

# SUSPENSION AND AXLE

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## TROUBLESHOOTING

| Problem            | Possible cause                                 | Remedy                                           | Page  |       |
|--------------------|------------------------------------------------|--------------------------------------------------|-------|-------|
|                    |                                                |                                                  | Front | Rear  |
| Wanders/pulls      | Tires worn or improperly inflated              | Replace tire or inflate tires to proper pressure | SA-3  | SA-3  |
|                    | Wheel alignment incorrect                      | Check wheel alignment                            | SA-4  | SA-6  |
|                    | Hub bearing worn                               | Replace hub bearing                              | SA-9  | SA-31 |
|                    | Front of rear suspension parts loose or broken | Tighten or replace suspension parts              | SA-18 | SA-69 |
|                    | Steering gear out of adjustment or broken      | Adjust or repair steering gear                   | SR-22 | –     |
| Bottoming          | Vehicle overloaded                             | Check loading                                    | SA-18 | SA-69 |
|                    | Shock absorber worn out                        | Replace shock absorber                           | SA-18 | SA-69 |
|                    | Spring weak                                    | Replace spring                                   | SA-18 | SA-69 |
| Sways/pitches      | Tires improperly inflated                      | Inflate tires to proper pressure                 | SA-3  | SA-3  |
|                    | Stabilizer bar bent or broken                  | Inspect stabilizer bar                           | SA-24 | SA-69 |
|                    | Shock absorber worn out                        | Replace shock absorber                           | SA-18 | SA-69 |
| Front wheel shimmy | Tires worn or improperly inflated              | Replace tire or inflate tires to proper pressure | SA-3  | –     |
|                    | Wheels out of balance                          | Balance wheels                                   |       |       |
|                    | Shock absorber worn out                        | Replace shock absorber                           | SA-18 | –     |
|                    | Wheel alignment incorrect                      | Check front wheel alignment                      | SA-4  | –     |
|                    | Hub bearings worn                              | Replace hub bearings                             | SA-9  | –     |
|                    | Ball joints or bushings worn                   | Inspect ball joints and bushings                 | SA-24 | –     |
|                    | Steering gear out of adjustment or broken      | Adjust or repair steering gear                   | SR-22 | –     |
| Abnormal tire wear | Tires improperly inflated                      | Inflate tires to proper pressure                 | SA-3  | SA-3  |
|                    | Shock absorber worn out                        | Replace shock absorber                           | SA-18 | SA-69 |
|                    | Wheel alignment incorrect                      | Check wheel alignment                            | SA-4  | SA-6  |
|                    | Suspension parts worn                          | Replace suspension parts                         | SA-18 | SA-69 |

## WHEEL ALIGNMENT

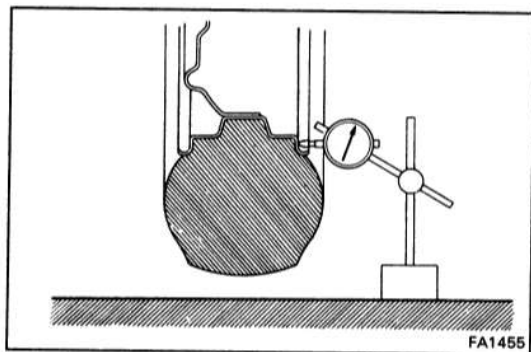
### 1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

- (a) Check the tires for wear, size and proper inflation pressure.

**Cold tire inflation pressure:**

kg/cm<sup>2</sup> (psi, kPa)

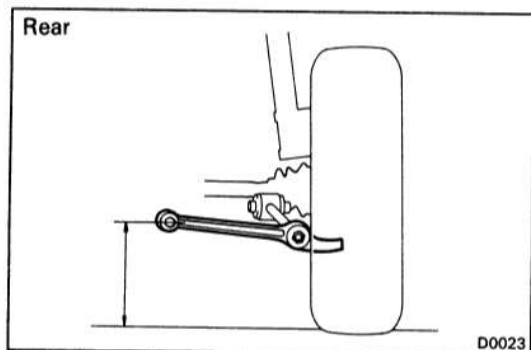
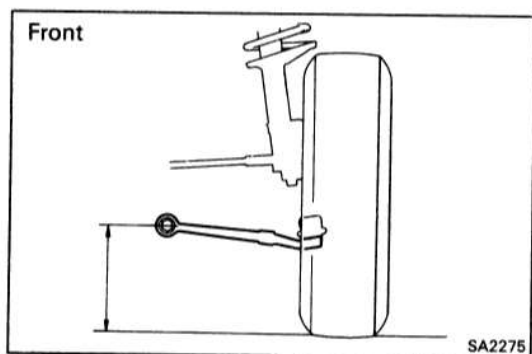
| Engine type   | Tire size         | Tire pressure |
|---------------|-------------------|---------------|
| 5S-FE Engine  | 195/60HR14(Front) | 2.0 (29, 200) |
|               | 205/60HR14(Rear)  | 2.3 (33, 225) |
| 3S-GTE Engine | 195/60VR14(Front) | 2.0 (29, 200) |
|               | 205/60VR14(Rear)  | 2.3 (33, 225) |



- (b) Check the wheel runout.

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

- (c) Check the front wheel bearings for looseness.  
 (d) Check the front suspension for looseness.  
 (e) Check the steering linkage for looseness.  
 (f) Check the ball joint for excessive looseness.  
 (g) Check that the front shock absorber work properly by using the standard bounce test.



### 2. MEASURE VEHICLE HEIGHT

**Vehicle height:**

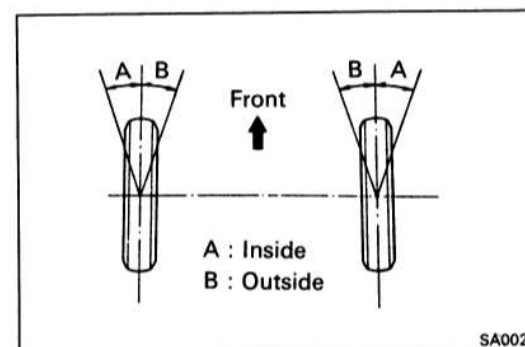
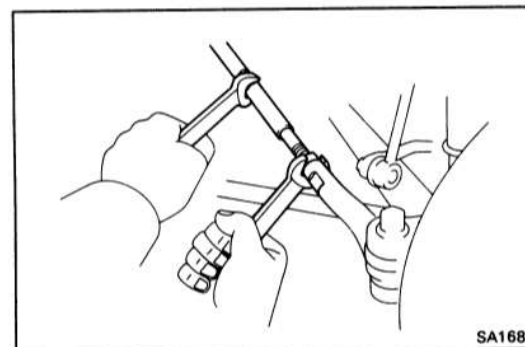
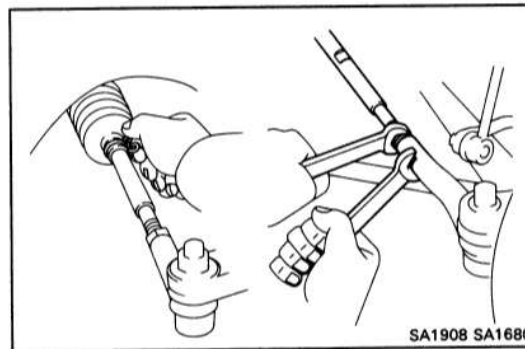
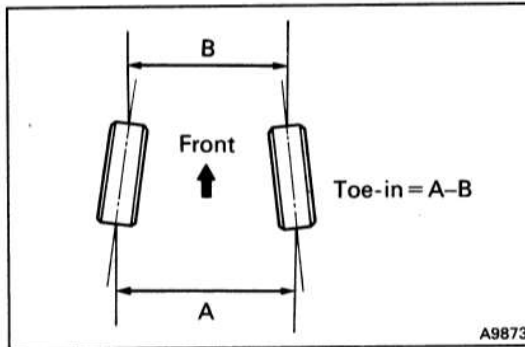
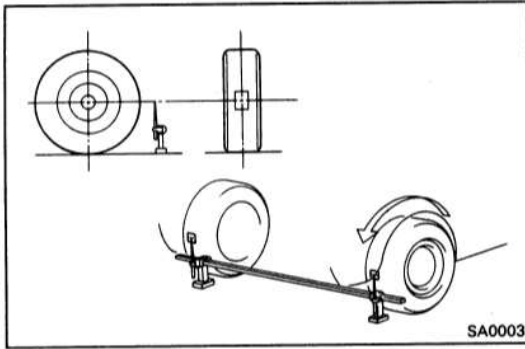
**Front 224 mm (8.82 in.)**

**Rear 203 mm (7.99 in.)**

**HINT:**

- **Measuring point**  
 Front – Measure from the ground to the center of the lower suspension arm mounting bolt.  
 Rear – Measure from the ground to the center of the body side Rear suspension No.1 mounting bolt.
- Before inspecting the wheel alignment, adjust the chassis ground clearance to specification.

If the clearance of the vehicle is not standard, try to adjust it by pushing down in the body or by lifting the body. If still not correct, check for bad springs or suspension parts.



## Front Wheel Alignment

### 1. INSPECT TOE-IN

Measure toe-in with a toe-in gauge in the following procedure.

- Bounce the vehicle up and down to stabilize the suspension.
- Move the vehicle forward about 5 m (16.4 ft) with the front wheel in the straight-ahead position on a level place.
- Mark the center of each rear tread and measure the distance between the marks of the right and left tires.
- Advance the vehicle until the marks on the rear sides of the tires come to the measuring heights of the gauge on the front side.

**HINT:** If the tire rolls too far, repeat from step (b).

- Measure the distance between the marks on the front of the tires.

**Inspection standard:**  $1 \pm 2 \text{ mm}$  ( $0.04 \pm 0.08 \text{ in.}$ )

If toe-in is not within specification, adjust by the tie rod end.

### 2. ADJUST TOE-IN

- Remove the boot clips.
- Loosen tie rod end lock nut.
- Turn the left and right tie rod ends an equal amount to adjust the toe-in.

**Adjustment standard:**  $1 \pm 1 \text{ mm}$  ( $0.04 \pm 0.04 \text{ in.}$ )

**HINT:** Insure that the lengths of the left and right tie rod ends are the same.

**Tie rod end length left-right error:**  
 $1.0 \text{ mm}$  ( $0.039 \text{ in.}$ ) or less

- Torque the tie rod end lock nuts.

**Torque:**  $480 \text{ kg-cm}$  ( $35 \text{ ft-lb}$ ,  $47 \text{ N-m}$ )

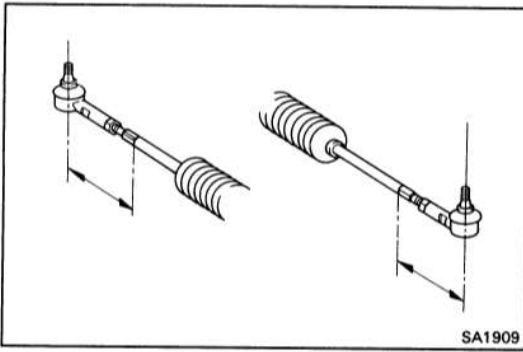
- Place the boot on the seat and clamp it.

**HINT:** Insure that the boots are not twisted.

### 3. CHECK WHEEL ANGLE

**Wheel Angle (Maximum):**

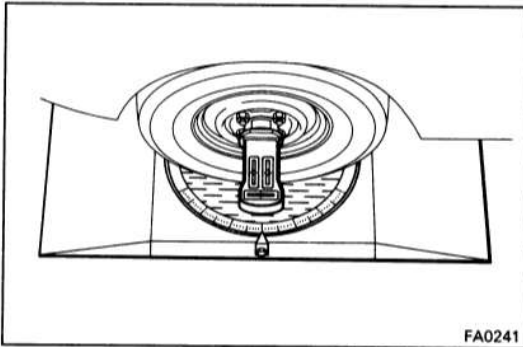
**Inside wheel**  $37^\circ 30' \pm 1^\circ 30'$   
**Outside wheel**  $32^\circ$



If wheel angles differ from the standard specifications, check to see if the lengths of the left and right tie rods are the same.

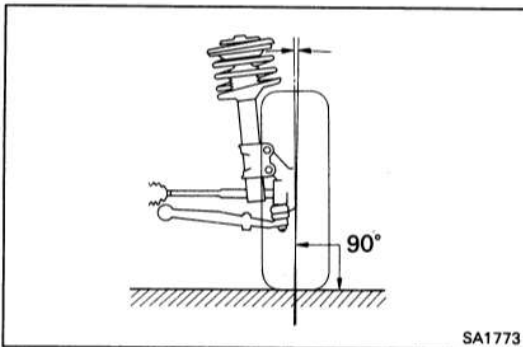
**HINT:** If the rod lengths are not equal, the wheel angle cannot be adjusted properly.

If the tie rod lengths were changed to adjust the wheel angle, inspect the toe-in.



#### 4. INSTALL WHEEL ALIGNMENT EQUIPMENT

Follow the specific instructions of the equipment manufacturer.



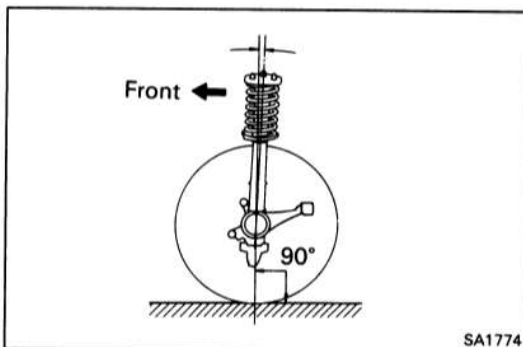
#### 5. CHECK CAMBER

**Camber:**

**Inspection standard**  $-0^{\circ}55' \pm 30'$

**Left-right error**  $30^{\circ}$  or less

**HINT:** Camber is not adjustable, if measurement is not within specification, inspect and replace the suspension parts as necessary.



#### 6. CHECK CASTER

**Caster:**

**Inspection standard**  $2^{\circ}45' \pm 45'$

**Adjustment standard**  $2^{\circ}45' \pm 30'$

**Left-right error**  $30'$  or less

If caster is not within specification, adjust by turning the nut.

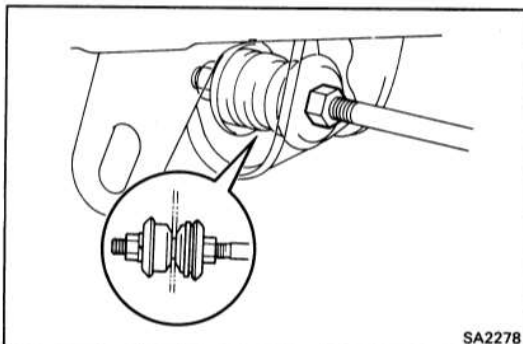
(a) Loosen the strut bar front nut.

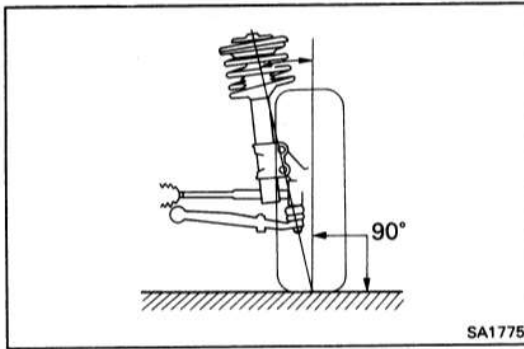
(b) Turn the camber adjusting nut to adjust.

**HINT:** Each revolution of the nut alters the caster angle by  $14'$ .

(c) Tighten the strut bar front nut.

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





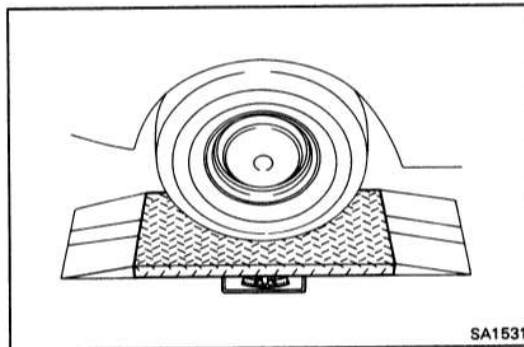
## 7. CHECK STEERING AXIS INCLINATION

Steering axis inclination:

Inspection standard  $13^{\circ}30' \pm 30'$

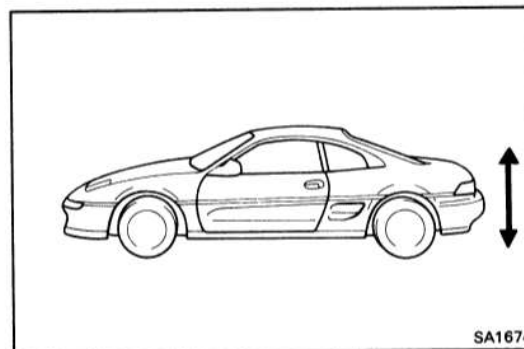
Left-right error 30' or less

HINT: Steering axis inclination is not adjustable, if measurement is not within specification, inspect and replace the suspension parts as necessary.



## 8. CHECK SIDE SLIP (REFERENCE ONLY)

Side slip: 3.0 mm/m (0.118 in./3.3 ft) or less

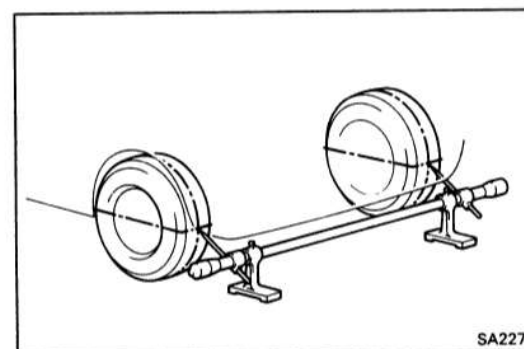


## Rear Wheel Alignment

### 1. INSPECT TOE-IN

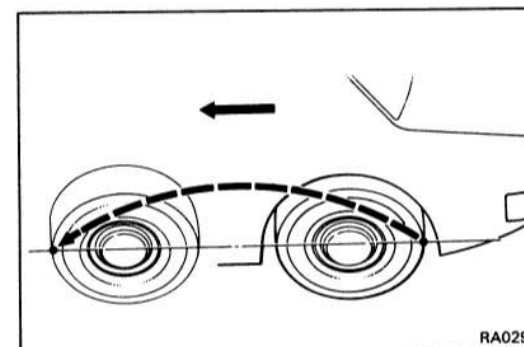
Adjust toe-in with a toe-in gauge in the following procedure.

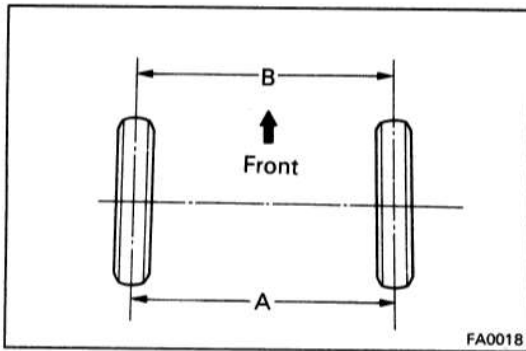
- Bounce the vehicle up and down to stabilize the suspension.
- Move the vehicle forward about 5 m (16.4 ft) with the front wheels in the straight-ahead position on a level place.
- Mark the center of each rear tread and measure the distance between the marks of the right and left tires.



- Advance the vehicle until the marks on the rear sides of the tires come to the measuring heights of the gauge on the front side.

HINT: If the tire rolls too far, repeat from step (b).





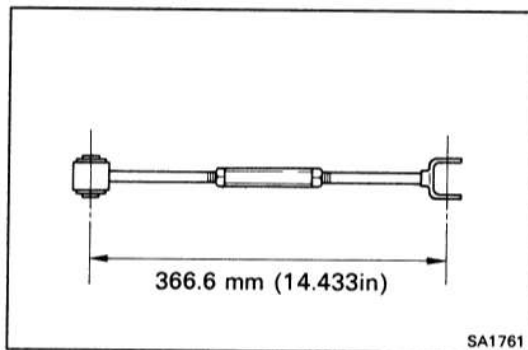
- (e) Measure the distance between the marks on the front side of the tires.

**Toe-in:**

**Inspection STD  $5 \pm 1$  mm ( $0.20 \pm 0.04$  in.)**

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

**HINT:** After replacing damaged or worn suspension parts, measure the toe-in following (b), (c), (d) and (e) above. If toe-in is still not within standard, adjust the toe-in.

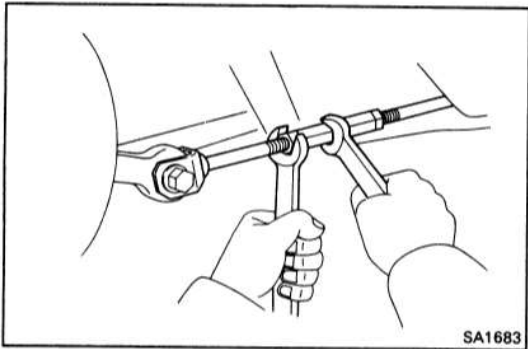


**2. ADJUST TOE-IN**

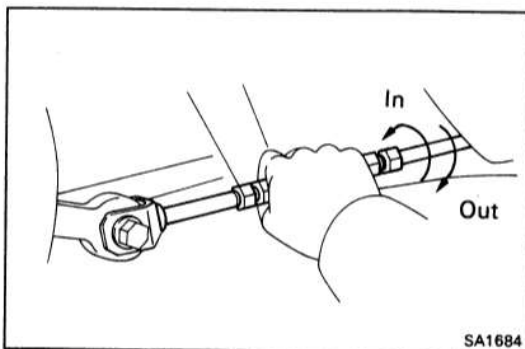
- (a) Measure the lengths of the left and right suspension arms to see if the lengths are equal.

If not equal, adjust following the procedures below.

- If the toe-in is less than standard, adjust the length of the shorter arm by the tie rod tube.
- If the toe-in is greater than standard, adjust the length of the longer arm by the tie rod tube.



- (b) Loosen the nuts.

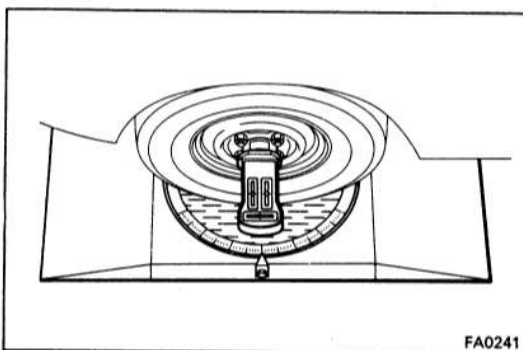


- (c) Turn the left and right tie rod tubes and equal amount.

**Toe-in:**

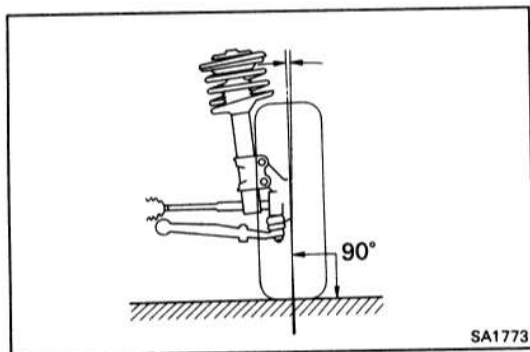
**Adjustment STD  $5 \pm 1$  mm ( $0.20 \pm 0.04$  in.)**

- (d) Tighten the nuts.  
(e) After toe-in adjustment.



**3. INSTALL WHEEL ALIGNMENT EQUIPMENT**

Follow the specific instructions of the equipment manufacturer.



#### 4. CHECK CAMBER

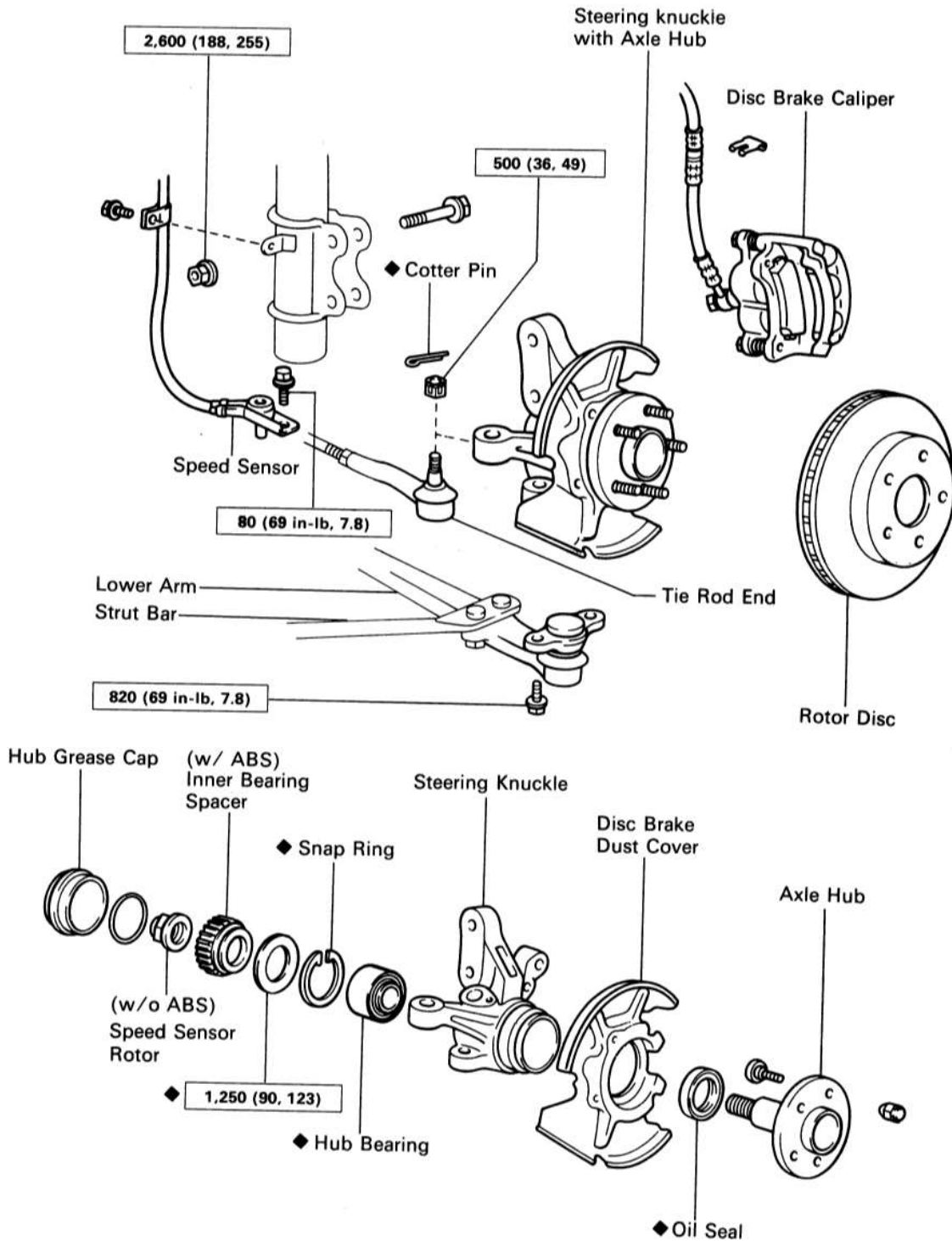
##### Camber:

Inspection standard  $-1^{\circ}20' \pm 30'$

Left-right error 30' or less

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

## FRONT AXLE HUB COMPONENTS



kg-cm (ft-lb, N·m) : Specified torque

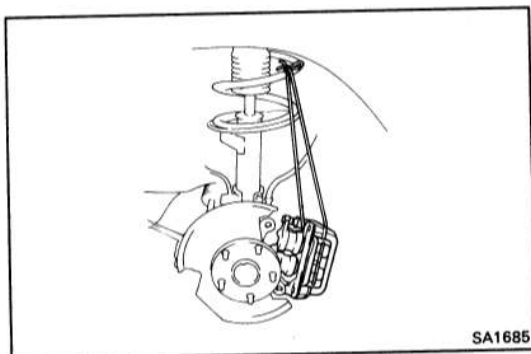
◆ Non-reusable part

**REMOVAL OF FRONT AXLE HUB**

(See page SA-9)

**1. REMOVE BRAKE CALIPER AND ROTOR DISC**

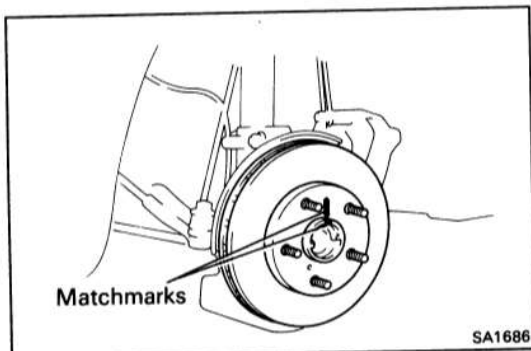
- (a) Remove the brake caliper from the steering knuckle and suspend it with wire.



SA1685

- (b) Remove the rotor disc.

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

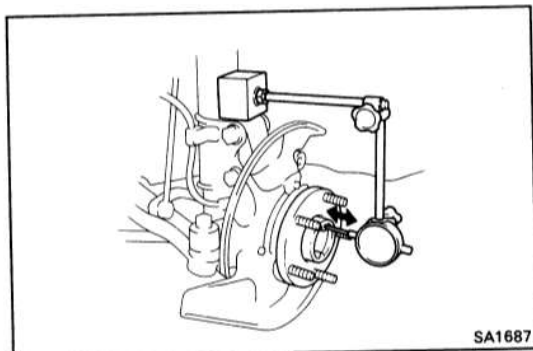


SA1686

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

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

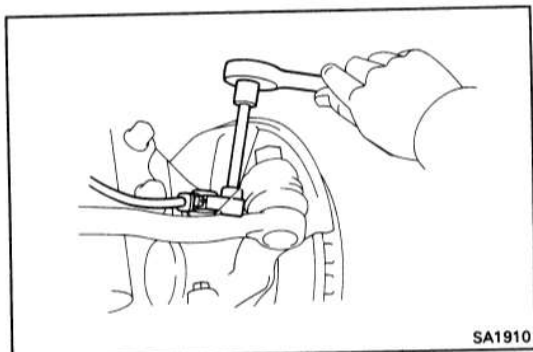
If the bearing play is greater than the maximum, replace the bearing.



SA1687

**3. (w/ ABS)  
REMOVE SPEED SENSOR**

Remove the bolt and pull out the speed sensor.

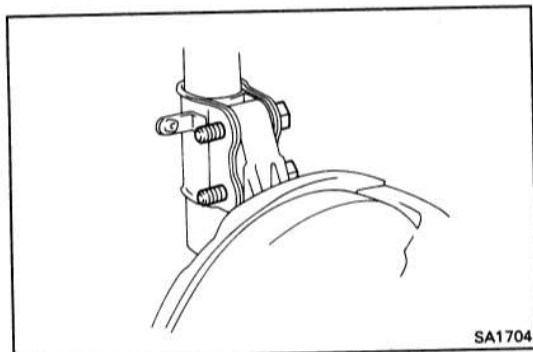


SA1910

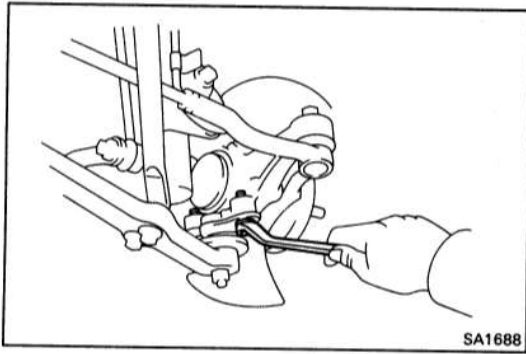
**4. LOOSEN BOLTS AND NUTS OF SHOCK ABSORBER  
LOWER BRACKET**

Loosen the bolts and nuts, and remove the nuts.

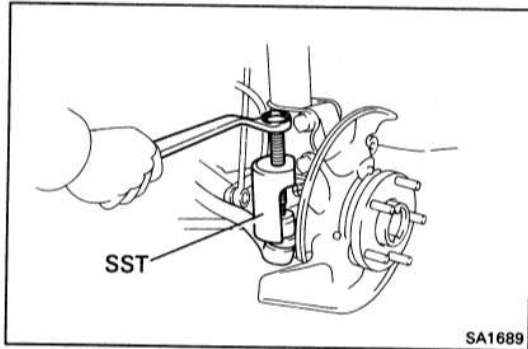
**HINT:** Leave the bolts not to drop the steering knuckle assembly.



SA1704

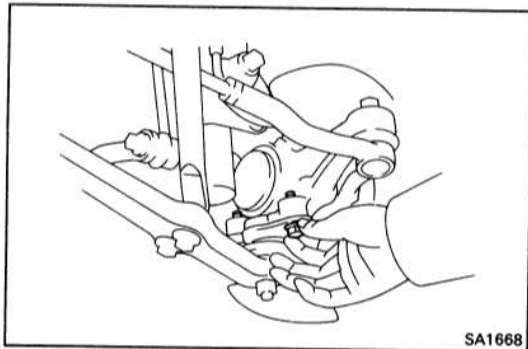
**5. DISCONNECT LOWER BALL JOINT AND TIE ROD END**

- (a) Loosen the two ball joint set bolts.
- (b) Remove the cotter pin and nut from the tie rod end.

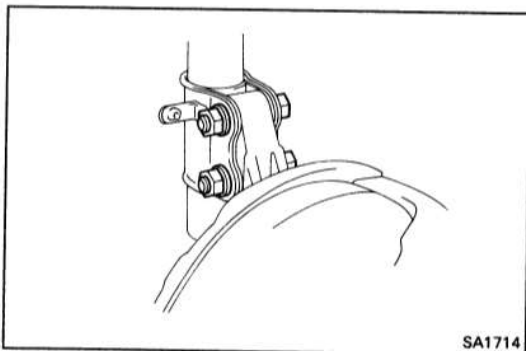


- (c) Using SST, disconnect the tie rod end from the steering knuckle.

SST 09610-20012



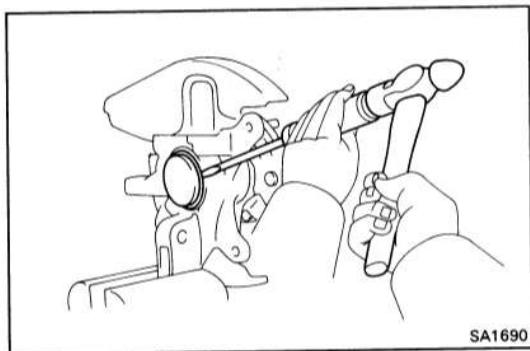
- (d) Remove the two bolts and ball joint from the steering knuckle.

**6. REMOVE STEERING KNUCKLE WITH AXLE HUB**

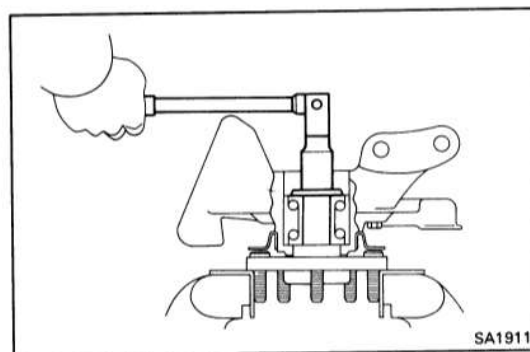
Remove the two upper axle hub bolts and remove the steering knuckle.

**DISASSEMBLY OF FRONT AXLE HUB**

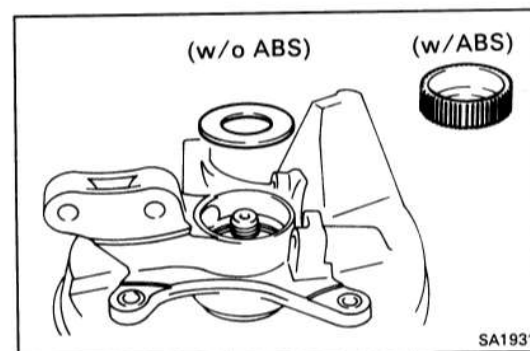
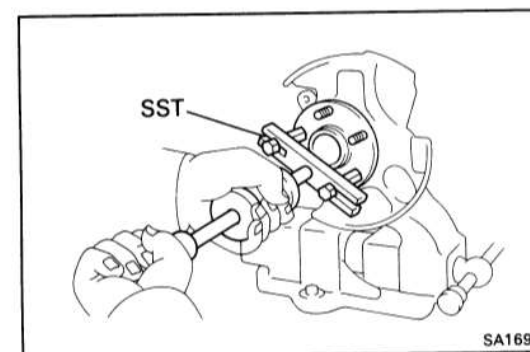
(See page SA-9)

**1. REMOVE HUB BEARING CAP**

- (a) Clamp the steering knuckle in a soft jaw vice.
- (b) Using a screwdriver and hammer, remove the hub bearing cap.

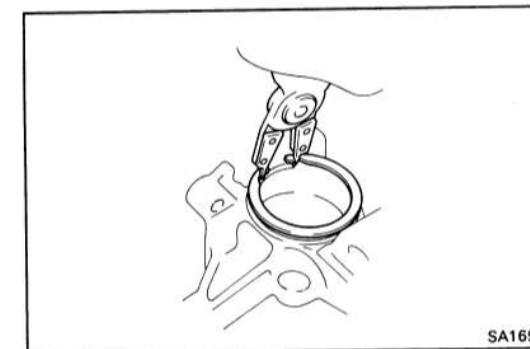
**2. REMOVE FRONT AXLE HUB LOCK NUT**

- (a) Clamp the axle hub in soft jaw vice.  
HINT: Close vice until it holds hub bolt. Do not tighten further.
- (b) Using a hammer and chisel, loosen the staked part of the nut and remove the lock nut.

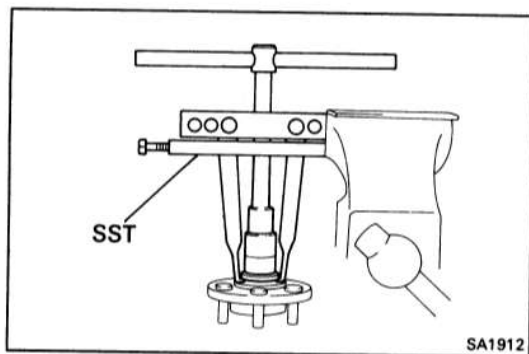
**3. (w/ ABS)  
REMOVE SPEED SENSOR ROTOR****NOTICE:** Take care to not scratch the serrations of speed sensor rotor.**4. (w/o ABS)  
REMOVE BEARING INNER SPACER****5. REMOVE AXLE HUB**

- (a) Remove the disc brake dust cover.
- (b) Using SST, remove the axle hub from the steering knuckle.

