

# SUSPENSION *4-1*

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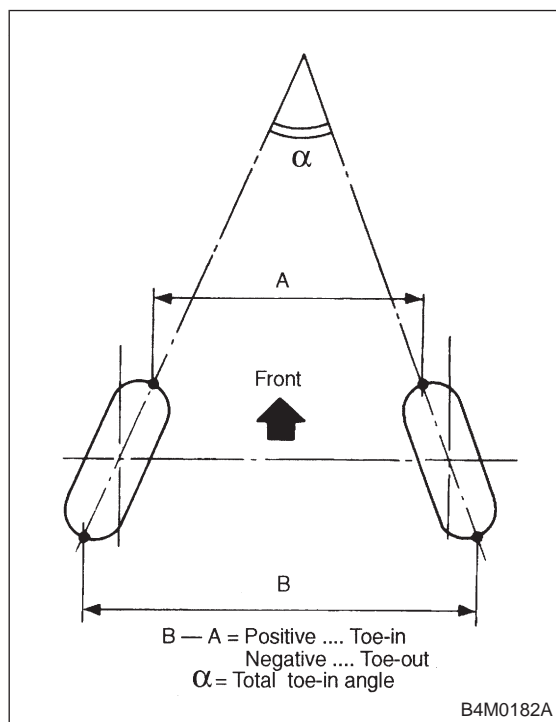
1. Specifications

A: STABILIZER

Model			Bar dia. mm (in)	
			Front	Rear
COUPE	AWD	1800 cc	19 (0.75)	—
		2200 cc	19 (0.75)	13 (0.51)
SEDAN	AWD	1800 cc	18 (0.71)	—
		2200 cc	19 (0.75)	13 (0.51)
WAGON	AWD	1800 cc	19 (0.75)	—
		2200 cc	19 (0.75)	13 (0.51)
OUTBACK	AWD	2200 cc	19 (0.75)	13 (0.51)

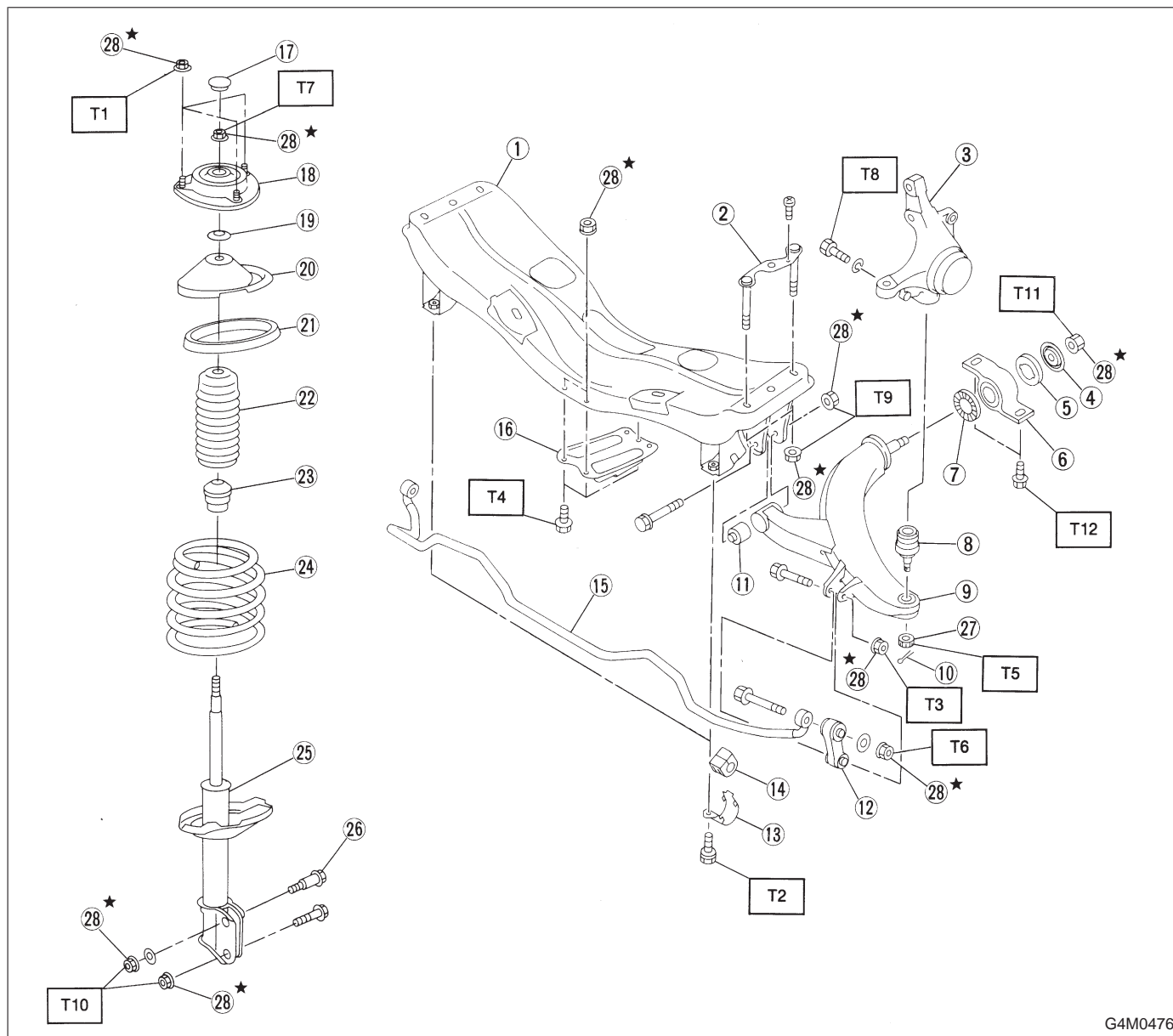
**B: WHEEL ALIGNMENT**

		Sedan, Coupe	Wagon	OUTBACK
		AWD	AWD	AWD
Front	Camber (tolerance: $\pm 0^{\circ}30'$ )	0°	0°	0°
	Caster (common difference: $\pm 1^{\circ}$ )	3°	3°	3°
	Toe-in mm (in)	0±3 (0±0.12)	Toe-in angle: $-0^{\circ}09'$ [when toe-in is -3 (-0.12)] Toe-out angle: $0^{\circ}09'$ [when toe-out is 3 (0.12)]	
	Kingpin angle	14°	14°	14°
	Wheel arch height [tolerance: $^{+12}_{-24}$ mm ( $^{+0.47}_{-0.94}$ in)] mm (in)	391 (15.39)	391 (15.39)	394 (15.51)
Rear	Camber (tolerance: $\pm 0^{\circ}45'$ )	$-0^{\circ}55'$	$-0^{\circ}55'$	$-0^{\circ}55'$
	Toe-in mm (in)	0±3 (0±0.12) Total toe angle: $0^{\circ}\pm 18'$		
	Wheel arch height [tolerance: $\pm 10$ mm ( $\pm 0.39$ in)] mm (in)	379 (14.92)	379 (14.92)	386 (15.20)
	Thrust angle (tolerance: $0^{\circ}\pm 20'$ )	0°	0°	0°

**NOTE:**

- Front and rear toe-ins and front camber can be adjusted. If toe-in or camber tolerance exceeds specifications, adjust toe-in and camber to the specification.
- The other items indicated in the specification table cannot be adjusted. If the other items exceeds specifications, check suspension parts and connections for deformities; and replace with new ones as required.

## 1. Front Suspension

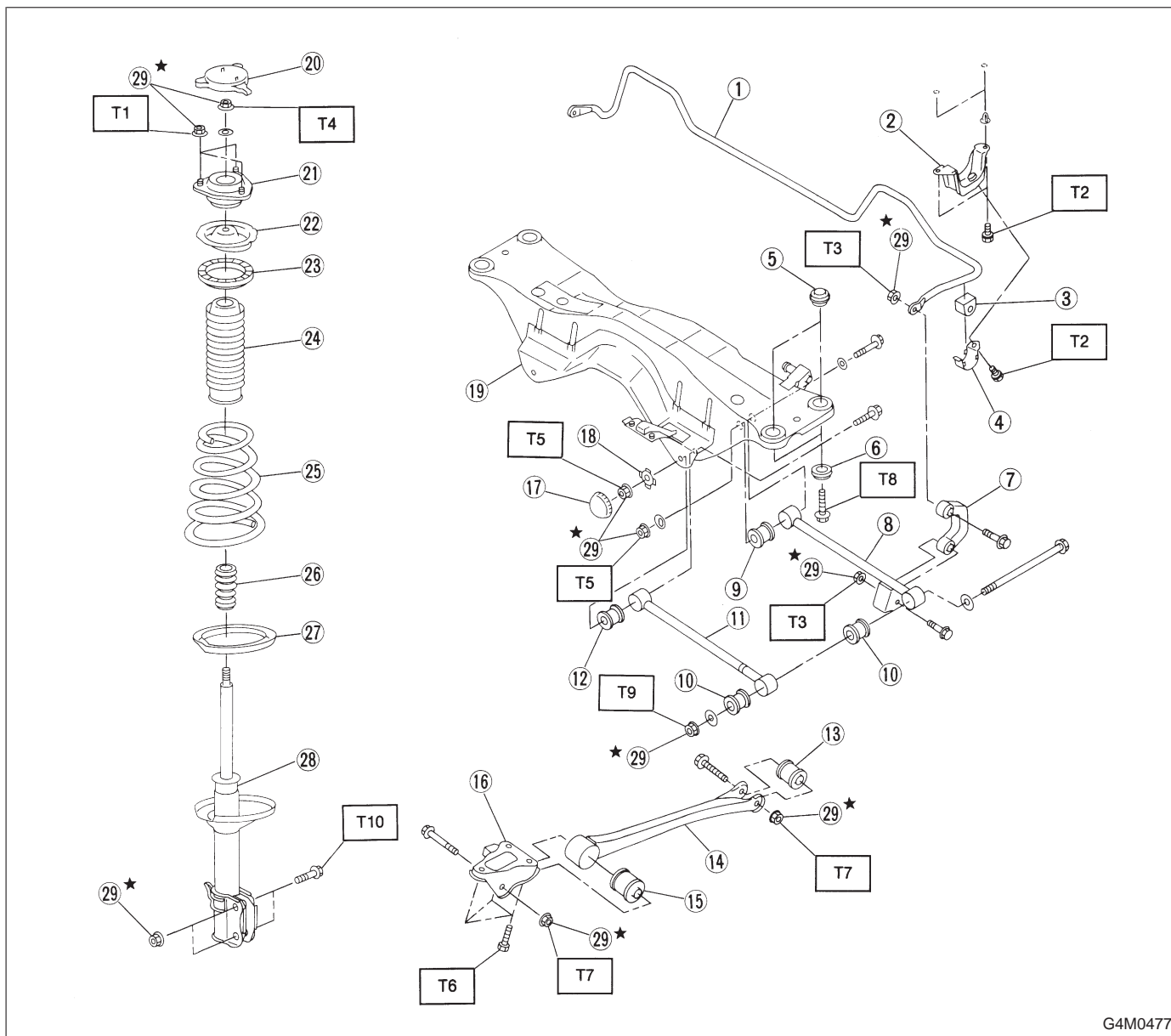


- |                       |                     |
|-----------------------|---------------------|
| ① Crossmember         | ⑮ Stabilizer        |
| ② Bolt ASSY           | ⑯ Jack-up plate     |
| ③ Housing             | ⑰ Dust seal         |
| ④ Washer              | ⑱ Strut mount       |
| ⑤ Stop rubber (Rear)  | ⑲ Spacer            |
| ⑥ Rear bushing        | ⑳ Upper spring seat |
| ⑦ Stop rubber (Front) | ㉑ Rubber seat       |
| ⑧ Ball joint          | ㉒ Dust cover        |
| ⑨ Transverse link     | ㉓ Helper            |
| ⑩ Cotter pin          | ㉔ Coil spring       |
| ⑪ Front bushing       | ㉕ Damper strut      |
| ⑫ Stabilizer link     | ㉖ Adjusting bolt    |
| ⑬ Clamp               | ㉗ Castle nut        |
| ⑭ Bushing             | ㉘ Self-locking nut  |

**Tightening torque: N·m (kg-m, ft-lb)**

- T1:** 20±6 (2.0±0.6, 14.5±4.3)  
**T2:** 25±4 (2.5±0.4, 18.1±2.9)  
**T3:** 29±5 (3.0±0.5, 21.7±3.6)  
**T4:** 32±10 (3.3±1.0, 24±7)  
**T5:** 39 (4, 29)  
**T6:** 44±6 (4.5±0.6, 32.5±4.3)  
**T7:** 49<sup>+10</sup><sub>-0</sub> (5.0<sup>+10</sup><sub>-0</sub>, 36<sup>+7</sup><sub>-0</sub>)  
**T8:** 49±10 (5.0±1.0, 36±7)  
**T9:** 98±15 (10.0±1.5, 72±11)  
**T10:** 152±20 (15.5±2.0, 112±14)  
**T11:** 196±25 (20.0±2.5, 145±18)  
**T12:** 245±49 (25.0±5.0, 181±36)

## 2. Rear Suspension



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- ① Stabilizer
- ② Stabilizer bracket
- ③ Stabilizer bushing
- ④ Clamp
- ⑤ Floating bushing
- ⑥ Stopper
- ⑦ Stabilizer link
- ⑧ Rear lateral link
- ⑨ Bushing (C)
- ⑩ Bushing (A)
- ⑪ Front lateral link
- ⑫ Bushing (B)
- ⑬ Trailing link rear bushing
- ⑭ Trailing link
- ⑮ Trailing link front bushing

- ⑯ Trailing link bracket
- ⑰ Cap
- ⑱ Washer
- ⑲ Crossmember
- ⑳ Cap
- ㉑ Strut mount
- ㉒ Spring seat
- ㉓ Rubber seat upper
- ㉔ Dust cover
- ㉕ Coil spring
- ㉖ Helper
- ㉗ Rubber seat lower
- ㉘ Damper strut
- ㉙ Self-locking nut

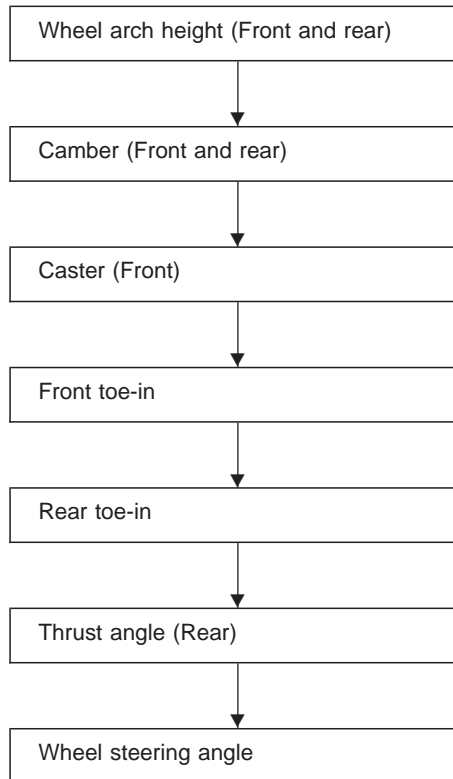
### Tightening torque: N·m (kg-m, ft-lb)

- T1: 20±6 (2.0±0.6, 14.5±4.3)
- T2: 25±7 (2.5±0.7, 18.1±5.1)
- T3: 44±6 (4.5±0.6, 32.5±4.3)
- T4: 59±10 (6.0±1.0, 43±7)
- T5: 98±15 (10.0±1.5, 72±11)
- T6: 98±20 (10.0±2.0, 72±14)
- T7: 113±15 (11.5±1.5, 83±11)
- T8: 127±20 (13.0±2.0, 94±14)
- T9: 137±20 (14.0±2.0, 101±14)
- T10: 196<sup>+39</sup><sub>-10</sub> (20.0<sup>+4.0</sup><sub>-1.0</sub>, 145<sup>+29</sup><sub>-7</sub>)

