GROUP 34

REAR SUSPENSION

CONTENTS

SERVICE SPECIFICATIONS

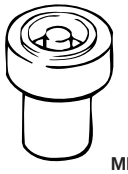
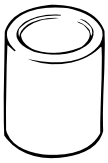
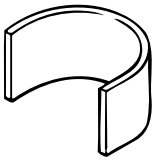
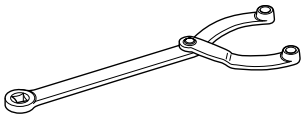
M1341000301349

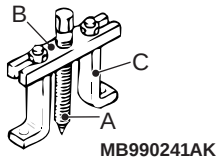
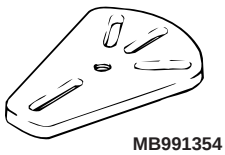
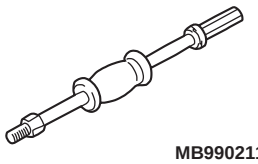
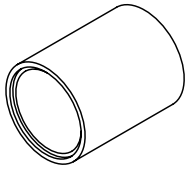
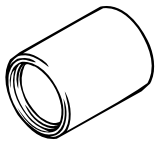
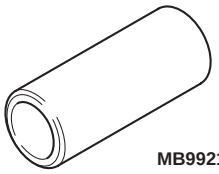
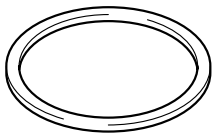
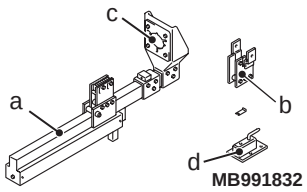
Item		Standard value
Toe in mm	At the centre of tyre tread mm	3 ± 2
	Toe-angle (per wheel)	0 ° 02’ – 0 ° 12’
Camber		–0°30' ± 0°45'*
Stabilizer link ball joint rotation torque N·m		0.3 – 2.9

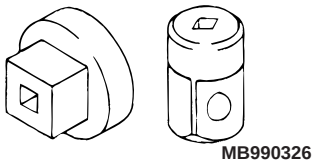
*NOTE: *: Difference between right and left wheels must be 0°30' or less.*

SPECIAL TOOLS

M1341000601027

Tool	Number	Name	Use
 MB991447	MB992123	Arm bushing remover and installer	Lower arm bushing removal and press-fit
	MB991448	Bushing remover and installer base	
	MB991449	Bushing remover and installer supporter	
 B990767	MB990767	Front hub & flange yoke holder	Fixing of hub

Tool	Number	Name	Use
 MB990241AK	MB990241 A:MB990242 B:MB990243 C:MB990244	Axle shaft puller A: Puller shaft B: Puller body C: Puller bar	Rear hub assembly removal
 MB991354	MB991354	Puller body	
 MB990211	MB990211	Slide hammer	
	MB991523	Arm bushing remover and installer	Trailing arm bushing removal and press-fit
 MB990890	MB990890	Arm bushing remover and installer	
 MB992125	MB992125	Arm bushing base	
 B992865	MB992865	Spacer base	
 MB991832	MB991832 a: MB991793 b: MB991796 c: MB991794 d: MB991830	Spring compressor set a: Spring compressor assembly b: Attachment B c: Upper plate d: Fixture	Coil spring removal and installation

Tool	Number	Name	Use
 MB990326	MB990326	Preload socket	Stabilizer link ball joint rotation torque measurement

ON-VEHICLE SERVICE

REAR WHEEL ALIGNMENT CHECK AND ADJUSTMENT

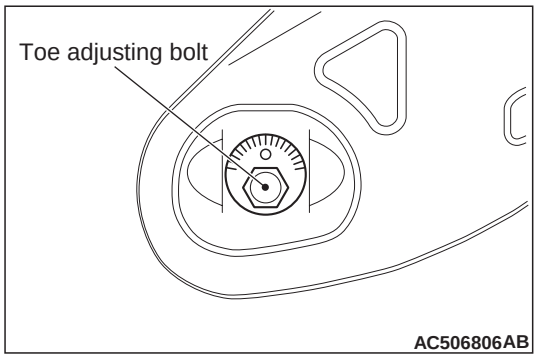
M1341011001278

1. Before the wheel alignment measurement, adjust the rear suspension, wheel, and tyres in good condition.
2. Park the vehicle on a level surface to measure the wheel alignment.

TOE-IN

Standard value:
At the centre of tyre tread: 3 ± 2 mm
Toe-angle (per wheel): 0 ° 02’ – 0 ° 12’

If it is out of the standard range, adjust as follows:



Turn the toe adjusting bolt (the mounting bolt inside the body on the control link) to adjust.

Left wheels: Clockwise (+) Toe in
Right wheels: Clockwise (–) Toe in

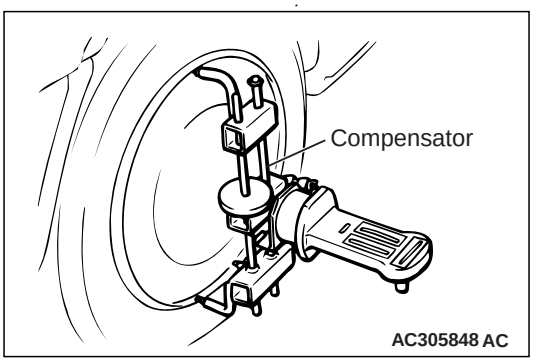
Toe-in varies approximately 2.6 mm (equivalent to 0°16' of the toe angle for one side) for each scale mark.

CAMBER

Standard value: –0°30' ± 0°45'

NOTE:

- *Difference between right and left wheels must be 0°30' or less.*
- *The camber is pre-adjusted at factory and is not adjustable.*



As for vehicles with aluminium wheel, use a compensator to measure the camber and caster.

STABILIZER LINK BALL JOINT DUST COVER INSPECTION

M1341019100027

1. Using your fingers, press the dust cover to check for a crack or damage.
2. If the dust cover has a crack or damage, replace the stabilizer link.

   NOTE: If the dust cover has a crack or damage, the ball joint could be damaged.

CONTROL LINK, UPPER ARM AND LOWER ARM

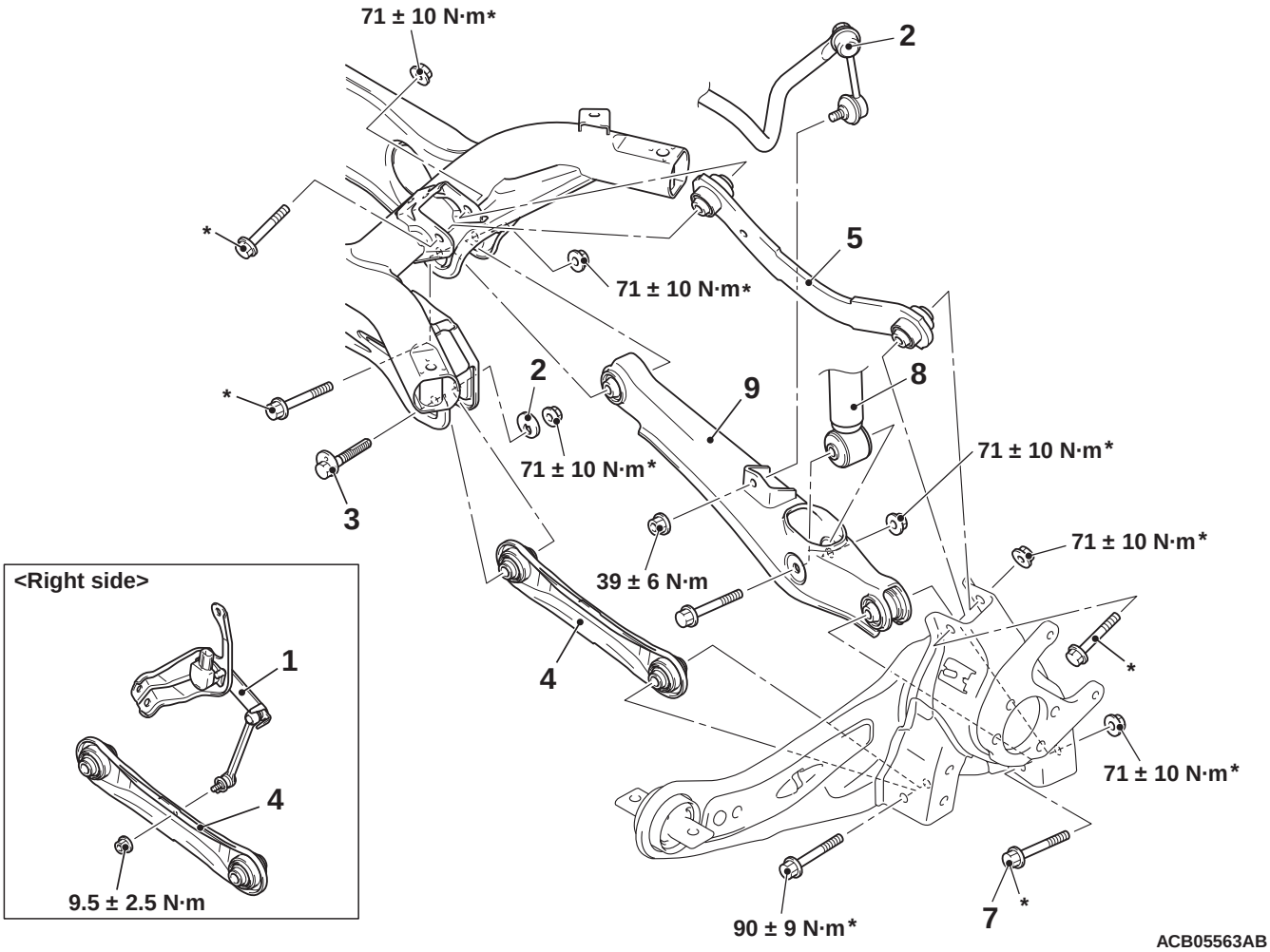
REMOVAL AND INSTALLATION

M1341004800978

⚠ CAUTION

The parts indicated by * are the bolts/nuts with friction coefficient stabilizer. In removal, ensure there is no damage, clean dust and soiling from the bearing and thread surfaces, and tighten them to the specified torque.

