

REAR AXLE AND SUSPENSION

REFER TO 1988 CELICA REPAIR MANUAL (Pub. No. RM071U)

NOTE: The following pages contain only the points which differ from the above listed manual.

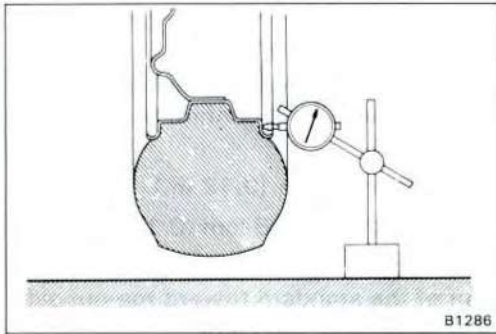
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TROUBLESHOOTING	RA-2
REAR WHEEL ALIGNMENT	RA-3
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DIFFERENTIAL	RA-20
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Suspension Arm	RA-44
Strut Rod	RA-44
Stabilizer Bar	RA-44

RA-2**REAR AXLE AND SUSPENSION — Troubleshooting****TROUBLESHOOTING**

Problem	Possible cause	Remedy	Page
Wanders/pulls	Tires worn or improperly inflated	Replace tires or inflate to proper pressure	FA-3
	Wheel alignment incorrect	Check wheel alignment	RA-3
	Wheel bearing worn	Replace wheel bearing	RA-5
	Rear suspension parts loose or broken	Tighten or replace suspension parts	
Bottoming	Vehicle overloaded	Check loading	
Sways/pitches	Tires improperly inflated	Inflate tires to proper pressure	FA-3
	Stabilizer bar bent or broken	Inspect stabilizer bar	RA-43
Abnormal tire wear	Tire improperly inflated	Inflate tires to proper pressure	FA-3
	Alignment incorrect	Check camber and toe-in	RA-3
	Suspension parts worn	Replace suspension parts	RA-43

REAR AXLE AND SUSPENSION — Rear Wheel Alignment

RA-3



REAR WHEEL ALIGNMENT

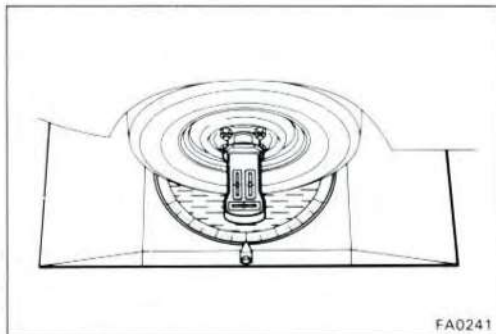
1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

- (a) Check that the tires for wear, size and proper inflation.
(See page FA-3)
- (b) Check the rear wheel bearings for looseness.
- (c) Check the wheel runout.

Lateral runout: Less than 1.0 mm (0.039 in.)

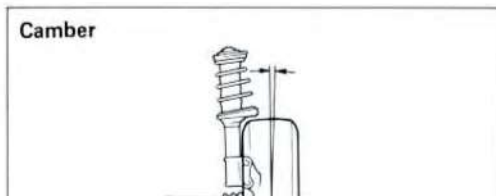
- (d) Check the rear suspension for looseness.

2. MEASURE VEHICLE HEIGHT (See page FA-3)



3. INSTALL WHEEL ALIGNMENT EQUIPMENT

Follow the specific instructions of the equipment manufacturer.



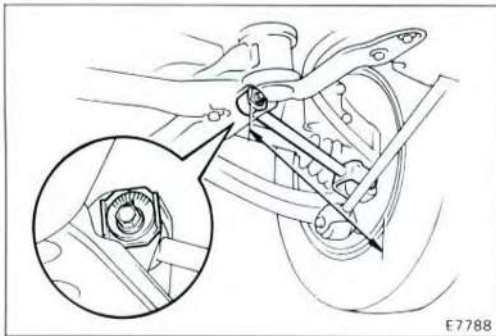
4. CHECK CAMBER

Camber: Inspection standard $-45' \pm 45'$
Left-right error 30'

Camber is not adjustable. If measurement is not within specification, inspect and replace the suspension parts as necessary.

RA-4

REAR AXLE AND SUSPENSION — Rear Wheel Alignment



6. ADJUST TOE-IN

(See step 9 on page FA-5)

- (a) Measure the distance between each wheel disc and corner of the cam bracket and confirm that both are the same.

Left-right error: Less than 3 mm (0.12 in.)

If the left-right error is greater than 3 mm (0.12 in.) adjust following the procedures below.

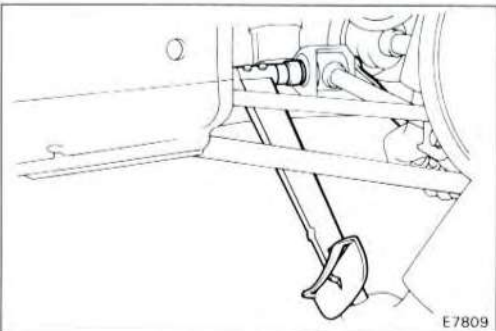
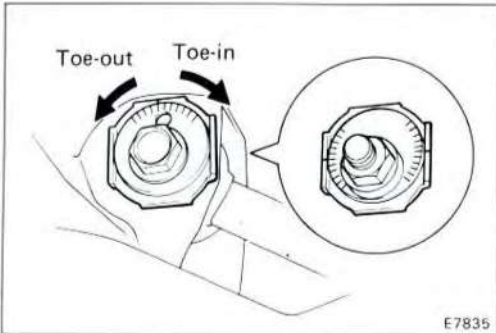
- If the toe-in is out of the standard toward toe-out side, lengthen the shorter arm by the cam.
- If the toe-in is out of the standard toward toe-in side, shorten the longer arm by the cam.

- (b) Measure the toe-in.

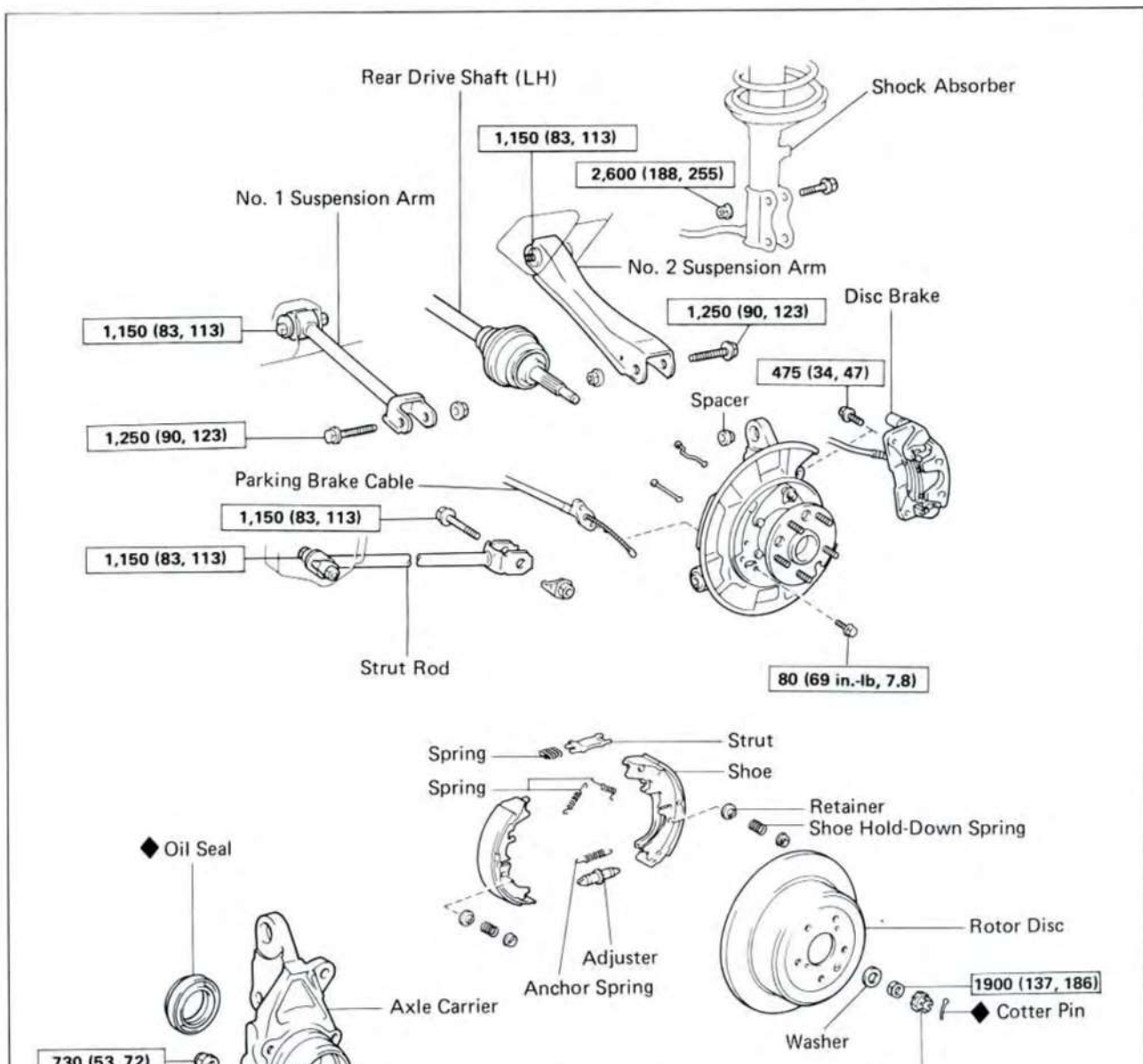
Toe-in: Adjustment STD 5 ± 1 mm (0.19 ± 0.04 in.)

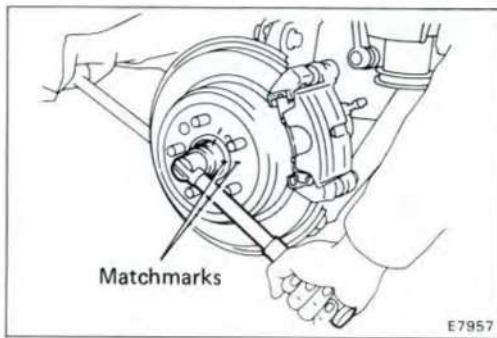
If the left-right error is within specifications but the overall toe-in is not, lengthen or shorten both arms an equal amount by turning the two cams in the opposite direction, until the adjustment standard is obtained.

NOTE: The toe-in will change about 4.2 mm (0.17 in.) with each graduation of the cam (one side).

Torque: 1,150 kg-cm (83 ft-lb, 113 N·m)

REAR AXLE HUB AND CARRIER COMPONENTS

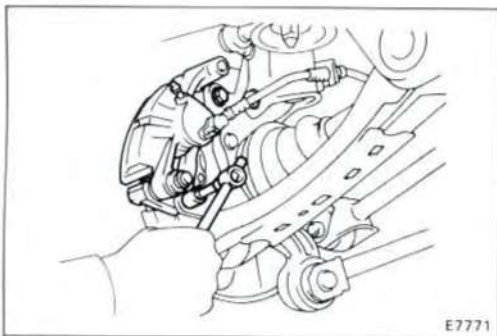


RA-6**REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier****REMOVAL OF REAR AXLE HUB AND CARRIER**

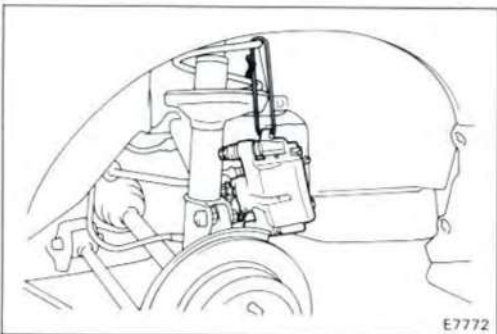
(See page RA-5)

1. REMOVE COTTER PIN, BEARING LOCK NUT CAP AND BEARING LOCK NUT

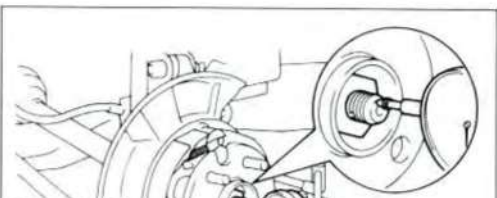
- (a) Remove the cotter pin and bearing lock nut cap.
- (b) With the parking brake engaged, remove the bearing lock nut.

**2. DISCONNECT PARKING BRAKE CABLE****3. REMOVE BRAKE CALIPER**

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

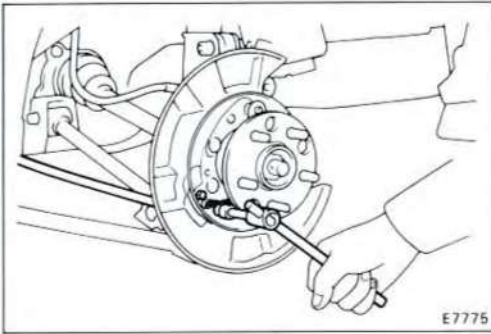
**4. REMOVE ROTOR DISC**

NOTE: Before removing the rotor disc, place the matchmarks on the axle hub and rotor disc.

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

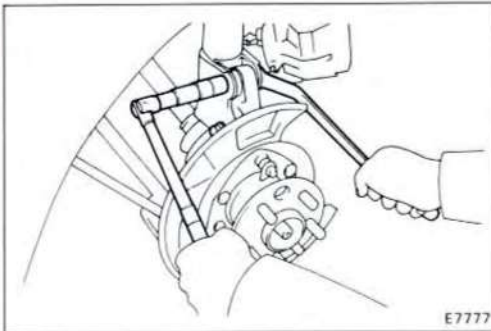
Bearing play: 0.05 mm (0.0020 in.) or less

If the bearing play is greater than the maximum, replace the bearing.

REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier**RA-7**

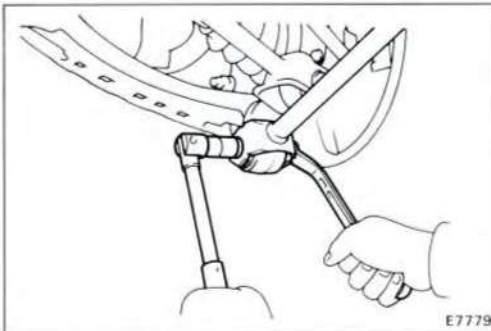
7. REMOVE PARKING BRAKE ASSEMBLY
(See page RA-5)

8. REMOVE PARKING BRAKE CABLE

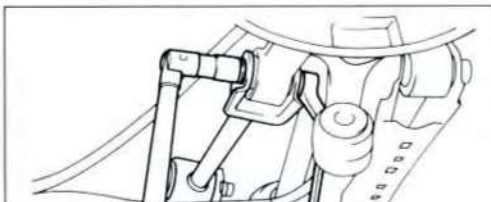


9. REMOVE AXLE CARRIER WITH AXLE HUB

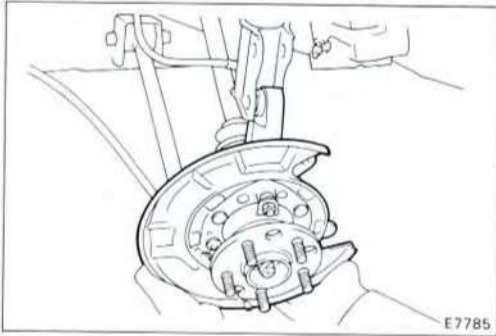
(a) Remove the two axle carrier set nuts and two bolts with the camber adjusting cam.



(b) Disconnect the strut rod from the axle carrier.

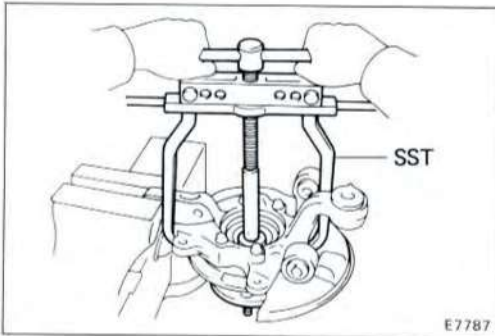


(c) Disconnect the No. 1 suspension arm from the axle carrier.

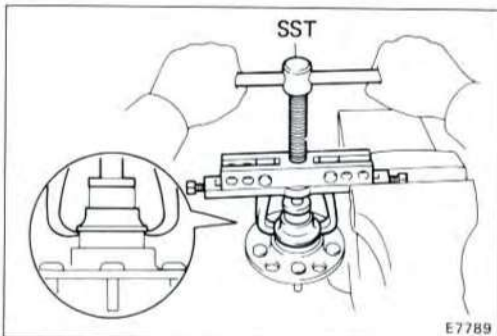
RA-8**REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier**

(e) Remove the axle carrier with axle hub.

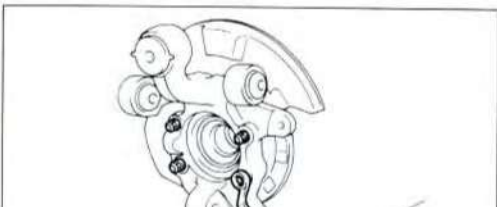
CAUTION: Cover the drive shaft boot with cloth to protect it from damage.

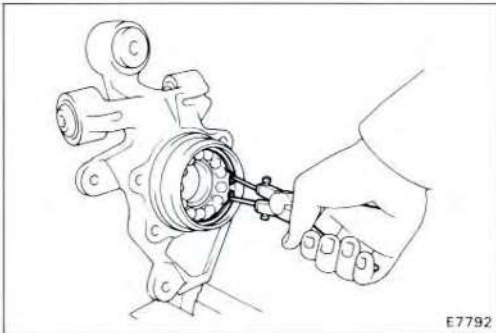
**REPLACEMENT OF AXLE HUB AND BEARING****1. REMOVE AXLE SHAFT FROM AXLE HUB**

Using SST, push the axle shaft off the axle hub.
SST 09950-20017

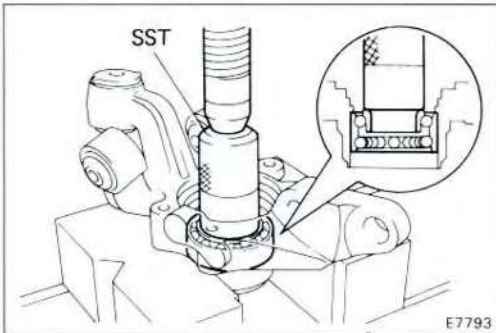
**2. REMOVE BEARING INNER RACE (OUTSIDE) FROM AXLE SHAFT**

Using SST, pull off the bearing inner race (outside) from the axle shaft.

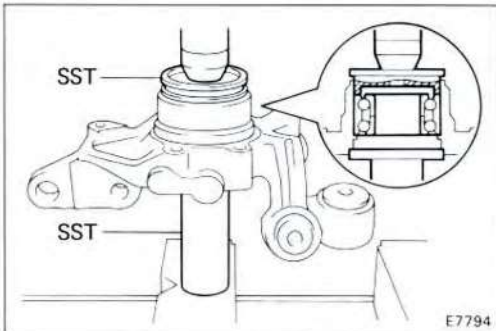
**3. REMOVE DUST COVER**

REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier**RA-9****5. REMOVE HOLE SNAP RING**

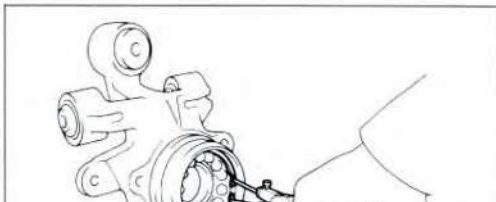
Using snap ring pliers, remove the hole snap ring from the axle carrier.

**6. REMOVE BEARING**

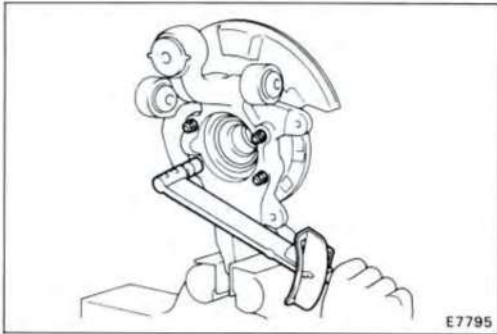
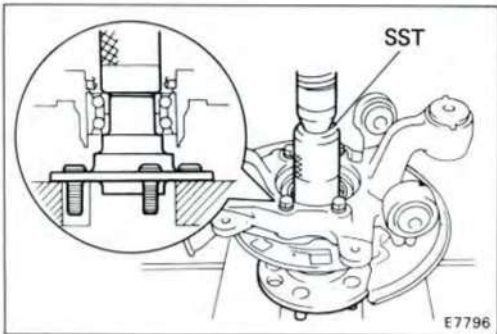
Using SST, press out the bearing from the axle carrier.
SST 09636-20010

**7. INSTALL BEARING**

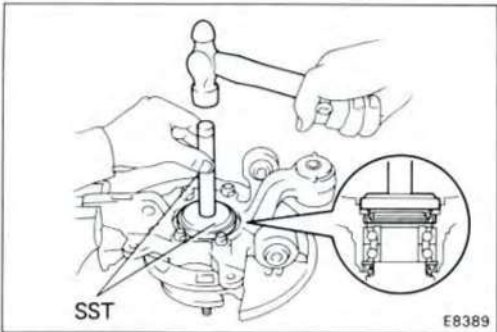
Using SST, press the bearing into the axle hub.
SST 09309-36010, 09608-32010

**8. INSTALL HOLE SNAP RING**

Using pliers, install a hole snap ring into the rear axle carrier.

RA-10**REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier****10. INSTALL DUST COVER****11. INSTALL AXLE SHAFT**

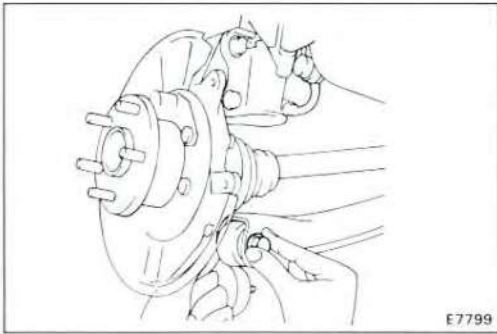
Using SST, install the axle shaft to the axle carrier.
SST 09636-20010

**12. INSTALL INNER OIL SEAL**

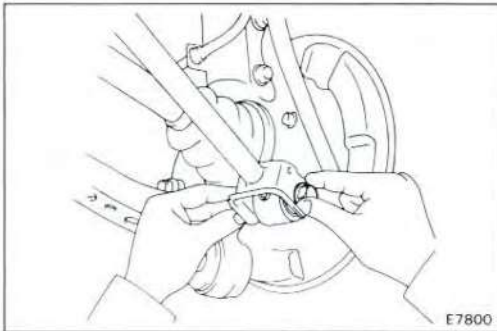
- (a) Using SST, drive in a new oil seal to the axle carrier.
SST 09608-30012 (09608-04020, 09608-04110)
- (b) Apply MP grease to the oil seal lip.

**13. INSTALL AXLE CARRIER WITH AXLE HUB**

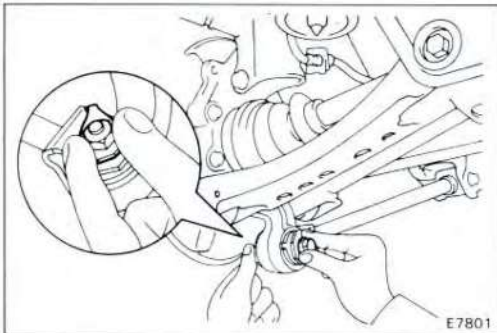
- (a) Install the axle carrier with axle hub.

REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier**RA-11**

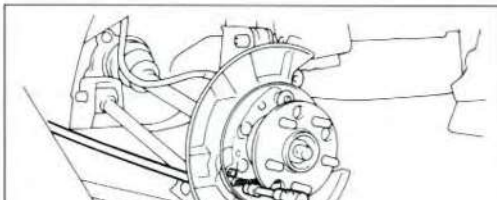
- (c) Temporarily connect the No. 2 suspension arm to the axle carrier.

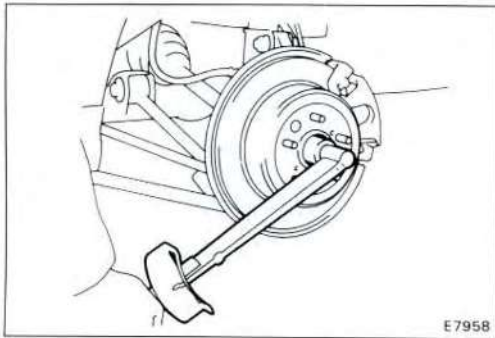


- (d) Temporarily connect the No. 1 suspension arm to the axle carrier.



- (e) Temporarily connect the strut rod to the axle carrier.

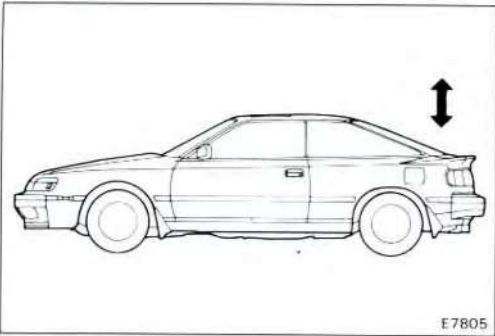
**14. INSTALL PARKING BRAKE CABLE****15. INSTALL PARKING BRAKE ASSEMBLY
(See page RA-5)**

RA-12**REAR AXLE AND SUSPENSION — Rear Axle Hub and Carrier****18. INSTALL PLATE WASHER, BEARING LOCK NUT, BEARING LOCK NUT CAP AND NEW COTTER PIN**

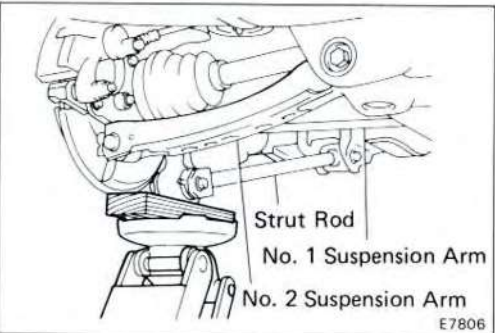
- (a) Install the plate washer and lock nut.
- (b) With the parking brake engaged, and tighten the nut.

Torque: 1,900 kg-cm (137 ft-lb, 186 N·m)

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

**19. INSTALL WHEELS AND LOWER VEHICLE**

- (a) Install the wheel.
- (b) Remove the stands and bounce the vehicle up and down to stabilize the suspension.

**20. TORQUE AXLE CARRIER MOUNTING BOLTS**

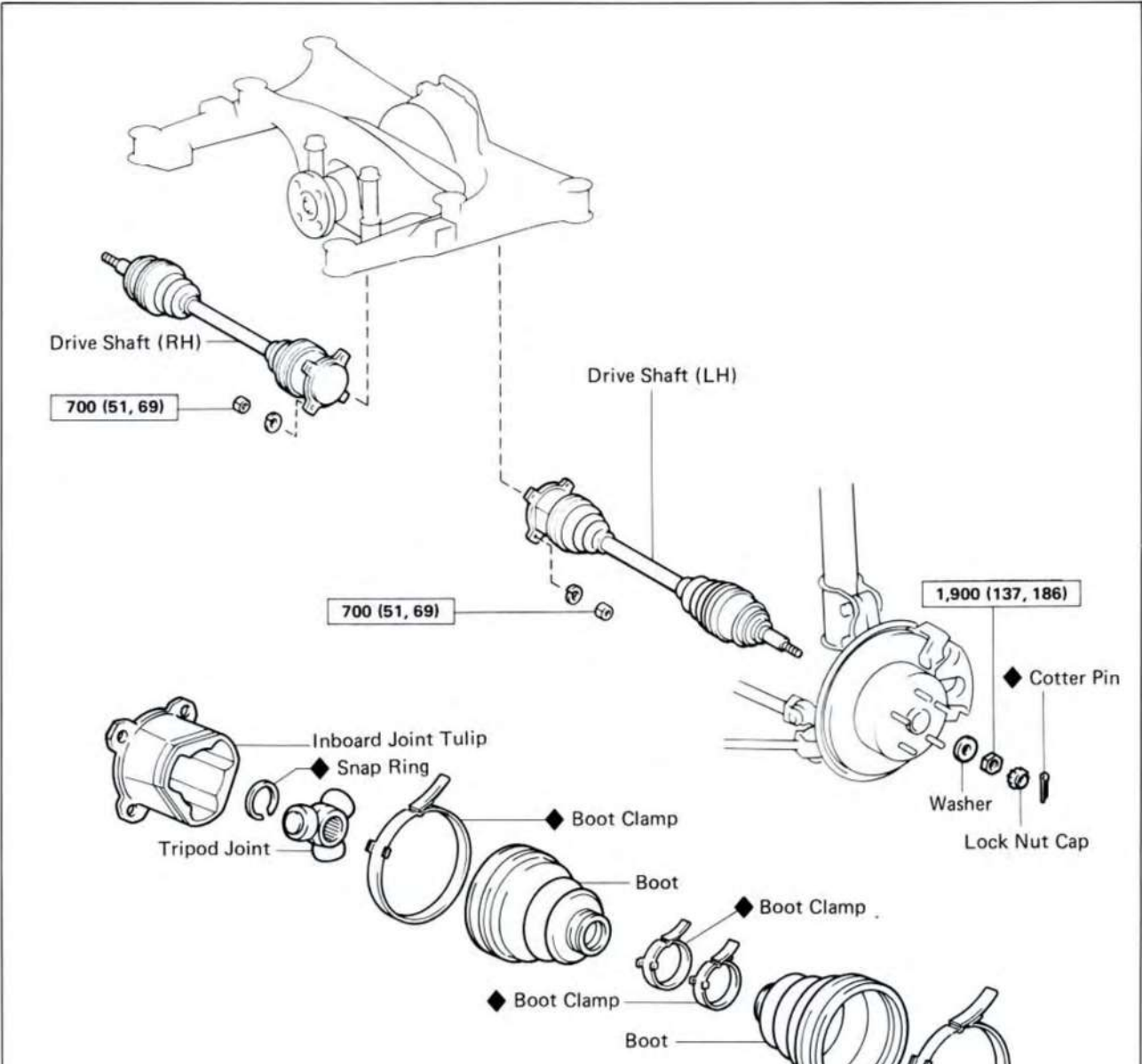
Torque the axle carrier mounting bolts with the vehicle weight on the suspension.

