GROUP 34

REAR SUSPENSION

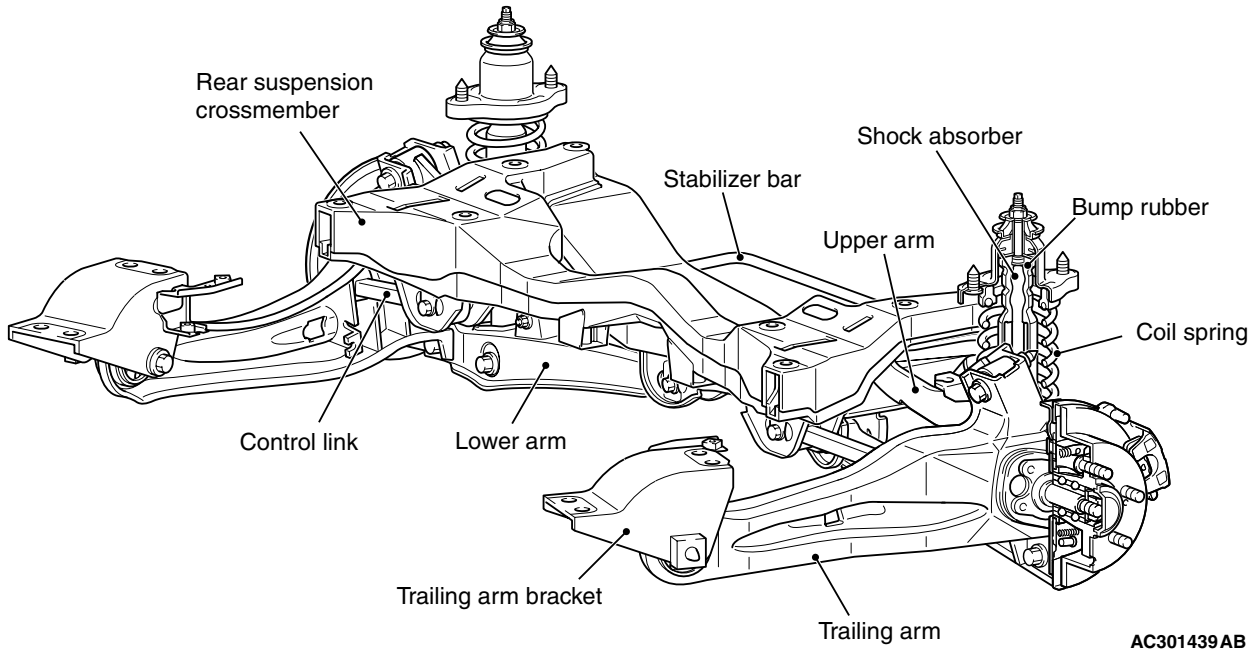
CONTENTS

GENERAL DESCRIPTION

M1341000100320

A trailing arm type multi-link suspension has been adopted as the rear suspension. The shock absorber is a hydraulic, cylindrical double-acting type.

CONSTRUCTION DIAGRAM



SPECIFICATION

COIL SPRING

Item	2WD	4WD
Wire diameter mm	11	11
Average diameter mm	91	91
Free length mm	342	350

SERVICE SPECIFICATIONS

M1341000300379

Item		Standard value
Toe-in	At the centre of tyre tread mm	3 ± 2
	Toe-angle (per wheel)	0°08’ ± 05’
Camber		–0°40’ ± 30’ (Difference between right and left within 30’)
Thrust angle		0°00’ ± 09’
Control link pillow ball bushing starting torque N·m		0.5 – 3.0
Upper arm pillow ball bushing starting torque N·m		0.5 – 3.0
Lower arm pillow ball bushing starting torque N·m		0.5 – 3.0
Stabilizer link ball joint turning torque N·m		1.7 – 3.1

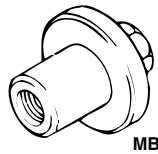
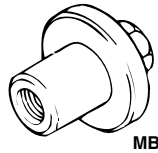
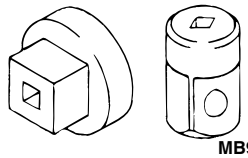
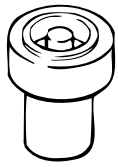
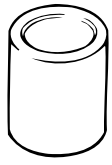
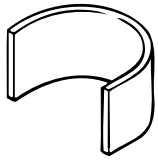
LUBRICANT

