SUSPENSION AND AXLE

TROUBLESHOOTING

SA00J–01

You will find the troubles easier using the table well shown below. In this table, each number shows the priority of causes in troubles. Check each part in order. If necessary, replace these parts.

See Page / Parts Name / Trouble	Tires	Cold tire inflation pressure	Wheel alignment	Springs	Stabilizer bar	Shock absorber	Ball joint	Hub bearings	Steering linkage	Steering gear	Suspension parts	Overloaded	Wheel balance
See Page	–	SA–3	SA–3	SA–34, 63	SA–48, 76	SA–34, 63	SA–45	SA–9, 54	–	–	–	–	–
Wander/pulls	1		2					4	3	5	6		
Bottoming				2		3						1	
Sways/pitches	1				2	3							
Front wheel shimmy	1		4			3	5	6	7	8			2
Abnormal tire wear		1	2			4					3		

V00313

WHEEL ALIGNMENT

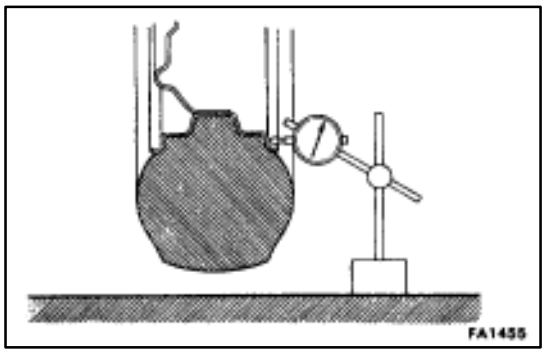
SA01Q–02

PRIMARY INSPECTION

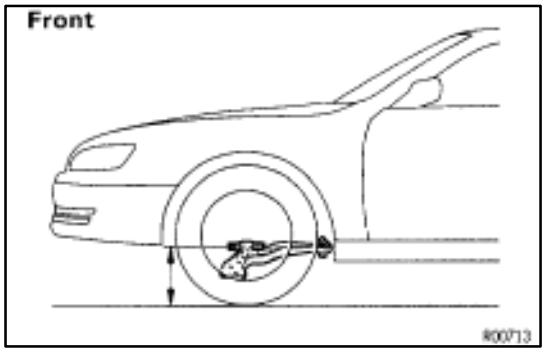
1. MAKE FOLLOWING CHECKS AND CORRECT ANY PROBLEMS

(a) Check the tires for wear and for the proper inflation pressure.
Cold inflation pressure:

Tire size	Front	Rear
P205/65R15	180 kPa (1.8 kgf/cm^2, 26 psi)	180 kPa (1.8 kgf/cm^2, 26 psi)



(b) Check the wheel bearings for looseness.
(c) Check the wheel runout.
Lateral runout:
1.0 mm (0.039 in.) or less
(d) Check the suspension for looseness.
(e) Check the steering linkage for looseness.
(f) Check that the shock absorbers work properly by using the standard bounce test.



2. MEASURE VEHICLE HEIGHT

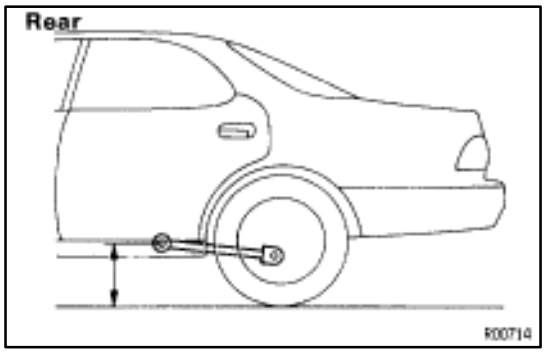
Vehicle height:

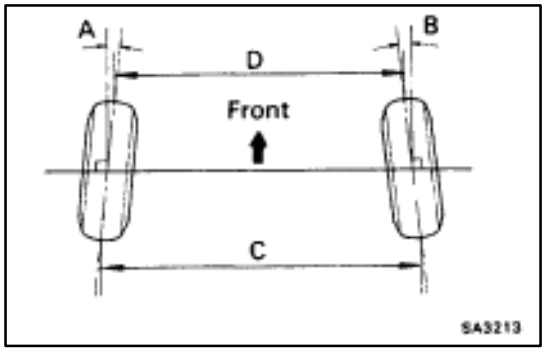
Tire size	Front	Rear
P205/65R15	211 mm (8.31 in.)	259 mm (10.20 in.)

HINT:

- Measuring point
  Front: Measure from the ground to the center of the front side lower arm mounting bolt.
  Rear: Measure from the ground to the center of the strut rod mounting bolt.
- Before inspecting the wheel alignment, adjust the vehicle height to specification.

If the vehicle height is not standard, try to adjust it by pushing down on or lifting the body.





FRONT WHEEL ALIGNMENT

SA01R–02

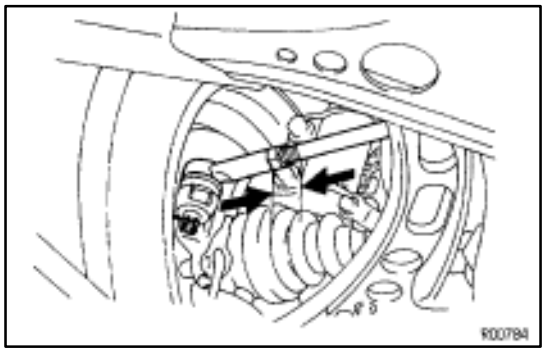
1. INSPECT TOE–IN

Toe–in (total):

A+B 0°±0.2°

(C–D 0±2 mm, 0±0.08 in.)

If the toe–in is not within the specification, adjust it at the tie rod end.



2. ADJUST TOE–IN

(a) Remove the boot clamps.

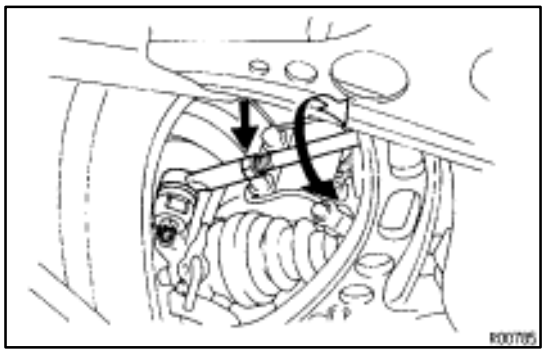
(b) Loosen the tie rod end lock nuts.

(c) Turn the left and right tie rod ends an equal amount to adjust the toe–in.

HINT: Measure that the lengths of the left and right tie rod end length are the same.

Tie rod end length difference:

1.5 mm (0.059 in.) or less

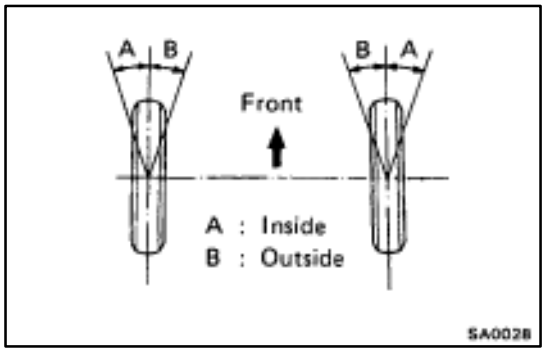


(c) Torque the tie rod end lock nuts.

Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)

(e) Place the boot on the seat and install the clamp.

HINT: Make sure that the boots are not twisted.



3. INSPECT WHEEL ANGLE

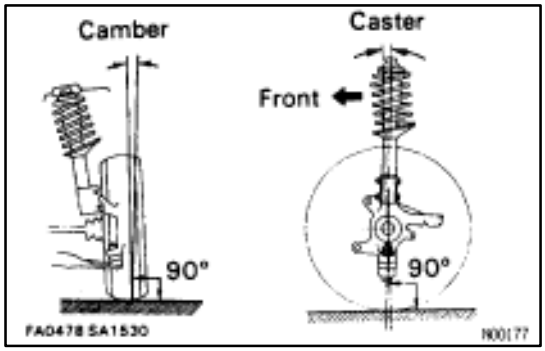
Wheel angle:

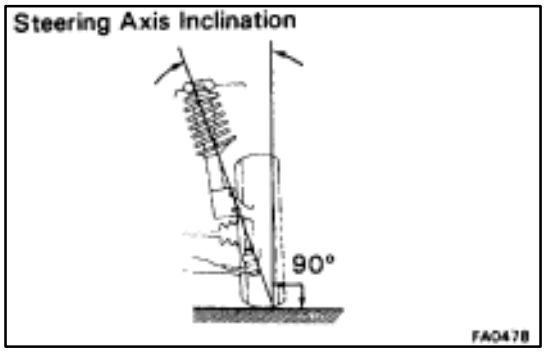
Tire size	Inside wheel	Outside wheel (reference)
P205/65R15	35°55'±2°	31°15'

If the wheel angles differ from the specification, check the difference of the left and right tie rod end length.

Tie rod end length difference:

1.5 mm (0.059 in.) or less





4. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber:

–0°40'±45'

Cross camber:

45' or less

Caster:

1°15'±45'

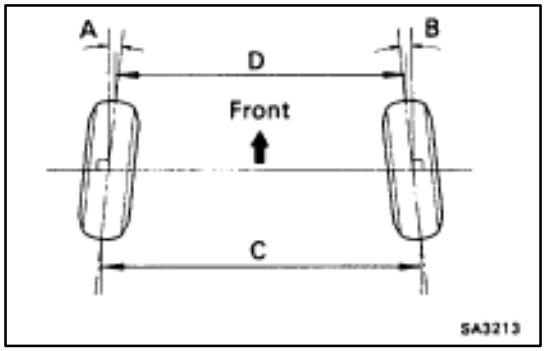
Cross caster:

45' or less

Steering axis inclination:

13° 05'±45'

HINT: Camber, caster and steering axis inclination are not adjustable. If measurements are not within specification, inspect the suspension parts for damaged and/or worn out parts and replace them as necessary.



REAR WHEEL ALIGNMENT

SA01S–01

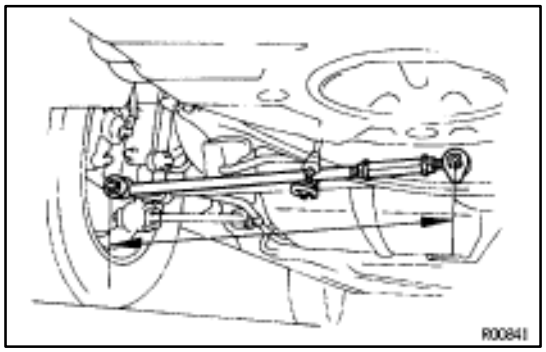
1. INSPECT TOE–IN

toe–in (total):

A+B 0.4°±0.2°

(C–D 4±2 mm, 0.16±0.08 in.)

If the toe–in is not within the specification, adjust it at the No.2 lower suspension arm.



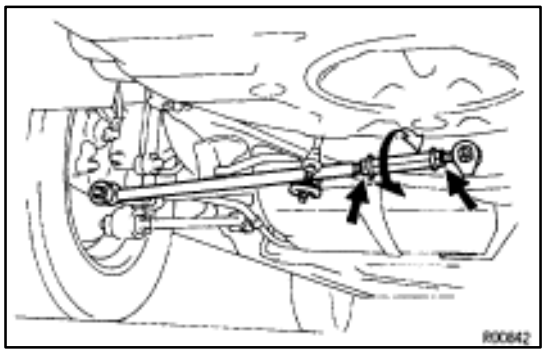
2. ADJUST TOE–IN

(a) Measure the length of the left and right No.2 lower suspension arm.

Left–right difference:

1 mm (0.04 in.) or less

If the left–right difference is greater than the specification, adjust the length.



(b) Loosen the lock nuts.

(c) Turn the left and right adjusting tube an equal amount to adjust toe–in.

HINT: One turn of the one side adjusting tube will adjust the toe–in about 0.6° (6.7 mm, 0.264 in.).

(d) Torque the lock nuts.

Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)

3. INSPECT CAMBER

Camber:

–0°30'±45'

Cross camber:

45' or less

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

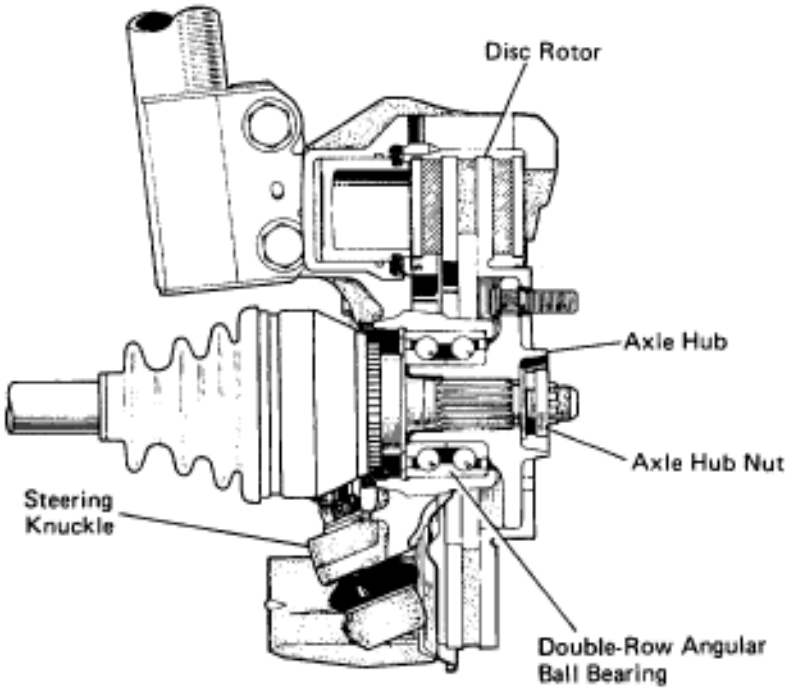
FRONT AXLE

SA01T–01

DESCRIPTION

The wheel bearings are double–row angular ball bearings combined with the oil seals having small rolling resistance and are free from maintenance.

The preload of the bearings cam be determined only tightening the axle hub nut at a specified torque, improving serviceability.



R00905

PREPARATION

SST (SPECIAL SERVICE TOOLS)

SA01U–01

SA01V–01

	09310–35010	Countershaft Bearing Replacer	Bearing removal Axle shaft installation
	09316–60010	Transmission & Transfer Bearing Replacer	Dust deflector installation
	(09316–00010)	Replacer Pipe	
	(09316–00040)	Replacer "C"	
	09520–00031	Rear Axle Shaft Puller	
	09608–32010	Steering Knuckle Oil Seal Replacer	Bearing installation Axle hub installation Dust deflector installation
	09628–10011	Ball Joint Puller	Hub bolt removal
	09628–62011	Ball Joint Puller	
	09950–00020	Bearing Remover	

RECOMMENDED TOOLS

SA01W–01

	09905–00013	Snap Ring Pliers	

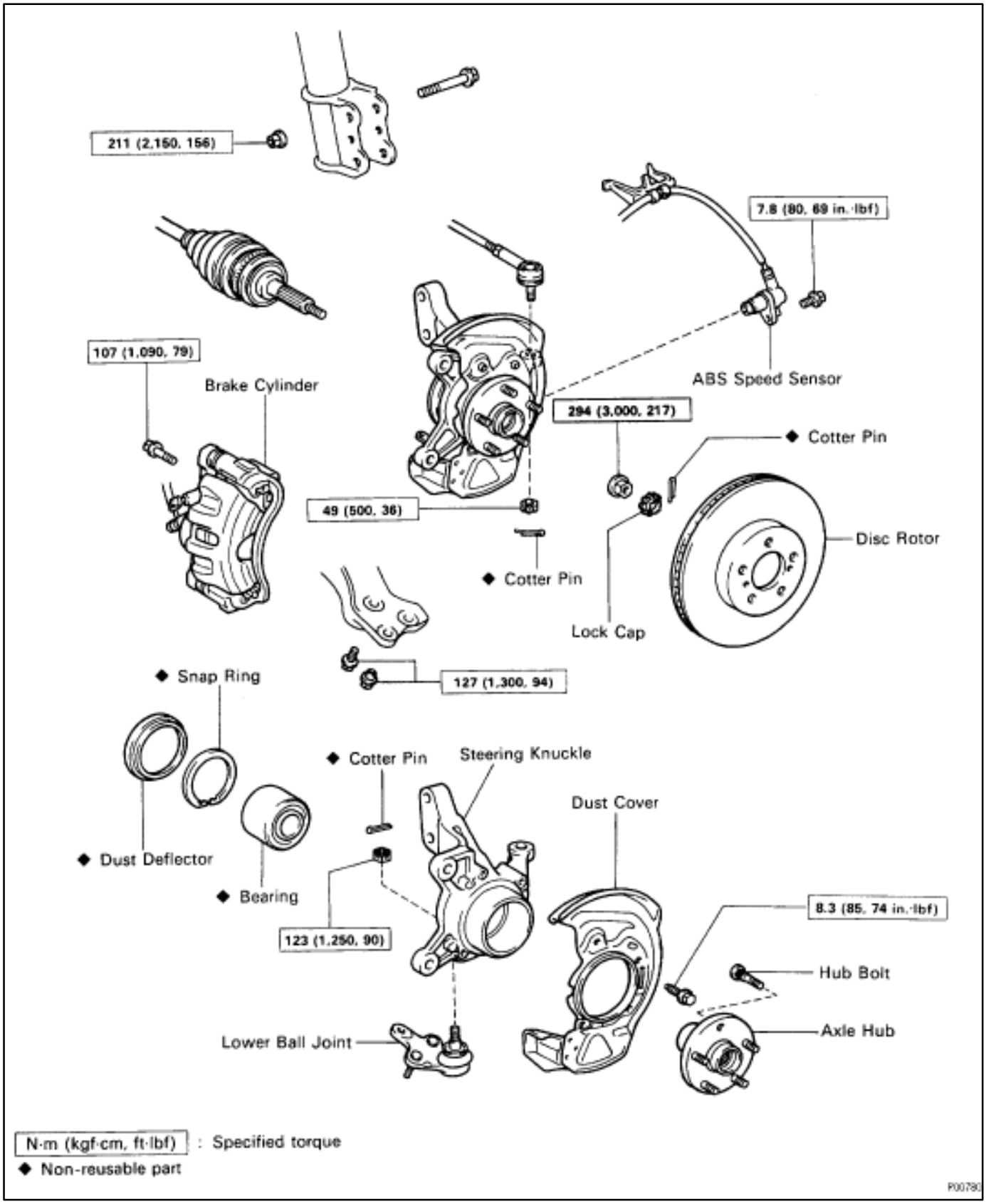
EQUIPMENT

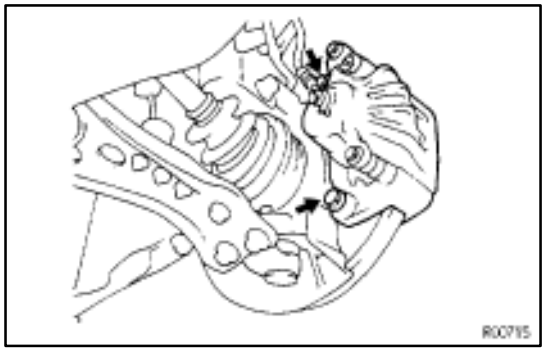
Dial indicator	
Torque wrench	

FRONT AXLE HUB

SA01X–01

COMPONENTS





STEERING KNUCKLE WITH AXLE HUB REMOVAL

SA01Y–02

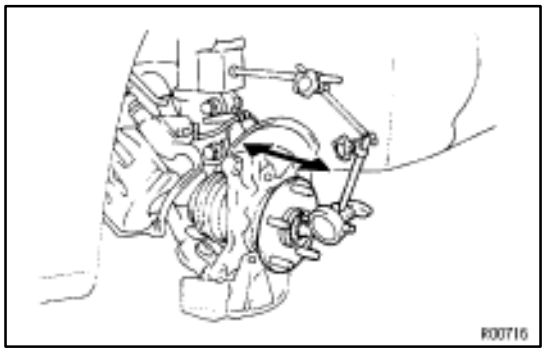
1. JACK UP VEHICLE, REMOVE FRONT WHEEL

2. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION

(a) Remove the two brake cylinder set bolts.

(b) Hang up the brake cylinder using wire, etc.

(c) Remove the disc rotor.

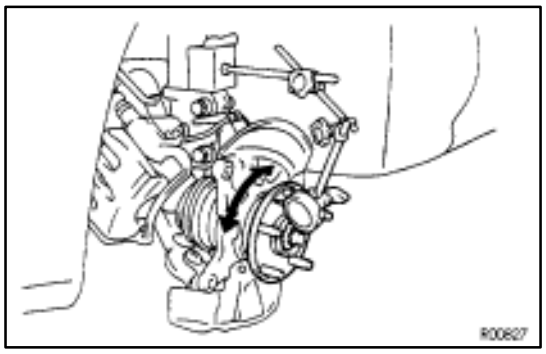


(d) Place the dial indicator near the center of the axle hub and check the backlash in the bearing shaft direction.

Maximum:

0.05 mm (0.0020 in.)

If greater than the specified maximum, replace the bearing.

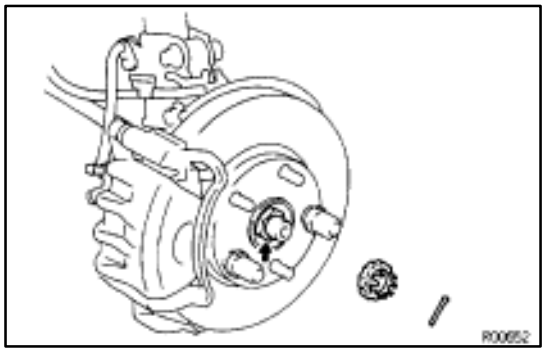


(e) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

Maximum:

0.05 mm (0.0020 in.)

If greater than the specified maximum, replace the axle hub.



3. REMOVE DRIVE SHAFT LOCK NUT

(a) Install the disc rotor and brake cylinder.

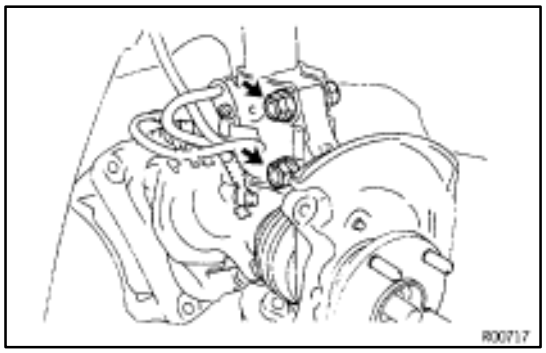
(b) Remove the cotter pin and lock cap.

(c) While applying the brakes, remove the nut.

(d) Remove the brake cylinder and disc rotor.

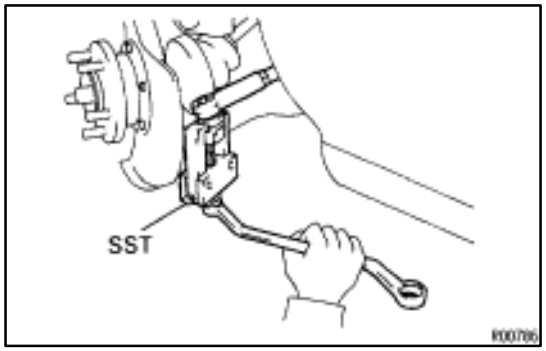
4. REMOVE ABS SPEED SENSOR

Remove the ABS speed sensor from the steering knuckle.



5. LOOSEN NUTS ON LOWER SIDE OF SHOCK ABSORBER

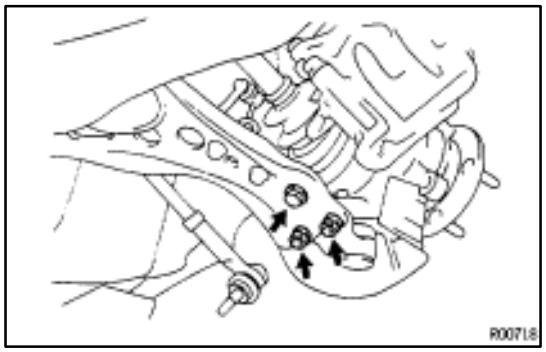
HINT: Do not remove the bolts.



6. DISCONNECT THE ROD END FROM STEERING KNUCKLE

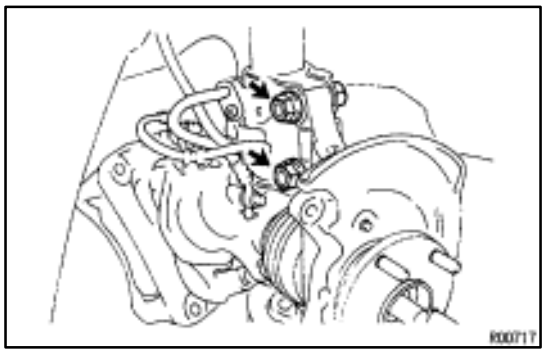
(a) Remove the cotter pin and remove the nut.

(b) Using SST, disconnect the tie rod end from the steering knuckle.
SST 09628–62011



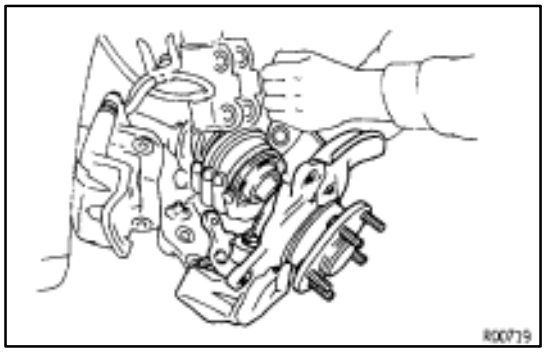
7. DISCONNECT LOWER BALL JOINT FROM LOWER ARM

Remove the bolt and the two nuts.



8. REMOVE STEERING KNUCKLE WITH AXLE HUB

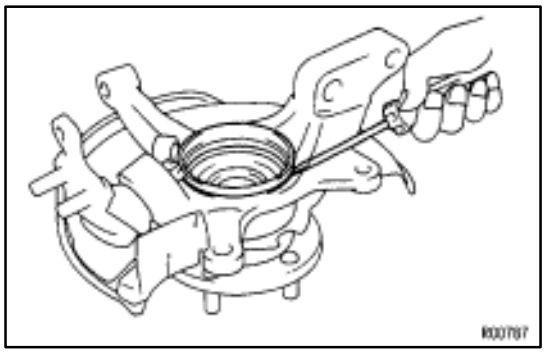
(a) Remove the two nuts and bolts on lower side of the shock absorber.



(b) Remove the steering knuckle with axle hub.

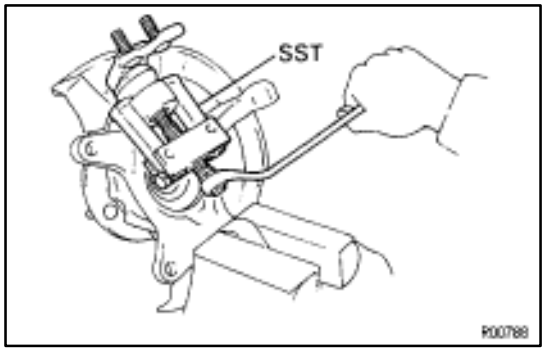
FRONT AXLE HUB DISASSEMBLY

SA01Z–01



1. REMOVE DUST DEFLECTOR

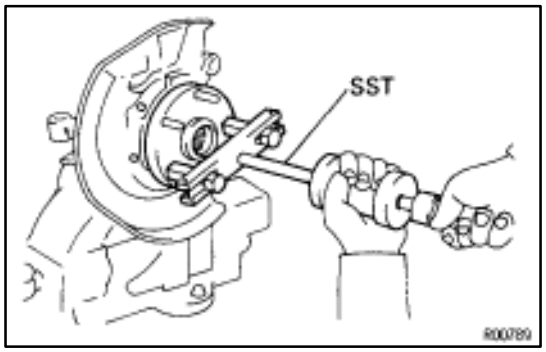
Using a screwdriver, remove the dust deflector.



2. REMOVE LOWER BALL JOINT

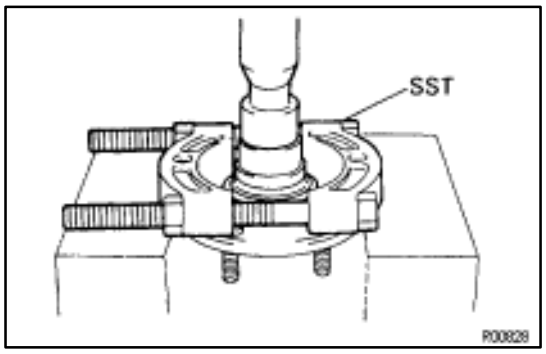
(a) Remove the cotter pin and nut.

(b) Using SST, remove the lower ball joint.
SST 09628–62011

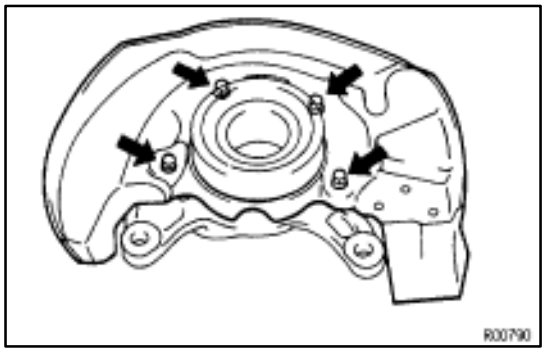


3. REMOVE AXLE HUB

(a) Using SST, remove the axle hub.
SST 09520–00031

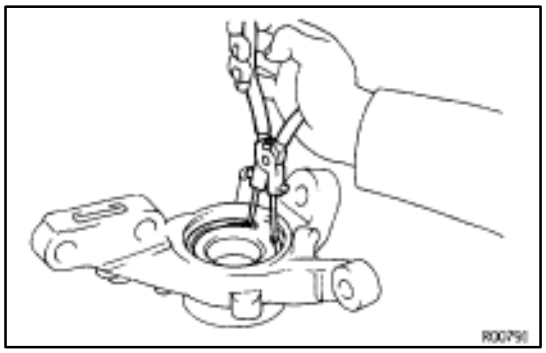


(b) Using SST and a press, remove the inner race (outside) from the axle hub.
SST 09950–00020



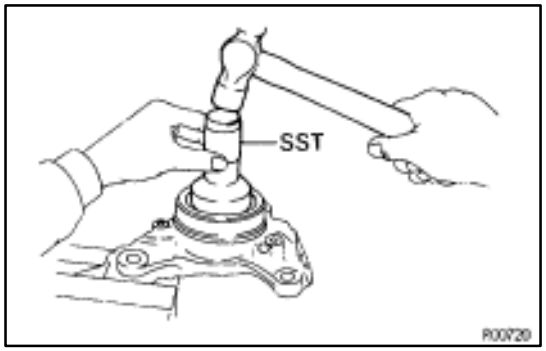
4. REMOVE DUST COVER

Remove the four bolts and dust cover.

