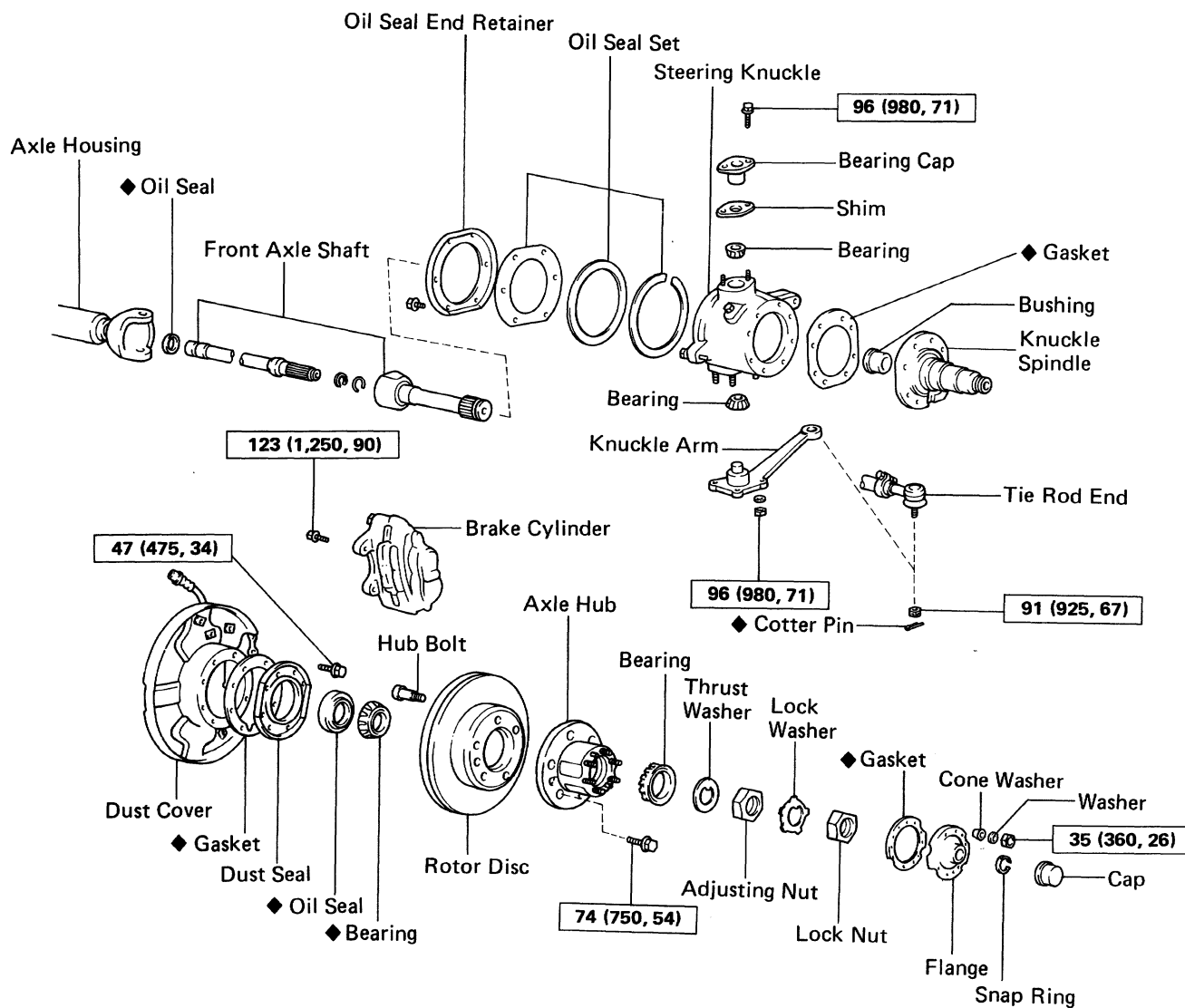
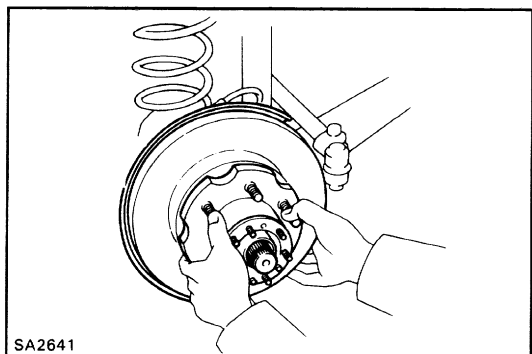


