ELECTRONIC MODULATED AIR SUSPENSION SYSTEM

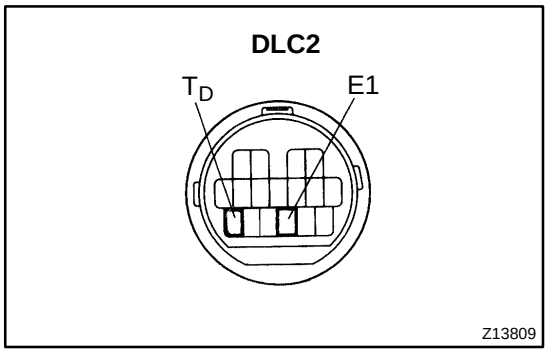
SA0IK–01

PRECAUTION

HINT:

The Electronic Modulated Air Suspension is used in the LEXUS LS400.

Observe the following precautions strictly when performing operations on vehicles equipped with the Electronic Modulated Air Suspension.



1. TURN IGNITION SWITCH OFF WHEN JACKING UP VEHICLE

NOTICE:

If a vehicle is jacked up with the ignition switch ON (engine running), connect terminals T_D and E_1 of DLC2.

SST 09843–18020

2. REMOVE ALL ITEMS FROM UNDER VEHICLE BEFORE LOWERING JACK

NOTICE:

When the jack is lowered, the vehicle is extremely low because the air in the pneumatic cylinder escapes.

3. ADJUST VEHICLE HEIGHT TO NORMAL CONDITION BEFORE MOVING VEHICLE

HINT:

When the ignition switch is turned ON (engine running), the vehicle height is automatically adjusted to normal condition.

TROUBLESHOOTING

SA0IL–02

PROBLEM SYMPTOMS TABLE

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

Symptom	Suspect Area	See page
Wander/pulls	2. Tires (Worn or improperly inflated)	SA–3
	3. Wheel alignment (Incorrect)	SA–5 SA–9
	4. Steering linkage (Loosen or worn)	–
	5. Hub bearings (Loosen or worn)	SA–13 SA–54
	6. Steering gear (Out of adjustment or broken)	–
	7. Suspension parts (Worn out)	–
Bottoming	1. Vehicle (Overloaded)	–
	2. Spring (Weak)	SA–19 SA–96
	3. Shock absorber (Worn out)	SA–19 SA–26 SA–96 SA–104
Sways/pitches	1. Tires (Worn or improperly inflated)	SA–3
	2. Stabilizer bar (Bent or broken)	SA–49 SA–119
	3. Shock absorber (Worn out)	SA–19 SA–26 SA–96 SA–104
Front wheel shimmy	1. Tires (Worn or improperly inflated)	SA–3
	2. Wheels (Out of balance)	SA–5
	3. Shock absorber (Worn out)	SA–9 SA–19
	4. Wheel alignment (Incorrect)	SA–26
	5. Ball joints (Worn)	SA–36 SA–44
	6. Hub bearings (Loosen or worn)	SA–13
	7. Steering linkage (Loosen or worn)	–
	8. Steering gear (Out of adjustment or broken)	–
Abnormal tire wear	1. Tires (Improperly inflated)	SA–3
	2. Wheel alignment (Incorrect)	SA–5 SA–9
	3. Suspension parts (Worn out)	–
	4. Shock absorber (Worn out)	SA–19 SA–26 SA–96 SA–104
Noise in rear differential	1. Oil level (Low or wrong grade)	SA–71
	2. Excessive backlash between pinion and ring gear	SA–83
	3. Ring, pinion or side gears (Worn or chipped)	SA–73
	4. Pinion shaft bearing (Worn)	SA–73
	5. Side bearing (Worn)	SA–73
Oil leak from rear differential	1. Oil level (Too high or wrong grade)	SA–71
	2. Drive pinion oil seal (Worn or damaged)	SA–73
	3. Side gear oil seal (Worn or damaged)	SA–71
	4. Companion flange (Loose or damaged)	–
	5. Side gear shaft (Damaged)	SA–71

TIRE AND WHEEL

SA0IM–01

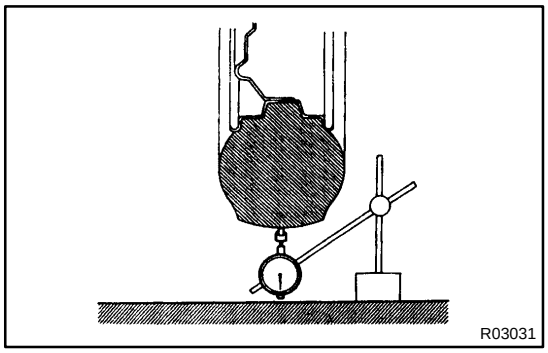
INSPECTION

1. INSPECT TIRE

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

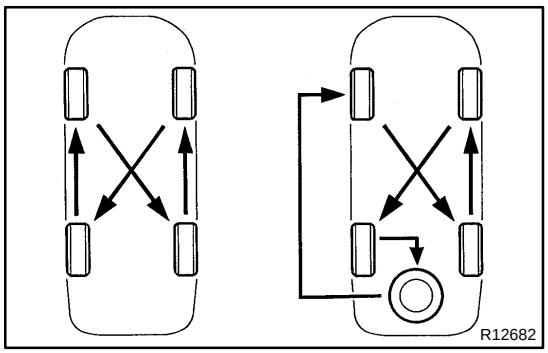
Cold tire inflation pressure:

Tire size	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
P225/60R16 97V	200 (2.0, 29)	200 (2.0, 29)



(b) Check the tire runout.

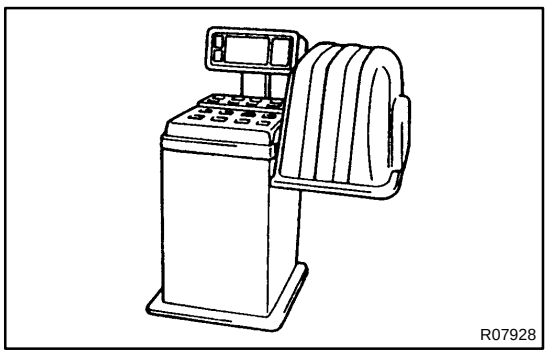
Tire runout: 1.4 mm (0.055 in.) or less



2. ROTATING TIRES

HINT:

See the illustration for where to rotate each tire when you include the spare tire in the rotation and when you do not.

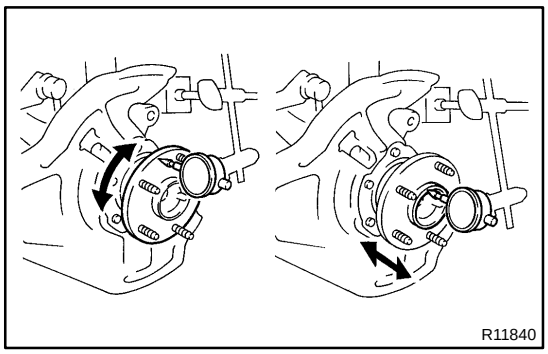


3. INSPECT WHEEL BALANCE

(a) Check and adjust the Off–the–car balance.

(b) If necessary, check and adjust the On–the–car balance.

Unbalance after adjustment: 5.0 g (0.011 lb) or less



4. CHECK WHEEL BEARING LOOSENESS

(a) Check the backlash in bearing shaft direction.
Maximum: 0.05 mm (0.0020 in.)

(b) Check the axle hub deviation.
Maximum: 0.05 mm (0.0020 in.)

5. CHECK FRONT SUSPENSION FOR LOOSENESS

6. CHECK STEERING LINKAGE FOR LOOSENESS

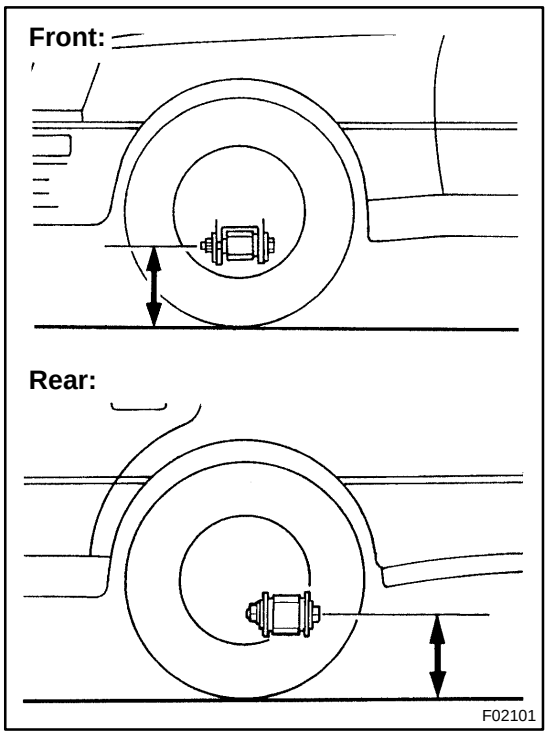
7. CHECK BALL JOINT FOR LOOSENESS AND EXCESSIVE PLAY (See page SA–44)

8. CHECK SHOCK ABSORBER WORKS PROPERLY

★ Check for oil leak

★ Check mounting bushings for wear

★ Bounce front and rear of the vehicle



FRONT WHEEL ALIGNMENT

SA0IN–02

INSPECTION

1. COIL SUSPENSION:

MEASURE VEHICLE HEIGHT

When the radius of a tire is 308 mm (12.12 in.) vehicle height will be the value described in the chart below.

Tire size	Front*1 mm (in.)	Rear*2 mm (in.)
P225/60R16	264 (10.39)	243 (9.57)

***1: Front measuring point**

Measure from the ground to the center of the lower suspension arm mounting bolt.

***2: Rear measuring point**

Measure from the ground to the center of the lower suspension arm No.2 mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to specification.

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

2. AIR SUSPENSION:

MEASURE VEHICLE HEIGHT

(a) Bounce the vehicle up and down several times to stabilize the suspension.

(b) Move the vehicle forward and backward by pushing it to settle the tires.

(c) Place the shift lever in the N range.

(d) Release the parking brake.

NOTICE:

Block the wheels to keep the vehicle from rolling.

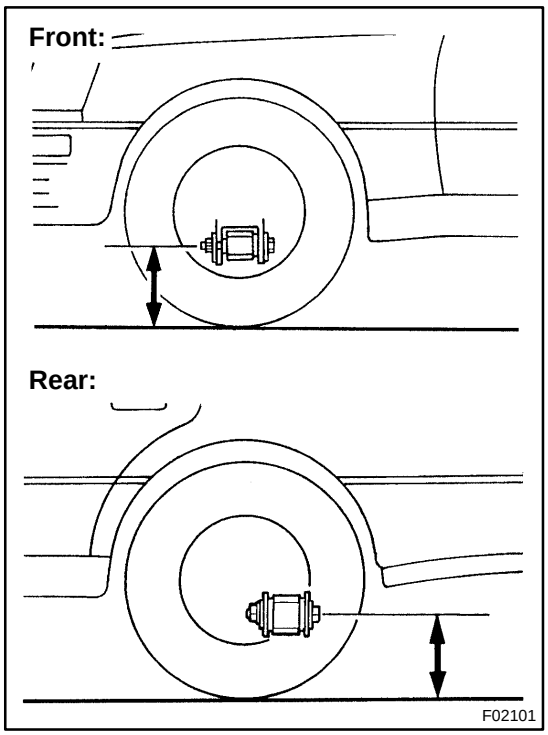
(e) Start the engine.

(f) Set the height control switch in the HIGH position, then after waiting 1 minute with the vehicle height in the raised condition, set the switch in the NORM position to lower the vehicle's height.

Wait 50 seconds with it in this condition. Repeat this operation one more.

HINT:

Be sure to perform this operation 2 times so that each suspension part settles down.



(g) When the radius of a tire is 308 mm (12.12 in.) vehicle height will be the value described in the chart below.

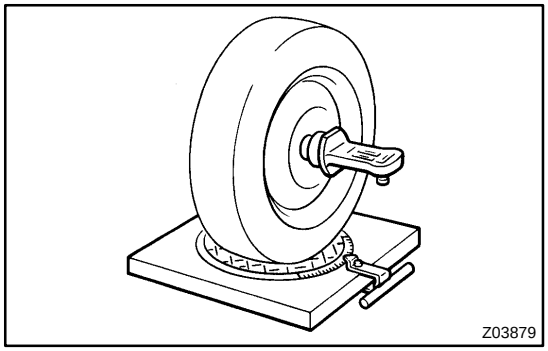
Tire size	Front*1 mm (in.)	Rear*2 mm (in.)
P225/60R16	250 ± 10 (9.84 ± 0.39)	222.5 ± 10 (8.76 ± 0.39)

Left–right error: 10 mm (0.39 in.) or less
Hf – Hr = 27.5 ± 15 mm (1.08 ± 0.59 in.)
Hf = Measured value of the front vehicle height
Hr = Measured value of the rear vehicle height

***1: Front measuring point**
Measure from the ground to the center of the lower suspension arm mounting bolt.

***2: Rear measuring point**
Measure from the ground to the center of the lower suspension arm No.2 mounting bolt.

NOTICE:
Before inspecting the wheel alignment, adjust the vehicle height to specification.
If the vehicle height is not standard, adjust it by turning the height control sensor link (See page SA–125).



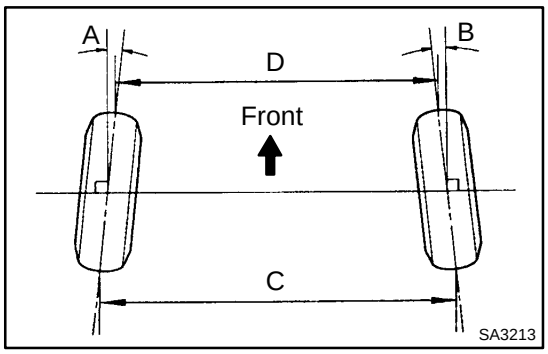
3. INSTALL CAMBER–CASTER–KINGPIN GAUGE ONTO WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

4. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

	Coil suspension	Air suspension
Camber Left– right error	0°20' ± 45' (0.33° ± 0.75°) 30' (0.5°) or less	0°05' ± 45' (0.08° ± 0.75°) 30' (0.5°) or less
Caster Left– right error	7°00' ± 45' (7° ± 0.75°) 30' (0.5°) or less	7°25' ± 45' (7.42° ± 0.75°) 30' (0.5°) or less
Steering axis inclination Left– right error	8°25' ± 45' (8.42° ± 0.75°) 30' (0.5°) or less	8°40' ± 45' (8.66° ± 0.75°) 30' (0.5°) or less

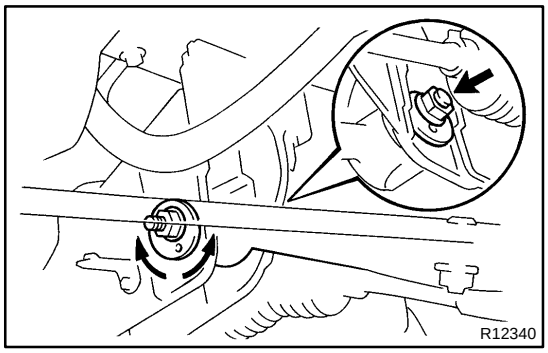
If the steering axis inclination is not as specified, after camber and caster have correctly adjusted, recheck the steering knuckle and front wheel for bearing or looseness.



5. INSPECT TOE–IN

Coil suspension	A + B: 0˚18' ± 12' (0.3˚ ± 0.2˚) C – D: 3 ± 2 mm (0.12 ± 0.08 in.)
Air suspension	A + B: 0˚06' ± 12' (0.1˚ ± 0.2˚) C – D: 1 ± 2 mm (0.04 ± 0.08 in.)

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



6. ADJUST CAMBER

HINT:

★ After adjusting the camber, inspect the caster and toe–in.
★ Try to adjust the camber to the center value.

(a) Remove the suspension member brace.
(b) Loosen the camber adjusting cam nut.
(c) Turn the camber adjusting cam and adjust camber.

HINT:

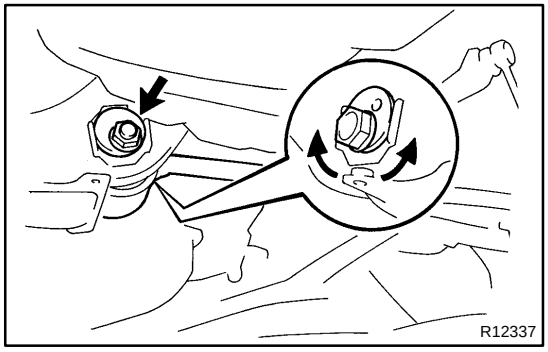
Camber changes about 7'20" (0.12˚) with each graduation of the cam.

(d) Torque the camber adjusting cam.
Torque: 251 N·m (2,560 kgf·cm, 185 ft·lbf)
(e) Install the suspension member brace.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

7. ADJUST CASTER

HINT:

★ After adjusting the caster, inspect the toe–in.
★ Try to adjust the caster to the center value.

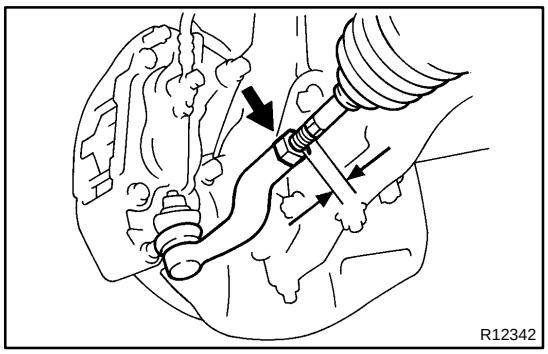


(a) Loosen the caster adjusting cam nut.
(b) Turn the caster adjusting cam and adjust camber.

HINT:

Caster changes about 8'20" (0.14˚) with each graduation of the cam.

(c) Torque the caster adjusting cam.
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)



8. ADJUST TOE–IN

(a) Remove the boot clips.
(b) Loosen the tie rod end lock nut.
(c) Turn the left and right rack ends an equal amount to adjust the toe–in.

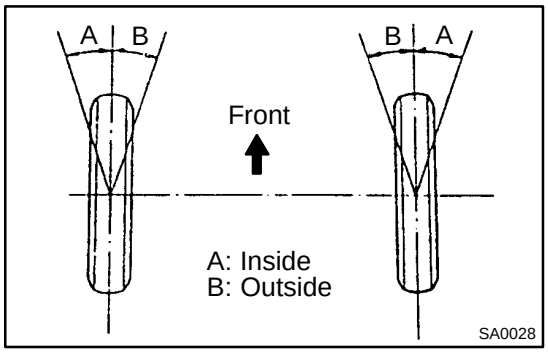
HINT:

★ Try to adjust the toe–in the center value.
★ Make sure that the length of the left and right rack ends length is same.
Rack end length difference: 1.0 mm (0.039 in.) or less

(d) Torque the tie rod end lock nuts.
Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)
(e) Place the boot on the seat and clamp it.

HINT:

Make sure that the boots are not twisted.



9. INSPECT WHEEL ANGLE

Turn the steering wheel fully, and measure the turning angle.

	Coil suspension	Air suspension
Inside wheel	42˚00' ± 1˚30' (42˚ ± 1.5˚)	42˚00' ± 1˚30' (42˚ ± 1.5˚)
Outside wheel: Reference	34˚20' (34.33˚)	34˚00' (34˚)

If the wheel angles differ from the standard of the specification, inspect the toe–in.

REAR WHEEL ALIGNMENT

SA0IO–01

INSPECTION

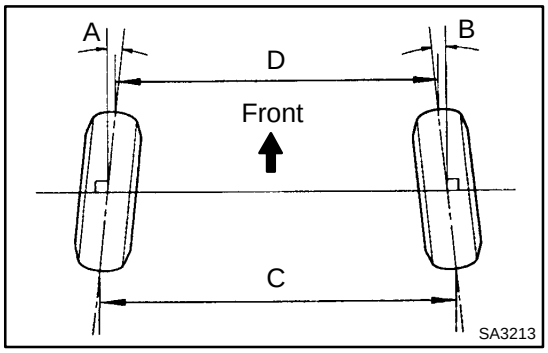
1. MEASURE VEHICLE HEIGHT (See page SA–5)

2. INSTALL CAMBER–CASTER–KINGPIN GAUGE ONTO WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

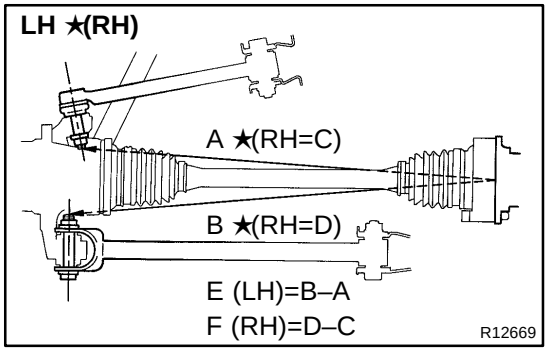
3. INSPECT CAMBER

	Coil suspension	Air suspension
Camber	–0°50' ± 45' (–0.83° ± 0.75 °)	–1°25' ± 45' (–1.42° ± 0.75 °)
Left–right error	30' (0.5°) or less	30' (0.5°) or less



4. INSPECT TOE–IN

Coil suspension	A + B: 0°12' ± 12' (0.2° ± 0.2°) C – D: 2 ± 2 mm (0.08 ± 0.08 in.)
Air suspension	A + B: 0°18' ± 12' (0.3° ± 0.2°) C – D: 3 ± 2 mm (0.12 ± 0.08 in.)



5. ADJUST CAMBER AND TOE–IN

(a) Measure the length of the lower suspension arm No.1 and No.2, as shown in the illustration.

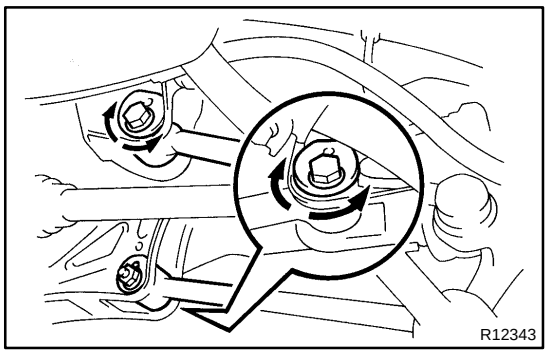
Length:

(E–F) or (F–E) should be less 4.0 mm (0.16 in.).

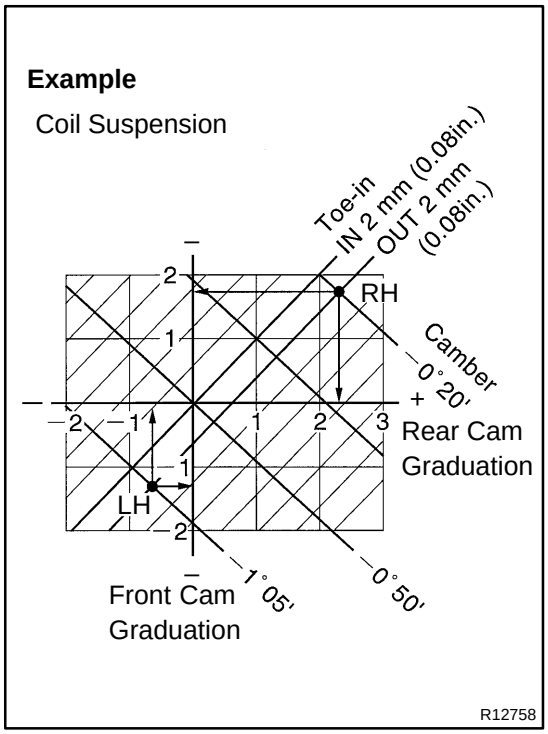
If it is not within the specification, adjust the length of the arms by turning the adjusting cam, as shown, until (E–F) or (F–E) is less than 4.0 mm (0.16 in.).

(b) Measure the camber and toe–in.

If the camber and toe–in are still not within the specification, adjust the camber and toe–in with the adjusting cam. (See step 6.)



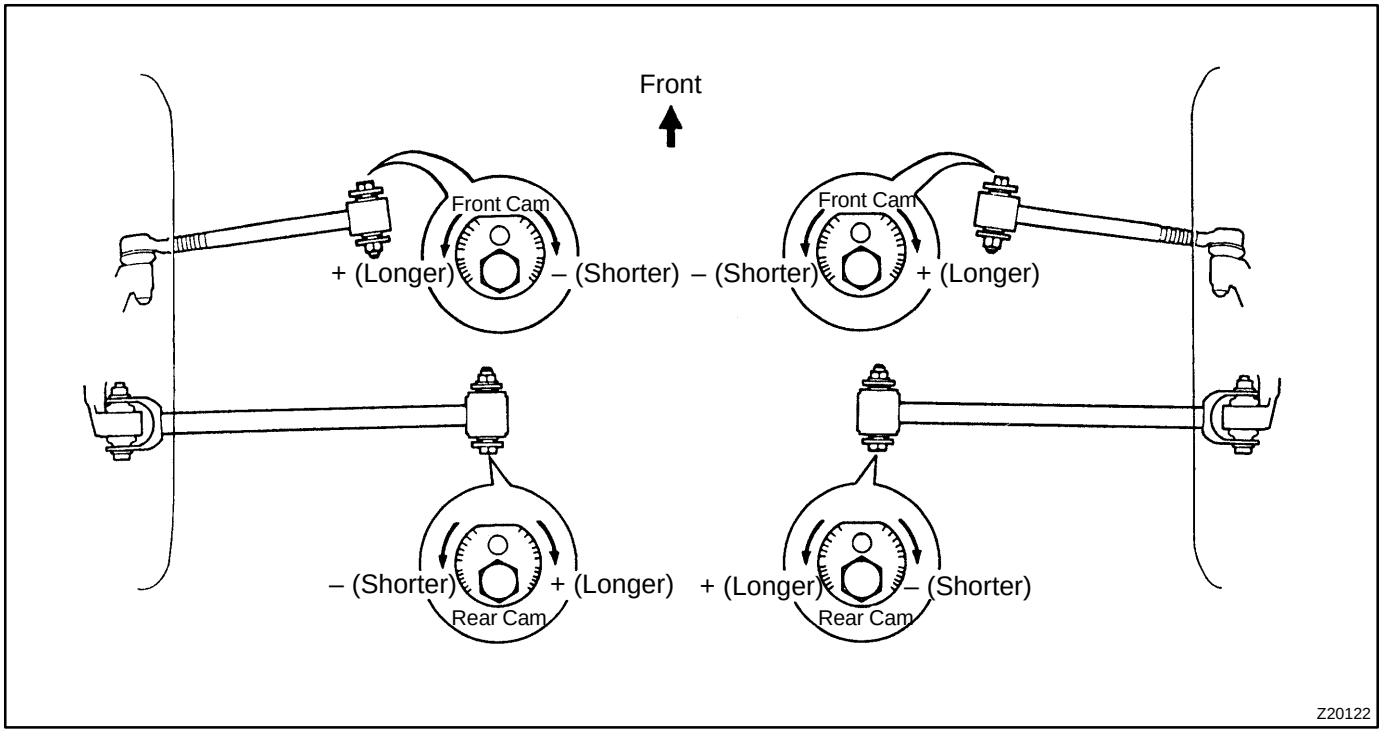
(c) Loosen the front and/or rear cams.
(d) Adjust camber and toe–in by turning the front and/or rear cams.
(e) Torque the front and/or rear cam nuts.
Torque: 78 N·m (790 kgf·cm, 57 ft·lbf)



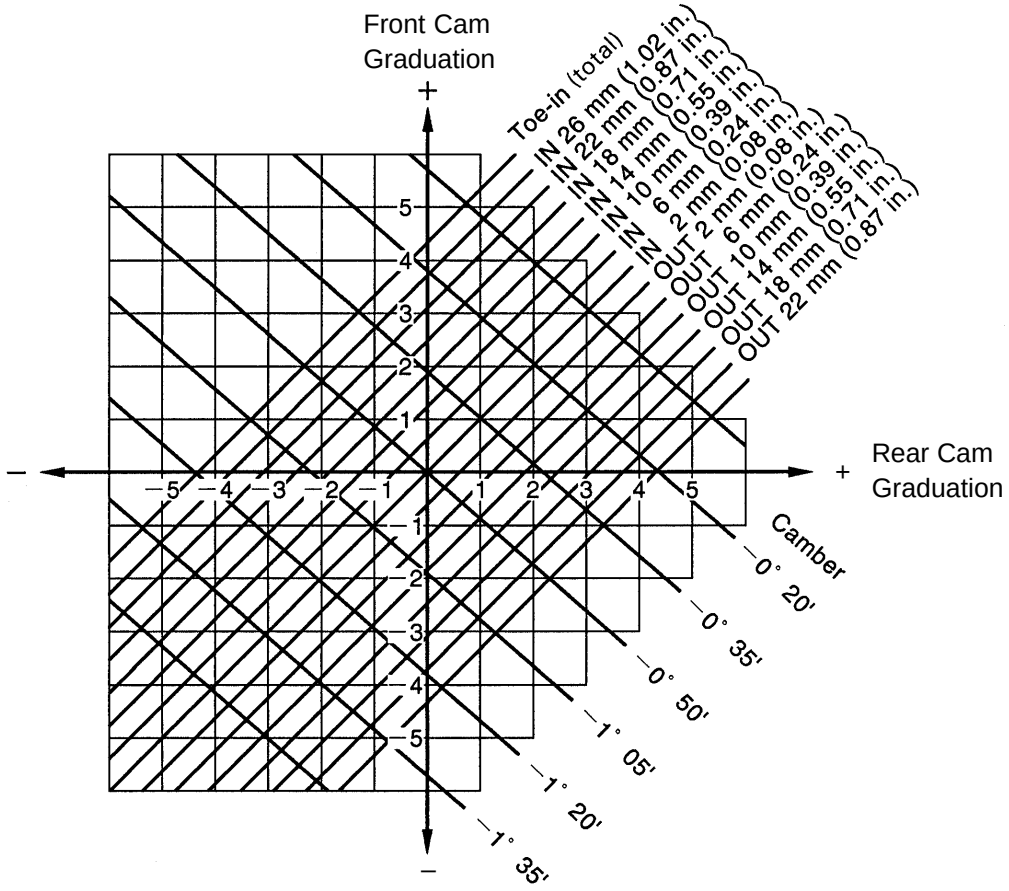
6. HOW TO READ ADJUSTMENT CHART

(a) Mark on the graph the measurements taken from the vehicle.
Example (Coil suspension):
Camber (LH): –1°05' (–1.08°)
Camber (RH): –0°20' (–0.33°)
Toe–in (total): OUT 2 mm (0.08 in.)

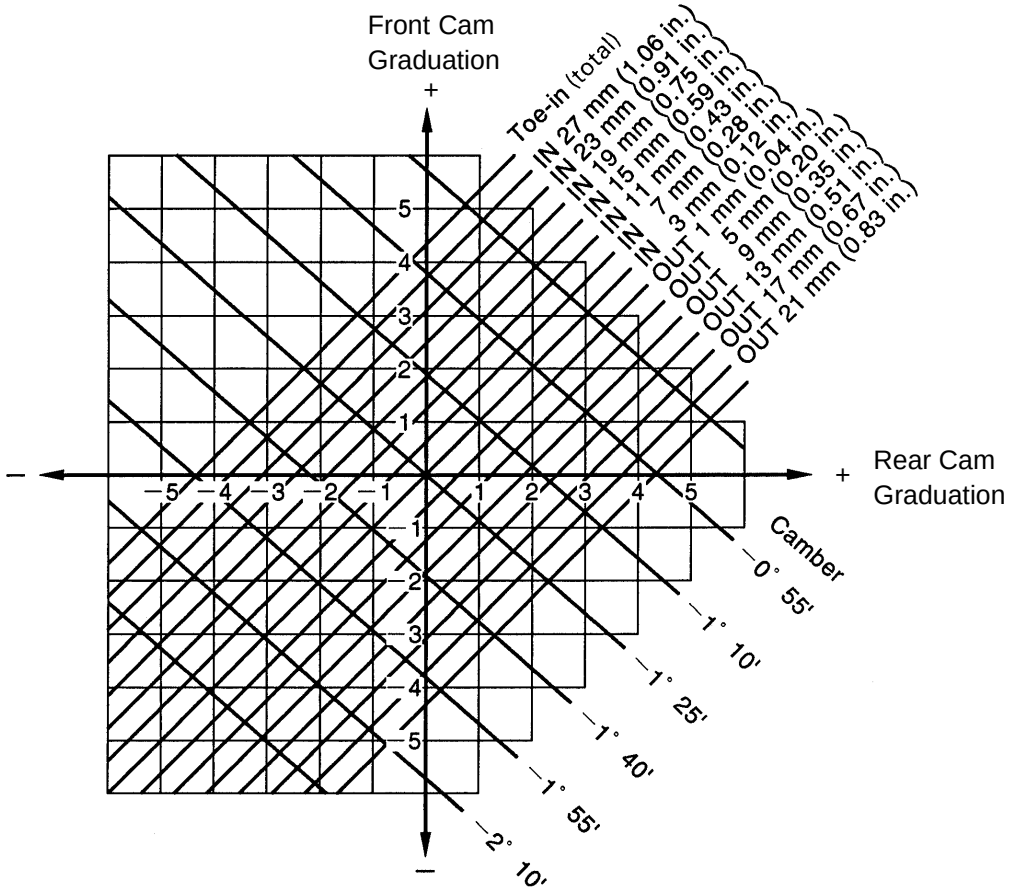
(b) As shown the illustration, from the graph the amounts by which the front and/or rear cam are to be adjusted.
Amount to turn adjusting cam (by graduation):
LH Front cam: –(Shorter) 1.2
LH Rear cam: –(Shorter) 0.7
RH Front cam: +(Longer) 1.8
LH Rear cam: +(Longer) 2.3



Coil Suspension



Air Suspension

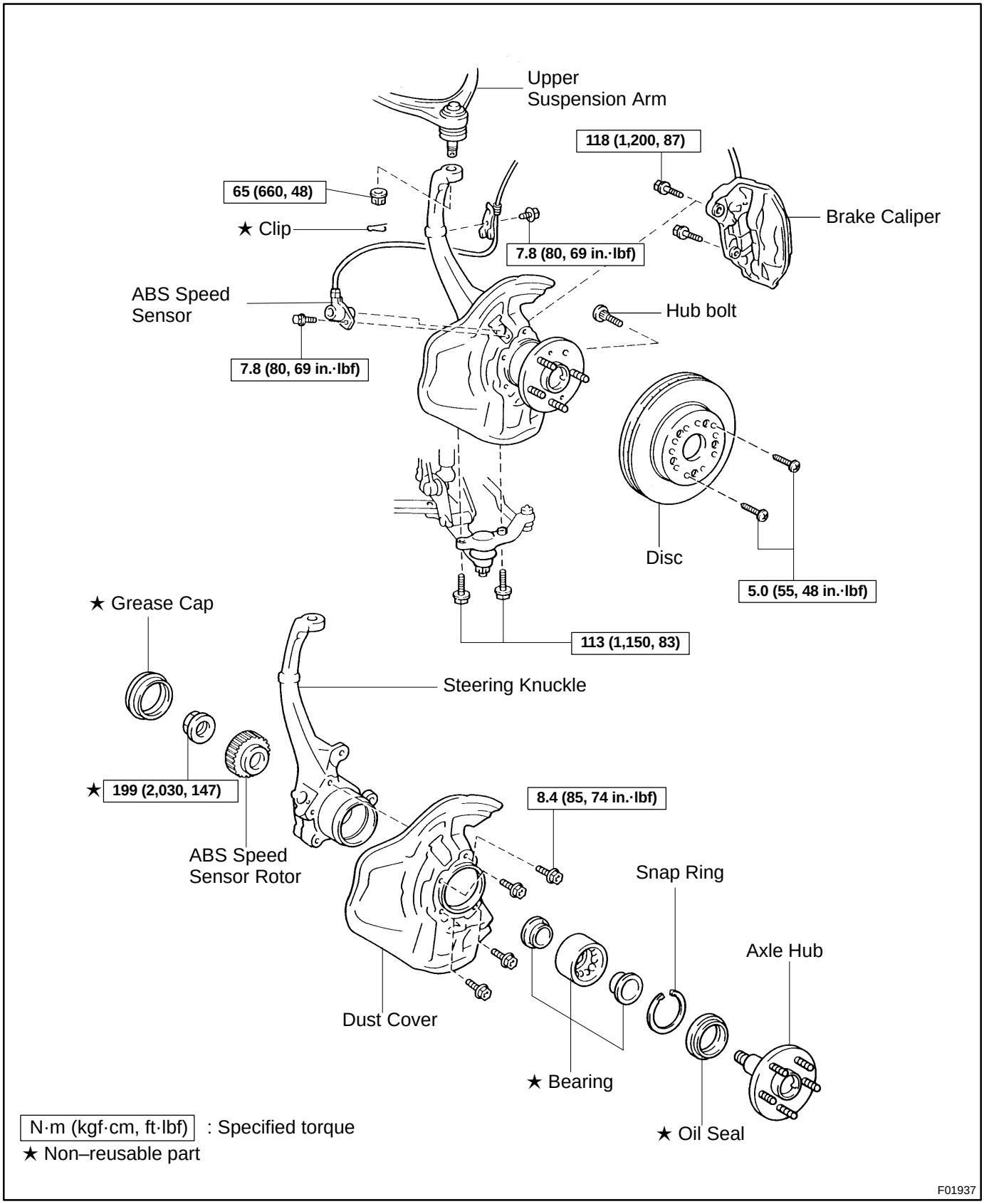


Z14546

FRONT AXLE HUB

SA0IP–01

COMPONENTS



SA0IQ–01

REMOVAL

1. REMOVE FRONT WHEEL

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

2. REMOVE FRONT BRAKE CALIPER AND DISC

(a) Place matchmarks on the brake disc and axle hub.

(b) Remove the 2 bolts and brake caliper.

Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

(c) Support the brake caliper securely.

(d) Remove the 2 scews and disc.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)

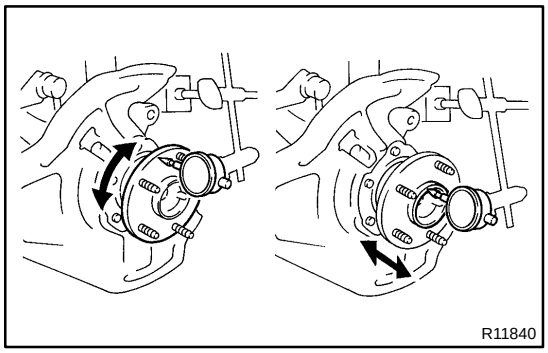
3. DISCONNECT ABS SPEED SENSOR AND WIRE HARNESS

Remove the 2 bolts, ABS speed sensor and wire harness.