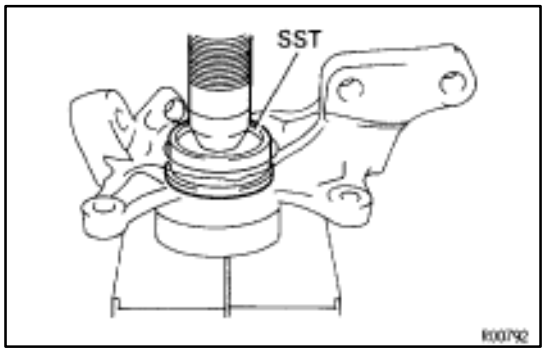


5. REMOVE BEARING FROM STEERING KNUCKLE

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



(b) Place the inner race on the outside of the bearing.
(c) Using SST and a hammer, remove the bearing.
SST 09310–35010

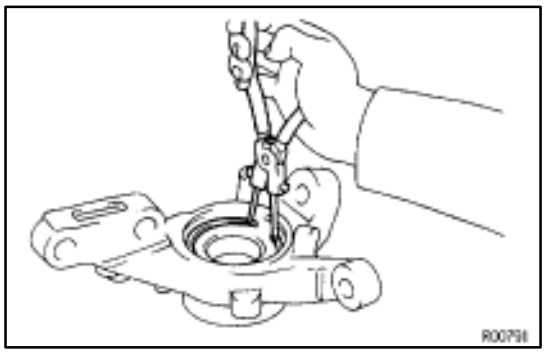


FRONT AXLE HUB ASSEMBLY

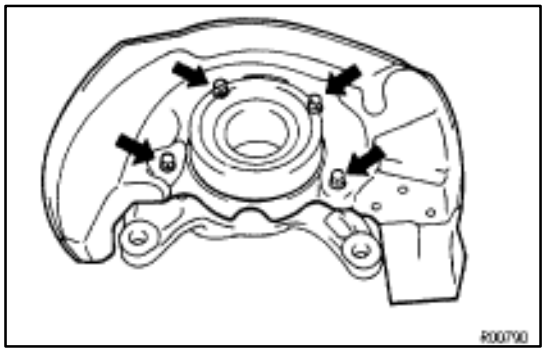
SA020–01

1. INSTALL BEARING

(a) Using SST and a press, install a new bearing to the steering knuckle.
SST 09608–32010

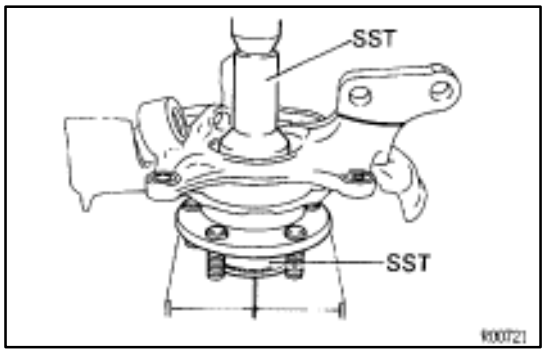


(b) Using snap ring pliers, install a new snap ring.



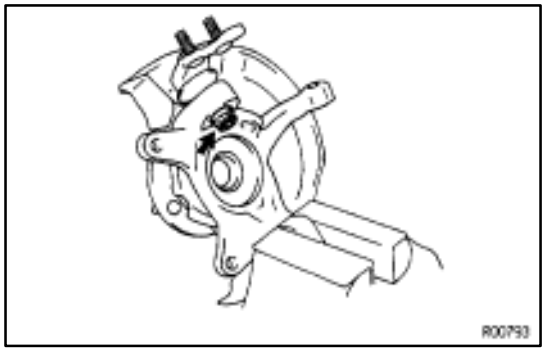
2. INSTALL DUST COVER

Place the dust cover and torque the four bolts.
Torque: 8.3 N·m (85 kgf·cm, 74 in.·lbf)



3. INSTALL FRONT AXLE HUB

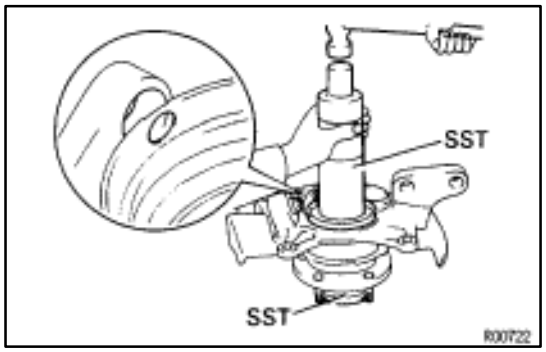
Using SST and a press, install the axle hub.
SST 09310–35010,09608–32010



4. INSTALL LOWER BALL JOINT

(a) Install the lower ball joint and torque the nut.
Torque: 123 N·m (1,250 kgf·cm, 90 ft·lbf)

(b) Install a new cotter pin.

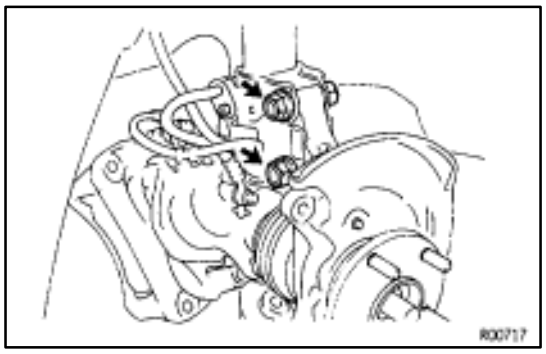


5. INSTALL DUST DEFLECTOR

Using SST and a hammer, install a new dust deflector.
SST 09316–60010(09316–00010,09316–00040)
09608–32010
HINT: Align the holes for the ABS speed sensor in the dust deflector and steering knuckle.

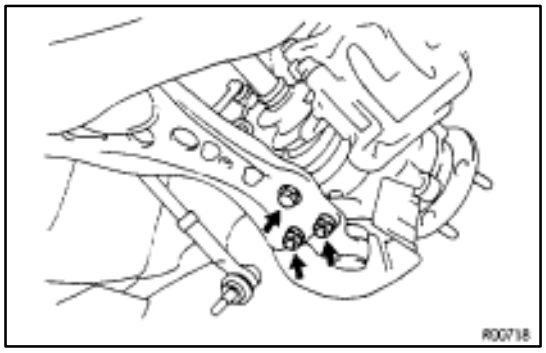
STEERING KNUCKLE WITH AXLE HUB INSTALLATION

SA040–02

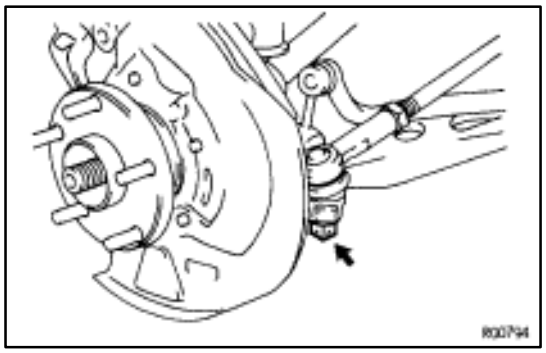


1. INSTALL STEERING KNUCKLE

(a) Place the steering knuckle and temporarily install the two bolts and nut on lower side of shock absorber.
HINT: Coat the threads of nuts with engine oil.



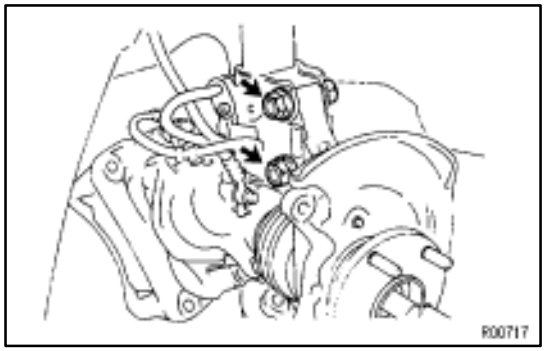
(b) Connect the lower ball joint to the lower arm and tighten the bolt and nuts.
Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)



2. CONNECT TIE ROD END TO STEERING KNUCKLE

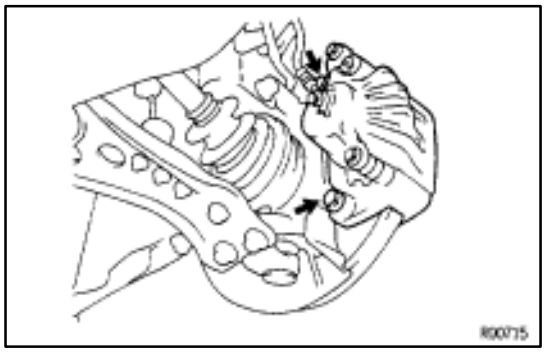
(a) Connect the tie rod end to the steering knuckle and tighten the nut.
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

(b) Install a new cotter pin.

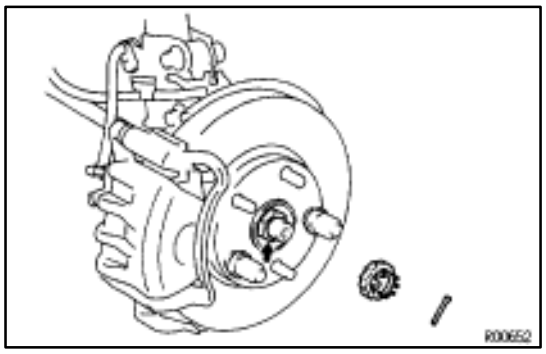


3. TORQUE BOLTS ON LOWER SIDE OF SHOCK ABSORBER
Torque: 211 N·m (2,150 kgf·cm, 156 ft·lbf)

4. INSTALL ABS SPEED SENSOR
Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)



5. INSTALL FRONT BRAKE CYLINDER
(a) Install the disc rotor.
(b) Install the brake cylinder.
Torque: 107 N·m (1,090 kgf·cm, 79 ft·lbf)



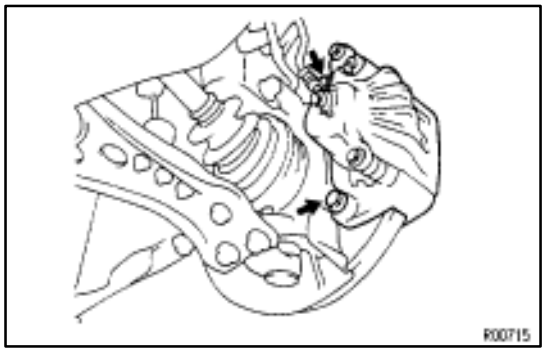
6. INSTALL DRIVE SHAFT LOCK NUT
(a) While applying the brakes, install the nut.
Torque: 294 N·m (3,000 kgf·cm, 217 ft·lbf)
(b) Install the lock cap and a new cotter pin.

7. INSTALL FRONT WHEEL AND LOWER VEHICLE
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

8. INSPECT FRONT WHEEL ALIGNMENT
(See page SA–3)

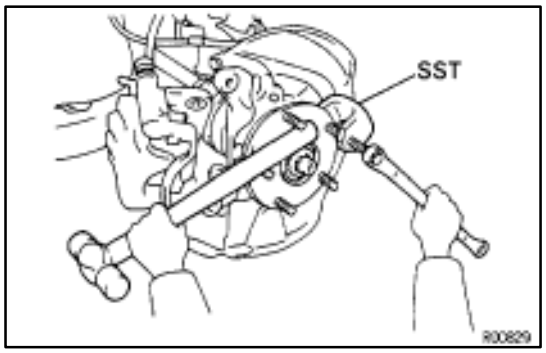
HUB BOLT REPLACEMENT

SA021–01

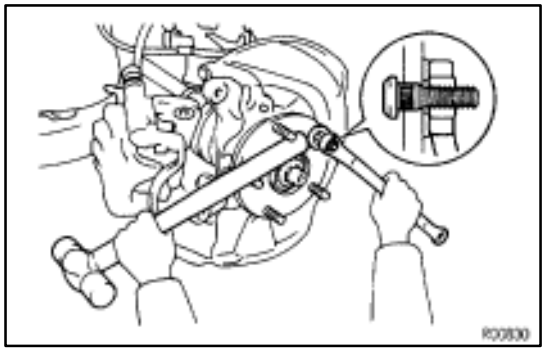


1. JACK UP VEHICLE AND REMOVE FRONT WHEEL

2. REMOVE FRONT BRAKE CYLINDER AND DISC ROTOR

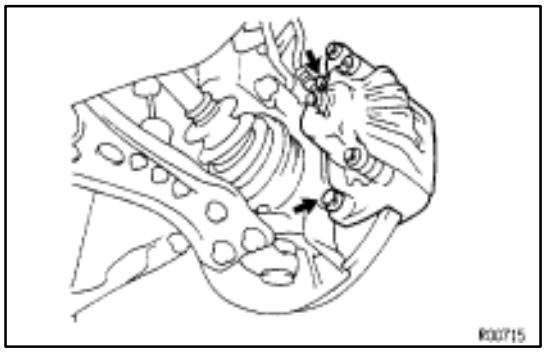


3. REMOVE HUB BOLT
Using SST, remove the hub bolt.
SST 09628–10011



4. INSTALL HUB BOLT

Install washer and nut to the hub bolt as shown in the illustration, and install the hub bolt with torquing the nut.



5. INSTALL FRONT BRAKE DISC ROTOR AND BRAKE CYLINDER

Torque: 107 N·m (1,090 kgf·cm, 79 ft·lbf)

6. INSTALL FRONT WHEEL AND LOWER VEHICLE

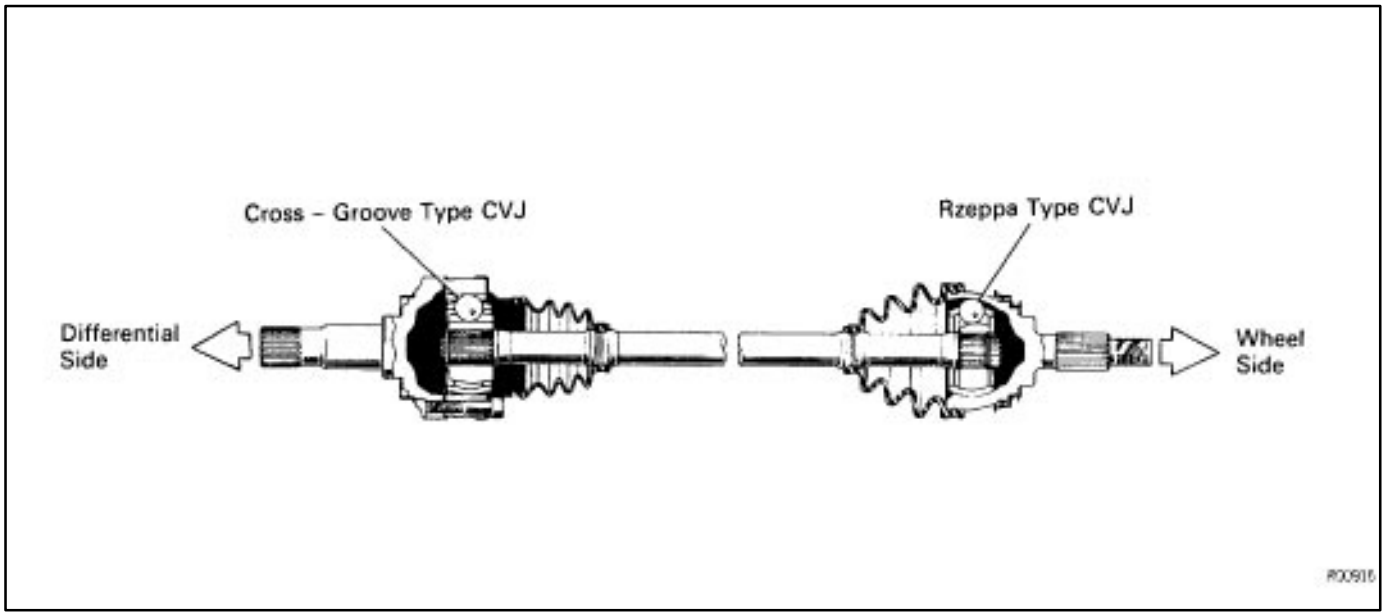
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

FRONT DRIVE SHAFT

SA022–01

DESCRIPTION

The drive shaft has a cross–groove type CVJ (Constant Velocity Joint) on the differential side and Rzeppa type CVJ on the wheel side.



PREPARATION

SA023–01

SST (SPECIAL SERVICE TOOLS)

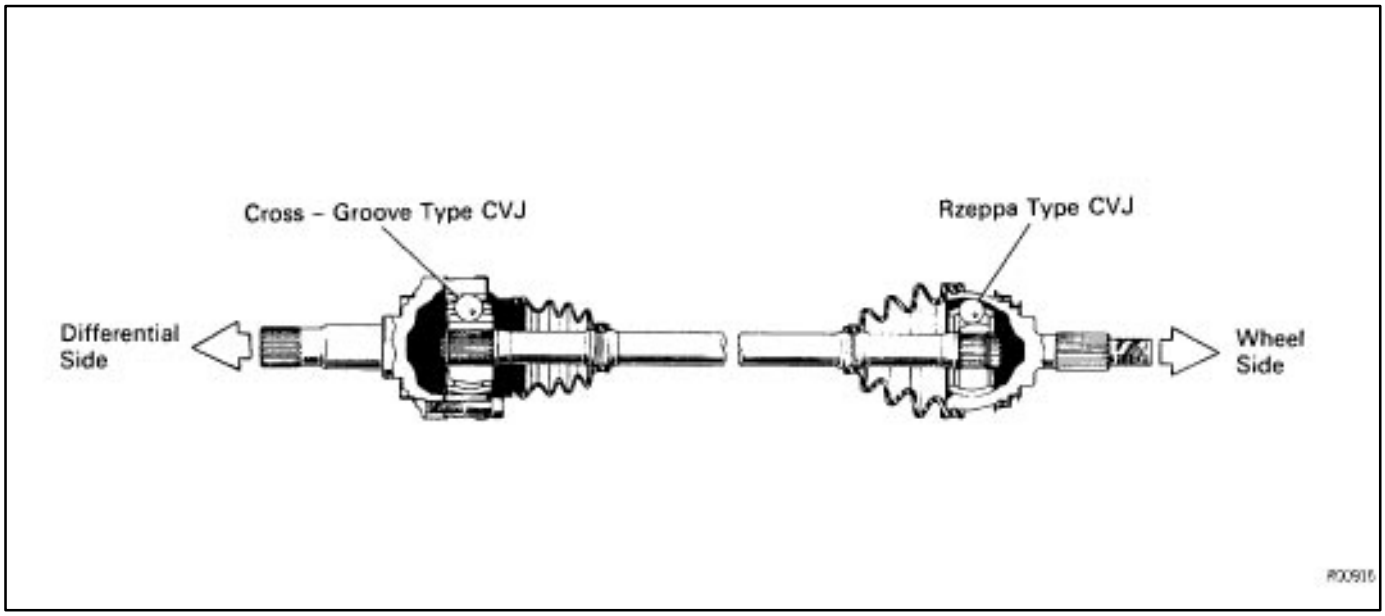
	09608–16041 Front Hub Bearing Adjusting Tool	
	(09608–02020) Bolt & Nut	
	(09608–02040) Retainer	
	09628–62011 Ball Joint Puller	Tie rod end
	09726–10010 Lower Suspension Arm Bushing Remover & Replacer	
	(09726–00030) Spacer	Drive shaft inboard joint

FRONT DRIVE SHAFT

SA022–01

DESCRIPTION

The drive shaft has a cross–groove type CVJ (Constant Velocity Joint) on the differential side and Rzeppa type CVJ on the wheel side.



PREPARATION

SA023–01

SST (SPECIAL SERVICE TOOLS)

	09608–16041 Front Hub Bearing Adjusting Tool	
	(09608–02020) Bolt & Nut	
	(09608–02040) Retainer	
	09628–62011 Ball Joint Puller	Tie rod end
	09726–10010 Lower Suspension Arm Bushing Remover & Replacer	
	(09726–00030) Spacer	Drive shaft inboard joint

	09923–00020 Hexagon 8 mm Wrench	
	09950–00020 Bearing Remover	Center drive shaft dust cover

RECOMMENDED TOOLS

SA024–01

	09905–00012 Snap Ring No. 1 Expander	For removing and installing snap ring

EQUIPMENT

SA025–01

Torque wrench	

LUBRICANT

SA027–02

Item	Capacity	Classification
Outboard joint grease	120–130 g (4.2–4.6 oz.)	
Inboard joint grease	133–153 g (4.7–5.4 oz.)	

SSM (SPECIAL SERVICE MATERIALS)

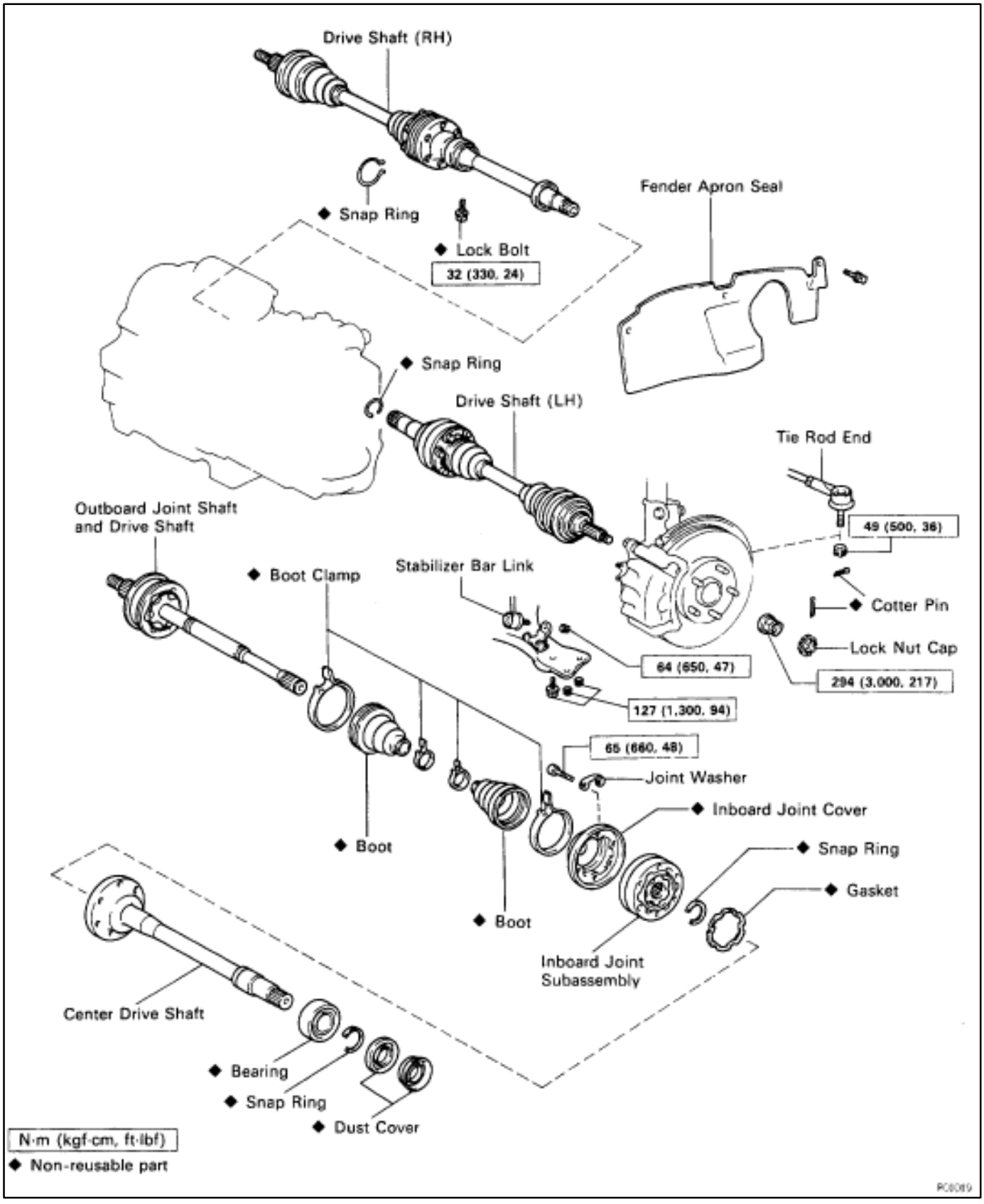
SA026–02

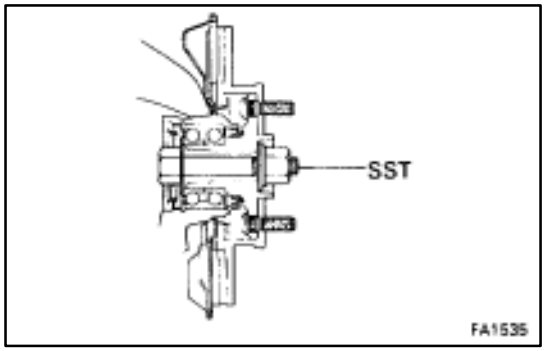
08826–00801	Seal Packing 1121, Three bond 1121, or equivalent	Drive shaft inboard joint cover

FRONT DRIVE SHAFT

SA028–01

COMPONENTS

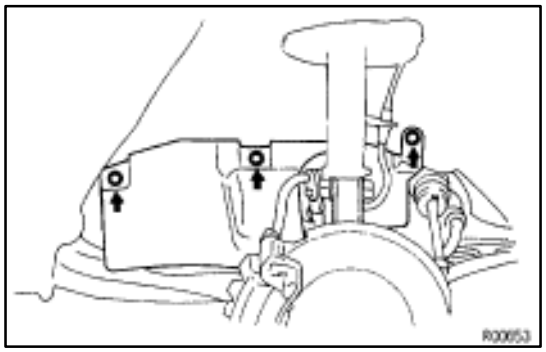




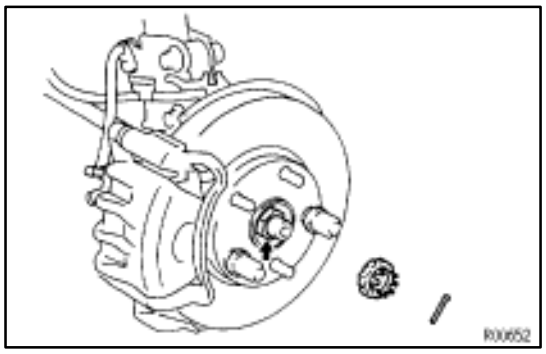
FRONT DRIVE SHAFT REMOVAL

SA029–01

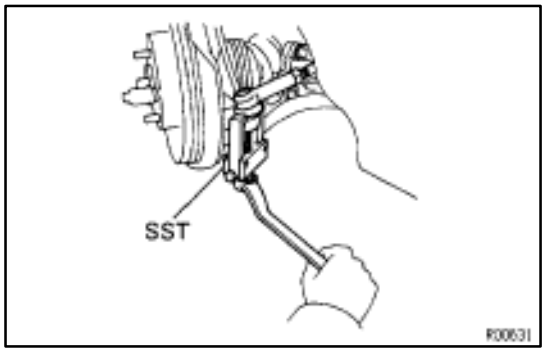
NOTICE: The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed.
Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with SST.
SST 09608–16041(09608–02020,09608–02040)



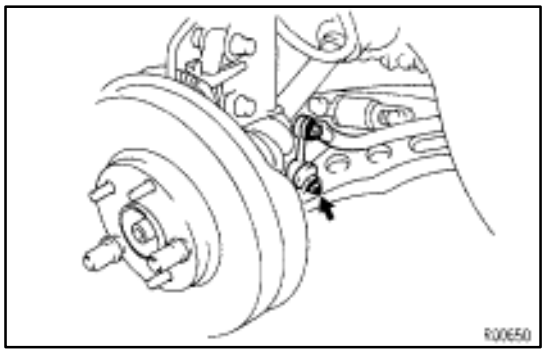
1. REMOVE FRONT FENDER APRON SEAL



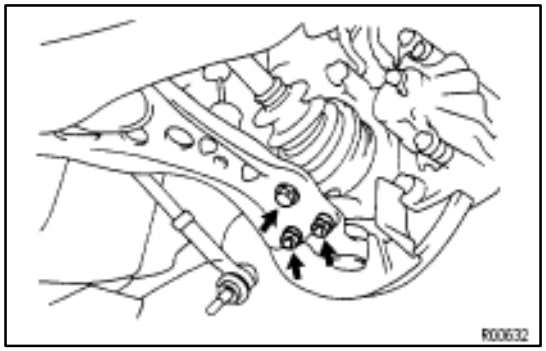
2. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT
(a) Remove the cotter pin and lock nut cap.
(b) Loosen the bearing lock nut while depressing the brake pedal.



3. DRAIN OUT GEAR OIL FLUID
4. DISCONNECT TIE ROD END FROM STEERING KNUCKLE
(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



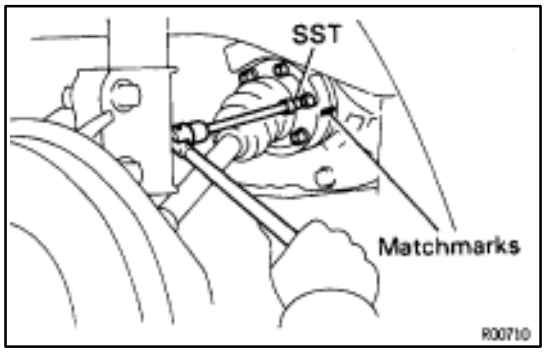
5. DISCONNECT STABILIZER BAR LINK FROM LOWER ARM
Remove the nut and disconnect the stabilizer bar link from lower arm.



6. DISCONNECT STEERING KNUCKLE FROM LOWER BALL JOINT

(a) Remove the bolt and two nuts.

(b) Disconnect the steering knuckle from lower ball joint.



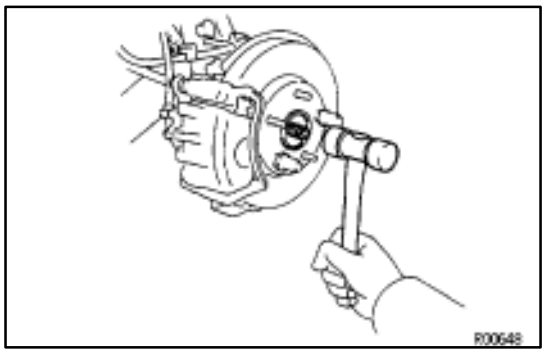
7. LOOSEN SIX BOLTS HOLDING DRIVE SHAFT TO DIFFERENTIAL SIDE GEAR SHAFT OR CENTER DRIVE SHAFT

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

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

(b) Using SST, loosen the six hexagon bolts while depressing the brake pedal.

SST 09923–00020

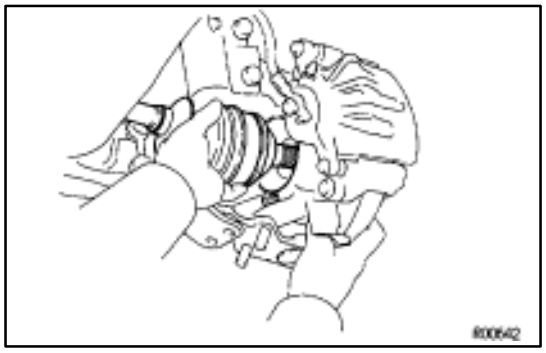


HINT: Do not remove the bolts, finger tighten them not to drop down the drive shaft.

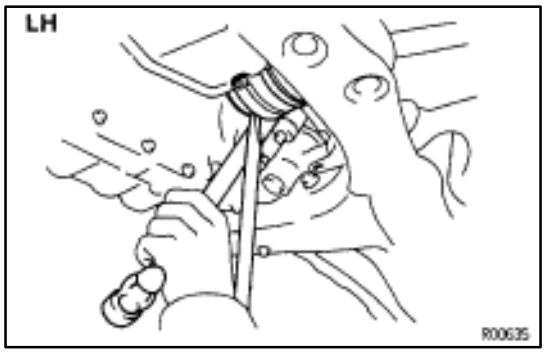
8. DISCONNECT DRIVE SHAFT FROM AXLE HUB

(a) Using a plastic hammer, disconnect the drive shaft from the axle hub.

