SUSPENSION AND AXLE

TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

SA0CB–04

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	1. Tire (Worn or improperly inflated)	SA–2
	2. Wheel alignment (Incorrect)	SA–4
		SA–7
	3. Steering linkage (Loose or worn)	–
	4. Hub bearing (Worn)	SA–9
		SA–41
	5. Steering gear (Out of adjustment or broken)	SR–34
		SR–47
	6. Suspension parts (Worn)	–
Bottoming	1. Vehicle (Overloaded)	–
	2. Spring (Weak)	SA–24
		SA–46
	3. Shock absorber (Worn)	SA–27
		SA–48
Sways/pitches	1. Tire (Worn or improperly inflated)	SA–2
	2. Stabilizer bar (Bent or broken)	SA–35
	3. Shock absorber (Worn)	SA–27
		SA–48
Front wheel shimmy	1. Tire (Worn or improperly inflated)	SA–2
	2. Wheel (Out of balance)	SA–2
	3. Shock absorber (Worn)	SA–27
	4. Wheel alignment (Incorrect)	SA–4
	5. Ball joint (Worn)	SA–33
	6. Hub bearing (Worn)	SA–9
	7. Steering linkage (Loose or worn)	–
	8. Steering gear (Out of adjustment or broken)	SR–34
		SR–47
Abnormal tire wear	1. Tire (Worn or improperly inflated)	SA–2
	2. Wheel alignment (Incorrect)	SA–4
	3. Shock absorber (Worn)	SA–27
		SA–48
	4. Suspension parts (Worn)	–

TIRE AND WHEEL

SA0CC–05

INSPECTION

1. INSPECT TIRE

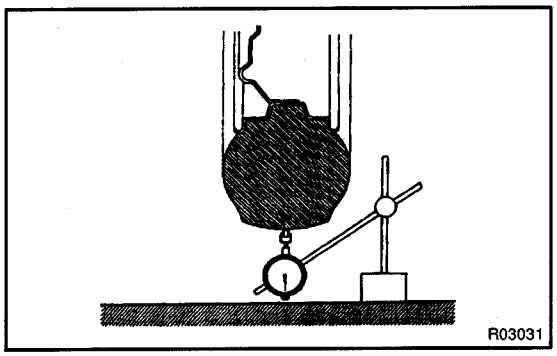
(a) Check the tires for wear and proper inflation pressure.

Cold tire inflation pressure:
(Tire size: 175/65R14 82T)
Vehicle load up to 4 passengers:

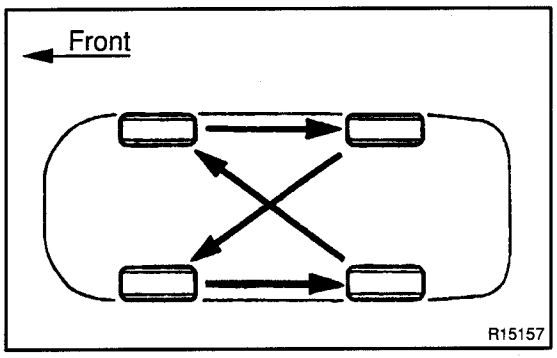
Vehicle speed	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
Vehicle speed is not concerned	220 (2.2, 32)	220 (2.2, 32)

Vehicle load up to 5 passengers and full rated loads:

Vehicle speed	Front kPa (kgf/cm^2, psi)	Rear kPa (kgf/cm^2, psi)
Under 160 km/h (100 mph)	220 (2.2, 32)	220 (2.2, 32)
160 km/h (100 mph) or over	240 (2.4, 35)	240 (2.4, 35)

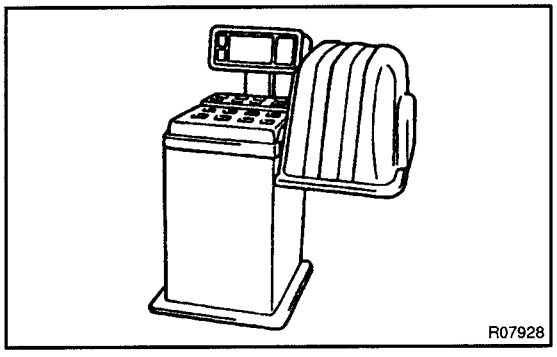


(b) Using a dial indicator, check the tire runout.
Tire runout: 1.0 mm (0.039 in.) or less



2. ROTATING TIRES

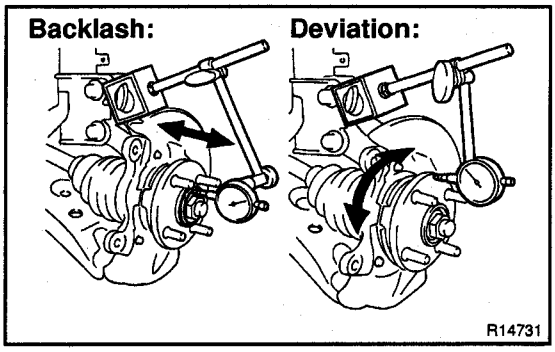
HINT:
See the illustration for where to rotate each tire.



3. INSPECT WHEEL BALANCE

(a) Check and adjust the Off–the–car balance.
(b) If necessary, check and adjust the On–the–car balance.
Imbalance after adjustment: 8.0 g (0.018 lb) or less

SA



4. CHECK WHEEL BEARING LOOSENESS

(a) Using a dial indicator, check the backlash near the center of the axle hub.

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 axle hub.

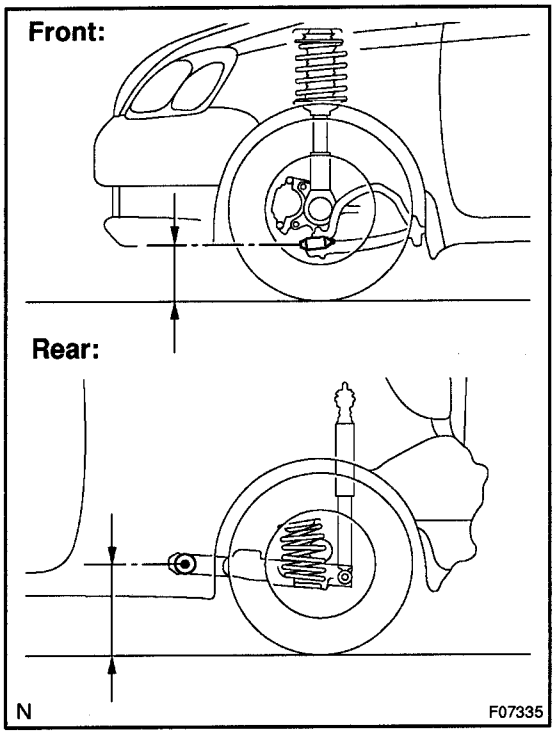
5. CHECK FRONT SUSPENSION FOR LOOSENESS

6. CHECK STEERING LINKAGE FOR LOOSENESS

7. CHECK BALL JOINT FOR LOOSENESS

8. CHECK SHOCK ABSORBER WORKS PROPERLY

- Check if oil leaks
- Check mounting bushings for wear
- Bounce front and rear of the vehicle



FRONT WHEEL ALIGNMENT

SA1CK–03

INSPECTION

1. MEASURE VEHICLE HEIGHT

Vehicle height:

Rear Brake Type	Front*1 mm (in.)	Rear*2 mm (in.)
Drum brake	187 (7.36)	257 (10.12)
Disc brake	187 (7.36)	256 (10.08)

*1: Front measuring point

Measure the distance from the ground to the head center of the front side lower suspension arm mounting bolt.

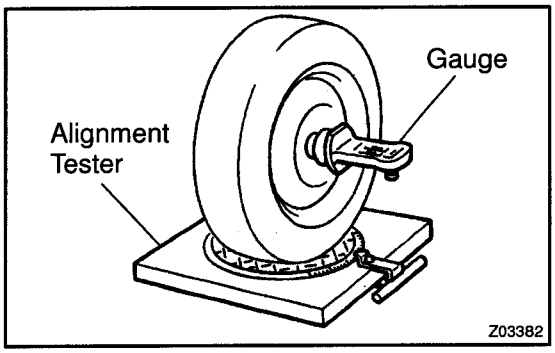
*2: Rear measuring point

Measure the distance from the ground to the center of the rear axle beam mounting bolt.

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

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



2. INSTALL CAMBER–CASTER–KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination:

Camber	–0°35' ± 45' (–0.58° ± 0.75°)
Right–left error	45' (0.75°) or less
Caster (Rear drum brake)	
Manual steering	0°55' ± 45' (0.92° ± 0.75°)
Power steering	1°54' ± 45' (1.90° ± 0.75°)
Right–left error	45' (0.75°) or less
Caster (Rear disc brake)	
Manual steering	0°57' ± 45' (0.95° ± 0.75°)
Power steering	1°56' ± 45' (1.93° ± 0.75°)
Right–left error	45' (0.75°) or less
Steering axis inclination	10°05' ± 45' (10.08° ± 0.75°)
Right–left error	45' (0.75°) or less

If the caster and steering axis inclination are not within the specified values, after the camber has been correctly adjusted, recheck the suspension parts for damaged and/or worn out parts.

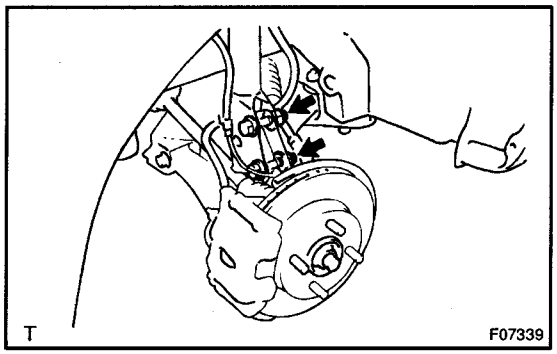
4. ADJUST CAMBER

NOTICE:

After the camber has been adjusted, inspect the toe–in.

(a) Remove the front wheel.

SA

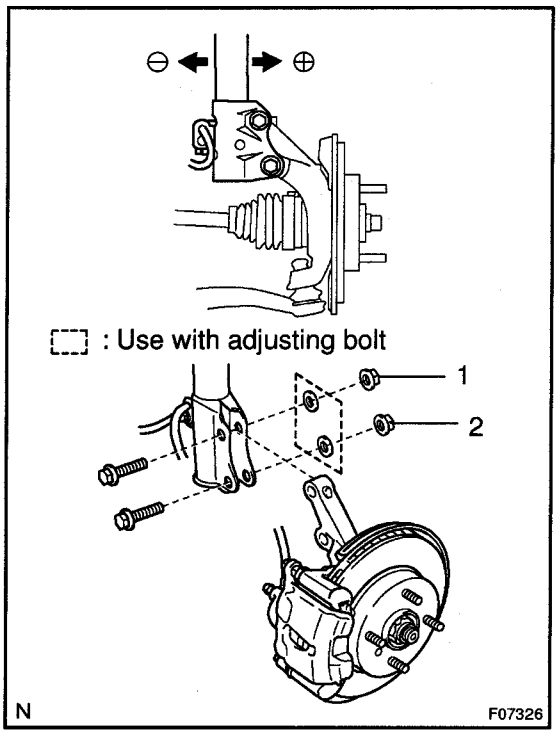


(b) Remove the 2 nuts on the lower side of the shock absorber.

If reusing the bolts and/or nuts, coat the threads of nuts with engine oil.

(c) Clean the installation surfaces of the shock absorber and the steering knuckle.

(d) Temporarily install the 2 nuts.



(e) Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.

(f) Tighten the nuts.

Torque: 132 N·m (1,350 kgf·cm, 97 ft·lbf)

(g) Install the front wheel.

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

(h) Check the camber.

HINT:

- Try to adjust the camber to the center of the specified value.
- Adjusting value for the set bolts is 6' – 30' (0.1° – 0.5°).

If the camber is not within the specified value, using the following table, estimate how much additional camber adjustment will be required, and select the camber adjusting bolt.

NOTICE:

Tighten the adjusting bolt with a washer and a new nut.

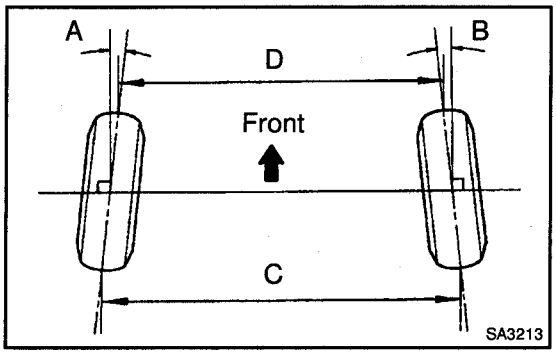
Bolt / Adjusting Value	Set Bolt		Adjusting Bolt			
	90105–14140		90105–14146		90105–14147	
			1 Dot		2 Dots	
	11		•11		•11•	
	1	2	1	2	1	2
15'	●			●		
30'	●					●
45'			●			●
1°00'			●		●	●

N F07372

(i) Do the steps mentioned above again. At step (b), replace 1 or 2 selected bolts.

SA

HINT:
When replacing the 2 bolts, replace 1 bolt for each time.



5. INSPECT TOE–IN

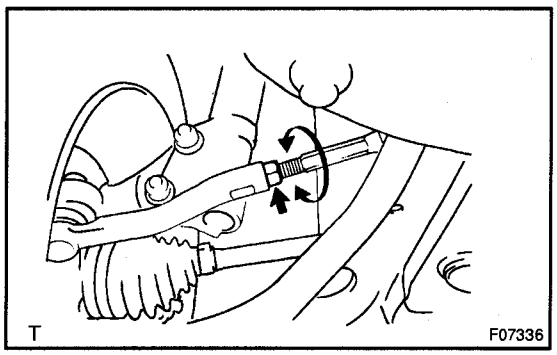
Toe–in:

Toe–in (total)	A + B: 0° ± 12' (0° ± 0.2°) C – D: 0 ± 2 mm (0 ± 0.08 in.)

If the toe–in is not within the specified value, adjust it at the rack ends.

6. ADJUST TOE–IN

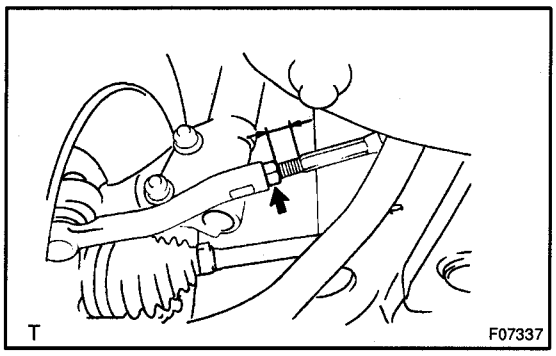
(a) Remove the rack boot set clips.



(b) Loosen the tie rod end lock nuts.

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

HINT:
Try to adjust the toe–in to the center of the specified value.

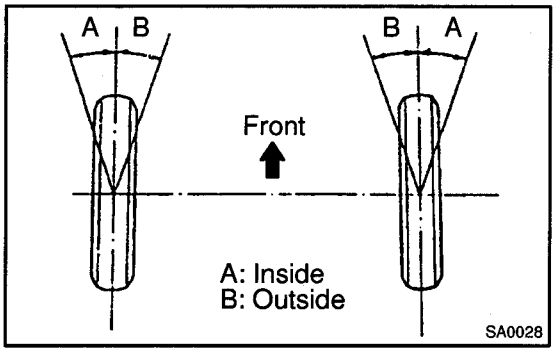


(d) Make sure that the lengths of the right and left rack ends are the same.
Rack end length difference: 1.5 mm (0.059 in.) or less

(e) Torque the tie rod end lock nuts.
Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)

(f) Place the boots on the seats and install the clips.

HINT:
Make sure that the boots are not twisted.



7. INSPECT WHEEL ANGLE

Turn the steering wheel fully and measure the turning angle.

Wheel turning angle:

	Manual steering	Power steering
Inside wheel	36°59' ± 2° (36.98° ± 2°)	36°58' ± 2° (36.97° ± 2°)
Outside wheel: Reference	32°09' (32.15°)	32°19' (32.32°)

If the right and left inside wheel angles differ from the specified value, check the right and left rack end lengths.

SA

REAR WHEEL ALIGNMENT

SA0QR-03

INSPECTION

1. MEASURE VEHICLE HEIGHT (See page SA–4)

NOTICE:

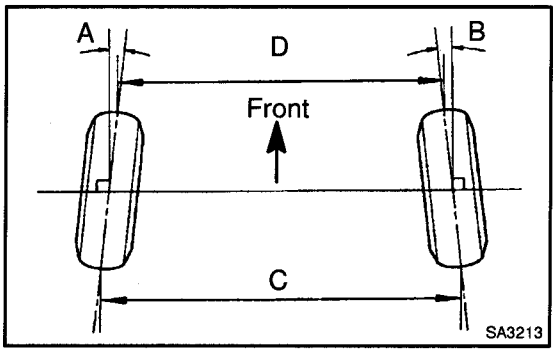
Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

2. INSPECT CAMBER

Camber:

Camber	–0°57' ± 45' (–0.95° ± 0.75°)
Right–left error	45' (0.75°) or less

If the measured value is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.