## **1. On-car Services**

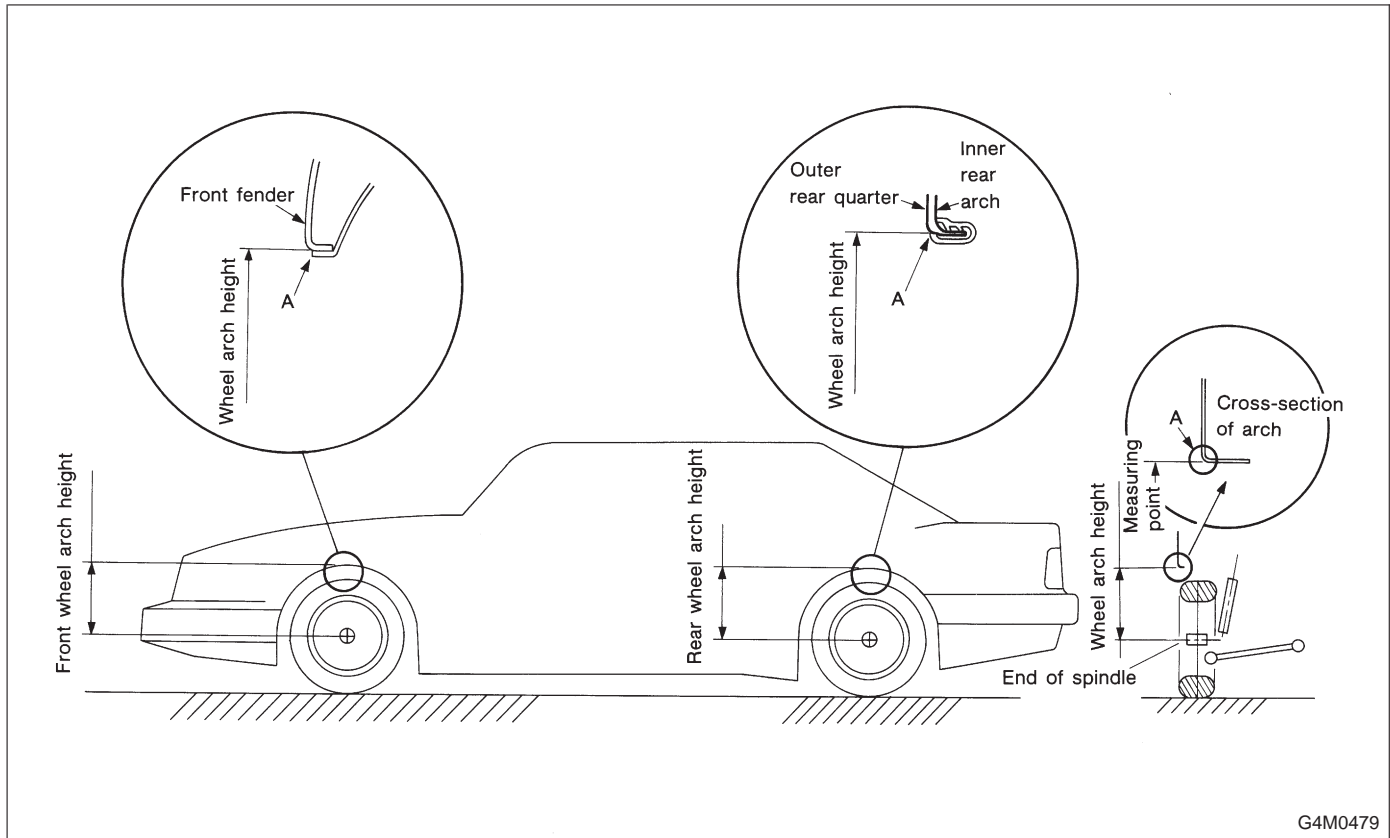
### **A: WHEEL ALIGNMENT PROCEDURES**

Check, adjust and/or measure wheel alignment in accordance with procedures indicated below:



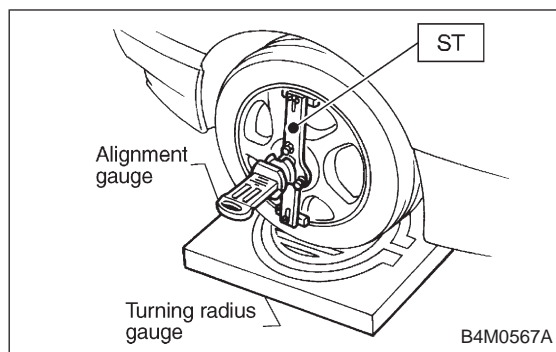
**B: INSPECTION AND ADJUSTMENT****1. WHEEL ARCH HEIGHT**

- 1) Adjust tire pressure to specifications.
- 2) Set vehicle under "curb weight" conditions. (Empty luggage compartment, install spare tire, jack, service tools, and top up fuel tank.)
- 3) Set steering wheel in a wheel-forward position.
- 4) Suspend thread from wheel arch (point "A" in figure below) to determine a point directly above center of spindle.
- 5) Measure distance between measuring point "A" and center of spindle.



G4M0479

Vehicles		Specified wheel arch height mm (in)	
		Front	Rear
Coupe, Sedan	AWD	$391^{+12}_{-24}$ (15.39 $^{+0.47}_{-0.94}$ )	$379^{+12}_{-24}$ (14.92 $^{+0.47}_{-0.94}$ )
Wagon	AWD	$391^{+12}_{-24}$ (15.39 $^{+0.47}_{-0.94}$ )	$379^{+12}_{-24}$ (14.92 $^{+0.47}_{-0.94}$ )
OUTBACK	AWD	$394^{+12}_{-24}$ (15.51 $^{+0.47}_{-0.94}$ )	$386^{+12}_{-24}$ (15.20 $^{+0.47}_{-0.94}$ )



## 2. CAMBER (FRONT AND REAR)

### ● Inspection

1) Place front wheel on turning radius gauge. Make sure ground contacting surfaces of front and rear wheels are set at the same height.

2) Set ST into the center of the wheel, and then install the wheel alignment gauge.

ST 927380000 ADAPTER

### NOTE:

Refer to the "SPECIFICATIONS AND SERVICE DATA" for the camber values. <Ref. to 4-1 [S1B0].>

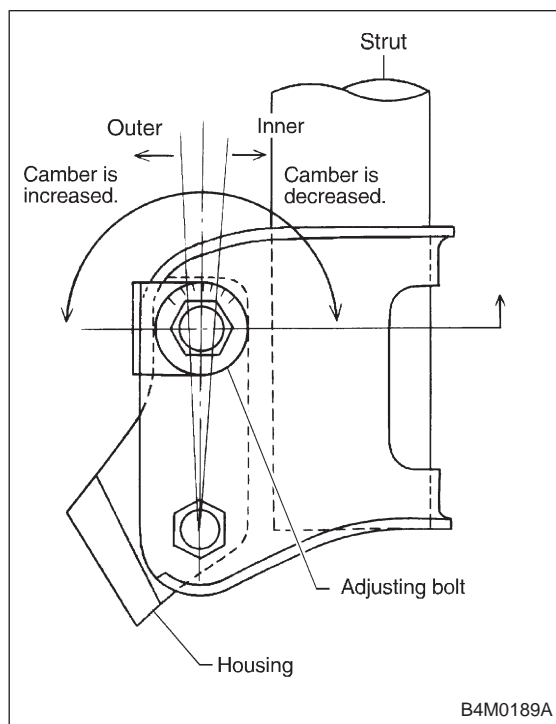
### ● Front camber adjustment

1) Loosen two self-locking nuts located at lower front portion of strut.

### CAUTION:

● When adjusting bolt needs to be loosened or tightened, hold its head with a wrench and turn self-locking nut.

● Discard loosened self-locking nut and replace with a new one.

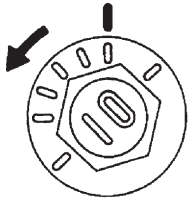
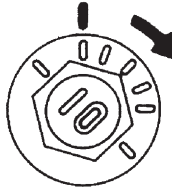
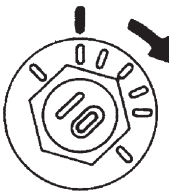
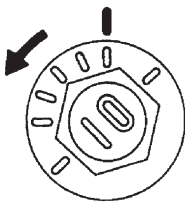


2) Turn camber adjusting bolt so that camber is set at the specification.

### NOTE:

Moving the adjusting bolt by one scale graduation changes camber by approximately  $0^{\circ}10'$ .

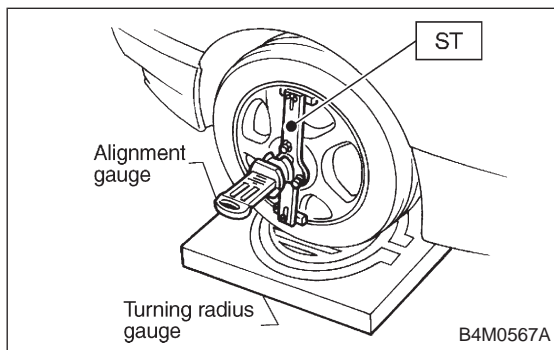


	Left side	Right side
Camber is increased.	 <p>Rotate counterclockwise.</p> <p>B4M0190</p>	 <p>Rotate clockwise.</p> <p>B4M0350</p>
Camber is decreased.	 <p>Rotate clockwise.</p> <p>B4M0350</p>	 <p>Rotate counterclockwise.</p> <p>B4M0190</p>

3) Tighten the two self-locking nuts.

**Tightening torque:**

**$152 \pm 20 \text{ N} \cdot \text{m}$  ( $15.5 \pm 2.0 \text{ kg} \cdot \text{m}$ ,  $112 \pm 14 \text{ ft} \cdot \text{lb}$ )**



### 3. CASTER

#### ● Inspection

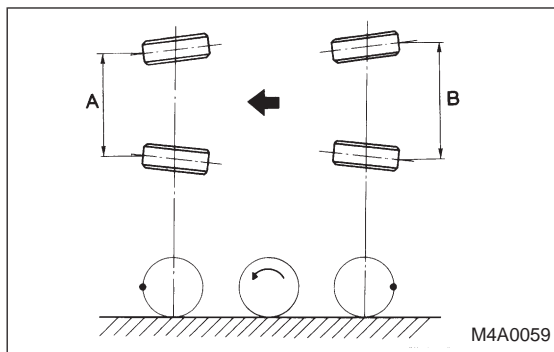
1) Place front wheel on turning radius gauge. Make sure ground contacting surfaces of front and rear wheels are set at the same height.

2) Set ST into the center of the wheel, and then install the wheel alignment gauge.

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#### NOTE:

Refer to the "SPECIFICATIONS AND SERVICE DATA" for the caster value. <Ref. to 4-1 [S1B0].>



#### 4. FRONT WHEEL TOE-IN

- Inspection

- 1) Using a toe gauge, measure front wheel toe-in.

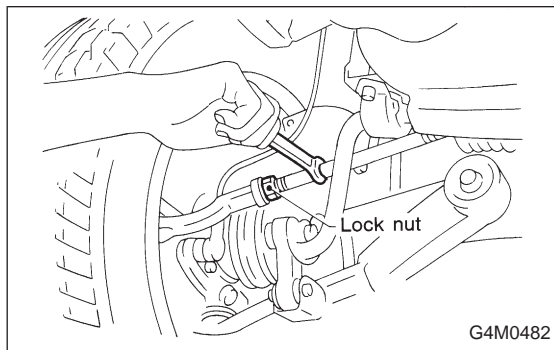
**Toe-in:  $0 \pm 3 \text{ mm}$  ( $0 \pm 0.12 \text{ in}$ )**

- 2) Mark rear sides of left and right tires at height corresponding to center of spindles and measure distance "B" between marks.

- 3) Move vehicle forward so that marks line up with front sides at height corresponding to center of spindles.

- 4) Measure distance "A" between left and right marks. Toe-in can then be obtained by the following equation:

$$B - A = \text{Toe-in}$$



- Adjustment

- 1) Loosen the left and right side steering tie-rods lock nuts.
- 2) Turn the left and right tie rods equal amounts until the toe-in is at the specification.

Both the left and right tie-rods are right-hand threaded. To increase toe-in, turn both tie-rods clockwise equal amounts (as viewed from the inside of the vehicle).

- 3) Tighten tie-rod lock nut.

**Tightening torque:**

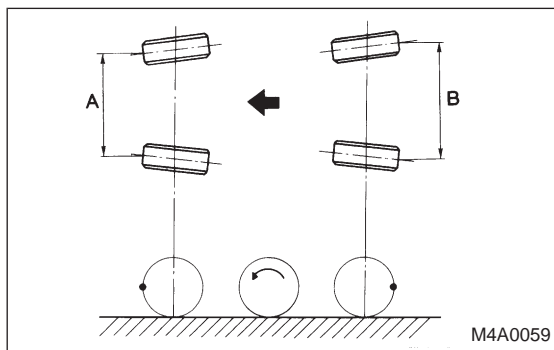
**$83 \pm 5 \text{ N}\cdot\text{m}$  ( $8.5 \pm 0.5 \text{ kg}\cdot\text{m}$ ,  $61.5 \pm 3.6 \text{ ft}\cdot\text{lb}$ )**

**CAUTION:**

**Correct tie-rod boot, if it is twisted.**

**NOTE:**

Check the left and right wheel steering angle is within specifications.



#### 5. REAR WHEEL TOE-IN

- Inspection

- 1) Using a toe-in gauge, measure rear wheel toe-in.

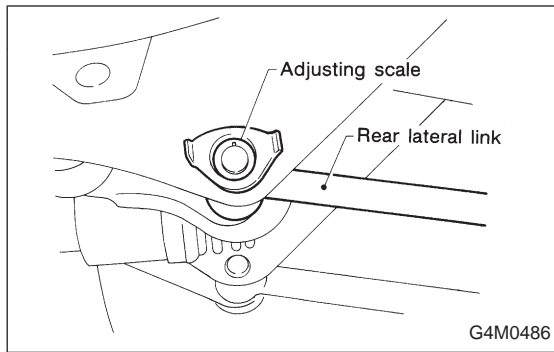
**Toe-in:  $0 \pm 3 \text{ mm}$  ( $0 \pm 0.12 \text{ in}$ )**

- 2) Mark rear sides of left and right tires at height corresponding to center of spindles and measure distance "B" between marks.

- 3) Move vehicle forward so that marks line up with front sides at height corresponding to center of spindles.

- 4) Measure distance "A" between left and right marks. Toe-in can then be obtained by the following equation:

$$B - A = \text{Toe-in}$$



### ● Adjustment

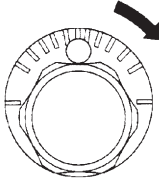
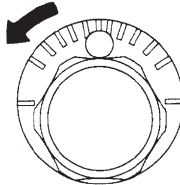
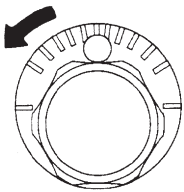
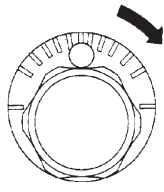
1) Loosen self-locking nut on inner side of rear lateral link.

### CAUTION:

● When loosening or tightening adjusting bolt, hold bolt head and turn self-locking nut.

● Discard loosened self-locking nut and replace with a new one.

2) Turn adjusting bolt head until toe-in is at the specification.

	Left side	Right side
Toe-in is increased.	 <p>Rotate clockwise.</p> <p>B4M0192</p>	 <p>Rotate counterclockwise.</p> <p>B4M0352</p>
Toe-in is decreased.	 <p>Rotate counterclockwise.</p> <p>B4M0352</p>	 <p>Rotate clockwise.</p> <p>B4M0192</p>

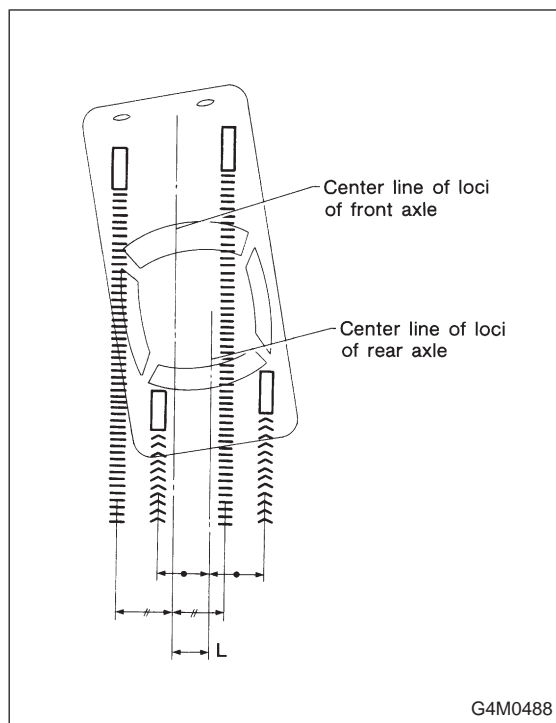
### NOTE:

When left and right wheels are adjusted for toe-in at the same time, the movement of one scale graduation changes toe-in by approximately 3 mm (0.12 in).

3) Tighten self-locking nut.

### Tightening torque:

**98±15 N·m (10±1.5 kg·m, 72±11 ft·lb)**



## 6. THRUST ANGLE

### ● Inspection

- 1) Position vehicle on a level surface.
- 2) Move vehicle 3 to 4 meters directly forward.
- 3) Determine locus of both front and rear axles.
- 4) Measure distance "L" between center line of loci of the axles.

### **Thrust angle:**

***Less than 20' when "L" is equal to or less than 15 mm (0.59 in).***

### ● Adjustment

- 1) Make thrust angle adjustments by turning toe-in adjusting bolts of rear suspension equally in the same direction.

### NOTE:

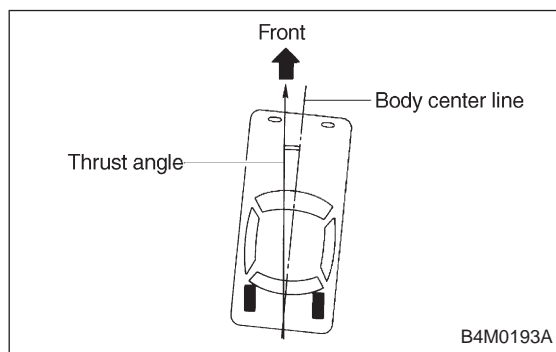
On FWD models, turn adjusting wheels one by one, by the same amount in the opposite direction of the adjusting bolts.