NOTICE:

When removing them from the right side, do not disconnect the pad wear indicator connector.

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



4. CHECK BACKLASH BEARING SHAFT AND AXLE HUB DEVIATION

(a) Using a 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 the backlash exceeds the maximum, replace the bearing.

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

Maximum: 0.05 mm (0.0020 in.)

If the deviation exceeds the maximum, replace the bearing.

5. DISCONNECT STEERING KNUCKLE FROM BALL JOINT

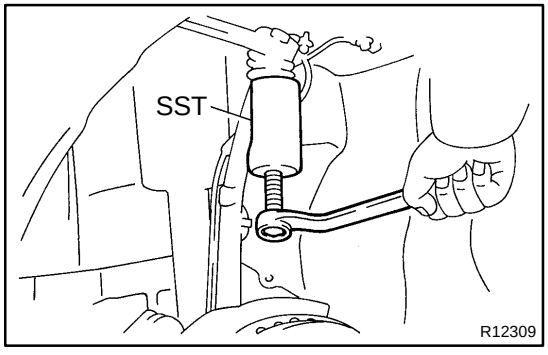
Remove the 2 bolts and disconnect the steering knuckle.

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

6. REMOVE STEERING KNUCKLE

(a) Remove the clip and nut.

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

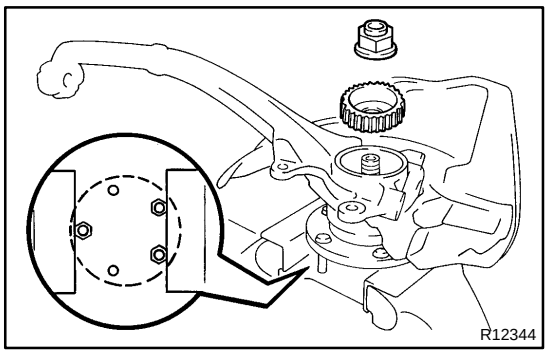


(b) Using SST, disconnect the steering knuckle and remove it from the upper ball joint.

SST 09610–20012

SA0IR–03

DISASSEMBLY



1. REMOVE LOCK NUT AND ABS SPEED SENSOR ROTOR

(a) Using a screwdriver, remove the grease cap.

(b) Clamp the axle hub in a soft jaw vise.

HINT:

Close vise until it holds hub bolts. Do not tighten further.

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

(d) Remove the lock nut.

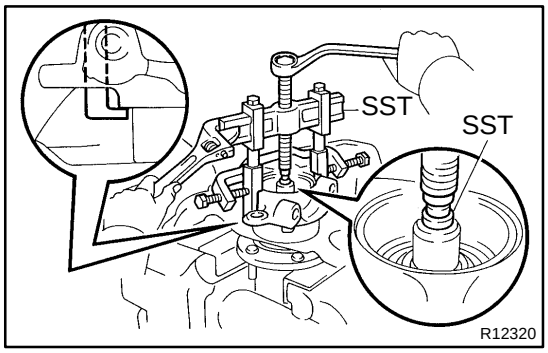
(e) Remove the ABS speed sensor rotor.

NOTICE:

Take care not to scratch the serration of the speed sensor rotor.

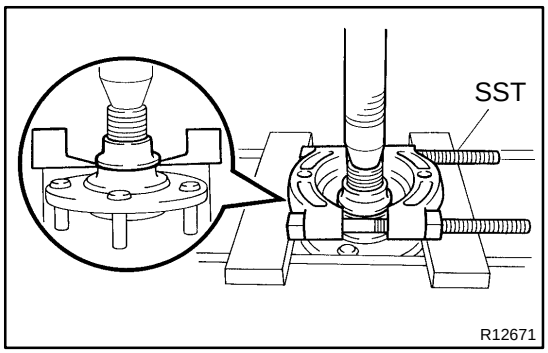
2. REMOVE AXLE HUB FROM STEERING KNUCKLE

(a) Remove the 4 bolts and shift the brake dust cover towards the hub side (outside).



(b) Using SST, remove the axle hub from the steering knuckle.

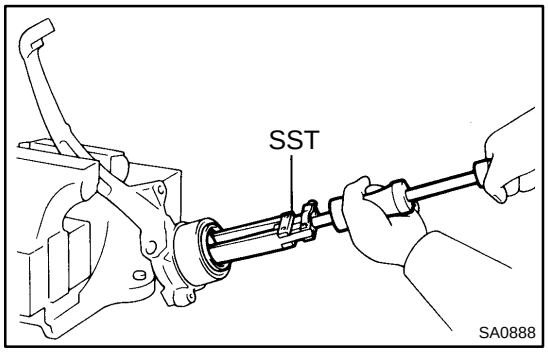
SST 09950–40011 (09951–04020, 09952–04010, 09953–04020, 09954–04010, 09955–04051, 09957–04010, 09958–04011)



3. REMOVE INNER RACE (OUTSIDE) FROM AXLE HUB

Using SST and a press, remove the inner race from the axle hub.

SST 09950–00020



4. REMOVE OIL SEAL

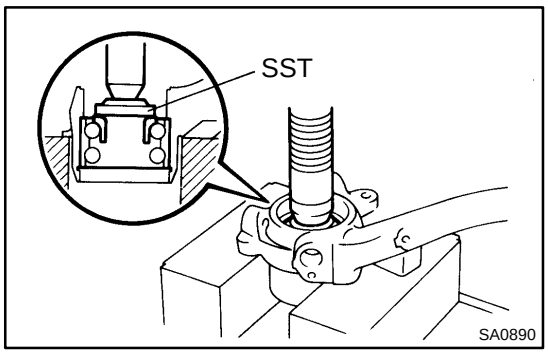
Using SST, remove the oil seal from the steering knuckle.

SST 09308–00010

5. REMOVE BEARING FROM STEERING KNUCKLE

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

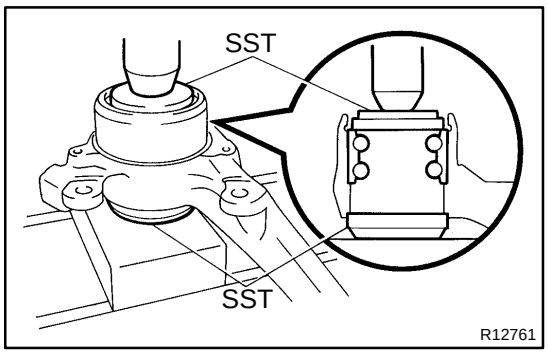
(b) Place the inner race above the bearings on the inner side.



(c) Using SST and a press, remove the bearing from the steering knuckle.
SST 09950–60010 (09951–00560)

SA0IS–01

REASSEMBLY



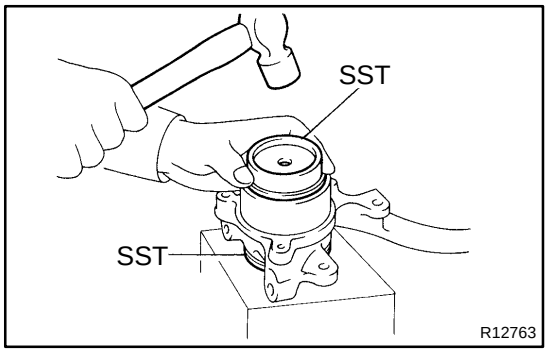
1. INSTALL NEW BEARING

(a) Using SST, install a new bearing to steering knuckle.
SST 09950–60020 (09951–00720, 09951–00810)

NOTICE:

If the inner race and balls come loose from the bearing outer race, be sure to install them on the same side as before.

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



2. INSTALL NEW OIL SEAL

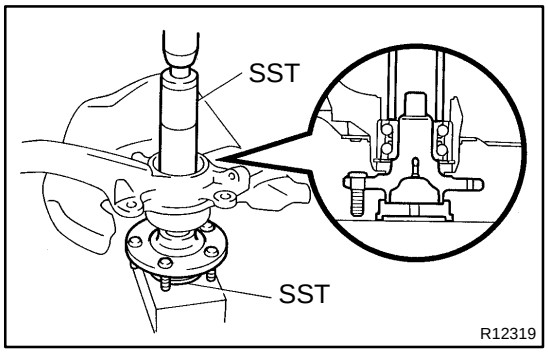
(a) Place the inner race (outside).

(b) Using SST, install a new oil seal until it is flush with end surface of steering knuckle.
SST 09608–32010, 09950–60020 (09951–00810)

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

3. INSTALL AXLE HUB TO STEERING KNUCKLE

(a) Install the brake dust cover with the 4 bolts.
Torque: 8.4 N·m (85 kgf·cm, 74 in.·lbf)



(b) Using SST and a press, install the axle hub.
SST 09608–32010, 09608–06041

4. INSTALL ABS SPEED SENSOR ROTOR

NOTICE:

Do not scratch the serrations of the speed sensor rotor.

5. INSTALL NEW LOCK NUT

(a) Install and torque a new nut to the axle shaft.
Torque: 199 N·m (2,030 kgf·cm, 147 ft·lbf)

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

(c) Using a screwdriver, install the grease cap.

SA0IT–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–13).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307), AND FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT WHEEL HUB BOLT

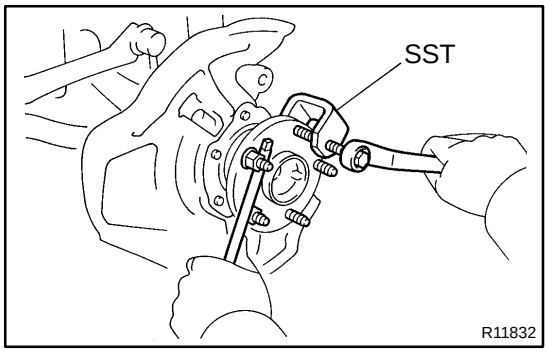
SA0IU–01

REPLACEMENT

1. REMOVE FRONT WHEEL

2. REMOVE BRAKE CALIPER AND DISC

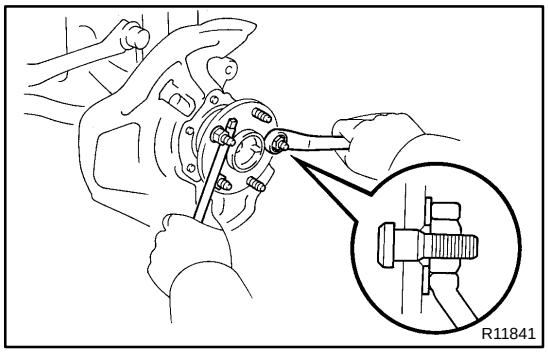
(a) Place matchmarks on the disc and axle hub.
(b) Remove the 2 bolts and brake caliper.
(c) Support the brake caliper securely.
(d) Remove the 2 screws and disc.



3. REMOVE HUB BOLT

Using SST, remove 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 DISC AND BRAKE CALIPER

(a) Align the matchmarks on the axle hub and disc.
(b) Install the disc and 2 screws.
Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)
(c) Install the brake caliper and 2 bolts.
Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

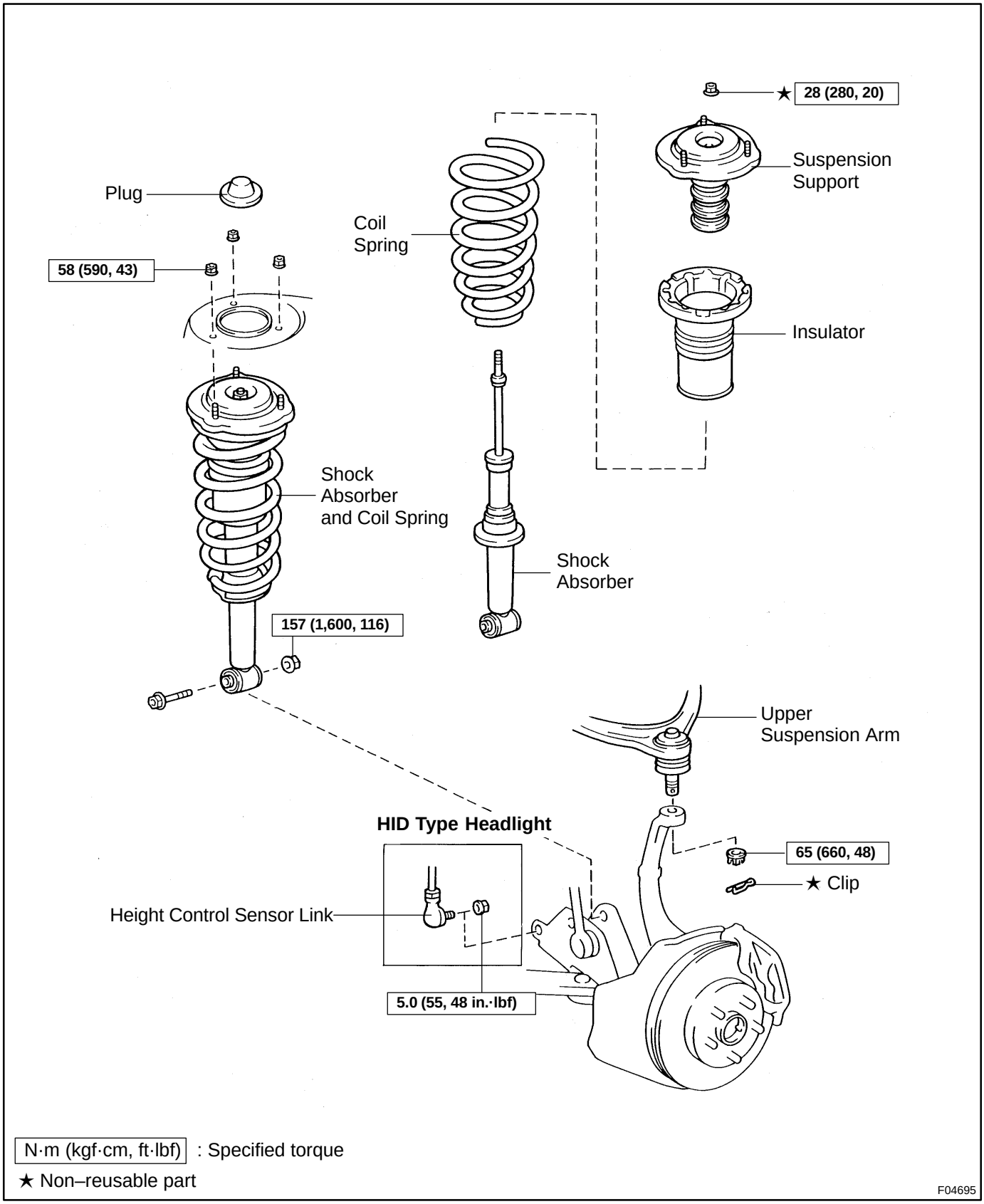
6. INSTALL FRONT WHEEL

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

FRONT SHOCK ABSORBER

COMPONENTS

SA0IV–01

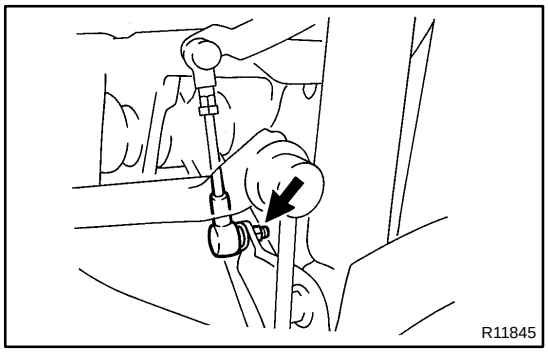


SA0IW–01

REMOVAL

1. REMOVE FRONT WHEEL

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



2. HID TYPE HEADLIGHT:
DISCONNECT HEIGHT CONTROL SENSOR LINK FROM SHOCK ABSORBER LOWER BRACKET

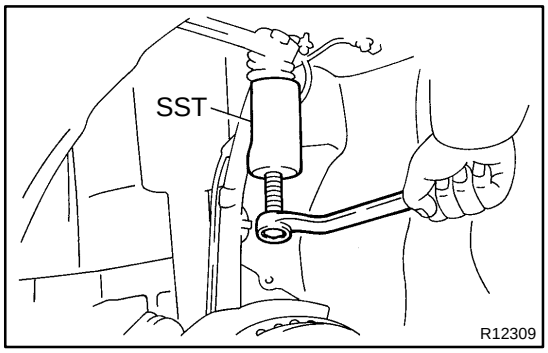
Remove the nut and disconnect the sensor link.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)

3. DISCONNECT STEERING KNUCKLE FROM UPPER BALL JOINT

(a) Remove the clip and nut.

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



(b) Using SST, disconnect the steering knuckle from the upper ball joint.

SST 09610–20012

(c) Support the steering knuckle securely.

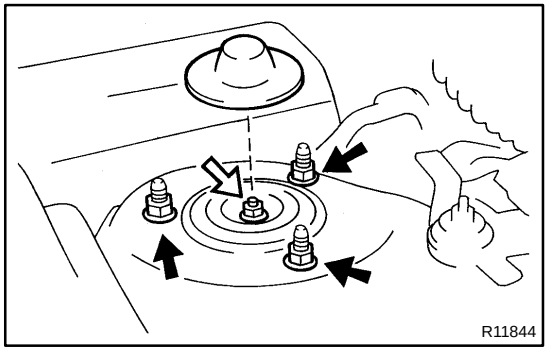
4. DISCONNECT SHOCK ABSORBER FROM SHOCK ABSORBER LOWER BRACKET

Remove the bolt and nut.

Torque: 157 N·m (1,600 kgf·cm, 116 ft·lbf)

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.



5. REMOVE SHOCK ABSORBER WITH COIL SPRING

(a) Remove the plug from the suspension support.

(b) Loosen the suspension support center nut.

NOTICE:

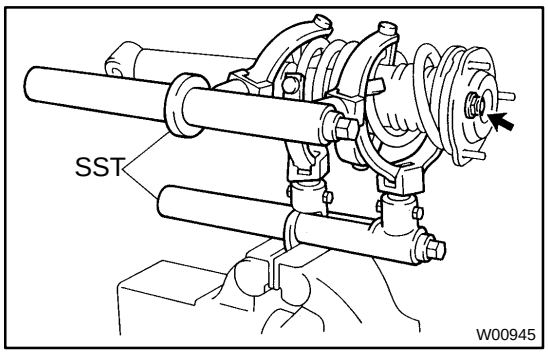
Do not remove the nut.

Torque: 28 N·m (280 kgf·cm, 20 ft·lbf)

(c) Remove the 3 nuts and shock absorber with coil spring.

Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)

SA0IX–01



DISASSEMBLY

1. REMOVE SUSPENSION SUPPORT AND COIL SPRING

(a) Using 2 SST, compress the coil spring until there is a clearance on both ends.
SST 09727–30021

NOTICE:

Do not use an impact wrench. It will damage the SST.

HINT:

★ Set the 2 SST crosswise taking care not to interfere each other's arms.

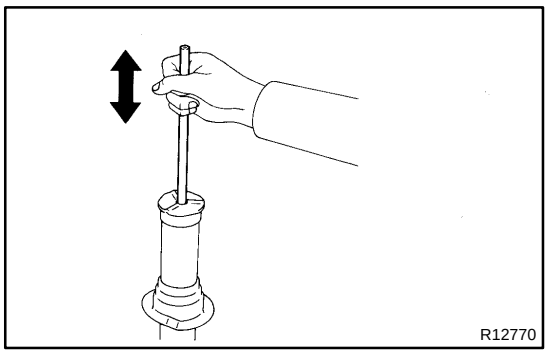
★ When compressing the coil spring, tighten the 2 SST alternately so that the spring is compressed uniformly.

(b) Remove suspension support center nut.

(c) Remove the suspension support and coil spring with insulator.

2. REMOVE INSULATOR FROM COIL SPRING

SA0IY–01



INSPECTION

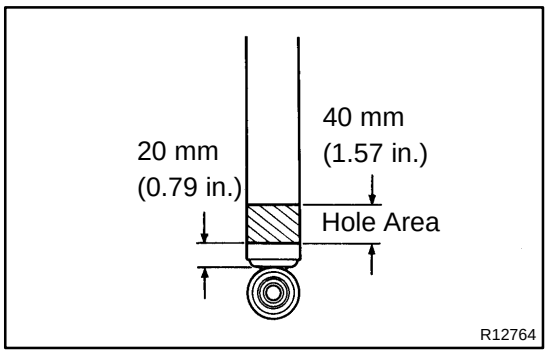
INSPECT SHOCK ABSORBER

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, see DISPOSAL on page SA–23.

SA0IZ–01



DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD

2. DRILL HOLE TO REMOVE GAS FROM CYLINDER

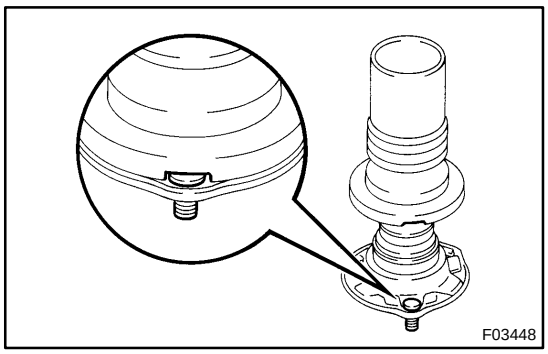
Using a drill, make a hole in the cylinder as shown to remove the gas inside.

CAUTION:

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

SA0J0–01

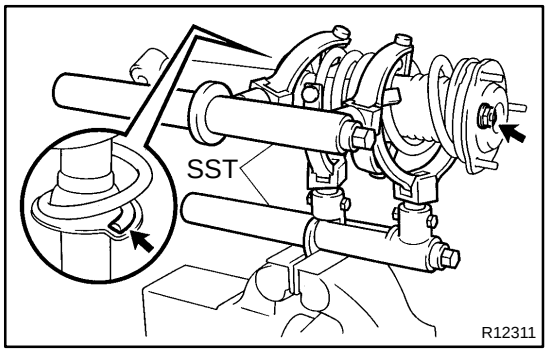
REASSEMBLY



1. INSTALL INSULATOR TO SUSPENSION SUPPORT

HINT:

Match the bolt of the suspension support with the cut–out part of the insulator.



2. INSTALL COIL SPRING TO SHOCK ABSORBER

(a) Using SST, compress coil spring.
SST 09727–30021

NOTICE:

Do not use an impact wrench. It will damage the SST.

HINT:

★ Set 2 SST crosswise taking care not to interfere each other's arms.

★ When compressing the coil spring, tighten the 2 SST alternately so that the spring is compressed uniformly.

(b) Install the coil spring to the shock absorber.

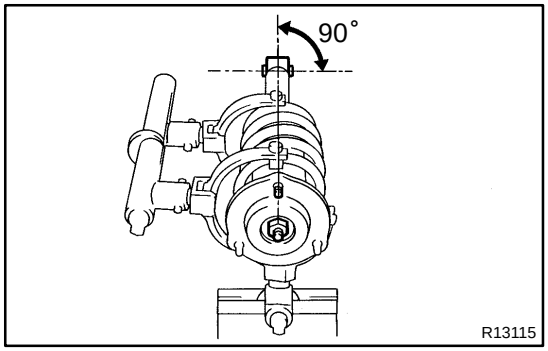
HINT:

Fit the lower end of the coil spring into the gap of the spring seat of the shock absorber.

3. INSTALL SUSPENSION SUPPORT

(a) Install the suspension support to the rod.

(b) Temporarily tighten a new suspension support center nut.



(c) Turn the suspension support so that one of the bolts on the suspension support faces the same direction as shown in the illustration.

HINT:

Align the bolt so that a line drawn between the rod and the bolt would be parallel to the direction of the lower bushing.

4. REMOVE SST

HINT:

After removing the SST, check again the direction of the suspension support.

SA0J1–01

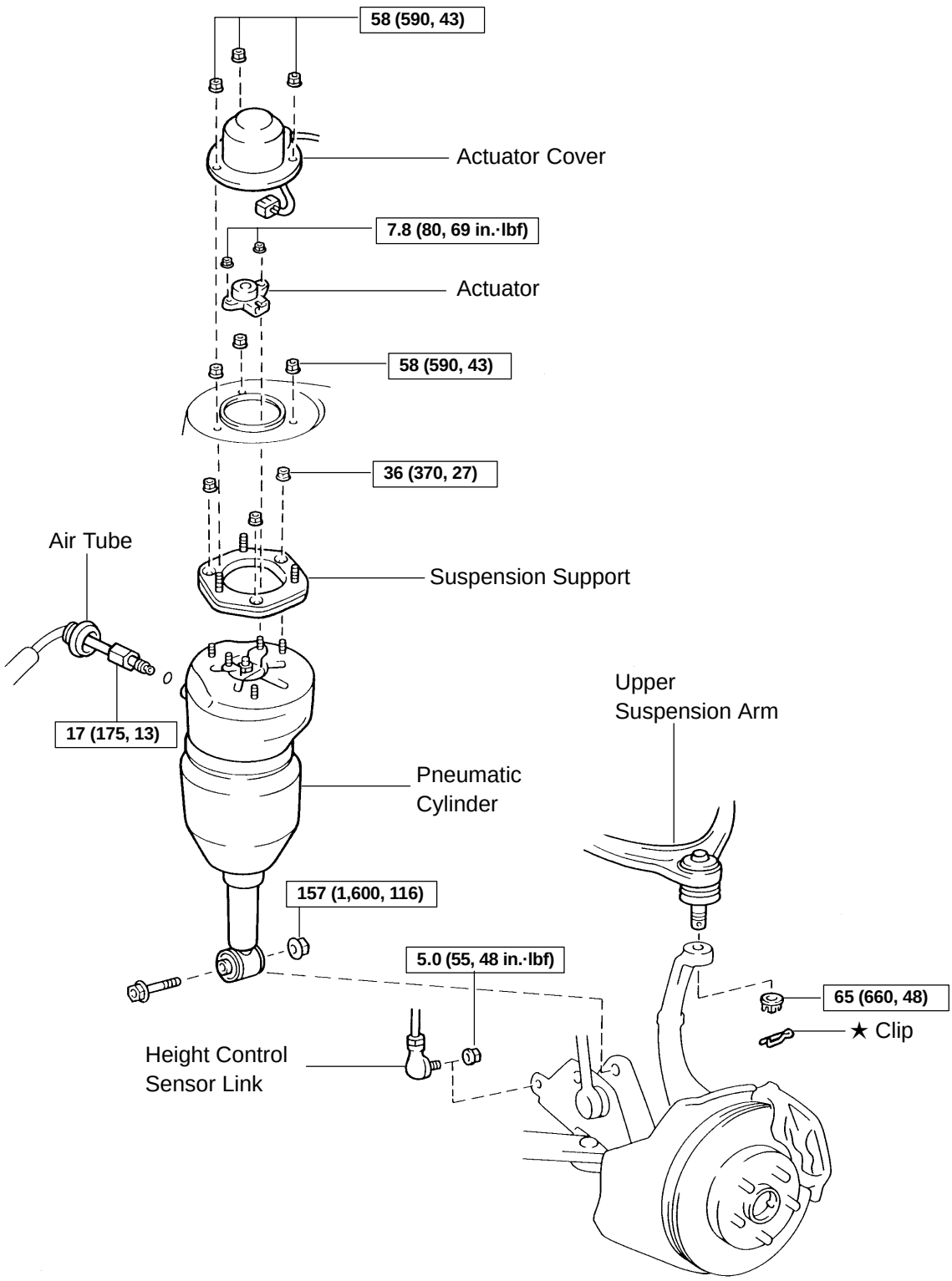
INSTALLATION

Installation is in the reverse order of removal (See page SA–20).
AFTER INSTALLATION, CHECK FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT PNEUMATIC CYLINDER

SA0J2–01

COMPONENTS



N·m(kgf·cm, ft·lbf) : Specified torque
★ Non–reusable part

F01939

SA0J3–01

REMOVAL

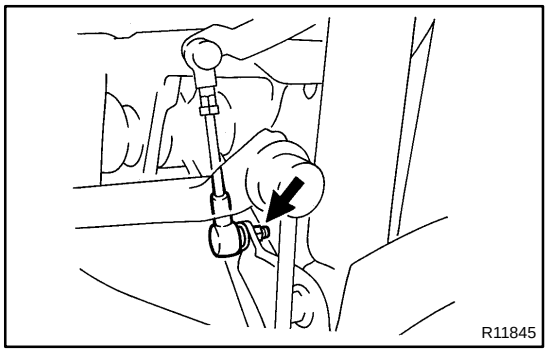
1. REMOVE FRONT WHEEL

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

2. BLEED AIR (See page SA–131)

HINT:

Disconnect the necessary one touch air connector of the height control valves and bleed the air.



3. DISCONNECT HEIGHT CONTROL SENSOR LINK FROM SHOCK ABSORBER LOWER BRACKET

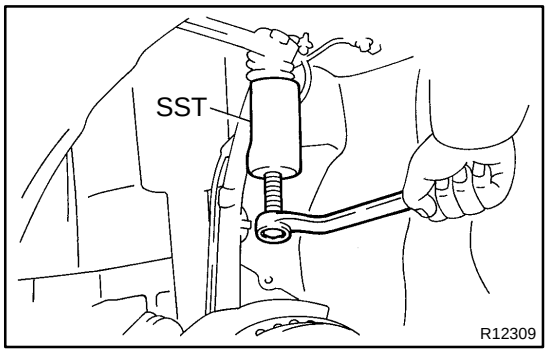
Remove the nut and disconnect the sensor link.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)

4. DISCONNECT STEERING KNUCKLE FROM UPPER BALL JOINT

(a) Remove the clip and nut.

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



(b) Using SST, disconnect the steering knuckle from the upper ball joint.

SST 09610–20012

(c) Support the steering knuckle securely.

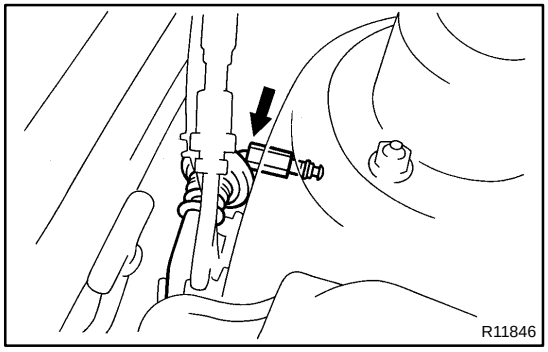
5. DISCONNECT PNEUMATIC CYLINDER FROM SHOCK ABSORBER LOWER BRACKET

Remove the bolt and nut.

Torque: 157 N·m (1,600 kgf·cm, 116 ft·lbf)

HINT:

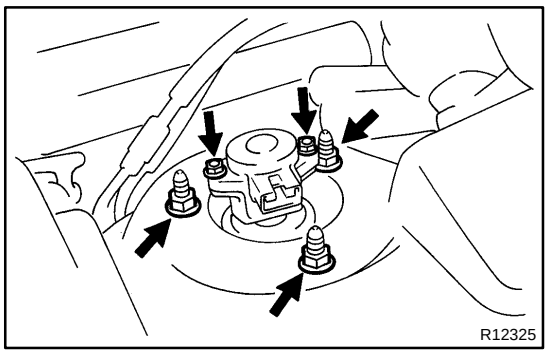
At the time of installation, after stabilizing the suspension, torque the bolt.



6. DISCONNECT AIR TUBE FROM PNEUMATIC CYLINDER

Remove the grommet and disconnect the air tube from the pneumatic cylinder.

Torque: 17 N·m (175 kgf·cm, 13 ft·lbf)



7. REMOVE SUSPENSION CONTROL ACTUATOR

(a) Remove the 3 nuts and actuator cover.
Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)

(b) Disconnect the actuator connector.

(c) Remove the 2 nuts and actuator.
Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

HINT:
At the time of installation, match the rod of pneumatic cylinder with the hole in the actuator.

8. REMOVE FRONT PNEUMATIC CYLINDER

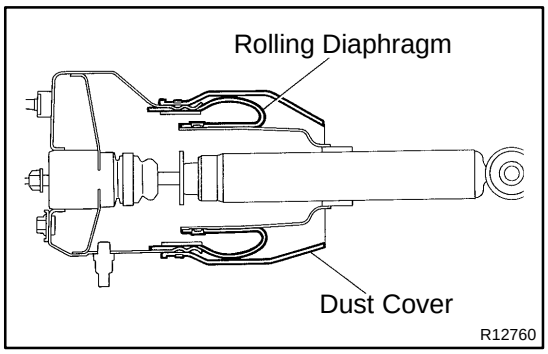
Remove the 3 nuts and pneumatic cylinder from the vehicle.
Torque: 58 N·m (590 kgf·cm, 43 ft·lbf)

9. REMOVE SUSPENSION SUPPORT

Remove the 3 nuts and suspension support from the pneumatic cylinder.
Torque: 36 N·m (370 kgf·cm, 27 ft·lbf)

SA0J4–01

INSPECTION



1. INSPECT ROLLING DIAPHRAGM

(a) Lift up the dust cover and check that the rolling diaphragm is not damaged or cracked.

If damage or cracks exist, replace the pneumatic cylinder.

(b) Return the dust cover back to position.

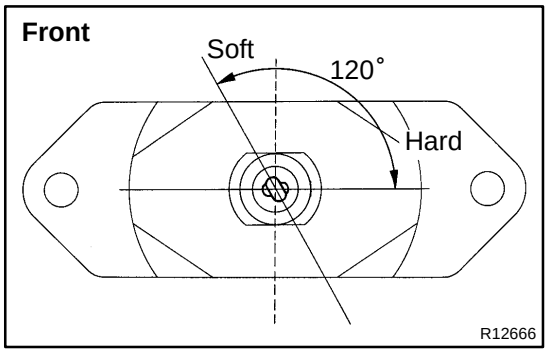
2. INSPECT DAMPING FORCE

(a) Compress and extend the pneumatic cylinder and check that there is no abnormal resistance or unusual operation sounds.

If the pneumatic cylinder is not normal, replace it.

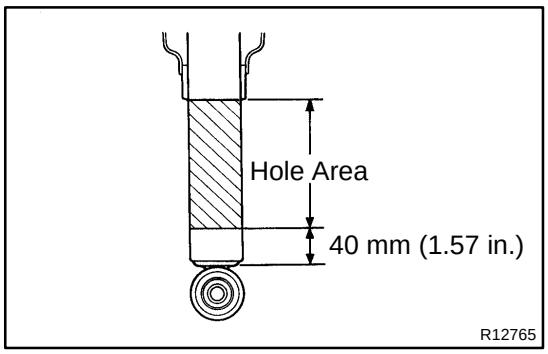
NOTICE:

When removing the shock absorber, see DISPOSAL on page SA–30.



(b) Check that there is a difference in the damping force when the rod is positioned as shown.

SA0J5–01



DISPOSAL

MAKE A HOLE IN SHOCK ABSORBER AND REMOVE GAS

(a) Fully extend the pneumatic cylinder.

(b) 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 may fly up when drilling.

SA0J6–01

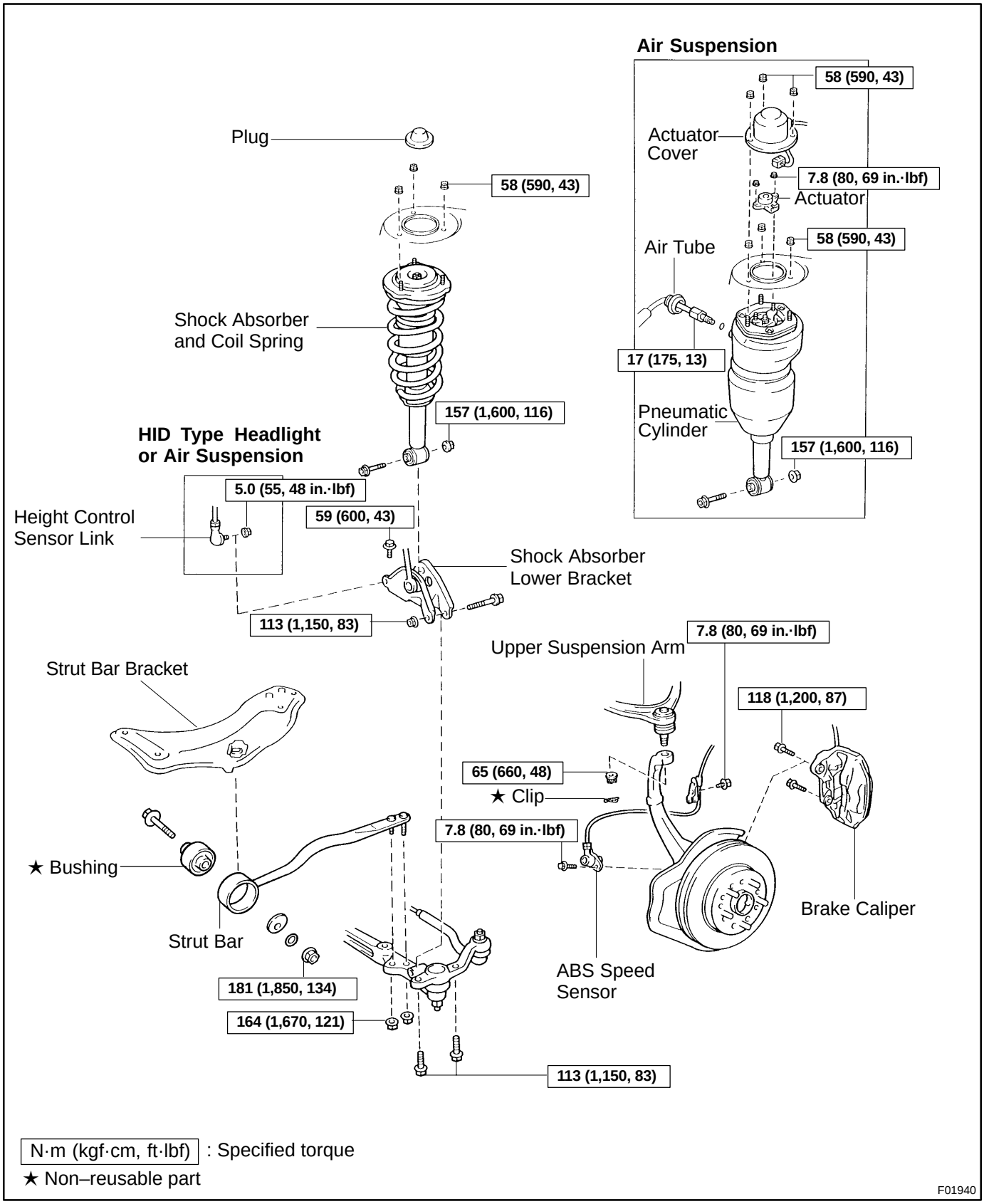
INSTALLATION

Installation is in the reverse order of removal (See page SA–27).
AFTER INSTALLATION, CHECK FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT STRUT BAR

COMPONENTS

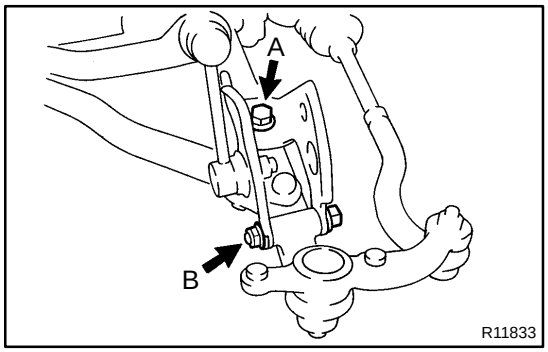
SA0J7–03



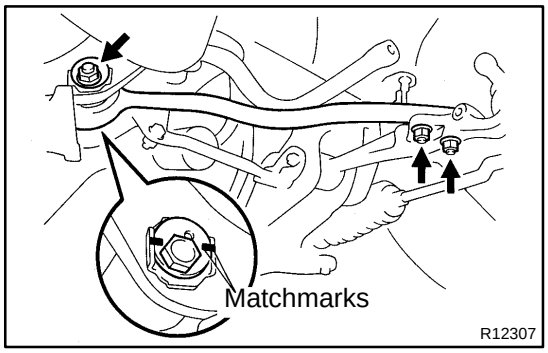
SA0J8–01

REMOVAL

1. **REMOVE STEERING KNUCKLE WITH AXLE HUB (See page SA–13)**
2. **COIL SUSPENSION:**
   REMOVE FRONT SHOCK ABSORBER (See page SA–20)
3. **AIR SUSPENSION:**
   REMOVE FRONT PNEUMATIC CYLINDER (See page SA–27)



4. **REMOVE SHOCK ABSORBER LOWER BRACKET**
   Torque:
   A: 59 N·m (600 kgf·cm, 43 ft·lbf)
   B: 113 N·m (1,150 kgf·cm, 83 ft·lbf)



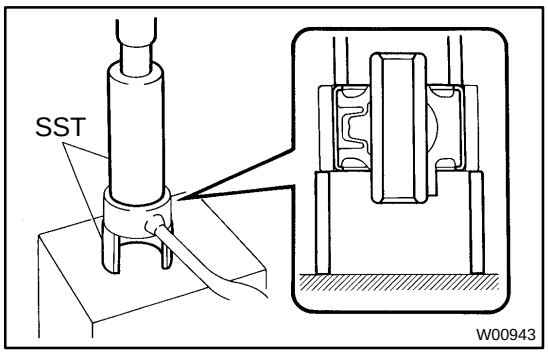
5. **REMOVE STRUT BAR**

(a) Place matchmarks on the caster adjust cam and bracket.