SST 09520-00031

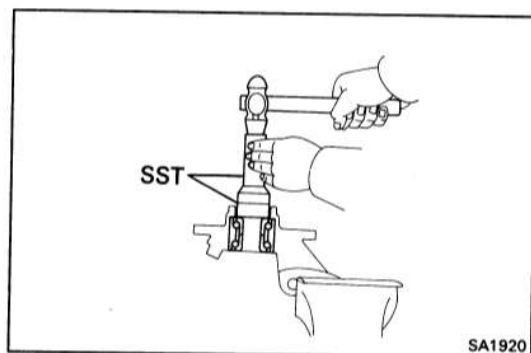
**6. REMOVE HUB BEARING**

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



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

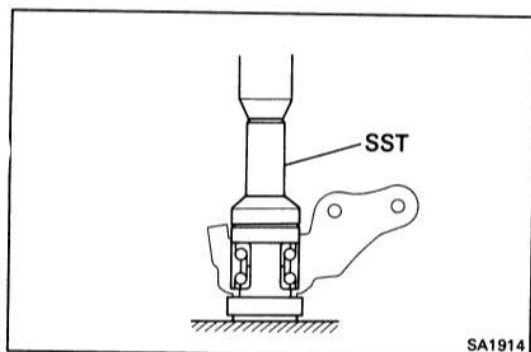
SST 09950-20017



- (c) First place the removed inner race (outside) in the bearing.

- (d) Using SST, drive out the hub bearing from the steering knuckle.

SST 09608-30012 (09608-04020), 09649-17010



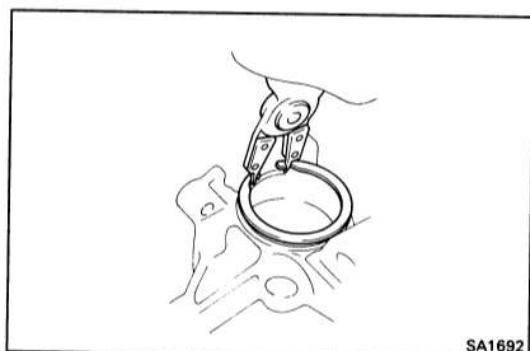
## ASSEMBLY OF FRONT AXLE HUB

(See page SA-9)

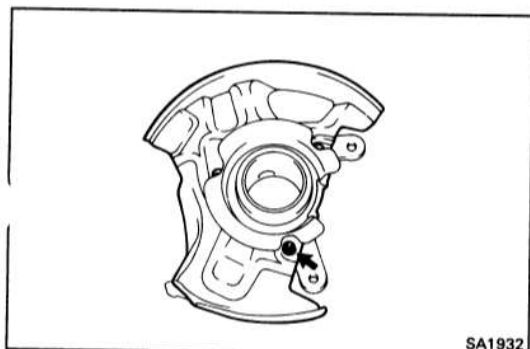
### 1. INSTALL HUB BEARING

- (a) Using SST, install the hub bearing.

SST 09608-30012 (09608-04020)



- (b) Using snap ring pliers, install the hole snap ring.



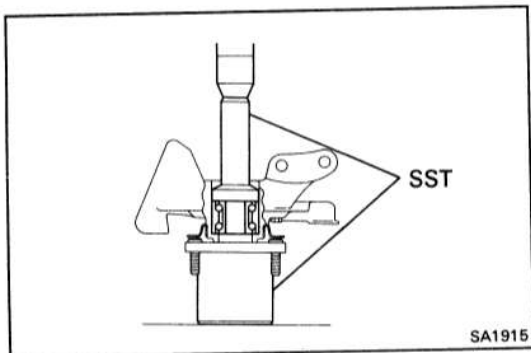
### 2. INSTALL DISC BRAKE DUST COVER

**HINT:** Apply liquid sealer or sealant the dust cover and steering knuckle connection before assemble.

- (a) Install the dust cover in place.

- (b) Using a torx driver, install and torque the four bolts.

**Torque:** 85 kg-cm (74 in.-lb, 8.3 N·m)



### 3. INSTALL AXLE HUB

- (a) Coat the MP grease to the oil seal lip.
- (b) Install the bearing outer and inner race into the hub bearing.
- (c) Using SST, install the axle hub to the steering knuckle.

SST 09608-30012 (09608-04020)

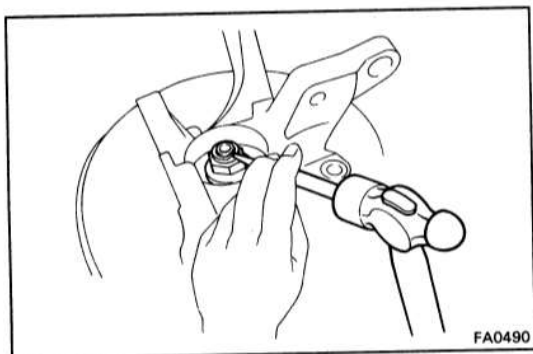
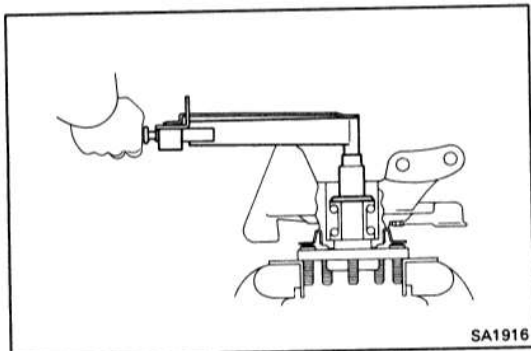
- (d) (w/ ABS)  
Install the speed sensor rotor.

**NOTICE:** Take care to not scratch the serrations of speed sensor rotor.

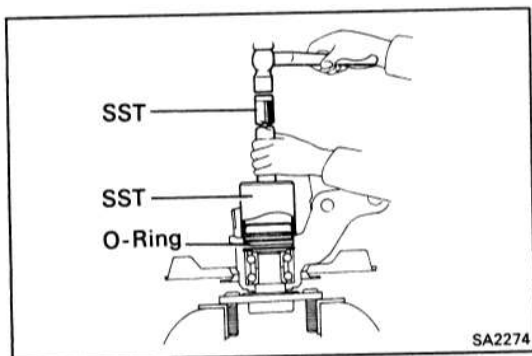
- (w/o ABS)  
Install the bearing inner spacer.

- (e) Install and torque the axle hub lock nut.

**Torque:** 1,250 kg-cm (90 ft-lb, 123 N·m)



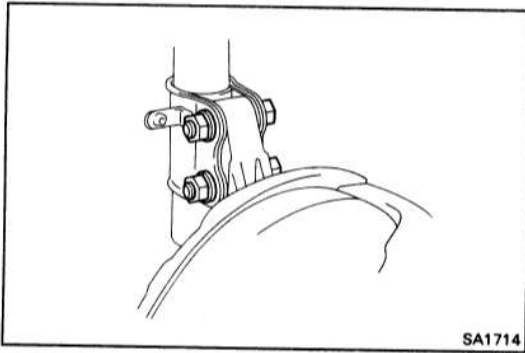
- (f) Using a hammer and punch, stake the nut.



### 4. INSTALL HUB GREASE CAP

Using SST, install hub grease cap.

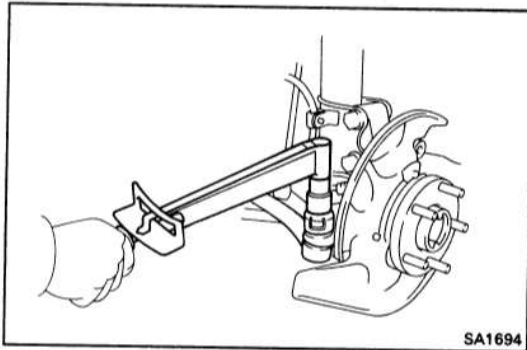
SST 09608-30012(09608-04020), 09649-17010



## INSTALLATION OF FRONT AXLE HUB

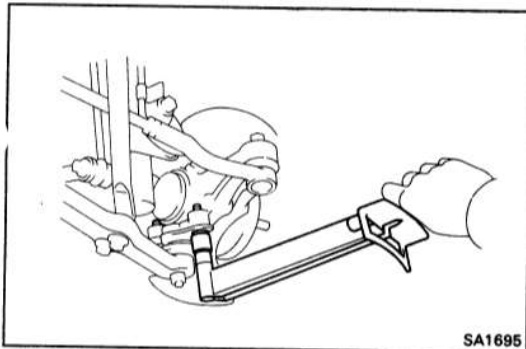
(See page SA-9)

1. **INSTALL STEERING KNUCKLE TO SHOCK ABSORBER**
  - (a) Connect the steering knuckle to the shock absorber lower bracket with two bolts.
  - (b) Install and finger tighten the two nuts.



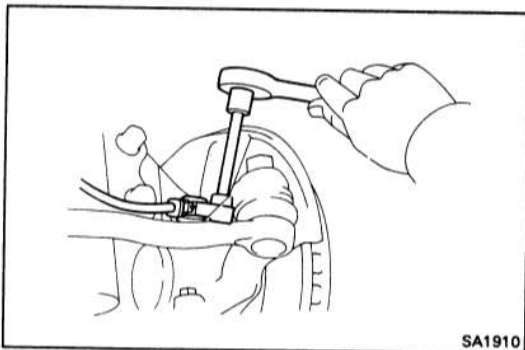
2. **CONNECT TIE ROD END TO STEERING KNUCKLE**

Torque the castle nut and secure it with a new cotter pin.  
Torque: 500 kg-cm (36 ft-lb, 49 N·m)



3. **TORQUE STEERING KNUCKLE TO BALL JOINT**

Install and torque the two bolts.  
Torque: 820 kg-cm (59 ft-lb, 80 N·m)

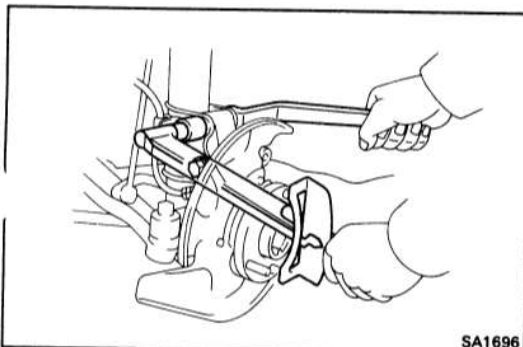


4. **(w/ ABS)**  
**INSTALL SPEED SENSOR**

Install the speed sensor in place, then install and torque the bolt.

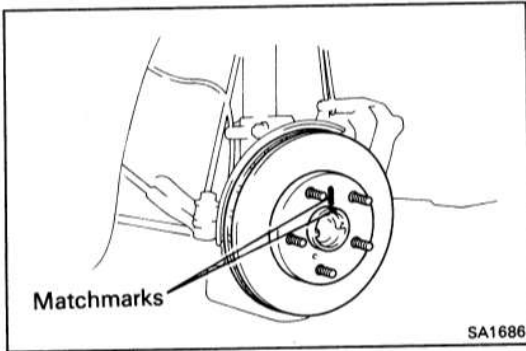
HINT: Before installing, check that there is no ferric chip or foreign material on the sensor tip.

Torque: 80 kg-cm (69 in.-lb, 7.8 N·m)



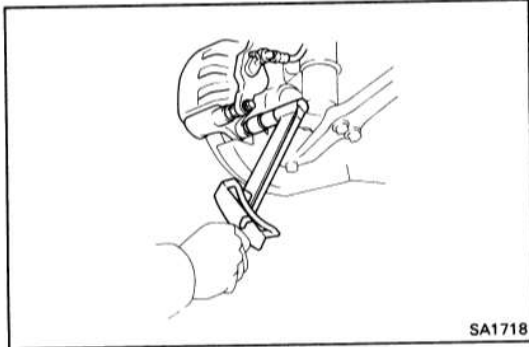
5. **TORQUE STEERING KNUCKLE TO SHOCK ABSORBER**

Torque: 2,600 kg-cm (188 ft-lb, 255 N·m)



#### 6. INSTALL ROTOR DISC TO AXLE HUB

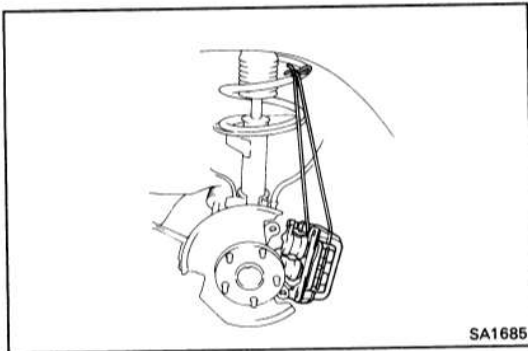
**HINT:** Before removing the rotor disc, place the matchmarks on the axle hub and rotor disc.



#### 7. INSTALL DISC BRAKE CALIPER TO STEERING KNUCKLE

Install and torque the two bolts.

**Torque:** 600 kg-cm (43 ft-lb, 59 N·m)



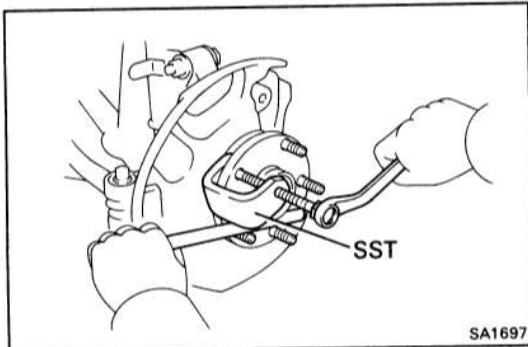
### REPLACEMENT OF FRONT AXLE HUB BOLT

#### 1. REMOVE BRAKE CALIPER

Remove the brake caliper from the steering knuckle and suspend it with a wire.

#### 2. REMOVE ROTOR DISC

Align the matchmarks, and install the rotor disc to the axle hub.

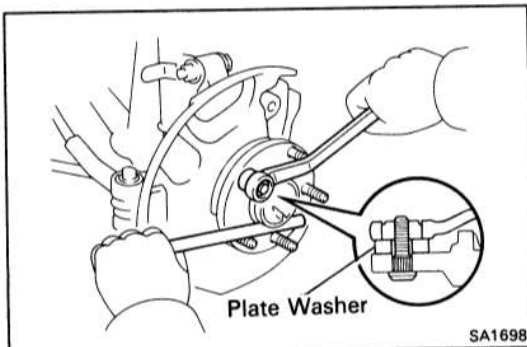


#### 3. REMOVE FRONT AXLE HUB BOLT

(a) Align the disc brake dust cover cutting portion and axle hub bolt.

(b) Using SST, remove the axle hub bolt.

SST 09628-10011

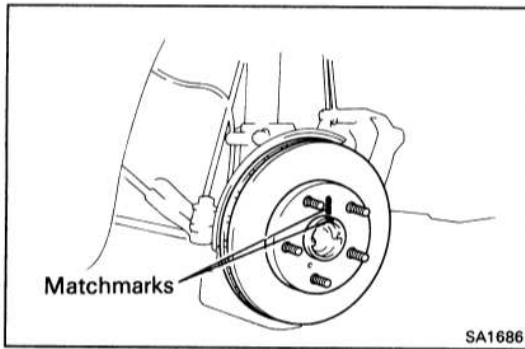


#### 4. INSTALL FRONT AXLE HUB BOLT

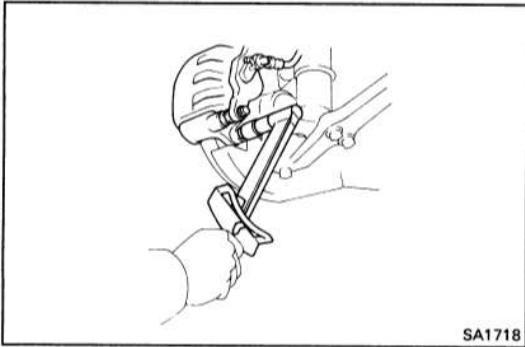
(a) Install a new hub bolt from the backing plate side.

(b) Install the suitable plate washer and nut.

(c) Tighten the nut, while holding the axle hub.

**5. INSTALL ROTOR DISC**

Align the matchmarks and install the rotor disc to the axle hub.

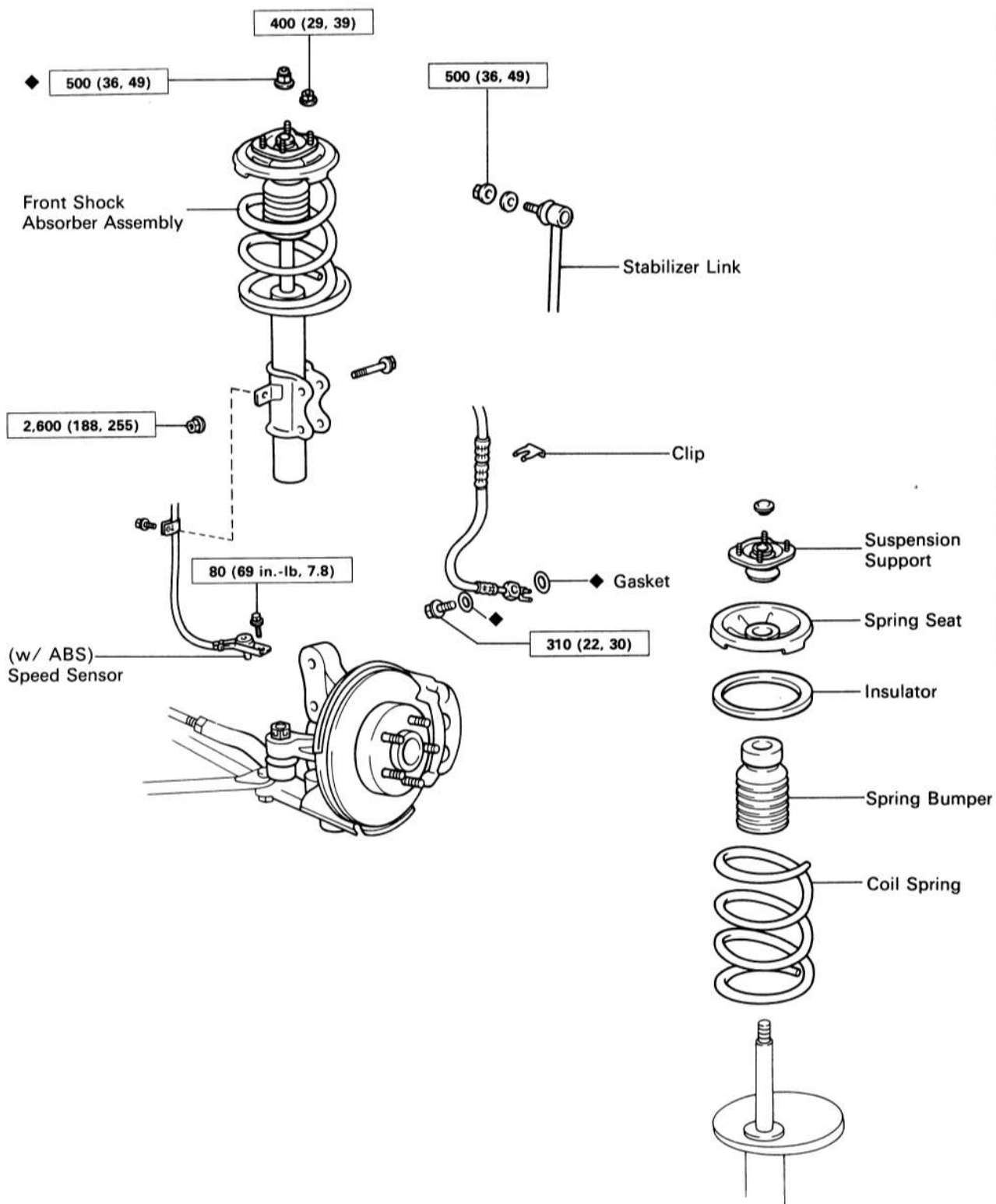
**6. INSTALL DISC BRAKE CALIPER TO STEERING KNUCKLE**

Install and torque the two bolts.

**Torque: 600 kg-cm (43 ft-lb, 59 N·m)**

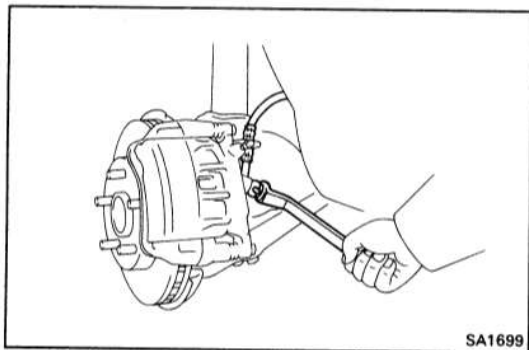
## FRONT SUSPENSION

### Front Shock Absorber COMPONENTS



kg-cm (ft-lb, N·m) : Specified torque

◆ Non-reusable part



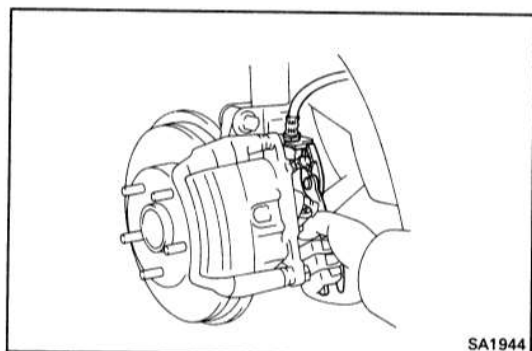
## REMOVAL OF SHOCK ABSORBER ASSEMBLY

(See page SA-18)

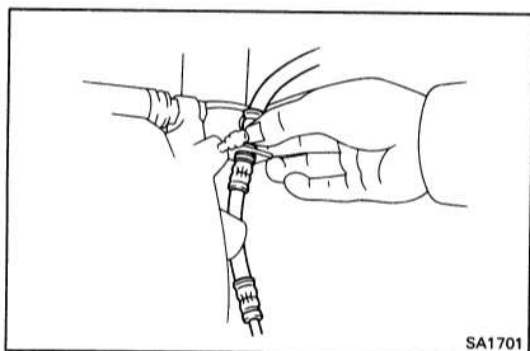
### 1. DISCONNECT BRAKE HOSE

- (a) Remove the union bolt and two gaskets, and disconnect the brake hose from the disc brake caliper.

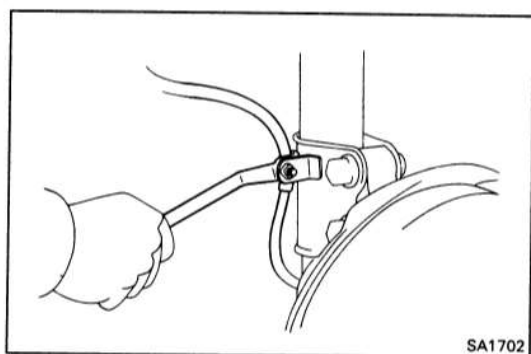
HINT: Drain the brake fluid into a container.



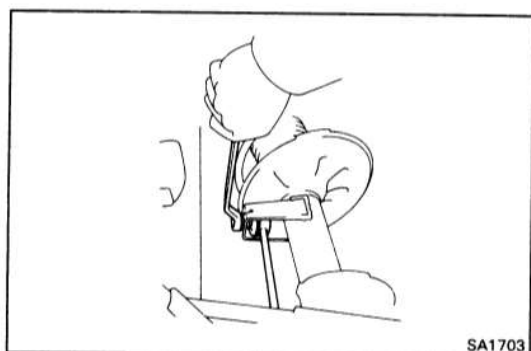
- (b) Remove the clip from the brake hose.



- (c) Pull off the brake hose from the brake hose bracket.



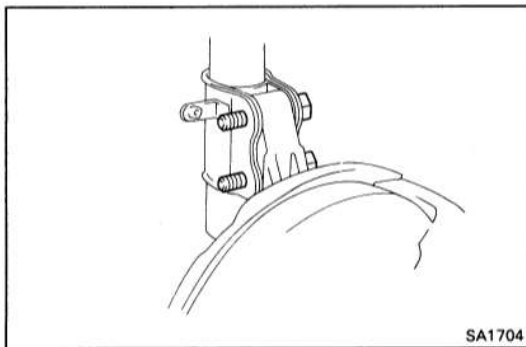
- (d) (w/ ABS)  
Remove the speed sensor wire harness clamp bracket bolt.



### 2. DISCONNECT STABILIZER LINK

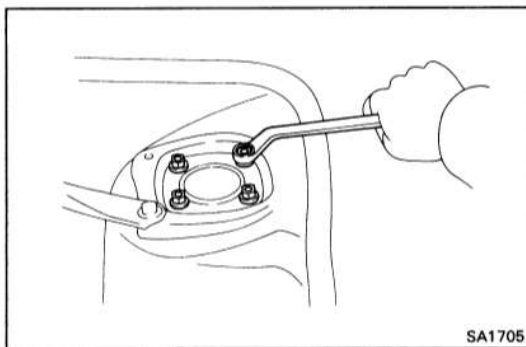
Disconnect the stabilizer link from the shock absorber.

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.



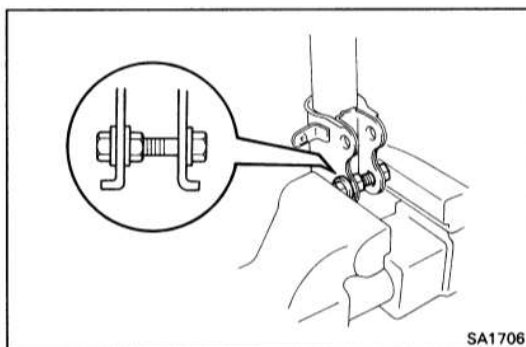
### 3. DISCONNECT SHOCK ABSORBER FROM STEERING KNUCKLE

Remove the bolts and nuts, disconnect the shock absorber from the steering knuckle.



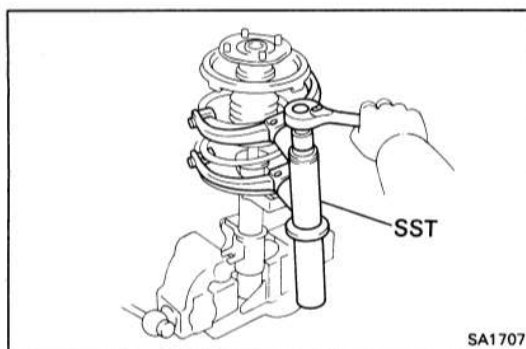
### 4. REMOVE SHOCK ABSORBER FROM BODY

- (a) Remove the four nuts holding the top of the suspension support.
- (b) Remove the shock absorber from the body.



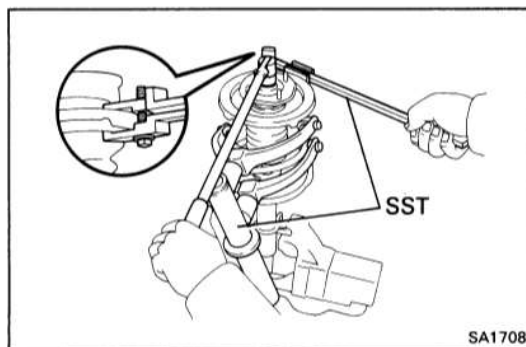
### 5. CLAMP SHOCK ABSORBER IN VISE

Install a bolt and two nuts to the bracket at the lower portion of the shock absorber shell and secure it in a vise.



### 6. REMOVE COIL SPRING

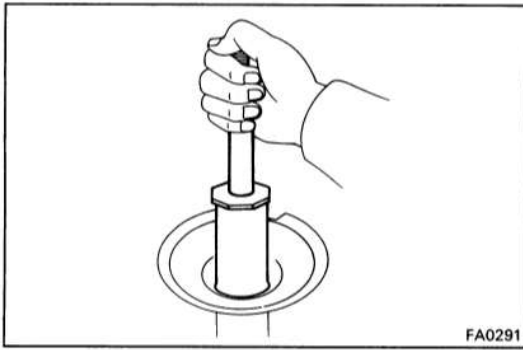
- (a) Using SST, compress the coil spring.  
SST 09727-00045, 09727-30020



- (b) Using SST, hold the spring seat so that it will not turn, and remove the nut.

SST 09729-22031

- (c) Remove the suspension support, dust seal, spring seat, spring, insulators and bumper.



## INSPECTION OF FRONT SHOCK ABSORBER ASSEMBLY

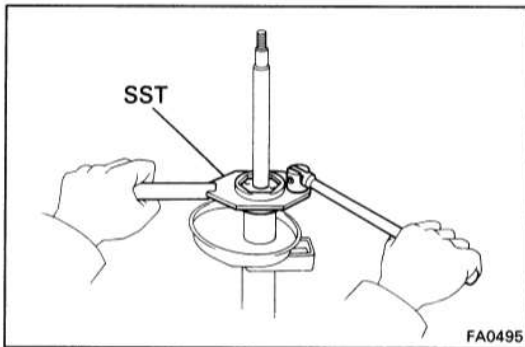
### INSPECT OPERATION OF SHOCK ABSORBER

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

If the absorber operation is defective, replace the absorber, as and assembly.

**NOTICE:** Before discarding the shock absorber, first loosen the ring nut 2 or 3 turns with SST to release the gas completely.

SST 09720-00012 (09721-00071)

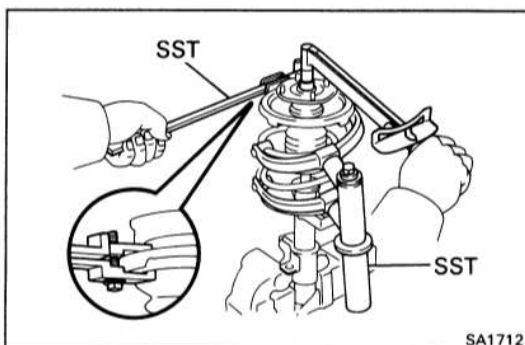
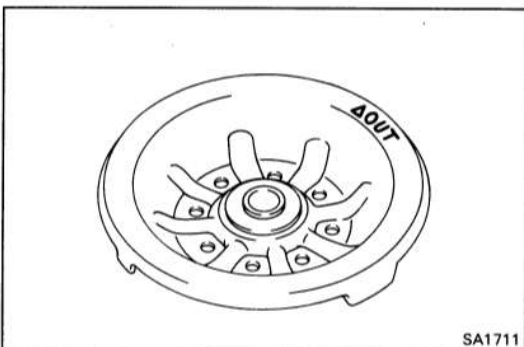
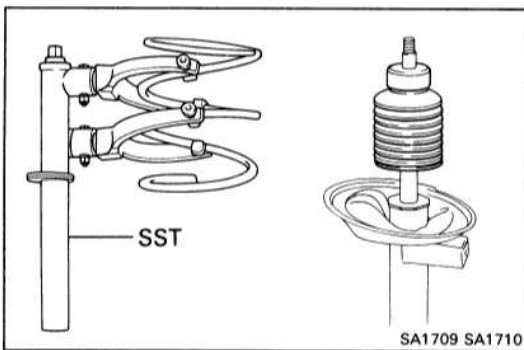


## INSTALLATION OF FRONT SHOCK ABSORBER ASSEMBLY

(See page SA-18)

### 1. INSTALL BUMPER COIL SPRING, SPRING SEAT AND DUST SEAL

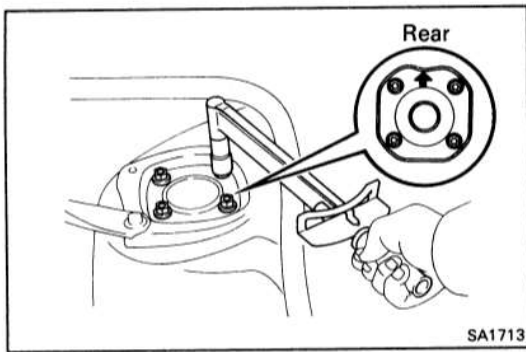
- Using SST, compress the coil spring.
  - Install the bumper to the piston rod.
- SST 09727-00045, 09727-30020
- Align the coil spring end with the lower seat hollow and install.
  - Face the " OUT " mark of the spring seat toward the outside of the vehicle, and install it.
  - Install the dust seal on the spring seat.
  - Install the suspension support.



- Using SST, install and torque a new suspension support nut.

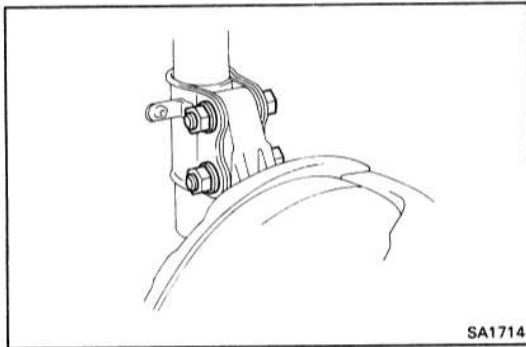
SST 09729-22031

**Torque: 500 kg-cm (36 ft-lb, 49 N·m)**



- 2. INSTALL SHOCK ABSORBER ASSEMBLY TO BODY**  
Install the four bolts holding the shock absorber to the body. Torque the nut.  
**HINT:** Install the shock absorber with the hollow part to the rearward.

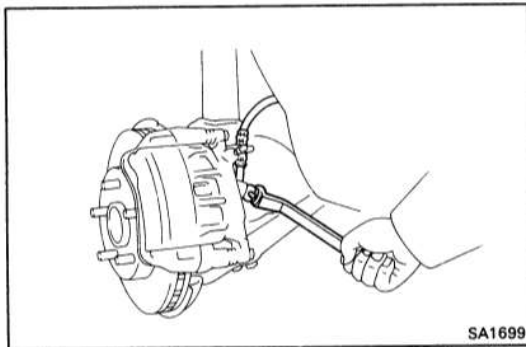
**Torque: 400 kg-cm (29 ft-lb, 39 N·m)**



**3. CONNECT SHOCK ABSORBER TO STEERING KNUCKLE**

- (a) Connect the steering knuckle to the shock absorber lower bracket.
- (b) Insert the two bolts from the rear side.
- (c) Install and torque the two nuts.

**Torque: 2,600 kg-cm (188 ft-lb, 255 N·m)**

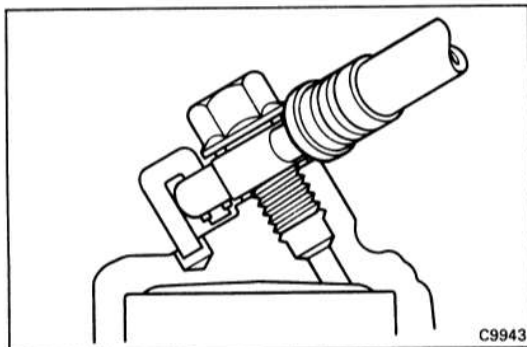


**4. CONNECT BRAKE HOSE**

- (a) Run the brake hose through the brake hose bracket.

- (b) Connect the brake hose through the disc brake caliper with the union and new gaskets.

**Torque: 310 kg-cm (22 ft-lb, 30 N·m)**



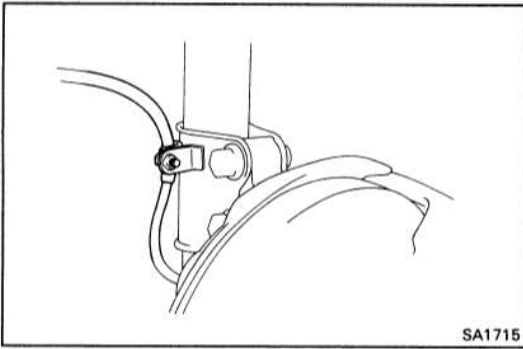
**5. CONNECT STABILIZER LINK**

Install and torque the nut.

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

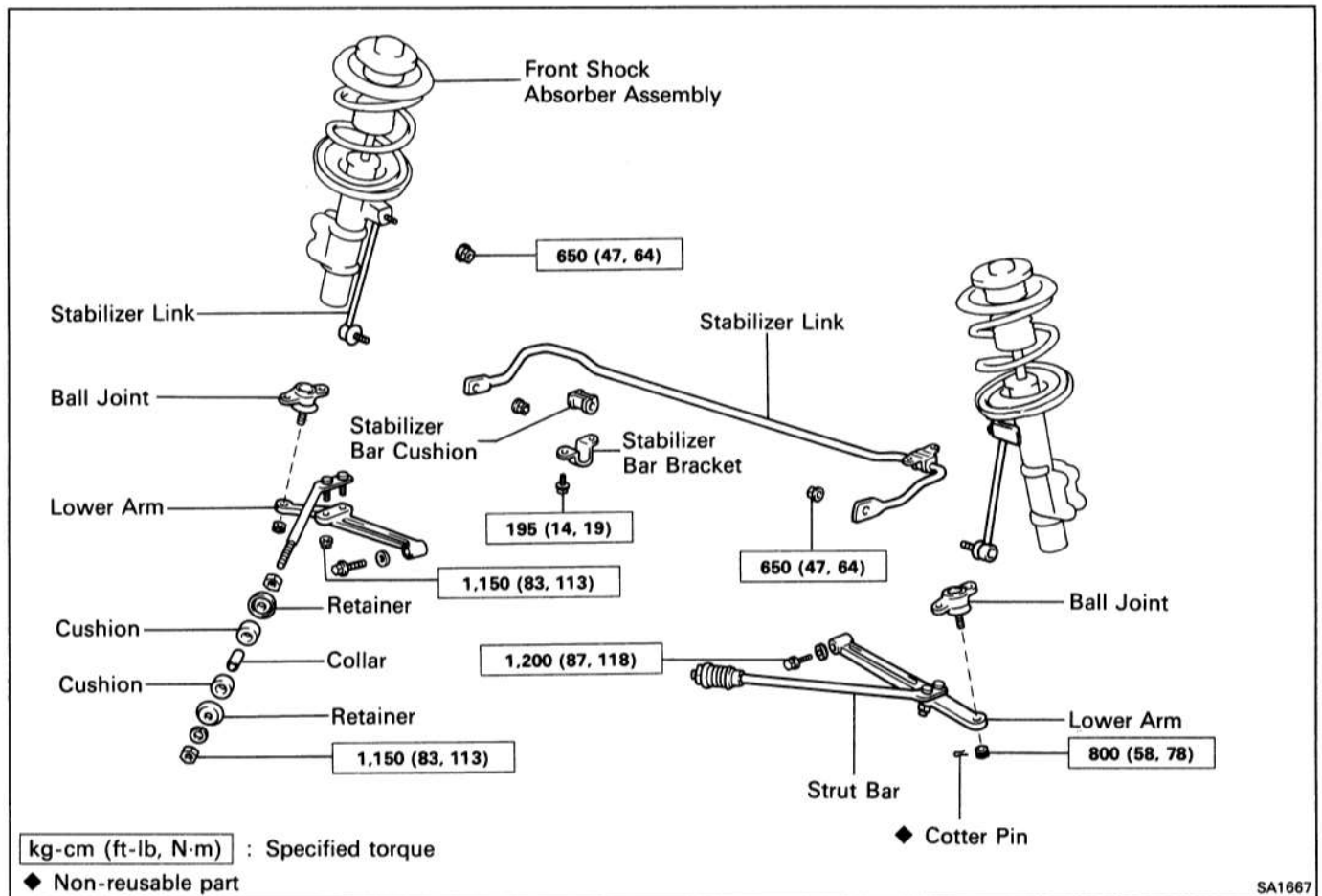
**Torque: 650 kg-cm (47 ft-lb, 64 N·m)**





6. (w/ ABS)  
**CONNECT SPEED SENSOR WIRE HARNESS TO SHOCK ABSORBER**  
Clamp the speed sensor to the steering knuckle and install the wire harness clamp bracket to the shock absorber with a bolt.
7. **BLEED BRAKE SYSTEM**  
(See page BR-7)
8. **INSPECT FRONT WHEEL ALIGNMENT**  
(See page SA-4)

## Ball Joints, Lower Arm, Stabilizer Bar and Strut Bar COMPONENTS



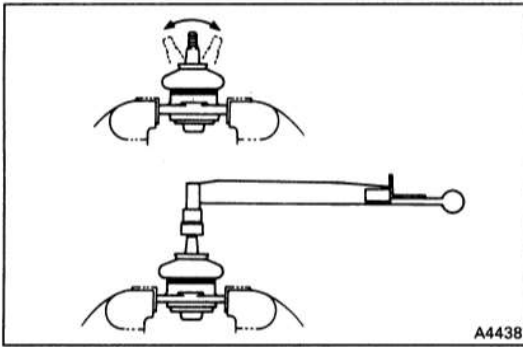
## Ball Joints

### INSPECTION OF BALL JOINTS

#### 1. INSPECT BALL JOINTS FOR EXCESSIVE LOOSENESS

- Jack up the front of the vehicle and place a wooden block with a height of 180 - 200 mm (7.09 - 7.87 in.) under one front tire.
- Lower the jack until there is about half a load on the front coil spring. Place stands under the vehicle for safety.
- Make sure the front wheels are in a straight forward position and block the wheel with chocks.
- Move the lower arm up and down and check that the ball joint has no excessive play.