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

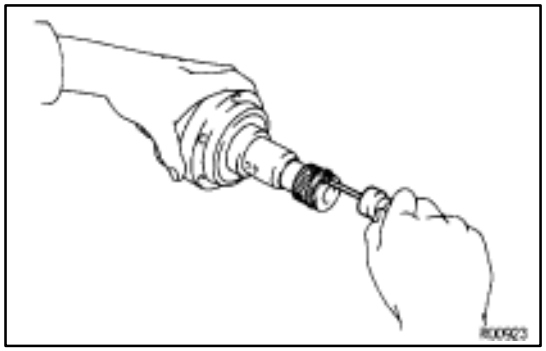


(b) Push the front axle hub toward the outside of the vehicle, and separate the drive shaft from the axle hub.



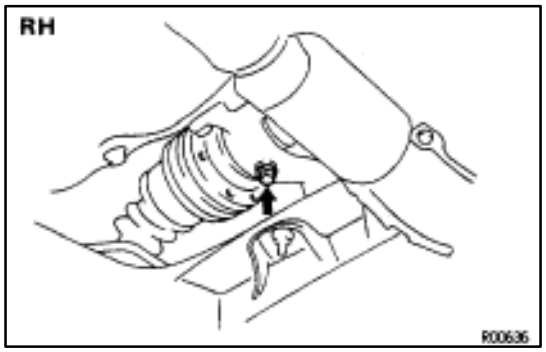
9. REMOVE LH DRIVE SHAFT

(a) Using hub nut wrench and hammer handle or an equivalent, pull out the drive shaft as shown.

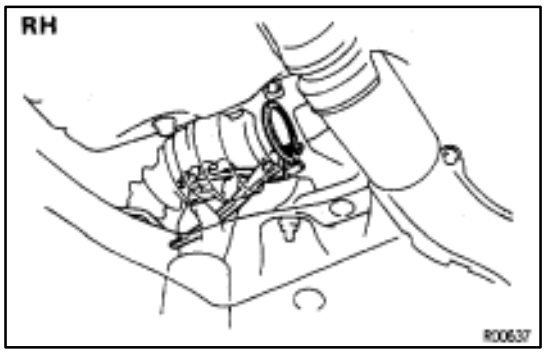


(b) Using a screwdriver, remove the snap ring.

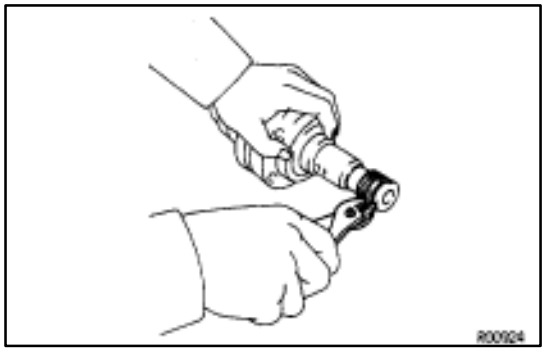
10. REMOVE RH DRIVE SHAFT



(a) Remove the bearing lock bolt.



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

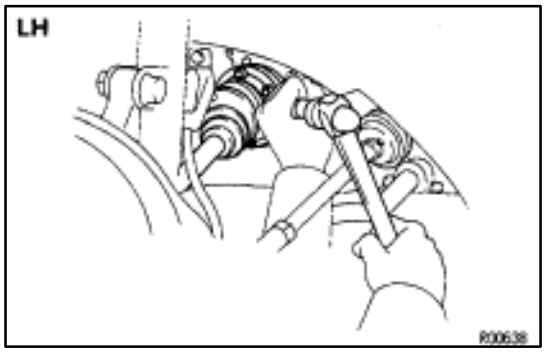


FRONT DRIVE SHAFT INSTALLATION

SA02A–01

1. INSTALL LH DRIVE SHAFT

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



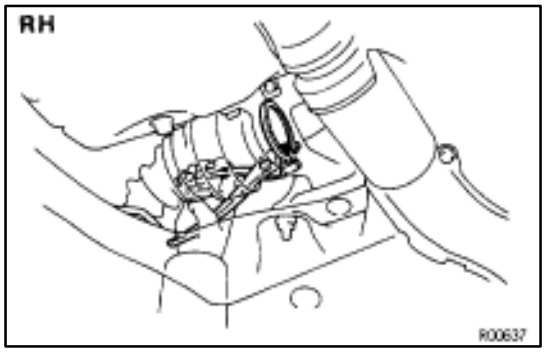
(b) Coat gear oil to the side gear shaft and differential case sliding surface.

(c) Using a brass bar and hammer, tap in the drive shaft until it makes contact with the pinion shaft.
HINT:
- 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.

2. CHECK INSTALLATION OF LH 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.

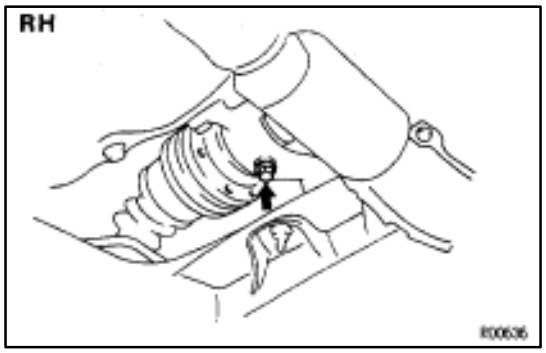


3. INSTALL RH DRIVE SHAFT

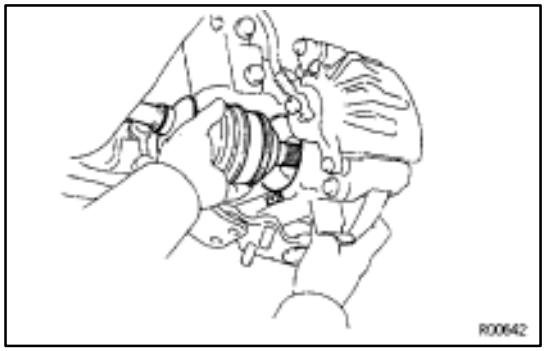
(a) Coat gear oil to the inboard joint and differential sliding surface.

(b) Install the drive shaft to the transaxle through the bearing bracket.
NOTICE: Do not damage the oil seal lip.

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



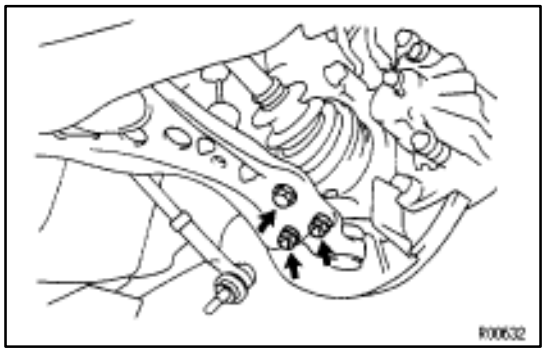
(d) Install a new bearing lock bolt and tighten it.
Torque: 32 N·m (330 kgf·cm, 24 ft·lbf)



4. CONNECT DRIVE SHAFT TO AXLE HUB

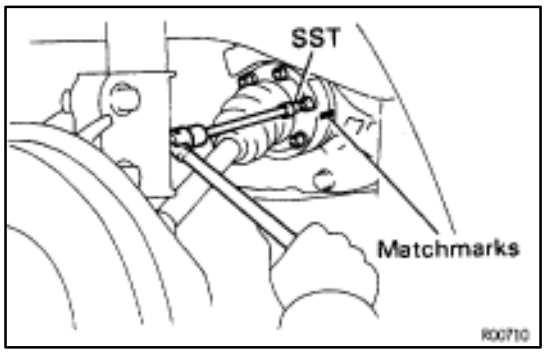
Install the outboard joint side of the drive shaft to the axle hub.

NOTICE: Do not damage the boot.



5. CONNECT STEERING KNUCKLE TO LOWER ARM

Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)

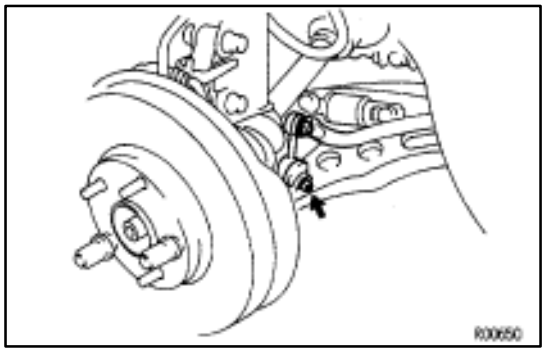


6. TIGHTEN SIX HEXAGON BOLTS

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

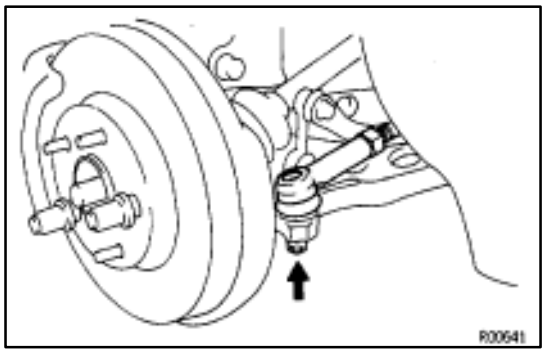
SST 09043–88010

Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)



7. CONNECT STABILIZER BAR LINK TO LOWER ARM

Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)



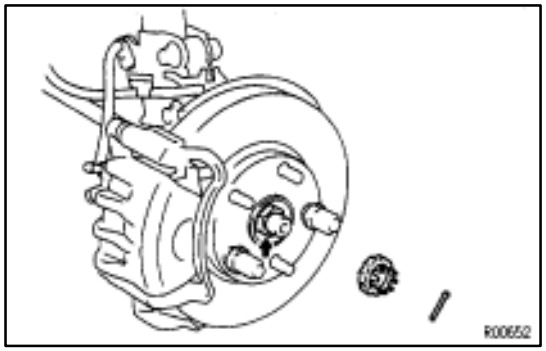
8. CONNECT TIE ROD END TO STEERING KNUCKLE

(a) Connect the tie rod end to the steering knuckle and torque the nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

(b) Install a new cotter pin.

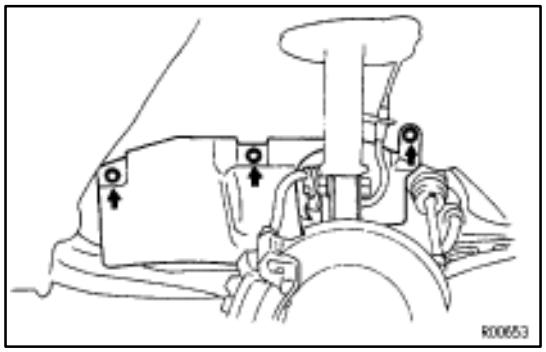
HINT: If the cotter pin hole does not line up, correct by tightening the nut by the smallest amount possible.



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

(a) Install and torque the bearing lock nut.
Torque: 294 N·m (3,000 kgf·cm, 217 ft·lbf)

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



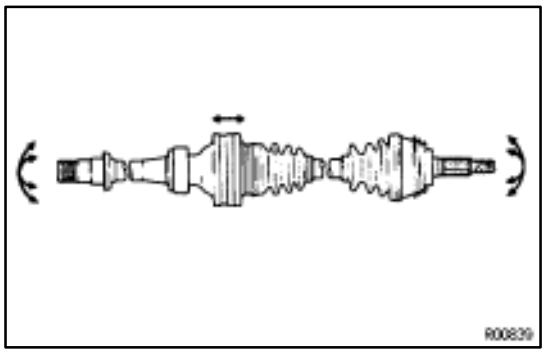
10. FILL TRANSAXLE WITH GEAR OIL

11. INSTALL FRONT FENDER APRON SEAL

12. CHECK FRONT WHEEL ALIGNMENT

FRONT DRIVE SHAFT DISASSEMBLY

SA044–01



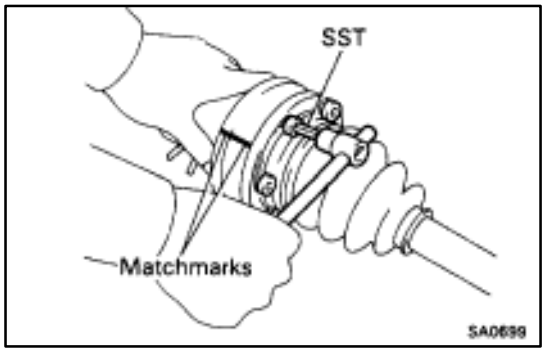
1. CHECK DRIVE SHAFT

(a) Check to see that there is no play in the inboard and outboard joints.

(b) Check to see that the inboard joint slides smoothly in the thrust direction.

(c) Check to see that there is no remarkable play in the radial direction of the in board joint.

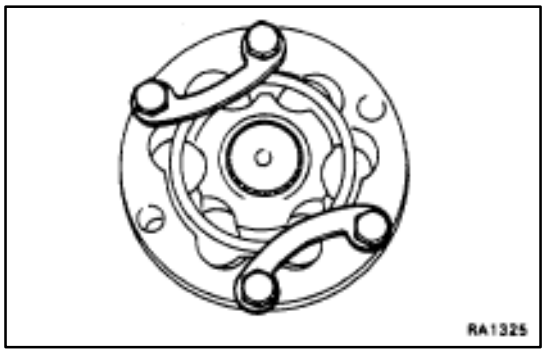
(d) Check the boot for damage.



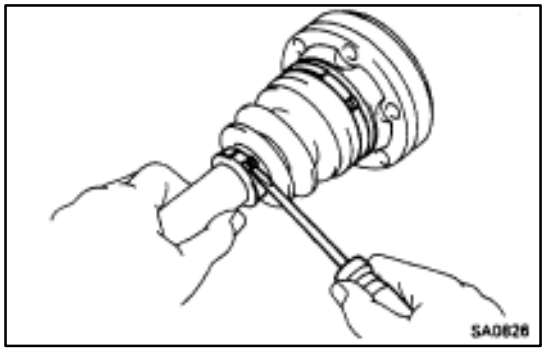
2. DISCONNECT CENTER DRIVE SHAFT OR SIDE GEAR SHAFT

(a) Using SST, remove the six bolts and three washers, and disconnect the center drive shaft or side gear shaft from the drive shaft.
SST 09923–00020
NOTICE: Do not compress the inboard boot.

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



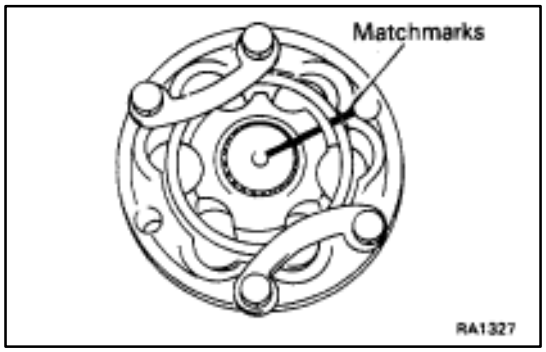
(c) Use bolts, nuts and washers to keep the inboard joint together.
NOTICE: Tighten the bolts by hand to avoid scratching the flange surface.



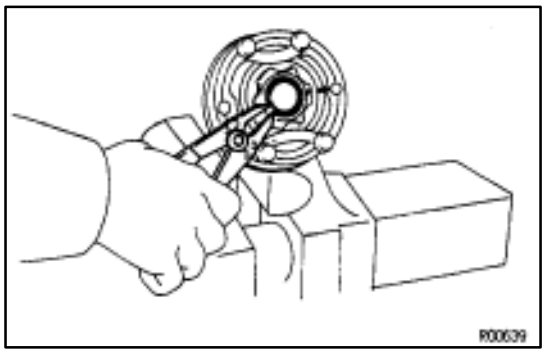
3. REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS

Using a screwdriver, remove the inboard and outboard joint clamps.

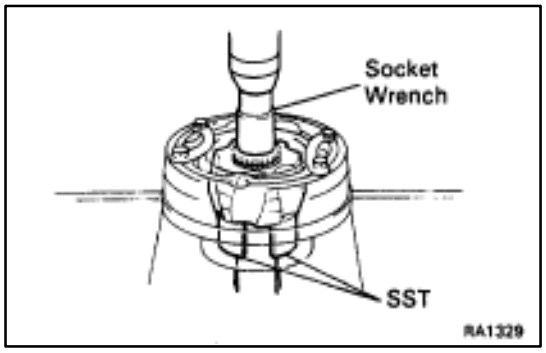
4. DISASSEMBLY INBOARD JOINT



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

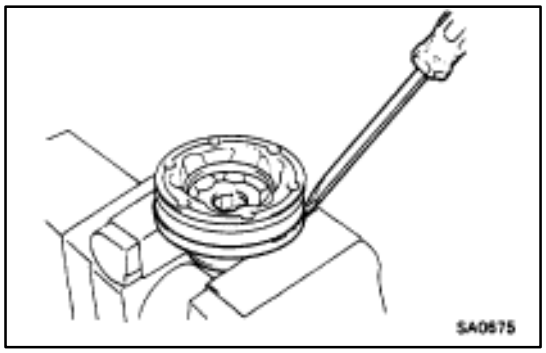


(b) Using a snap ring expander remove the snap ring.



(c) Using SST, a socket wrench and a press, remove the inboard joint from the drive shaft.
SST 09726–10010(09726–00030)

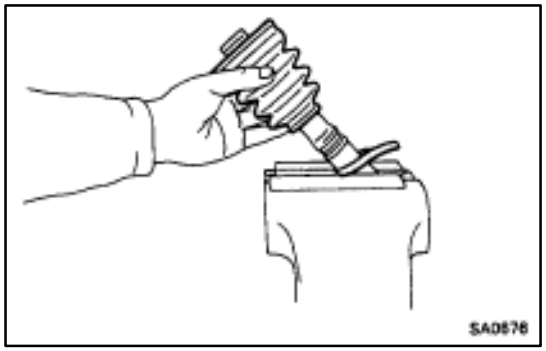
(d) Remove the bolts, nuts and washers.



(e) Using a screw driver and a hammer, pry around the whole perimeter of the inboard joint cover.

(f) Using a screw driver, remove the inboard joint from inboard joint cover.

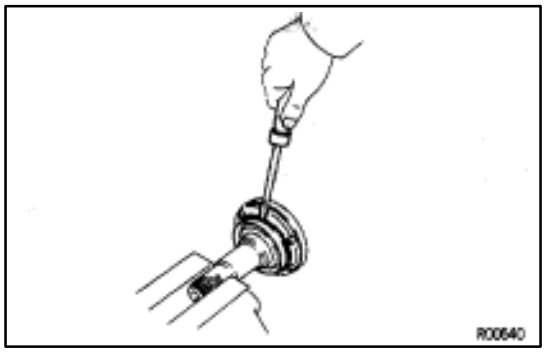
NOTICE: When lifting the inboard joint, hold onto the inner race and outer race.



5. REMOVE BOOTS

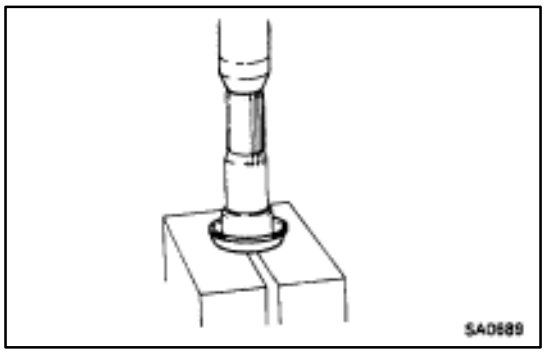
(a) Remove the inboard joint boot and outboard joint boot.

(b) Check the inside and outside of the boots for damage.



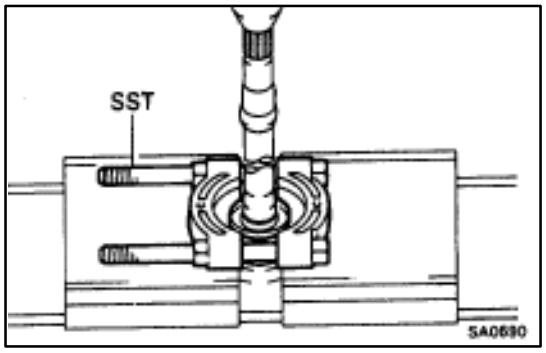
6. (LH DRIVE SHAFT)
DISASSEMBLE SIDE GEAR SHAFT

Using a screwdriver, remove the dust cover.

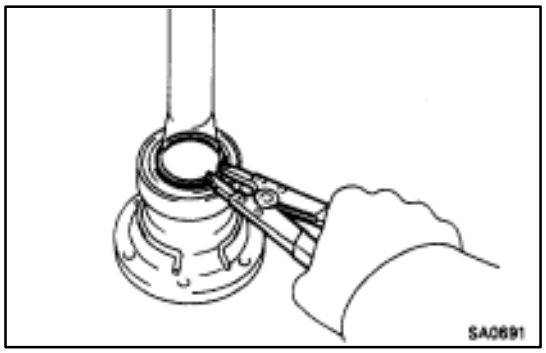


7. (RH DRIVE SHAFT)
DISASSEMBLE CENTER DRIVE SHAFT

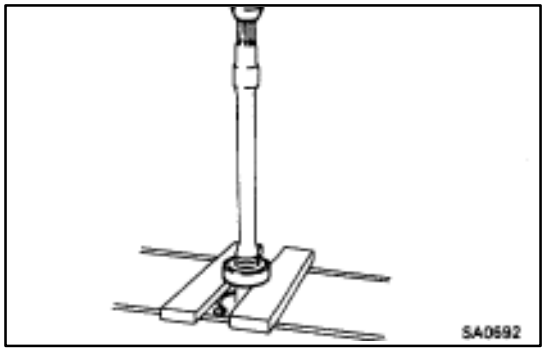
(a) Using a press, press out the transaxle side dust cover.



(b) Using SST and a press, press out the drive shaft side dust cover.
SST 09950–00020



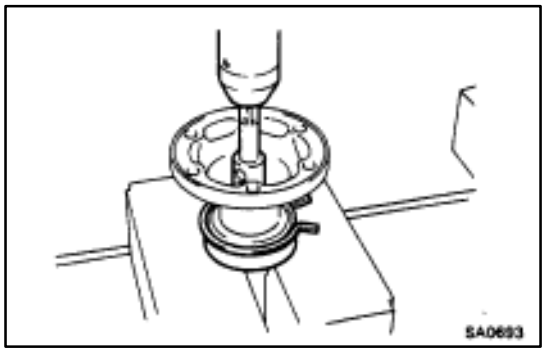
(c) Using snap ring pliers, remove the snap ring.



(d) Using a press, press out the bearing.
(e) Remove the snap ring.

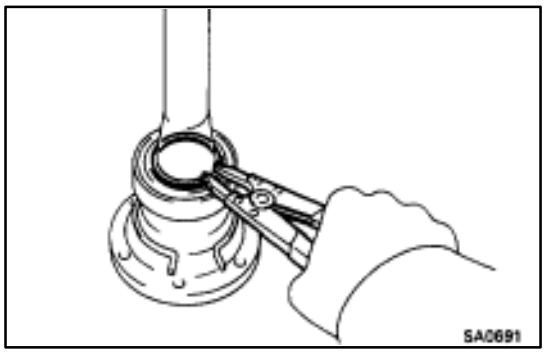
FRONT DRIVE SHAFT ASSEMBLY

SA045–01

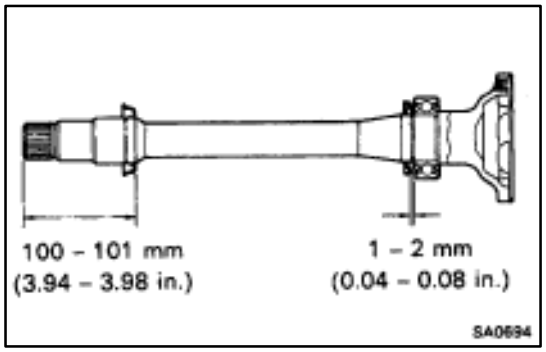


1. (RH DRIVE SHAFT)
ASSEMBLE CENTER DRIVE SHAFT

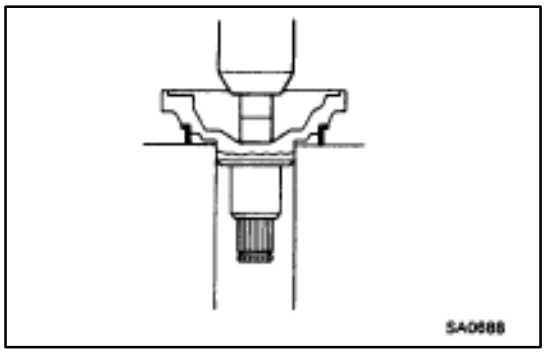
(a) Install a new snap ring to the center drive shaft.
(b) Using a press and extension bar, press in a new bearing.



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

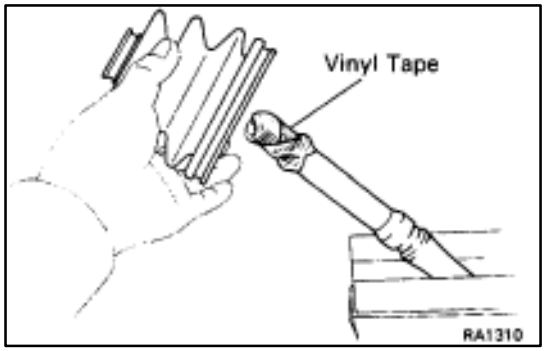


(d) Using a press, press in a new drive shaft side dust cover.
HINT: The clearance between the dust cover and the bearing should be kept in the range shown in the illustration.
(e) Using a press, press in a new transaxle side dust cover.



2. (LH DRIVE SHAFT)
ASSEMBLE SIDE GEAR SHAFT

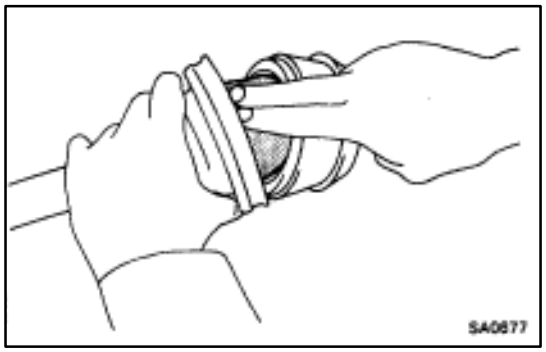
Using a press, press in a new dust cover.



3. INSTALL OUTBOARD JOINT BOOT AND NEW BOOT CLAMP

HINT:

- Before installing the boot, wrap vinyl tape around the spline of the shaft to prevent damaging the boot.
- Temporarily install the boot and new clamps to the outboard joint.



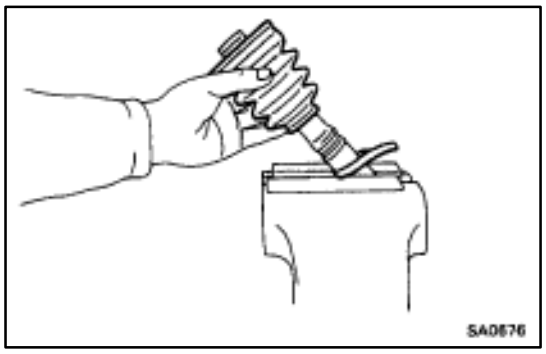
4. ASSEMBLE BOOT TO OUTBOARD JOINT

Before assembling the boot, pack in grease.

HINT: Use the grease supplied in the boot kit.

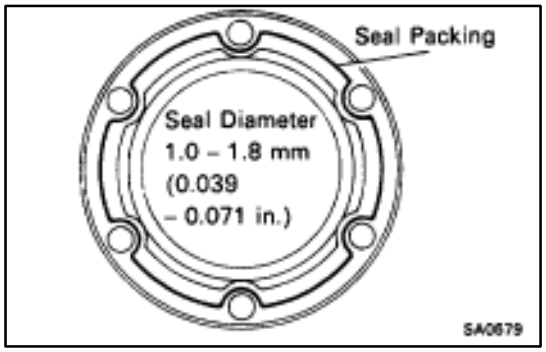
Grease capacity:

120–130 g (4.2–4.6 oz.)



5. INSTALL NEW BOOT CLAMPS AND INBOARD JOINT BOOT

Temporarily install the two new boot clamps and inboard joint boot.



6. ASSEMBLE NEW INBOARD JOINT COVER

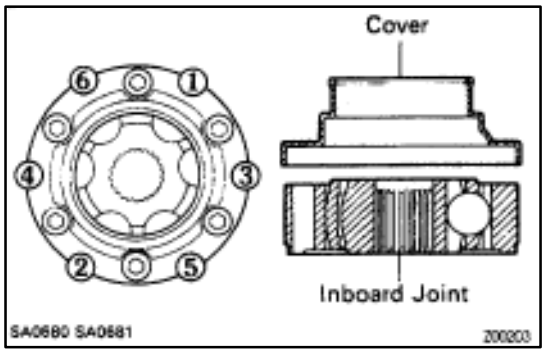
(a) Clean contacting surfaces of any residual packing material using cleaner.

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

Seal packing:

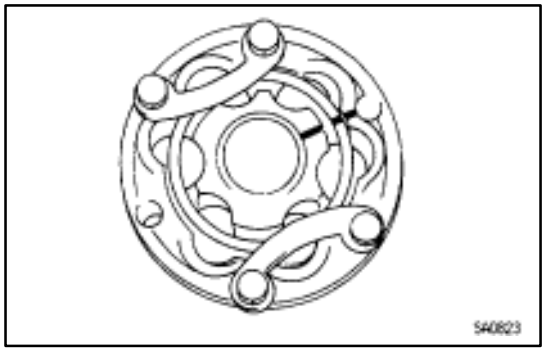
Part No. 08826–00801, THREE BOND 1122 or equivalent

HINT: Avoid applying an excess amount to the surface.

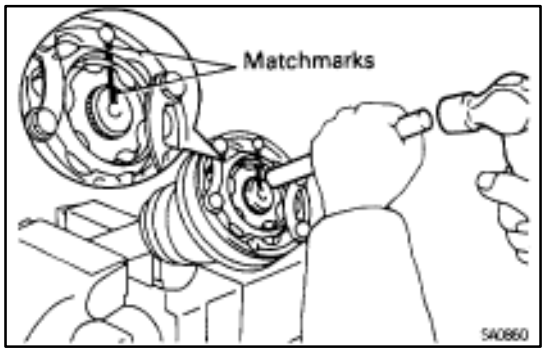


(c) Align the bolt holes of the cover with those of the inboard joint, then insert the hexagon bolts.

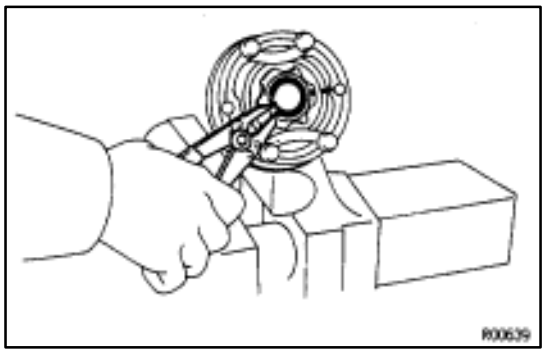
(d) Use a plastic hammer to tap the rim of the inboard joint cover into place. Do this in the order shown, and repeat several times.