(b) Remove the nut and caster adjust cam, and disconnect the strut bar.
Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)

(c) Remove the 2 nuts and strut bar from the lower suspension arm.
Torque: 164 N·m (1,670 kgf·cm, 121 ft·lbf)

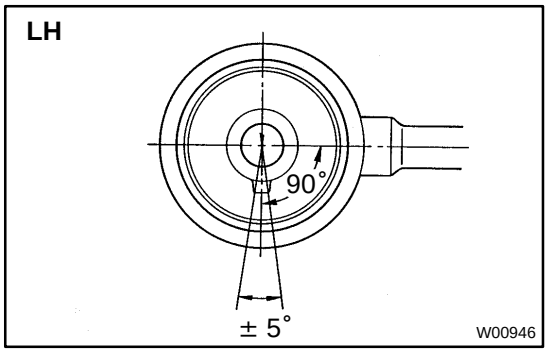
SA0J9–01



REPLACEMENT

REPLACE STRUT BAR CUSHION

(a) Using SST and a press, remove the cushion.
SST 09316–60011 (09316–00011),
09710–26011 (09710–05081)



(b) Using SST and a press, install a new cushion as shown in the illustration.
SST 09316–60011 (09316–00011),
09710–26011 (09710–05081)

HINT:
The index tab of the new cushion should be at a right angle (±5°) to the center of the strut bar, and facing downwards when seen from outside the vehicle.

SA0JA–01

INSTALLATION

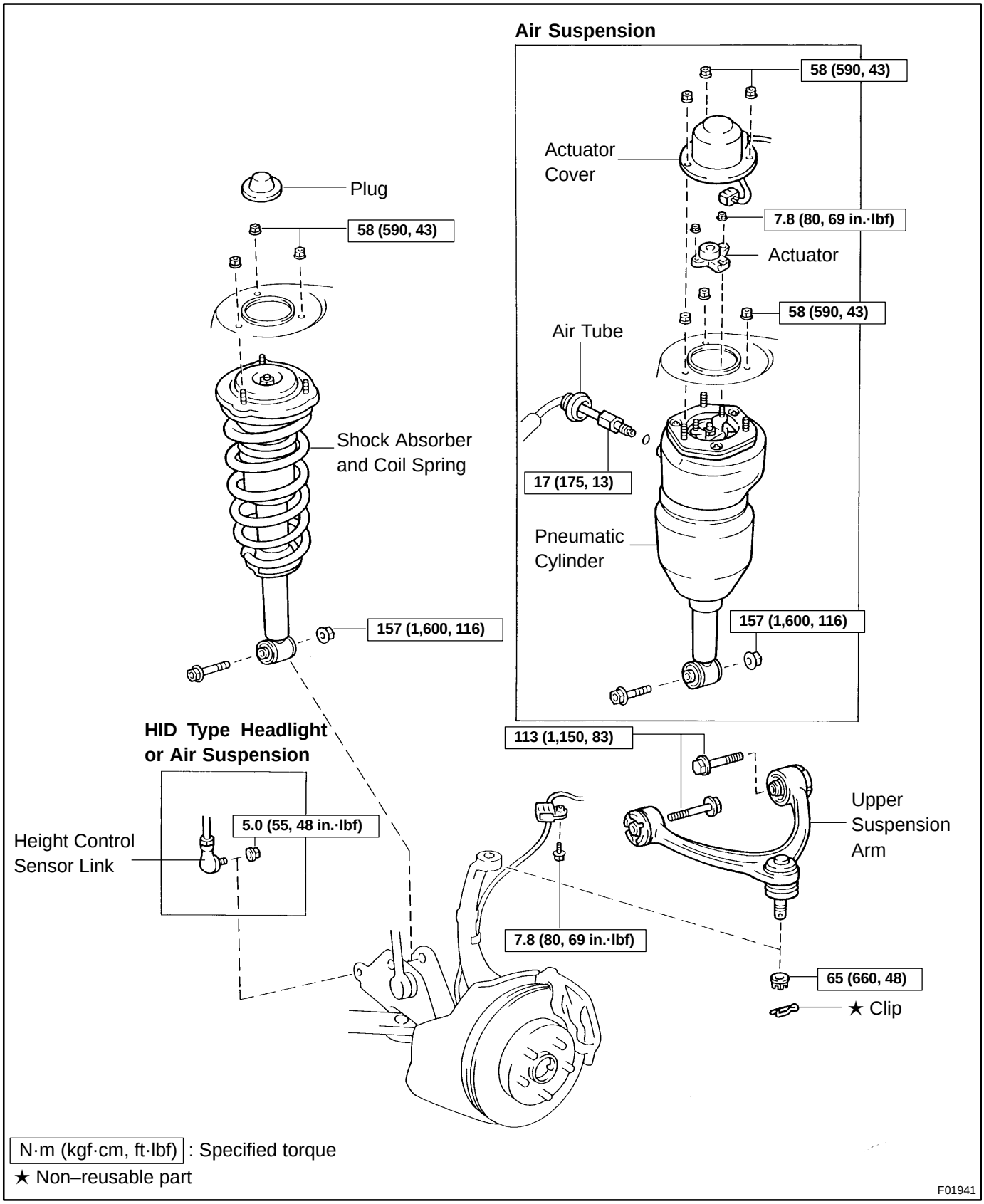
Installation is in the reverse order of removal (See page SA–33).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT UPPER SUSPENSION ARM

SA0JB–01

COMPONENTS

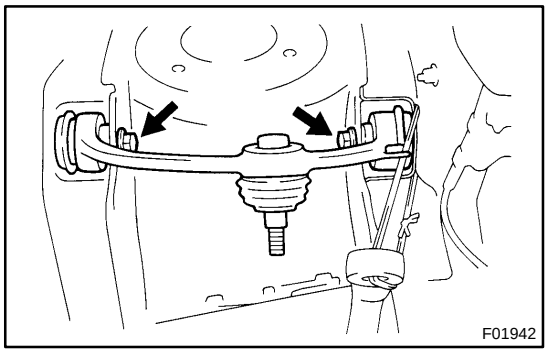


SA0JC–01

REMOVAL

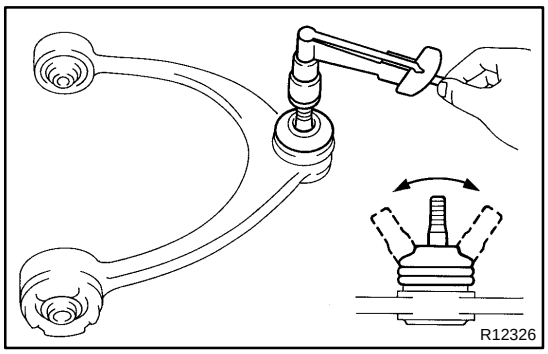
1. **COIL SUSPENSION:**
   REMOVE FRONT SHOCK ABSORBER (See page SA–20)
2. **AIR SUSPENSION:**
   REMOVE FRONT PNEUMATIC CYLINDER (See page SA–27)
3. **REMOVE UPPER SUSPENSION ARM**

(a) Remove the bolt and disconnect the ABS speed sensor wire harness from the upper suspension arm.



(b) Remove the 2 bolts and the upper suspension arm.
Torque: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

SA0JD–01



INSPECTION

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and forth 5 times before installing the nut.

(b) Using a torque wrench, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Torque (turning):
1.0 – 3.4 N·m (10 – 35 kgf·cm, 9 – 30 in.·lbf)

SA0JE–01

INSTALLATION

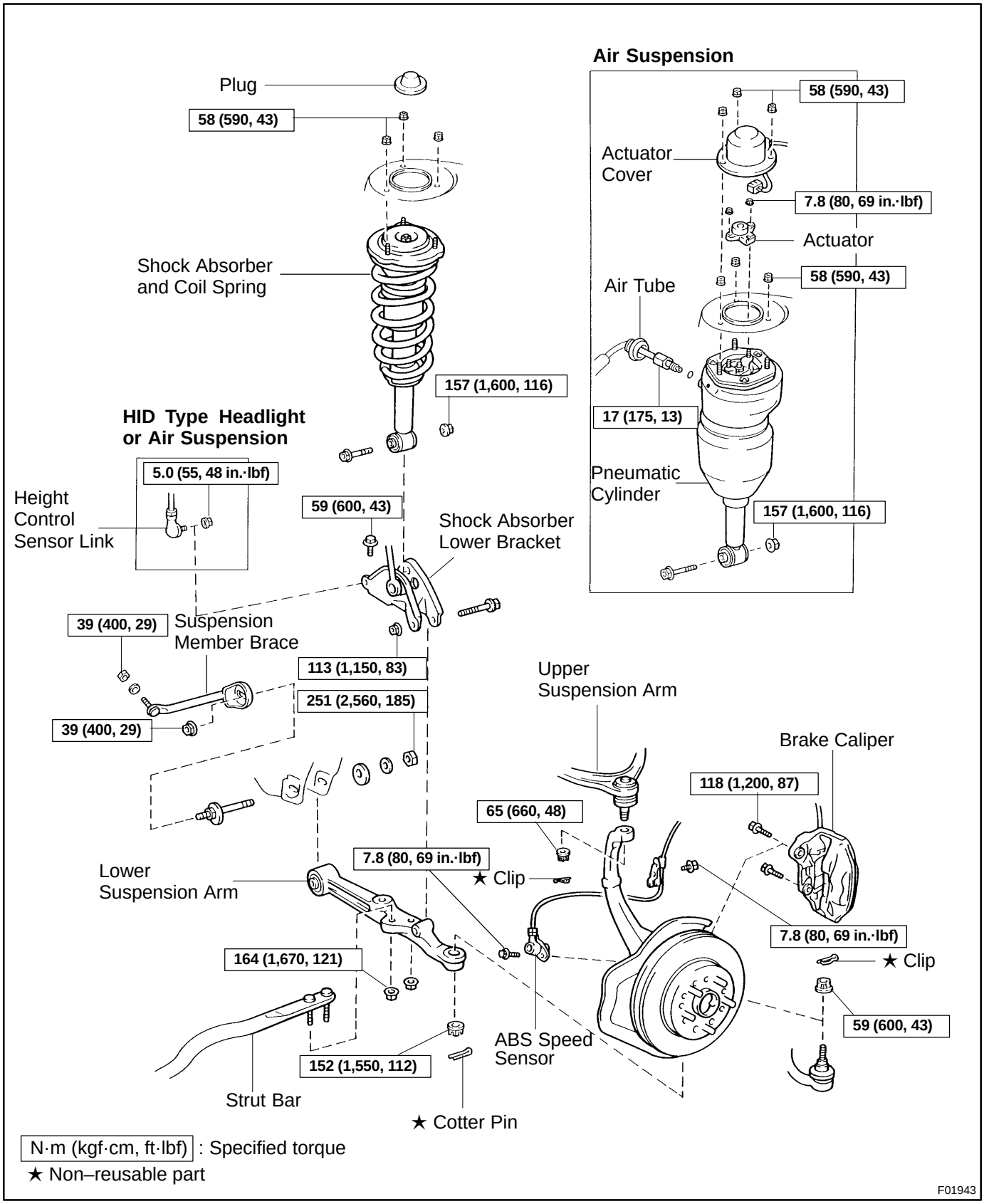
Installation is in the reverse order of removal (See page SA–37).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT LOWER SUSPENSION ARM

SA0JF–01

COMPONENTS



SA0JG–01

REMOVAL

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

2. REMOVE FRONT BRAKE CALIPER

(a) Remove the 2 bolts and brake caliper.
Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

(b) Support the brake caliper securely.

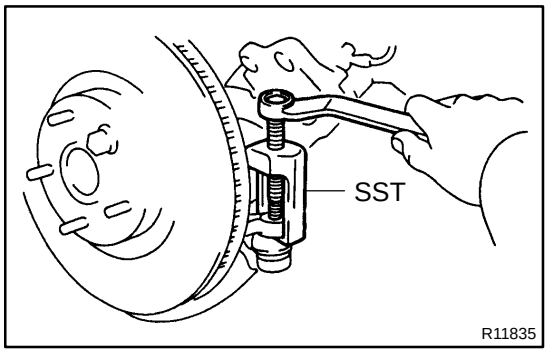
3. DISCONNECT ABS SPEED SENSOR AND WIRE HARNESS

Remove the 2 bolts, ABS speed sensor and wire harness.

NOTICE:
When removing them right side, do not disconnect the pad wear indicator connector.
Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

4. DISCONNECT TIE ROD END FROM LOWER BALL JOINT

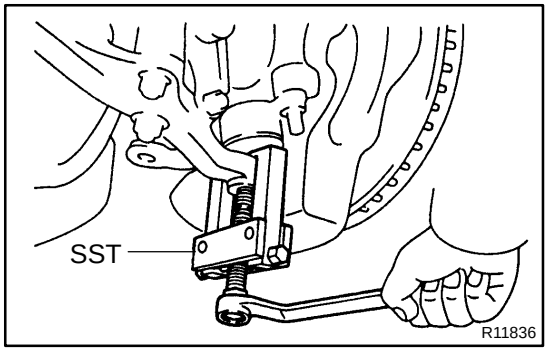
(a) Remove the clip and nut from the tie rod end.
Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)



(b) Using SST, disconnect the tie rod end from the steering knuckle.
SST 09610–20012

5. DISCONNECT LOWER BALL JOINT FROM LOWER SUSPENSION ARM

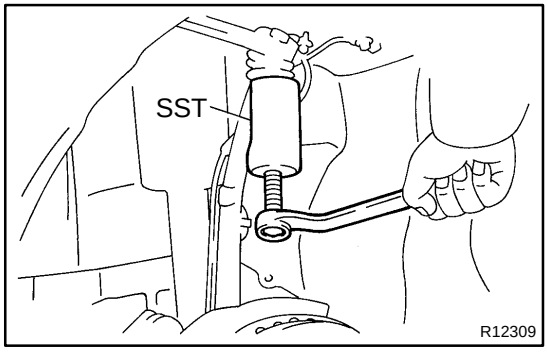
(a) Remove the cotter pin and nut from the lower ball joint.
Torque: 152 N·m (1,550 kgf·cm, 112 ft·lbf)



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

6. REMOVE STEERING KNUCKLE WITH LOWER BALL JOINT

(a) Remove the clip and nut.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

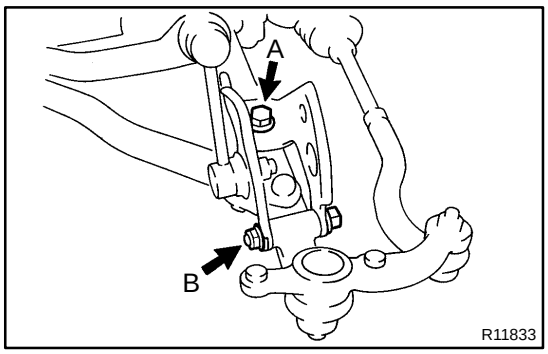


(b) Using SST, disconnect the steering knuckle from the upper ball joint.
SST 09610–20012

(c) Remove the steering knuckle with lower ball joint.

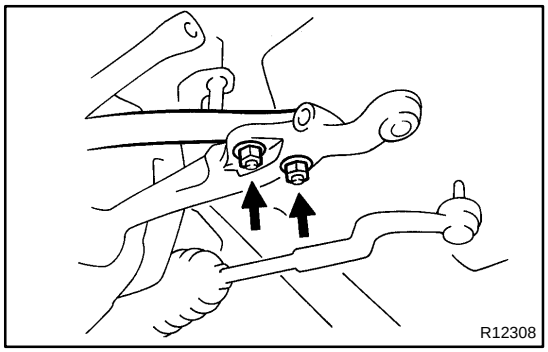
7. COIL SUSPENSION:
REMOVE FRONT SHOCK ABSORBER (See page SA–20)

8. AIR SUSPENSION:
REMOVE FRONT PNEUMATIC CYLINDER (See page SA–27)



9. REMOVE FRONT SHOCK ABSORBER LOWER BRACKET

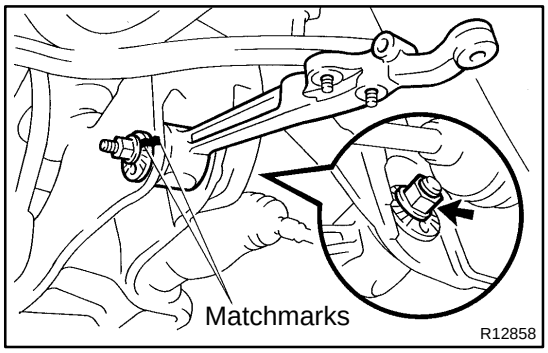
Torque:
A: 59 N·m (600 kgf·cm, 43 ft·lbf)
B: 113 N·m (1,150 kgf·cm, 83 ft·lbf)



10. DISCONNECT STRUT BAR FROM LOWER SUSPENSION ARM

Remove the 2 nuts and disconnect the strut bar from the lower suspension arm.

Torque: 164 N·m (1,670 kgf·cm, 121 ft·lbf)



11. REMOVE LOWER SUSPENSION ARM

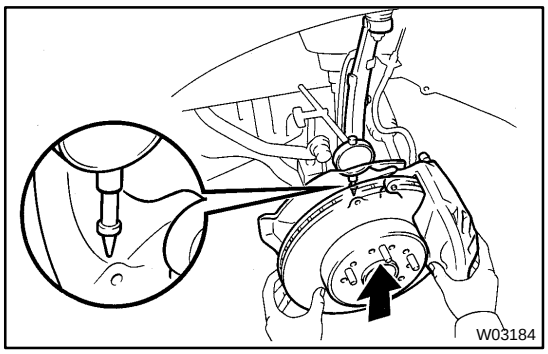
(a) Remove the 2 nuts and suspension member brace.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
(b) Place matchmarks on the camber adjusting cam.
(c) Remove the nut, adjusting cam and lower suspension arm.
Torque: 251 N·m (2,560 kgf·cm, 185 ft·lbf)

SA0JH–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–41).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND FRONT WHEEL ALIGNMENT (See page SA–5)



FRONT LOWER BALL JOINT

SA0JI–01

ON–VEHICLE INSPECTION

INSPECT LOWER BALL JOINT EXCESSIVE PLAY

(a) Remove the tire and check the lower ball joint boot. If the boot is damaged, replace the lower ball joint.

(b) Place the magnetic base on the strut bar and position the spindle of the dial indicator to the knuckle arm as shown below.

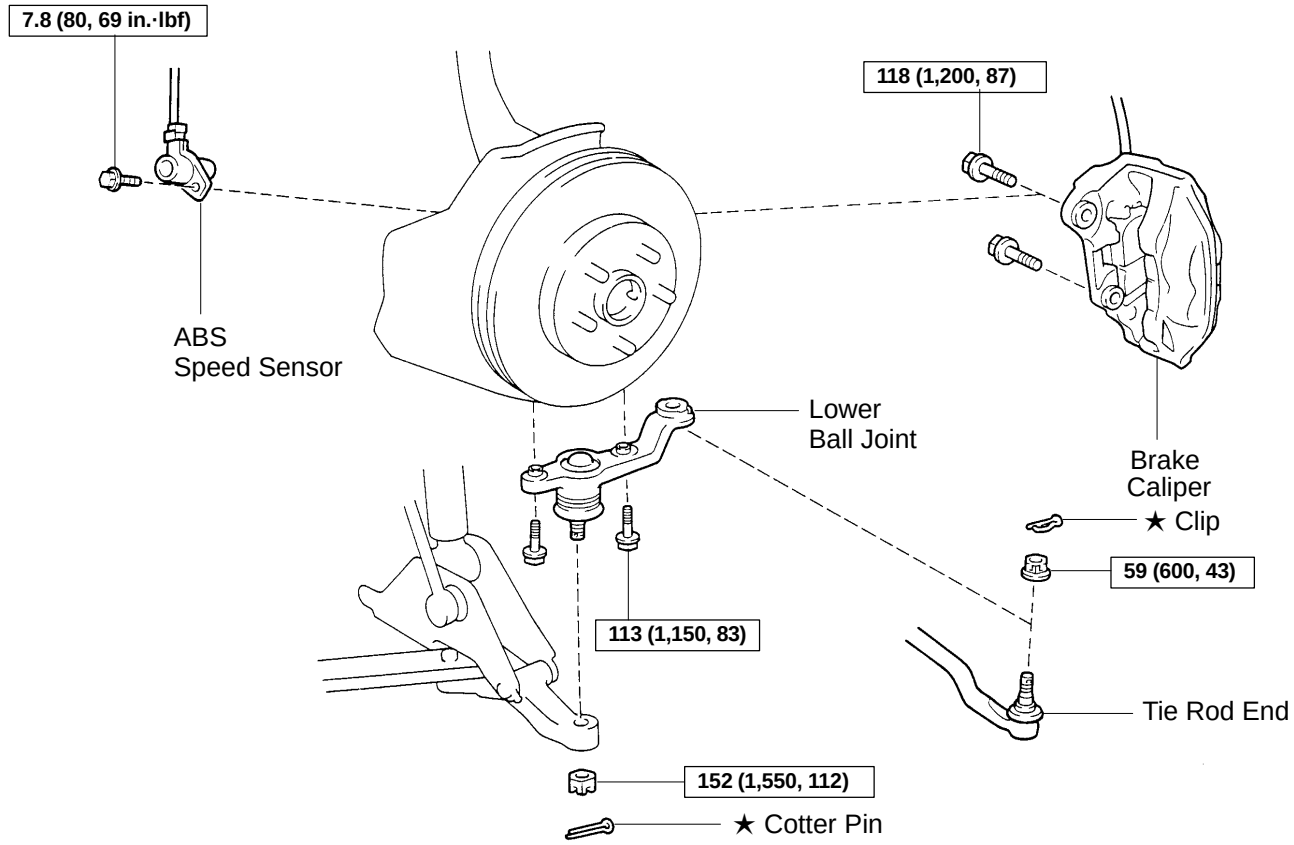
(c) Check the excessive play of the lower ball joint when you push the axle up with hands.

Maximum play: 0.3 mm (0.0118 in.)

If it is not within the specification, replace the lower ball joint.

SA0JJ–01

COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque
★ Non–reusable part

F01944

SA0JK–01

REMOVAL

1. REMOVE FRONT WHEEL

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

2. REMOVE FRONT BRAKE CALIPER

(a) Remove the 2 bolts and brake caliper.

Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

(b) Support the brake caliper securely.

3. DISCONNECT ABS SPEED SENSOR AND WIRE HARNESS

Remove the 2 bolts, ABS speed sensor and wire harness.

NOTICE:

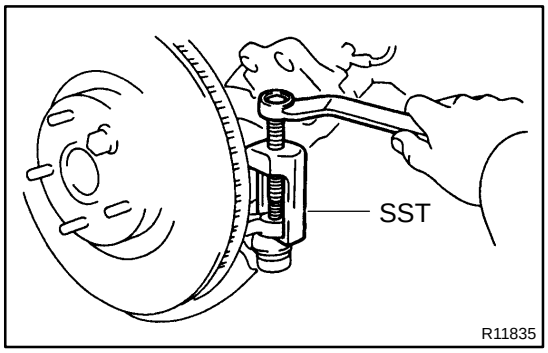
When removing them from right side do not disconnect the pad wear indicator connector.

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

4. DISCONNECT TIE ROD END FROM LOWER BALL JOINT

(a) Remove the clip and nut from the tie rod end.

Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)



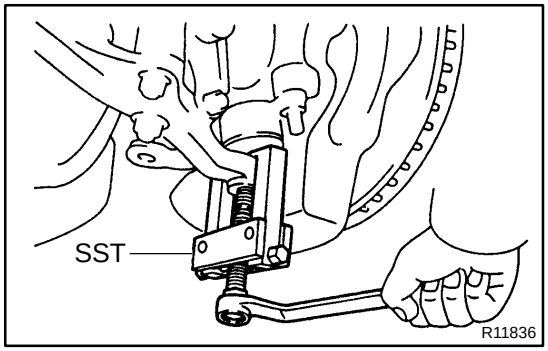
(b) Using SST, disconnect the tie rod end from the steering knuckle.

SST 09610–20012

5. DISCONNECT LOWER BALL JOINT FROM LOWER SUSPENSION ARM

(a) Remove the cotter pin and nut from the lower ball joint.

Torque: 152 N·m (1,550 kgf·cm, 112 ft·lbf)



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

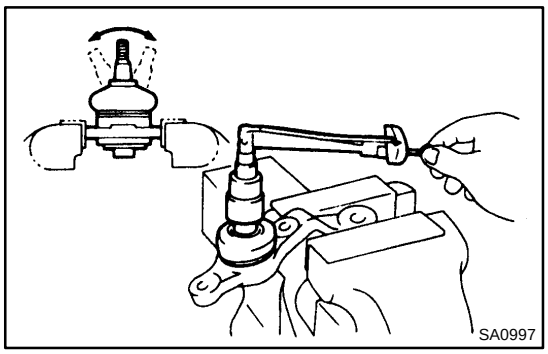
SST 09628–62011

6. REMOVE LOWER BALL JOINT FROM STEERING KNUCKLE

Remove the 2 bolts and lower ball joint.

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

SA0JL–01



INSPECTION

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and 4–5 times before installing the nut.

(b) Using a torque wrench, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Torque (turning):
1.0 – 2.5 N·m (1 – 25 kgf·cm, 9 – 21.7 in.·lbf)

SA0JM–01

INSTALLATION

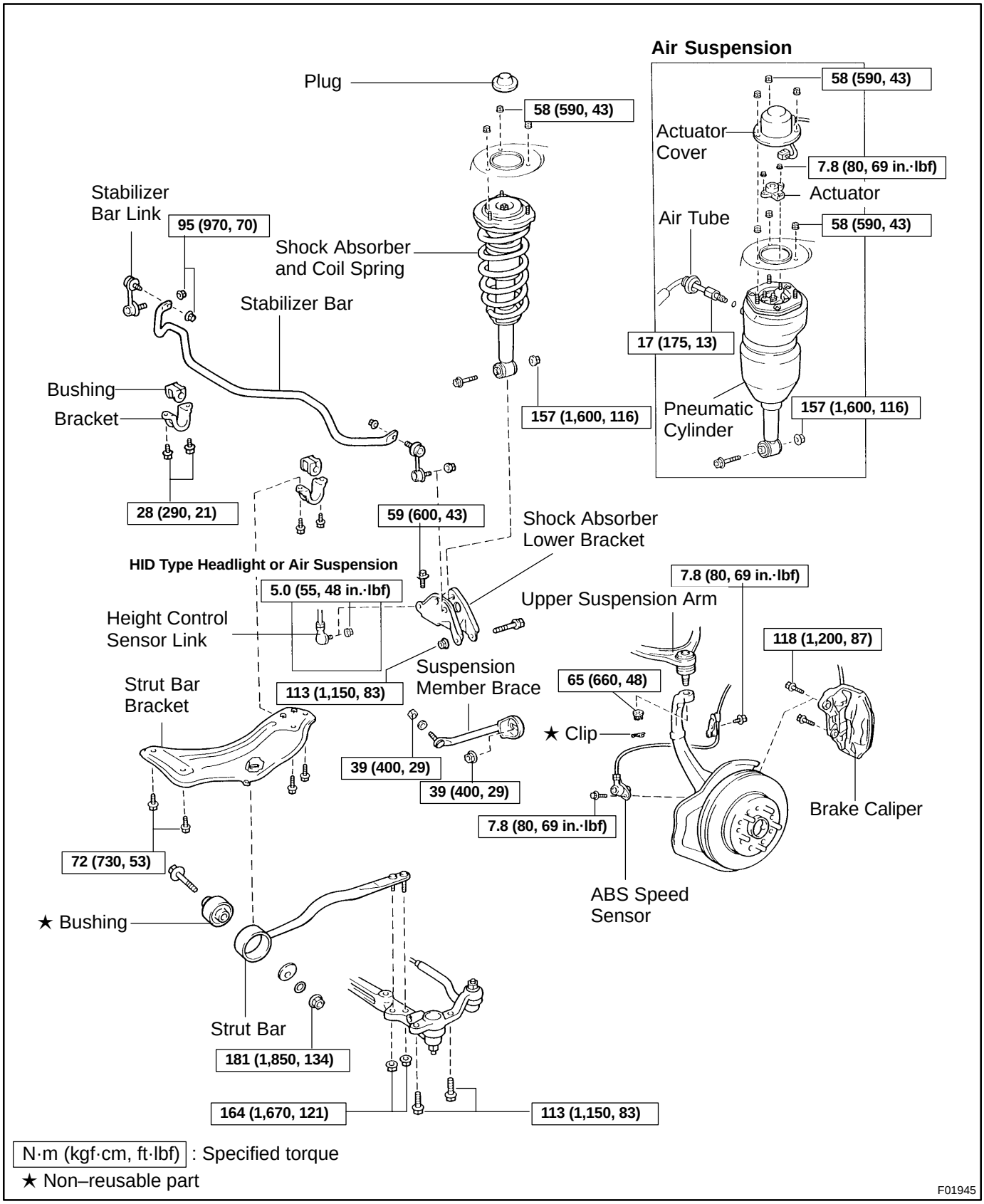
Installation is in the reverse order of removal (See page SA–46).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND FRONT WHEEL ALIGNMENT (See page SA–5)

FRONT STABILIZER BAR

COMPONENTS

SA0JN–02



SA0JO–01

REMOVAL

1. REMOVE STEERING KNUCKLE WITH AXLE HUB
(See page SA–13)

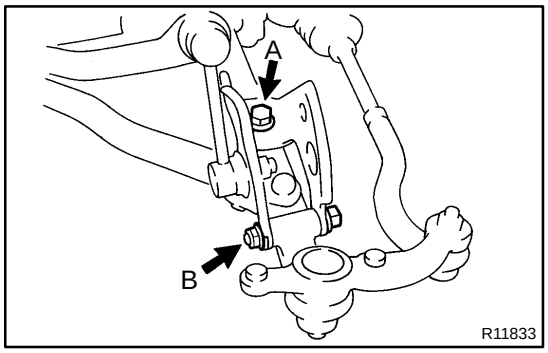
2. COIL SUSPENSION:
REMOVE SHOCK ABSORBER AND COIL SPRING
(See page SA–20)

3. AIR SUSPENSION:
REMOVE PNEUMATIC CYLINDER (See page SA–27)

4. REMOVE STABILIZER BAR LINKS

Remove the right and left stabilizer bar links.

Torque: 95 N·m (970 kgf·cm, 70 ft·lbf)



5. REMOVE SHOCK ABSORBER LOWER BRACKET
Torque:
A: 59 N·m (600 kgf·cm, 43 ft·lbf)
B: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

6. REMOVE STRUT BAR (See page SA–33)

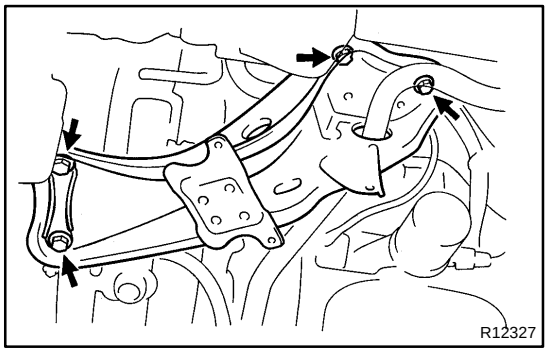
7. REMOVE STABILIZER BAR BUSHINGS

Remove the right and left stabilizer bar brackets and bushings.

Torque: 28 N·m (290 kgf·cm, 21 ft·lbf)

HINT:

At the time of installation, install the bushing to the outside of the paint line.



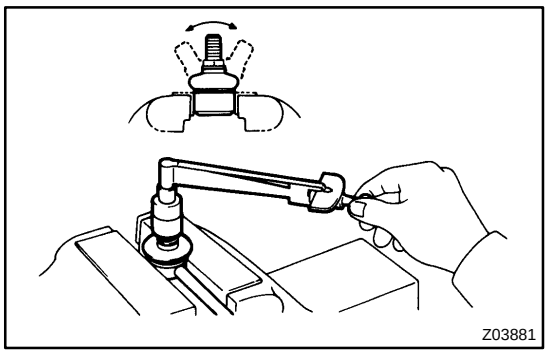
8. REMOVE STABILIZER BAR

(a) Remove the 4 strut bar bracket bolts.
Torque: 72 N·m (730 kgf·cm, 53 ft·lbf)

(b) Pull out the strut bar bracket from the stabilizer bar.

(c) Pull out the stabilizer bar from the other strut bar bracket.

SA0JP–01



INSPECTION

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and forth 5 times before installing the nut.

(b) Using a torque wrench, turn the stud continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Turning Torque:
0.05 – 1.5 N·m (0.5 – 15 kgf·cm, 0.4 – 13 in.·lbf)

SA0JQ–01

INSTALLATION

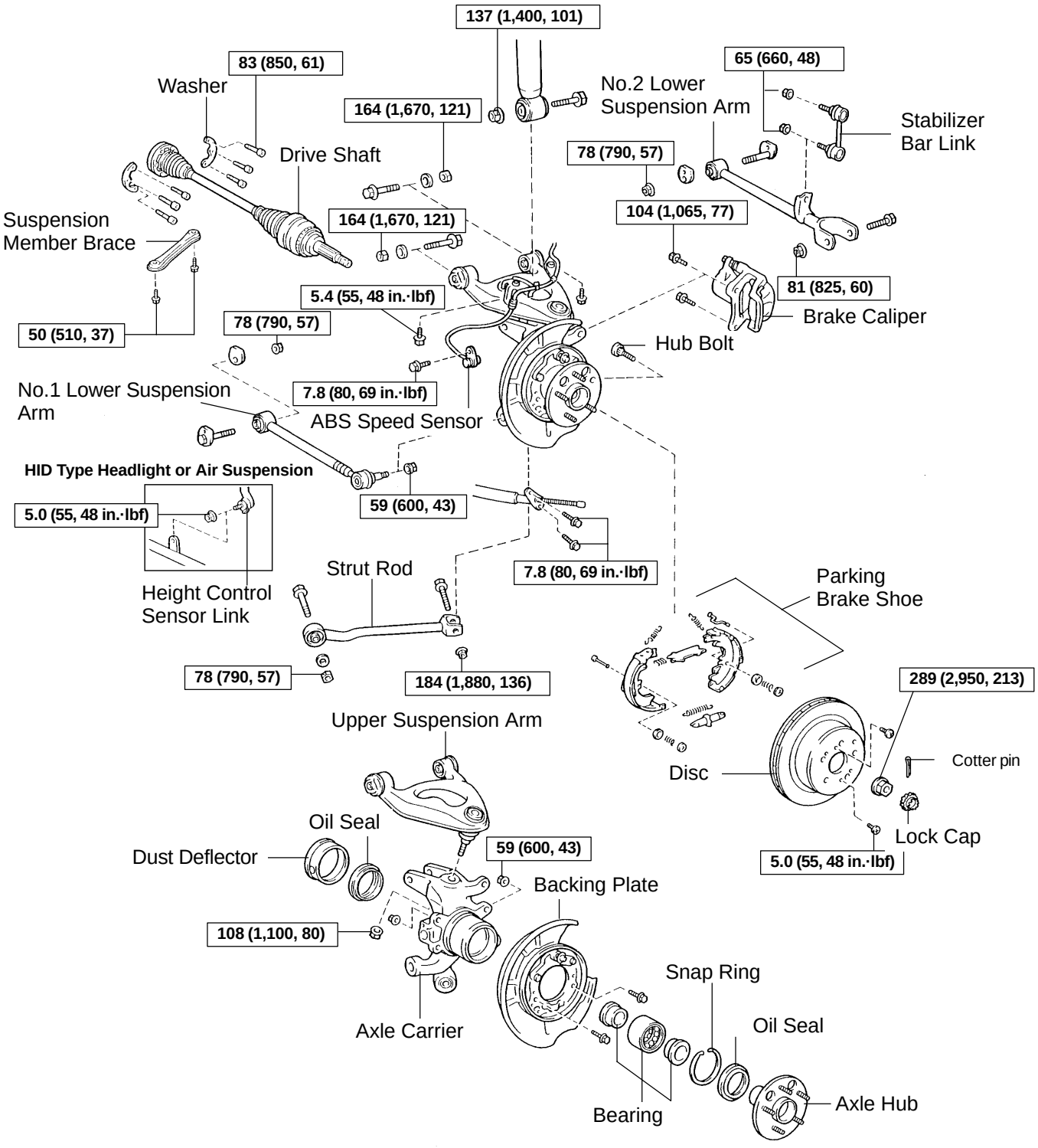
Installation is in the reverse order of removal (See page SA–50).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND FRONT WHEEL ALIGNMENT (See page SA–5)

REAR AXLE CARRIER

COMPONENTS

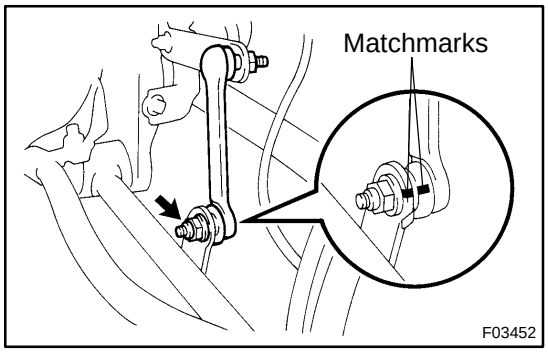
SA0JR–03



SA0JS–01

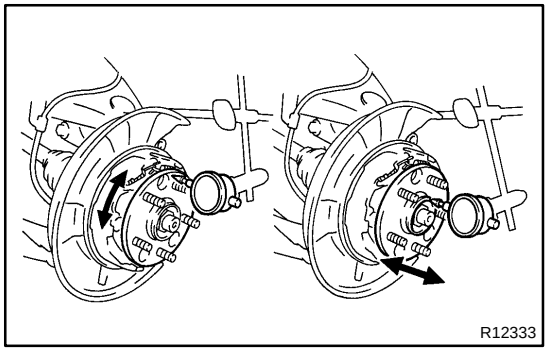
REMOVAL

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



2. HID TYPE HEADLIGHT OR AIR SUSPENSION: DISCONNECT HEIGHT CONTROL SENSOR LINK
(a) Place matchmarks on the link and bracket.
(b) Remove the nut and disconnect the sensor link.
Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)

3. REMOVE REAR BRAKE CALIPER AND DISC
(a) Remove the 2 bolts and brake caliper.
Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)
(b) Support the brake caliper securely.
(c) Place matchmarks on the disc and axle hub.
(d) Remove the 2 screws and disc.
Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)



4. 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 runout: 0.05 mm (0.0020 in.)
If the backlash exceeds the maximum, replace the bearing.
(b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
Maximum runout: 0.07 mm (0.0028 in.)
If the deviation exceeds the maximum, replace the axle hub.

