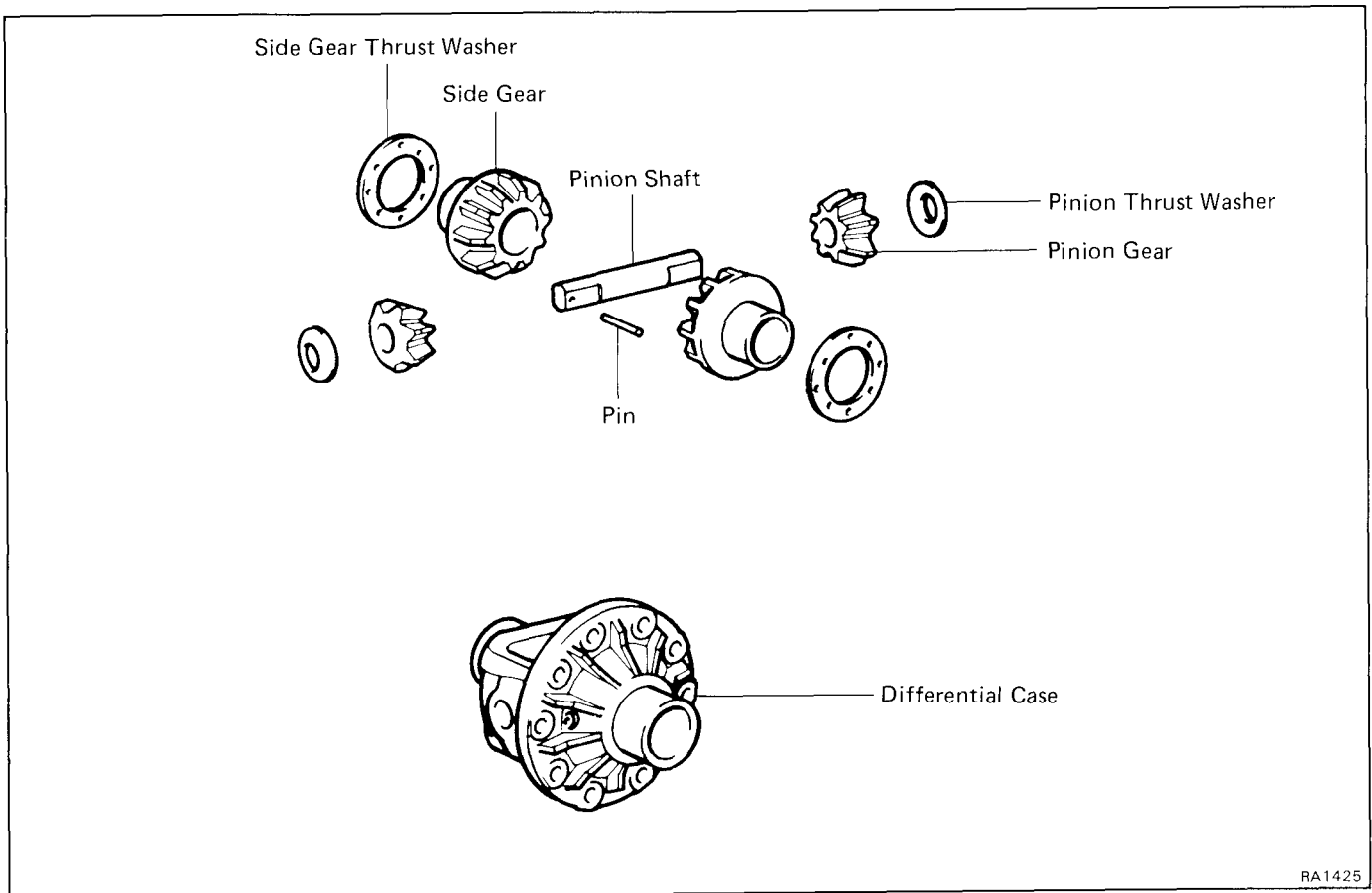
Below -18°C (0°F) SAE 80W-90 or 80W

Capacity: 1.3 liters (1.4 US qts, 1.1 Imp.qts)

Install a filler plug.



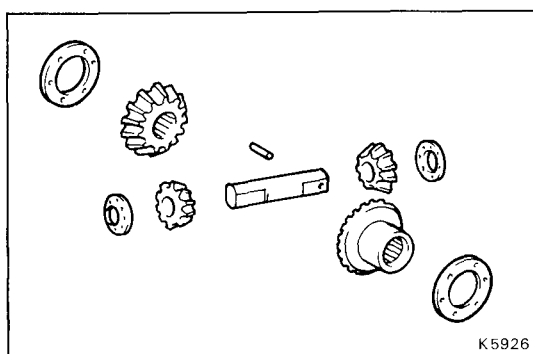
Differential Case (Conventional 2 Pinion Type Differential) COMPONENTS



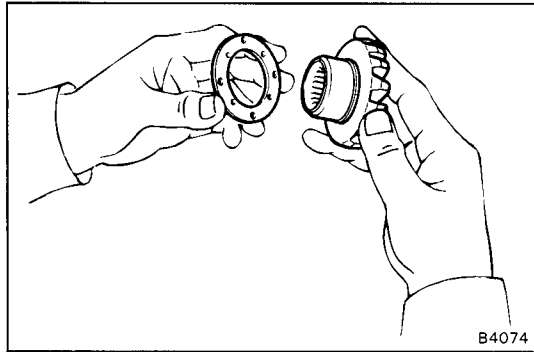
DISASSEMBLY OF DIFFERENTIAL CASE

1. DISASSEMBLE DIFFERENTIAL CASE

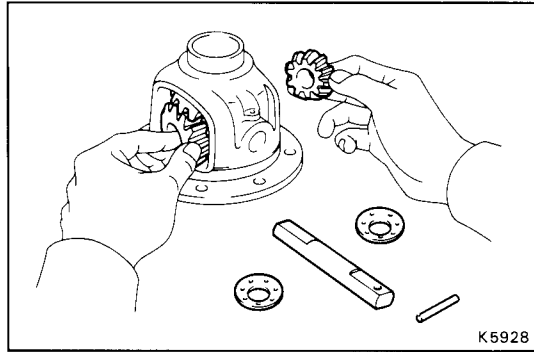
(a) Using a hammer and punch, drive out the straight pin.



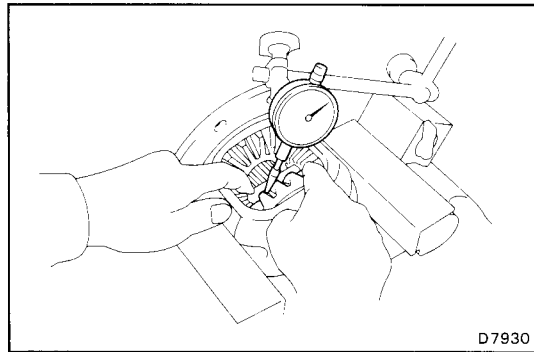
(b) Remove the pinion shaft, two pinion gears, two side gears and two thrust washers.



B4074



K5928



D7930

ASSEMBLY OF DIFFERENTIAL CASE

1. ASSEMBLE DIFFERENTIAL CASE

- (a) Install the proper thrust washers to the side gears.

- (b) Assemble the side gear, pinion gear, pinion shaft and pinion thrust washer into the differential case.

HINT: Align the hole of the pinion shaft and case.

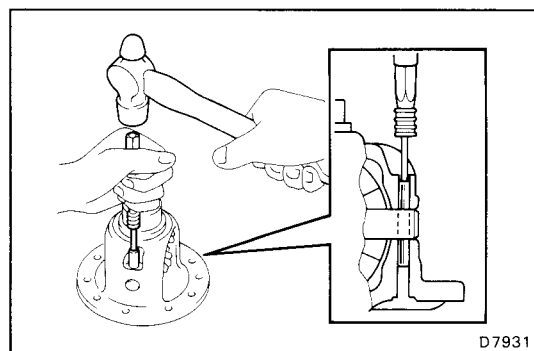
- (c) Measure the side gear backlash while holding one pinion gear toward the case.

Standard backlash: 0.05 – 0.20 mm
(0.0020 – 0.0079 in.)

If the backlash is not within specification, install a thrust washer of different thickness.

- (d) Using the table below, select thrust washers which will ensure that the backlash is within specification. Try to select washers of the same size for both sides.

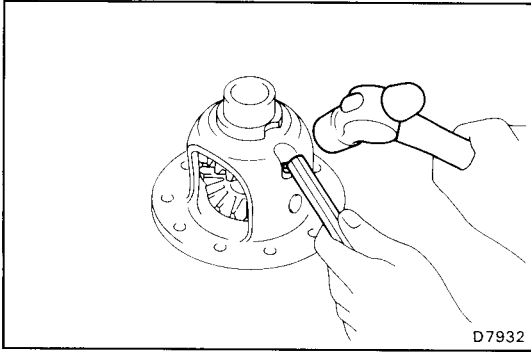
Thrust washer thickness	mm (in.)
1.58 – 1.62	(0.062 – 0.064)
1.68 – 1.72	(0.066 – 0.068)
1.78 – 1.82	(0.070 – 0.072)



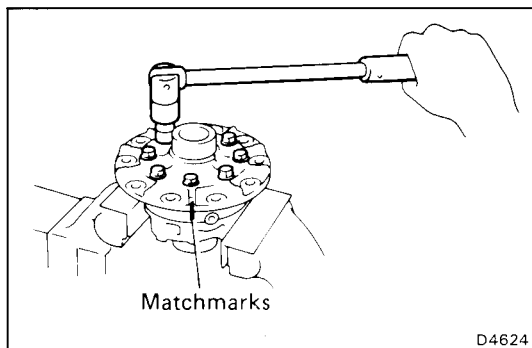
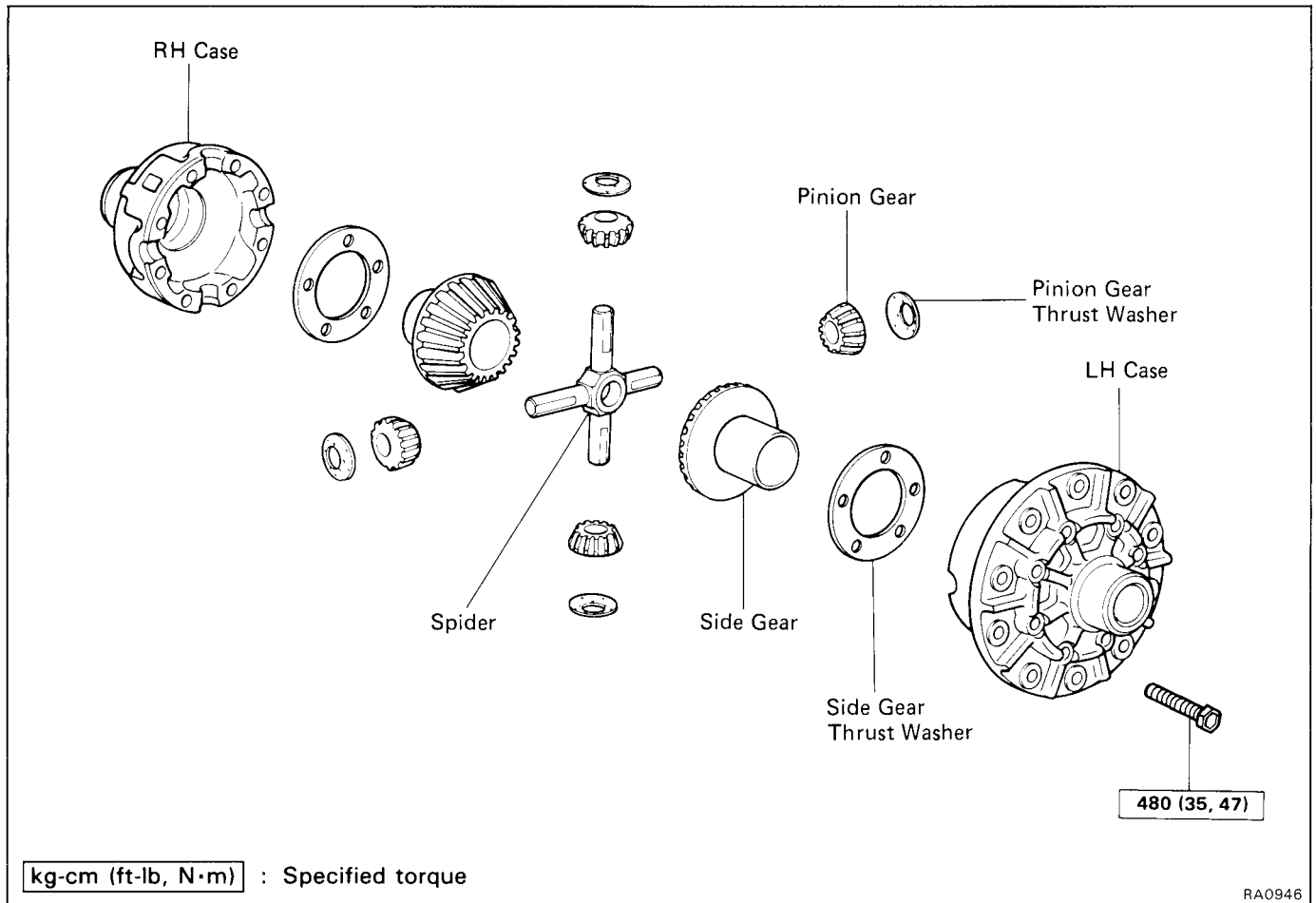
D7931

- (e) Using a hammer and punch, install the straight pin through the case and hole of the pinion shaft.