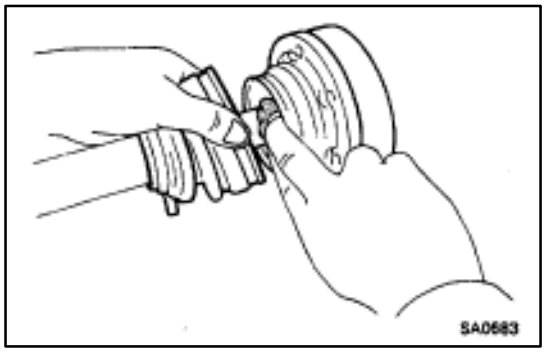
(e) Use bolts, nuts and washers to keep the inboard joint together.
NOTICE: Tighten the bolts by hand to avoid scratching the flange surface.



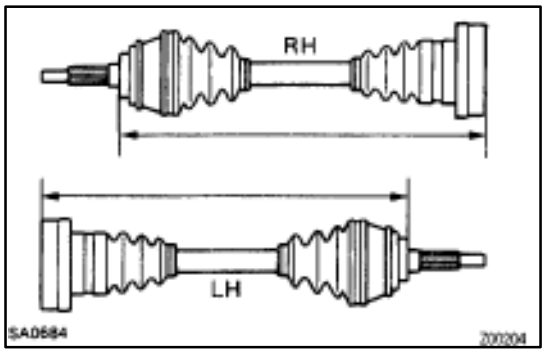
7. ASSEMBLE INBOARD JOINT
(a) Align the matchmarks placed before disassembly.
(b) Using a brass bar and hammer, tap the inboard joint onto the drive shaft.
NOTICE: Check that the brass bar is touching the inner race, and not the cage.



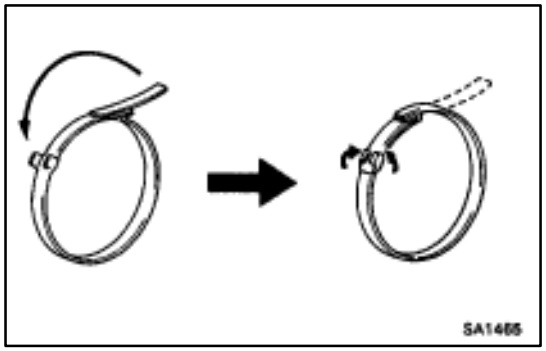
(c) Using a snap ring expander, install a new snap ring.
NOTICE: Work carefully so that the outer race does not come off.



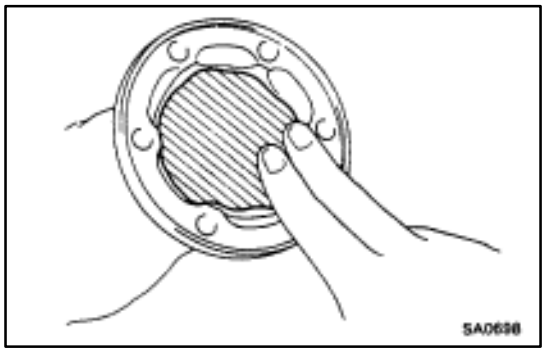
8. ASSEMBLE INBOARD JOINT BOOT TO INBOARD JOINT
Pack in grease to the inboard tulip and boot.
HINT: Use the grease supplied in the boot kit.
Grease capacity:
90–100 g (3.2–3.5 oz.)



9. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS
(a) Be sure the boots are on the shaft groove.
(b) Insure that the boots are not stretched or contracted when the drive shaft is at standard length.
Drive shaft standard length:
LH 456.0 mm (17.953 in.)
RH 455.9 mm (17.949 in.)



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



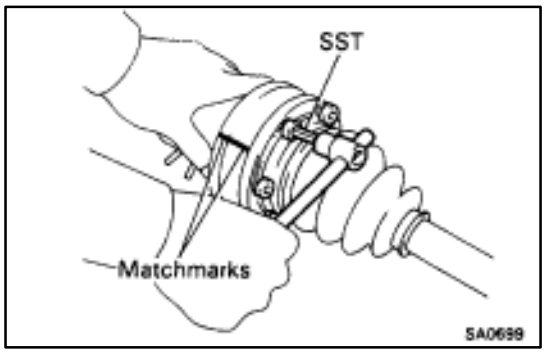
10. PACK IN GREASE TO CENTER DRIVE SHAFT OR SIDE GEAR SHAFT

Pack grease into the center drive shaft or side gear shaft.

Grease capacity:

43–53 g (1.5–1.9 oz.)

HINT: Use the grease supplied in the boot kit.



11. CONNECT DRIVE SHAFT AND CENTER DRIVE SHAFT OR SIDE GEAR SHAFT

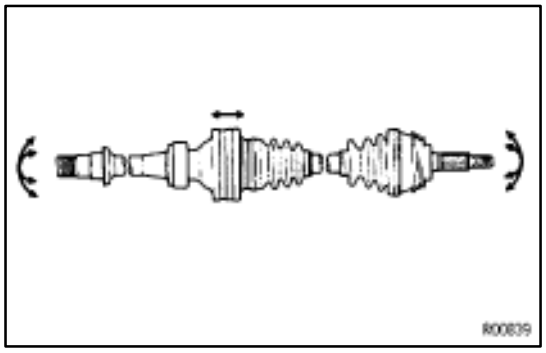
(a) Remove the bolts, nuts and washers.

(b) Align the matchmarks on the drive shaft and center drive shaft or side gear shaft.

(c) Place a new gasket on the inboard joint.

(d) Install the center drive shaft or side gear shaft to the drive shaft.

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



(e) Install the three washers and six hexagon bolts, and using SST, temporarily tighten them.

SST 09923–00020

12. CHECK DRIVE SHAFT

(a) Check to see that there is no play in the inboard joint and outboard joint.

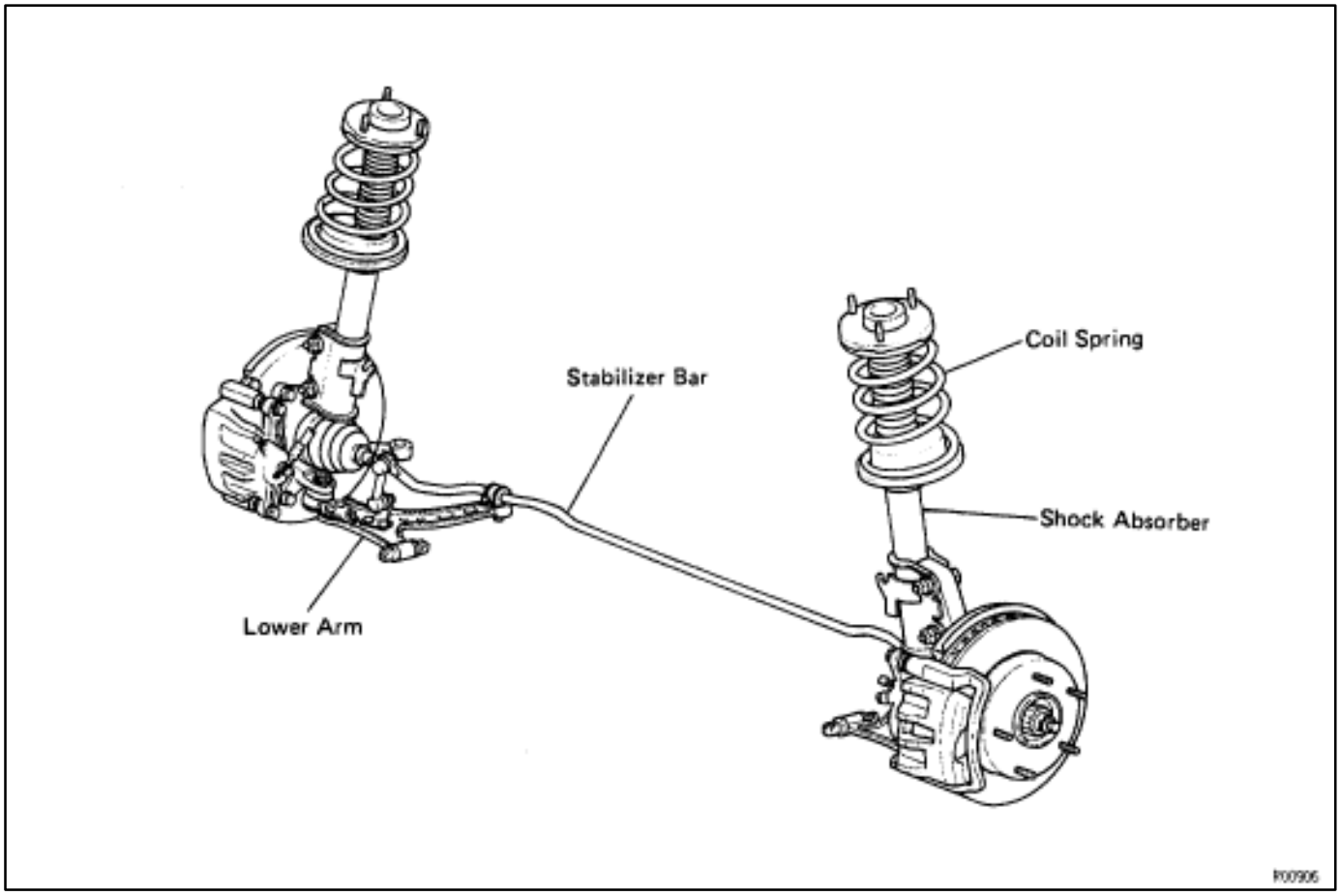
(b) Check to see that inboard joint slides smoothly in the thrust direction.

FRONT SUSPENSION

SA02P–01

DESCRIPTION

The front suspension is MacPherson strut type suspension with L–shape lower arm.



PREPARATION

SA02Q–01

SST (SPECIAL SERVICE TOOLS)

	09316–60010	Transmission & Transfer Bearing Replacer	Dust deflector installation
	(09316–00010)	Replacer Pipe	
	(09316–00040)	Replacer "C"	
	09608–32010	Steering Knuckle Oil Seal Replacer	Dust deflector installation
	09628–62011	Ball Joint Puller	
	09727–00045	Arm Set "B"	
	09727–30020	Coil Spring Compressor	
	09729–22031	Front Spring Upper Seat Holder	

RECOMMENDED TOOLS

SA02R–01

	09025–00010	Small Torque Wrench	

EQUIPMENT

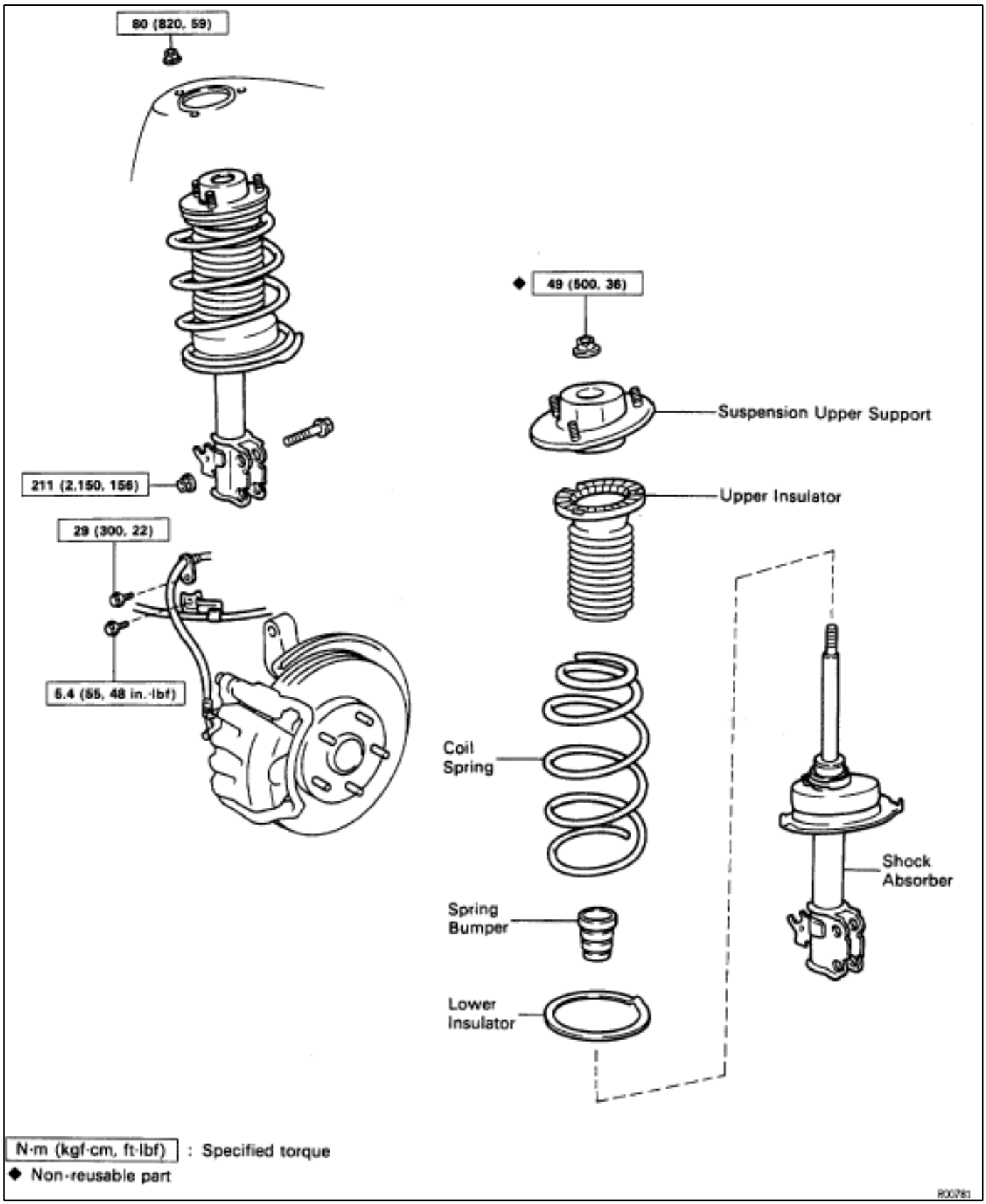
SA02S–01

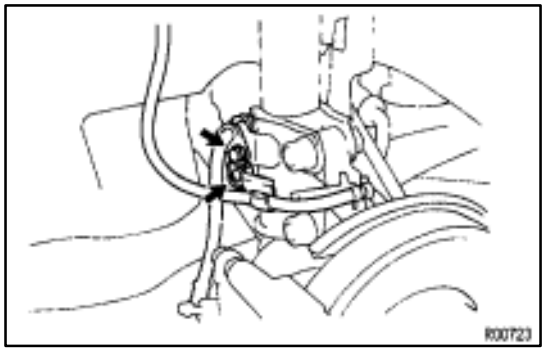
Torque wrench	

FRONT SHOCK ABSORBER

SA02T–01

COMPONENTS



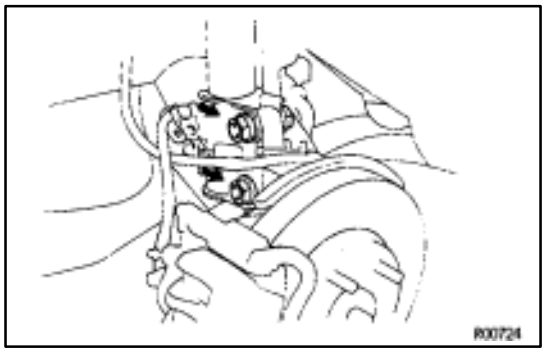


FRONT SHOCK ABSORBER REMOVAL

SA02U–02

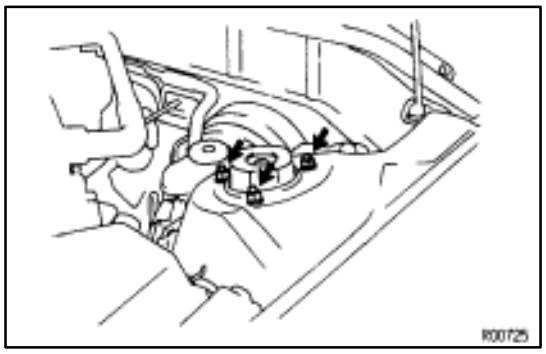
1. JACK UP VEHICLE AND REMOVE FRONT WHEEL

2. REMOVE BRAKE HOSE AND ABS SPEED SENSOR WIRE FROM SHOCK ABSORBER



3. DISCONNECT SHOCK ABSORBER FROM STEERING KNUCKLE

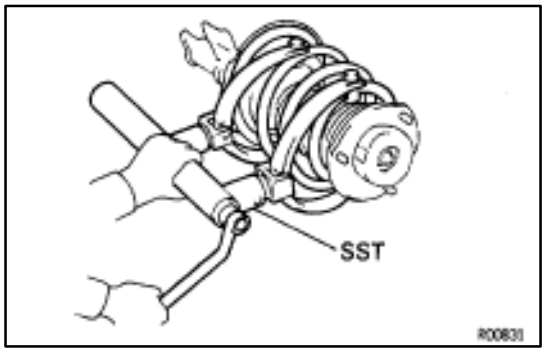
Remove the two nuts and bolts and disconnect the shock absorber from the steering knuckle.



4. REMOVE SHOCK ABSORBER WITH COIL SPRING

(a) Remove the three nuts on upper side of the shock absorber.

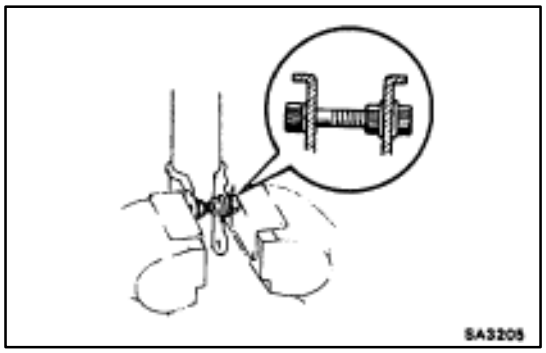
(b) Remove the shock absorber with coil spring.



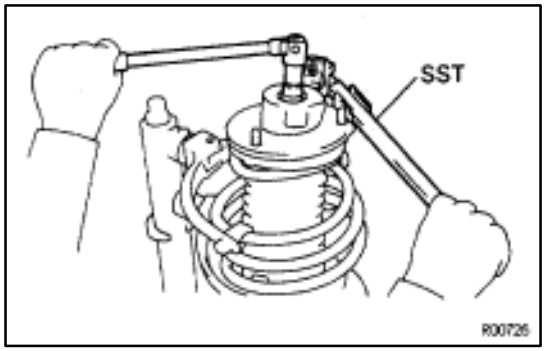
5. REMOVE COIL SPRING

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

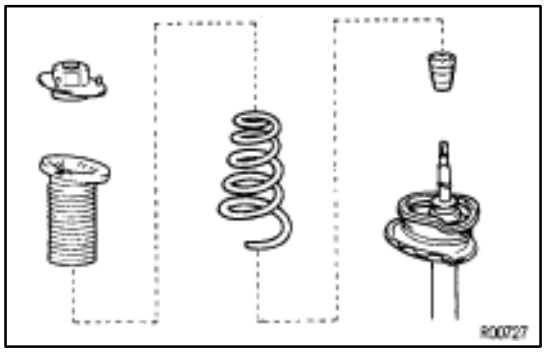
NOTICE: When holding the shock absorber with the coil spring removed, do not hold it by the spring lower seat. Also, do not knock the spring lower seat.



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

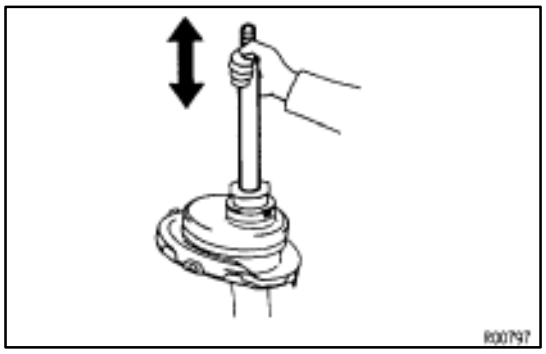


(c) Using SST to hold the upper support remove the nut.
SST 09729–22031



(d) Remove the following parts.
- Suspension upper support
- Upper insulator
- Coil spring
- Spring bumper
- Lower insulator

NOTICE: Do not disassemble the spring lower seat.



FRONT SHOCK ABSORBER INSPECTION

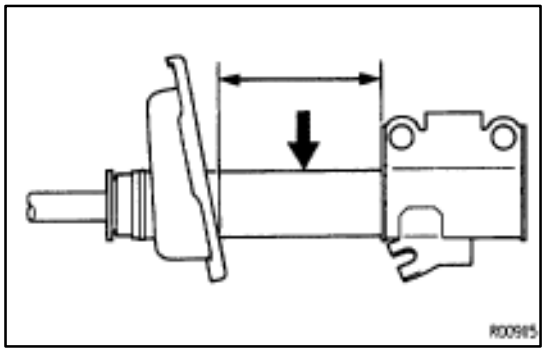
SA02V–01

1. INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual operation sounds.

If there is any abnormality, replace the shock absorber with a new one.

NOTICE: When discarding the shock absorber, use the following procedure.



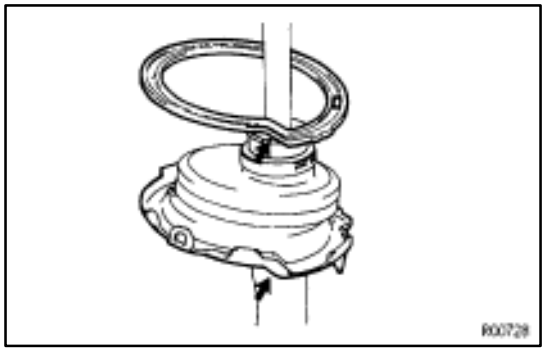
FRONT SHOCK ABSORBER DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD

2. DRILL HOLE TO REMOVE GAS FROM CYLINDER

Using a drill, make a hole in the cylinder as shown to remove the gas inside.

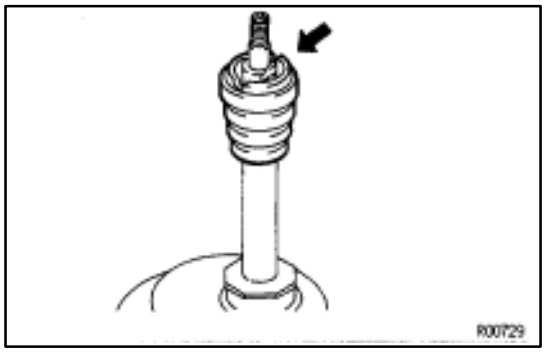
CAUTION: The gas coming out is harmless, but be careful of chips which mayfly up when drilling.



FRONT SHOCK ABSORBER INSTALLATION

SA041–02

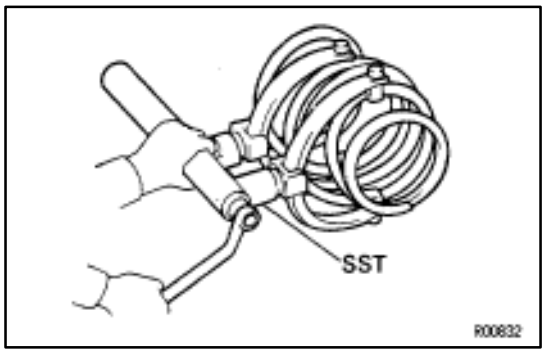
1. INSTALL LOWER INSULATOR ONTO SHOCK ABSORBER



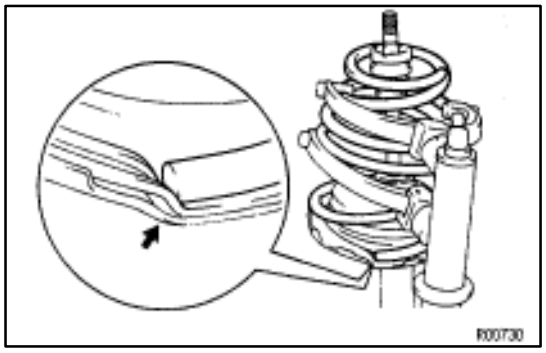
2. INSTALL SPRING BUMPER TO PISTON ROD

3. INSTALL COIL SPRING

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

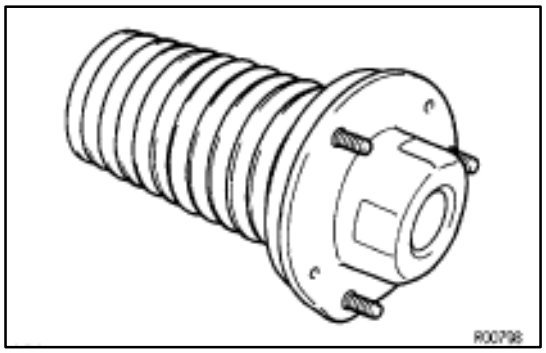


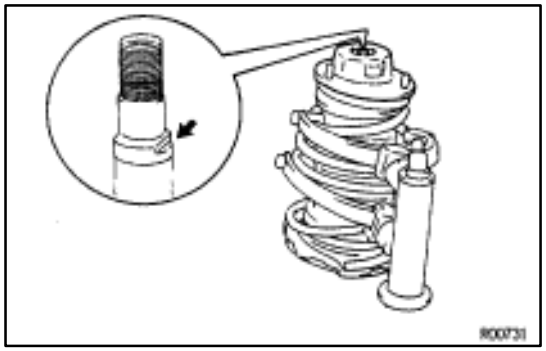
(b) Install the coil spring to the shock absorber.
HINT: Fit the lower end of the coil spring into the gap of the lower seat.



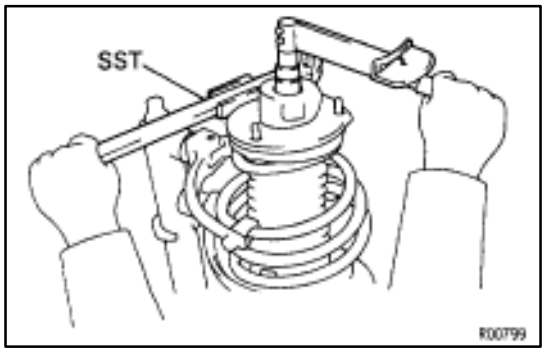
4. INSTALL UPPER INSULATOR AND UPPER SUPPORT

(a) Install the upper insulator to the upper support.

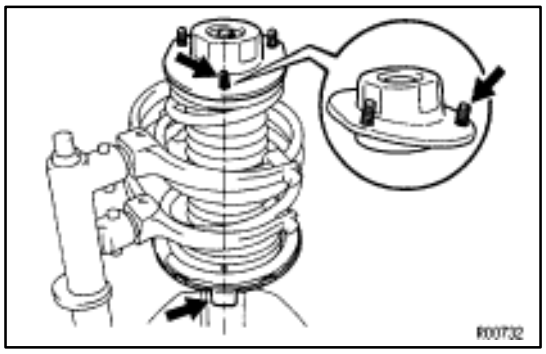




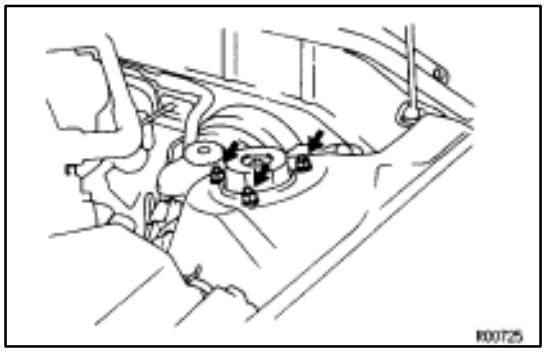
(b) Install the upper support to the piston rod.



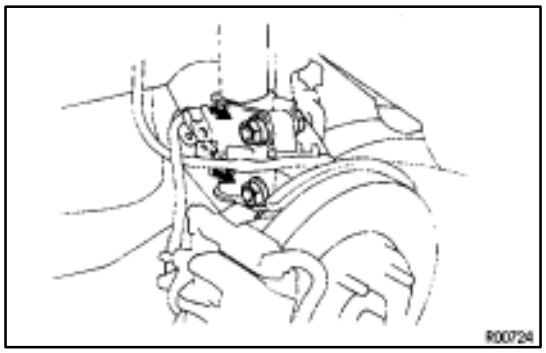
(c) Using SST to hold the upper support, install a new nut.
SST 09729–20031
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)



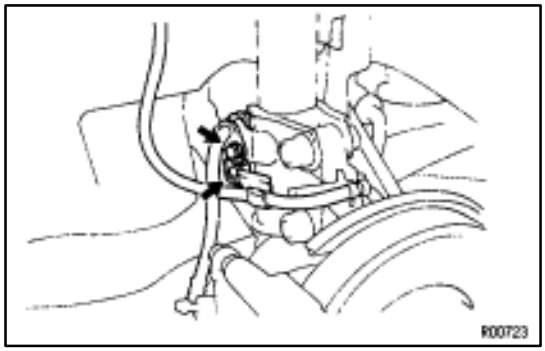
(d) Rotate the upper support so that the lowest bolt on the upper supportis aligned with the projection part of the spring lower seat shown in the illustration.
(e) Remove the SST.
HINT: After removing SST, again check the direction of the upper support.