Torque: Strut rod × Axle carrier
1,150 kg-cm (83 ft-lb, 113 N·m)

No. 1 and No. 2 suspension arm × Axle carrier
1,250 kg-cm (90 ft-lb, 123 N·m)

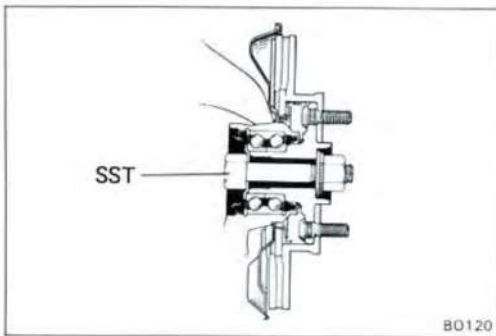
21. BLEED BRAKE SYSTEM**22. CHECK REAR WHEEL ALIGNMENT**
(See page RA-3)

REAR DRIVE SHAFT
COMPONENTS



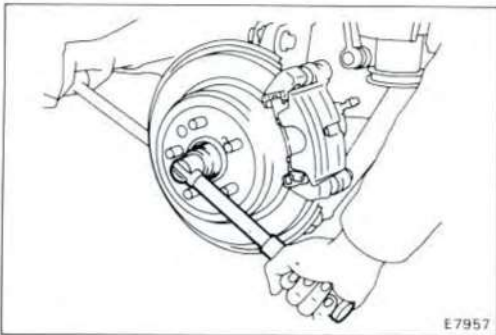
RA-14

REAR AXLE AND SUSPENSION — Rear Drive Shaft



CAUTION: The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed. Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with SST.

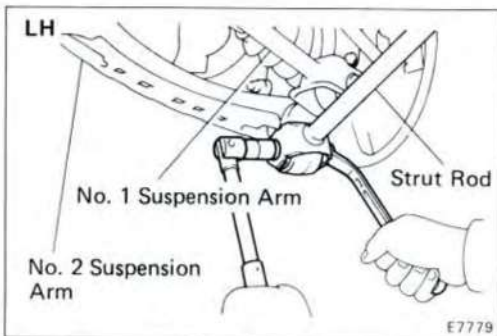
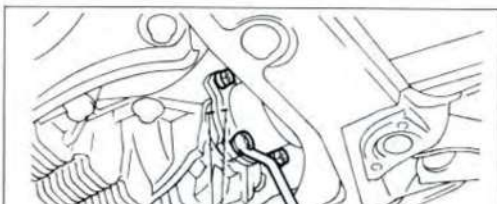
SST 09608-16041 (09608-02020, 09608-02040)

**REMOVAL OF REAR DRIVE SHAFT**

(See page RA-13)

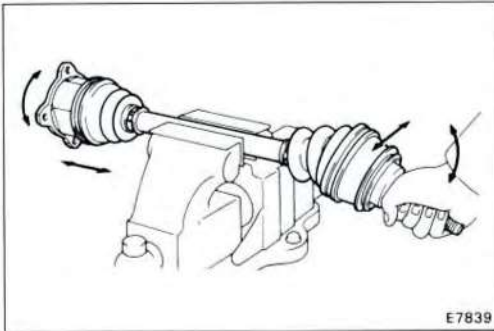
1. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT

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

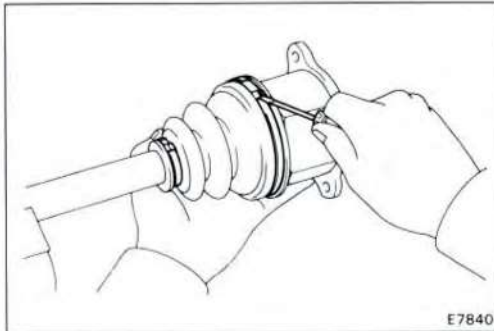
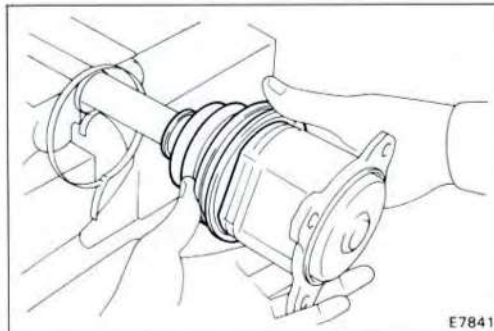
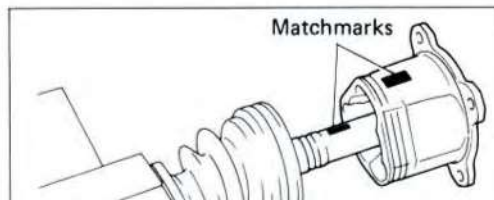
**2. (LH Drive Shaft) DISCONNECT STRUT ROD, NO. 1 AND NO. 2 SUSPENSION ARM FROM AXLE CARRIER****3. REMOVE DRIVE SHAFT**

NOTE: Be careful not to damage the boots.

- (a) Place matchmarks on the inboard joint tulip and the side gear shaft flange.
- (b) Loosen four nuts holding the drive shaft to the side gear shaft.

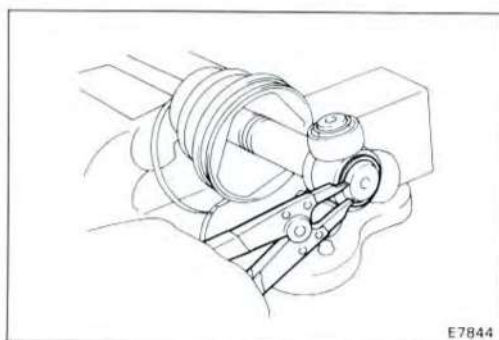
REAR AXLE AND SUSPENSION — Rear Drive Shaft**RA-15****DISASSEMBLY OF REAR DRIVE SHAFT****(See page RA-13)****1. CHECK DRIVE SHAFT**

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

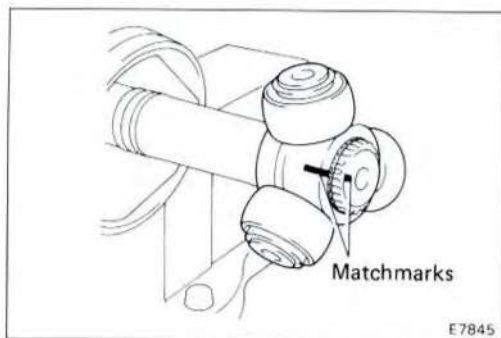
**2. REMOVE INBOARD JOINT BOOT CLAMPS****3. REMOVE INBOARD JOINT BOOT FROM INBOARD JOINT TULIP****4. REMOVE INBOARD JOINT TULIP FROM DRIVE SHAFT**

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

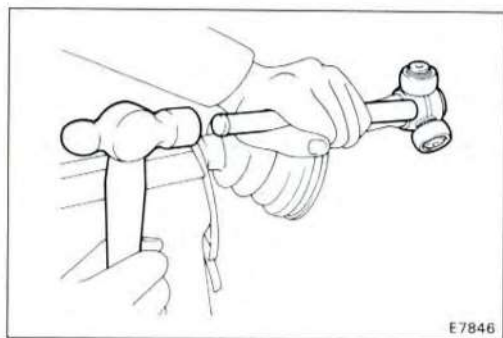
CAUTION: Do not punch the marks.

RA-16**REAR AXLE AND SUSPENSION — Rear Drive Shaft****5. REMOVE TRIPOD JOINT**

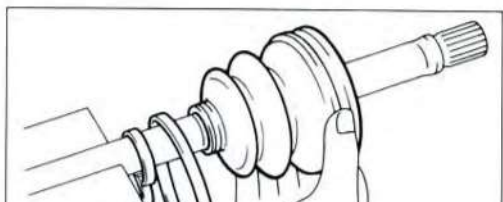
- (a) Using snap ring pliers, remove the snap ring.

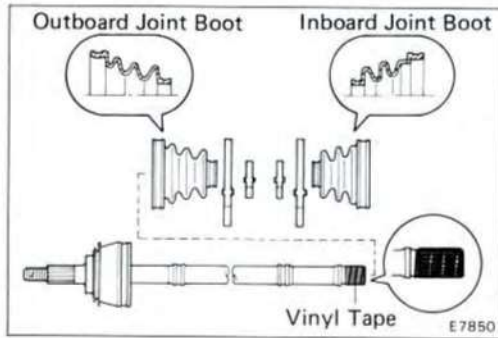


- (b) Place matchmarks on the shaft and the tripod.



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

**6. REMOVE INBOARD JOINT BOOT AND CLAMPS**

REAR AXLE AND SUSPENSION — Rear Drive Shaft**RA-17****ASSEMBLY OF REAR DRIVE SHAFT**

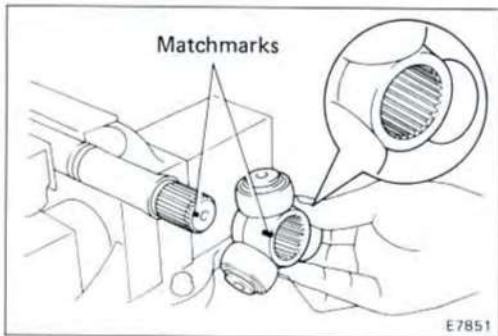
(See page RA-13)

1. TEMPORARILY INSTALL BOOTS AND NEW BOOT CLAMPS

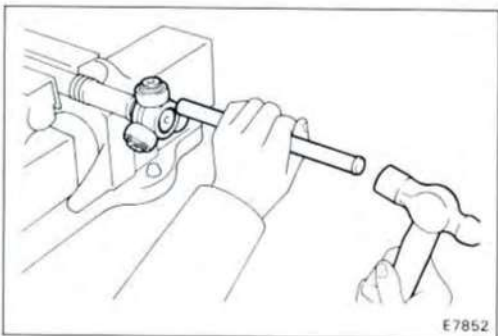
CAUTION: The boot and clamp of the outboard joint are smaller than those of the inboard joint.

NOTE: Before installing the boot, wrap vinyl tape around the spline of the shaft to prevent damaging the boot.

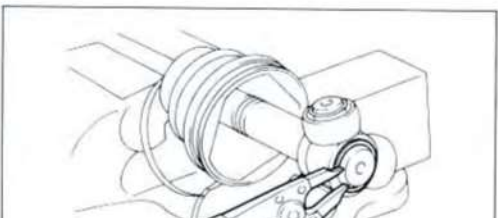
Temporarily install the boots and new clamps to the drive shaft.

**2. INSTALL TRIPOD JOINT**

(a) Align the matchmarks placed before remove.



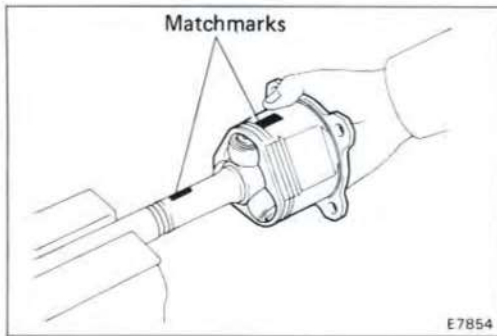
(b) Using a brass bar and hammer, tap in the tripod joint to the drive shaft.



(c) Using a snap ring pliers, install a new snap ring.

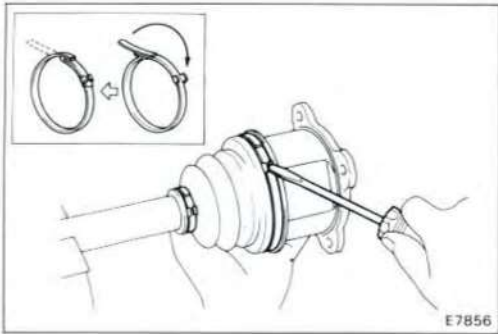
RA-18

REAR AXLE AND SUSPENSION — Rear Drive Shaft



- (b) Align the matchmarks placed before remove, and install the inboard joint tulip to the drive shaft.

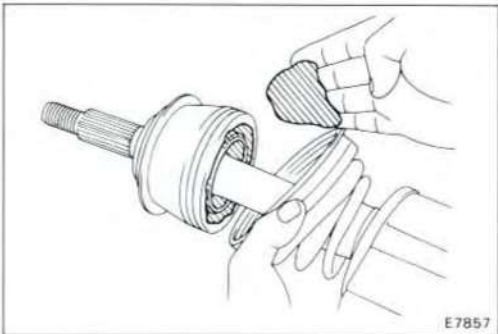
5. INSTALL INBOARD JOINT BOOT TO INBOARD JOINT TULIP



6. INSTALL INBOARD JOINT BOOT CLAMPS

CAUTION: The clamps of the outboard joint are smaller than those of the inboard joint.

- (a) Be sure the boot is on the shaft groove.
 (b) Using a screwdriver, bend the band and lock it as shown in the illustration.



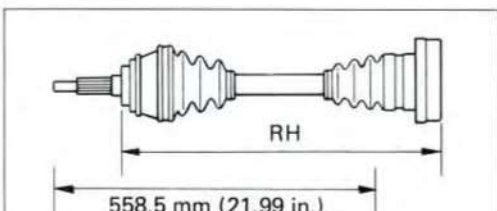
7. INSTALL OUTBOARD JOINT BOOT

- (a) Before install the boot, back in grease.