5. INSTALL DISC AND BRAKE CALIPER
6. REMOVE DRIVE SHAFT (See page SA–63)
7. REMOVE BRAKE CALIPER AND DISC
8. REMOVE PARKING BRAKE SHOE AND CABLE (See page BR–43)

9. DISCONNECT ABS SPEED SENSOR AND WIRE HARNESS

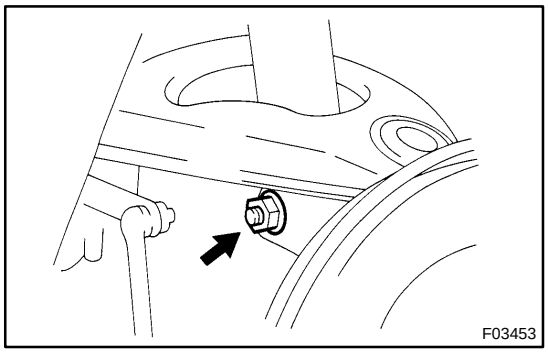
Remove the 3 bolts, ABS speed sensor and wire harness.

NOTICE:

When removing them from right side do not disconnect the pad wear indicator connector.

Torque:
Sensor: 7.8 N·m (80 kgf·cm, 69 in.·lbf)
Wire harness: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

10. REMOVE STRUT ROD AND LOWER SUSPENSION ARMS (See page SA–115)



11. LOOSEN BOLT ON LOWER SIDE OF SHOCK ABSORBER

HINT:

Do not remove the bolt.

Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)

12. REMOVE AXLE CARRIER WITH UPPER SUSPENSION ARM

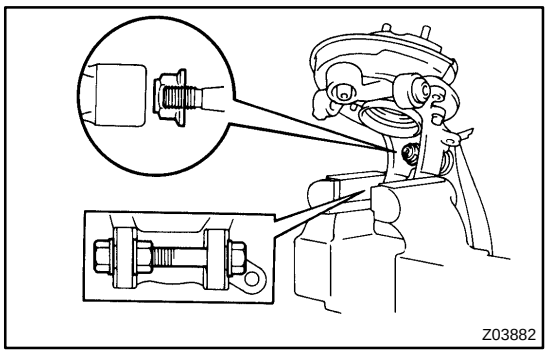
(a) Remove the 2 upper suspension arm set nuts.
Torque: 164 N·m (1,670 kgf·cm, 121 ft·lbf)

(b) Remove the bolt on lower side of the shock absorber.

(c) Remove the 2 upper suspension arm set bolts and axle carrier with upper suspension arm.

SA0JT–03

DISASSEMBLY



1. REMOVE UPPER SUSPENSION ARM

(a) Install a bolt and 2 nuts to the axle carrier and secure it in a vise.

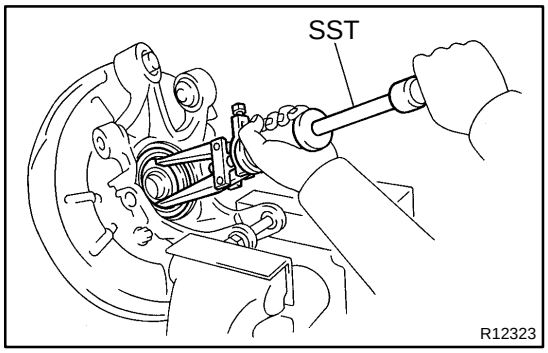
(b) Loosen the nut to the position shown in the illustration. Then tap the nut with a hammer and remove the upper suspension arm.

2. REMOVE DUST DEFLECTOR

Using a screwdriver, remove the dust deflector.

3. REMOVE OIL SEAL (INNER)

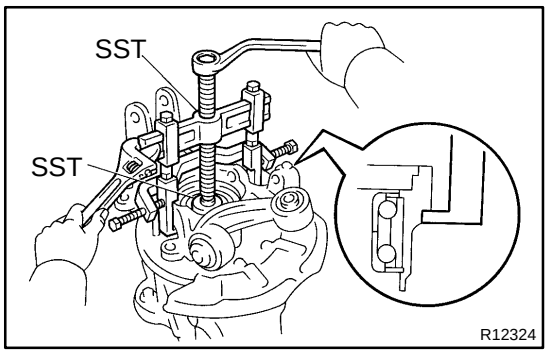
(a) Install a bolt and 2 nuts to the axle carrier and secure it in a vise.



(b) Using SST, remove the oil seal.
SST 09308–00010

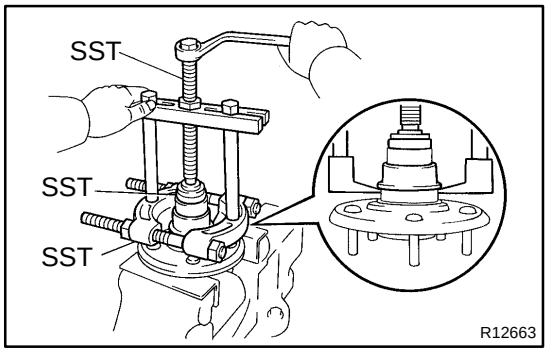
4. REMOVE AXLE HUB FROM AXLE CARRIER

(a) Remove the 2 bolts and nuts and shift the backing plate towards the hub side (outside).

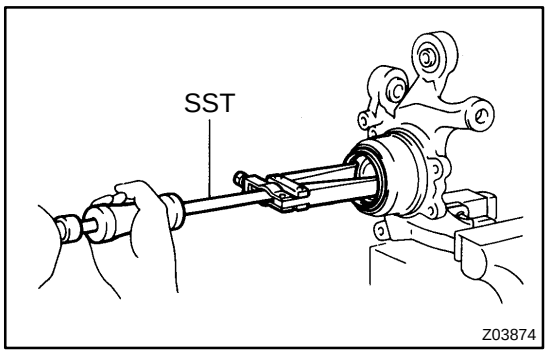


(b) Using SST, remove the axle hub.
SST 09950–40011 (09951–04020, 09952–04010, 09953–04020, 09954–04010, 09955–04051, 09957–04010, 09958–04011), 09950–60010 (09951–00430)

(c) Remove the backing plate.



(d) Using SST, remove the inner race (outside) from the axle hub.
SST 09950–00020, 09950–00030, 09950–60010 (09951–00430)



5. REMOVE OIL SEAL (OUTER)

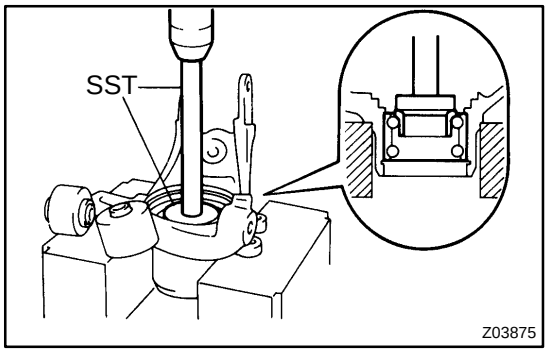
Using SST, remove the oil seal.

SST 09308–00010

6. REMOVE BEARING

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

(b) Place the inner race (inside) to the bearing.

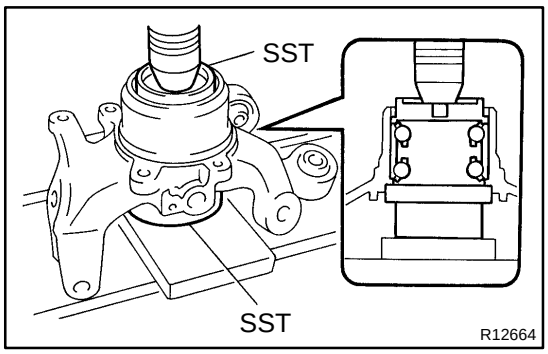


(c) Using SST, remove the bearing.

SST 09950–60010 (09951–00560),
09950–70010 (09951–07100)

SA0JU–01

REASSEMBLY



1. INSTALL NEW BEARING

(a) Using SST, install a new bearing to the axle carrier.
SST 09527–17011, 09608–32010

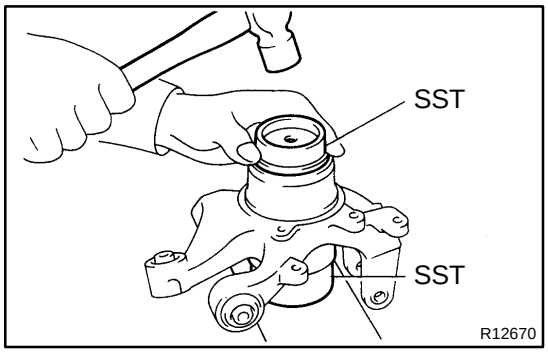
NOTICE:

If the inner races come loose from the bearing outer race, be sure to install them on the same side as before.

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

2. INSTALL NEW OIL SEAL (OUTER)

(a) Place the inner race (outside).



(b) Using SST, install a new oil seal until it is flush with end surface of axle carrier.
SST 09527–17011, 09608–32010

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

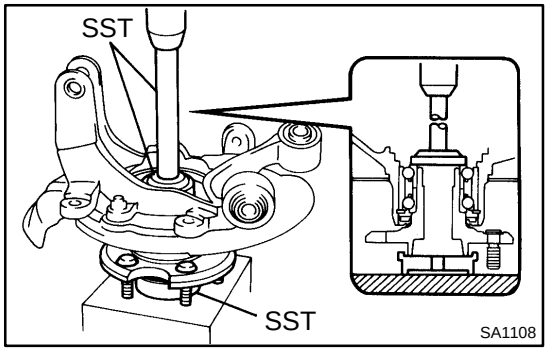
3. INSTALL BACKING PLATE

Install the backing plate to the axle carrier with the 2 bolts and nuts.

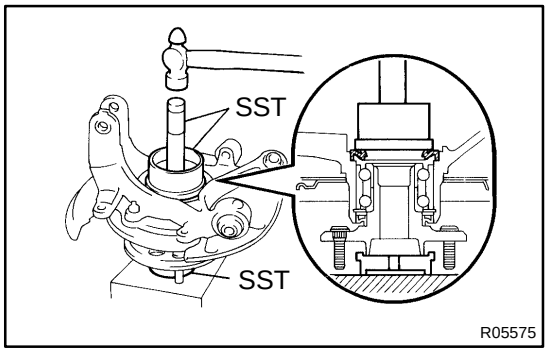
Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)

4. INSTALL AXLE HUB

(a) Place the inner race (inside).



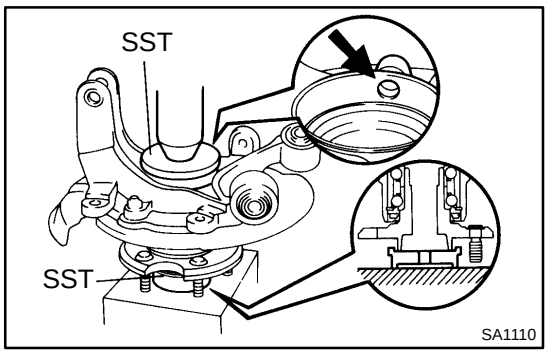
(b) Using SST and a press, install the axle hub.
SST 09608–32010, 09950–60010 (09951–00430), 09950–70010 (09951–07100)



5. INSTALL NEW OIL SEAL (INNER)

(a) Using SST, install a new oil seal.
SST 09223–15020, 09608–32010, 09950–70010 (09951–07100)

(b) Coat MP grease to the oil seal lip.



6. INSTALL NEW DUST DEFLECTOR

Using SST and a press, install a new dust deflector.

SST 09608–32010, 09950–60020 (09951–01030)

HINT:

Align the holes for the ABS speed sensor in the dust deflector and axle carrier.

7. INSTALL UPPER SUSPENSION ARM

(a) Install a bolt and 2 nuts to the axle carrier and secure it in a vise.

(b) Install the upper suspension arm to the axle carrier.

(c) Install a new nut.

Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

SA0JV–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–54).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND REAR WHEEL ALIGNMENT (See page SA–9)

REAR WHEEL HUB BOLT

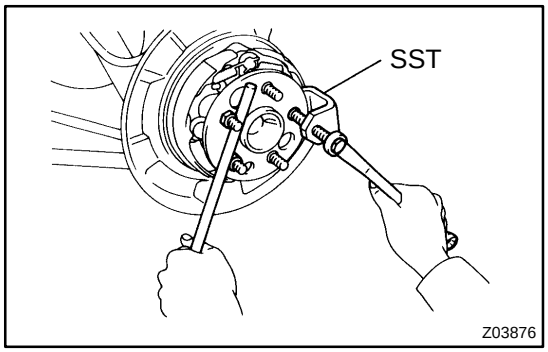
SA0JW–01

REPLACEMENT

1. REMOVE REAR WHEEL

2. REMOVE BRAKE CALIPER AND DISC

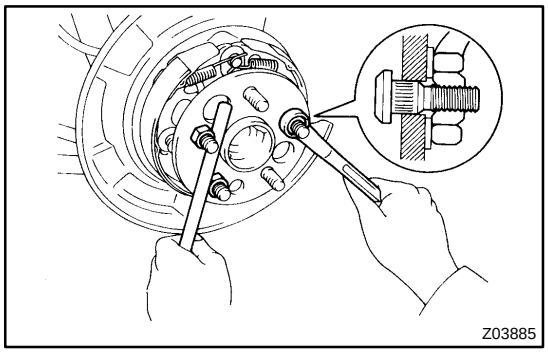
(a) Remove the 2 bolts and brake caliper.
(b) Support the brake caliper securely.
(c) Place matchmarks on the disc and axle hub.
(d) Remove the 2 screws and disc.



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 DISC AND BRAKE CALIPER

(a) Align the matchmarks on the disc and axle hub.
(b) Install the brake disc and 2 screws.
Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)
(c) Install the brake caliper and 2 bolts.
Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

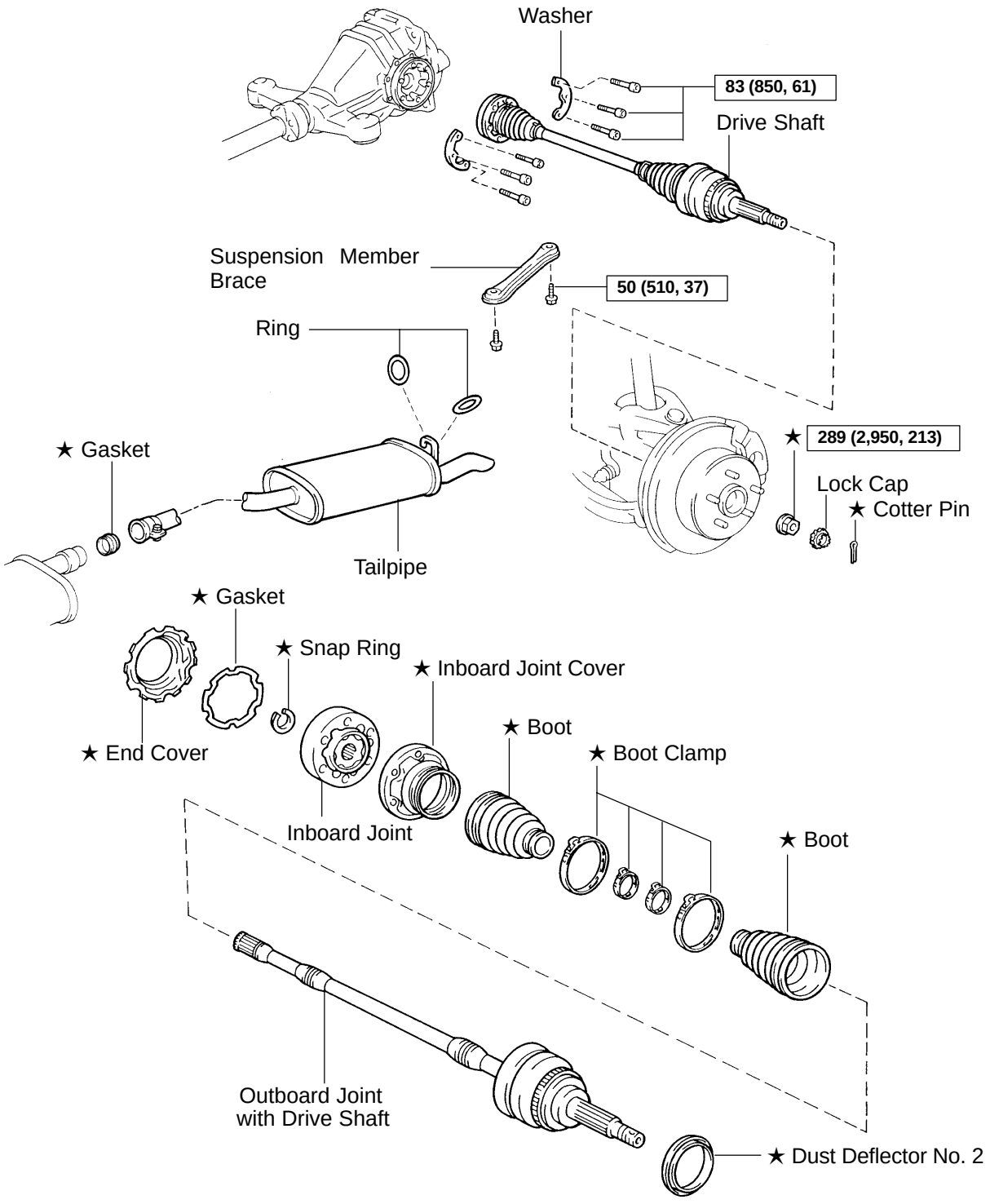
6. INSTALL REAR WHEEL

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

REAR DRIVE SHAFT

COMPONENTS

SA0JX–01



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

★ Non–reusable part

F01947

SA0JY–01

REMOVAL

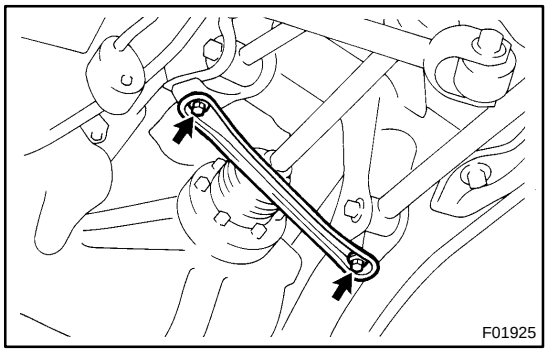
1. REMOVE REAR WHEEL
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

2. REMOVE EXHAUST PIPE (See page EM–119)

3. REMOVE COTTER PIN, LOCK CAP AND LOCK NUT

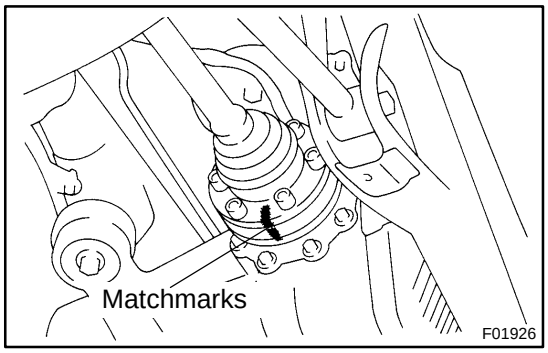
(a) Remove the cotter pin and lock cap.

(b) With depressing the brake pedal, remove the nut.
Torque: 289 N·m (2,950 kgf·cm, 213 ft·lbf)


F01925

4. REMOVE REAR DRIVE SHAFT

(a) Remove the 2 bolts and suspension member brace.
Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)



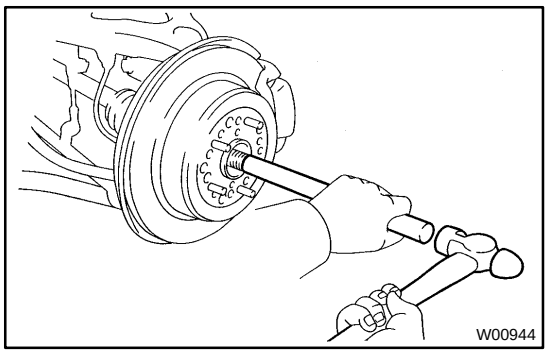
F01926

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

(c) Using a 10 mm hexagon wrench, remove the 6 hexagon bolts and 2 washers with depressing the brake pedal.
Torque: 83 N·m (850 kgf·cm, 61 ft·lbf)

HINT:
At the time of installation, apply a light coat of engine oil on the threads of the bolts.

(d) Hold the inboard joint side of the drive shaft so that the outboard joint side does not bend too much.


W00944

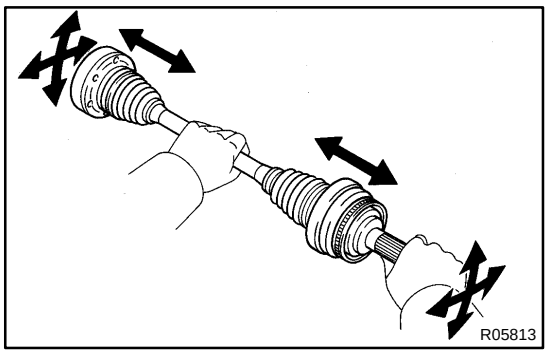
(e) Using a brass bar and hammer, lightly tap the end of the drive shaft, disengage the axle hub and remove the drive shaft.

NOTICE:
Be careful not to damage the boots, end cover and speed sensor rotor of the drive shaft, and oil seal of the axle hub.

HINT:
At the time of installation, temporary tighten the lock nut and connect the drive shaft to the axle hub side.

SA0JZ–01

DISASSEMBLY



1. CHECK DRIVE SHAFT

(a) Check that operation of the joint is smooth within the sliding region in the axial direction.

HINT:

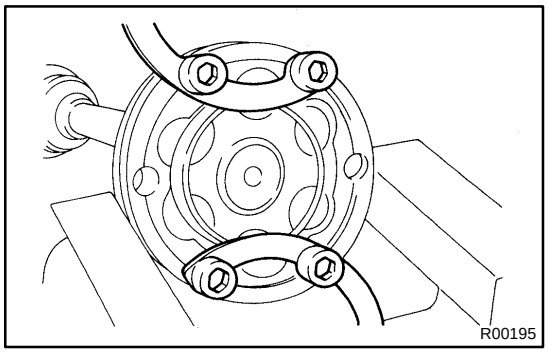
If a large angle is used for the cross–groove type joint, the joint will be felt like it is catching, but this does not indicate an abnormality.

(b) Check that the boots are not cracked, damaged or leaking.

(c) Check that there are no scratches on the speed sensor rotor.

2. REMOVE END COVER

(a) Using a screwdriver, remove the end cover.



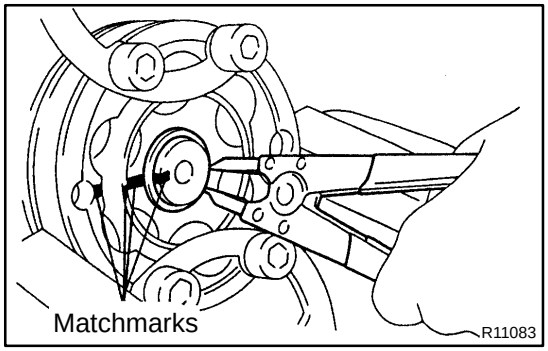
(b) Use bolts, nuts and washers to keep the inboard joint together.

NOTICE:

Tighten the bolt by hand to avoid scratching the flange surface.

3. REMOVE BOOT CLAMPS

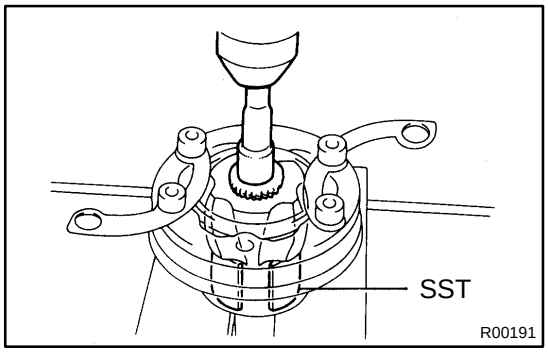
Using a side cutter or pliers, remove the clamps.



4. REMOVE INBOARD JOINT

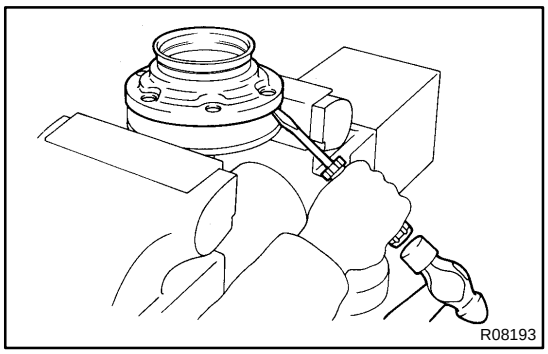
(a) Place matchmarks on the inboard joint and drive shaft.

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



(c) Using SST, an extension bar and a press, press out the inboard joint from the drive shaft.

SST 09726–12023 (09726–01031)



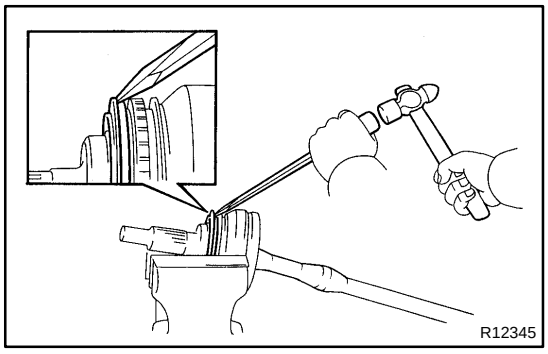
(d) Mount the inboard joint in a soft jaw vise.
(e) Using a screwdriver and hammer, tap out the inboard joint cover from the inboard joint.

NOTICE:

Make sure the cage and inner race are not positioned too much to one side of the outer race.

5. REMOVE BOOTS

Remove the inboard and outboard joint boots.



6. REMOVE DUST DEFLECTOR NO. 2

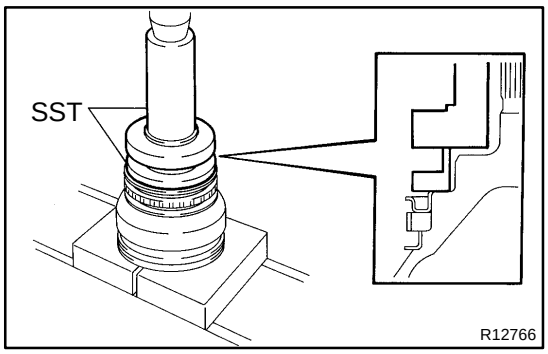
(a) Mount the outboard joint in a soft jaw vise.
(b) Using a screwdriver, remove the dust deflector No. 2.

NOTICE:

Be careful not to damage the ABS speed sensor rotor.

SA0K0–02

REASSEMBLY



1. INSTALL NEW DUST DEFLECTOR NO. 2

Using SST and a press, install a new dust deflector No. 2.

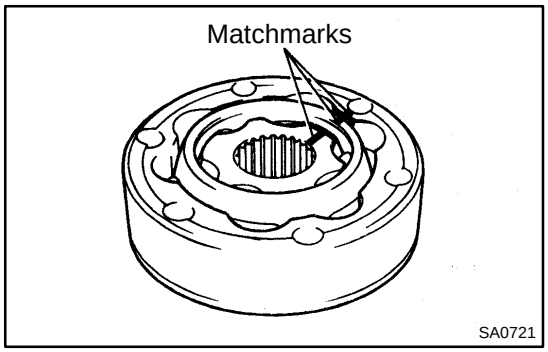
SST 09309–36010, 09502–12010

NOTICE:

Be careful not to damage the ABS speed sensor rotor.

2. ASSEMBLE INBOARD JOINT

If the joint has come apart, reassemble it in the following order.



(a) Align the matchmarks placed before removal.

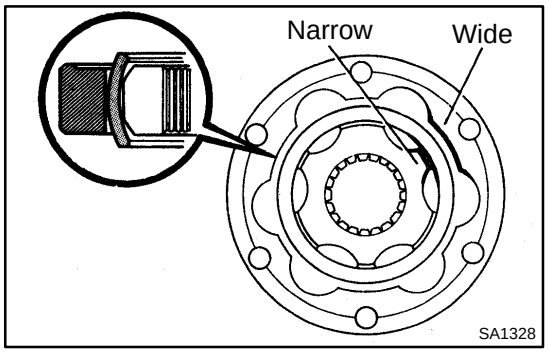
HINT:

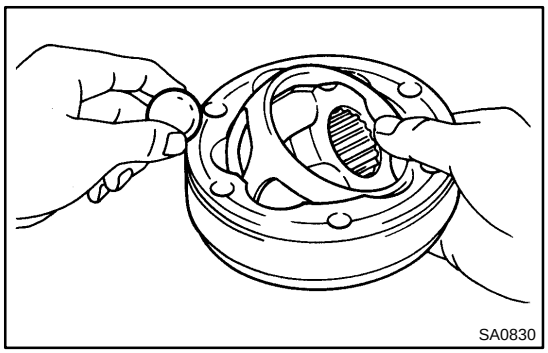
When the matchmarks have disappeared, do the following procedure.

(1) Install the inner race to the cage so that the indented bevelled part of the inner race is on the opposite side to the bevelled top of the cage.

(2) Install the outer race so that the indented side of the outer race is facing the same side as the bevelled surface of the cage.

(3) Match the narrow projections of the inner race with the wide projections of the outer race.

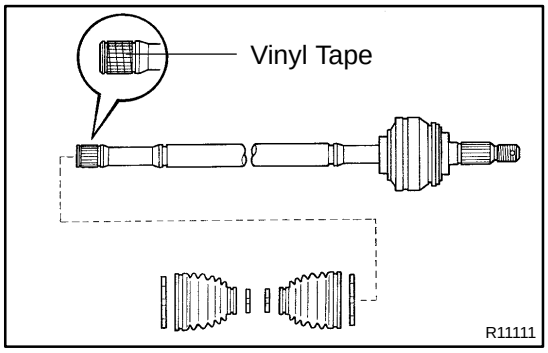




(b) Tilt the cage and inner race to the side and insert the balls one by one.

NOTICE:

When the cage and inner race are tilted over, support the joint with your hand to prevent the balls from falling out.



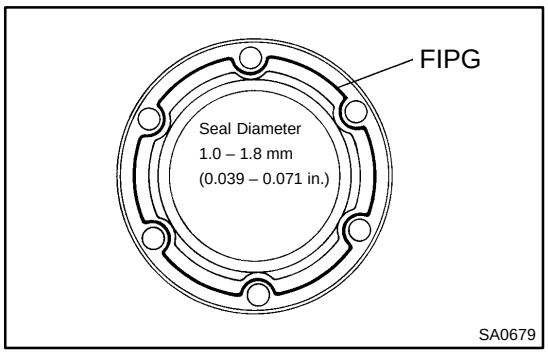
3. TEMPORARILY INSTALL NEW BOOTS AND NEW BOOT CLAMPS

(a) Place 4 new boot clamps to each boots.

HINT:

Before installing the boots, wrap vinyl tape around the spline of the shaft to prevent damaging the boots.

(b) Install the 2 boots to the drive shaft.



4. INSTALL INBOARD JOINT COVER

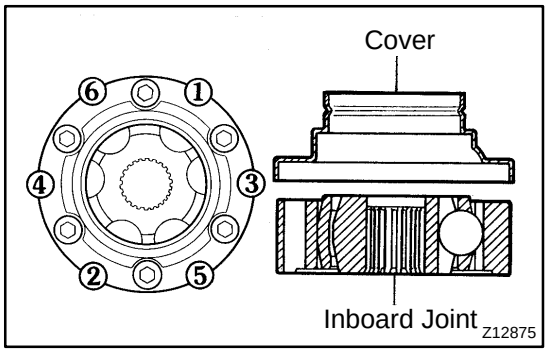
(a) Apply FIPG to the inboard joint cover as shown in the illustration.

FIPG:

Part No.08826–00801, THREE BOND 1121 or equivalent

HINT:

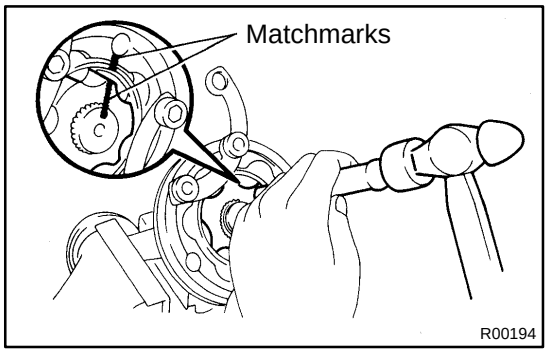
Avoid applying an excessive amount to the surface.



(b) Remove grease from the surface of the inboard joint facing the cover.

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

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



5. INSTALL INBOARD JOINT

(a) Align the matchmarks placed before removal.

(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.

6. ASSEMBLE BOOTS TO JOINTS

Before assembling the boots, pack with only the same amount of grease that was wiped off.

Grease capacity	100 – 105 g (3.5 – 3.7 oz.)

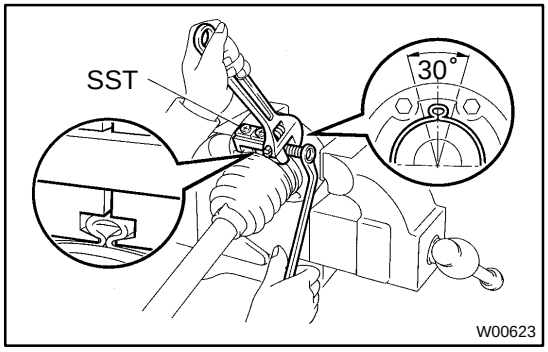
HINT:

Use the grease supplied in the boot kit.

NOTICE:

★ **Keep grease off the joint connection groove of the boot.**

★ **Pack with grease all over the ball contact surface inside the joint.**



7. INSTALL NEW BOOT CLAMPS TO BOTH BOOTS

(a) Position the clamp onto the boot.

HINT:

Pinch the inboard side of the boot clamp, as shown in the illustration.

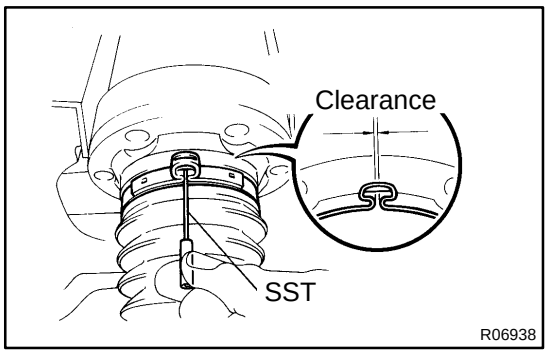
(b) Place SST onto the clamp.

SST 09521–24010

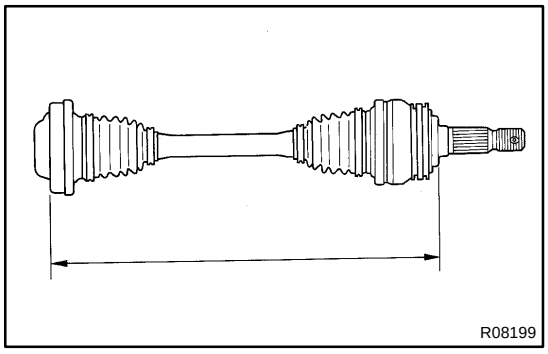
(c) Tighten SST so that the clamp is pinched.

NOTICE:

Do not overtighten the SST.



(d) Using SST, adjust the clearance of the clamp.
SST 09240–00020 (09242–00080)
Clearance: 0.8 mm (0.031 in.) or less



(e) The drive shaft is designed to move ±20 mm (0.79 in.) from the normal position.
Drive shaft standard length:

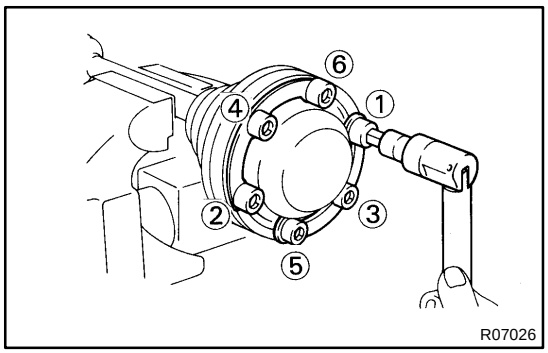
RH	619.5 mm (24.390 in.)
LH	573.5 mm (22.579 in.)