5. INSTALL SHOCK ABSORBER WITH COIL SPRING
Place the shock absorber and install the three nuts.
Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)



6. CONNECT SHOCK ABSORBER TO STEERING KNUCKLE
(a) Coat the threads of the nuts with engine oil.
(b) Install the two bolts and nuts.
Torque: 211 N·m (2,150 kgf·cm, 156 ft·lbf)



7. INSTALL BRAKE HOSE AND ABS SPEED SENSOR WIRE TO SHOCK ABSORBER

Brake hose

Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

ABS wire

Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

8. INSTALL FRONT WHEEL AND LOWER VEHICLE

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

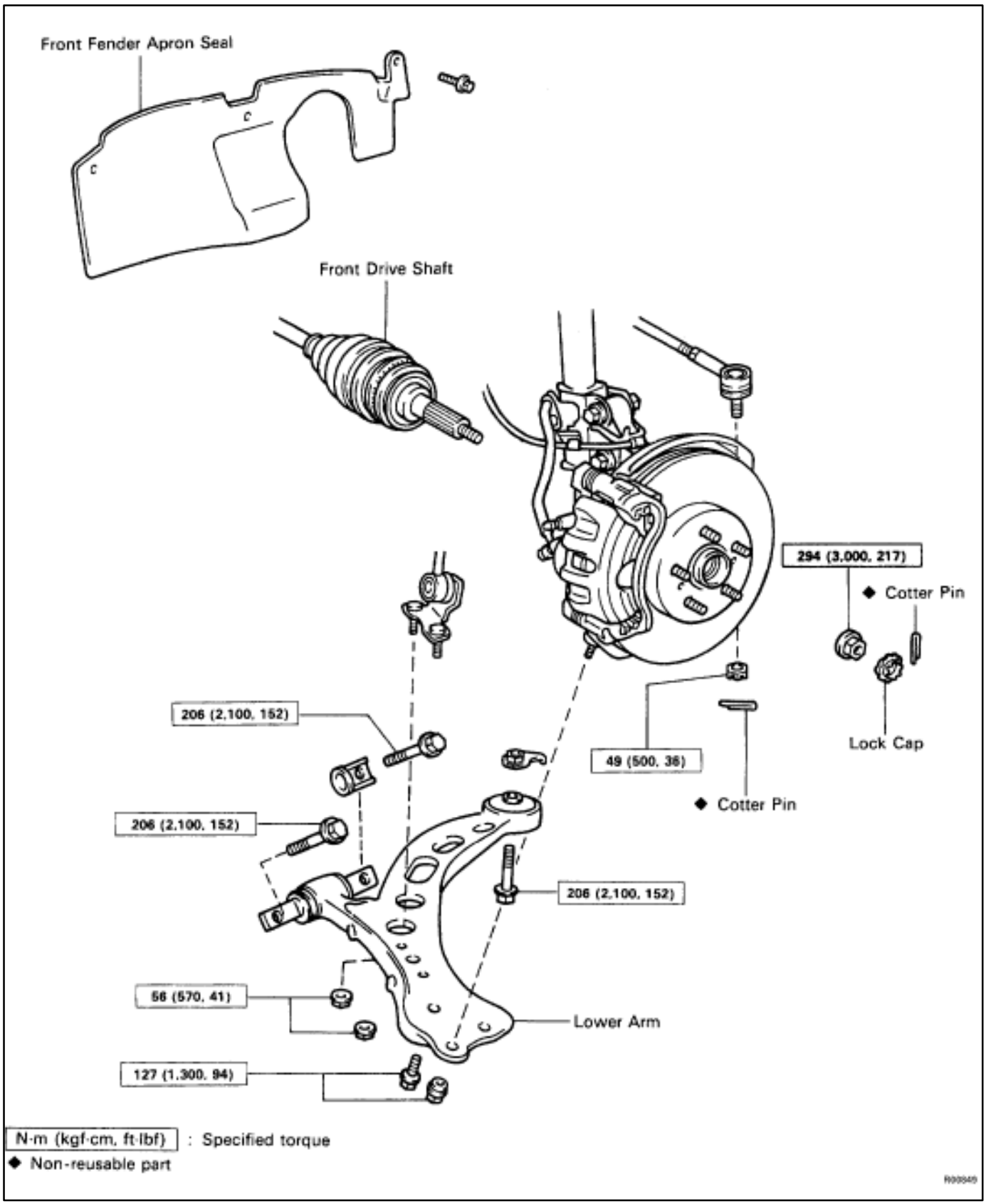
9. INSPECT FRONT WHEEL ALIGNMENT

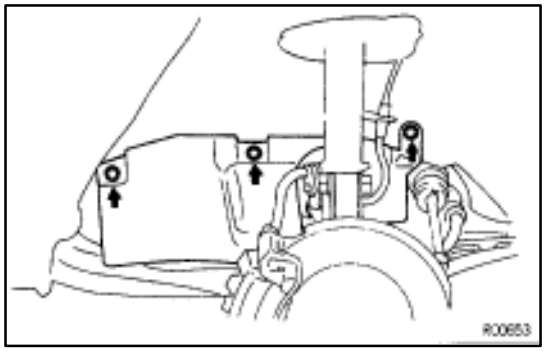
(See page SA–3)

LOWER SUSPENSION ARM

SA02W–01

COMPONENTS



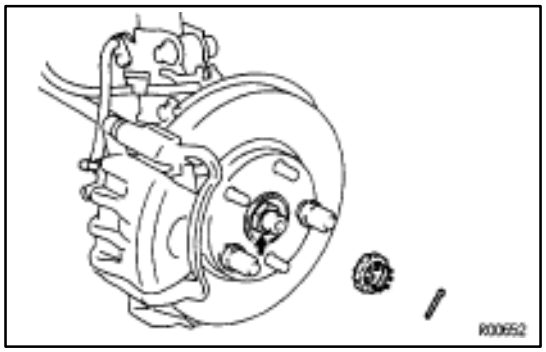


LOWER ARM REMOVAL

SA02X–01

1. JACK UP VEHICLE AND REMOVE FRONT WHEEL

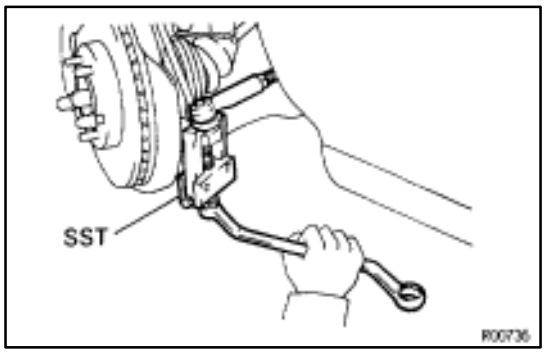
2. REMOVE FRONT FENDER APRON SEAL



3. REMOVE DRIVE SHAFT LOCK NUT

(a) Remove the cotter pin and lock cap.

(b) While applying the brakes, remove the nut.

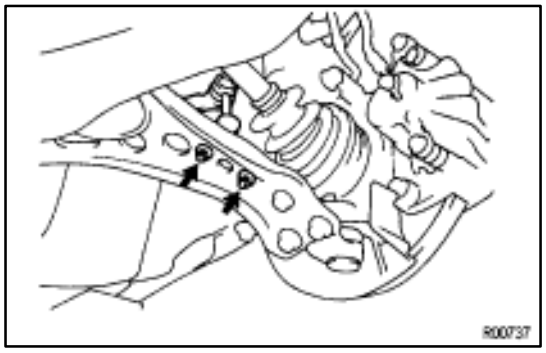


4. DISCONNECT TIE ROD END FROM STEERING KNUCKLE

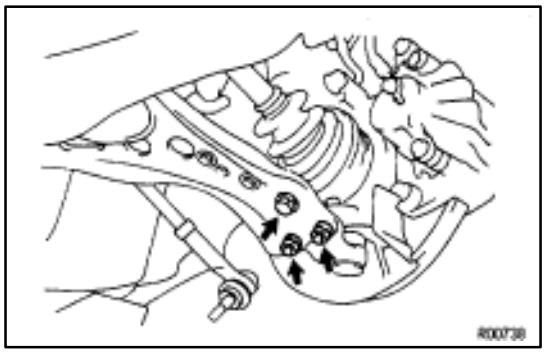
(a) Remove the cotter pin and remove the nut.

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

SST 09628–62011

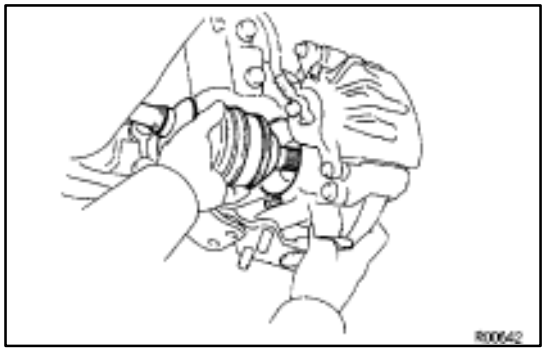


5. REMOVE LEFT AND RIGHT STABILIZER END BRACKETS FROM LOWER ARMS



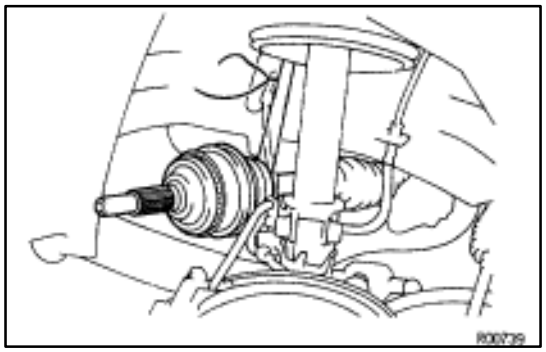
6. DISCONNECT LOWER ARM FROM LOWER BALL JOINT

Remove the bolt and two nuts.

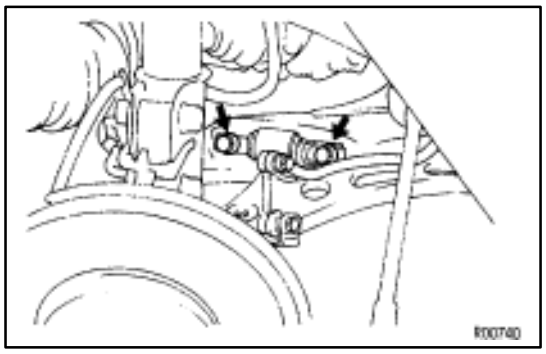


7. REMOVE DRIVE SHAFT FROM AXLE HUB

(a) Remove the drive shaft from the axle hub.

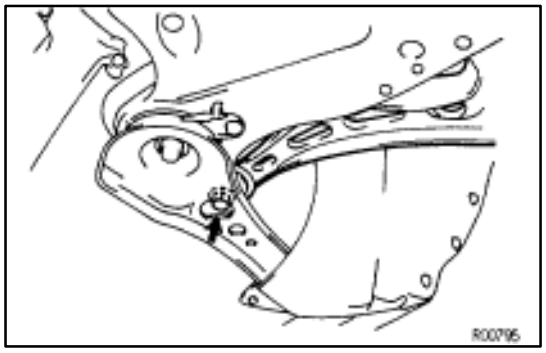


(b) Hang up the drive shaft using wire, etc.
NOTICE: Be careful not to damage the drive shaft boot and ABS sensor rotor.

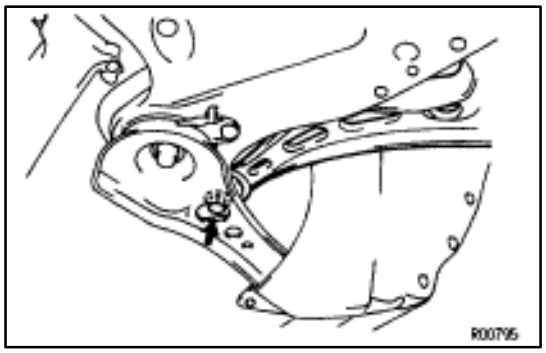


8. REMOVE LOWER ARM

(a) Remove the two bolts on front side of the lower arm.



(b) Remove the bolt and nut on rear side of the lower arm.
(c) Remove the lower arm.
(d) Remove the lower arm bushing stopper from the lower arm shaft.

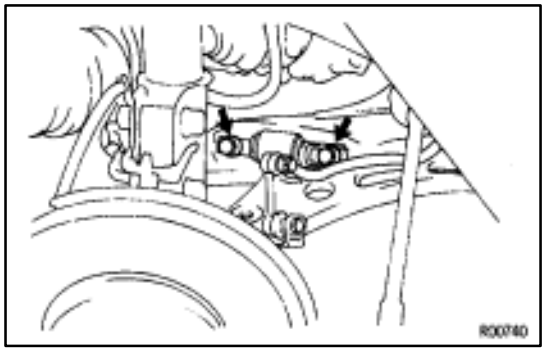


LOWER ARM INSTALLATION

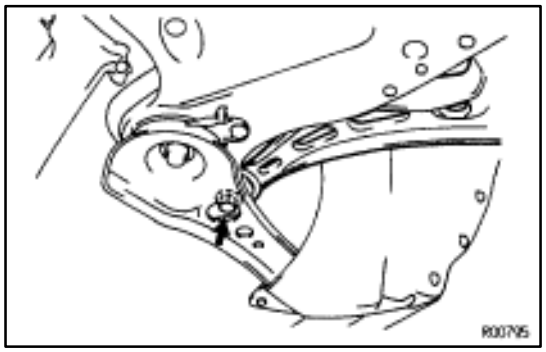
SA02Y–01

1. INSTALL LOWER ARM

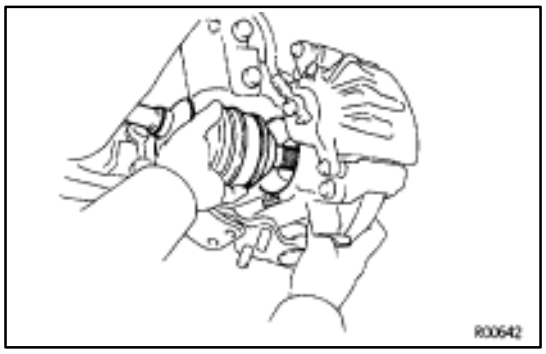
(a) Place the lower arm and temporarily install the rear side bolt and nut



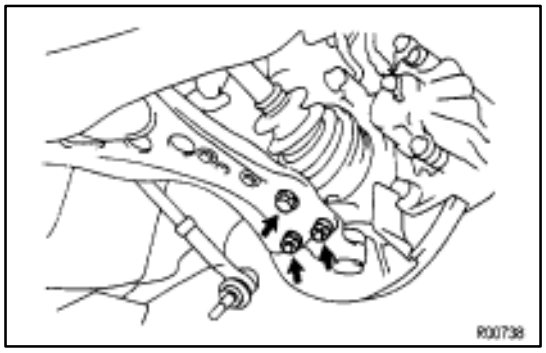
(b) Install the lower arm bushing stopper to the lower arm shaft.
(c) Install the two bolts on the front side of the lower arm.
Torque: 206 N·m (2,100 kgf·cm, 152 ft·lbf)



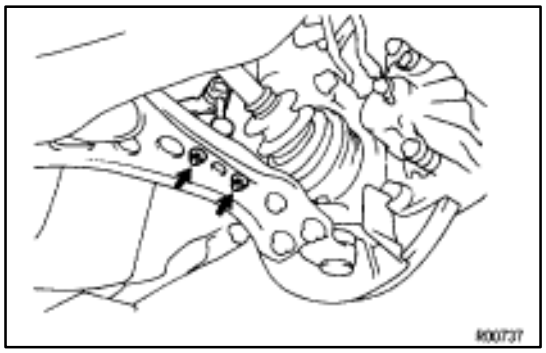
(d) Tighten the bolt on rear side of the lower arm.
Torque: 206 N·m (2,100 kgf·cm, 152 ft·lbf)



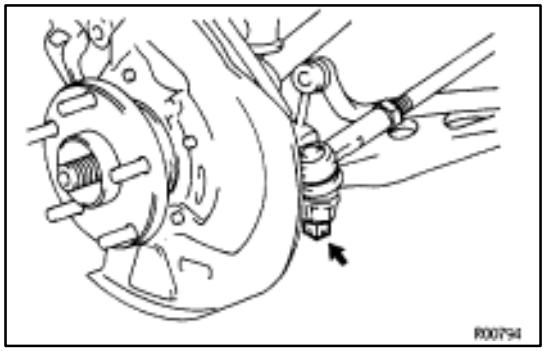
2. INSTALL DRIVE SHAFT TO AXLE HUB



3. CONNECT LOWER ARM TO LOWER BALL JOINT
Install the bolt and two nuts.
Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)



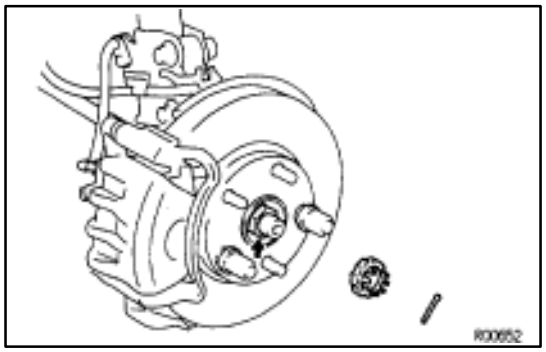
4. INSTALL LEFT AND RIGHT STABILIZER END BRACKETS TO LOWER ARMS
Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)



5. CONNECT TIE ROD END TO STEERING KNUCKLE

(a) Connect the tie rod end to the steering knuckle and tighten the nut.
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

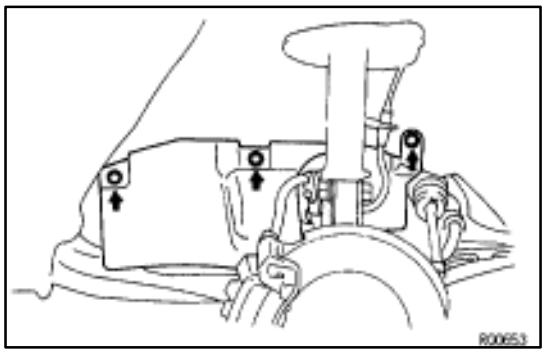
(b) Install a new cotter pin.



6. INSTALL DRIVE SHAFT LOCK NUT

(a) While applying the brakes, install the nut.
Torque: 294 N·m (3,000 kgf·cm, 217 ft·lbf)

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



7. INSTALL FRONT FENDER APRON SEAL

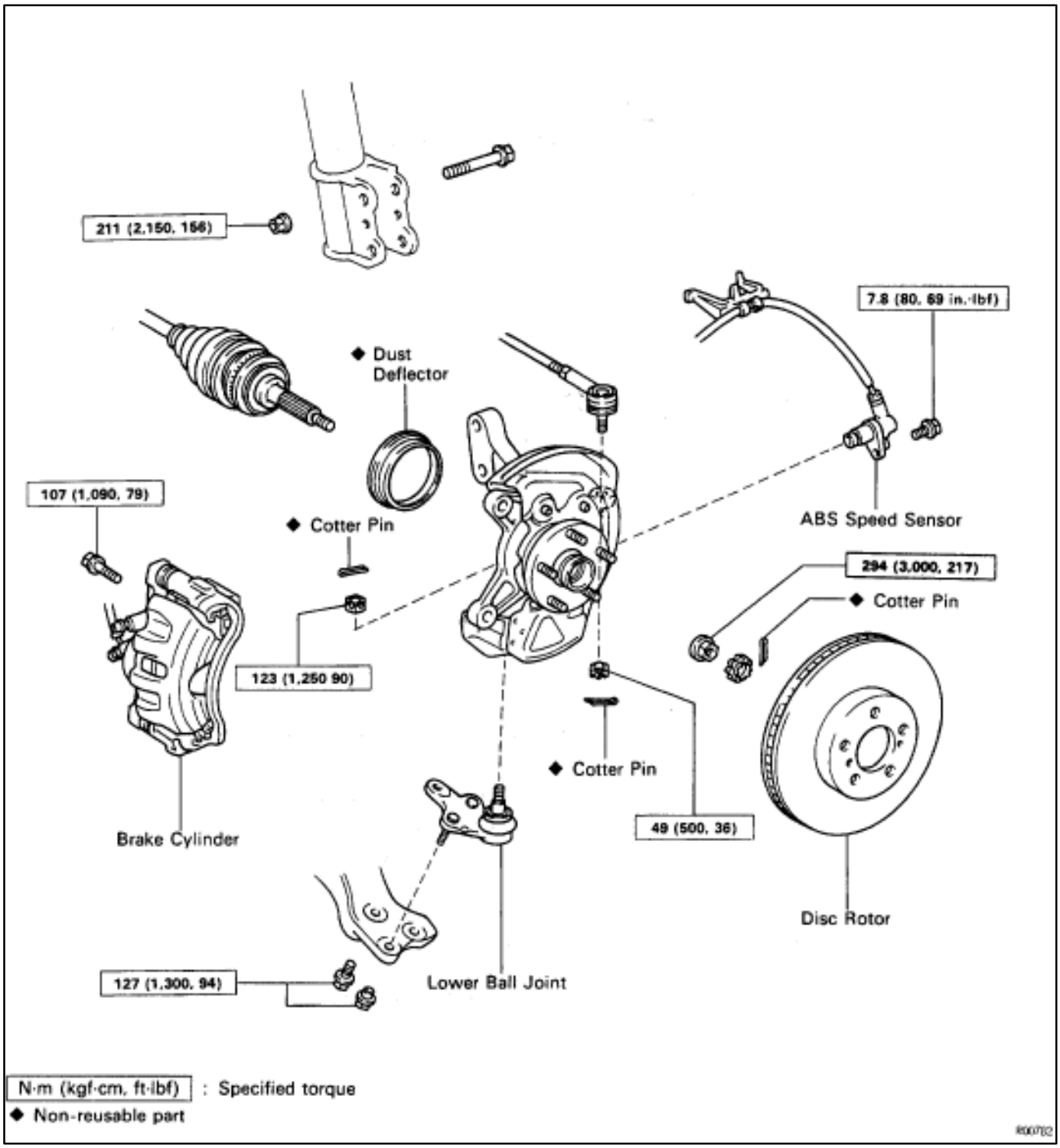
8. INSTALL FRONT WHEEL AND LOWER VEHICLE
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

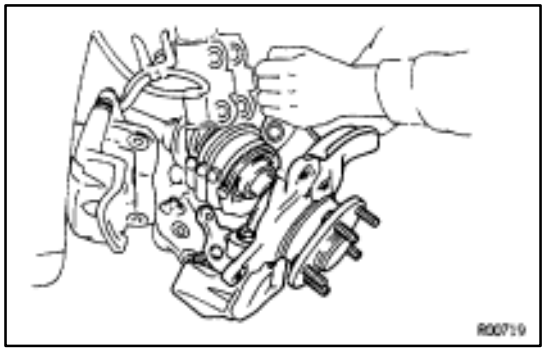
9. INSPECT FRONT WHEEL ALIGNMENT
(See page SA–3)

LOWER BALL JOINT

SA02Z–01

COMPONENTS

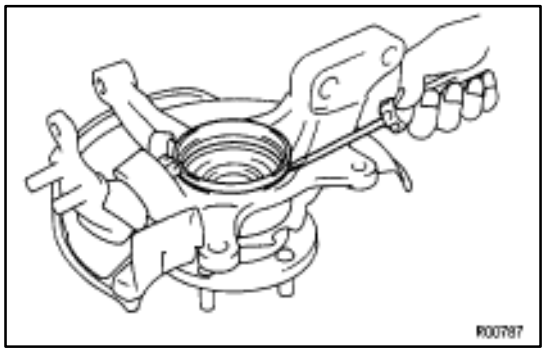




LOWER BALL JOINT REMOVAL

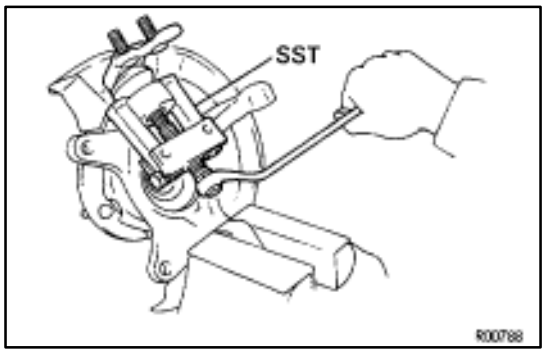
SA030–01

1. REMOVE STEERING KNUCKLE WITH AXLE HUB
(See page SA–10)

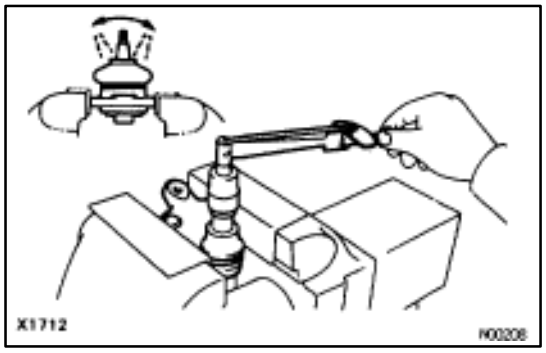


2. REMOVE LOWER BALL JOINT

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



(b) Remove the cotter pin and nut.
(c) Using SST, remove the lower ball joint.
SST 09628–62011

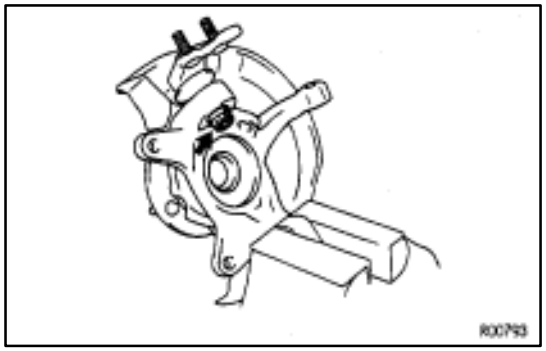


LOWER BALL JOINT INSPECTION

SA031–01

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) As shown, flip the ball joint stud back and forth 5 times before installing the nut.
(b) Using a torque gauge, turn the nut continuously one turn per 2–4 seconds and take the torque reading on the 5th turn.
Turning torque:
1.0–2.9 N·m (10–30 kgf·cm, 8.7–26 in.·lbf)



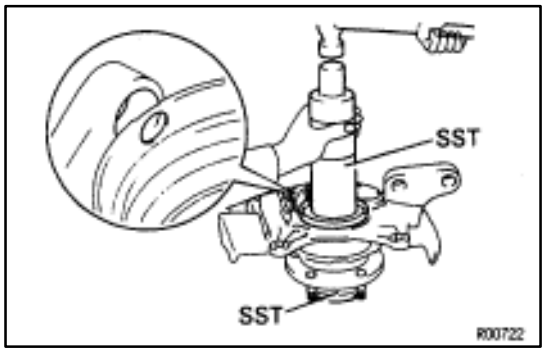
LOWER BALL JOINT INSTALLATION

SA032–01

1. INSTALL LOWER BALL JOINT

(a) Install the lower ball joint and tighten the nut.
Torque: 123 N·m (1,250 kgf·cm, 90 ft·lbf)

(b) Install a new cotter pin.



2. INSTALL DUST DEFLECTOR

Using SST and a hammer, install a new dust deflector.
SST 09316–60010 (09316–00010, 09316–00040) 09608–32010

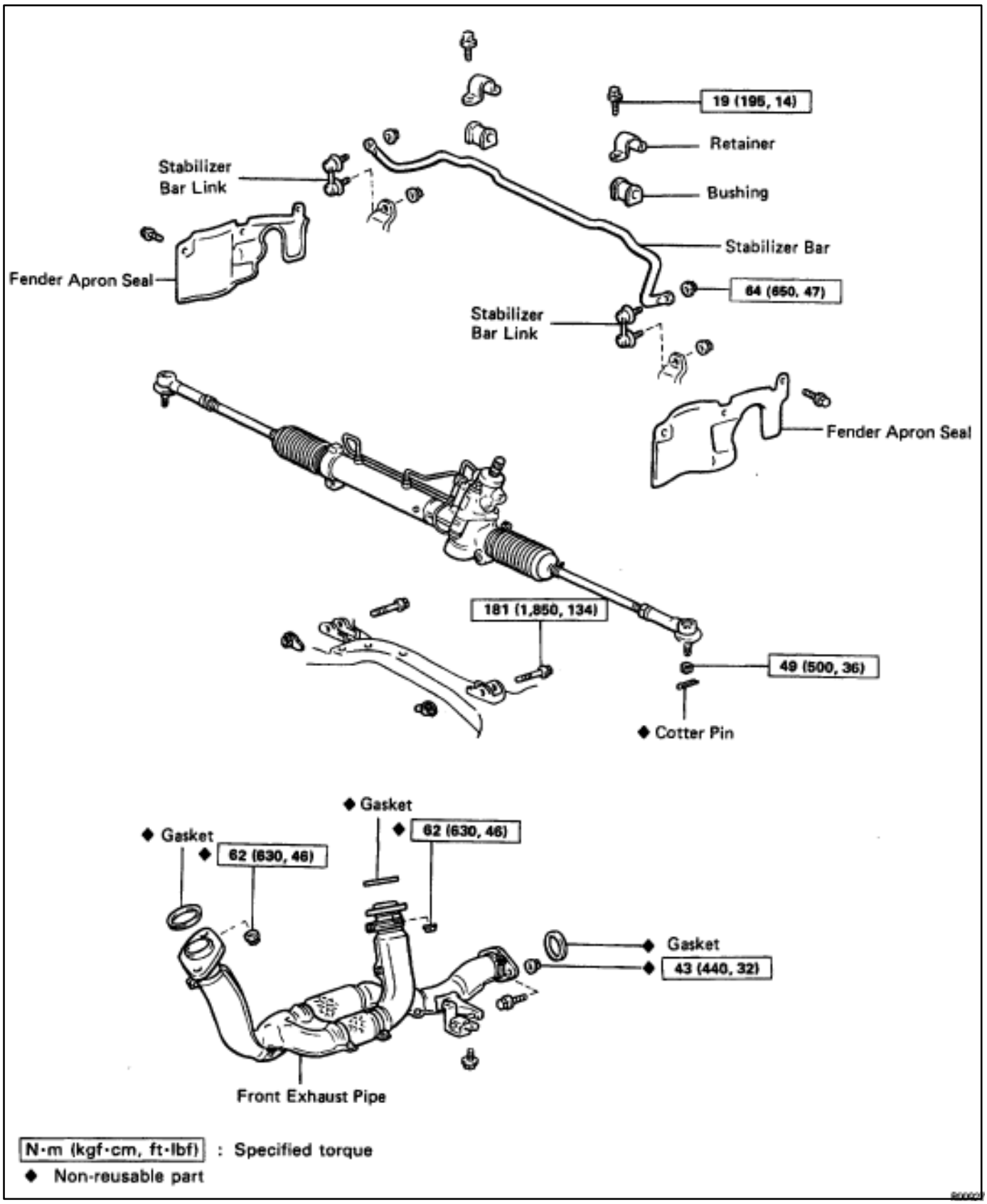
HINT: Align the hoses for the ABS speed sensor in the dust deflector and steering knuckle.

3. INSTALL STEERING KNUCKLE WITH AXLE HUB
(See page SA–14)

STABILIZER BAR

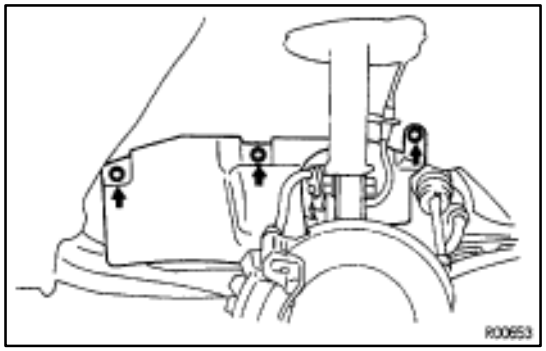
SA033–01

COMPONENTS



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

◆ Non-reusable part

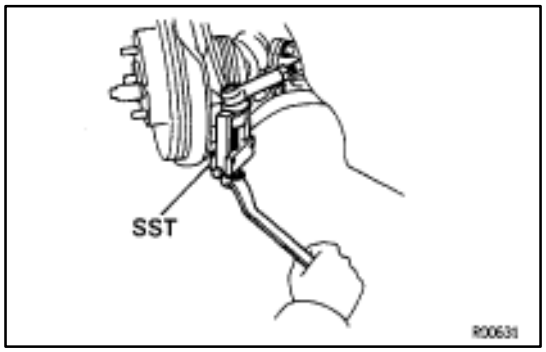


STABILIZER BAR REMOVAL

SA034–01

1. JACK UP VEHICLE AND REMOVE LEFT AND RIGHT FRONT WHEELS

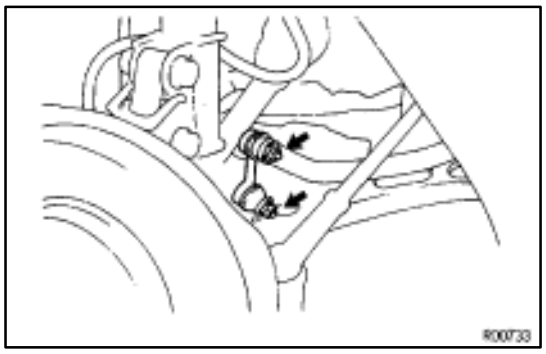
2. REMOVE LEFT AND RIGHT FENDER APRON SEALS



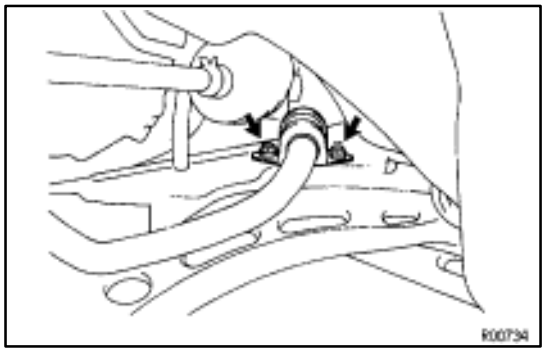
3. DISCONNECT LEFT AND RIGHT TIE ROD ENDS FROM STEERING KNUCKLES

(a) Remove the cotter pin and nut.