Post-installation operation
- Using your fingers, press the Ball Joint Dust Cover to check for a crack or damage.
- Wheel alignment check and adjustment (Refer to P.34-4.)
- Check the beam direction of the headlamp (Low beam) (Refer to GROUP 54A – Headlamp Aiming).



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Control link and upper arm removal

1. Rear height sensor to control link connection <Vehicles with discharge headlamp>
2. Plate

<<**A**>> >>**B**<< 3. Toe adjusting bolt

<<**A**>> >>**B**<< 4. Control link

Control link and upper arm removal (Continued)

- Fuel tank vapour hose connection (Refer to GROUP 13B, Fuel tank <4WD>.)

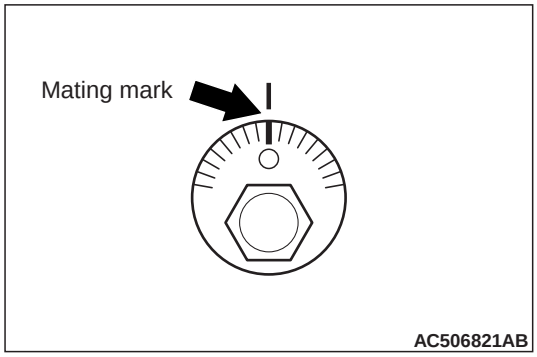
>>**A**<< 5. Upper arm

Lower arm removal steps

1. Rear height sensor to control link connection Vehicles with discharge headlamp>
6. Stabilizer link connection
7. <<**B**>> Lower arm and trailing arm connection
8. <<**B**>> Shock absorber and lower arm connection
9. Lower arm

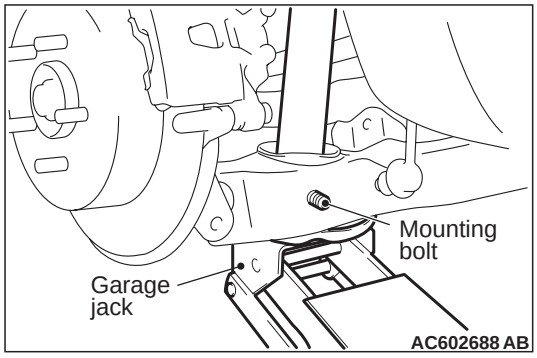
REMOVAL SERVICE POINT

<<A>> TOE ADJUSTING BOLT/CONTROL LINK REMOVAL



Make a mating mark on the toe adjusting bolt, and remove the control link.

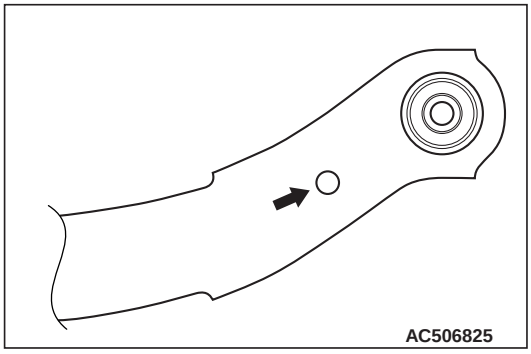
<<B>> LOWER ARM AND TRAILING ARM/SHOCK ABSORBER AND LOWER ARM DISCONNECTION



While jacking-up the lower arm with garage jack, remove the mounting bolts.

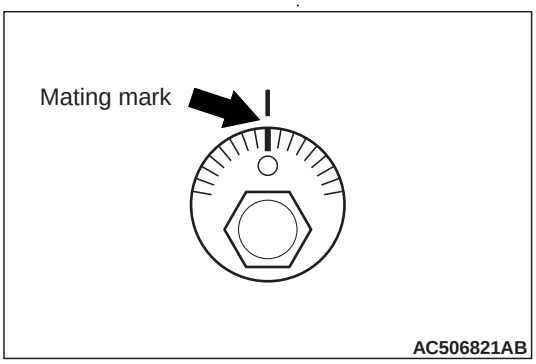
INSTALLATION SERVICE POINT

>>A<< UPPER ARM INSTALLATION

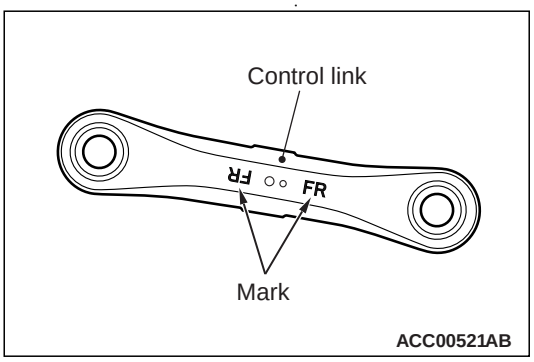


Install the upper arm so that the hole faces the body side.

>>B<< TOE ADJUSTING BOLT/CONTROL LINK NSTALLATION



Align the marks made on the toe adjustment bolt removal.



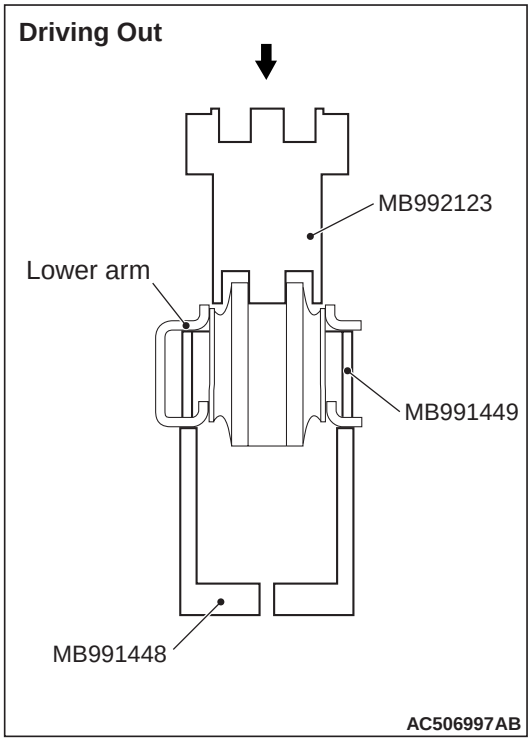
Make sure that "FR" mark stamped on the control link points to the vehicle front.

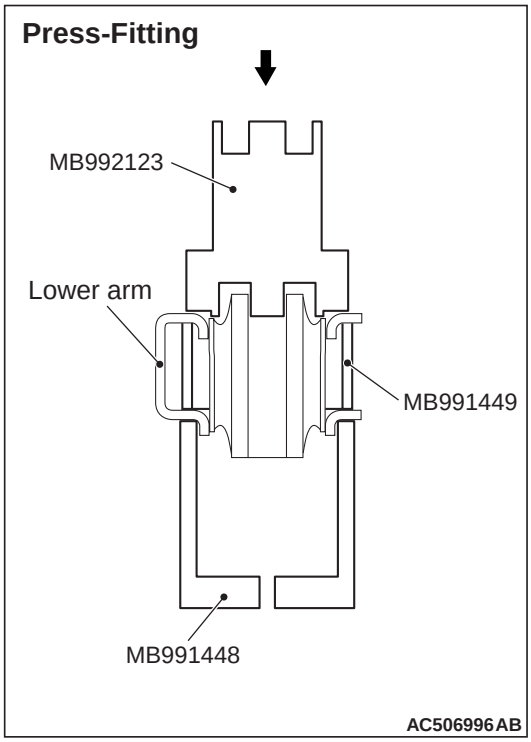
LOWER ARM BUSHING REPLACEMENT

M1341011800431

⚠ CAUTION

As the bushing has different outer diameters at both ends, be careful not to confuse the removal direction with the press-fit direction.