8. INSTALL NEW END COVER

(a) Pack grease into the end cover.

Grease capacity	50 – 55 g (1.8 –1.9 oz.)

(b) Remove grease from the surface of the inboard joint facing the cover.
(c) Glue on a new gasket, with the glued side facing toward the outer race side of the inboard joint.
(d) Align the bolt holes of the cover with those of the inboard joint.



(e) Install the 6 hexagon bolts and washers from the end cover side.
(f) Install the 6 nuts to the boot side.
(g) Using a 10 mm hexagon wrench, tighten the bolts. Do this in the order shown, and repeat several times.
(h) Check that the claw of the end cover touches the inboard joint.

9. CHECK DRIVE SHAFT (See page SA–64)

SA0K1–01

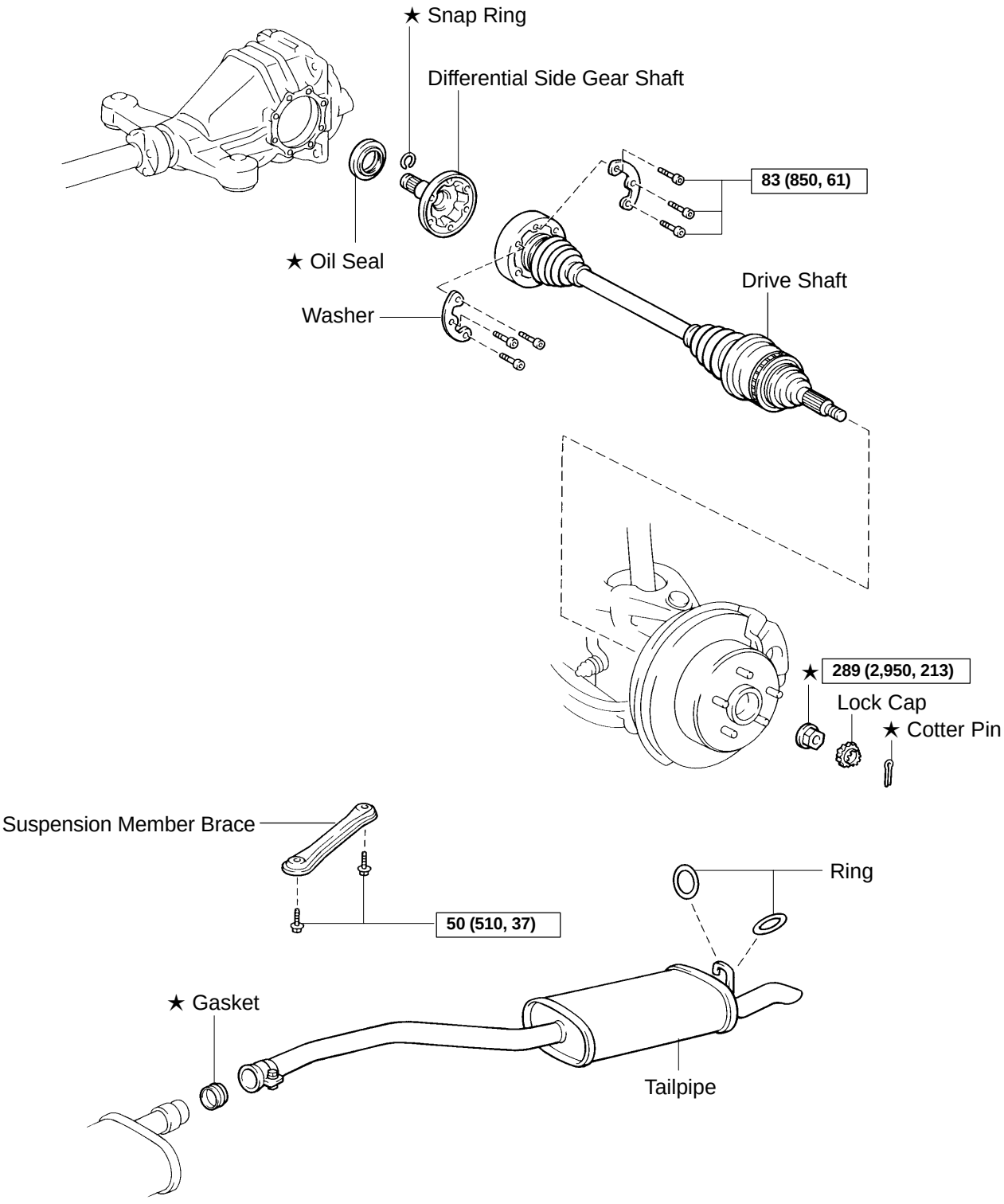
INSTALLATION

Installation is in the reverse order of removal (See page SA–63).
AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307)

REAR DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL

SA0K2–01

COMPONENTS



N·m (kgf·cm, ft·lbf) : Specified torque
★ Non–reusable part

F01948

SA0K3–01

REPLACEMENT

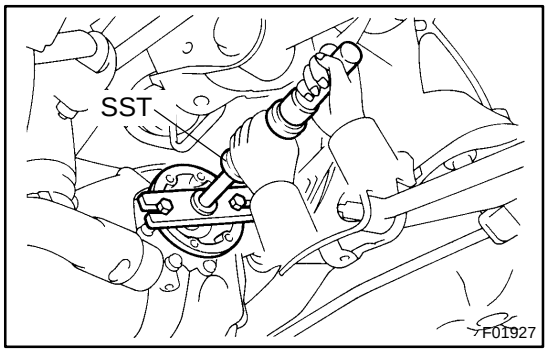
1. DRAIN DIFFERENTIAL OIL

2. DISCONNECT EXHAUST TAILPIPE (See page EM–119)

HINT:

Support the exhaust pipe securely.

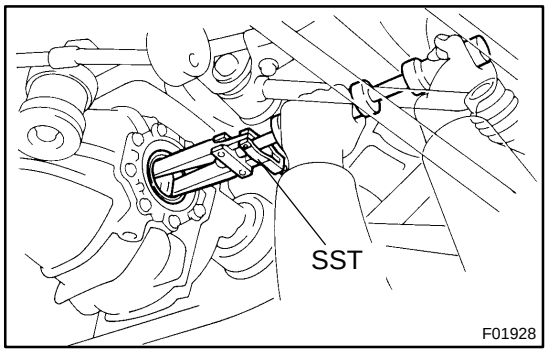
3. REMOVE DRIVE SHAFT (See page SA–63)



4. REMOVE SIDE GEAR SHAFT

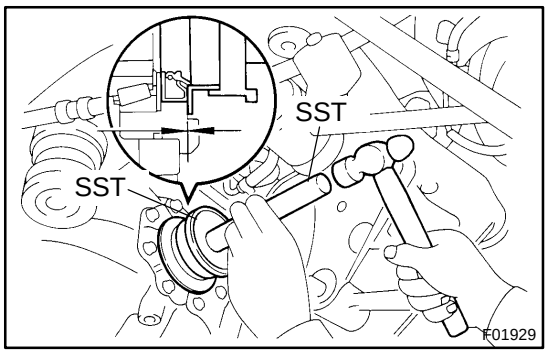
(a) Using SST and 2 bolts, remove the side gear shaft.
SST 09520–24010

(b) Remove the snap ring from the side gear shaft.



5. REMOVE SIDE GEAR SHAFT OIL SEAL

Using SST, remove the oil seal.
SST 09308–00010



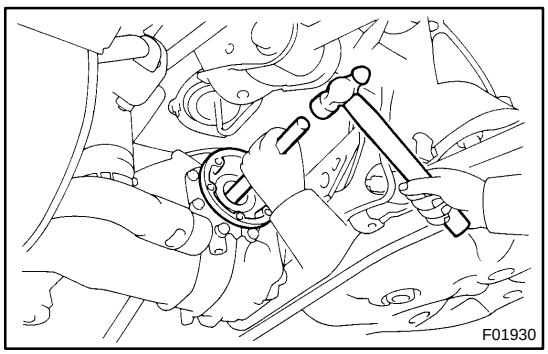
6. INSTALL SIDE GEAR SHAFT OIL SEAL

(a) Using SST and a hammer, install a new oil seal.
SST 09608–32010, 09950–70010 (09951–07150)

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

7. INSTALL SIDE GEAR SHAFT

(a) Install a new snap ring to the side gear shaft.



(b) Using a brass bar and hammer, install the side gear shaft to the differential.

NOTICE:

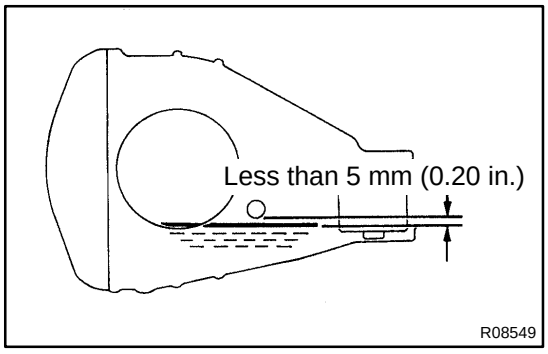
Be careful not to damage the side gear shaft and oil seal.

8. CHECK INSTALLATION OF SIDE GEAR SHAFT

(a) Check that there is 2 – 3 mm (0.08 – 0.12 in.) of play in the axial direction.

(b) Check that the side gear shaft will not come out by trying to pull it out by hand.

9. **INSTALL DRIVE SHAFT (See page SA–69)**
10. **CONNECT EXHAUST TAILPIPE (See page EM–120)**

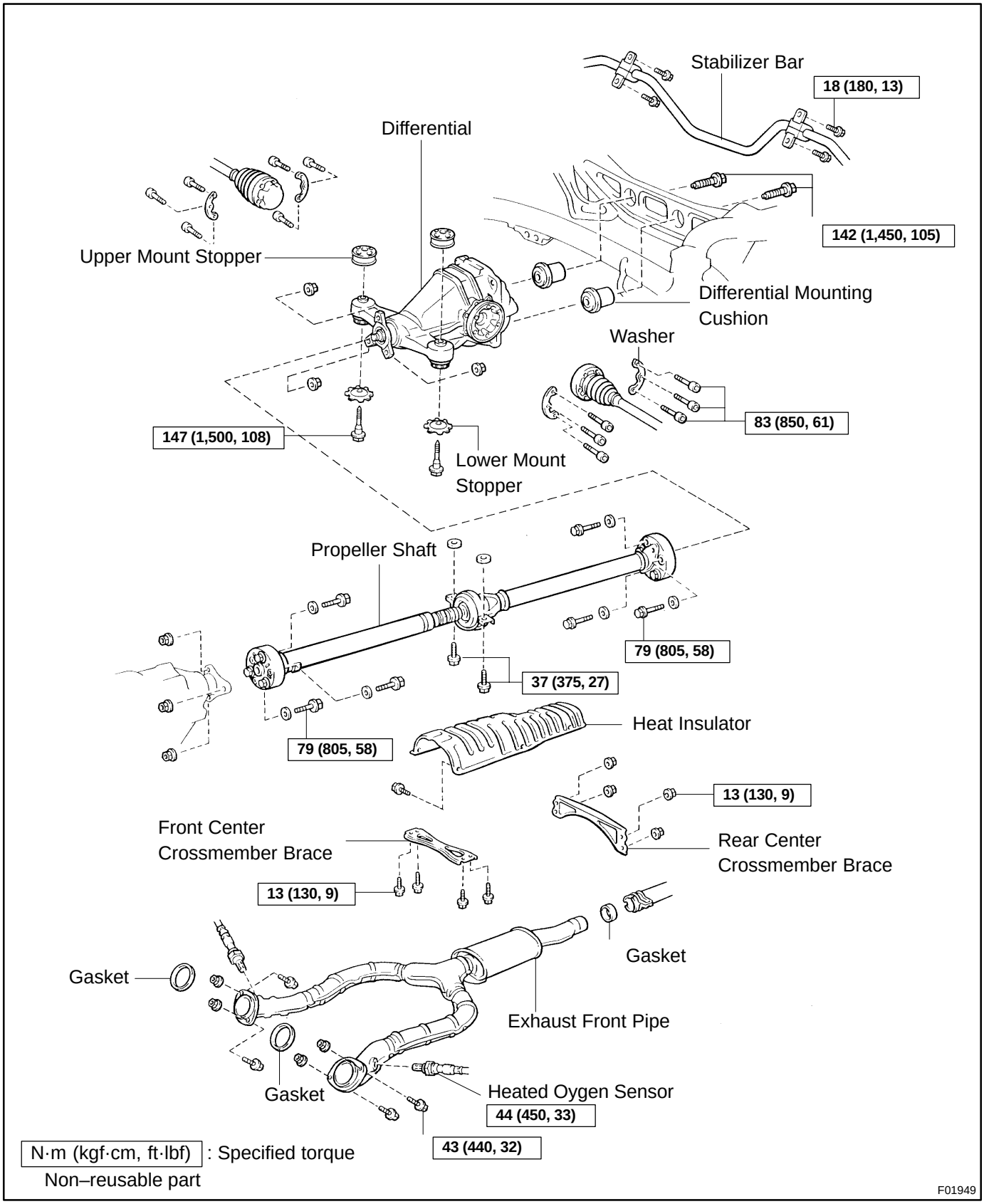


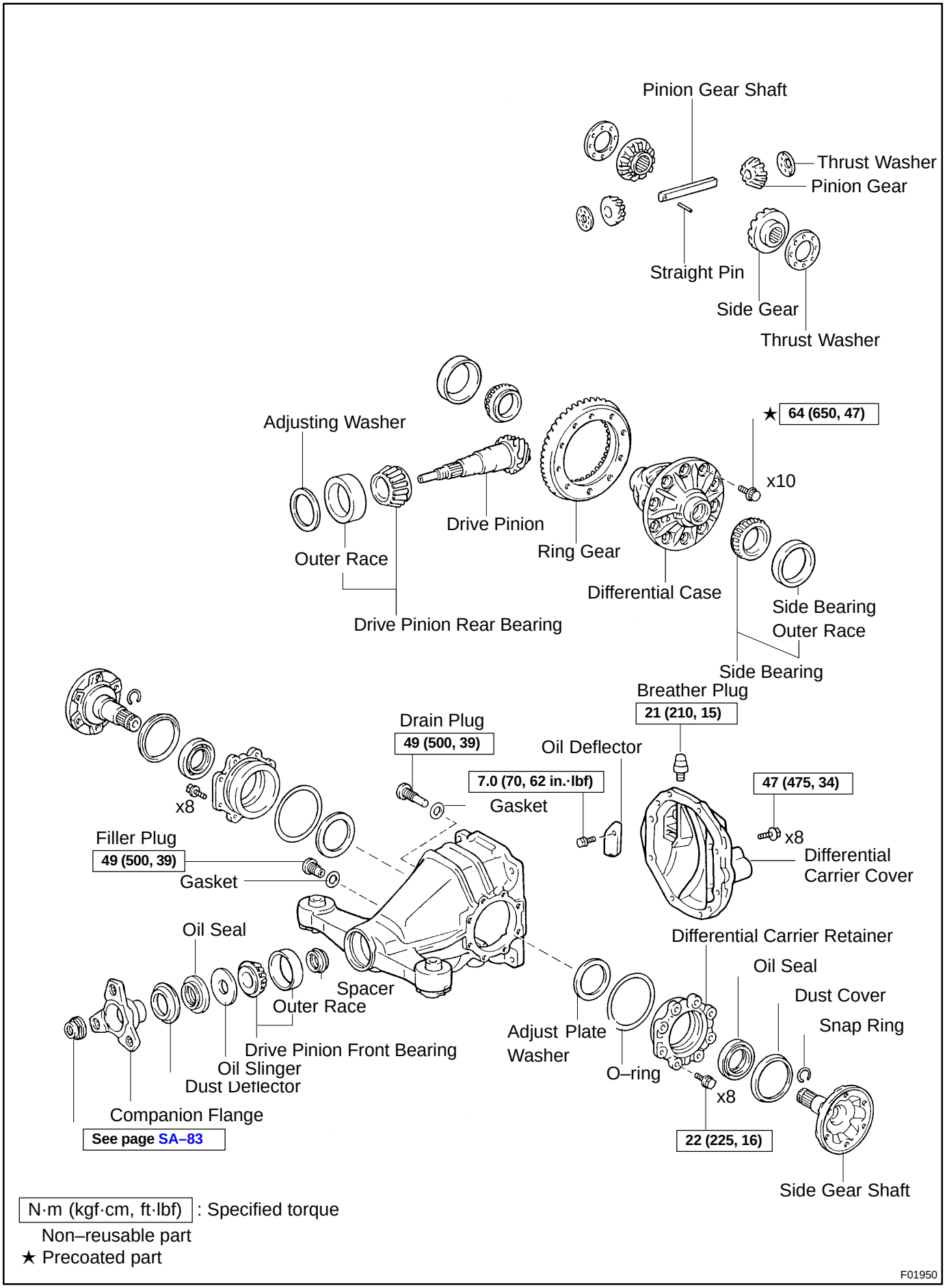
11. **FILL AND CHECK DIFFERENTIAL OIL LEVEL**
Torque: 49 N·m (500 kgf·cm, 39 ft·lbf)
Oil grade: Hypoid gear oil API GL–5
Viscosity:
Above –18˚C (0˚F) SAE 90
Below –18˚C (0˚F) SAE 80W–90 or 80W
Capacity: 1.35 liters (1.43 US qts, 1.19 lmp. qts)

REAR DIFFERENTIAL CARRIER

COMPONENTS

SA0K4–01



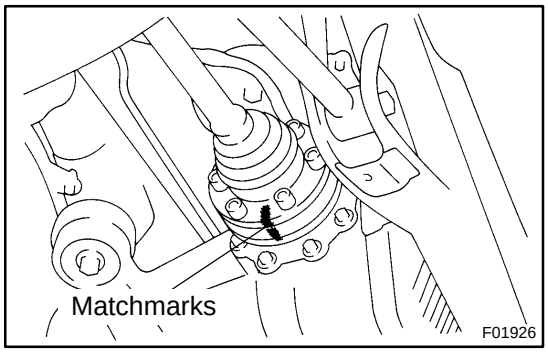

Pinion Gear Shaft
Thrust Washer
Pinion Gear
Straight Pin
Side Gear
Thrust Washer
Adjusting Washer
Drive Pinion
Ring Gear
★ 64 (650, 47)
x10
Outer Race
Drive Pinion Rear Bearing
Differential Case
Side Bearing
Outer Race
Side Bearing
Breather Plug
21 (210, 15)
Drain Plug
49 (500, 39)
Oil Deflector
7.0 (70, 62 in.·lbf)
Gasket
47 (475, 34)
x8
x8
Filler Plug
49 (500, 39)
Gasket
Differential
Carrier Cover
Oil Seal
Differential Carrier Retainer
Oil Seal
Dust Cover
Snap Ring
Spacer
Outer Race
Drive Pinion Front Bearing
Oil Slinger
Dust Deflector
Companion Flange
See page SA–83
Adjust Plate
Washer
O–ring
x8
22 (225, 16)
Side Gear Shaft
N·m (kgf·cm, ft·lbf) : Specified torque
Non–reusable part
★ Precoated part
F01950

SA0K5–03

REMOVAL

1. REMOVE EXHAUST PIPE (See page EM–119)

2. REMOVE PROPELLER SHAFT



3. DISCONNECT REAR DRIVE SHAFTS

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

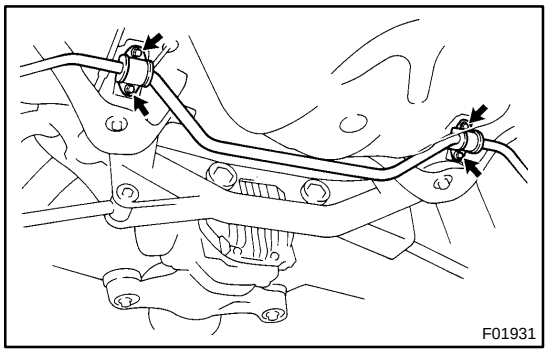
(b) Using a 10 mm hexagon wrench, disconnect the drive shafts from the differential.

Torque: 83 N·m (850 kgf·cm, 61 ft·lbf)

HINT:

At the time of installation, apply a light coat of engine oil on the thread of the bolts.

(c) Support the drive shafts securely.



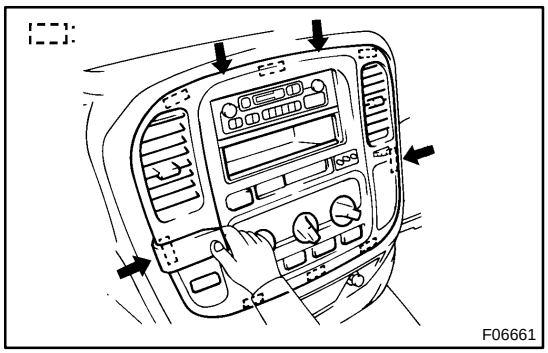
4. REMOVE BOTH STABILIZER BAR BRACKETS

Remove the 4 bolts and both stabilizer bar brackets.

Torque: 18 N·m (180 kgf·cm, 13 ft·lbf)

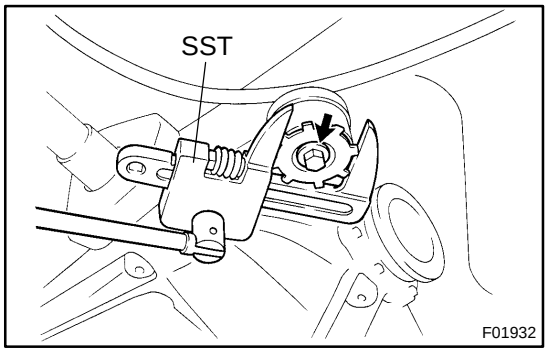
5. REMOVE DIFFERENTIAL

(a) Support the differential with a jack.



(b) Using a 12 mm hexagon wrench, remove the 2 bolts.

Torque: 142 N·m (1,450 kgf·cm, 105 ft·lbf)



(c) Remove the 2 bolts, lower mount stoppers and differential.

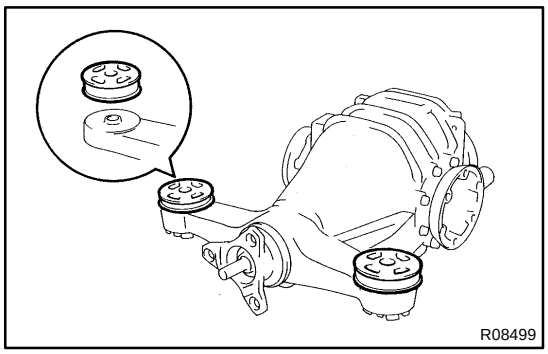
HINT:

At the time of installation, please refer to the following item.

With holding the lower mount stopper with SST so that the front mounting cushion does not twist, install the 2 mounting bolts of front side.

Torque: 147 N·m (1,500 kgf·cm, 108 ft·lbf)

SST 09922–10010



(d) Remove the upper mount stopper from the differential carrier.

SA0K6–04

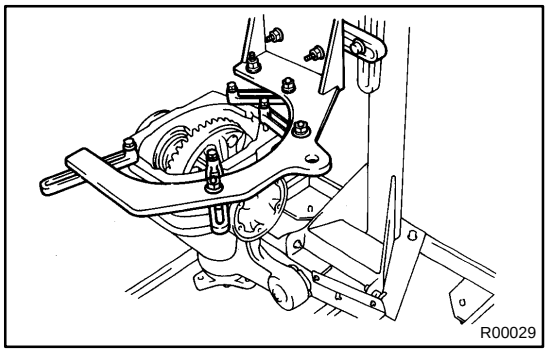
DISASSEMBLY

1. REMOVE DIFFERENTIAL CARRIER COVER

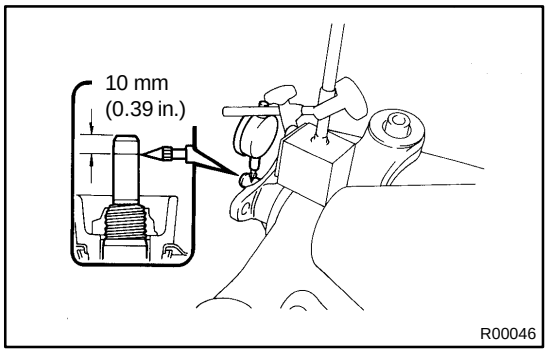
(a) Remove the 8 bolts from the carrier cover.

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

(c) Remove the breather plug from the differential carrier cover.



2. SET DIFFERENTIAL CARRIER TO OVERHAUL STAND ETC., AS SHOWN

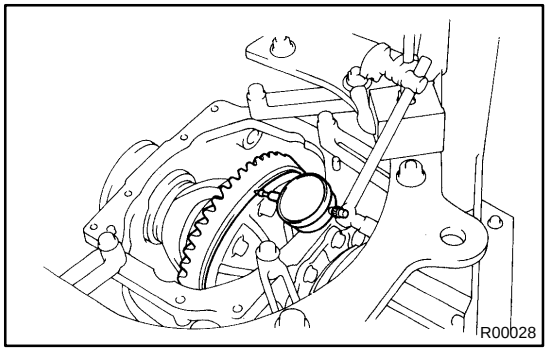


3. CHECK RUNOUT OF DRIVE PINION SHAFT

Using a dial indicator, measure the runout of the drive pinion shaft at a position 10 mm (0.39 in.) away from the end of the shaft.

Maximum runout: 0.08 mm (0.0031 in.)

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

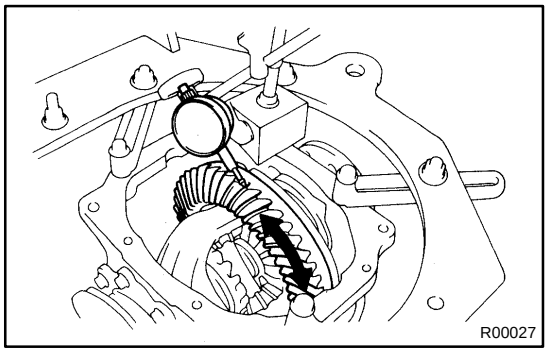


4. CHECK RING GEAR RUNOUT

Using a dial indicator, measure the ring gear runout.

Maximum runout: 0.05 mm (0.0020 in.)

If the runout is greater than the maximum, replace the drive pinion, ring gear and differential case.



5. CHECK RING GEAR BACKLASH

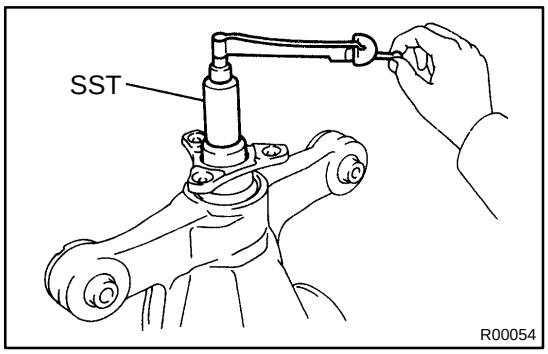
Using a dial indicator, measure the backlash of the ring gear at 3 points at least and check that the average value is within the specification.

Backlash: 0.08 – 0.13 mm (0.0031 – 0.0051 in.)

NOTICE:

The difference between the maximum and minimum measured values must be less than 0.05 mm (0.0020 in.).

If the backlash is not within the specification, adjust the backlash (See page SA–83).



6. MEASURE DRIVE PINION PRELOAD

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

Preload (at starting):
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

HINT:
For vehicles which have run less than 8,000 km (5,000 miles), the preload may be large.

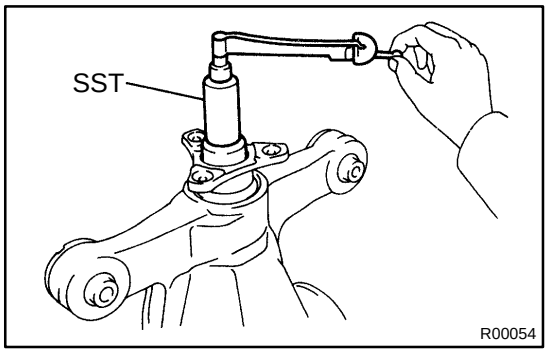
SST 09229–55010
Maximum preload (at starting):
1.8 N·m (18 kgf·cm, 15.6 in.·lbf)

7. CHECK TOTAL PRELOAD

Using SST and a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

SST 09229–55010
Total preload (at starting):
Drive pinion preload plus
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

If necessary, disassemble and inspect the differential.



8. CHECK PINION GEAR BACKLASH

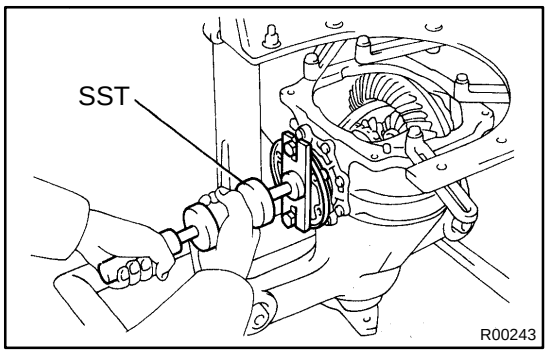
Using a dial indicator, measure the pinion gear backlash with holding one side gear toward the case.

Maximum: 0.15 mm (0.0059 in.)

NOTICE:
Differential gears should be able to rotate.

If the backlash is not within the specification, install the correct thrust washer (See page SA–83).

9. CHECK TOOTH CONTACT PATTERN
(See page SA–83)

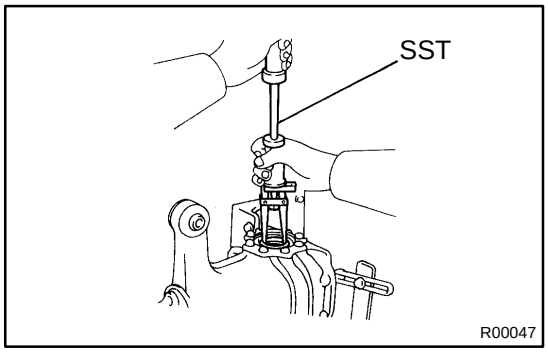


10. REMOVE SIDE GEAR SHAFTS

(a) Using SST, remove the 2 side gear shafts.
SST 09520–24010

NOTICE:
Be careful not to damage the oil seal.

(b) Using screwdriver, remove the 2 snap rings from the side gear shafts.

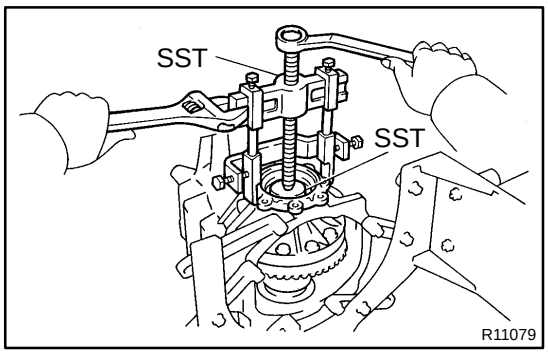


11. REMOVE SIDE GEAR SHAFT OIL SEALS

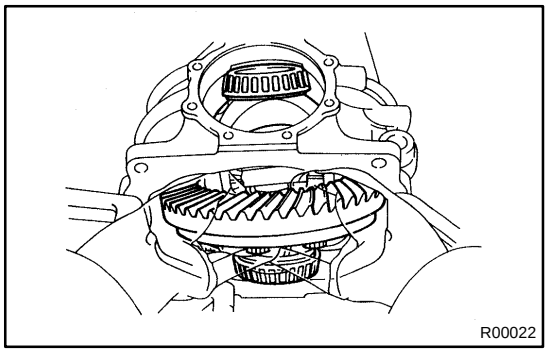
Using SST, remove the 2 oil seals.
SST 09308–00010

12. REMOVE DIFFERENTIAL CARRIER RETAINERS

(a) Remove the 16 bolts.



(b) Using SST, remove the 2 carrier retainers and washers.
SST 09950–40011, (09951–04020, 09952–04010, 09953–04030, 09954–04010, 09955–04061, 09957–04010, 09958–04011), 09950–60010 (09951–00450)

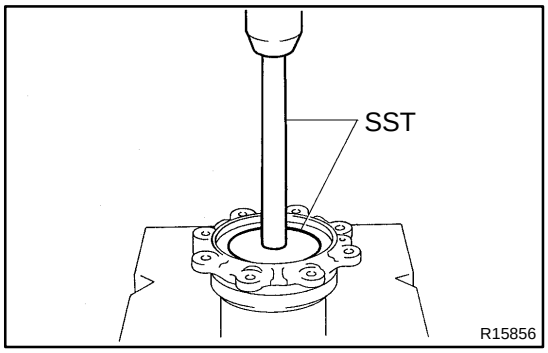


13. REMOVE DIFFERENTIAL CASE

Take the differential case out of the carrier with lifting the ring gear side, as shown in the illustration.

14. REMOVE O–RINGS FROM DIFFERENTIAL CARRIER RETAINERS

Using a screwdriver, remove the 2 O–rings.



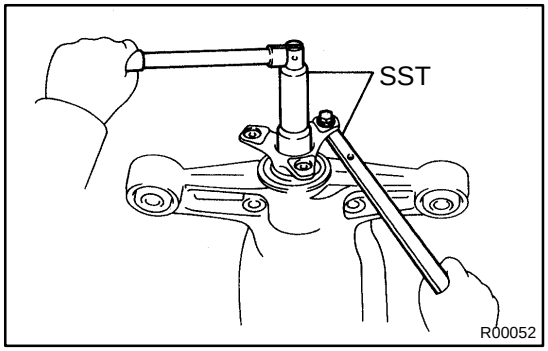
15. REMOVE SIDE BEARING OUTER RACES AND ADJUSTING PLATE WASHERS

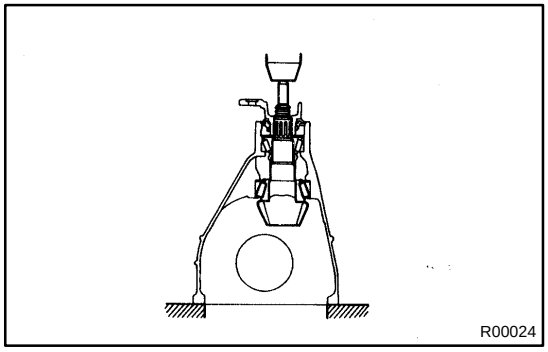
Using SST and a press, remove the 2 outer races and adjusting plate washers.
SST 09950–60020 (09951–00710), 09950–70010 (09951–07150)

16. REMOVE DRIVE PINION, SPACER AND COMPANION FLANGE

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

(b) Using SST, remove the nut.
SST 09229–55010, 09330–00021



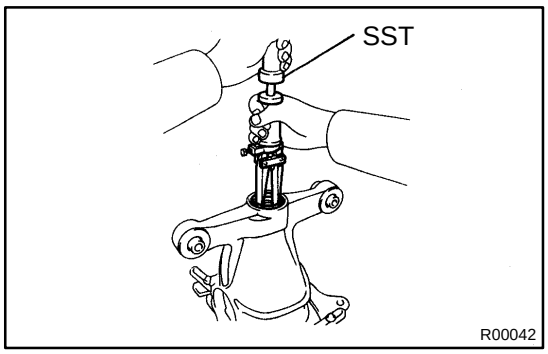


(c) Using a press, remove the drive pinion with the rear bearing and remove the companion flange.

NOTICE:

Be careful not to drop the drive pinion.

(d) Remove the spacer from the drive pinion.

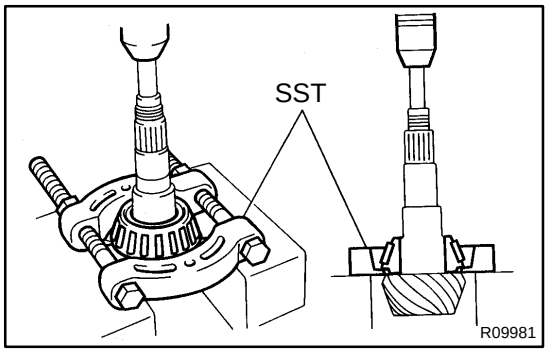


17. REMOVE OIL SEAL

Using SST, remove the oil seal.

SST 09308–00010

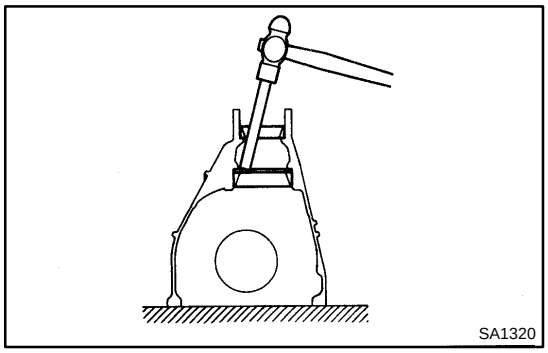
18. REMOVE OIL SLINGER AND FRONT BEARING



19. REMOVE REAR BEARING FRONT DRIVE PINION

Using SST and a press, remove the rear bearing from the drive pinion.

SST 09950–00020



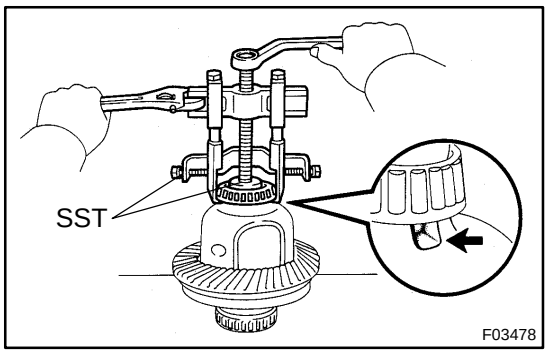
20. REMOVE FRONT AND REAR BEARING OUTER RACES AND ADJUSTING PLATE WASHER

NOTICE:

Do not remove the outer race except when replacing the bearings.

HINT:

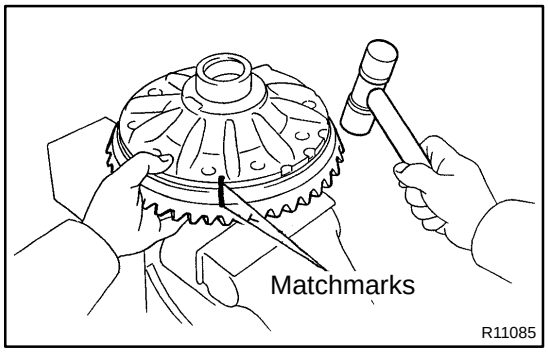
Measure the washer and note the thickness for reassembly.



21. REMOVE SIDE BEARINGS

Using SST, remove the 2 side bearings from the differential case.