(b) Using SST, disconnect the tie rod end from the steering knuckle.
SST 09628–62011



4. REMOVE LEFT AND RIGHT STABILIZER BAR LINKS

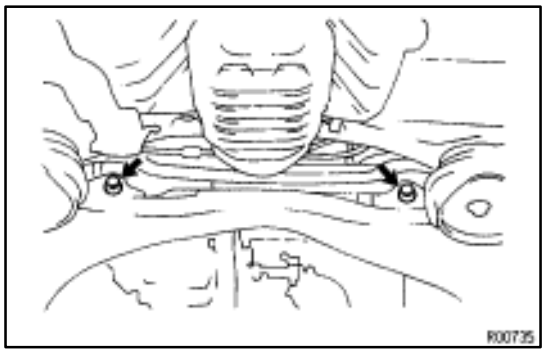


5. REMOVE LEFT AND RIGHT STABILIZER BAR BUSHINGS

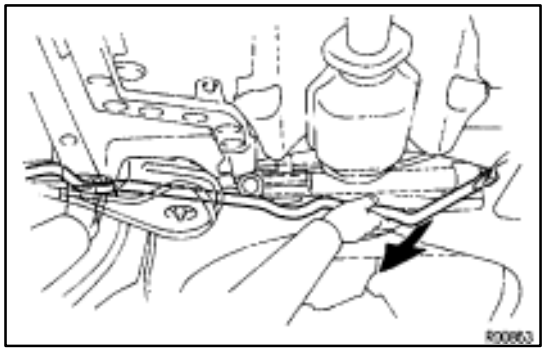
(a) Remove the left and right bushing retainers.

(b) Remove the stabilizer bar bushings.

6. REMOVE EXHAUST FRONT PIPE
(See EG section)

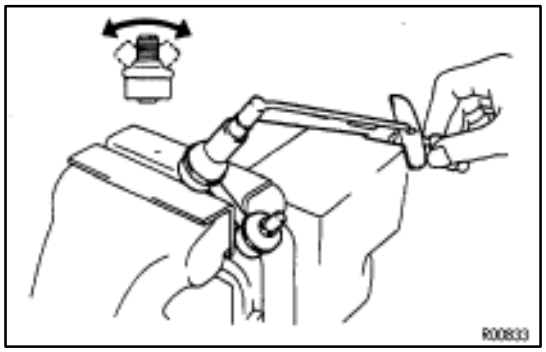


7. REMOVE STEERING GEAR BOX MOUNTING BOLTS AND NUTS



8. REMOVE STABILIZER BAR

HINT: Lift the steering gear box and remove the stabilizer bar.



STABILIZER BAR LINK INSPECTION

SA035–01

1. INSPECT BALL JOINT FOR ROTATION CONDITION

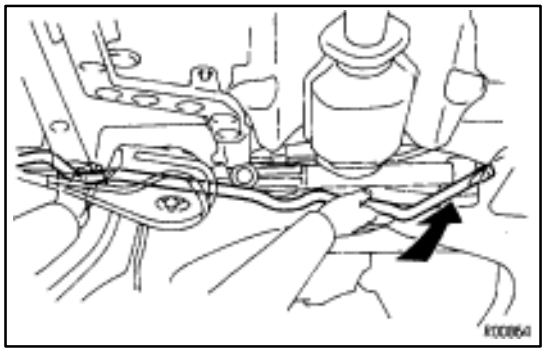
(a) Flip the ball joint stud back and forth 5 times as shown in the figure, before installing the nut.

(b) Using a torque gauge, turn the nut continuously one turn each 2–4 seconds and take the torque reading on the fifth turn.

Turning torque:

0.05–1.0 N·m (0.5–10 kgf·cm, 0.4–8.7 in.·lbf)

If not within specification, replace the stabilizer bar link.

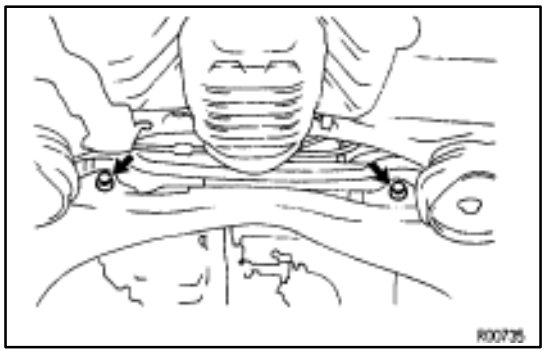


STABILIZER BAR INSTALLATION

SA036–01

1. PLACE STABILIZER BAR

HINT: Lift the steering gear box and place the stabilizer bar.

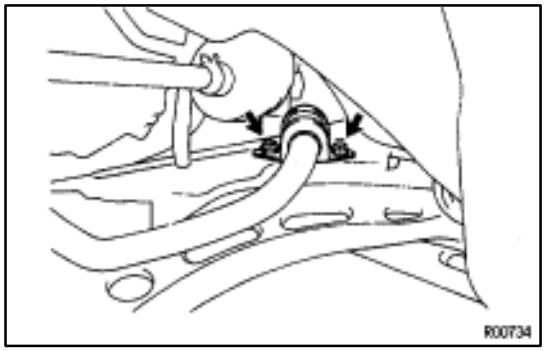


2. INSTALL STEERING GEAR BOX MOUNTING BOLTS AND NUTS

Torque: 181 N·m (1.850 kgf·cm, 134 ft·lbf)

3. INSTALL EXHAUST FRONT PIPE

(See EG section)

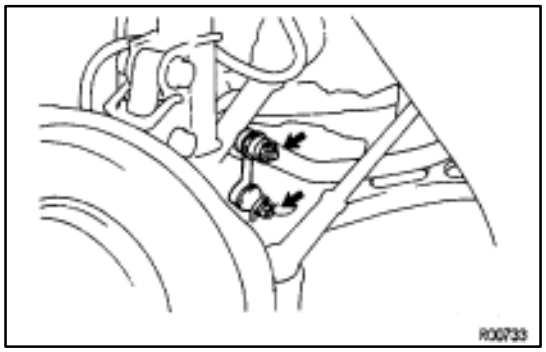


4. INSTALL LEFT AND RIGHT STABILIZER BAR BUSHINGS

(a) Install the stabilizer bar bushings.

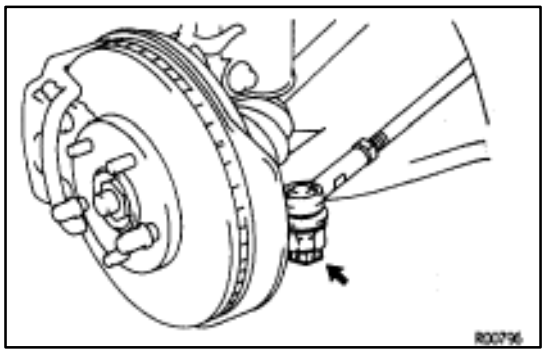
(b) Install the bushing retainers and bolts.

Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)



5. INSTALL LEFT AND RIGHT STABILIZER BAR LINKS

Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)

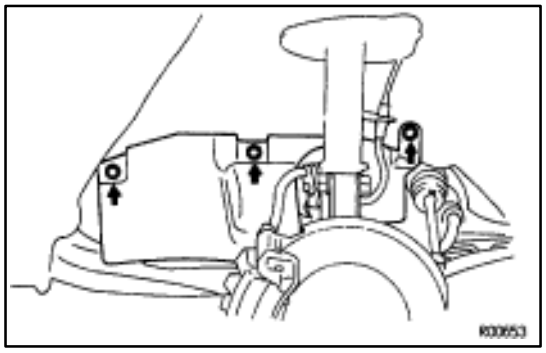


6. CONNECT LEFT AND RIGHT TIE ROD ENDS TO STEERING KNUCKLES

(a) Connect the tie rod end to the steering knuckle and tighten the nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

(b) Install a new cotter pin.



7. INSTALL LEFT AND RIGHT FENDER APRON SEALS

8. INSTALL FRONT WHEELS AND LOWER VEHICLE

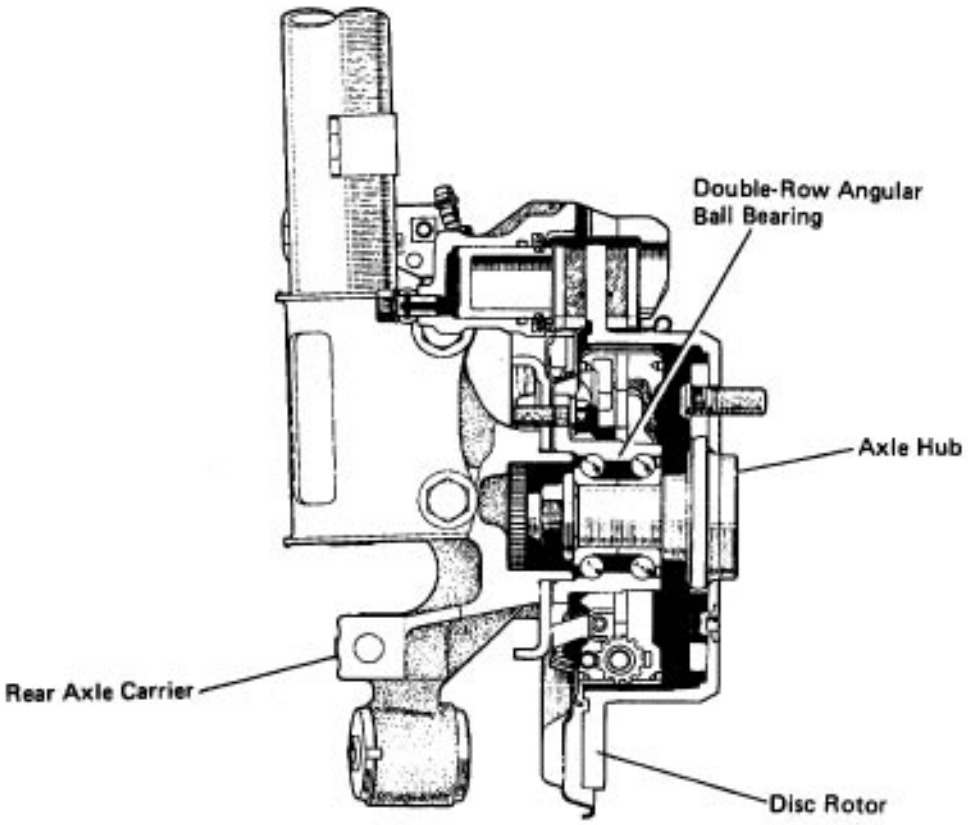
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

REAR AXLE

SA037–01

DESCRIPTION

The rear axle also uses oil–sealed double–row angular ball bearings for wheel bearings as the front axle. There is no need for bearing grease maintenance or preload adjustment.



PREPARATION

SST (SPECIAL SERVICE TOOLS)

SA038–02

	09628–10011 Ball Joint Puller	Hub bolt removal

EQUIPMENT

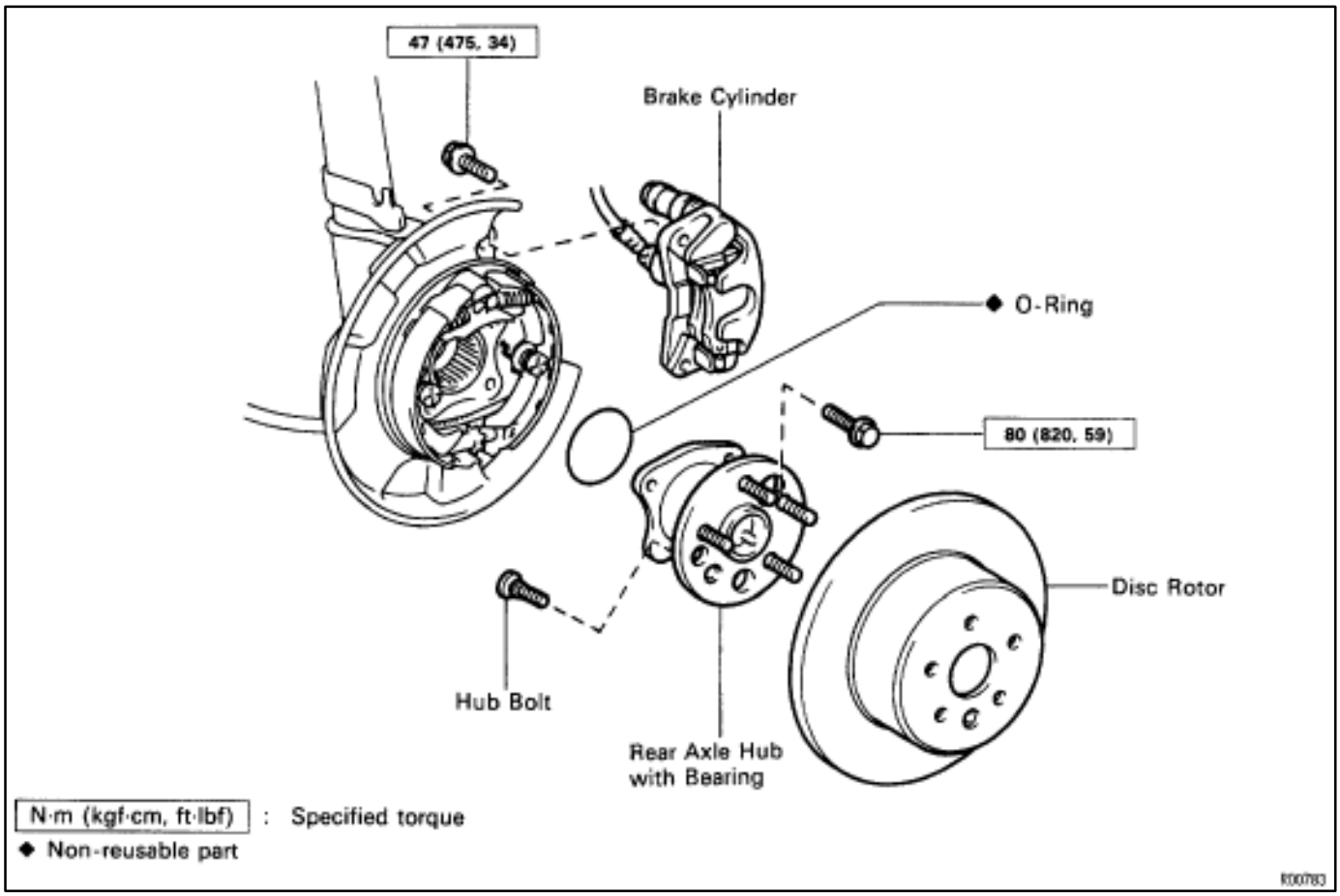
SA039–01

Dial indicator	
Torque wrench	

REAR AXLE HUB

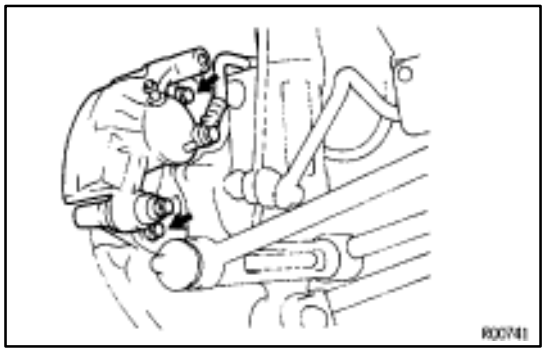
SA03A–01

COMPONENTS



SA03B–0

REAR AXLE HUB REMOVAL



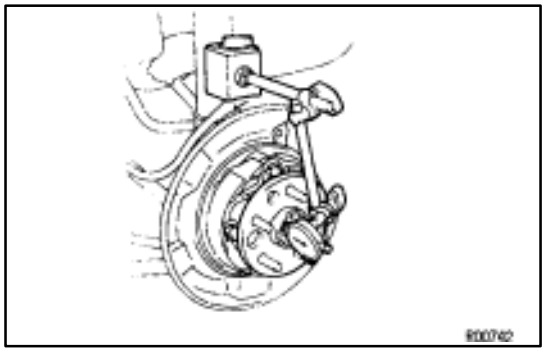
1. JACK UP VEHICLE AND REMOVE REAR WHEEL

2. REMOVE BRAKE CYLINDER AND DISC ROTOR

(a) Remove the two brake cylinder set bolts.

(b) Hang up the brake cylinder using wire, etc.

(c) Remove the disc rotor.



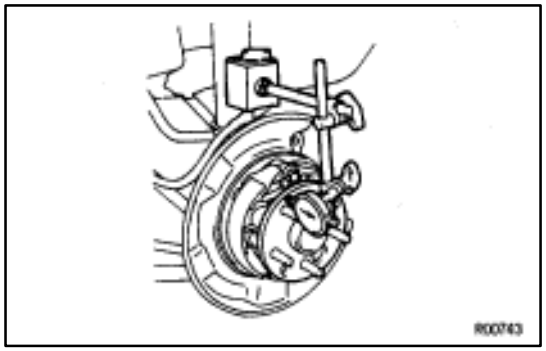
3. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION

(a) Place the dial indicator near the center of the axle hub and check the backlash in the bearing shaft direction.

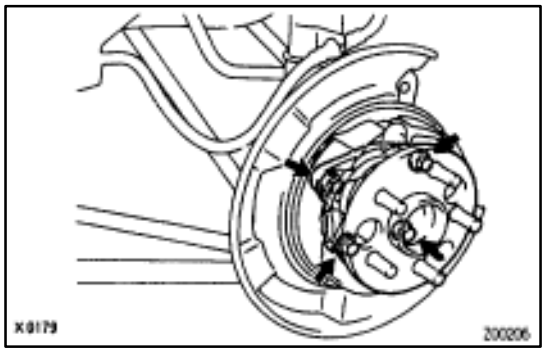
Maximum:

0.05 mm (0.0020 in.)

If greater than the specified maximum, replace the bearing.



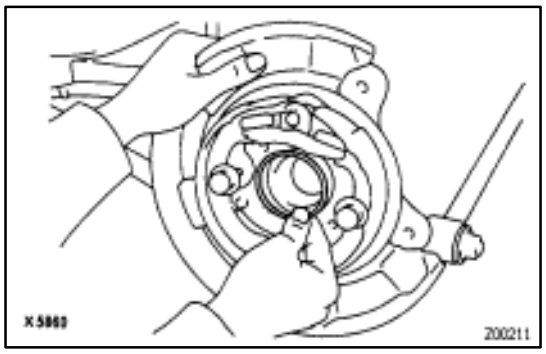
(b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
Maximum:
0.07 mm (0.0028 in.)
If greater then the specified maximum, replace the axle shaft and bearing.



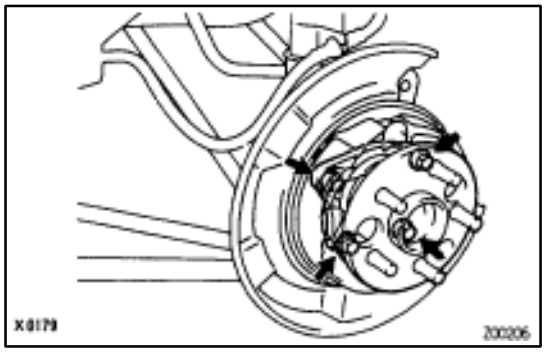
4. REMOVE REAR AXLE HUB
(a) Remove the four bolts and rear axle hub.
(b) Remove the O–ring.

REAR AXLE HUB INSTALLATION

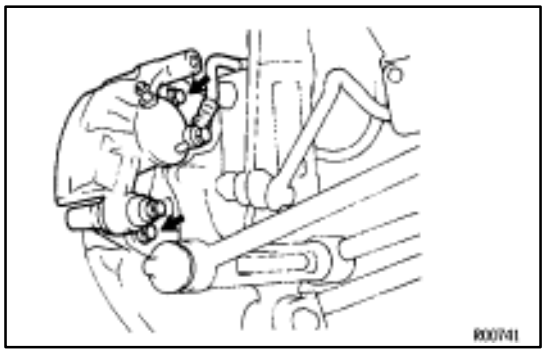
SA03Z–02



1. INSTALL REAR AXLE HUB
(a) Install a new O–ring.
HINT: Coat the O–ring with MP grease.

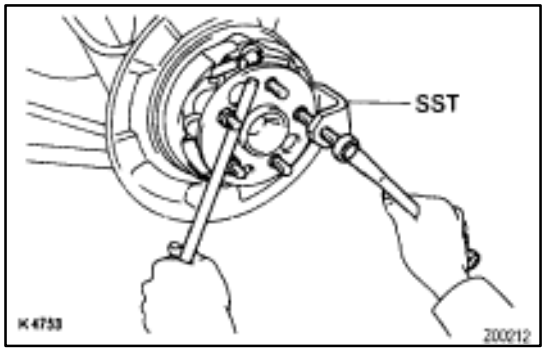


(b) Install the rear axle hub with the four bolts.
Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)



2. INSTALL DISC ROTOR AND BRAKE CYLINDER
(a) Install the disc rotor.
(b) Install the brake cylinder.
Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

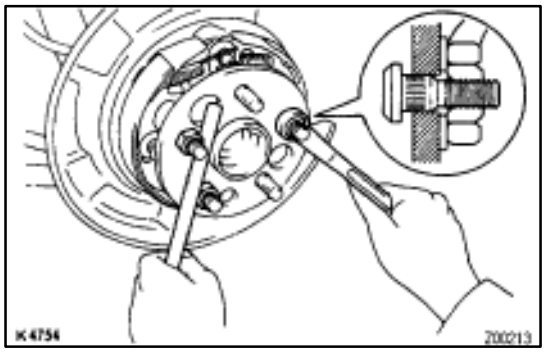
3. INSTALL REAR WHEEL AND LOWER VEHICLE
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



HUB BOLT REPLACEMENT

SA03E–02

1. **JACK UP VEHICLE AND REMOVE REAR WHEEL**
2. **REMOVE REAR BRAKE DISC ROTOR**
3. **REMOVE HUB BOLT**
   Using SST, remove the hub bolt.
   SST 09628–10011

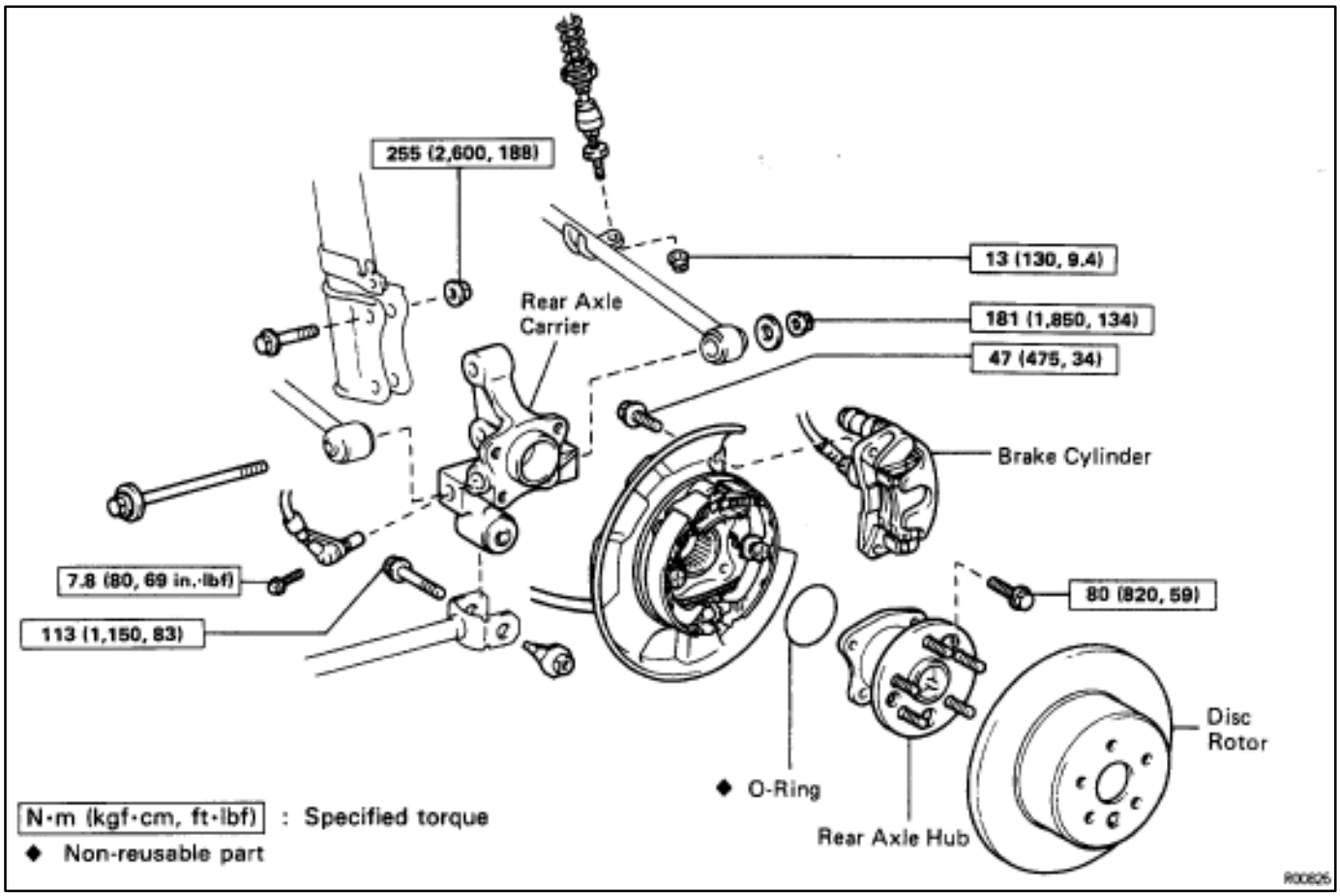


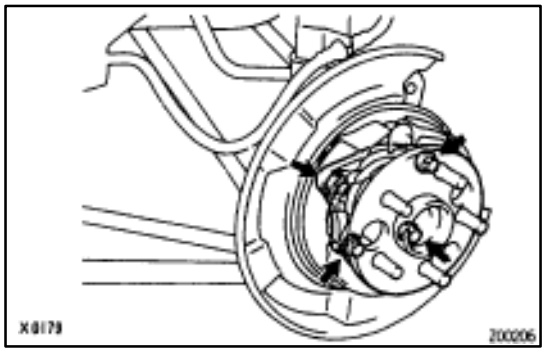
4. **INSTALL HUB BOLT**
   Install washer and nut to the hub bolt as shown in the illustration, and install the hub bolt with tightening the nut.
5. **INSTALL REAR BRAKE DISC ROTOR**
6. **INSTALL REAR WHEEL AND LOWER VEHICLE**
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

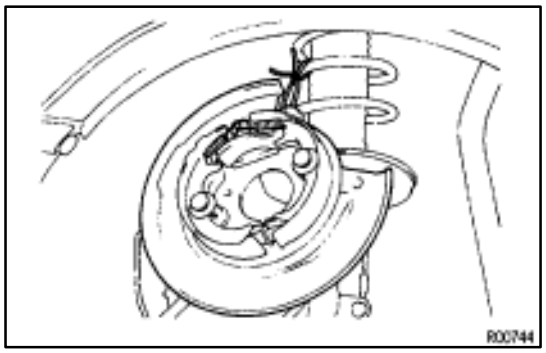
REAR AXLE CARRIER

SA03F–01

COMPONENTS







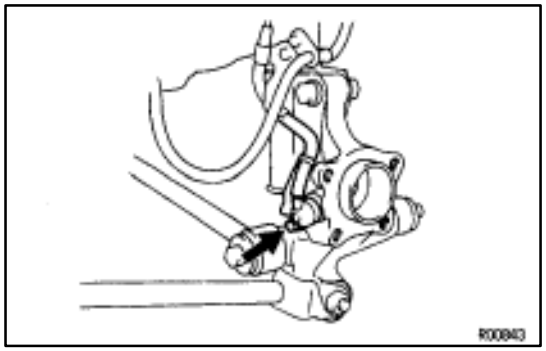
REAR AXLE CARRIER REMOVAL

SA03G–02

1. REMOVE REAR AXLE HUB

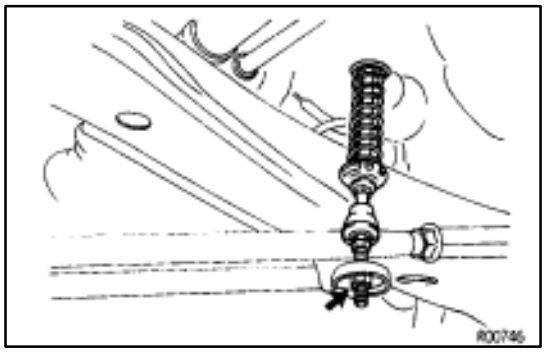
2. REMOVE BACKING PLATE FROM REAR AXLE CARRIER

Hang up the backing plate using wire, etc.

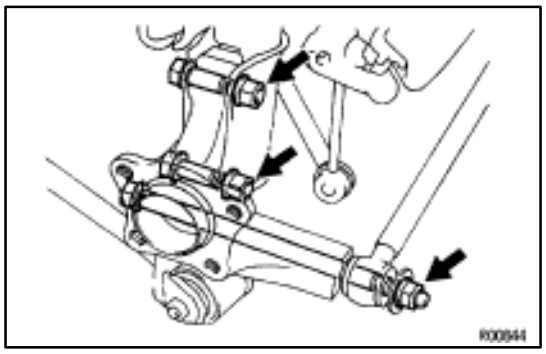


3. REMOVE ABS SPEED SENSOR AND LSPV SPRING

(a) Remove the ABS speed sensor from rear axle carrier.

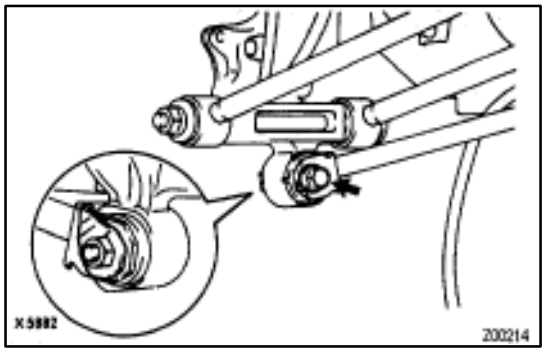


(b) Disconnect the LSPV spring from the lower arm.

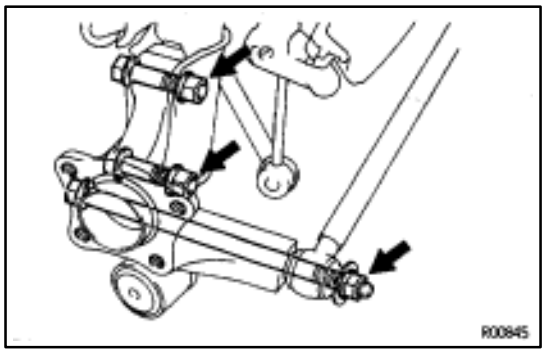


4. REMOVE REAR AXLE CARRIER

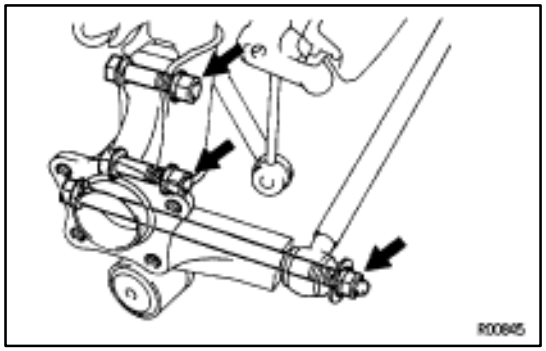
(a) Loosen the three nuts.
HINT: Do not remove the bolts.