Use the following special tools to remove and press-fit the lower arm bushing:

- Arm bushing remover and installer (MB992123)
- Bushing remover and installer base (MB991448)
- Bushing remover and installer supporter (MB991449)

TRAILING ARM

REMOVAL AND INSTALLATION

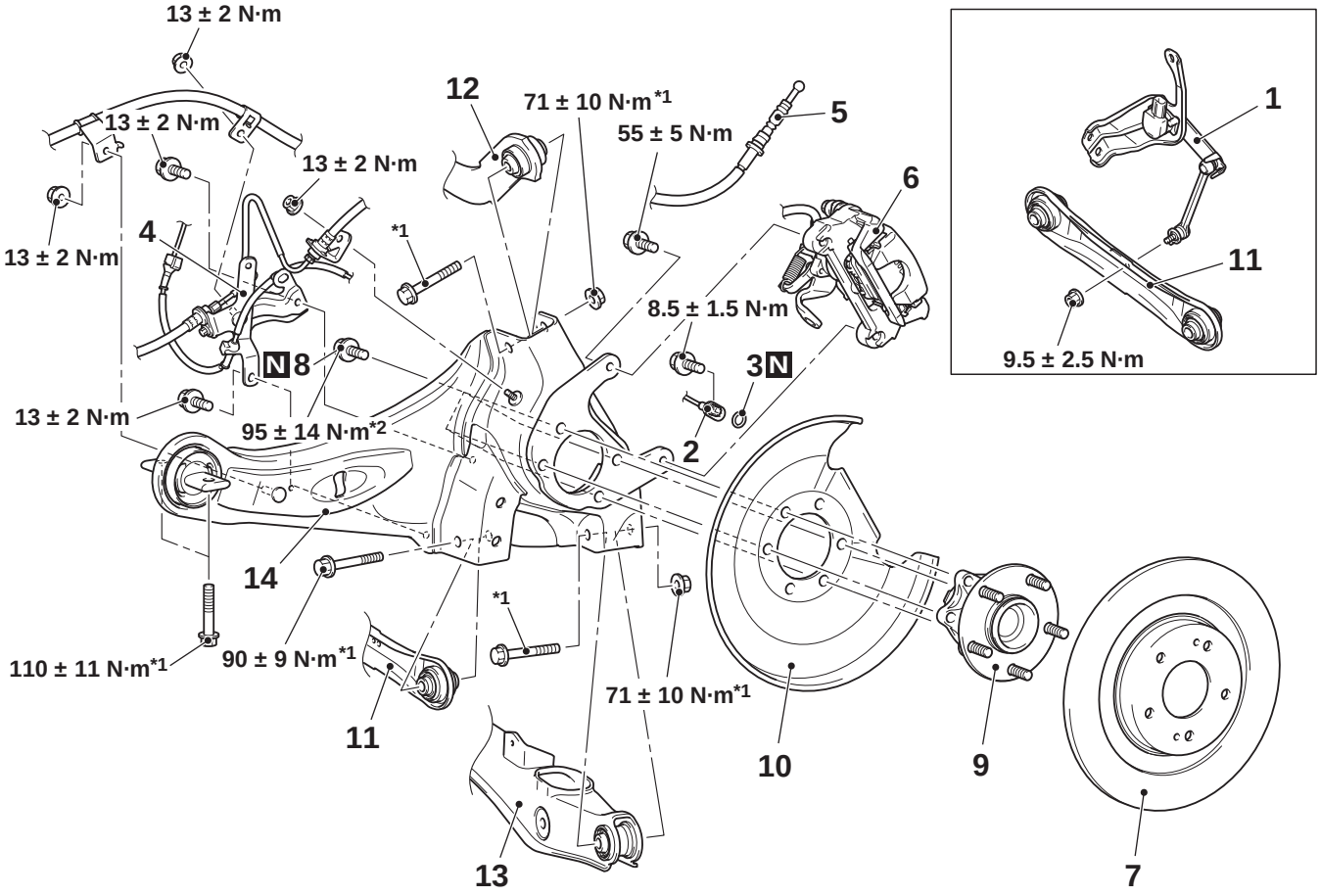
M1341002201467

⚠ CAUTION

- **The parts indicated by *1 are the bolts/nuts with friction coefficient stabilizer. In removal, ensure there is no damage, clean dust and soiling from the bearing and thread surfaces, and tighten them to the specified torque.**
- **The part indicated by *2is the bolt/nut with friction coefficient stabilizer. In removal, replace it with new one.**

Post-installation operation
- Rear Under Cover Removal and Installation (Refer to GROUP 51, Under Cover).
- Using your fingers, press the Ball Joint Dust Cover to check for a crack or damage.
- Wheel Alignment Check and Adjustment (Refer to P.34-4.)
- Parking Brake Lever Stroke Check and Adjustment (Refer to GROUP 36, On-vehicle Service – Parking Brake Lever Stroke Check and Adjustment .)
- Check the beam direction of the headlamp (Low beam) (Refer to GROUP 54A – Headlamp Aiming).

<2WD>



ACB05587AB

Removal steps

1. Rear height sensor to control link connection <Vehicles with discharge headlamp>
2. Rear wheel speed sensor (Refer to GROUP 35B – Wheel speed sensor or GROUP 35C – Wheel speed sensor .)
3. O-ring
4. Rear wheel speed sensor harness/Rear brake hose/Rear brake hose bracket

<<A>> >>A<< 5. Parking brake cable connection (Rear brake caliper assembly side)

<<B>> 6. Rear brake caliper assembly

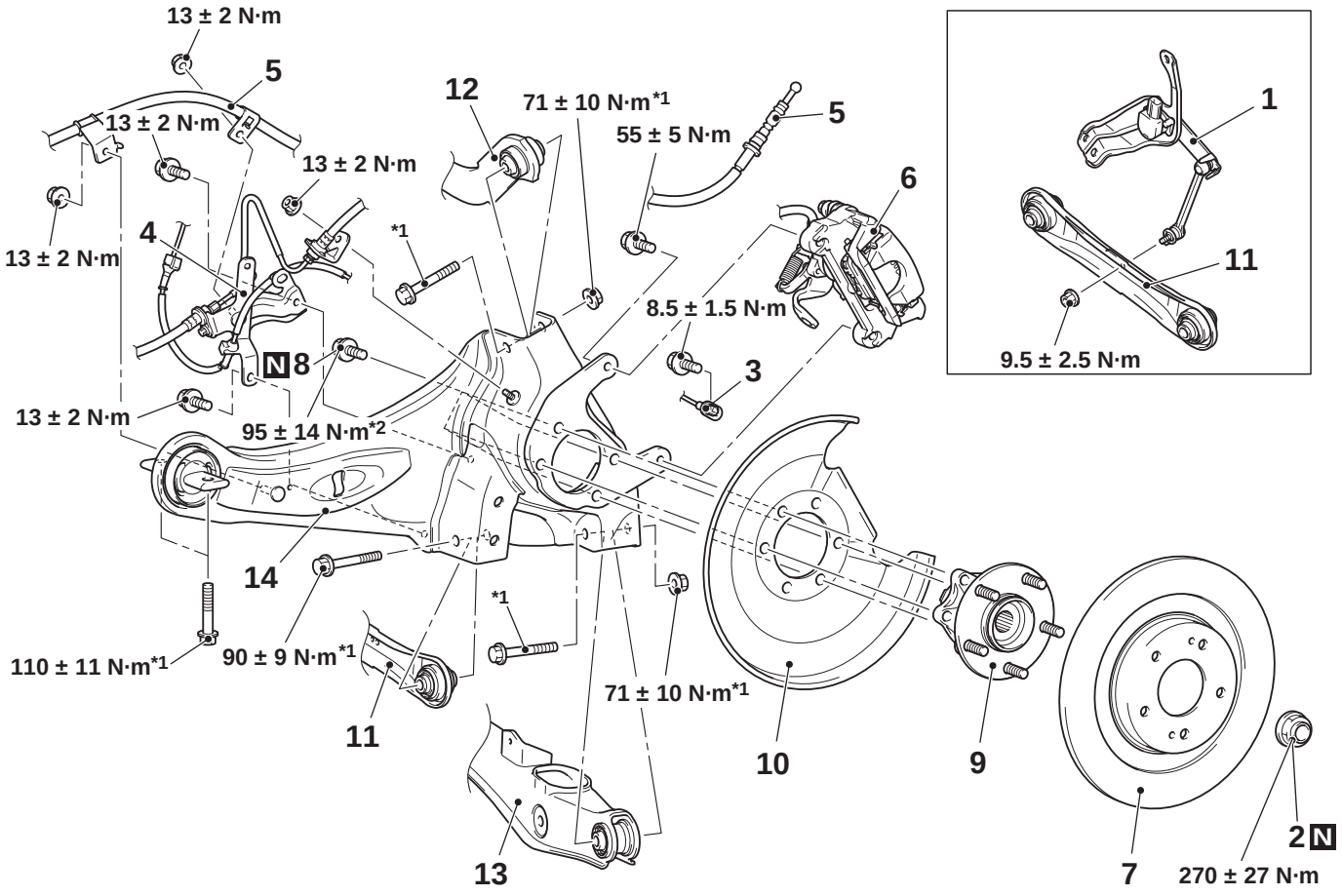
Removal steps (Continued)

7. Rear brake disc
8. Rear wheel hub assembly mounting bolt

<<C>> 9. Rear wheel hub assembly
10. Dust shield
11. Control link connection
12. Upper arm connection

<<D>> 13. Lower arm assembly connection
14. Trailing arm assembly

<4WD>



ACB05588AB

Removal steps

1. Rear height sensor to control link connection <Vehicles with discharge headlamp>

<<A>> >>B<< 2. Rear driveshaft nut

3. Rear wheel speed sensor (Refer to GROUP 35B – Wheel speed sensor or GROUP 35C – Wheel speed sensor .)

Removal steps (Continued)

4. Rear wheel speed sensor harness/Rear brake hose/Rear brake hose bracket

<<B>> >>A<< 5. Parking brake cable connection (Rear brake caliper assembly side)

<<C>> 6. Rear brake caliper assembly
7. Rear brake disc

Removal steps (Continued)