STEERING KNUCKLE AND AXLE SHAFT COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

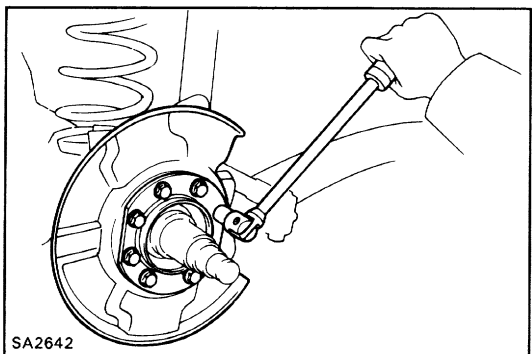


DISASSEMBLY OF STEERING KNUCKLE AND AXLE SHAFT

(See page SA-13)

1. REMOVE FRONT AXLE HUB

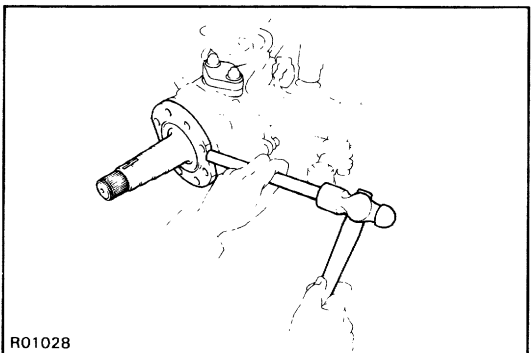
(See page SA-6)



2. REMOVE KNUCKLE SPINDLE MOUNTING BOLTS

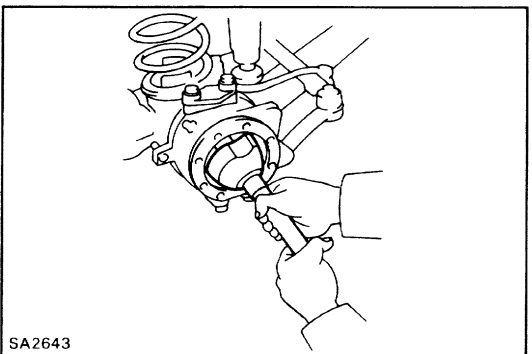
3. REMOVE DUST SEAL AND DUST COVER

Remove the eight bolts and the dust seal, dust cover and gasket.



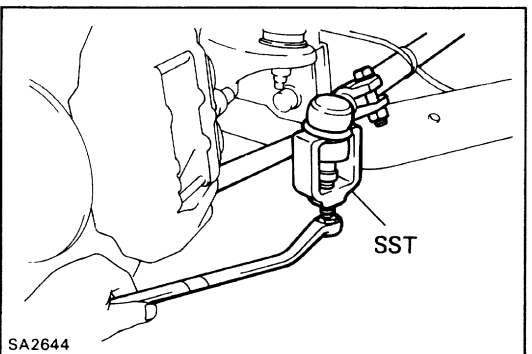
4. REMOVE KNUCKLE SPINDLE

Using a brass bar and hammer, tap the knuckle spindle off the steering knuckle.



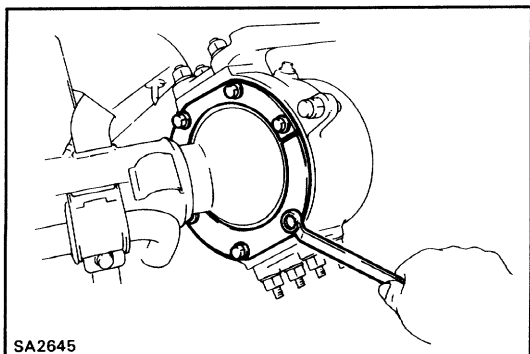
5. REMOVE AXLE SHAFT

Position one flat part of the outer shaft upward and pull out the axle shaft.