(f) Stake the differential case.



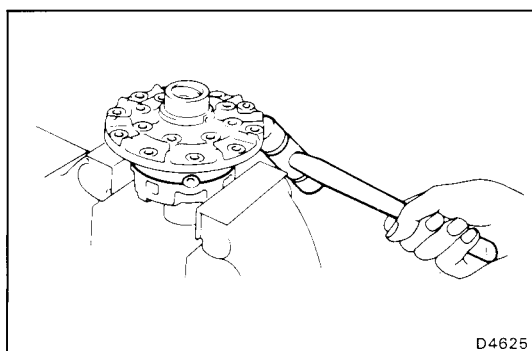
Differential Case (Conventional 4 Pinion Type Differential)



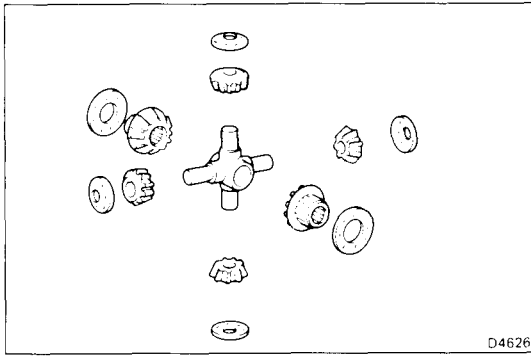
DISASSEMBLY OF DIFFERENTIAL CASE

1. DISASSEMBLE DIFFERENTIAL CASE

- (a) Place the matchmarks on the LH and RH cases.
- (b) Remove the eight bolts.



- (c) Using a plastic hammer, separate the LH and RH cases.

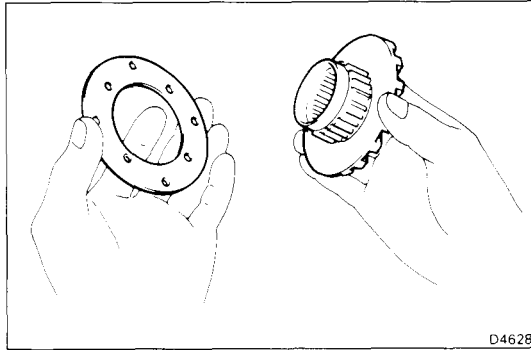


2. REMOVE FOLLOWING PARTS FROM CASE:

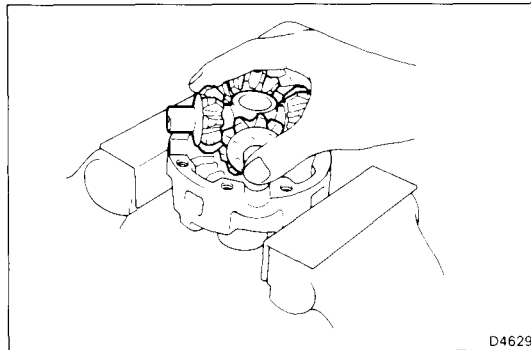
- Two side gears
- Two side gear thrust washers
- Spider
- Four pinion gears
- Four pinion gear thrust washers

ASSEMBLY OF DIFFERENTIAL CASE

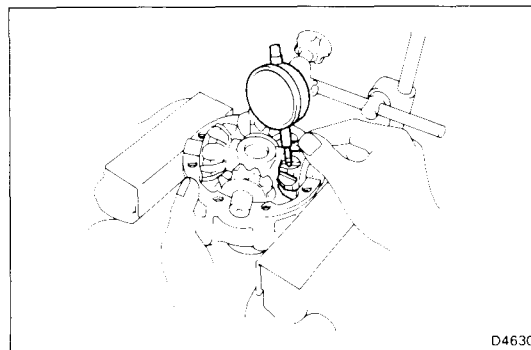
1. MEASURE SIDE GEAR BACKLASH



- (a) Install the thrust washer to the side gear.
- (b) Install the side gear to the RH case.



- (c) Install the four pinion gears and thrust washers to the spider.
- (d) Install the pinion gear and spider to the RH case.



- (e) Hold the side gear, measure the side gear backlash.

Backlash: 0.05 — 0.20 mm (0.0020 — 0.0079 in.)

HINT: Measure the backlash at the RH case and at the LH case.

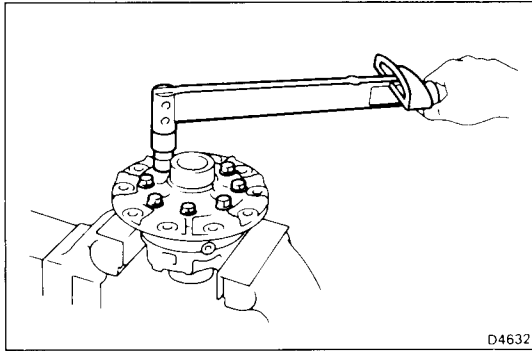
- (f) If the backlash is not within specification, install a thrust washer of a different thickness.

HINT: Use washer of the same thickness on both the right and left sides.

Thickness		mm (in.)	
0.9	(0.035)	1.2	(0.047)
1.0	(0.039)	1.3	(0.051)
1.1	(0.043)		

2. ASSEMBLE DIFFERENTIAL CASE

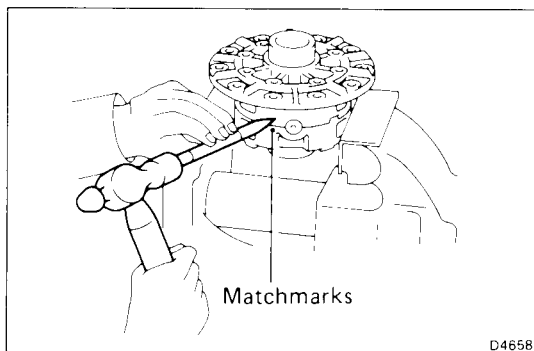
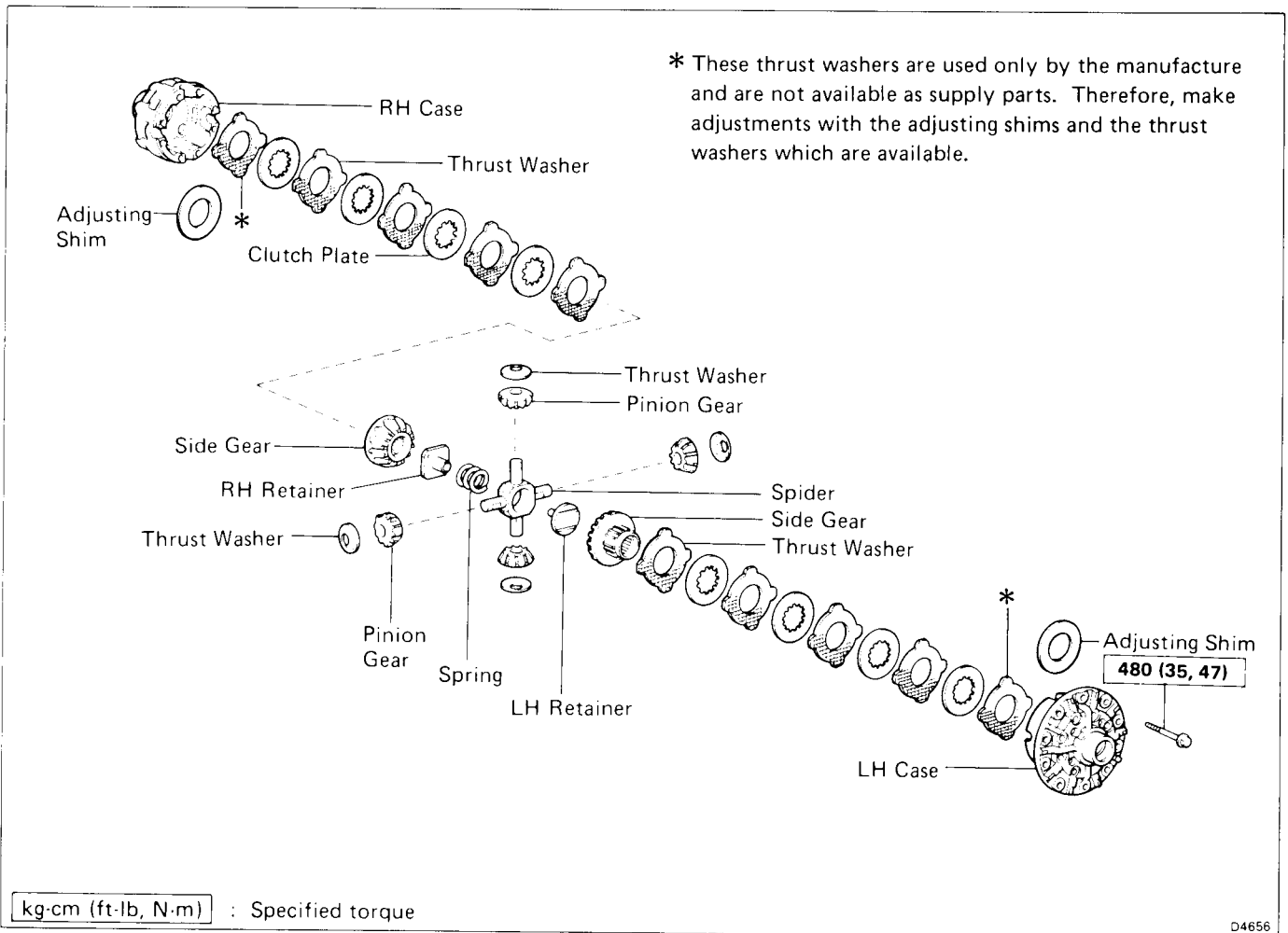
- (a) Install the side gear and thrust washer to the RH case.
- (b) Install the pinion gears and spider to the RH case.
- (c) Install the side gear and thrust washer to the LH case.
- (d) Apply gear oil to the each parts.



- (e) Align the matchmarks on the LH and RH cases.
- (f) Torque the eight bolts.

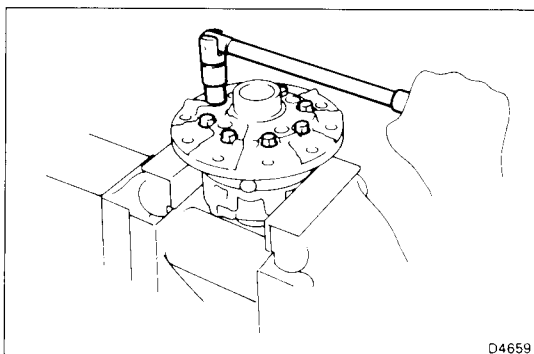
Torque: 480 kg-cm (35 ft-lb, 47 N·m)

Differential Case (Limited Slip Differential)

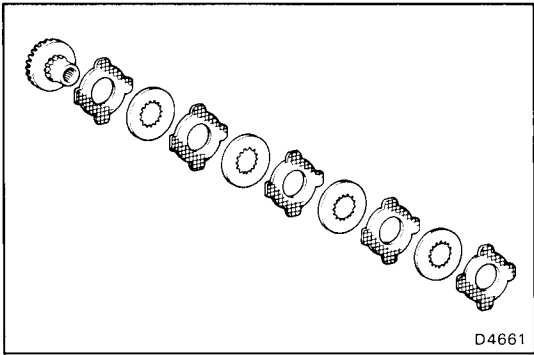


DISASSEMBLY OF LIMITED SLIP DIFFERENTIAL

1. PLACE MATCHMARKS ON RH AND LH CASES



2. REMOVE CASE BOLTS AND LH CASE WITH GEAR
Remove the bolts uniformly and a little at a time.

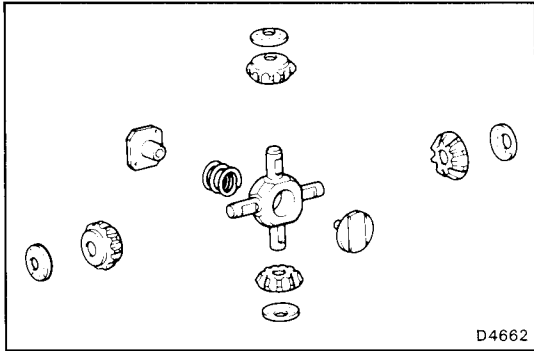


D4661

3. REMOVE FOLLOWING PARTS FROM LH CASE:

- (a) Side gear
- (b) Side gear thrust washer (5 pieces)
- (c) Clutch plate (4 pieces)

HINT: Keep the disassembled parts in order.