- 2) When one rear wheel is adjusted in a toe-in direction, adjust the other rear wheel equally in toe-out direction, in order to make thrust angle adjustment.

- 3) When left and right adjusting bolts are turned incrementally by one graduation in the same direction, the thrust angle of the AWD model will change approximately 10' ["L" is almost equal to 7.5 mm (0.295 in)] and the thrust angle of the FWD model will change approximately 12' ["L" is almost equal to 9 mm (0.35 in)].

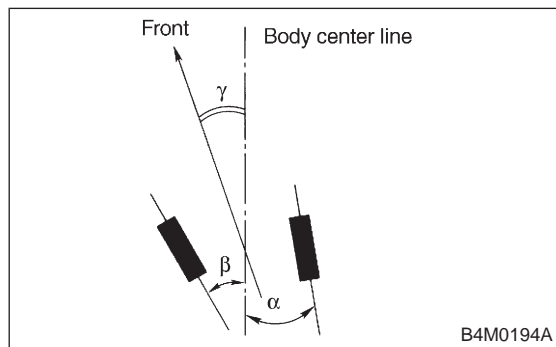
### **Thrust angle:**

***0°±20'***



### NOTE:

Thrust angle refers to a mean value of left and right rear wheel toe angles in relation to vehicle body center line. Vehicle is driven straight in the thrust angle direction while swinging in the oblique direction depending on the degree of the mean thrust angle.



### **Thrust angle: r**

$$r = \frac{\alpha - \beta}{2}$$

α: Right rear wheel toe angle

β: Left rear wheel toe angle

### NOTE:

Here, use only positive toe-in values from each wheel to substitute for α and β in the equation.

## 7. STEERING ANGLE

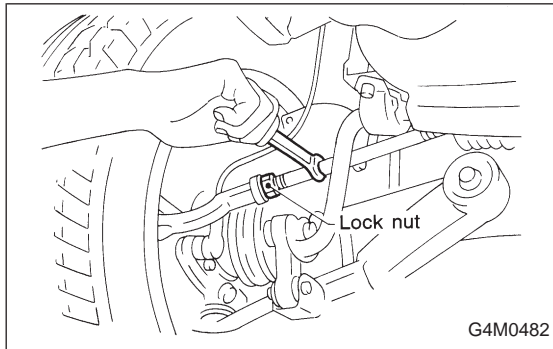
- Inspection

- 1) Place vehicle on a turning radius gauge.
- 2) While depressing brake pedal, turn steering wheel fully to the left and right. With steering wheel held at each fully turned position, measure both the inner and outer wheel steering angle.

**Steering angle:**

**Inner wheel**     $37.4^{\circ} \pm 1.5^{\circ}$

**Outer wheel**     $32.5^{\circ} \pm 1.5^{\circ}$



- Adjustment

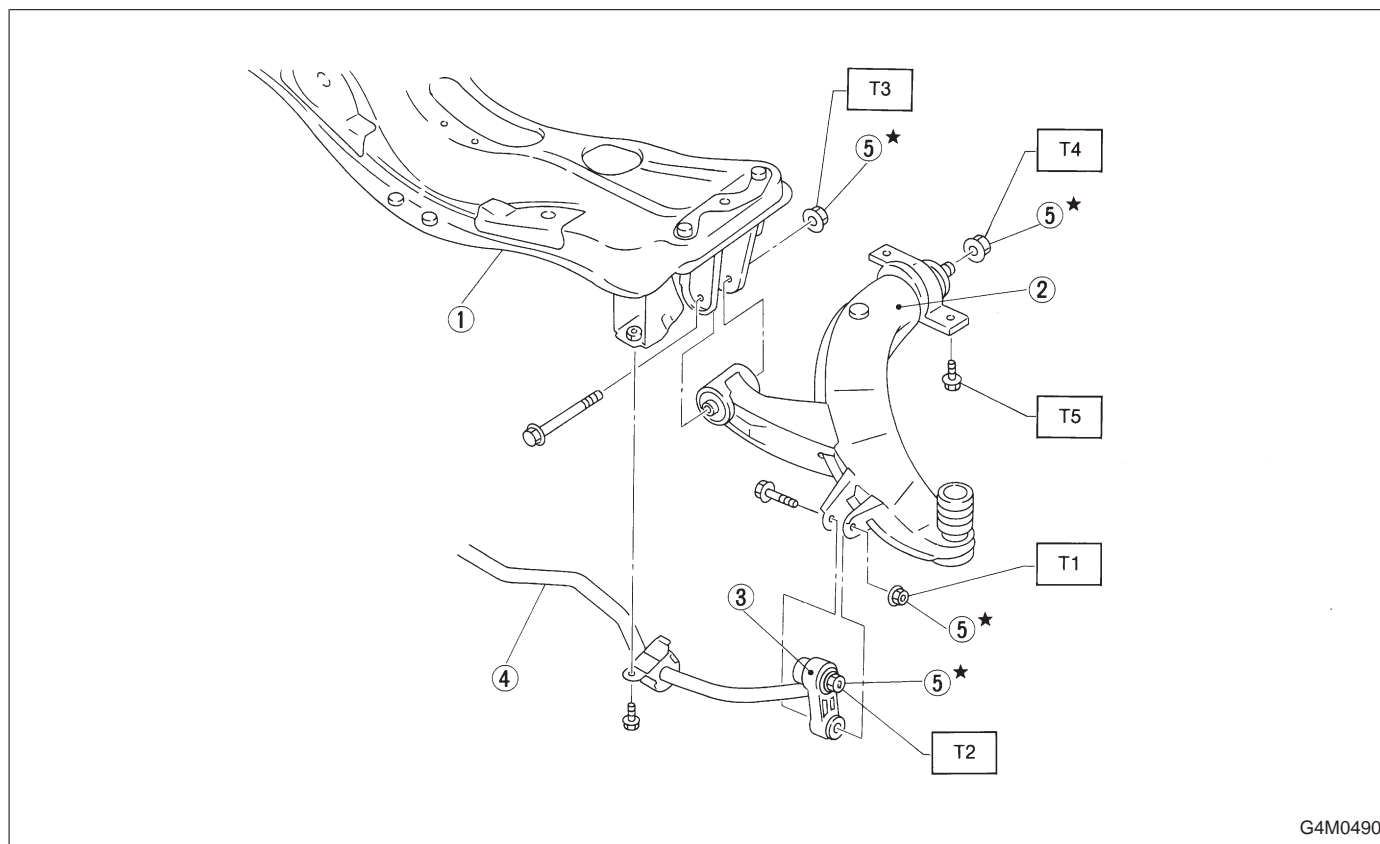
Turn tie-rod to adjust steering angle of both inner and outer wheels.

**CAUTION:**

- Check toe-in.
- Correct boot if it is twisted.

## 2. Front Transverse Link

## A: REMOVAL



- ① Front crossmember
- ② Transverse link
- ③ Stabilizer link
- ④ Front stabilizer
- ⑤ Self-locking nut

**Tightening torque: N·m (kg·m, ft·lb)**

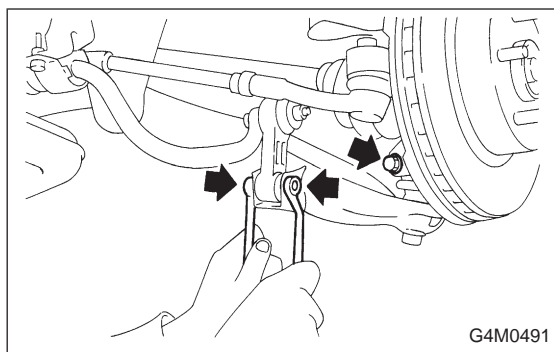
T1: 29±5 (3.0±0.5, 21.7±3.6)

T2: 44±6 (4.5±0.6, 32.5±4.3)

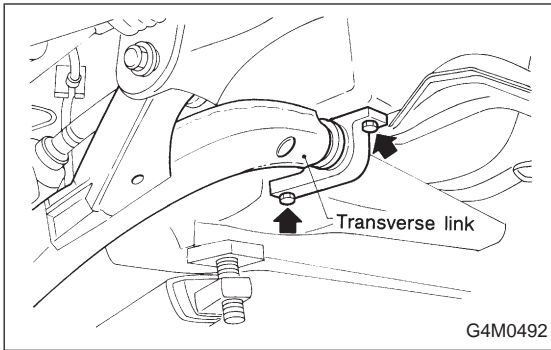
T3: 98±15 (10.0±1.5, 72±11)

T4: 196±25 (20.0±2.5, 145±18)

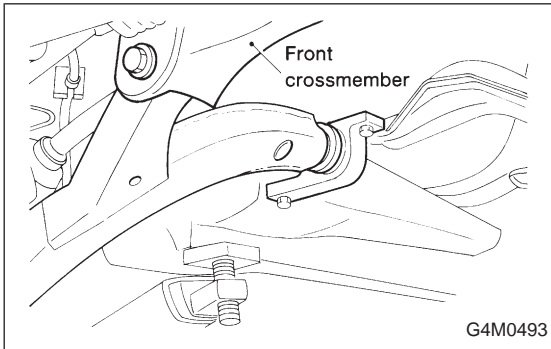
T5: 245±49 (25.0±5.0, 181±36)



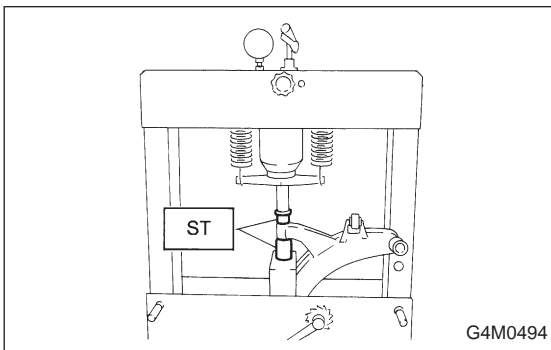
- 1) Disconnect stabilizer link from transverse link.
- 2) Remove bolt securing ball joint of transverse link to housing.



- 3) Remove nuts (do not remove bolts.) securing transverse link to crossmember.
- 4) Remove two bolts securing bushing bracket of transverse link to car body at rear bushing location.



- 5) Extract ball joint from housing.
- 6) Remove bolts securing transverse link to crossmember and extract transverse link from crossmember.

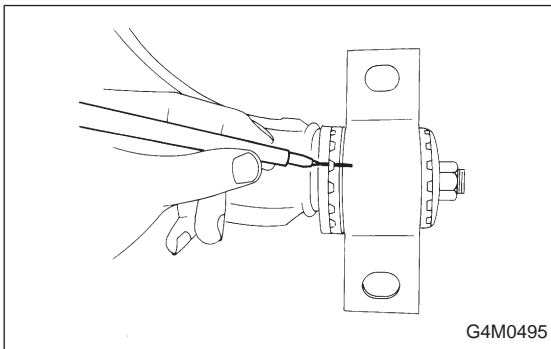


## B: DISASSEMBLY

### 1. FRONT BUSHING

Using ST, press front bushing out of place.

ST 927680000 INSTALLER & REMOVER SET

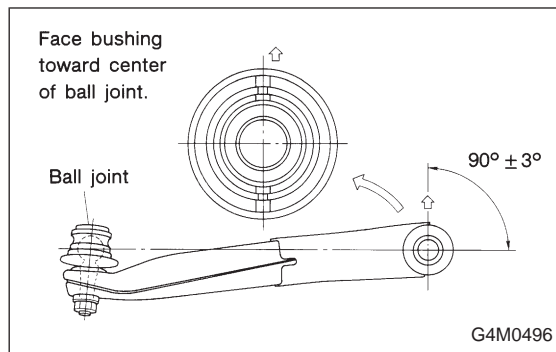


### 2. REAR BUSHING

- 1) Scribe an aligning mark on transverse link and rear bushing.
- 2) Loosen nut and remove rear bushing.

## C: INSPECTION

- 1) Check transverse link for wear, damage and cracks, and correct or replace if defective.
- 2) Check bushings for cracks, fatigue or damage.
- 3) Check rear bushing for oil leaks.



## D: ASSEMBLY

### 1. FRONT BUSHING

To reassemble, reverse disassembly procedures.

#### CAUTION:

**Install front bushing in correct direction, as shown in figure.**

### 2. REAR BUSHING

1) Install rear bushing to transverse link and align aligning marks scribed on the two.

2) Tighten self-locking nut.

#### CAUTION:

- Discard loosened self-locking nut and replace with a new one.

- While holding rear bushing so as not to change position of aligning marks, tighten self-locking nut.

#### Tightening torque:

**196±25 N·m (20.0±2.5 kg-m, 145±18 ft-lb)**

## E: INSTALLATION

1) Temporarily tighten the two bolts used to secure rear bushing of the transverse link to body.

#### NOTE:

These bolts should be tightened to such an extent that they can still move back and forth in the oblong shaped hole in the bracket (which holds the bushing).

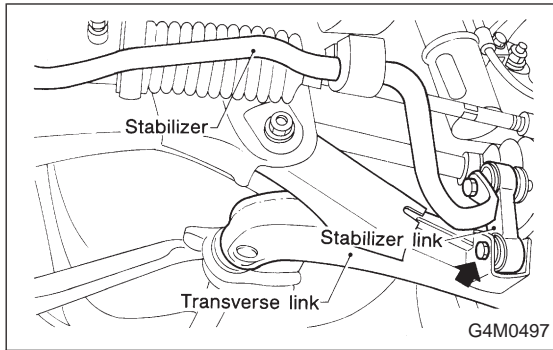
2) Install bolts used to connect transverse link to cross-member and temporarily tighten with nuts.

#### CAUTION:

**Discard loosened self-locking nut and replace with a new one.**

3) Insert ball joint into housing.





4) Connect stabilizer link to transverse link, and temporarily tighten bolts.

**CAUTION:**

**Discard loosened self-locking nut and replace with a new one.**

5) Tighten the following points in the order shown below when wheels are in full contact with the ground and vehicle is curb weight.

- (1) Transverse link and stabilizer

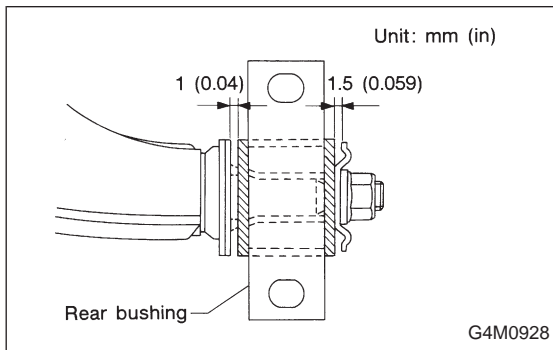
**Tightening torque:**

**$29 \pm 5 \text{ N} \cdot \text{m}$  ( $3.0 \pm 0.5 \text{ kg} \cdot \text{m}$ ,  $21.7 \pm 3.6 \text{ ft} \cdot \text{lb}$ )**

- (2) Transverse link and crossmember

**Tightening torque:**

**$98 \pm 15 \text{ N} \cdot \text{m}$  ( $10.0 \pm 1.5 \text{ kg} \cdot \text{m}$ ,  $72 \pm 11 \text{ ft} \cdot \text{lb}$ )**



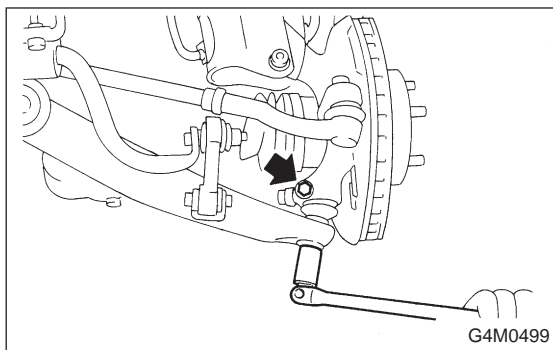
- (3) Transverse link rear bushing and body

**Tightening torque:**

**$245 \pm 49 \text{ N} \cdot \text{m}$  ( $25 \pm 5 \text{ kg} \cdot \text{m}$ ,  $181 \pm 36 \text{ ft} \cdot \text{lb}$ )**

**NOTE:**

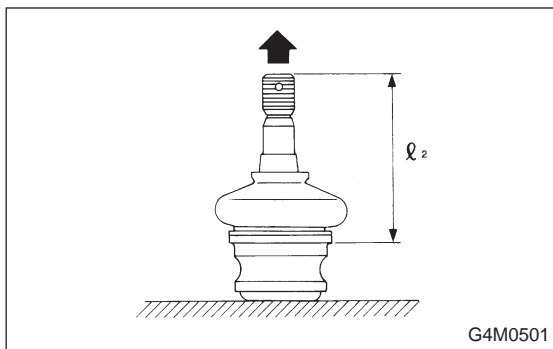
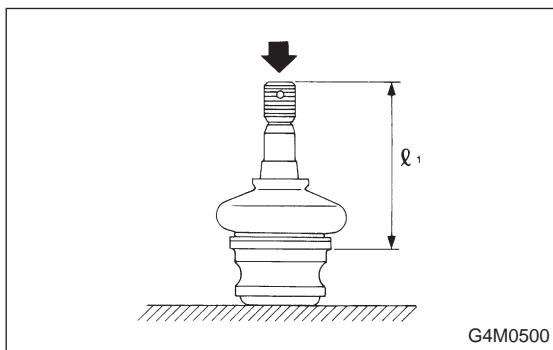
Move rear bushing back and forth until transverse link- to-rear bushing clearance is established (as indicated in figure.) before tightening.