3. INSPECT TOE–IN

Toe–in:

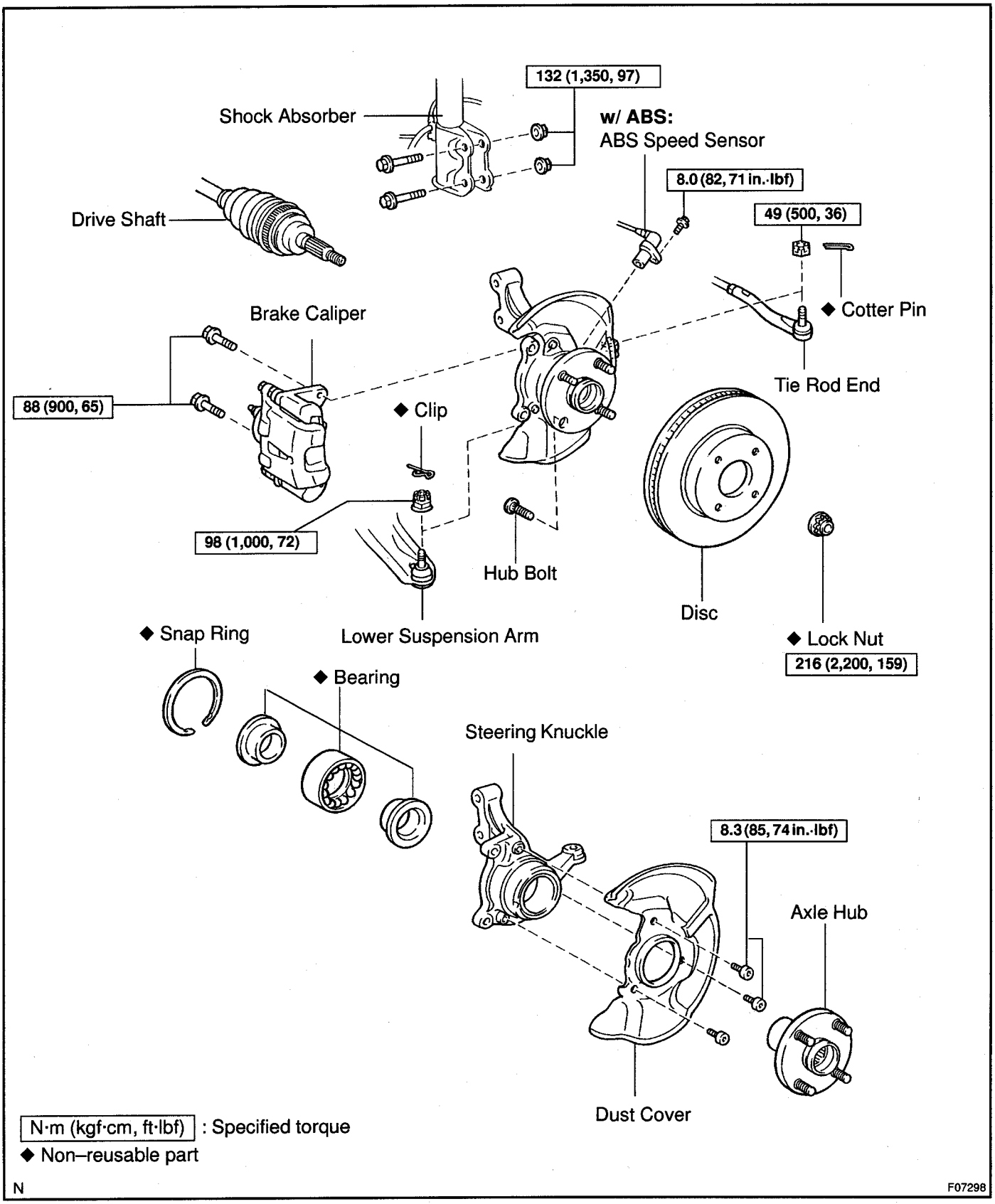
Toe–in (total)	A + B: 0°21' ± 15' (0.35° ± 0.25°) C – D: 3.3 ± 2.3 mm (0.13 ± 0.09 in.)

If the toe–in is not within the specified value, inspect and replace the suspension parts as necessary.

FRONT AXLE HUB

COMPONENTS

SA0CF–04



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

◆ Non–reusable part

N

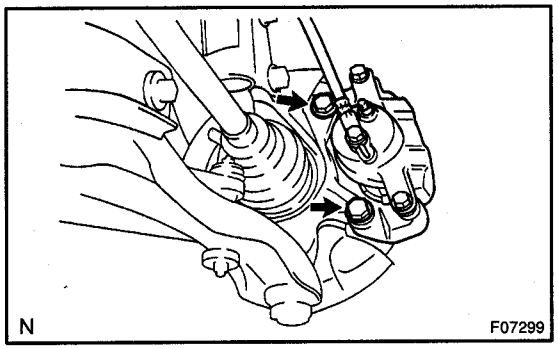
F07298

SA

SA1CL-02

REMOVAL

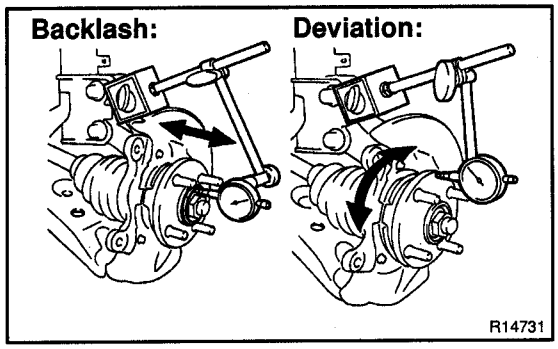
1. REMOVE FRONT WHEEL



2. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION

(a) Remove the 2 bolts, brake caliper and disc.

(b) Support the brake caliper securely.



(c) Using a dial indicator, check the backlash near the center of the axle hub.

Maximum: 0.05 mm (0.0020 in.)

If the backlash exceeds the maximum, replace the bearing.

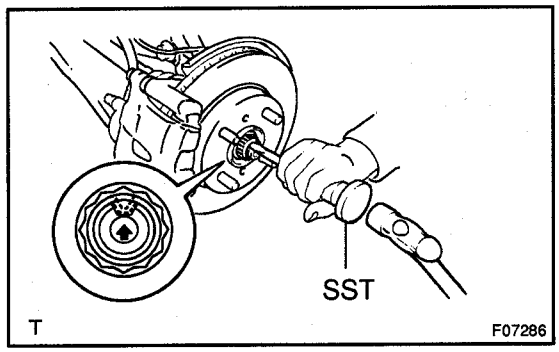
(d) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.

Maximum: 0.05 mm (0.0020 in.)

If the deviation exceeds the maximum, replace the axle hub.

(e) Install the disc, brake caliper and 2 bolts.

Torque: 88 N·m (900 kgf·cm, 65 ft·lbf)



3. REMOVE DRIVE SHAFT LOCK NUT

(a) Using SST and a hammer, unstake the staked part of the lock nut.

SST 09930–00010

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

(c) Remove the 2 bolts, brake caliper and disc.

(d) Support the brake caliper securely.

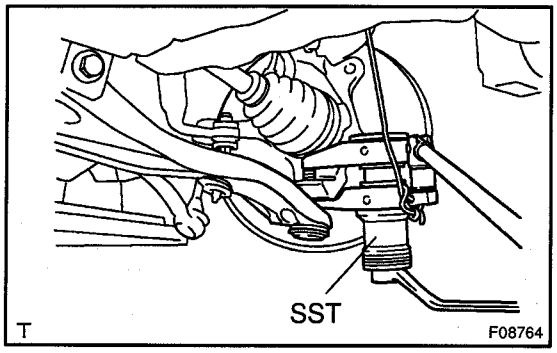
4. w/ ABS:

DISCONNECT ABS SPEED SENSOR

Remove the bolt and disconnect the ABS speed sensor.

5. DISCONNECT STEERING KNUCKLE FROM LOWER SUSPENSION ARM

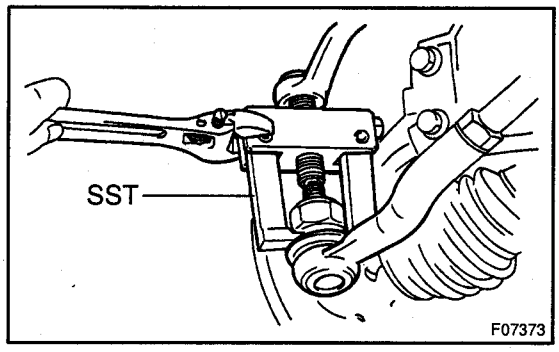
(a) Remove the clip and nut.



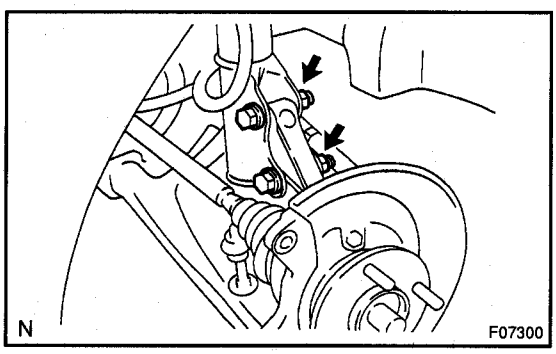
(b) Using SST, disconnect the steering knuckle.
SST 09628–00011

6. DISCONNECT TIE ROD END FROM STEERING KNUCKLE

(a) Remove the cotter pin and nut.



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



7. REMOVE STEERING KNUCKLE WITH AXLE HUB

Remove the 2 nuts, bolts and steering knuckle with the axle hub from the shock absorber.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

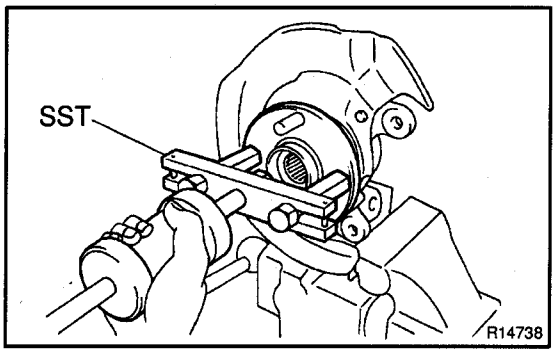
SA

SA1KU-01

DISASSEMBLY

1. REMOVE SNAP RING

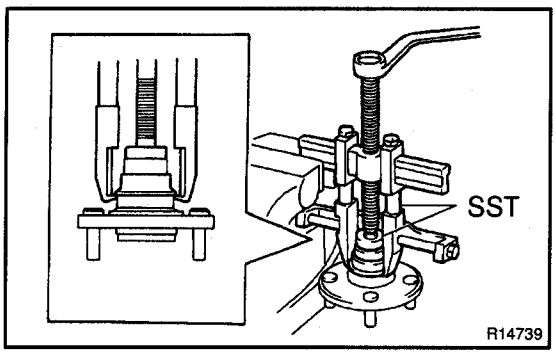
Using snap ring pliers, remove the snap ring.



2. REMOVE AXLE HUB

(a) Using SST, remove the axle hub.

SST 09520–00031 (09520–00040, 09521–00010 09521–00020)



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

SST 09950–40011 (09951–04020, 09952–04010, 09953–04020, 09954–04010, 09955–04011, 09957–04010, 09958–04011), 09950–60010 (09951–00370)

3. REMOVE DUST COVER

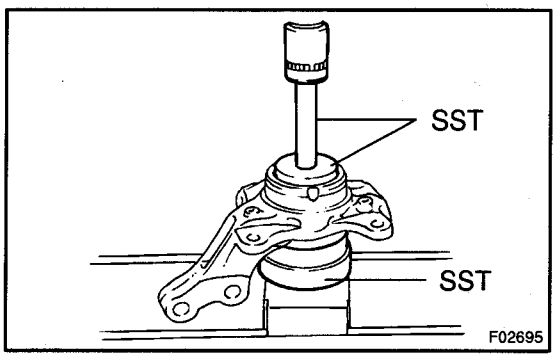
Using a torx wrench (T30), remove the 3 bolts and dust cover.

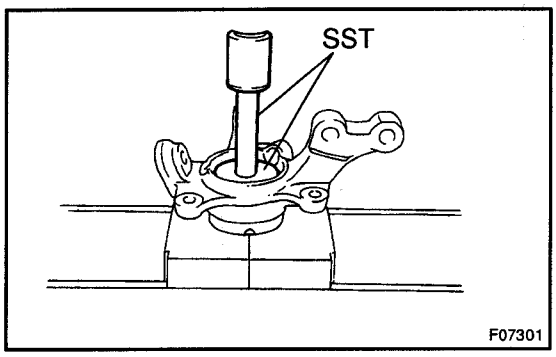
4. REMOVE BEARING FROM STEERING KNUCKLE

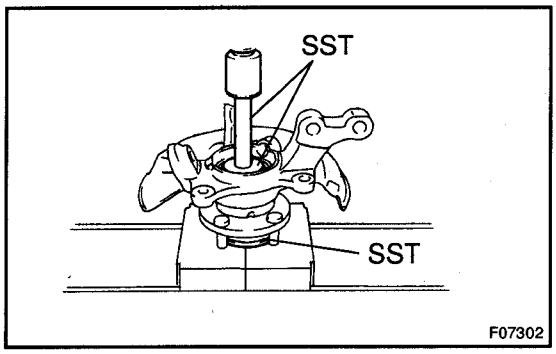
(a) Place the inner race (outside) on the bearing.

(b) Using SST and a press, remove the bearing from the steering knuckle.

SST 09527–17011, 09950–60010 (09951–00600), 09950–70010 (09951–07150)







SA1KV–01

REASSEMBLY

1. INSTALL BEARING

Using SST and a press, install a new bearing to the steering knuckle.

SST 09950–60020 (09951–00680),
09950–70010 (09951–07150)

2. INSTALL DUST COVER

Using a torx wrench (T30), install the dust cover with the 3 bolts.

Torque: 8.3 N·m (85 kgf·cm, 74 in.·lbf)

3. INSTALL AXLE HUB

Using SST and a press, install the axle hub.

SST 09608–32010, 09950–60020 (09951–00680),
09950–70010 (09951–07150)

NOTICE:

Be careful not to damage the bearing.

4. INSTALL SNAP RING

Using snap ring pliers, install a new snap ring.

SA1KW-01

INSTALLATION

1. INSTALL STEERING KNUCKLE WITH AXLE HUB TO SHOCK ABSORBER

(a) Install the steering knuckle with the axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

(b) Coat the threads of the 2 nuts with engine oil.

(c) Install the 2 bolts and nuts on the lower side of the shock absorber.

Torque: 132 N·m (1,350 kgf·cm, 97 ft·lbf)

2. CONNECT TIE ROD END TO STEERING KNUCKLE

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

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

(b) Install a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

3. CONNECT STEERING KNUCKLE TO LOWER SUSPENSION ARM

(a) Connect the steering knuckle to the lower suspension arm with the nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

(b) Install a new clip.

If the holes for the clip are not aligned, tighten the nut further up to 60°.

4. w/ ABS:

CONNECT ABS SPEED SENSOR

Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

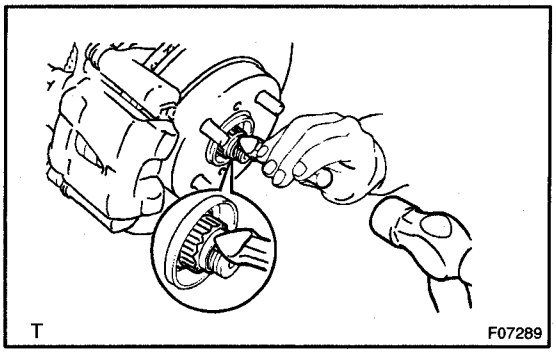
5. INSTALL DRIVE SHAFT LOCK NUT

(a) Install the disc, brake caliper and 2 bolts.

Torque: 88 N·m (900 kgf·cm, 65 ft·lbf)

(b) While applying the brakes, install a new lock nut.

Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)



(c) Using a chisel and hammer, stake the lock nut.

6. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION (See page SA–9)

7. INSTALL FRONT WHEEL

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

8. DEPRESS BRAKE PEDAL SEVERAL TIMES

9. CHECK FRONT WHEEL ALIGNMENT (See page SA–4)

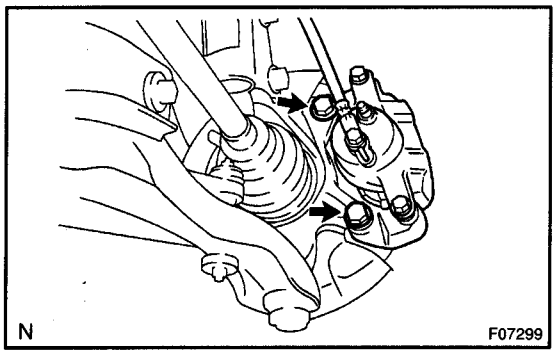
10. **w/ ABS:**
CHECK ABS SPEED SENSOR SIGNAL
(See page DI–60)

FRONT WHEEL HUB BOLT

SA1CN-02

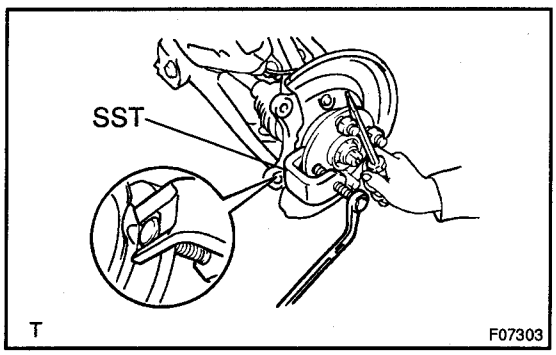
REPLACEMENT

1. REMOVE FRONT WHEEL



2. REMOVE BRAKE CALIPER AND DISC

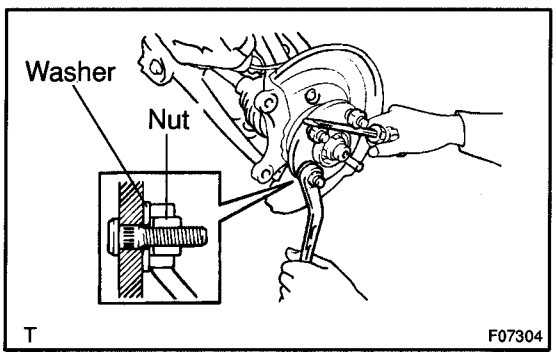
(a) Remove the 2 bolts, brake caliper and disc.
(b) Support the brake caliper securely.



3. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628–10011



4. INSTALL HUB BOLT

(a) Install a washer and nut to a new hub bolt as shown in the illustration.
(b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.
(c) Remove the 3 nuts and washer.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts.

Torque: 88 N·m (900 kgf·cm, 65 ft·lbf)

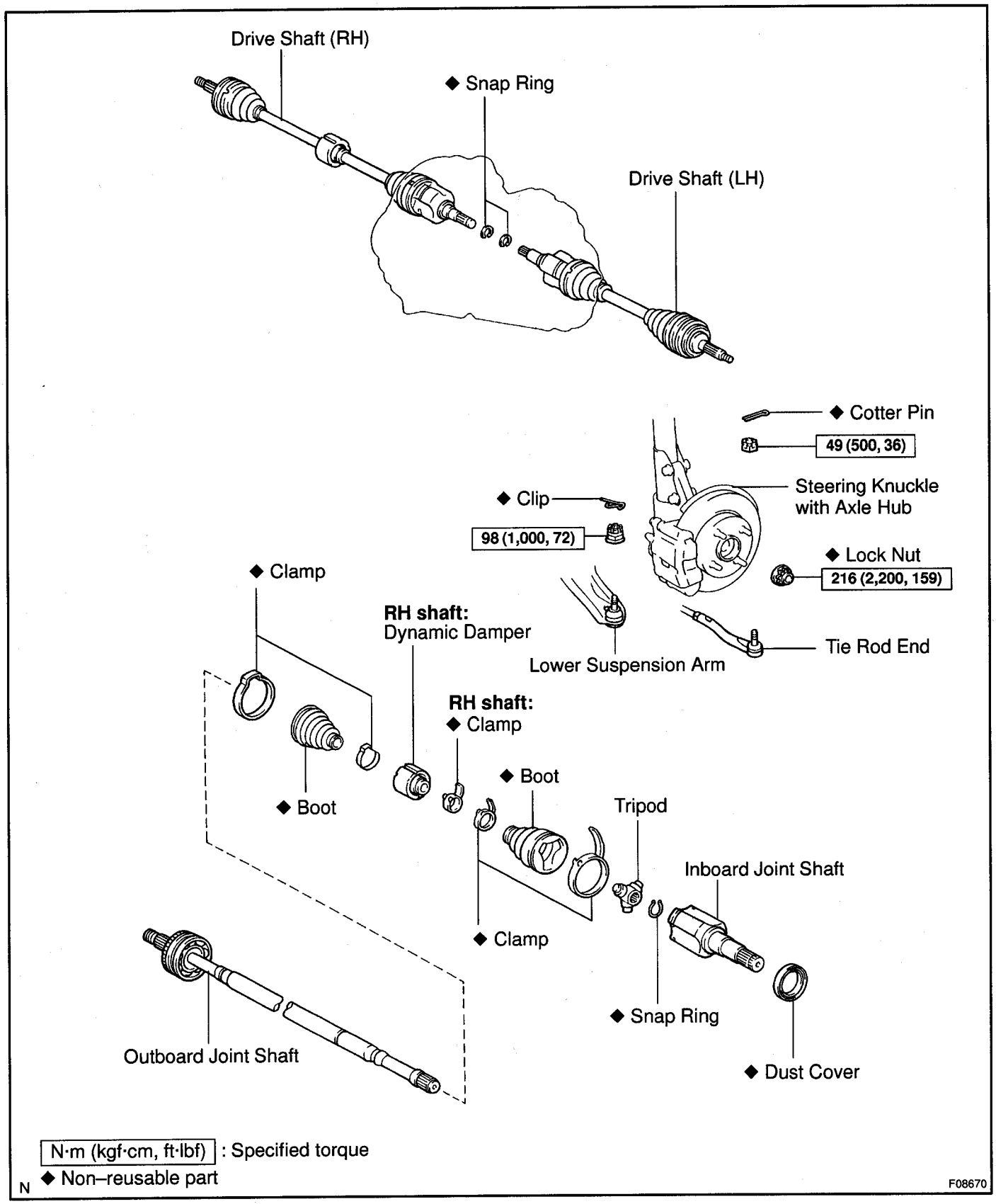
6. INSTALL FRONT WHEEL

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

FRONT DRIVE SHAFT

SADCL-05

COMPONENTS



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

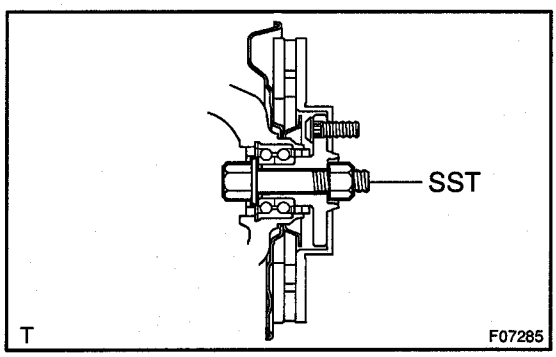
◆ Non–reusable part

N

F08670

SA1PL–01

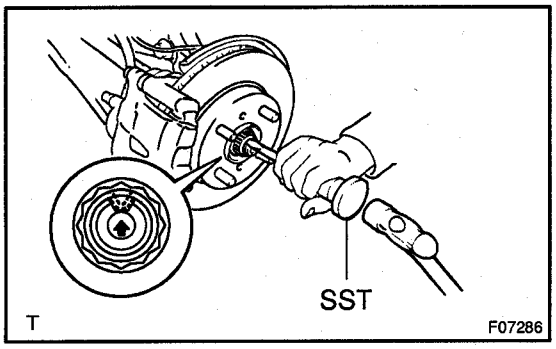
REMOVAL



NOTICE:

- **The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed.**
  Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with SST.
  SST 09608–16042 (09608–02021, 09608–02041)
- **After disconnecting the drive shaft from the axle hub, work carefully so as not to damage the ABS speed sensor rotor serration on the drive shaft.**

1. **REMOVE FRONT WHEEL**
2. **DRAIN GEAR OIL (M/T) or ATF (A/T)**



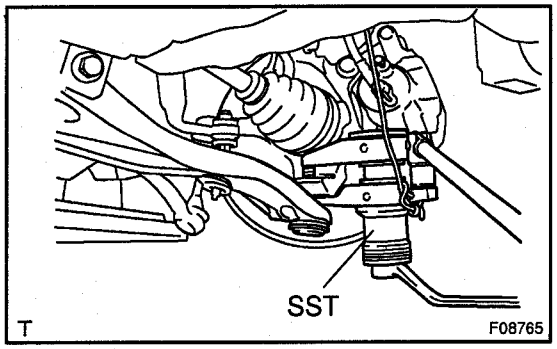
3. **REMOVE DRIVE SHAFT LOCK NUT**

(a) Using SST and a hammer, unstake the staked part of the lock nut.
SST 09930–00010

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

4. **DISCONNECT STEERING KNUCKLE FROM LOWER SUSPENSION ARM**

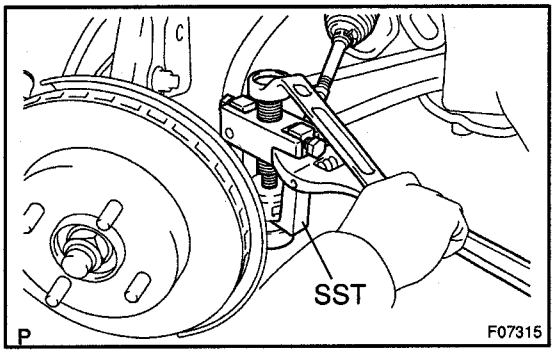
(a) Remove the clip and nut.



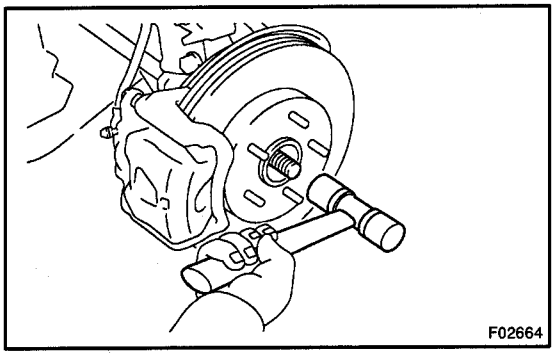
(b) Using SST, disconnect the steering knuckle.
SST 09628–00011

5. **DISCONNECT TIE ROD END FROM STEERING KNUCKLE**

(a) Remove the cotter pin and nut.



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

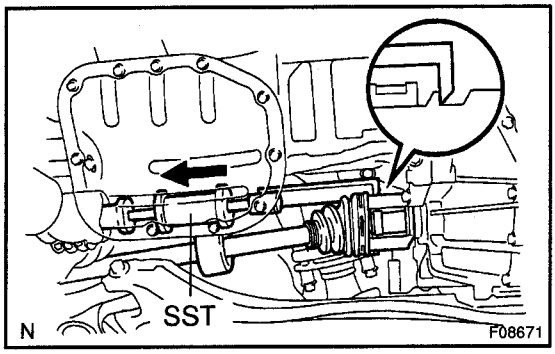


6. DISCONNECT DRIVE SHAFT FROM AXLE HUB

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

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.



7. REMOVE DRIVE SHAFT

Using SST, remove the drive shaft from the transaxle.

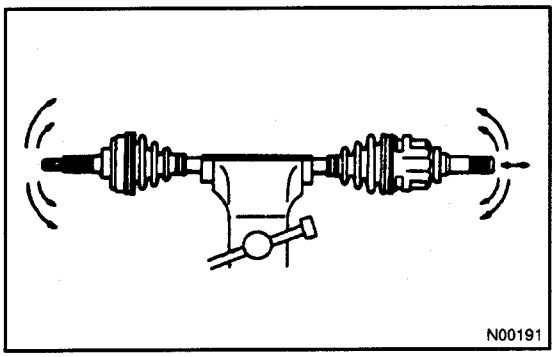
SST 09520–01010, 09520–24010 (09520–32040)

NOTICE:

Be careful not to damage the dust cover and oil seal.

SA129-02

DISASSEMBLY



1. CHECK DRIVE SHAFT

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

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

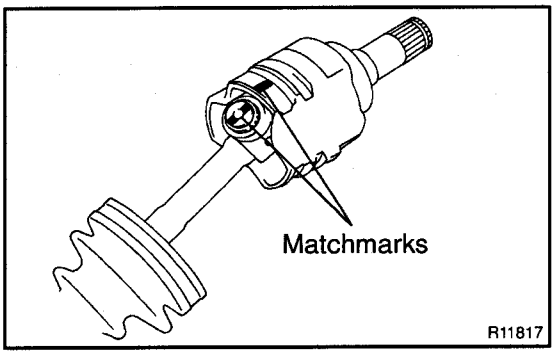
(c) Check to see that there is no remarkable play in the radial direction of the inboard joint.

(d) Check the boots for damage.

2. REMOVE INBOARD JOINT SHAFT

(a) Using a screwdriver, disclamp the 2 inboard joint boot clamps.

(b) Slide the inboard joint boot toward the outboard joint.



(c) Place matchmarks on the inboard joint shaft and tripod.

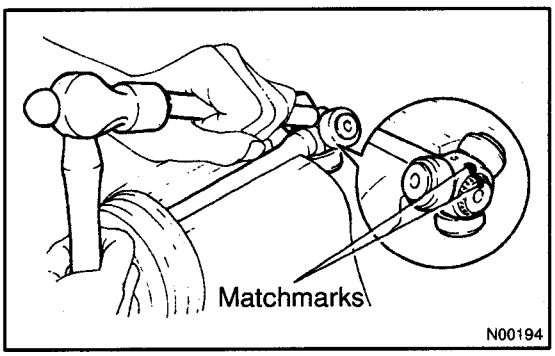
NOTICE:

Do not punch the marks.

(d) Remove the inboard joint shaft from the outboard joint shaft.

3. REMOVE TRIPOD

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



(b) Place matchmarks on the outboard joint shaft and tripod.

NOTICE:

Do not punch the marks.

(c) Using a brass bar and hammer, tap out the tripod from the outboard joint shaft.

NOTICE:

Do not tap the roller.

4. REMOVE INBOARD JOINT BOOT AND 2 CLAMPS

5. RH drive shaft:
REMOVE DYNAMIC DAMPER

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

(b) Remove the dynamic damper.

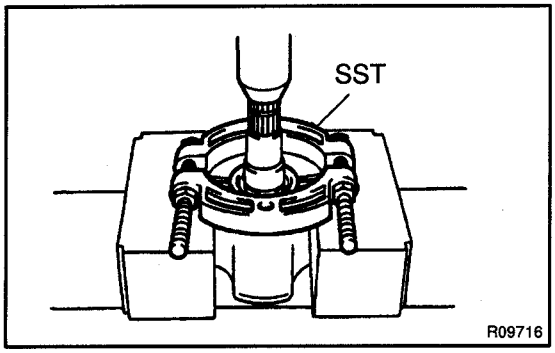
6. REMOVE OUTBOARD JOINT BOOT

(a) Using a side cutter, cut the 2 outboard joint boot clamps and remove them.

(b) Remove the outboard joint boot from the outboard joint shaft.

NOTICE:

Do not disassemble the outboard joint.

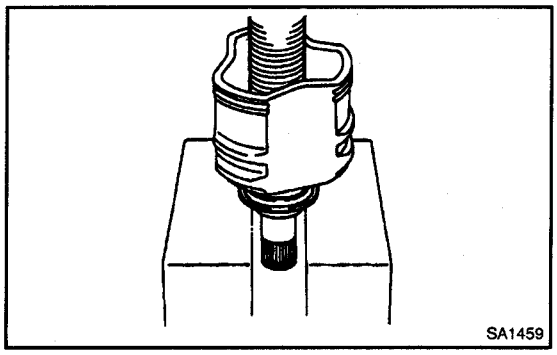


7. REMOVE DUST COVER

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

SST 09950–00020

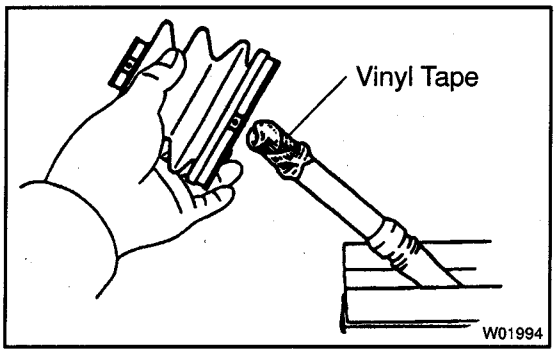
SA1PM-01



REASSEMBLY

1. INSTALL DUST COVER

Using a press, install a new dust cover to the inboard joint shaft.



2. TEMPORARILY INSTALL BOOTS, CLAMPS AND DYNAMIC DAMPER (RH DRIVE SHAFT)

HINT:

Before installing the boots (and dynamic damper), wrap the spline of the outboard joint shaft with vinyl tape to prevent them from being damaged.

(a) Place 2 new clamps on a new outboard joint boot and install them to the outboard joint shaft.

(b) RH drive shaft:
Place a new clamp on the dynamic damper and install them to the outboard joint shaft.

(c) Place 2 new clamps on a new inboard joint boot and install them to the outboard joint shaft.

3. INSTALL TRIPOD

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

(b) Align the matchmarks placed before removal.

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

NOTICE:

Do not tap the roller.

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

4. INSTALL BOOT TO OUTBOARD JOINT

Before assembling the boot, pack the outboard joint and boot with grease in the boot kit.

Grease capacity: (Color = Black)
155 – 170 g (5.5 – 6.0 oz.)

5. INSTALL INBOARD JOINT SHAFT TO OUTBOARD JOINT SHAFT

(a) Pack the inboard joint and boot with grease in the boot kit.
Grease capacity: (Color = Yellow ocher)
125 – 135 g (4.4 – 4.8 oz.)