D4662

4. REMOVE FOLLOWING PARTS FROM RH CASE:

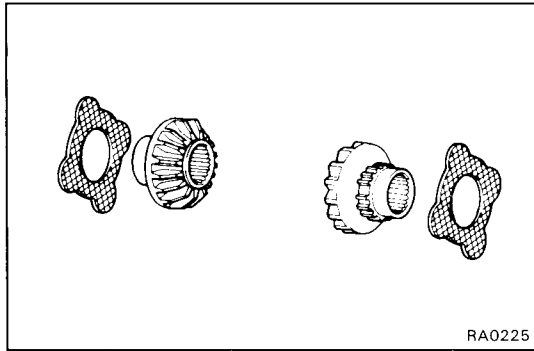
- (a) Spring LH retainer and two spring
- (b) Spider with pinion gear
- (c) Spring RH retainer
- (d) Side gear
- (e) Side gear thrust washer (5 pieces)
- (f) Clutch plate (4 pieces)

HINT: Keep the disassembled parts in order.

INSPECTION OF COMPONENTS

1. REPLACE PARTS THAT ARE DAMAGED OR WORN

HINT: If replacing the side gear, also replace the thrust washer making contact with it.



RA0225

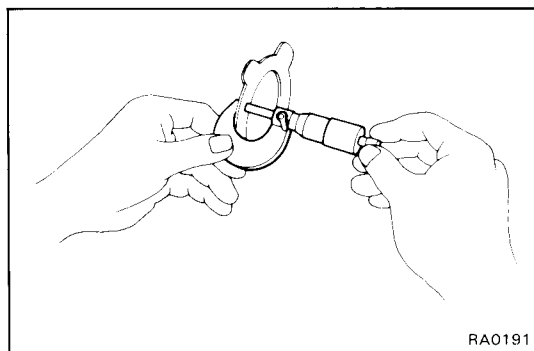
2. INSPECT THRUST WASHERS FOR WEAR OR DAMAGE

Check that the contact surface of the thrust washer is even and that no bare metal is showing.

Thickness limit (reference): 1.74 mm (0.0685 in.)

If necessary, replace the thrust washers.

HINT: If replacing the thrust washer, also replace the clutch plate making contact with it.



RA0191

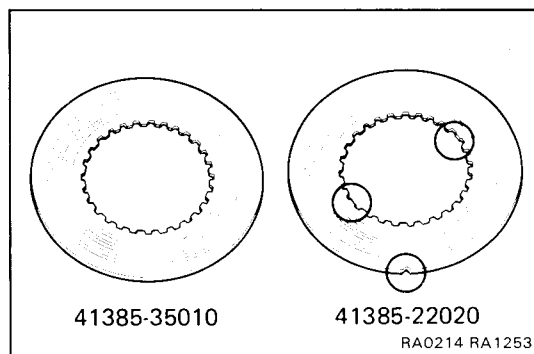
3. INSPECT CLUTCH PLATE FOR WEAR OR DAMAGED

Check see that there is no abnormal wear.

If necessary, replace the clutch plate.

HINT: As shown in the illustration, there are two types of clutch plates. The clutch plate in differential will either have a notched portion on its rim or teeth missing at two places on the inner ring (right side), or a clutch plate with no missing teeth or notched portion (left side).

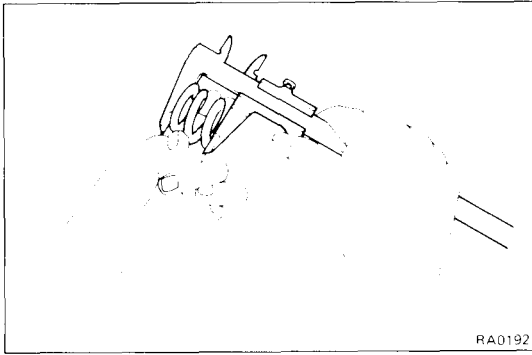
Therefore, when replacing the clutch plates never mix these two types inside the same differential.



41385-35010

41385-22020

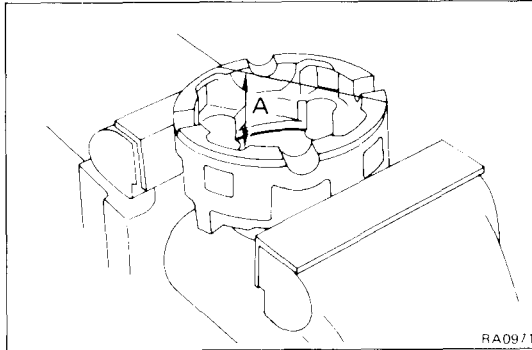
RA0214 RA1253



4. INSPECT SPRING FREE LENGTH

Measure the free length of the spring.

Limit: 31.3 mm (1.232 in.)

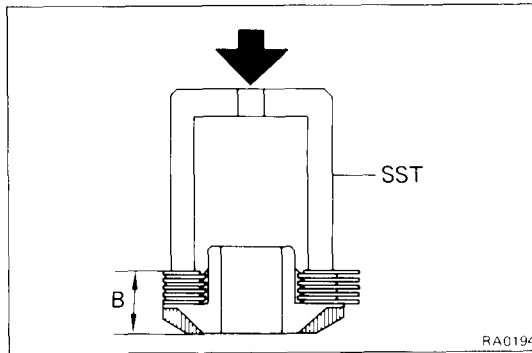


SELECT ADJUSTING SHIM

1. MEASURE RH CASE

Measure the RH case as shown in the figure.

"A" = Case dimension.



2. MEASURE SIDE GEAR, THRUST WASHER AND CLUTCH PLATE

(a) Assemble the side gear, thrust washers and clutch plates on the side gear.

HINT: Do not assemble the adjusting shims.

(b) Using SST to press down the thrust washers and clutch plates with about 10 kg (22 lb) of pressure, measure dimension "B".

SST 09726-35010

Total shim thickness C:

"C" = "A" - "B" - 16.15 mm (0.6358 in.)

(c) Referring to the section table on the next page select the proper adjusting shims.

HINT: The thrust washer attached to the outside of the side gear is marked from A to M according to thickness.

This part is used only during assembly at the factory and therefore is neither a supply part, nor does it have a part number.

During repair, install the selected adjusting shim (marked A through E) between the outermost thrust washer and case.

Adjusting shim sizes mm (in.)

Mark	Thickness	Mark	Thickness
A	0.15 (0.0059)	D	0.30 (0.0118)
B	0.20 (0.0079)	E	0.35 (0.0138)
C	0.25 (0.0098)		

Adjusting shim selection table mm (in.)

B Dimension	A Dimension							
	45.00 .00	.01	.02	.03	.04	.05	.06	.07
	(1.7717)	(1.7720)	(1.7724)	(1.7728)	(1.7732)	(1.7736)	(1.7740)	(1.7744)
28.10 (1.1063)								
.12 (1.1071)							$\textcircled{C} + \textcircled{C} + \textcircled{D}$	
.14 (1.1079)						$\textcircled{C} + \textcircled{C} + \textcircled{C}$		
.16 (1.1087)								
.18 (1.1094)					$\textcircled{E} + \textcircled{E}$			
.20 (1.1102)								
.22 (1.1110)					$\textcircled{D} + \textcircled{E}$			
.24 (1.1118)								
.26 (1.1126)								
.28 (1.1134)					$\textcircled{D} + \textcircled{D}$			
.30 (1.1142)								
.32 (1.1150)					$\textcircled{C} + \textcircled{D}$			
.34 (1.1157)								
.36 (1.1165)								
.38 (1.1173)					$\textcircled{C} + \textcircled{C}$			
.40 (1.1181)								
.42 (1.1189)					$\textcircled{B} + \textcircled{C}$			
.44 (1.1197)								
.46 (1.1205)								
.48 (1.1213)					$\textcircled{B} + \textcircled{B}$			
.50 (1.1220)								
.52 (1.1228)					\textcircled{E}			
.54 (1.1236)								
.56 (1.1244)								
.58 (1.1252)					\textcircled{D}			
.60 (1.1260)								
.62 (1.1268)				\textcircled{C}				
.64 (1.1276)								
.66 (1.1283)			\textcircled{B}					
.68 (1.1291)	\textcircled{A}							
.70 (1.1299)								

3. SELECT ADJUSTING SHIMS FOR LH CASE IN SAME PROCEDURE

ASSEMBLY OF DIFFERENTIAL CASE

(See page RA-23)

HINT: Apply LSD oil to each component.

1. ASSEMBLE RH CASE

(a) If necessary, install the adjusting shims.

(b) Install the thrust washer , clutch plate as shown in the figure.

HINT: Install the thrust washer without the oil groove on the outermost side and so that it makes contact with the side of case which has no oil groove.

(c) Install the side gear.

2. ASSEMBLE LH CASE IN SAME PROCEDURE

3. INSTALL PINION WASHER AND RH RETAINER TO SPIDER

(a) Install the pinion gear and washer.

(b) Align the RH retainer hole with the spider knock pin and install.

4. INSTALL SPIDER, PINION AND RH RETAINER TO RH CASE

Check that the RH retainer is securely on the spider pin.

5. MEASURE PINION GEAR BACKLASH

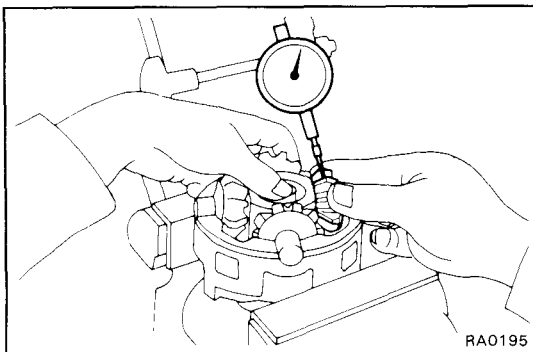
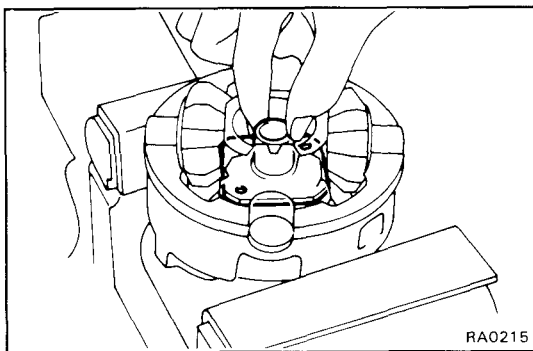
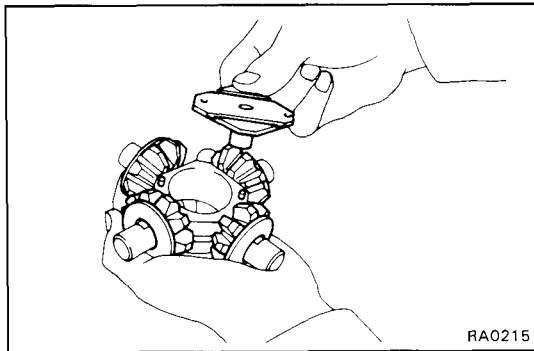
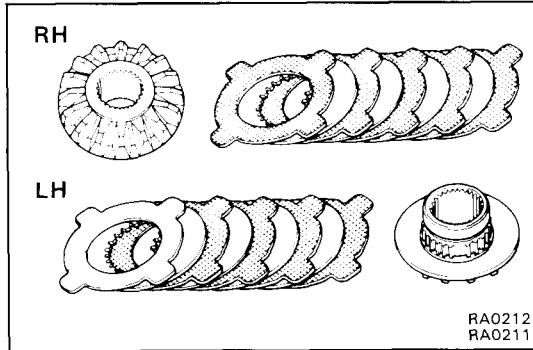
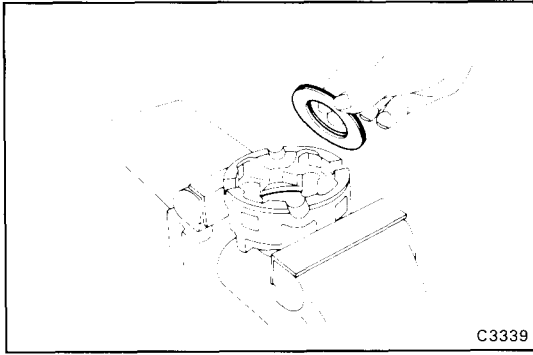
(a) Secure the side gear and measure the backlash while pushing in the spider retainer.

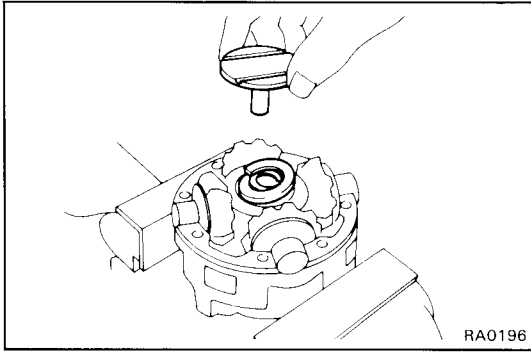
Backlash: 0.05 – 0.20 mm (0.0020 – 0.0079 in.)

HINT: Measure at all four locations.

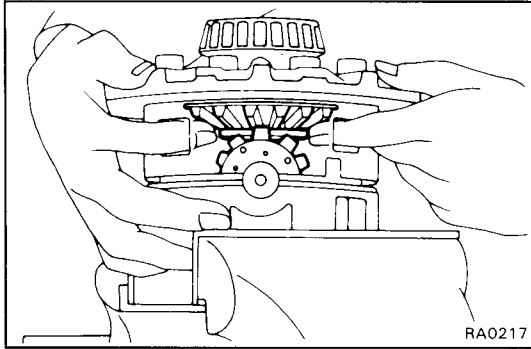
If the backlash is not within specification, select an adjusting shim.