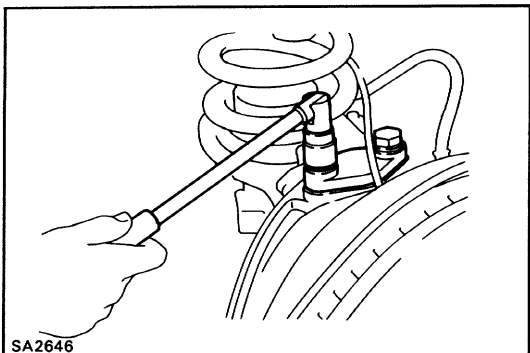


6. DISCONNECT TIE ROD END FROM KNUCKLE ARM

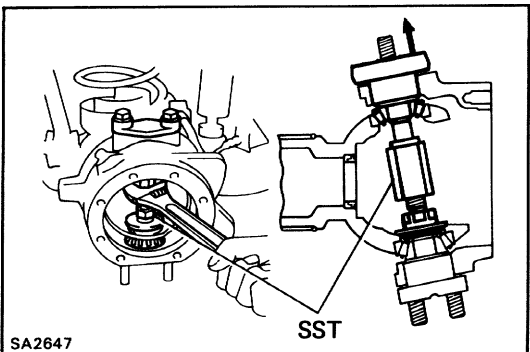
- Remove the cotter pin and castle nut.
- Using SST, disconnect the tie rod end from the knuckle arm.
SST 09611-22012

**7. REMOVE OIL SEAL END RETAINER**

Remove the six bolts and the retainer.

**8. REMOVE KNUCKLE ARM AND BEARING CAP**

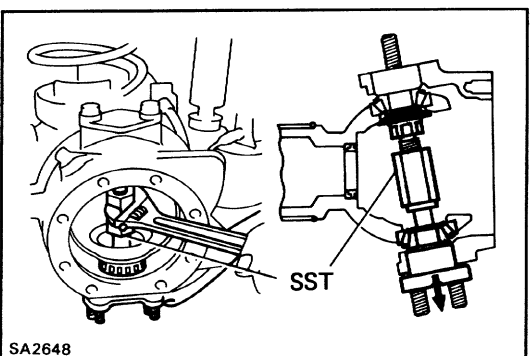
(a) Remove the knuckle and bearing cap mounting nuts.



(b) Using SST, push out the knuckle arm and shims from the steering knuckle.

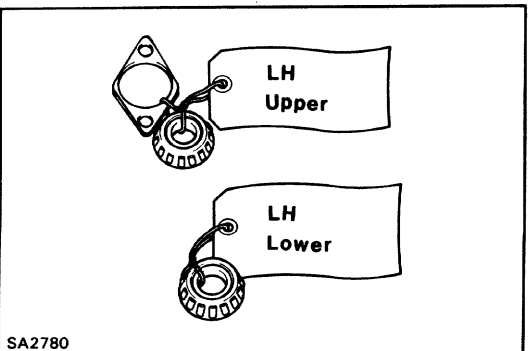
SST 09606-60020

HINT: Use the SST without a collar.



(c) Using SST, push out the bearing cap and shims from the steering knuckle.

SST 09606-60020

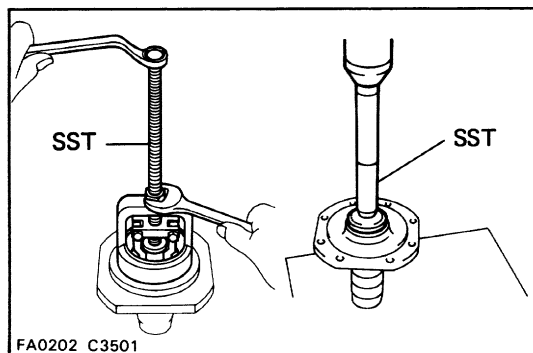
**9. REMOVE STEERING KNUCKLE AND BEARING**

HINT: Mark the removed adjusting shims and bearings so as to enable reassembling them to their proper positions.

INSPECTION AND REPAIR OF STEERING KNUCKLE AND AXLE SHAFT

1. INSPECT KNUCKLE SPINDLE

Clean the knuckle spindle and inspect the bushing for wear or damage.

