

FRONT AXLE AND SUSPENSION

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TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Wanders/pulls	Tires worn or improperly inflated	Replace tire or inflate tires to proper pressure	FA-3
	Alignment incorrect	Check front wheel alignment	FA-3
	Wheel bearing worn	Replace wheel bearing	FA-7
	Front or rear suspension parts loose or broken	Tighten or replace suspension parts	
	Steering gear out of adjustment or broken	Adjust or repair steering gear	SR-59
Bottoming	Vehicle overloaded	Check loading	
	Shock absorber worn out	Replace shock absorber	FA-43
	Springs weak	Replace spring	FA-48
Sways/pitches	Tires improperly inflated	Inflate tires to proper pressure	FA-3
	Stabilizer bar bent or broken	Inspect stabilizer bar	FA-53,55
	Shock absorber worn out	Replace shock absorber	FA-43
Front wheel shimmy	Tires worn or improperly inflated	Replace tire or inflate tires to proper pressure	FA-3
	Wheels out of balance	Balance wheels	
	Shock absorber worn out	Replace shock absorber	FA-43
	Alignment incorrect	Check front wheel alignment	FA-3
	Wheel bearings worn	Replace wheel bearings	FA-7
	Ball joints or bushings worn	Inspect ball joints and bushings	FA-49
	Tie rod end loosen or worn	Tighten or replace tie rod end	
Steering gear out of adjustment or broken	Adjust or repair steering gear	SR-59	
Abnormal tire wear	Tires improperly inflated	Inflate tires to proper pressure	FA-3
	Shock absorbers worn out	Replace shock absorber	FA-43
	Alignment incorrect	Check wheel alignment	FA-3
	Suspension parts worn	Replace suspension parts	FA-43,48

FRONT WHEEL ALIGNMENT

1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

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

Cold tire inflation pressure

kg/cm² (psi, kPa)

	Tire size	Front	Rear
2WD	165 SR 13	2.1 (30, 210)	1.8 (26, 180)
	185/70 SR 13	1.9 (28, 190)	1.8 (26, 180)
	P185/70 SR 13	1.9 (28, 190)	1.8 (26, 180)
	205/60 R14 87H	1.8 (26, 180)	1.8 (26, 180)
4WD	205/60 VR 14	2.1 (30, 210)	2.1 (30, 210)
	205/60 R14 87H	2.1 (30, 210)	2.1 (30, 210)
*	185/70 SR 13 P185/70 SR 13	2.0 (29, 200)	2.0 (29, 200)

* Convertible

(b) Check the front wheel bearings for looseness.

(c) Check the wheel runout.

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

(d) Check the front suspension for looseness.

(e) Check the steering linkage for looseness.

(f) Check that the front absorbers function properly by using the standard bounce test.

2. MEASURE CHASSIS GROUND CLEARANCE

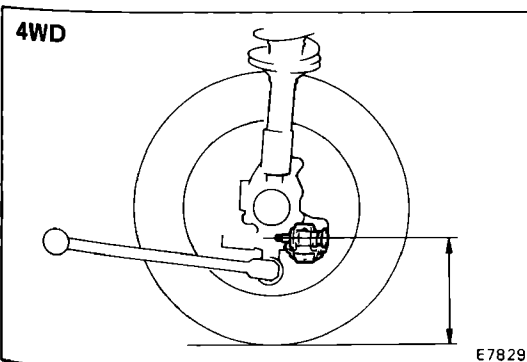
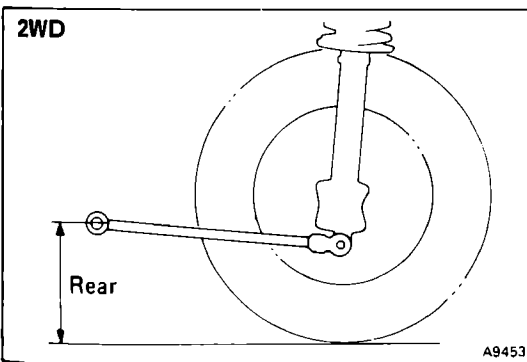
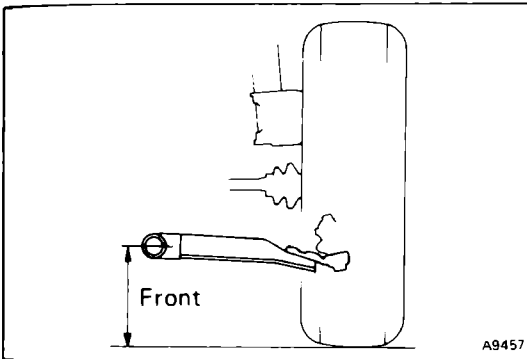
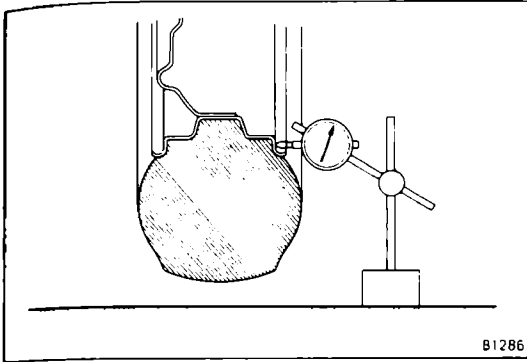
Chassis Ground Clearance

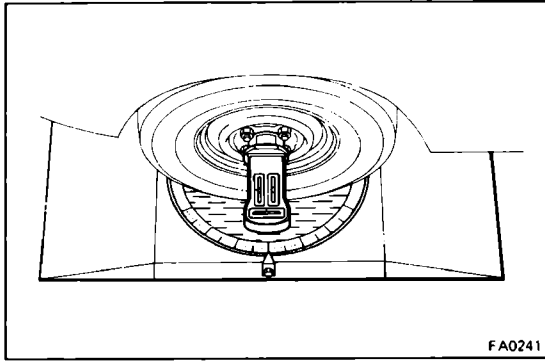
mm (in.)

	Tire size	Front	Rear
2WD	165 SR 13	189.0 (7.441)	250.5 (9.862)
	185/70 SR 13		
	P185/70 SR 13		
	205/60 R14 87H		
4WD	205/60 VR 14	192.6 (7.583)	233.7 (9.200)
	205/60 R14 87H		

If the clearance of the vehicle is not standard, try to level by locking it down. If still not correct, check for bad springs or suspension parts.

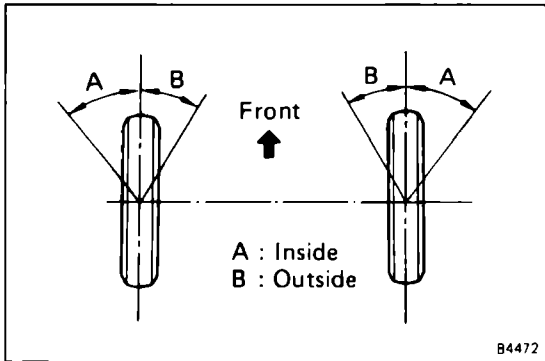
NOTE: Before inspecting wheel alignment, adjust chassis ground clearance to specification.





3. INSTALL WHEEL ALIGNMENT EQUIPMENT

Follow the specific instructions of the equipment manufacturer.



4. CHECK WHEEL ANGLE

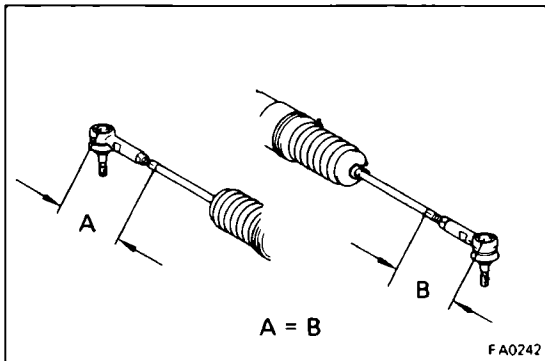
Wheel angle

Max.		at 20° (Outside wheel)
Inside wheel	Outside wheel	Inside wheel
34°	30°	21° 30'

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

NOTE: If the tie rod lengths are not equal, the steering angle cannot be adjusted properly.

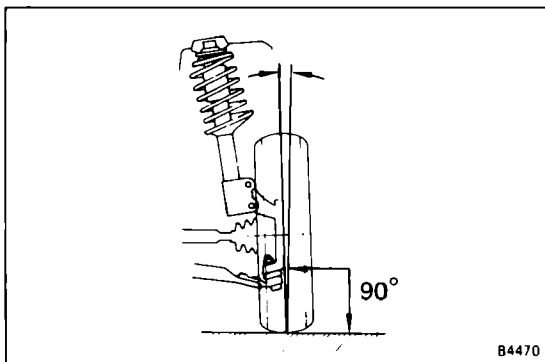
If the tie rod lengths were changed to adjust the steering angle, reinspect the toe-in.



5. CHECK CAMBER

Camber:

Inspection standard $-10' \pm 45'$
 Left-right error 30'

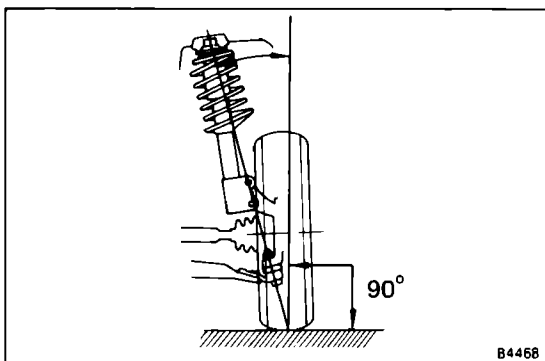


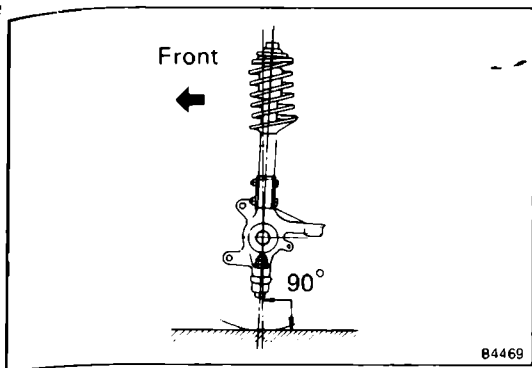
6. CHECK STEERING AXIS INCLINATION

Steering axis inclination:

Inspection standard $13^{\circ} 30' \pm 45'$
 Left-right error 30'

NOTE: Steering axis inclination is not adjustable. If measurement is off standard, inspect suspension parts as necessary, then recheck the front wheel alignment.





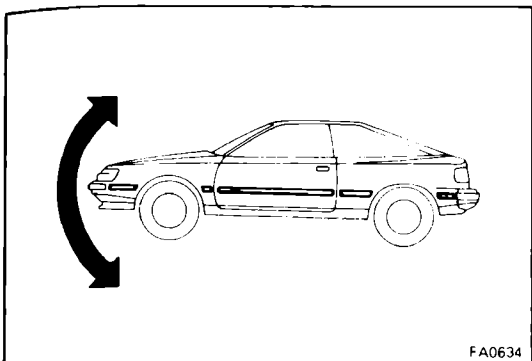
7. CHECK CASTER

Caster:

Inspection standard $1^{\circ} 10' \pm 45'$

Left-right error 30'

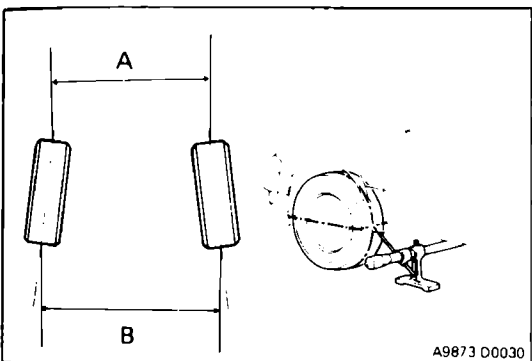
NOTE: Caster is not adjustable. If measurement is off standard, inspect suspension parts as necessary, then recheck the front wheel alignment.



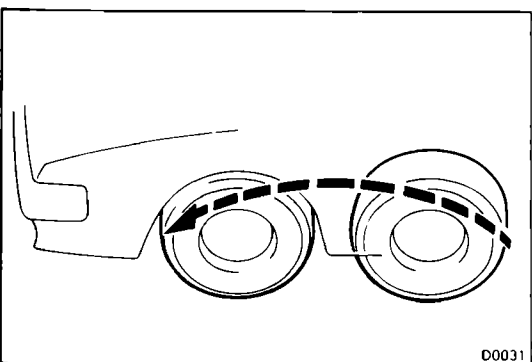
8. CHECK TOE-IN

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

- (a) Bounce the vehicle up and down to stabilize the suspension.
- (b) Move the vehicle forward about 5 m (16.4 ft) with the front wheel in the straight-ahead position on a level place.

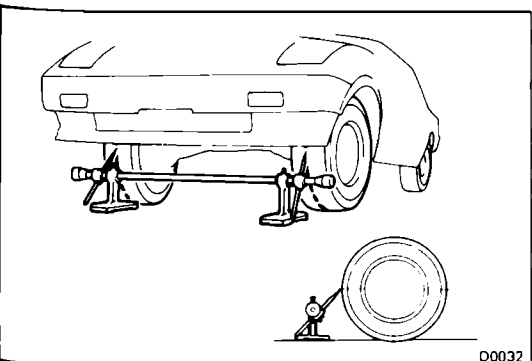


- (c) Mark the center of each rear tread and measure the distance between the marks of the right and left tires.



- (d) 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.

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



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

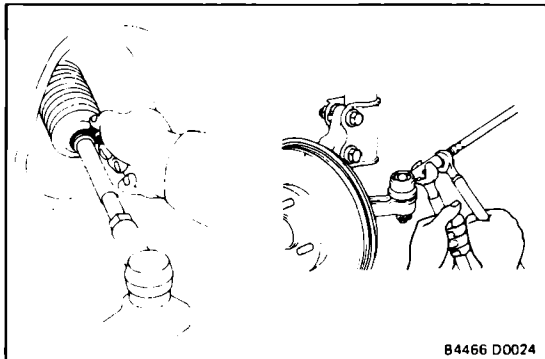
Toe-in:

Inspection standard $0 \pm 2 \text{ mm } (0 \pm 0.08 \text{ in.})$

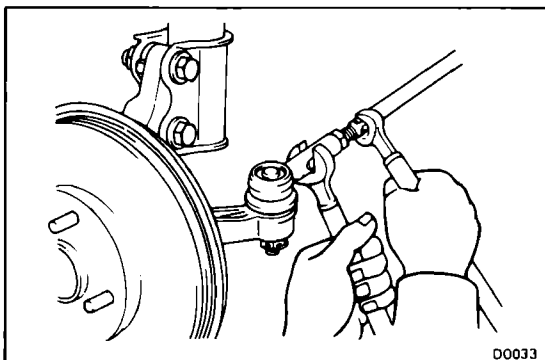
- (f) If not within standard, adjust the toe-in.

Toe-in:

Adjustment standard $0 \pm 1 \text{ mm } (0 \pm 0.04 \text{ in.})$



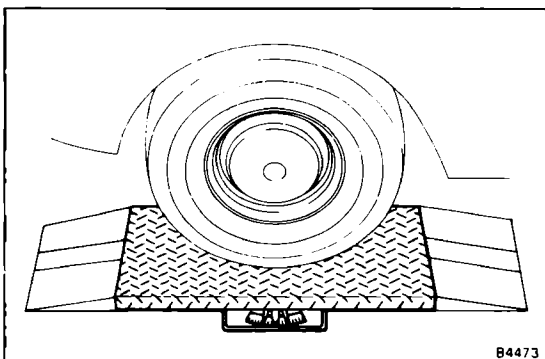
- (g) Remove the boot clip.
- (h) Loosen the lock nut.



- (i) Turn the left and right rack ends an equal amount to adjust.
- (j) Insure that the lengths of the left and right tie rods are the same.
- (k) Torque the tie rod lock nut.

Torque: 570 kg-cm (41 ft-lb, 56 N·m)

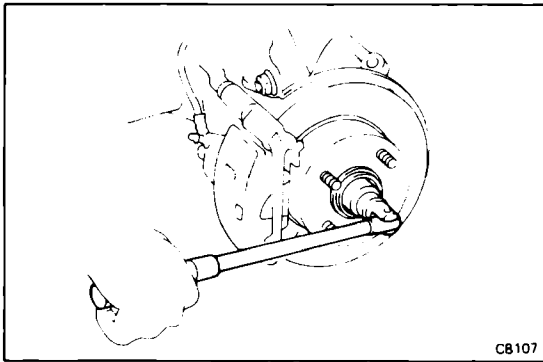
- (l) Place the boot on the seat and clamp it.
- NOTE: Insure that the boot is not twisted.



9. INSPECT SIDE SLIP (REFERENCE ONLY)

Side slip limit:

Less than 3.0 mm/m (0.118 in./3.3 ft)



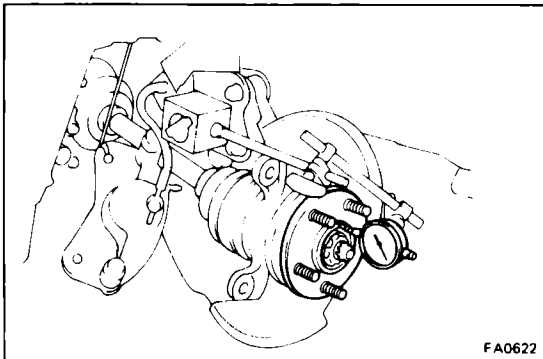
REMOVAL OF FRONT AXLE HUB

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

- (a) Remove the cotter pin and lock nut cap.
- (b) Before removing the brake caliper, loosen the bearing lock nut while depressing the brake pedal.

2. REMOVE BRAKE CALIPER

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

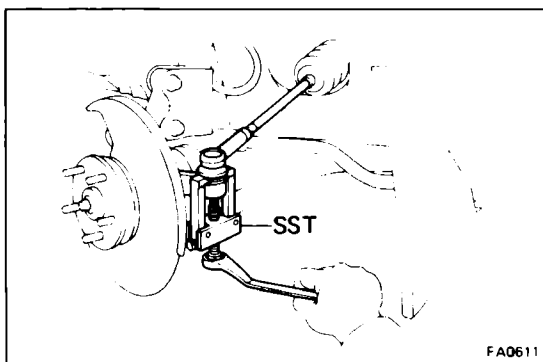


3. REMOVE DISC ROTOR

4. CHECK BEARING PLAY IN AXIAL DIRECTION

Limit: 0.05 mm (0.0020 in.)

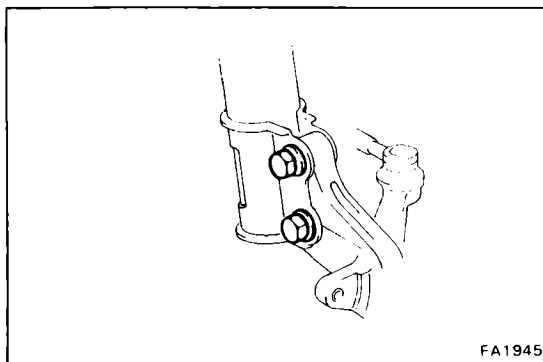
5. (w/ A.B.S.) REMOVE SPEED SENSOR



6. DISCONNECT TIE ROD END

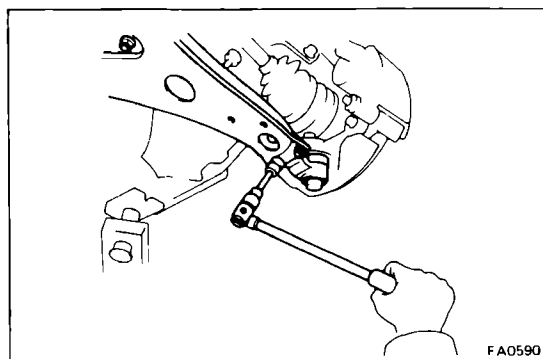
- (a) Remove the cotter pin and nut from the tie rod end.
- (b) Using SST, disconnect the tie rod end from the steering knuckle.

SST 09628-62011



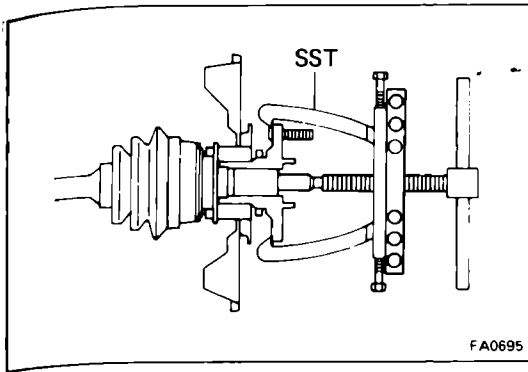
7. DISCONNECT STEERING KNUCKLE FROM SHOCK ABSORBER

Remove the bolt and nut, and then separate the steering knuckle and shock absorber.



8. DISCONNECT STEERING KNUCKLE FROM LOWER SUSPENSION ARM

- (a) Remove the bolt and two nuts.
- (b) Disconnect the lower suspension arm from the steering knuckle.

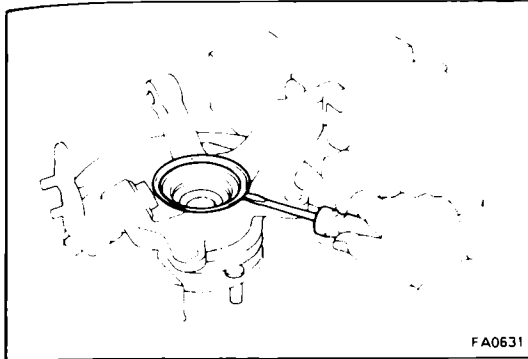


9. REMOVE AXLE HUB FROM DRIVE SHAFT

Using SST, disconnect the steering knuckle from the drive shaft and remove the steering knuckle.

SST 09950-20017

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

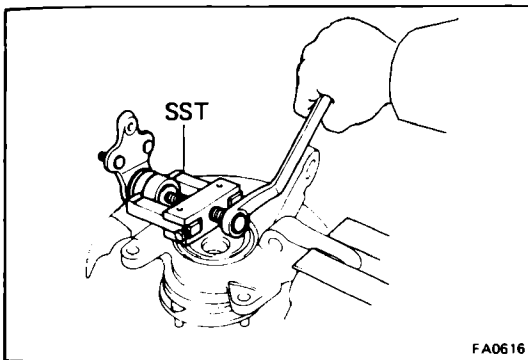


10. REMOVE BALL JOINT FROM STEERING KNUCKLE

(a) Clamp the steering knuckle in a vise.

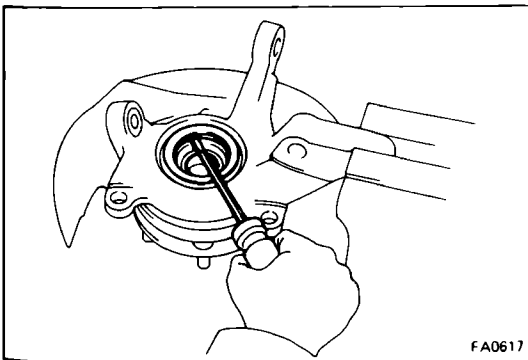
NOTE: Use a set of soft jaws in the vise to protect the steering knuckle.

(b) Using a screwdriver, remove the dust deflector.



(c) Using SST, remove the ball joint from the steering knuckle.

SST 09628-62011

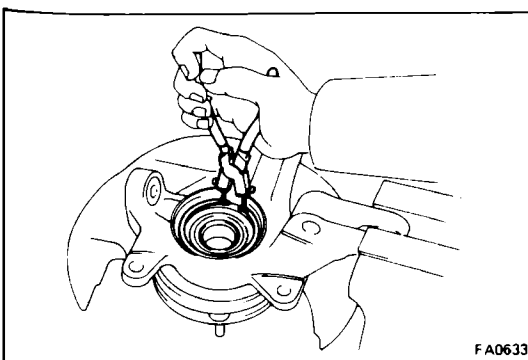


DISASSEMBLY OF FRONT AXLE HUB

(See page FA-7)

1. REMOVE INNER OIL SEAL

Using screwdriver, remove the oil seal from the steering knuckle.

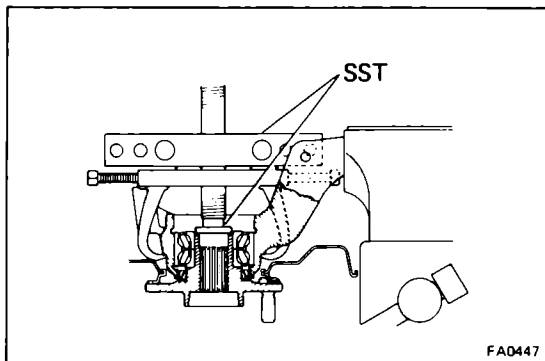


2. REMOVE HOLE SNAP RING

Using snap ring pliers, remove the hole snap ring.

3. REMOVE THREE BOLTS

Remove the three bolts holding the steering knuckle to the disc brake dust cover.



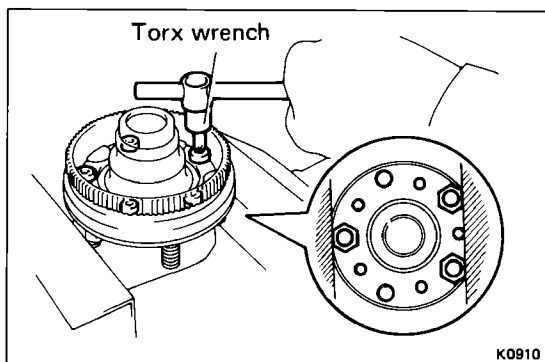
4. REMOVE AXLE HUB FROM STEERING KNUCKLE

- (a) Using SST, push out the axle hub and disc brake dust cover from the steering knuckle.

SST 09950-20017

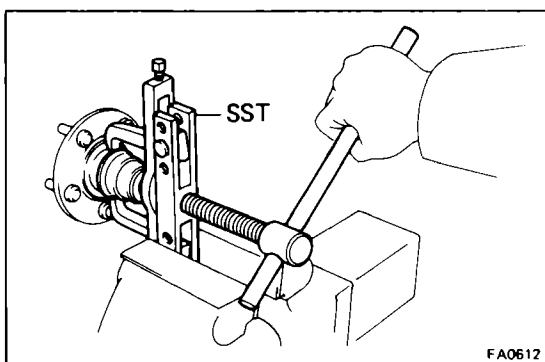
NOTE: If the axle hub has been removed, be sure to replace the outer oil seal.