6. MEASURE LH CASE IN SAME MANNER





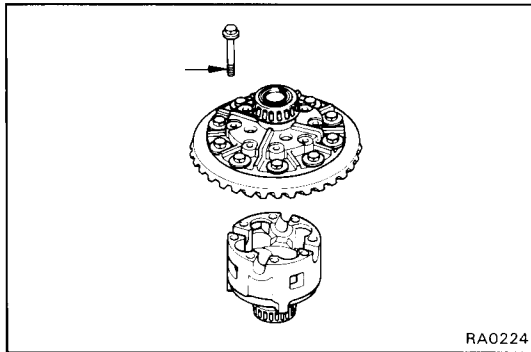
7. INSTALL SPRING AND LH RETAINER



8. ASSEMBLE RH AND LH CASES

Align the marks on RH and LH cases.

HINT: Be careful not to drop the side gear, and check the pinion and side gear alignment.

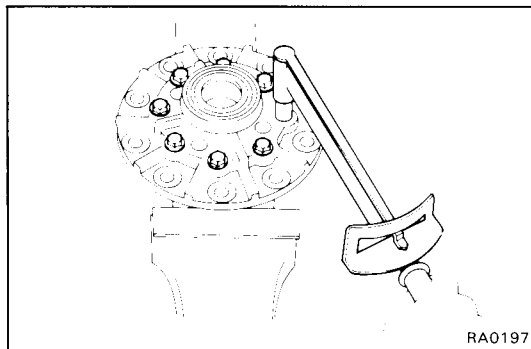


9. INSTALL CASE COVER BOLTS

(a) Apply a small amount of oil to the bolt.

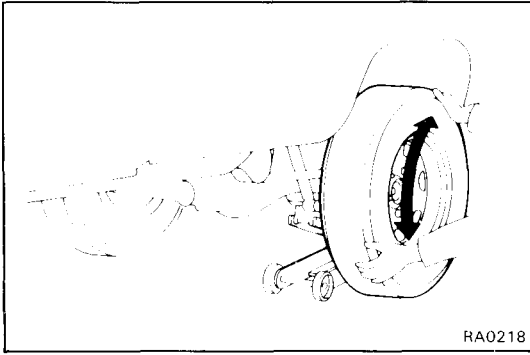
(b) Tighten the bolts uniformly and a little at a time.

Torque: 480 kg-cm (35 ft-lb, 47 N·m)



INSTALLATION OF DIFFERENTIAL

1. INSTALL DIFFERENTIAL CASE IN CARRIER
(See page RA-33)
2. INSTALL DIFFERENTIAL TO BODY
(See page RA-42)



INSPECTION OF DIFFERENTIAL OPERATION

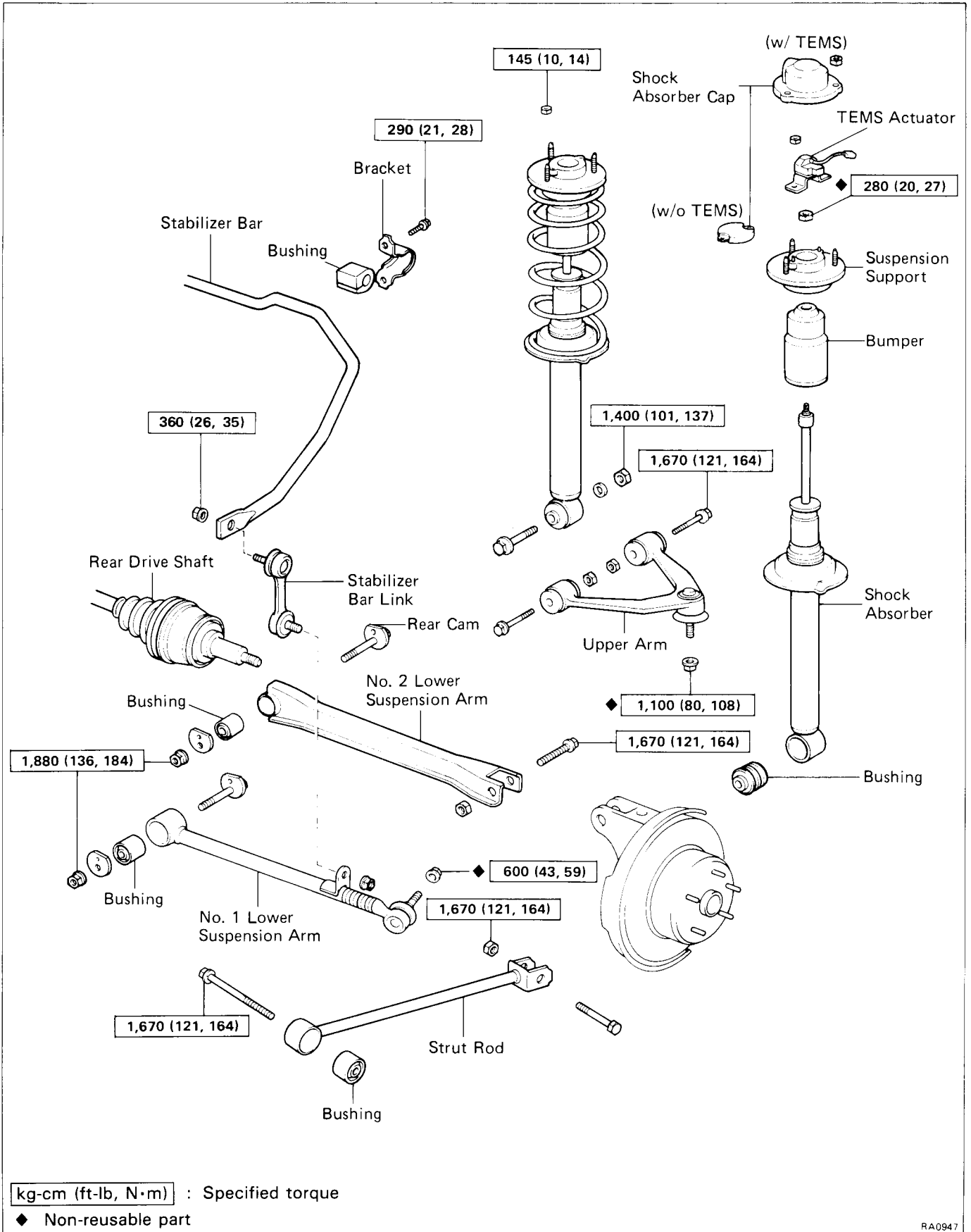
INSPECT DIFFERENTIAL OPERATION

- (a) After completing work, block the front wheels and jack up one of the rear wheel.
- (b) Rotate the rear wheel 3 – 6 times to break it in.
- (c) Check that the wheel turns smoothly.

HINT: If the wheel can not be turned or if it turns with a drag, re-disassemble the differential case and select a different size adjusting shim.

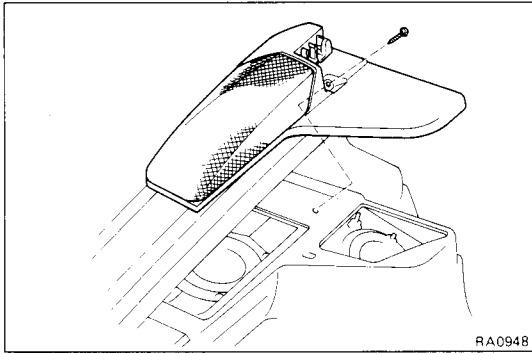
- (d) Check the opposite wheel in same procedure.

REAR SUSPENSION COMPONENT

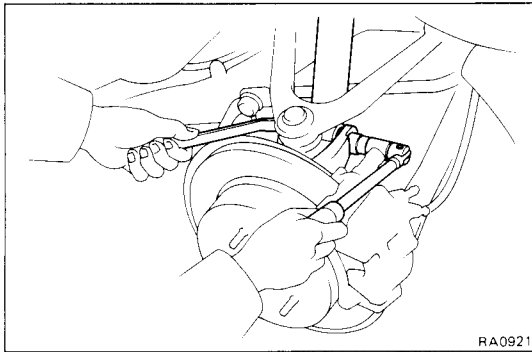


Coil Spring and Shock Absorber

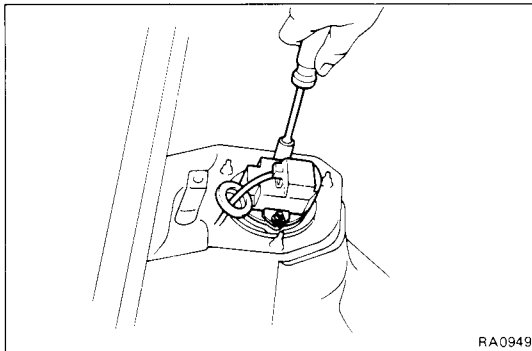
REMOVAL OF COIL SPRING AND SHOCK ABSORBER



1. JACK UP VEHICLE AND REMOVE WHEEL
2. REMOVE SPEAKER GRILLE
3. REMOVE QUARTER TRIM (w/ TEMS)

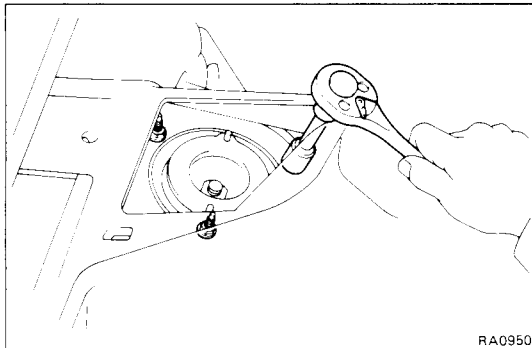


4. DISCONNECT SHOCK ABSORBER FROM AXLE CARRIER

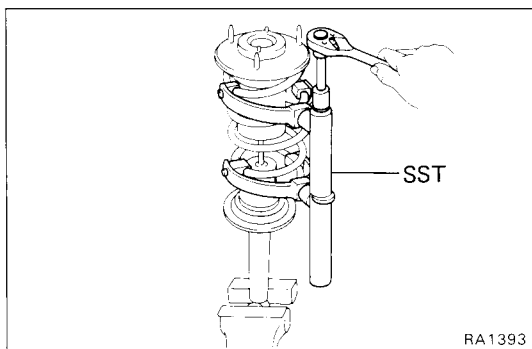


5. REMOVE SHOCK ABSORBER ASSEMBLY

- (a) Remove the shock absorber cap.
- (b) Remove the TEMS actuator.

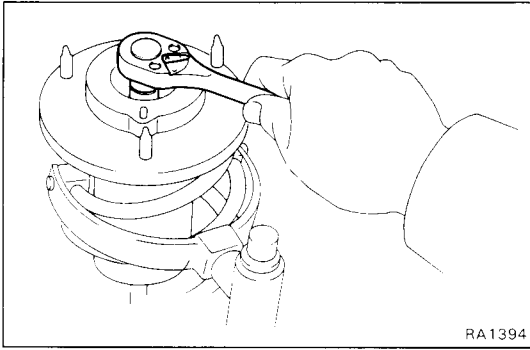


- (c) Remove the three shock absorber mounting nuts from the body and remove the shock absorber assembly.



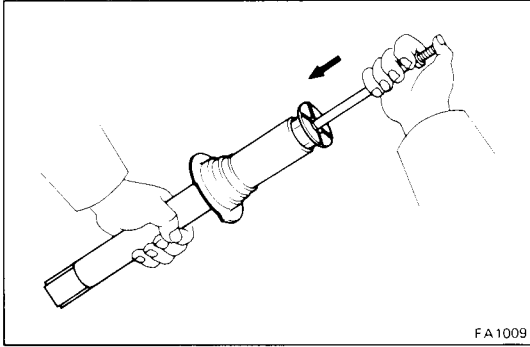
6. REMOVE COIL SPRING

- (a) Mount the shock absorber in a vise.
- (b) Using SST, compress the coil spring.
SST 09727-30020



RA1394

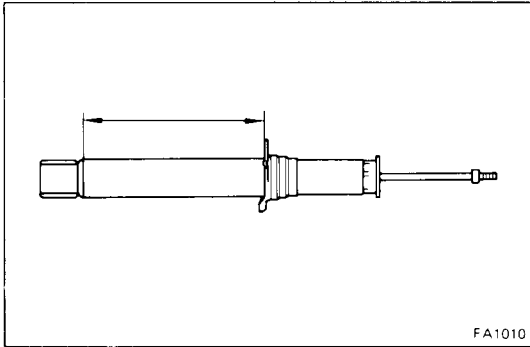
- (c) Remove the suspension support nut.
- (d) Remove the suspension support, coil spring and bumper.



FA1009

7. INSPECT OPERATION OF SHOCK ABSORBER

- (a) While pushing the piston rod, check that the pull throughout the stroke is even, and that there is no abnormal resistance or noise.
- (b) Push the piston rod in fully and release it. Check that it return at a constant speed.