NOTE: Use the grease supplied in the boot kit.

Grease capacity: 120 g (0.26 lb)

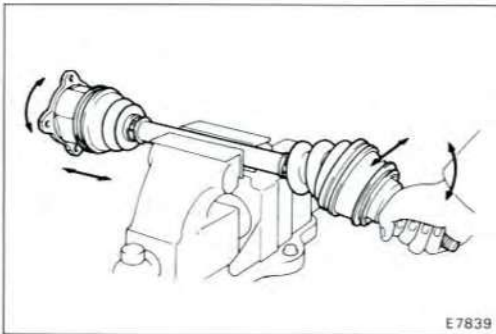
- (b) Install the boot to the outboard joint.



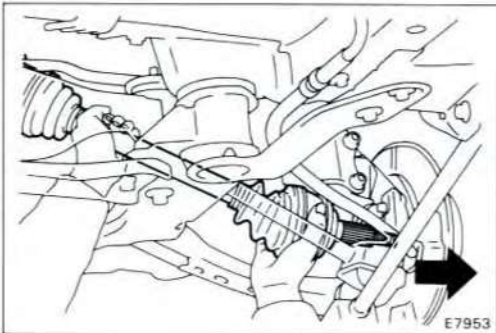
8. INSTALL OUTBOARD JOINT BOOT CLAMPS

- (a) Be sure the boot is on the shaft groove.
 (b) In sure that the boot is not stretched or contracted when drive shaft is at standard length.

Drive shaft length: 558.5 mm (21.99 in.)

REAR AXLE AND SUSPENSION — Rear Drive Shaft**RA-19****9. CHECK DRIVE SHAFT**

- (a) Check to see that there is no play in the inboard joint and outboard joint.
- (b) Check to see that the inboard joint side smoothly in the thrust direction.

**INSTALLTION OF REAR DRIVE SHAFT****(See page RA-13)****1. INSTALL DRIVE SHAFT**

NOTE: Be careful not to damage the boots.

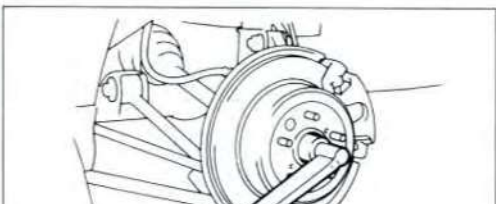
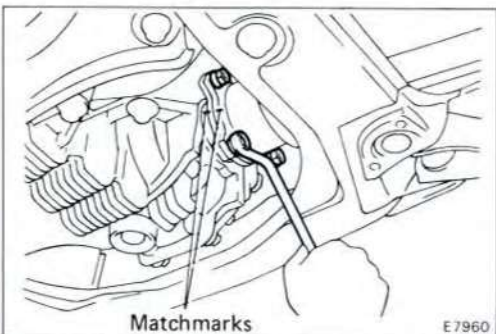
- (a) Install the drive shaft to the axle carrier.

NOTE: (LH Drive Shaft)

Push the rear axle carrier towards the outside vehicle and connect the drive shaft to the axle carrier.

- (b) Align the matchmarks on the inboard joint tulip and the side gear shaft flange.
- (c) Connect the drive shaft to the side gear shaft.

Torque: 700 kg-cm (51 ft-lb, 69 N·m)

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

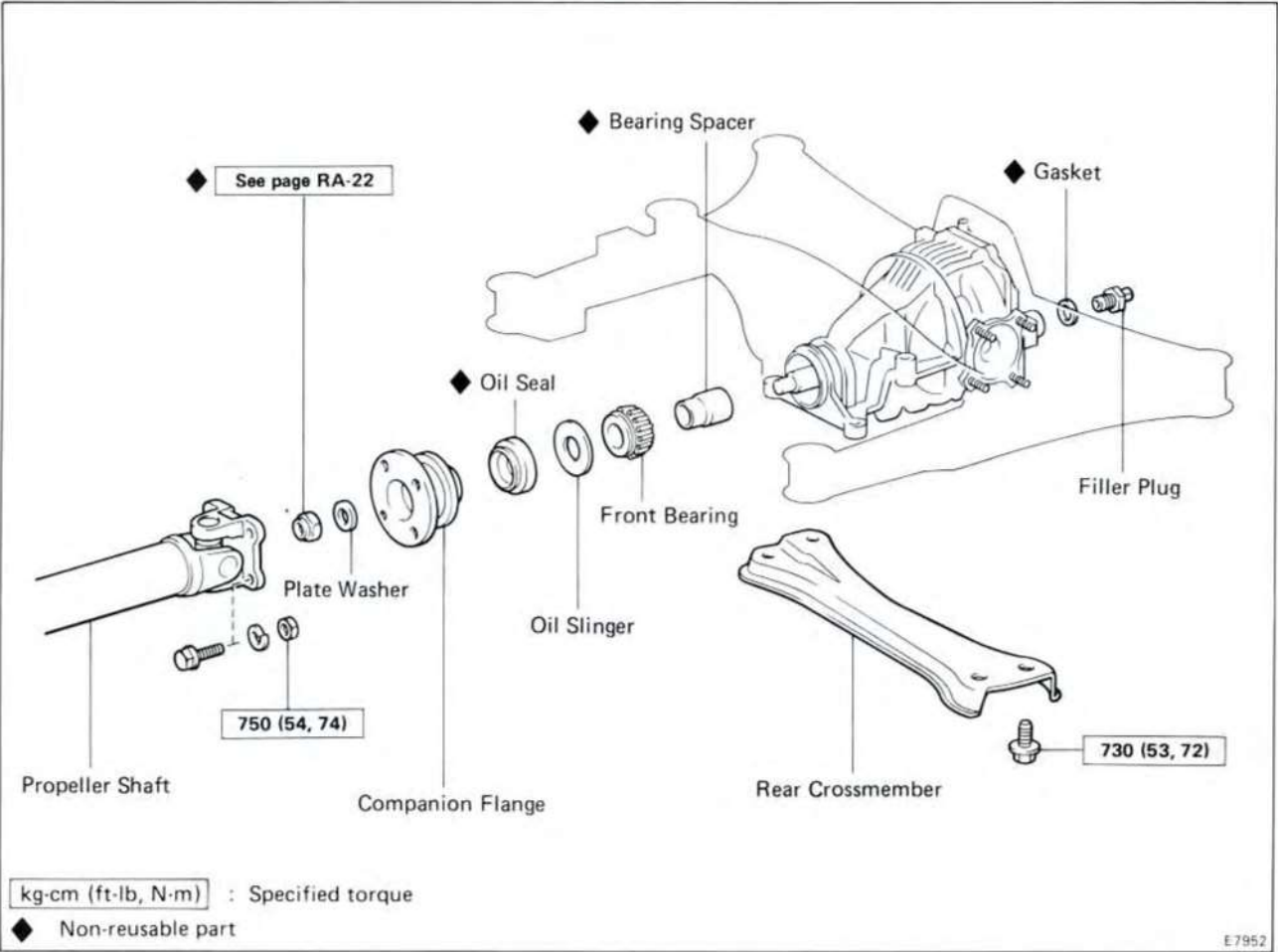
- (a) Torque the bearing lock nut while depressing the brake pedal.

Torque: 1,900 kg-cm (137 ft-lb, 186 N·m)

- (b) Install the lock nut cap and, using pliers, install a new

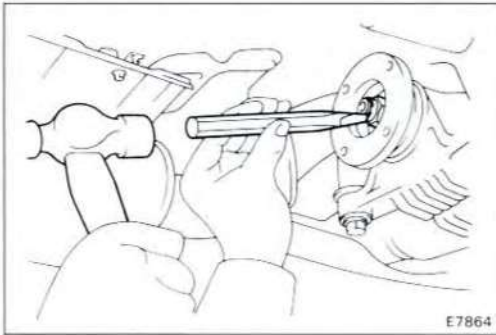
DIFFERENTIAL

On-Vehicle Repair

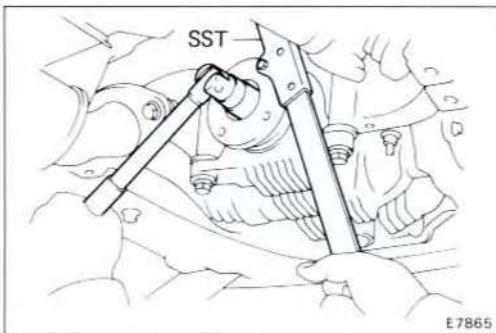


REPLACEMENT OF FRONT OIL SEAL

1. REMOVE REAR CROSSMEMBER

REAR AXLE AND SUSPENSION — Differential**RA-21****3. REMOVE COMPANION FLANGE**

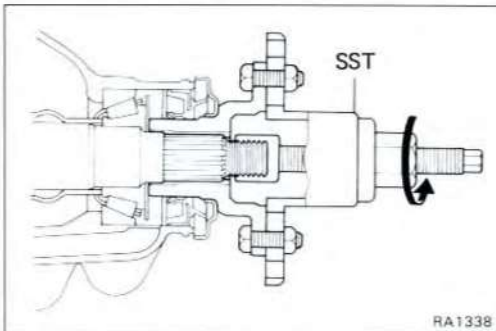
- (a) Using a hammer and chisel, loosen the staked part of the nut.



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

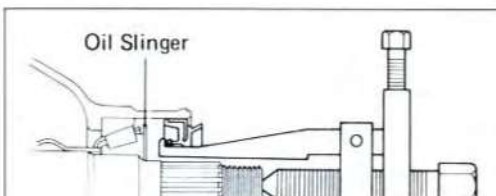
SST 09330-00021

- (c) Remove the plate washer.



- (d) Using SST, remove the companion flange.

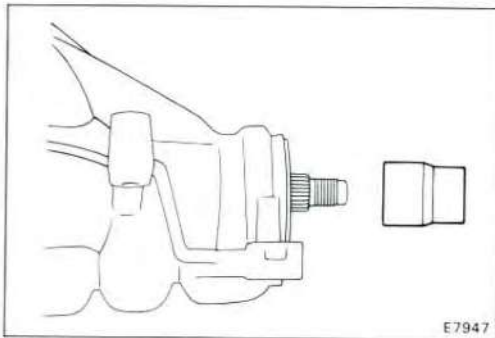
SST 09557-22022

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

- (a) Using SST, remove the front oil seal.

SST 09308-10010

- (b) Remove the oil slinger.

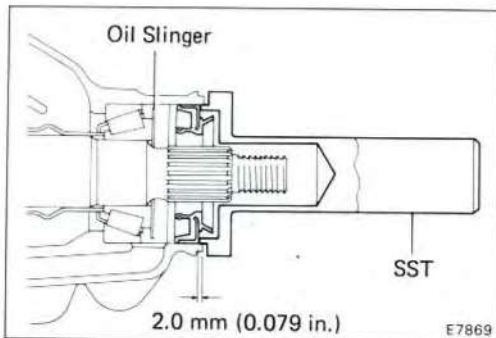
RA-22**REAR AXLE AND SUSPENSION — Differential**

(b) Remove the bearing spacer.

6. INSTALL NEW BEARING SPACER AND FRONT BEARING

(a) Install a new bearing spacer on the shaft.

(b) Install the front bearing on the shaft.

**7. INSTALL OIL SLINGER AND NEW OIL SEAL**

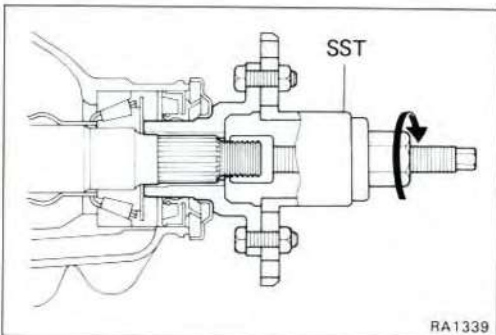
(a) Install the oil slinger on the shaft.

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

SST 09554-22010

Oil seal drive in depth: 2.0 mm (0.079 in.)

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

**8. INSTALL COMPANION FLANGE**

(a) Using SST, install the companion flange.

SST 09557-22022

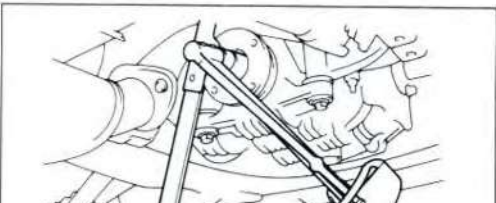
(b) Install the plate washer.

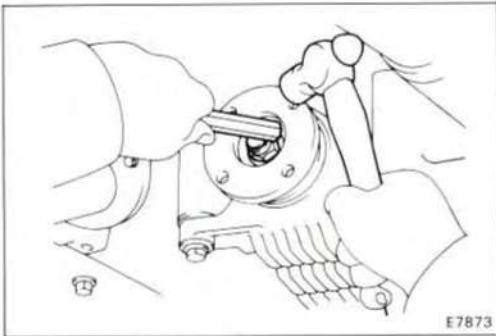
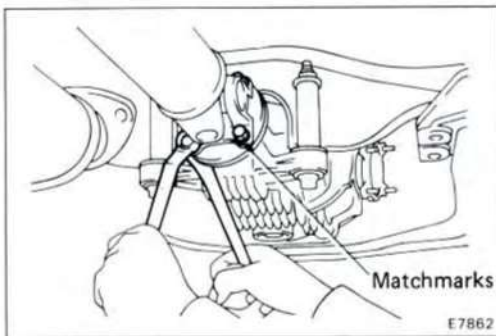
(c) Coat the threads of a new nut with gear oil.

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

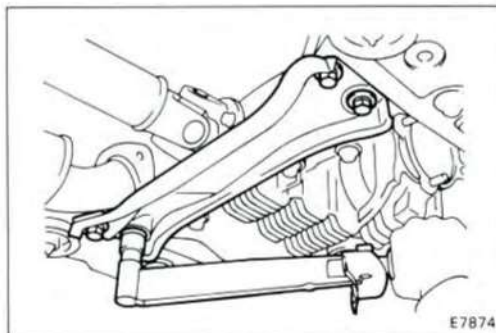
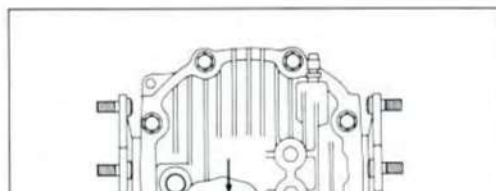
SST 09330-00021

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

9. CHECK DRIVE PINION BEARING PRELOAD

REAR AXLE AND SUSPENSION — Differential**RA-23****10. STAKE DRIVE PINION NUT****11. CONNECT PROPELLER SHAFT**

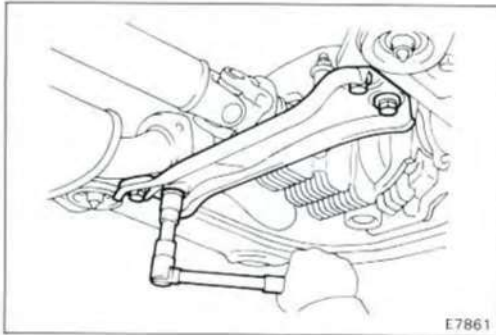
- (a) Align the matchmarks on the flanges and connect the propeller shaft with the four bolts, washers and nuts.
- (b) Torque the bolts and nuts.