**Ball joint vertical play: 0 mm (0 in.)**



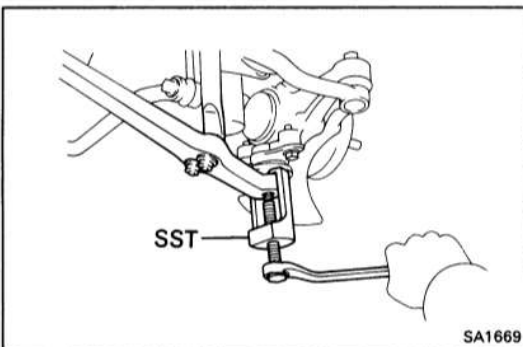
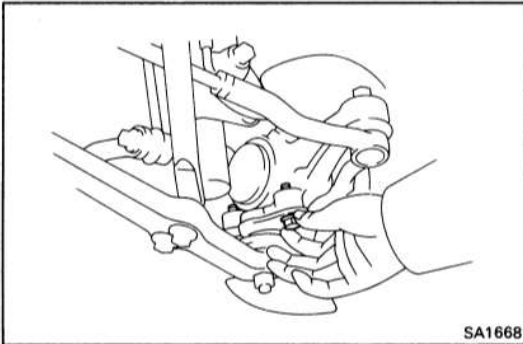
## 2. INSPECT BALL JOINT FOR ROTATION

- Remove the ball joint.
- Flip the ball joint stud back and forth 5 times as shown in the figure, 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 – 25 kg-cm  
(7 – 22 in.-lb, 0.8 – 2.5 N·m)

If not within specification, replace the ball joint.

- Install the ball joint.



## Lower Arm

### REMOVAL OF LOWER ARM

(See page SA-24)

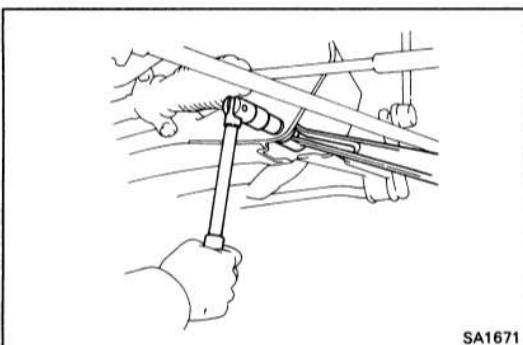
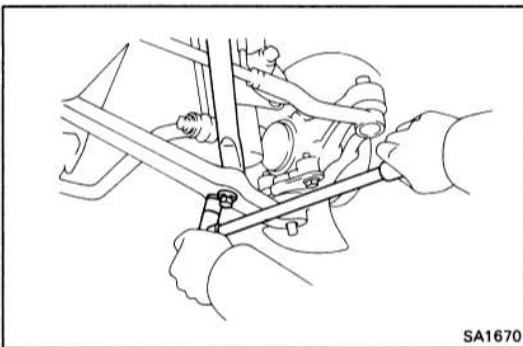
#### 1. DISCONNECT LOWER ARM FROM BALL JOINT

- Remove the cotter pin and castle nut.
- Using SST, disconnect the lower arm from the ball joint.

SST 09610-20012

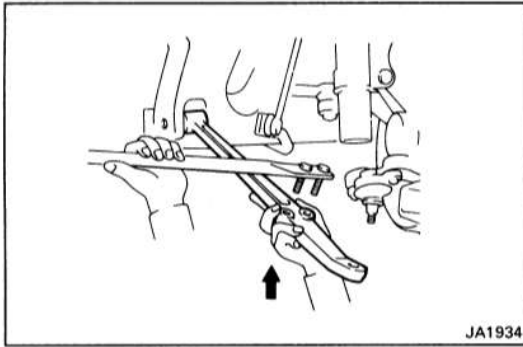
#### 2. DISCONNECT STRUT BAR FROM LOWER ARM

Remove the two nuts and disconnect the strut bar from the lower arm.



#### 3. REMOVE LOWER ARM

Remove the bolt and lower arm from the body.

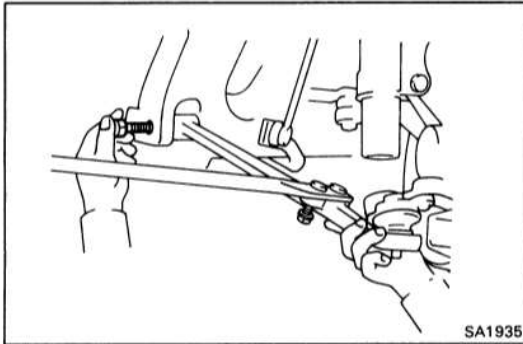


## INSTALLATION OF LOWER ARM

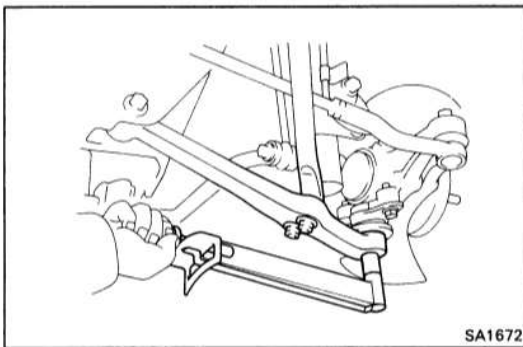
(See page SA-24)

### 1. INSTALL LOWER ARM

- Temporarily install the strut bar to the lower arm with the nuts.



- Temporarily install the lower arm to the body with the bolt.

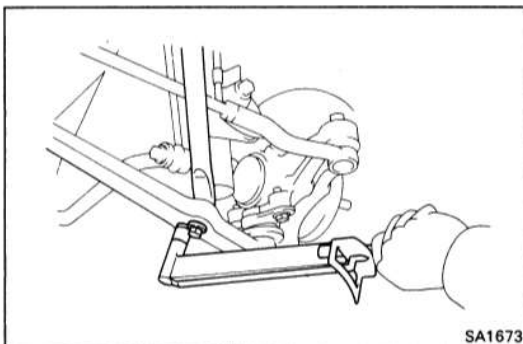


### 2. CONNECT LOWER ARM TO BALL JOINT

- Connect the lower arm to the ball joint and torque the castle nut.

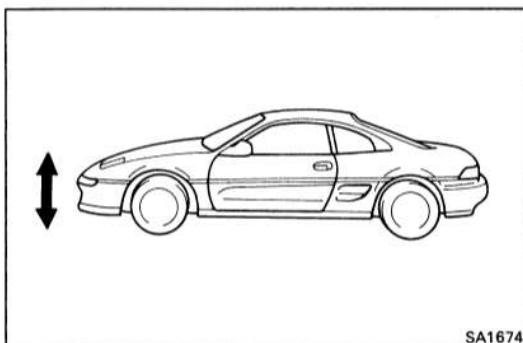
**Torque: 800 kg-cm (58 ft-lb, 78 N·m)**

- Install a new cotter pin.



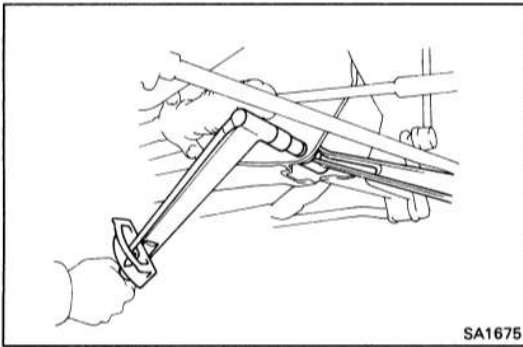
### 3. TORQUE STRUT BAR TO LOWER ARM

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



### 4. TORQUE LOWER ARM TO BODY

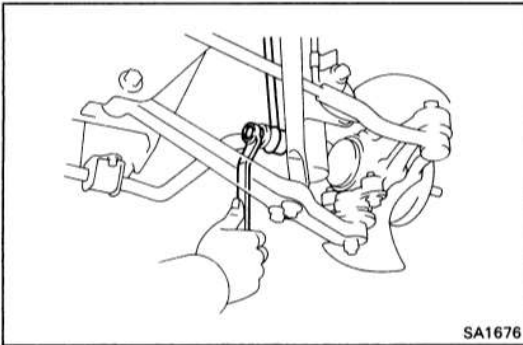
- Install the tires and lower the vehicle. Then rock the vehicle up and down to stabilize suspension.



(b) Torque the nut.

Torque: 1,200 kg-cm (87 ft-lb, 118 N·m)

(See page SA-24)



## Stabilizer Bar and Link

(See page SA-24)

### REMOVAL OF STABILIZER BAR AND LINK

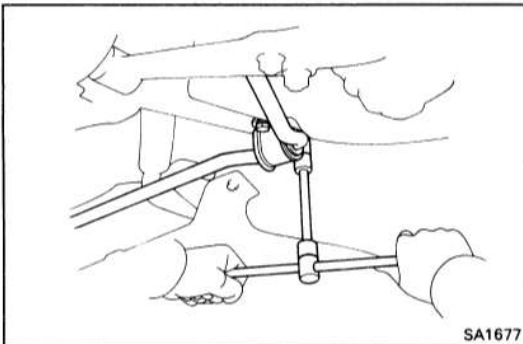
#### 1. DISCONNECT STABILIZER LINK FROM STABILIZER BAR

Remove the nut and disconnect the stabilizer link from stabilizer bar.

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

#### 2. REMOVE STABILIZER BAR FROM BODY

Remove the bolts and stabilizer bar with brackets.

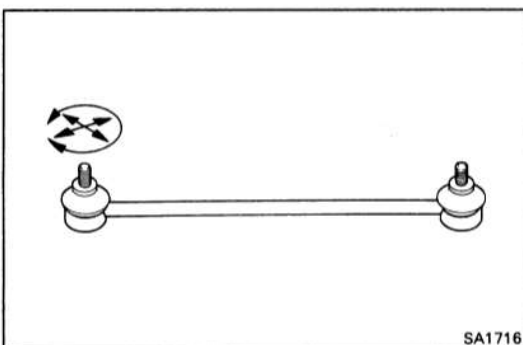
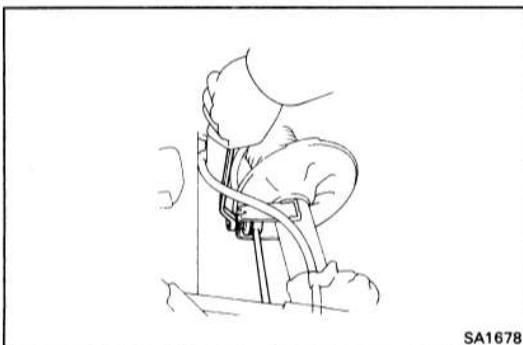


#### 3. REMOVE STABILIZER LINK FROM FRONT SHOCK ABSORBER

Remove the nut and stabilizer link.

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

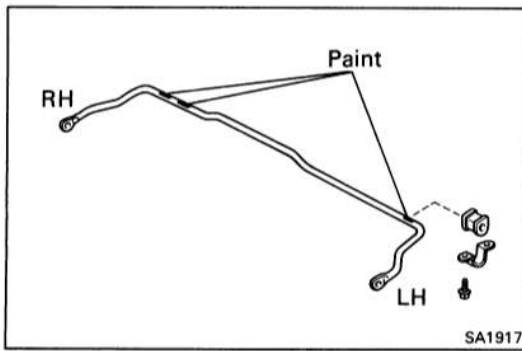
#### 4. REMOVE STABILIZER BAR BRACKETS AND STABILIZER BAR CUSHIONS FROM STABILIZER BAR



### INSPECTION OF STABILIZER LINK

#### INSPECT STABILIZER LINK

Rotate ball joint arm in all directions. If movement is not smooth and free, replace stabilizer link.

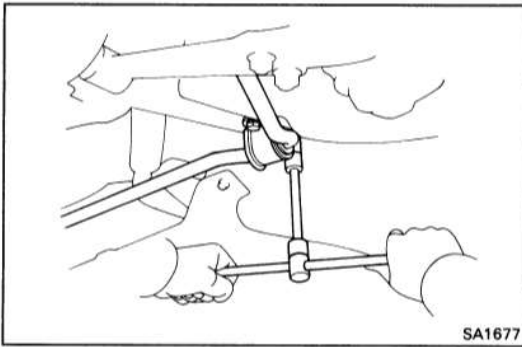


## INSTALLATION OF STABILIZER BAR AND LINK

(See page SA-24)

### 1. INSTALL STABILIZER BAR

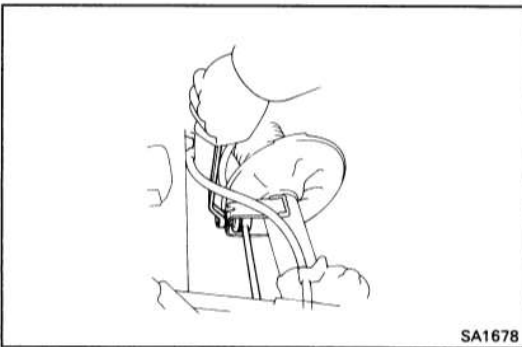
- Install the stabilizer cushions on the painted portions of the stabilizer.
- Install the stabilizer bar in place, then install the both stabilizer brackets with the bolts and nuts.



### 2. INSTALL STABILIZER BAR TO BODY

Install the stabilizer bar to the body.

**Torque: 195 kg-cm (14 ft-lb, 19 N·m)**

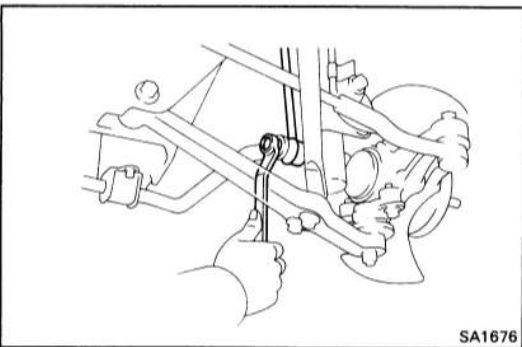


### 3. INSTALL STABILIZER LINK TO FRONT SHOCK ABSORBER ASSEMBLY

Install the stabilizer link to the front shock absorber and torque the nut.

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

**Torque: 650 kg-cm (47 ft-lb, 64 N·m)**

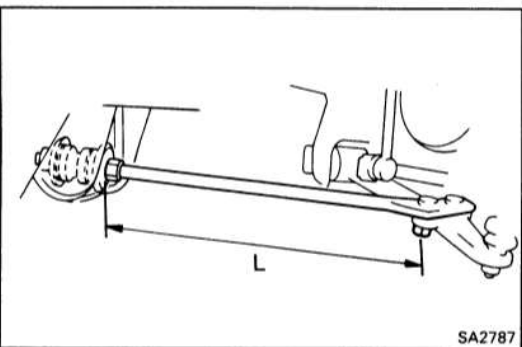


### 4. CONNECT STABILIZER LINK TO STABILIZER BAR

Connect the stabilizer link to the stabilizer bar and torque the nut.

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

**Torque: 650 kg-cm (47 ft-lb, 64 N·m)**

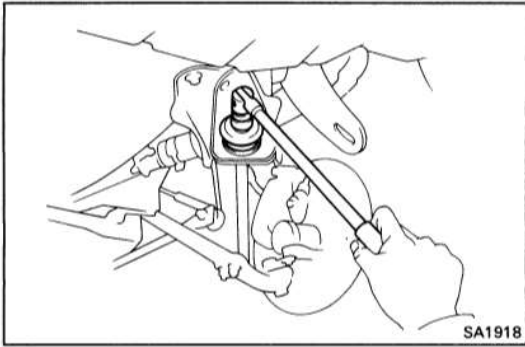


## Strut Bar

(See page SA-24)

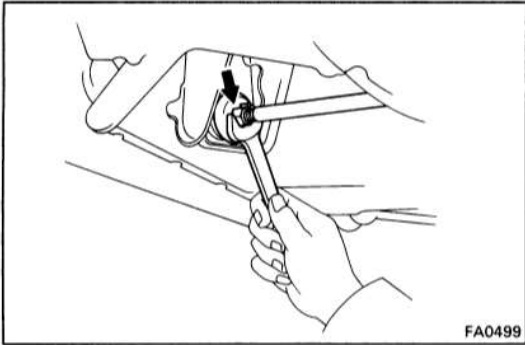
## REMOVAL OF STRUT BAR

### 1. MEASURE LENGTH "L" BEFORE REMOVE

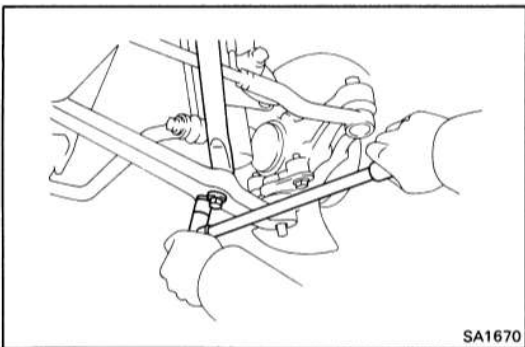


## 2. REMOVE STRUT BAR

(a) Remove the nut, front retainer and cushion.

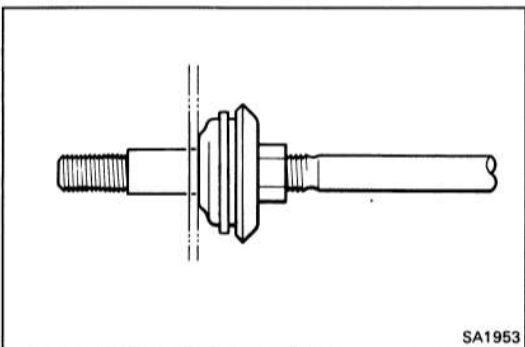


(b) Loosen the nuts.



(c) Disconnect the strut bar from the lower arm, and remove the strut bar from the body.

(d) Remove the collar, cushion, retainer and nut from the strut bar.

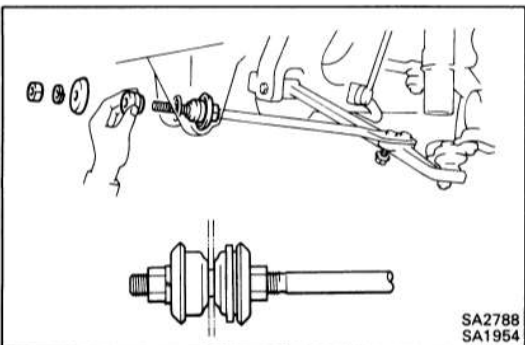


## INSTALLATION OF STRUT BAR

(See page SA-24)

### 1. INSTALL STRUT BAR

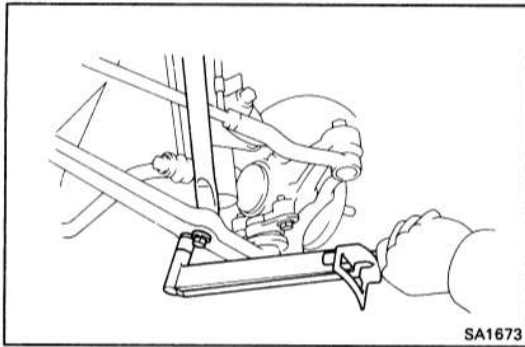
(a) Install the nut, retainer, cushion and collar to the strut bar.



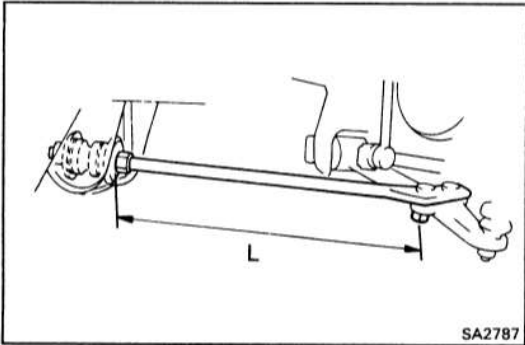
(b) Install the strut bar to the body, and connect to the lower arm.

(c) Install the cushion, retainer spring washer and nut.

**NOTICE:** Do not misinstall the front and rear cushions.

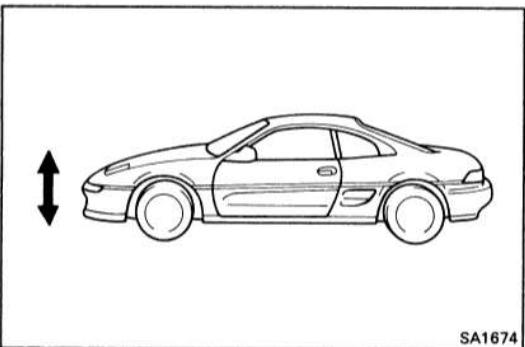
**2. TORQUE LOWER ARM TO STRUT BAR**

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

**3. ADJUST STRUT BAR LENGTH**  
(See page SA-24)

Turn the nut and adjust to previous length.

HINT: The length of "L" in figure should be approximately 362.0 mm (14.25 in.).

**4. TORQUE STRUT BAR TO BODY**

(a) Install the wheel and lower the vehicle.

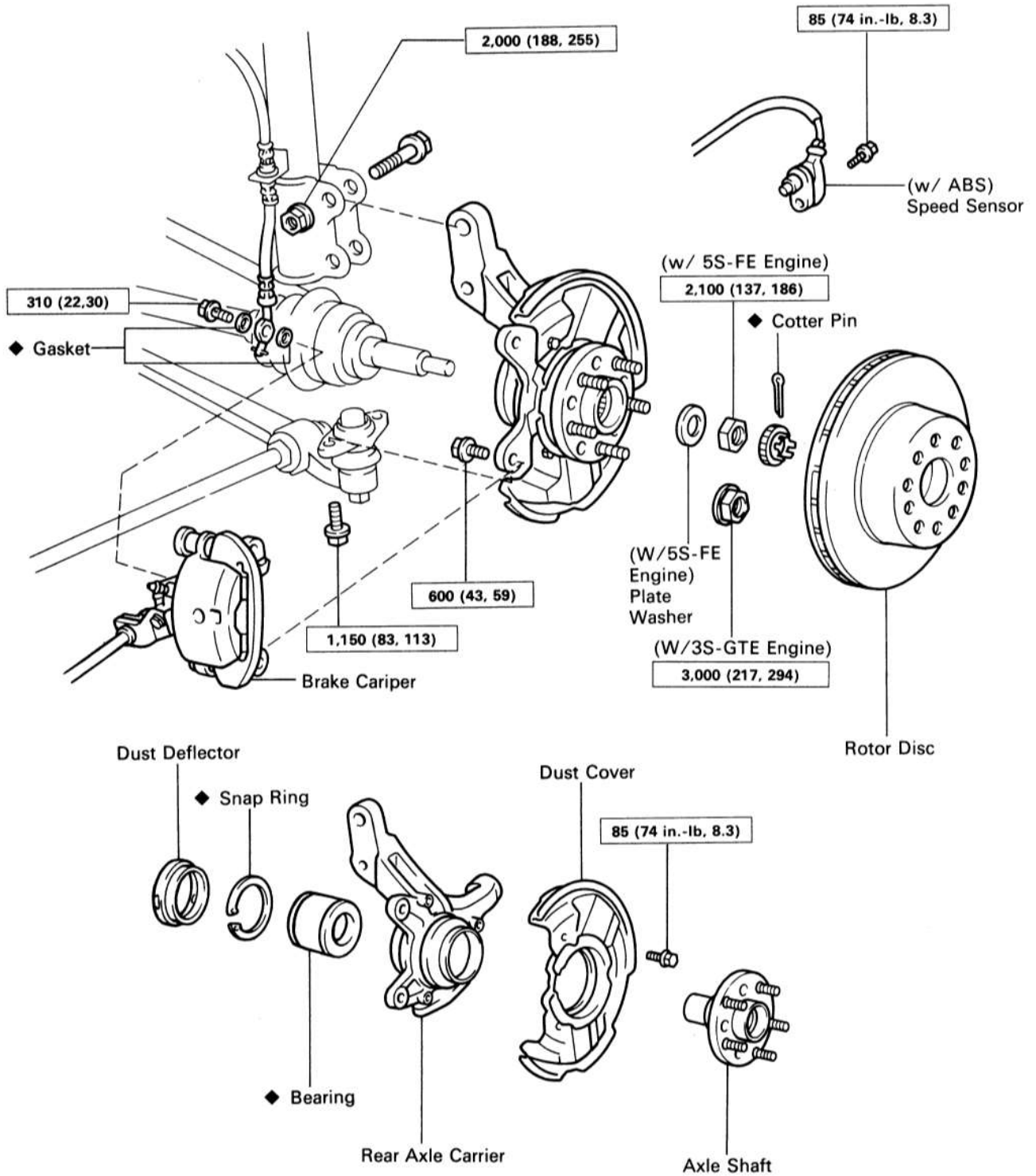
(b) Bounce the vehicle up and down to stabilize the suspension.

(c) Torque the nut.

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

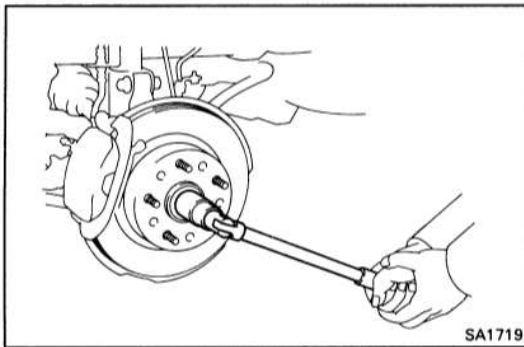
**5. INSPECT FRONT WHEEL ALIGNMENT**  
(See page SA-4)

## REAR AXLE SHAFT AND CARRIER COMPONENTS



kg-cm (ft-lb, N·m) : Specified torque

◆ Non-reusable part

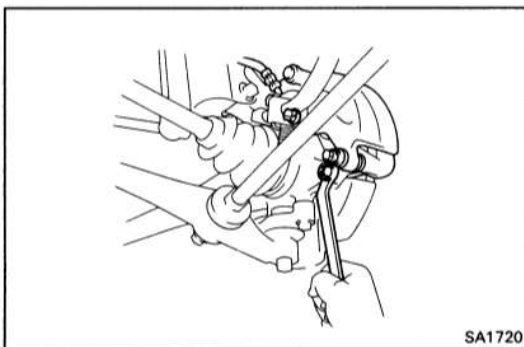


## REMOVAL OF REAR AXLE SHAFT AND CARRIER

(See page SA-31)

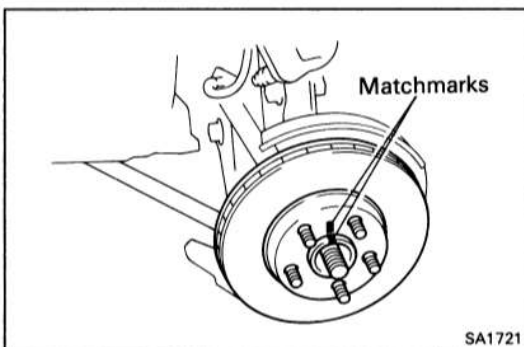
### 1. REMOVE COTTER PIN, BEARING LOCK NUT CAP AND BEARING LOCK NUT

- (a) Remove the cotter pin and bearing lock nut cap.
- (b) With the parking brake lever pulled, remove the bearing lock nut and plate washer.
- (c) Release the parking brake lever.



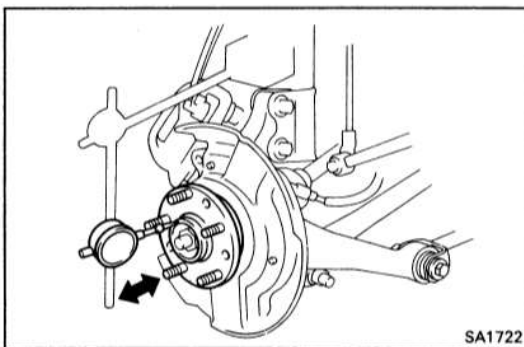
### 2. REMOVE BRAKE CALIPER

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



### 3. REMOVE ROTOR DISC

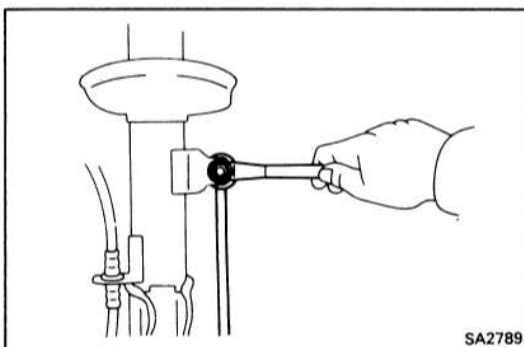
**HINT:** Before removing the rotor disc, place the matchmarks on the axle shaft and rotor disc.



### 4. CHECK BEARING PLAY IN AXIAL DIRECTION

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

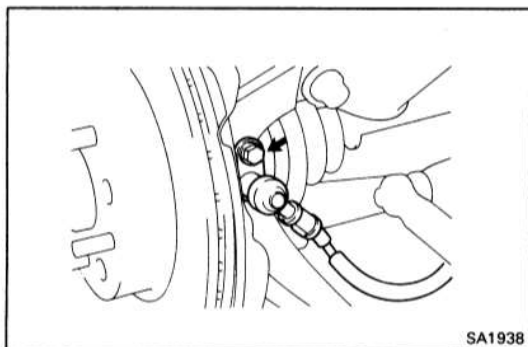
**HINT:** Measure the bearing play when install the Lock nut to the drive shaft.



### 5. DISCONNECT STABILIZER LINK

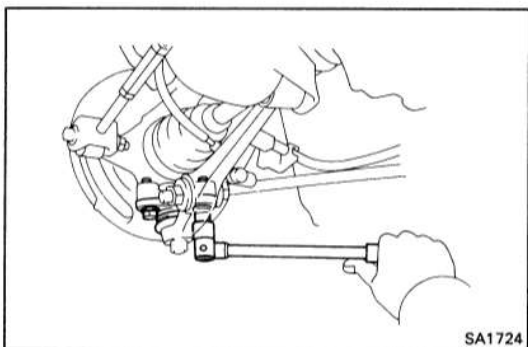
When disconnecting the stabilizer link.

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench to hold the stud.



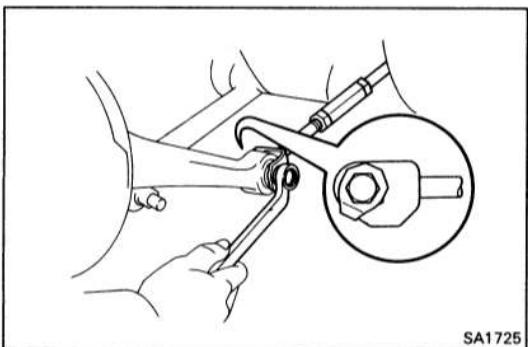
**6. (w/ ABS)  
REMOVE SPEED SENSOR FROM AXLE CARRIER**

Remove the bolt and pull out the speed sensor.



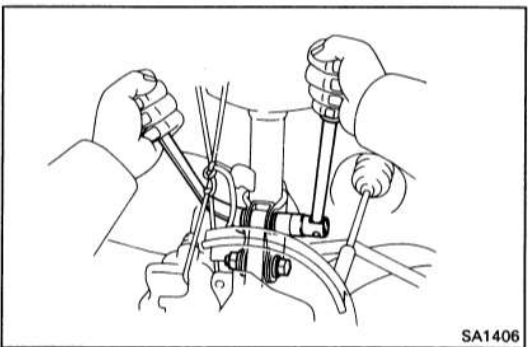
**7. DISCONNECT BALL JOINT AND LOWER ARM**

Remove the two bolts holding the ball joint to the rear axle carrier.



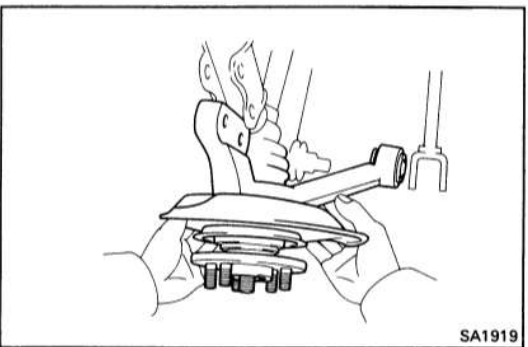
**8. DISCONNECT SUSPENSION ARM**

Remove the bolt and nut, then disconnect the suspension arm.



**9. REMOVE REAR AXLE CARRIER WITH AXLE SHAFT**

(a) Remove the two axle carrier set nuts and two bolts.

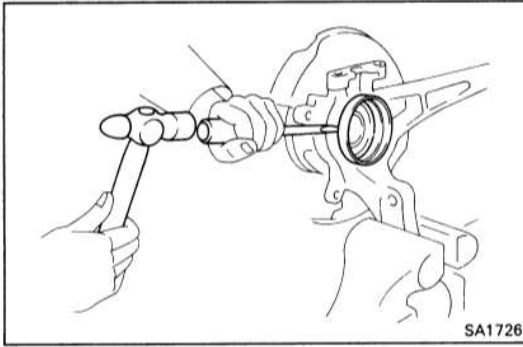


(b) Remove the rear axle carrier with axle shaft.

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

(w/ ABS)

**NOTICE:** Be careful not to damage the speed sensor rotor of the drive shaft.

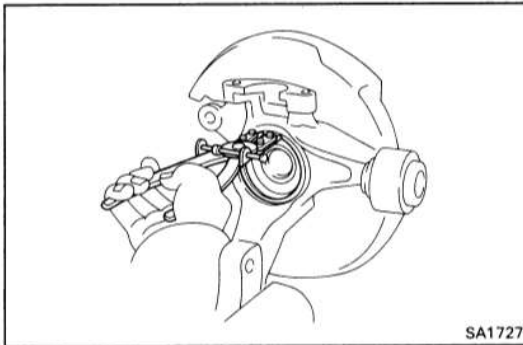


## DISASSEMBLY OF REAR AXLE SHAFT

(See page SA-31)

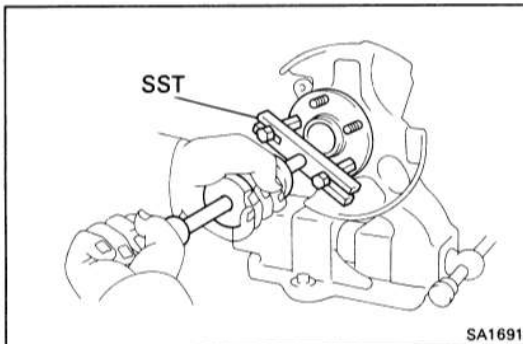
### 1. REMOVE DUST DEFLECTOR

- (a) Clamp the rear axle shaft and carrier in a soft jaw vise.
- (b) Using a screwdriver, remove the dust deflector.



### 2. REMOVE HOLE SNAP RING

Using snap ring pliers, remove the hole snap ring.



### 3. REMOVE AXLE SHAFT

- (a) Remove the three bolts holding the disc brake dust cover to the rear axle carrier.
- (b) Using SST, remove the axle shaft from the rear axle carrier.

SST 09520-00031

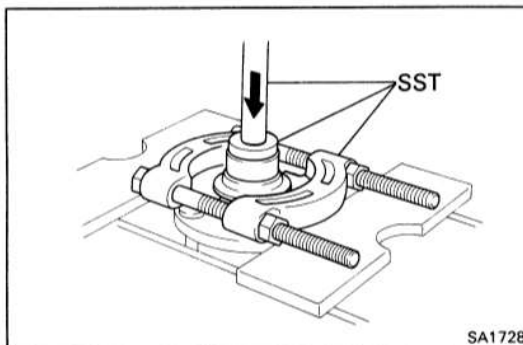
- (c) Remove the disc brake dust cover.

### 4. REMOVE BEARING INNER RACE (INSIDE)

### 5. REMOVE BEARING INNER RACE (OUTSIDE)

Using SST, remove the inner race (outside) from the rear axle shaft.