- (b) Remove the bearing inner race (inside) from the bearing.



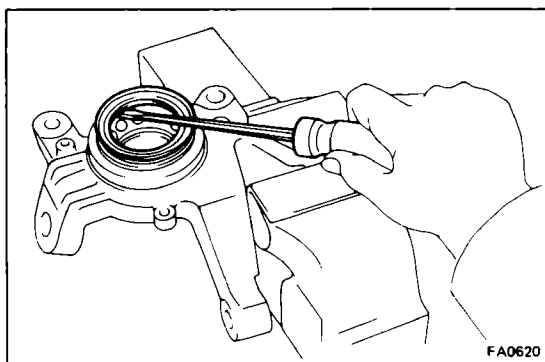
- (c) (w/ A.B.S.)

Using a torx wrench, remove the sensor control rotor from the axle hub.



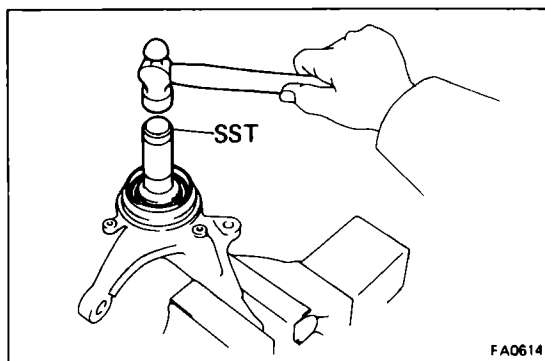
- (d) Using SST, remove the bearing inner race (outside) from the axle hub.

SST 09950-20017



5. REMOVE OUTER OIL SEAL

Using screwdriver, remove the oil seal from the steering knuckle.



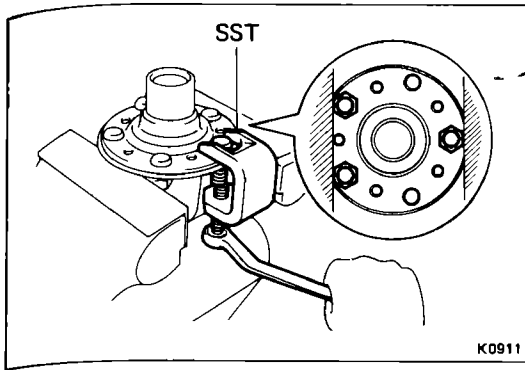
6. REMOVE BEARING

- (a) First install the inner race (outside) of the bearing to be removed.

- (b) Using SST and a hammer, remove the bearing.

SST 09605-60010

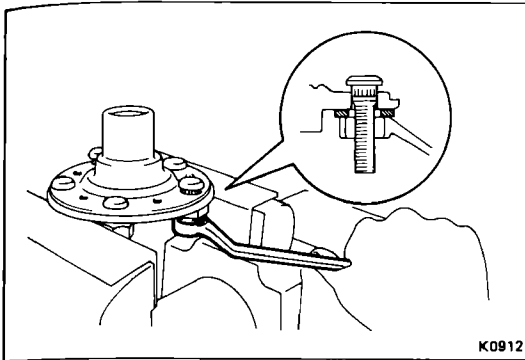
CAUTION: Always replace the bearing as an assembly.



**(w/ A.B.S.)
REPLACEMENT OF FRONT AXLE HUB BOLT**

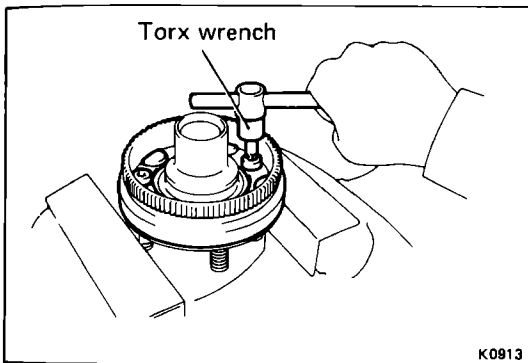
1. REMOVE HUB BOLT

Using SST, remove the hub bolt.
SST 09650-17011



2. INSTALL HUB BOLT

Using a washer and nut, install a new hub bolt.

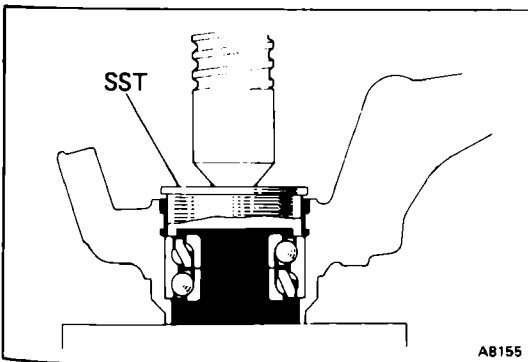


ASSEMBLY OF FRONT AXLE HUB

(See page FA-7)

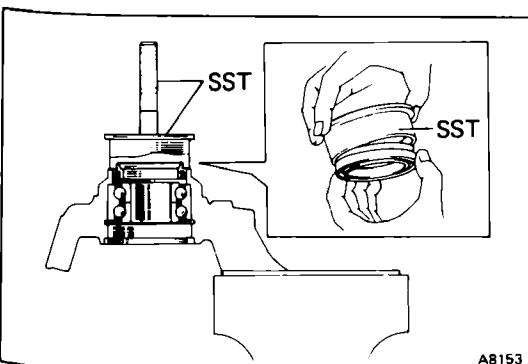
**1. (w/ A.B.S.)
INSTALL SENSOR CONTROL ROTOR**

Using a torx wrench, install the skid control rotor to the axle hub.



2. INSTALL BEARING

Using SST, press a new bearing into the steering knuckle.
SST 09608-32010



3. INSTALL OUTER OIL SEAL

(a) Rotate and insert the side lip of a new oil seal into the SST.

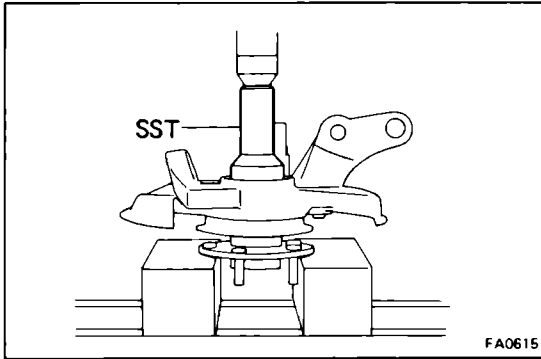
SST 09608-32010

(b) Using SST, drive the oil seal into the steering knuckle.

SST 09608-32010, 09710-14012 (09710-00050)

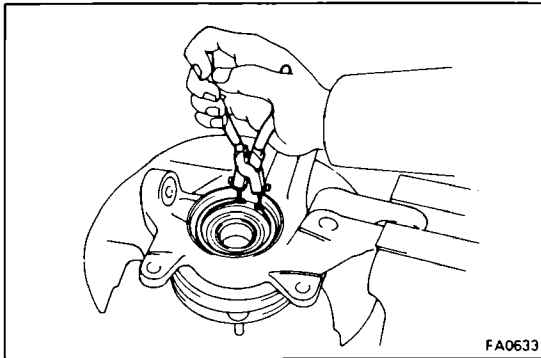
4. INSTALL DISC BRAKE DUST COVER

Apply liquid sealer to the dust cover and steering knuckle connection before assembly.



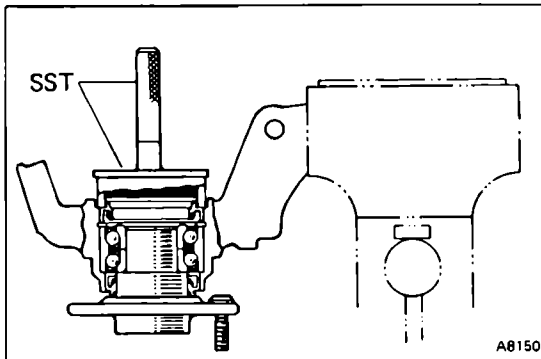
5. INSTALL AXLE HUB

- (a) Apply MP grease between the oil seal lip, oil seal and bearing.
- (b) Using SST, press the hub into the steering knuckle.
SST 09310-35010



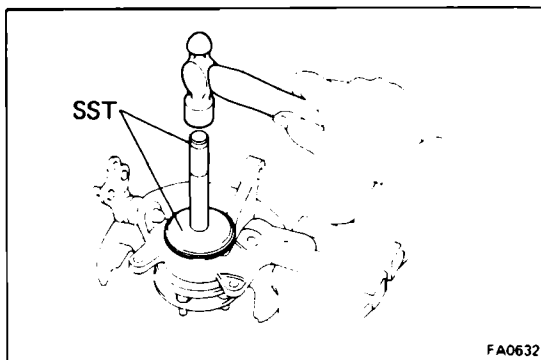
6. INSTALL HOLE SNAP RING

- Using snap ring pliers, install the hole snap ring into the steering knuckle.



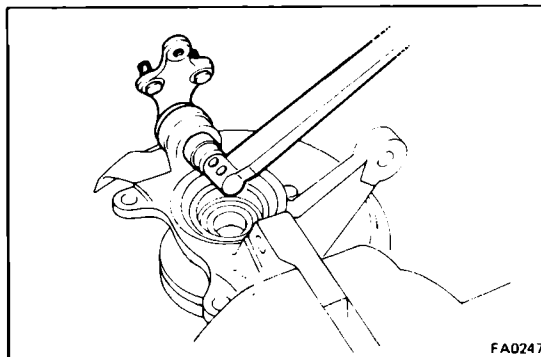
7. INSTALL INNER OIL SEAL

- (a) Using SST, drive in a new oil seal to the steering knuckle surface.
SST 09608-32010, 09710-14012 (09710-00050)
- (b) Apply MP grease to the contact surface of the oil seal lip and drive shaft.



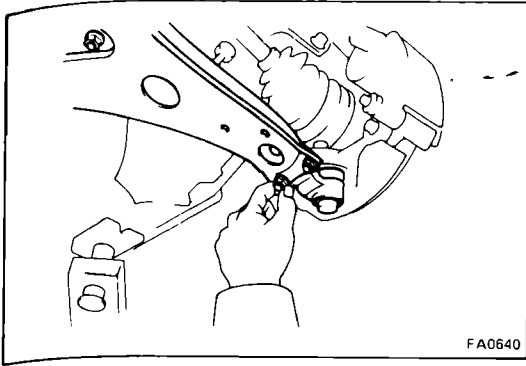
8. INSTALL DUST DEFLECTOR

- Using SST, drive the dust deflector into the steering knuckle.
SST 09608-35014 (09608-06020, 09608-06180)



9. INSTALL BALL JOINT TO STEERING KNUCKLE

- (a) Temporarily tighten the conventional nut.
Torque: 200 kg-cm (14 ft-lb, 20 N·m)
- (b) Remove the conventional nut.
- (c) Install and tighten the new nut.
Torque: 1,285 kg-cm (93 ft-lb, 126 N·m)



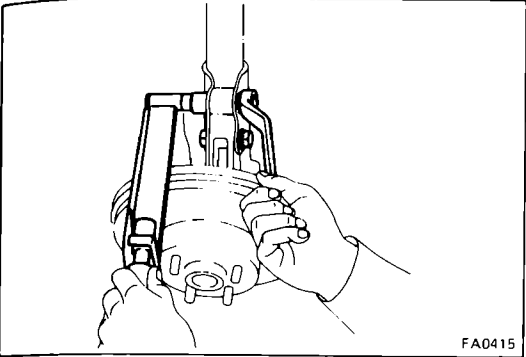
FA0640

INSTALLATION OF FRONT AXLE HUB

(See page FA-7)

1. INSTALL STEERING KNUCKLE WITH AXLE HUB TO LOWER SUSPENSION ARM

Provisionally install the steering knuckle to the lower suspension arm.

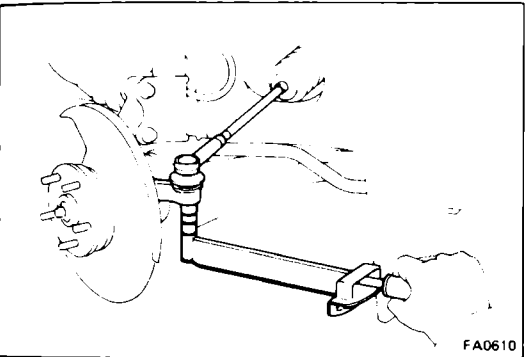


FA0415

2. INSTALL STEERING KNUCKLE TO SHOCK ABSORBER

- Connect the steering knuckle to the shock absorber lower bracket.
- Install the two bolts.
- Apply engine oil to the threads of the two nuts.
- Torque the nuts.

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

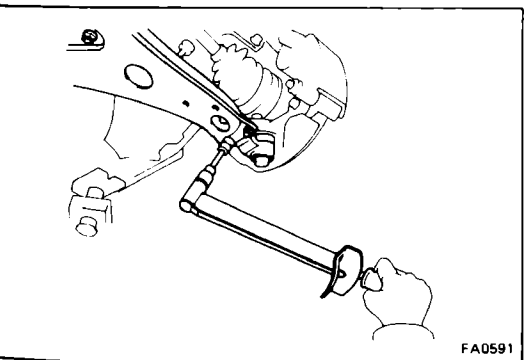


FA0610

3. 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)

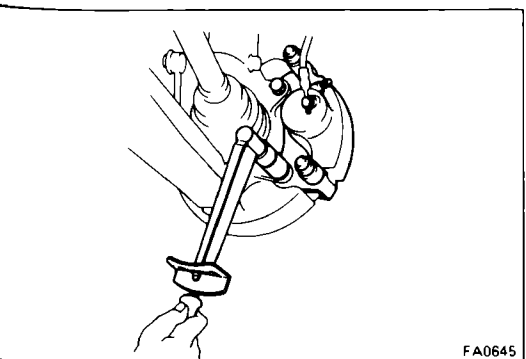


FA0591

4. TORQUE BALL JOINT TO LOWER ARM

Torque: 1,300 kg-cm (94 ft-lb, 127 N·m)

5. INSTALL DISC TO AXLE HUB



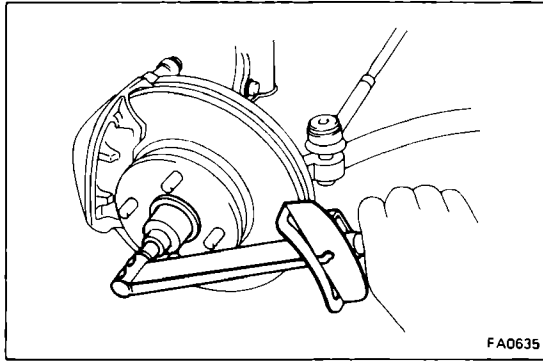
FA0645

6. INSTALL BRAKE CALIPER TO STEERING KNUCKLE

Torque the two bolts.

Torque: 970 kg-cm (70 ft-lb, 95 N·m)

7. (w/ A.B.S.) INSTALL SPEED SENSOR



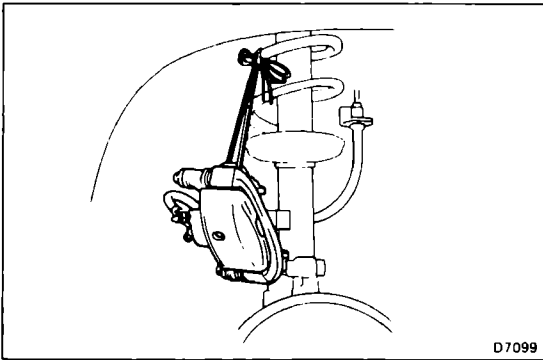
8. INSTALL BEARING LOCK NUT, LOCK NUT CAP AND COTTER PIN

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

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

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

9. CHECK FRONT WHEEL ALIGNMENT (See page FA-3)



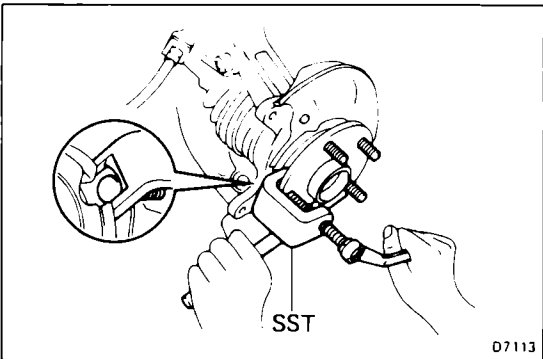
(w/o A.B.S.)

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 DISC ROTOR

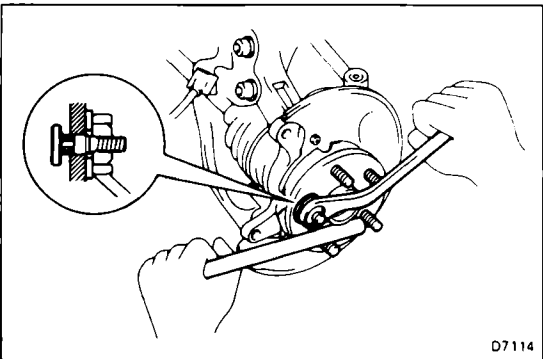


3. REMOVE FRONT AXLE HUB BOLT

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

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

SST 09650-17011



4. INSTALL FRONT AXLE HUB BOLT

Hold the front axle hub, and install a new hub bolt.

5. INSTALL DISC ROTOR

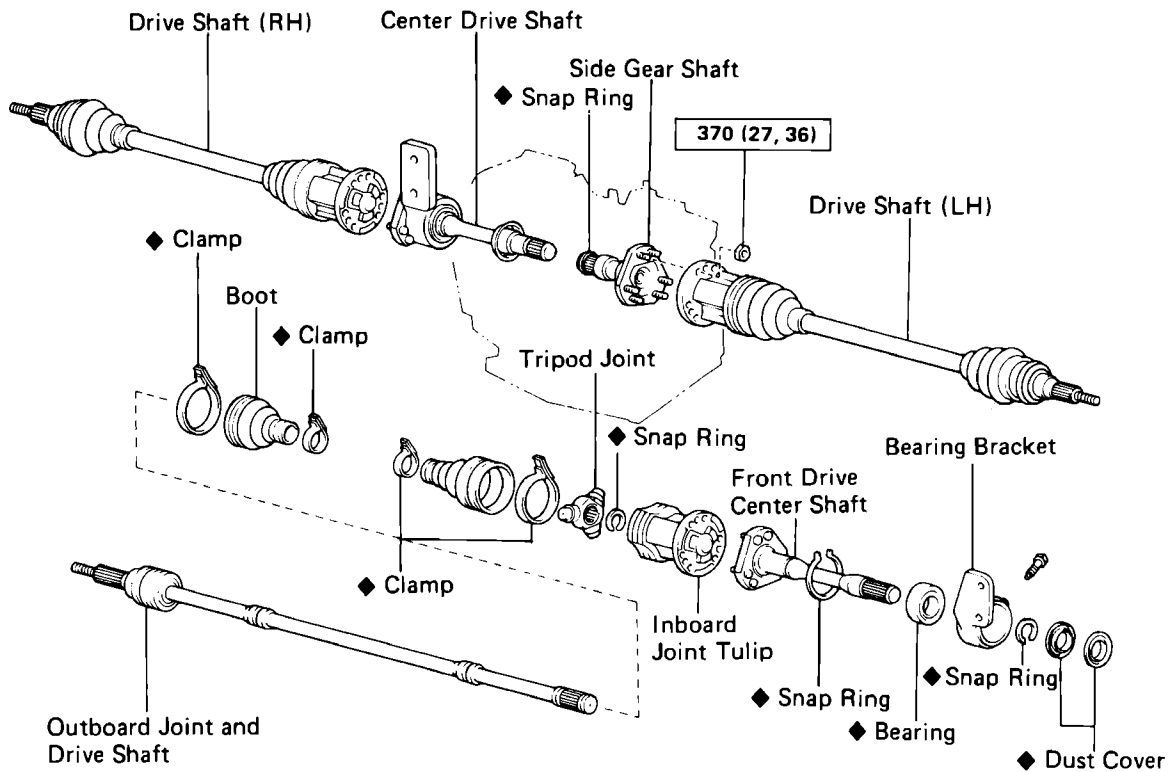
6. INSTALL DISC BRAKE CALIPER TO STEERING KNUCKLE

Torque the nut.

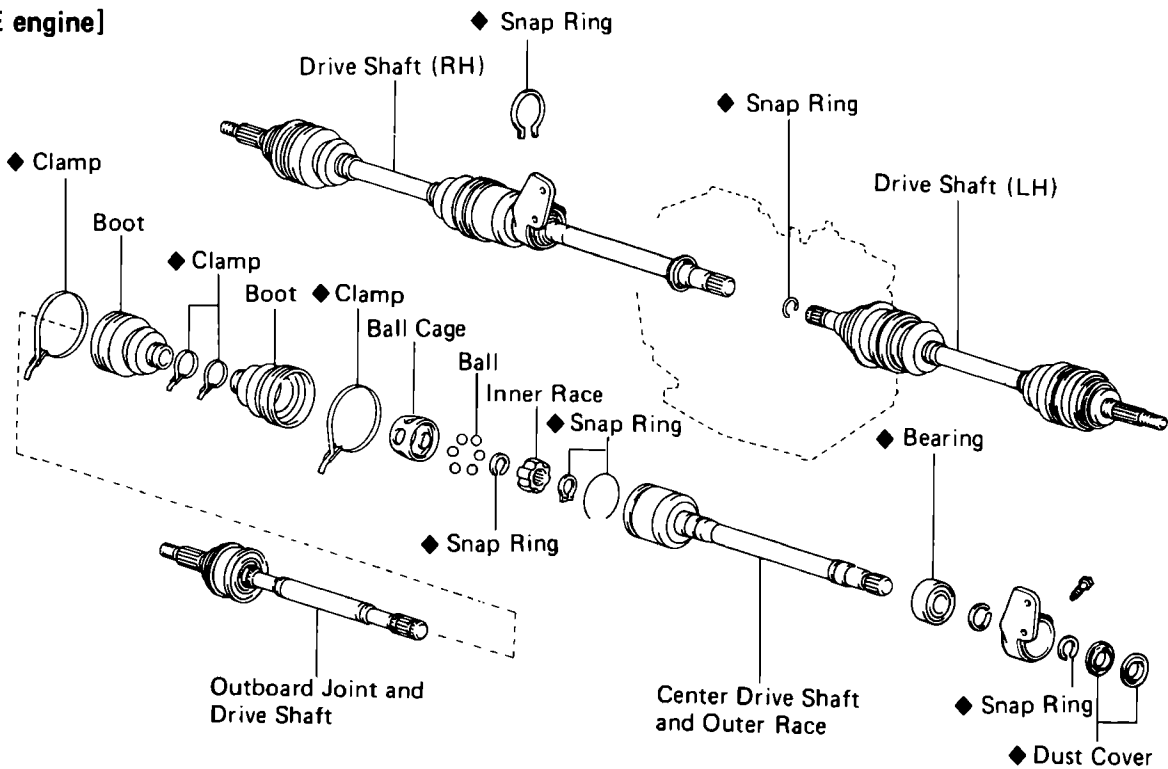
Torque: 900 kg-cm (65 ft-lb, 88 N·m)

FRONT DRIVE SHAFT (2WD) COMPONENTS

[3S-FE engine]

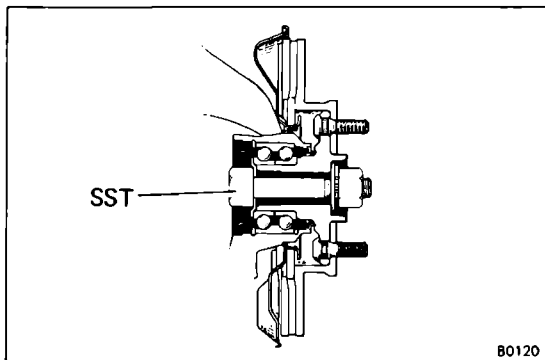


[3S-GE engine]



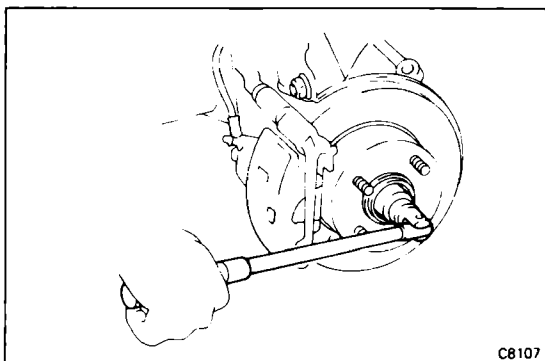
kg-cm (ft-lb, N-m) : Specified torque

◆ Non-reusable part



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

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



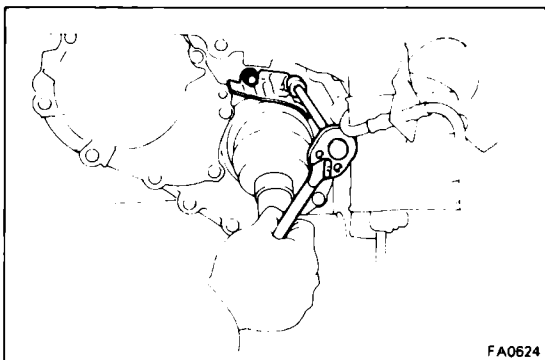
REMOVAL OF FRONT DRIVE SHAFT

1. **REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT**
 - (a) Remove the cotter pin and lock nut cap.
 - (b) Loosen the bearing lock nut while depressing the brake pedal.