SST 09950–40011, (09951–04020, 09952–04010, 09953–04030, 09954–04010, 09955–04061, 09957–04010, 09958–04011), 09950–60010 (09951–00450)

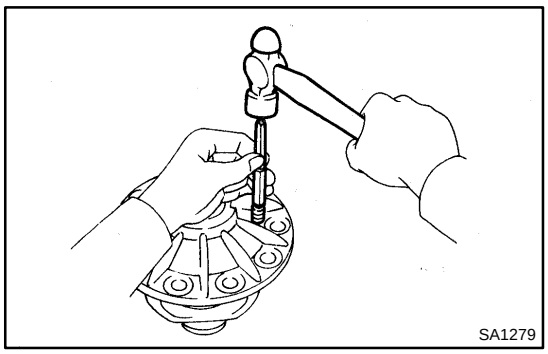


22. REMOVE RING GEAR

(a) Place matchmarks on the ring gear and differential case.

(b) Remove the 10 ring gear set bolts.

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



23. DISASSEMBLE DIFFERENTIAL CASE

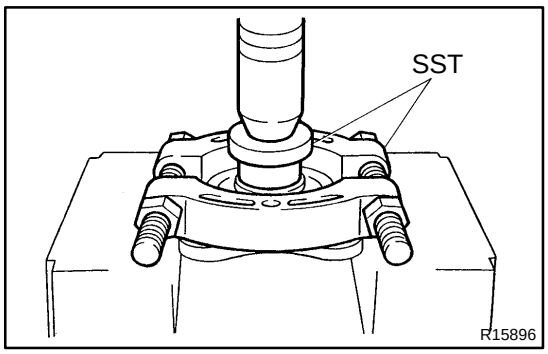
(a) Using a pin punch and hammer, remove the straight pin.

(b) Remove these parts from the differential case:

- ★ Pinion shaft
- ★ 2 pinion gears
- ★ 2 pinion gear thrust washers
- ★ 2 side gears
- ★ 2 side gear thrust washers

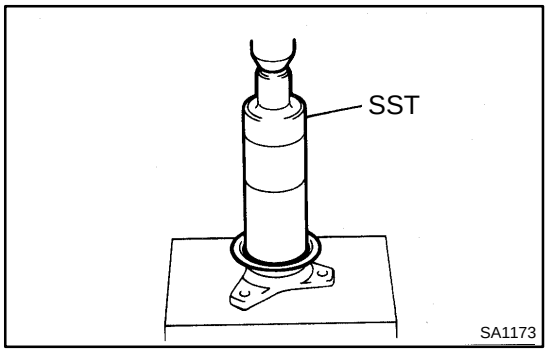
SA0K7–01

REPLACEMENT

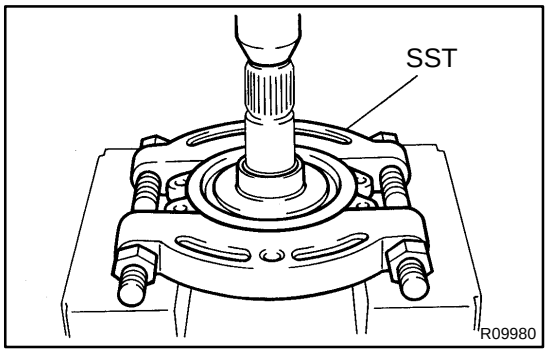


1. REPLACE COMPANION FLANGE DUST DEFLECTOR

(a) Using SST and a press, remove the dust deflector.
SST 09950–00020, 09950–60010 (09951–00510)

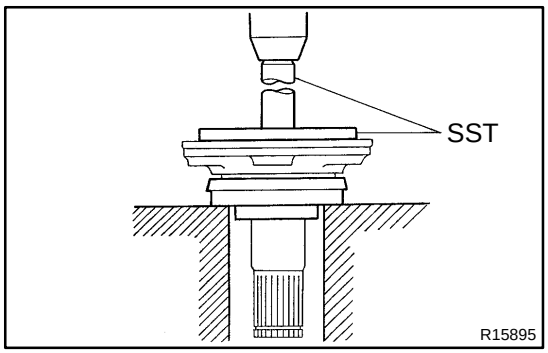


(b) Using SST and a press, install a new dust deflector.
SST 09316–60011 (09316–00011)

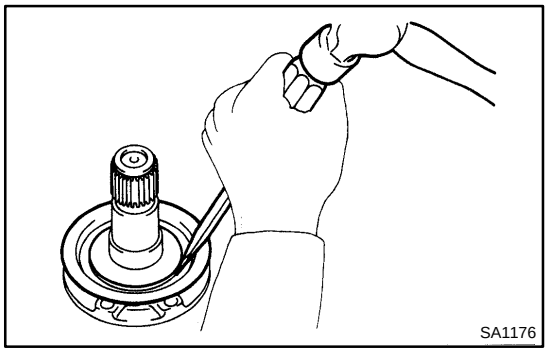


2. REPLACE SIDE GEAR SHAFT DUST COVER

(a) Using SST and a press, remove the dust cover.
SST 09950–00020

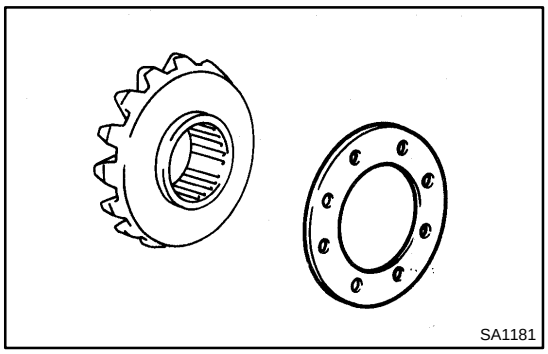


(b) Using SST and a press, install a new dust cover.
SST 09502–24010, 09950–60020 (09951–00780), 09950–70010 (09951–07150)



HINT:
If the dust cover does not fit snugly against the flange of the side gear shaft, use a screwdriver to drive it down.

SA0K8–03


SA1181

REASSEMBLY

1. ADJUST DIFFERENTIAL PINION GEAR BACKLASH

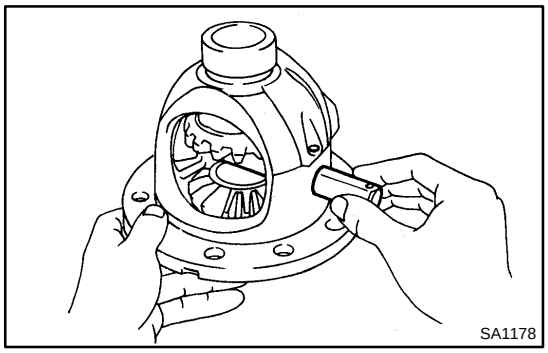
(a) Install the 2 proper thrust washers on the side gears.

HINT:

Using the table below, select thrust washers which will ensure that the backlash is within the specification.

Thrust washer thickness:

Thickness mm (in.)	Thickness mm (in.)
1.50 (0.059)	1.75 (0.069)
1.55 (0.061)	1.80 (0.071)
1.60 (0.063)	1.85 (0.073)
1.65 (0.065)	1.90 (0.075)
1.70 (0.067)	–

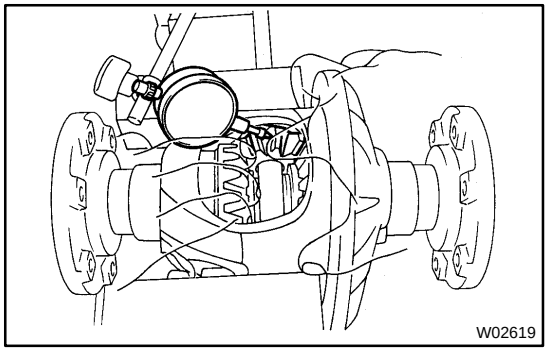

SA1178

(b) Install the 2 side gears, pinion gears, pinion gear thrust washers and pinion shaft in the differential case.

HINT:

Align the holes of the differential case and pinion shaft.

(c) Push the 2 side gear shafts gently into the differential case by hand and install them.


W02619

(d) Using a dial indicator, measure the pinion gear backlash with holding one side gear toward the case.

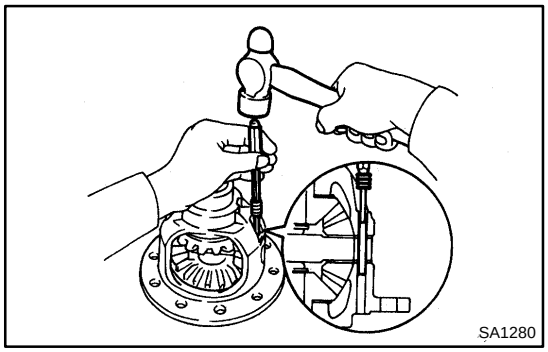
Maximum: 0.15 mm (0.0059 in.)

NOTICE:

Differential gears should be able to rotate.

If the backlash is not within the specification, install the 2 side gear thrust washers with different thicknesses.

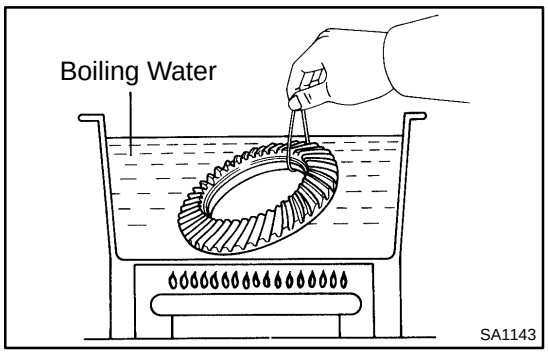
(e) Remove the 2 side gear shafts.


SA1280

2. INSTALL STRAIGHT PIN AND STAKE DIFFERENTIAL CASE

(a) Using a pin punch and hammer, install the straight pin through the differential case and hole of the pinion shaft.

(b) Stake the differential case.

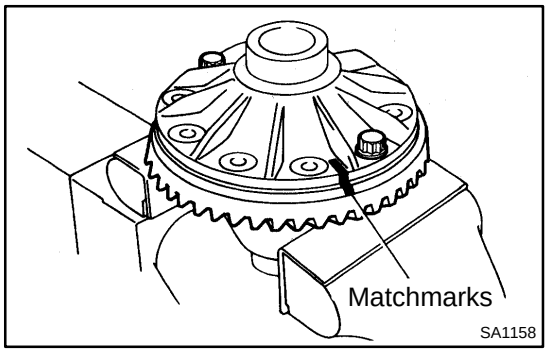


3. INSTALL RING GEAR ON DIFFERENTIAL CASE

(a) Clean the contact surfaces of the differential case and the threads of the ring gear and differential case.

(b) Heat the ring gear in boiling water.

(c) Carefully remove the ring gear from the boiling water.



(d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.

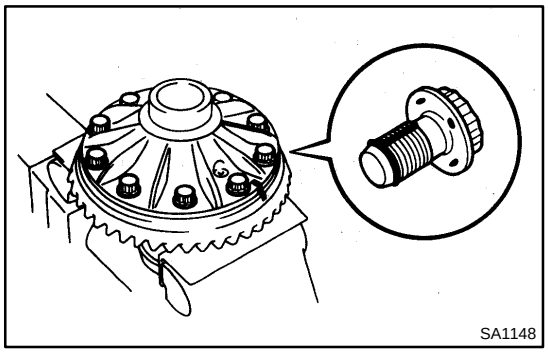
HINT:

Align the matchmarks on the ring gear and the differential case.

(e) Tighten 2 of the bolts temporarily so that the bolt holes in the ring gear and differential case are not misaligned.

NOTICE:

The ring gear set bolts should not be tightened until the ring gear has cooled sufficiently.

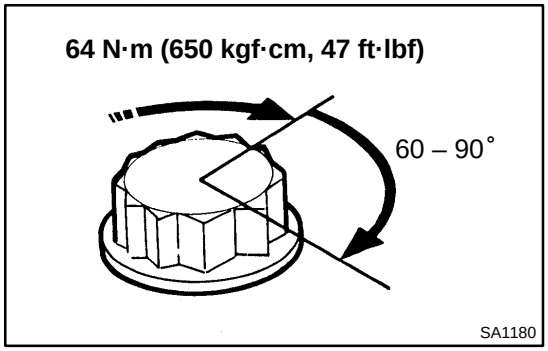


4. INSTALL RING GEAR SET BOLTS

(a) After the ring gear has cooled sufficiently, install new 10 ring gear set bolts to which thread lock has been applied.
Thread lock:
Part No. 08833–00100, THREE BOND 1360 K or equivalent.

NOTICE:

New ring gear set bolts should be used in every case.

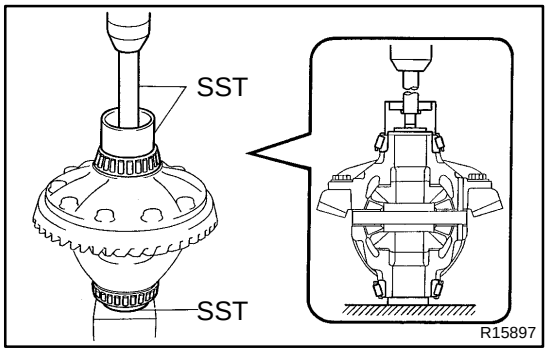


(b) Torque the 10 set bolts uniformly and a little at a time.
Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)

(c) Tighten the bolts further by 60 – 90°.

NOTICE:

Tighten the bolts in diagonally opposite pairs.



5. INSTALL SIDE BEARINGS

Using SST and a press, install the 2 side bearings.

SST 09710–30050, 09950–60010 (09951–00450), 09950–70010 (09951–07150)

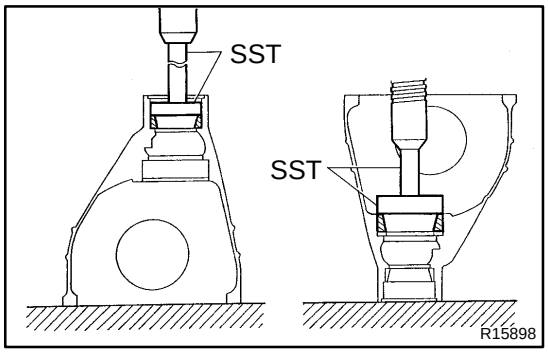
6. INSTALL DRIVE PINION BEARING OUTER RACES AND ADJUSTING WASHER

HINT:

★ The adjusting washer is used for adjusting the tooth contact pattern. 42 types of washer with different thicknesses are available.

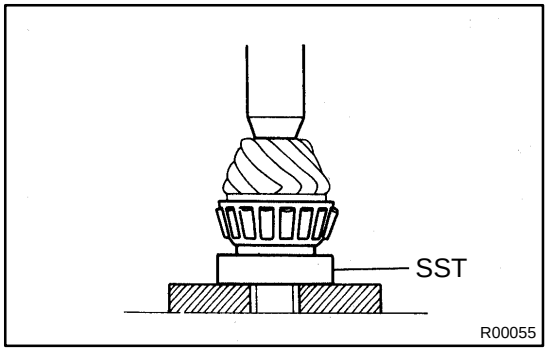
★ First fit a washer with the same thickness as the washer which was removed, then after checking the tooth contact pattern, replace the washer with one of a different thickness if necessary.

★ When removing an adjusting washer, be sure to replace it with a new one.



(a) Using SST and a press, install the front bearing outer race.
SST 09950–60020 (09951–00710), 09950–70010 (09951–07150)

(b) Using SST and a press, install a new adjusting washer to the rear bearing outer race.
SST 09255–10012, 09950–70010 (09951–07150)

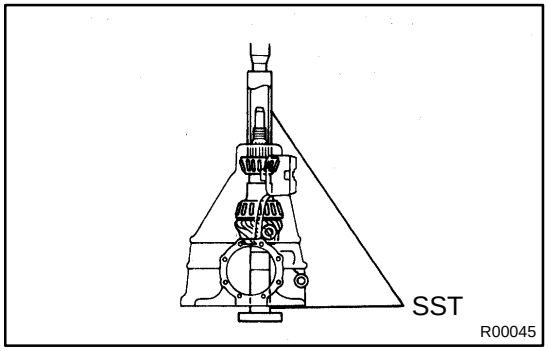


7. INSTALL REAR BEARING TO DRIVE PINION

Using SST and a press, install the rear bearing.
SST 09502–24010

8. TEMPORARILY INSTALL DRIVE PINION, FRONT BEARING, OIL SLINGER AND COMPANION FLANGE

(a) Install the drive pinion in the differential carrier.

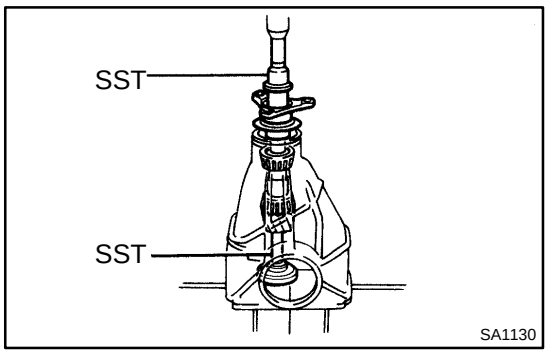


(b) Using SST and a press, install the front bearing on the drive pinion.
SST 09316–60011 (09316–00011), 09608–04031

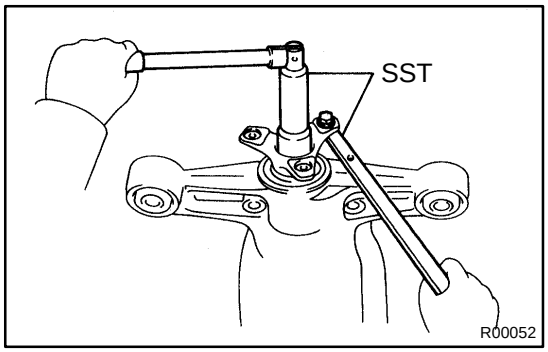
HINT:

Assemble the spacer and oil seal after adjusting the tooth contact pattern.

(c) Install the oil slinger.



(d) Using SST and a press, install the companion flange.
SST 09223–46011, 09325–40010



9. TEMPORARILY ADJUST DRIVE PINION PRELOAD

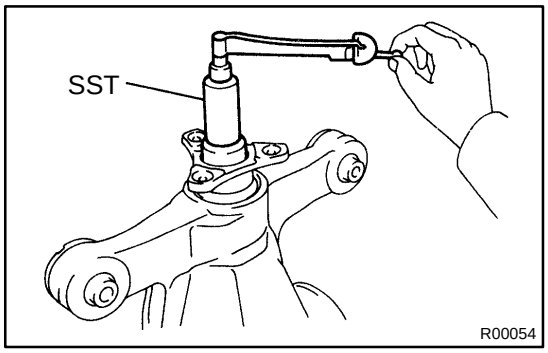
(a) Adjust the drive pinion preload by tightening the companion flange nut.

HINT:

Using SST to hold the flange, tighten the nut.
SST 09229–55010, 09330–00021

NOTICE:

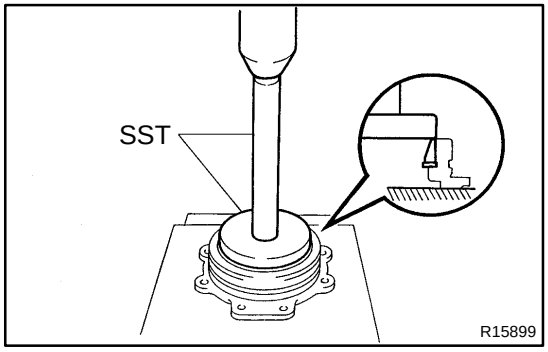
As there is no spacer, tighten the nut a little at a time, being careful not to overtighten it.



(b) Using SST and a torque wrench, measure the preload.
SST 09229–55010
Preload (at starting):
New bearing:
1.5 – 1.8 N·m (15 – 18 kgf·cm, 13.0 – 15.6 in.·lbf)
Reused bearing:
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

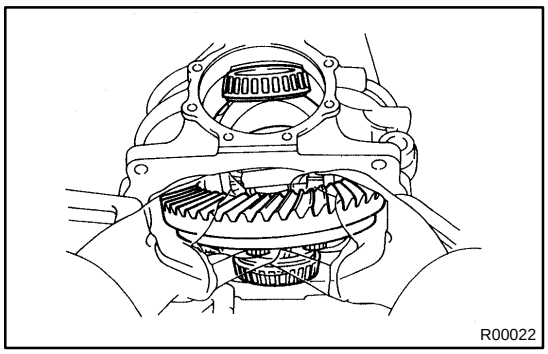
HINT:

For vehicles which have run 8,000 km (5,000 miles) or less, if the preload value measured before disassembly is greater than the specification for a reused bearing, return the preload to the same as before disassembly.



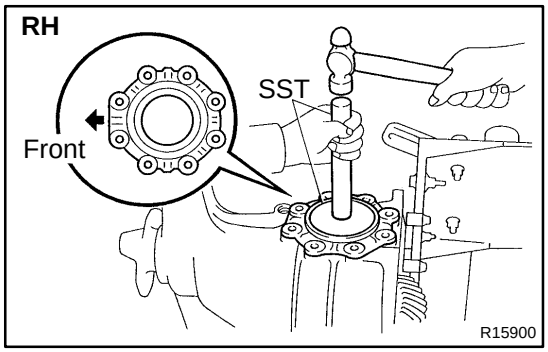
10. INSTALL SIDE BEARING OUTER RACES AND ADJUSTING PLATE WASHERS

Using SST and a press, install the 2 adjusting plate washers and outer races.
SST 09950–60020 (09951–00810),
09950–70010 (09951–07150)



11. INSTALL DIFFERENTIAL CASE IN CARRIER

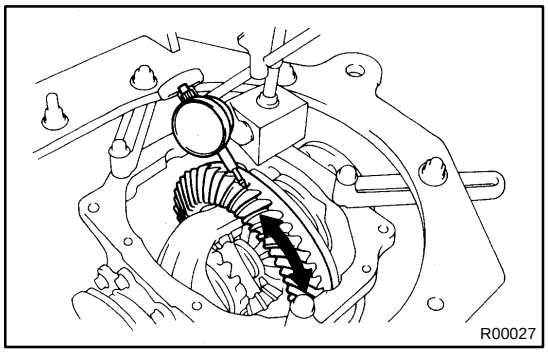
Install the drive side bearing in the differential carrier first, as shown in the illustration, then install the differential case.



12. INSTALL DIFFERENTIAL CARRIER RETAINERS

(a) Using SST and a hammer, install 2 carrier retainers.
SST 09950–60020 (09951–00890),
09950–70010 (09951–07150)

(b) Tighten the 16 bolts.
Torque: 22 N·m (225 kgf·cm, 16 ft·lbf)



13. CHECK RING GEAR BACKLASH

Using a dial indicator, measure the backlash of the ring gear at 3 positions at least.

Backlash: 0.08 – 0.13 mm (0.0031 – 0.0051 in.)

NOTICE:

The difference between the maximum and minimum measure values must be less than 0.05 mm (0.0020 in.).

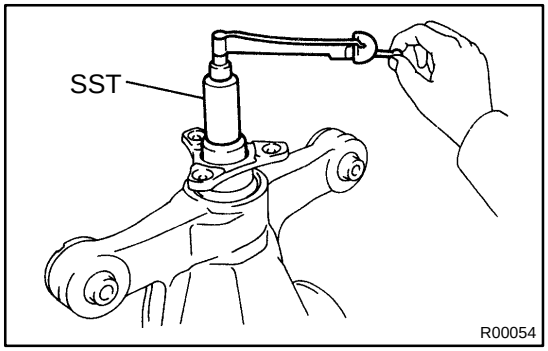
HINT:

The measured values should be used as reference when selecting washers, so take a note of the values.

If the backlash is not within the specification replace the washer on the ring gear side with one of a different thickness using the following procedure.

Adjusting washer thickness

No.	Thickness mm (in.)	No.	Thickness mm (in.)	No.	Thickness mm (in.)
02	2.02 (0.0795)	32	2.32 (0.0913)	62	2.62 (0.1031)
04	2.04 (0.0803)	34	2.34 (0.0921)	64	2.64 (0.1039)
06	2.06 (0.0811)	36	2.36 (0.0929)	66	2.66 (0.1047)
08	2.08 (0.0819)	38	2.38 (0.0937)	68	2.68 (0.1055)
10	2.10 (0.0827)	40	2.40 (0.0945)	70	2.70 (0.1063)
12	2.12 (0.0835)	42	2.42 (0.0953)	72	2.72 (0.1071)
14	2.14 (0.0843)	44	2.44 (0.0961)	74	2.74 (0.1079)
16	2.16 (0.0850)	46	2.46 (0.0969)	76	2.76 (0.1087)
18	2.18 (0.0858)	48	2.48 (0.0976)	78	2.78 (0.1094)
20	2.20 (0.0866)	50	2.50 (0.0984)	80	2.80 (0.1102)
22	2.22 (0.0874)	52	2.52 (0.0992)	82	2.82 (0.1100)
24	2.24 (0.0882)	54	2.54 (0.1000)	84	2.84 (0.1118)
26	2.26 (0.0890)	56	2.56 (0.1008)	86	2.86 (0.1126)
28	2.28 (0.0898)	58	2.58 (0.1016)	–	
30	2.30 (0.0906)	60	2.60 (0.1024)	–	



14. MEASURE TOTAL PRELOAD

Using SST and a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

SST 09229–55010

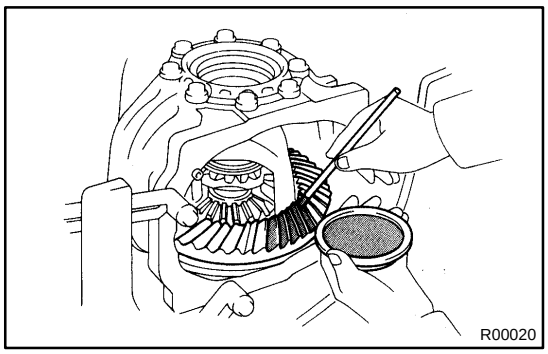
Total preload (at starting):
Drive pinion preload plus
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)

If the measured preload is less than the specification, replace the washer of the ring gear's tooth surface side with a thicker one.

If the preload is greater than the specification, replace the washer of the ring gear's tooth surface side with a thinner one.

HINT:

Changing the snap ring thickness by 0.02 mm (0.0008 in.) will change the total preload by approx. 0.1 N·m (1 kgf·cm, 0.9 in.·lbf).

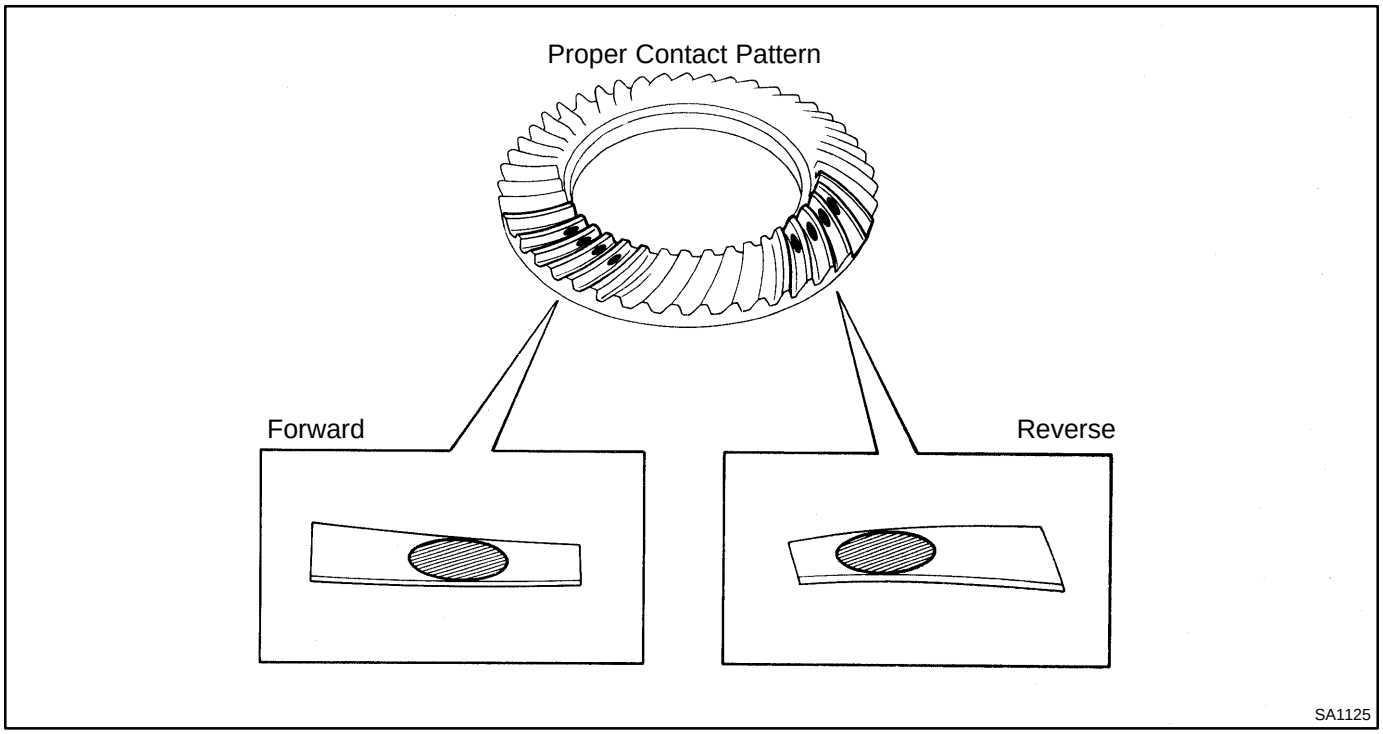


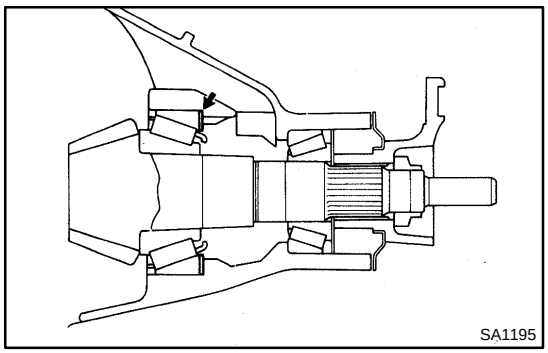
15. INSPECT TOOTH CONTACT PATTERN

(a) Coat 3 or 4 teeth at the 3 different positions on the ring gear with red lead.

(b) Hold the companion flange firmly and rotate the ring gear in both directions.

(c) Inspect the tooth contact pattern.





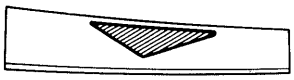
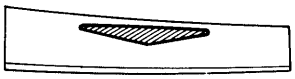
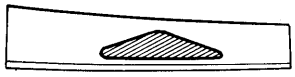
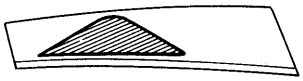
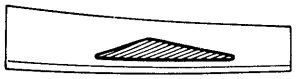
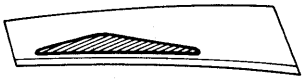
If tooth contact pattern is not correct, replace the adjusting washer installed on the front of the drive pinion rear bearing to adjust it.

NOTICE:

Make sure to always use a new one when replacing adjusting washer.

HINT:

Refer to the table on the next page for selection of the adjusting washer.

Tooth contact pattern		Adjusting washer selection	
Forward	Reverse		
		+ 0.08 mm (+ 0.0031 in.)	Replacing the washer with one 0.08 mm (0.0031 in.) thicker will give proper contact pattern.
		+ 0.14 mm (+ 0.0055 in.)	Replacing the washer with one 0.14 mm (0.0055 in.) thicker will give proper contact pattern.
		– 0.08 mm (– 0.0031 in.)	Replacing the washer with one 0.08 mm (0.0031 in.) thicker will give proper contact pattern.
		– 0.14 mm (– 0.0055 in.)	Replacing the washer with one 0.14 mm (0.0055 in.) thicker will give proper contact pattern.

V02917

HINT:
Adjust washers in 42 (different thickness in 0.01 mm (0.004 in.)) units are available.

No.	Thickness mm (in.)	No.	Thickness mm (in.)	No.	Thickness mm (in.)
87	1.87 (0.0736)	01	2.01 (0.0791)	15	2.15 (0.0846)
88	1.88 (0.0740)	02	2.02 (0.0795)	16	2.16 (0.0850)
89	1.89 (0.0744)	03	2.03 (0.0799)	17	2.17 (0.0854)
90	1.90 (0.0748)	04	2.04 (0.0803)	18	2.18 (0.0858)
91	1.91 (0.0752)	05	2.05 (0.0807)	19	2.19 (0.0862)
92	1.92 (0.0756)	06	2.06 (0.0811)	20	2.20 (0.0866)
93	1.93 (0.0760)	07	2.07 (0.0815)	21	2.21 (0.0870)
94	1.94 (0.0764)	08	2.08 (0.0819)	22	2.22 (0.0874)
95	1.95 (0.0768)	09	2.09 (0.0823)	23	2.23 (0.0878)
96	1.96 (0.0772)	10	2.10 (0.0827)	24	2.24 (0.0882)
97	1.97 (0.0776)	11	2.11 (0.0831)	25	2.25 (0.0886)
98	1.98 (0.0780)	12	2.12 (0.0835)	26	2.26 (0.0890)
99	1.99 (0.0783)	13	2.13 (0.0839)	27	2.27 (0.0894)
00	2.00 (0.0787)	14	2.14 (0.0843)	28	2.28 (0.0898)

16. REMOVE DIFFERENTIAL CARRIER RETAINERS (See page SA–77)

17. REMOVE DIFFERENTIAL CASE (See page SA–77)

18. REMOVE DRIVE PINION (See page SA–77)

19. INSTALL SPACER ON DRIVE PINION

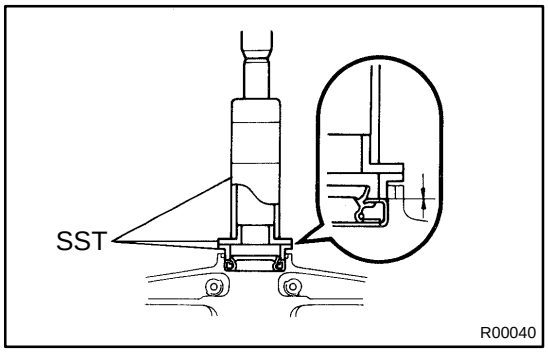
Install a new spacer on the drive pinion.

20. INSTALL DRIVE PINION AND FRONT BEARING (See step 8)

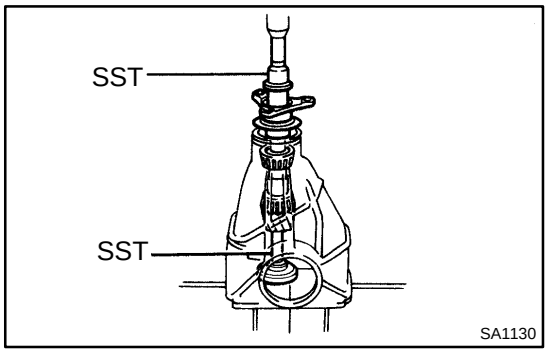
21. INSTALL OIL SLINGER (See step 8)

22. INSTALL OIL SEAL

(a) Apply MP grease to a new oil seal lip.



(b) Using SST, install the oil seal until its end is flush with the surface of the differential carrier.
SST 09316–60011 (09316–00011, 09316–00041), 09502–12010



23. INSTALL COMPANION FLANGE

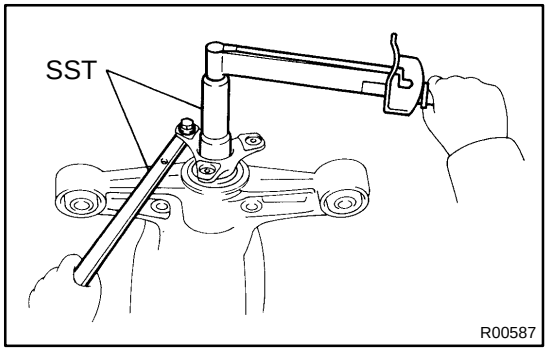
Using SST and a press, install the companion flange.
SST 09223–56010, 09325–40010

NOTICE:

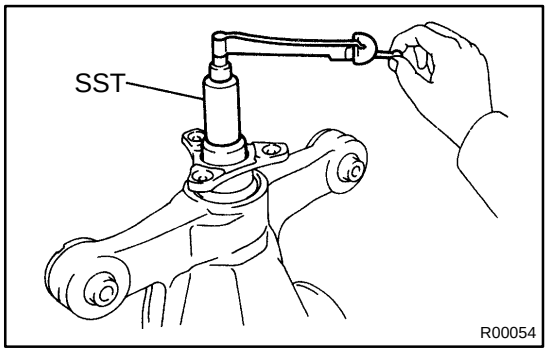
Be careful not to damage the oil seal.

24. ADJUST DRIVE PINION PRELOAD

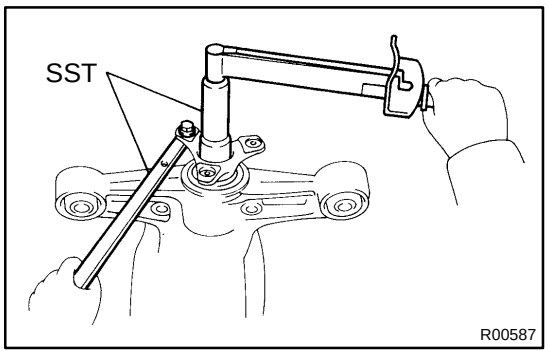
(a) Coat the threads and flange of a new nut with hypoid gear oil for LSD.



(b) Using SST, tighten the nut.
SST 09229–55010, 09330–00021



(c) Using SST and a torque wrench, measure the preload.
SST 09229–55010
Preload (at starting):
New bearing:
1.5 – 1.8 N·m (15 – 18 kgf·cm, 13.0 – 15.6 in.·lbf)
Reused bearing:
0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.·lbf)



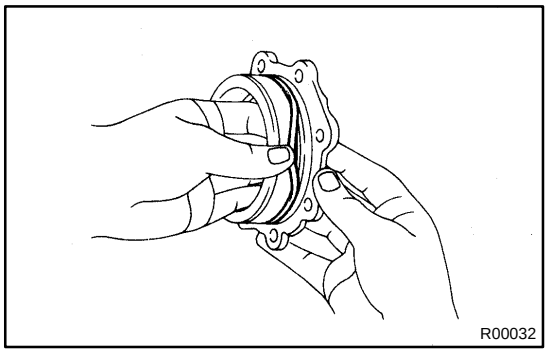
If the preload is greater than the specification, replace the spacer.
If the preload is less than the specification, retighten the nut with a force of 13 N·m (130 kgf·cm, 9 ft·lbf) at a time until the specified preload is reached.