SST 09608-20012 (09608-00040, 09608-03020),  
09950-00020

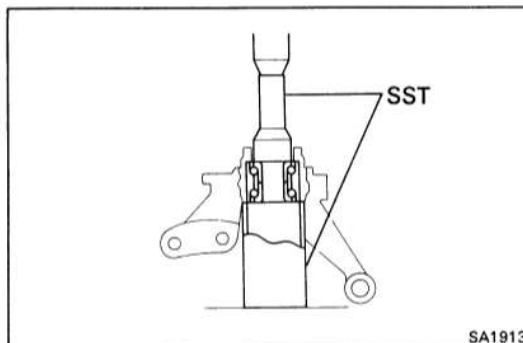


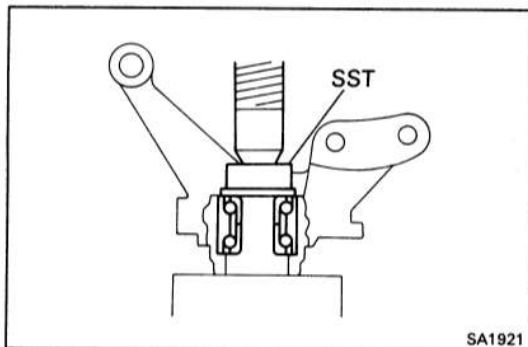
### 6. REMOVE AXLE BEARING

- (a) First place the removed inner race (outside) in the bearing.
- (b) Using SST and a press, press out the bearing.

SST 09310-35010, 09527-17010

**NOTICE:** Always replace the bearing as an assembly.





## ASSEMBLY OF REAR AXLE SHAFT AND CARRIER

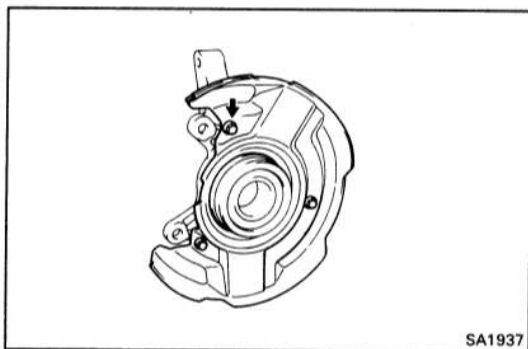
(See page SA-31)

### 1. INSTALL AXLE BEARING

Using SST and a press, press a new bearing into the rear axle carrier.

SST 09710-22041 (09710-02050)

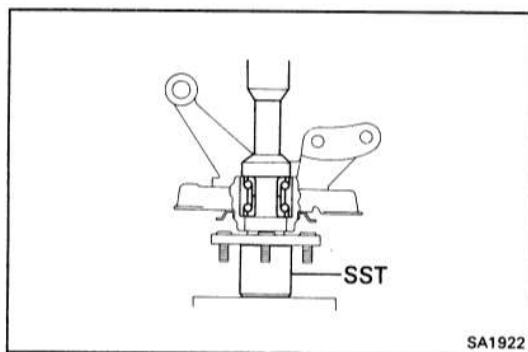
HINT: Be careful not to damage the bearing.



### 2. INSTALL DISC BRAKE DUST COVER

Install the disc brake dust cover with the three bolts.

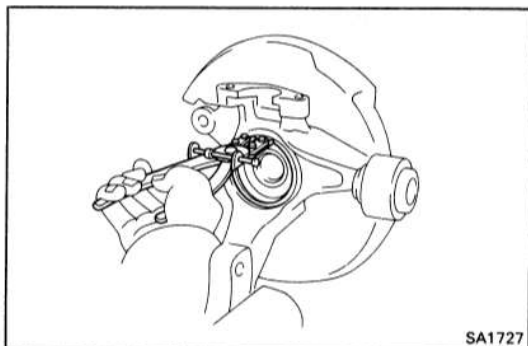
Torque: 85 kg-cm (73 in.-lb, 8.3 N·m)



### 3. INSTALL AXLE SHAFT

Using SST and a press, press the shaft into the rear axle carrier.

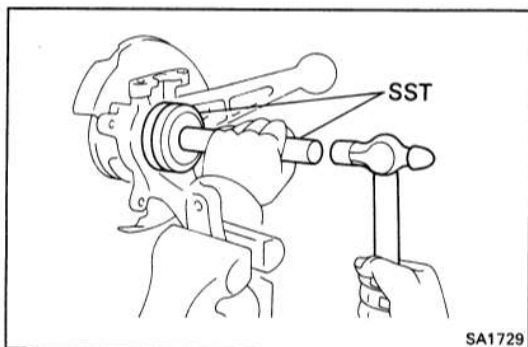
SST 09310-35010, 09315-00021



### 4. INSTALL HOLE SNAP RING

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

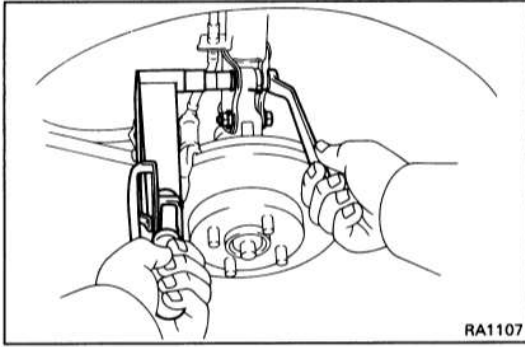
HINT: Be careful not to damage the bearing.



### 5. INSTALL DUST DEFLECTOR

Using SST, drive a new dust deflector to the rear axle carrier.

SST 09316-60010 (09316-00010, 09316-00040)



RA1107

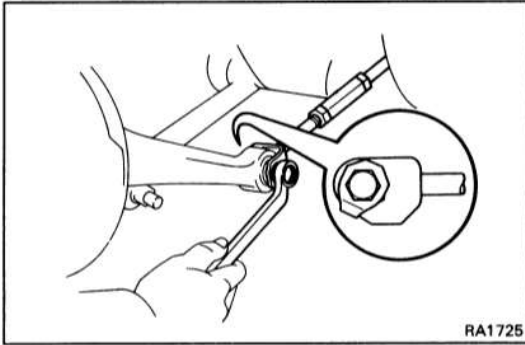
## INSTALLATION OF REAR AXLE SHAFT AND CARRIER

(See page SA-31)

### 1. INSTALL REAR AXLE CARRIER WITH AXLE SHAFT

- Place the rear axle carrier to the shock absorber lower bracket.
- Install the two set bolts and two nuts.
- Torque the nuts.

**Torque:** 2,600 kg-cm (188 ft-lb, 255 N·m)

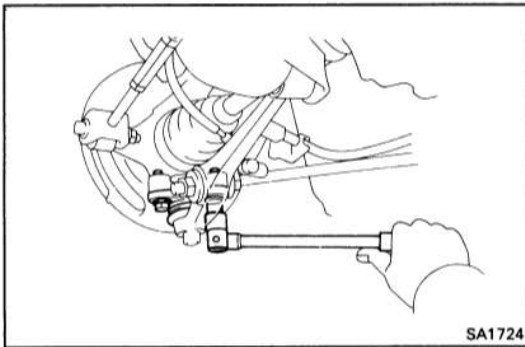


RA1725

### 2. CONNECT SUSPENSION ARM

Install the suspension arm in place, then install and torque the bolt and nut.

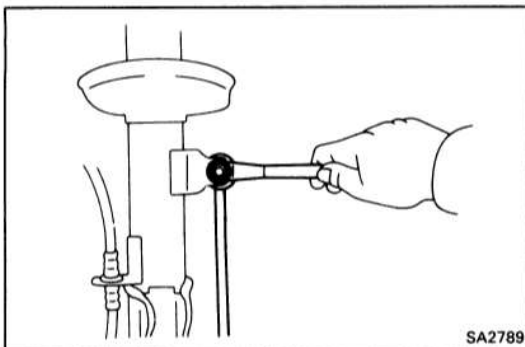
**Torque:** 1,050 kg-cm (76 ft-lb, 103 N·m)



SA1724

### 3. CONNECT REAR AXLE CARRIER TO LOWER ARM

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



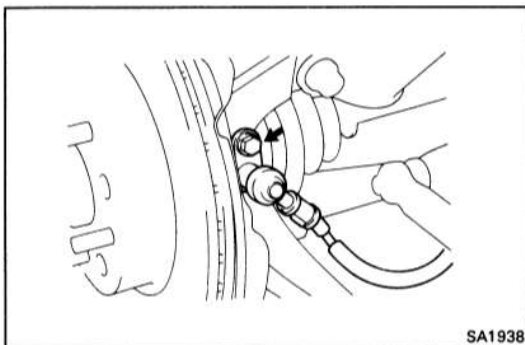
SA2789

### 4. CONNECT STABILIZER LINK

Install and torque the nut.

**Torque:** 500 kg-cm (36 ft-lb, 49 N·m)

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench to hold the stud.



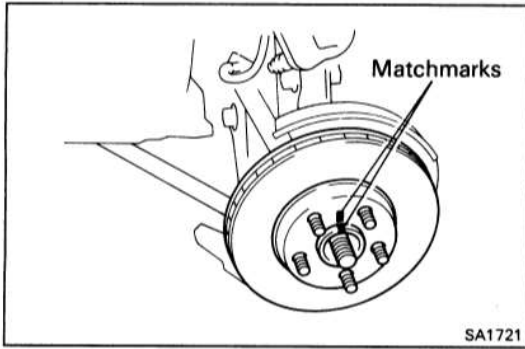
SA1938

### 5. (w/ ABS)

#### INSTALL SPEED SENSOR TO AXLE CARRIER

**HINT:** Before installing, check that there is no ferric chip or foreign material on the sensor tip.

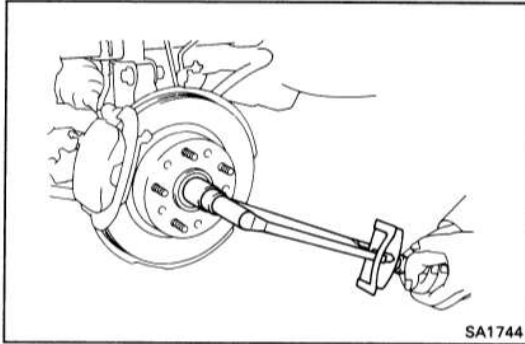
**Torque:** 80 kg-cm (69 in.-lb, 7.8 N·m)

**6. INSTALL ROTOR DISC**

Align the matchmarks and install the rotor disc to the axle hub.

**7. INSTALL BRAKE CALIPER**

Torque: 600 kg-cm (43 ft-lb, 59 N·m)

**8. 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:

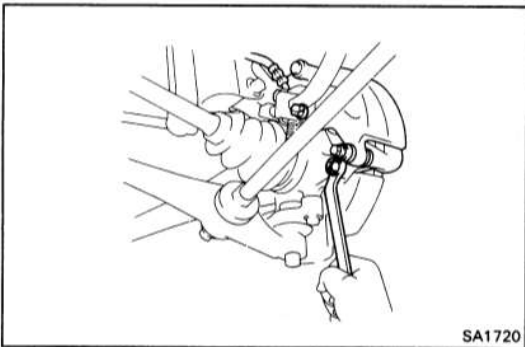
5S-FE 2,100 kg-cm (152 ft-lb, 206 N·m)

3S-GTE 3,000 kg-cm (217 ft-lb, 294 N·m)

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

**9. INSPECT REAR WHEEL ALIGNMENT**

(See page SA-31)

**REPLACEMENT OF REAR AXLE SHAFT BOLT**

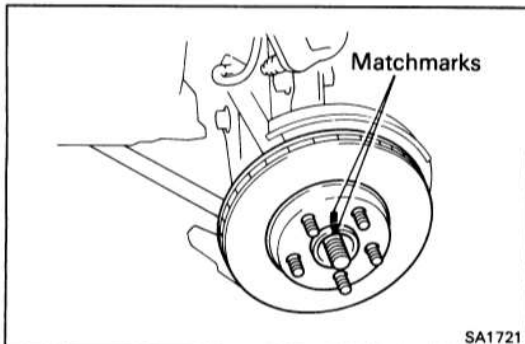
(See page SA-31)

**1. DISCONNECT BRAKE CALIPER FROM AXLE CARRIER**

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

**2. REMOVE ROTOR DISC**

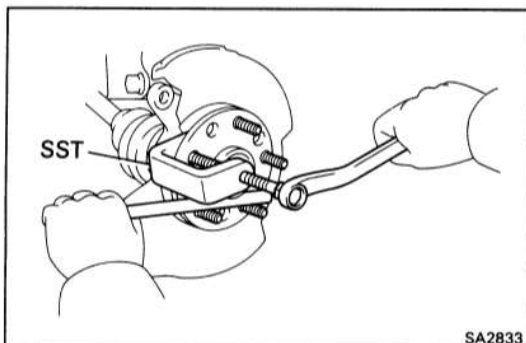
HINT: Before removing the rotor disc, place the matchmarks on the axle shaft and rotor disc.

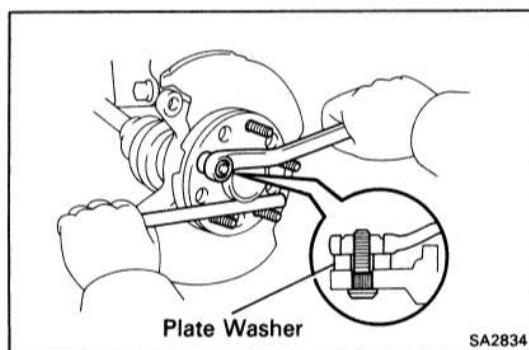
**3. REMOVE REAR AXLE SHAFT BOLT**

(a) Align the brake dust cover cut portion and axle shaft bolt.

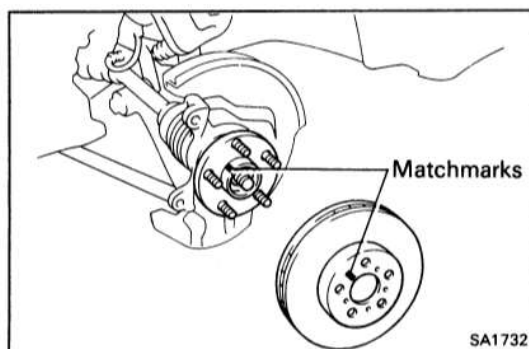
(b) Using SST, remove the axle shaft bolt.

SST 09628-10011

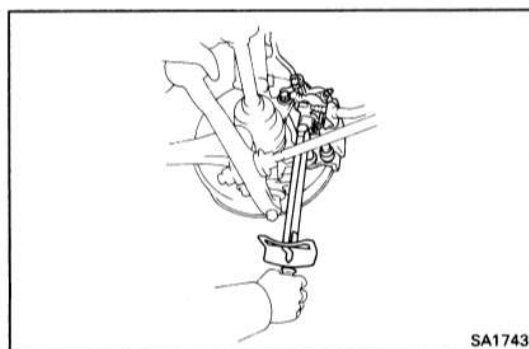


**4. INSTALL REAR AXLE SHAFT BOLT**

- (a) Install a new bolt from the backing plate side.
- (b) Install the suitable plate washer and nut.
- (c) Tighten the nut, while holding the axle shaft.

**5. INSTALL ROTOR DISC**

Align the matchmarks and install the rotor disc to the axle shaft.

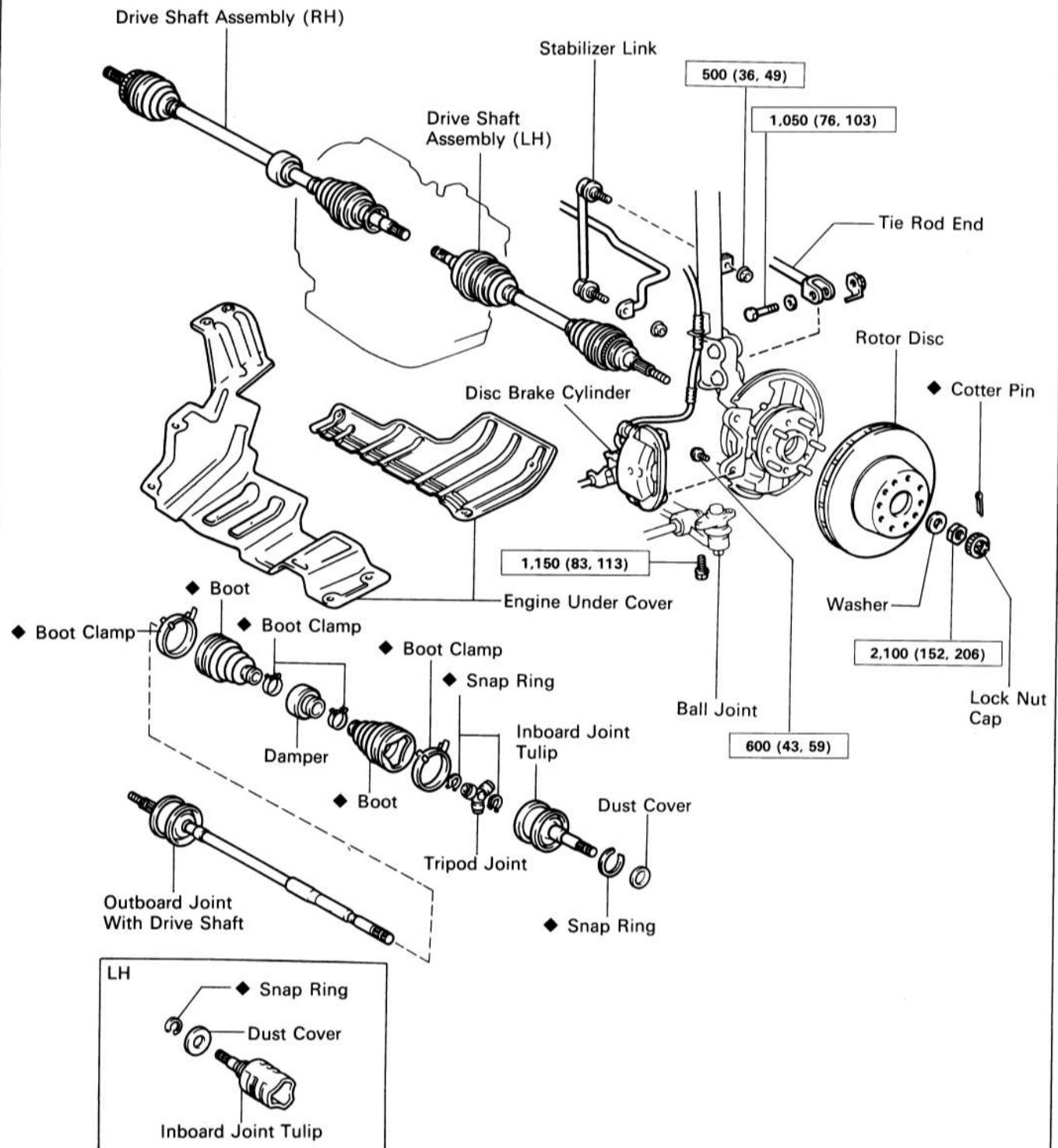
**6. INSTALL DISC BRAKE CALIPER TO REAR AXLE CARRIER**

Install and torque the two bolts.

**Torque: 600 kg-cm (43 ft-lb, 59 N·m)**

## REAR DRIVE SHAFT (5S-FE ENGINE) COMPONENTS

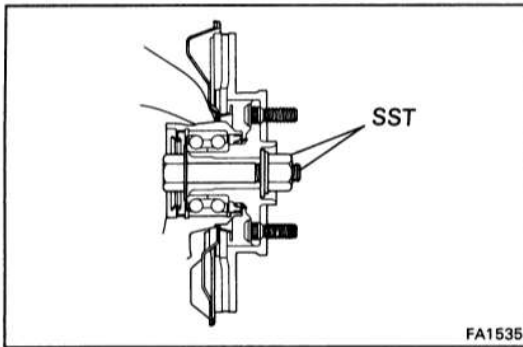
5S-FE Engine



kg-cm (ft-lb, N·m) : Specified torque

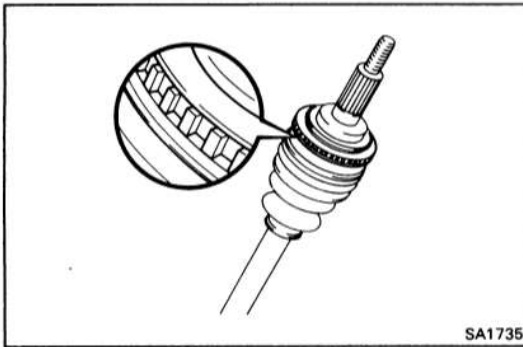
◆ Non-reusable part

SA2835

**NOTICE:**

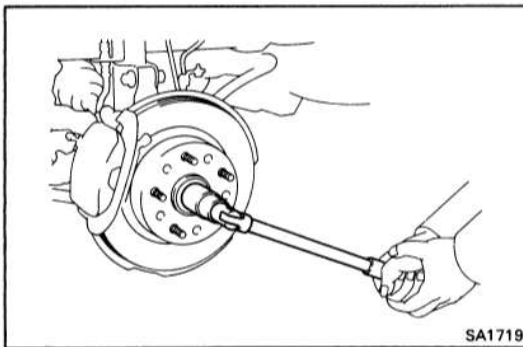
- The axle bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed. Therefore, if it is absolutely necessary to place the vehicle weight on the axle bearing, first support it with SST.

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



- (w/ ABS)

After disconnecting the drive shaft from the axle hub, work carefully so as not to damage the sensor rotor serrations on the drive shaft.

**REMOVAL OF REAR DRIVE SHAFT**

(See page SA-39)

1. REMOVE ENGINE UNDER COVER
2. DRAIN TRANSAXLE OIL
3. REMOVE COTTER PIN, LOCK NUT CAP AND BEARING LOCK NUT

(a) Remove the cotter pin and lock nut cap.

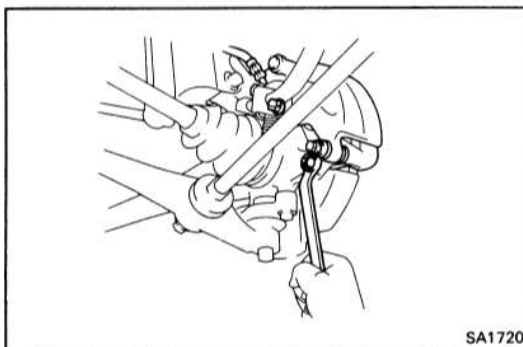
(b) With the parking brake engaged, remove the bearing lock nut.

4. REMOVE BRAKE CALIPER

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

5. REMOVE ROTOR DISC

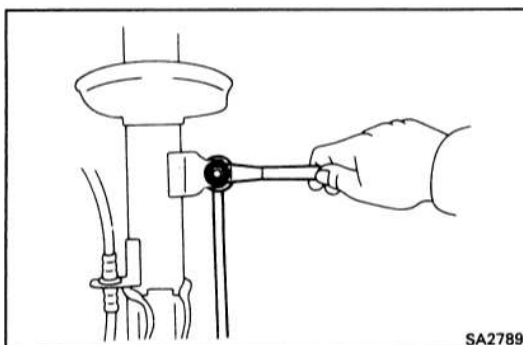
HINT: Before removing the rotor disc, place the matchmarks on the axle shaft and rotor disc.

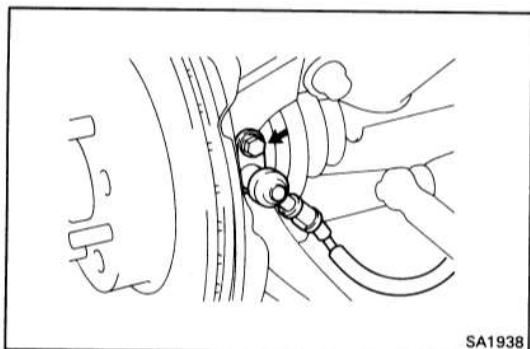


6. DISCONNECT STABILIZER LINK

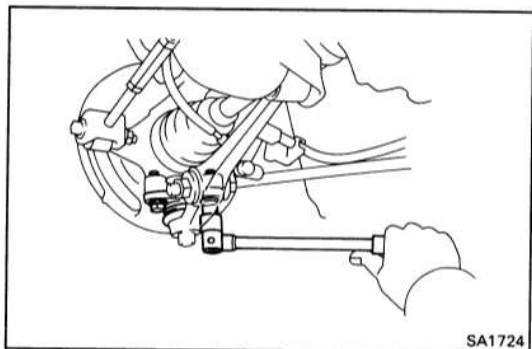
Remove the upper side nut from the stabilizer link.

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

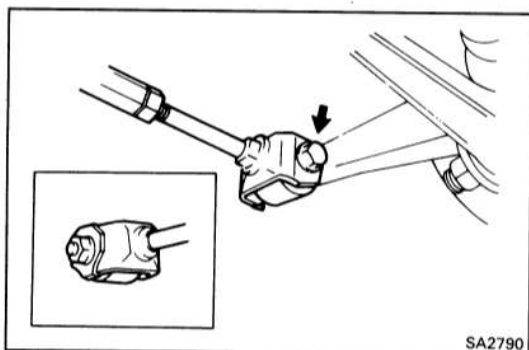




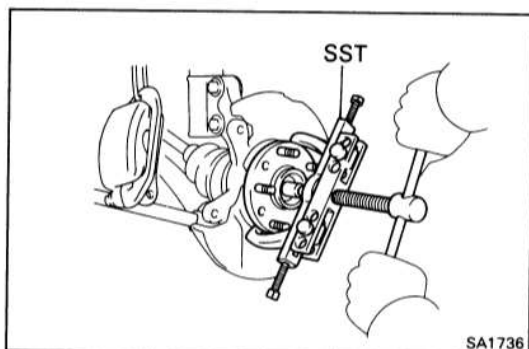
7. (w/ ABS)  
**REMOVE SPEED SENSOR FROM AXLE CARRIER**  
 Remove the bolt and pull out the speed sensor.



8. **DISCONNECT LOWER ARM FROM REAR AXLE CARRIER**  
 (a) Remove the two bolts holding the ball joint to the lower arm.  
 (b) Disconnect the lower arm.



9. **DISCONNECT TIE ROD END**  
 (a) Remove the tie rod end mounting bolt and nut, disconnect the tie rod end from the rear axle carrier.  
 (b) Similarly disconnect the other side.

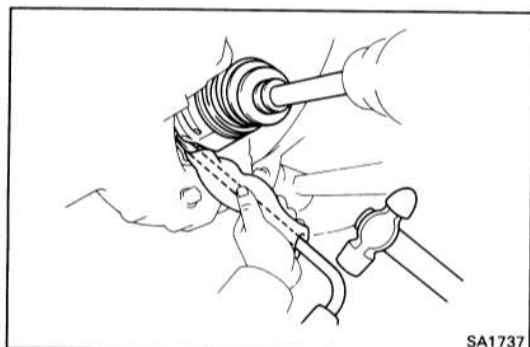


10. **DISCONNECT DRIVE SHAFT FROM AXLE CARRIER**  
 Using SST, disconnect the drive shaft from the axle carrier.

SST 09950-20017

**NOTICE:**

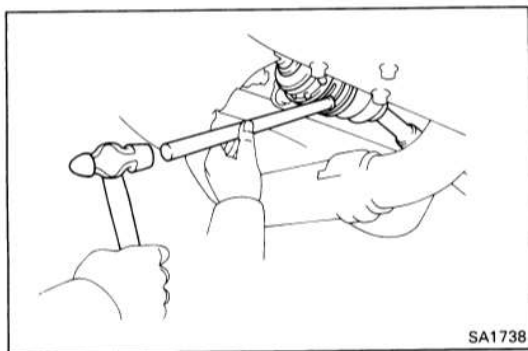
- Cover the drive shaft boot with cloth to protect it from damage.
- (w/ ABS)  
 Be careful not to damage the sensor rotor of the drive shaft



11. **REMOVE LH DRIVE SHAFT**  
 Using a hammer and hub nut wrench or an equivalent, remove the LH drive shaft.

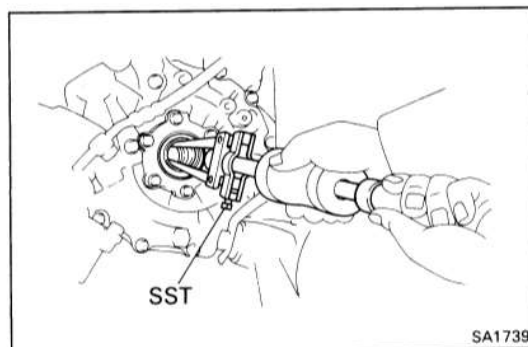
**NOTICE:**

- Be careful not to damage the dust cover.
- Cover the hub nut wrench or an equivalent with cloth so as not to damage the transaxle body.



## 12. REMOVE RH DRIVE SHAFT

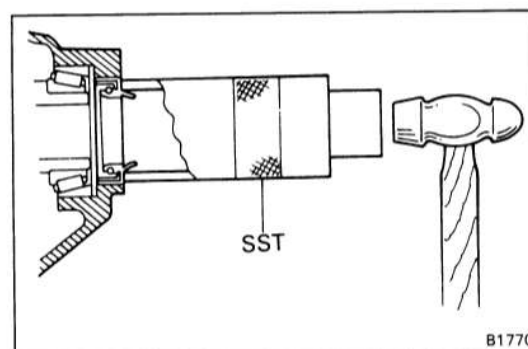
Using a hammer and brass bar, drive out the RH drive shaft.



## REPLACEMENT OF OIL SEAL

### 1. REMOVE OIL SEAL

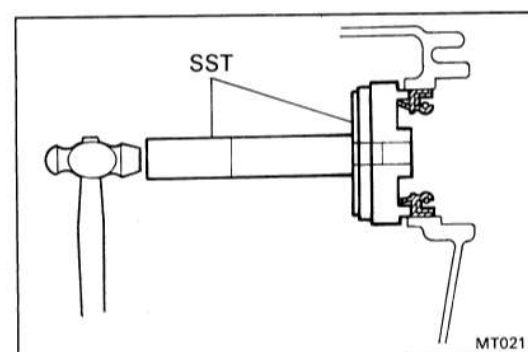
Using SST, drive out the oil seal.  
SST 09308-00010



### 2. INSTALL NEW OIL SEAL

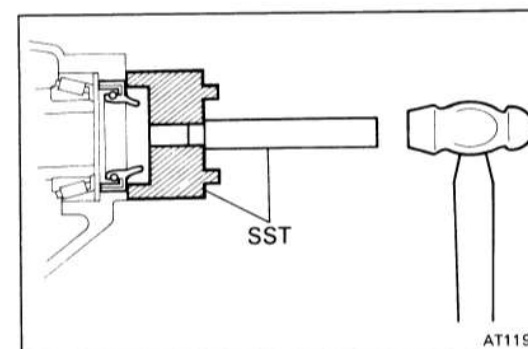
#### (a) (M/T)

Using SST and hammer, tap in a new oil seal.  
SST 09316-60010 (09316-00010)  
HINT: Coat the oil seal lip with MP grease.



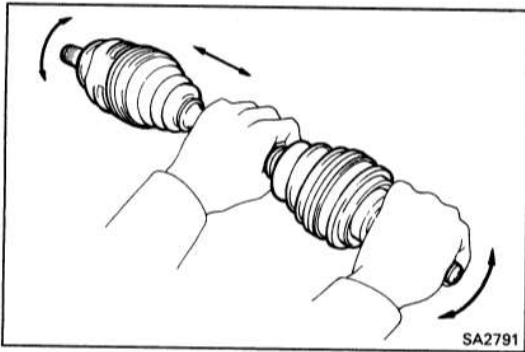
#### (b) (A/T LH)

Using SST and hammer, tap in a new LH oil seal.  
SST 09350-32014 (09351-32111, 09351-32150)  
HINT: Coat the oil seal lip with MP grease.



#### (c) (A/T RH)

Using SST and hammer, tap in a new RH oil seal.  
SST 09350-32014 (09351-32130, 09351-32150)  
HINT: Coat the oil seal lip with MP grease.

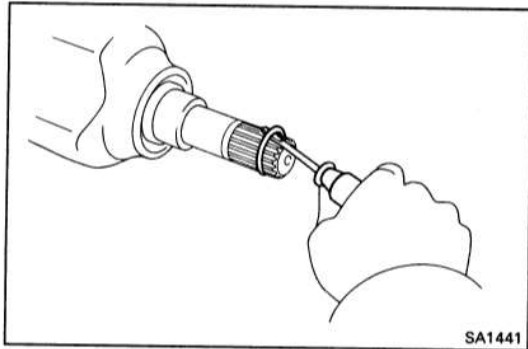


## DISASSEMBLY OF REAR DRIVE SHAFT

(See page SA-39)

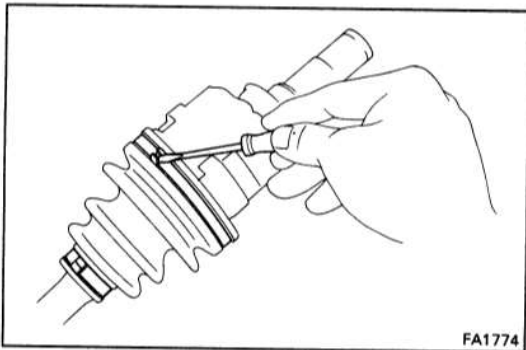
### 1. CHECK DRIVE SHAFT

- Check to see that there is no play in the outboard joint.
- Check to see that the inboard joint slides smoothly in the thrust direction.
- Check to see that there is no remarkable play in the radial direction of the inboard joint.
- Check for damage to boots.



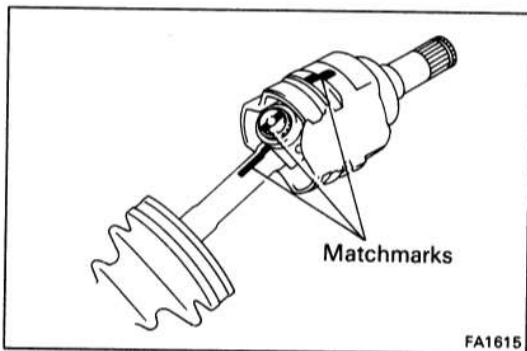
### 2. REMOVE SNAP RING FROM INBOARD JOINT SHAFT

Using a screwdriver, pry out the snap ring.



### 3. REMOVE INBOARD JOINT BOOT CLAMPS

- Using a screwdriver, remove the two boot clamps.
- Slide the inboard joint boot toward the outboard joint.

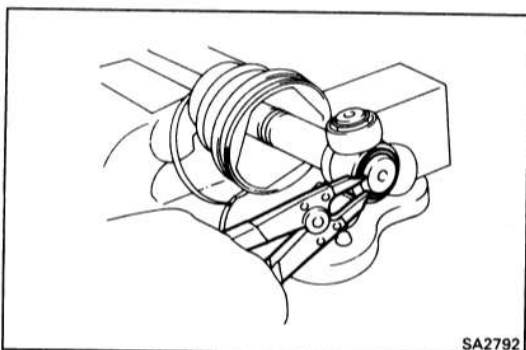


### 4. DISASSEMBLE INBOARD JOINT

- Place matchmarks on the inboard joint tulip and tripod.

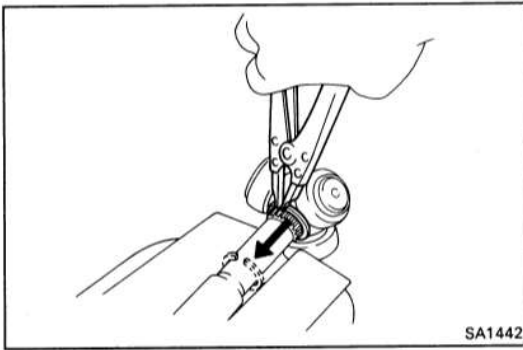
**NOTICE:** Do not punch the marks.

- Remove the inboard joint tulip from the drive shaft.

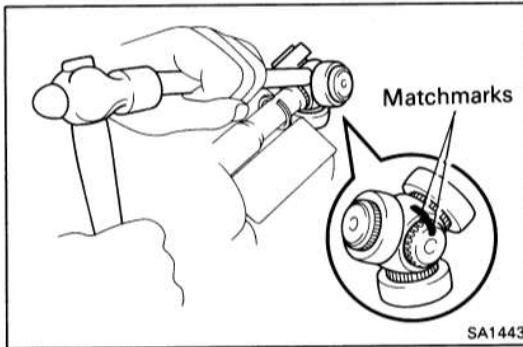


### 5. DISASSEMBLE TRIPOD JOINT

- Using snap ring pliers, remove the snap ring.



- (b) Using snap ring pliers, temporarily slide the snap ring toward the outboard joint side.

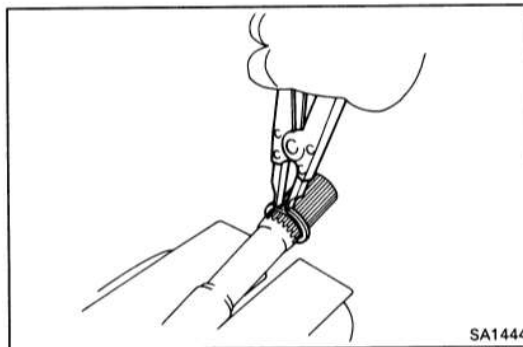


- (c) Place the matchmarks on the drive shaft and tripod.

**NOTICE:** Do not punch the marks.

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

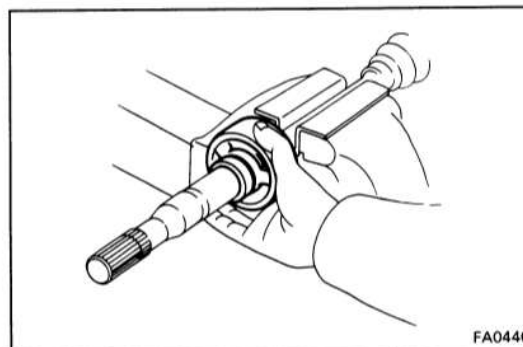
**NOTICE:** Do not tap the roller.



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

#### 6. REMOVE INBOARD JOINT BOOT

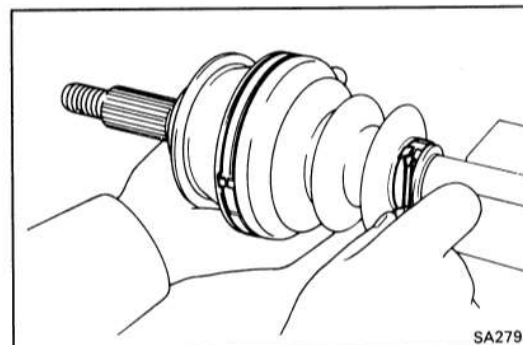
Slide out the inboard joint boot.



#### 7. REMOVE DAMPER

- (a) Using a screwdriver, remove the damper clamp.