FA1010

8. DISCARD SHOCK ABSORBER

Before discarding the shock absorber, drill a hole 2 – 3 mm (0.079 – 0.118 in.) in diameter at the location shown in the figure to release the gas inside.

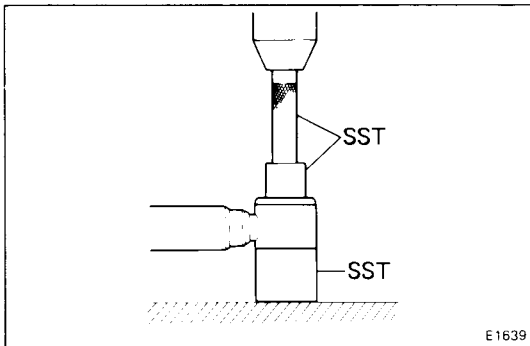
HINT:

- When drilling, chips may fly out, so work carefully.
- The gas is colorless, odorless, and non-poisonous.

REPLACEMENT OF REAR SHOCK ABSORBER BUSHING

REPLACE REAR SHOCK ABSORBER BUSHING

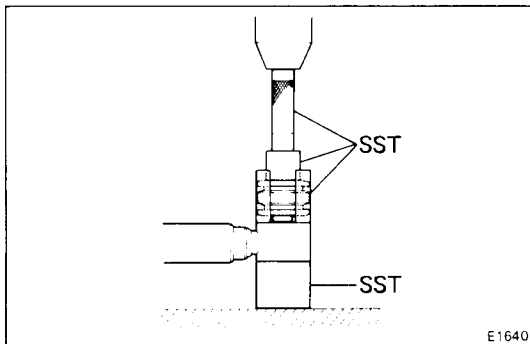
- (a) Using SST, press out the rear shock absorber bushing.
SST 09710-22020 (09710-01020, 09710-01060, 09710-01070)



E1639

- (b) Using SST, press in a new rear shock absorber bushing.

SST 09710-22020 (09710-01020, 09710-01030, 09710-01040, 09710-01050)

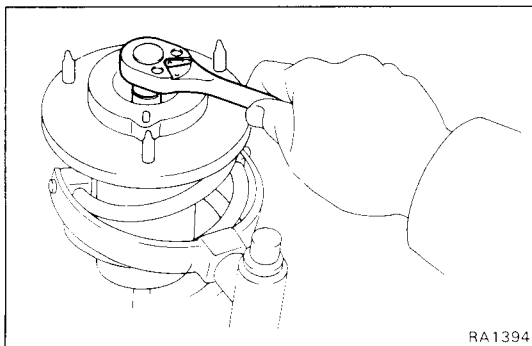
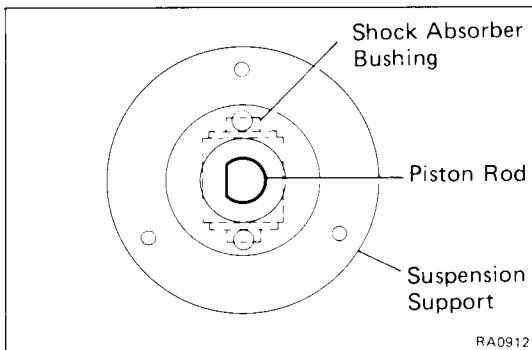
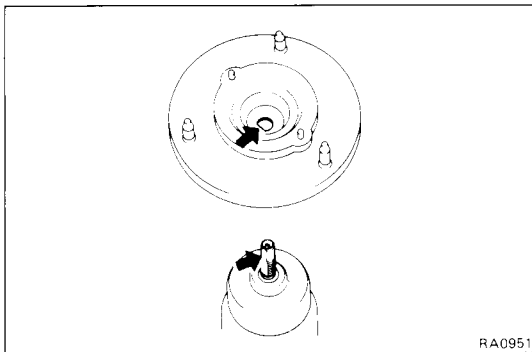
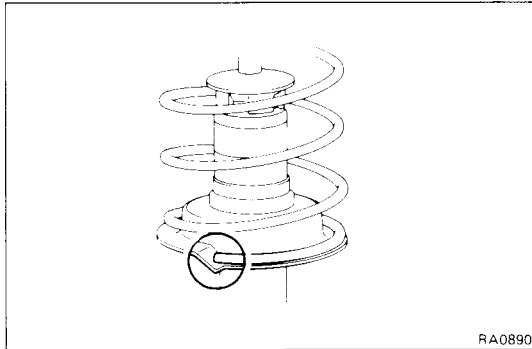
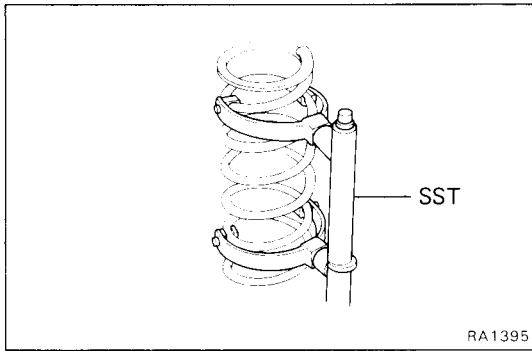


E1640

INSTALLATION OF REAR SHOCK ABSORBER

1. INSTALL BUMPER, COIL SPRING AND SUSPENSION SUPPORT

- (a) Mount the shock absorber in a vise.
- (b) Using SST, compress the coil spring.
SST 09727-30020



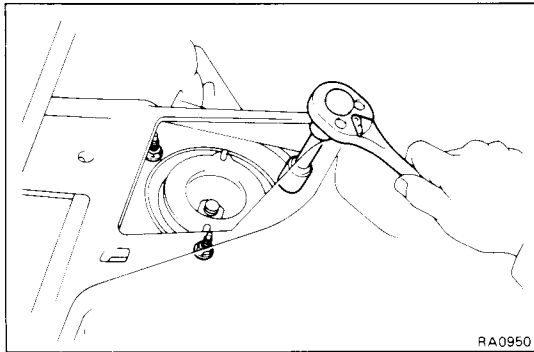
- (c) Install the bumper to the shock absorber.
- (d) Align the coil spring end with the lower seat hollow and install the coil spring.

- (e) Align the suspension support hole and piston rod and install it.

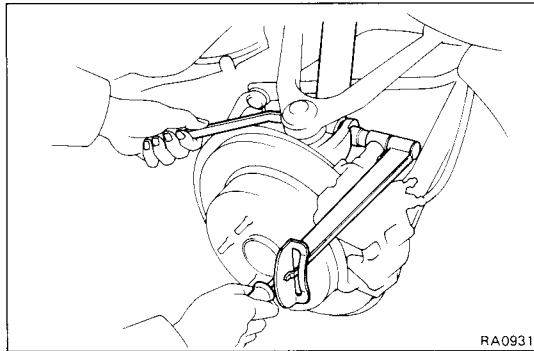
- (f) Align the suspension support with the shock absorber lower bushing as shown.

- (g) Install the suspension support nut.

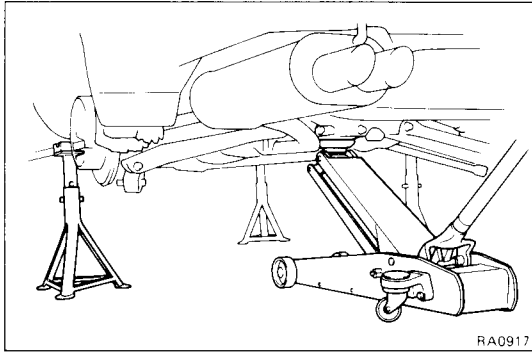
Torque: 280 kg-cm (20 ft-lb, 27 N·m)



2. **CONNECT SHOCK ABSORBER ASSEMBLY TO BODY**
Connect the shock absorber assembly with the three nuts.
Torque: 145 kg-cm (10 ft-lb, 14 N·m)



3. **INSTALL SHOCK ABSORBER ASSEMBLY**
 - (a) Connect the shock absorber assembly to the axle carrier.
Torque: 1,400 kg-cm (101 ft-lb, 137 N·m)
 - (b) Install the TEMS actuator and shock absorber cap.
4. **INSTALL QUARTER TRIM AND SPEAKER GRILLE**



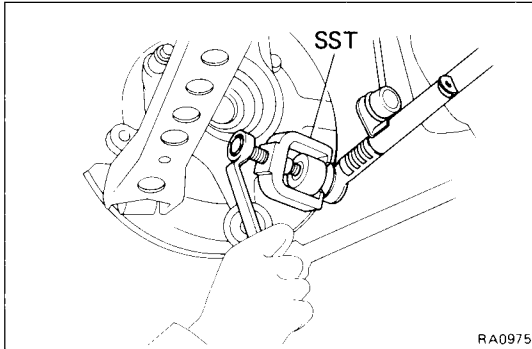
No.1 and No.2 Lower Suspension Arms

(See page RA-56)

REMOVAL OF NO.1 AND NO.2 LOWER SUSPENSION ARMS

1. JACK UP AND SUPPORT VEHICLE

Jack up the vehicle and support the body with stands.

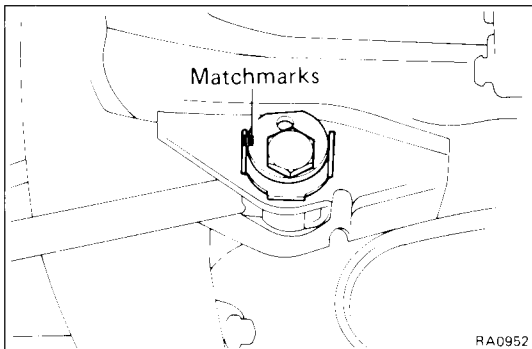


2. REMOVE REAR DRIVE SHAFT (See page RA-16)

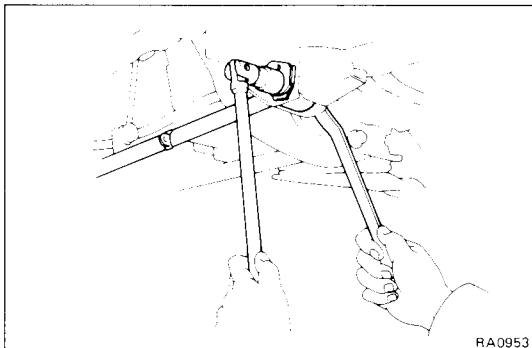
3. REMOVE NO.1 LOWER SUSPENSION ARM

- (a) Remove the nut and disconnect the No.1 suspension arm from the axle carrier.
- (b) Using SST, disconnect the No.1 suspension arm from the axle carrier.

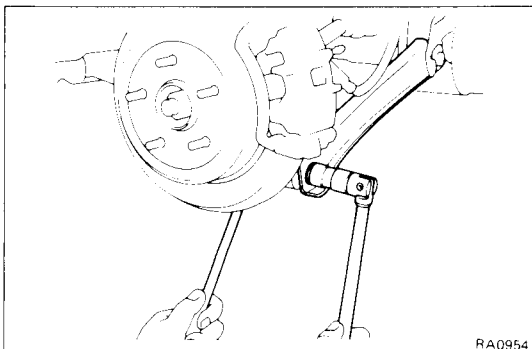
SST 09611-22012



- (c) Place the matchmarks to the adjusting cam and body.

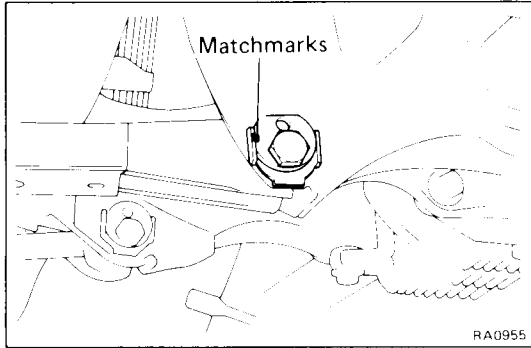


- (d) Remove the cam and bolt from the body and remove the No.1 lower suspension arm.

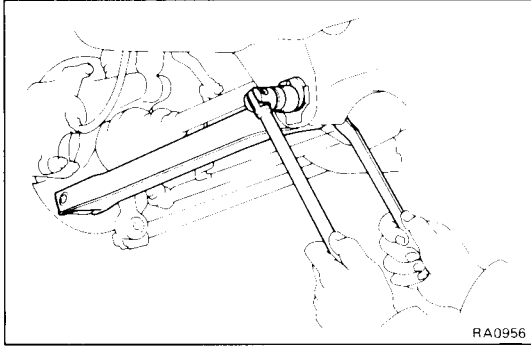


4. REMOVE NO.2 LOWER SUSPENSION ARM

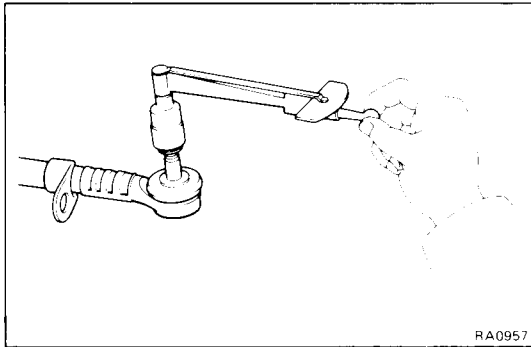
- (a) Remove the bolt and nut, disconnect the No.2 lower suspension arm from the axle carrier.