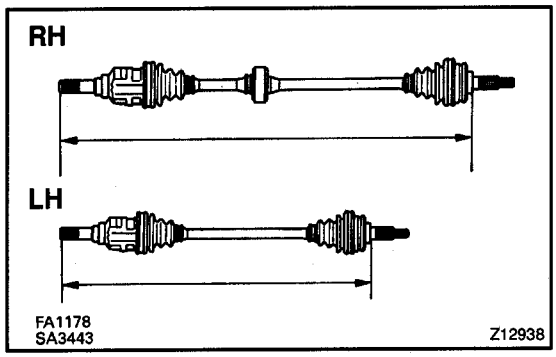
(b) Align the matchmarks placed before removal.

(c) Install the inboard joint shaft to the outboard joint shaft.

(d) Temporarily install the boot to the inboard joint shaft.

6. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS

(a) Make sure that the 2 boots are on the shaft grooves.

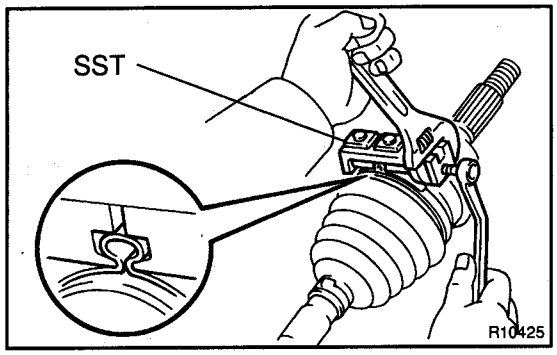


(b) Make sure that the 2 boots are not stretched or contracted when the drive shaft is at standard length.

Drive shaft standard length:

RH	813.3 ± 5.0 mm (32.020 ± 0.197 in.)
LH	574.3 ± 5.0 mm (22.610 ± 0.197 in.)

(c) Bend the band and lock the inboard joint boot clamps with a screwdriver.

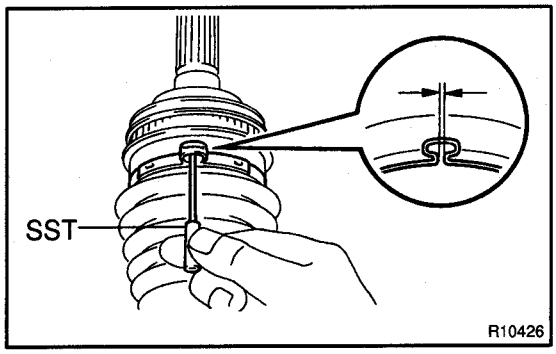


(d) Secure the 2 outboard joint boot clamps onto the boot.

(e) Place SST onto the outboard joint large boot clamp.
SST 09521–24010

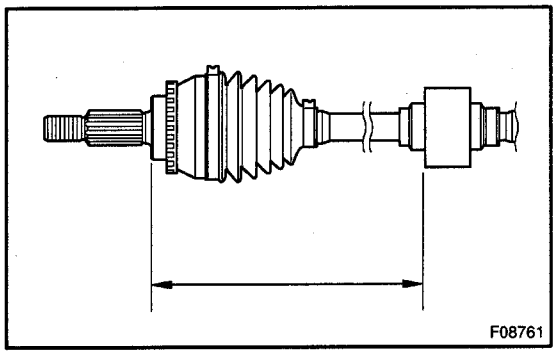
(f) Tighten the SST so that the large clamp is pinched.

NOTICE:
Do not overtighten the SST.



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

(h) Employ the same manner to the outboard joint small boot clamp.



7. RH drive shaft:
ASSEMBLE DYNAMIC DAMPER CLAMP

(a) Set the distance, as described below.
Distance: 427.6 ± 2.0 mm (16.835 ± 0.079 in.)

(b) Bend the band and lock the dynamic damper clamp with a screwdriver.

8. CHECK DRIVE SHAFT (See page SA–19)

SA1KZ-03

INSTALLATION

1. INSTALL DRIVE SHAFT TO TRANSAXLE

(a) Install a new snap ring to the inboard joint shaft.

(b) Coat the gear oil to the inboard joint shaft and transaxle sliding surface.

(c) Set the snap ring with opening side facing downward.

(d) Using a brass bar and hammer, tap the snap ring and install the drive shaft.

NOTICE:

Be careful not to damage the dust cover and oil seal.

HINT:

Whether the inboard joint shaft is in contact with the pinion shaft or not can be known from the sound or feeling when driving it in.

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

(f) Check that the drive shaft cannot be removed by hand.

2. CONNECT DRIVE SHAFT TO AXLE HUB

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

3. CONNECT TIE ROD END TO STEERING KNUCKLE

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

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

(b) Install a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

4. CONNECT STEERING KNUCKLE TO LOWER SUSPENSION ARM

(a) Connect the steering knuckle to the lower suspension arm with the nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

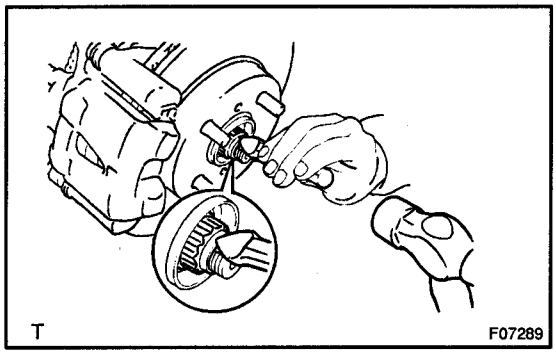
(b) Install a new clip.

If the holes for the clip are not aligned, tighten the nut further up to 60°.

5. INSTALL DRIVE SHAFT LOCK NUT

(a) While applying brakes, install a new lock nut.

Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)



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

6. FILL AND CHECK GEAR OIL (M/T) or ATF (A/T) (See page MX–8 or DI–4)

7. INSTALL FRONT WHEEL

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

8. CHECK FRONT WHEEL ALIGNMENT (See page SA–4)

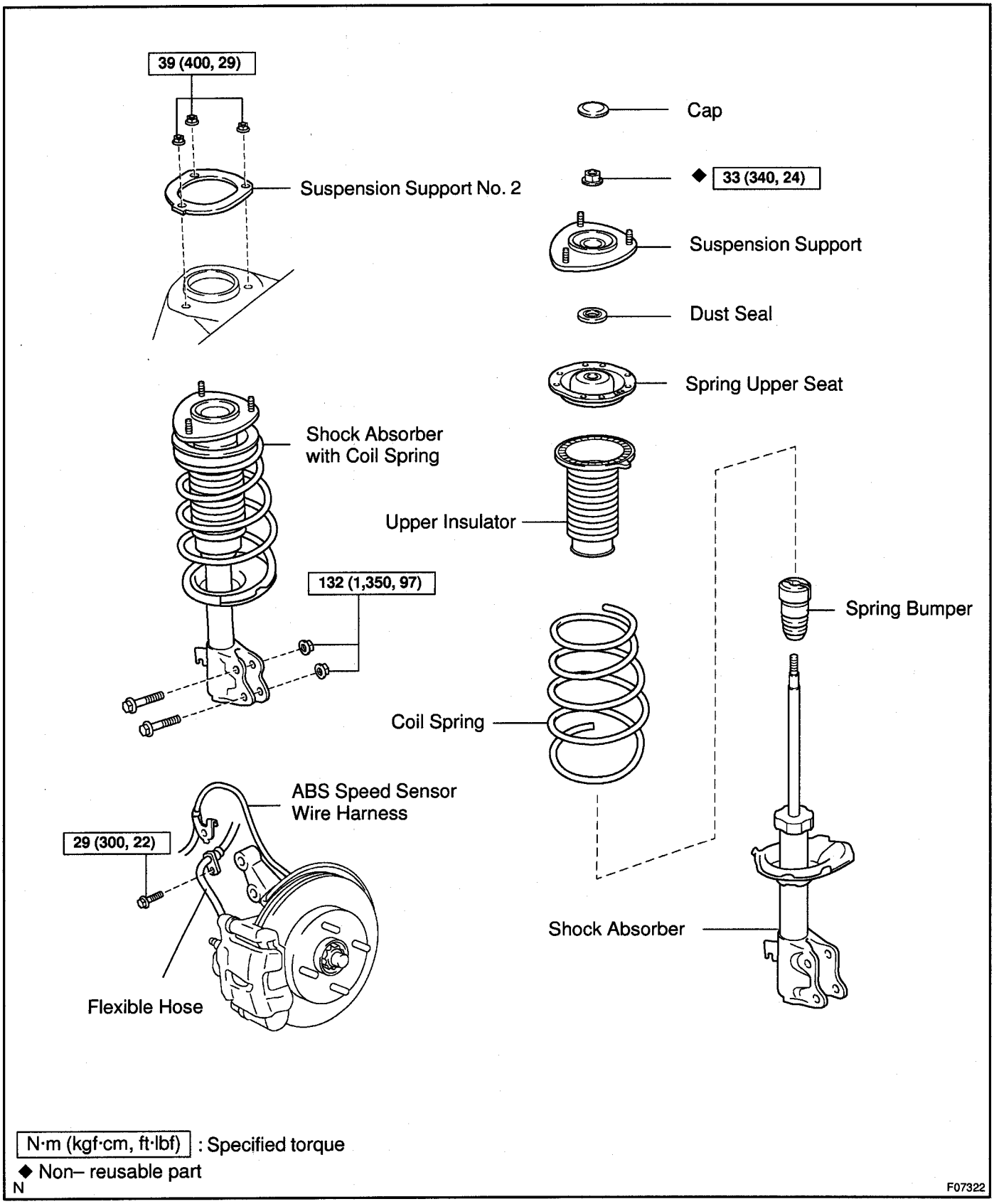
9. w/ ABS:

CHECK ABS SPEED SENSOR SIGNAL (See page DI–60)

FRONT SHOCK ABSORBER

SA0CQ–05

COMPONENTS



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

◆ Non– reusable part

N

F07322

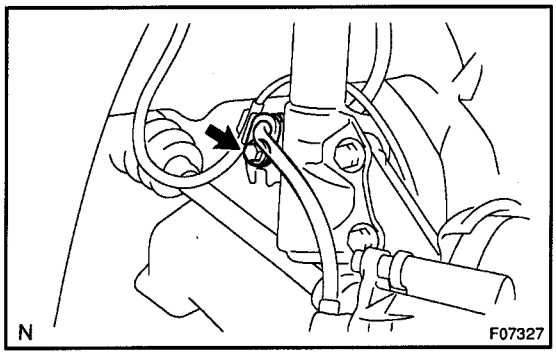
SA1L0-02

REMOVAL

NOTICE:

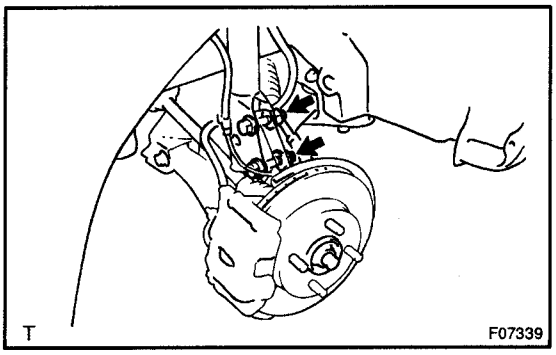
Face the front wheel straight ahead to prevent damage to the steering gear.

1. REMOVE FRONT WHEEL



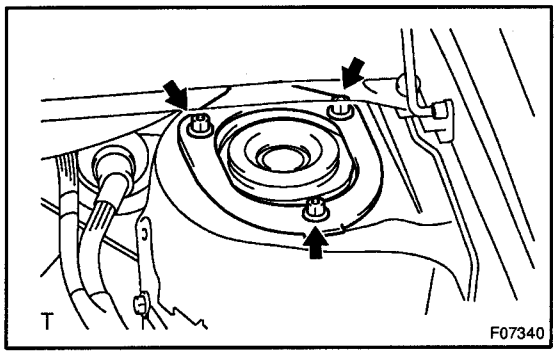
2. DISCONNECT FLEXIBLE HOSE AND ABS SPEED SENSOR WIRE HARNESS CLAMP

Remove the bolt and disconnect the flexible hose and ABS speed sensor wire harness clamp from the shock absorber bracket.



3. REMOVE SHOCK ABSORBER WITH COIL SPRING

(a) Remove the 2 nuts and bolts, and disconnect the shock absorber from the steering knuckle.



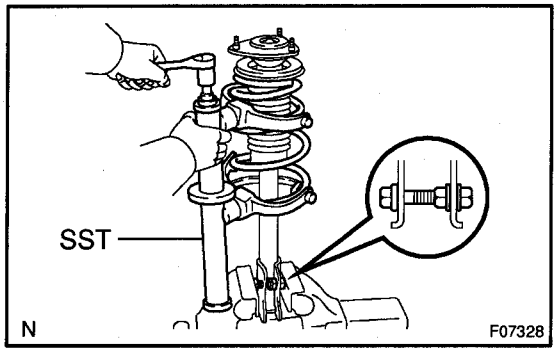
(b) Remove the 3 nuts and shock absorber with the coil spring.

(c) Remove the suspension support No. 2.

SA0CS–04

DISASSEMBLY

REMOVE COIL SPRING



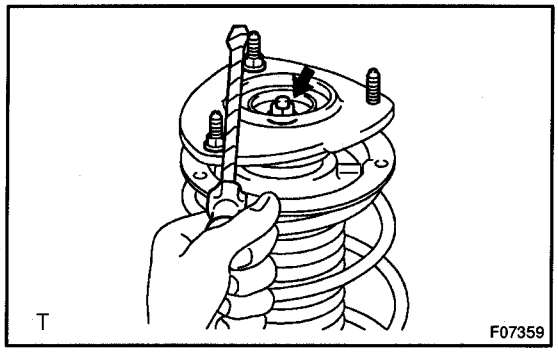
(a) Install 2 nuts and a bolt to the bracket at the lower side of the shock absorber and secure it in a vise.

(b) Using SST, compress the coil spring.
SST 09727–30021 (09727–00010, 09727–00021, 09727–00031)

NOTICE:

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

(c) Remove the cap from the suspension support.

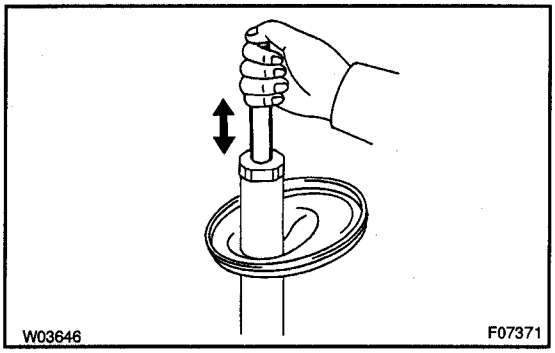


(d) Using 2 nuts and a screwdriver or an equivalent to hold, remove the center nut.

NOTICE:

Do not damage the suspension support stud bolts.

(e) Remove the suspension support, dust seal, spring upper seat, upper insulator, spring bumper and coil spring.



SA0CT-04

INSPECTION

INSPECT SHOCK ABSORBER

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

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

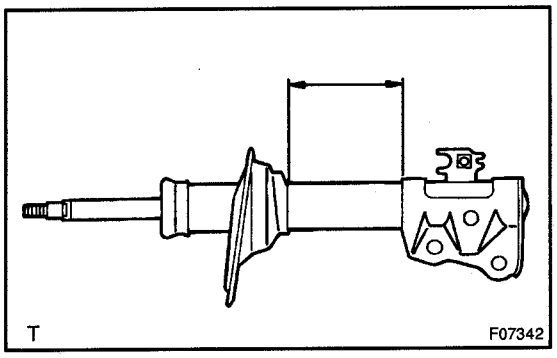
NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA–28.