### 3. Front Ball Joint

#### A: REMOVAL

- 1) Remove the wheels.
- 2) Pull out the cotter pin from the ball stud, remove the castle nut, and extract the ball stud from the transverse link.
- 3) Remove the bolt securing the ball joint to the housing.
- 4) Extract the ball joint from the housing.



#### B: INSPECTION

- 1) Measure play of ball joint by the following procedures. Replace with a new one when the play exceeds the specified value.

(1) With 686 N (70 kg, 154 lb) loaded in the direction shown in the figure, measure dimension  $l_1$ .

(2) With 686 N (70 kg, 154 lb) loaded in the opposite direction shown in the figure, measure dimension  $l_2$ .

(3) Calculate plays from the following formula.

$$S = l_2 - l_1$$

(4) When plays is larger than the following value, replace with a new one.

#### FRONT BALL JOINT

**Specified play for replacement: S**

**Less than 0.3 mm (0.012 in)**

- 2) When play is smaller than the specified value, visually inspect the dust cover.
- 3) The ball joint and cover that have been removed must be checked for wear, damage or cracks, and any defective part must be replaced.
- 4) If the dust cover is damaged, replace with the new ball joint.

#### C: INSTALLATION

- 1) Install ball joint onto housing.

**Torque (Bolt):**

**49 N·m (5.0 kg-m, 36 ft-lb)**

**CAUTION:**

**Do not apply grease to tapered portion of ball stud.**

- 2) Connect ball joint to transverse link.

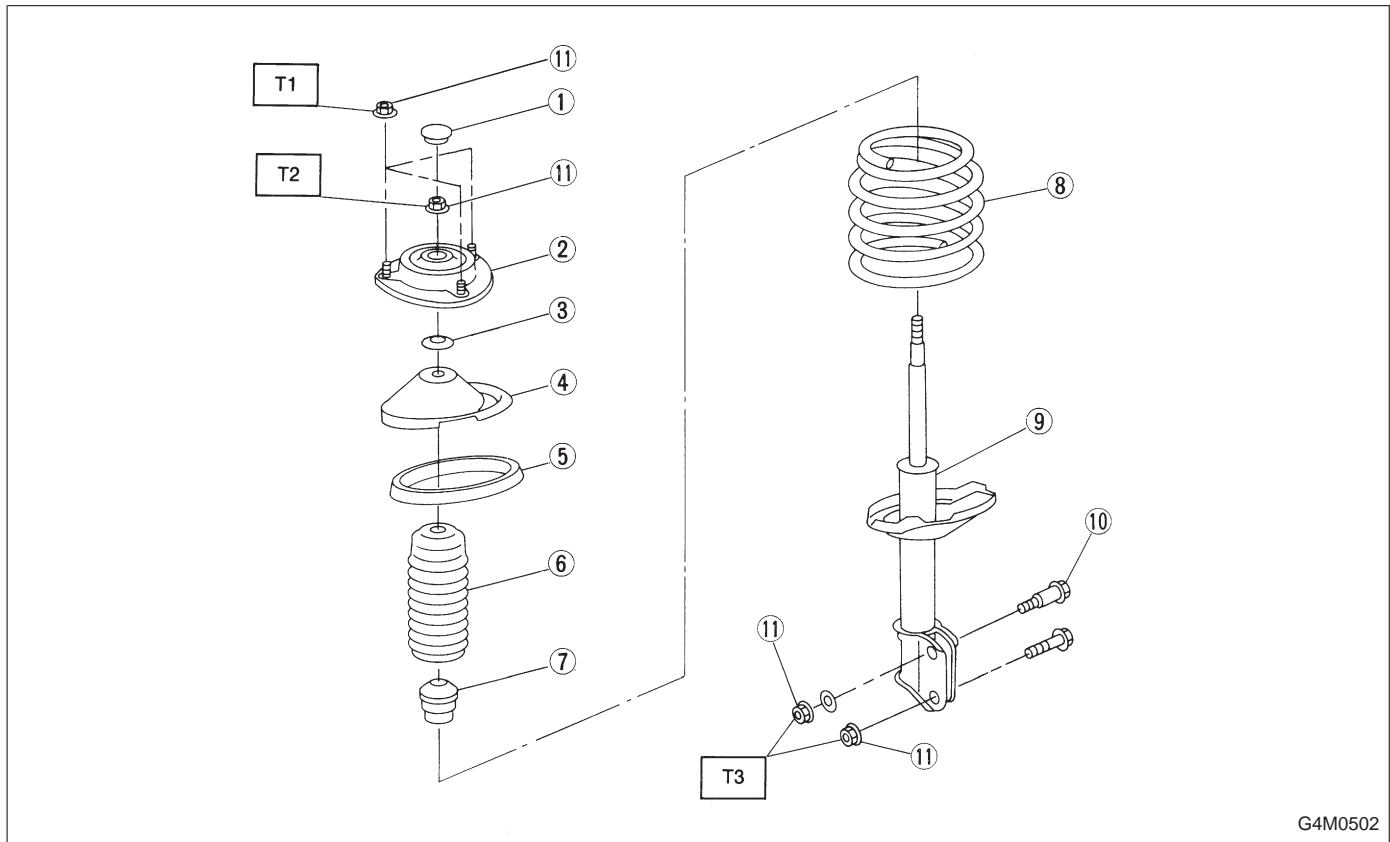
**Torque (Castle nut):**

**39 N·m (4.0 kg-m, 29 ft-lb)**

- 3) Retighten castle nut further within 60° until a slot in castle nut is aligned with the hole in ball stud end, then insert new cotter pin and bend it around castle nut.
- 4) Install front wheels.

## 4. Front Strut

## A: REMOVAL



G4M0502

- ① Dust seal
- ② Strut mount
- ③ Spacer
- ④ Upper spring seat
- ⑤ Rubber seat
- ⑥ Dust cover

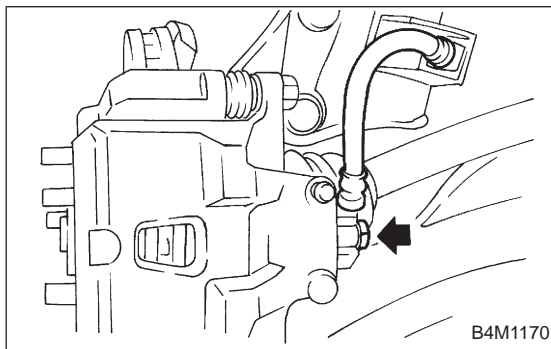
- ⑦ Helper
- ⑧ Coil spring
- ⑨ Damper strut
- ⑩ Adjusting bolt
- ⑪ Self-locking nut

**Tightening torque: N·m (kg·m, ft·lb)**

**T1:  $20 \pm 6$  ( $2.0 \pm 0.6$ ,  $14.5 \pm 4.3$ )**

**T2:  $49^{+10}_0$  ( $5.0^{+10}_0$ ,  $36^{+7}_0$ )**

**T3:  $152 \pm 20$  ( $15.5 \pm 2.0$ ,  $112 \pm 14$ )**

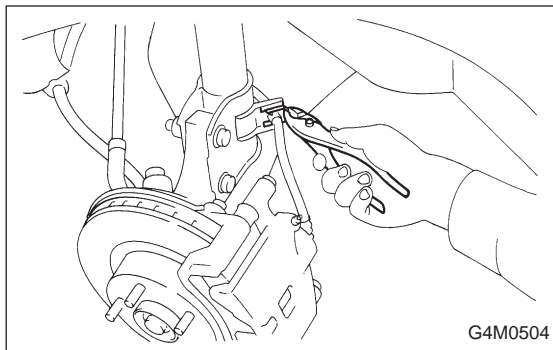


B4M1170

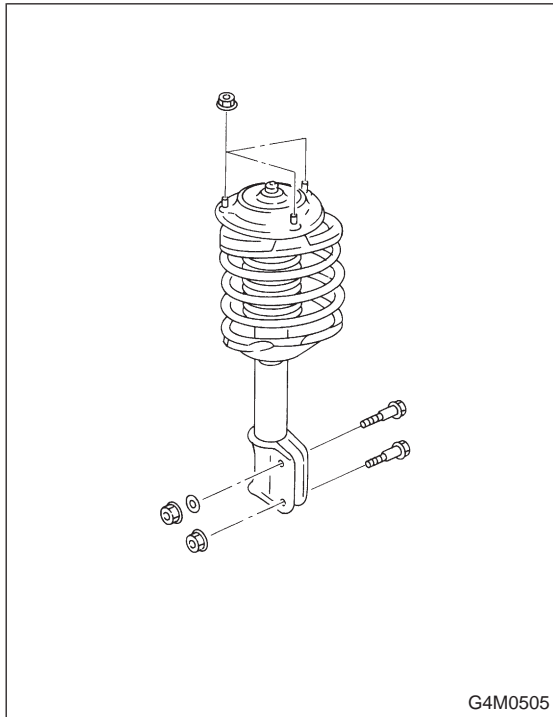
- 1) Remove wheel.
- 2) Depress brake pedal and hold it down using a wooden block etc.
- 3) Remove union bolts from caliper.

**CAUTION:**

**Use brake hose cap to prevent brake fluid from escaping.**



- 4) Remove brake hose clamp and disconnect brake hose from strut. Attach brake hose to body using gum tape.
- 5) Scribe an alignment mark on the camber adjusting bolt which secures strut to housing.
- 6) Remove bolt securing the ABS sensor harness on models equipped with ABS.

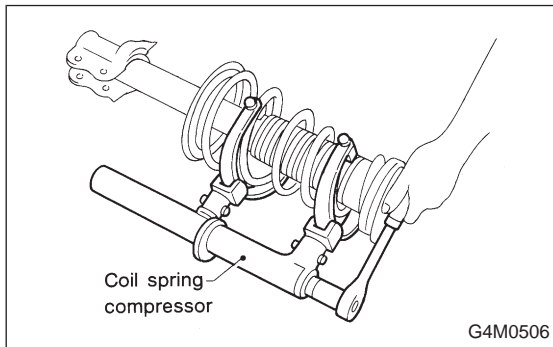


- 7) Remove two bolts securing housing to strut.

**CAUTION:**

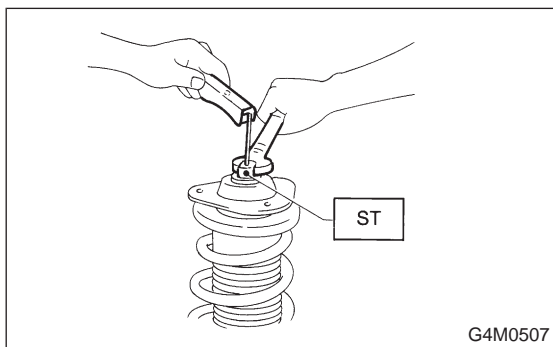
**While holding head of adjusting bolt, loosen self-locking nut.**

- 8) Remove the three nuts securing strut mount to body.



**B: DISASSEMBLY**

- 1) Using a coil spring compressor, compress coil spring.



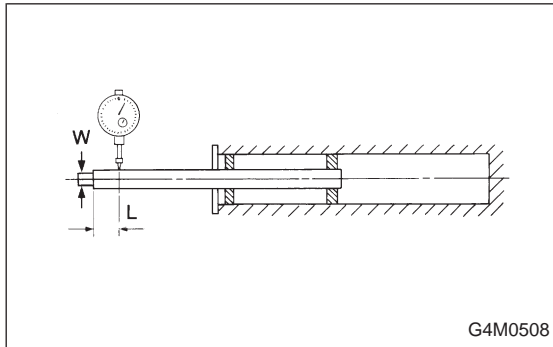
- 2) Using ST, remove self-locking nut.

ST 927760000 STRUT MOUNT SOCKET

- 3) Remove strut mount, upper spring seat and rubber seat from strut.
- 4) Gradually decreasing compression force, and remove coil spring.
- 5) Remove dust cover and helper spring.

**C: INSPECTION**

Check the disassembled parts for cracks, damage and wear, and replace with new parts if defective.

**1. DAMPER STRUT**

- 1) Check for oil leakage.
- 2) Move the piston rod up and down to check its operates smoothly without any binding.

**3) Play of piston rod**

- Measure the play as follows:

Fix outer shell and fully extend the rod. Set a dial gauge at the end of the rod: L [10 mm (0.39 in)], then apply a force of: W [ $\pm 20$  N ( $\pm 2$  kg,  $\pm 4$  lb)] to threaded portion. With the force of  $\pm 20$  N ( $\pm 2$  kg,  $\pm 4$  lb) applied, read both dial gauge readings,  $P_1$  and  $P_2$ . The free play is determined by the following equation:

**Limit of play:**

**Less than 0.8 mm (0.031 in)**

If the play is greater, replace the strut.

**2. STRUT MOUNT**

Check rubber part for creep, cracks and deterioration, and replace it with new one if defective.

**3. DUST COVER**

If any cracks or damage are found, replace it with a new one.

**4. COIL SPRING**

One having permanent strain should be replaced with a new one. When vehicle posture is uneven, although there are no considerable reasons like tire puncture, uneven loading, etc., check coil spring for its free length, cracks, etc., referring to specifications, and replace it with a new one if defective.

**5. HELPER**

Replace it with new one if cracked or damaged.

**D: ASSEMBLY**

1) Before installing coil spring, strut mount, etc., on the strut, check for the presence of air in the dampening force generating mechanism of the strut since air prevents proper dampening force from being produced.

2) Checking for the presence of air

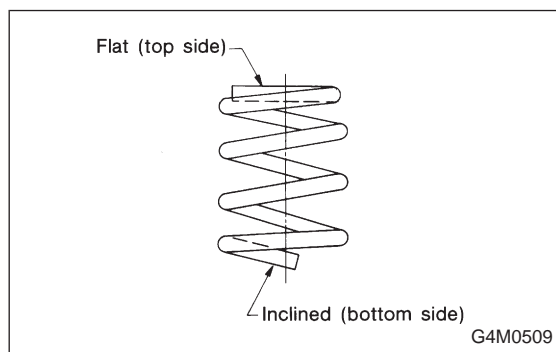
- (1) Place the strut vertically with the piston rod facing up.
- (2) Move the piston rod to the center of its entire stroke.
- (3) While holding the piston rod end with fingertips, move the rod up and down.
- (4) If the piston rod moves at least 10 mm (0.39 in) in step (3), purge air from the strut.

3) Air purging procedure

- (1) Place the strut vertically with the piston rod facing up.
- (2) Fully extend the piston rod.
- (3) With the piston rod fully extended, place the piston rod side down. The strut must stand vertically.
- (4) Fully contract the piston rod.
- (5) Repeat steps (1) through (4) above 3 or 4 times.

**NOTE:**

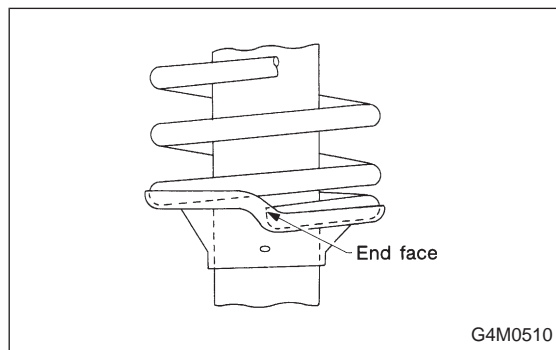
After completely purging air from the strut, be sure to place the strut with the piston rod facing up. If it is laid down, check for entry of air in the strut as outlined under item 2) above.



4) Using a coil spring compressor, compress the coil spring.

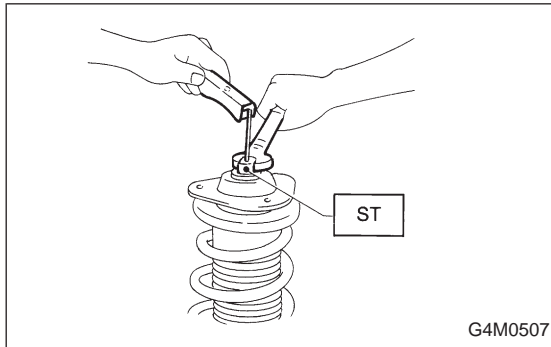
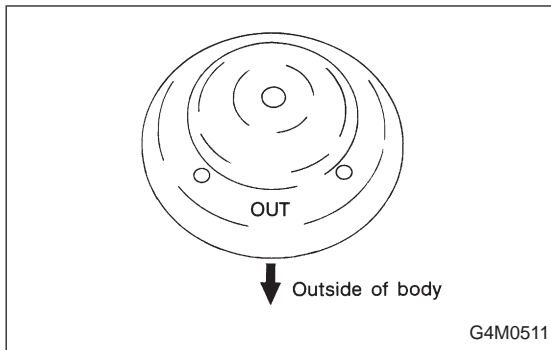
**NOTE:**

Make sure that the vertical installing direction of coil spring is as shown in figure.