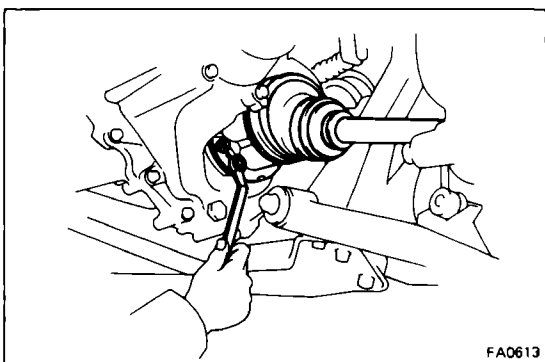
2. **REMOVE ENGINE UNDER COVER**

3. **(3S-GE ENGINE)
DRAIN TRANSAXLE FLUID OR DIFFERENTIAL OIL**

4. **REMOVE TRANSAXLE PROTECTOR**



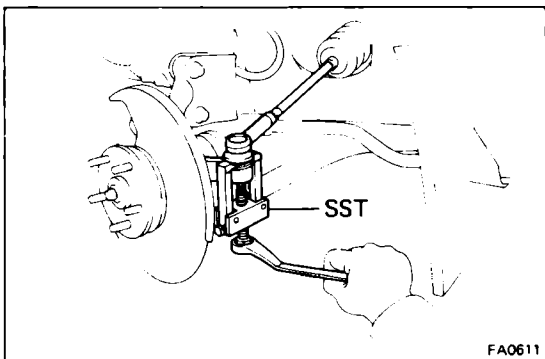
5. **(3S-FE ENGINE)
LOOSEN SIX NUTS HOLDING FRONT DRIVE SHAFT TO CENTER DRIVE SHAFT OR DIFFERENTIAL SIDE BEARING SHAFT**

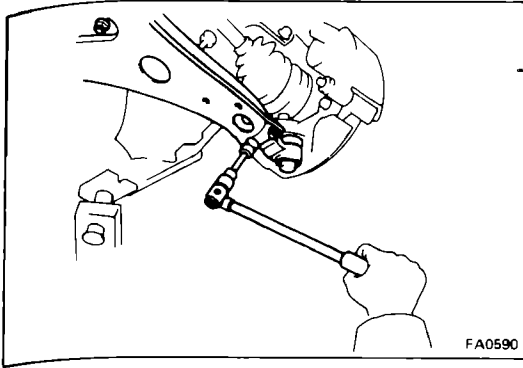


6. **DISCONNECT TIE ROD END**

- (a) Remove the cotter pin and nut from the tie rod end.
- (b) Using SST, disconnect the tie rod end from the steering knuckle.

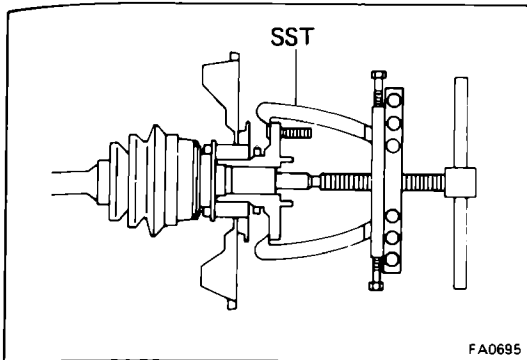
SST 09628-62011





7. DISCONNECT STEERING KNUCKLE FROM LOWER ARM

Remove the bolt and two nuts and disconnect the steering knuckle from the lower arm.

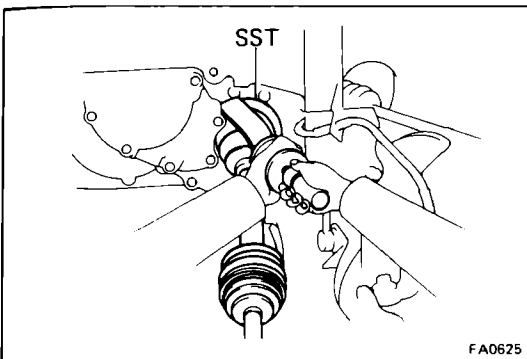


8. (3S-FE ENGINE) REMOVE DRIVE SHAFT

Using SST, disconnect the drive shaft from the steering knuckle and remove the drive shaft.

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

SST 09950-20017



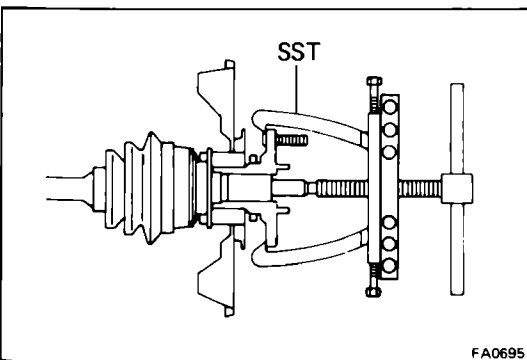
9. (3S-GE ENGINE) REMOVE LH DRIVE SHAFT

(a) Mark a spot somewhere on the drive shaft. Measure and note the distance between the transaxle case and the spot on the drive shaft.

(b) Using SST, pull out the LH drive shaft.

SST 09520-32060

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



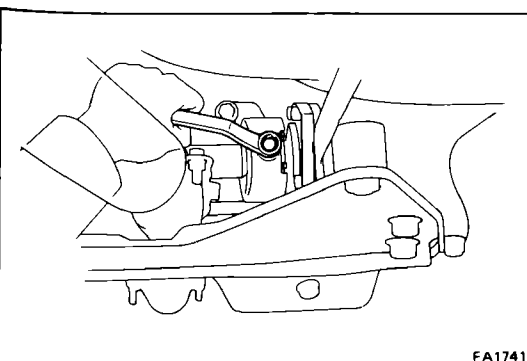
10. (3S-GE ENGINE) REMOVE RH DRIVE SHAFT WITH CENTER DRIVE SHAFT

(a) Using SST, disconnect the drive shaft from the steering knuckle.

SST 09950-20017

(b) Loosen the center drive shaft stopper bolt.

(c) Using pliers, remove the snap ring and pull out the RH drive shaft with center drive shaft.

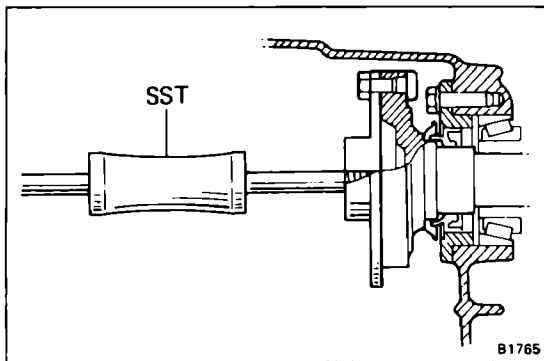


11. (3S-FE ENGINE) REMOVE CENTER DRIVE SHAFT

(a) Drain the transmission fluid or differential oil.

(b) Loosen the center drive shaft stopper bolt.

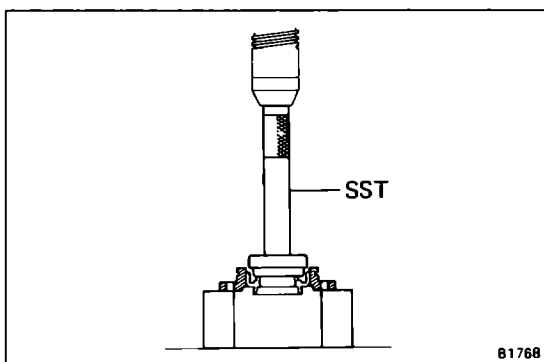
(c) Using pliers, remove the snap ring and pull out the center drive shaft.



REPLACEMENT OF OIL SEAL

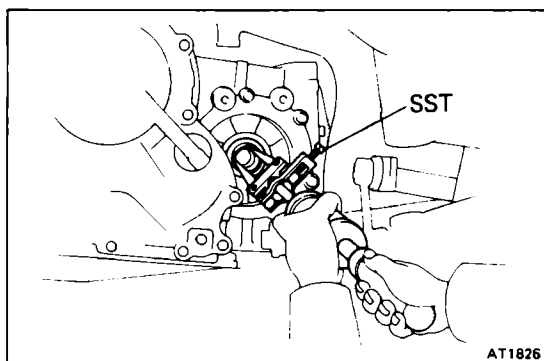
1. (3S-FE ENGINE) REMOVE LH SIDE GEAR SHAFT

- (a) In order to install the side gear shaft, push the side gear shaft to the differential. Measure and note the distance between the trans-axle case and the side gear shaft.
- (b) Using SST, drive out the side gear shaft.
SST 09520-32012



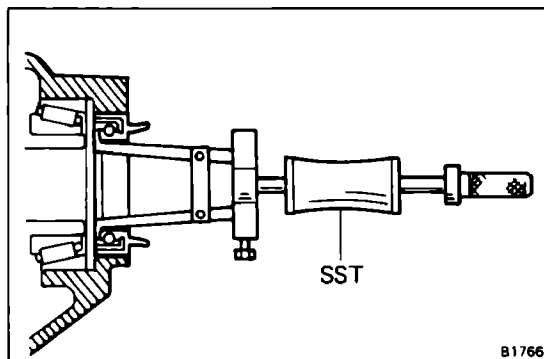
2. REMOVE LH OIL SEAL (Manual transaxle)

- (a) Remove the side bearing retainer.
- (b) Using SST, press out the oil seal from the retainer.
SST 09608-20012 (09608-03020, 09608-00030)



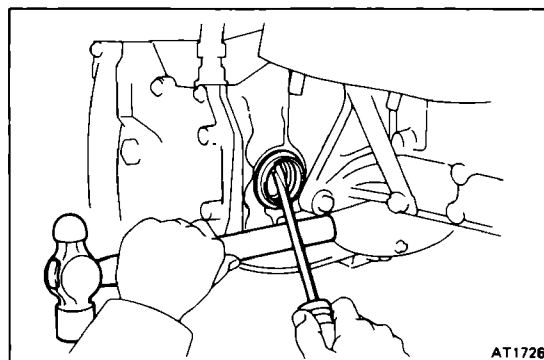
(Automatic transaxle)

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



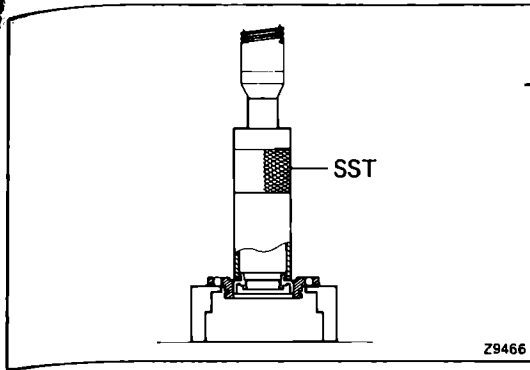
3. REMOVE RH OIL SEAL (Manual transaxle)

- (a) Remove the drive shaft bearing bracket.
- (b) Using SST, drive out the oil seal from the case.
SST 09308-00010



(Automatic transaxle)

Using a screwdriver, remove the oil seal.



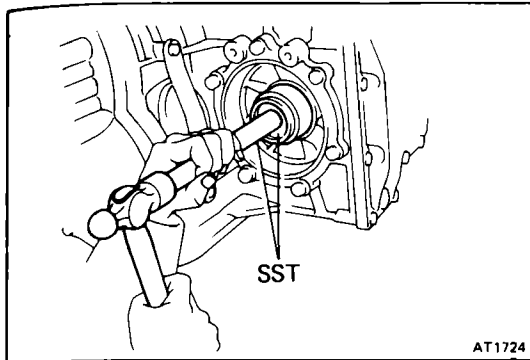
4. INSTALL NEW LH OIL SEAL (Manual transaxle)

- (a) Using SST, press in a new oil seal until its surface is flush with the case surface.

SST 09316-60010 (09316-00010)

- (b) Coat the oil seal lip with MP grease.
(c) Install the side bearing retainer with the six bolts.

Torque: 185 kg-cm (13 ft-lb, 18 N·m)



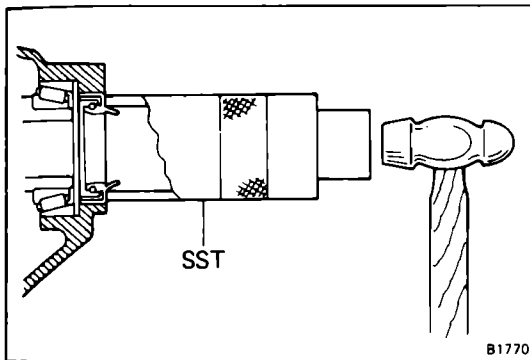
(Automatic transaxle)

- (a) Using SST, press in a new oil seal.

SST 09350-32013 (09351-32150), 09631-12020

Oil seal drive in depth: 2.7 mm (0.106 in.)

- (b) Coat the oil seal lip with MP grease.
(c) Install the drive shaft bearing bracket.

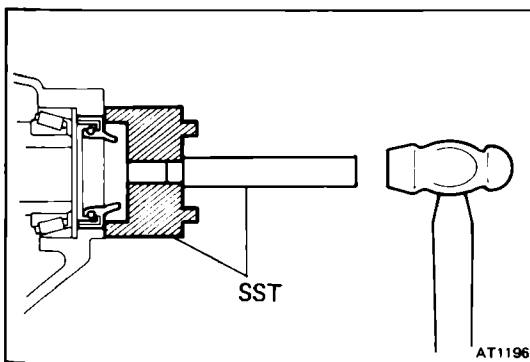


5. INSTALL NEW RH OIL SEAL (Manual transaxle)

- (a) Using SST, drive in a new oil seal until its surface is flush with the case surface.

SST 09316-60010 (09316-00010)

- (b) Coat the oil seal lip with MP grease.
(c) Install the drive shaft bearing bracket.

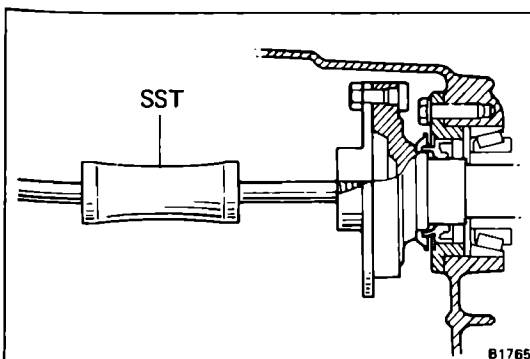


(Automatic transaxle)

- (a) Using SST, press in a new oil seal until its surface is flush with the case surface.

SST 09350-32013 (09351-32150), 09631-12020

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

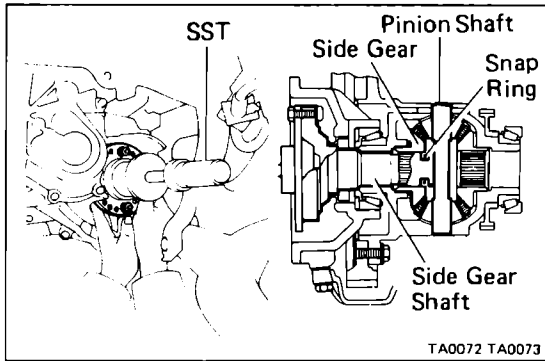


6. (3S-FE ENGINE) INSTALL LH SIDE GEAR SHAFT

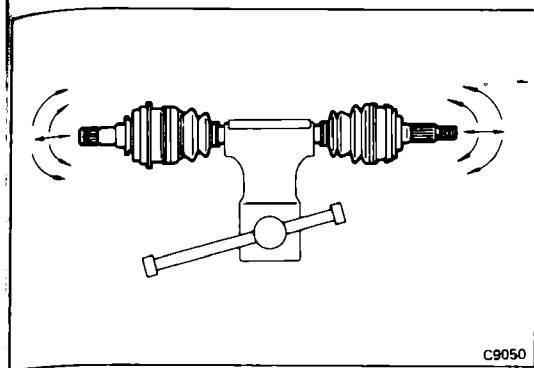
- (a) Insure that a new snap ring is positioned securely in the groove of the side gear shaft.
(b) Using SST, drive in the side gear shaft until it marks contact with the pinion shaft.

SST 09520-32012

NOTE: Whether or not the side gear shaft is making contact with the pinion shaft can be known by the sound or feeling when drive it in.

**7. (3S-FE ENGINE)****CHECK INSTALLATION OF SIDE GEAR SHAFT**

- (a) Check that there is 2 – 3 mm (0.08 – 0.12 in.) or play in axial direction.
- (b) Check that the side gear shaft will not come out by trying to pull it completely out by hand.
- (c) Push the side gear shaft to the differential and measure the distance between the side gear shaft and the transaxle case. Check that the distance between the two is the same as the measurement taken before removing the side gear shaft.

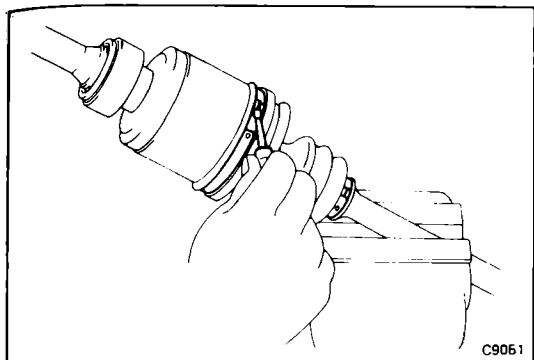


DISASSEMBLY OF FRONT DRIVE SHAFT

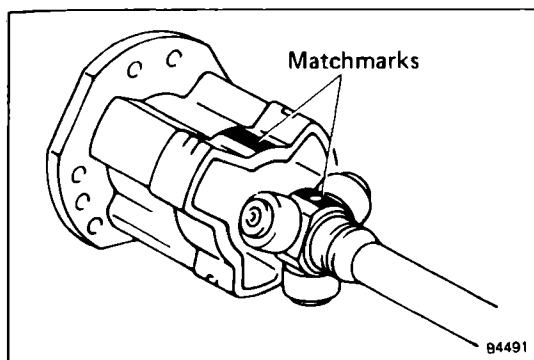
(See page FA-15)

1. CHECK DRIVE SHAFT

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



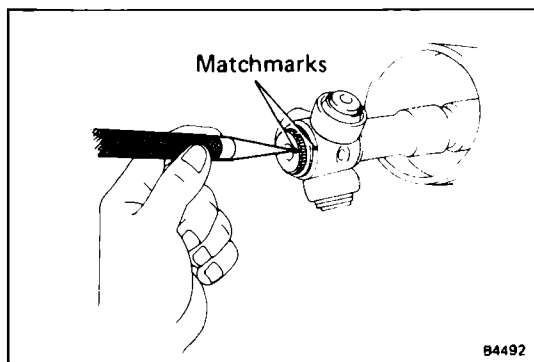
2. REMOVE INBOARD JOINT BOOT CLAMPS



3. (3S-FE ENGINE)

DISASSEMBLE INBOARD JOINT TULIP

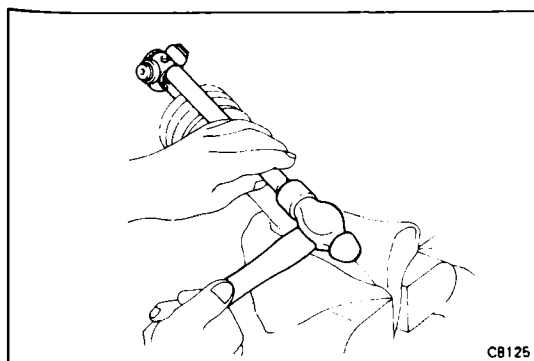
- Place matchmarks on the inboard joint tulip and tripod.
- CAUTION:** Do not punch the marks.
- Remove the inboard joint tulip from the drive shaft.

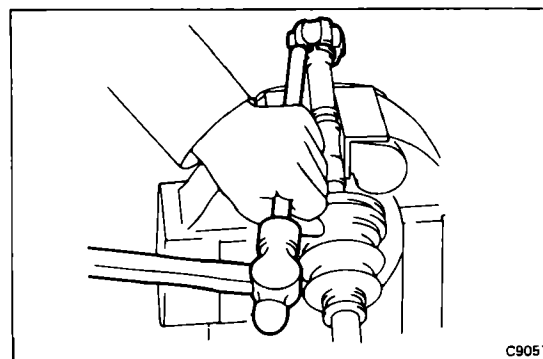
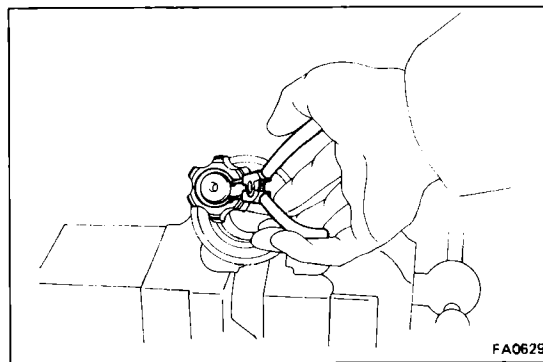
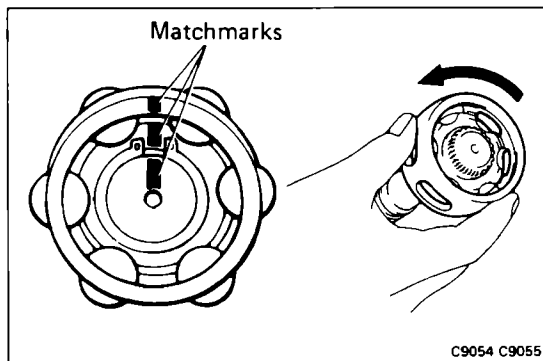
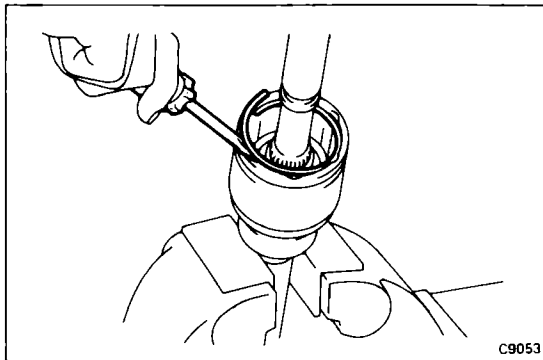
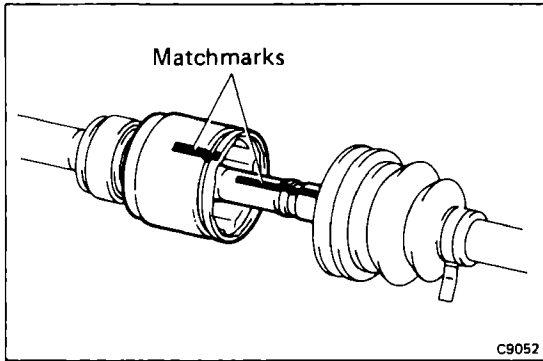


4. (3S-FE ENGINE)

DISASSEMBLE TRIPOD JOINT

- Using snap ring pliers, remove the snap ring.
 - Using a punch, place matchmarks on the shaft and tripod.
- Using a brass bar and hammer, remove the tripod joint from the drive shaft.



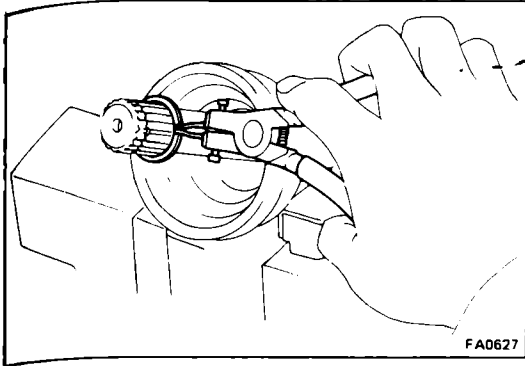


5. **(3S-GE ENGINE)
DISASSEMBLE INBOARD JOINT TULIP**

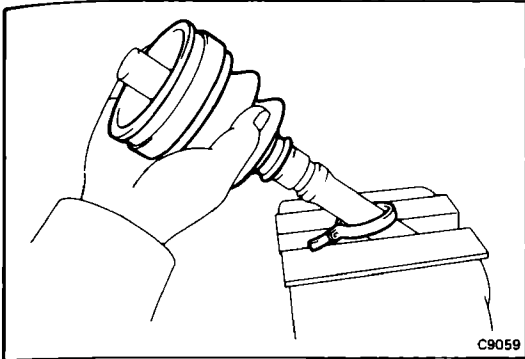
- (a) Place matchmarks on the inboard joint outer race and drive shaft.
- (b) Using a screwdriver, remove the snap ring from the inboard joint outer race.
- (c) Remove the inboard joint outer race from the drive shaft.

6. **(3S-GE ENGINE)
DISASSEMBLE INBOARD JOINT**

- (a) Place matchmarks on the drive shaft, cage and inner race.
- (b) Remove the six balls.
- (c) Remove the ball cage from the inner race.
- (d) Using snap ring pliers, remove the snap ring.
- (e) Using a brass bar and hammer, remove the inner race from the drive shaft.



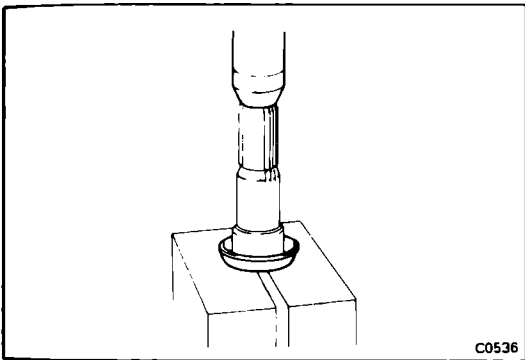
(f) Using snap ring pliers, remove the snap ring.



7. REMOVE INBOARD JOINT BOOT

8. REMOVE OUTBOARD JOINT BOOT CLAMPS AND BOOT

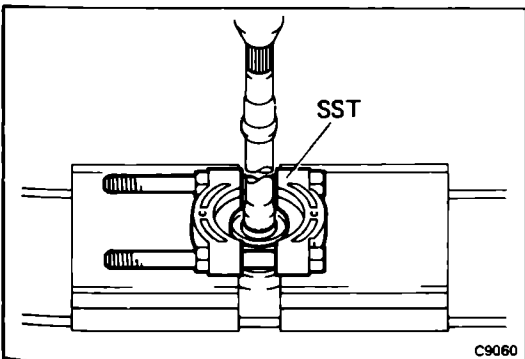
CAUTION: Do not disassemble the outboard joint.



9. REMOVE TWO DUST COVERS

(a) (Transaxle side)

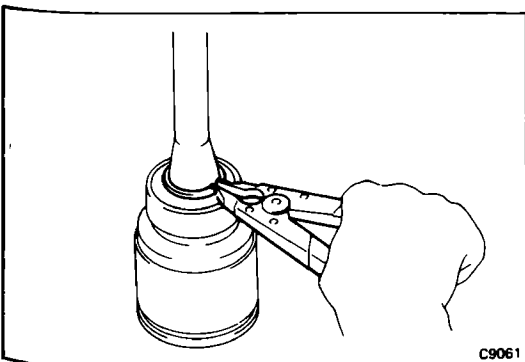
Using a press, press out the dust cover.