SA0L8-04

DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD



2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER

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

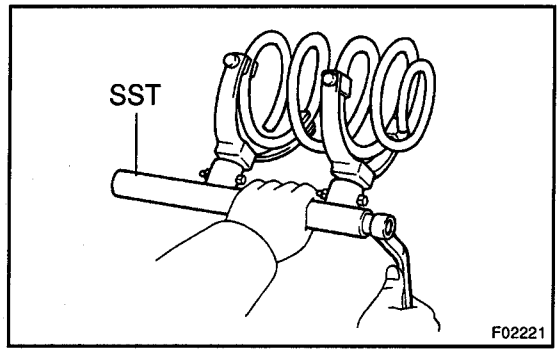
CAUTION:

- **When drilling, chips may fly out, work carefully.**
- **The gas is colorless, odorless and non–poisonous.**

SA1CR-02

REASSEMBLY

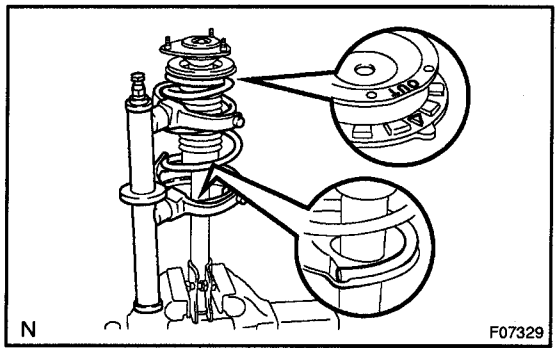
1. INSTALL SPRING BUMPER TO PISTON ROD



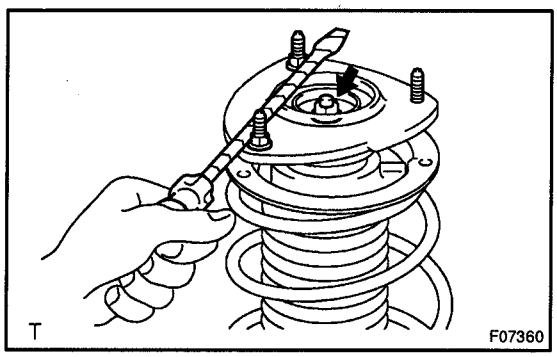
2. INSTALL COIL SPRING

(a) Using SST, compress the coil spring.
SST 09727–30021 (09727–00010, 09727–00021, 09727–00031)

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



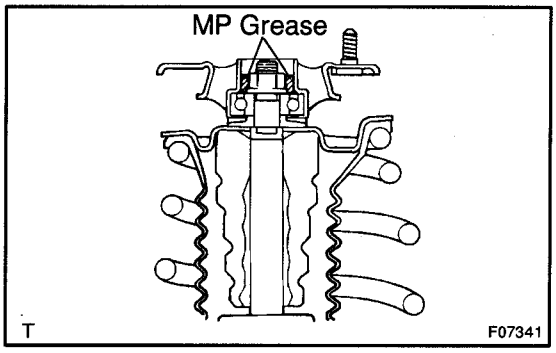
(b) Install the coil spring to the shock absorber.
HINT:
Fit the lower end of the coil spring into the gap of the spring lower seat.
(c) Install the upper insulator with the "△" mark facing to the outside of the vehicle.
(d) Install the spring upper seat with the "OUT" mark facing to the outside of the vehicle.
(e) Install the dust seal and suspension support.



(f) Using 2 nuts and a screwdriver or an equivalent to hold, install a new center nut.
Torque: 33 N·m (340 kgf·cm, 24 ft·lbf)

NOTICE:
Do not damage the suspension support stud bolts.

(g) Remove the SST.
SST 09727–30021 (09727–00010, 09727–00021, 09727–00031)



(h) Apply MP grease into the suspension support.
(i) Install the cap.

SA1CS-03

INSTALLATION

1. INSTALL SHOCK ABSORBER WITH COIL SPRING

(a) Install the suspension support No. 2.

(b) Install the shock absorber with coil spring and 3 nuts.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

(c) Connect the shock absorber to the steering knuckle.

(d) Coat the threads of the 2 nuts with engine oil.

(e) Install the 2 bolts and nuts.
Torque: 132 N·m (1,350 kgf·cm, 97 ft·lbf)

2. CONNECT ABS SPEED SENSOR WIRE HARNESS CLAMP AND FLEXIBLE HOSE TO SHOCK ABSORBER
Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)

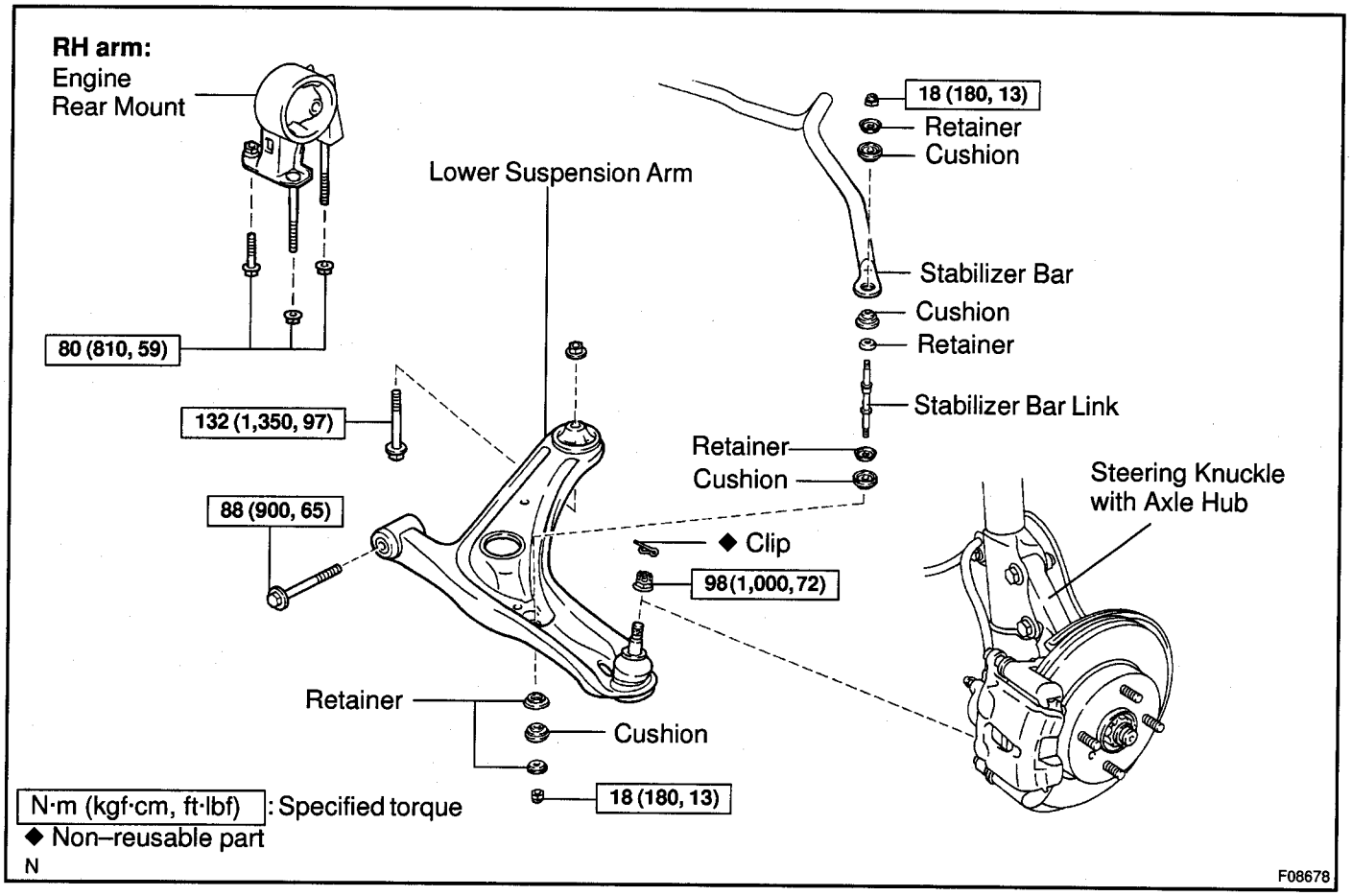
3. INSTALL FRONT WHEEL
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

4. CHECK FRONT WHEEL ALIGNMENT (See page SA–4)

FRONT LOWER SUSPENSION ARM

COMPONENTS

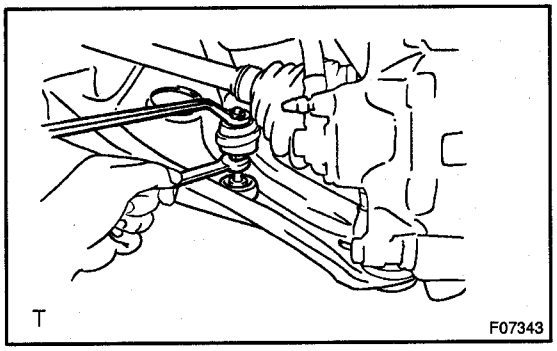
SA1L1-02



SA1PO-01

REMOVAL

1. REMOVE FRONT WHEEL

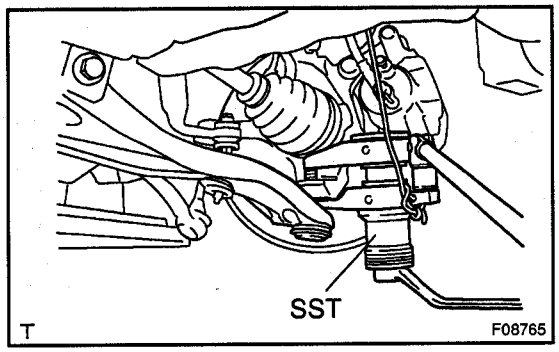


2. REMOVE STABILIZER BAR LINK

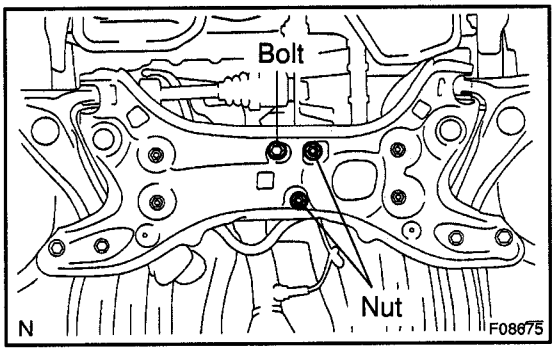
While holding the stabilizer bar link, remove the 2 nuts, 5 retainers, 4 cushions and the stabilizer bar link.

3. DISCONNECT LOWER SUSPENSION ARM FROM STEERING KNUCKLE

(a) Remove the clip and nut.



(b) Using SST, disconnect the lower suspension arm from the steering knuckle.
SST 09628–00011



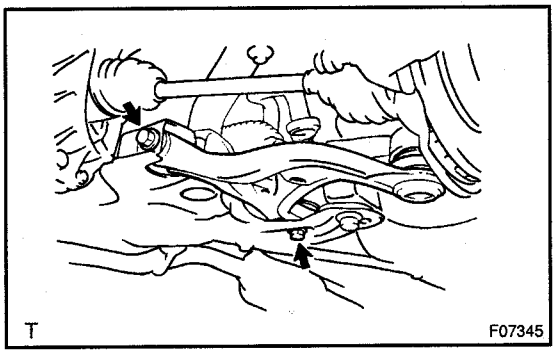
4. RH arm: SLIGHTLY JACK UP ENGINE

(a) Remove the bolt and 2 nuts, and disconnect the engine rear mount.

(b) Using a transmission jack and wooden block, slightly jack up the engine.

NOTICE:

Do not jack up the engine at the oil pan.



5. REMOVE LOWER SUSPENSION ARM

Remove the 2 bolts, nut and lower suspension arm.

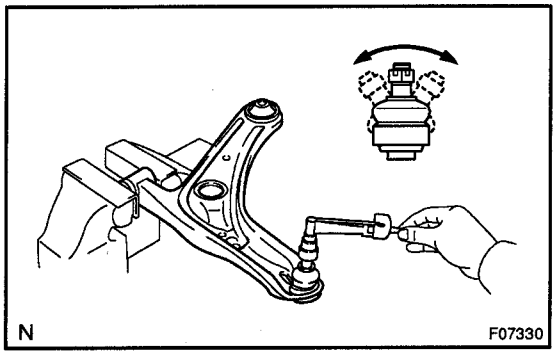
NOTICE:

Do not turn the nut.

SA1L3-01

INSPECTION

1. INSPECT LOWER SUSPENSION ARM BALL JOINT BOOT FOR DAMAGE



2. INSPECT LOWER SUSPENSION ARM BALL JOINT FOR ROTATION CONDITION

(a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.

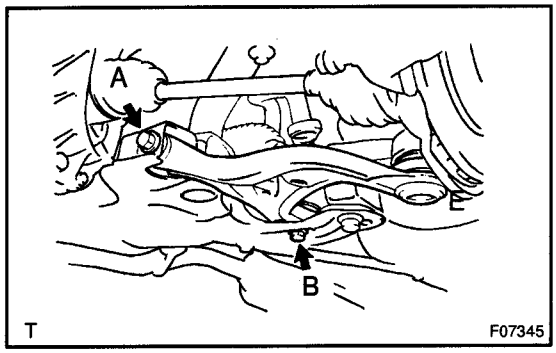
(b) Using a torque wrench, turn the nut continuously at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.59 – 3.43 N·m (6 – 35 kgf·cm, 5.2 – 30 in.·lbf)

SA1PP–01

INSTALLATION



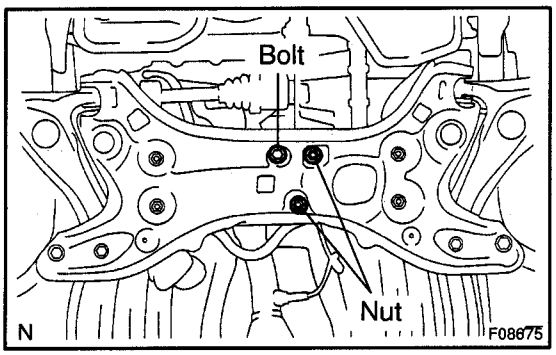
1. INSTALL LOWER SUSPENSION ARM

Install the lower suspension arm with the 2 bolts.

Torque:
Bolt A: 88 N·m (900 kgf·cm, 65 ft·lbf)
Bolt B: 132 N·m (1,350 kgf·cm, 97 ft·lbf)

NOTICE:
Do not turn the nut.

HINT:
After stabilizing the suspension, torque the 2 bolts.



2. RH arm:
CONNECT ENGINE REAR MOUNT

Connect the engine rear mount with the bolt and 2 nuts.

Torque: 80 N·m (810 kgf·cm, 59 ft·lbf)

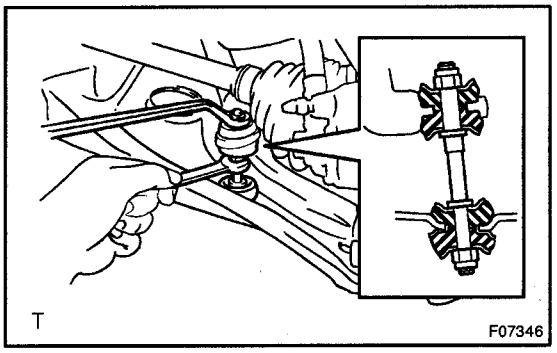
3. CONNECT LOWER SUSPENSION ARM TO STEERING KNUCKLE

(a) Connect the lower suspension arm to the steering knuckle with the nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

(b) Install a new clip.

If the holes for the clip are not aligned, tighten the nut further up to 60 °.



4. INSTALL STABILIZER BAR LINK

Install the stabilizer bar link, 4 cushions and 5 retainers with the 2 nuts.

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

5. INSTALL FRONT WHEEL

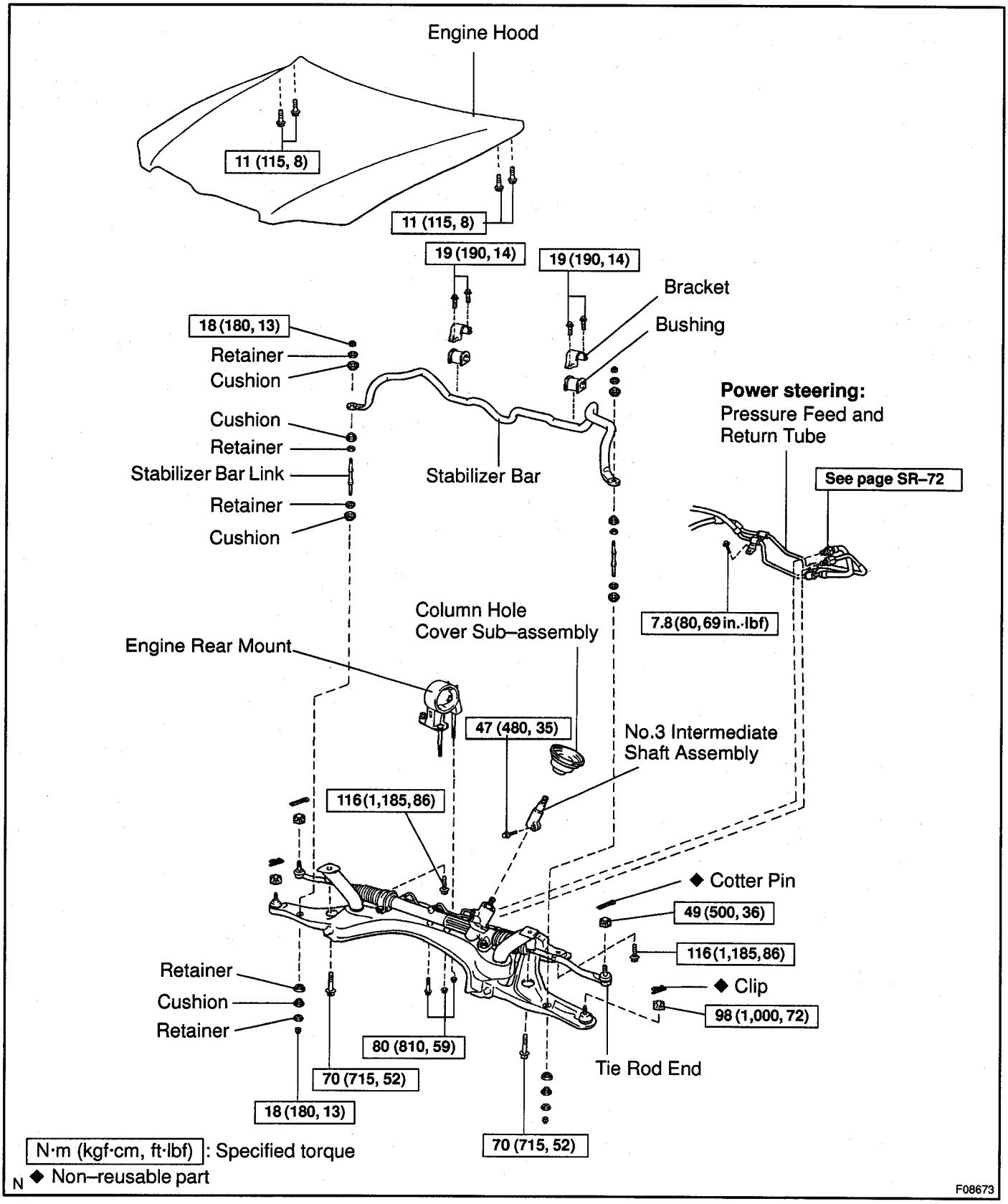
Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