Torque: 490 N·m (5,000 kgf·cm, 362 ft·lbf) or less

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

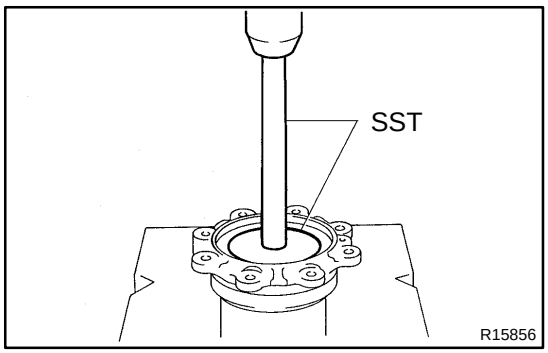
25. CHECK RUNOUT OF DRIVE PINION SHAFT
(See page SA–77)

26. INSTALL DIFFERENTIAL CASE IN CARRIER
(See step 11)



27. INSTALL O–RING FROM DIFFERENTIAL CARRIER RETAINERS

(a) Coat 2 new O–rings with hypoid gear oil.
(b) Install the 2 O–rings to the carrier retainers.

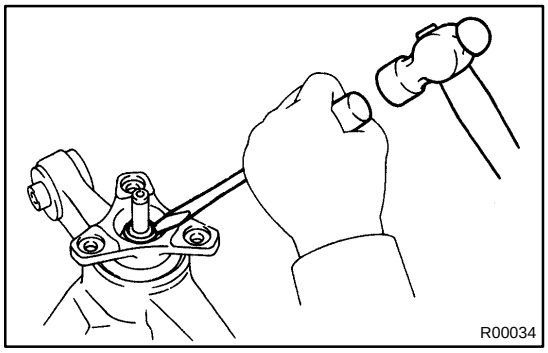


28. INSTALL OIL SEALS FROM DIFFERENTIAL CARRIER RETAINERS

(a) Using SST and a press, install 2 new oil seals to the carrier retainers.
SST 09608–32010, 09950–70010 (09950–07150)
(b) Coat the MP grease to the oil seal lip.

29. INSTALL DIFFERENTIAL CARRIER RETAINERS

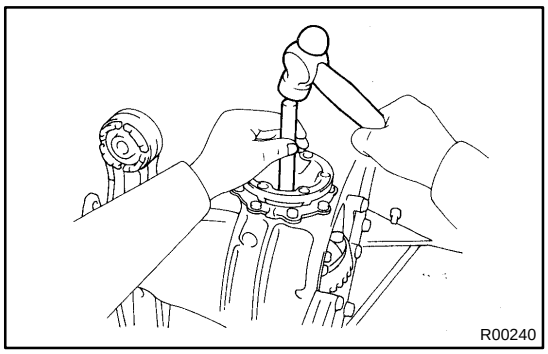
30. RECHECK BACKLASH, TOTAL PRELOAD AND TOOTH CONTACT PATTERN



31. STAKE DRIVE PINION NUT

32. INSTALL SNAP RINGS TO SIDE GEAR SHAFTS

(a) Install 2 new snap rings to the side gear shafts.
(b) Coat the MP grease to the snap rings.



33. INSTALL SIDE GEAR SHAFTS

Using a brass and hammer, install the 2 side gear shafts.

HINT:

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.

NOTICE:

Be careful not to damage the oil seal.

34. REMOVE DIFFERENTIAL CARRIER FROM OVERHAUL STAND, ETC.

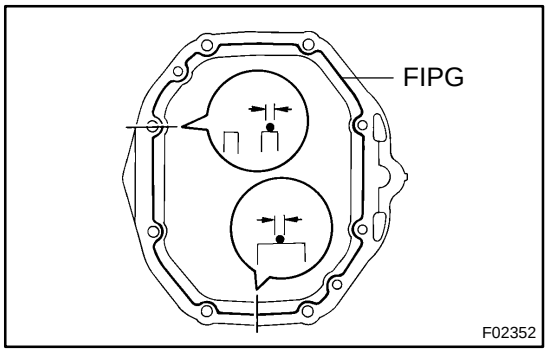
35. INSTALL DIFFERENTIAL CARRIER COVER

(a) Clean the contact surfaces of the carrier and cover of any residual FIPG material using cleaner.

(b) Coat FIPG to the carrier or cover.

FIPG:

Part No. 08826–00090, THREE BOND 1281 or equivalent



(c) Install the carrier cover to the carrier with the 8 bolts.

Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

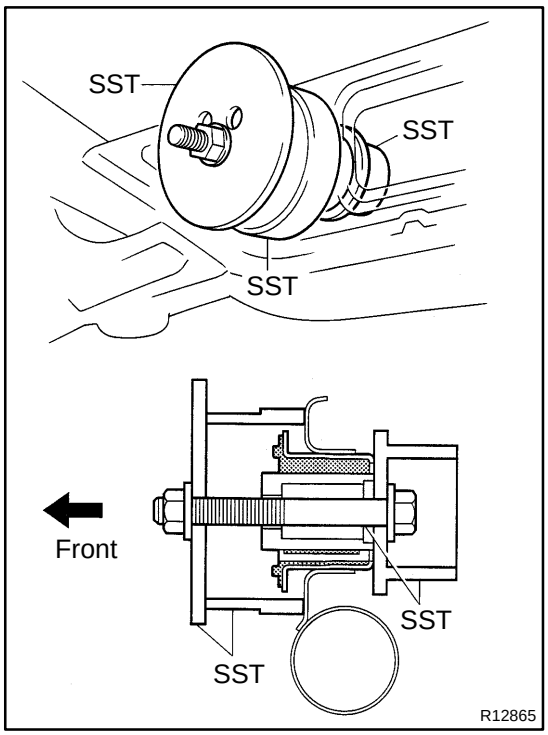
(d) Install the breather plug.

Torque: 21 N·m (210 kgf·cm, 15 ft·lbf)

SA0K9–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–75).
AFTER INSTALLATION, FILL DIFFERENTIAL OIL (See page SA–71)



DIFFERENTIAL MOUNTING CUSHION

SA0KA–01

REPLACEMENT

1. REMOVE DIFFERENTIAL (See page SA–75)

2. REMOVE DIFFERENTIAL MOUNTING CUSHION

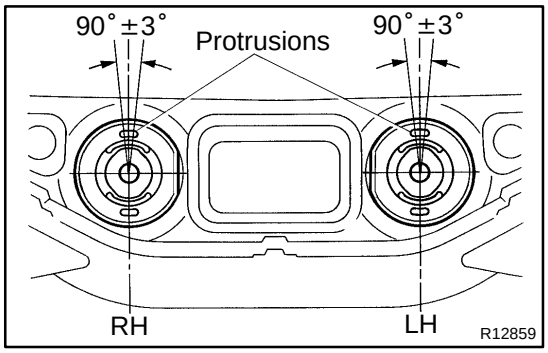
Using SST, remove the cushion.

HINT:

★ Check that the edge of SST (09527–17011) is fully contact with the crossmember.

★ Align the SST straight so that the bolt of the SST is on the center line of the cushion.

SST 09527–17011, 09570–22011, 09570–24010



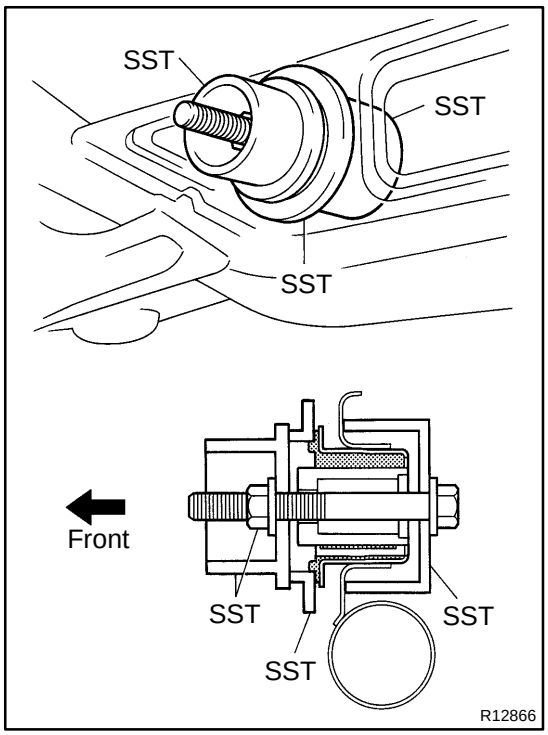
3. INSTALL NEW DIFFERENTIAL MOUNTING CUSHION

(a) Set a new differential mounting cushion to the crossmember.

HINT:

★ Install the cushion with the flat face faced inside of the vehicle.

★ Position the cushion so that the upper and lower protrusions align horizontally 90˚±3˚ against the ground.



(b) Using SST, install the cushion.

SST 09316–12010, 09570–22011

HINT:

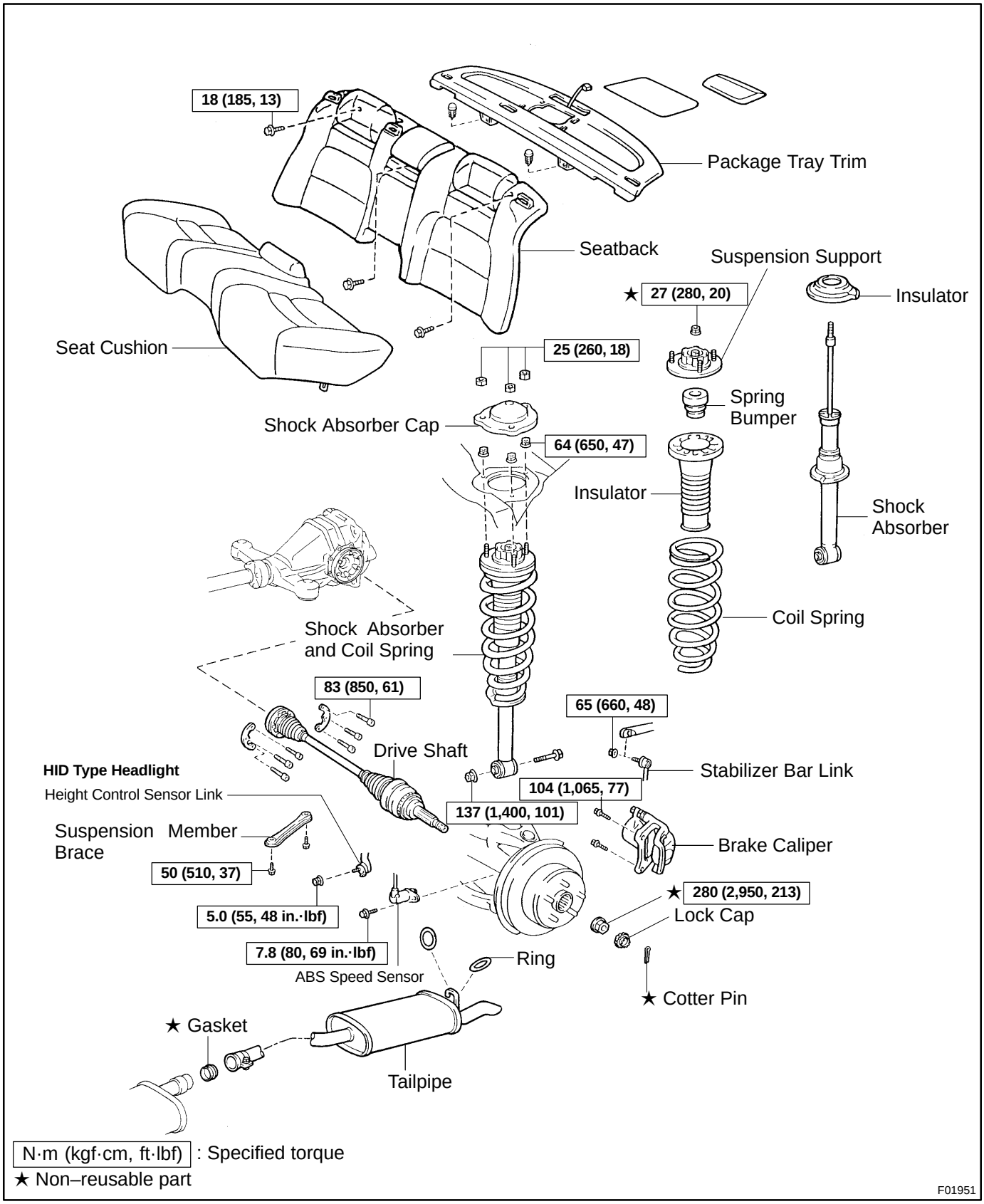
Align the SST straight so that the bolt of the SST is on the center line of the cushion.

4. INSTALL DIFFERENTIAL (See page SA–94)

REAR SHOCK ABSORBER

SA0KB–01

COMPONENTS



SA0KC–01

REMOVAL

1. REMOVE REAR WHEEL

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

2. REMOVE THESE PARTS

★ Rear seat cushion and rear seatback (See page BO–111)

★ Package tray trim (See page BO–31)

3. REMOVE REAR DRIVE SHAFT (See page SA–63)

4. DISCONNECT STABILIZER BAR LINK

Disconnect the stabilizer bar link from the stabilizer bar.

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

5. REMOVE REAR BRAKE CALIPER

(a) Remove the 2 bolts and brake caliper.

Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

(b) Support the brake caliper securely.

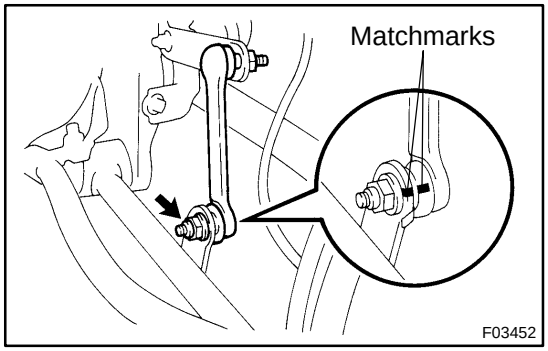
6. REMOVE ABS SPEED SENSOR

Remove the bolt and ABS speed sensor.

NOTICE:

When removing them from right side, do not disconnect the pad wear indicator connector.

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

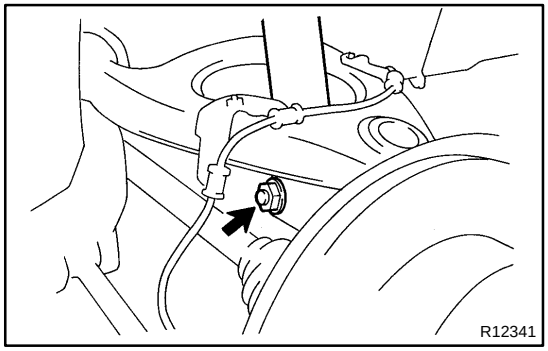


7. HID TYPE HEADLIGHT:
DISCONNECT HEIGHT CONTROL SENSOR LINK FROM NO.1 LOWER SUSPENSION ARM

(a) Place matchmarks on the link and bracket.

(b) Remove the nut and disconnect the height control sensor link.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)



8. REMOVE SHOCK ABSORBER AND COIL SPRING

(a) Loosen the bolt and remove the nut on lower side of the shock absorber.

HINT:

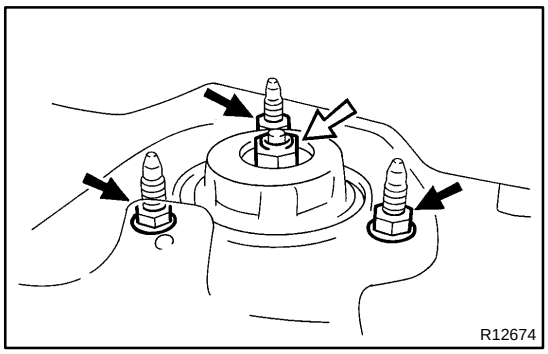
Do not remove the bolt.

Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)

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

(c) Remove the 3 nuts and shock absorber cap.

Torque: 25 N·m (260 kgf·cm, 18 ft·lbf)



(d) Loosen the suspension support center nut.

NOTICE:

Do not remove the nut.

Torque: 27 N·m (280 kgf·cm, 20 ft·lbf)

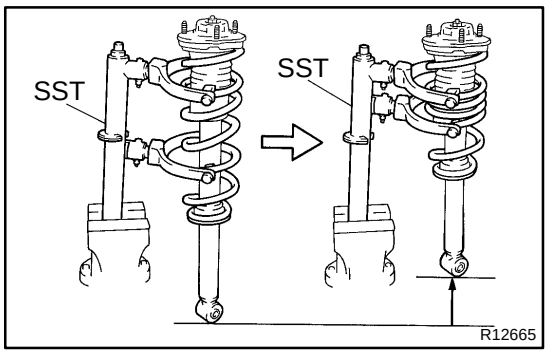
(e) Remove the 3 nuts.

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

(f) Lower the rear axle carrier and remove the bolt on lower side of shock absorber.

(g) Remove the shock absorber and coil spring.

SA0KD–01



DISASSEMBLY

REMOVE SUSPENSION SUPPORT AND COIL SPRING

(a) Using SST, compress the coil spring until there is a clearance on both ends.
SST 09727–30021

NOTICE:

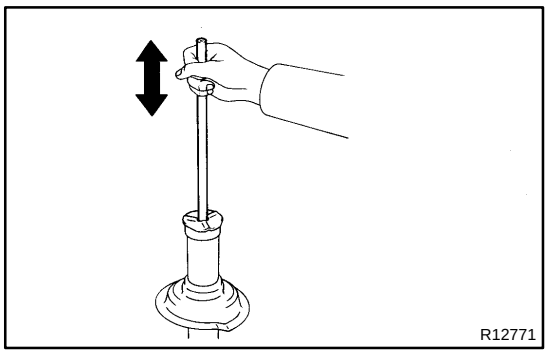
Do not use an impact wrench. It will damage the SST.

(b) Remove the suspension support nut.

(c) Remove the suspension support, insulator and coil spring.

(d) Remove the insulator and spring bumper from the suspension support.

SA0KE–01



INSPECTION

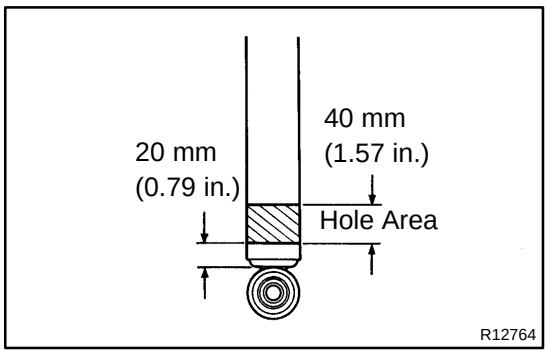
INSPECT SHOCK ABSORBER

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, see DISPOSAL on page SA–101.

SA0KF–01



DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD

2. DRILL HOLE TO REMOVE GAS FROM CYLINDER

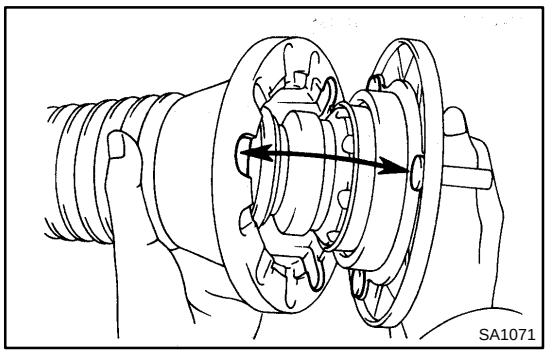
Using a drill, make a hole in the cylinder as shown to bleed the gas inside.

CAUTION:

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

SA0KG–01

REASSEMBLY



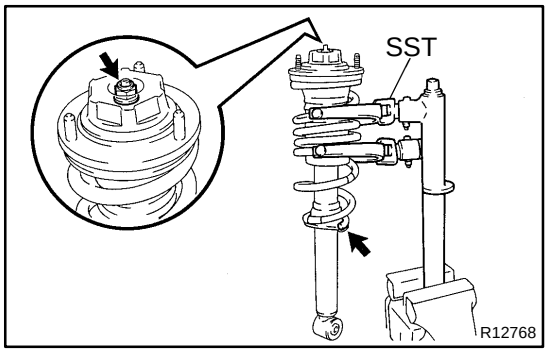
INSTALL SUSPENSION SUPPORT AND COIL SPRING

(a) Install the spring bumper to the suspension support.

(b) Install the insulator to the suspension support.

HINT:

Match the bolt of the suspension support with the cut–off part of the insulator.



(c) Using SST, compress coil spring.
SST 09727–30021

NOTICE:

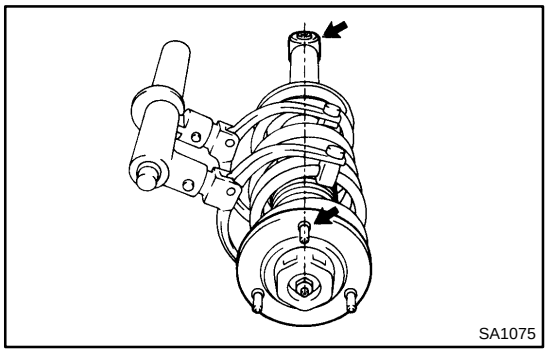
Do not use an impact wrench. It will damage the SST.

(d) Install the coil spring to the shock absorber.

HINT:

Fit the lower end of the coil spring into the gap of the spring seat of the shock absorber.

(e) Install the suspension support to the rod and temporarily tighten a new nut.



(f) Rotate the suspension support so that the rod and one of the bolts on suspension support are aligned with the lower bushing.

(g) Remove the SST.

HINT:

After removing the SST, again check the direction of the suspension support.

SA0KH–01

INSTALLATION

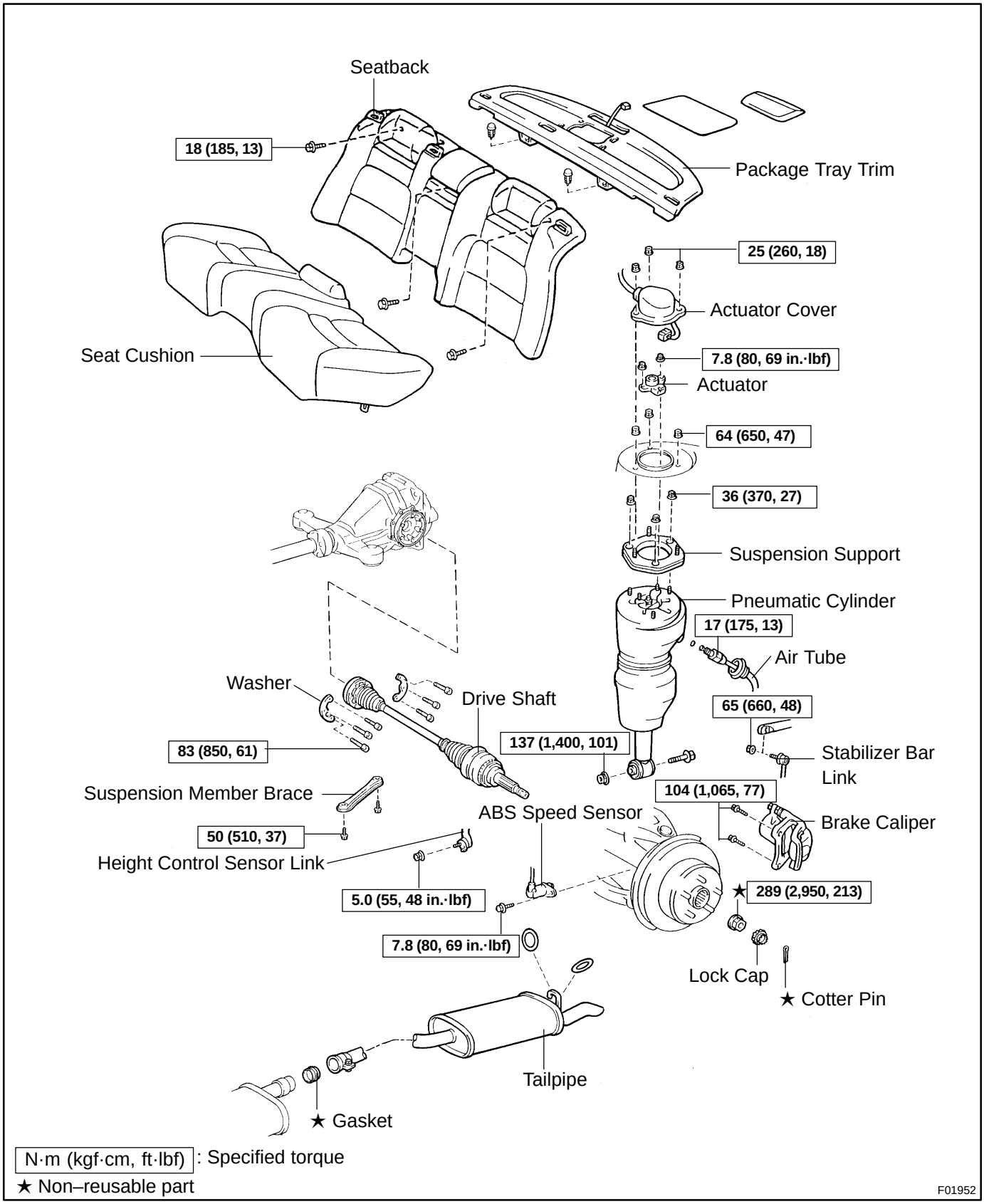
Installation is in the reverse order of removal (See page SA–97).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND REAR WHEEL ALIGNMENT (See page SA–9)

REAR PNEUMATIC CYLINDER

COMPONENTS

SA0KI–01



N·m (kgf·cm, ft·lbf) : Specified torque
★ Non–reusable part

F01952

SA0KJ–01

REMOVAL

1. REMOVE REAR WHEEL

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

2. BLEED AIR (See page SA–131)

HINT:

Disconnect the necessary one touch air connector of the height control valves and bleed the air.

3. REMOVE THESE PARTS

★ Rear seat cushion and rear seatback (See page BO–111)

★ Package tray trim (See page BO–31)

4. REMOVE REAR DRIVE SHAFT (See page SA–63)

5. DISCONNECT STABILIZER BAR LINKS

Disconnect the stabilizer bar link from stabilizer bar.

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

6. REMOVE BRAKE CALIPER

(a) Remove the 2 bolts and brake caliper.

Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

(b) Support brake caliper securely.

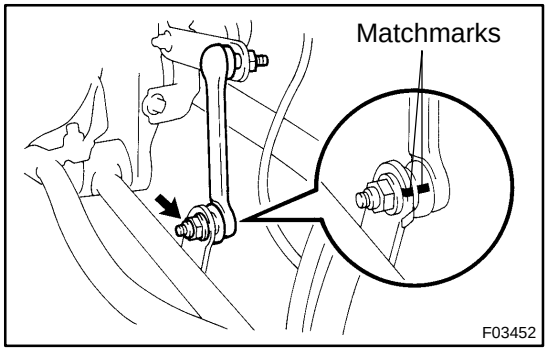
7. REMOVE ABS SPEED SENSOR

Remove the bolt and ABS speed sensor.

NOTICE:

When removing them from right side, do not disconnect the pad wear indicator connector.

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

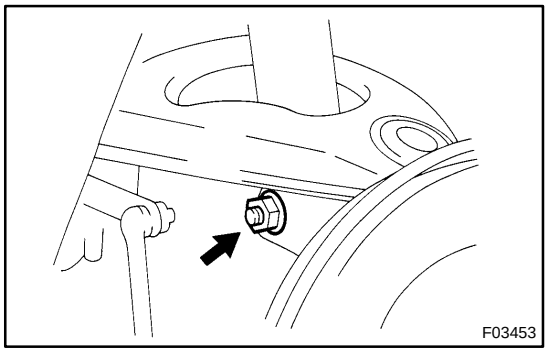


8. DISCONNECT HEIGHT CONTROL SENSOR LINK FROM NO.1 LOWER SUSPENSION ARM

(a) Place matchmarks on the link and bracket.

(b) Remove the nut and disconnect the height control sensor link.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)



9. LOOSEN BOLT ON LOWER SIDE OF PNEUMATIC CYLINDER

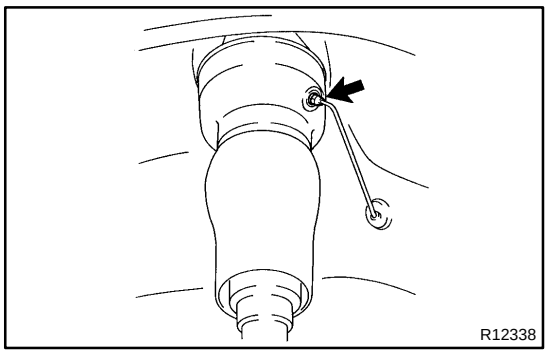
(a) Loosen the bolt on lower side of the pneumatic cylinder.

HINT:

Do not remove the bolt.

Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)

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



10. DISCONNECT AIR TUBE FROM PNEUMATIC CYLINDER

Disconnect the air tube from the pneumatic cylinder.

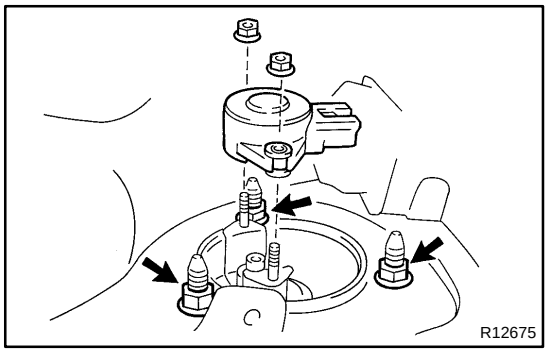
Torque: 17 N·m (175 kgf·cm, 13 ft·lbf)

11. REMOVE SUSPENSION CONTROL ACTUATOR

(a) Remove the 3 nuts and actuator cover.

Torque: 25 N·m (260 kgf·cm, 18 ft·lbf)

(b) Disconnect the actuator connector.



(c) Remove the 2 nuts and actuator.

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

12. REMOVE PNEUMATIC CYLINDER

(a) Remove the 3 nuts.

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

(b) Lower the rear axle carrier and remove the bolt on lower side of pneumatic cylinder.

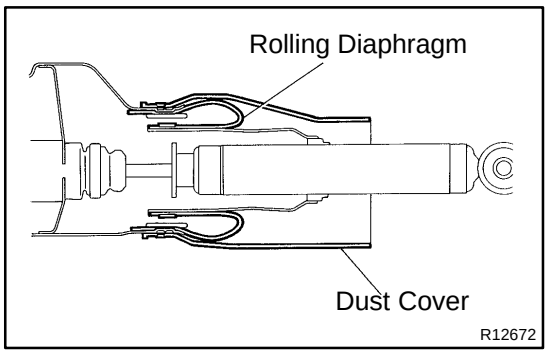
(c) Remove the pneumatic cylinder.

13. REMOVE SUSPENSION SUPPORT

Remove the 3 nuts and suspension support from the pneumatic cylinder.

Torque: 36 N·m (370 kgf·cm, 27 ft·lbf)

SA0KK–01



INSPECTION

1. INSPECT ROLLING DIAPHRAGM

(a) Lift up the dust cover and check that the rolling diaphragm is not damaged or cracked.

If damage or cracks exist replace the pneumatic cylinder.

(b) Return the dust cover back to position.

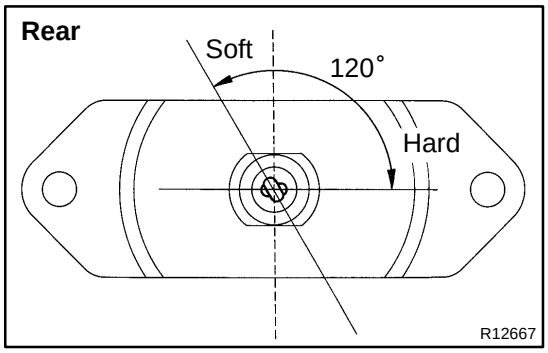
2. INSPECT DAMPING FORCE

(a) Compress and extend the pneumatic cylinder and check that there is no abnormal resistance or unusual operation sounds.

If the pneumatic cylinder is not normal, replace it.

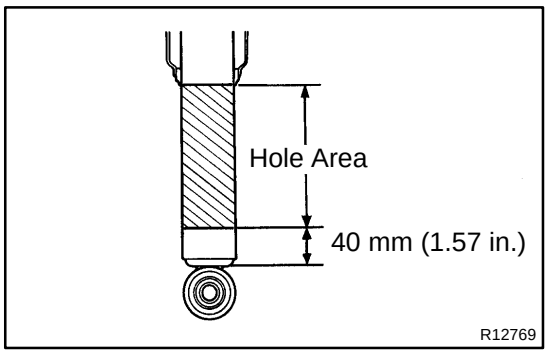
NOTICE:

When discarding the shock absorber, see DISPOSAL on page SA–108.



(b) Check that there is a difference in the damping force when the rods are positioned as shown.

SA0KL–01



DISPOSAL

MAKE A HOLE IN SHOCK ABSORBER AND REMOVE GAS

(a) Fully extend the pneumatic cylinder.

(b) 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 may fly up when drilling.

SA0KM–01

INSTALLATION

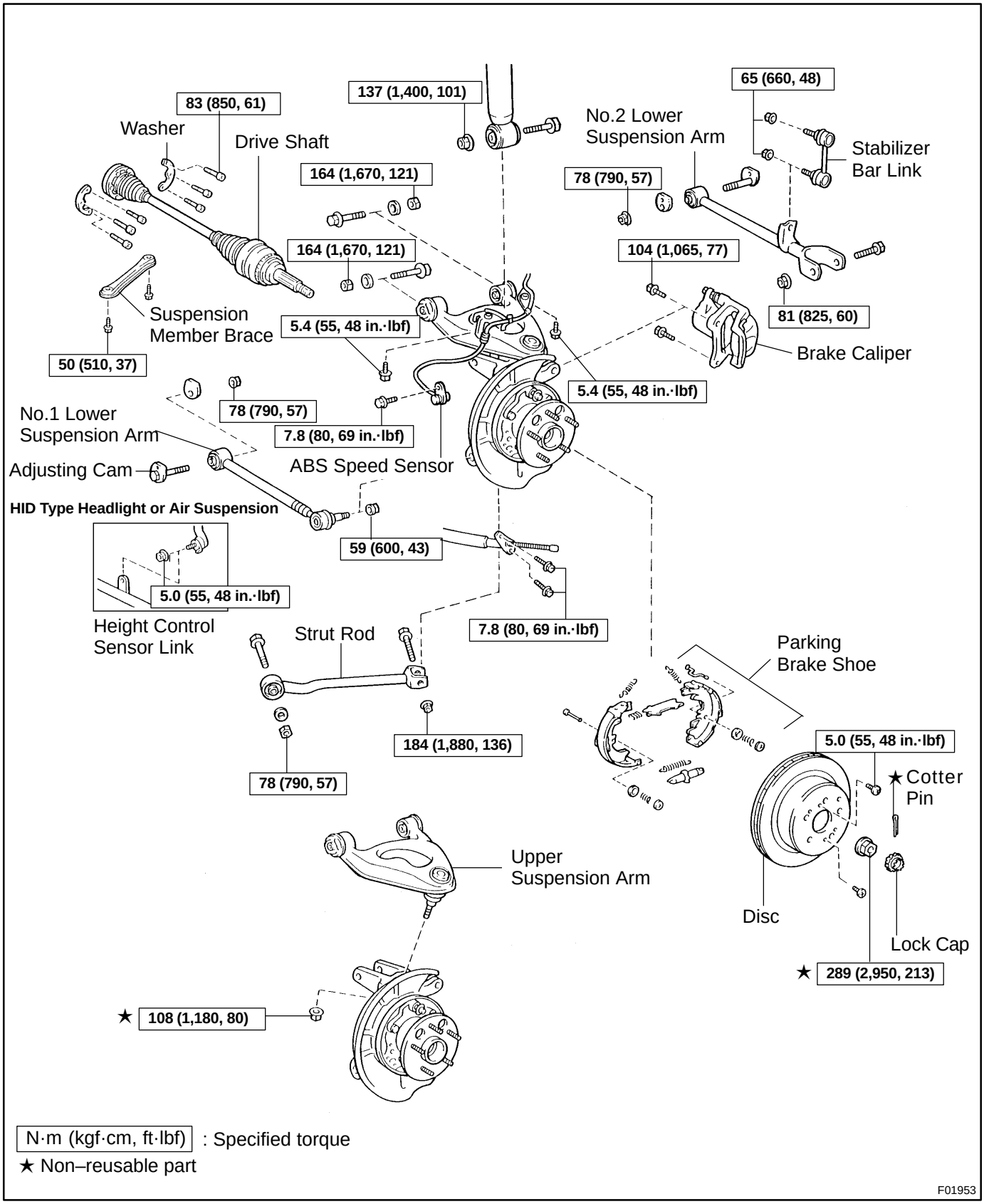
Installation is in the reverse order of removal (See page SA–105).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND REAR WHEEL ALIGNMENT (See page SA–9)

REAR UPPER SUSPENSION ARM

COMPONENTS

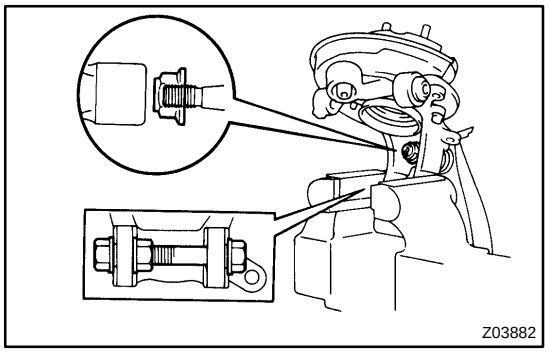
SA0KN–01



SA0KO–01

REMOVAL

1. REMOVE REAR AXLE HUB WITH UPPER SUSPENSION ARM (See page SA–54)

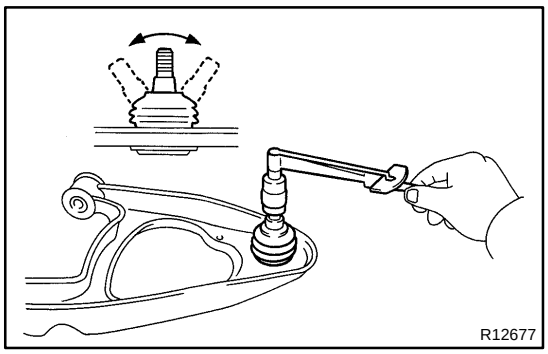


2. REMOVE UPPER SUSPENSION ARM

(a) Install a bolt and 2 nuts to the axle carrier and secure it in a vise.

(b) Loosen the nut to the position. Then tap the nut with a hammer and remove the upper suspension arm.
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

SA0KP–01



INSPECTION

INSPECT BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and 4 – 5 times, before installing the nut.