- (b) Slide out the damper.

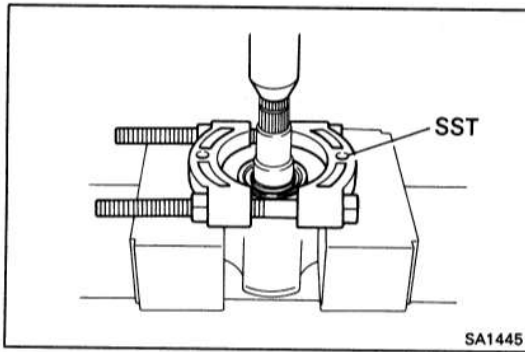


#### 8. REMOVE OUTBOARD JOINT BOOT CLAMPS AND BOOT

- (a) Using a screwdriver, remove the two boot clamps of the outboard joint boot.

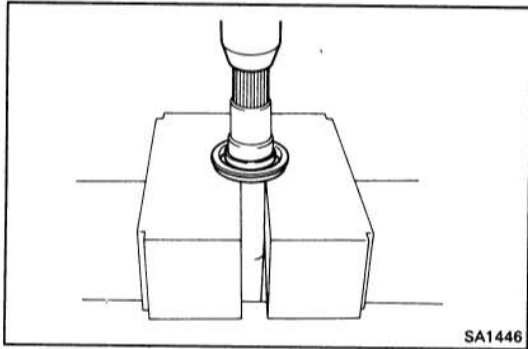
- (b) Slide out the boot from the outboard joint.

**NOTICE:** Do not disassemble the outboard joint.

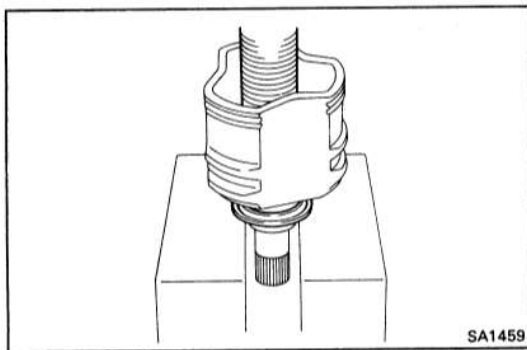
**9. REMOVE DUST COVER****(a) (LH Drive Shaft)**

Using SST and press, press out the dust cover from the inboard joint tulip.

SST 09950-00020

**(b) (RH Drive Shaft)**

Using a press, press out the dust cover.

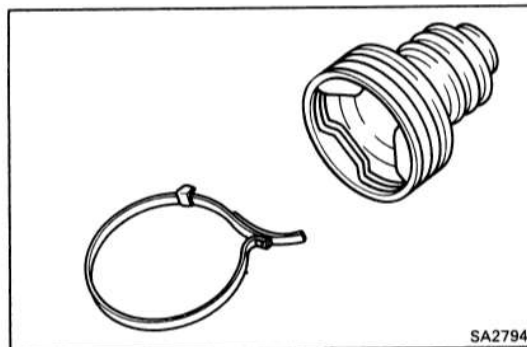


## ASSEMBLY OF REAR DRIVE SHAFT

(See page SA-39)

### 1. INSTALL DUST COVER

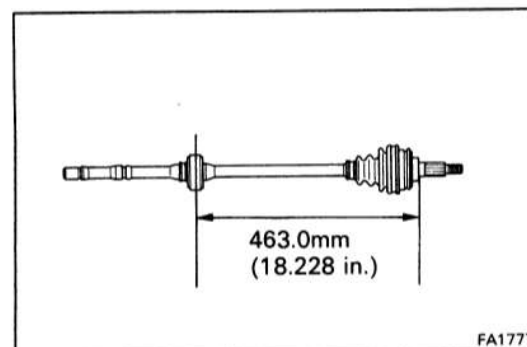
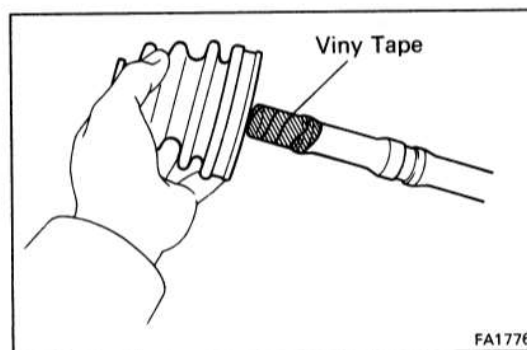
Using a press, press into the dust cover.



### 2. TEMPORARILY INSTALL OUTBOARD JOINT BOOT AND NEW BOOT CLAMPS

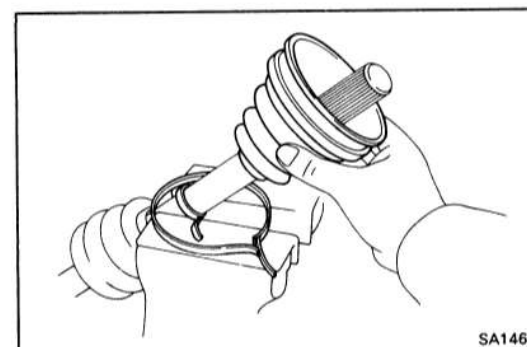
Temporarily install the boot and two new boot clamps for the outboard joint to the drive shaft.

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



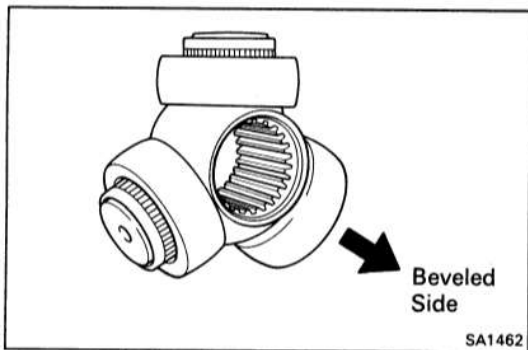
### 3. TEMPORARILY INSTALL DAMPER AND NEW DAMPER CLAMP

**HINT:** Fix the clamp position in line with the groove of the drive shaft.



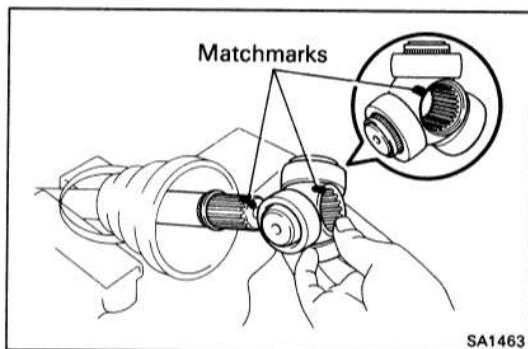
### 4. TEMPORARILY INSTALL INBOARD JOINT BOOT AND NEW BOOT CLAMPS

Temporarily install the boot and two new boot clamps for the inboard joint to the drive shaft.

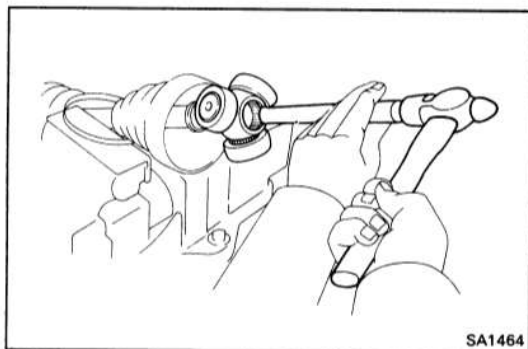


## 5. ASSEMBLE TRIPOD JOINT

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

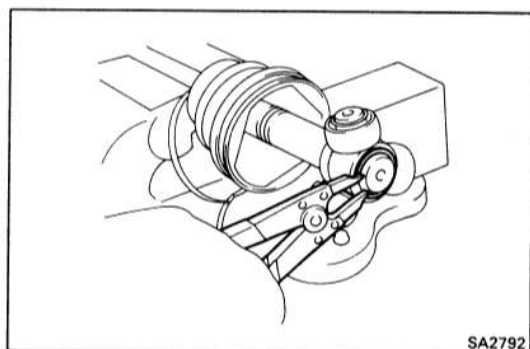


- (b) Align the matchmarks placed before disassembly.



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

**NOTICE:** Do not tap the roller.



- (d) Using snap ring pliers, install a new snap ring.

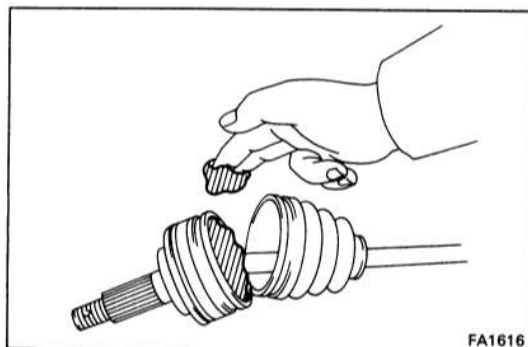
## 6. INSTALL BOOT TO OUTBOARD JOINT

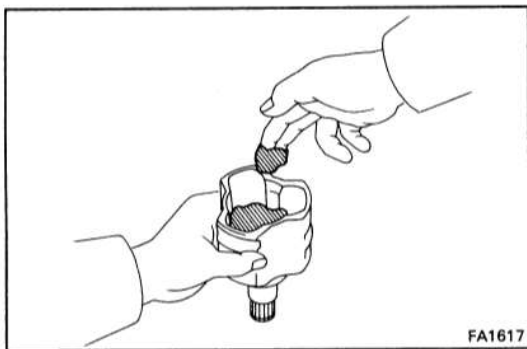
Before assembling the boot, fill grease into the outboard joint and boot.

**HINT:** Use the grease supplier in the boot kit.

**Grease capacity:** 120 – 130 g (0.26 – 0.29 lb)

**Grease color:** Black





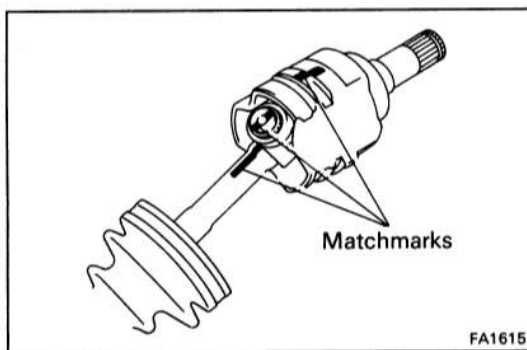
## 7. INSTALL INBOARD JOINT TULIP TO REAR DRIVE SHAFT

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

HINT: Use the grease supplied in the boot kit.

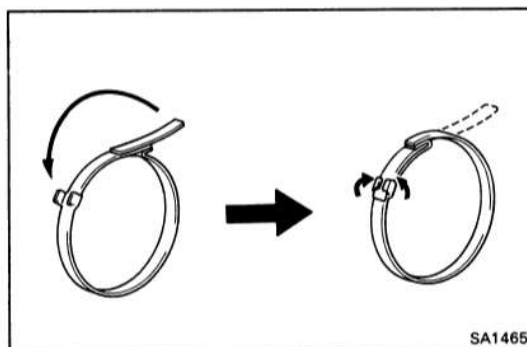
Grease capacity: 232 – 242 g (0.51 – 0.53 lb)

Grease color: Yellow ocher



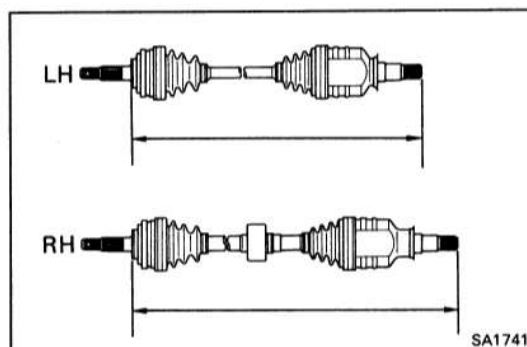
- (b) Align the matchmarks placed before remove, and install the inboard joint tulip to the drive shaft.

- (c) Install the boot to the inboard joint tulip.



## 8. ASSEMBLE BOOT CLAMPS AND DAMPER CLAMP

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

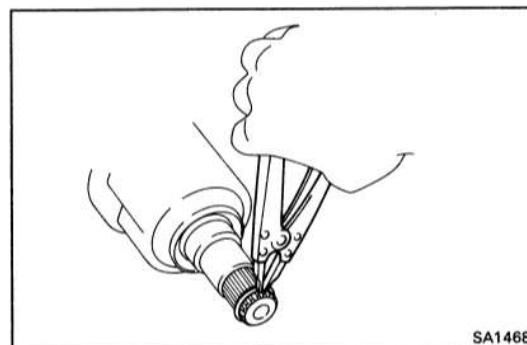


- (c) Insure that the boot is not stretched or contracted when the drive shaft is at standard length.

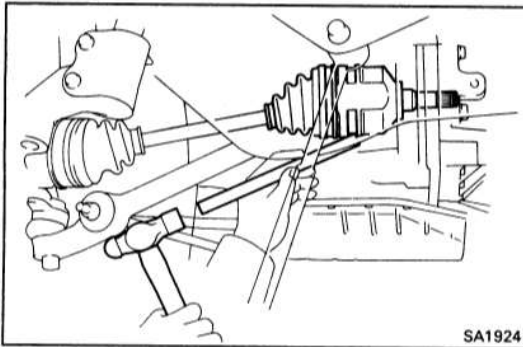
Drive shaft standard length:

LH 540.3 ± 5.0 mm (21.272 ± 0.197 in.)

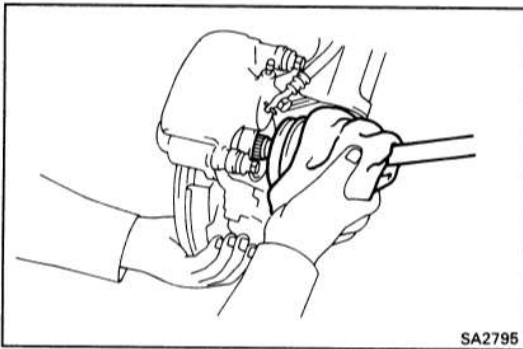
RH 831.4 ± 5.0 mm (32.732 ± 0.197 in.)



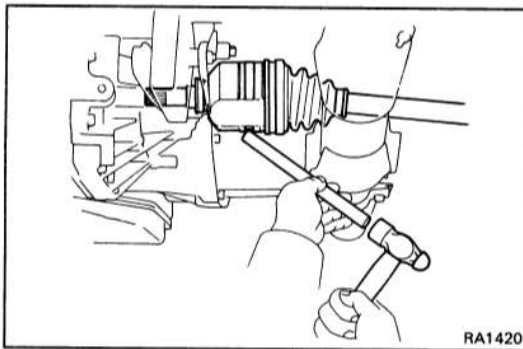
- (d) Using snap ring pliers, install a new snap ring.



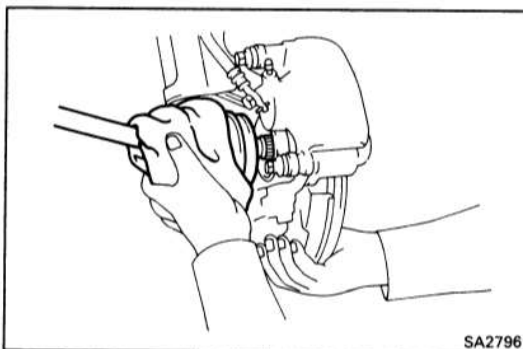
SA1924



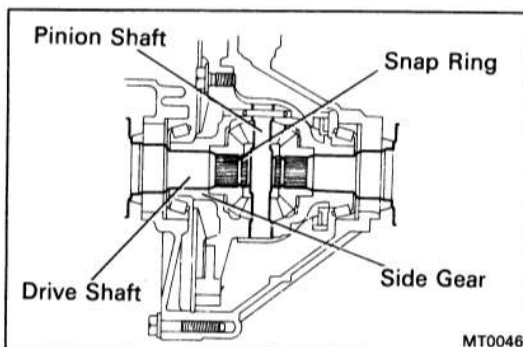
SA2795



RA1420



SA2796



MT0046

## INSTALL OF REAR DRIVE SHAFT

(See page SA-39)

### 1. INSTALL LH DRIVE SHAFT

- Coat the oil seal lip with MP grease.
- Using a brass bar and hammer, drive in the drive shaft until it makes contact with the pinion shaft.

**NOTICE:** Be careful not to damage the boots.

**HINT:**

- Before installing the drive shaft, set the snap ring opening side facing downward.
- Whether or not the drive shaft is making contact with the pinion shaft can be known by sound or feeling when driving it in.
- Install the outboard joint side of the drive shaft to the axle shaft.

**NOTICE:**

- Be careful not to damage the boots.
- (w/ ABS)  
Be careful not to damage the speed sensor rotor of the drive shaft.

### 2. INSTALL RH DRIVE SHAFT

- Coat the oil seal lip with MP grease.
- Using a brass bar and hammer, drive in the drive shaft until it makes contact with the pinion shaft.

**NOTICE:** Be careful not to damage the boots.

**HINT:**

- Before installing the drive shaft, set the snap ring opening side facing downward.
- Whether or not the drive shaft is making contact with the pinion shaft can be known by sound or feeling when driving it in.
- Install the outboard joint side of the drive shaft to the axle shaft.

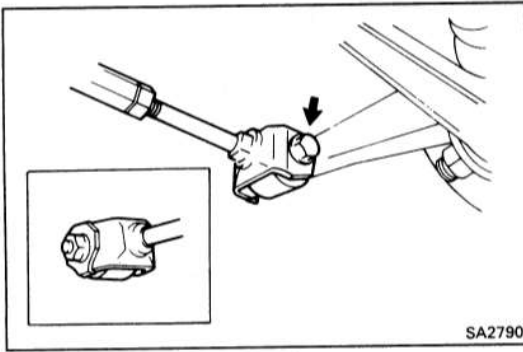
**NOTICE:**

- Be careful not to damage the boots.
- (w/ ABS)  
Be careful not to damage the speed sensor rotor of the drive shaft.

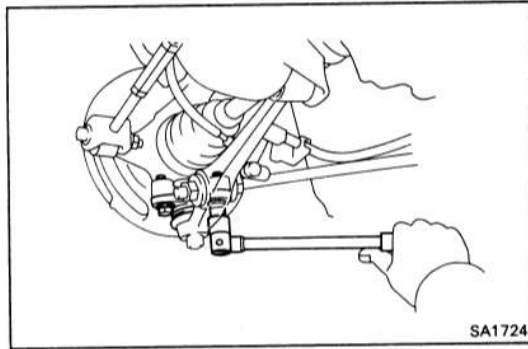
### 3. CHECK INSTALLATION OF REAR DRIVE SHAFT

- Check that there is 2 – 3 mm (0.08 – 0.12 in.) of play in axial direction.
- Check that the drive shaft will not come out by trying to pull it completely out by hand.

**HINT:** When checking pull the inboard joint so as not to damage the boots.

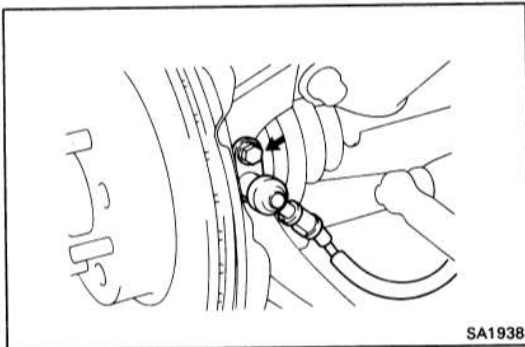
**4. CONNECT TIE ROD END**

Temporarily connect the tie rod end to rear axle carrier with the bolt and nut.

**5. CONNECT BALL JOINT TO AXLE CARRIER**

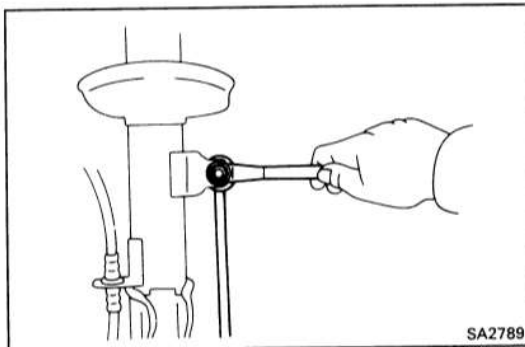
- (a) Connect the ball joint to the axle shaft.
- (b) Install and torque the two bolts.

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

**6. (w/ ABS)****INSTALL SPEED SENSOR TO AXLE CARRIER**

**Torque: 80 kg-cm (69 in.-lb, 7.4 N·m)**

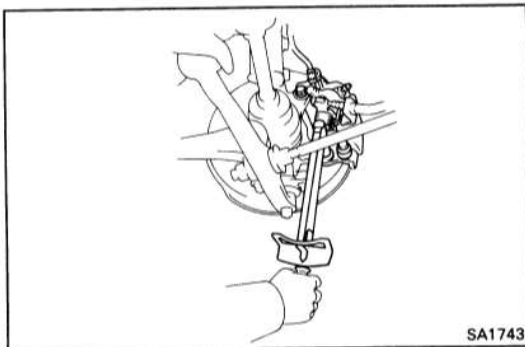
**HINT:** Before installing, check that there is no ferric clip or foreign material on the sensor tip.

**7. CONNECT STABILIZER LINK**

Connect the upper side nut to the stabilizer link.

**Torque: 500 kg-cm (36 ft-lb, 49 N·m)**

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

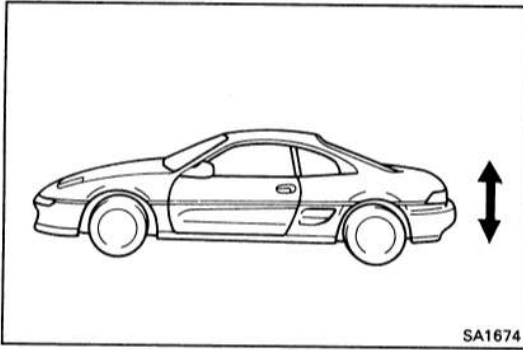
**8. INSTALL ROTOR DISC TO AXLE CARRIER**

**HINT:** Before removing the rotor disc, place the match-marks on the axle shaft and rotor disc.

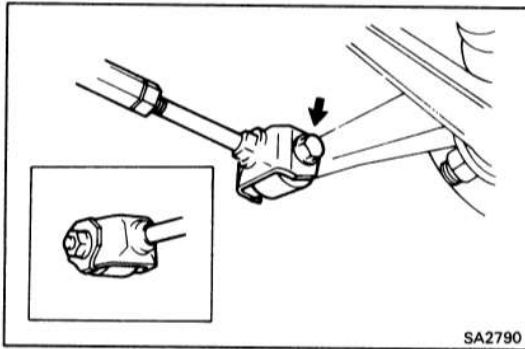
**9. INSTALL BRAKE CALIPER AXLE CARRIER**

Torque the two bolts.

**Torque: 600 kg-cm (43 ft-lb, 59 N·m)**

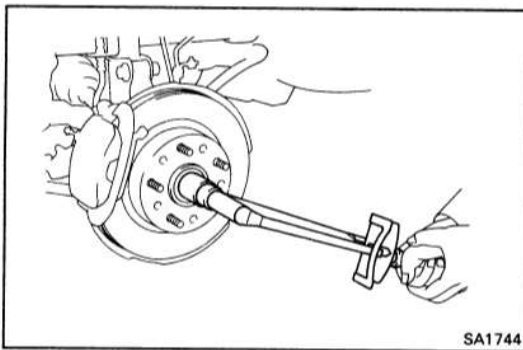
**10. INSTALL WHEEL AND LOWER VEHICLE**

Rock the vehicle up and down to stabilize the suspension.

**11. TORQUE BOLT AND NUT**

Torque the tie rod end mount bolt and nut.

**Torque: 1,050 kg-cm (76 ft-lb, 103 N·m)**

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

(a) Install the washer and lock nut.

(b) With the parking brake engaged, and tighten the nut.

**Torque: 2,100 kg-cm (152 ft-lb, 206 N·m)**

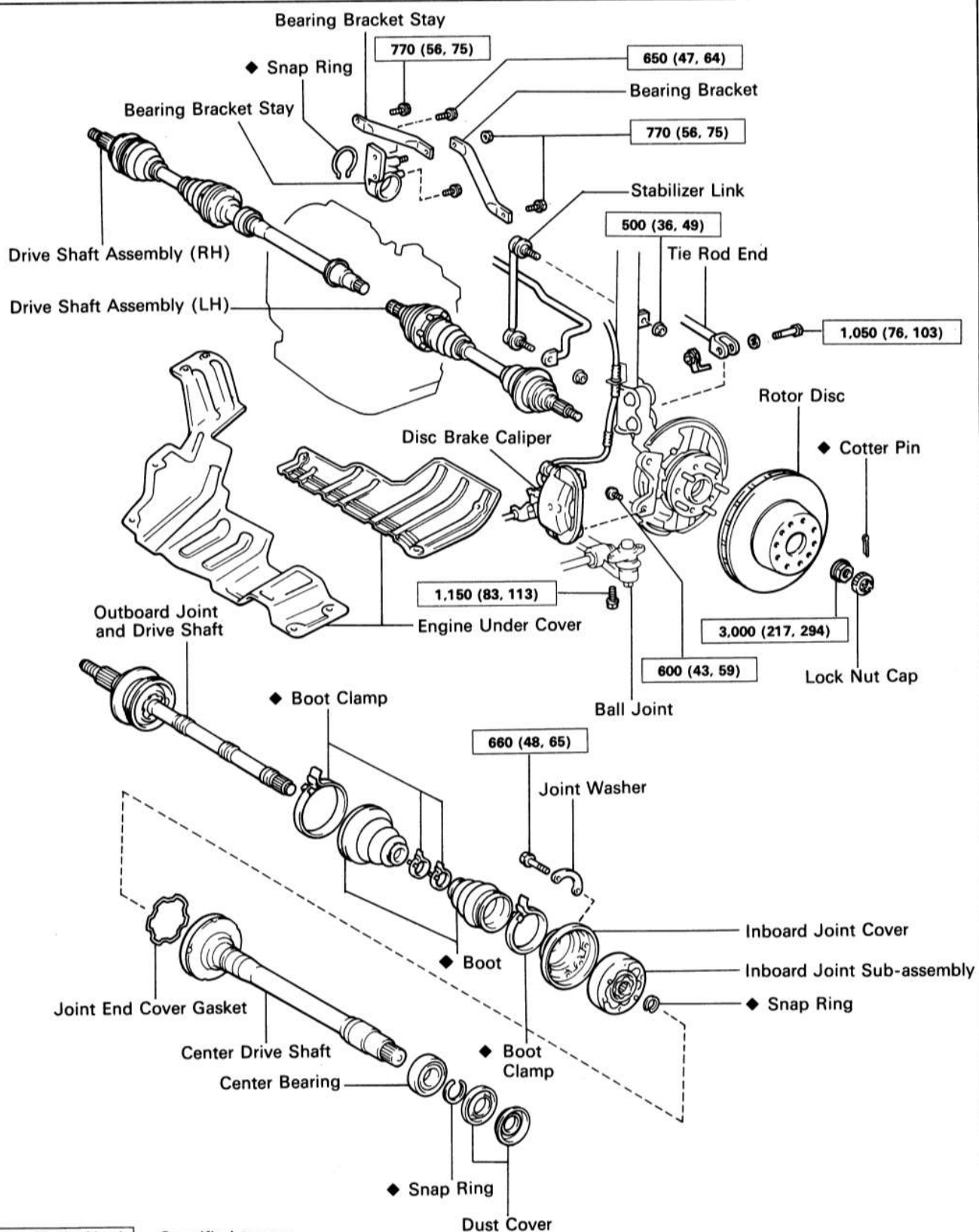
(c) Install the lock cap, and using pliers, install a new cotter pin.

**13. FILL TRANSAXLE WITH GEAR OIL**

Fluid type: **ATF DEXRON II**

**14. INSTALL ENGINE UNDER COVER**

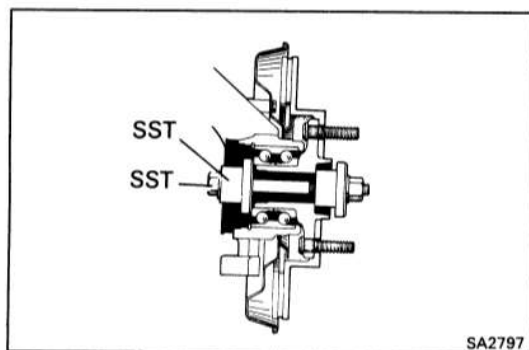
## REAR DRIVE SHAFT (3S-GTE ENGINE) COMPONENTS



kg-cm (ft-lb, N-m) : Specified torque

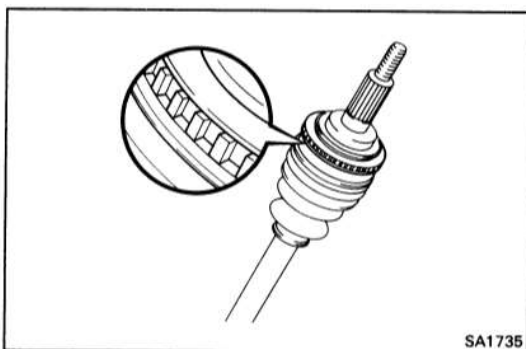
◆ Non-reusable part

SA2836

**NOTICE:**

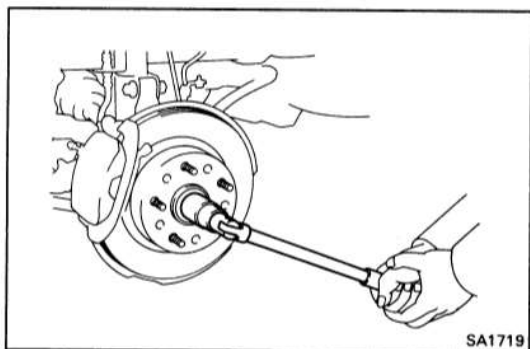
- The axle bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed. Therefore, if it is absolutely necessary to place the vehicle weight on the axle bearing, first support it with SST.

SST 09570-22010, 09608-16041 (09608-02010)



- (w/ ABS)

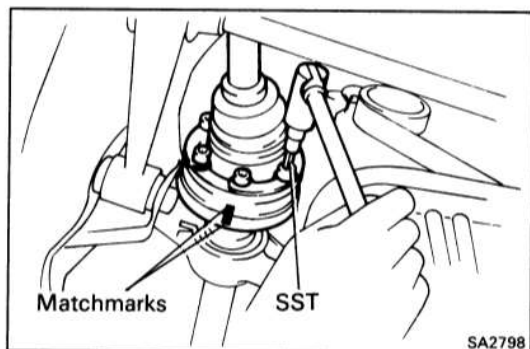
After disconnecting the drive shaft from the axle hub, work carefully so as not to damage the sensor rotor serrations on the drive shaft.

**REMOVAL OF REAR DRIVE SHAFT**

(See page SA-52)

1. REMOVE ENGINE UNDER COVER
2. DRAIN TRANSAXLE OIL
3. REMOVE COTTER PIN, LOCK NUT CAP AND BEARING LOCK NUT

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



4. LOOSEN SIX BOLTS HOLDING DRIVE SHAFT TO DIFFERENTIAL SIDE GEAR SHAFT OR CENTER DRIVE SHAFT

- (a) Place matchmarks on the drive shaft and side gear shaft.

**NOTICE:** Do not punch the marks.

Use paint, etc.

- (b) With the parking brake engaged, using SST, loosen the six hexagon bolts.

SST 09043-88010

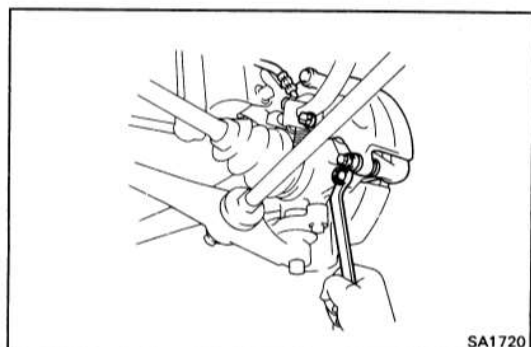
**HINT:** Do not remove the bolts, finger tighten them not to drop down the drive shaft.

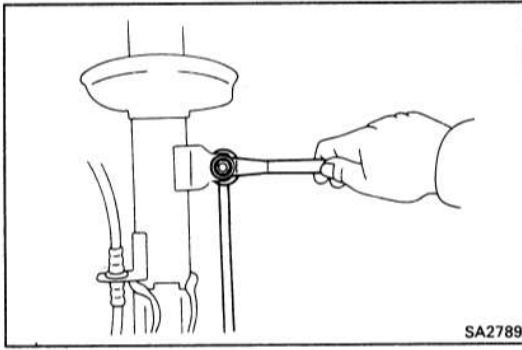
5. REMOVE BRAKE CALIPER

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

6. REMOVE ROTOR DISC

**HINT:** Before removing the rotor disc, place matchmarks on the axle shaft and rotor disc.

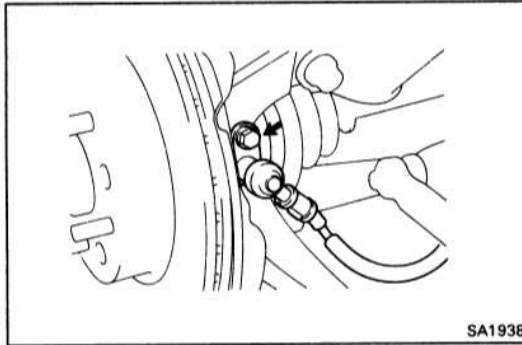




#### 7. DISCONNECT STABILIZER LINK

Remove the upper side nut from the stabilizer link.

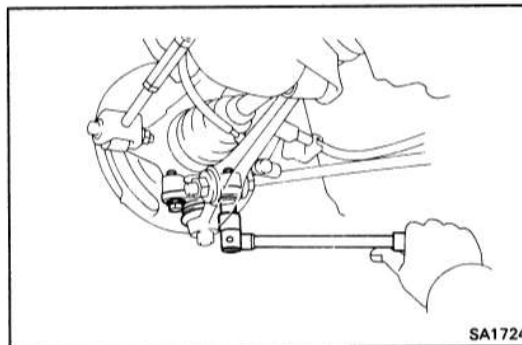
**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.



#### 8. (w/ ABS)

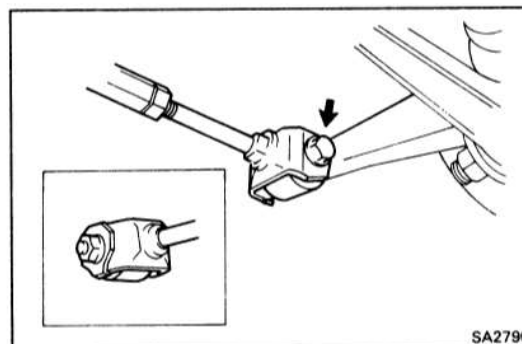
#### REMOVE SPEED SENSOR FROM AXLE CARRIER

Remove the bolt and pull out the speed sensor.



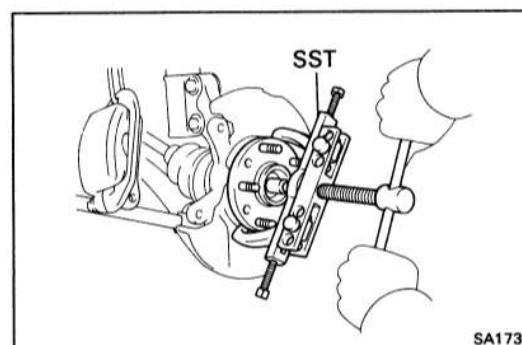
#### 9. DISCONNECT LOWER ARM FROM REAR AXLE CARRIER

- (a) Remove the two bolts holding the ball joint to the lower arm.
- (b) Disconnect the lower arm.



#### 10. DISCONNECT TIE ROD END

- (a) Remove the tie rod end mounting bolt and nut, disconnect the tie rod end from the rear axle carrier.
- (b) Similarly disconnect the other side.



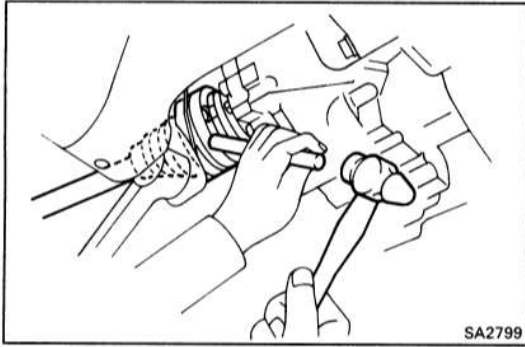
#### 11. DISCONNECT DRIVE SHAFT FROM AXLE CARRIER

Using SST, disconnect the drive shaft from the axle carrier.

SST 09950-20017

#### NOTICE:

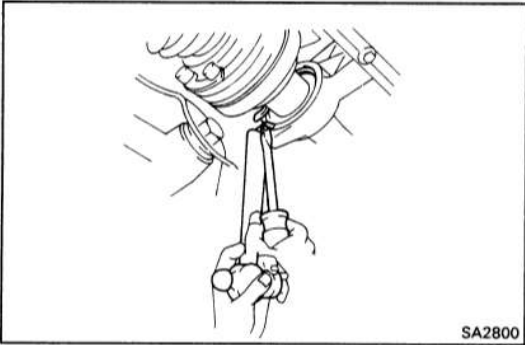
- Cover the drive shaft boot with cloth to protect it from damage.
- (w/ ABS)  
Be careful not to damage the sensor rotor of the drive shaft.

**12. REMOVE LH DRIVE SHAFT**

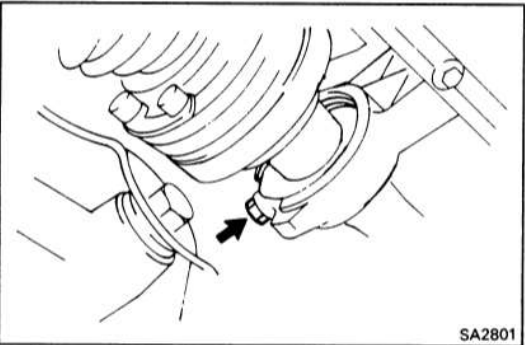
Using a hammer and brass bar, drive out the drive shaft from the transaxle.

**NOTICE:**

- Be careful not to damage the side gear shaft.
- Be careful not to damage the differential side oil seal.

**13. REMOVE RH DRIVE SHAFT**

- (a) Using a hammer and screwdriver, remove the snap ring from the bearing bracket.