6. CHECK FRONT WHEEL ALIGNMENT (See page SA–4)

FRONT STABILIZER BAR

COMPONENTS

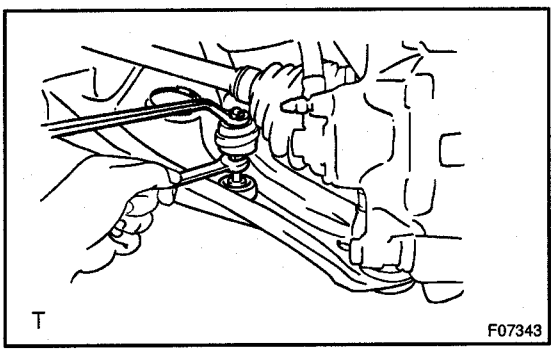
SA1ER-03



SA1PQ-01

REMOVAL

1. REMOVE FRONT WHEELS



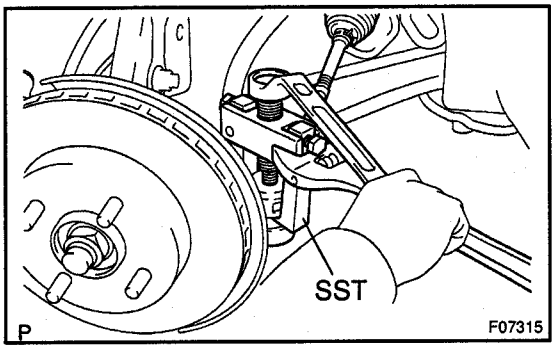
2. REMOVE STABILIZER BAR LINKS

(a) While holding the stabilizer bar link, remove the 2 nuts, 5 retainers, 4 cushions and the stabilizer bar link.

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

3. DISCONNECT TIE ROD ENDS FROM STEERING KNUCKLES

(a) Remove the cotter pin and nut.

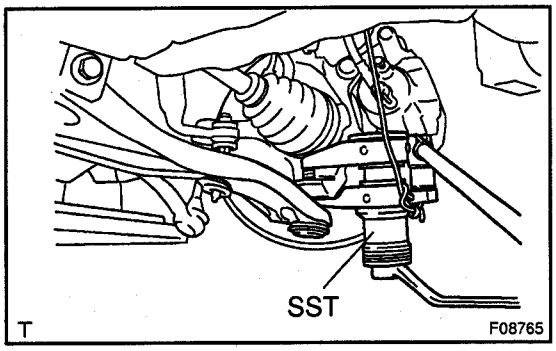


(b) Using SST, disconnect the tie rod end from the steering knuckle.
SST 09628–62011

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

4. DISCONNECT LOWER SUSPENSION ARMS FROM STEERING KNUCKLES

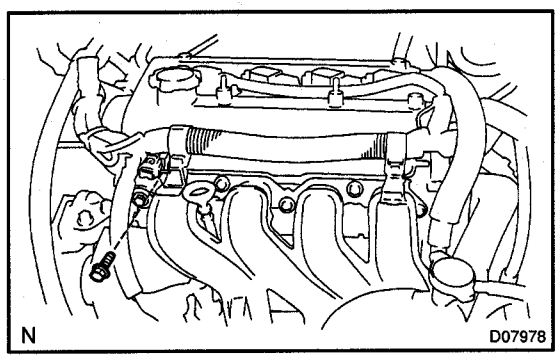
(a) Remove the clip and nut.



(b) Using SST, disconnect the steering knuckle.
SST 09628–00011

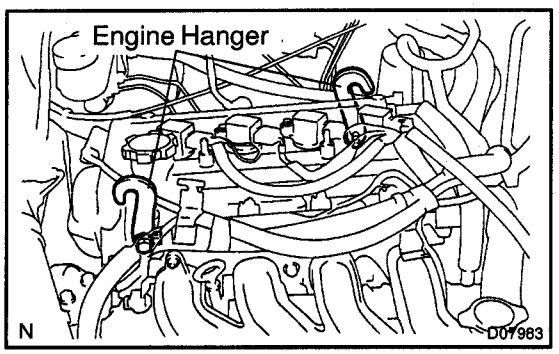
(c) Employ the same manner described above to the other side.

5. REMOVE ENGINE HOOD (See page BO–10)



6. ATTACH ENGINE SLING DEVICE TO ENGINE HANGERS

(a) Remove the bolt.



(b) Install the 2 No. 1 engine hangers with the bolts in the correct direction.

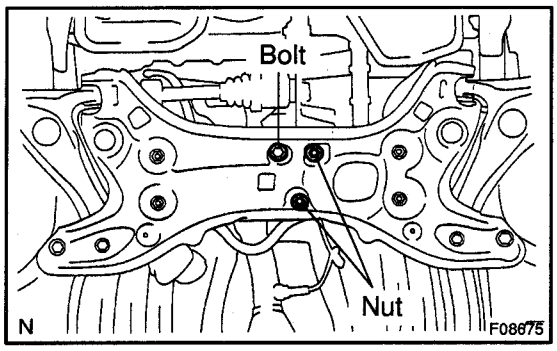
Parts No.:
No. 1 engine hanger: 12281–21010
Bolt: 91511–60818
Torque: 40 N·m (400 kgf·cm, 29 ft·lbf)

(c) Attach the engine chain hoist to the engine hangers.

CAUTION:
Do not attempt to hang the engine by hooking the chain to any other part.

7. DISCONNECT ENGINE REAR MOUNT

Remove the bolt and 2 nuts, and disconnect the engine rear mount.



8. DISCONNECT SLIDING YOKE (See page SR–12)

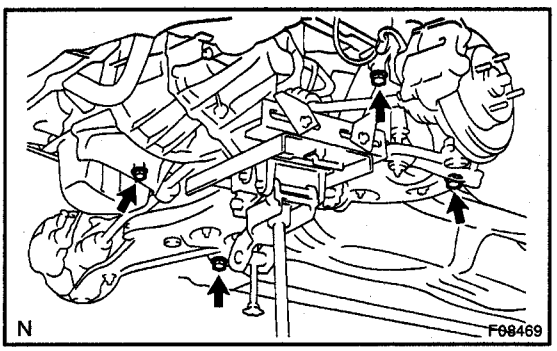
9. Power steering:
DISCONNECT PRESSURE FEED AND RETURN TUBES (See page SR–52)

10. Power steering:
DISCONNECT TUBE CLAMP

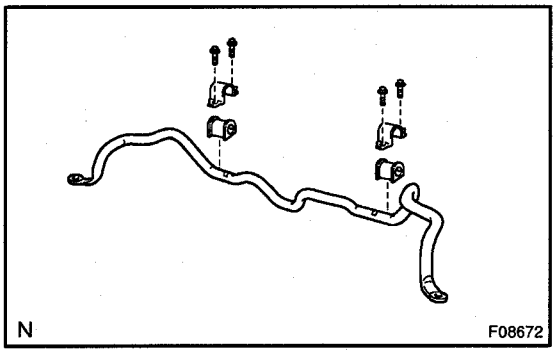
Remove the bolt and disconnect the tube clamp.

11. LOWER SUSPENSION MEMBER

(a) Support the suspension member with a transmission jack.



(b) Remove the 4 bolts and lower the suspension member.

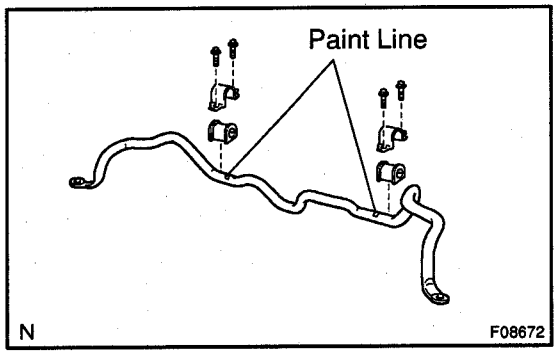


12. REMOVE STABILIZER BAR

Remove the 4 bolts, 2 brackets, bushings and stabilizer bar.

SA1PR–01

INSTALLATION



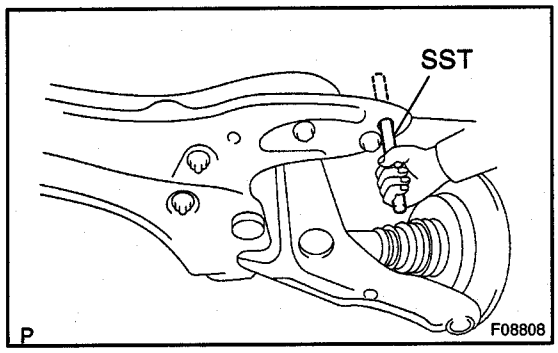
1. INSTALL STABILIZER BAR

Install the stabilizer bar, 2 bushings, brackets and 4 bolts.

Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)

HINT:

Install the bushings to the outside of the each paint line.

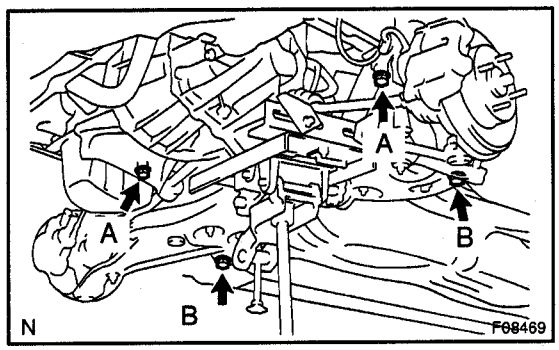


2. INSTALL SUSPENSION MEMBER

(a) Using SST, align the holes of the suspension member and body.

SST 09670–00010

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



(c) Install the suspension member with the 4 bolts.

Torque:

Bolt A: 70 N·m (715 kgf·cm, 52 ft·lbf)

Bolt B: 116 N·m (1,185 kgf·cm, 86 ft·lbf)

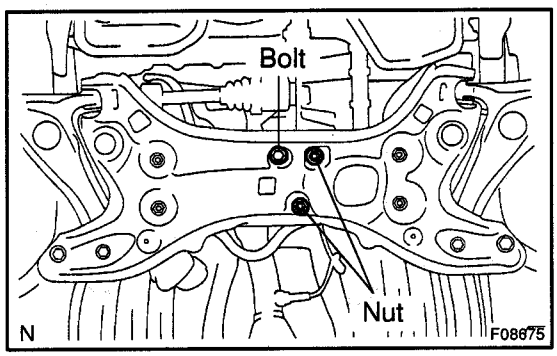
3. Power steering: CONNECT TUBE CLAMP

Connect the tube clamp with the bolt.

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

4. Power steering: CONNECT PRESSURE FEED AND RETURN TUBES (See page SR–72)

5. CONNECT SLIDING YOKE (See page SR–20)



6. CONNECT ENGINE REAR MOUNT

Connect the engine rear mount with the bolt and 2 nuts.

Torque: 80 N·m (810 kgf·cm, 59 ft·lbf)

7. DISENGAGE ENGINE SLING DEVICE

8. INSTALL ENGINE HOOD (See page BO–10)

9. CONNECT LOWER SUSPENSION ARMS TO STEERING KNUCKLES

(a) Connect the lower suspension arm to the steering knuckle with the nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

(b) Install a new clip.

If the holes for the clip are not aligned, tighten the nut further up to 60°.

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

10. CONNECT TIE ROD ENDS TO STEERING KNUCKLES

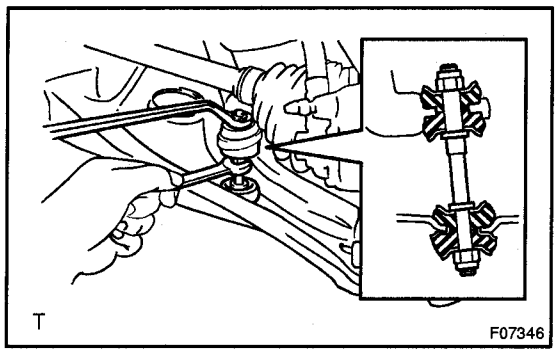
(a) Connect the tie rod end to the steering knuckle with the nut.

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

(b) Install a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

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



11. INSTALL STABILIZER BAR LINKS

(a) Install the stabilizer bar link, 4 cushions and 5 retainers with the 2 nuts.

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

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

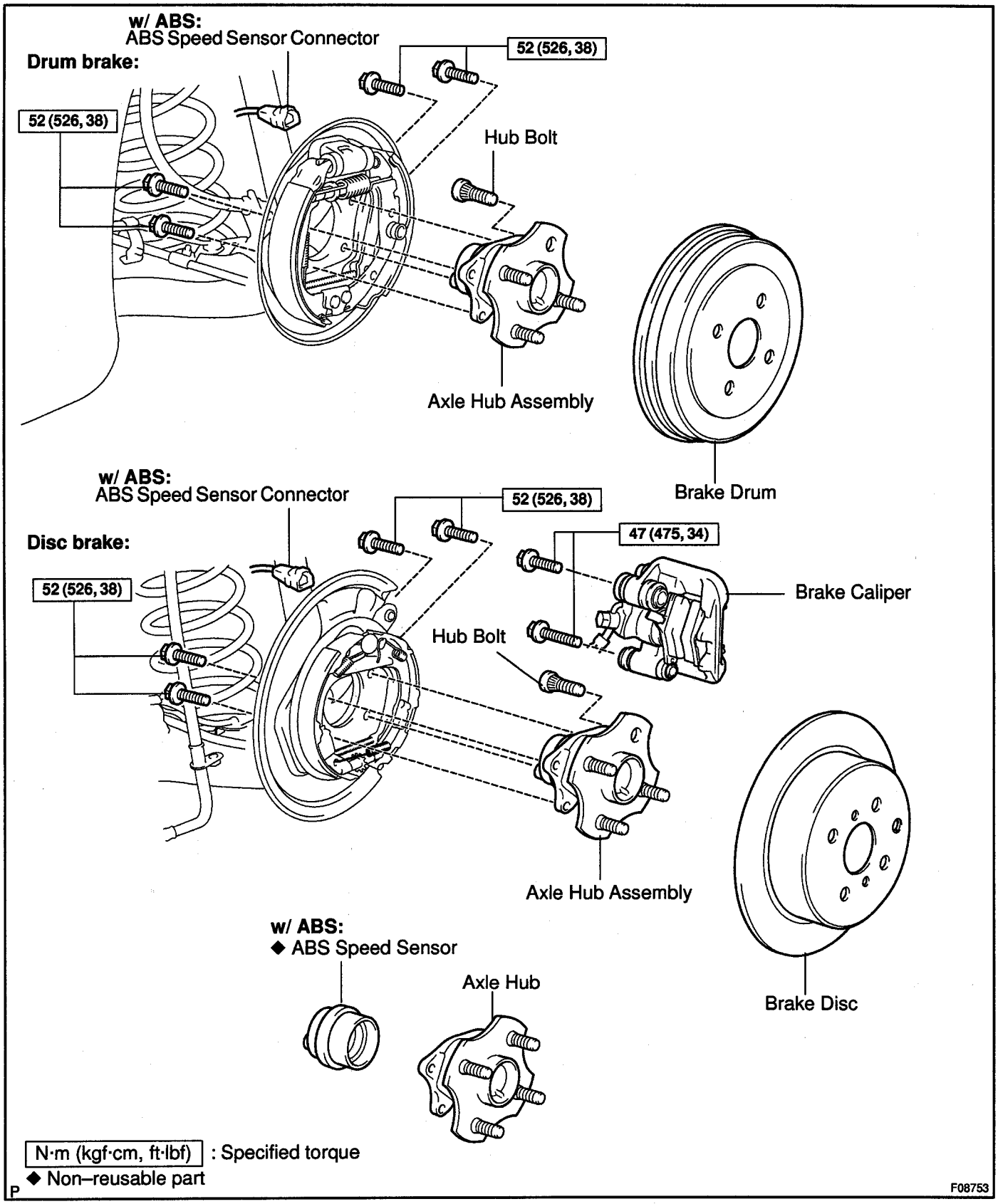
12. INSTALL FRONT WHEELS

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

REAR AXLE HUB

COMPONENTS

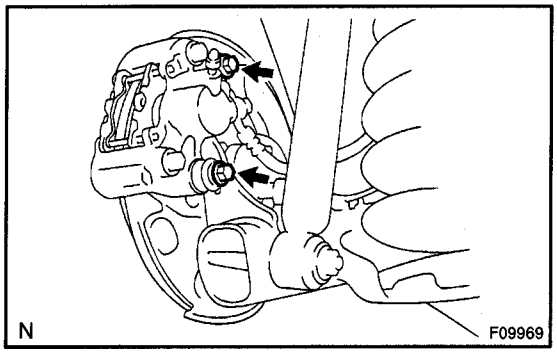
SA085-06



SA1OO-01

REMOVAL

1. REMOVE REAR WHEEL

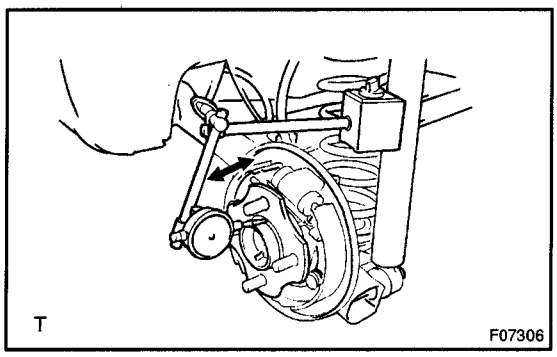


2. w/ Disc brake:
REMOVE BRAKE CALIPER AND DISC

(a) Remove the 2 bolts, brake caliper and disc.