(b) (Drive shaft side)

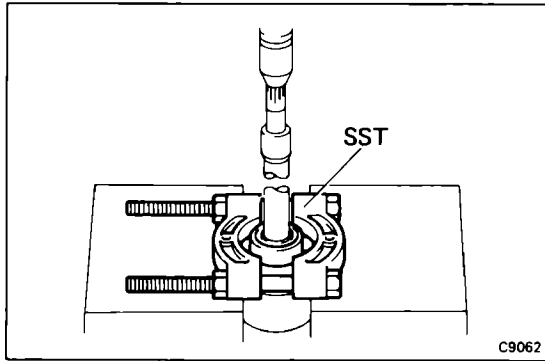
Using SST and a press, press out the dust cover.

SST 09950-00020



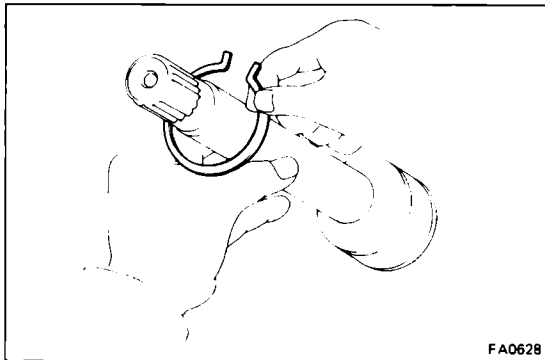
10. REMOVE SNAP RING

Using snap ring pliers, remove the snap ring.



11. REMOVE BEARING

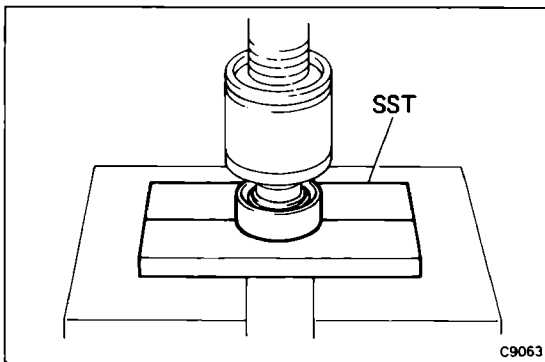
- (a) Using SST and a press, press out the bearing.
SST 09950-00020
- (b) Remove the snap ring.



ASSEMBLY OF FRONT DRIVE SHAFT

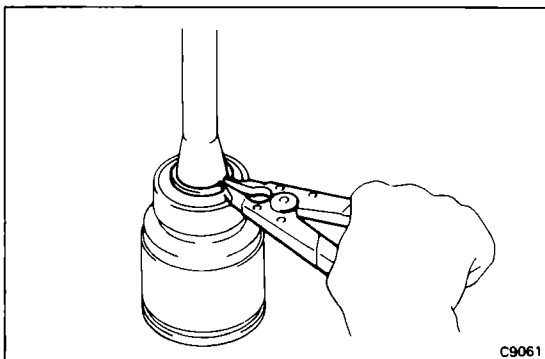
(See page FA-15)

1. INSTALL SNAP RING TO CENTER DRIVE SHAFT

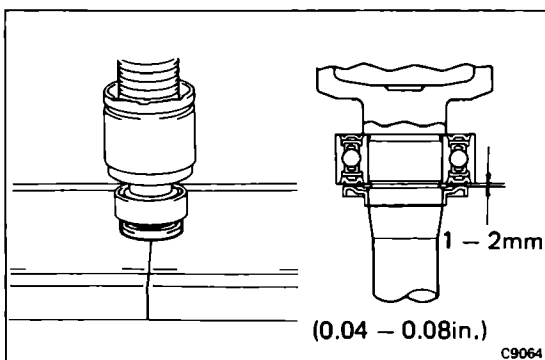


2. INSTALL BEARING AND SNAP RING

- (a) Using SST and a press, press in the bearing.
SST 09527-20011



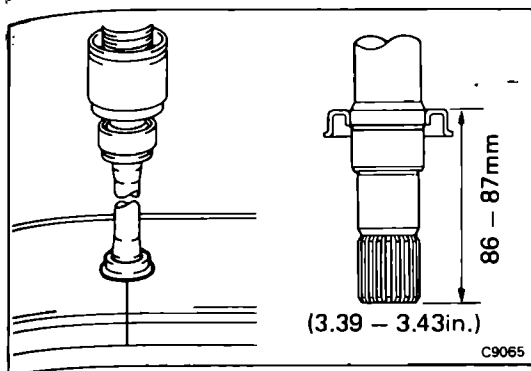
- (b) Using snap ring pliers, install a new snap ring.



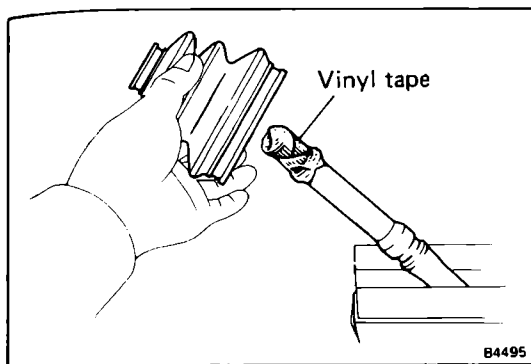
3. INSTALL DUST COVERS

- (a) (Transaxle side)
Using a press, press in the dust cover.

NOTE: The clearance between the dust cover and the bearing should be kept in the range shown in the figure.

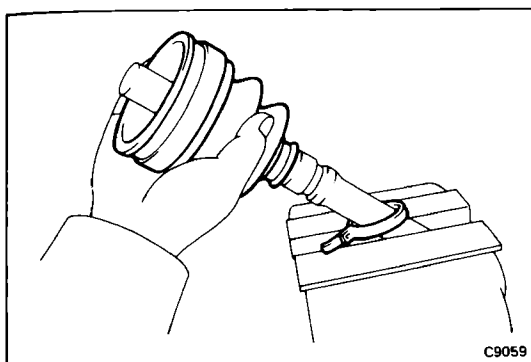


- (b) (Drive shaft side)
Using a press, press in the dust cover.



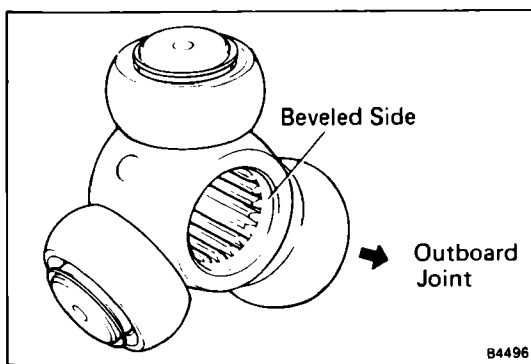
4. PROVISIONALLY INSTALL BOOT AND NEW BOOT CLAMPS TO OUTBOARD JOINT

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



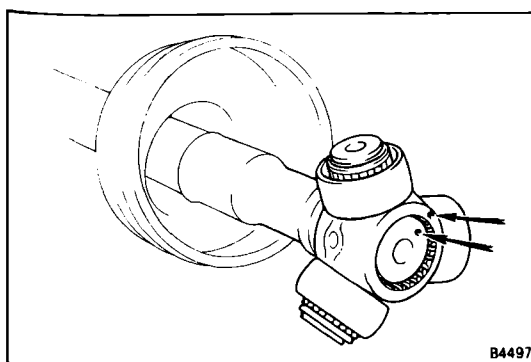
5. PROVISIONALLY INSTALL BOOT AND NEW BOOT CLAMPS TO DRIVE SHAFT

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

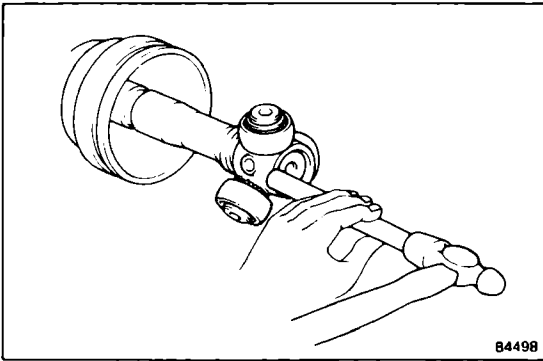


**6. (3S-FE ENGINE)
ASSEMBLE TRIPOD JOINT**

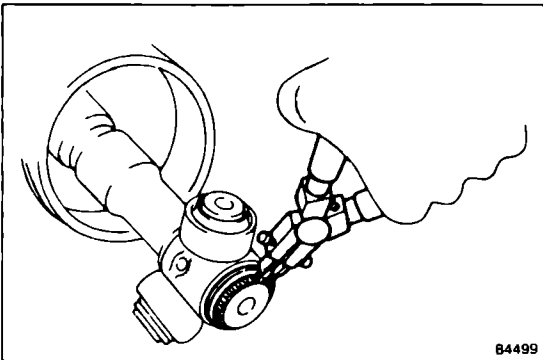
- (a) Place the beveled side of the tripod axial spline toward outboard joint.



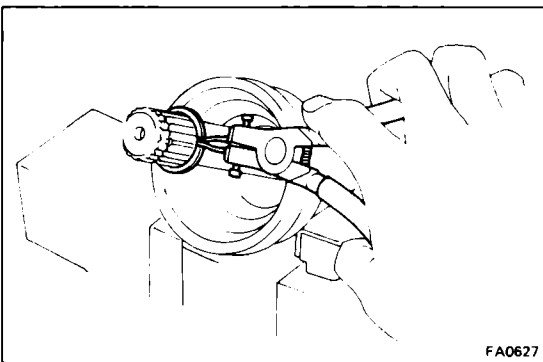
- (b) Align the matchmarks placed before disassembly.



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

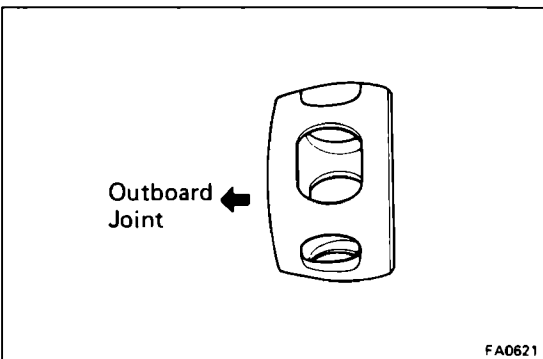


- (d) Using snap ring pliers, install a new snap ring.



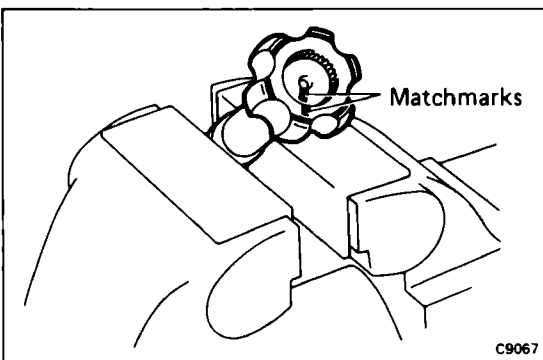
7. (3S-GE ENGINE) ASSEMBLE INBOARD JOINT

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

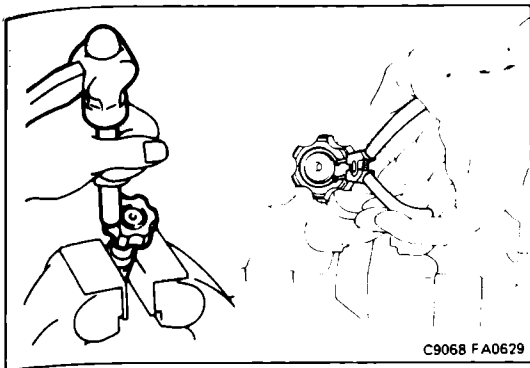


- (b) Install the ball cage to the drive shaft.

NOTE: Install the large end of the ball cage to the inboard joint side.

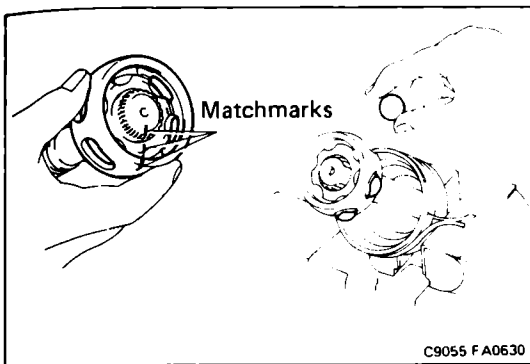


- (c) Align the matchmarks placed before disassembly.



(d) Using a brass bar and hammer, tap in the race to the drive shaft.

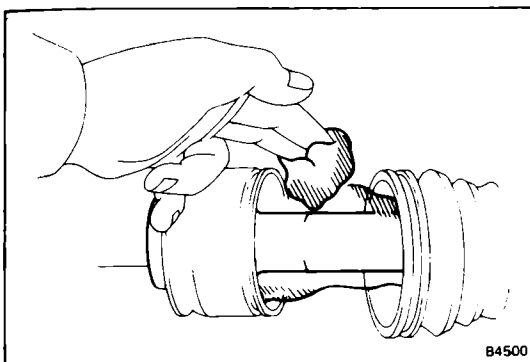
(e) Using snap ring pliers, install a new snap ring.



(f) Install the ball cage to the inner race so that they mesh. Then, align the inner race and ball cage, matchmarks by the rotating the ball cage.

(g) Install the six balls into the cage.

NOTE: Use the grease supplied in the boot kit to do not drop the balls.



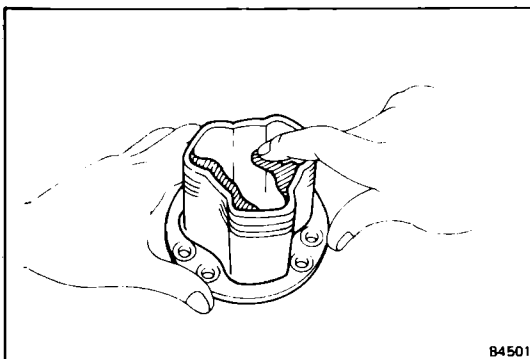
8. ASSEMBLE BOOT TO OUTBOARD JOINT

Before assembling the boots, pack in grease.

NOTE: Use the grease supplied in the boot kit.

Grease capacity:

3S-FE engine	120 — 130 g (0.26 — 0.29 lb)
3S-GE engine	100 — 150 g (0.22 — 0.33 lb)



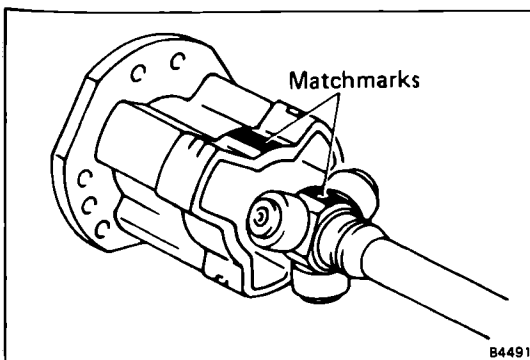
9. (3S-FE ENGINE)

ASSEMBLE INBOARD JOINT TO INBOARD TULIP

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

NOTE: Use the grease supplied in the boot kit.

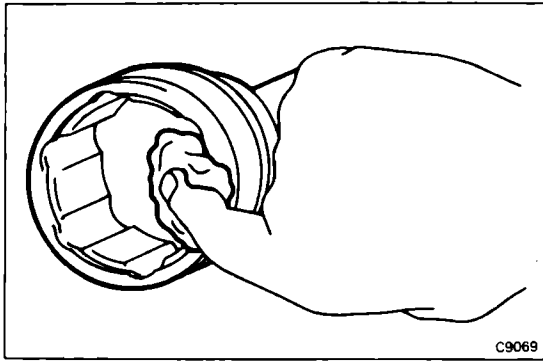
Grease capacity: 212 — 222 g (0.47 — 0.49 lb)



(b) Align the matchmarks placed before disassembly.

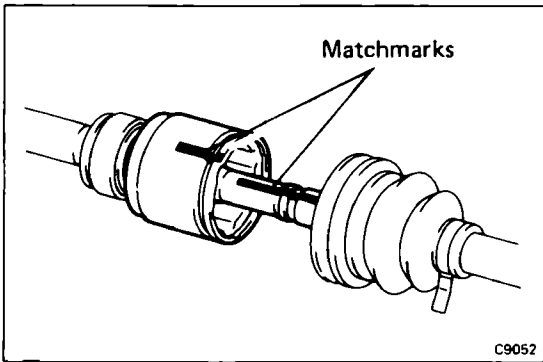
(c) Install the inboard tulip to the drive shaft.

(d) Temporarily install the boot to the inboard tulip.

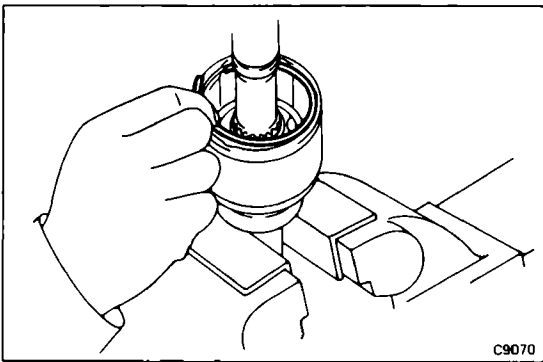


**10. (3S-GE ENGINE)
ASSEMBLE INBOARD JOINT TO INBOARD OUTER RACE**

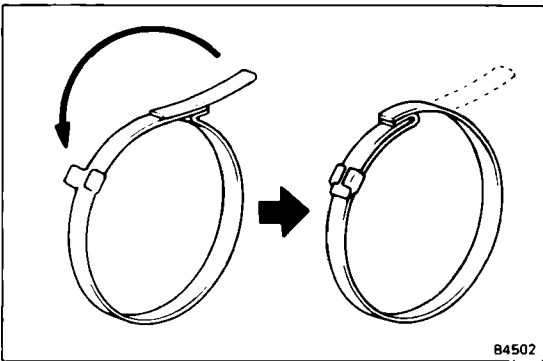
- (a) Pack in grease to the inboard outer race and boot.
- NOTE: Use the grease supplied in the boot kit.
Grease capacity: 100 – 120 g (0.22 – 0.26 lb)



- (b) Align the matchmarks placed before disassembly.
- (c) Install the inboard outer race to the drive shaft.

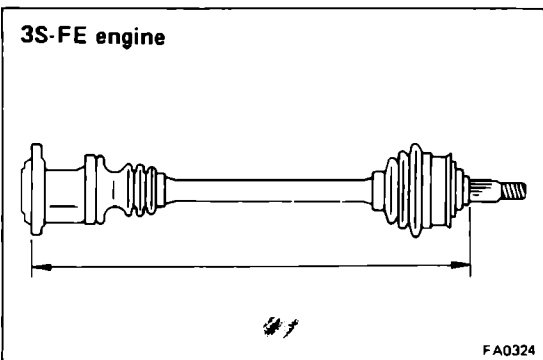


- (d) Install a new snap ring to the inboard outer race as shown.
- (e) Install the boot to the inboard outer race.



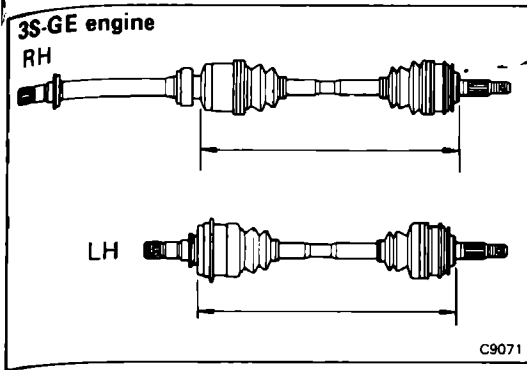
11. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS

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



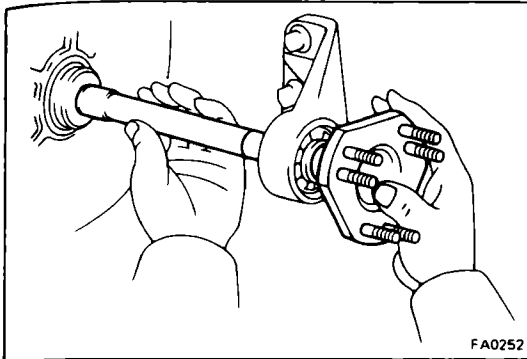
- (c) In sure that the boot is not stretched or contracted when the drive shaft is at standard length.

Drive shaft length:
3S-FE engine 445.3 mm (17.531 in.)



Drive shaft length:

3S-GE engine LH 459.3 mm (18.083 in.)
RH 461.8 mm (18.181 in.)



INSTALLATION OF FRONT DRIVE SHAFT

(See page FA-15)

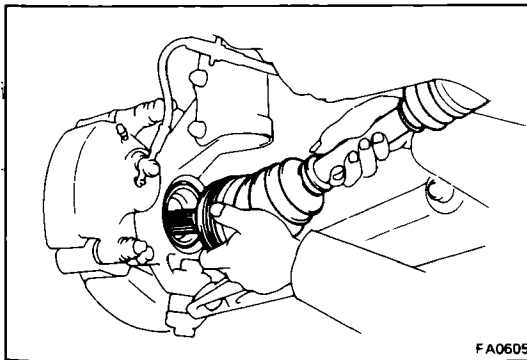
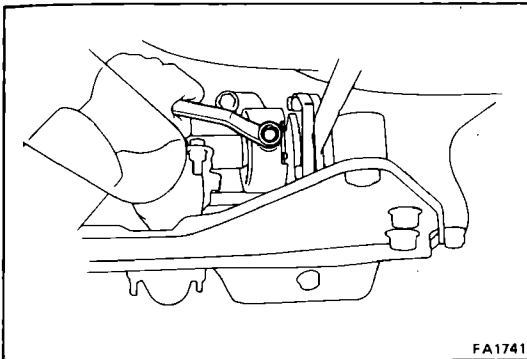
1. (3S-FE ENGINE)

INSTALL CENTER DRIVE SHAFT

- (a) Apply MP grease to the transaxle oil seal lip.
- (b) Insert the center drive shaft to the transaxle through the bearing bracket.

- (c) Secure the center drive shaft with a new snap ring.
- (d) Torque a new center drive shaft stopper bolt.

Torque: 330 kg-cm (24 ft-lb, 32 N·m)



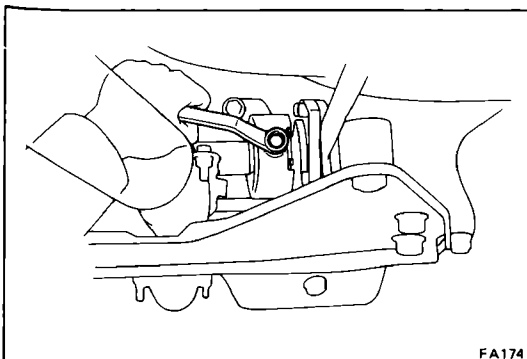
2. (3S-GE ENGINE)

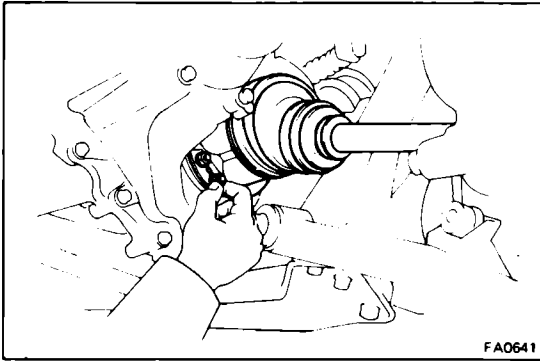
INSTALL RH DRIVE SHAFT WITH CENTER DRIVE SHAFT

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

- (c) Secure the center drive shaft with a new snap ring.
- (d) Torque a new center drive shaft stopper bolt.

Torque: 330 kg-cm (24 ft-lb, 32 N·m)



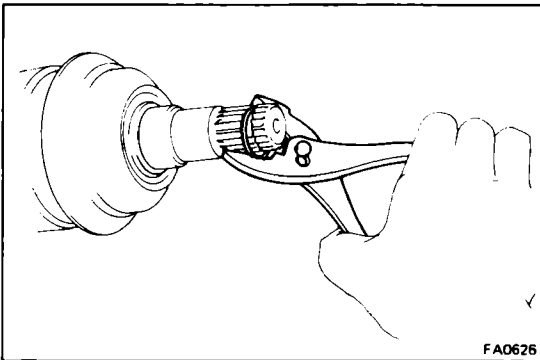


**3. (3S-FE ENGINE)
INSTALL FRONT DRIVE SHAFT**

- (a) Install the outboard joint side of the drive shaft to the axle hub.

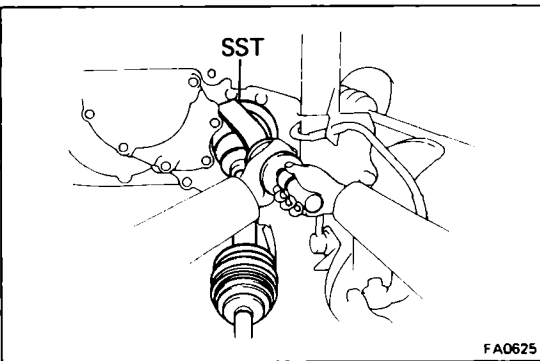
CAUTION: Be careful not to damage the boot.

- (b) Finger tighten the six nuts holding the drive shaft to the center drive shaft or differential side gear shaft.



**4. (3S-GE ENGINE)
INSTALL FRONT DRIVE SHAFT**

- (a) Install a new snap ring to inboard joint shaft.
 (b) Apply MP grease to the transaxle oil seal lip.
 (c) Install the LH drive shaft to the transaxle.

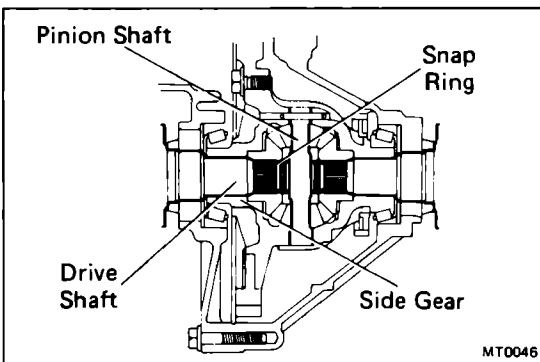


- (d) Using SST, drive in the LH drive shaft.