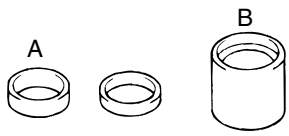
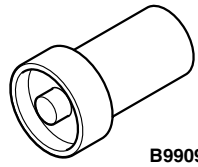
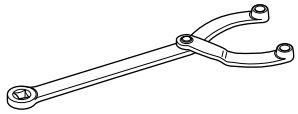
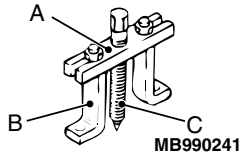
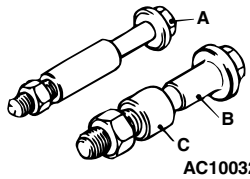
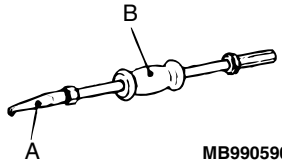
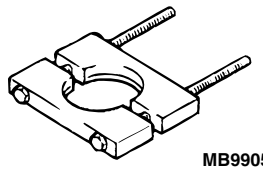
M1341000400161

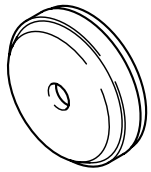
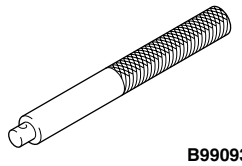
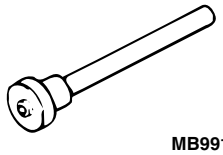
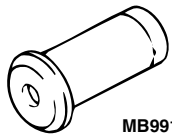
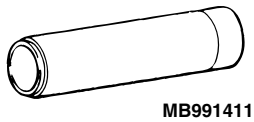
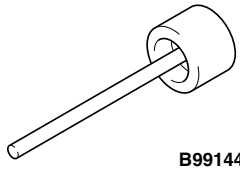
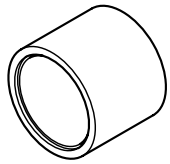
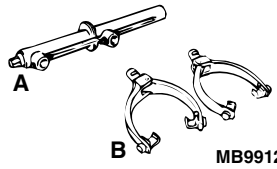
Item	Specified lubricant	Quantity
Stabilizer link ball joint (inside of dust cover)	Multipurpose grease SAE J310, NLGI No.2 or equivalent	As required

SPECIAL TOOLS

M1341000600369

Tool	Number	Name	Use
 MB991004	MB991014	Wheel alignment gauge attachment	Wheel alignment measurement <2WD-vehicles with aluminium wheels>
 MB991004	MB991004	Wheel alignment gauge attachment	Wheel alignment measurement <4WD-vehicles with aluminium wheels>
 MB990326	MB990326	Preload socket	• Pillow ball bushing starting torque check • Stabilizer link ball joint turning torque check
	MB991447	Bushing remover and installer	Lower arm bushing removal and press-fitting
	MB991448	Bushing remover and installer base	
	MB991449	Bushing remover and installer supporter	

Tool	Number	Name	Use
 MB990957	MB990957 A: MB990969 B: MB990971	Lower arm bushing remover and installer A: Guide B: Base	Lower arm pillow ball bushing removal and press-fitting
 B990996	MB990996	Lower arm bushing arbor	
 B990767	MB990767	End yoke holder	Rear axle hub fixing
 MB990241	MB990241 A: MB990243 B: MB990244 C: MB990242	Axle shaft puller A: Puller body B: Puller bar C: Puller shaft	Drive shaft removal <4WD>
 MB991354	MB991354	Puller body	• Removal of the drive shaft <4WD> • Rear hub assembly removal <4WD>
 AC100320AB	A: MB991017 B: MB990998 C: MB991000	A, B: Front hub remover and installer C: Spacer	Provisional holding of the wheel bearing <4WD>
 MB990590	MB990590 A: MB990212 B: MB990211	Rear axle shaft oil seal remover A: Adapter B: Sliding hammer	Rear hub assembly removal <4WD>
 MB990560	MB990560	Bearing remover	Wheel bearing inner race removal <4WD>

Tool	Number	Name	Use
	MB990934	Adapter	Wheel bearing removal <4WD>
 B990938	MB990938	Bar	
 MB991400	MB991400	Rear wheel bearing and hub installer	• Wheel bearing press-fitting <4WD> • Rear hub assembly press-fitting <4WD>
 MB991401	MB991401	Rear wheel bearing and hub installer base	Wheel bearing press-fitting <4WD>
 MB991411	MB991411	Rear wheel bearing and hub installer	Rear hub assembly press-fitting <4WD>
 B991444	MB991444	Bushing remover and installer arbor	Trailing arm bushing removal and press-fitting
	MB991445	Bushing remover and installer base	
 A B MB991237	A: MB991237 B: MB991239	A: Spring compressor body B: Arm set	Coil spring removal and installation

ON-VEHICLE SERVICE

REAR WHEEL ALIGNMENT CHECK AND ADJUSTMENT

M1341011000349

Measure wheel alignment with an alignment equipment on level earth.
The rear suspension, wheels, and tyres should be serviced to the normal condition prior to wheel alignment measurement.