Torque: 750 kg-cm (54 ft-lb, 74 N·m)**12. INSTALL REAR CROSSMEMBER****Torque: 730 kg-cm (53 ft-lb, 72 N·m)****13. CHECK OIL LEVEL**

Oil grade : API GL-5 hypoid gear oil
Viscosity : Above -18°C (0°F) SAE 90
Below -18°C (0°F) SAE 80W-90
Capacity : 1.1 liters (1.2 US qts, 1.0 Imp.qts)

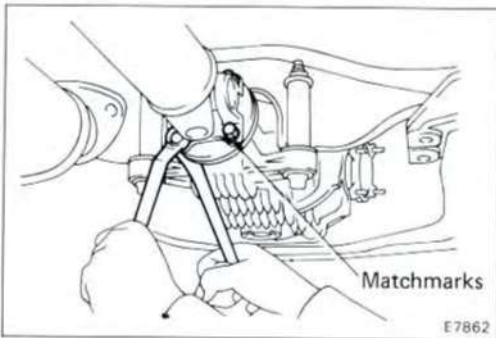
RA-24

REAR AXLE AND SUSPENSION — Differential

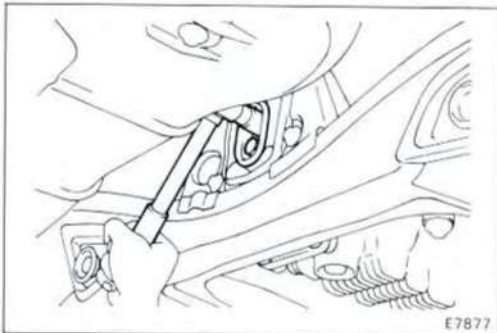
**REMOVAL OF DIFFERENTIAL**

(See page RA-20)

1. DRAIN DIFFERENTIAL OIL
2. REMOVE DRIVE SHAFTS (See page RA-13)
3. REMOVE REAR CROSSMEMBER

**4. DISCONNECT PROPELLER SHAFT**

- (a) Place the matchmarks on the both flanges.
- (b) Remove the four bolts, washers and nuts.
- (c) Disconnect the propeller shaft from the differential.

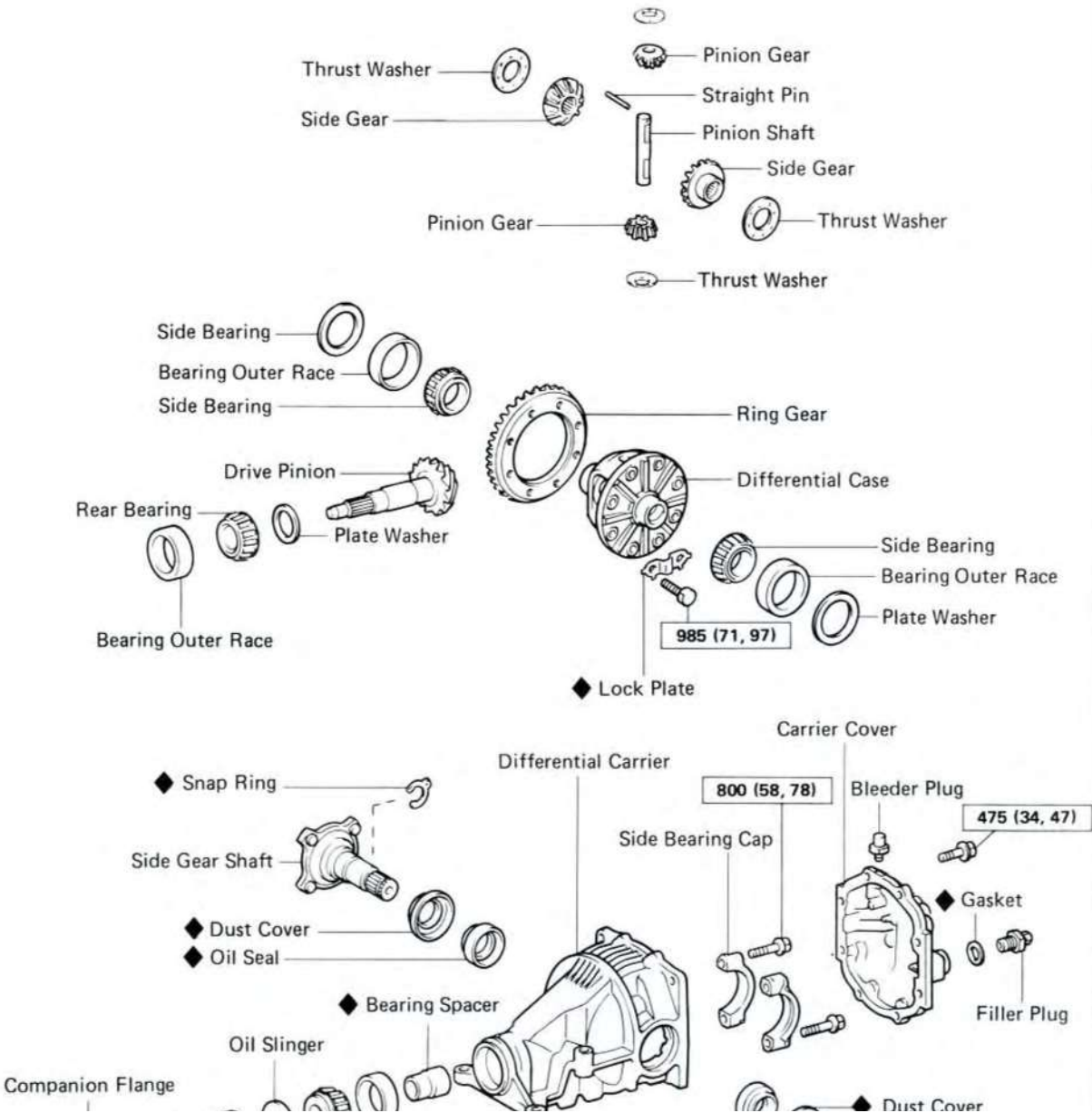
**5. REMOVE DIFFERENTIAL**

- (a) Jack up the differential slightly.
- (b) Remove the two bolts.



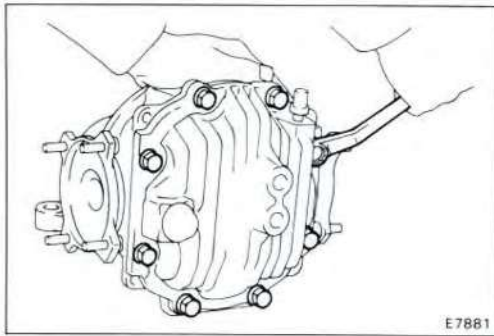
- (c) Remove the four nuts and bolts.

DIFFERENTIAL CARRIER

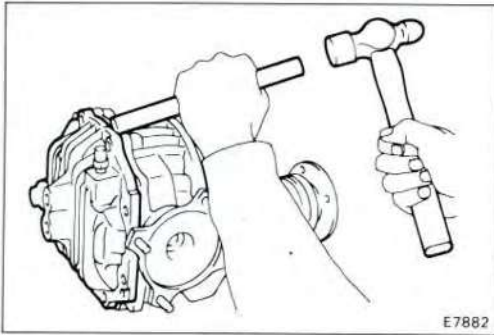


RA-26

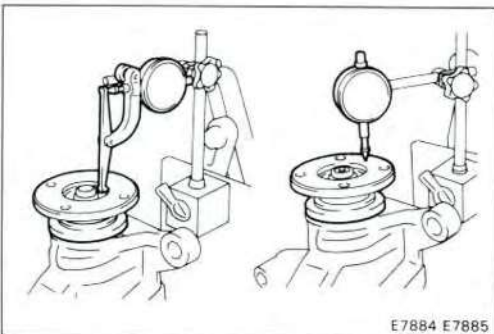
REAR AXLE AND SUSPENSION — Differential

**PRE-INSPECTION OF DIFFERENTIAL CARRIER****1. REMOVE DIFFERENTIAL CARRIER COVER**

(a) Remove the eight bolts.



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

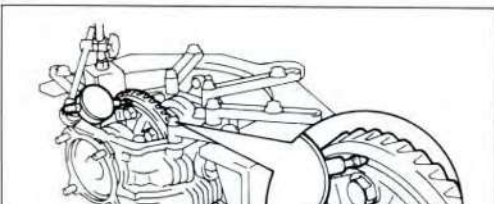
**2. CHECK COMPANION FLANGE RUNOUT**

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

Maximum lateral runout: 0.10 mm (0.039 in.)

Maximum radial runout: 0.10 mm (0.039 in.)

If the runout is greater than the maximum, replace the companion flange.

**3. CHECK RING GEAR RUNOUT**

Using a dial indicator, measure the runout of the ring gear.

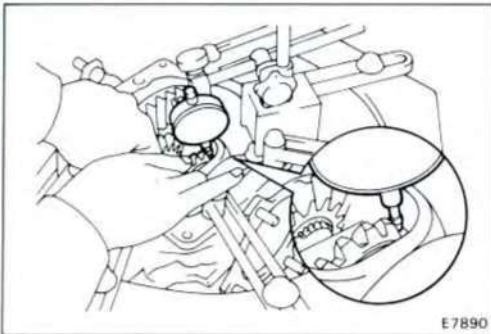
Maximum runout: 0.07 mm (0.0028 in.)

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

REAR AXLE AND SUSPENSION — Differential

RA-27

5. CHECK TOOTH CONTACT (See page RA-38)

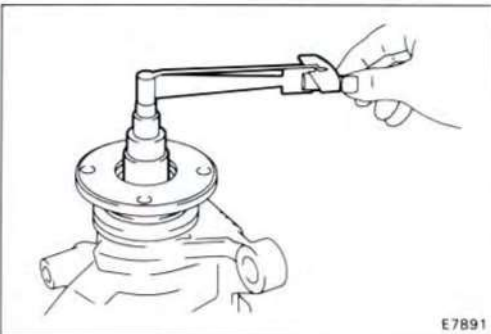


6. CHECK SIDE GEAR BACKLASH

Using a dial indicator, check the backlash of the side gear while holding one pinion gear toward the differential case.

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

If the backlash is not within specification, install the side gear thrust washers of different thickness.



7. 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)

8. CHECK TOTAL PRELOAD

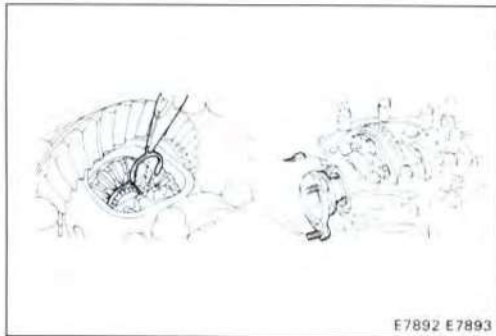
Using a torque wrench, measure the total preload.

Total preload (at starting):

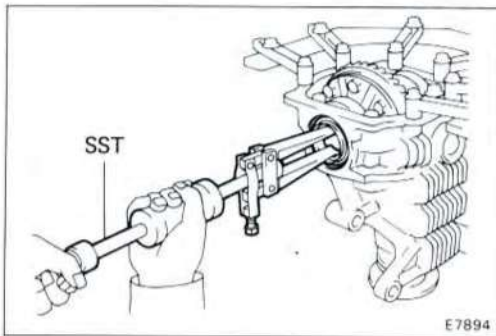
In addition to drive pinion preload

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

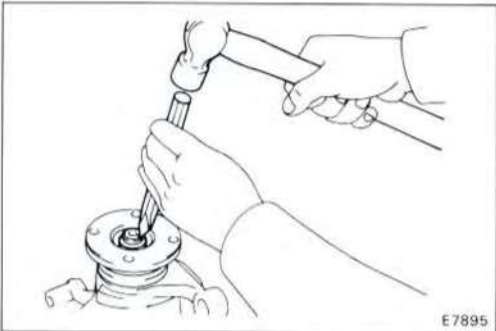
If necessary, disassembly and inspect a differential

RA-28**REAR AXLE AND SUSPENSION — Differential****DISASSEMBLY OF DIFFERENTIAL CARRIER****1. REMOVE SIDE GEAR SHAFTS**

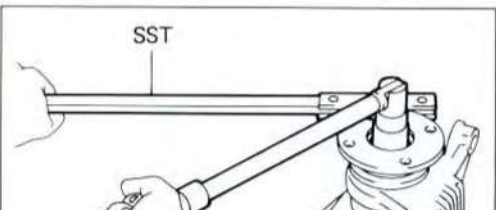
- (a) Remove the two shaft snap rings.
- (b) Remove the two side gear shafts.

**2. REMOVE SIDE GEAR SHAFT OIL SEALS**

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

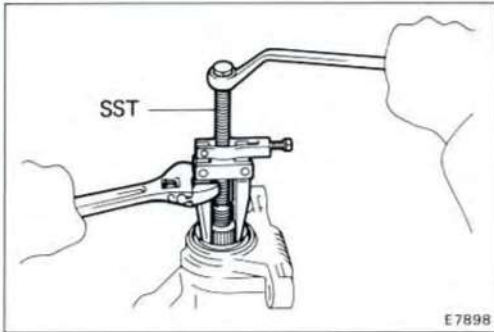
**3. REMOVE COMPANION FLANGE**

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

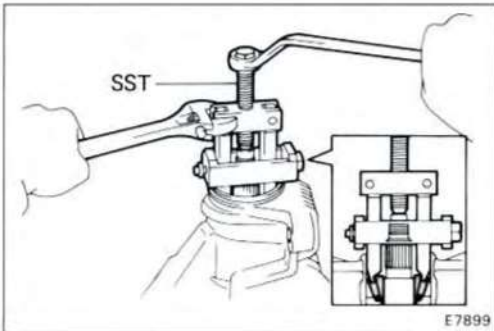


- (b) Using SST to hold the flange, remove the nut.
SST 09330-00021

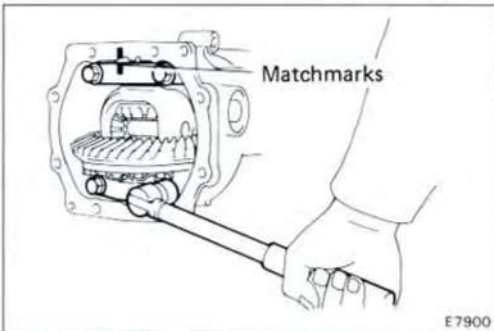
- (c) Remove the plate washer.