(b) Support the brake caliper securely.

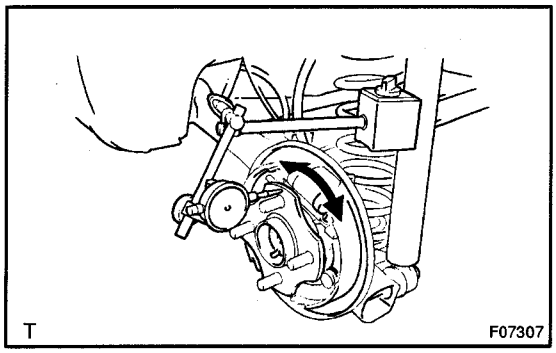
3. w/ Drum brake:
REMOVE BRAKE DRUM



4. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION

(a) Set 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.)

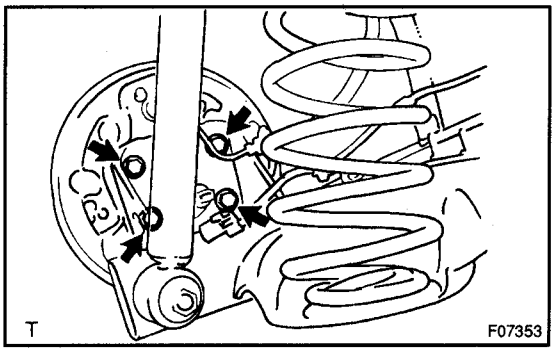
If the backlash exceeds the maximum, replace the axle hub assembly.



(b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
Maximum: 0.07 mm (0.0028 in.)

If the deviation exceeds the maximum, replace the axle hub assembly.

5. w/ ABS:
DISCONNECT ABS SPEED SENSOR CONNECTOR



6. REMOVE AXLE HUB ASSEMBLY

(a) Remove the 4 bolts and axle hub assembly.

(b) Support the rear brake assembly securely.

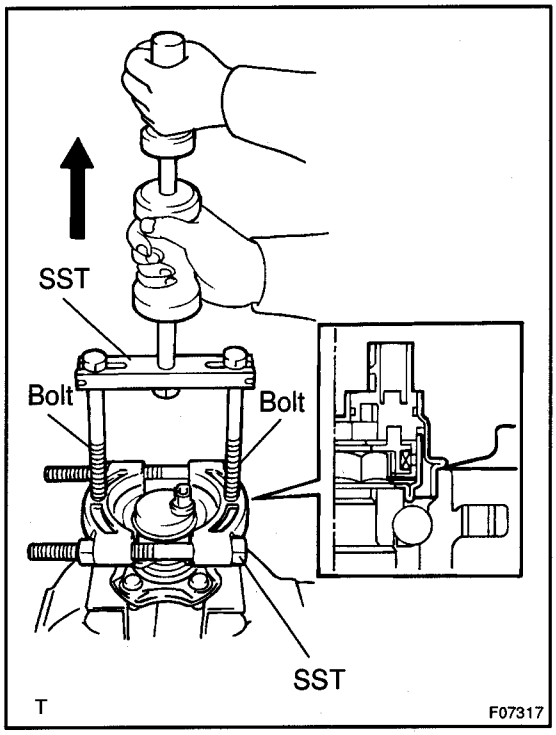
SA1L8-01

DISASSEMBLY

w/ ABS:

REMOVE ABS SPEED SENSOR

(a) Using a pin punch and hammer, drive out the 2 pins and remove the 2 attachments from SST.
SST 09520–00031 (09520–00040, 09521–00020)



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

NOTICE:

Replace the axle hub assembly if it is dropped or a strong shock is given to it.

(c) Using SST and 2 bolts (Diameter: 12 mm, Pitch: 1.5 mm), remove the ABS speed sensor.
SST 09520–00031 (09520–00040, 09521–00020), 09950–00020

NOTICE:

- **Do not allow any foreign matter sticking to the sensor rotor.**
- **Pull out the ABS speed sensor straightly not to damage the sensor rotor.**
- **If damage has occurred to the sensor rotor, replace the axle hub assembly.**
- **Do not scratch the contacting surface of the axle hub and speed sensor.**

SA1L9–01

REASSEMBLY

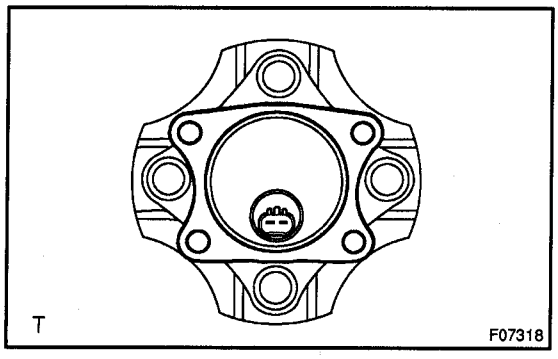
w/ ABS:

INSTALL NEW ABS SPEED SENSOR

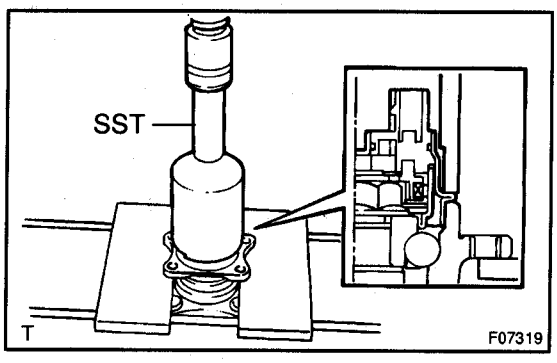
(a) Clean the contacting surface of the axle hub and a new ABS speed sensor.

NOTICE:

Do not allow any foreign matter sticking to the sensor rotor.



(b) Place the ABS speed sensor on the axle hub so that the connector is set at the bottom under the on–vehicle condition.



(c) Using SST and a press, install a new ABS speed sensor to the axle hub.
SST 09214–76011

NOTICE:

- **Do not tap the speed sensor with a hammer directly.**
- **Check that there should be no foreign matter on the speed sensor detection portion.**
- **Press in the ABS speed sensor straightly and slowly.**

SA087-06

INSTALLATION

1. **INSTALL AXLE HUB ASSEMBLY**

Install the axle hub assembly with the 4 bolts.

Torque: 52 N·m (526 kgf·cm, 38 ft·lbf)

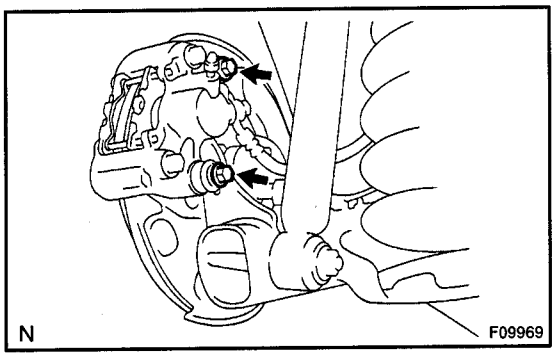
2. **w/ ABS:**
   CONNECT ABS SPEED SENSOR CONNECTOR TO AXLE HUB ASSEMBLY
3. **CHECK BEARING BACKLASH AND AXLE HUB DEVIATION (See page SA–41)**
4. **w/ Drum brake:**
   INSTALL BRAKE DRUM
5. **w/ Disc brake:**
   INSTALL BRAKE CALIPER AND DISC
   Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)
6. **INSTALL REAR WHEEL**
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
7. **w/ ABS:**
   CHECK ABS SPEED SENSOR SIGNAL (See page DI–60)

REAR WHEEL HUB BOLT

SA1OP–01

REPLACEMENT

1. REMOVE REAR WHEEL

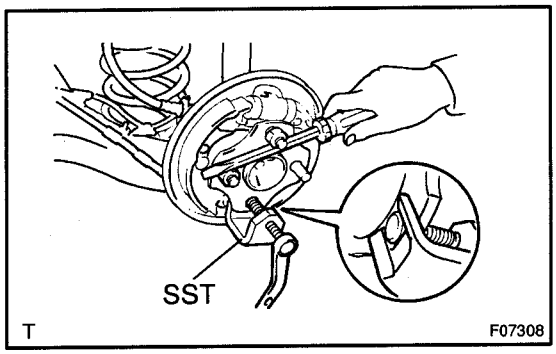


2. w/ Disc brake:
REMOVE BRAKE CALIPER AND DISC

(a) Remove the 2 bolts, brake caliper and disc.

(b) Support the brake caliper securely.

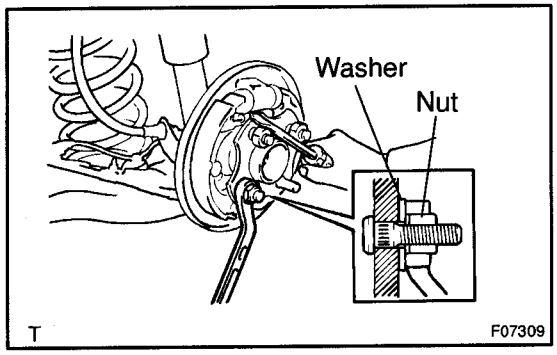
3. w/ Drum brake:
REMOVE BRAKE DRUM



4. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628–10011



5. INSTALL HUB BOLT

(a) Install a washer and nut to a new hub bolt as shown in the illustration.

(b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.

(c) Remove the 3 nuts and washer.

6. w/ Drum brake:
INSTALL BRAKE DRUM

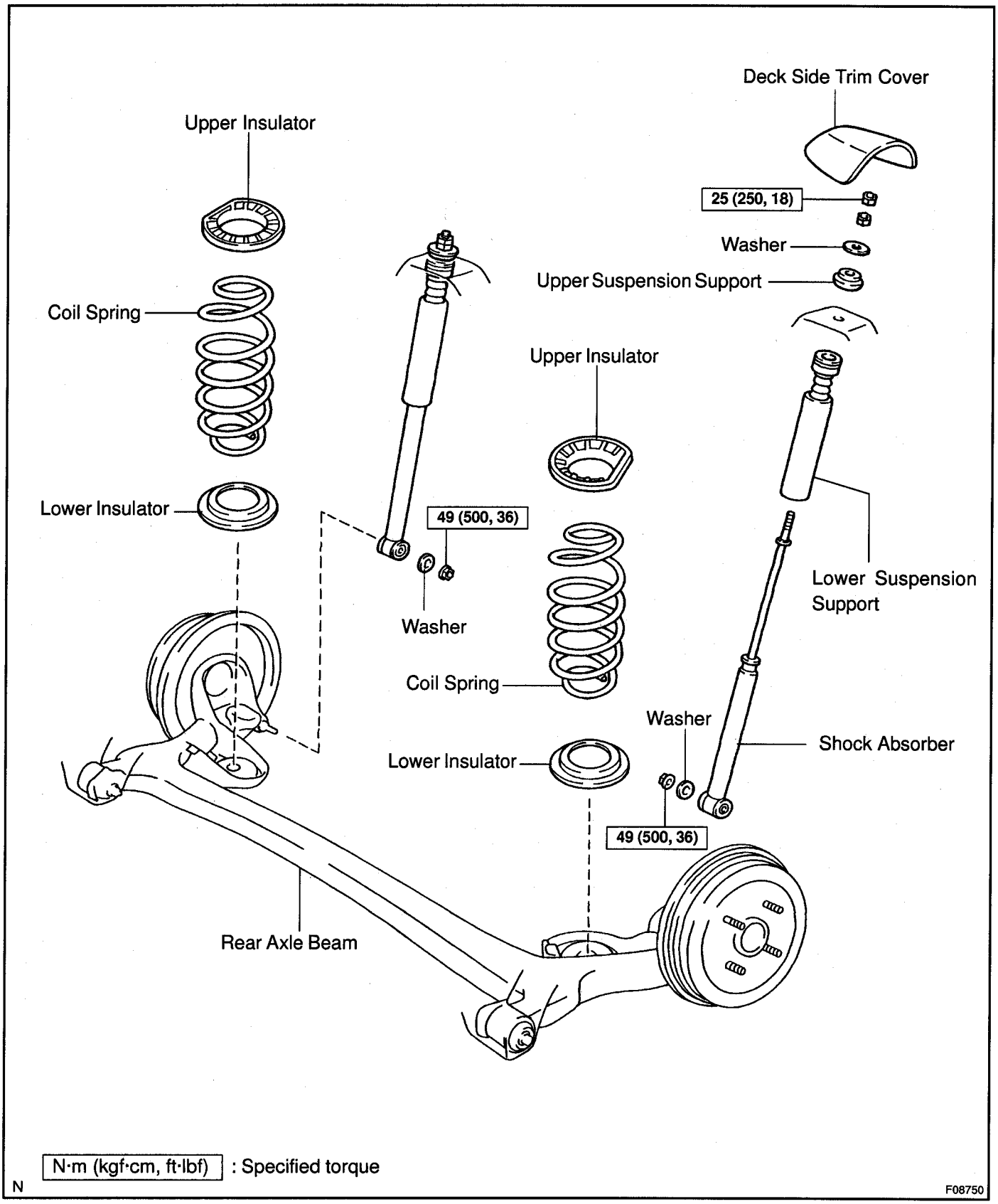
7. w/ Disc brake:
INSTALL BRAKE CALIPER AND DISC
Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

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

COIL SPRING AND REAR SHOCK ABSORBER

COMPONENTS

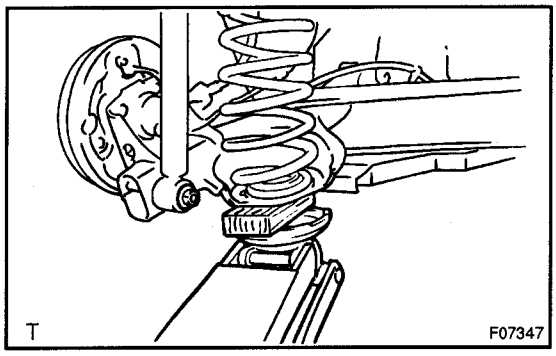
SA1LA-02



SA08A–05

REMOVAL

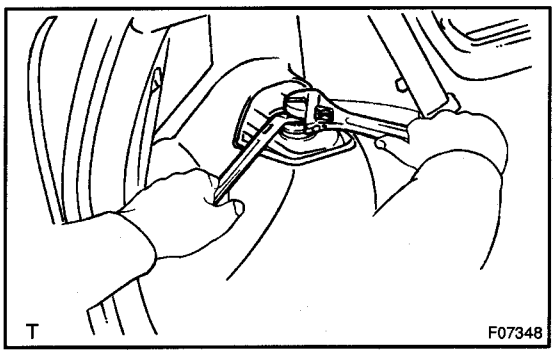
1. REMOVE REAR WHEELS



2. SUPPORT REAR AXLE BEAM AT RIGHT AND LEFT SIDES WITH JACKS

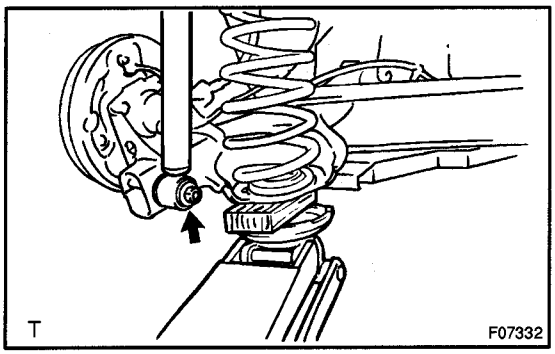
3. REMOVE SHOCK ABSORBER

(a) Remove the deck side trim cover.



(b) While holding the piston rod, remove the 2 nuts.

(c) Remove the washer and upper suspension support.



(d) Remove the nut, washer and shock absorber.

(e) Remove the lower suspension support.