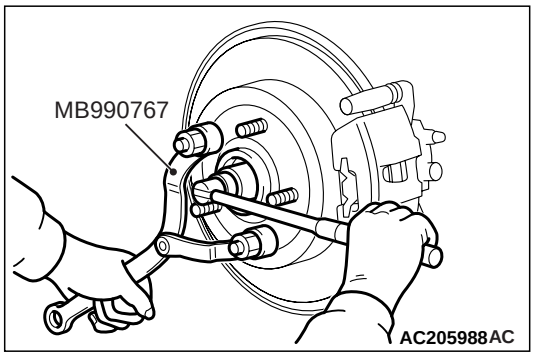
8. Rear wheel hub assembly mounting bolt
<<**D**>> 9. Rear wheel hub assembly
10. Dust shield
11. Control link connection
12. Upper arm connection
<<**E**>> 13. Lower arm assembly connection
14. Trailing arm assembly

REMOVAL SERVICE POINTS

<<A>> DRIVESHAFT NUT REMOVAL

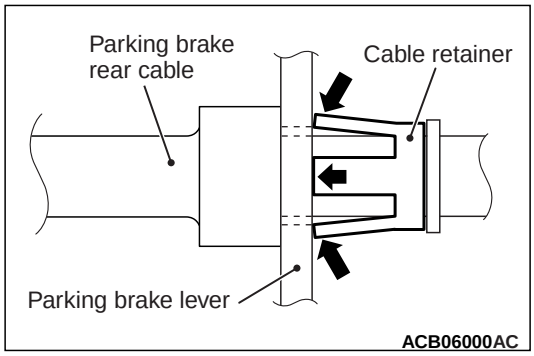
⚠ CAUTION

Do not apply the vehicle weight on the rear wheel hub assembly before fully tightening the driveshaft nuts. Otherwise, the wheel bearing will be broken.



Use special tool front hub and flange yoke holder (MB990767) to counter the hub, and remove the driveshaft nut.

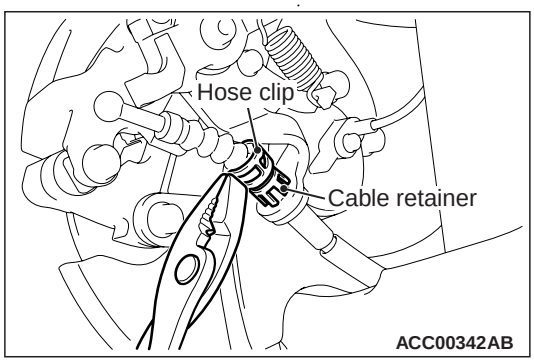
<<B>> PARKING BRAKE REAR CABLE CONNECTION (REAR BRAKE CALIPER ASSEMBLY SIDE) REMOVAL



Compress the tabs on the cable retainer to pull out the parking rear cable through the parking lever hole of the rear brake caliper assembly.

NOTE:

- *When pulling out the parking rear cable, be careful not to damage the tab on the cable retainer.*

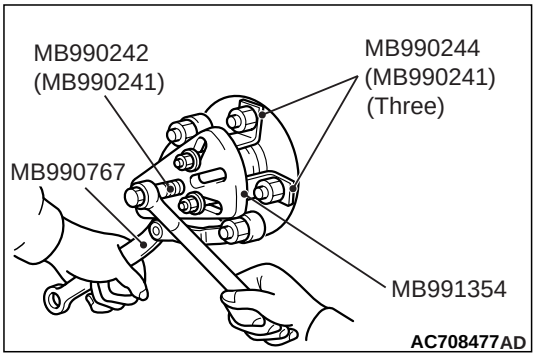


Example: Insert the 12.8-mm hose clip (MB248923) into the parking rear cable. Then push the clip over the cable retainer to protect the tabs.

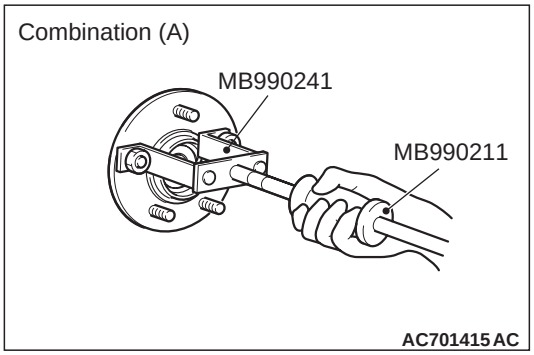
<<C>> CALIPER ASSEMBLY REMOVAL

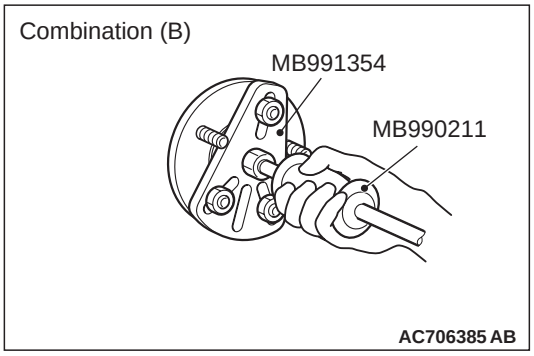
1. Remove the caliper assembly with brake hose.
2. Secure the removed caliper assembly with a wire or other similar material at a position where it will not interfere with the removal and installation of the rear wheel hub assembly.

<<D>> REAR WHEEL HUB ASSEMBLY REMOVAL



1. If the rear wheel hub assembly is seized with the rear driveshaft assembly, use the following special tools to push the rear driveshaft assembly out from the hub and then remove the rear wheel hub assembly.
   - Puller shaft (MB990242)
   - Puller bar (MB990244)
   - Puller body (MB991354)
   - Front hub and flange yoke holder (MB990767)



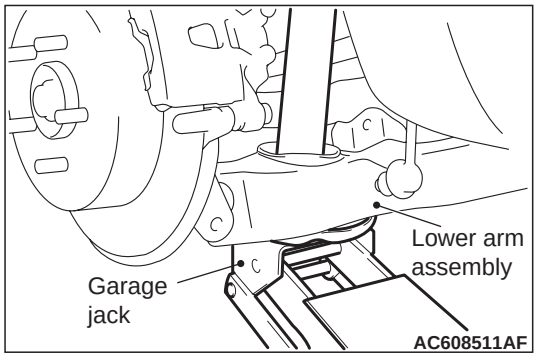


2. If the rear wheel hub assembly is seized with the trailing arm, use the following special tools to remove the rear wheel hub assembly.

   Combination (A)
- Slide hammer (MB990211)
- Rear axle shaft puller (MB990241)

   Combination (B)
- Slide hammer (MB990211)
- Puller body (MB991354)

<<E>> LOWER ARM ASSEMBLY DISCONNECTION

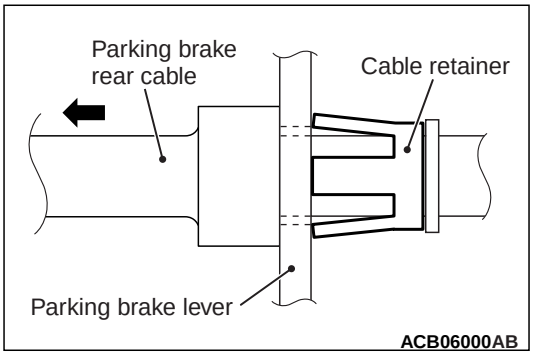


While jacking-up the lower arm with garage jack, remove the mounting bolts.

INSTALLATION SERVICE POINTS

>>A<< PARKING BRAKE REAR CABLE CONNECTION (REAR BRAKE CALIPER ASSEMBLY SIDE) INSTALLATION

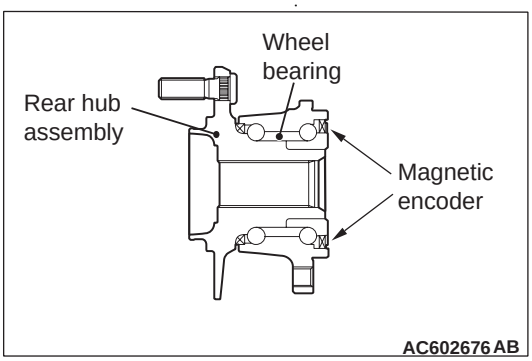
1. Guide the parking brake rear cable through the parking lever hole of the rear brake caliper assembly to the cable retainer.



2. Pull back the parking brake rear cable to assure it is tightly fastened to the cable retainer.

>>B<< DRIVESHAFT NUT INSTALLATION

⚠ CAUTION

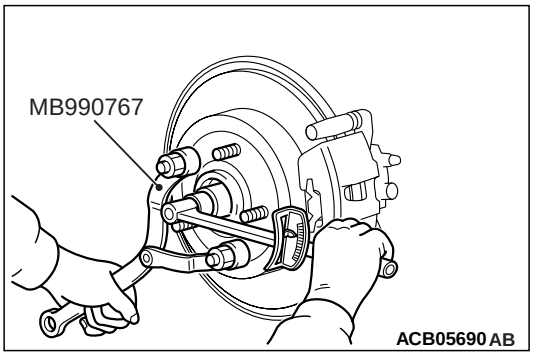


The wheel speed detection magnetic encoder collects metallic particles easily, because it is magnetised. Make sure that the magnetic encoder should not collect metallic particles. Check that there is not any trouble prior to reassembling it.

- **When installing the driveshaft, make sure that it does not contact with the wheel speed detection magnetic encoder (integrated with the inner oil seal) to avoid damage.**
- **Do not apply the vehicle weight on the rear wheel hub assembly before fully tightening the driveshaft nuts. Otherwise, the wheel bearing will be broken.**

1. Check the hub seated surface for damage or corrosion. Whenever solvent is used for removing the corrosion, the surface should be degreased.