REAR AXLE AND SUSPENSION — Differential**RA-29****4. REMOVE FRONT OIL SEAL AND OIL SLINGER**

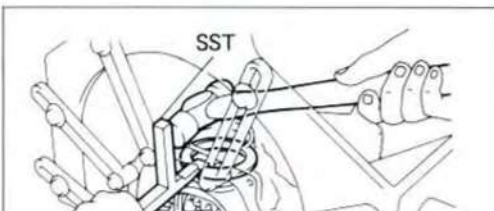
- (a) Using SST, remove the oil seal from the housing.
SST 09308-10010
- (b) Remove the oil slinger.

**5. REMOVE FRONT BEARING AND BEARING SPACER**

- (a) Using SST, remove the bearing from the housing.
SST 09556-22010
- (b) Remove the bearing spacer.

**6. REMOVE DIFFERENTIAL CASE**

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



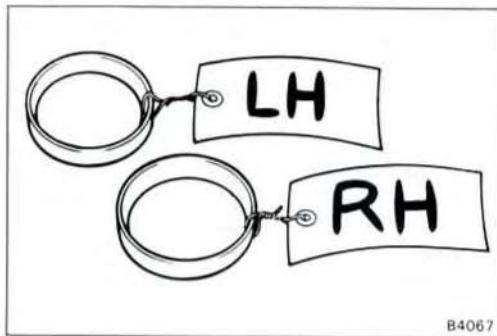
- (c) Using SST, remove the two side bearing preload adjusting plate.

SST 09504-22011

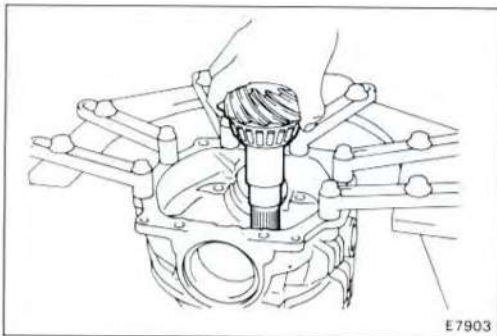
NOTE: Measure the adjusting plate washer and note the thickness.

RA-30

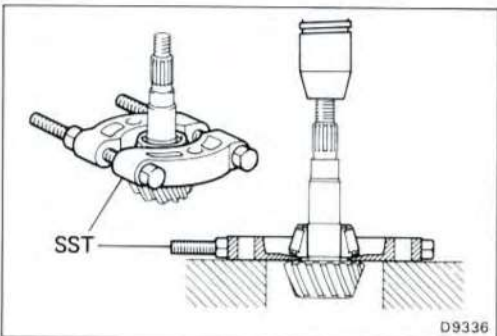
REAR AXLE AND SUSPENSION — Differential



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



7. REMOVE DRIVE PINION FROM DIFFERENTIAL CARRIER



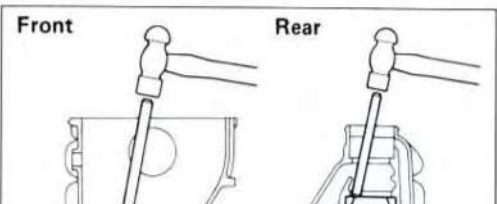
8. REMOVE DRIVE PINION REAR BEARING

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

SST 09950-00020

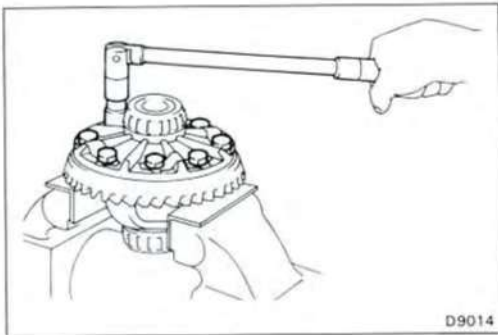
NOTE: If the drive pinion or ring gear are damaged replace them a set.

- (b) Remove the plate washer.

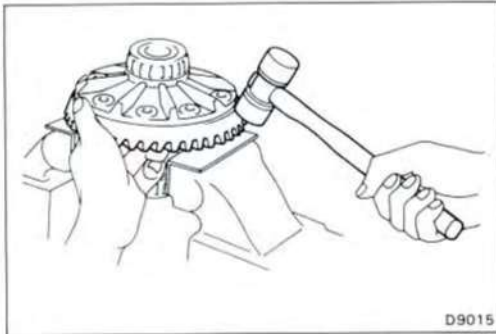


9. REMOVE FRONT AND REAR BEARING OUTER RACES

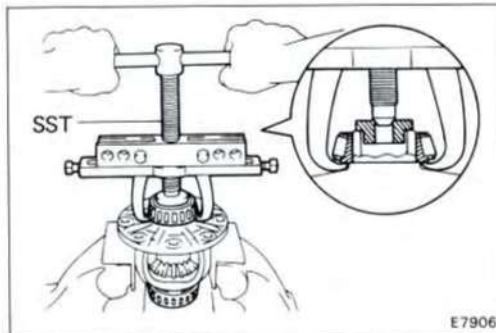
Using a hammer and brass bar, drive out the outer races from the carrier.

REAR AXLE AND SUSPENSION — Differential**RA-31**

(c) Remove the eight bolts and four lock plates.

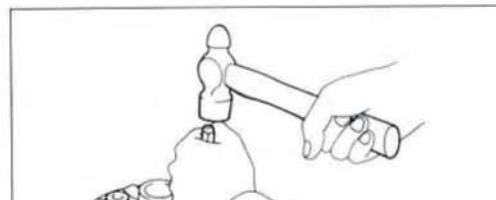


(d) Using a plastic hammer, tap on the ring gear to separate it from differential case.

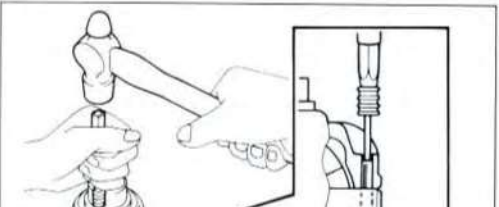
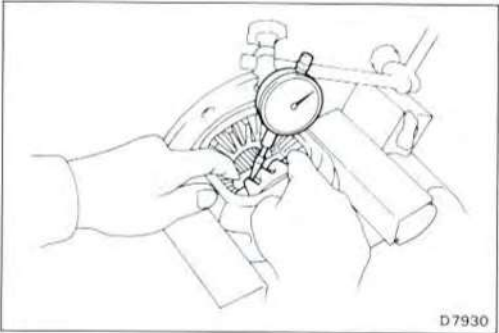
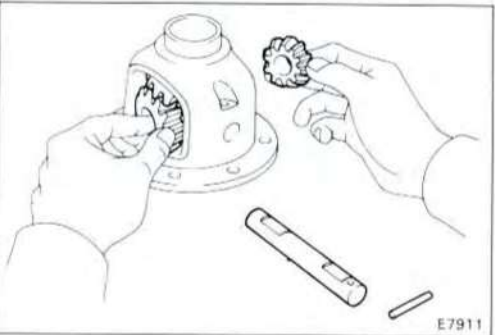
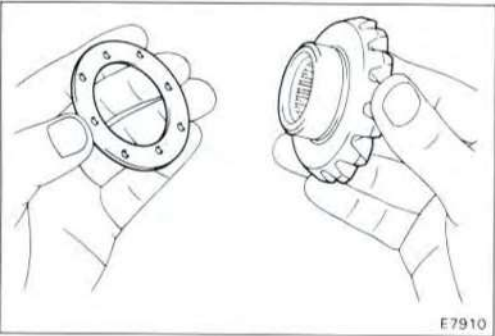
**11. REMOVE SIDE BEARINGS**

Using SST, remove the two side bearings from differential case.

SST 09950-20017

**12. DISASSEMBLE DIFFERENTIAL CASE**

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



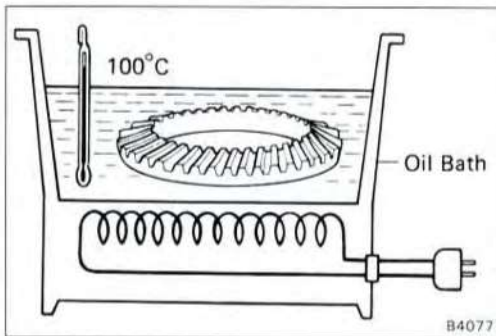
ASSEMBLY OF DIFFERENTIAL CARRIER

1. ASSEMBLE DIFFERENTIAL CASE

- (a) Install the thrust washers to the side gears.
- (b) Install the side gears with thrust washers and pinion gears with thrust washers.
- (c) Install the pinion shaft.
- (d) Check the side gear backlash.
Measure the side gear backlash while holding one pinion gear toward the case.
- Backlash: 0.05 — 0.20 mm (0.0020 — 0.0079 in.)**
If the backlash is not within specification, install the side gear thrust washers of different thickness.
- | Thrust washer thickness | | mm (in.) |
|-------------------------|----------|---------------|
| 0.95 | (0.0374) | 1.10 (0.0433) |
| 1.00 | (0.0394) | 1.15 (0.0453) |
| 1.05 | (0.0413) | 1.20 (0.0472) |
- NOTE: Use washers of same thickness on both the right and left sides.
- (e) Using a hammer and punch, drive in the straight pin through the case and hole in the pinion shaft.

REAR AXLE AND SUSPENSION — Differential

RA-33

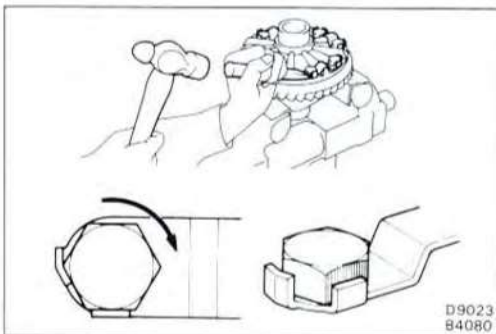
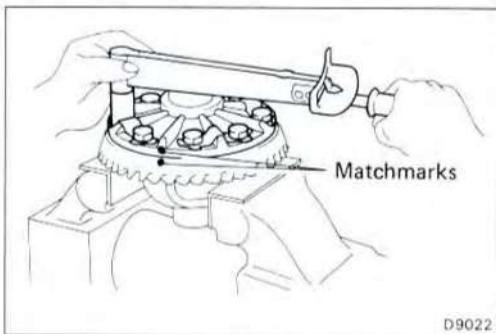
**2. INSTALL RING GEAR ON DIFFERENTIAL CASE**

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

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

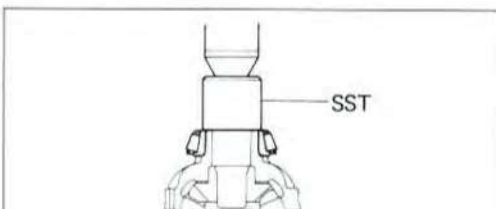
- (c) Clean the contact surface of the ring gear with cleaning solvent.
- (d) Then quickly install the ring gear on the differential case.
- (e) Align the matchmarks on the ring gear and differential case.
- (f) Install new lock plates and set bolts. Tighten the set bolts uniformly and a little at a time. Torque the bolts.

Torque: 985 kg-cm (71 ft-lb, 97 N·m)



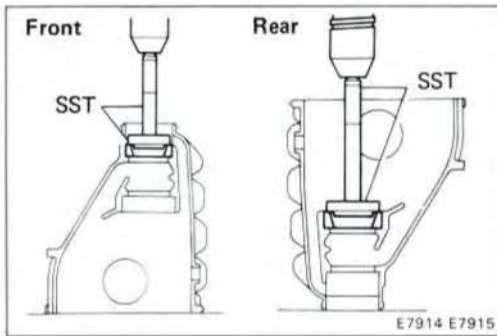
- (g) Using a hammer and drift punch, stake the lock plates.

NOTE: Stake one claw flush with the flat surface of the nut. For the claw contacting the protruding portion of the nut, stake only the half on the tightening side.

**3. INSTALL SIDE BEARINGS**

Using a press and SST, drive in the side bearings into the differential case.

SST 09710-22020 (09710-01030)

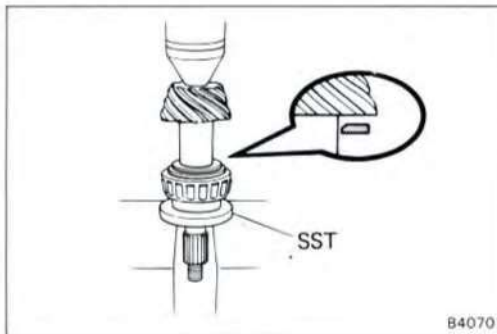
RA-34**REAR AXLE AND SUSPENSION — Differential****5. INSTALL FRONT AND REAR BEARING OUTER RACES**

Using a press and SST, drive in the front and rear bearing outer races.

SST 09608-30012

Front (09608-04020 and 09608-00060)

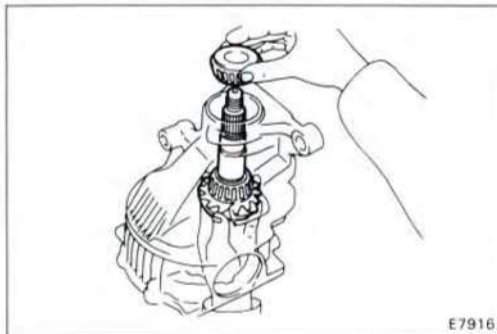
Rear (09608-04020 and 09608-04100)

**6. INSTALL REAR BEARING TO DRIVE PINION**

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

(b) Using a press and SST, install the rear bearing onto the drive pinion.