5) Set the coil spring correctly so that its end face fits well into the spring seat as shown.

6) Install helper and dust cover to the piston rod.



7) Pull the piston rod fully upward, and install rubber seat and spring seat.

**NOTE:**

Ensure that upper spring seat is positioned with "OUT" mark facing outward.

8) Install strut mount to the piston rod, and tighten the self-locking nut temporarily.

**CAUTION:**

**Be sure to use a new self-locking nut.**

9) Loosen the coil spring carefully.

10) Using hexagon wrench to prevent strut rod from turning, tighten self-locking nut with ST.

**Tightening torque:**

$49^{+10}_{-0}$  N·m ( $5.0^{+1.0}_{-0}$  kg-m,  $36^{+7}_{-0}$  ft-lb)

ST 927760000 STRUT MOUNT SOCKET

## E: INSTALLATION

1) Install upper strut mount at upper side of strut to body and tighten with nuts.

**Tightening torque:**

$20\pm6$  N·m ( $2.0\pm0.6$  kg-m,  $14.5\pm4.3$  ft-lb)

2) Install ABS sensor harness to strut. (ABS equipped models)

**Tightening torque:**

$152\pm20$  N·m ( $15.5\pm2.0$  kg-m,  $112\pm14$  ft-lb)

3) Position aligning mark on camber adjustment bolt with aligning mark on lower side of strut.

**CAUTION:**

- While holding head of adjusting bolt, tighten self-locking nut.
- Be sure to use new self-locking nut.

**Tightening torque:**

$152\pm20$  N·m ( $15.5\pm2.0$  kg-m,  $112\pm14$  ft-lb)

4) Install brake hose at lower side of strut with clamp.

5) Install union bolts which secure brake caliper to brake hose.

**Tightening torque:**

$18\pm3$  N·m ( $1.8\pm0.3$  kg-m,  $13.0\pm2.2$  ft-lb)

**CAUTION:**

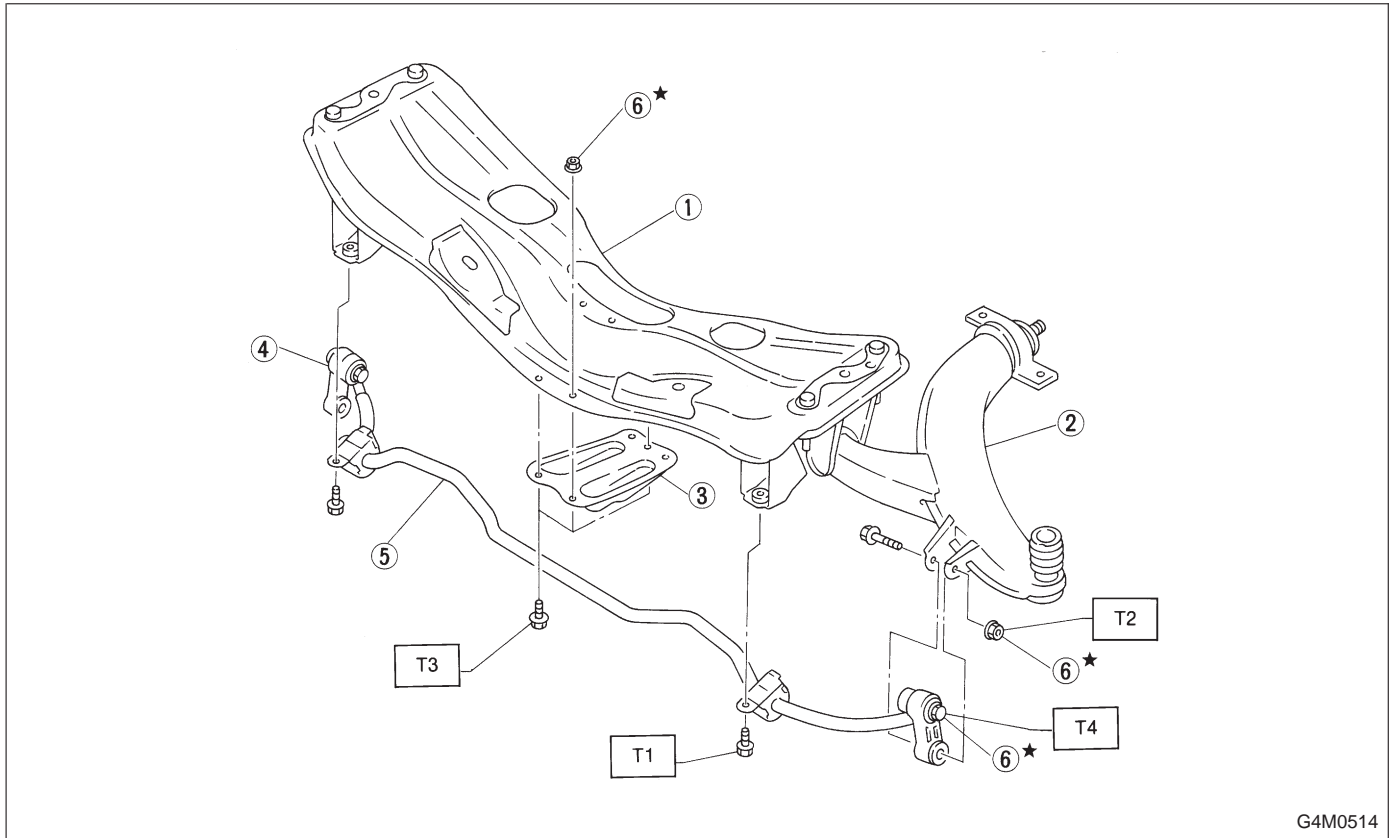
**Be sure to bleed air from brake system.**

6) Install wheels.

**NOTE:**

Check wheel alignment and adjust if necessary.

## 5. Front Stabilizer



G4M0514

- ① Front crossmember
- ② Transverse link
- ③ Jack-up plate
- ④ Stabilizer link
- ⑤ Front stabilizer
- ⑥ Self-locking nut

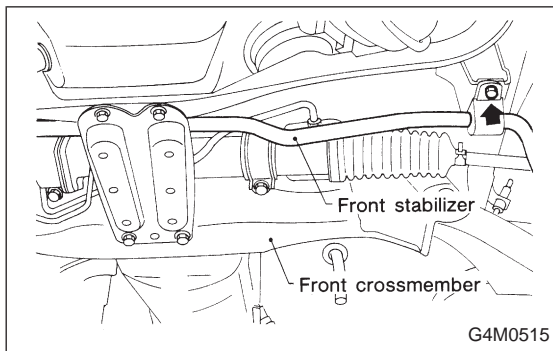
### Tightening torque: N·m (kg·m, ft·lb)

T1: 25±4 (2.5±0.4, 18.1±2.9)

T2: 29±5 (3.0±0.5, 21.7±3.6)

T3: 32±10 (3.3±1.0, 24±7)

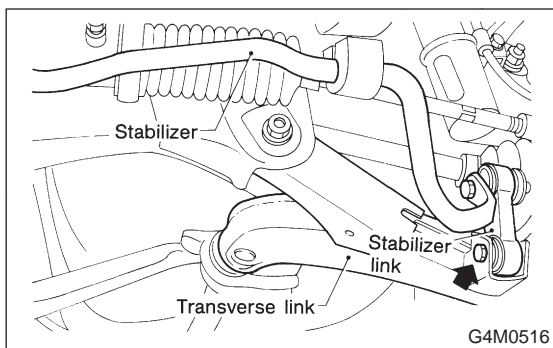
T4: 44±6 (4.5±0.6, 32.5±4.3)



G4M0515

## A: REMOVAL

- 1) Jack-up the front part of the vehicle, support it with safety stands (rigid racks).
- 2) Remove bolts which secure stabilizer to crossmember.



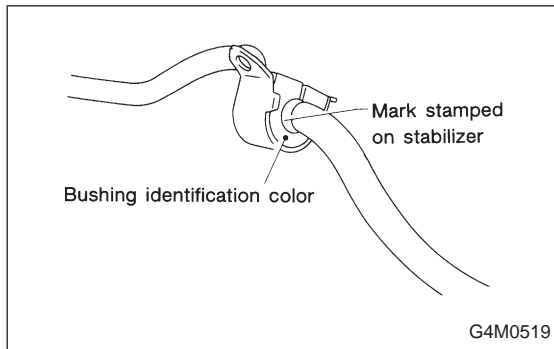
G4M0516

- 3) Remove bolts which secure stabilizer link to front transverse link.
- 4) Remove jack-up plate from lower part of crossmember.



**B: INSPECTION**

- 1) Check bushing for cracks, fatigue or damage.
- 2) Check stabilizer links for deformities, cracks, or damage, and bushing for protrusions from the hole of stabilizer link.

**C: INSTALLATION**

- 1) To install, reverse the removal procedure.

**NOTE:**

- Install bushing (on front crossmember side) while aligning it with paint mark on stabilizer.
- Ensure that bushing and stabilizer have the same identification colors when installing.

- 2) Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is curb weight.

- 3) Tightening torque:

***Jack-up plate to crossmember:***

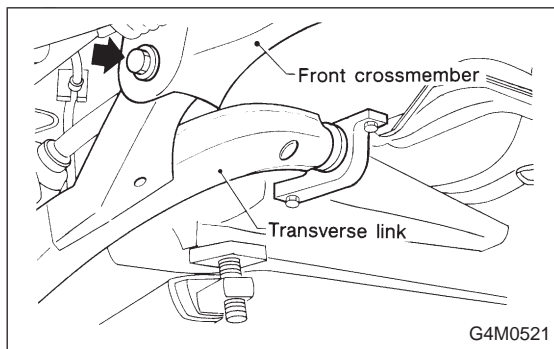
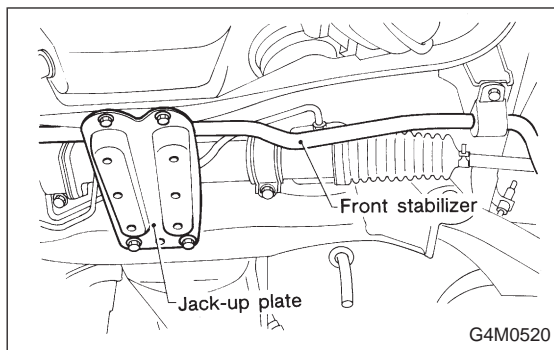
***32±10 N·m (3.3±1.0 kg-m, 24±7 ft-lb)***

***Stabilizer link to front transverse link:***

***29±5 N·m (3.0±0.5 kg-m, 21.7±3.6 ft-lb)***

***Stabilizer to crossmember:***

***25±4 N·m (2.5±0.4 kg-m, 18.1±2.9 ft-lb)***



## 6. Front Crossmember

### A: REMOVAL

- 1) Disconnect ground cable from battery.
- 2) Loosen front wheel nuts.
- 3) Jack-up vehicle, support it with safety stands (rigid racks), and remove front tires and wheels.
- 4) Remove both stabilizer and jack-up plate.
- 5) Disconnect tie-rod end from housing.
- 6) Remove front exhaust pipe.

- 7) Remove front transverse link from front crossmember.
- 8) Remove nuts attaching engine mount cushion rubber to crossmember.
- 9) Remove self-locking nuts connecting steering U/J and pinion shaft.
- 10) Lift engine by approx. 10 mm (0.39 in) by using chain block.
- 11) Support crossmember with a jack, remove nuts securing crossmember to body and lower crossmember gradually along with steering gearbox.

#### CAUTION:

When removing crossmember downward, be careful that tie-rod end does not interfere with DOJ boot.

### B: INSTALLATION

- 1) Installation is in the reverse order of removal procedures.

#### CAUTION:

Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is curb weight.

- 2) Tightening torque

**Transverse link bushing to crossmember:**

**98±15 N·m (10.0±1.5 kg-m, 72±11 ft-lb)**

**Stabilizer to bush:**

**25±4 N·m (2.5±0.4 kg-m, 18.1±2.9 ft-lb)**

**Tie-rod end to housing:**

**27.0±2.5 N·m (2.75±0.25 kg-m, 19.9±1.8 ft-lb)**

**Front cushion rubber to crossmember:**

**69±15 N·m (7.0±1.5 kg-m, 51±11 ft-lb)**

**Universal joint to pinion shaft:**

**24±3 N·m (2.4±0.3 kg-m, 17.4±2.2 ft-lb)**

**Crossmember to body:**

**98±15 N·m (10.0±1.5 kg-m, 72±11 ft-lb)**

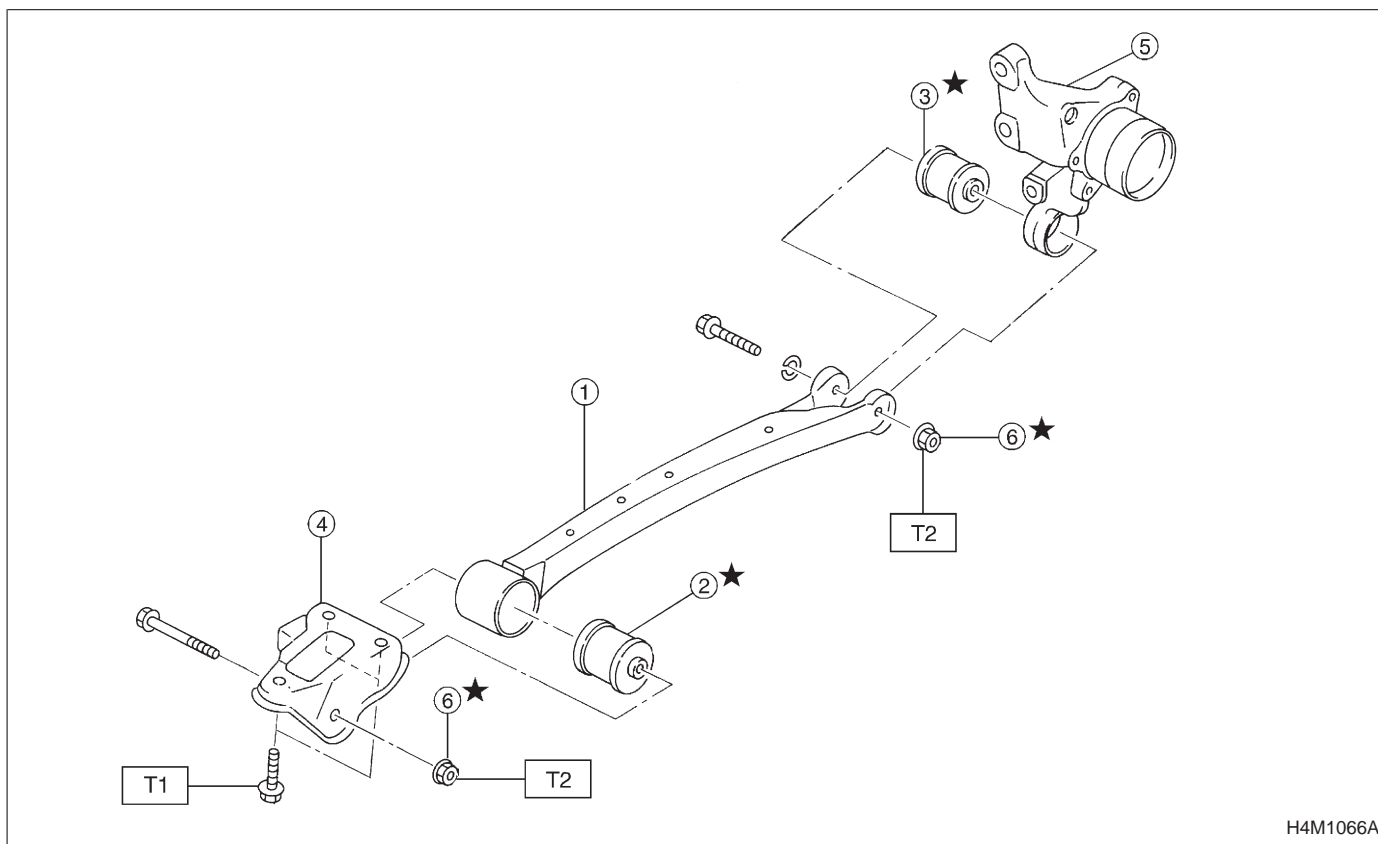
- 3) Purge air from power steering system.

#### NOTE:

Check wheel alignment and adjust if necessary.