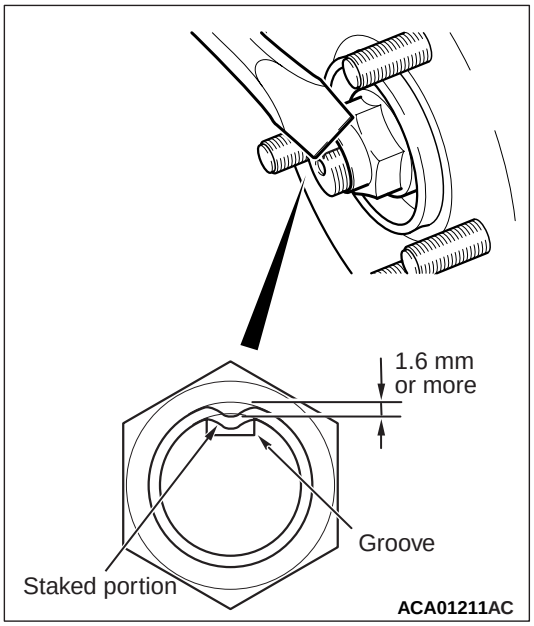
2. Check that the new driveshaft nut can be turned smoothly by hand. Then tighten it until it is seated.



3. Using special tool front hub and flange yoke holder (MB990767), tighten the driveshaft nut.

   Tightening torque: 160 ± 16 N·m

4. After tightening to the specified torque, check that the nut is seated securely.



5. Use the chisel and a hammer to stake the nut until the centre in the staked portion reaches the shown dimension.
6. Finally, check that the nut is not cracked at its staked portion.

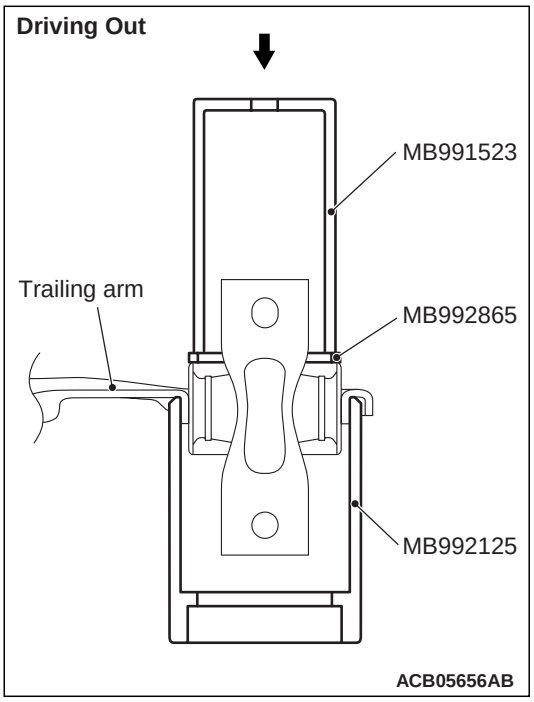
INSPECTION

M1341002300353

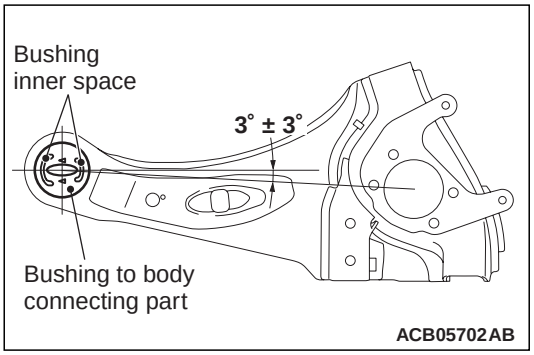
- Check the bushings for wear and deterioration.
- Check the trailing arm for bending or damage.

TRAILING ARM BUSHING REPLACEMENT

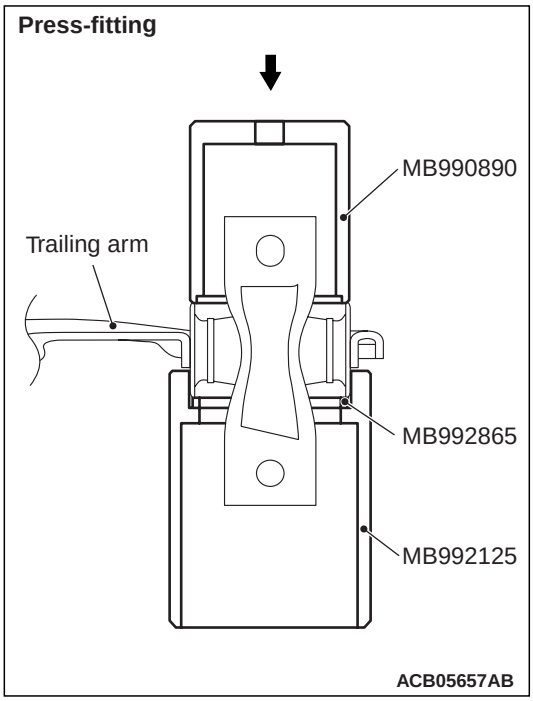
M1341011300685



1. Use the following special tools to remove the trailing arm bushing:
   - Arm bushing remover and installer (MB992123)
   - Spacer base (MB992865)
   - Arm bushing base (MB992125)



2. Determine the installation direction and the installation position of the trailing arm bushing.
   (1) Install so that the protruding side of the trailing arm bushing inner pipe faces inside the body.
   (2) Position horizontally the trailing arm bushing to body connecting part, and locate bushing inner space as shown in the figure.



3. Use the following special tools to press-fit the trailing arm bushing up to the position shown in the figure:
   - Arm bushing remover and installer (MB990890)
   - Spacer base (MB992865)
   - Arm bushing base (MB992125)

SHOCK ABSORBER ASSEMBLY

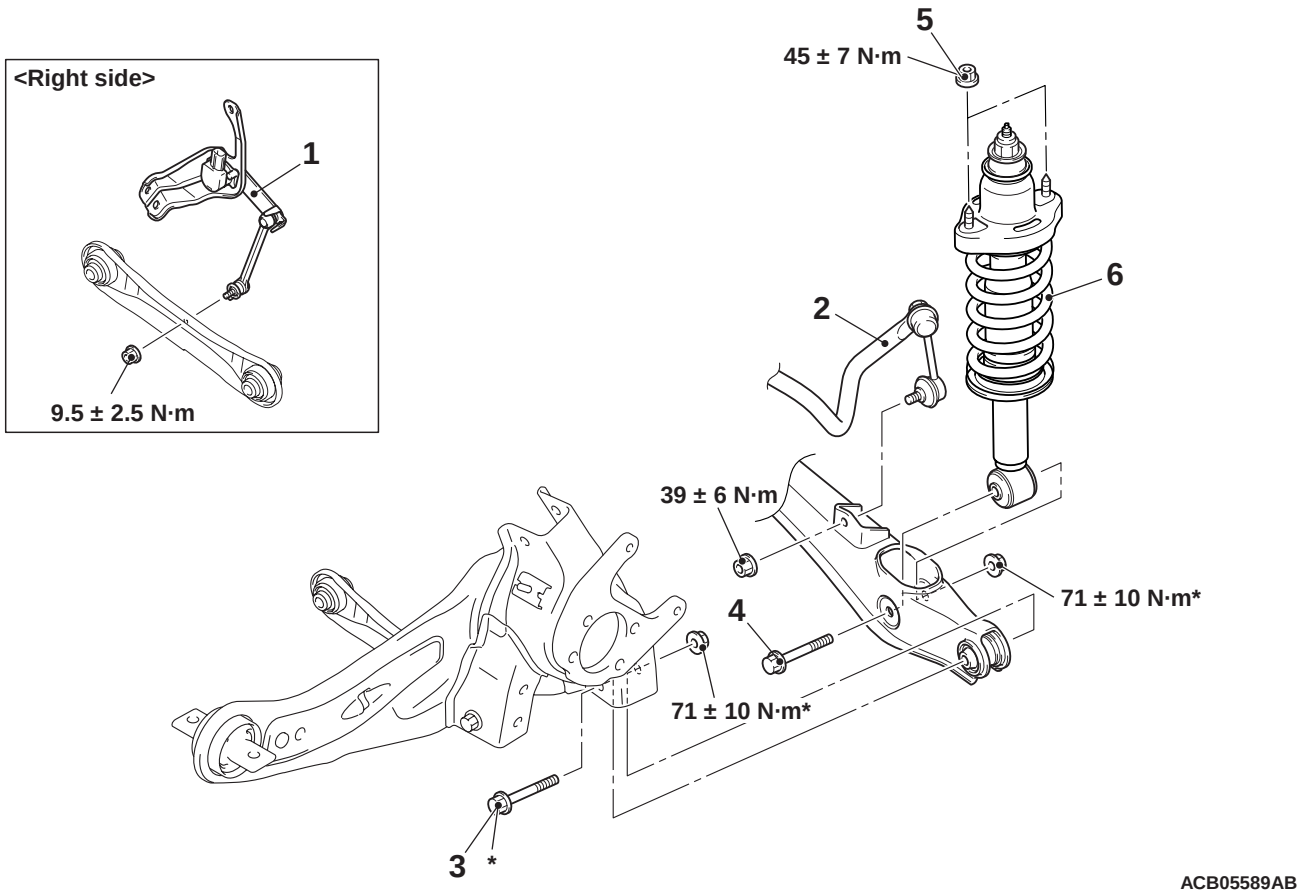
REMOVAL AND INSTALLATION

M1341002500982

⚠ CAUTION

The parts indicated by * are the bolts/nuts with friction coefficient stabilizer. In removal, ensure there is no damage, clean dust and soiling from the bearing and thread surfaces, and tighten them to the specified torque.