(b) Place the matchmarks to the adjusting cam and body.



(c) Remove the cam and bolt, and the No.2 lower suspension arm.



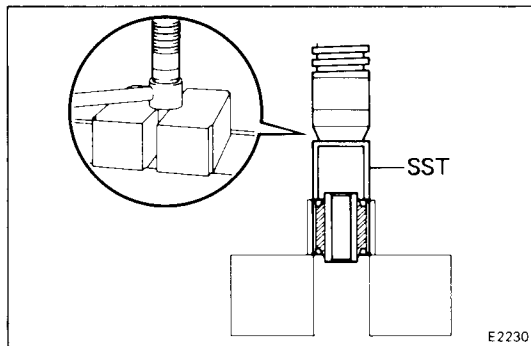
INSPECTION OF NO.1 LOWER SUSPENSION ARM BALL JOINT

INSPECT BALL JOINT FOR ROTATION CONDITION

- Flip the ball joint stud back and forth 5 times, before installing the nut.
- Using a torque gauge, turn the nut continuously one turn each 2 - 4 seconds and take the torque reading on the fifth turn.

Torque (turning): 8.5 – 35.0 kg-cm
(7 – 30 in.-lb, 0.8 – 3.4 N·m)

If not within specification, replace the No.1 suspension arm.

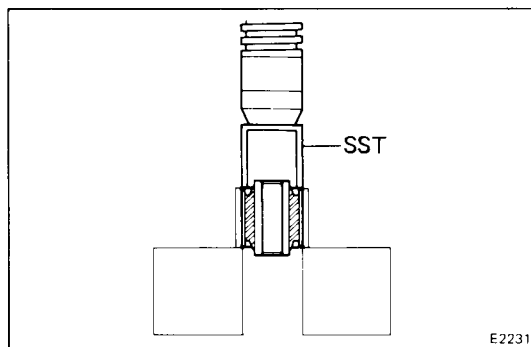


REPLACEMENT OF NO.1 AND NO.2 LOWER ARM BUSHINGS

1. REPLACE NO.1 LOWER SUSPENSION ARM BUSHING

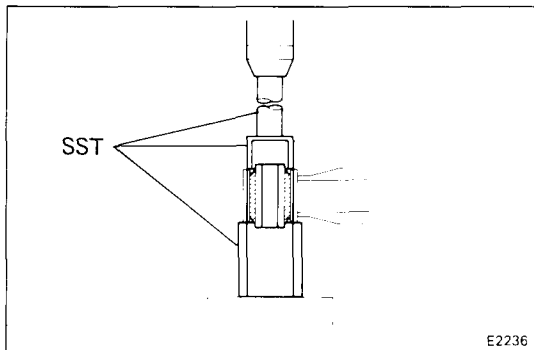
- Using SST, press out the No.1 lower suspension arm bushing.

SST 09726-35010



- Using SST, press in a new No.1 lower suspension arm bushing

SST 09726-35010

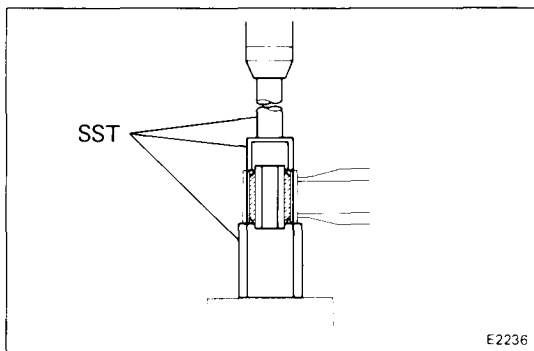


E2236

2. REPLACE NO.2 LOWER SUSPENSION ARM BUSHING

- (a) Using SST, press out the No.2 lower suspension arm bushing.

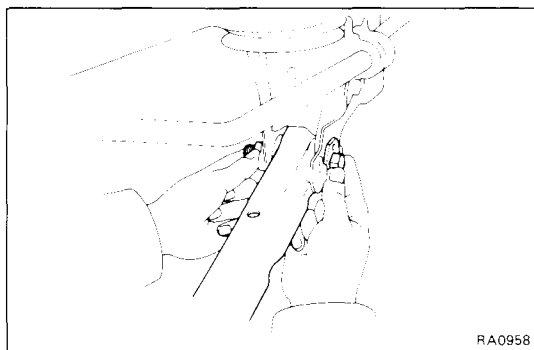
SST 09710-22041 (09710-02020, 09710-02040, 09710-02050)



E2236

- (b) Using SST, press in a new No.2 lower suspension arm bushing.

SST 09710-22041 (09710-02020, 09710-02040, 09710-02050)

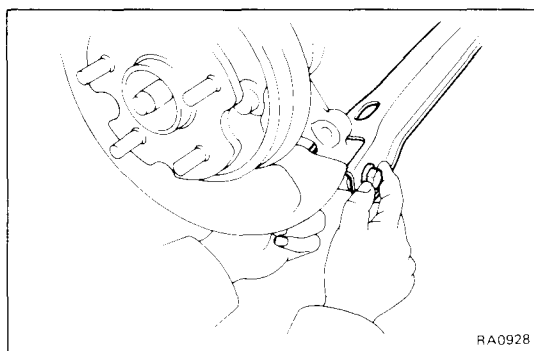


RA0958

INSTALLATION OF NO.1 AND NO.2 LOWER SUSPENSION ARMS

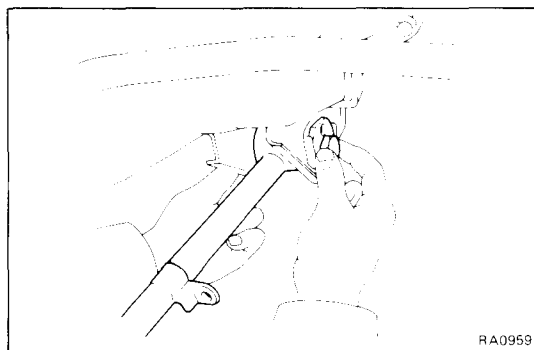
1. INSTALL NO.2 LOWER SUSPENSION ARM

- (a) Place the No.2 lower suspension arm in position.
- (b) Temporarily install the cam and bolt to the body.
- (c) Align the matchmarks to the cam and body.



RA0928

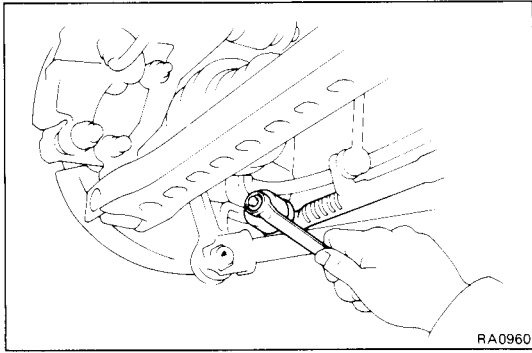
- (d) Temporarily install the bolt and nut, connect the No.2 lower suspension arm to the axle carrier.



RA0959

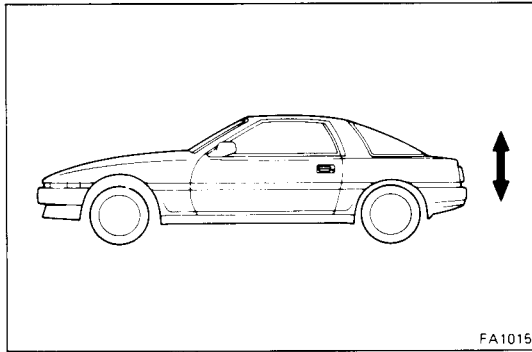
2. INSTALL NO.1 LOWER SUSPENSION ARM

- (a) Place the No.1 lower suspension arm in position.
- (b) Temporarily install the cam and bolt to the body.
- (c) Align the matchmarks to the cam and body.



- (d) Install a new nut, connect the No.1 lower suspension arm to the axle carrier.

Torque: 600 kg-cm (43 ft-lb, 59 N·m)



3. INSTALL REAR DRIVE SHAFT
(See page RA-21)

4. TORQUE LOWER SUSPENSION ARM MOUNTING BOLTS AND NUTS

- (a) Remove the stands and bounce the vehicle to stabilize the suspension.

- (b) Torque the mounting bolts and nuts with the vehicle weight on the suspension.

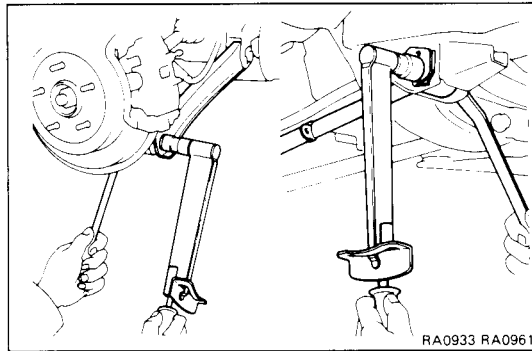
Torque:

Body × Suspension arms

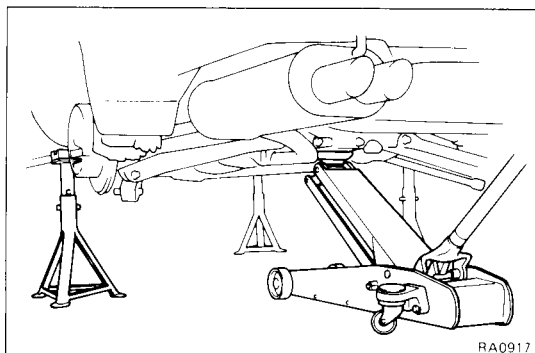
1,880 kg-cm (136 ft-lb, 184 N·m)

Axle carrier × No.2 lower suspension arm

1,670 kg-cm (121 ft-lb, 164 N·m)



5. CHECK REAR WHEEL ALIGNMENT (See page RA-3)

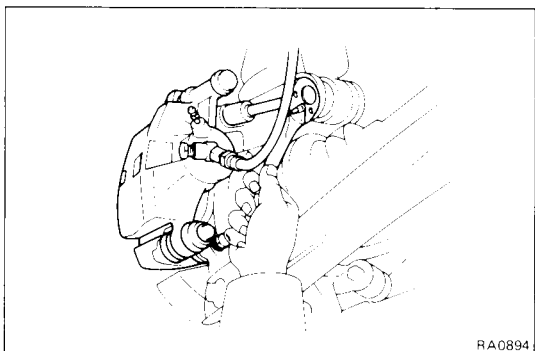


Upper Arm

(See page RA-56)

REMOVAL OF UPPER ARM

1. JACK UP AND SUPPORT VEHICLE AND REMOVE WHEEL

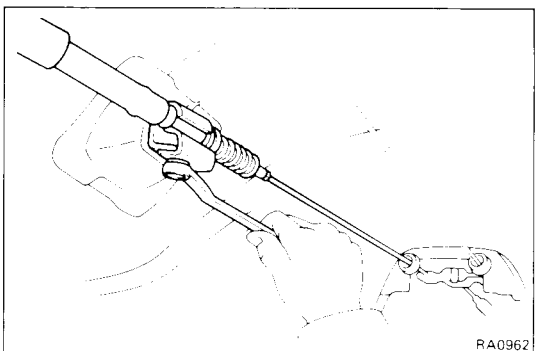


2. REMOVE BRAKE CALIPER

Remove the brake caliper from the axle carrier and suspend it with wire.

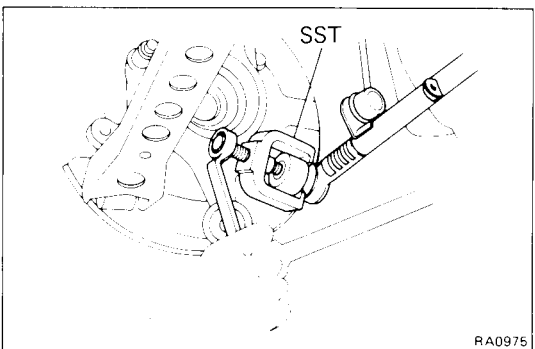
3. REMOVE REAR DRIVE SHAFT

(See page RA-16)



4. DISCONNECT PARKING BRAKE CABLE

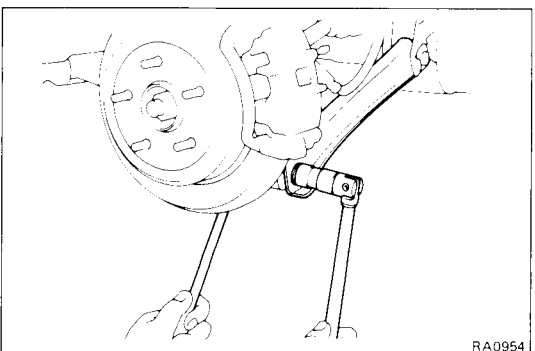
- (a) Disconnect parking brake cable from the parking brake equalizer.
- (b) Remove the two parking brake cable bracket from body.
- (c) Through out the parking brake cable from the suspension member.