## 7. Rear Trailing Link

## A: REMOVAL



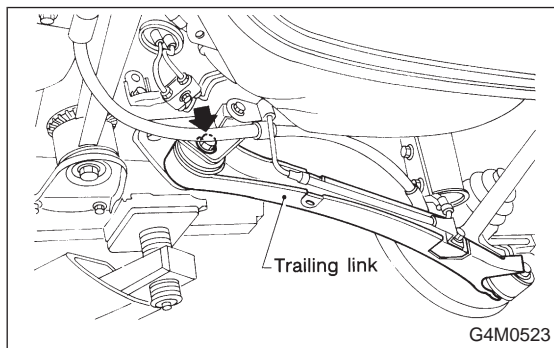
- ① Trailing link
- ② Front bushing
- ③ Rear bushing
- ④ Bracket
- ⑤ Housing
- ⑥ Self-locking nut

**Tightening torque: N·m (kg-m, ft-lb)**

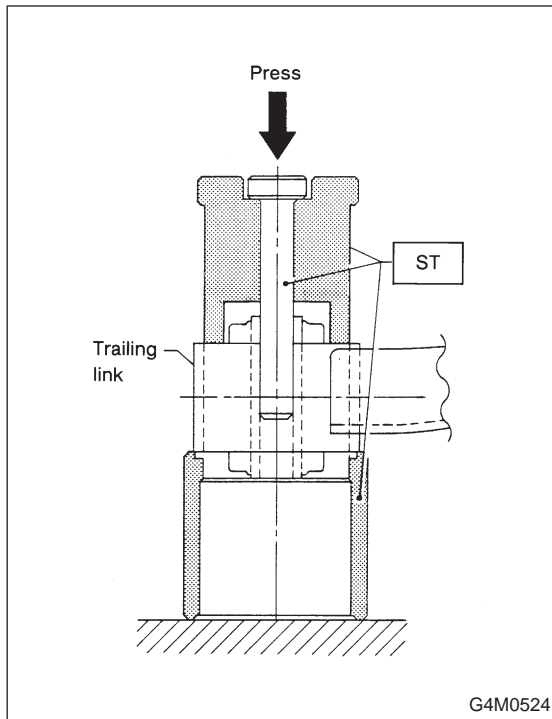
**T1: 98±20 (10.0±2.0, 72±14)**

**T2: 113±15 (11.5±1.5, 83±11)**

- 1) Loosen rear wheel nuts.
- 2) Jack-up vehicle, support it with safety stands (rigid racks) and remove rear wheels.
- 3) Remove both rear parking brake clamp and ABS sensor harness. (only vehicle equipped with ABS)

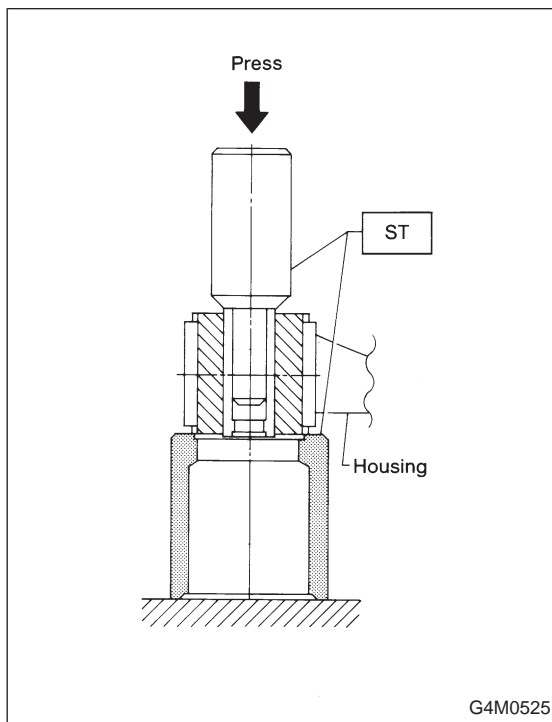


- 4) Remove bolt which secure trailing link to trailing link bracket.
- 5) Remove bolt which secure trailing link to rear housing.

**B: DISASSEMBLY****1. FRONT BUSHING**

Using ST, press front bushing out of place.

ST 927720000 INSTALLER & REMOVER SET

**2. REAR BUSHING**

1) Remove housing. <Ref. to 4-2 [W2A0].>

2) Using ST, press rear bushing out of place.

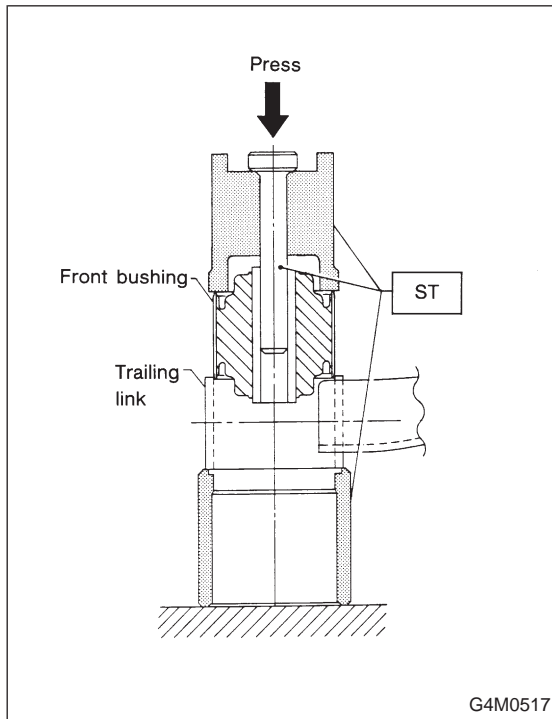
ST 927730000 INSTALLER & REMOVER SET

**C: INSPECTION**

Check trailing links for bends, corrosion or damage.

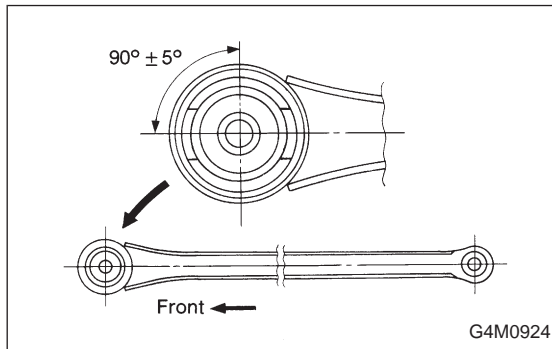
**D: ASSEMBLY**

To assemble, reverse above disassembly procedures.

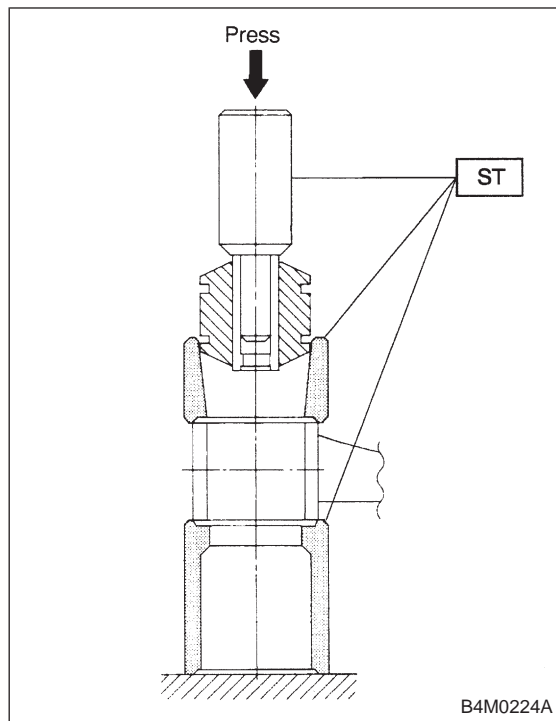
**1. FRONT BUSHING**

Using ST, press bushing into trailing link.

ST 927720000 INSTALLER & REMOVER SET

**CAUTION:**

Install front bushing in the proper direction, as shown in figure.



## 2. REAR BUSHING

1) Using ST, press bushing into trailing link.

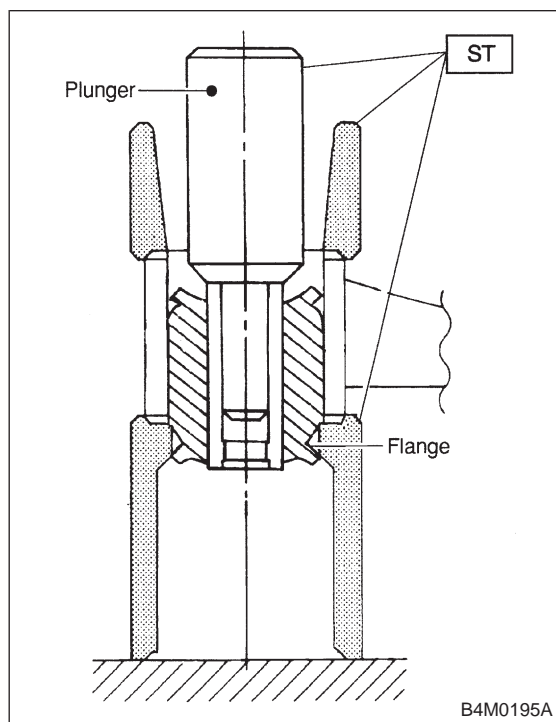
ST 927730000 INSTALLER & REMOVER SET

### NOTE:

If it is difficult to press bushing into trailing link, apply water-diluted TIRE LUBE to the inner surface of ST as a lubricant.

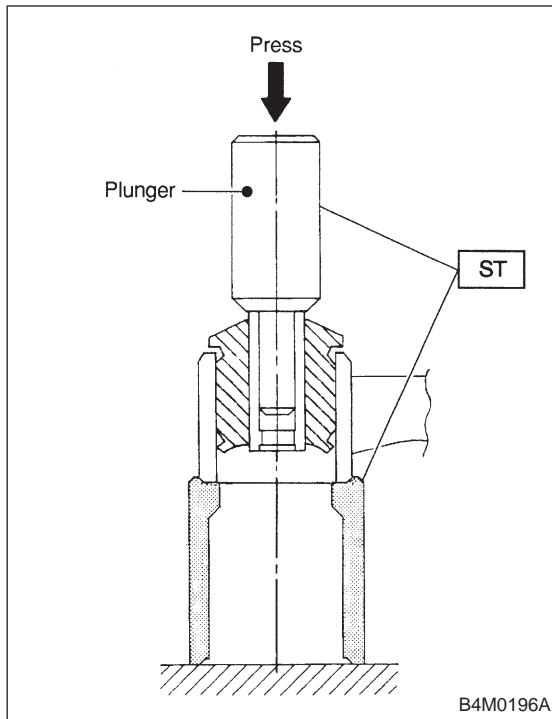
### **Specified lubricant:**

**TIRE LUBE : water = 1 : 3**



2) Press ST plunger until bushing flange protrudes beyond trailing link.

ST 927730000 INSTALLER & REMOVER SET



3) Turn trailing link upside down. Press ST plunger in the direction opposite that outlined in step 2) until bushing is correctly positioned in trailing link.

ST 927730000 INSTALLER & REMOVER SET

## E: INSTALLATION

Installation is in the reverse order of removal.

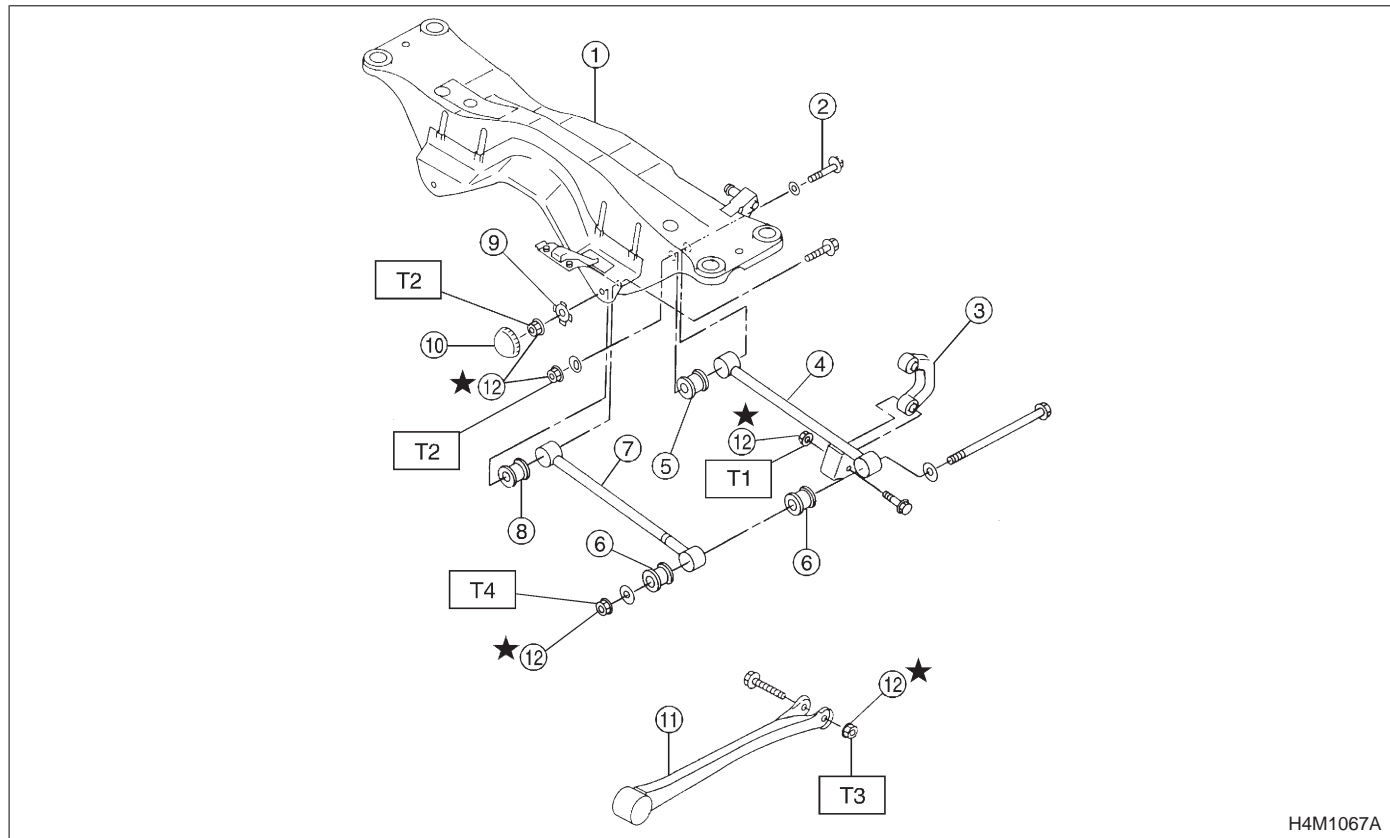
### CAUTION:

**Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is at curb weight condition.**

### NOTE:

Check wheel alignment and adjust if necessary.

## 8. Lateral Link



H4M1067A

- ① Crossmember
- ② Adjusting bolt
- ③ Stabilizer link
- ④ Rear lateral link
- ⑤ Bushing (C)
- ⑥ Bushing (A)

- ⑦ Front lateral link
- ⑧ Bushing (B)
- ⑨ Washer
- ⑩ Cap
- ⑪ Trailing link
- ⑫ Self-locking nut

### Tightening torque: N·m (kg-m, ft-lb)

T1: 44±6 (4.5±0.6, 32.5±4.3)

T2: 98±15 (10.0±1.5, 72±11)

T3: 113±15 (11.5±1.5, 83±11)

T4: 137±20 (14.0±2.0, 101±14)

## A: REMOVAL

- 1) Loosen wheel nuts. Jack-up vehicle and remove wheel.
- 2) Remove stabilizers.
- 3) (Models equipped with ABS)  
Remove ABS sensor harness from trailing link.
- 4) Remove bolts which secure lateral link assembly to rear housing.

### CAUTION:

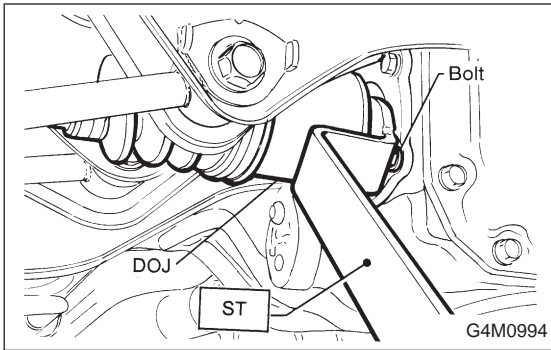
**Discard old self-locking nut. Replace with a new one.**

- 5) Remove bolts which secure trailing link assembly to rear housing.

### CAUTION:

**Discard old self-locking nut. Replace with a new one.**



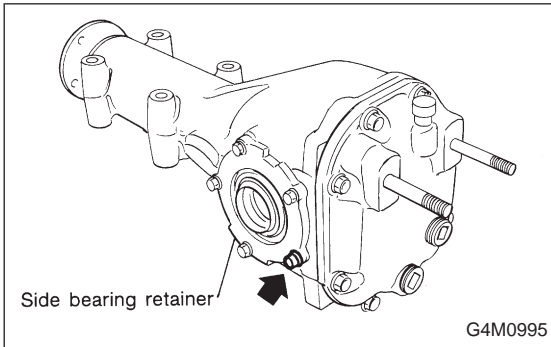


6) Remove DOJ from rear differential using ST. (2200 cc MT model)

ST 28099PA100 DRIVE SHAFT REMOVER

**CAUTION:**

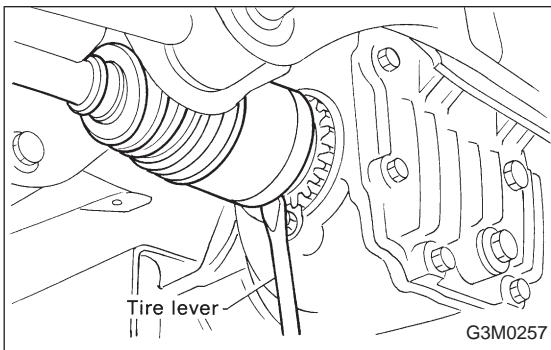
**Do not remove circlip attached to inside of differential.**



**CAUTION:**

**Be careful not to damage side bearing retainer. Always use bolt as shown in figure, as supporting point for ST during removal.**

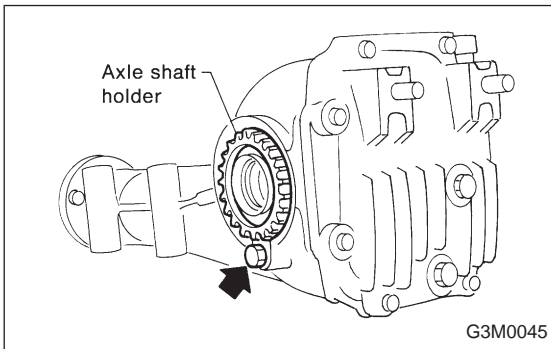
ST 28099PA100 DRIVE SHAFT REMOVER



7) Remove DOJ from rear differential using tire lever. (Except 2200 cc MT model)

**NOTE:**

The side spline shaft circlip comes out together with the shaft.