Post-installation operation
- Check the dust cover for cracks or damage by pushing it with your finger.
- Check the beam direction of the headlamp (Low beam) (Refer to GROUP 54A – Headlamp Aiming).



ACB05589AB

Removal steps

1. Rear height sensor to control link connection <Vehicles with discharge headlamp>
2. Stabilizer link connection

<<**A**>>

3. Lower arm and trailing arm connection

<<**A**>>

Removal steps (Continued)

4. Shock absorber and lower arm connection

<<**B**>>

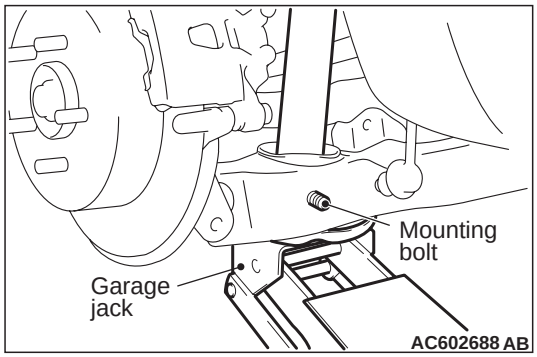
5. Shock absorber mounting nut

<<**C**>> >>**A**<<

6. Shock absorber assembly

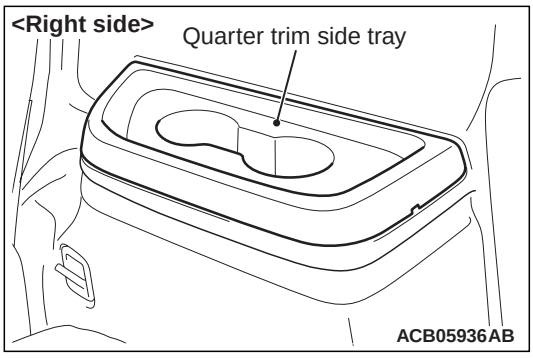
REMOVAL SERVICE POINTS

<<A>> LOWER ARM AND TRAILING ARM/SHOCK ABSORBER AND LOWER ARM DISCONNECTION



While jacking-up the lower arm with garage jack, remove the mounting bolts.

<<B>> SHOCK ABSORBER MOUNTING NUT REMOVAL



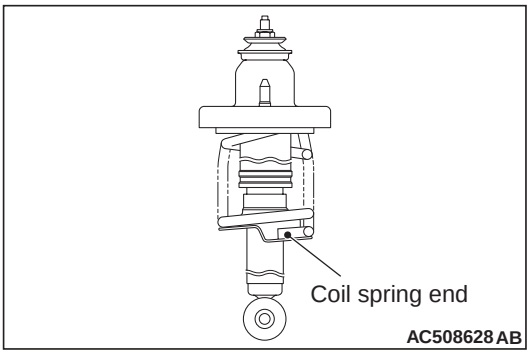
Remove the appropriate quarter trim side tray to remove the shock absorber mounting nut. <Right side>
On the left side, remove the quarter trim (Refer to GROUP 51A – Interior Trim). <Left side>

<<C>> SHOCK ABSORBER ASSEMBLY REMOVAL

After having loosened the lower arm and rear suspension crossmember connection, remove the shock absorber assembly.

INSTALLATION SERVICE POINT

>>A<< SHOCK ABSORBER ASSEMBLY INSTALLATION



Install the shock absorber assembly so that the coil spring end faces the rear of the vehicle.

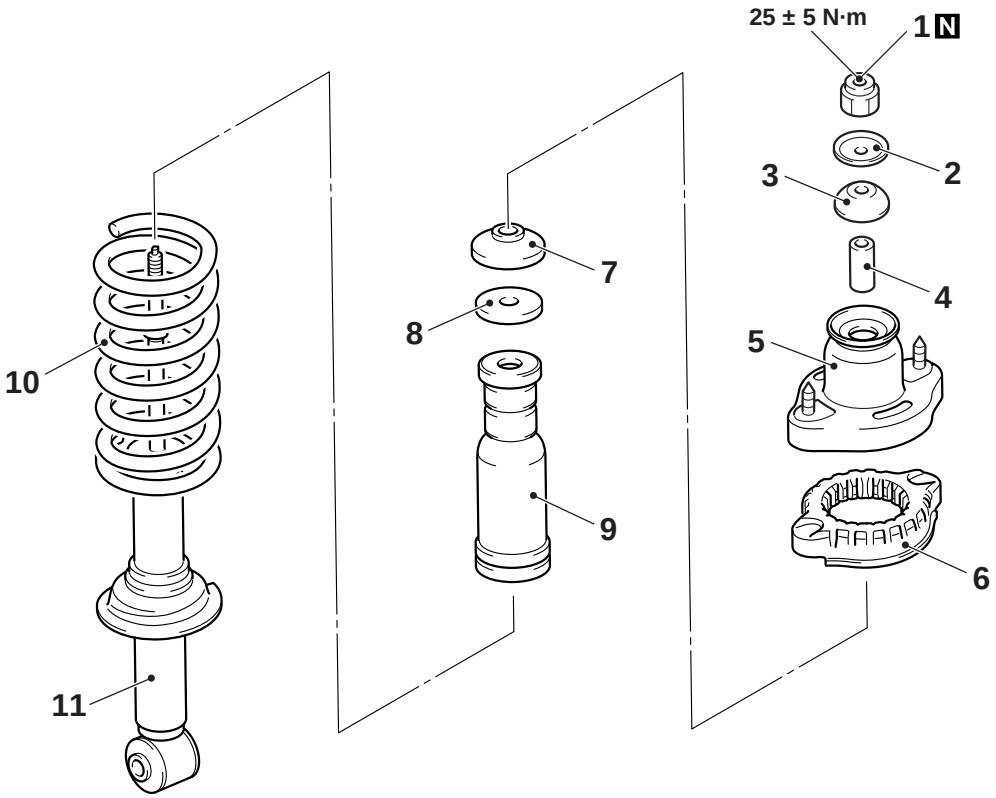
INSPECTION

M1341002600246

- Check the rubber parts for cracks and wear.
- Check the shock absorber for malfunctions, oil leakage, or abnormal noise.

DISASSEMBLY AND REASSEMBLY

M1341002700470



AC506862AB

Disassembly steps

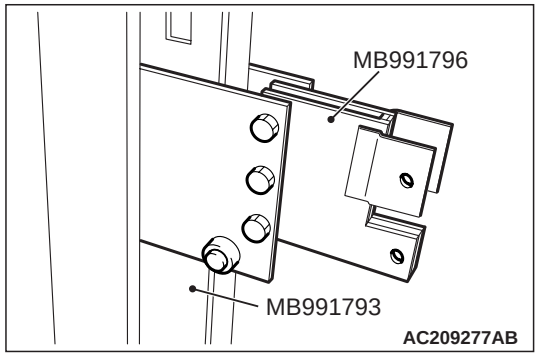
<<**A**>>	>>**B**<<	1.	Self-locking nut
		2.	Washer
		3.	Bushing B
		4.	Collar
		5.	Spring upper bracket assembly
		6.	Spring upper pad
		7.	Bushing A
		8.	Plate
		9.	Bump rubber
	>>**A**<<	10.	Coil spring
<<**B**>>		11.	Shock absorber

DISASSEMBLY SERVICE POINT

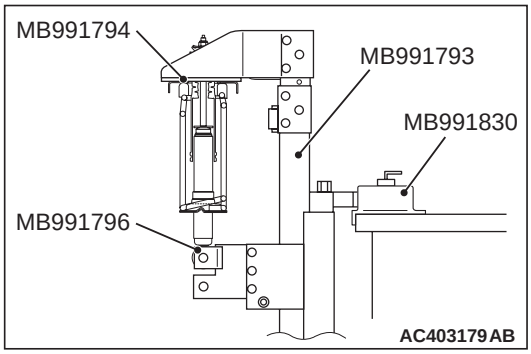
<<A>> SELF-LOCKING NUT REMOVAL

⚠ CAUTION

The locking nut for the piston rod inside the shock absorber may be loose. Do not use an impact wrench to loosen the self-locking nut.

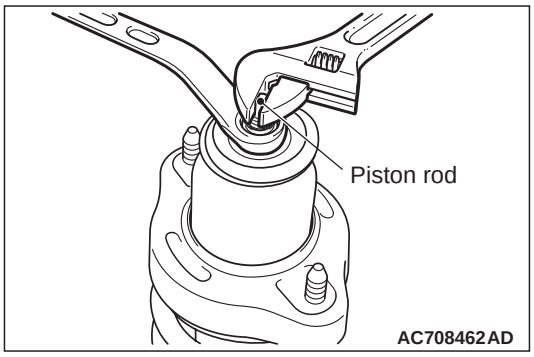


1. Install special tool spring compressor (MB991796) to special tool attachment B (MB991793) as shown in the figure.



2. Set the shock absorber assembly to the following special tools:
   - Spring compressor (MB991793)
   - Attachment B (MB991796)
   - Upper plate (MB991794)
   - Fixture (MB991830)

   NOTE: Use the bolts and nuts removed from the vehicle to secure the shock absorber assembly and tighten them lightly by hand.
3. After setting the shock absorber assembly, operate the spring compressor and compress the coil spring by approximately 5 mm.