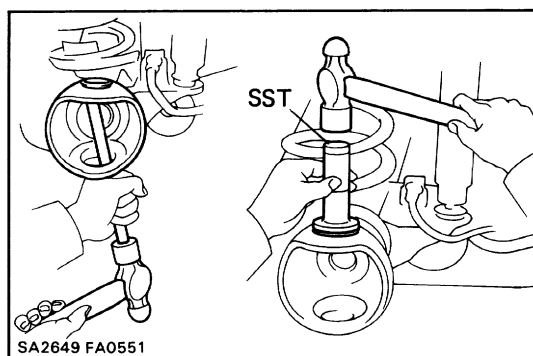


2. REPLACE BUSHING

- (a) Using SST, remove the bushing.
SST 09612-65014 (09612-01010, 09612-01050)
- (b) Using SST, press a new bushing into the spindle.
SST 09618-60010

3. INSPECT BEARING

Clean the bearings and outer races and inspect them for wear or damage.

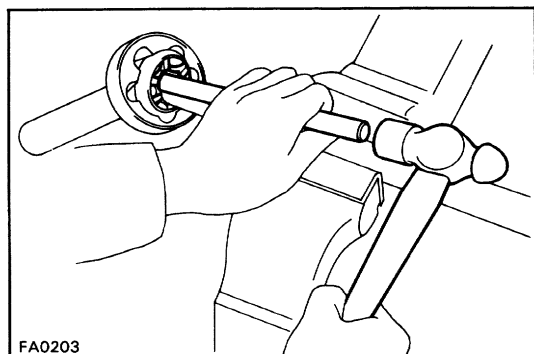


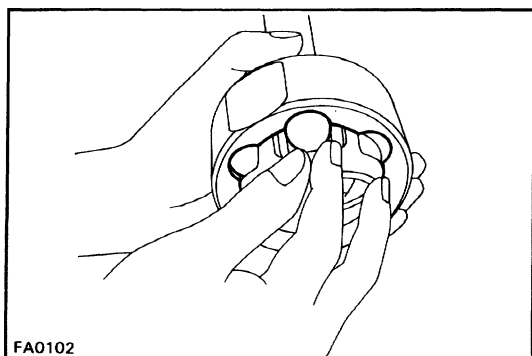
4. IF NECESSARY, REPLACE BEARING OUTER RACE

- (a) Using a brass bar, drive out the bearing outer race.
- (b) Using SST, carefully drive in a new bearing outer race.
SST 09605-60010

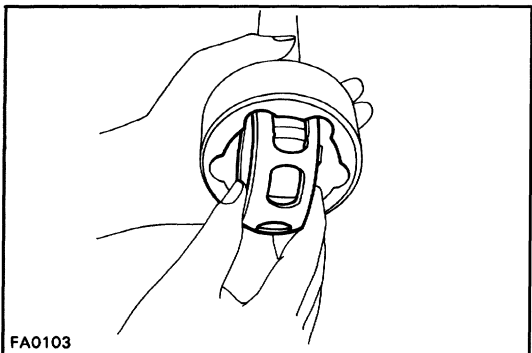
5. INSPECT BIRFIELD JOINT INNER PARTS

- (a) Hold the inner shaft in a vise.
- (b) Place a brass bar against the joint inner race and drive out the outer shaft.

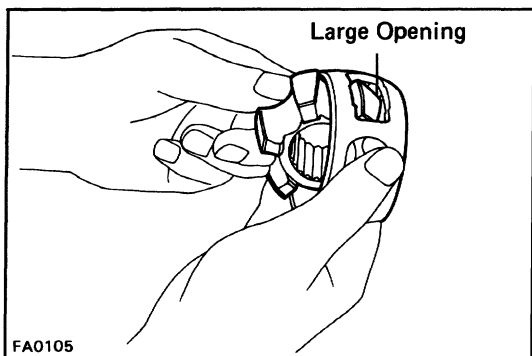




- (c) Tilt the inner race and cage and take out the bearing balls one by one.