**CAUTION:**

**When removing the DOJ from the rear differential, fit tire lever to the bolt as shown in figure so as not to damage the axle shaft holder.**

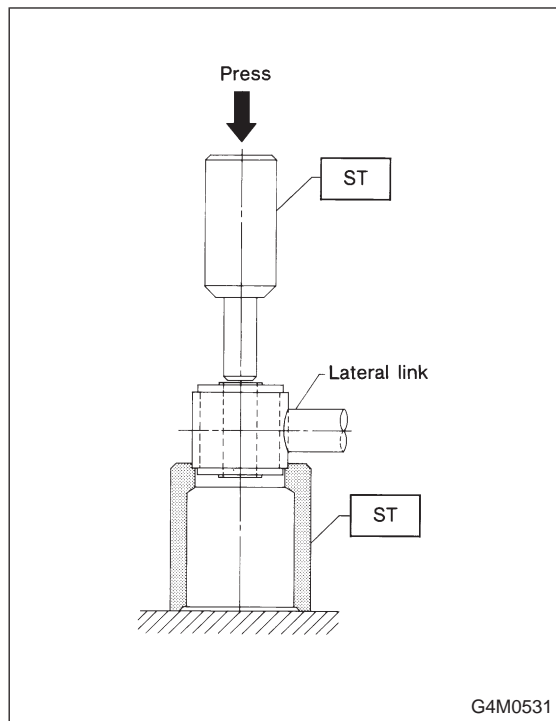
8) Scribe an alignment mark on rear lateral link adjusting bolt and crossmember.

9) Remove outer lateral link bolt securing lateral link to housing.

10) Remove bolts securing front and rear lateral links to crossmember, detach lateral links.

**CAUTION:**

**To loosen adjusting bolt, always loosen nut while holding the head of adjusting bolt.**



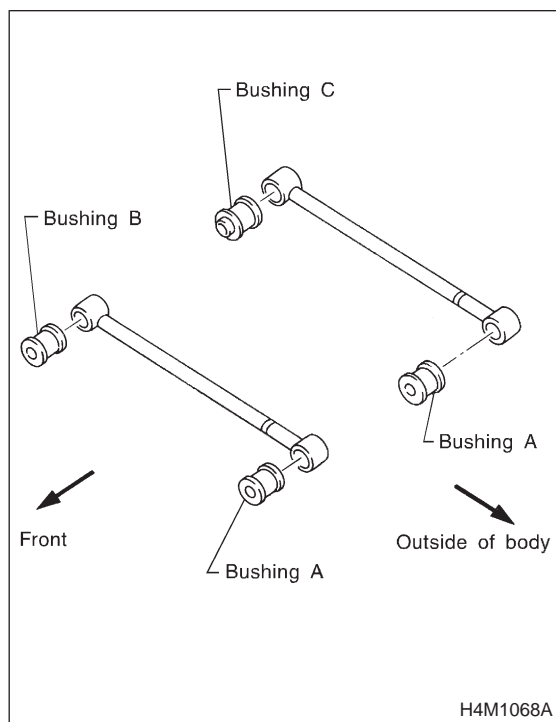
## B: DISASSEMBLY

Using ST, press bushing out of place.

NOTE:

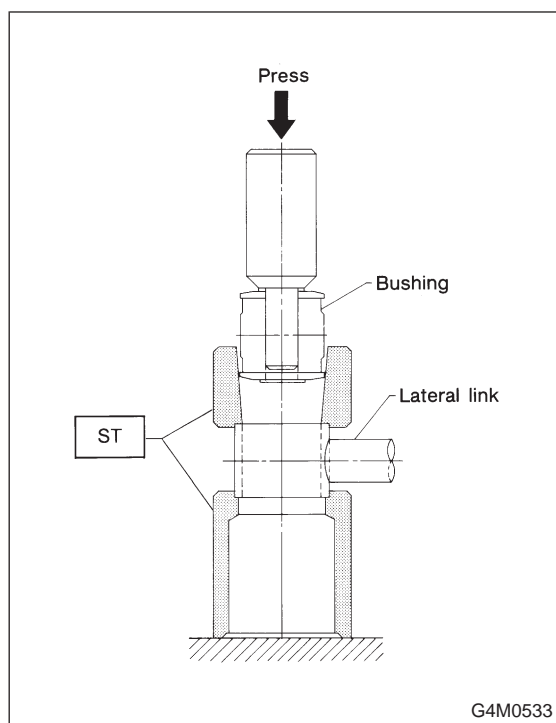
- Using the following figure as a guide, verify the type of bushings.
- Select ST according to the type of bushings used.

Bushing	INSTALLER & REMOVER SET
Bushing A	927700000
Bushing B	927690000
Bushing C	927700000



## C: INSPECTION

Visually check lateral links for damage or bends.

**D: ASSEMBLY**

1) Using ST, press bushing into place.

**CAUTION:**

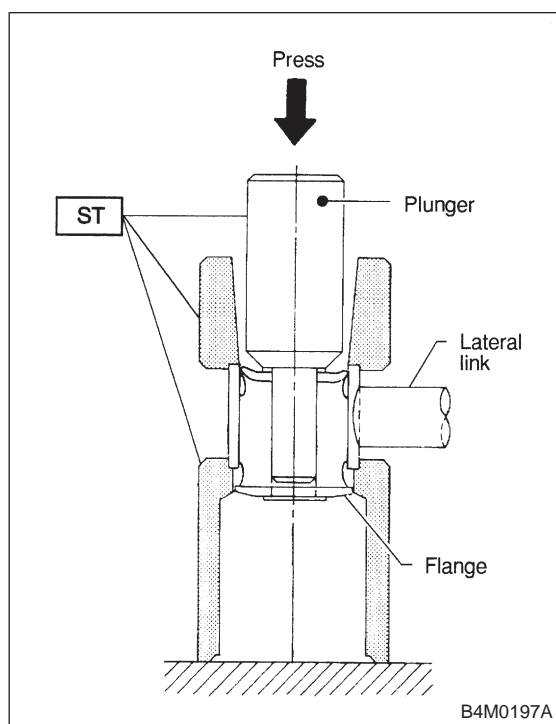
**Select ST according to the type of bushings used.**

**NOTE:**

- Use the same ST as that used during disassembly.
- If it is difficult to press bushing into trailing link, apply water-diluted TIRE LUBE to the inner surface of ST as a lubricant.

**Specified lubricant:**

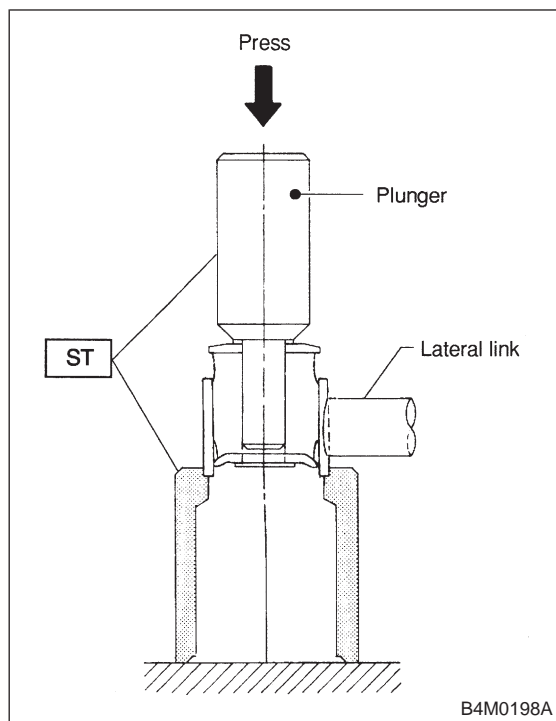
**TIRE LUBE : water = 1 : 3**



2) Press ST plunger until bushing flange protrudes beyond lateral link.

**NOTE:**

Use the same ST as that used during disassembly.



3) Turn lateral link upside down. Press ST plunger in the opposite direction that outlined in step 2) until bushing is correctly positioned in trailing link.

NOTE:

Use the same ST as that used during disassembly.

## E: INSTALLATION

To install, reverse removal procedures, observing the following instructions.

- Installation of DOJ to differential: <Ref. to 4-2 [W3E2].>

### CAUTION:

- Do not allow DOJ splines to damage side oil seal.
- Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is curb weight.
- Tighten nut when installing adjusting bolt.
- Replace self-locking nut and DOJ circlip with new ones.

NOTE:

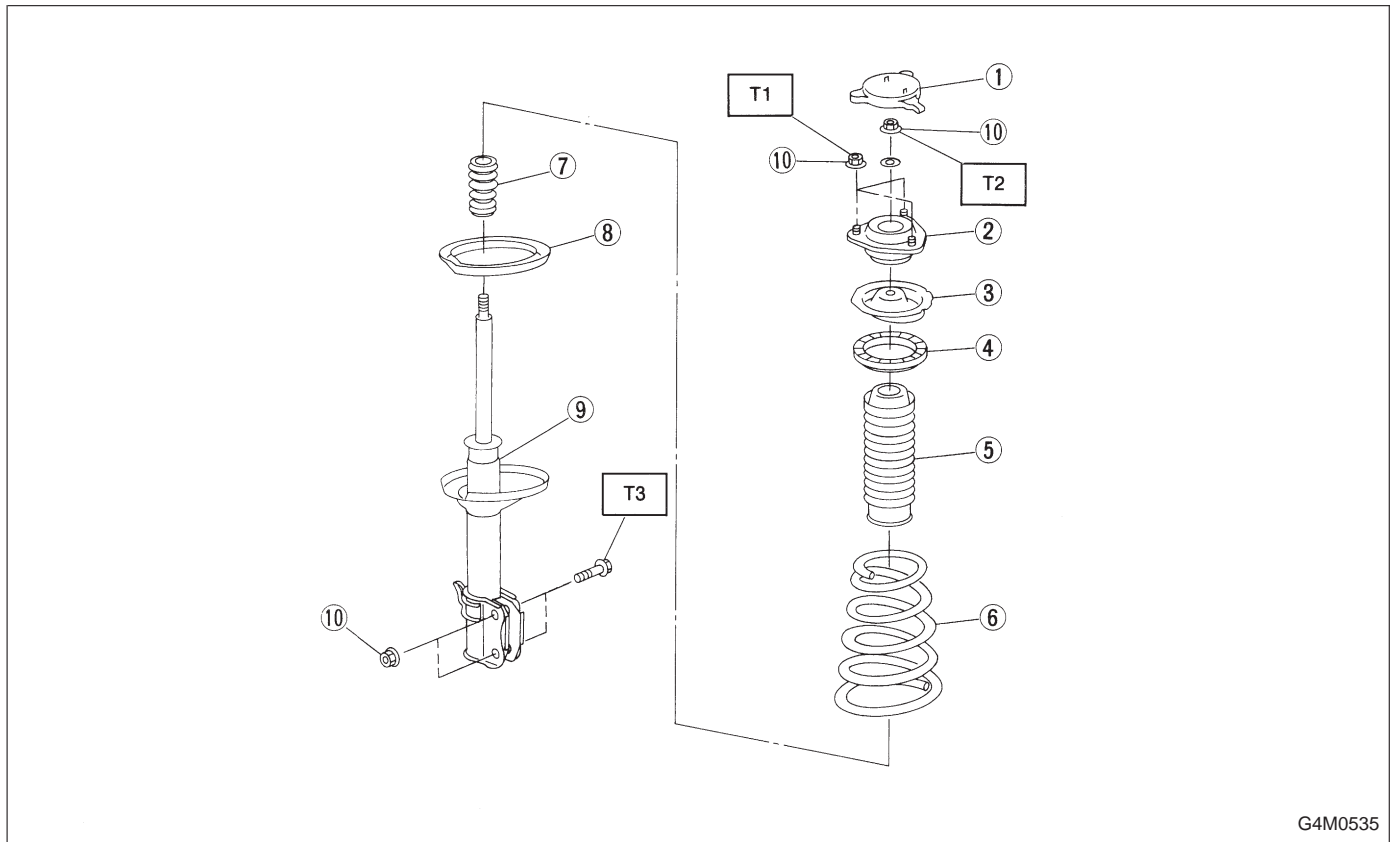
- Lateral link washers for AWD model can be identified by the following color:

Gold (AWD model)

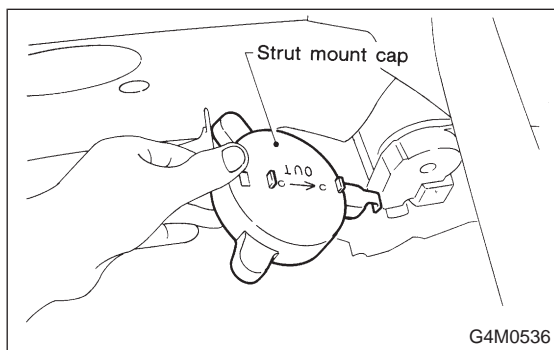
- Check wheel alignment and adjust if necessary.

## 9. Rear Strut

## A: REMOVAL

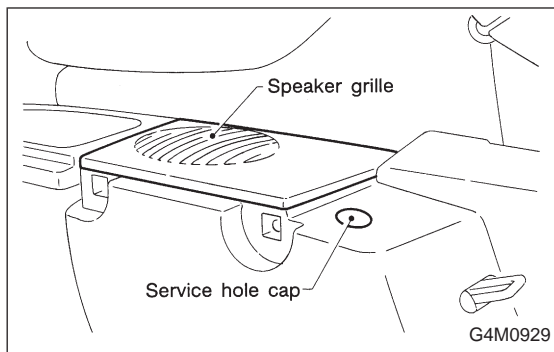


- |                     |                     |
|---------------------|---------------------|
| ① Cap               | ⑥ Coil spring       |
| ② Strut mount       | ⑦ Helper            |
| ③ Spring seat       | ⑧ Rubber seat lower |
| ④ Rubber seat upper | ⑨ Damper strut      |
| ⑤ Dust cover        | ⑩ Self-locking nut  |

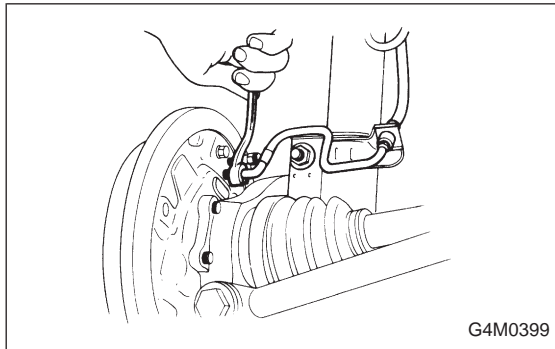
**Tightening torque: N·m (kg·m, ft·lb)****T1: 20±6 (2.0±0.6, 14.5±4.3)****T2: 59±10 (6.0±1.0, 43±7)****T3: 196<sup>+39</sup><sub>-10</sub> (20.0<sup>+4.0</sup><sub>-1.0</sub>, 145<sup>+29</sup><sub>-7</sub>)**

1) Depress brake pedal and secure it in that position using a wooden block, etc.

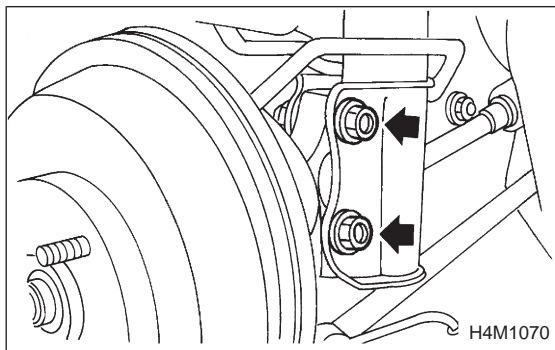
2) Remove rear seat cushion and backrest. (Sedan model)



- 3) Remove rear speaker grille and service hole cap. (Wagon model)
- 4) Remove strut mount cap.
- 5) Loosen rear wheel nuts.
- 6) Jack-up vehicle, support it with safety stands (rigid racks) and remove rear wheels.
- 7) Remove brake hose clip.