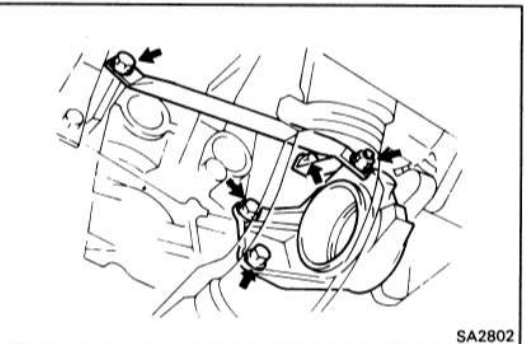


- (b) Remove the bolt from the bearing bracket.

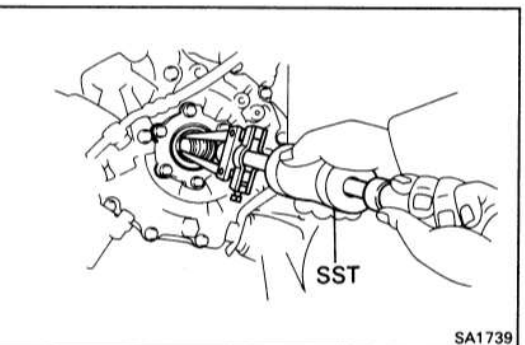
- (c) Remove the RH drive shaft with center drive shaft.

**NOTICE:** Be careful not to damage the differential side oil seal.

**HINT:** If it is hard to remove the bearing, use a brass bar and hammer and the drive flange end of the drive shaft.

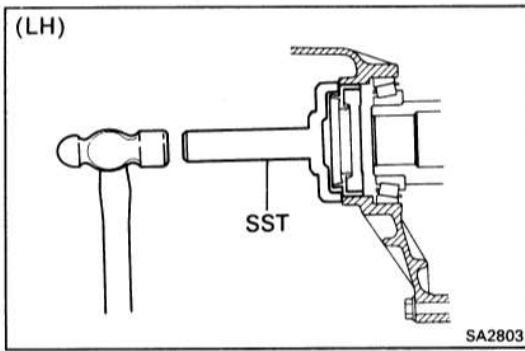
**14. REMOVE DRIVE SHAFT BEARING BRACKET AND BEARING BRACKET STAY**

- (a) Remove the two bolts, nut and the two bearing bracket stays from the bearing bracket and engine.
- (b) Remove the two bolts and the bearing bracket from the engine.

**REPLACEMENT OF OIL SEAL****1. REMOVE OIL SEAL**

Using SST, drive out the oil seal.

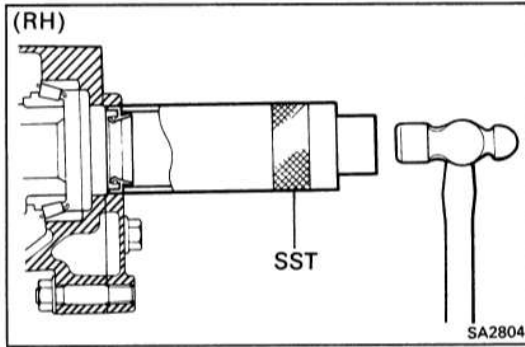
SST 09308-00010

**2. INSTALL NEW OIL SEAL**

(a) (LH)

Using SST and hammer, tap in a new LH oil seal.

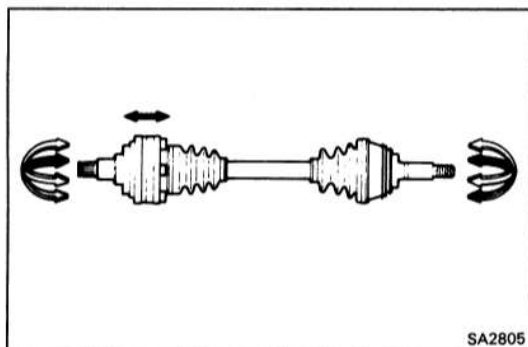
SST 09223-15010



(b) (RH)

Using SST and hammer, tap in a new RH oil seal.

SST 09316-60010 (09316-00010)



## DISASSEMBLY OF REAR DRIVE SHAFT

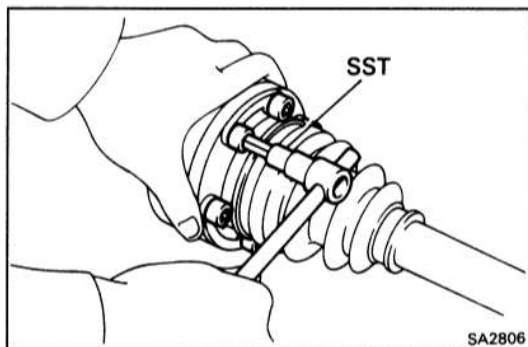
(See page SA-52)

### 1. CHECK DRIVE SHAFT

- Check to see that there is no play in the outboard joint.
- Check to see that the inboard joint slides smoothly in the thrust direction.
- Check to see that there is no remarkable play in the radial direction of the inboard joint.
- Check for damage to boots.

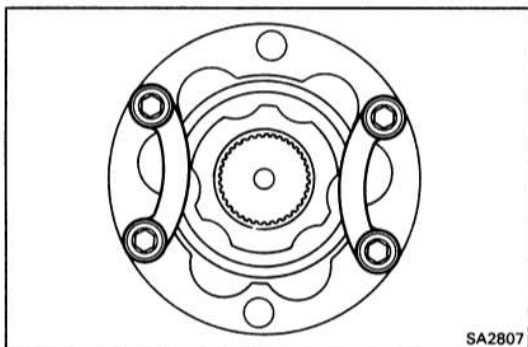
### 2. DISCONNECT SIDE GEAR SHAFT

- Using SST, remove the six hexagon bolts and the three washers.
- SST 09043-88010
- Disconnect the side gear shaft from the drive shaft.



- Use bolts, nuts and washers to keep the inboard joint together.

**NOTICE:** Tighten the bolts by hand to avoid scratching the flange surface.

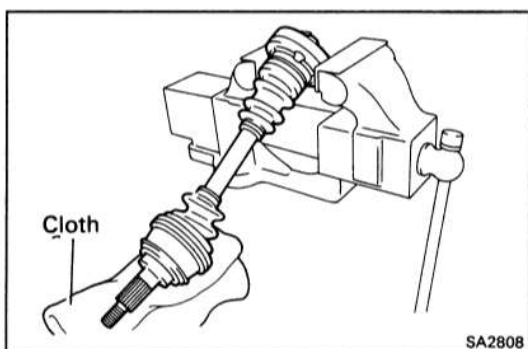


### 3. REMOVE INBOARD JOINT AND BOOT CLAMPS

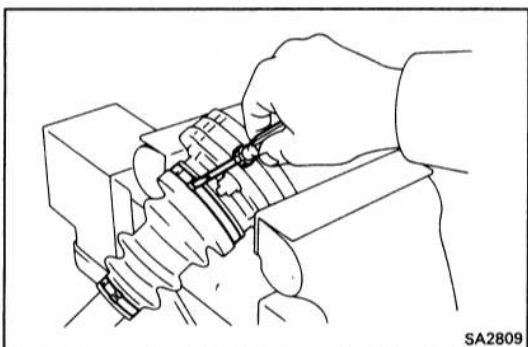
- Mount the inboard joint sub-assembly in a vise.

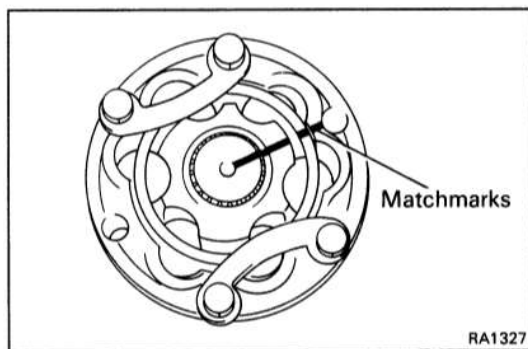
**HINT:**

- Use a set of soft jaws in the vise to protect the inboard joint sub-assembly.
- Cover the outboard joint side dust cover with cloth to protect it from damage.



- Using a screwdriver, remove the two inboard joint boot clamps.
- Remove the inboard joint boot from the inboard joint cover.

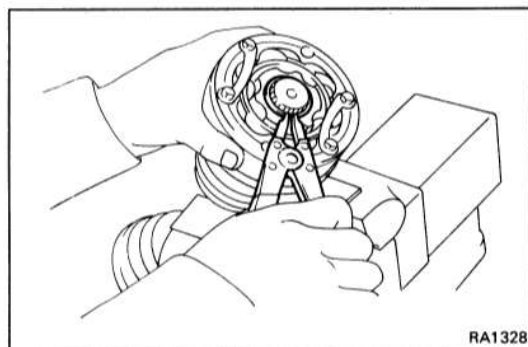




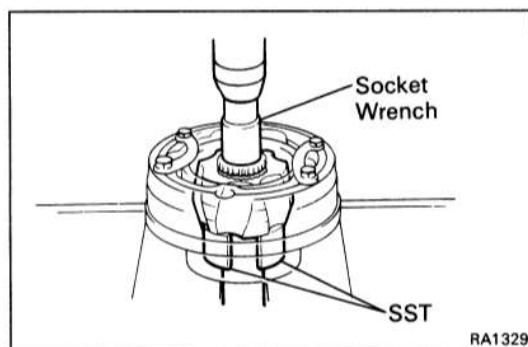
#### 4. DISASSEMBLE INBOARD JOINT

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

**NOTICE:** Do not punch marks.



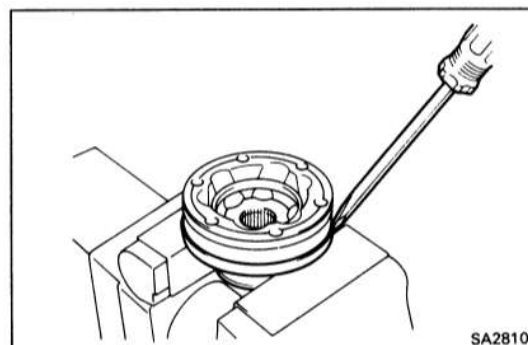
- (b) Using snap ring pliers, remove the snap ring.



- (c) Using SST, a socket wrench and a press, remove the inboard joint from the drive shaft.

SST 09726-10010 (09726-00030)

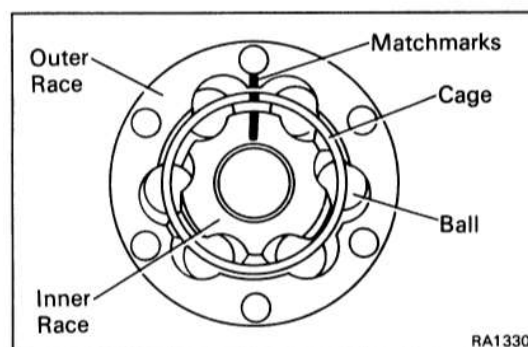
- (d) Remove the bolts, nuts and washers from the inboard joint.



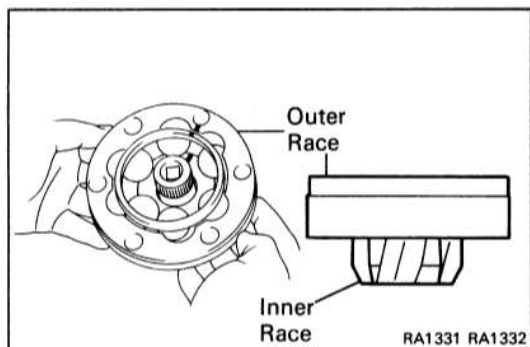
- (e) Using a screwdriver, unstake the inboard joint cover.

- (f) Using a screwdriver, pry out the inboard joint from the inboard joint cover.

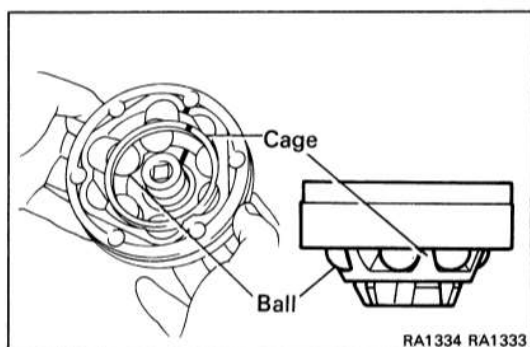
**NOTICE:** When lifting the inboard joint, hold onto the inner race and outer race.



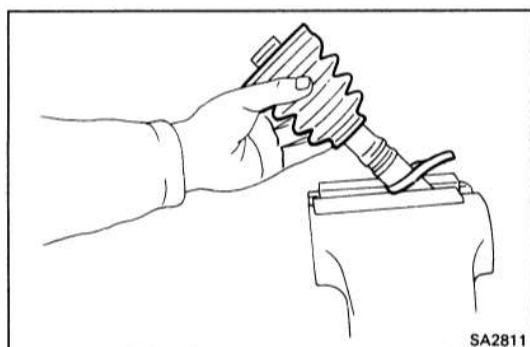
**HINT:** Should the joint become disassembled, reassemble it in the way shown.

**SERVICE HINT**

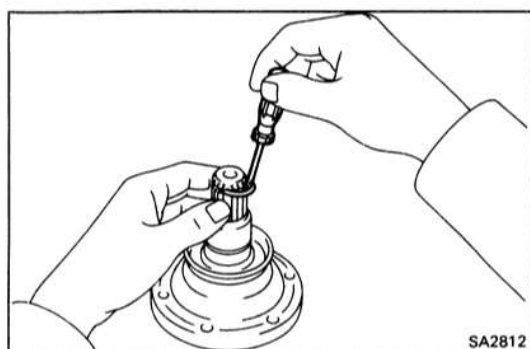
- (a) Align the matchmarks place before disassembly.
- (b) Insert the spark plug wrench into the inner race.
- (c) Lift the outer race and cage, and insert the six balls.



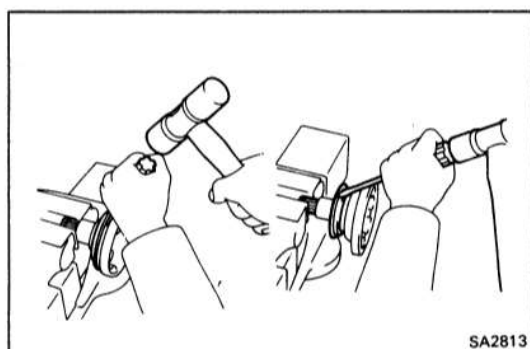
- (d) Jiggle the outer race and cage as shown to place the balls in their respective grooves.
- (e) Lower the outer race and cage so that fit tightly with the inner race.

**5. REMOVE BOOTS**

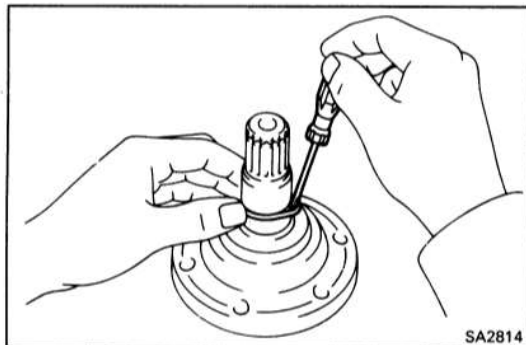
Remove boots of the inboard joint and outboard joint.

**6. REPLACE SIDE GEAR SHAFT SNAP RING**

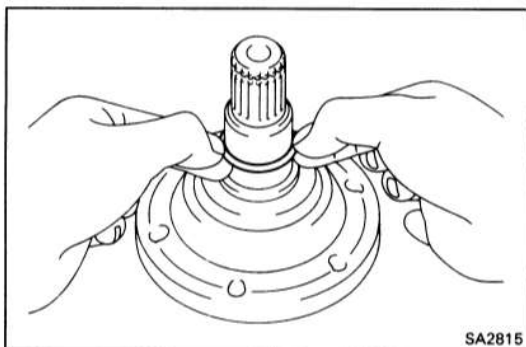
- (a) Using a screwdriver, pry out the snap ring.
- (b) Using snap ring pliers, install the new snap ring.

**7. REMOVE DUST COVER FROM SIDE GEAR SHAFT**

Using a screwdriver and hammer, tap out the dust cover.

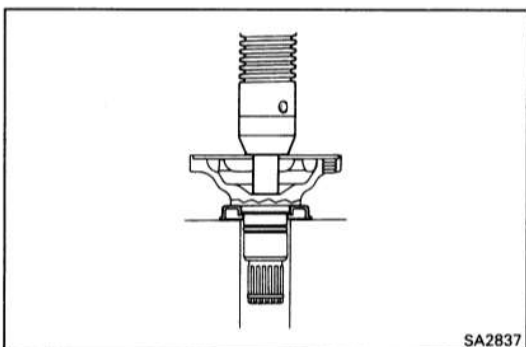
**8. REPLACE SIDE GEAR SHAFT O-RING**

(a) Using a screwdriver, remove the O-ring.

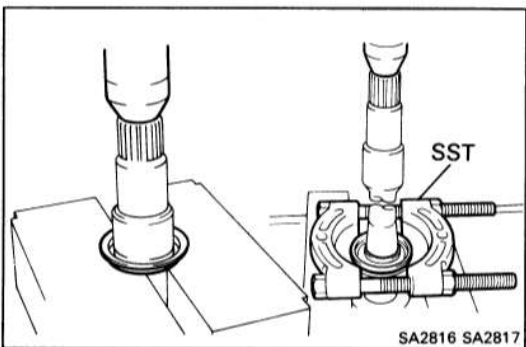


(b) Coat O-ring with MP grease.

(c) Install a new O-ring.

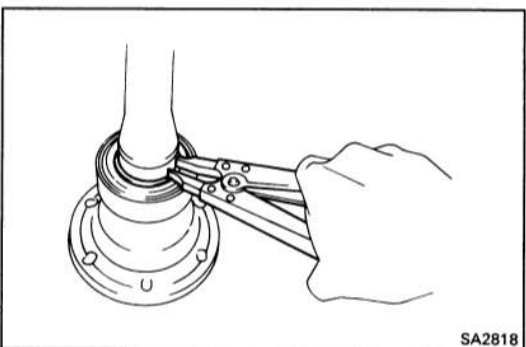
**9. INSTALL DUST COVER TO SIDE GEAR SHAFT**

Using a press, install a new dust cover.

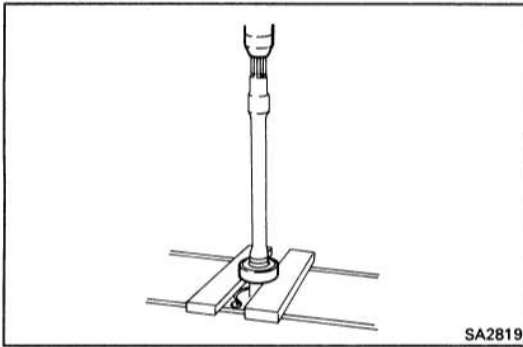
**10. REMOVE DUST COVER FROM CENTER DRIVE SHAFT**

Using SST and press, remove the dust cover from the inboard joint.

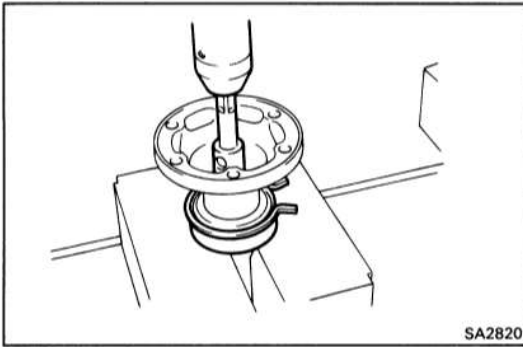
SST 09950-00020

**11. REMOVE BEARING FROM CENTER DRIVE SHAFT**

(a) Using snap ring pliers, remove the snap ring from the inboard joint.

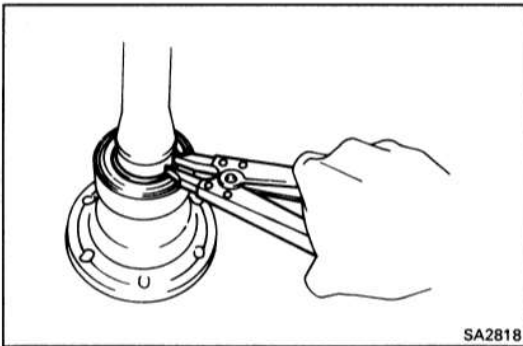


- (b) Using a press, press out the bearing from the inboard joint.

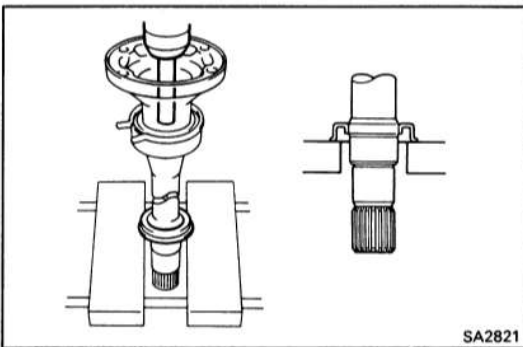


## 12. INSTALL BEARING TO CENTER DRIVE SHAFT

- (a) Install a new snap ring to the center drive shaft.  
(b) Using a press and extension bar, press in a new bearing.

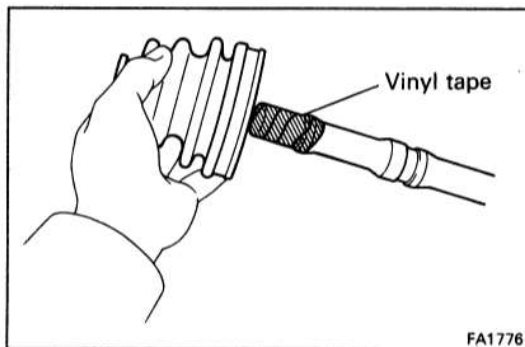


- (c) Using snap ring pliers, install a new snap ring.



## 13. INSTALL DUST COVER TO CENTER DRIVE SHAFT

- Using a press, press in a new dust cover to the inboard joint.



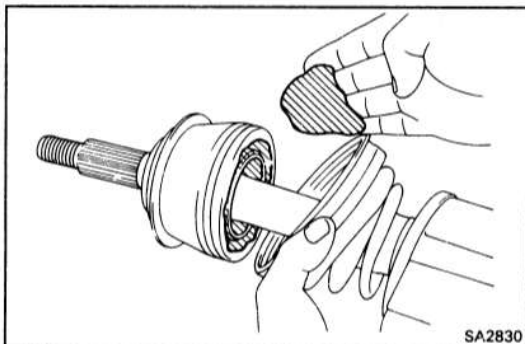
## ASSEMBLY OF REAR DRIVE SHAFT

(See page SA-52)

### 1. TEMPORARILY INSTALL BOOTS AND NEW BOOT CLAMPS

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

**NOTICE:** The boot and clamp of the outboard joint are smaller than those of the inboard joint. Temporarily install the two boots and four new clamps to the outboard joint and inboard joint.



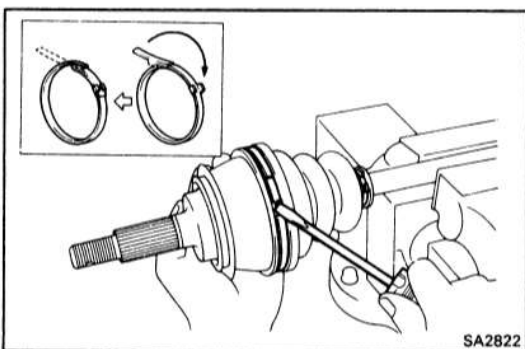
### 2. INSTALL BOOT TO OUTBOARD JOINT

(a) Before assembling the boots, pack in grease.

**HINT:** Use the grease supplied in the boot kit.

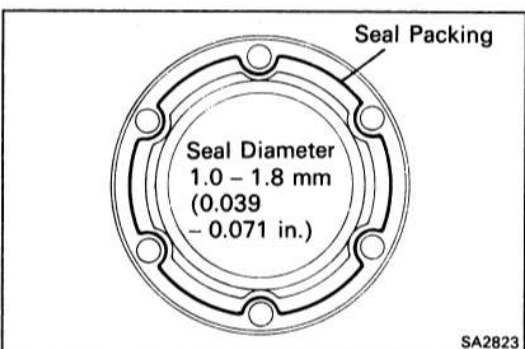
**Grease capacity:** 120 – 130 g (0.26 – 0.29 lb)

**Grease color:** Black



(b) Install the two boot clamps to the outboard joint boot.

(c) Bend the boot clamp and lock it as shown.



### 3. INSTALL INBOARD JOINT COVER

(a) Clean contacting surfaces of any residual packing material using gasoline or alcohol.

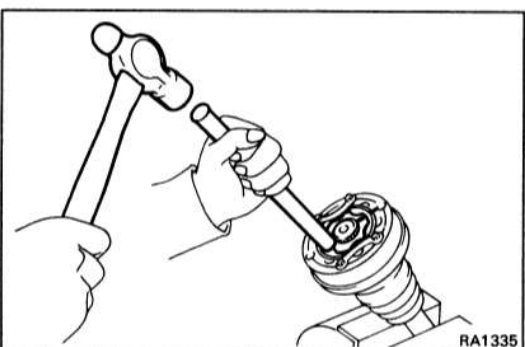
(b) Apply seal packing to the inboard joint cover as shown.

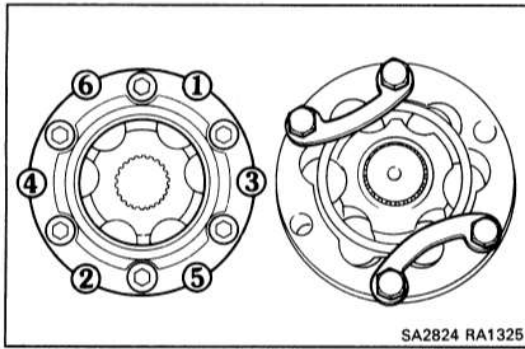
**Seal packing:** Part No.08826-00801, THREE BOND 1121 or equivalent

**HINT:** Avoid applying an excess amount to the surface.

(c) Align the bolt holes of the cover with those of the inboard joint, then insert the hexagon bolts.

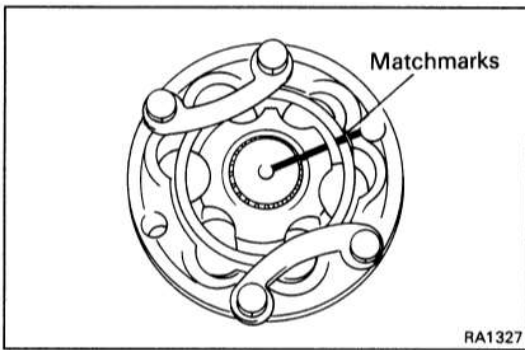
(d) Using a hammer and brass bar, tap the rim of the inboard joint cover into place.





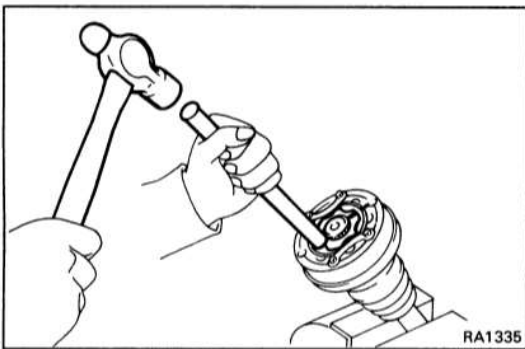
- (e) Do this in the order shown, and repeat several time.
- (f) Use bolts, nuts and washers to keep the inboard joint together.

**NOTICE:** Tighten the bolts by hand to avoid scratching the flange surface.



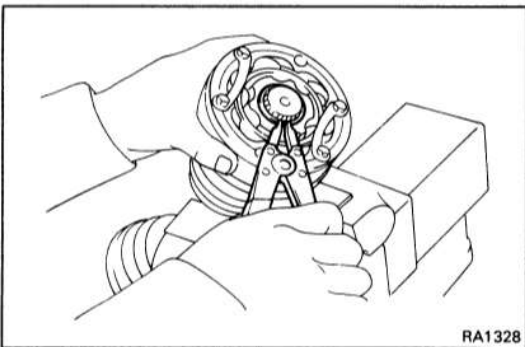
#### 4. ASSEMBLE INBOARD JOINT

- (a) Align the matchmarks placed before disassembly.

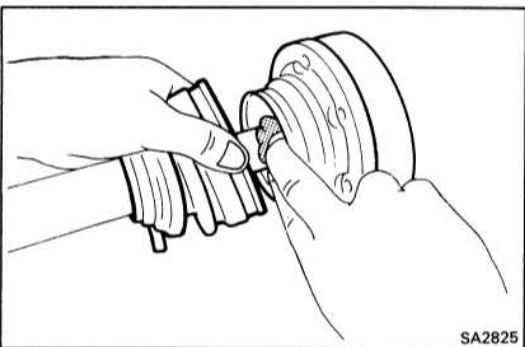


- (b) Using a brass bar and hammer, tap the inboard joint onto the drive shaft.

**NOTICE:** Make sure that the brass bar is touching the inner race, and not the cage.



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

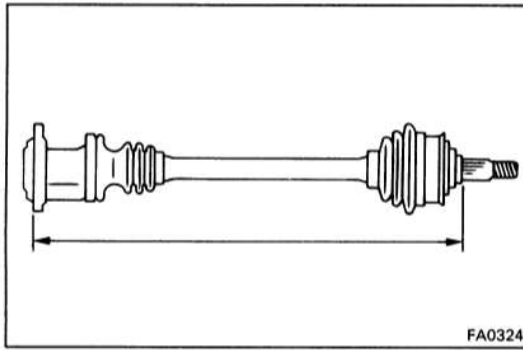


- (d) Pack in grease to the inboard tulip and boot.

**HINT:** Use the grease supplied in the boot kit.

**Grease capacity:** 90 – 100 g (0.20 – 0.22 lb)

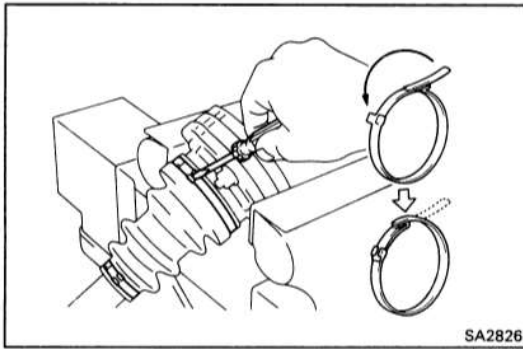
**Grease color:** Black



FA0324

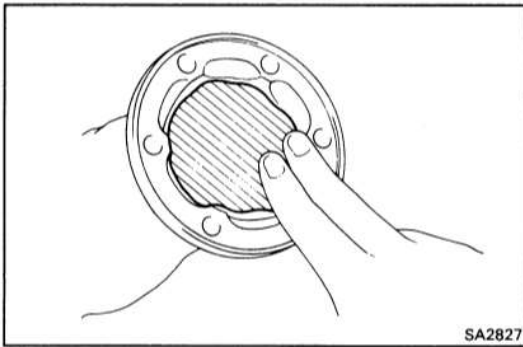
- (e) Be sure the boot is on the shaft groove.
- (f) Insure that the boot is no stretched or contracted when the drive shaft is at standard length.

**Drive shaft length:**  $389.7 \pm 5.0$  mm  
 $(15.343 \pm 0.197$  in.)



SA2826

- (g) Bend the boot clamp and lock it as shown.



SA2827

## 5. INSTALL SIDE GEAR SHAFT

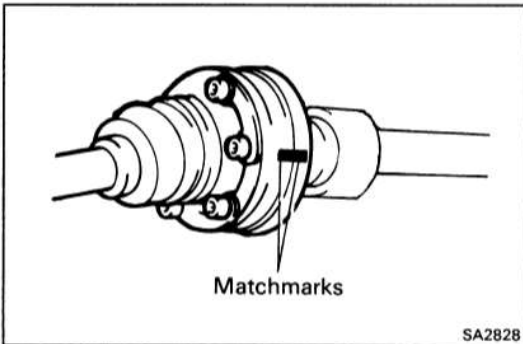
- (a) Pack in grease to the side gear shaft.

**HINT:** Use the grease supplied in the boot kit.

**Grease capacity:** 43 – 53 g (0.09 – 0.12 lb)

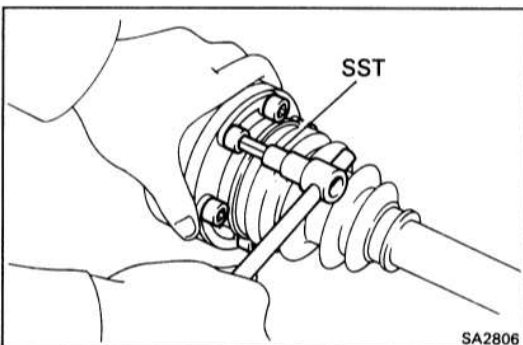
**Grease color:** Black

- (b) Remove the two washers and four bolts from the drive shaft.



SA2828

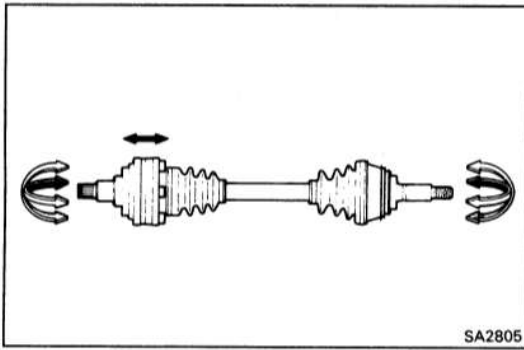
- (c) Align the matchmarks placed before remove, and install the side gear shaft or center drive shaft and a new gasket to the inboard joint sub-assembly.



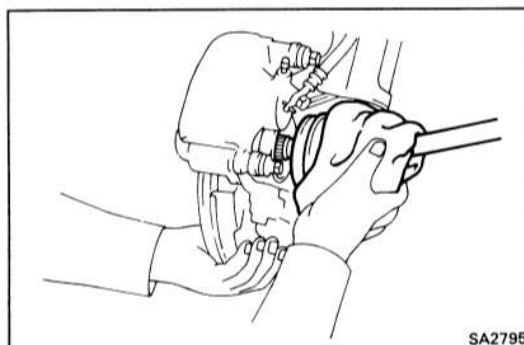
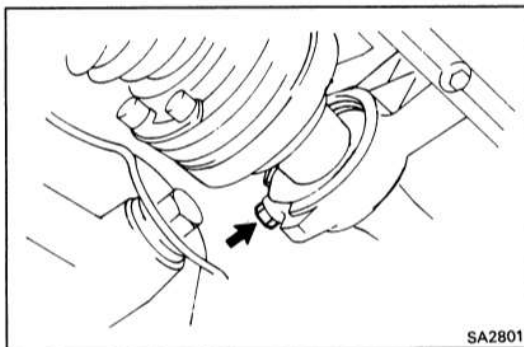
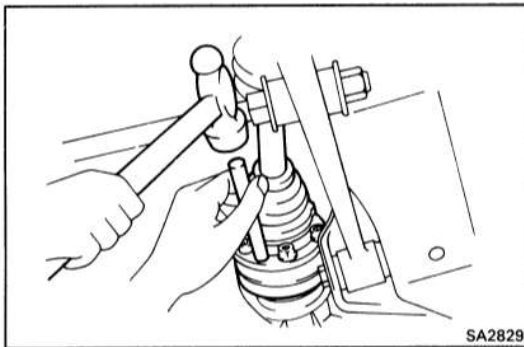
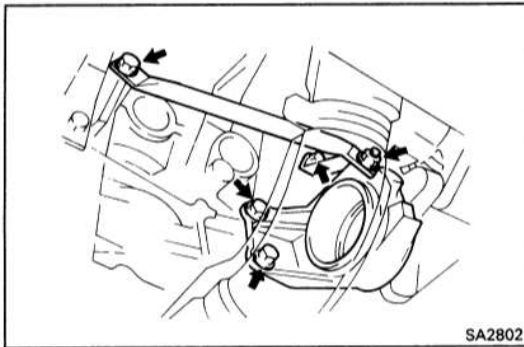
SA2806

- (d) Using SST, temporarily tighten the six hexagon bolts with three washers.

**SST 09043-88010**

**6. 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 slide smoothly in the thrust direction.



## INSTALLATION OF REAR DRIVE SHAFT

(See page SA-52)

### 1. INSTALL DRIVE SHAFT BEARING BRACKET AND BEARING BRACKET STAY

- (a) Install the bearing bracket to the engine with the two bolts.

**Torque: 650 kg-cm (47 ft-lb, 64 N·m)**

- (b) Install the two bearing bracket stays to the engine and bearing bracket with the two bolts and the nut.

**Torque:**

**Bolt: 770 kg-cm (56 ft-lb, 75 N·m)**

**Nut: 770 kg-cm (56 ft-lb, 75 N·m)**

### 2. INSTALL LH DRIVE SHAFT

- (a) Apply the oil seal lip with MP grease.
- (b) Using a brass bar and hammer, drive in the drive shaft until it makes contact with the pinion shaft.

**NOTICE: Be careful not to damage the boots.**

**HINT:**

- Before installing the drive shaft, set the snap ring opening side facing downward.
- Whether or not the drive shaft is making contact with the pinion shaft can be known by sound or feeling when driving it in.

### 3. INSTALL RH DRIVE SHAFT

- (a) Apply MP grease to the transaxle oil lip.
- (b) Insert the center drive shaft with the RH drive shaft to the transaxle through the bearing bracket.
- (c) Install the bolt to the bearing bracket.

**Torque: 300 kg-cm (24 ft-lb, 32 N·m)**

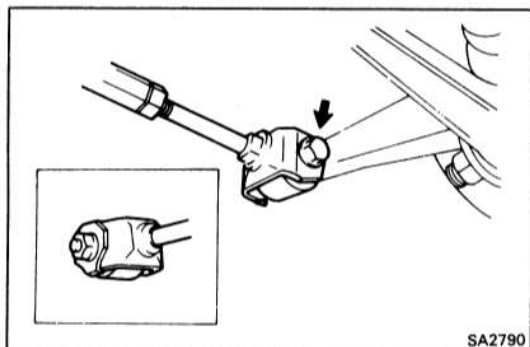
- (d) Using pliers, install the snap ring to the bearing bracket.