CAMBER

Standard value: -0° 40' ± 30' (Left/right deviation within 30')

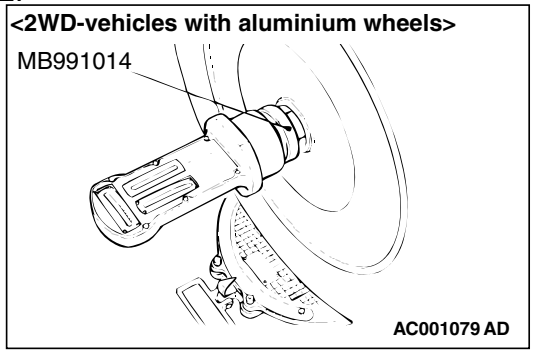
NOTE: Camber is preset at the factory and cannot be adjusted.

⚠ CAUTION

Never subject the wheel bearings to the vehicle load when the trailing arm spindle self-locking nuts (2WD), the driveshaft nuts (4WD), or the special tool wheel alignment gauge attachment (MB991004 or MB991014) are loosened.

NOTE:

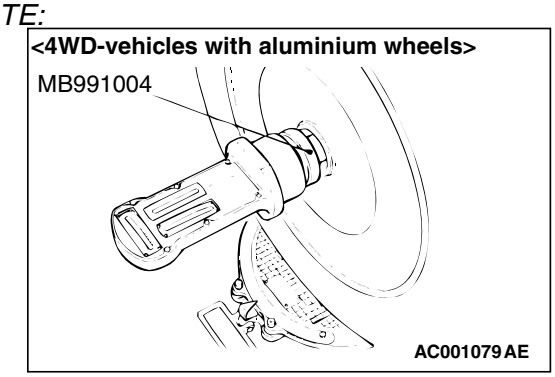
<2WD-vehicles with aluminium wheels>



For 2WD-vehicles with aluminium wheels, attach the camber/caster/kingpin gauge to the trailing arm spindle by using special tool wheel alignment gauge attachment (MB991014). Tighten the special tool to the same torque 175 ± 25 N·m as the trailing arm spindle self-locking nut.

NOTE:

<4WD-vehicles with aluminium wheels>



For 4WD-vehicles with aluminium wheels, attach the camber/caster/kingpin gauge to the driveshaft by using special tool wheel alignment gauge attachment (MB991004). Tighten the special tool to the same torque 245 ± 29 N·m as the driveshaft nut.

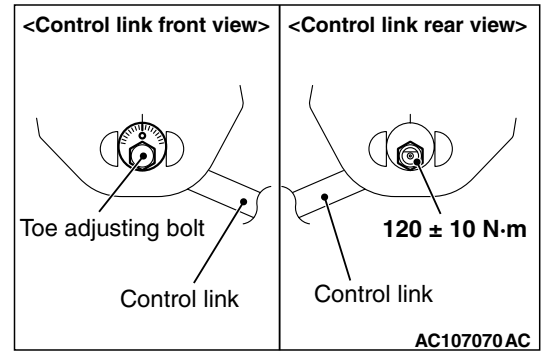
TOE-IN

Standard value:
At the centre of tyre tread: 3 ± 2 mm
Toe angle (per wheel): 0°08' ± 05'

If toe-in is not within the standard value, adjust by following procedures.

⚠ CAUTION

To prevent bushings from breakage, the toe adjusting bolt should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.



Carry out adjustment by turning the toe adjusting bolt (control link mounting bolt which is located on the inner side of the body).

NOTE:

- *LH: Clockwise viewed from the front → Toe-in*
- *RH: Clockwise viewed from the front → Toe-out*
- *Turning the toe adjusting bolt by one groove of the scale, toe can be changed approximately 2.6 mm (single side toe angle equivalent to 16').*

LOWER ARM PILLOW BALL BUSHING AXIAL PLAY CHECK

M1341016900046

1. Raise the vehicle.
2. Remove the stabilizer link and shock absorber from the lower arm assembly.
3. Move the lower arm up and down with your hands to check for an excessive play in the axial direction of the pillow ball bushing. If there is an excessive play, replace the lower arm pillow ball bushing (Refer to P.34-9).
4. After inspection, install the stabilizer link and shock absorber to the lower arm assembly (Refer to P.34-7).

STABILIZER LINK BALL JOINT DUST COVER INSPECTION

M1341012800252

1. Check dust covers for cracks or damage by pushing it with your finger.
2. If a dust cover is cracked or damaged, replace the stabilizer link.

   NOTE: Cracks or damage to the dust cover may cause damage to the ball joint.