SST 09520-32060

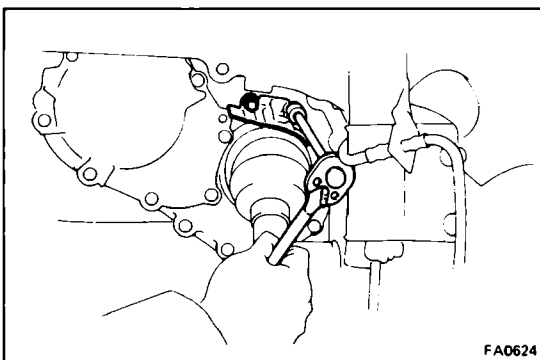
- (e) Push the drive shaft to the differential and measure the distance between the transaxle case and the mark on the drive shaft in step 9 on page FA-16.

Check that the measurements is the same as the measurement recorded in step 9 on page FA-16.

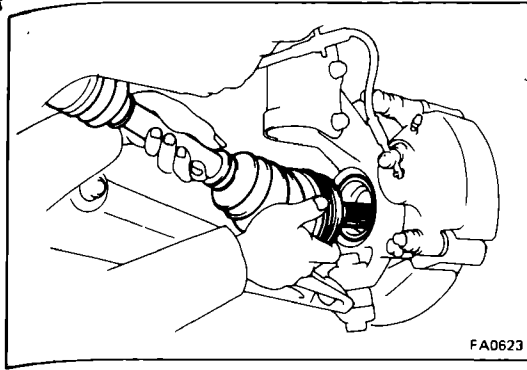


**5. (3S-GE ENGINE)
CHECK INSTALLATION OF LH FRONT DRIVE SHAFT**

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

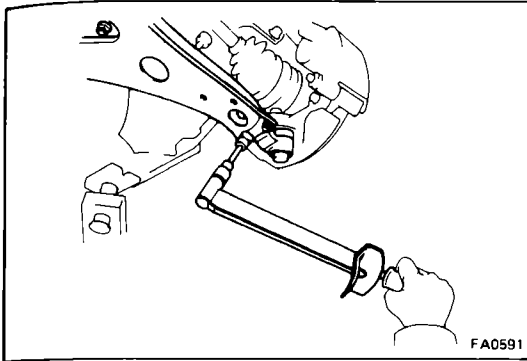


**6. (3S-GE ENGINE)
INSTALL TRANSAXLE PROTECTOR**



7. (3S-GE ENGINE)
INSTALL RH FRONT DRIVE SHAFT TO AXLE HUB

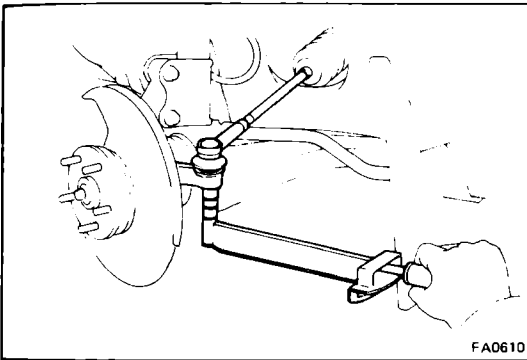
CAUTION: Be careful not to damage the drive shaft boot and oil seal lip.



8. CONNECT STEERING KNUCKLE TO LOWER ARM

Connect the steering knuckle to lower arm and torque the bolt and two nuts.

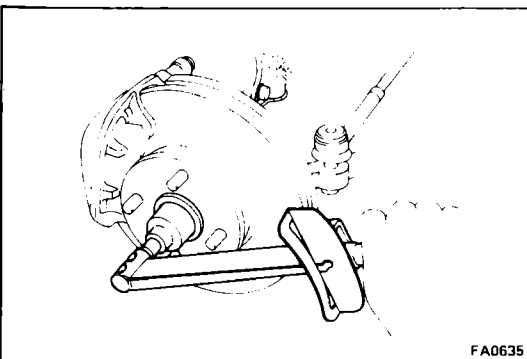
Torque: 1,300 kg-cm (94 ft-lb, 127 N·m)



9. CONNECT TIE ROD END TO STEERING KNUCKLE

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

Torque: 500 kg-cm (36 ft-lb, 49 N·m)

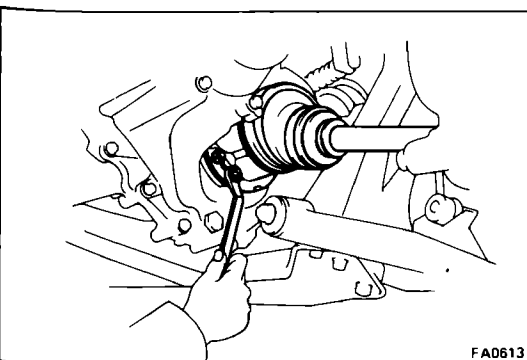


10. INSTALL BEARING LOCK NUT, LOCK NUT CAP AND COTTER PIN

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

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

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



11. TORQUE SIX NUTS HOLDING FRONT DRIVE SHAFT TO DIFFERENTIAL SIDE SHAFT OR CENTER DRIVE SHAFT

Torque the six nuts while depressing the brake pedal.

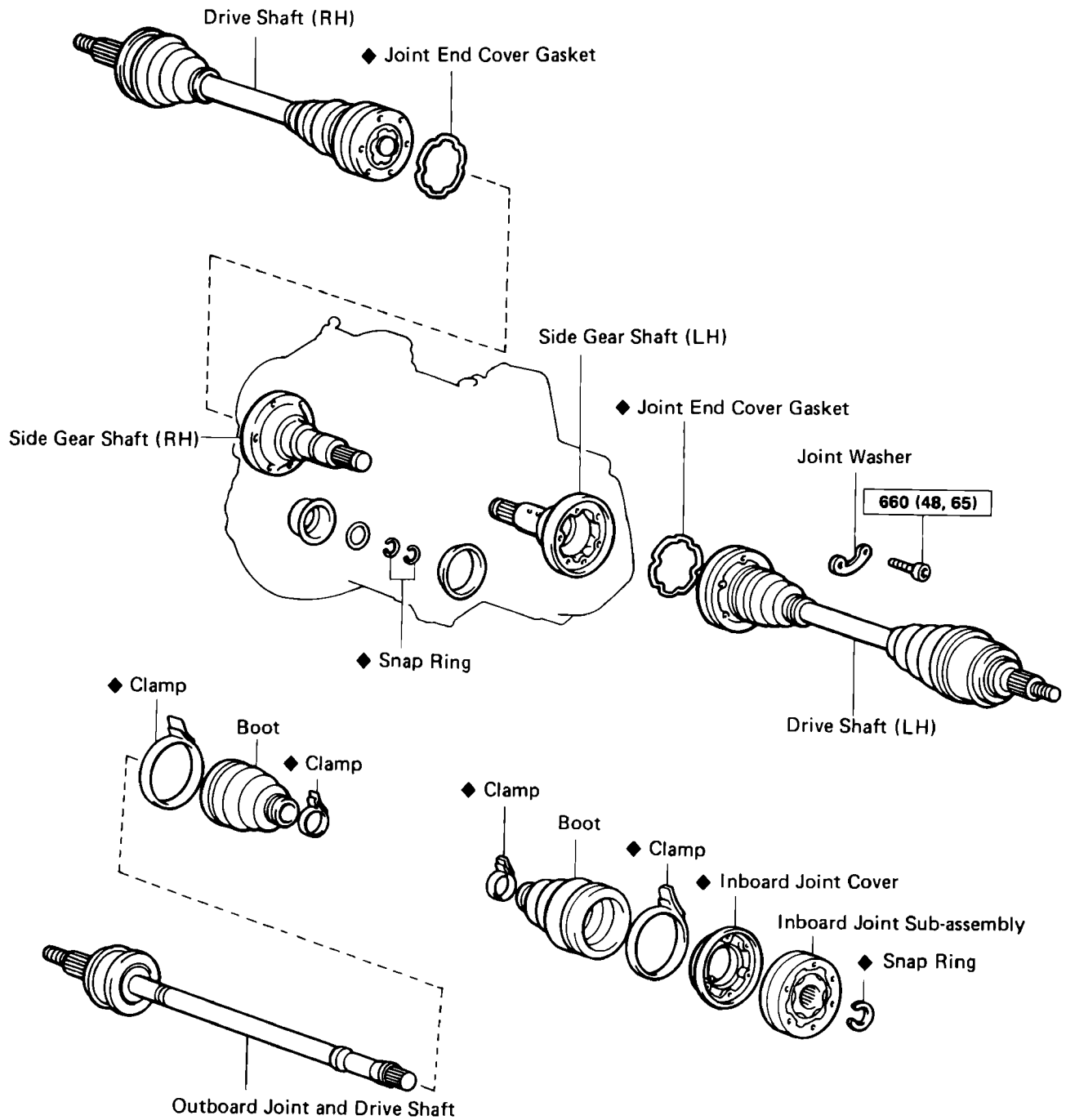
Torque: 370 kg-cm (27 ft-lb, 36 N·m)

12. INSTALL TRANSAXLE PROTECTOR

13. FILL TRANSAXLE WITH GEAR OIL OR FLUID

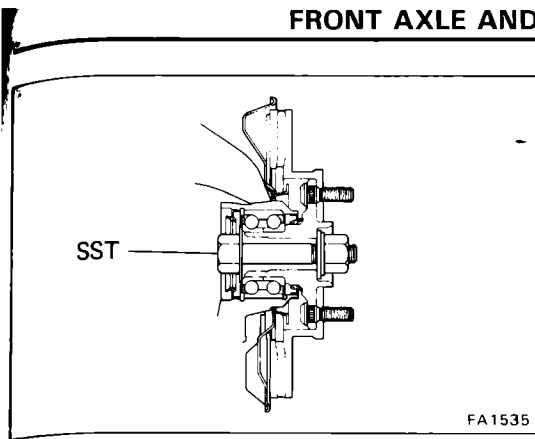
14. INSTALL ENGINE UNDER COVER

FRONT DRIVE SHAFT (4WD) COMPONENTS



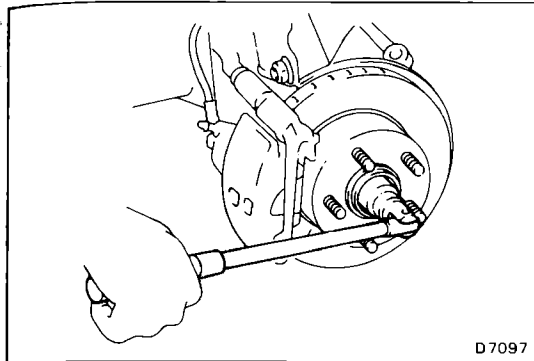
kg-cm (ft-lb, N-m) : Specified torque

◆ Non-reusable part



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

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

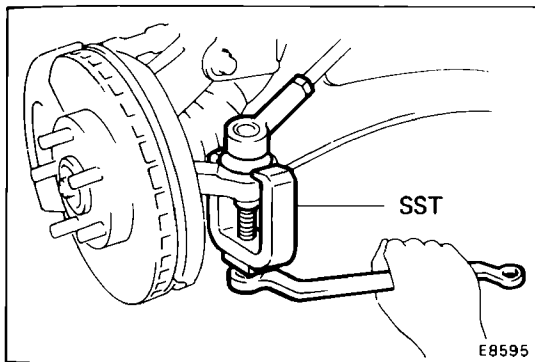


REMOVAL OF FRONT DRIVE SHAFT

(See page FA-32)

1. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT
 - (a) Remove the cotter pin and lock nut cap.
 - (b) Loosen the bearing lock nut while depressing the brake pedal.

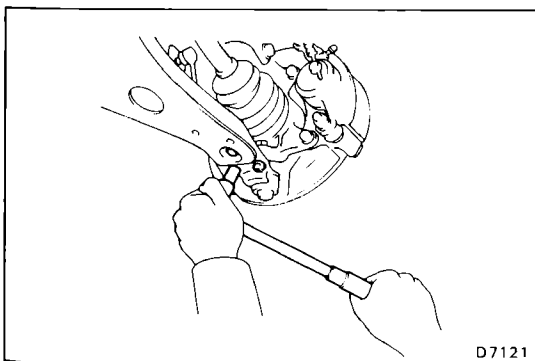
2. REMOVE ENGINE UNDER COVER RH AND LH



3. DISCONNECT TIE ROD END

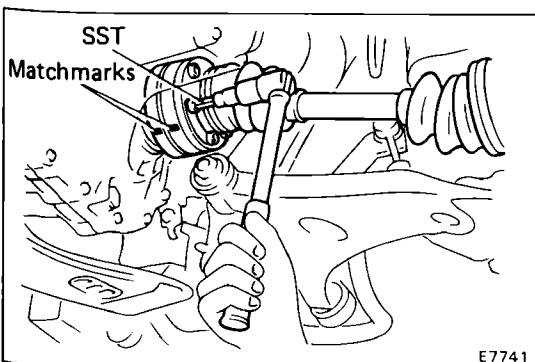
- (a) Remove the cotter pin and nut from the tie rod end.
- (b) Using SST, disconnect the tie rod end from the steering knuckle.

SST 09611-22012



4. DISCONNECT STEERING KNUCKLE FROM LOWER ARM

Remove the bolt and two nuts and disconnect the steering knuckle from the lower arm.



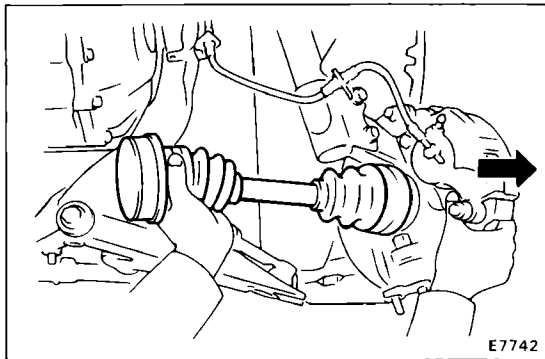
5. LOOSEN SIX NUTS HOLDING FRONT DRIVE SHAFT TO DIFFERENTIAL SIDE GEAR SHAFT

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

CAUTION: Do not use a punch to mark the matchmarks. Use paint, etc.

- (b) Using SST, remove the six hexagon bolts and the three washers while depressing the brake pedal.

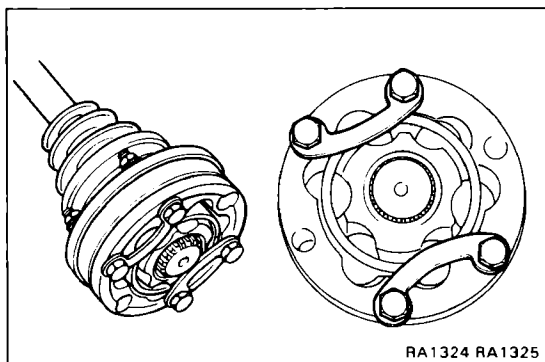
SST 09043-88010



- (c) Push the front axle carrier towards the outside of the vehicle, and separate the drive shaft from the side gear shaft.

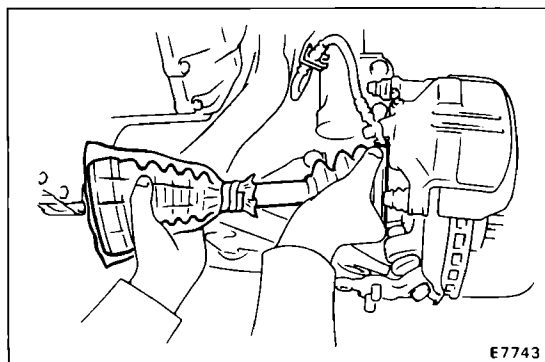
CAUTION: When moving the drive shaft, do not compress the inboard boot.

- (d) Remove the joint end cover gasket from the drive shaft.

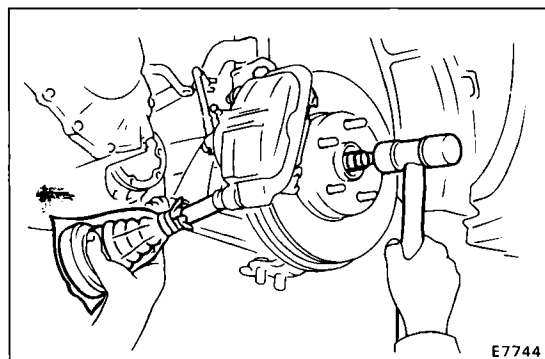


- (e) Use bolts, nuts and washers to keep the inboard joint together.

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

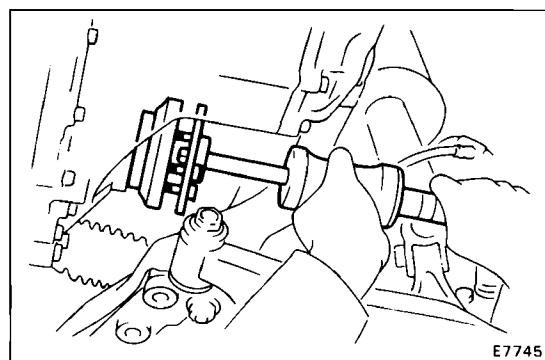


- (f) Cover the inboard joint and side gear shaft, vinyl bag to keep out dust and sand.



6. REMOVE FRONT DRIVE SHAFT

Using a plastic hammer, tap out the drive shaft from the axle hub.



7. DRAIN OUT GEAR OIL

8. REMOVE SIDE GEAR SHAFT FROM TRANSAXLE

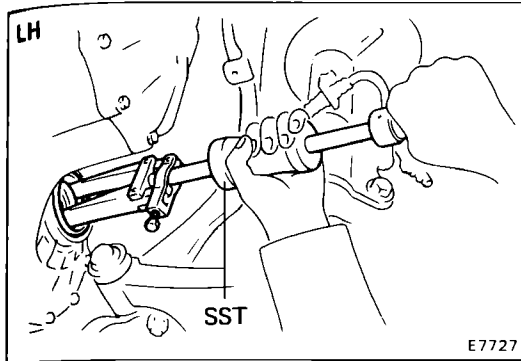
- (a) In order to install the side gear shaft, push the side gear shaft to the differential. Measure and note the distance between the transaxle case and the side gear shaft.

- (b) Using SST, drive out the side gear shaft.

SST 09520-32012

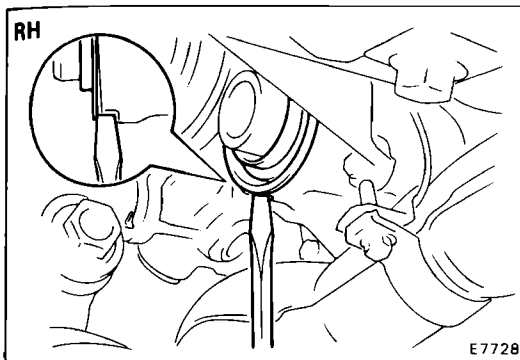
ON-VEHICLE REPLACEMENT OF SIDE GEAR SHAFT OIL SEAL

- 1. REMOVE SIDE GEAR SHAFT**
(See step 8 on page FA-34)



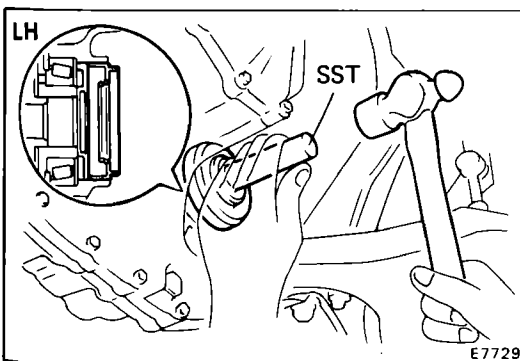
- 2. REMOVE LH OIL SEAL**

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



- 3. REMOVE RH OIL SEAL**

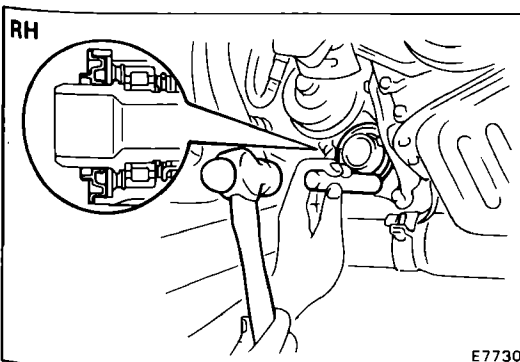
Using a screwdriver, remove the oil seal as shown.



- 4. INSTALL LH OIL SEAL**

Using SST and hammer, tap in a new oil seal.
SST 09223-15010

NOTE: Coat the oil seal lip with MP grease.

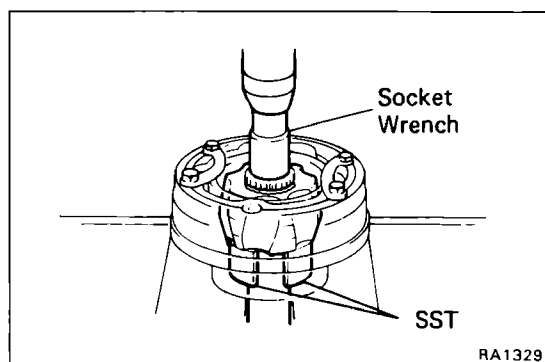
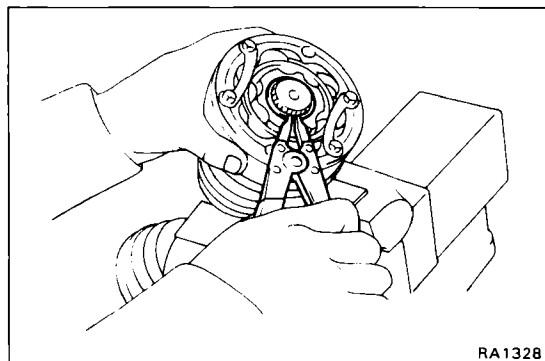
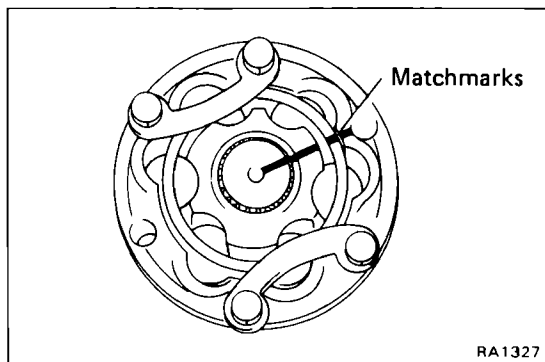
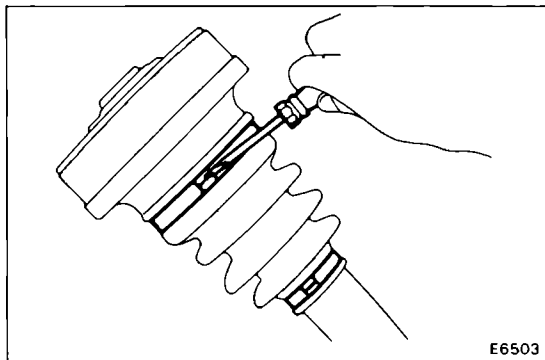
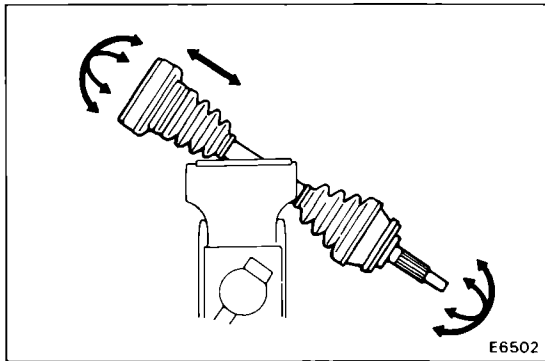


- 5. INSTALL RH OIL SEAL**

Using a brass bar and hammer, tap in a new oil seal.

NOTE: Coat the oil seal lip with MP grease.

- 6. INSTALL SIDE GEAR SHAFT**
(See page FA-40)



DISASSEMBLY OF FRONT DRIVE SHAFT

(See page FA-32)

1. CHECK DRIVE SHAFT

- Check to see that there is no play in the inboard and outboard joints.
- Check to see that the inboard joint slide smoothly in the thrust direction.
- Check to see that there is no play in the radial direction of the inboard joint.
- Check the damage of boot.

2. REMOVE INBOARD JOINT BOOT CLAMPS

3. DISASSEMBLE INBOARD JOINT

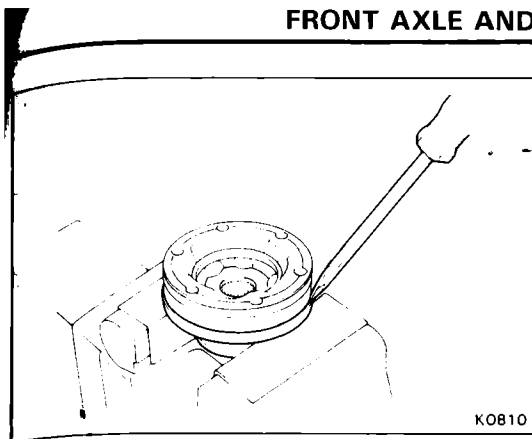
- Place matchmarks on the inboard joint and drive shaft.
CAUTION: Do not use a punch to mark the matchmarks. Use paint, etc.

- Using snap ring pliers, remove the snap ring.

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

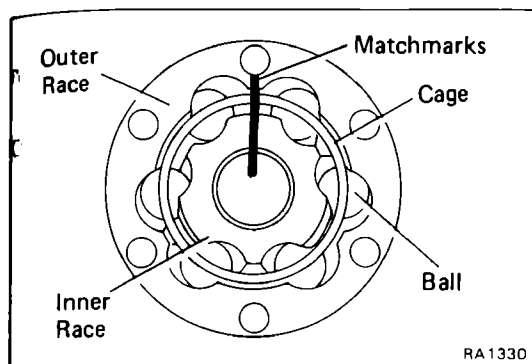
SST 09726-10010 (09726-00030)

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

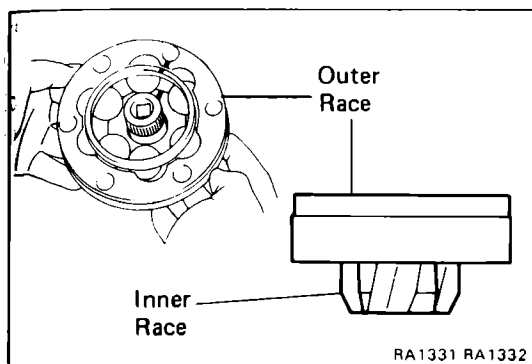


- (e) Using a screwdriver and hammer, remove the inboard joint from inboard joint cover.