### 4. CONNECT OUTBOARD JOINT SIDE OF DRIVE SHAFT

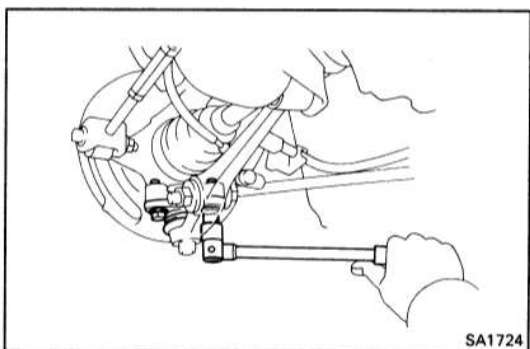
Connect the outboard joint side of the drive shaft to the axle shaft.

**NOTICE:**

- **Be careful not to damage the boots.**
- **(w/ ABS)**  
**Be careful not to damage the sensor rotor of the drive shaft.**

**5. CONNECT TIE ROD END**

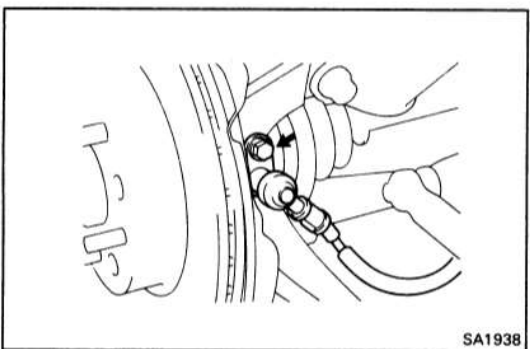
Temporarily connect the tie rod end to the rear axle carrier with the bolt and nut.

**6. CONNECT BALL JOINT TO AXLE CARRIER**

(a) Connect the ball joint to the axle shaft.

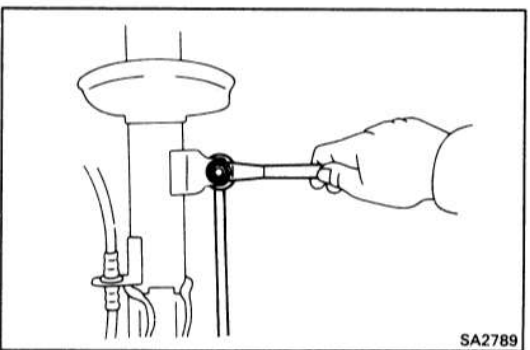
(b) Install and torque the two bolts.

**Torque 1,150 kg-cm (73 ft-lb, 113 N·m)**

**7. (W/ABS)****INSTALL SPEED SENSOR TO AXLE CARRIER**

**Torque: 80 kg-cm (69 in.-lb, 7.4 N·m)**

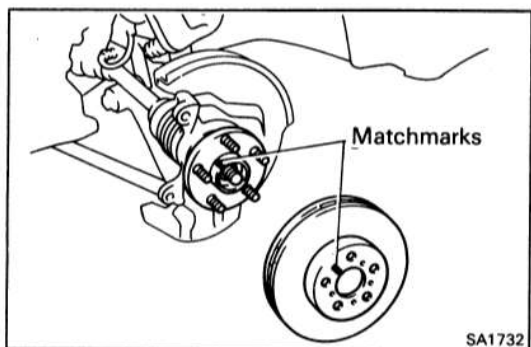
**HINT:** Before installing, check that there is no ferric chip or foreign material on the sensor tip.

**8. CONNECT STABILIZER LINK**

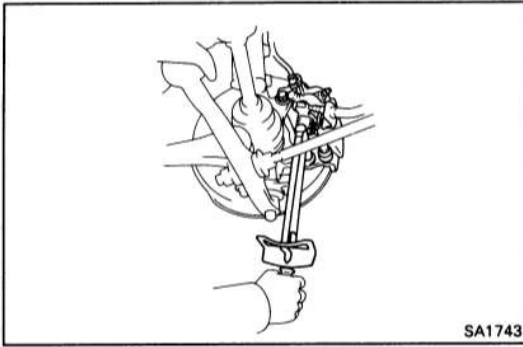
Connect the upper side to the stabilizer link.

**Torque: 500 kg-cm (36 ft-lb, 49 N·m)**

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

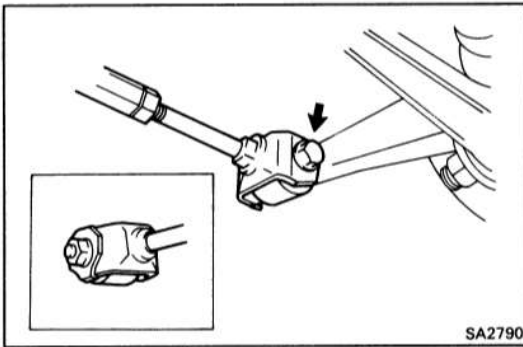
**9. INSTALL ROTOR DISC TO AXLE CARRIER**

**HINT:** Align the matchmarks, and install the rotor the axle shaft.

**10. INSTALL BRAKE CALIPER AXLE CARRIER**

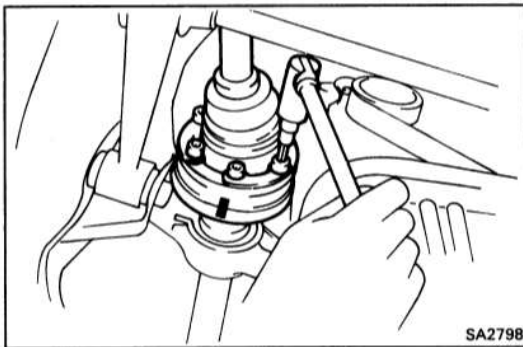
Torque the two bolts.

**Torque: 600 kg-cm (43 ft-lb, 59 N·m)**

**11. TORQUE BOLT AND NUT**

Torque the tie rod end mount bolt and nut.

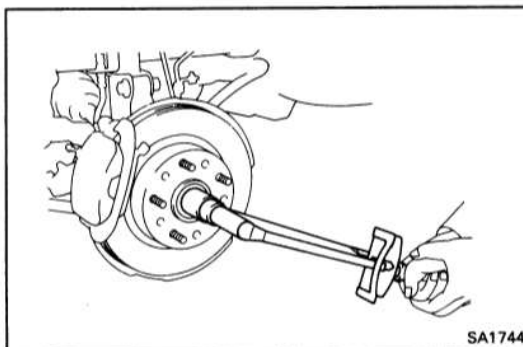
**Torque: 1,050 kg-cm (76 ft-lb, 103 N·m)**

**12. TIGHTEN INBOARD JOINT HOLDING SIX HEXAGON BOLTS**

With the parking brake engaged, using SST torque the six hexagon bolts.

SST 09043-88010

**Torque: 660 kg-cm (48 ft-lb, 65 N·m)**

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

(a) Install the lock nut.

(b) With the parking brake engaged, and tighten the nut.

**Torque: 3,000 kg-cm (217 ft-lb, 294 N·m)**

(c) Install the lock nut cap, and using pliers, install a new cotter pin.

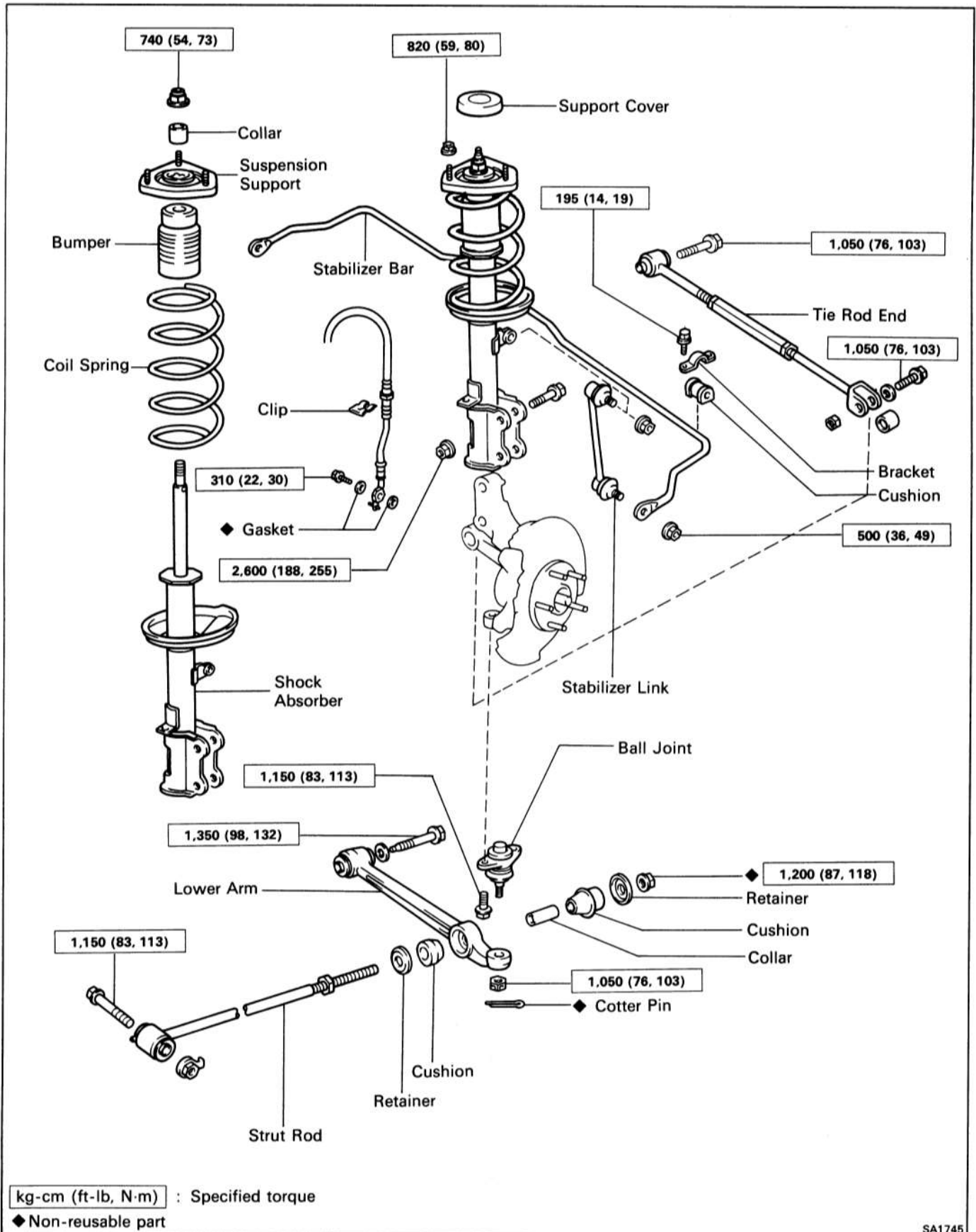
**14. FILL TRANSAXLE WITH GEAR OIL**

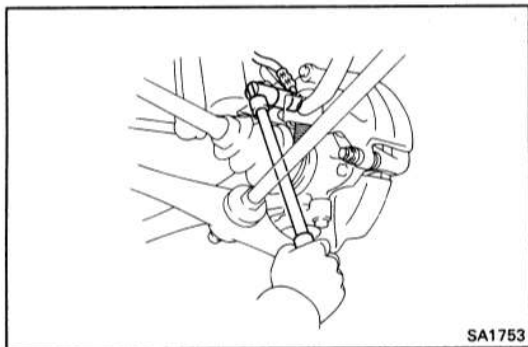
Oil grade: API GL-4 or GL-5

Viscosity: SAE 75W-90 or 85w-90

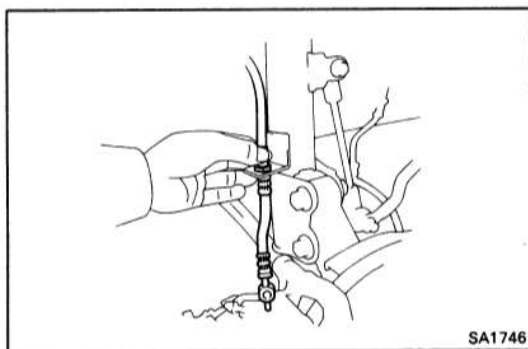
**15. INSTALL ENGINE UNDER COVER**

## REAR SUSPENSION COMPONENTS

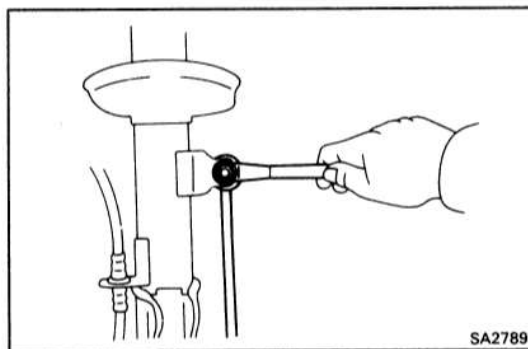




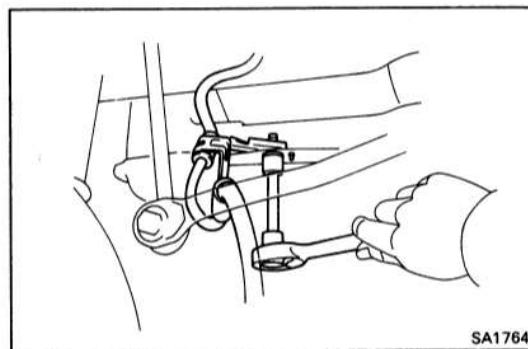
SA1753



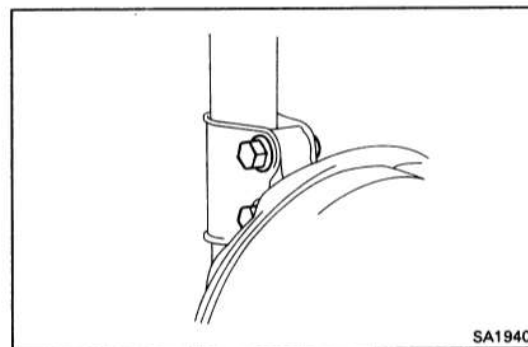
SA1746



SA2789



SA1764



SA1940

## Rear Shock Absorber

(See page SA-69)

### REMOVAL OF REAR SHOCK ABSORBER

#### 1. DISCONNECT BRAKE HOSE

- (a) Remove the hose clip.
- (b) Remove the union bolt and two gaskets and disconnect the brake hose.
- (c) Drain the brake fluid into a container.
- (d) Remove the clip and remove brake hose from the shock absorber.

#### 2. DISCONNECT STABILIZER LINK

Disconnect the stabilizer link from the shock absorber.

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.

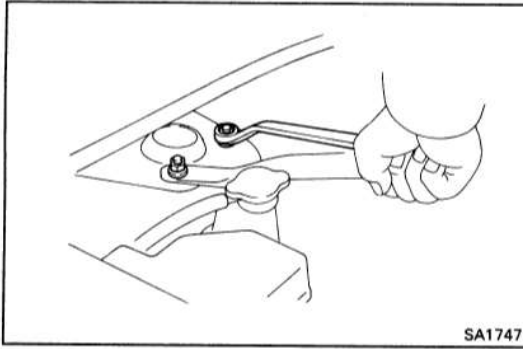
#### 3. (w/ ABS)

#### REMOVE SPEED SENSOR WIRE HARNESS CLAMP

#### 4. DISCONNECT REAR AXLE CARRIER FROM SHOCK ABSORBER

Loosen the bolts and nuts, and remove the nuts.

**HINT:** Leave the bolts not to drop the axle carrier assembly.

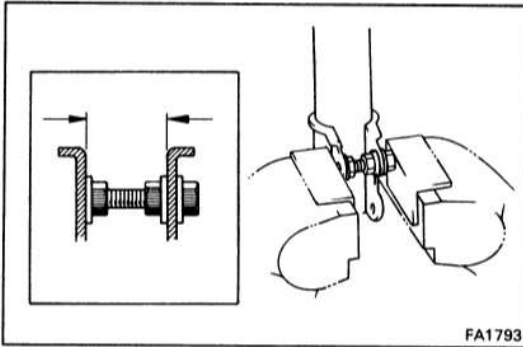


SA1747

**5. REMOVE SHOCK ABSORBER**

- (a) Remove the three suspension holding nuts.
- (b) Remove the two upper bolts and remove the axle carrier assembly.
- (c) Remove the shock absorber.

**NOTICE:** Cover the drive shaft boot with cloth to avoid damaging it.



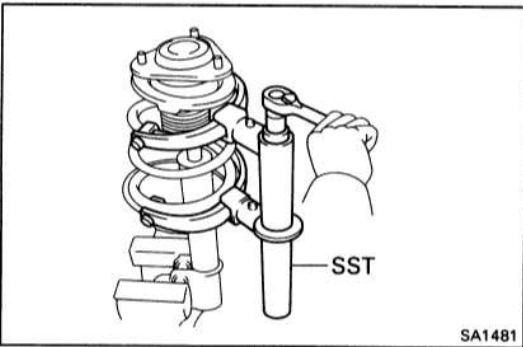
FA1793

**DISASSEMBLY OF REAR SHOCK ABSORBER**

(See page SA-69)

**1. CLAMP SHOCK ABSORBER IN VISE**

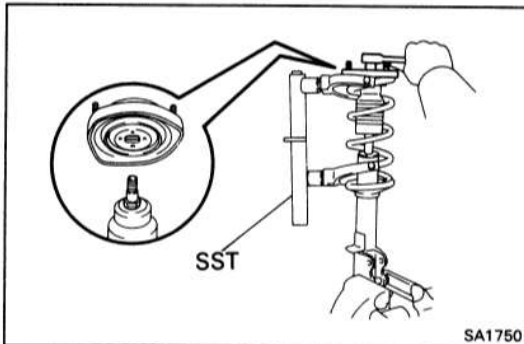
Install a bolt and two nuts to the bracket at the lower portion of the shock absorber shell and secure it in a vise.



SA1481

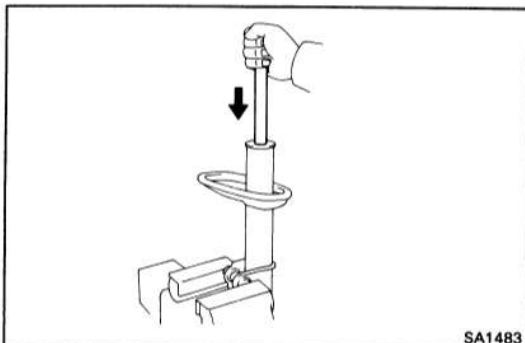
**2. REMOVE COIL SPRING**

- (a) Using SST, compress the coil spring.  
SST 09727-30020



SA1750

- (b) Hold the octagon head of the suspension support in the vise.
- (c) Remove the suspension support cover.
- (d) Remove the suspension support nut.
- (e) Remove the suspension support, coil spring, insulator and bumper.

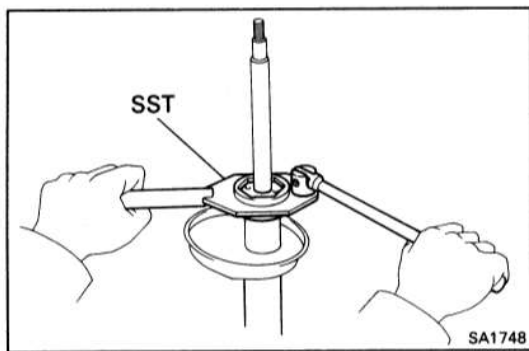


SA1483

**3. INSPECT OPERATION OF SHOCK ABSORBER**

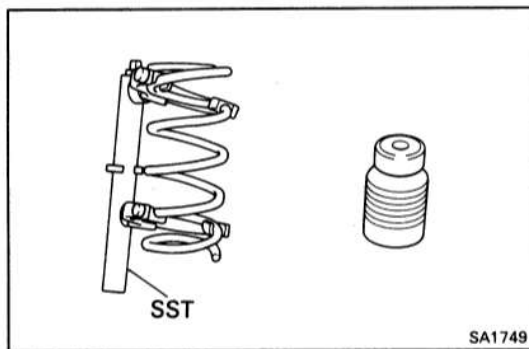
- (a) While pushing the piston rod, check that the pull throughout the stroke is even, and that there is no abnormal resistance or noise.
- (b) Push the piston rod in fully and release it. Check that it returns at a constant speed.

If the absorber operation is defective, replace the absorber, as an assembly.



**NOTICE:** Before discarding the shock absorber, first loosen the ring nut 2 or 3 turns to release the gas completely.

SST 09720-00012 (09721-00071)

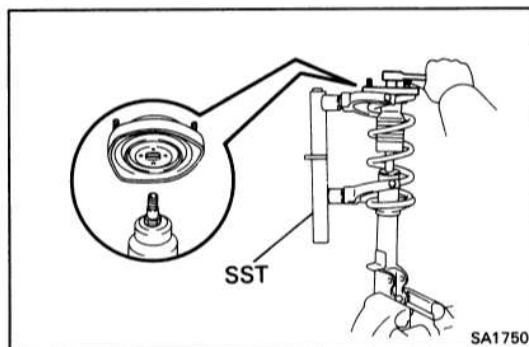


## ASSEMBLY OF REAR SHOCK ABSORBER

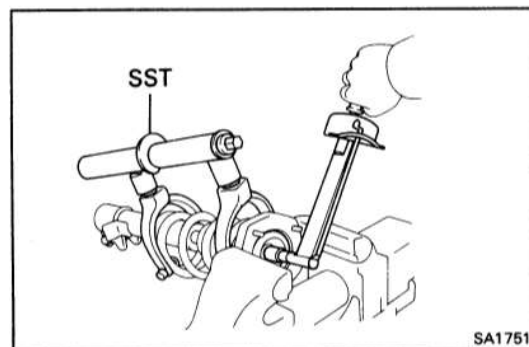
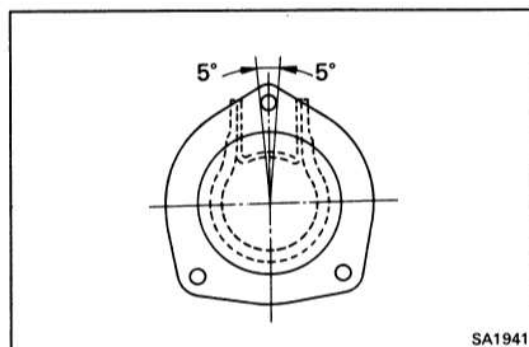
(See page SA-69)

### 1. INSTALL COIL SPRING

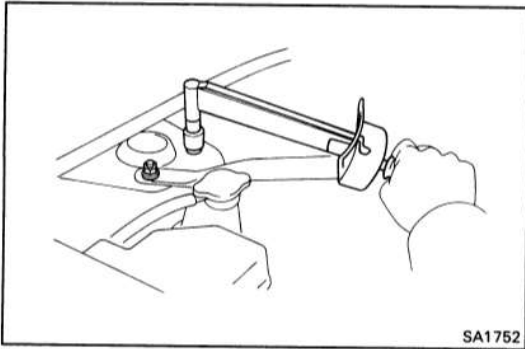
- (a) Install the bumper to piston rod.
  - (b) Using SST, compress the coil spring.  
SST 09727-30020
  - (c) Install the lower insulator.
  - (d) Align the coil spring end with the lower seat hollow and install.
  - (e) Install the suspension support to piston rod.
- HINT:** Align the piston rod notch and the suspension support hole.
- (f) Temporarily install a new suspension support nut.



- (g) Align the suspension support with the shock absorber lower bracket as shown.



- (h) Hold the octagon head of suspension support to the vise.
- (i) Torque the suspension support nut.  
**Torque: 740 kg-cm (54 ft-lb, 73 N·m)**
- (j) Install the suspension support cover.



SA1752

## INSTALLATION OF REAR SHOCK ABSORBER

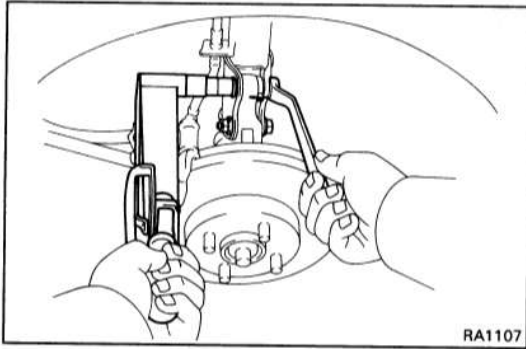
(See page SA-69)

### 1. INSTALL SHOCK ABSORBER

Install the three nuts holding the shock absorber to the body. Torque the nuts.

**Torque:** 820 kg-cm (59 ft-lb, 80 N·m)

**NOTICE:** Be careful not to damage the drive shaft boot.



RA1107

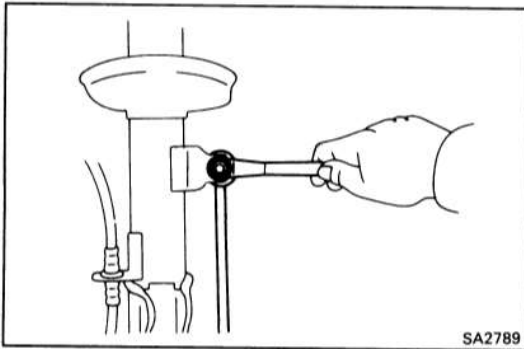
### 2. INSTALL REAR AXLE CARRIER TO SHOCK ABSORBER

(a) Connect the axle carrier to the shock absorber lower bracket.

(b) Insert the two bolts from the rear side.

(c) Torque the nuts.

**Torque:** 2,600 kg-cm (188 ft-lb, 255 N·m)



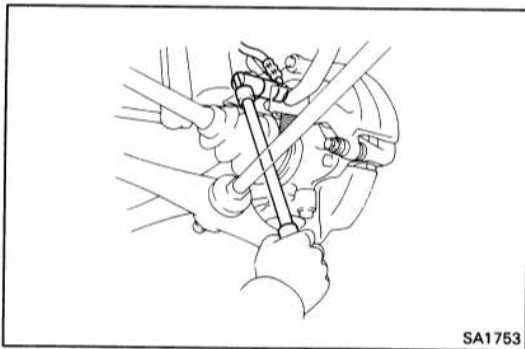
SA2789

### 3. CONNECT STABILIZER LINK

Connect the stabilizer link with the nut.

**Torque:** 500 kg-cm (36 ft-lb, 49 N·m)

**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.



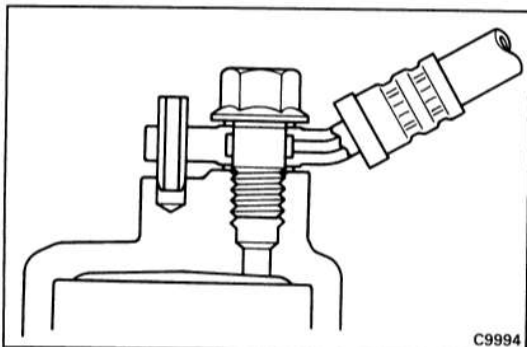
SA1753

### 4. CONNECT BRAKE HOSE

(a) Install the brake hose and clip to the shock absorber.

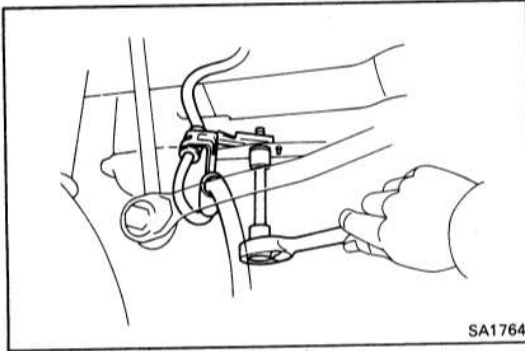
(b) Install the union bolt and two gaskets and torque the union bolt.

**Torque:** 310 kg-cm (22 ft-lb, 30 N·m)



C9994

**HINT:** Insert the flexible hose lock securely in the lock hole in the brake caliper.



5. (w/ ABS)  
**INSTALL SPEED SENSOR WIRE HARNESS CLAMP**  
Install ABS speed sensor wire harness clamp to suspension cross member wire harness with the bolt.  
Torque: 55 kg-cm (48 in.-lb, 5.4 N·m)

6. **BLEED BRAKE LINE**  
(See page BR-7)
7. **INSPECT REAR WHEEL ALIGNMENT**  
(See page SA-6)

## Ball Joints

(See page SA-69)

### INSPECTION AND REMOVAL OF BALL JOINTS

#### 1. INSPECT BALL JOINTS FOR EXCESSIVE LOOSENESS

- Jack up the rear of vehicle and place wooden blocks with a height of 180 – 200 mm (7.09 – 7.87 in.) under one rear tire.
- Lower the jack until there is about half a load on the front coil spring. Place stands under the vehicle for safety.
- Move the lower arm up and down and check that the ball joint has no excessive play.

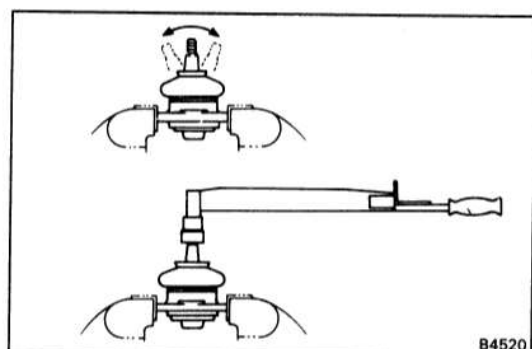
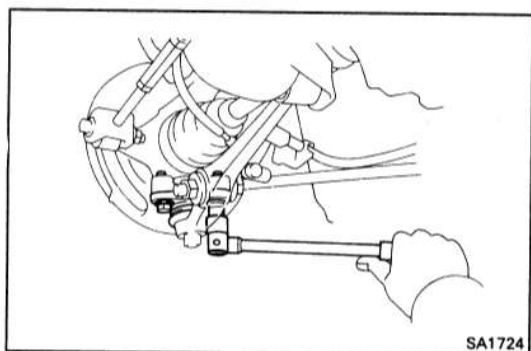
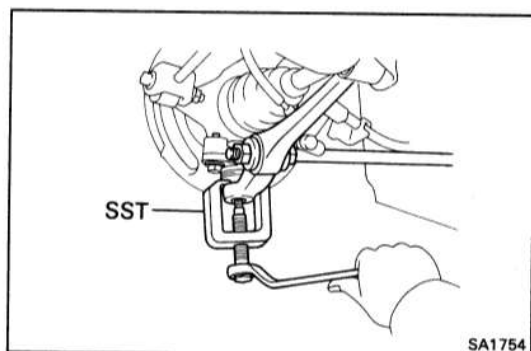
Ball joint vertical play: 0 mm (0 in.)

#### 2. REMOVE BALL JOINTS

- Remove the cotter pin and nut from the lower arm.
- Using SST, disconnect the ball joint from the lower arm.

SST 09628-62011

- Remove the two bolts and ball joint from the rear axle carrier.

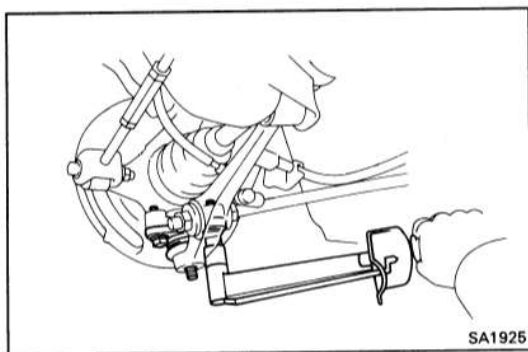


#### 3. INSPECT BALL JOINT FOR ROTATION CONDITION

- Flip the ball joint stud back and forth 5 times as shown in the figure, 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): 15 – 30 kg-cm (13 – 26 in.-lb, 1.47 – 2.94 N·m)

If not within specification, replace the ball joint.



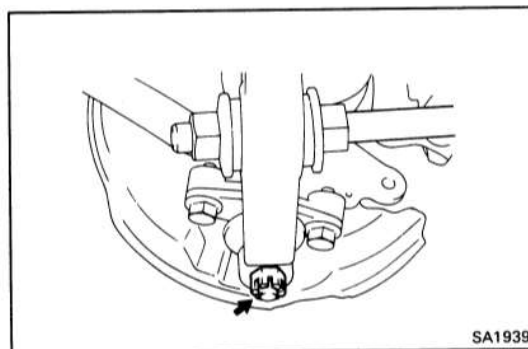
## INSTALLATION OF BALL JOINT

(See page SA-69)

### 1. INSTALL BALL JOINT TO REAR AXLE CARRIER

Install the ball joint in place with the two bolts.

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



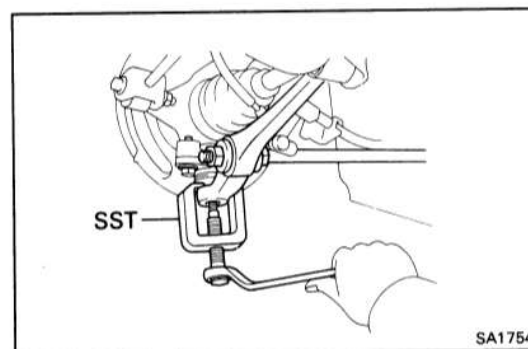
### 2. CONNECT LOWER ARM

(a) Connect the lower arm to the ball joint.

(b) Torque the nut.

**Torque: 930 kg-cm (67 ft-lb, 91 N·m)**

(c) Install a new cotter pin.



## Lower Arm

(See page SA-69)

## REMOVAL OF LOWER ARM

### 1. DISCONNECT LOWER ARM FROM BALL JOINT

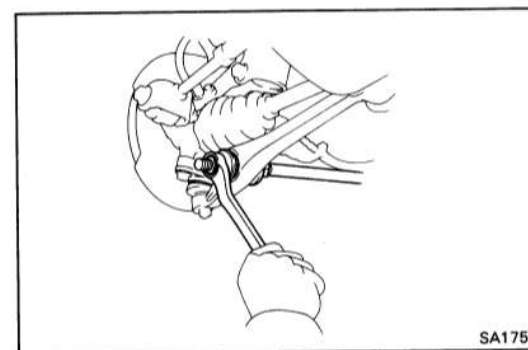
(a) Remove the cotter pin and nut.

(b) Using SST, disconnect the lower arm from the ball joint.

SST 09628-62011

### 2. REMOVE STRUT ROD NUT AND RETAINER

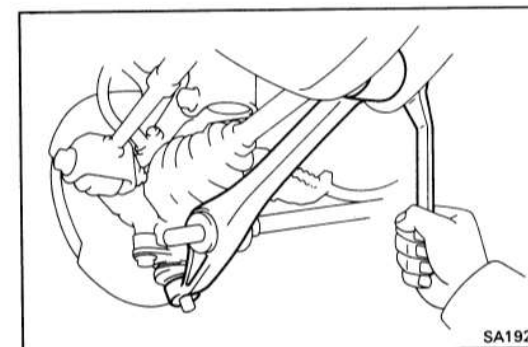
Remove a new strut rod nut and retainer from the lower arm.

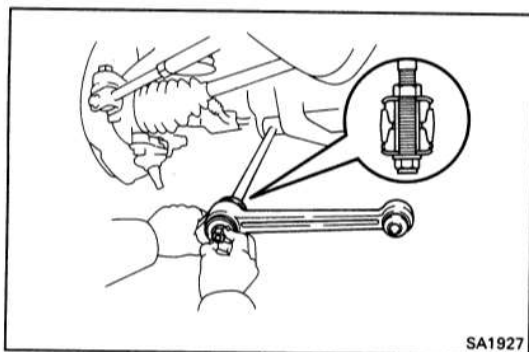


### 3. REMOVE LOWER ARM

(a) Remove the bolt holding the lower arm to the body and remove the lower arm.

(b) Remove the strut rod cushion, collar and retainer from the lower arm.



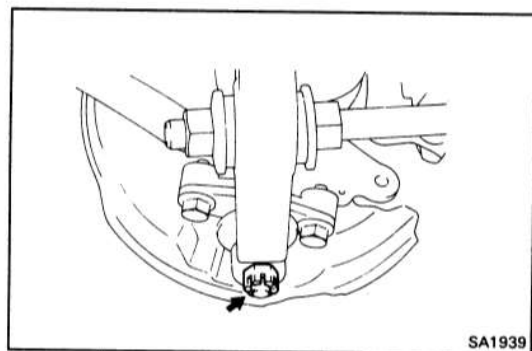
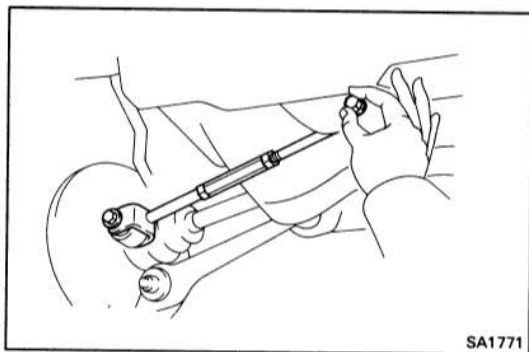


## INSTALLATION OF LOWER ARM

(See page SA-69)

### 1. INSTALL LOWER ARM

- Install the strut rod retainer, cushion and collar to the strut rod.
- Connect the lower arm to the strut rod.
- Temporarily install the strut rod nut.
- Install the lower arm to the body. Do not torque the bolt.

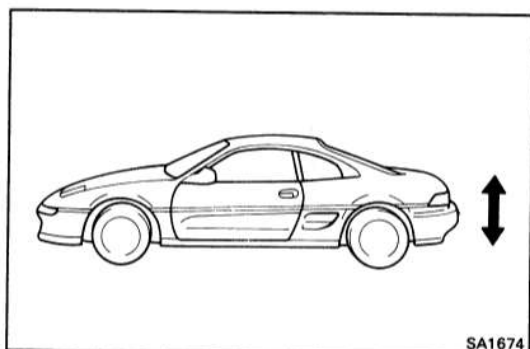


### 2. CONNECT LOWER ARM TO BALL JOINT

- Connect the lower arm to the ball joint.
- Torque the nut.

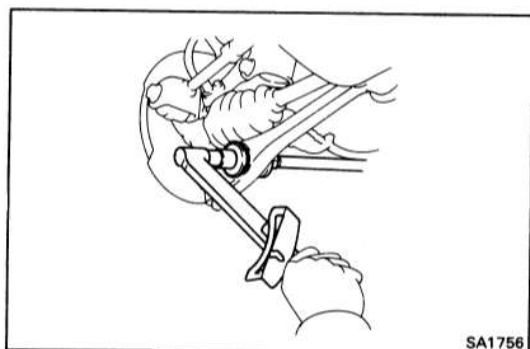
**Torque: 930 kg-cm (67 ft-lb, 91 N·m)**

- Install a new cotter pin.