(b) Remove the bolt and nut and disconnect the strut rod from the rear axle carrier.



(c) Remove the three nuts and bolts.
(d) Remove the rear axle carrier.

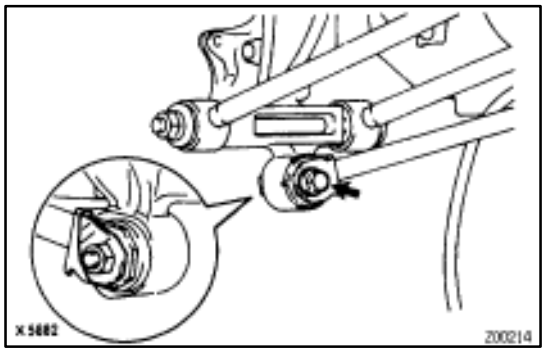


REAR AXLE CARRIER INSTALLATION

SA046–01

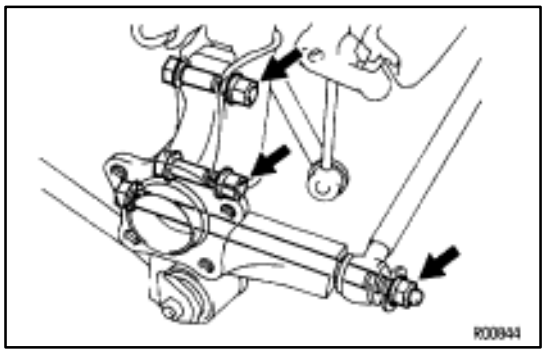
1. INSTALL REAR AXLE CARRIER

(a) Place the rear axle carrier and temporarily install the three bolts and nuts.



(b) Connect the strut rod to the rear axle carrier.

(c) Temporarily install the bolt and nut.



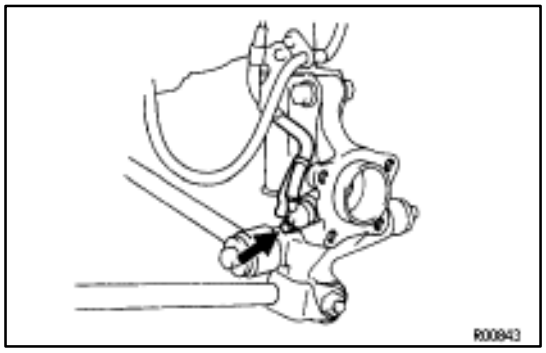
(d) Torque the three nuts.

Lower side of shock absorber:

Torque: 255 N·m (2,600 kgf·cm, 188 ft·lbf)

Lower arm:

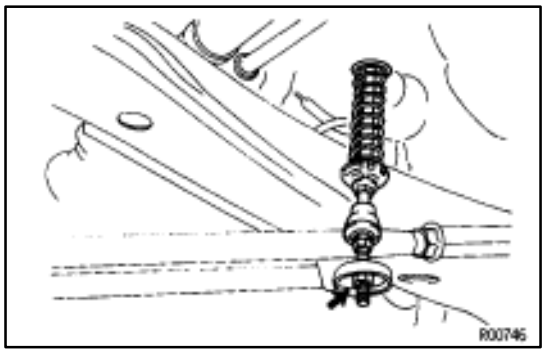
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)



2. INSTALL ABS SPEED SENSOR AND LSPV SPRING

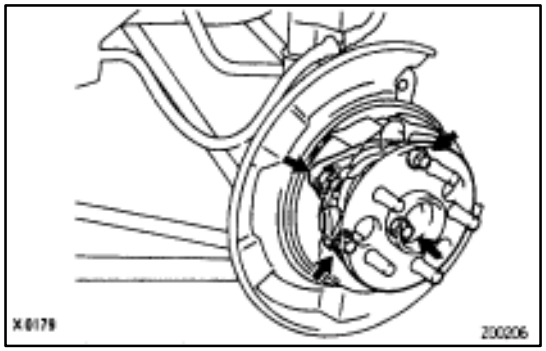
(a) Install the ABS speed sensor to the rear axle carrier.

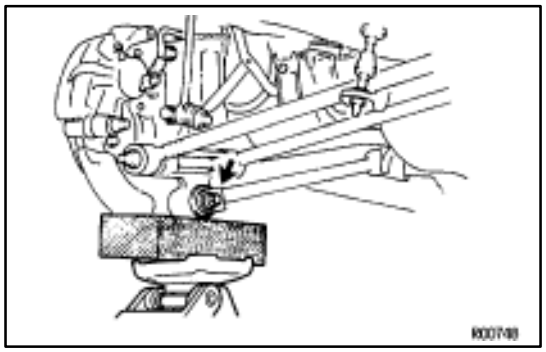
Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)



(b) Connect the LSPV spring to the lower arm.

Torque: 13 N·m (130 kgf·cm, 9.4 ft·lbf)





3. INSTALL BACKING PLATE AND REAR AXLE HUB

(a) Place the backing plate.
(b) Install a new O–ring.
(c) Install the rear axle hub.
Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

4. STABILIZE SUSPENSION

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

5. TORQUE STRUT ROD BOLT

(a) Jack up the vehicle and support the body.
(b) Remove the rear wheel.
(c) Support the rear axle carrier with a jack.
(d) Torque the bolt.
Torque: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

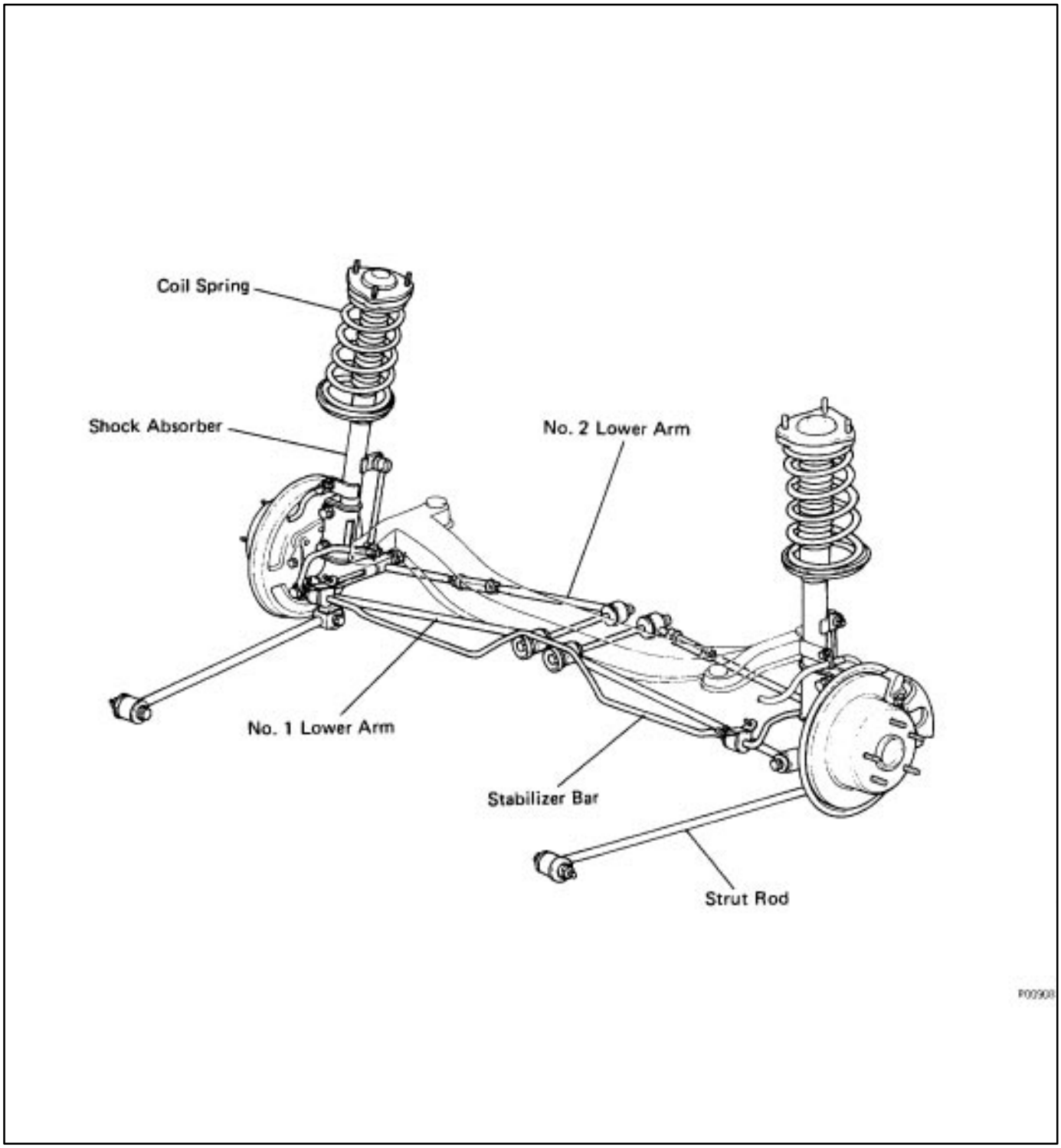
6. INSTALL REAR WHEEL AND LOWER VEHICLE
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

REAR SUSPENSION

SA03J–01

DESCRIPTION

The rear suspension is dual–link strut independent suspension composed of two lower arms in parallel at the side, and strut rods which extend forward.



PREPARATION

SA03K–01

SST (SPECIAL SERVICE TOOLS)

	09727–30020 Coil Spring Compressor	
	09729–22031 Front Spring Upper Seat Holder	

RECOMMENDED TOOLS

SA03L–01

	09025–00010 Small Torque Wrench	

EQUIPMENT

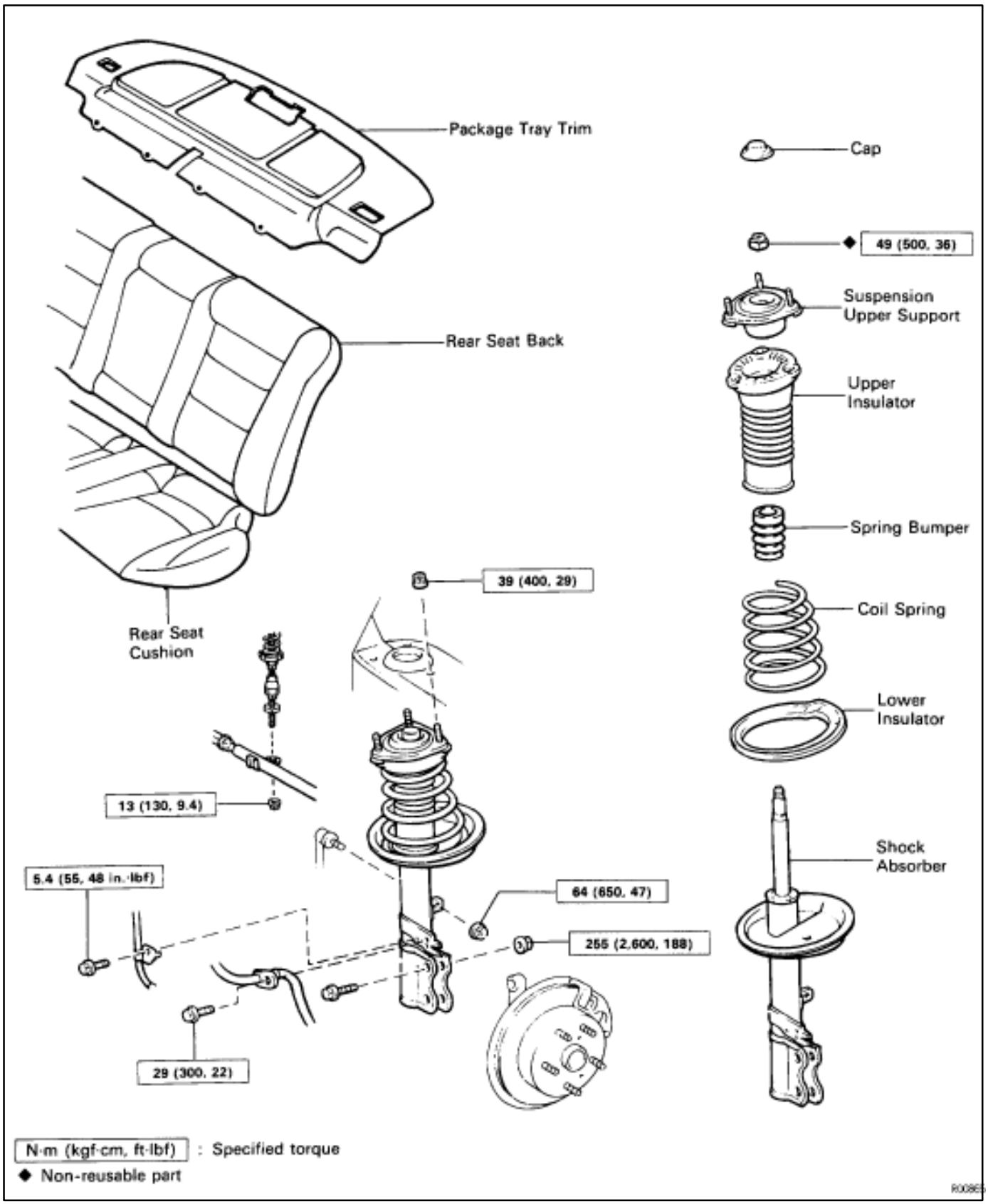
SA03M–01

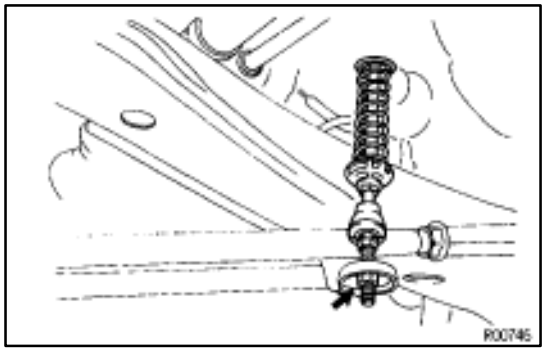
Torque wrench	

REAR SHOCK ABSORBER

SA03N–01

COMPONENTS

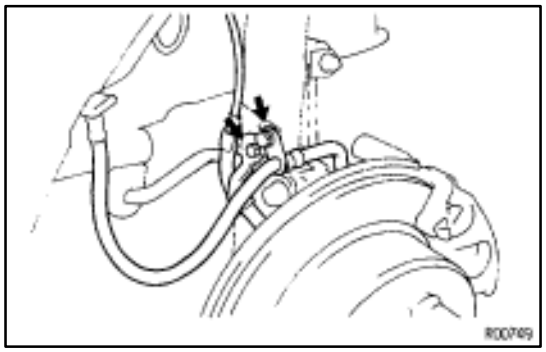




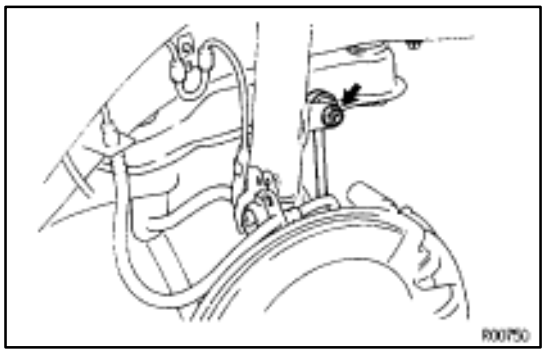
REAR SHOCK ABSORBER REMOVAL

SA03P–02

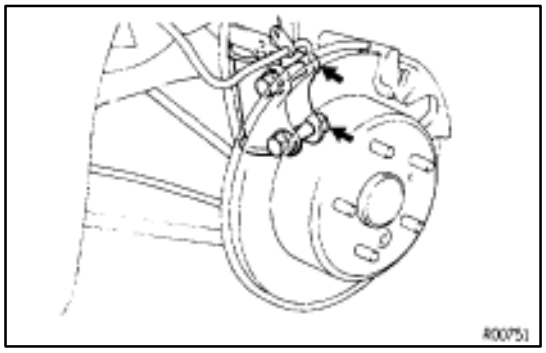
1. **REMOVAL REAR SEAT AND PACKAGE TRAY TRIM (See BO section)**
2. **JACK UP VEHICLE AND REMOVE REAR WHEEL**
3. **DISCONNECT LSPV SPRING FROM LOWER ARM**



4. **REMOVE ABS SPEED SENSOR WIRE AND BRAKE HOSE FROM SHOCK ABSORBER**

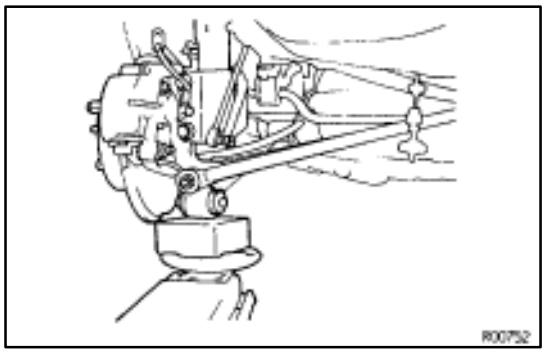


5. **DISCONNECT STABILIZER BAR LINK FROM SHOCK ABSORBER**

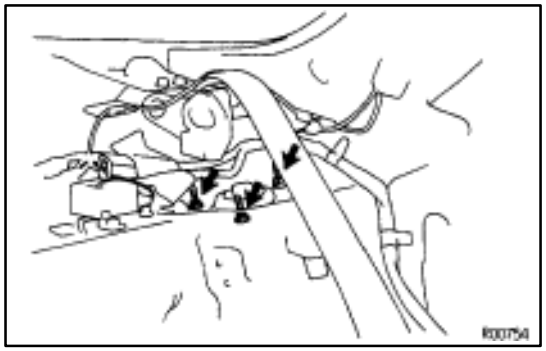


6. **REMOVE SHOCK ABSORBER WITH COIL SPRING**

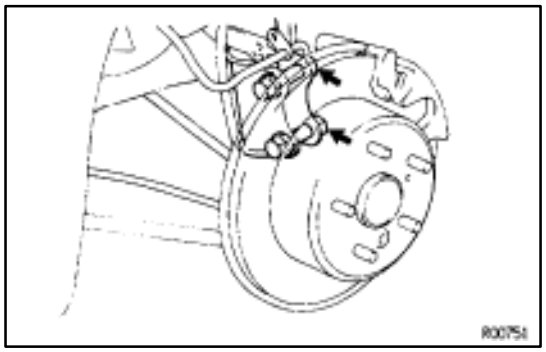
(a) Loosen the two nuts on lower side of shock absorber.



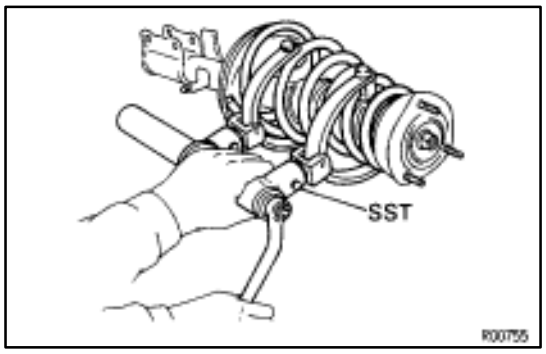
(b) Support the rear axle carrier with a jack.



(c) Remove the three nuts of upper support.

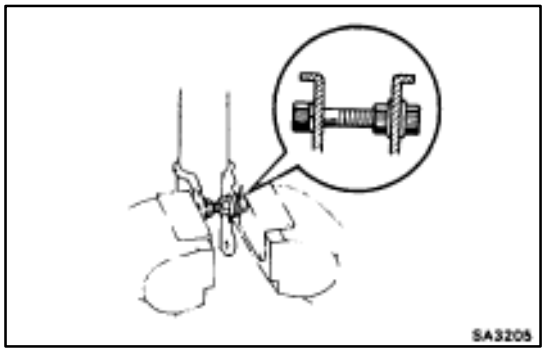


(d) Lower the rear axle carrier and remove the two bolts.
(e) Remove the shock absorber with coil spring.

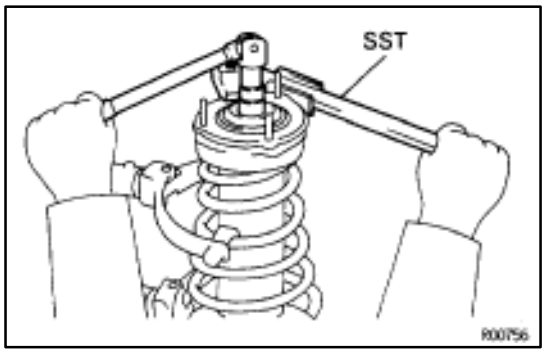


7. REMOVE COIL SPRING

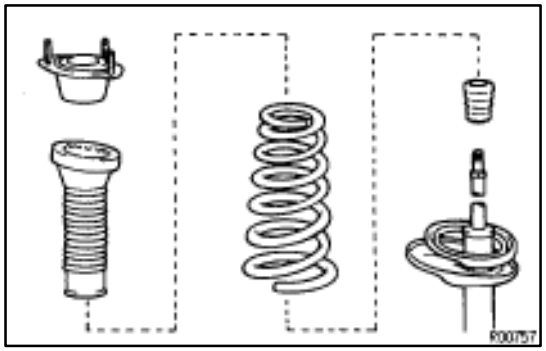
(a) Remove the cap.
(b) Using SST, compress the coil spring.
SST 09727–30020



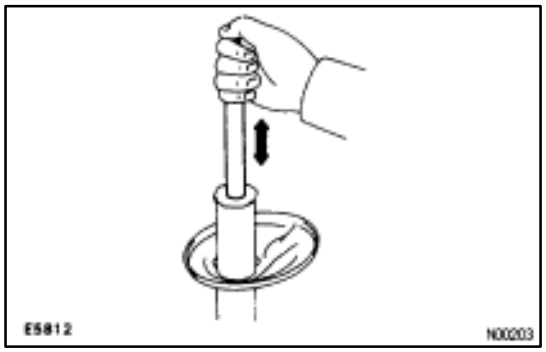
(c) Install a bolt and two nuts to the bracket at the lower portion of the shock absorber and secure it in a vice.



(d) Using SST to hold the upper support, remove the nut.
SST 09729–22031



(e) Remove the following parts.
- Suspension upper support
- Upper insulator
- Coil spring
- Spring bumper
- Lower insulator



REAR SHOCK ABSORBER INSPECTION

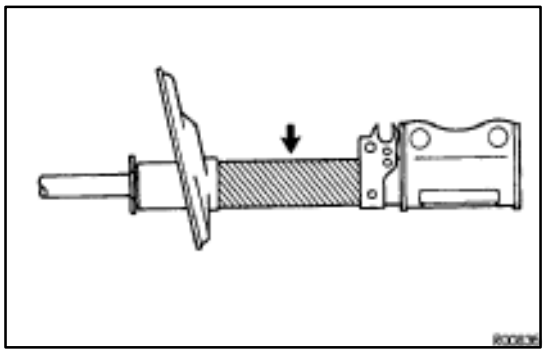
SA03Q–01

1. INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual operation sounds.

If there is any abnormality, replace the shock absorber with a new one.

NOTICE: When discarding the shock absorber, use the following procedure.



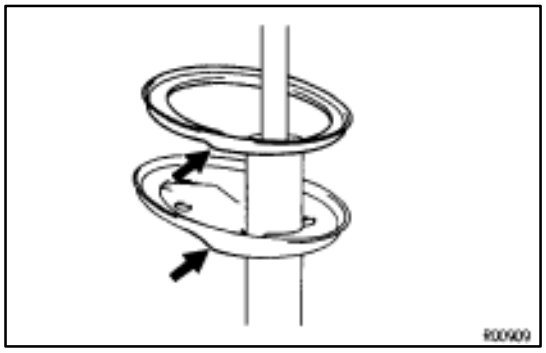
REAR SHOCK ABSORBER DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD

2. DRILL HOLE TO REMOVE GAS FROM CYLINDER

Using a drill, make a hole in the cylinder as shown to remove the gas inside.

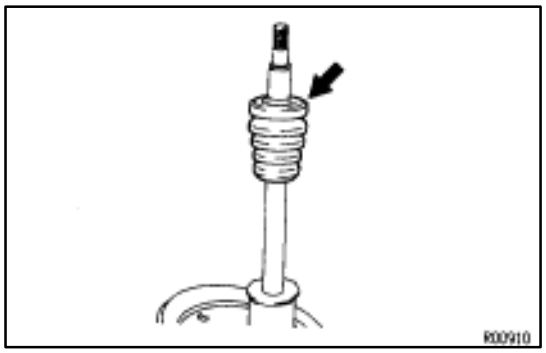
CAUTION: The gas coming out is harmless, but be careful of ships which may fly up when drilling.



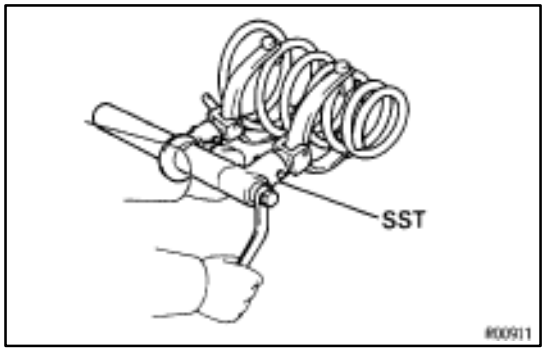
REAR SHOCK ABSORBER INSTALLATION

SA03R–02

1. INSTALL LOWER INSULATOR ONTO SHOCK ABSORBER

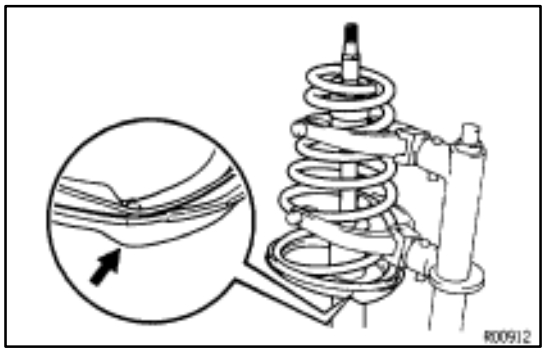


2. INSTALL SPRING BUMPER TO PISTON ROD

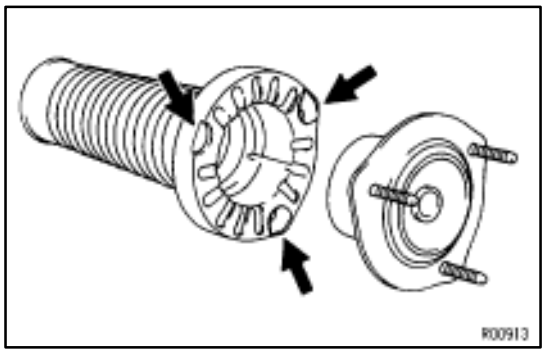


3. INSTALL COIL SPRING

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

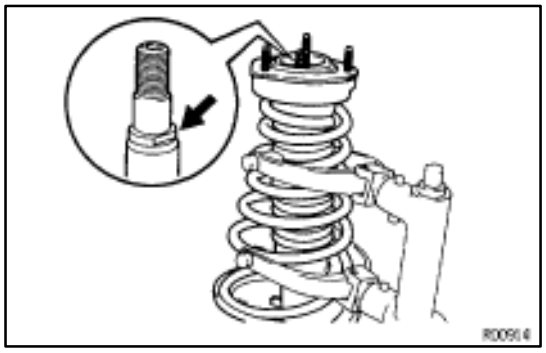


(b) Install the coil spring to the shock absorber.
HINT: Fit the lower end of the coil spring into the gap of the lower seat.

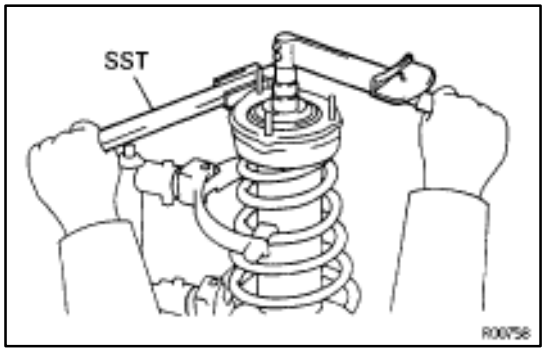


4. INSTALL UPPER INSULATOR AND UPPER SUPPORT

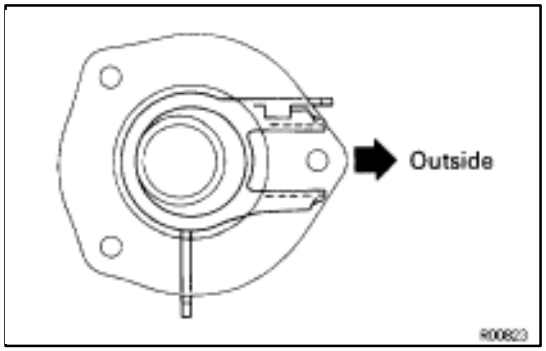
(a) Install the upper insulator to the upper support.
HINT: Match the bolt of the upper support with the cut–off part of the insulator.



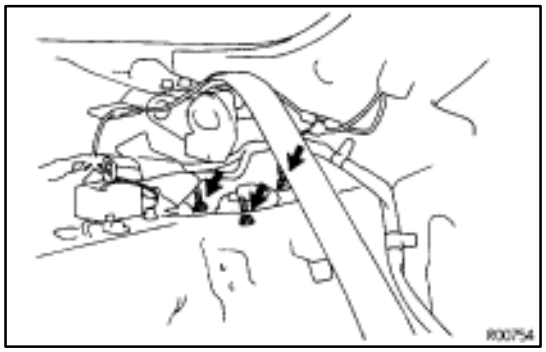
(b) Install the upper support to the piston rod.



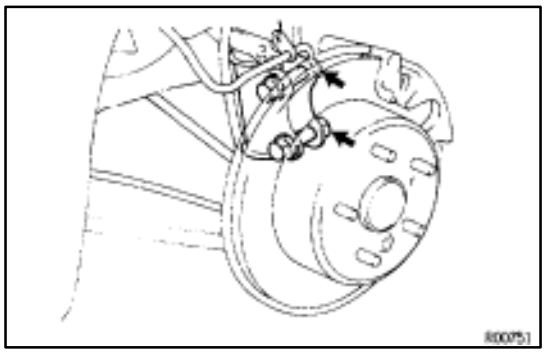
(c) Using SST to hold the upper support, install a new nut.
SST 09729–22031
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)



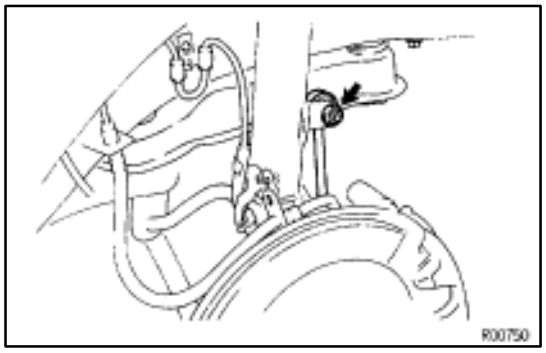
(d) Rotate the upper support and set it in the direction shown in the illustration.
(e) Remove the SST.
HINT: After removing SST, again check the direction of the upper support.
(f) Install the cap.