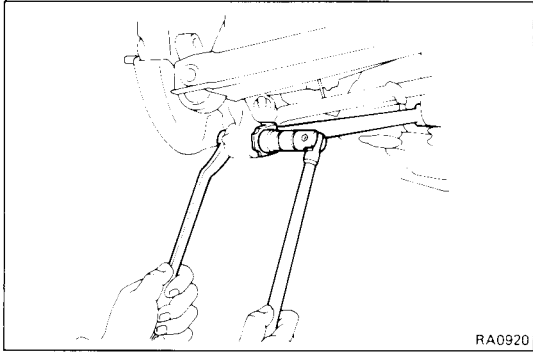
5. DISCONNECT NO.1 LOWER SUSPENSION ARM FROM AXLE CARRIER

- (a) Remove the nut.
- (b) Using SST, disconnect the No. 1 lower suspension arm from the axle carrier.

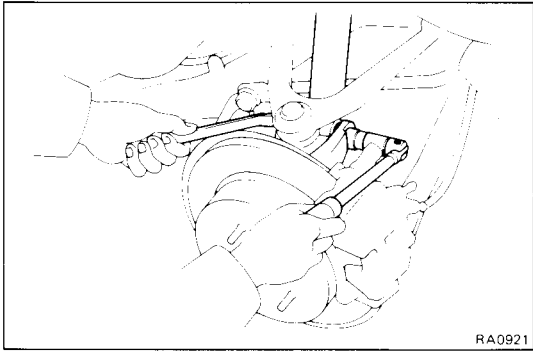
SST 09611-22012



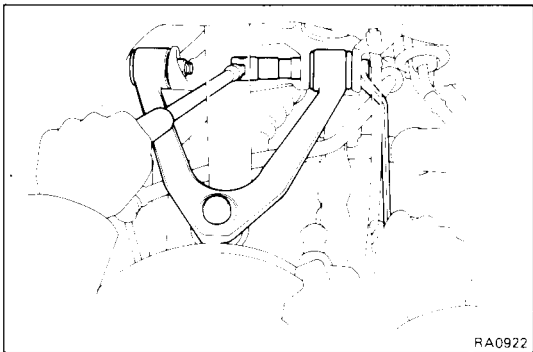
6. DISCONNECT NO.2 LOWER SUSPENSION ARM FROM AXLE CARRIER



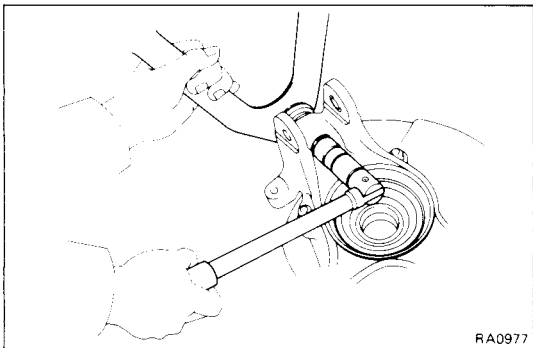
7. DISCONNECT STRUT ROD FROM AXLE CARRIER



8. DISCONNECT SHOCK ABSORBER FROM AXLE CARRIER

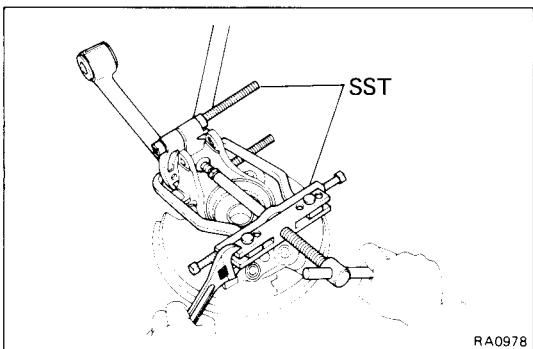


9. DISCONNECT UPPER ARM FROM BODY AND REMOVE AXLE HUB ASSEMBLY



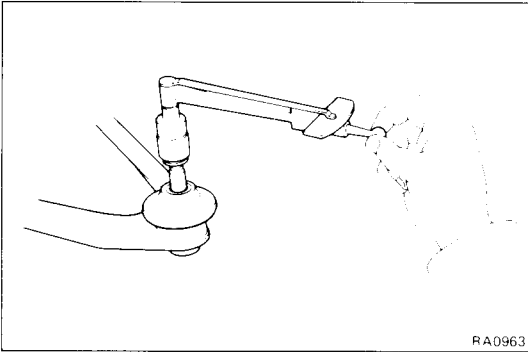
10. REMOVE UPPER ARM FROM AXLE CARRIER

- (a) Remove the upper arm mounting nut.
- (b) Remove the backing plate mounting nuts and bolts, separate the backing plate and axle carrier.



- (c) Using SST, remove the upper arm from the axle carrier.

SST 09950-00020, 09950-20017



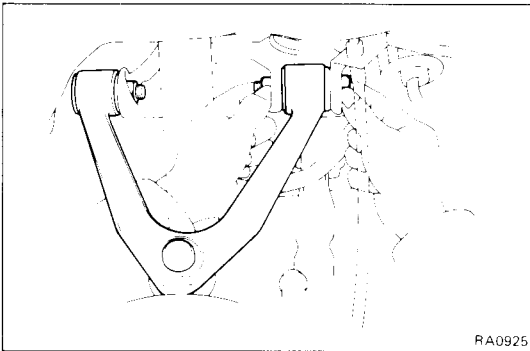
INSPECTION OF UPPER ARM BALL JOINT

INSPECT BALL JOINT FOR ROTATION CONDITION

- (a) Flip the ball joint stud back and forth 5 times as shown in the figure, before installing the nut.
- (b) Using a torque gauge, turn the nut continuously one turn each 2 - 4 seconds and take the torque reading on the fifth turn.

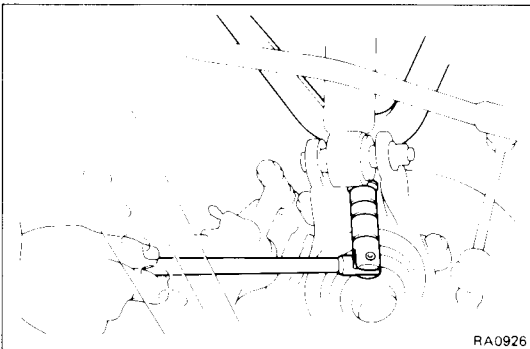
Torque (turning): 10 — 35 kg-cm
(9 — 30 in.-lb, 1.0 — 3.4 N·m)

If not within specification, replace the upper arm.

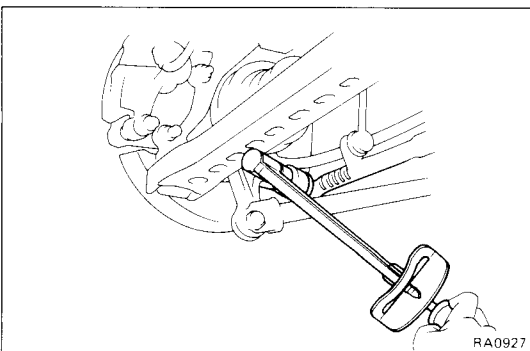


INSTALLATION OF UPPER ARM

1. TEMPORARILY CONNECT UPPER ARM TO BODY

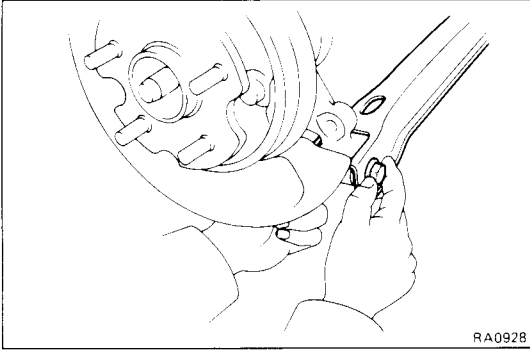


2. TEMPORARILY CONNECT AXLE HUB ASSEMBLY TO UPPER ARM WITH NEW NUT

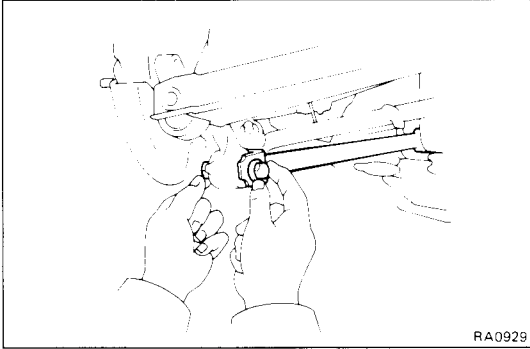


3. CONNECT NO.1 LOWER SUSPENSION ARM WITH NEW NUT

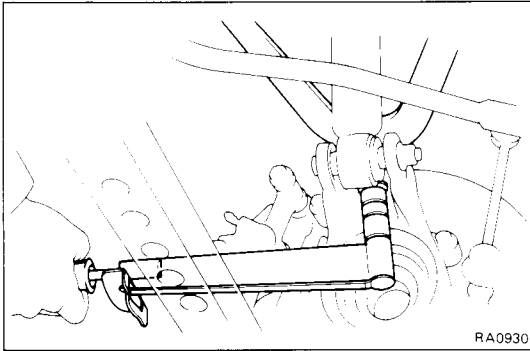
Torque: 600 kg-cm (43 ft-lb, 59 N·m)



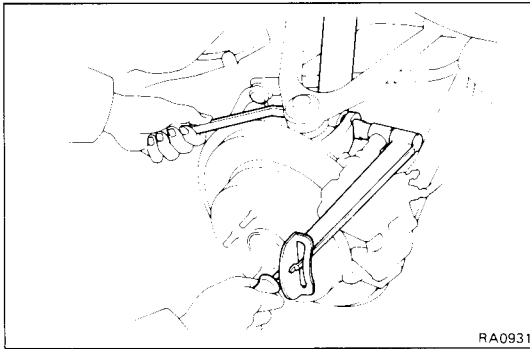
4. **TEMPORARILY CONNECT NO.2 LOWER SUSPENSION ARM**



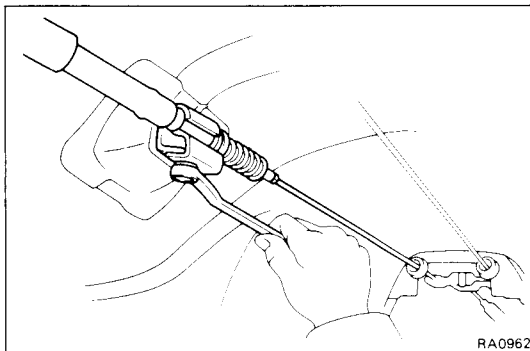
5. **TEMPORARILY CONNECT STRUT ROD**



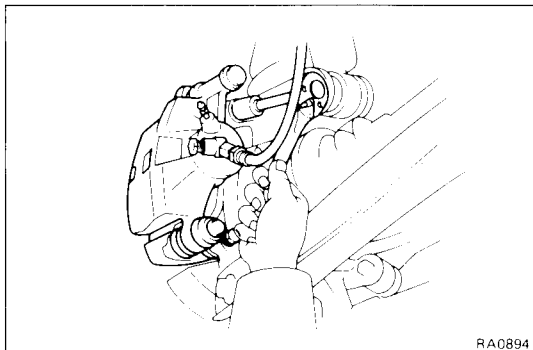
6. **TORQUE UPPER ARM MOUNTING NUT**
Torque: 1,100 kg-cm (80 ft-lb, 108 N·m)



7. **CONNECT SHOCK ABSORBER**
Torque: 1,400 kg-cm (101 ft-lb, 137 N·m)

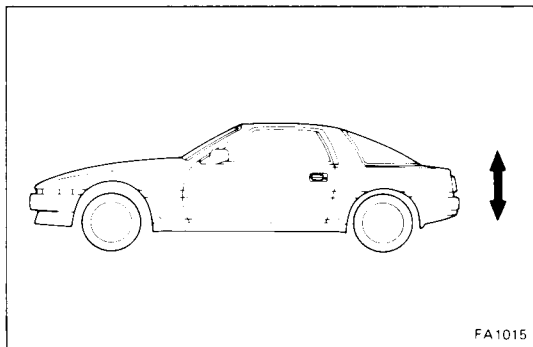


8. **CONNECT PARKING BRAKE CABLE**
- (a) Connect parking brake cable to the parking brake cable equalizer.
 - (b) Install the two parking brake cable bracket to the body.
9. **INSTALL REAR DRIVE SHAFT**
(See page RA-21)



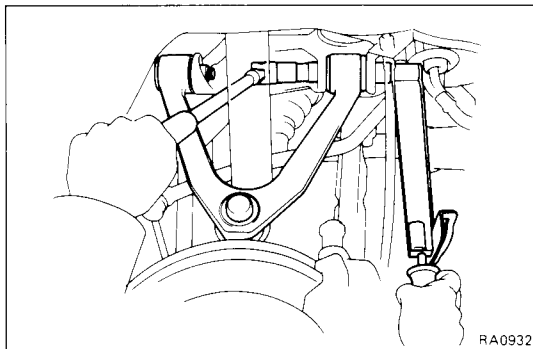
10. INSTALL BRAKE CALIPER

Torque: 475 kg-cm (34 ft-lb, 47 N·m)



11. TORQUE SUSPENSION PARTS

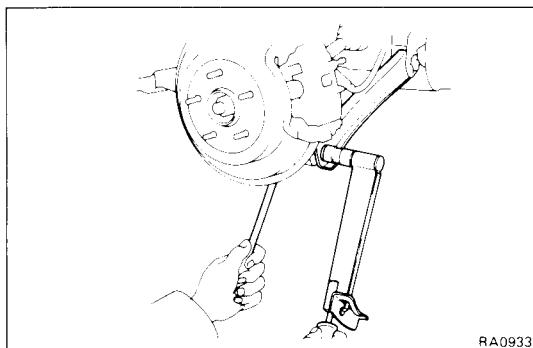
- (a) Install the wheel and remove the stands.
- (b) Bounce the vehicle to stabilize the suspension.