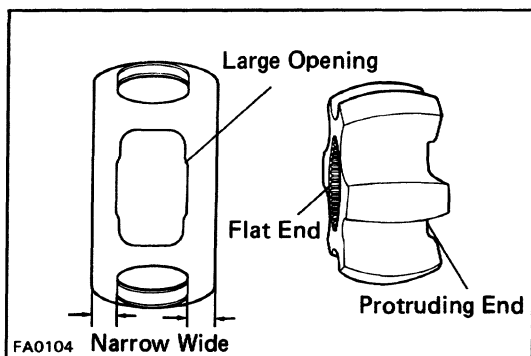


- (d) Fit the two large openings in the cage against the protruding parts of the outershaft, and pull out the cage and inner race.



- (e) Take out the inner race from the cage through the large opening.

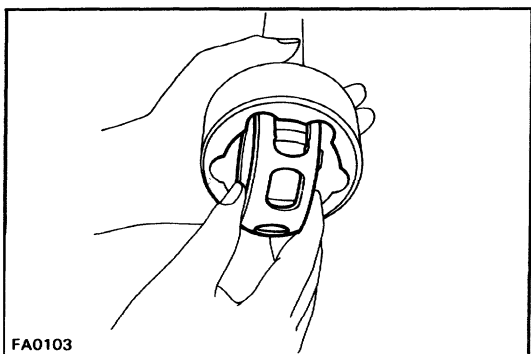
- (f) Clean and inspect the joint parts for wear or damage.



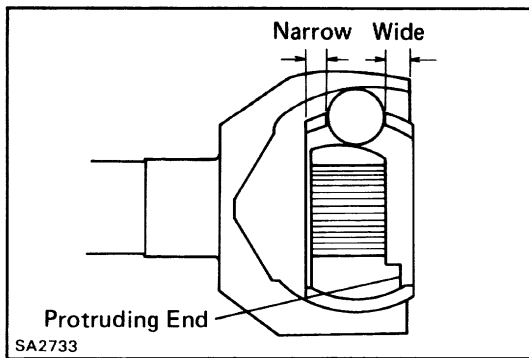
- (g) Coat the joint inner parts and outer shaft inside with molybdenum disulphide lithium base grease.

- (h) Install the inner race in the cage through the large opening.

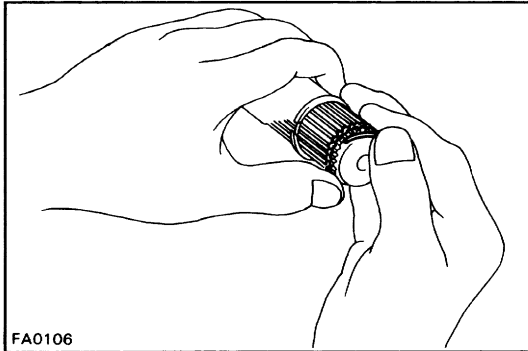
- (i) Position the protruding end of the inner race toward the wide side of the cage.



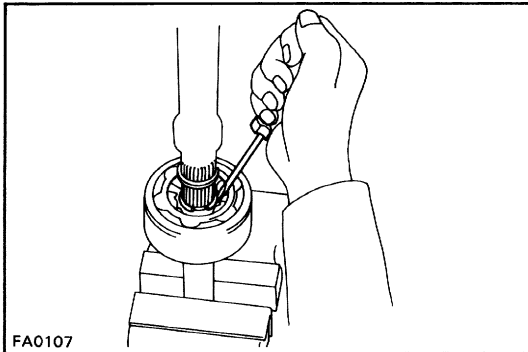
- (j) Assemble the cage and inner race to the outer shaft by fitting the two large openings in the cage against the protruding parts of the outer shaft.



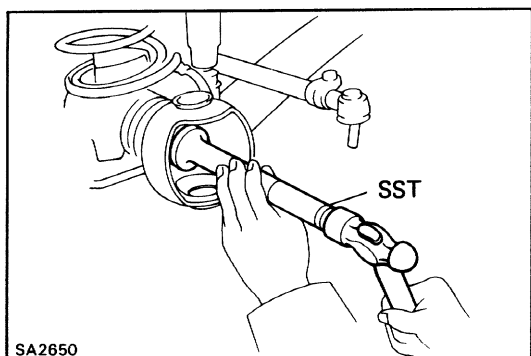
- (k) Make sure to position the wide side of the cage and the inner race protruding end outward.
- (l) Fit in the inner race and cage, and install the six bearing balls in the outer shaft. (See step (c))
- (m) Pack molybdenum disulphide lithium base grease in the outer shaft.