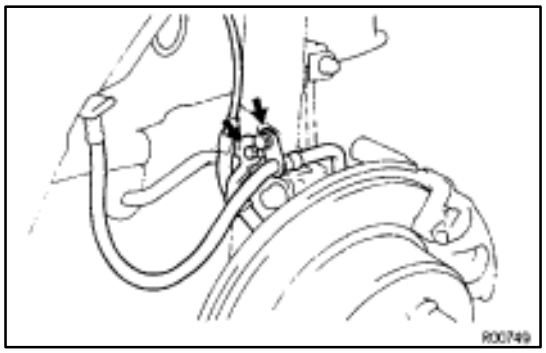
5. INSTALL SHOCK ABSORBER WITH COIL SPRING
Place the shock absorber and install the three nuts of upper support.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)



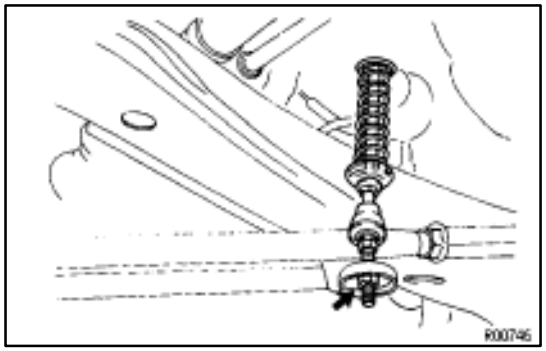
6. CONNECT SHOCK ABSORBER TO REAR AXLE CARRIER
(a) Coat the threads of the nuts with engine oil.
(b) Install the two bolts and nuts.
Torque: 255 N·m (2,600 kgf·cm, 188 ft·lbf)



7. CONNECT STABILIZER BAR LINK TO SHOCK ABSORBER
Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)



8. INSTALL ABS SPEED SENSOR WIRE AND BRAKE HOSE TO SHOCK ABSORBER
Brake hose
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)
ABS wire
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)



9. CONNECT LSPV SPRING FROM LOWER ARM
Torque: 13 N·m (130 kgf·cm, 94 ft·lbf)

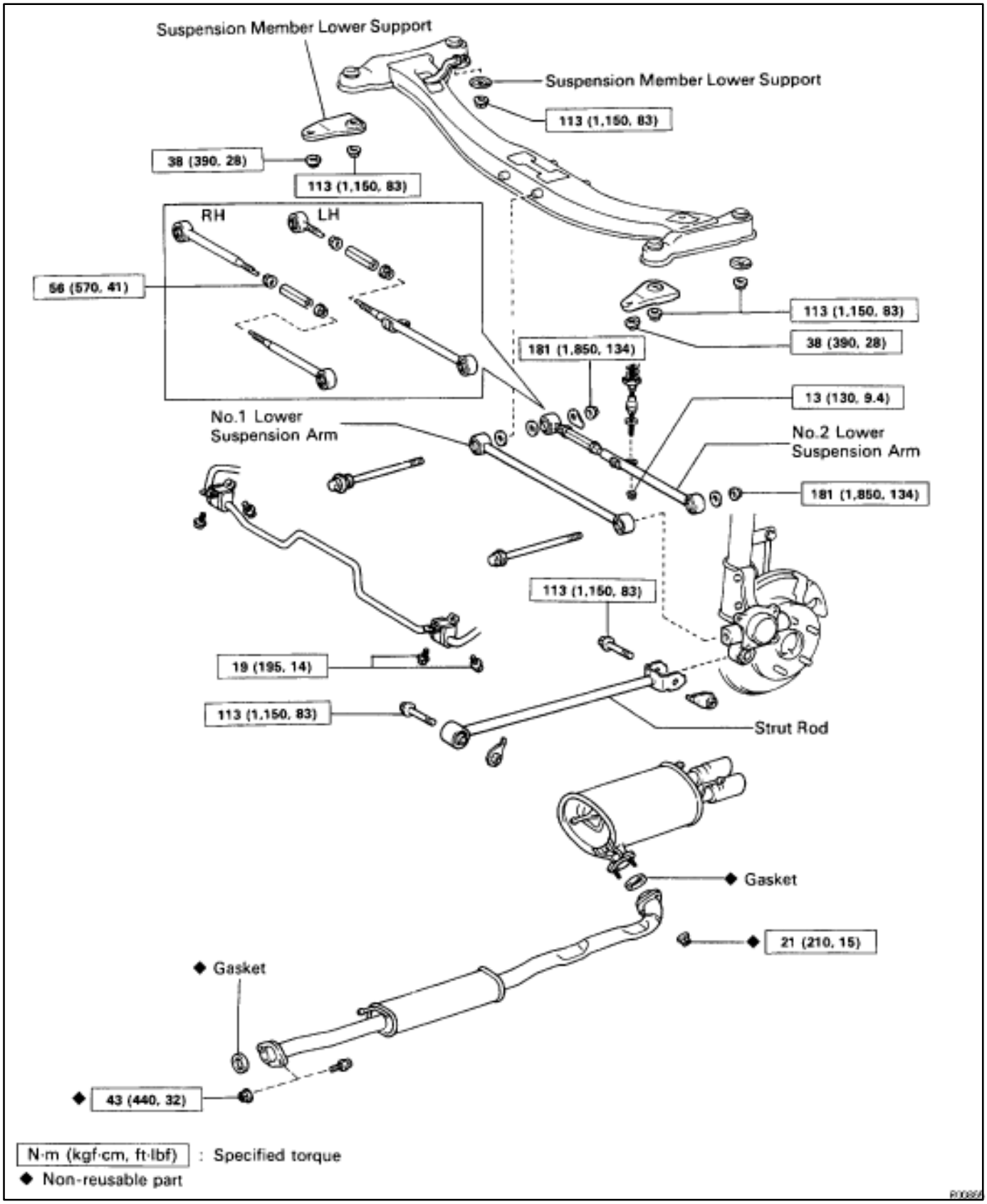
10. INSTALL REAR WHEEL AND LOWER VEHICLE
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

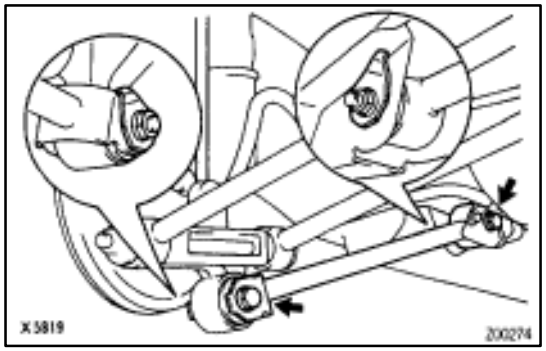
11. INSTALL PACKAGE TRY TRIM AND REAR SEAT (See BO section)

LOWER SUSPENSION ARM AND STRUT ROD

SA03S–01

COMPONENTS





LOWER SUSPENSION ARM AND STRUT ROD REMOVAL

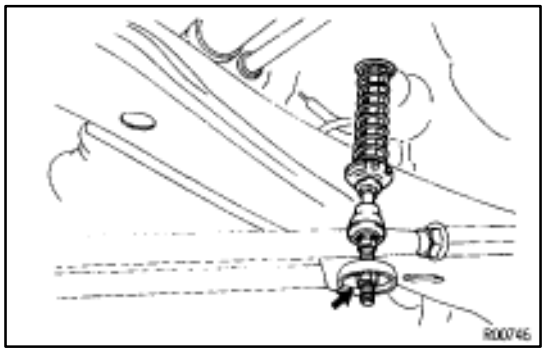
SA03T–02

1. JACK UP VEHICLE AND REMOVE REAR WHEEL

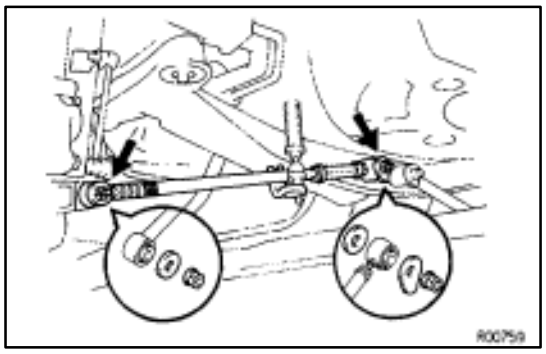
2. REMOVE STRUT ROD

(a) Remove the two bolts and nuts.

(b) Remove the strut rod.



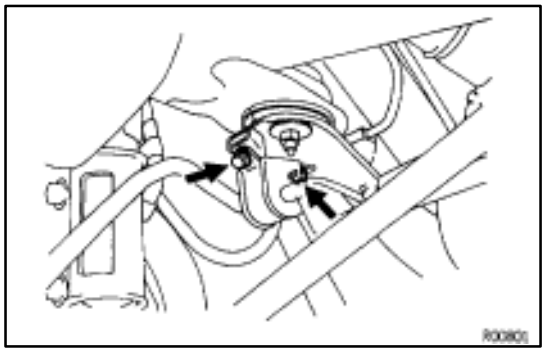
3. DISCONNECT LSPV SPRING FROM LOWER ARM



4. REMOVE NO.2 LOWER SUSPENSION ARM

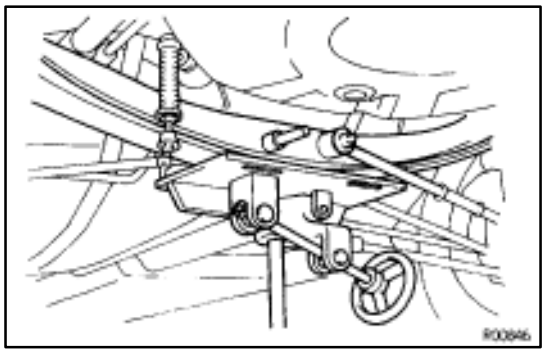
(a) Remove the two nuts and washers.

(b) Remove the No.2 lower suspension arm.



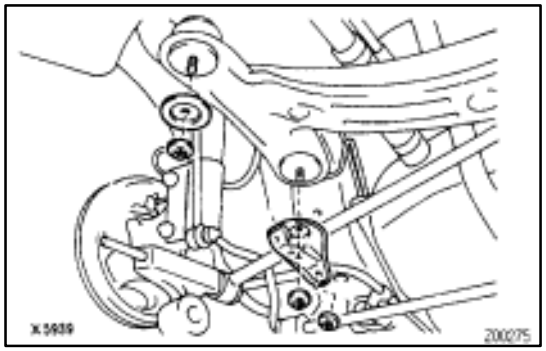
5. REMOVE LEFT AND RIGHT STABILIZER BUSHING RETAINER

6. REMOVE EXHAUST CENTER PIPE AND TALE PIPE (See EG section)

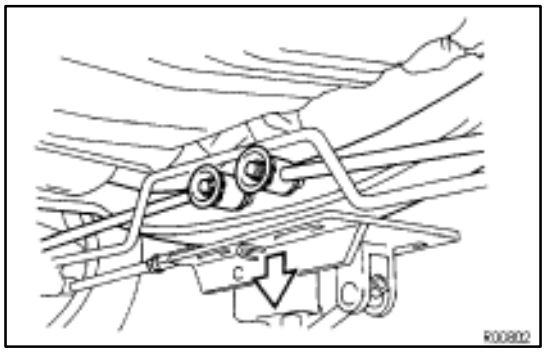


7. REMOVE NO.1 LOWER SUSPENSION ARM

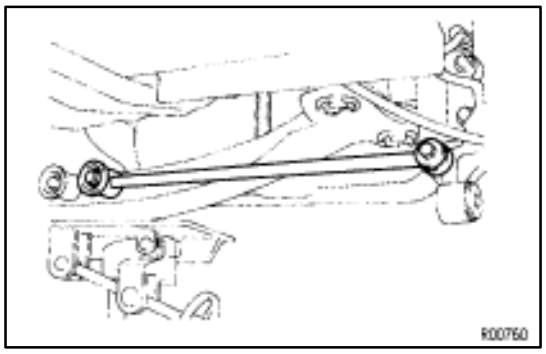
(a) Support the suspension member with a jack.



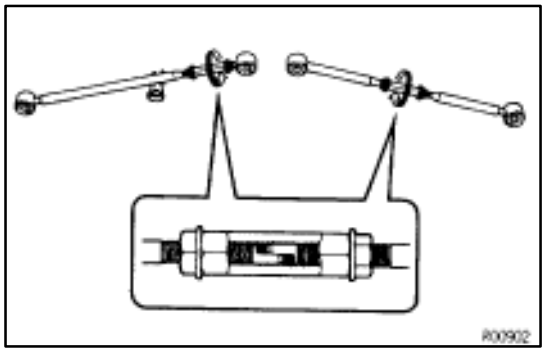
(b) Remove the six nuts and the left and right suspension member lower stopper.



(c) Lower the suspension member.



(d) Remove the No.1 lower suspension arm with the two bolts and the washer.

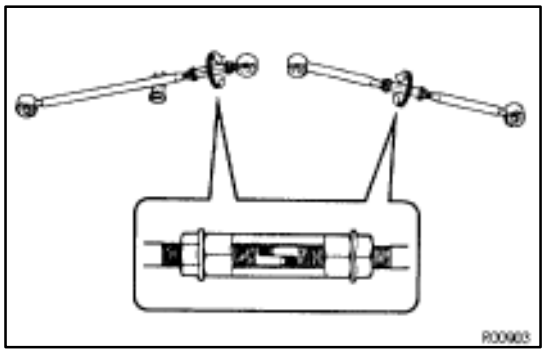


NO.2 LOWER SUSPENSION ARM DISASSEMBLY

SA03U–01

1. DISASSEMBLE NO.2 LOWER SUSPENSION ARM

(a) Loosen the two lock nuts.
(b) Turn the adjusting tube and disassemble the No.2 lower suspension arm.
(c) Remove the lock nuts from the arms.

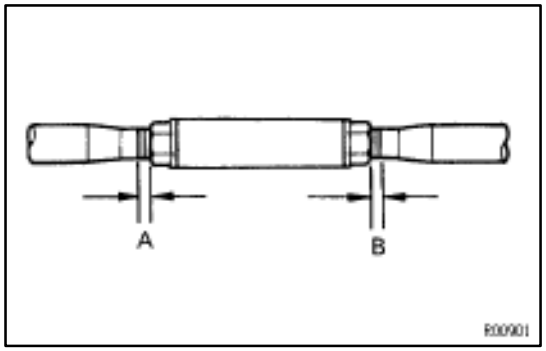


NO.2 LOWER SUSPENSION ARM ASSEMBLY

SA03V–01

1. ASSEMBLE NO.2 LOWER SUSPENSION ARM

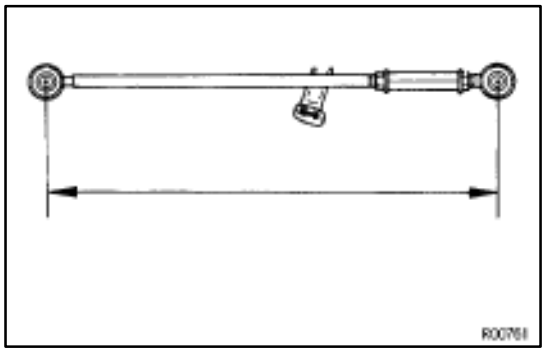
(a) Install the lock nuts to the arms.
(b) Turn the adjusting tube and assemble the No.2 lower suspension arm.



HINT: When assembling the No.2 lower suspension arm, try to make dimensions A and B shown in the illustration as close as possible.

Maximum difference:

3 mm (0.12 in.)



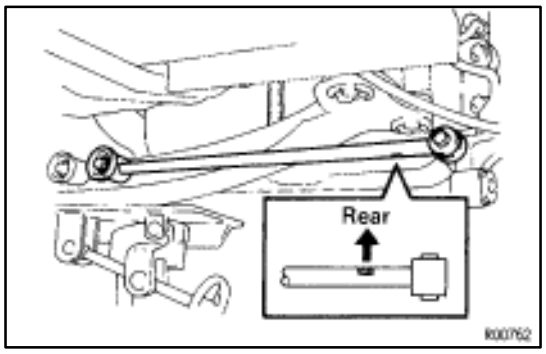
(c) Adjust the No.2 lower suspension arm length by turning the adjusting tube.

Arm length:

584.2 mm (23.000 in.)

(d) Temporarily tighten the two lock nuts.

HINT: After adjusting the rear wheel alignment, torque the lock nuts.



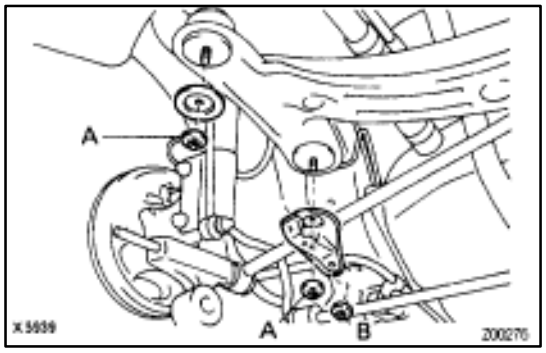
LOWER SUSPENSION ARM AND STRUT ROD INSTALLATION

SA03W–02

1. INSTALL NO.1 LOWER SUSPENSION ARM

Install the No.1 lower suspension arm with the washer and the two bolts.

HINT: Face the paint mark to the rearward.



2. INSTALL SUSPENSION MEMBER TO BODY

(a) Jack up the suspension member.

(b) Install the suspension member lower supports and the six nuts.

Nut A:

Torque: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

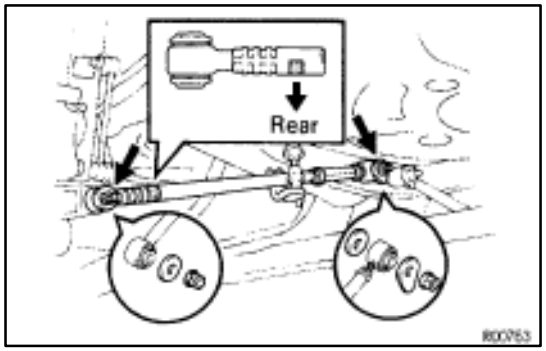
Nut B:

Torque: 38 N·m (390 kgf·cm, 28 ft·lbf)

3. INSTALL LEFT AND RIGHT STABILIZER BUSHING RETAINERS

Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

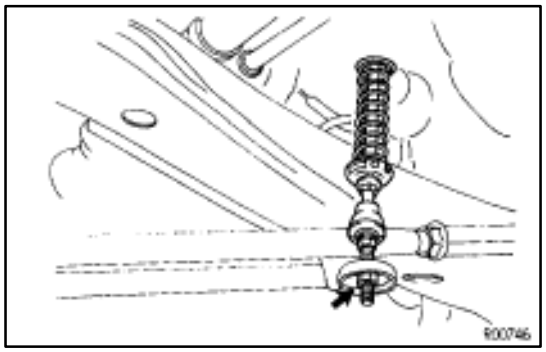
4. INSTALL EXHAUST CENTER PIPE AND TALE PIPE (See EG section)



5. INSTALL NO.2 LOWER SUSPENSION ARM

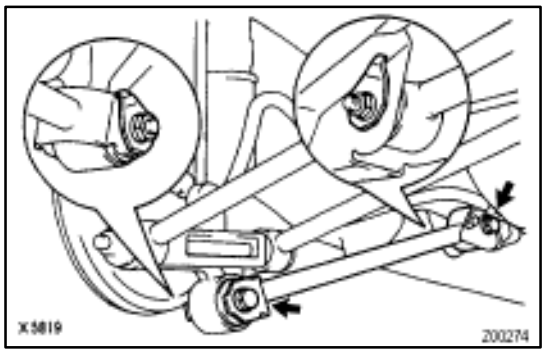
(a) Install the No.2 lower suspension arm with the three washers.
HINT: Face the paint mark to the rearward.

(b) Temporarily install the two lock nut.



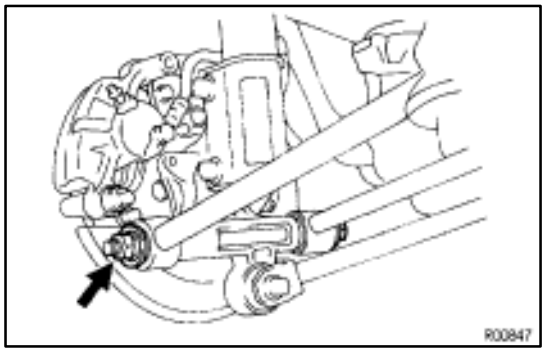
6. CONNECT LSPV SPRING TO LOWER ARM

Torque: 13 N·m (130 kgf·cm, 9.4 ft·lbf)



7. INSTALL STRUT ROD

Place the strut rod and temporarily install the two bolts and nuts.

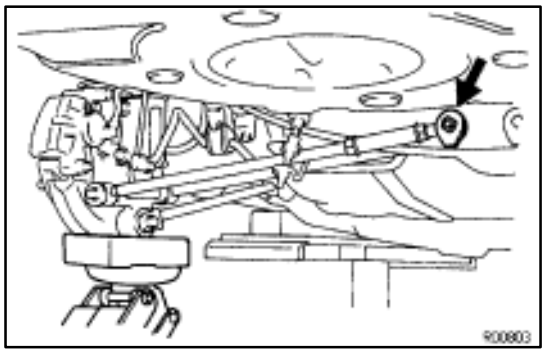


8. TORQUE BOLTS AND NUTS

(a) Torque the nut on outside of the lower arm.
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)

(b) Install the rear wheel and lower the vehicle.

(c) Bounce the vehicle up and down several times to stabilized suspension.

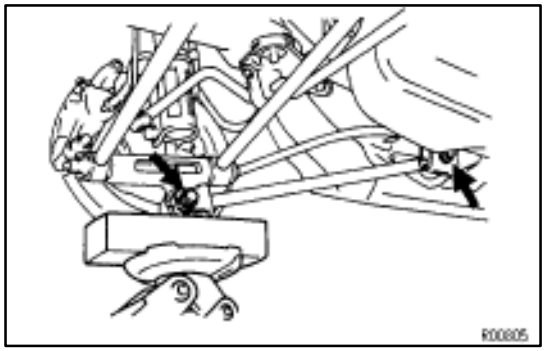


(d) Jack up the vehicle and support the body with stands.

(e) Remove the rear wheel.

(f) Support the rear axle carrier with a jack.

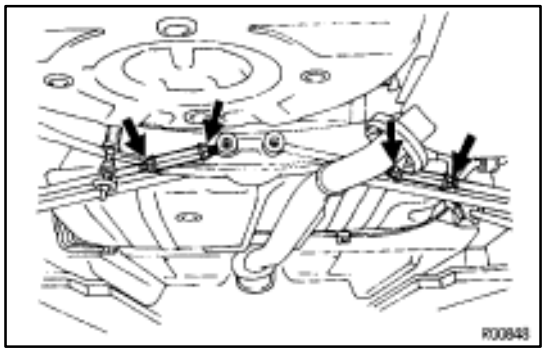
(g) Torque the nut on inside of lower arm.
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)



(h) Torque the strut rod set bolts.
Torque: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

9. INSTALL REAR WHEEL AND LOWER VEHICLE

10. INSPECT AND ADJUST REAR WHEEL ALIGNMENT

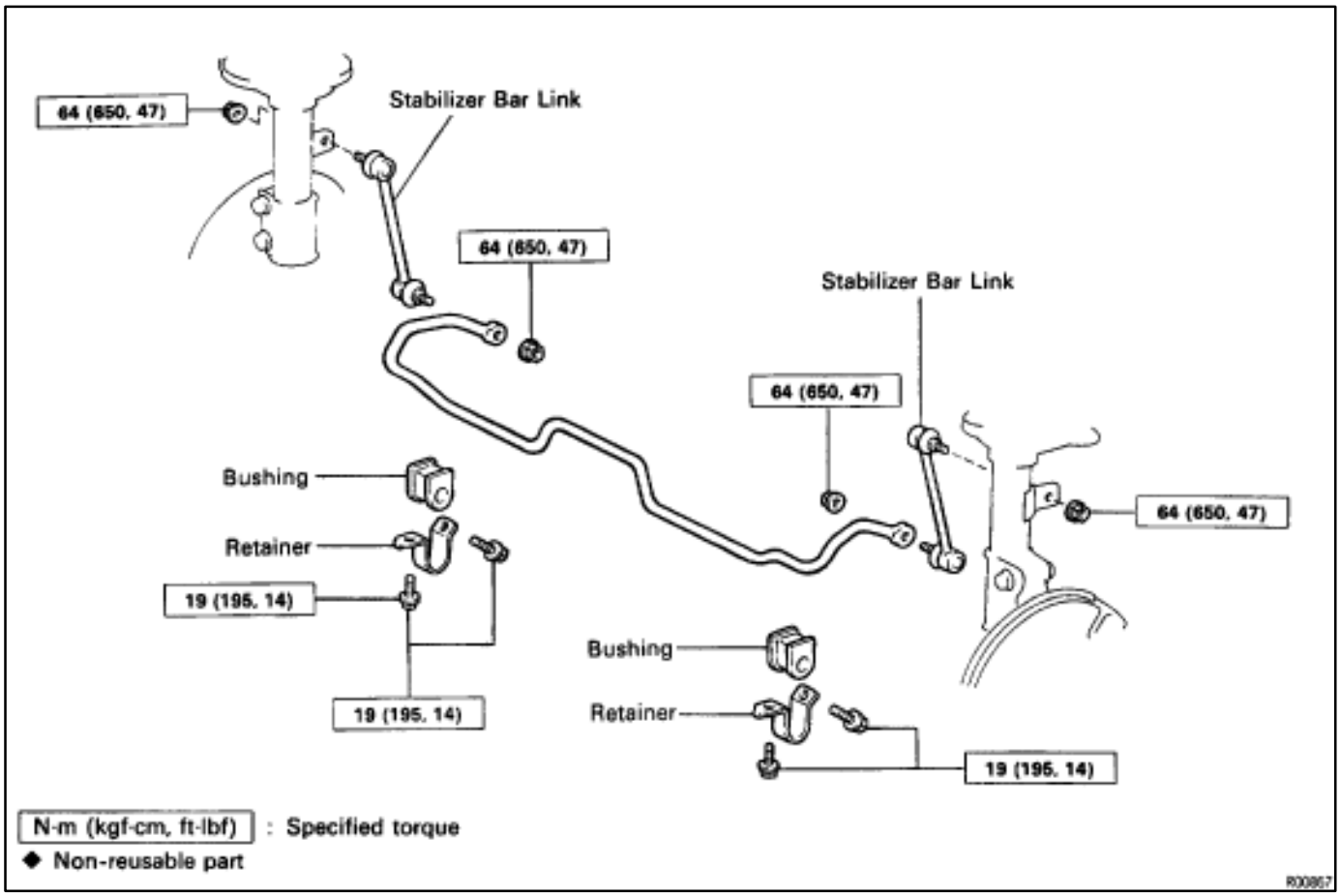


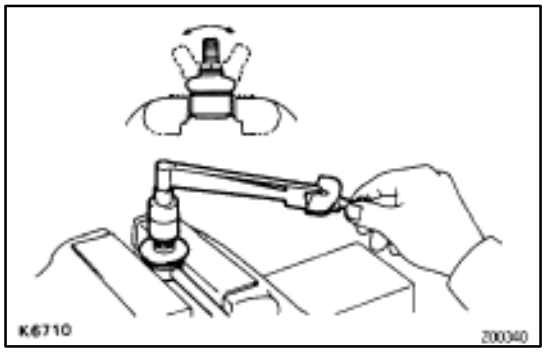
11. TORQUE NO.2 LOWER SUSPENSION ARM LOCK NUTS
Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)

STABILIZER BAR

SA03X–01

COMPONENTS





STABILIZER BAR LINK INSPECTION

SA03Y–01

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and forth 5 times as shown in the figure, before installing the nut.

(b) Using a torque gauge, turn the nut continuously one turn each 2 , 4 seconds and take the torque reading on the fifth turn.

Turning torque:

0.05–1.0 N·m (0.5–10 kgf·cm, 0.4–8.7 in.·lbf)

If not within specification, replace the stabilizer bar link.

SERVICE SPECIFICATIONS

SA043–01

SERVICE DATA

V00511

Cold tire inflation pressure	Tire size		Pressure	
			Front	Rear
	205/65R15		180 kPa (1.8 kgf/cm^2, 26 psi)	180 kPa (1.8 kgf/cm^2, 26 psi)
Vehicle height	Front		211 mm (8.31 in.)	
	Rear		259 mm (10.20 in.)	
Front wheel alignment	Toe–in (total)		0° ± 0.2° (0 ± 2 mm, 0 ± 0.08 in.)	
	Wheel angle	Inside wheel	35°55’ ± 2°	
		Outside wheel	31°15’ (reference)	
	Camber		–0°40’ ± 45’	
	Cross camber		45’ or less	
	Caster		1°15’ ± 45’	
	Cross caster		45’ or less	
	Steering axis inclination		13°05’ ± 45’	
Rear wheel alignment	Toe–in (total)		0.4° ± 0.2° (4 ± 2 mm, 0.16 ± 0.08 in.)	
	Camber		–0°30’ ± 45’	
	Cross Camber		45’ or less	
Front axle	Axle bearing backlash		0.05 mm (0.0020 in.) or less	
	Axle hub deviation		0.05 mm (0.0020 in.) or less	
Front suspension	Lower ball joint turning torque		1.0–2.9 N·m (10–30 kgf·cm, 8.7–26 in.·lbf)	
	Stabilizer bar link turning torque		0.05–1.0 N·m (0.5–10 kgf·cm, 0.4–8.7 in.·lbf)	
Rear axle	Axle bearing backlash		0.05 mm (0.0020 in.) or less	
	Axle hub deviation		0.07 mm (0.0028 in.) or less	
Rear suspension	Stabilizer bar link turning torque		0.05–1.0 N·m (0.5–10 kgf·cm, 0.4–8.7 in.·lbf)	

TORQUE SPECIFICATIONS

SA047–01

(FRONT)

Part tightened	N·m	kgf·cm	ft·lbf
Tie rod end lock nut	74	750	54
Steering knuckle X Shock absorber	211	2,150	156
Steering knuckle X Brake cylinder	107	1,090	79
Steering knuckle X Tie rod end	49	500	36
Axle hub nut	294	3,000	217
Ball joint X Lower arm	127	1,300	94
Ball joint X Steering knuckle	123	1,250	90
Steering knuckle X Disc brake dust cover	8.3	85	74in.·lbf
Drive shaft X Side gear shaft	65	660	48
Drive shaft center bearing lock bolt	32	330	24
Suspension upper support X Body	80	820	59
Suspension upper support X Piston rod	49	500	36
Brake hose X Shock absorber	29	300	22
ABS speed sensor wire X Shock absorber	5.4	55	48in.·lbf
Lower arm set bolt	206	2,100	152
Lower arm X Stabilizer bar link bracket	56	570	41
Stabilizer bar bushing retainer	19	195	14
Stabilizer bar link set nut	64	650	47
Steering gear box set bolt	181	1,850	134

(REAR)

Part tightened	N·m	kgf·cm	ft·lbf
Brake cylinder X Rear axle carrier	47	475	34
Axle bearing set bolt	80	820	59
Shock absorber X Rear axle carrier	255	2,600	188
Brake hose X Shock absorber	29	300	22
ABS speed sensor set bolt	7.8	80	69in.·lbf
ABS speed sensor wire X Shock absorber	5.4	55	48in.·lbf
Suspension upper support X Body	39	400	29
Suspension upper support X Piston rod	49	500	36
Lower suspension arm X Suspension member	181	1,850	134
Lower suspension arm X Rear axle carrier	181	1,850	134
Strut rod X Body	113	1,150	83
Strut rod X Rear axle carrier	113	1,150	83
Suspension member X Body (17mm)	113	1,150	83
Suspension member X Body (14mm)	38	390	28
LSPV spring X Lower suspension arm	13	130	9.4
8Stabilizer bar bushing retainer	19	195	14
Stabilizer bar link set nut	64	650	47