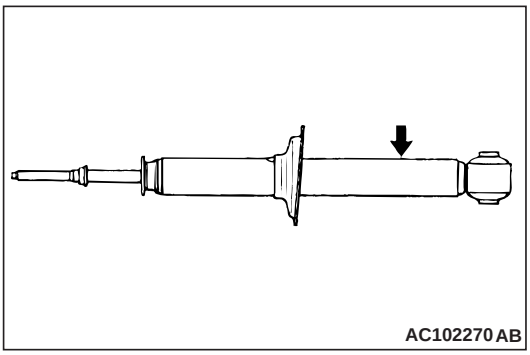


4. While holding the piston rod as shown in the figure, remove the self-locking nut.

<<B>> SHOCK ABSORBER DISPOSAL PROCEDURES

⚠ CAUTION

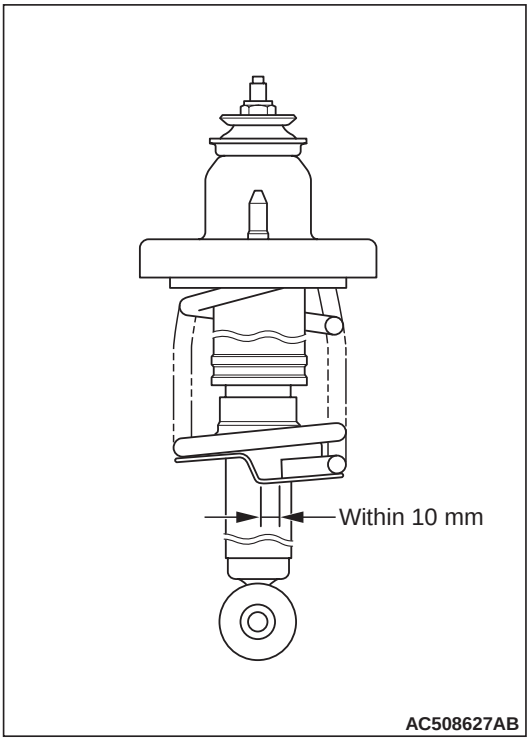
Wear the protective glasses. Although the gas is harmless, drilling chips may be blown out by the gas.



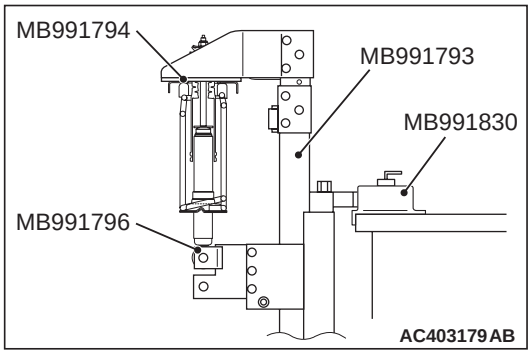
Before disposal of the shock absorber, place the shock absorber on the level surface with the piston rod extended, and make a hole of approximately 3 mm in diameter at the point shown in the figure to discharge the gas.

REASSEMBLY SERVICE POINTS

>>A<< COIL SPRING INSTALLATION



1. Align the end of the coil spring with the shock absorber as shown in the figure.



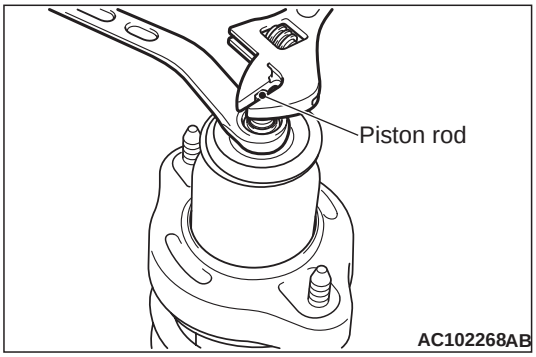
2. Set the shock absorber assembly to the following special tools:
   - Spring compressor (MB991793)
   - Attachment B (MB991796)
   - Upper plate (MB991794)
   - Fixture (MB991830)

   NOTE: Use the bolts and nuts removed from the vehicle to secure the shock absorber assembly and tighten them lightly by hand.

>>B<< SELF-LOCKING NUT INSTALLATION

⚠ CAUTION

The locking nut for the piston rod inside the shock absorber may be loose. Do not use an impact wrench to tighten the self-locking nut.



Counter the piston rod of the shock absorber as shown in the figure, and tighten the self-locking nut to the specified torque.

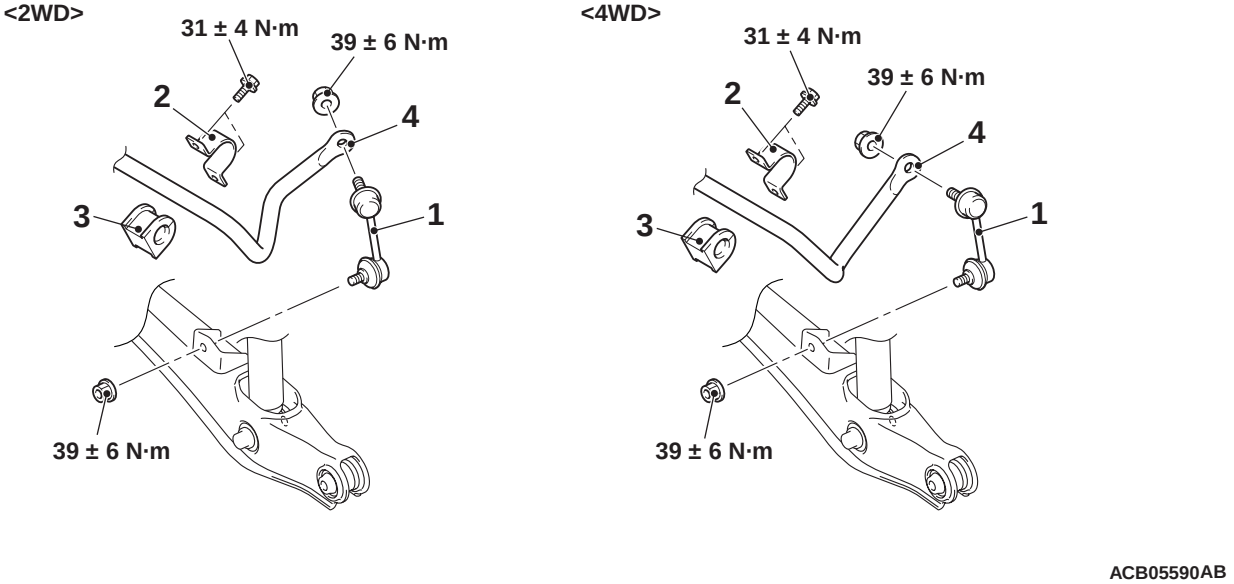
Tightening torque: 25 ± 5 N·m

STABILIZER BAR

REMOVAL AND INSTALLATION

M1341003000827

Post-installation Operation
Check the dust cover for cracks or damage by pushing it with your finger.



Removal steps

1. Stabiliser link
>>**A**<< 2. Stabilizer bracket
>>**A**<< 3. Bushing

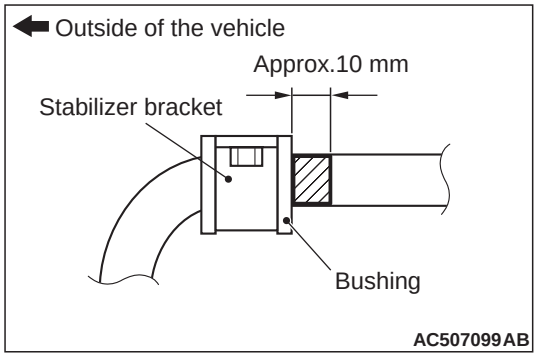
Removal steps (Continued)

- Rear differential carrier assembly (Refer to GROUP 27B, Differential carrier assembly <4WD>.)

>>**A**<< 4. Stabilizer bar

INSTALLATION SERVICE POINT

>>A<< STABILIZER BAR/BUSHING/STABILIZER BRACKET INSTALLATION



Position the identification mark of the stabilizer bar at the left side of the vehicle as shown in the figure, and tighten the stabilizer bracket mounting bolt.

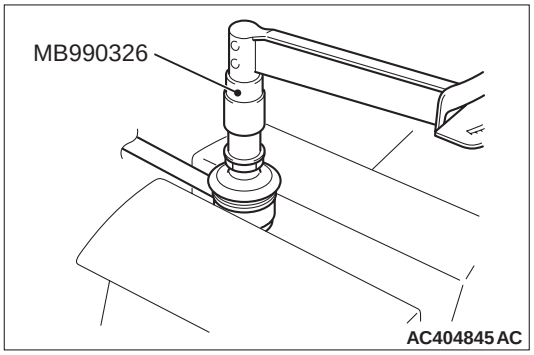
INSPECTION

M1341001400517

- Check the bushings for wear and deterioration.
- Check the stabilizer bar for deterioration or damage.
- Check all bolts for condition and straightness.

STABILIZER LINK BALL JOINT ROTATION TORQUE CHECK

M1341019300076



1. Move the stabilizer link ball joint stud back and forth for several times, install the stud with nut, and measure the stabilizer link ball joint rotation torque using the preload socket (Special tool: MB990326).