(b) Using a torque wrench, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Torque (turning):
1.0 – 3.4 N·m (10 – 35 kgf·cm, 9 – 30 in.·lbf)

SA0KQ–01

INSTALLATION

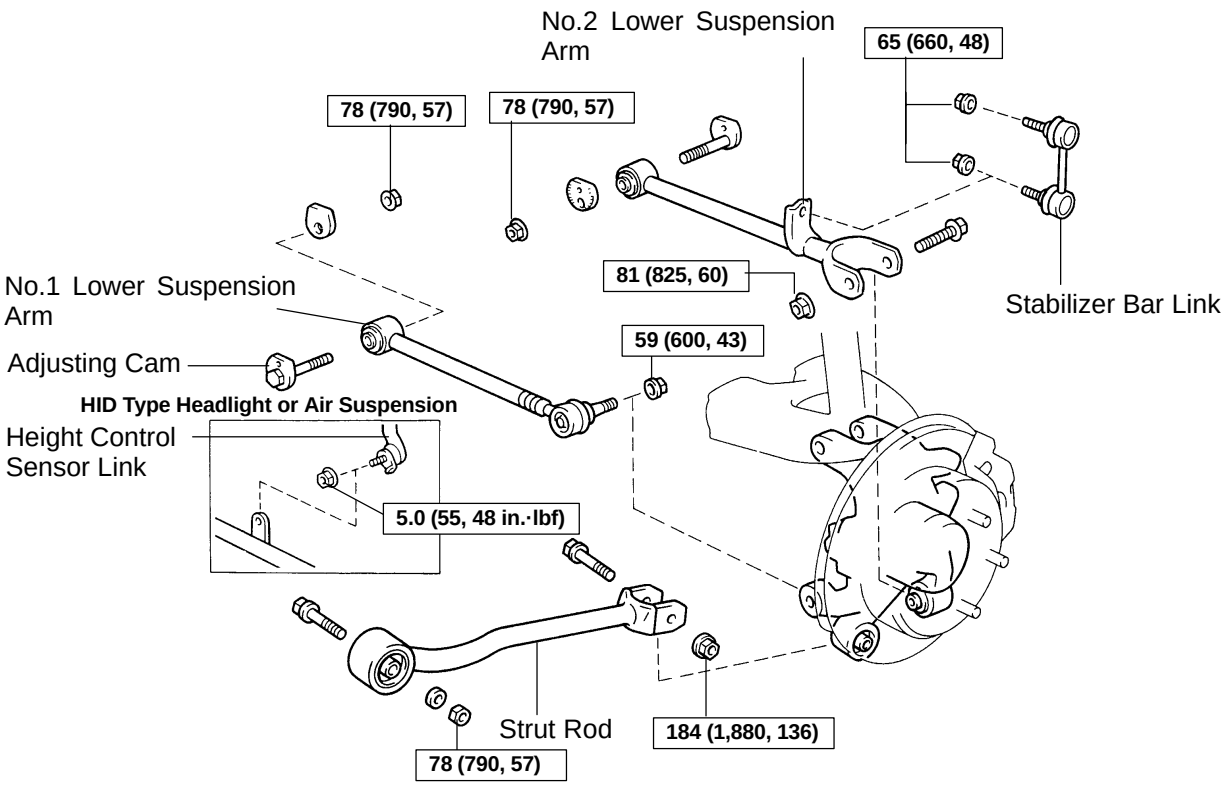
Installation is in the reverse order of removal (See page SA–37).

AFTER INSTALLATION, CHECK ABS SPEED SENSOR SIGNAL (See page DI–307) AND REAR WHEEL ALIGNMENT (See page SA–9)

REAR LOWER SUSPENSION ARM AND STRUT ROD

SA0KR–01

COMPONENTS



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

★ Non–reusable part

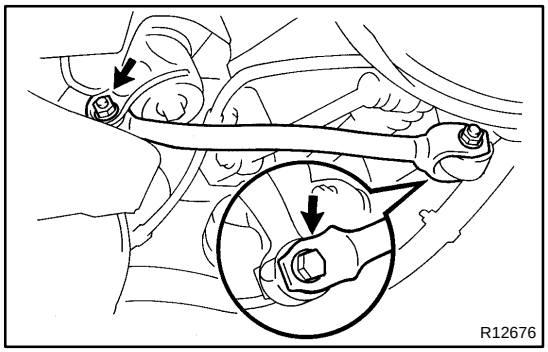
F04770

SA0KS–01

REMOVAL

1. REMOVE REAR WHEEL

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



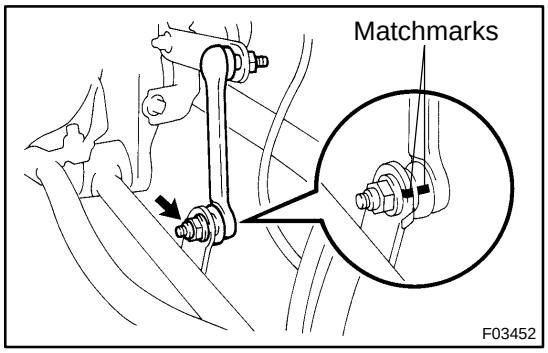
2. REMOVE STRUT ROD

(a) Loosen the bolt and remove the nut and disconnect the strut rod from the rear axle carrier.

Torque: 184 N·m (1,880 kgf·cm, 136 ft·lbf)

(b) Remove the nut, bolt and strut rod from the body.

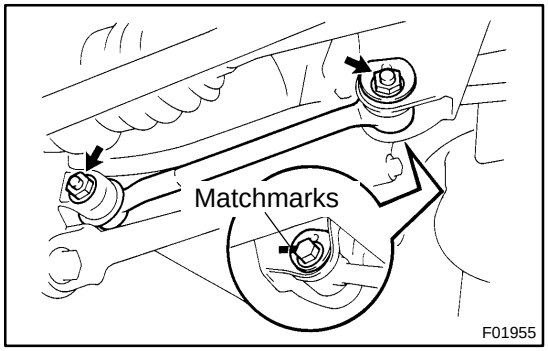
Torque: 78 N·m (790 kgf·cm, 57 ft·lbf)



3. REMOVE NO.1 LOWER SUSPENSION ARM

(a) HID type headlight or air suspension:
Place matchmarks on the link and bracket, remove the nut and disconnect the height control sensor link from the No.1 lower suspension arm.

Torque: 5.0 N·m (55 kgf·cm, 48 in.·lbf)



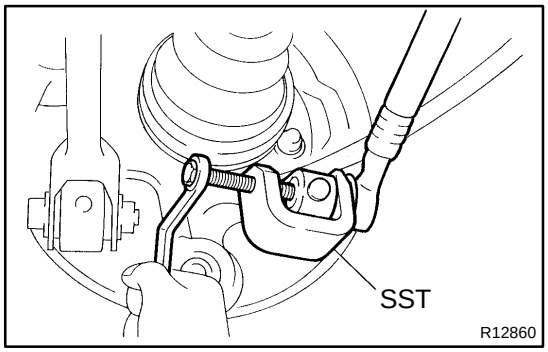
(b) Place matchmarks on the adjusting cam and body.

(c) Remove the nut and adjusting cam.

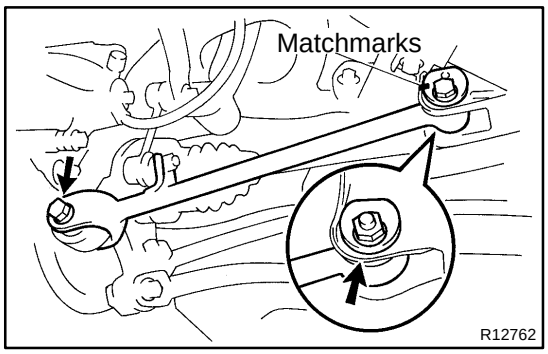
Torque: 78 N·m (790 kgf·cm, 57 ft·lbf)

(d) Remove the nut on axle carrier side of No.1 lower suspension arm.

Torque: 59 N·m (600 kgf·cm, 43 ft·lbf)



(e) Using SST, remove the No.1 lower suspension arm.
SST 09628–10011



4. REMOVE NO.2 LOWER SUSPENSION ARM

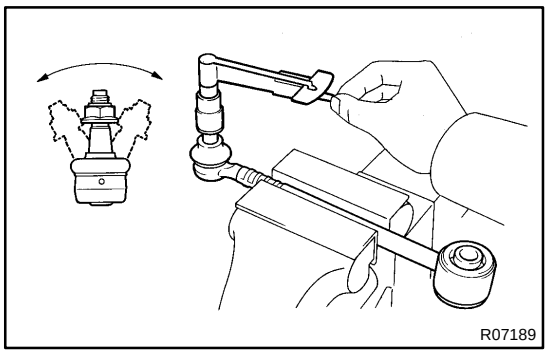
(a) Remove the stabilizer bar link.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

(b) Place matchmarks on the adjusting cam and body.

(c) Remove the nut and adjusting cam.
Torque: 78 N·m (790 kgf·cm, 57 ft·lbf)

(d) Loosen the bolt and remove the nut and No.2 lower suspension arm.
Torque: 81 N·m (825 kgf·cm, 60 ft·lbf)

SA0KT–01



INSPECTION

INSPECT NO.1 LOWER SUSPENSION ARM BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and 4 – 5 times, before installing the nut.

(b) Using a torque wrench, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Turning torque:
0.8 – 3.4 N·m (8.5 – 35 kgf·cm, 7.4 – 30 in.·lbf)

SA0KU–01

INSTALLATION

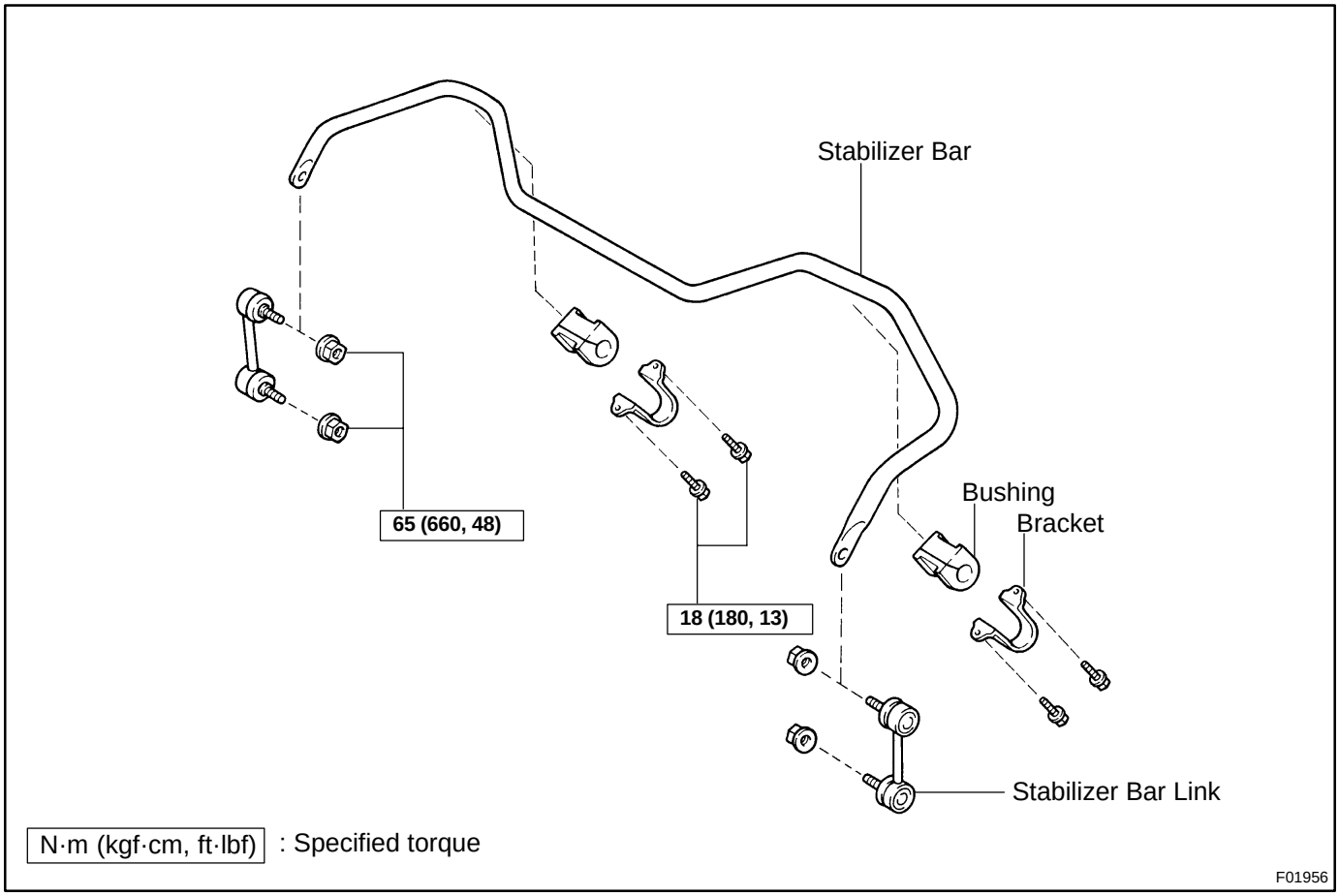
Installation is in the reverse order of removal (See page SA–115).

AFTER INSTALLATION, CHECK REAR WHEEL ALIGNMENT (See page SA–9)

REAR STABILIZER BAR

SA0KV–01

COMPONENTS



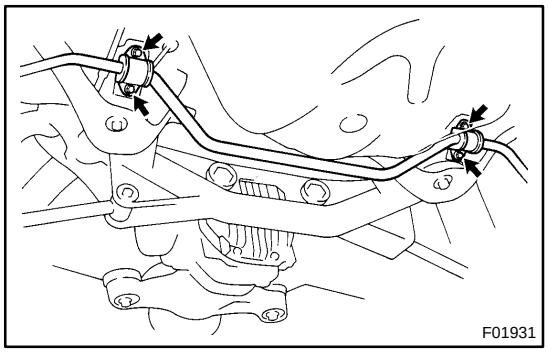
SA0KW–01

REMOVAL

1. REMOVE BOTH STABILIZER BAR LINKS

(a) Remove the 2 nuts and stabilizer bar link.
Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

(b) Employ the same manner described above to the other side.

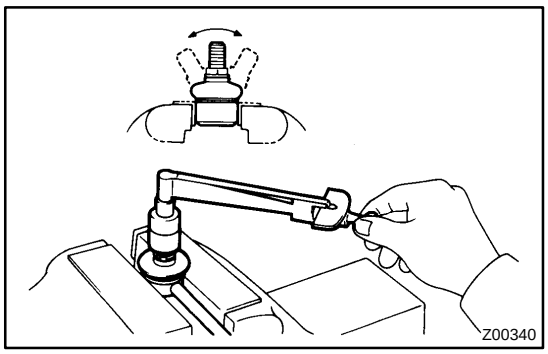

F01931

2. REMOVE BOTH STABILIZER BAR BRACKETS

Remove the 4 bolts and both stabilizer bar brackets.
Torque: 18 N·m (180 kgf·cm, 13 ft·lbf)

3. REMOVE BOTH BUSHINGS

SA0KX–01



INSPECTION

INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTATION CONDITION

(a) Flip the ball joint stud back and 4 – 5 times before installing the nut.

(b) Using a torque wrench, turn the stud continuously one turn every 2–4 seconds and take the torque reading on the 5th turn.

Turning torque:
0.05 – 1.5 N·m (0.5 – 15 kgf·cm, 0.4 – 13 in.·lbf)

SA0KY–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–120).

ELECTRONIC MODULATED AIR SUSPENSION

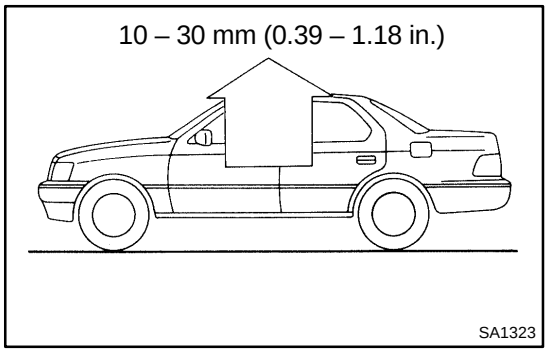
SA0KZ–01

INSPECTION

1. OPERATE HEIGHT CONTROL SWITCH AND CHECK CHANGE OF VEHICLE HEIGHT

(a) Check the tires for the proper inflation pressure (See page SA–3).

(b) Check the vehicle height (See page SA–5).

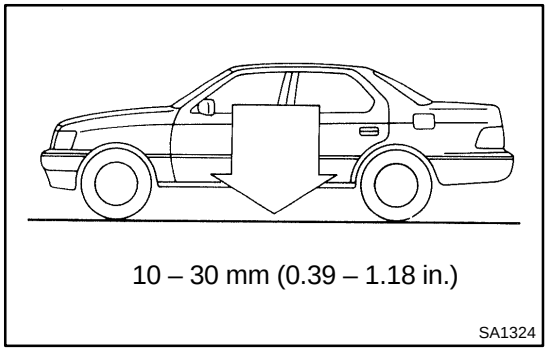


(c) Start the engine and change the height control switch from the NORM position to the HIGH position.
Check the time until the height adjustment is completed and the amount of change in the vehicle height.

Adjustment time

From operation of height control switch to start of compressor.	Approx. 2 sec.
From start of compressor to completion of height adjustment.	20 – 40 sec.

Amount of change in vehicle height:
10 – 30 mm (0.39 – 1.18 in.)



(d) With the vehicle in the HIGH position height adjustment, start the engine and change the height control switch from the HIGH position to the NORM position.
Check the time until the height adjustment is completed and the amount of change in the vehicle height.

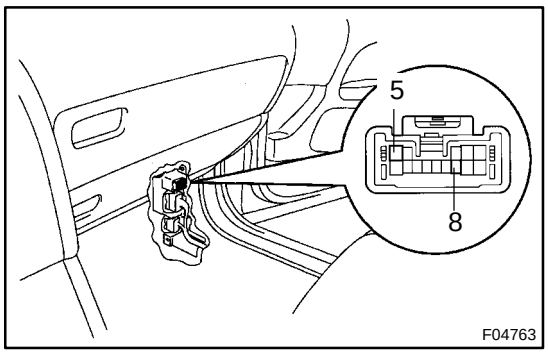
Adjustment time

From operation of height control switch to open of exhaust valve.	Approx. 2 sec.
From open of exhaust valve to completion of height adjustment.	20 – 40 sec.

Amount of change in vehicle height:
10 – 30 mm (0.39 – 1.18 in.)

2. CHECK OPERATION OF RELIEF VALVE

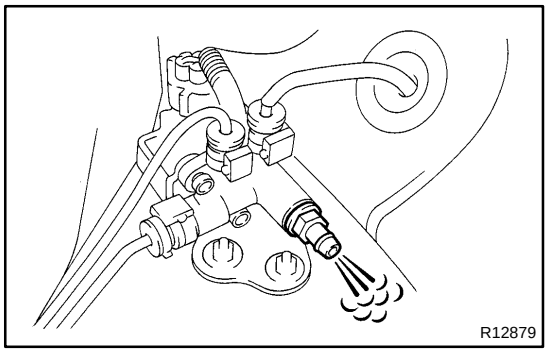
(a) Remove the instrument panel box assembly, scuff plate, floor carpet.



(b) Turn the ignition switch ON and connect terminals 5 and 8 of the height control connector to operate the compressor.

NOTICE:

Connect terminals 5 and 8 of the height control connecter for no longer than 15 seconds.



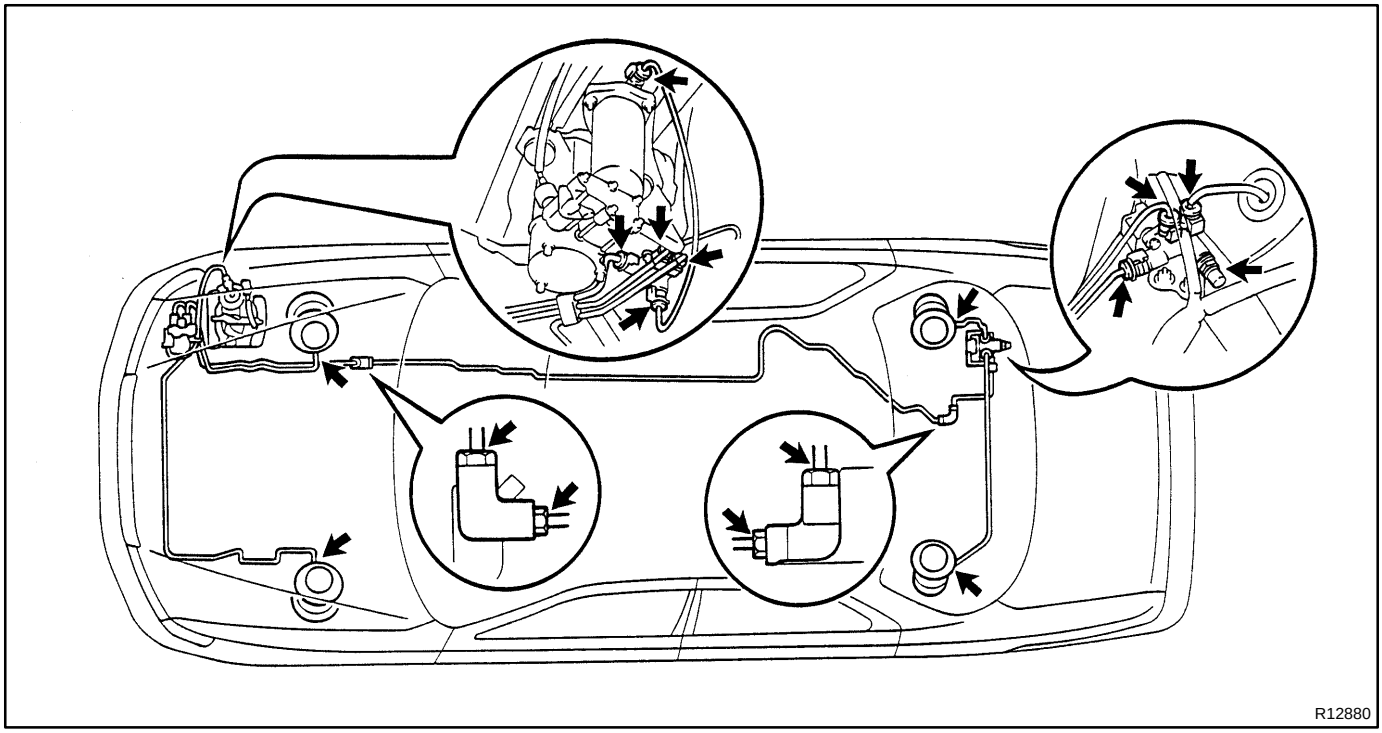
(c) Operate the compressor, wait a short period of time, then check if air is blown from the relief valve.
(d) Turn the ignition switch OFF.
(e) Clear the diagnostic trouble code (See page DI–237).

NOTICE:

When the compressor is forcedly operated, a diagnostic trouble code is recorded in the ECU. Be sure to clear the diagnostic trouble code after the inspection is completed.

3. CHECK CONNECTIONS OF TUBES AND HOSES FOR AIR LEAKAGE

(a) Set the height control switch in the HIGH position and raise the vehicle height.
(b) Stop the engine.
(c) Apply soapy water to the connections of the tubes and hoses and check if there is any air leakage.



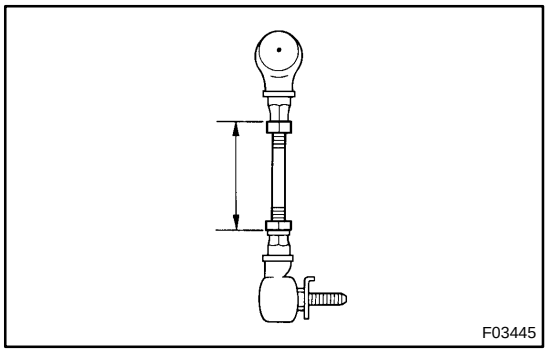
SA0L0–01

ADJUSTMENT

NOTICE:

- ★ **Adjustment of the vehicle height should be performed with the height control switch in the NORM position. Perform height adjustments in a level place.**
- ★ **Be sure to adjust the vehicle height so that it is within the range of standard values.**
- ★ **Perform height adjustments in a level place.**

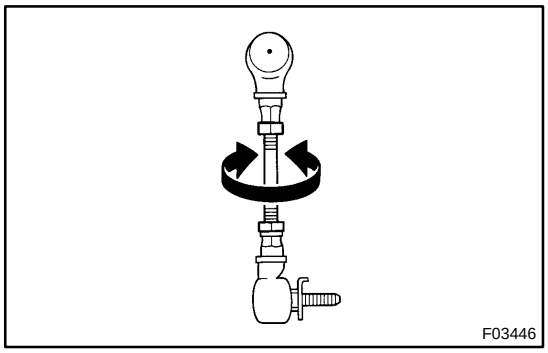
1. INSPECT VEHICLE HEIGHT (See page SA–5)



2. INSPECT FRONT HEIGHT CONTROL SENSOR LINK LENGTH

Inspect the link dimension shown in the illustration.

Link length (reference): 59.3 mm (2.335 in.)



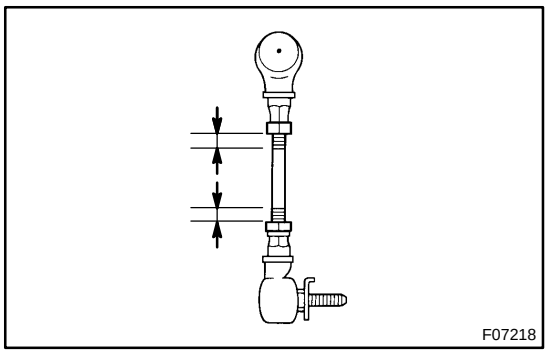
3. ADJUST FRONT VEHICLE HEIGHT

(a) Loosen the 2 lock nuts on the height control sensor link.

(b) Turn the bolt of the height control sensor link to adjust the length.

HINT:

Turning the bolt of the height control sensor link one revolution changes the vehicle height by about 5 mm (0.20 in.).



(c) Check if the height control sensor link dimension shown in the illustration is less than the maximum value.

Maximum: 10 mm (0.39 in.)

(d) Tighten the 2 lock nuts temporarily.

HINT:

Coat the thread of the bolt with sealer.

Sealer:

Part No.08833–00070, THREE BOND 1324 or equivalent

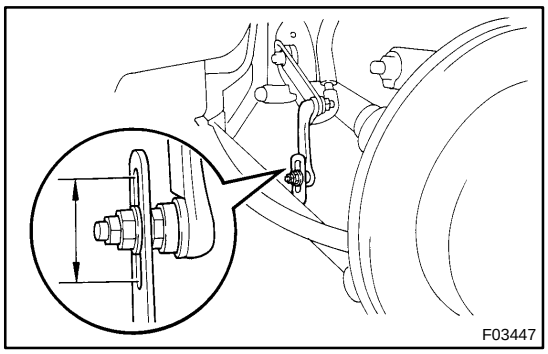
(e) Inspect the vehicle height one more time.

(f) Tighten the lock nuts.

Torque: 4.9 N·m (50 kgf·cm, 43 in.·lbf)

NOTICE:

Make sure the ball joint and bracket are parallel when tightening the lock nuts.



4. ADJUST REAR VEHICLE HEIGHT

The rear vehicle height can be adjusted by moving the installation position of the link on the lower arm.

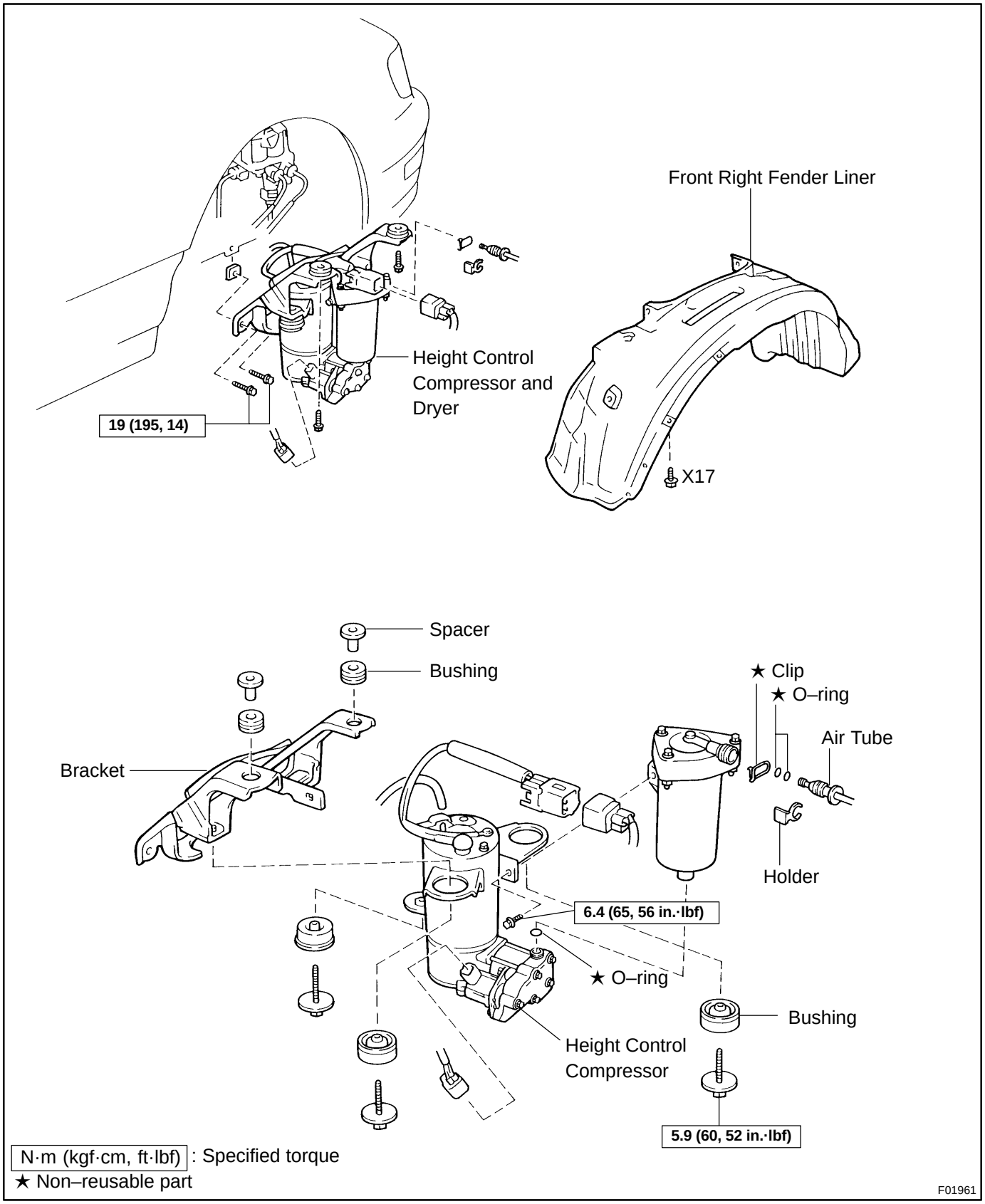
When the link is moved 1 mm (0.04 in.), the vehicle height is adjusted by about 2 mm (0.08 in.).

5. INSPECT WHEEL ALIGNMENT (See page SA–5)

HEIGHT CONTROL COMPRESSOR AND DRYER

SA0L1–01

COMPONENTS



SA0L2–01

REMOVAL

1. REMOVE FRONT RIGHT WHEEL
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

2. REMOVE FRONT RIGHT FENDER LINER

3. REMOVE HEIGHT CONTROL COMPRESSOR AND DRYER

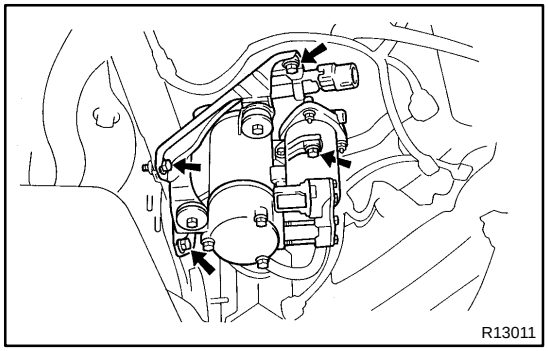
HINT:
At the time of installation, after installation, check for air leakage (See page SA–123).

(a) Remove the connector.

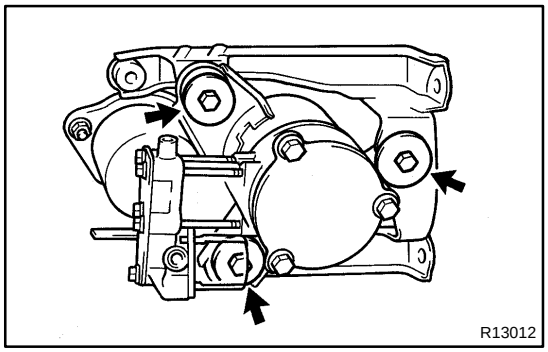
(b) Remove the air tube.
(1) Remove the holder.
(2) Spread the clip and pull the air tube out straight and slowly.

NOTICE:
Do not get scratches or foreign particles on the O–ring, O–ring seal and flare section.

HINT:
At the time of installation, please refer to the following items.
★ If replacing the O–ring, coat it with MP grease.
★ Push the air tube in straight to connect it until the clip makes ”click” sound.
(3) Remove the clip.



(c) Remove the 4 bolts and the height control compressor and dryer with the bracket.
Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)



(d) Remove the 3 bolts and the bracket from the height control compressor.
Torque: 5.9 N·m (60 kgf·cm, 52 in.·lbf)

(e) Remove the bolt and the dryer from the height control compressor.

Torque: 6.4 N·m (65 kgf·cm, 56 in.·lbf)

NOTICE:

Slowly pull out or push in the dryer along the dryer axis and do not damage the O–ring on the compressor side.

HINT:

At the time of installation, if replacing the O–ring, coat it with MP grease.

4. REMOVE BUSHING AND SPACER

SA0L3–01

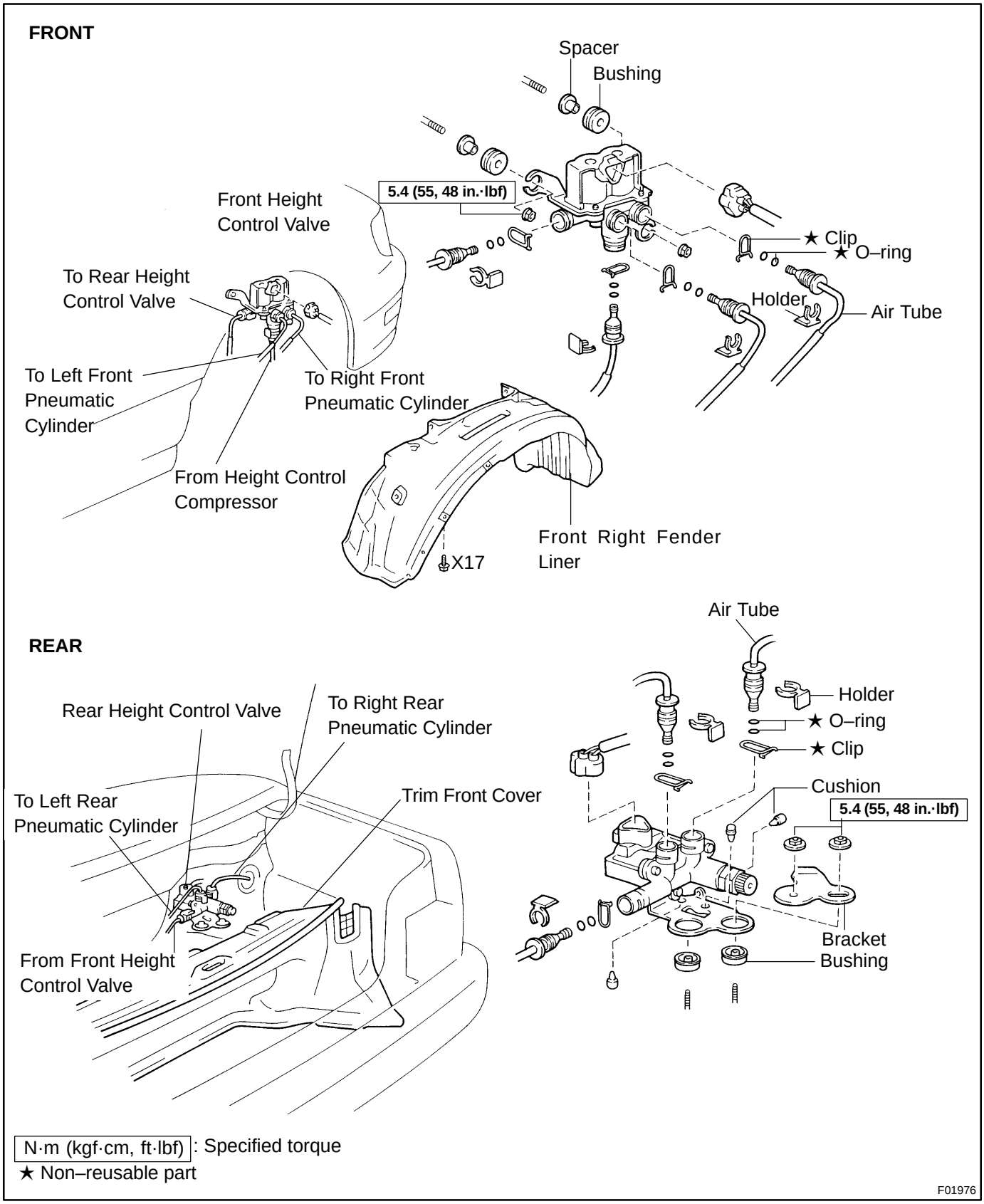
INSTALLATION

Installation is in the reverse order of removal (See page SA–128).

HEIGHT CONTROL VALVE

COMPONENTS

SA0L4–01



SA0L5–01

REMOVAL

1. FRONT:
REMOVE FRONT RIGHT WHEEL AND FENDER LINER
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

2. REAR:
REMOVE LUGGAGE COMPARTMENT TRIM FRONT COVER (See page BO–31)

3. REMOVE HEIGHT CONTROL VALVE

HINT:

At the time of installation, after installation, check for air leakage (See page SA–123).

(a) Remove the connector.

(b) Remove the air tube.

(1) Remove the holder.

(2) Spread the clip and pull the air tube out straight and slowly.

NOTICE:

Do not get scratches or foreign particles on the O–ring, O–ring seal and flare section.

HINT:

At the time of installation, please refer to the following items.

★ If replacing O–ring, coat it with MP grease.

★ Push the air tube in straight to correct it until the clip makes ”click” sound.

(3) Remove the clip.

(c) Remove the 2 nuts and the height control valve.
Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

4. REMOVE BUSHING, CUSHION AND SPACER

SA0L6–01

INSTALLATION

Installation is in the reverse order of removal (See page SA–132).