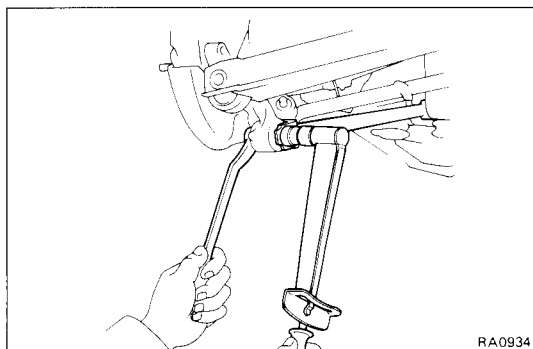
- (c) Torque the suspension mounting bolts and nuts with the vehicle weight on the suspension.

Torque:

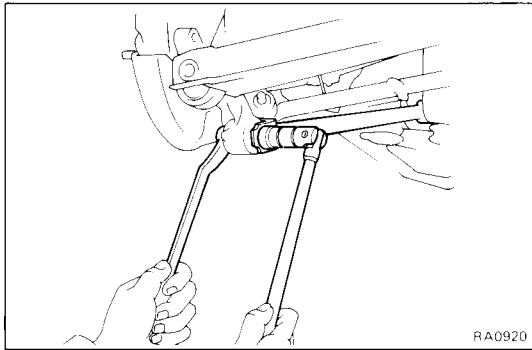
Upper arm × Body
1,670 kg-cm (121 ft-lb, 164 N·m)



No.2 lower suspension arm × Axle carrier
1,670 kg-cm (121 ft-lb, 164 N·m)



Strut rod × Axle carrier
1,670 kg-cm (121 ft-lb, 164 N·m)

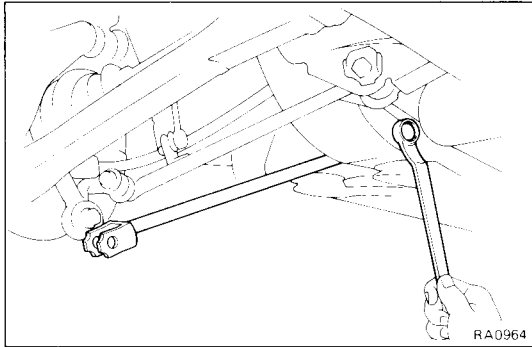


Strut Rod

(See page RA-56)

REMOVAL OF STRUT ROD

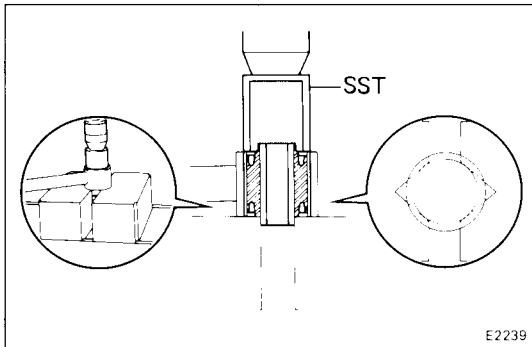
1. JACK UP VEHICLE
2. REMOVE STRUT ROD
 - (a) Remove the strut rod mounting bolt and nut, disconnect the strut rod from the axle carrier.
 - (b) Remove the strut rod mounting bolt, remove the strut rod from the body.



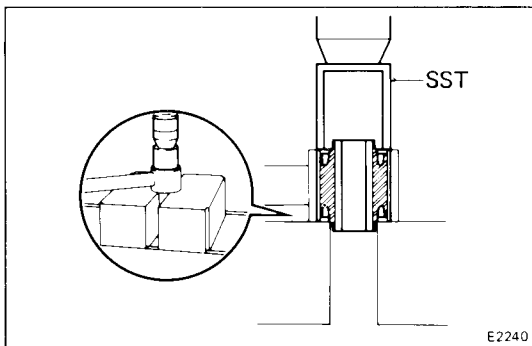
REPLACEMENT OF STRUT ROD BUSHING

REPLACE STRUT ROD BUSHING

- (a) Using SST, press out the strut rod bushing.
SST 09726-35010

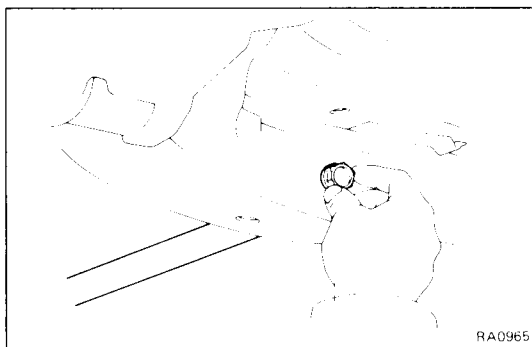


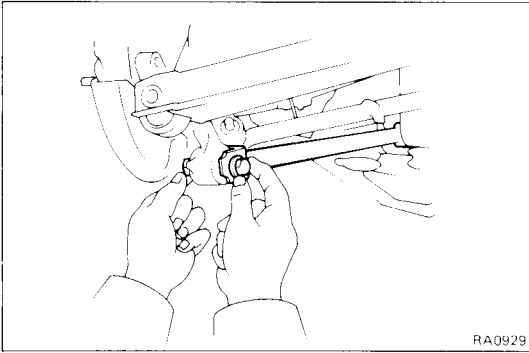
- (b) Using SST, press in a new strut rod bushing.
SST 09726-35010



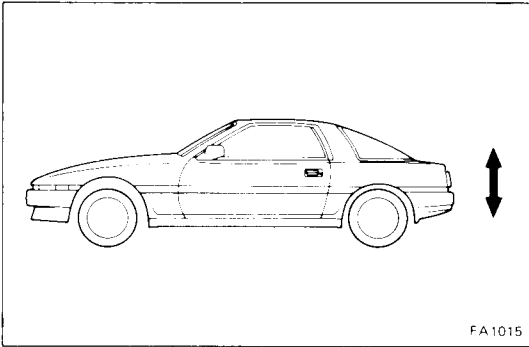
INSTALLATION OF STRUT ROD

1. INSTALL STRUT ROD
 - (a) Position the strut rod to the body and temporarily install the bolt.



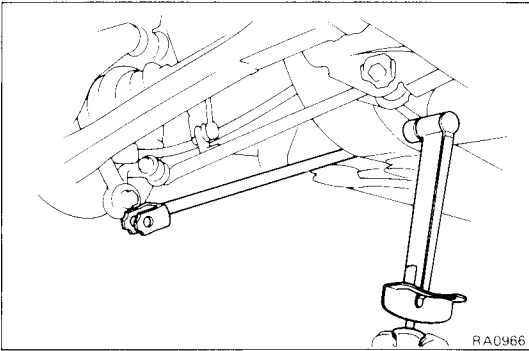


- (b) Temporarily connect the strut rod with the bolt and nut to the axle carrier.



2. TORQUE STRUT ROD

- (a) Remove the stands and bounce the vehicle to stabilize the suspension.

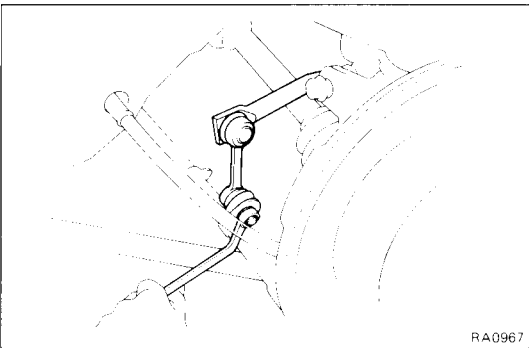


- (b) Torque the mounting bolts and nuts.

Torque:

- Body × Strut rod
1,670 kg-cm (121 ft-lb, 164 N·m)
- Axle carrier × Strut rod
1,670 kg-cm (121 ft-lb, 164 N·m)

3. CHECK REAR WHEEL ALIGNMENT
(See page RA-3)



Stabilizer Bar

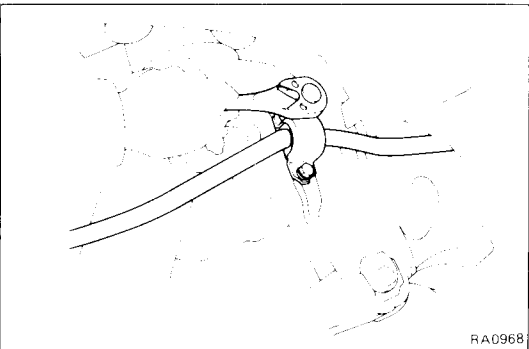
(See page RA-56)

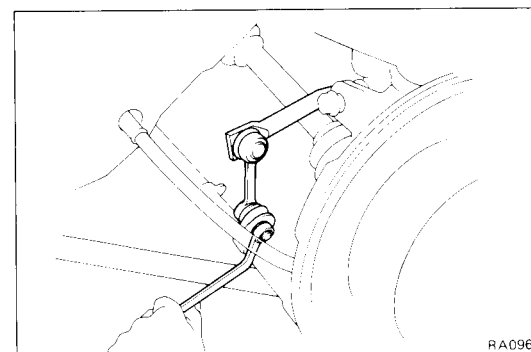
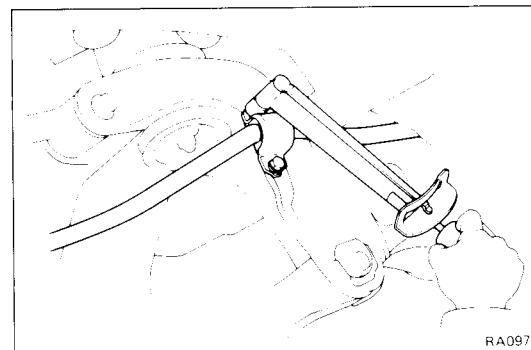
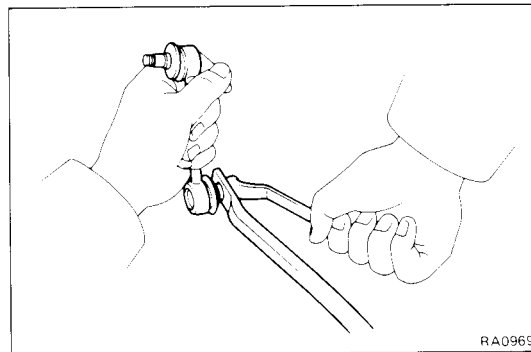
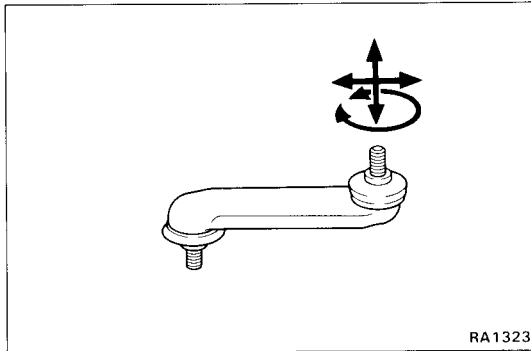
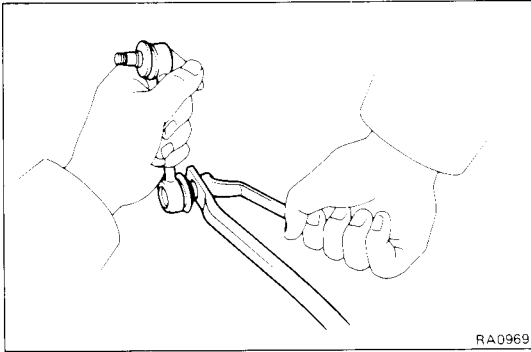
REMOVAL OF STABILIZER BAR

1. JACK UP VEHICLE

2. REMOVE STABILIZER BAR

- (a) Disconnect the stabilizer bar link from the No.1 lower suspension arm.
- (b) Remove the stabilizer bar bracket and remove the stabilizer bar from the body.





(c) Remove the stabilizer bar link from the stabilizer bar.

3. INSPECT STABILIZER BAR LINK

Move the ball joint arm in all directions, if the movement is not smooth and free, replace the stabilizer bar link.

INSTALLATION OF STABILIZER BAR

1. INSTALL STABILIZER BAR

(a) Install the stabilizer bar link to the stabilizer bar.

(b) Position the stabilizer bar and install the stabilizer bar bracket to the body.

Torque: 290 kg-cm (21 ft-lb, 28 N·m)

(c) Connect the stabilizer bar link to the No.1 lower suspension arm and torque the nut.

Torque: 360 kg-cm (26 ft-lb, 35 N·m)

2. LOWER VEHICLE