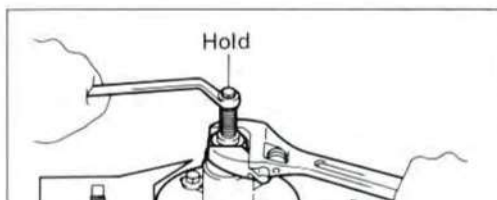
SST 09506-30012

**7. TEMPORARILY ADJUST DRIVE PINION PRELOAD**

(a) Install the following parts:

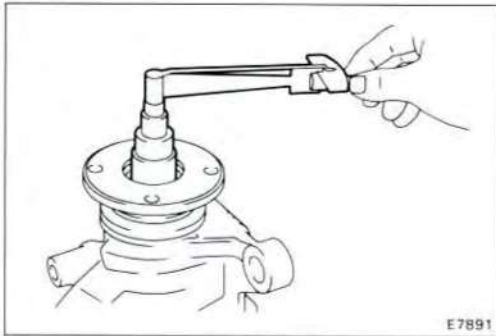
- Drive pinion
- Front bearing

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



(b) Install the companion flange with SST.

SST 09557-22022

REAR AXLE AND SUSPENSION — Differential**RA-35**

(d) Using a torque meter, measure the preload.

Preload (at starting)**New bearing**

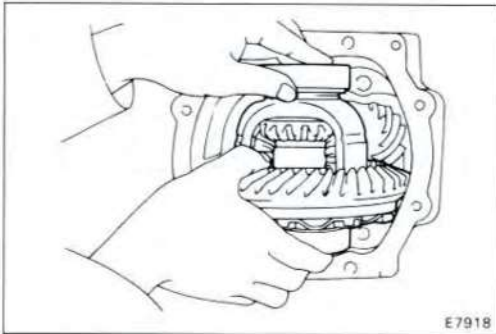
12 — 19 kg-cm

(10.4 — 16.5 in.-lb, 1.2 — 1.9 N·m)

Reused bearing

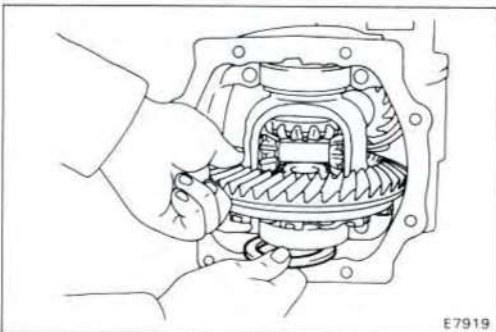
6 — 10 kg-cm

(5.2 — 8.7 in.-lb, 0.6 — 1.0 N·m)

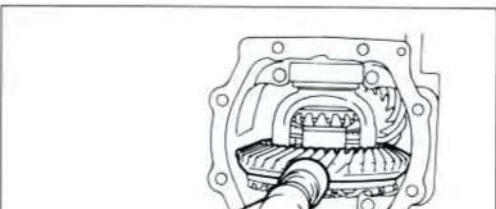
**8. INSTALL DIFFERENTIAL CASE IN CARRIER**

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

(b) Install the differential case in the carrier.

**9. ADJUST RING GEAR BACKLASH**

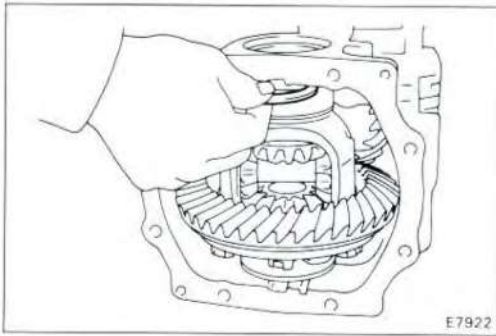
(a) Install only the plate washer on the ring gear back side.

NOTE: Insure that the ring gear has backlash.

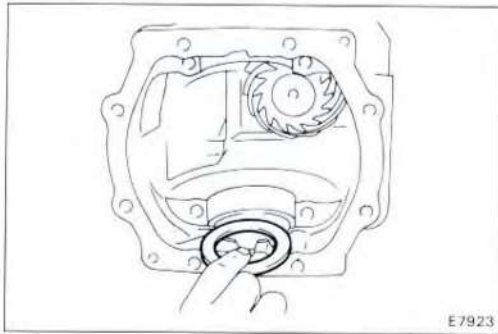
(b) Snug down the washer and bearing by tapping on the ring gear with a plastic hammer.

RA-36

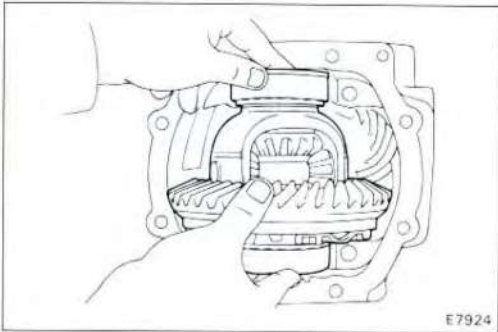
REAR AXLE AND SUSPENSION — Differential



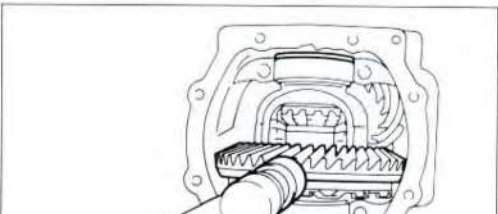
- (e) Select a ring gear teeth side washer with a thickness which eliminates any clearance between the outer race and case.



- (f) Remove the plate washer and differential case.
(g) Install the plate washer into the ring gear back side.

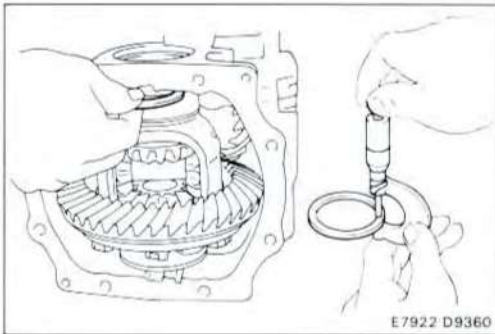


- (h) Place the other plate washer onto the differential case together with the outer race, and install the differential case with the outer race into the carrier.



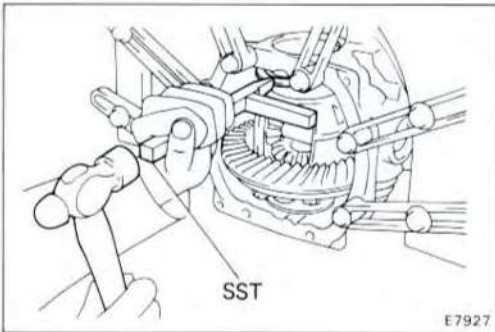
- (i) Using a plastic hammer, snug down the washer and bearing by tapping the ring gear.

REAR AXLE AND SUSPENSION — Differential

RA-37


10. ADJUST SIDE BEARING PRELOAD

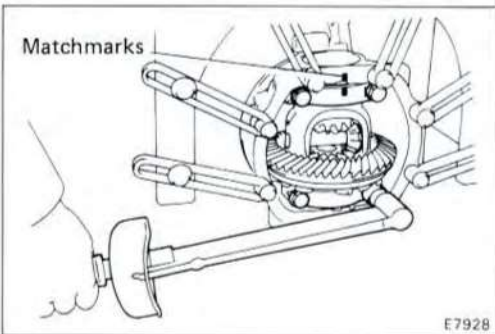
- (a) Remove the ring gear teeth side plate washer and measure the thickness.



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

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

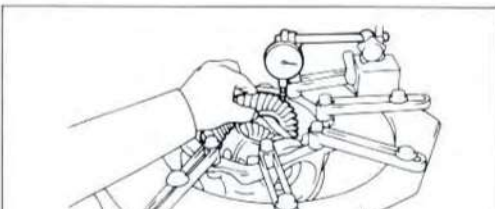
- (c) Using a hammer and SST, tap in the side washer.
SST 09504-22011



- (d) Install the side bearing caps.

NOTE: Align the matchmarks on the cap and carrier.

Torque: 800 kg-cm (58 ft-lb, 78 N·m)



- (e) Recheck the ring gear backlash.

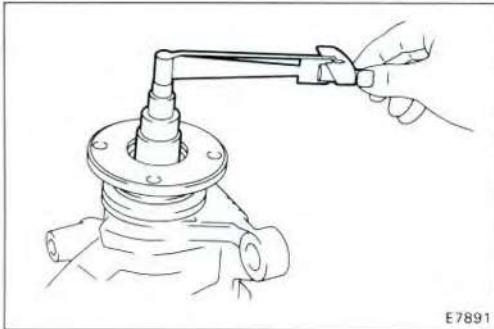
Backlash: 0.13 — 0.18 mm (0.0051 — 0.0071 in.)

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

NOTE: The backlash will change about 0.02 mm (0.0008 in.) for every 0.01 mm (0.0004 in.) change in washer thickness.

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REAR AXLE AND SUSPENSION — Differential

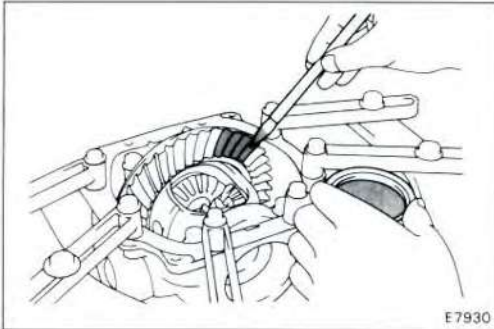
**11. MEASURE TOTAL PRELOAD**

Using a torque wrench, measure the total preload.

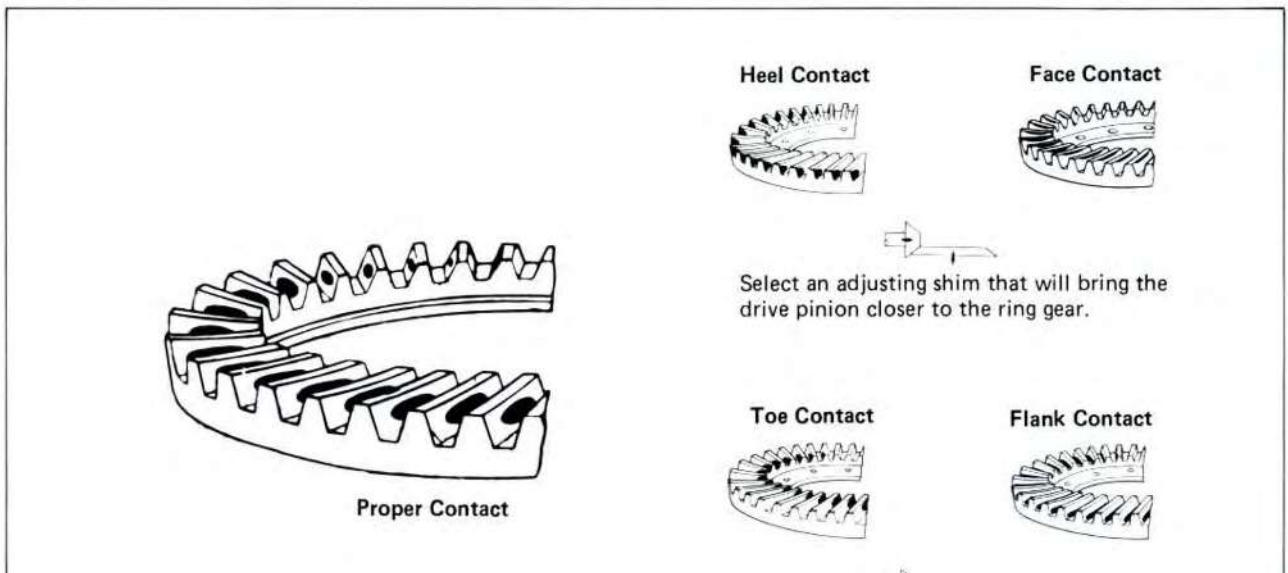
Total preload (at starting):

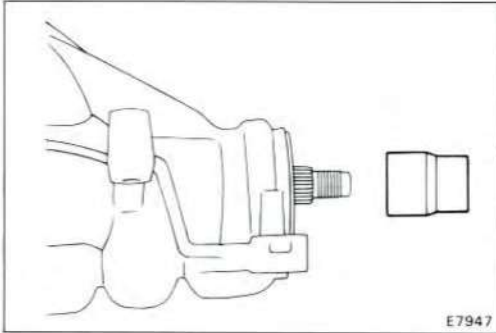
Add drive pinion preload

3 — 5 kg-cm (2.6 — 4.3 in.-lb, 0.3 — 0.5 N·m)

**12. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION**

- Coat 3 or 4 teeth at three different positions on the ring gear with red lead.
- Hold the companion flange firmly and rotate the ring gear in both directions.
- Inspect the tooth contact.

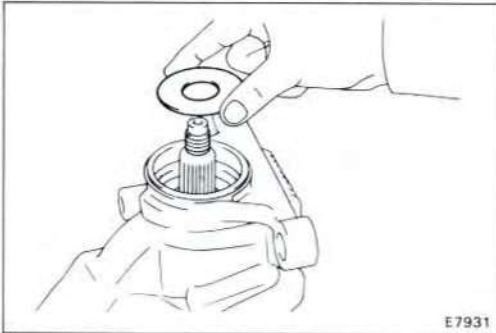


REAR AXLE AND SUSPENSION — Differential**RA-39**

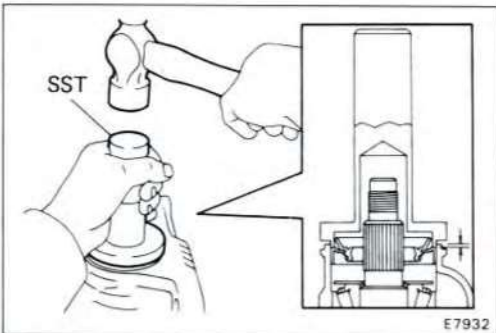
13. REMOVE COMPANION FLANGE
(See step 3 on page RA-28)

14. REMOVE FRONT BEARING
(See step 5 on page RA-29)

15. INSTALL NEW BEARING SPACER AND FRONT BEARING
(a) Install a new bearing spacer on the drive pinion.
(b) Install the front bearing on the drive pinion.



16. INSTALL OIL SLINGER



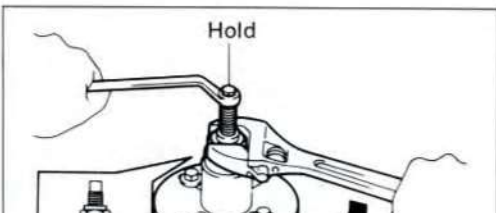
17. INSTALL NEW OIL SEAL

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

SST 09554-22010

Oil seal drive in depth: 2.0 mm (0.079 in.)

(b) Apply MP grease to oil seal lip.