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

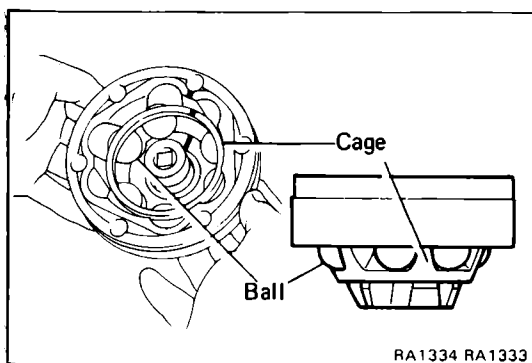


NOTE: Should the joint become disassembled, reassemble it in the way shown in the illustration.

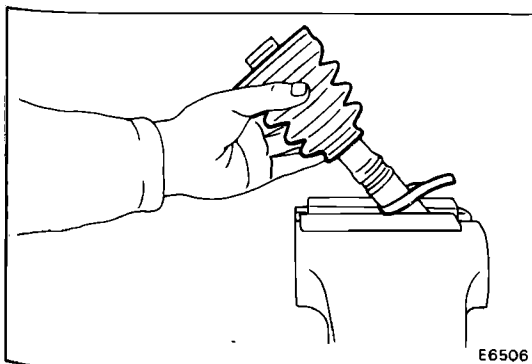


SERVICE HINT

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

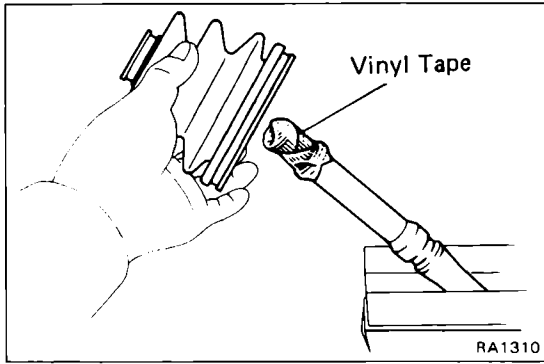


- (d) Jiggle the outer race and cage as shown in the illustration to place the balls in their respective grooves.
 (e) Lower the outer race and cage so that they fit tightly with the inner race.



4. REMOVE BOOTS

- (a) Remove the boot of the inboard joint and outboard joint.
 (b) Check the inside and outside of the boots for damage.



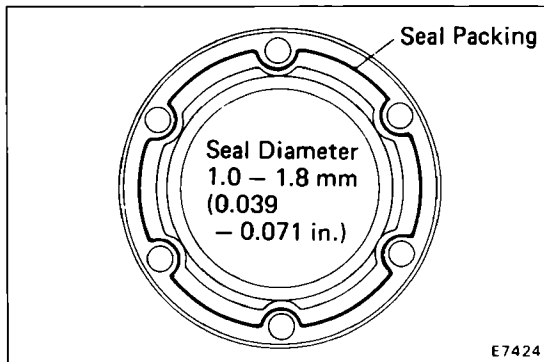
ASSEMBLY OF FRONT DRIVE SHAFT

(See page FA-32)

1. TEMPORARILY INSTALL BOOTS AND NEW BOOT CLAMPS

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

Temporarily install the boot and a new clamp to the out-board joint and inboard joint.

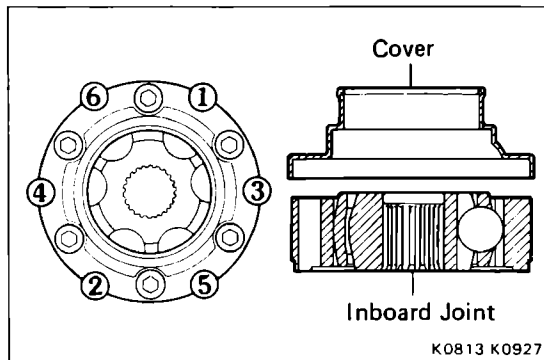


2. ASSEMBLE NEW INBOARD JOINT COVER

(a) Apply seal packing to the inboard joint cover as shown in the figure.

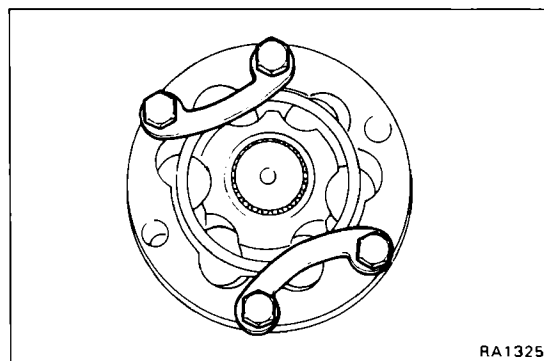
Seal packing: Part No. 08826-00801, THREE BOND 1121 or equivalent

NOTE: Avoid applying an excess amount to the surface.



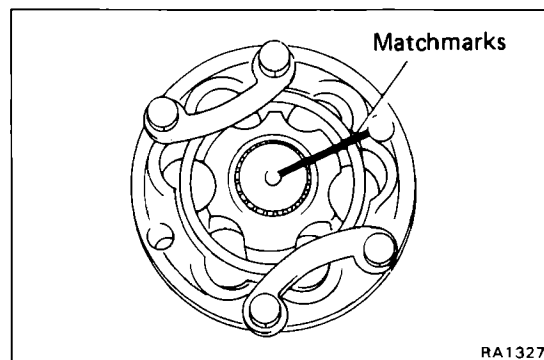
(b) Align the bolt holes of the cover with those of the inboard joint, then insert the hexagon bolts.

(c) Using a plastic hammer to tap the rim of the inboard joint cover into place. Do this in the order shown, and repeat several times.



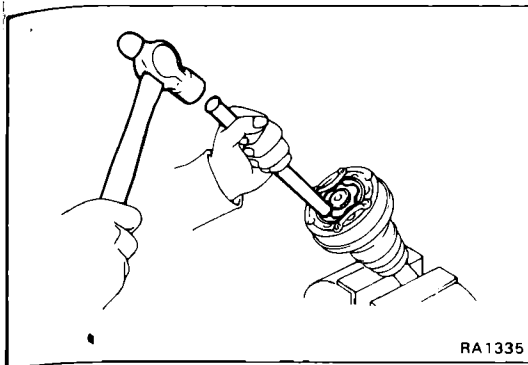
(d) Use bolts, nuts and washers to keep the inboard joint together.

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



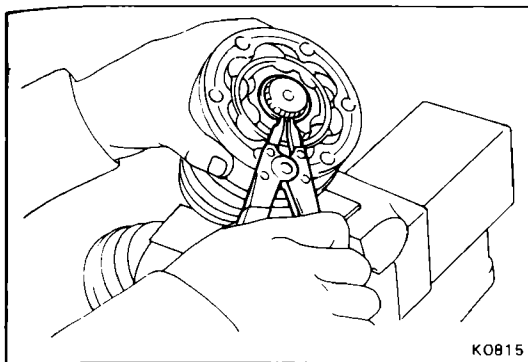
3. ASSEMBLE INBOARD JOINT

(a) Align the matchmarks placed before disassembly.

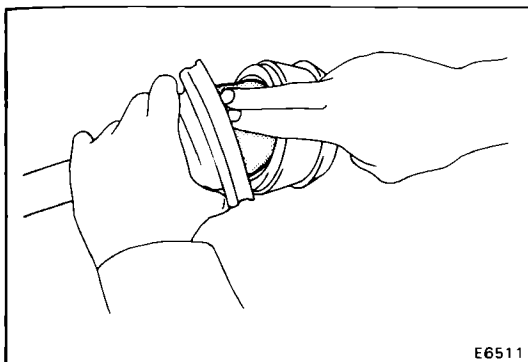


- (b) Using a brass bar and hammer, tap the inboard joint onto the drive shaft.

CAUTION: 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.

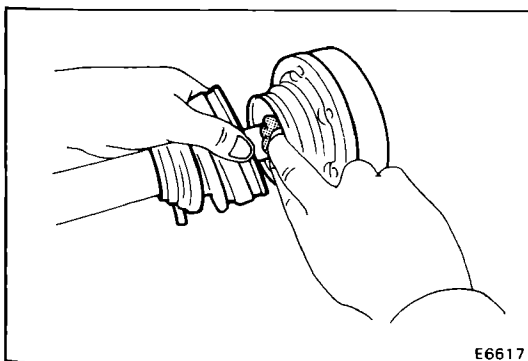


4. ASSEMBLE BOOT TO OUTBOARD JOINT

Before assembling the boots, pack in grease.

NOTE: Use the grease supplied in the boot kit.

Grease capacity: 120 g (0.26 lb)

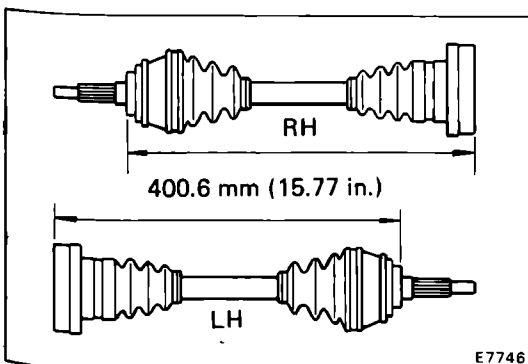


5. ASSEMBLE INBOARD JOINT TO INBOARD JOINT

Pack in grease to the inboard tulip and boot.

NOTE: Use the grease supplied in the boot kit.

Grease capacity: 90 g (0.20 lb)

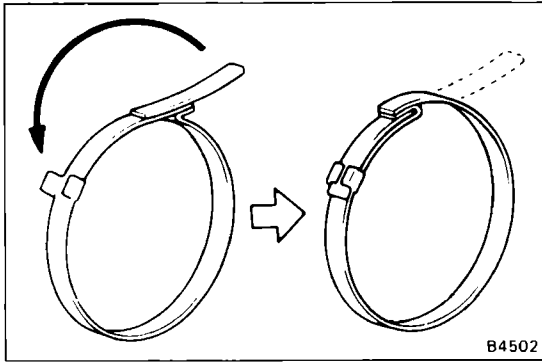


6. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS

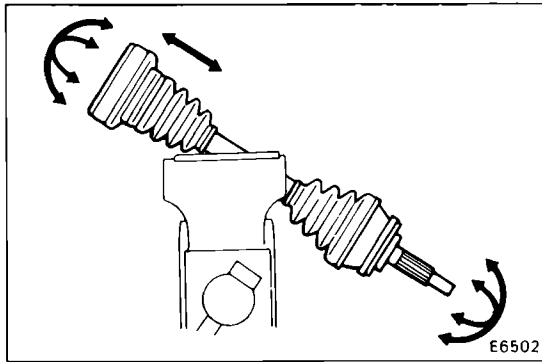
- (a) Be sure the boot is on the shaft groove.

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

Drive shaft length: 400.6 mm (15.77 in.)

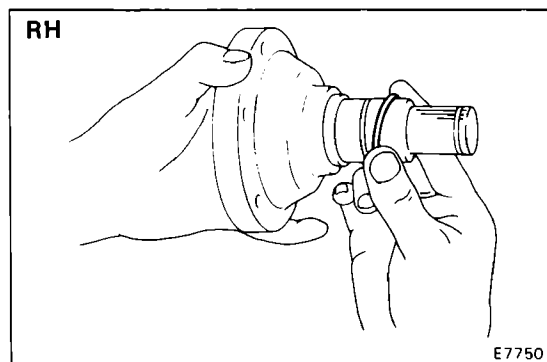


(c) Bend the band and lock it as shown in the figure.



7. CHECK DRIVE SHAFT

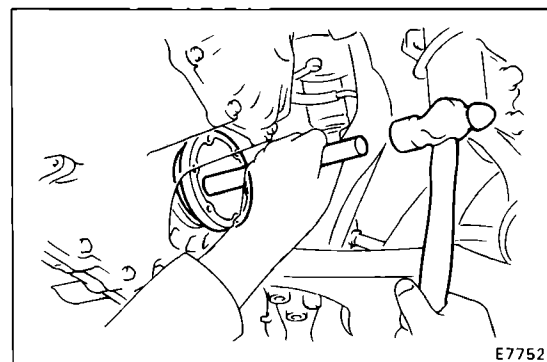
- (a) Check to see that there is no play in the inboard joint and outboard joint.
- (b) Check to see that the inboard joint slide smoothly in the thrust direction.



INSTALLATION OF FRONT DRIVE SHAFT

(See page FA-32)

1. INSTALL A NEW O-RING TO RH SIDE GEAR SHAFT

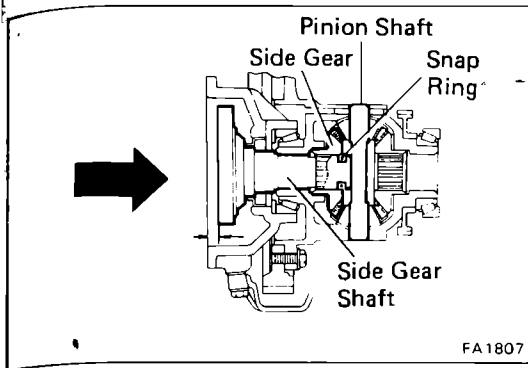


2. INSTALL SIDE GEAR SHAFT

- (a) Insure that a new snap ring is positioned securely in the groove of the side gear shaft.
- (b) Using a brass bar and hammer, tap in the drive shaft until it makes contact with the pinion shaft.

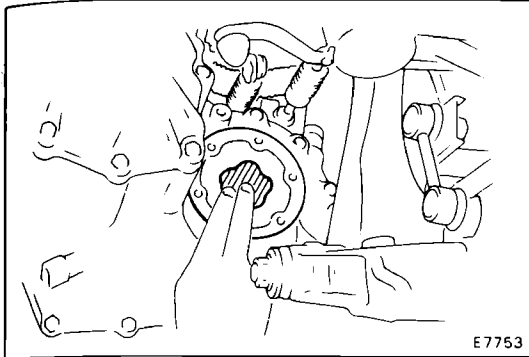
NOTE:

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



3. CHECK INSTALLATION OF SIDE GEAR SHAFT

- Check that the side gear shaft will not come out by trying to pull it completely out by hand.
- Push the side gear shaft to the differential and measure the distance between the side gear shaft and the transaxle case. Check that the distance between the two is the same as the measurement taken before removing the side gear shaft.



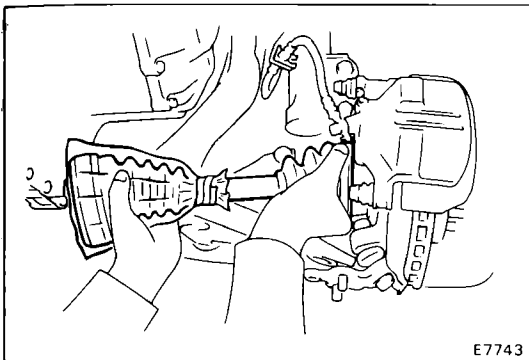
4. PACK IN GREASE TO SIDE GEAR SHAFT

Pack in grease to the side gear shaft.

Grease capacity: 43 g (0.09 lb)

NOTE: Use the grease supplied in the boot kit. Supply of grease only is also available.

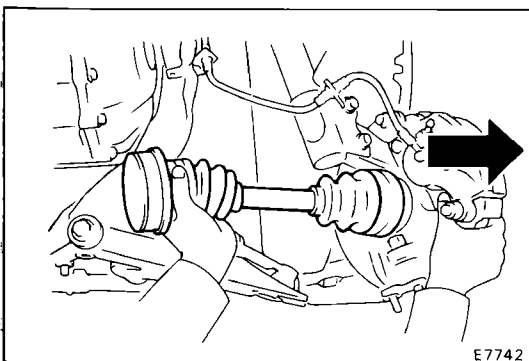
Part No. 90999-94029



5. INSTALL FRONT DRIVE SHAFT TO AXLE HUB

- Install the outboard joint side of the drive shaft to the axle hub.

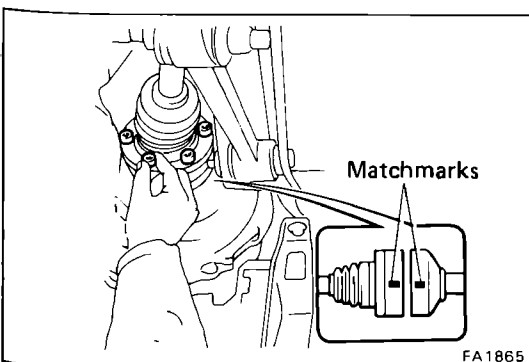
CAUTION: Be careful not to damage the boot, oil seal and deflector.



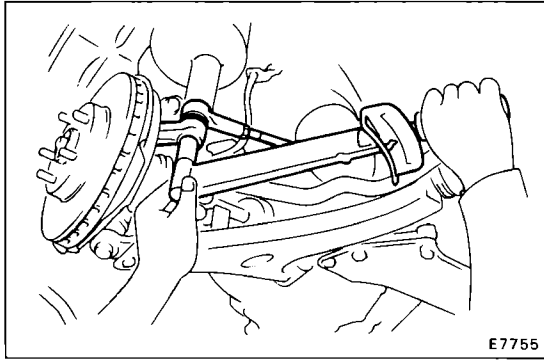
- Push the rear axle carrier towards the outside vehicle and lift up the inboard joint.

CAUTION: When moving the drive shaft do not compress the boot.

- Remove the vinyl bag, bolts, nuts and washers from the inboard joint.
- Place the new gasket on the inboard joint.



- Align the matchmarks on the side gear shaft and inboard joint.
- Finger tighten the six hexagon bolts and the three washer holding the drive shaft to the side gear shaft.



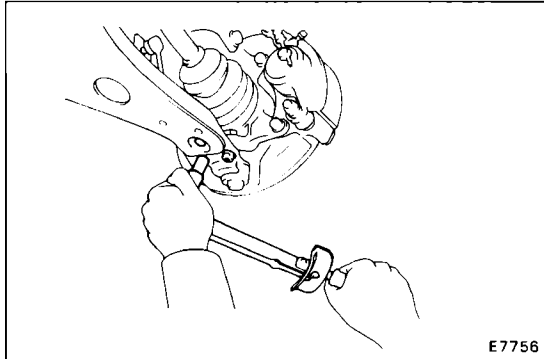
6. CONNECT TIE ROD END TO STEERING KNUCKLE

(a) Install and torque the nut.

Torque: 500 kg-cm (36 ft-lb, 49 N·m)

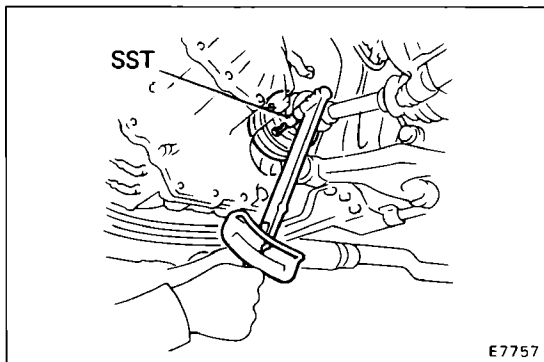
(b) Install a new cotter pin.

NOTE: If the cotter pin hole does not line up, correct by tightening the nut by the smallest amount possible.



7. CONNECT STEERING KNUCKLE TO LOWER ARM

Torque: 1,300 kg-cm (94 ft-lb, 127 N·m)

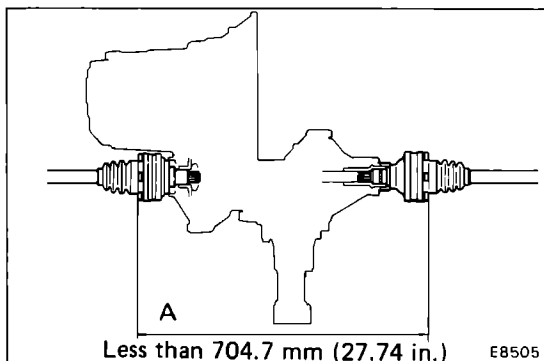


8. TIGHTEN INBOARD JOINT HOLDING SIX HEXAGON BOLTS

Using SST, torque the six hexagon bolts while depressing the brake pedal.

SST 09043-88010

Torque: 660 kg-cm (48 ft-lb, 65 N·m)



REFERENCE

Measure the distance between RH and LH side gear shaft as shown the illustration.

Reference only

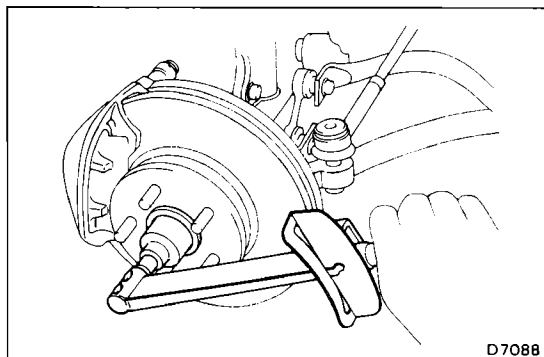
Distance A: Less than 704.7 mm (27.74 in.)

9. INSTALL BEARING LOCK NUT, LOCK NUT CAP AND NEW COTTER PIN

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

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

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

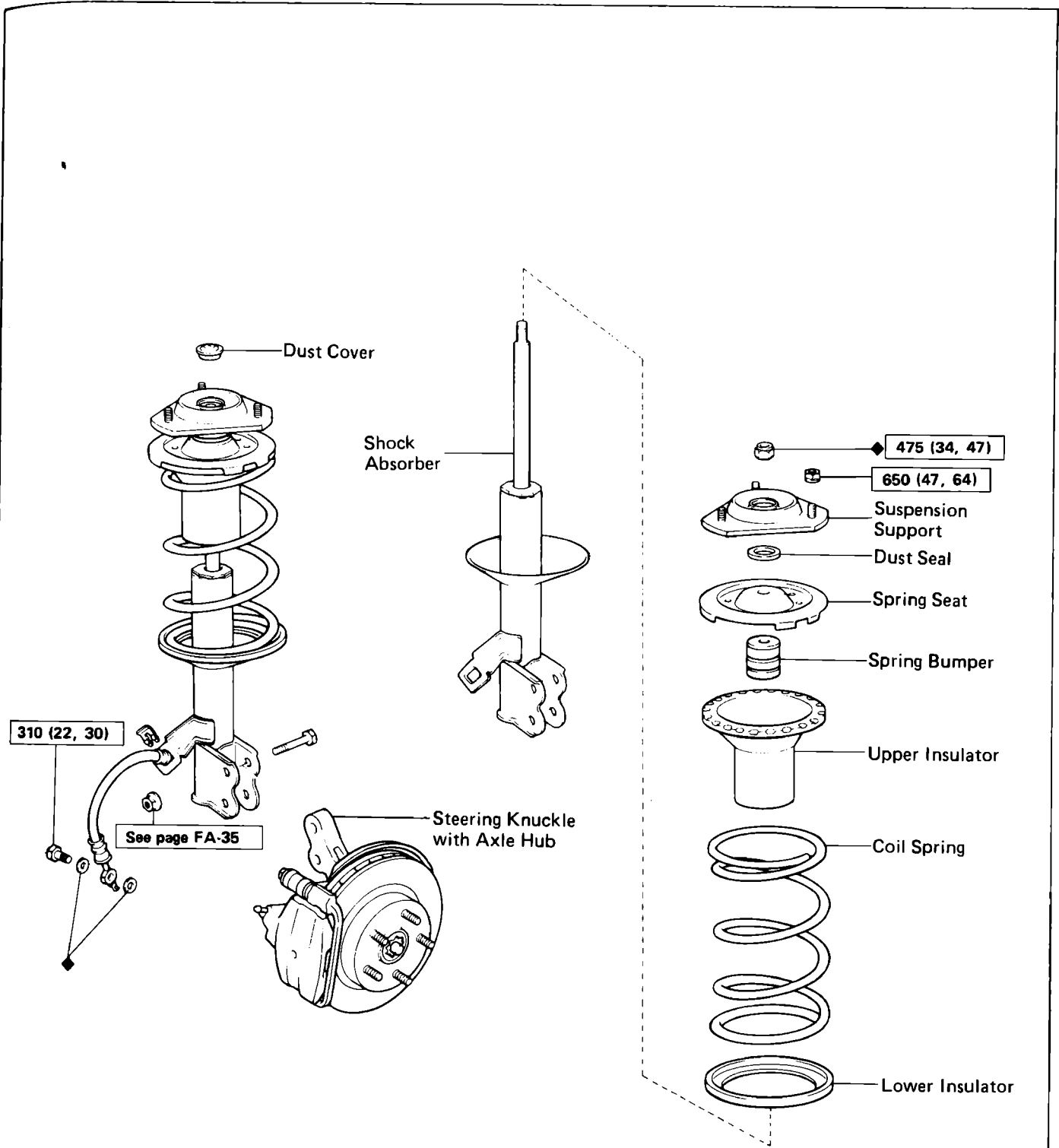


10. FILL TRANSAXLE WITH GEAR OIL (See step 4 on page MT-7)

11. INSTALL ENGINE UNDER COVER RH AND LH

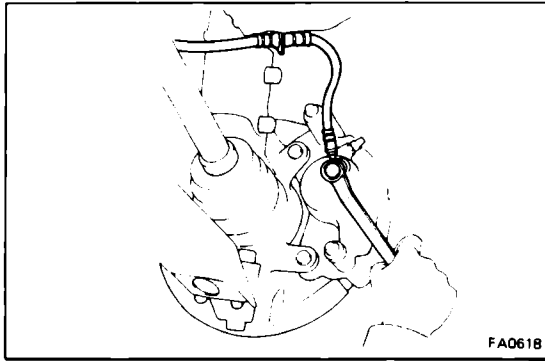
12. CHECK FRONT WHEEL ALIGNMENT (See page FA-3)

FRONT SHOCK ABSORBER COMPONENTS



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

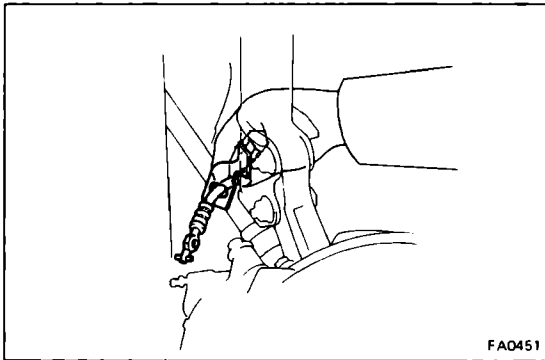
◆ Non-reusable part



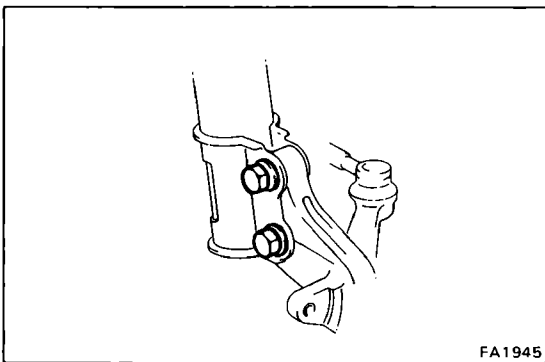
REMOVAL OF FRONT SHOCK ABSORBER ASSEMBLY

1. DISCONNECT BRAKE HOSE

- (a) Remove the union bolt and two washers and disconnect the brake hose from the disc brake caliper.
- (b) Drain the brake fluid into a container.