- (n) Install a new snap rings on the inner shaft.



- (o) Hold the outer shaft in a vise and, while compressing the snap inner ring, install the inner shaft to the outer shaft.
- (p) Verify that the inner shaft cannot be pulled out.

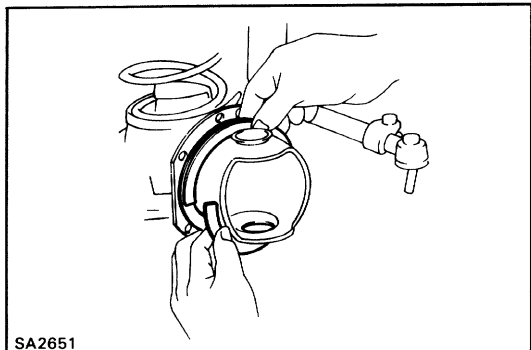


ASSEMBLY OF STEERING KNUCKLE AND AXLE SHAFT

(See page [SA-13](#))

1. INSTALL OIL SEAL TO AXLE HOUSING

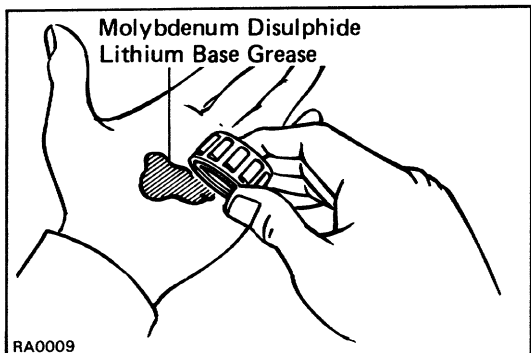
Using SST, drive in the oil seal into the axle housing.
SST 09618-60010



2. INSTALL OIL SEAL SET END RETAINER

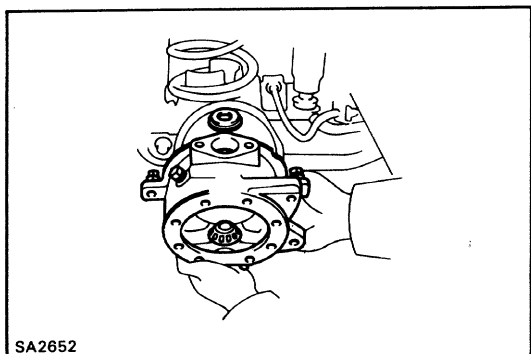
Install the parts in the following order:

- (a) Felt dust seal
- (b) Rubber seal
- (c) Steel ring



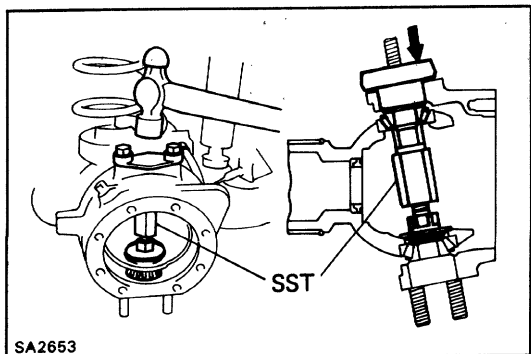
3. PACK BEARINGS WITH MOLYBDENUM DISULPHIDE LITHIUM BASE GREASE

- (a) Place molybdenum disulphide lithium base grease in the palm of your hand.
- (b) Pack grease into the bearing, continuing until the grease oozes out from the other side.
- (c) Do the same around the bearing circumference.



4. INSTALL STEERING KNUCKLE AND BEARINGS

- (a) Place the bearings in positions on the knuckle and axle housing.
- (b) Install the knuckle on the axle housing.

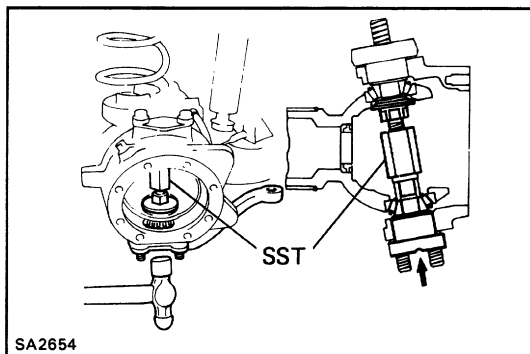


5. INSTALL KNUCKLE ARM AND BEARING CAP

- (a) Using SST, support the upper bearing inner race.
SST 09606-60020

HINT: Use SST with a collar.