### 3. INSTALL WHEEL AND LOWER VEHICLE

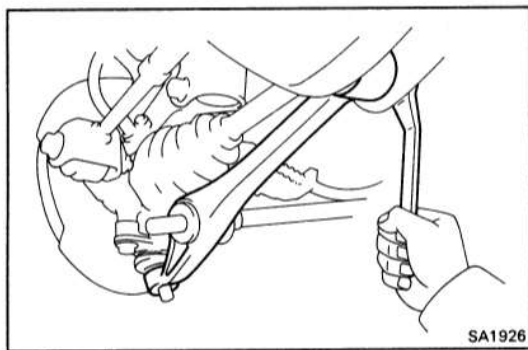
- Rock the vehicle up and down to stabilize the suspension.



### 4. TIGHTEN LOWER ARM HOLDING NUT

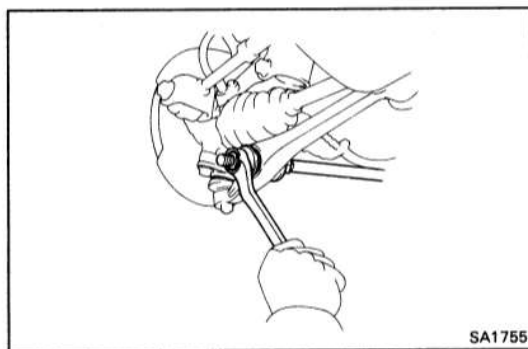
- Torque the strut rod nut.

**Torque: 1,200 kg-cm (87 ft-lb, 118 N·m)**



- (b) Torque the lower arm holding nut.  
Torque: 1,350 kg-cm (98 ft-lb, 132 N·m)

## 5. INSPECT REAR WHEEL ALIGNMENT

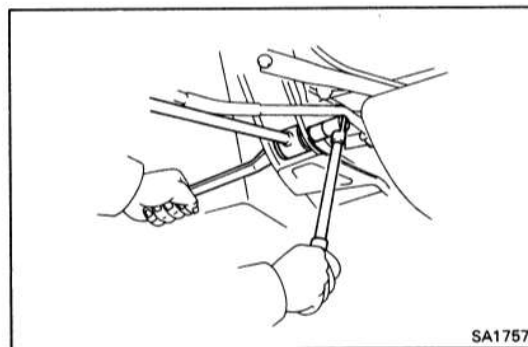


## Strut Rod

(See page SA-69)

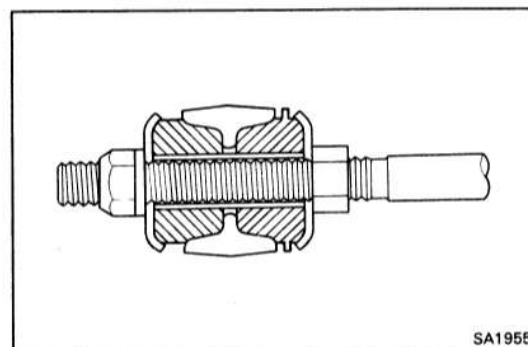
## REMOVAL OF STRUT ROD

### 1. REMOVE STRUT ROD NUT AND RETAINER



### 2. REMOVE STRUT ROD

- Remove the strut rod holding nut.
- Remove the cushion collar and retainer from the strut rod.



## INSTALLATION OF STRUT ROD

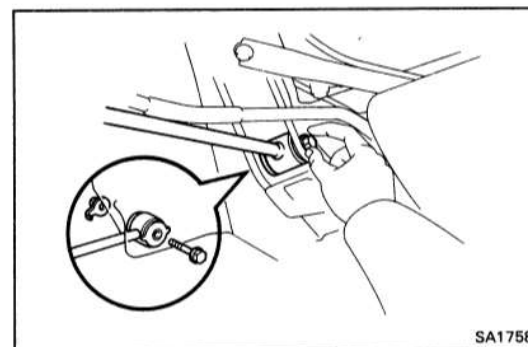
(See page SA-69)

### 1. INSTALL REAR SUSPENSION ARM No.1

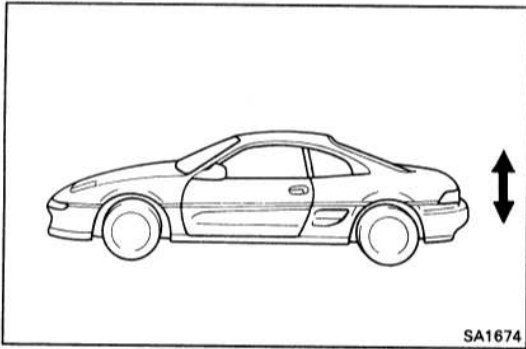
- Install the retainers, cushions, collar and suspension arm No.1 to the strut rod with the nut as shown.

#### NOTICE:

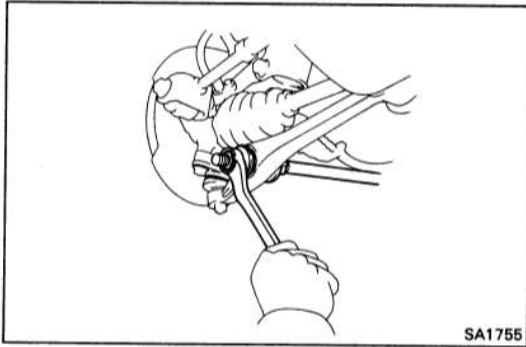
- Install the nut to the bolt end.
- Do not misinstall the front and rear cushions.



- Temporarily install the strut rod holding bolt and nut and cushion to the body.

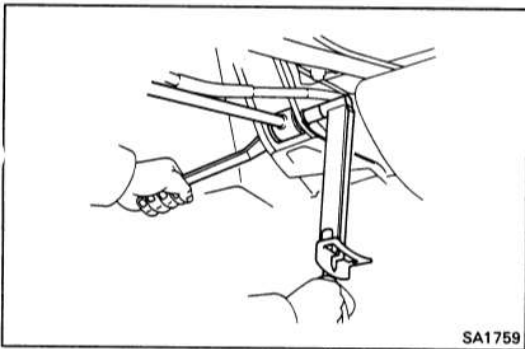
**2. INSTALL WHEEL AND LOWER VEHICLE**

Rock the vehicle up and down to stabilize the suspension.

**3. TIGHTEN STRUT ROD INSTALLATION NUT**

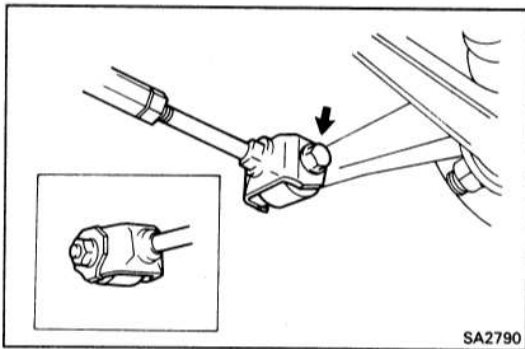
Tighten the strut rod installation nut of the lower arm side.

**Torque: 1,200 kg-cm (87 ft-lb, 118 N·m)**

**4. TIGHTEN STRUT ROD INSTALLATION BOLT**

Tighten the strut rod installation bolt of the body side.

**Torque: 1,200 kg-cm (87 ft-lb, 118 N·m)**

**Suspension Arm**

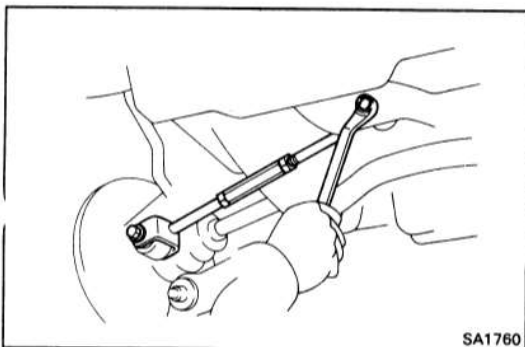
(See page SA-69)

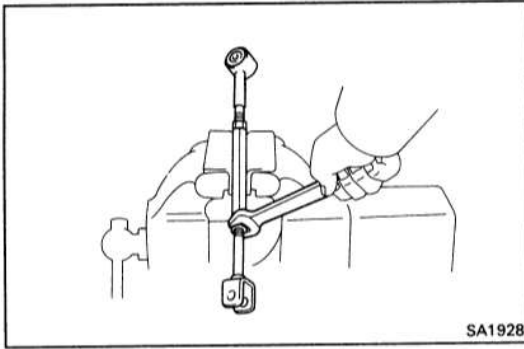
**REMOVAL OF SUSPENSION ARM****1. DISCONNECT SUSPENSION ARM**

Loosen the bolt and nut.

**2. REMOVE SUSPENSION ARM FROM BODY**

- (a) Remove the suspension arm holding bolt.
- (b) Disconnect the suspension arm from the body.
- (c) Remove the bolt, nut and suspension.



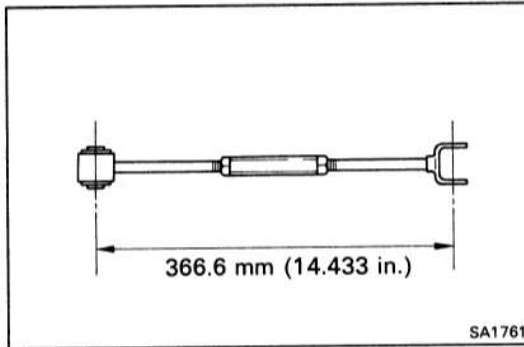


## DISASSEMBLY OF SUSPENSION ARM NO.1

(See page SA-69)

### DISASSEMBLE SUSPENSION ARM

- Loosen the tie rod adjusting tube two nuts.
- Turn the tie rod adjusting tube, and remove the tie rod end and the suspension arm No.2.



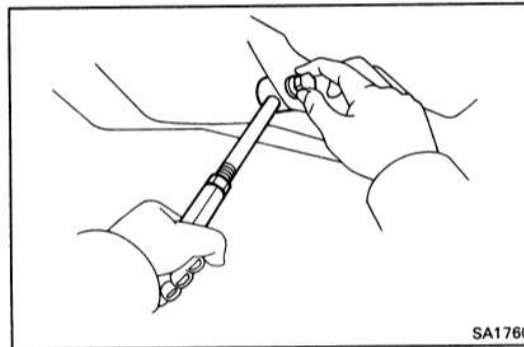
## ASSEMBLY OF SUSPENSION ARM

(See page SA-69)

### INSTALL TIE ROD END AND SUSPENSION ARM TO TIE ROD TUBE

- Install the tie adjusting tube, tie rod adjusting tube nuts, tie rod end and rear suspension arm No.2. tie rod tube.
- Adjust the rear suspension arm No.2.
- Temporarily tighten the tie rod adjusting tube nut.

**HINT:** Fully tighten after adjusting the rear wheel alignment.



## INSTALLATION OF SUSPENSION ARM

(See page SA-69)

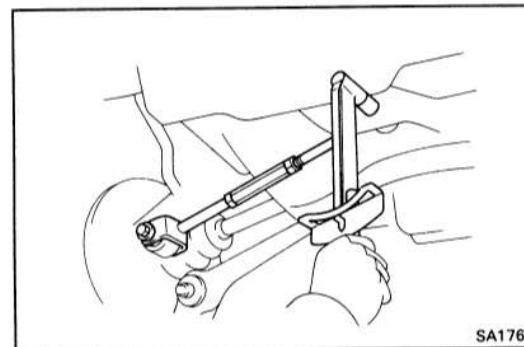
### 1. INSTALL SUSPENSION ARM TO BODY

Temporarily connect the suspension arm to the body with the bolt.

### 2. INSTALL SUSPENSION ARM TO REAR AXLE CARRIER

Install the suspension arm to the rear axle carrier with the bolt and nut.

**Torque:** 1,050 kg-cm (76 ft-lb, 103 N·m)



### 3. INSTALL WHEEL AND LOWER VEHICLE

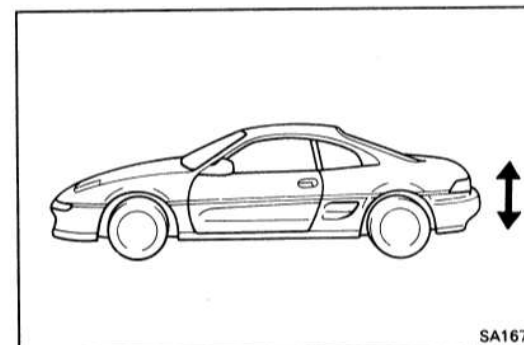
- Install the wheel and lower the vehicle.
- Bounce the vehicle up and down to stabilize the suspension.

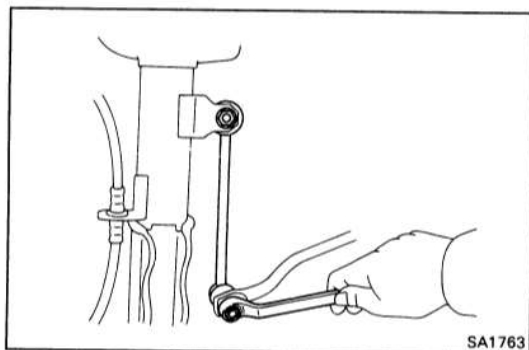
### 4. TORQUE SUSPENSION ARM HOLDING BOLT

**Torque:** 1,050 kg-cm (76 ft-lb, 103 N·m)

### 5. INSPECT REAR WHEEL ALIGNMENT

(See page SA-6)





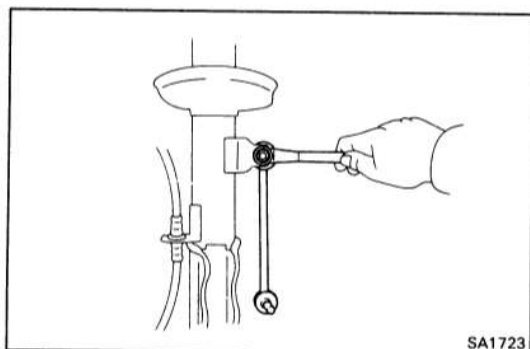
## Rear Stabilizer Bar and Link

(See page SA-69)

### REMOVAL OF STABILIZER BAR

1. **DISCONNECT STABILIZER LINK FROM STABILIZER BAR**

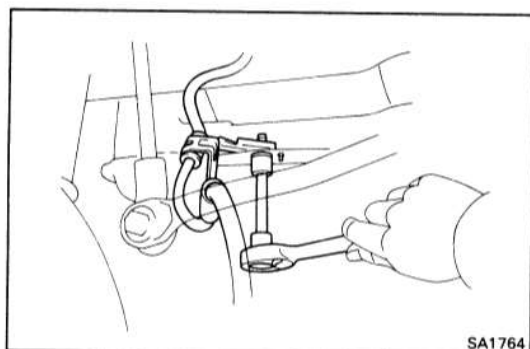
Remove the nuts and remove the stabilizer link from the stabilizer bar.



2. **REMOVE STABILIZER LINK**

Remove the stabilizer link from the shock absorber.

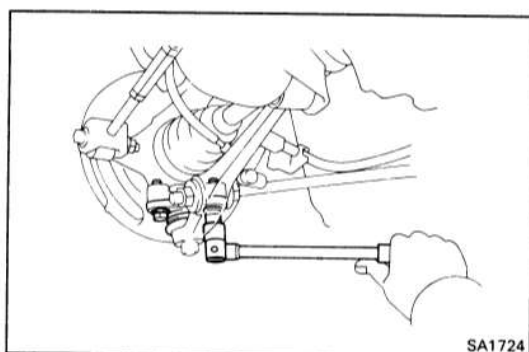
**HINT:** If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.



3. **(w/ ABS)**

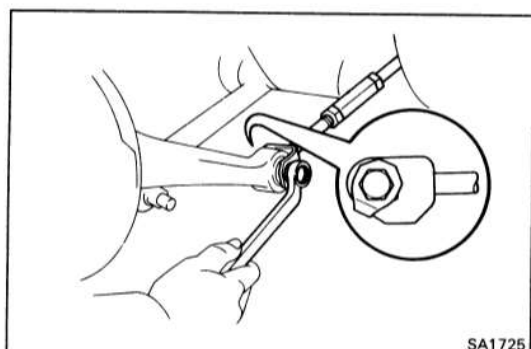
### REMOVE SPEED SENSOR BRACKET

Remove the bolt and disconnect the speed sensor bracket from the rear suspension crossmember.



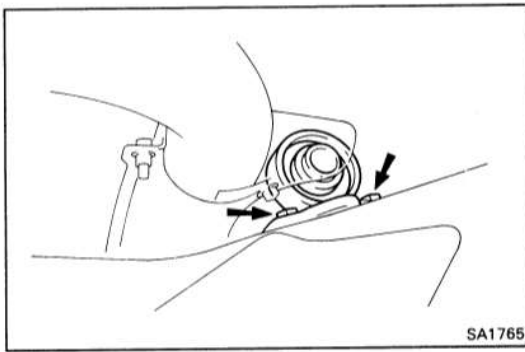
4. **DISCONNECT REAR AXLE CARRIER FROM LOWER ARM**

- (a) Remove the two bolts holding the lower arm to ball joint.
- (b) Disconnect the ball joint.



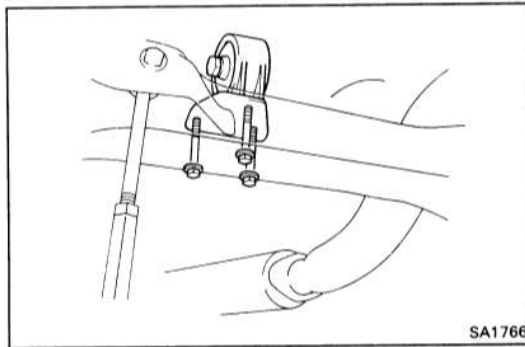
5. **DISCONNECT REAR AXLE CARRIER FROM SUSPENSION ARM**

Disconnect the suspension arm from the rear axle carrier.



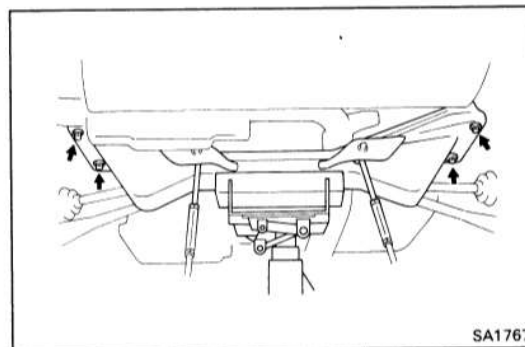
**6. DISCONNECT EXHAUST PIPE MOUNTING FROM REAR SUSPENSION CROSSMEMBER**

Remove the two exhaust pipe mounting installation bolts.



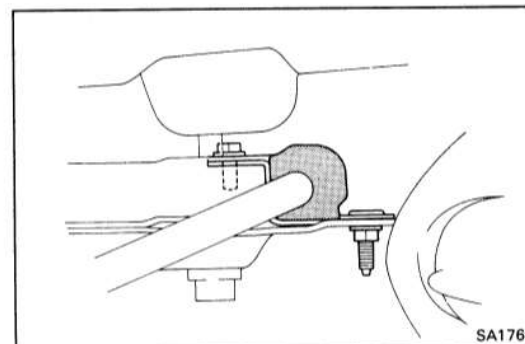
**7. DISCONNECT REAR ENGINE MOUNT FROM REAR SUSPENSION CROSSMEMBER**

Remove the three installation bolts of the rear engine mounting.



**8. REMOVE SUSPENSION CROSSMEMBER MOUNTING BOLTS**

- (a) Hold the rear suspension crossmember with a jack.
- (b) Remove the four bolts, then remove the rear suspension crossmember.



**9. REMOVE STABILIZER BAR**

- (a) Lift down the crossmember until the front side bolt of the stabilizer bar bracket can be removed.

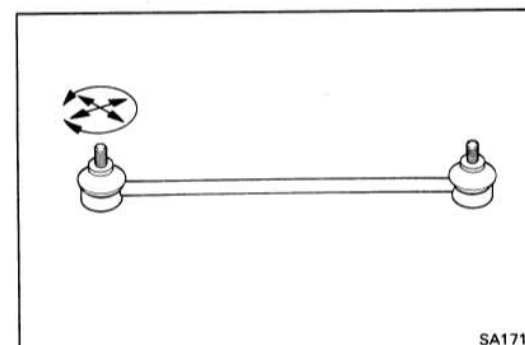
**HINT:** Be careful not to damage the exhaust pipe by shoving with the stabilizer bar.

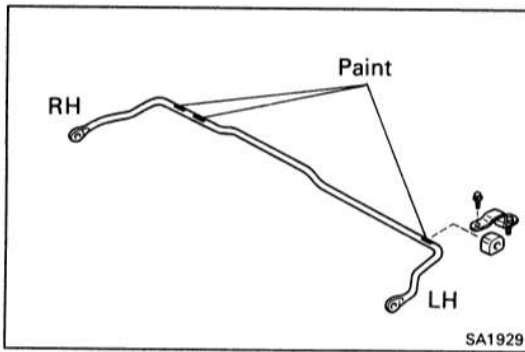
- (b) Remove the two bolts and two nuts.
- (c) Remove the stabilizer bar with brackets.
- (d) Remove the brackets and cushions from the stabilizer bar.

**INSPECTION OF STABILIZER LINK**

**INSPECT STABILIZER LINK**

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





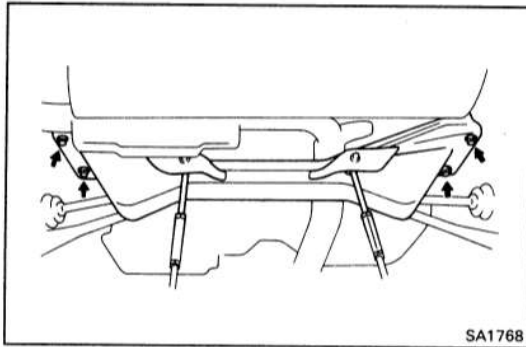
## INSTALLATION OF STABILIZER BAR

(See page SA-69)

### 1. INSTALL STABILIZER BAR

- Install the cushions and brackets touching the line painted on the stabilizer bar.
- Install the stabilizer bar to the rear suspension crossmember and tighten the bracket bolts.

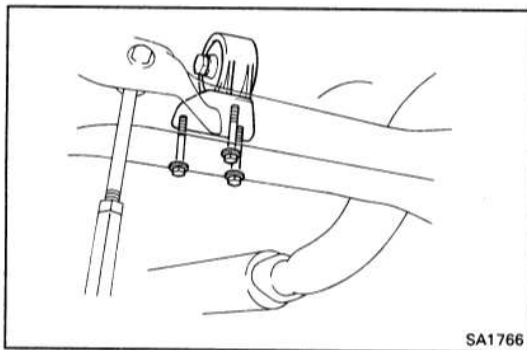
**Torque: 195 kg-cm (14 ft-lb, 19 N·m)**



### 2. INSTALL SUSPENSION CROSSMEMBER

Install the suspension crossmember in place, then install and tighten the four bolts.

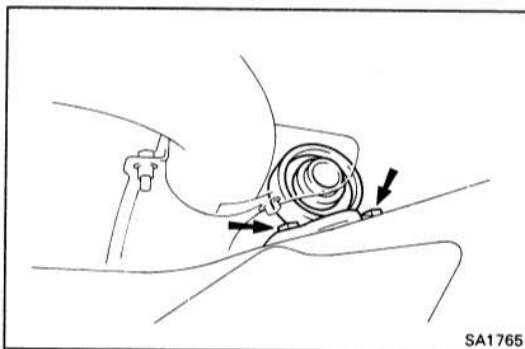
**Torque: 1,150 kg-cm (83 ft-lb, 113 N·m)**



### 3. CONNECT REAR ENGINE MOUNTING TO REAR SUSPENSION CROSSMEMBER

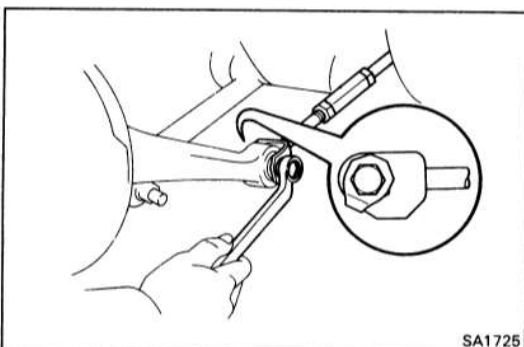
Connect the engine mount to rear suspension crossmember in place with the three bolts.

**Torque: 790 kg-cm (57 ft-lb, 77 N·m)**



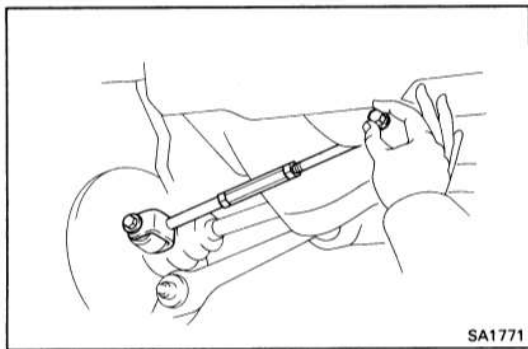
### 4. CONNECT EXHAUST PIPE MOUNTING TO REAR SUSPENSION CROSSMEMBER

**Torque: 210 kg-cm (15 ft-lb, 21 N·m)**

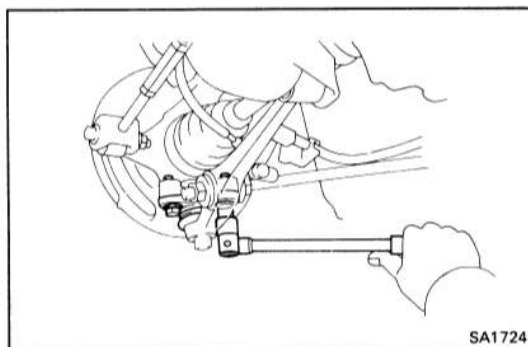


### 5. CONNECT SUSPENSION ARM TO REAR AXLE CARRIER

- Connect the suspension arm to the rear axle carrier with the bolt and nut.

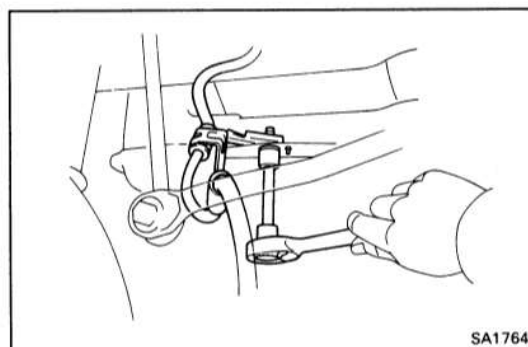


(b) Similarly connect the other side suspension arm.



**6. INSTALL REAR AXLE CARRIER TO LOWER ARM**

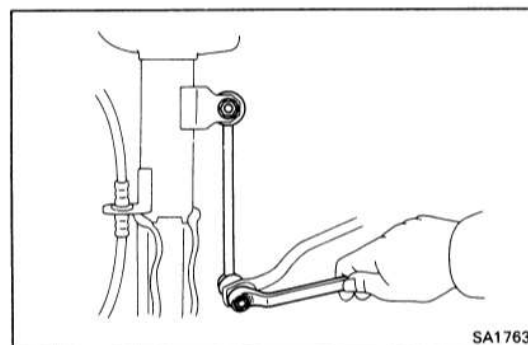
**Torque: 1,150 kg-cm (83 ft-lb, 113 N·m)**



**7. (w/ ABS)  
INSTALL ABS SPEED SENSOR BRACKET TO REAR  
SUSPENSION CROSSMEMBER**

Install the ABS speed sensor bracket to the rear suspension crossmember.

**Torque: 55 kg-cm (48 in.-lb, 5.4 N·m)**

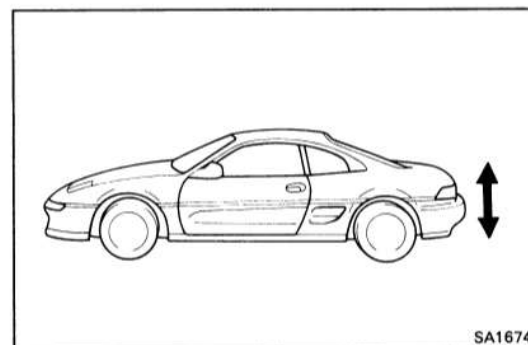


**8. INSTALL STABILIZER LINK**

Install the stabilizer link with the nuts.

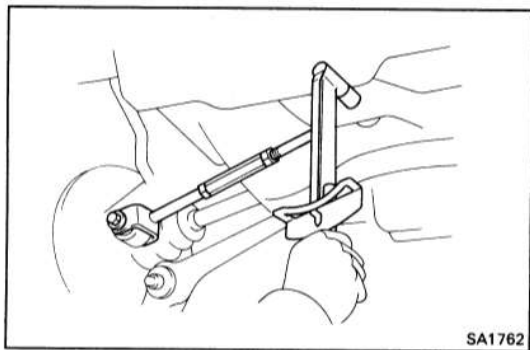
**Torque: 500 kg-cm (36 ft-lb, 49 N·m)**

**HINT:** If the ball joint stud together with the nut, use hexagon wrench 5 mm (0.197 in.) to hold the stud.



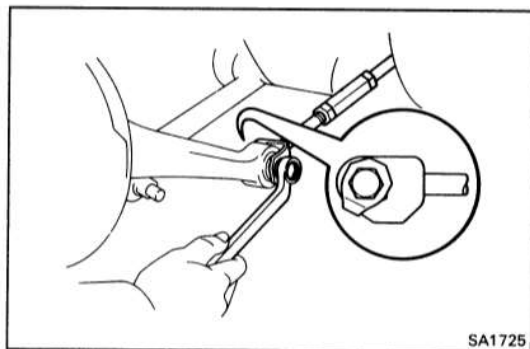
**9. INSTALL WHEEL AND LOWER VEHICLE**

Rock the vehicle up and down to stabilize the suspension.

**10. TIGHTEN SUSPENSION ARM INSTALLATION BOLTS**

(a) Tighten the crossmember side bolt.

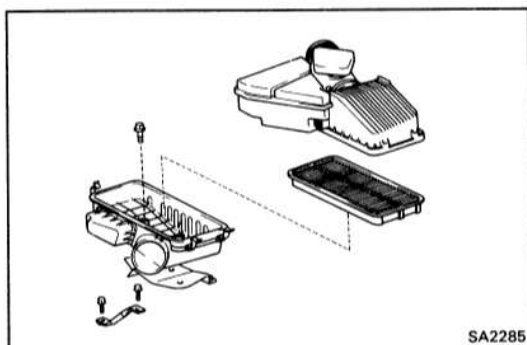
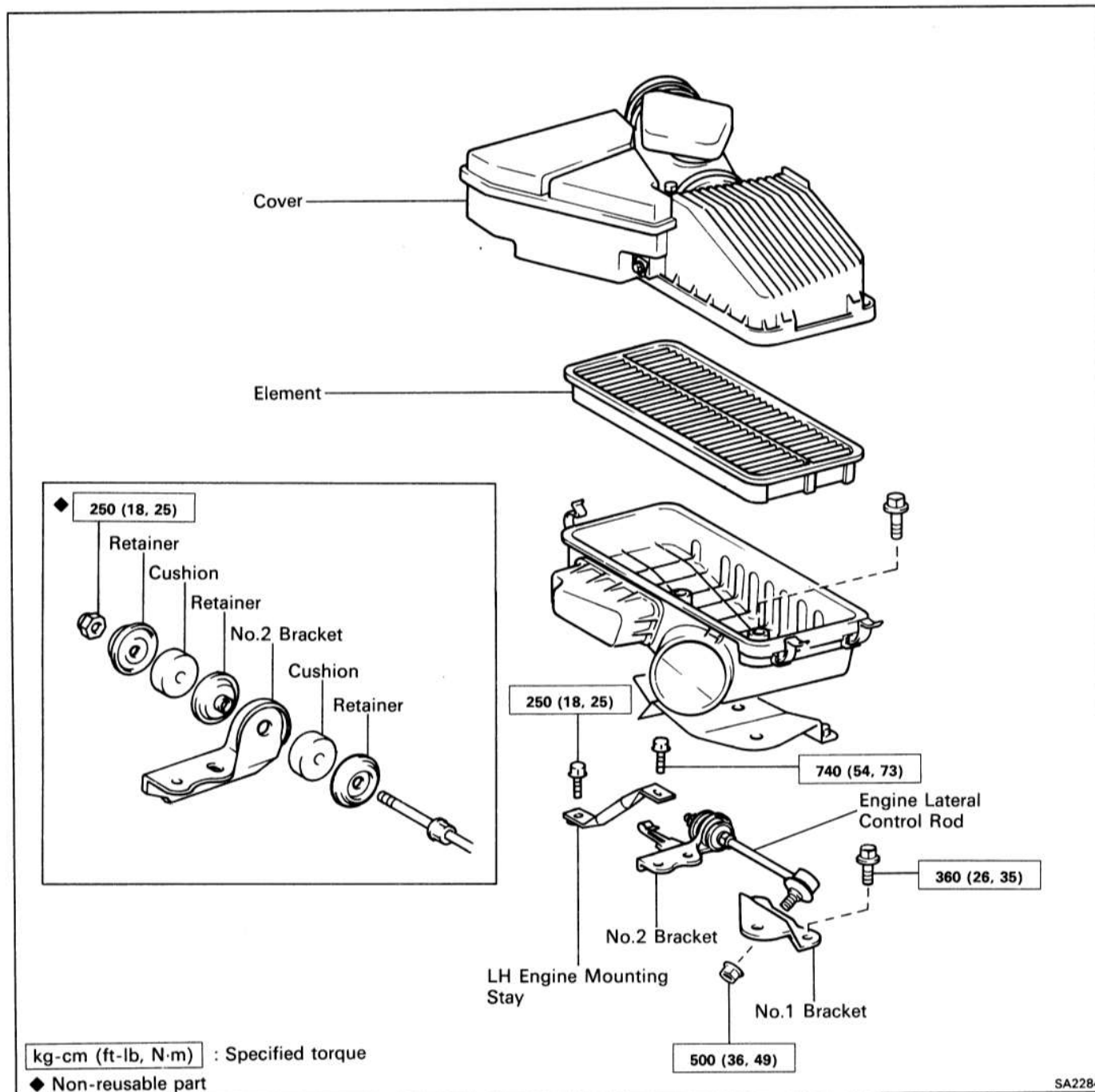
**Torque: 1,050 kg-cm (76 ft-lb, 103 N·m)**



(b) Tighten axle carrier side bolt.

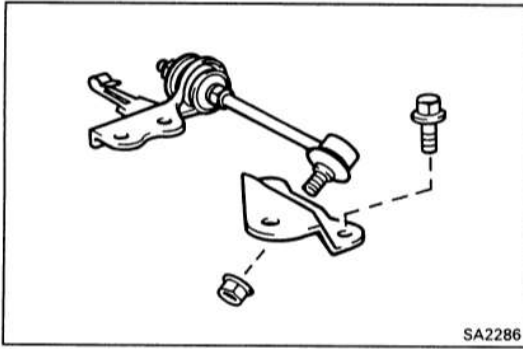
**Torque: 1,050 kg-cm (76 ft-lb, 103 N·m)**

## Engine Lateral Control Rod COMPONENTS



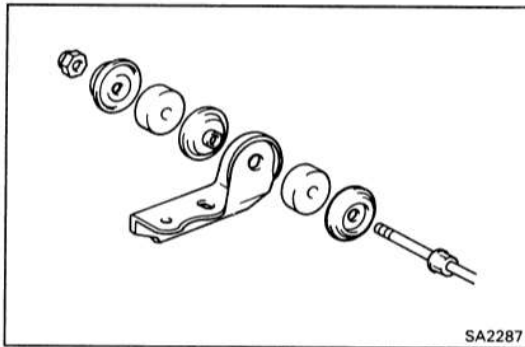
### REMOVAL OF ENGINE LATERAL CONTROL ROD

1. REMOVE AIR CLEANER ASSEMBLY
2. REMOVE LH ENGINE MOUNTING STAY



### 3. REMOVE ENGINE LATERAL CONTROL ROD

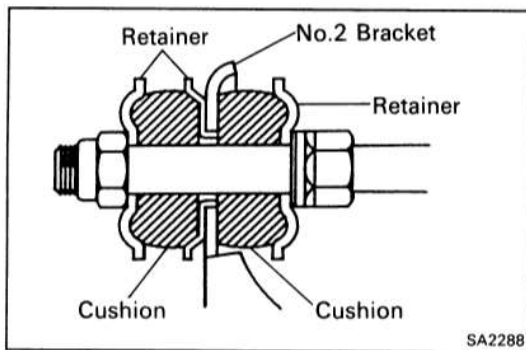
- (a) Remove the engine lateral control rod with the No.1 and No.2 brackets.
- (b) Remove the engine lateral control rod from the engine No.1 lateral control rod brackets.



### 4. DISASSEMBLE ENGINE LATERAL CONTROL ROD

Remove the following parts.

- Nut
- Three retainers
- Two cushions
- No.2 bracket

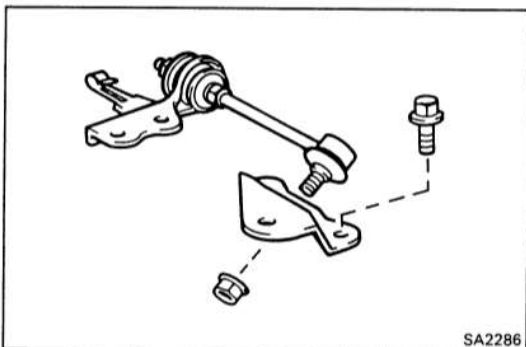


## INSTALLATION OF LATERAL CONTROL ROD

### 1. ASSEMBLE ENGINE LATERAL CONTROL ROD

Assemble the parts in the correct direction as shown.

Torque: 250 kg-cm (18 ft-lb, 25 N·m)



### 2. INSTALL ENGINE LATERAL CONTROL ROD

- (a) Install the No.1 bracket to the control rod.

Torque: 500 kg-cm (36 ft-lb, 49 N·m)

- (b) Install the control rod in place and torque the No.1 bracket installation bolts.

Torque: 360 kg-cm (26 ft-lb, 35 N·m)

- (c) Install and torque the No.2 bracket installation bolt.

Torque: 740 kg-cm (54 ft-lb, 73 N·m)

### 3. INSTALL LH ENGINE MOUNTING STAY

Torque:

|                   |                              |
|-------------------|------------------------------|
| No.2 bracket side | 740 kg-cm (54 ft-lb, 73 N·m) |
| Body side         | 250 kg-cm (18 ft-lb, 25 N·m) |

### 4. INSTALL AIR CLEANER ASSEMBLY