- 8) Disconnect brake hose from brake pipe from strut, and disconnect brake pipe from drum brake.



- 9) Remove bolts which secure rear strut to housing.
- 10) Remove nuts securing strut mount to body.

## B: DISASSEMBLY

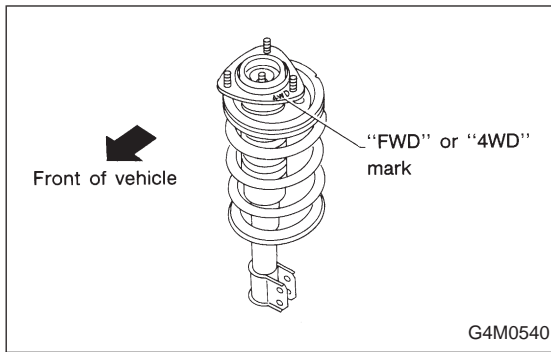
For disassembly of rear strut, refer to procedures outlined under front strut as a guide.

<Ref. to 4-1 [W4B0].>

## C: INSPECTION

Refer to Front Strut as a guide for inspection procedures.

<Ref. to 4-1 [W4C0].>



## D: ASSEMBLY

Refer to Front Strut as a guide for assembly procedures.  
<Ref. to 4-1 [W4D0].>

### CAUTION:

**Install rear strut with “FWD” or “4WD” mark on strut mount facing outside of car body.**

## E: INSTALLATION

1) Tighten self-locking nut used to secure strut mount to car body.

### CAUTION:

**Discard loosened self-locking nut, and replace with a new one.**

#### *Tightening torque:*

**$20 \pm 6$  N·m ( $2.0 \pm 0.6$  kg-m,  $14.5 \pm 4.3$  ft-lb)**

2) Tighten bolts which secure rear strut to housing.

#### *Tightening torque:*

**$196^{+39}_{-10}$  N·m ( $20.0^{+4.0}_{-1.0}$  kg-m,  $145^{+29}_{-7}$  ft-lb)**

**Discard loosened self-locking nut, and replace with a new one.**

3) Connect brake hose to brake pipe.

#### *Tightening torque:*

**$15^{+3}_{-2}$  N·m ( $1.5^{+0.3}_{-0.2}$  kg-m,  $10.8^{+2.2}_{-1.4}$  ft-lb)**

4) Insert brake hose clip between brake hose and lower side of strut.

### CAUTION:

- Check that hose clip is positioned properly.
- Check brake hose for twisting, or excessive tension.
- (Model equipped with ABS)

**Do not subject ABS sensor harness to excessive tension.**

5) Be sure to bleed air from brake system.

6) Lower vehicle and tighten wheel nut.

#### *Tightening torque:*

**$88 \pm 10$  N·m ( $9 \pm 1$  kg-m,  $65 \pm 7$  ft-lb)**

7) Install strut mount cap.

8) (Sedan model)

Install rear seat backrest and rear seat cushion.

(Wagon model)

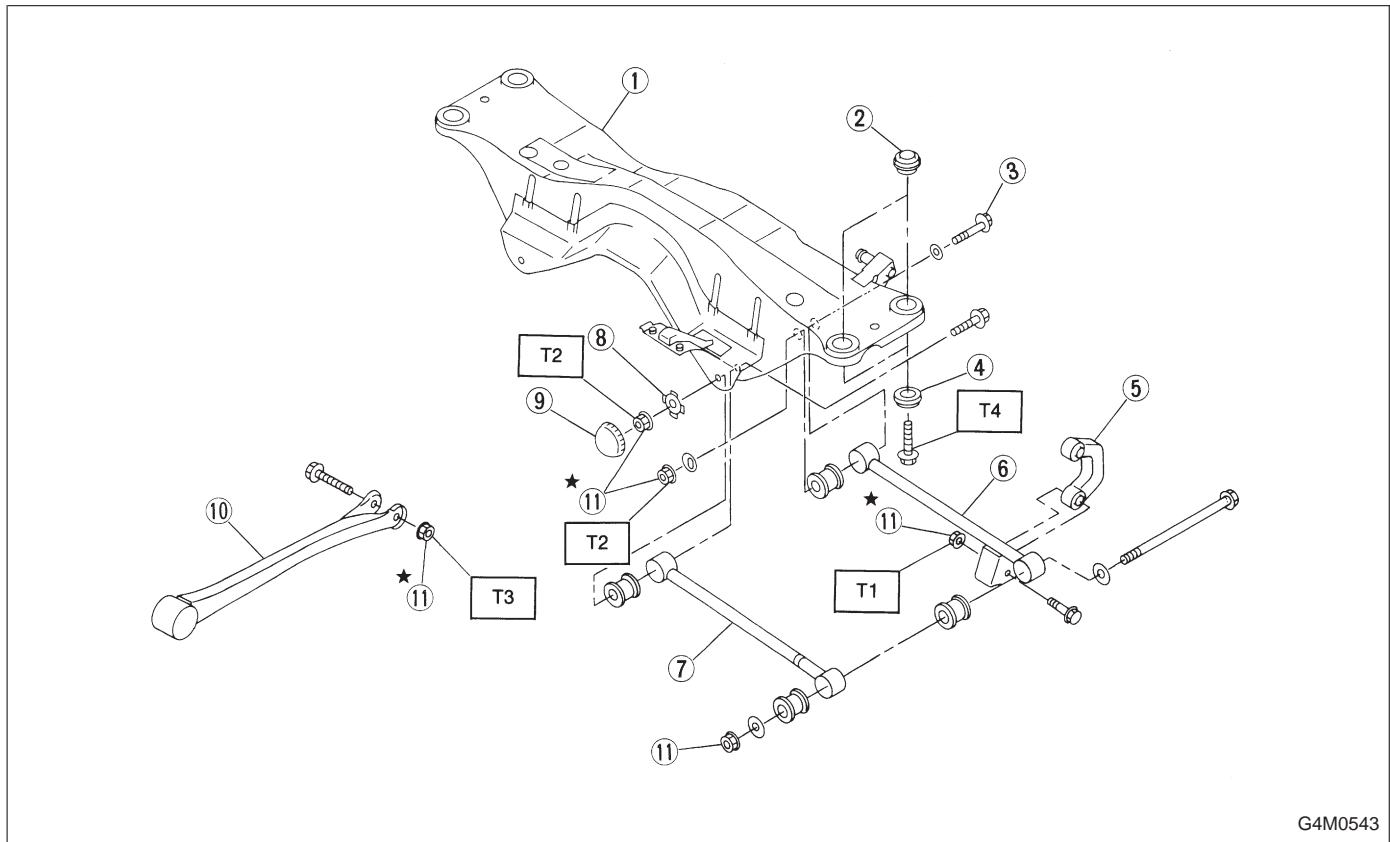
Install rear speaker grille.

### NOTE:

Check wheel alignment and adjust if necessary.

## 10. Rear Crossmember

## A: REMOVAL



G4M0543

- ① Crossmember
- ② Floating bushing
- ③ Adjusting bolt
- ④ Stopper
- ⑤ Stabilizer link
- ⑥ Rear lateral link

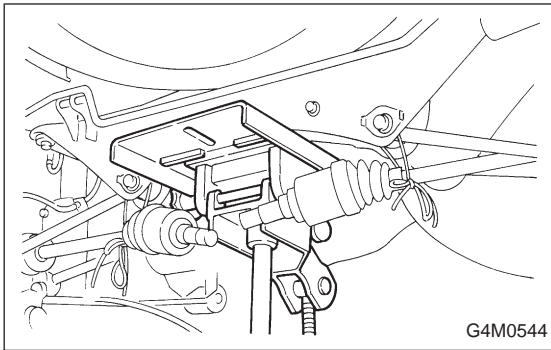
- ⑦ Front lateral link
- ⑧ Washer
- ⑨ Cap
- ⑩ Trailing link
- ⑪ Self-locking nut

**Tightening torque: N·m (kg-m, ft-lb)****T1: 44±6 (4.5±0.6, 32.5±4.3)****T2: 98±15 (10.0±1.5, 72±11)****T3: 113±15 (11.5±1.5, 83±11)****T4: 127±20 (13.0±2.0, 94±14)****CAUTION:**

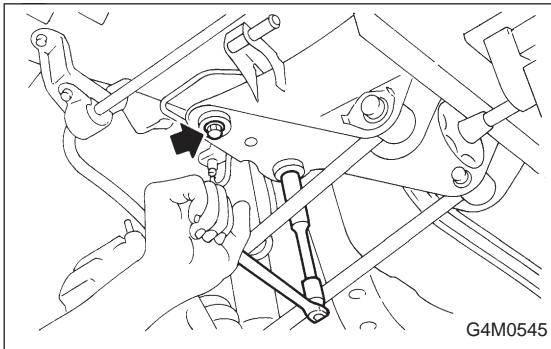
**Do not subject ABS sensor harness to excessive tension (if equipped).**

- 1) Separate front exhaust pipe and rear exhaust pipe.
- 2) Remove rear exhaust pipe and muffler.
- 3) Remove rear differential. <Ref. to 3-4 [W2B0] or [W3B0].>





4) Place transmission jack under rear crossmember.



5) Remove bolts securing crossmember to car body, and remove crossmember.

6) Scribe an alignment mark on rear lateral link cam bolt and crossmember.

7) Remove front and rear lateral links by loosening nuts.

### B: INSPECTION

Check removed parts for wear, damage and cracks, and correct or replace if defective.

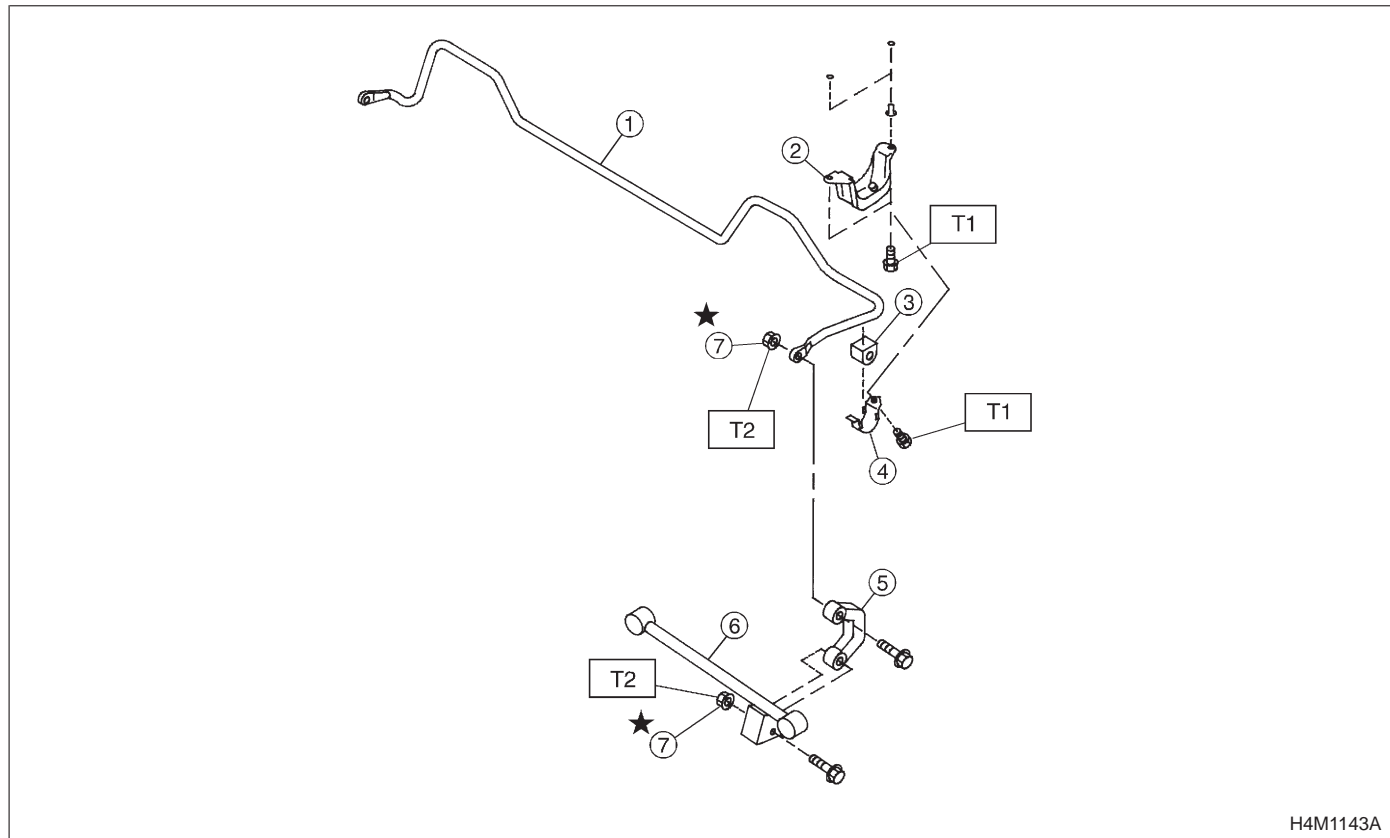
### C: INSTALLATION

- 1) Install in reverse order of removal.
- 2) Install rear differential. <Ref. to 3-4 [W2F0] or [W3F0].>
- 3) Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is curb weight.

NOTE:

Check wheel alignment and adjust if necessary.

## 11. Rear Stabilizer



- ① Rear stabilizer
- ② Stabilizer bracket
- ③ Stabilizer bushing
- ④ Clamp
- ⑤ Stabilizer link
- ⑥ Rear lateral link
- ⑦ Self-locking nut

**Tightening torque: N·m (kg·m, ft·lb)**

**T1: 25±7 (2.5±0.7, 18.1±5.1)**

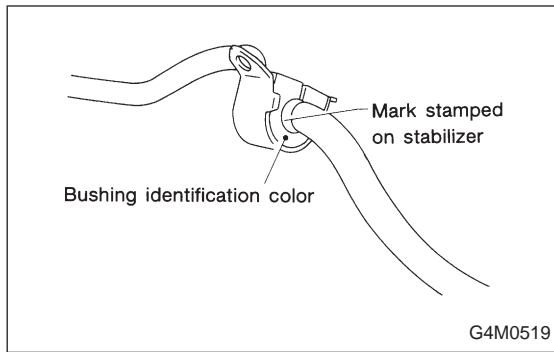
**T2: 44±6 (4.5±0.6, 32.5±4.3)**

### A: REMOVAL

- 1) Jack-up the rear part of the vehicle, support it with safety stands (rigid racks).
- 2) Remove bolts which secure stabilizer link to rear lateral link.
- 3) Remove bolts which secure stabilizer to stabilizer bracket.

### B: INSPECTION

- 1) Check bushing for cracks, fatigue or damage.
- 2) Check stabilizer links for deformities, cracks, or damage, and bushing for protrusions from the hole of stabilizer link.



## C: INSTALLATION

1) To install, reverse the removal procedure.

### NOTE:

- Install bushing while aligning it with paint mark on stabilizer.
- Ensure that bushing and stabilizer have the same identification colors when installing.

2) Always tighten rubber bushing location when wheels are in full contact with the ground and vehicle is curb weight.

3) Tightening torque:

#### **Stabilizer link to rear lateral link:**

**$44 \pm 6 \text{ N}\cdot\text{m}$  ( $4.5 \pm 0.6 \text{ kg}\cdot\text{m}$ ,  $32.5 \pm 4.3 \text{ ft}\cdot\text{lb}$ )**

#### **Stabilizer to stabilizer bracket:**

**$25 \pm 7 \text{ N}\cdot\text{m}$  ( $2.5 \pm 0.7 \text{ kg}\cdot\text{m}$ ,  $18.1 \pm 5.1 \text{ ft}\cdot\text{lb}$ )**

**1. Suspension****A: IMPROPER VEHICLE POSTURE OR  
IMPROPER WHEEL ARCH HEIGHT**

Possible causes	Countermeasures
(1) Permanent distortion or breakage of coil spring	Replace.
(2) Unsmooth operation of damper strut	Replace.
(3) Installation of wrong strut	Replace with proper parts.
(4) Installation of wrong coil spring	Replace with proper parts.

**B: POOR RIDE COMFORT**

- 1) Large rebound shock
- 2) Rocking of vehicle continues too long after running over bump and/or hump.
- 3) Large shock in bumping

Possible causes	Countermeasures
(1) Breakage of coil spring	Replace.
(2) Overinflation pressure of tire	Adjust.
(3) Improper wheel arch height	Adjust or replace coil springs with new ones.
(4) Fault in operation of damper strut	Replace.
(5) Damage or deformation of strut mount	Replace.
(6) Unsuitability of maximum and/or minimum length of damper strut	Replace with proper parts.
(7) Deformation or loss of bushing	Replace.
(8) Deformation or damage of helper in strut assembly	Replace.

**C: NOISE**

Possible causes	Countermeasures
(1) Wear or damage of damper strut component parts	Replace.
(2) Loosening of suspension link installing bolt	Retighten to the specified torque.
(3) Deformation or loss of bushing	Replace.
(4) Unsuitability of maximum and/or minimum length of damper strut	Replace with proper parts.
(5) Breakage of coil spring	Replace.
(6) Wear or damage of ball joint	Replace.