- (b) Install the bearing cap over the shims that were originally used or were selected as described in the adjustment operations.
- (c) Using a hammer, tap the bearing cap into the bearing inner race.



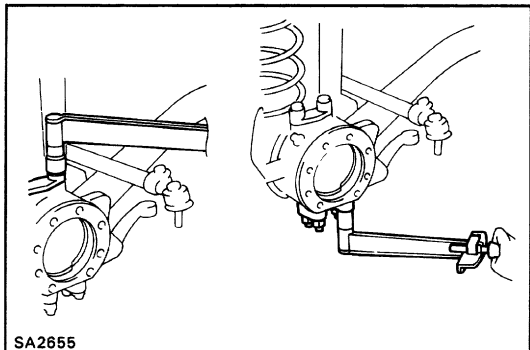
(d) Using SST, support the lower bearing inner race.

SST 09606-60020

HINT: Use SST with a collar.

(e) Using a hammer, tap the knuckle arm into the bearing inner race.

(f) Remove SST from the knuckle.



(Knuckle Arm)

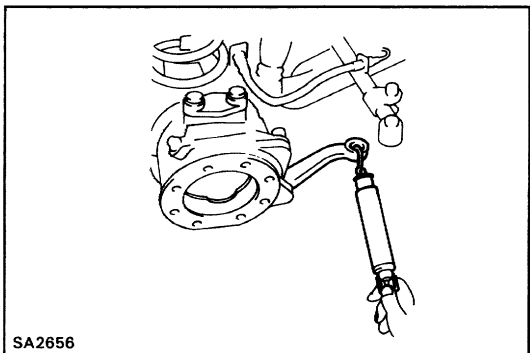
Install the cone washers, plate washers and torque the nuts.

Torque: 96 N-m (980 kgf-cm, 71 ft-lbf)

(Bearing Cap)

Install the spring washers and torque the nuts.

Torque: 96 N-m (980 kgf-cm, 71 ft-lbf)



6. MEASURE BEARINGS PRELOAD

Using a spring tension gauge, measure the preload.

Preload (starting): 25 – 44 N

(2.5–4.5 kgf, 5.6–9.9 lbf)

7. ADJUST BEARING PRELOAD

(a) Remove the bearing cap and the knuckle arm.

(See page [SA-15](#))

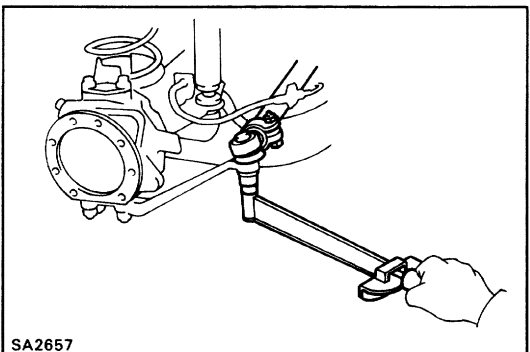
(b) Select the adjusting shims.

Adjusting shim thickness

Thickness mm (in.)
0.1 (0.004)
0.2 (0.008)
0.5 (0.020)
1.0 (0.039)

(c) Install the bearing cap and knuckle arm.

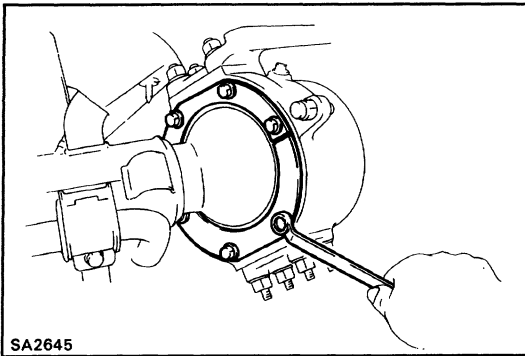
(See page [SA-19](#))