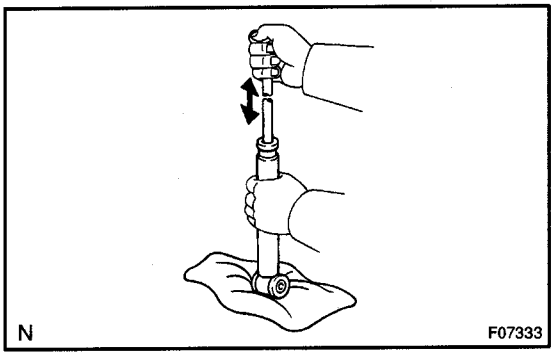
4. REMOVE COIL SPRING

(a) Remove the opposite shock absorber lower side set nut and washer, and disconnect the shock absorber from the axle beam.

(b) Lower the jacks gradually.

(c) Remove the coil spring, upper and lower insulators.

SA08C–03



INSPECTION

INSPECT SHOCK ABSORBER

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

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

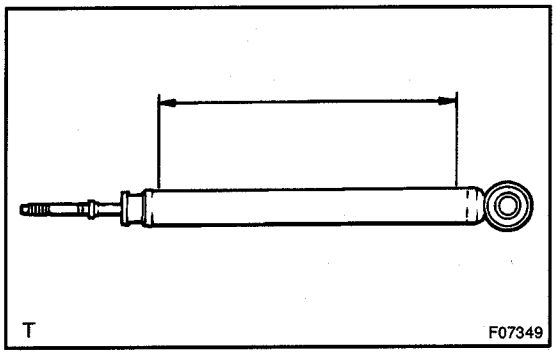
NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA–49.

SA08D–03

DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD



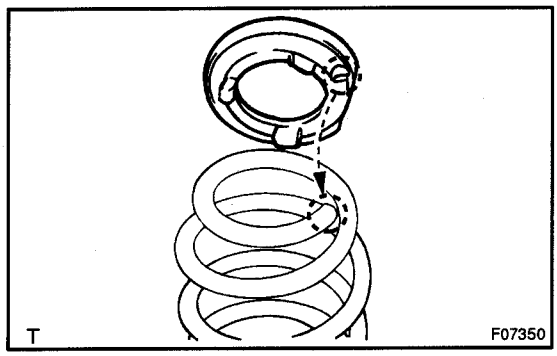
2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER

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

CAUTION:

- **When drilling, chips may fly out, work carefully.**
- **The gas is colorless, odorless and non–poisonous.**

SA1LB-02



INSTALLATION

1. INSTALL COIL SPRING

(a) Install the upper insulator so that its gap fits to the end of coil spring.

(b) Install the lower insulator and coil spring to the axle beam.

2. INSTALL SHOCK ABSORBER

(a) While lifting the jacks, connect both shock absorbers to axle beam with the washers and nuts.

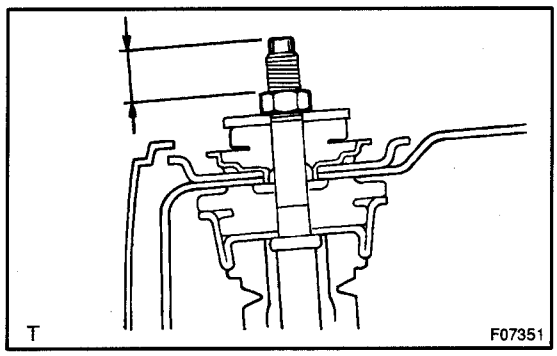
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

HINT:

After stabilizing the suspension, torque the nuts.

(b) Install the lower suspension support to the shock absorber.

(c) Install the shock absorber, upper suspension support and washer to the body.



(d) While holding the piston rod, install the lower nut so that the piston rod protrudes 15 – 18 mm (0.591 – 0.709 in.) from the lower nut.

(e) Install the upper nut and torque it against to the lower one.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

(f) Install the deck side trim cover.

3. REMOVE JACKS

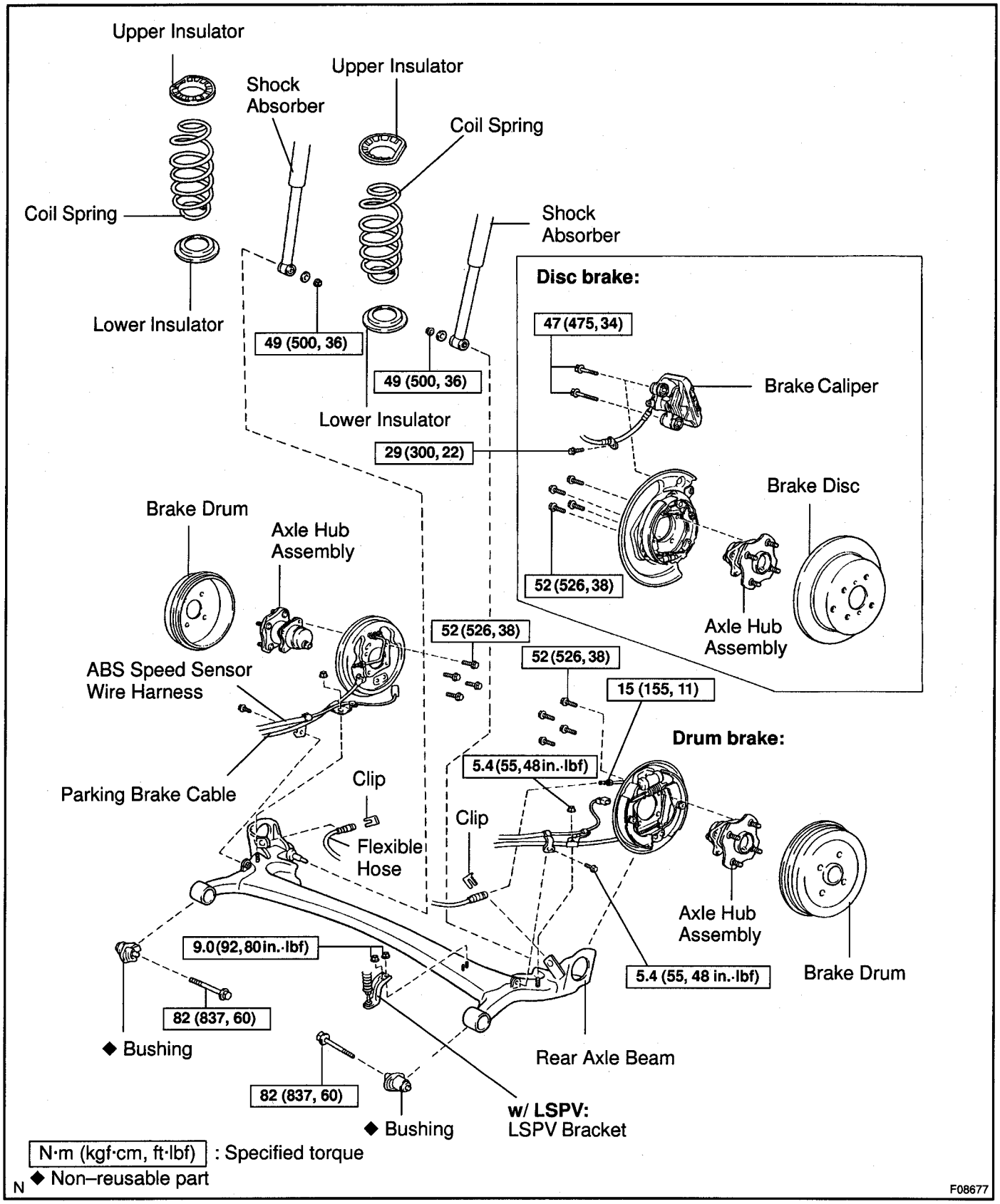
4. INSTALL REAR WHEELS

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

REAR AXLE BEAM

COMPONENTS

SA0QW-04



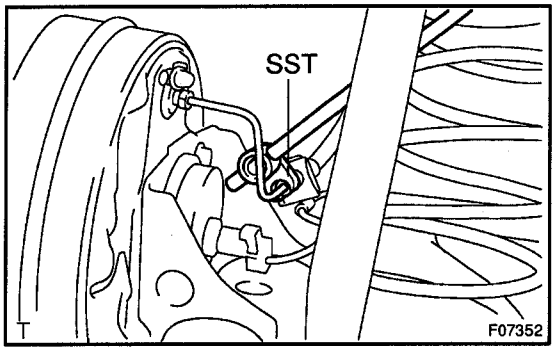
SA1OQ-01

REMOVAL

1. **REMOVE REAR WHEELS**
2. **w/ Disc brake:**
   DISCONNECT FLEXIBLE HOSE FROM AXLE BEAM BRACKET

(a) Remove the bolt and disconnect the flexible hose from the axle beam bracket.

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

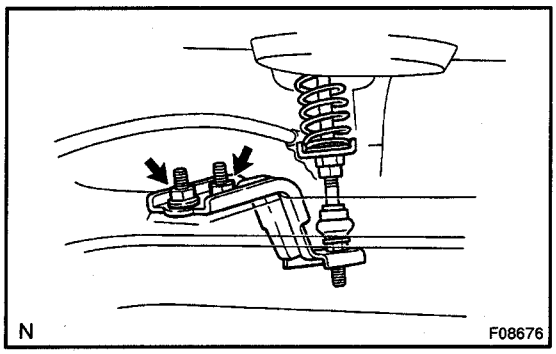


3. **w/ Drum brake:**
   DISCONNECT BRAKE LINES

(a) Using SST, disconnect the brake lines from the flexible hose. Use a container to catch brake fluid as it drains out.
SST 09023–00100

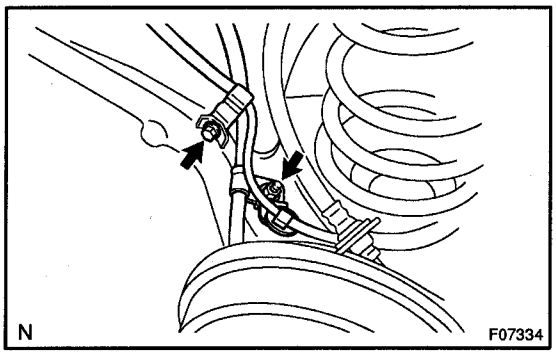
(b) Remove the clip.

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



4. **w/ LSPV:**
   DISCONNECT LSPV BRACKET

Remove the 2 nuts and disconnect the LSPV bracket from the axle beam.



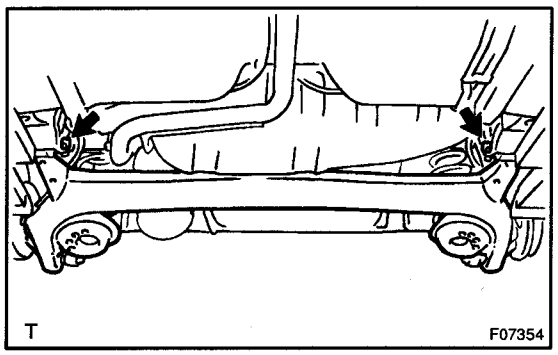
5. **DISCONNECT ABS SPEED SENSOR WIRE HARNESS AND PARKING BRAKE CABLE CLAMPS**

(a) Remove the bolt and nut, and disconnect the ABS speed sensor wire harness and parking brake cable clamps from the axle beam.

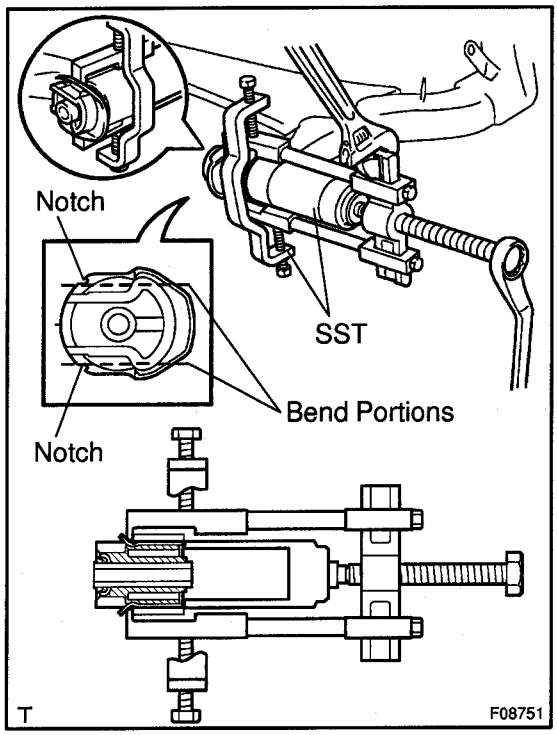
(b) Employ the same manner described above to the other side.

6. **REMOVE AXLE HUB ASSEMBLES (See page SA–41)**
7. **REMOVE REAR COIL SPRINGS (See page SA–47)**
8. **REMOVE REAR AXLE BEAM**

Remove the 2 bolts and rear axle beam.



SA0QY-04



REPLACEMENT

1. REMOVE BUSHING

(a) Place matchmarks on the 2 notches of the bushing and axle beam.

(b) Using a chisel and hammer, bend the 2 portions of the bushing rib.

HINT:

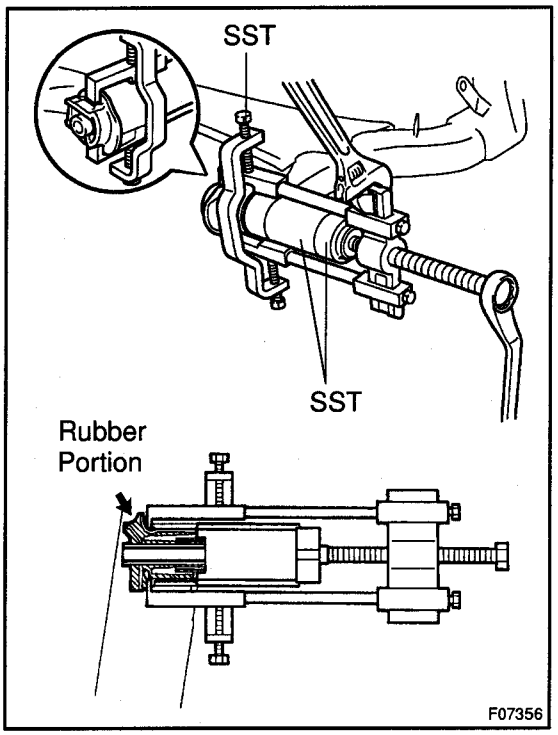
Bend the bushing rib until the claw of SST can be hung.

(c) Using SST, remove the bushing from the axle beam.

SST 09309–37010, 09950–40011 (09951–04010, 09952–04010, 09953–04010, 09954–04020, 09955–04051, 09957–04010, 09958–04011)

NOTICE:

If the axle beam has been scratched, apply the paint.



2. INSTALL BUSHING

(a) Align the matchmarks on the axle beam with the 2 notches of a new bushing and temporarily install the bushing to the axle beam.

(b) Using SST, install the bushing to the axle beam.

SST 09710–14013 (09710–00021), 09950–40011 (09951–04010, 09952–04010, 09953–04030, 09954–04020, 09955–04031, 09957–04010, 09958–04011), 09950–60010 (09951–00560)

NOTICE:

- **Hang the claw of SST to the bushing deeply and firmly.**
- **Do not scratch the rubber portion of the bushing.**
- **Do not deform the bushing rib.**

SA1LD-03

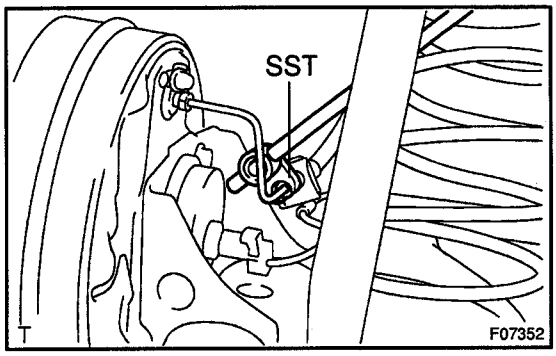
INSTALLATION

1. **INSTALL REAR AXLE BEAM**
   Torque: 82 N·m (837 kgf·cm, 60 ft·lbf)

HINT:
After adjusting the vehicle height by pushing down or lifting up the body, torque the 2 bolts.

2. **INSTALL REAR COIL SPRINGS (See page SA–50)**
3. **INSTALL AXLE HUB ASSEMBLES (See page SA–44)**
4. **CONNECT ABS SPEED SENSOR WIRE HARNESS AND PARKING BRAKE CABLE CLAMPS**
   Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)
5. **w/ LSPV:**
   CONNECT LSPV BRACKET
   Torque: 9.0 N·m (92 kgf·cm, 80 in.·lbf)
6. **w/ Drum brake:**
   CONNECT BRAKE LINES

(a) Install the flexible hose with the clip.



(b) Using SST, connect the brake line to the flexible hose.
SST 09023–00100
Torque: 15 N·m (155 kgf·cm, 11 ft·lbf)

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

7. **w/ Disc brake:**
   CONNECT FLEXIBLE HOSE TO AXLE BEAM BRACKET
   Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)
8. **w/ Drum brake:**
   BLEED BRAKE SYSTEM (See page BR–4)
9. **INSTALL REAR WHEELS**
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
10. **CHECK ABS SPEED SENSOR SIGNAL (See page DI–60)**