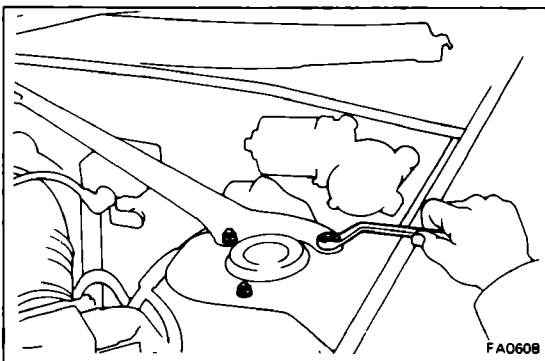


- (c) Remove the clip from the brake hose.
- (d) Pull off the brake hose from the brake hose bracket.



2. DISCONNECT STEERING KNUCKLE FROM SHOCK ABSORBER

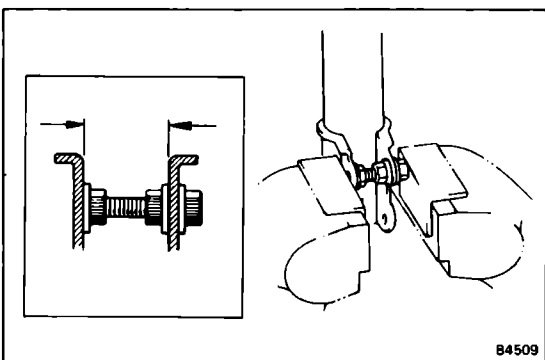
Remove the bolts and nuts and disconnect the steering knuckle and shock absorber.



3. REMOVE SHOCK ABSORBER FROM BODY

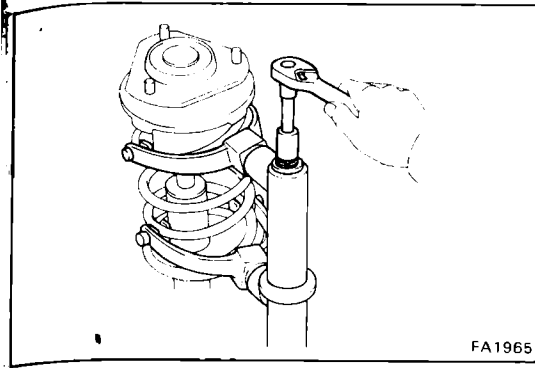
- (a) Remove the three bolts holding the top of the suspension support.
- (b) Remove the shock absorber from the body.

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



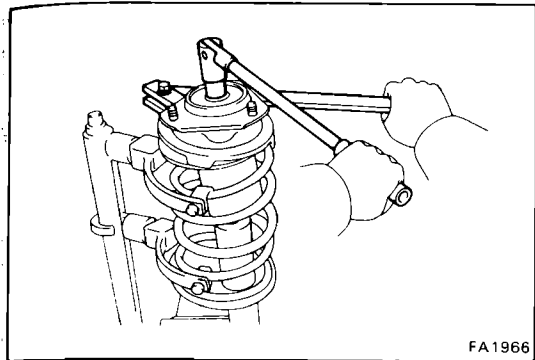
4. CLAMP SHOCK ABSORBER IN VISE

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



5. REMOVE COIL SPRING

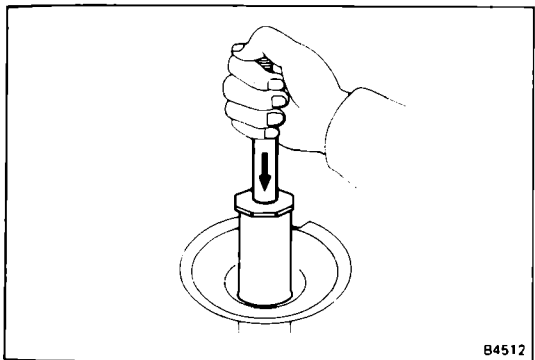
- (a) Using SST, compress the coil spring.
SST 09727-22032 or 09727-30020



- (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, spring seat, spring, insulators and bumper.



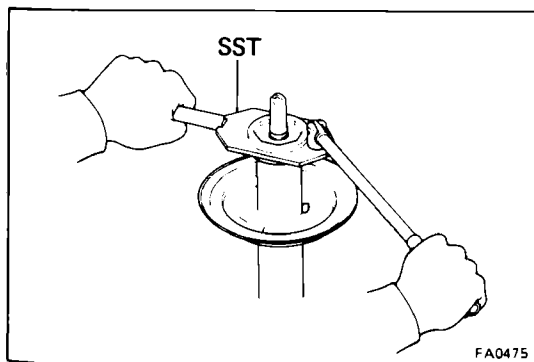
INSPECTION OF FRONT SHOCK ABSORBER ASSEMBLY

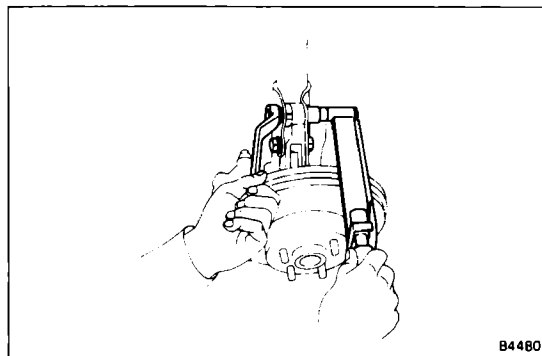
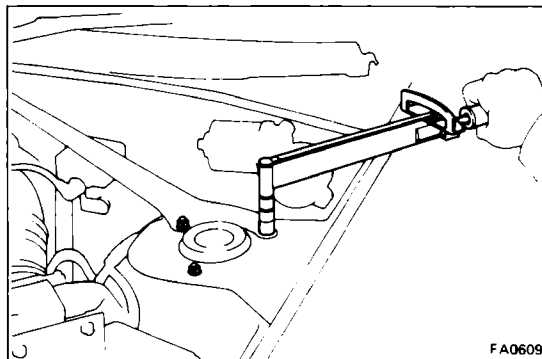
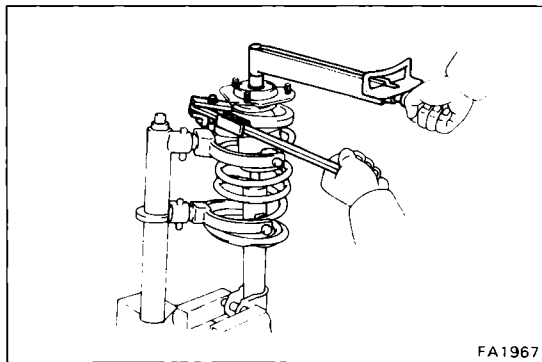
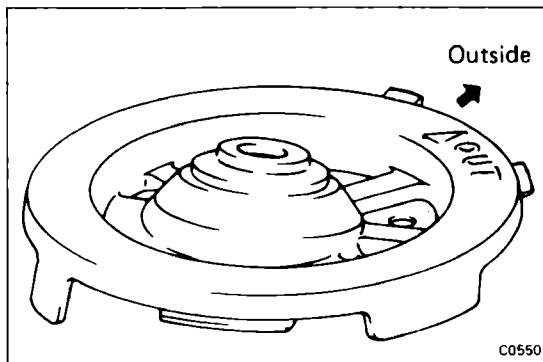
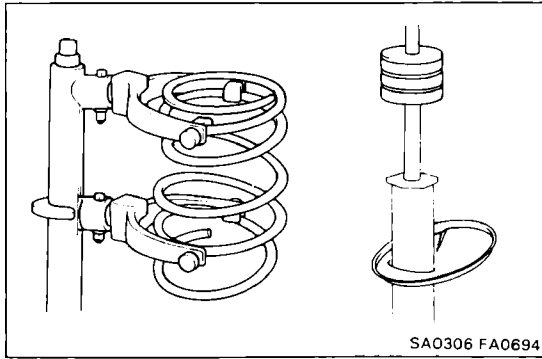
- (a) While pushing the piston rod, check that the pull through out the stroke is even, and there is no abnormal resistance or noise.
- (b) Push the piston rod in fully and release it. Check that it returns at a constant speed throughout.

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

CAUTION: 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 FA-43)

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

- (a) Install the bumper to piston rod.
- (b) Using SST, compress the coil spring.
SST 09727-22032 or 09727-30020
- (c) Install the lower insulator.
- (d) Align the coil spring end with the lower seat hollow and install.
- (e) Install the upper insulator.
- (f) Face the "OUT" mark of the spring seat toward the outside of the vehicle.
- (g) Install the dust seal on the spring seat.
- (h) Install the suspension support.

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

Torque: 475 kg-cm (34 ft-lb, 47 N·m)

SST 09729-22031

2. INSTALL SHOCK ABSORBER TO BODY

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

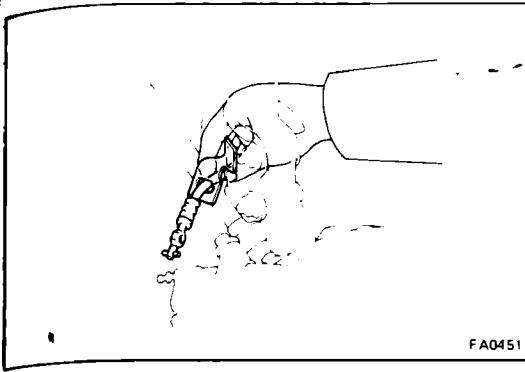
Torque: 650 kg-cm (47 ft-lb, 64 N·m)

CAUTION: Be careful not to damage the drive shaft boot.

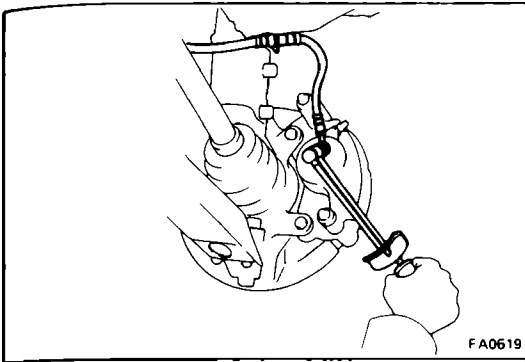
3. INSTALL STEERING KNUCKLE TO SHOCK ABSORBER

- (a) Connect the steering knuckle to the shock absorber lower bracket.
- (b) Install the two bolts.
- (c) Apply engine oil to the threads of the two nuts.
- (d) Torque the nuts.

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

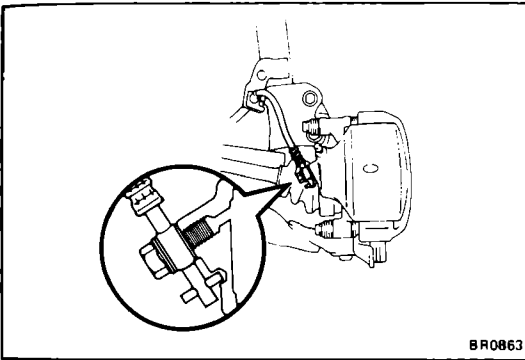
**4. CONNECT FLEXIBLE HOSE**

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



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

Torque: 310 kg-cm (22 ft-lb, 30 N·m)

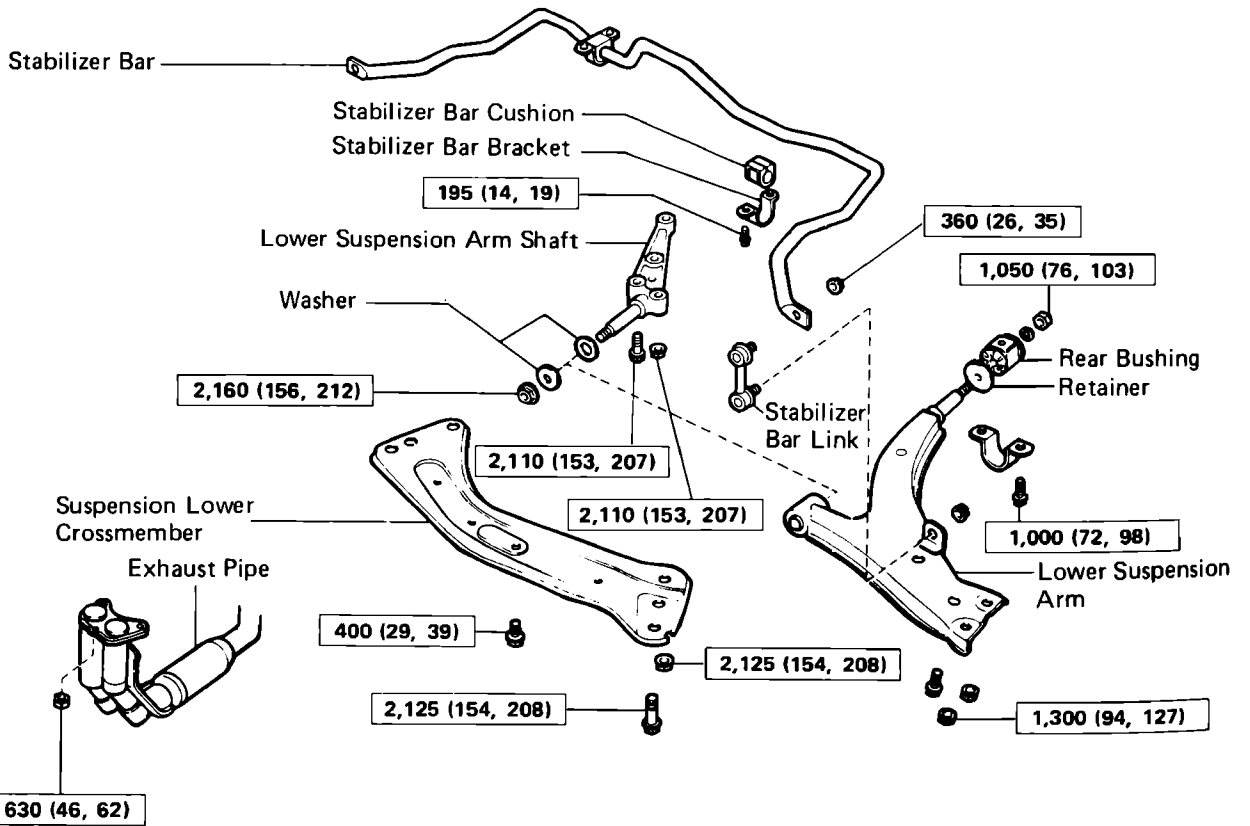
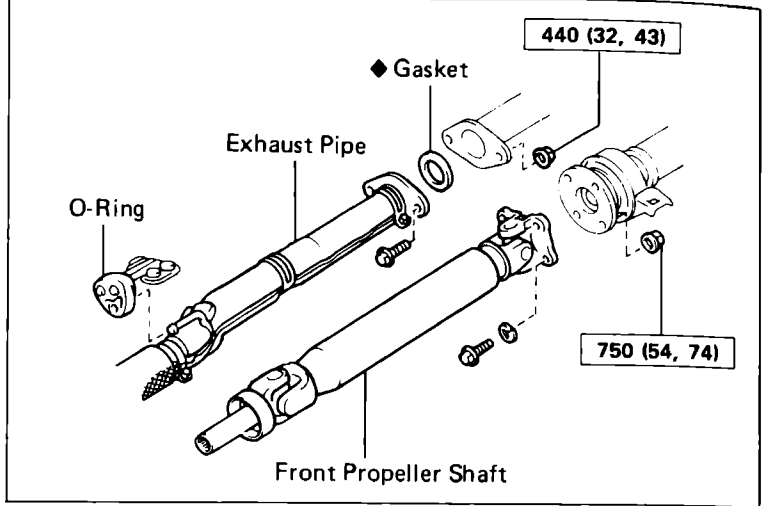


NOTE: When connecting the flexible hose to the caliper, connect so the peg aligns with the hole.

5. INSTALL CLIP**6. BLEED BRAKE LINE (See page BR-3)****7. INSPECT CAMBER (See page FA-4)**

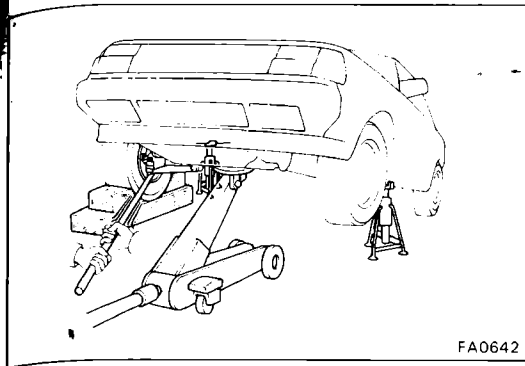
FRONT SUSPENSION COMPONENTS

For 4WD



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

◆ Non-reusable part



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 one front coil spring. Place stands under the vehicle for safety.
- Make sure the front wheels are in a straightforward 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.)

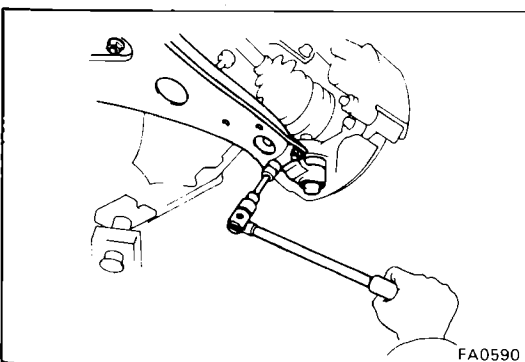
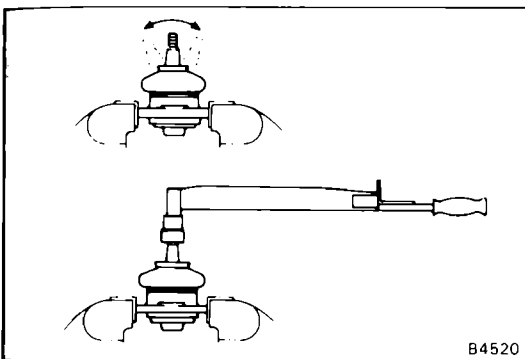
2. INSPECT BALL JOINT FOR ROTATION CONDITION

- Remove the ball joint (See page FA-8).
- 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): 10 – 30 kg-cm
(9 – 26 in.-lb, 1.0 – 2.9 N·m)**

If not within specification, replace the ball joint.

- Install the ball joint.
(See page FA-9)



Lower Arm

(See page FA-48)

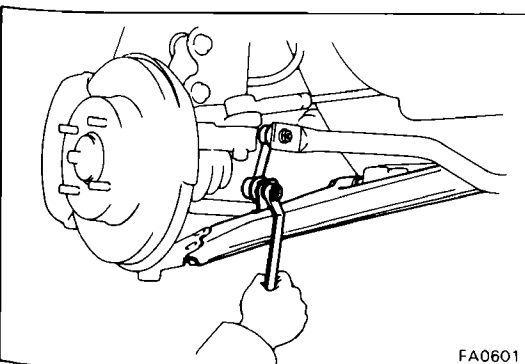
REMOVAL OF LOWER SUSPENSION ARM

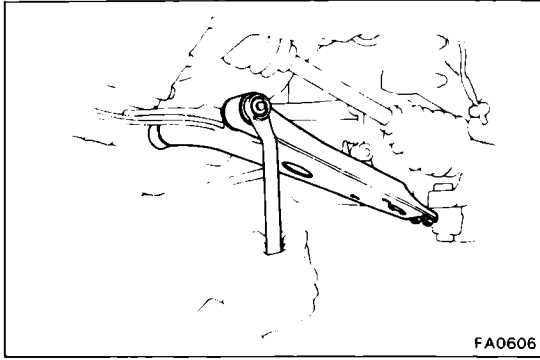
1. DISCONNECT LOWER SUSPENSION ARM FROM STEERING KNUCKLE

Remove the bolt and two nuts holding the steering knuckle to the lower suspension arm.

2. DISCONNECT STABILIZER LINK FROM LOWER SUSPENSION ARM

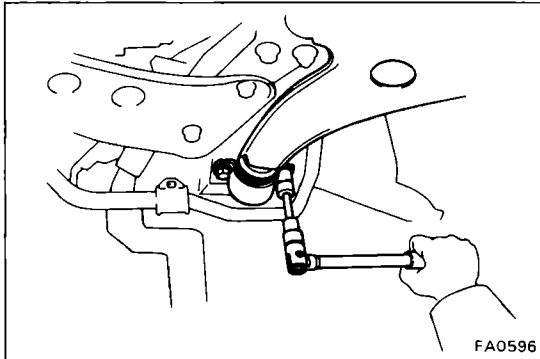
Remove the nut and disconnect the stabilizer link from the lower suspension arm.



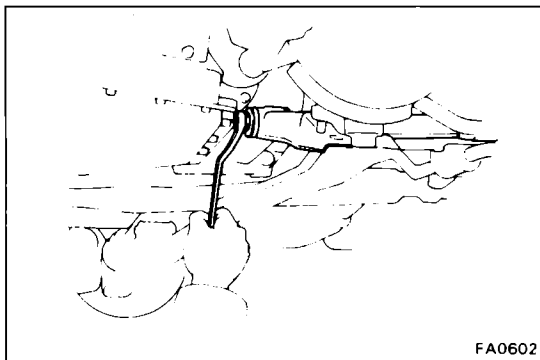


3. REMOVE LOWER SUSPENSION ARM (Ex. A/T LH arm)

- (a) Remove the lower suspension arm front setting nut and washer.

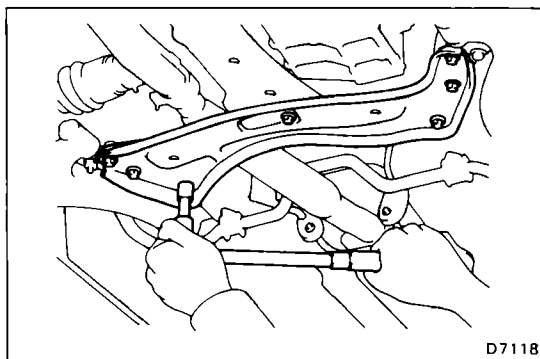


- (b) Remove the lower suspension arm rear bracket bolts.
(c) Remove the lower suspension arm.

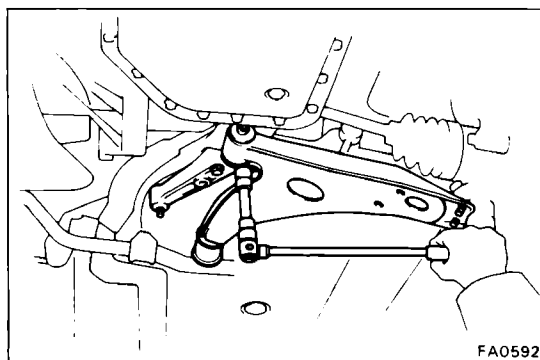


(A/T LH arm)

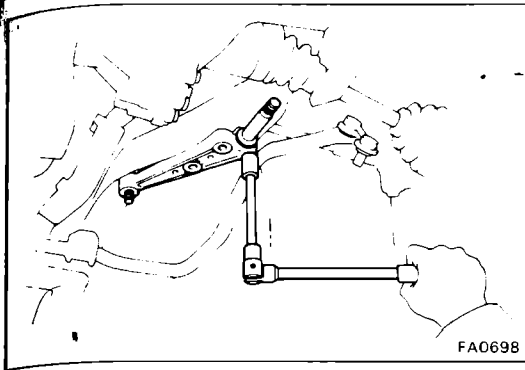
- (a) Remove lower suspension arm front setting nut and washer.



- (b) Remove the four bolts and two nuts and the suspension lower crossmember.

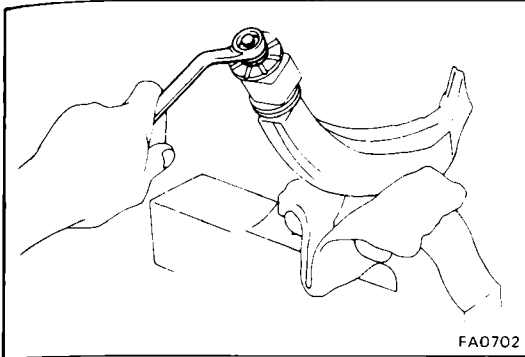


- (c) Remove the bolt and nut and the lower suspension arm with the lower arm shaft.



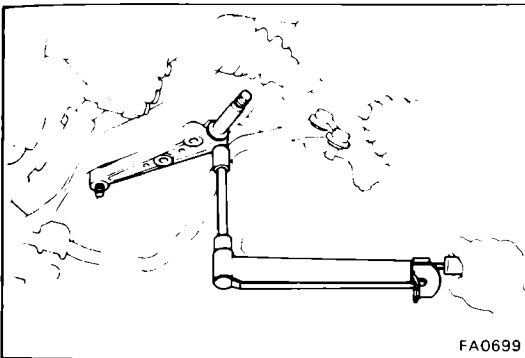
**4. (Ex. A/T LH SHAFT)
REMOVE LOWER SUSPENSION ARM SHAFT**

- (a) Remove the four bolts and two nuts, and remove the suspension lower crossmember.
- (b) Remove the bolt and nut, and remove the lower suspension arm shaft.