   Standard value: 0.3 to 2.9 N·m

2. When the measured value exceeds the standard range, replace the stabilizer link.
3. When the measured value is lower than the standard value, check the stabilizer link ball joint that there is no looseness or gritty feeling. If there is no looseness or gritty feeling, it is judged as usable.

STABILIZER LINK BALL JOINT DUST COVER CHECK

M1341013000088

1. Using your fingers, press the dust cover to check for a crack or damage.
2. If the dust cover has a crack or damage, replace the stabilizer link assembly.

   NOTE: If the dust cover has a crack or damage, the ball joint could be damaged.
   If the dust cover is damaged during the maintenance, replace it.

REAR SUSPENSION CROSSMEMBER

REMOVAL AND INSTALLATION

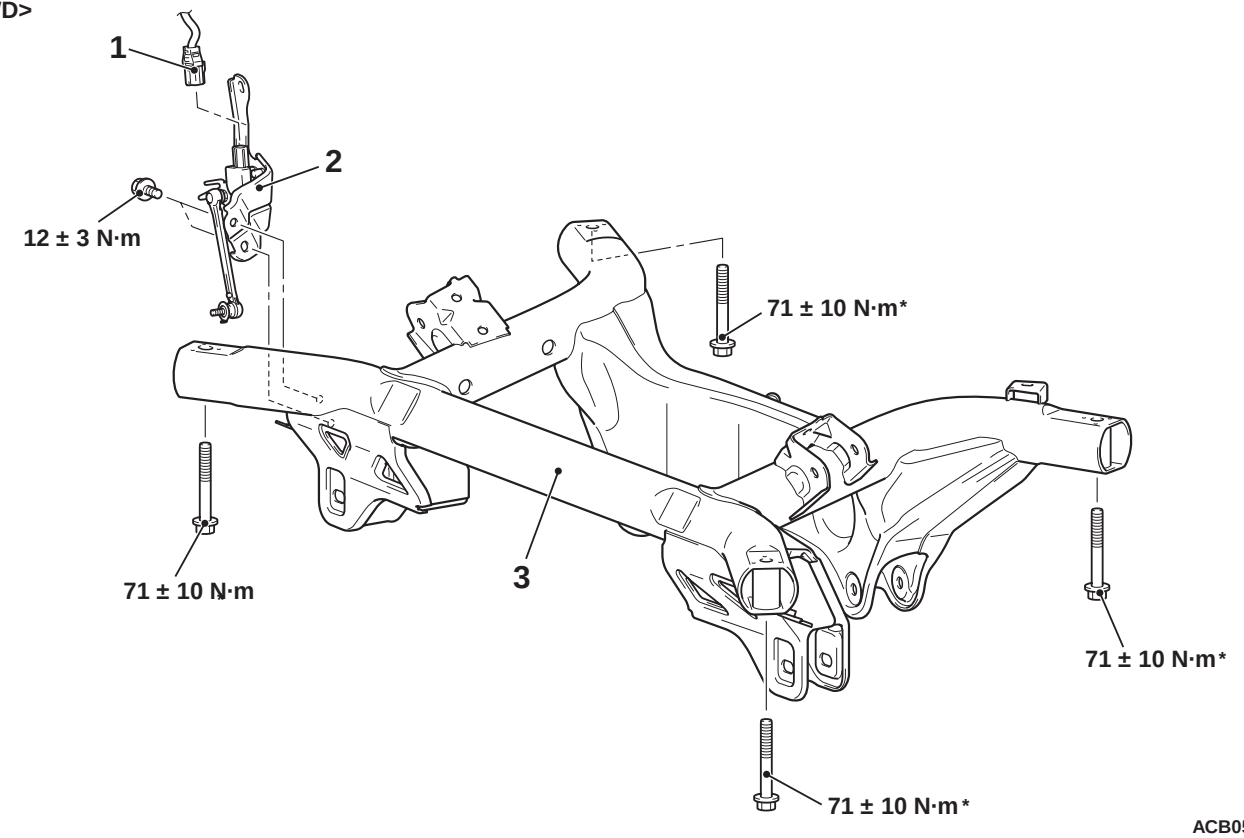
M1341006801115

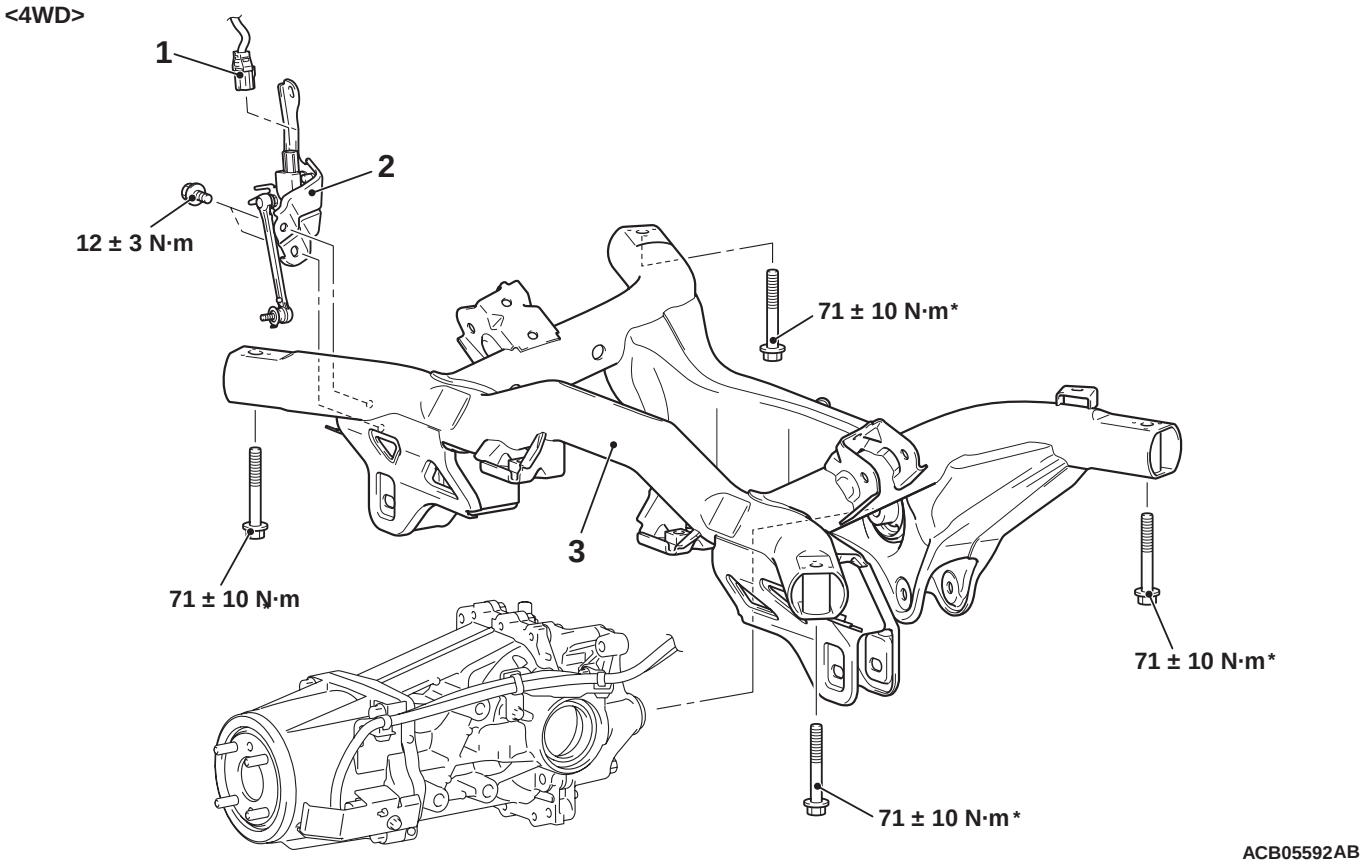
⚠ CAUTION

- **The part indicated by *are the bolt with friction coefficient stabilizer. In removal, ensure there is no damage, clean dust and soiling from the bearing and thread surfaces, and tighten them to the specified torque.**

Pre-removal operation	Post-installation operation
• Control link arm removal (Refer to P.34-5.) • Upper arm removal (Refer to P.34-5.) • Rear suspension stabilizer bar removal (Refer to P.34-18.) • Centre exhaust pipe and main muffler removal (Refer to GROUP 15, Exhaust Pipe and Muffler .) • Driveshaft removal (Refer to GROUP 27B – Driveshaft assembly .) • Rear differential assembly removal (Refer to GROUP27B – Differential carrier assembly <4WD>.)	• Rear differential assembly installation (Refer to GROUP27B – Differential carrier assembly <4WD>.) • Driveshaft installation (Refer to GROUP 27B – Driveshaft assembly .) • Centre exhaust pipe and main muffler installation (Refer to GROUP 15, Exhaust Pipe and Muffler .) • Rear suspension stabilizer bar installation (Refer to P.34-18.) • Upper arm installation (Refer to P.34-5.) • Control link installation (Refer to P.34-5.) • Rear wheel alignment check and adjustment (Refer to P.34-4.) • Check the beam direction of the headlamp (Low beam) (Refer to GROUP 54A – Headlamp Aiming).

<2WD>





Removal steps

1. Rear height sensor harness connection <Vehicles with discharge headlamp>
2. Rear height sensor <Vehicles with discharge headlamp>
3. Rear suspension crossmember

INSPECTION

M1341006900120

- Check the crossmember for cracks or deformation.
- Check all bolts for condition and straightness.