8. CONNECT TIE ROD TO KNUCKLE ARM

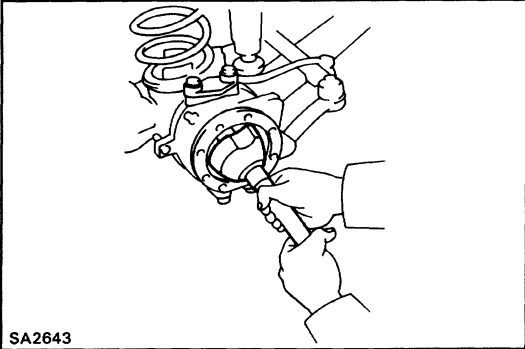
Torque the castle nut and secure it with a cotter pin.

Torque: 91 N-m (925 kgf-cm, 67 ft-lbf)



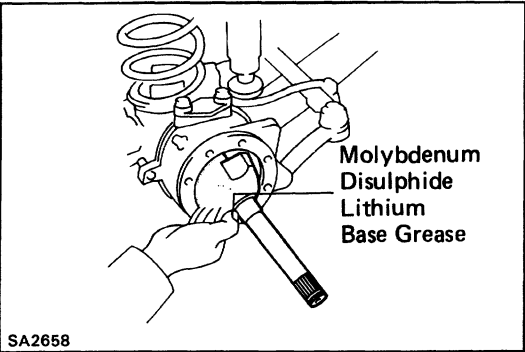
9 INSTALL OIL SEAL SET RETAINER TO KNUCKLE

Install the oil seal set retainer to steering knuckle with the six bolts.



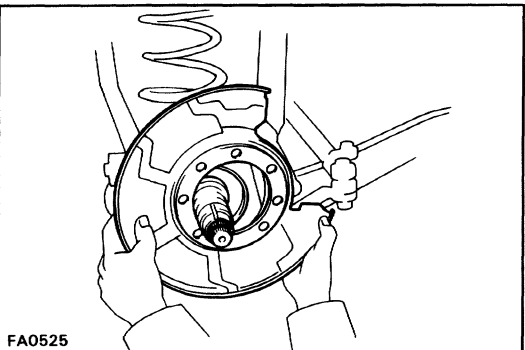
10. INSTALL AXLE SHAFT

Position one flat part of the outer shaft upward, and install the shaft.



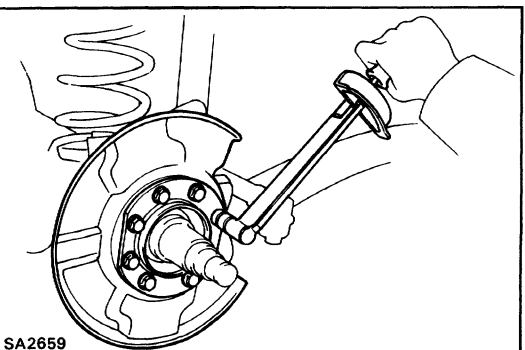
11. PACK MOLYBDENUM DISULPHIDE LITHIUM BASE GREASE

Pack molybdenum disulphide lithium base grease into the knuckle to about three fourths of the knuckle.

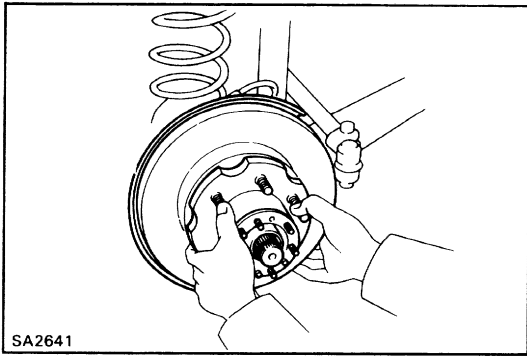


12. INSTALL KNUCKLE SPINDLE DUST COVER WITH NEW GASKETS AND DUST SEAL

- (a) Place a new gasket in the position on the knuckle and install the spindle.
- (b) Place the gasket, dust cover and seal on the spindle.



- (c) Torque the spindle mounting bolts.
Torque: 47 N-m (475 kgf-cm, 34 ft-lbf)

**13. INSTALL AXLE HUB (See page [SA-6](#))**