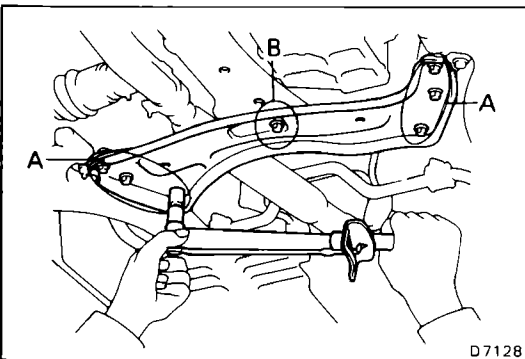
REPLACEMENT OF LOWER SUSPENSION ARM REAR BUSHING

- 1. REMOVE NUT AND BUSHING
- 2. INSTALL NEW BUSHING
- 3. INSTALL AND TORQUE NUT
Torque: 1,050 kg-cm (76 ft-lb, 103 N·m)



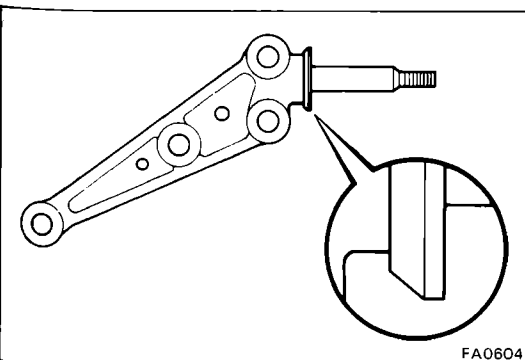
INSTALLATION OF LOWER SUSPENSION ARM
(See page FA-48)

- 1. (Ex. A/T LH SHAFT)
INSTALL LOWER SUSPENSION ARM SHAFT
(a) Install the lower suspension arm shaft and torque the nut and bolt (LH shaft) or bolt (RH shaft).
Torque: 2,110 kg-cm (153 ft-lb, 207 N·m)

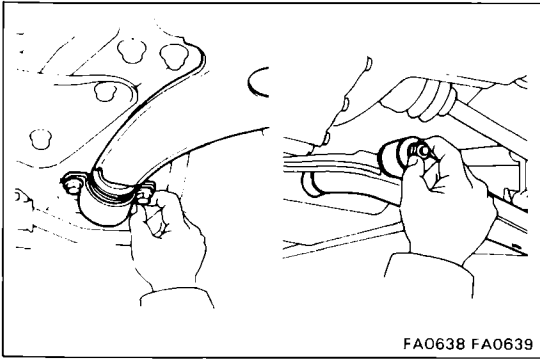


- (b) Install the suspension lower crossmember and torque the four bolts and two nuts.

Torque: A 2,110 kg-cm (153 ft-lb, 207 N·m)
B 400 kg-cm (29 ft-lb, 39 N·m)

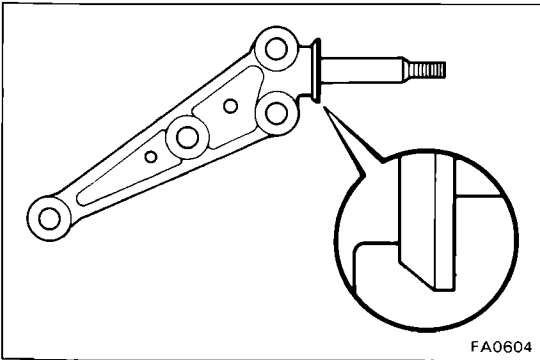


- 2. **INSTALL LOWER SUSPENSION ARM**
(Ex. A/T LH arm)
(a) Install the washer to the lower suspension arm shaft.
NOTE: Install the washer with the tapered side towards the body.



FA0638 FA0639

- (b) Install the lower suspension arm with the lower suspension arm rear bracket and temporarily install the washer and nut to the lower suspension arm shaft and rear bracket bolts.

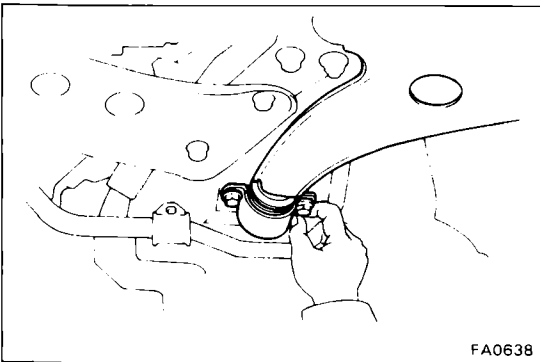


FA0604

(A/T LH arm)

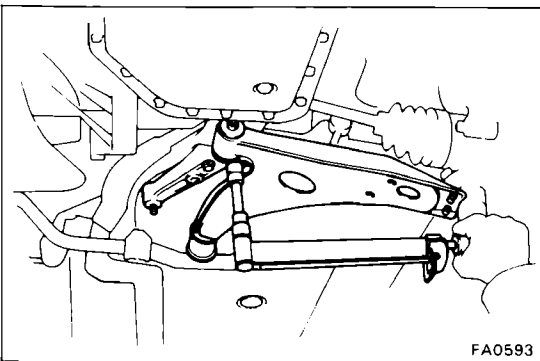
- (a) Install the washer to the lower suspension arm shaft and install them to the lower suspension arm and temporarily install the washer and nut to the lower suspension arm shaft.

NOTE: Install the washer with the tapered side towards the body.



FA0638

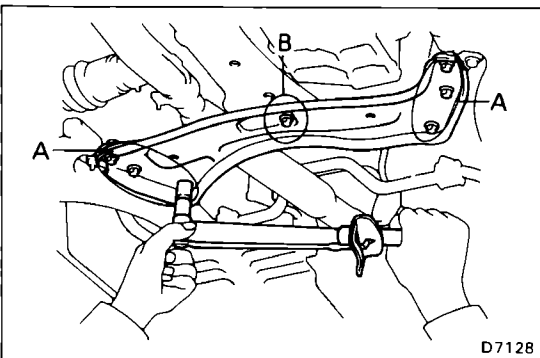
- (b) Install the lower suspension arm with the lower suspension arm shaft to the body and temporarily install the rear arm bracket bolts.



FA0593

- (c) Install and torque the bolt and nut to the lower suspension arm shaft.

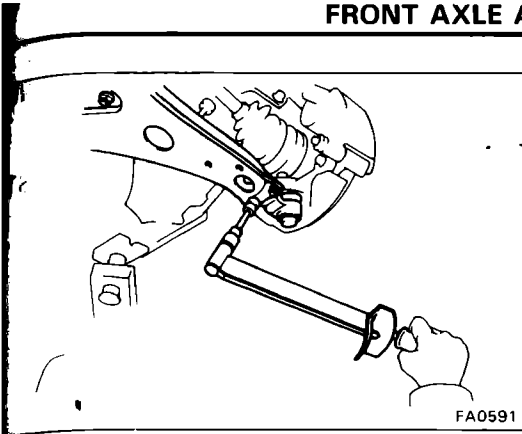
Torque: 2,110 kg-cm (153 ft-lb, 207 N·m)



D7128

- (d) Install the suspension lower crossmember to the body and torque the four bolts and two nuts.

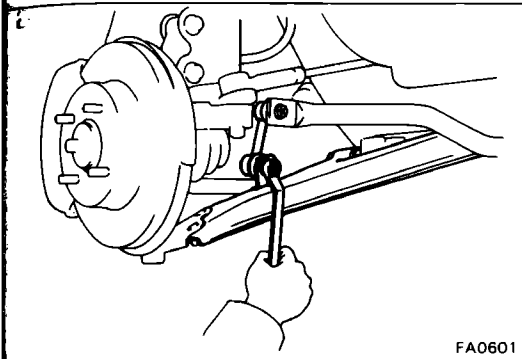
Torque: A 2,110 kg-cm (153 ft-lb, 207 N·m)
B 400 kg-cm (29 ft-lb, 39 N·m)



3. CONNECT LOWER SUSPENSION ARM TO STEERING KNUCKLE

Connect the lower suspension arm to the steering knuckle and torque the bolt and two nuts.

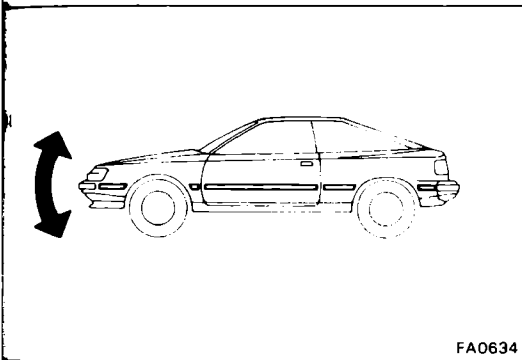
Torque: 1,300 kg-cm (94 ft-lb, 127 N·m)



4. CONNECT STABILIZER LINK

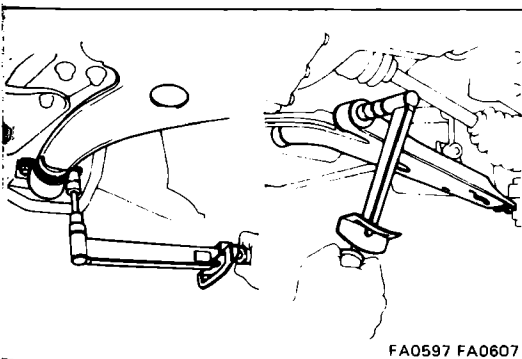
Connect the stabilizer link to the lower suspension arm and torque the nut.

Torque: 360 kg-cm (26 ft-lb, 35 N·m)



5. INSTALL WHEEL AND LOWER VEHICLE

Bounce the vehicle up and down to stabilize the suspension.



6. TORQUE FRONT SETTING NUT AND REAR BRACKET BOLTS

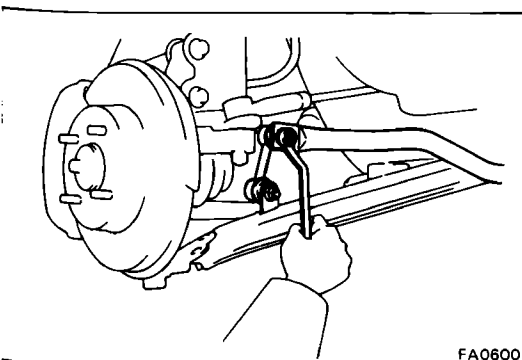
Torque:

Front setting nut 2,160 kg-cm (156 ft-lb, 212 N·m)

Rear bracket bolts 1,000 kg-cm (72 ft-lb, 98 N·m)

7. CHECK FRONT WHEEL ALIGNMENT

(See page FA-3)



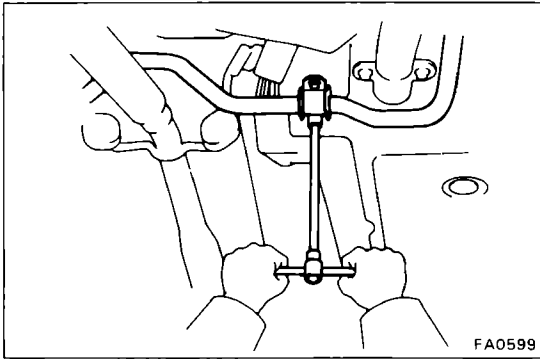
Stabilizer Bar (2WD)

(See page FA-48)

REMOVAL OF STABILIZER BAR

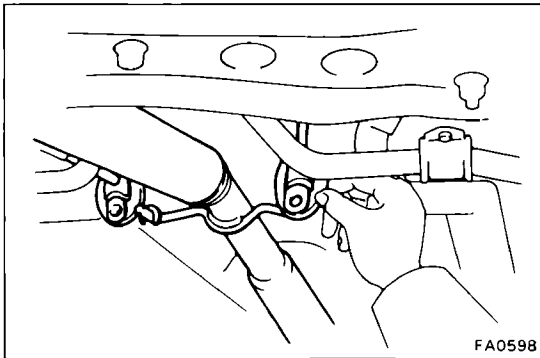
1. REMOVE STABILIZER BAR LINK

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



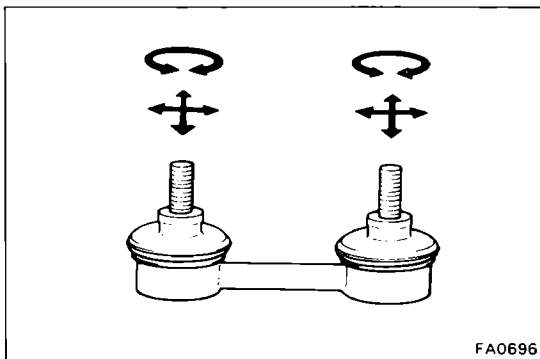
2. REMOVE BOTH STABILIZER BAR BRACKETS AND CUSHION FROM BODY

3. DISCONNECT EXHAUST PIPE FROM EXHAUST MANIFOLD



4. DISCONNECT EXHAUST PIPE FROM TAIL PIPE RING

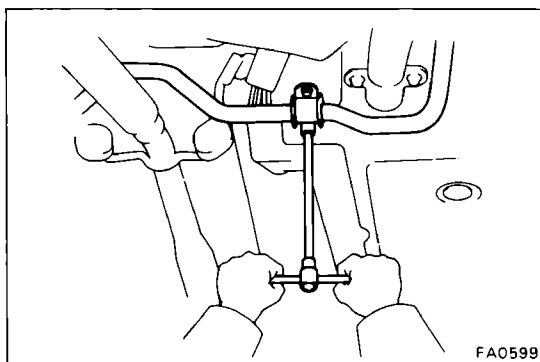
5. REMOVE STABILIZER BAR



INSPECTION OF STABILIZER LINK

INSPECT STABILIZER LINK

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

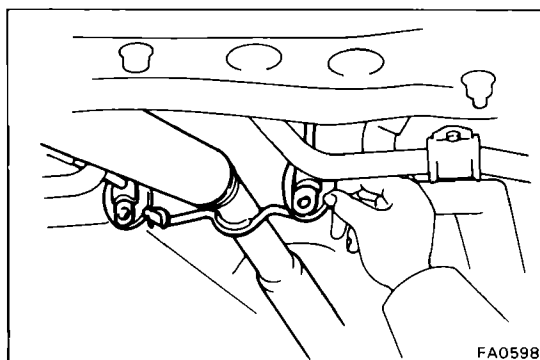


INSTALLATION OF STABILIZER BAR

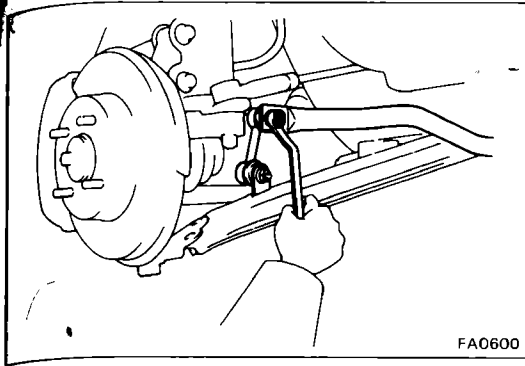
1. INSTALL STABILIZER BAR

2. INSTALL STABILIZER BAR BRACKETS AND CUSHIONS
Torque: 195 kg-cm (14 ft-lb, 19 N·m)

3. CONNECT EXHAUST PIPE TO EXHAUST MANIFOLD
Torque: 630 kg-cm (46 ft-lb, 62 N·m)



4. CONNECT EXHAUST PIPE TO TAIL PIPE RING

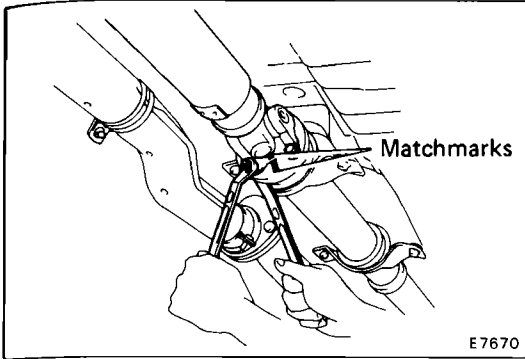


FA0600

5. INSTALL STABILIZER BAR LINK

Torque: 360 kg-cm (26 ft-lb, 35 N·m)

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



E7670

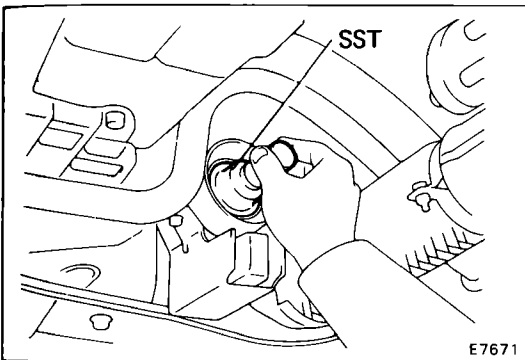
Stabilizer Bar (4WD)

REMOVAL OF STABILIZER

(See page FA-48)

1. DISCONNECT FRONT PROPELLER SHAFT FROM INTERMEDIATE PROPELLER SHAFT

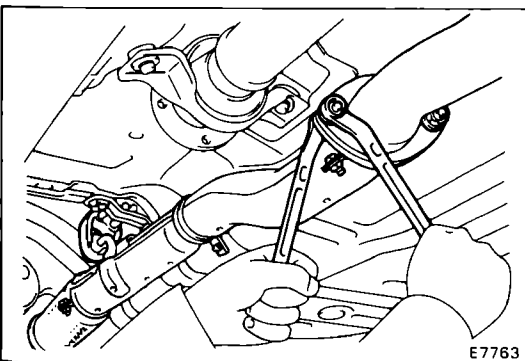
- (a) Place the matchmarks on the flanges.
- (b) Remove the four bolts and nuts.



E7671

2. REMOVE FRONT PROPELLER SHAFT FROM TRANSAXLE

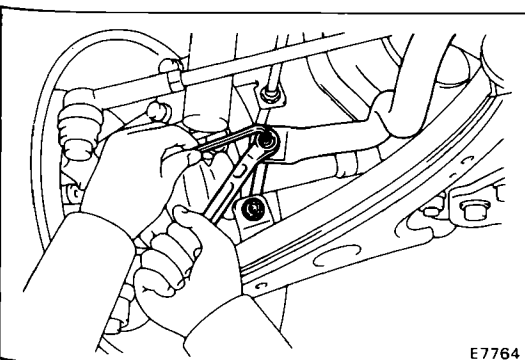
- (a) Pull the yoke from the transaxle.
- (b) Insert SST into the transaxle to prevent oil leakage.
SST 09325-20010



E7763

3. DISCONNECT FRONT EXHAUST PIPE FROM TAIL PIPE

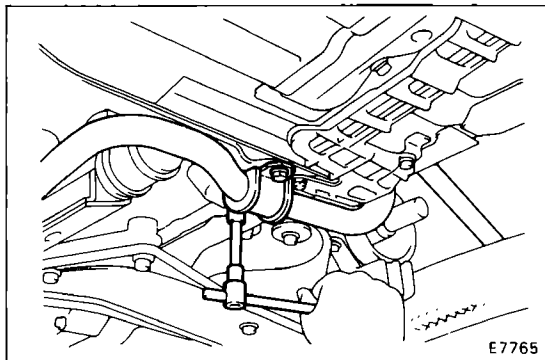
- (a) Disconnect front exhaust pipe from O-ring.
- (b) Disconnect front exhaust pipe from tail pipe.



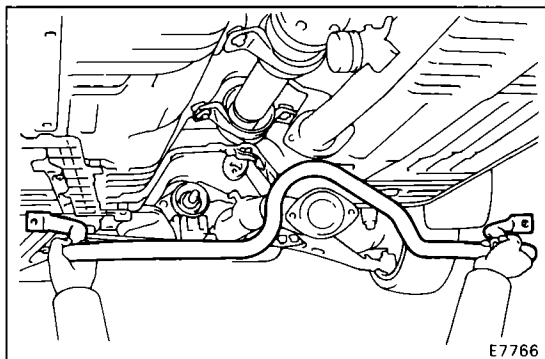
E7764

4. REMOVE STABILIZER BAR LINK

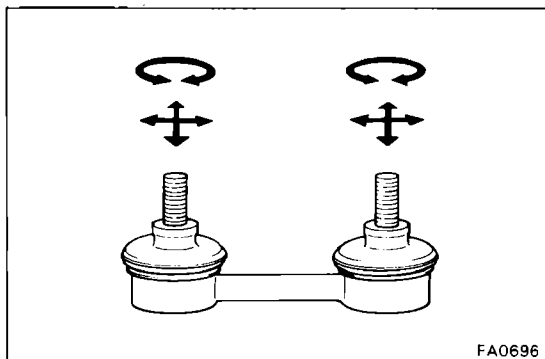
NOTE: If the ball joint stud turns together with the nut, use a hexagon wrench 5 mm (0.197 in.) to hold the stud.



5. REMOVE BOTH STABILIZER BAR BRACKETS AND CUSHIONS FROM BODY



6. REMOVE STABILIZER BAR

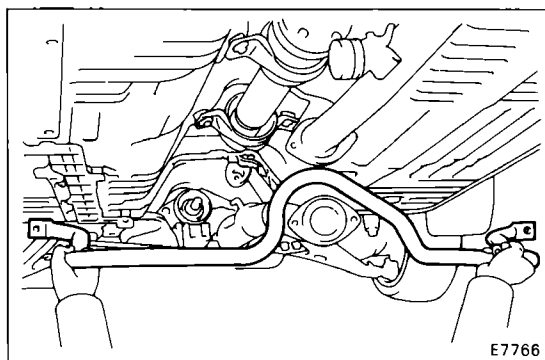


INSPECTION OF STABILIZER LINK

INSPECT STABILIZER LINK

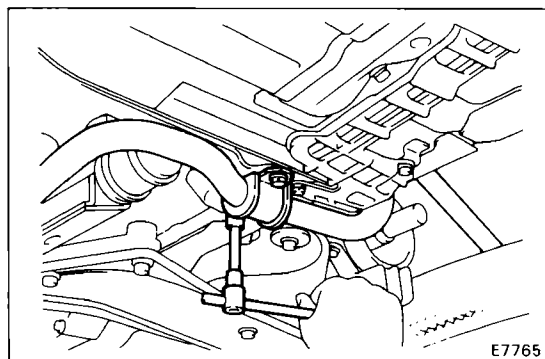
Rotate ball joint arm in all directions.

If the movement is not smooth and free, replace the stabilizer link.

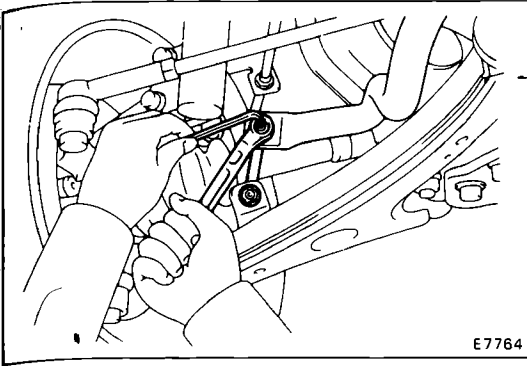


INSTALLATION OF STABILIZER BAR

1. INSTALL STABILIZER BAR



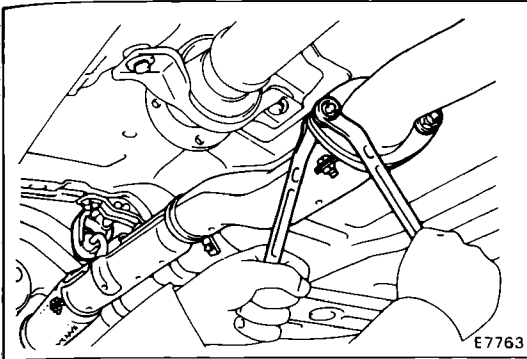
2. INSTALL STABILIZER BAR BRACKETS AND CUSHIONS
Torque: 195 kg-cm (14 ft-lb, 19 N·m)



3. INSTALL STABILIZER BAR LINK

Torque: 360 kg-cm (26 ft-lb, 35 N·m)

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



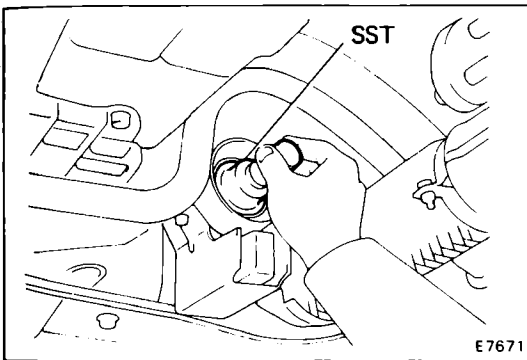
4. CONNECT FRONT EXHAUST PIPE TO TAIL PIPE

(a) Connect front exhaust pipe to tail pipe.

Torque: 440 kg-cm (32 ft-lb, 43 N·m)

NOTE: Replace exhaust pipe gasket with new ones.

(b) Connect front exhaust pipe to O-ring.

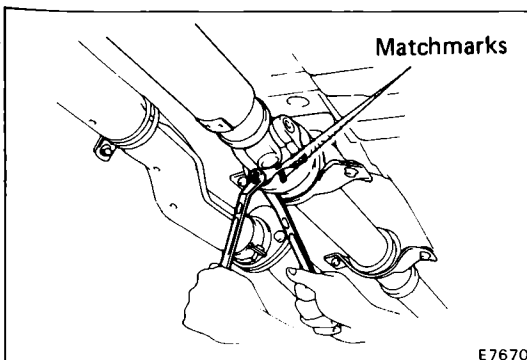
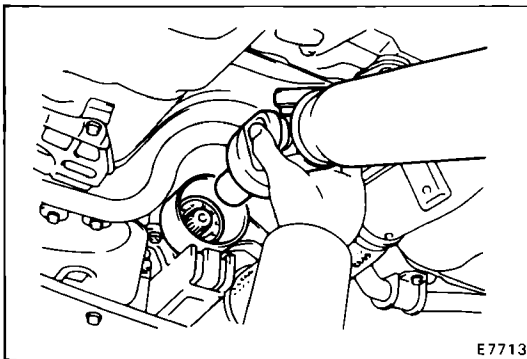


5. INSTALL FRONT PROPELLER SHAFT TO TRANSAXLE

(a) Remove SST.

SST 09325-20010

(b) Insert the yoke into the transaxle.



6. CONNECT FRONT PROPELLER SHAFT TO TRANSAXLE

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

(b) Torque the bolts and nuts.

Torque: 750 kg-cm (54 ft-lb, 74 N·m)

7. FILL TRANSAXLE WITH GEAR OIL

(See step 4 on page MT-7)