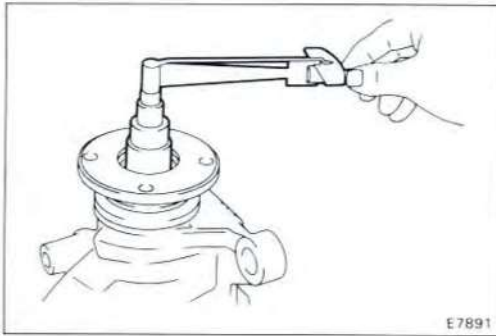
18. INSTALL COMPANION FLANGE

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

SST 09557-22022

RA-40

REAR AXLE AND SUSPENSION — Differential

**19. CHECK DRIVE PINION BEARING PRELOAD**

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

Preload (at starting):

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.

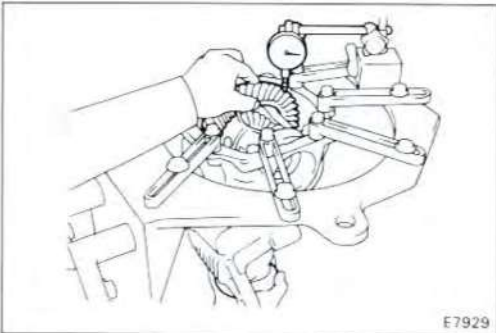
If the maximum torque is exceed while retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the pinion nut to reduce the preload.

Maximum torque: 2,400 kg-cm (174 ft-lb, 235 N·m)

20. CHECK TOTAL PRELOAD

Total preload (at starting):

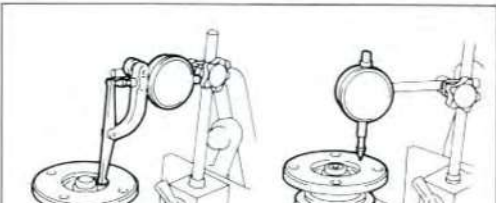
Add drive pinion preload	3 — 5 kg-cm (2.6 — 4.3 in.-lb, 0.3 — 0.5 N·m)
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**21. CHECK RING GEAR BACKLASH**

Using a dial indicator, check the backlash of the ring gear.

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

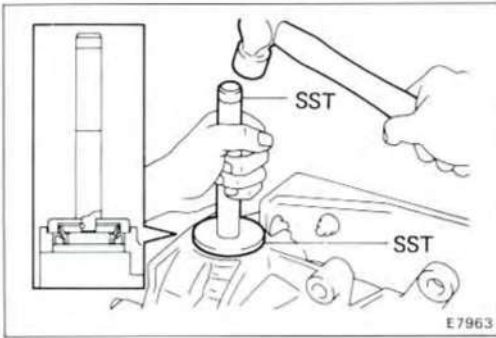
If the backlash is not within specification, adjust the side bearing preload.

22. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION (See page RA-38)**23. CHECK COMPANION FLANGE RUNOUT**

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

Maximum lateral runout: 0.10 mm (0.0039 in.)

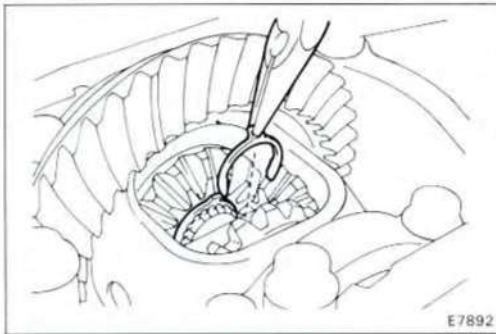
Maximum radial runout: 0.10 mm (0.0039 in.)

REAR AXLE AND SUSPENSION — Differential**RA-41****25. INSTALL NEW SIDE GEAR SHAFT OIL SEALS**

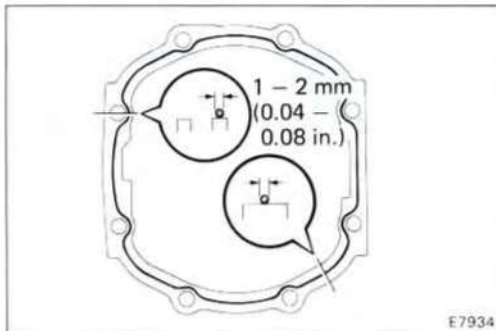
- (a) Using SST, drive in two new oil seals until they are flush with the carrier end surface.

SST 09550-22011 (09550-00020 and 09550-00031)

- (b) Coat the oil seal lips with MP grease.

**26. INSTALL SIDE GEAR SHAFTS**

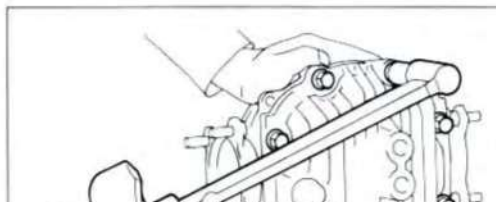
- (a) Install the two side gear shafts to the differential case.
- (b) Install two new shaft snap rings to the side gear shafts.

**27. 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

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

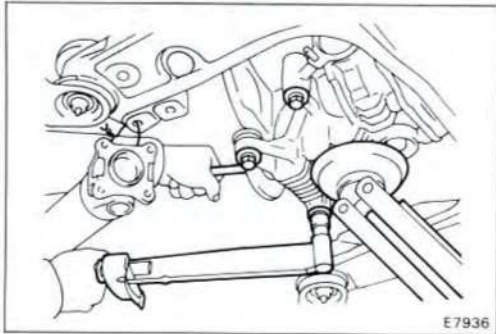


- (c) Install and tighten the eight set bolts.

Torque: 475 kg-cm (34 ft-lb, 47 N·m)

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REAR AXLE AND SUSPENSION — Differential

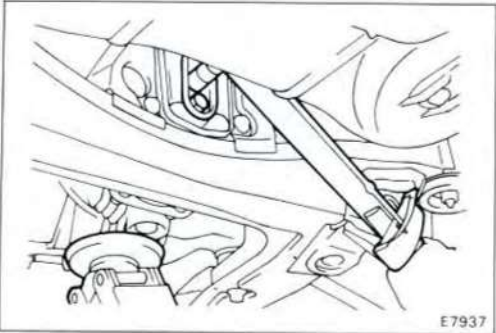
**INSTALLATION OF DIFFERENTIAL**

(See page RA-20)

1. INSTALL DIFFERENTIAL

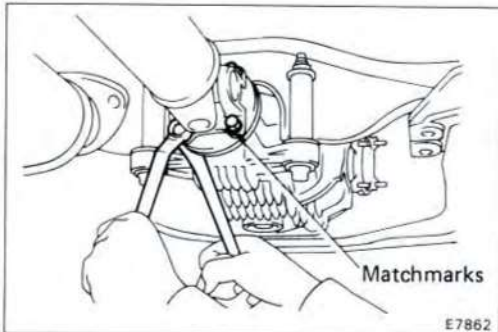
- (a) Position the differential and torque the four bolts and nuts.

Torque: 970 kg-cm (70 ft-lb, 95 N·m)



- (b) Install and torque the two bolts.

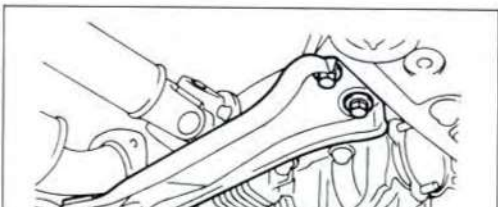
Torque: 1,500 kg-cm (108 ft-lb, 147 N·m)

**2. CONNECT PROPELLER SHAFT**

- (a) Align the matchmarks on the flanges and connect the flanges with four bolts, nuts and washers.

- (b) Torque the four bolts and nuts.

Torque: 750 kg-cm (54 ft-lb, 74 N·m)

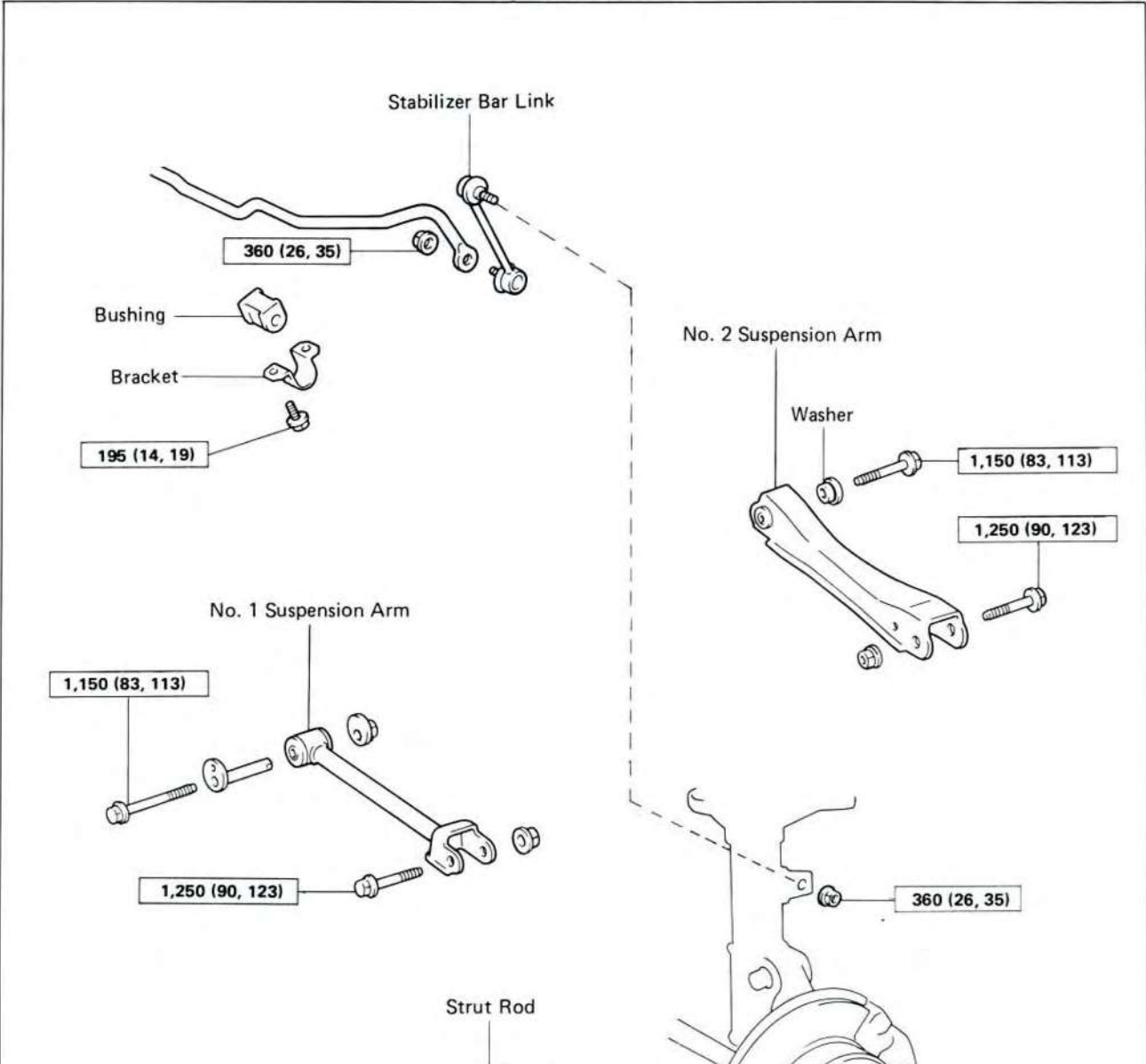
**3. INSTALL REAR CROSSMEMBER**

Install the rear crossmember with four bolts.

Torque: 730 kg-cm (53 ft-lb, 72 N·m)

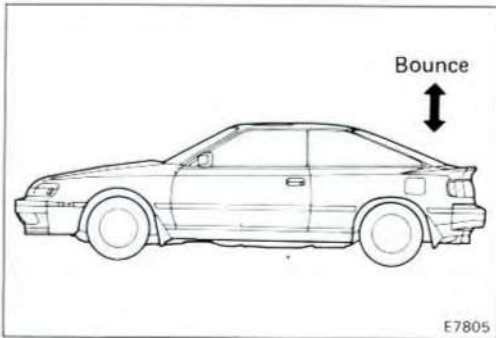
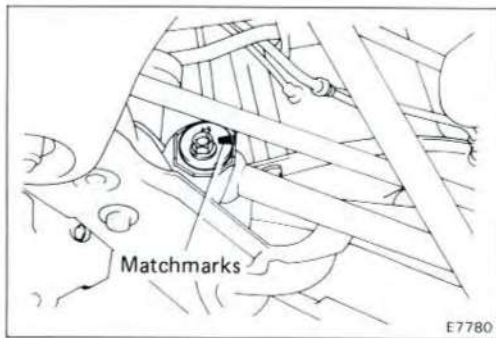
4. CONNECT DRIVE SHAFTS (See page RA-13)

REAR SUSPENSION
COMPONENTS



RA-44

REAR AXLE AND SUSPENSION — Rear Suspension



Suspension Arm and Strut Rod

REMOVAL AND INSTALLATION OF SUSPENSION ARM AND STRUT ROD

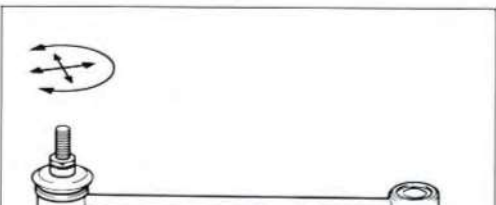
Remove and install the parts as shown components on page RA-43.

(MAIN POINT OF REMOVAL SUSPENSION ARM AND STRUT ROD)

- Place matchmarks on the adjusting cam and body. (No. 2 suspension arm only)

(MAIN POINT OF INSTALLATION SUSPENSION ARM AND STRUT ROD)

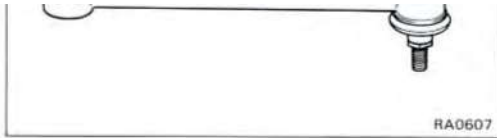
- Place the suspension arm or the strut rod in position.
- Temporarily install the bolt to the body and the axle carrier.
- Bounce the vehicle up and down to stabilize the suspension arm or strut rod.
- Align the matchmarks on the cam and body. (No. 2 suspension arm only)
- Torque the installation bolt with the vehicle weight on the suspension. (See page RA-43)
- Check rear wheel alignment. (See page RA-3)



Stabilizer Bar

REMOVAL AND INSTALLATION OF STABILIZER BAR

Remove and install the stabilizer bar as shown components on page SA-43



on page SA-43.

INSPECT STABILIZER BAR LINK

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