CONTROL LINK, UPPER ARM AND LOWER ARM

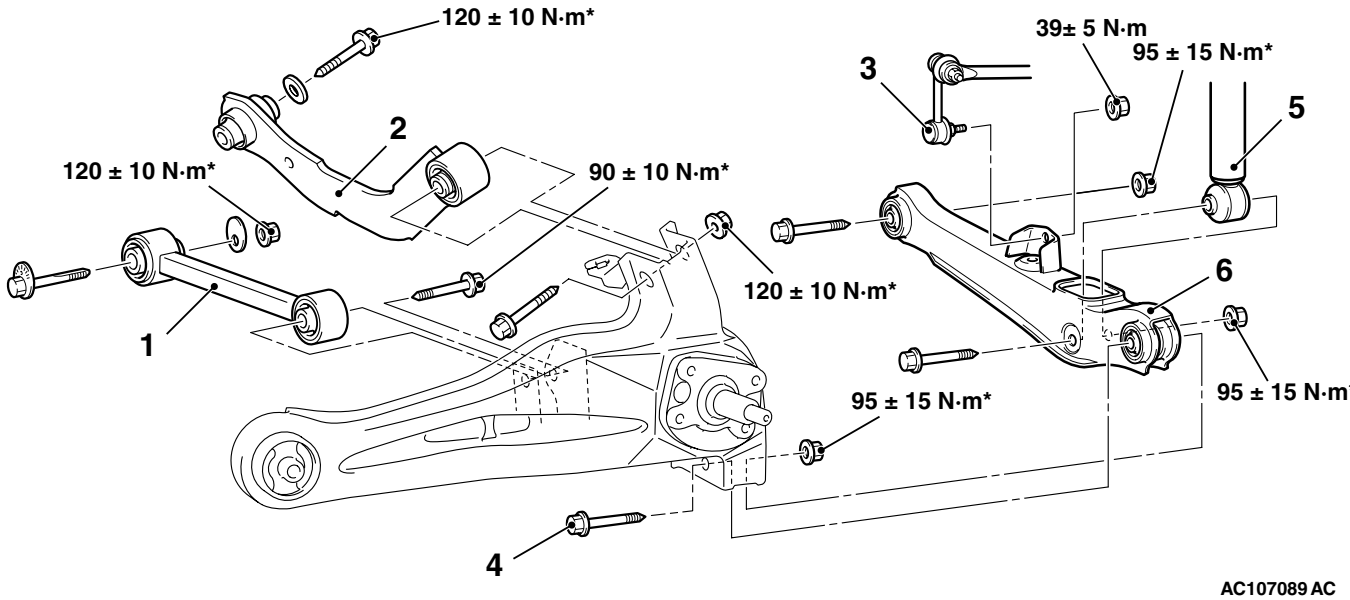
REMOVAL AND INSTALLATION

M1341004800161

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in an unladen condition.**

Post-installation Operation
- Rear Wheel Alignment Check and Adjustment (Refer to P.34-6).



Control link and upper arm removal steps

<<A>> >>A<< 1. Control link
>>A<< 2. Upper arm

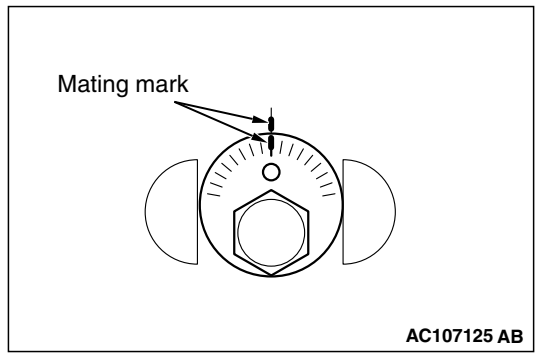
<<B>>

Lower arm removal steps

3. Stabilizer link connection
4. Lower arm and trailing arm connection
5. Shock absorber connection
6. Lower arm

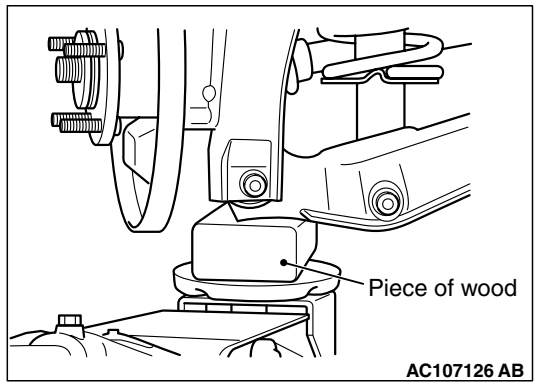
REMOVAL SERVICE POINTS

<<A>> CONTROL LINK REMOVAL



After making a mating mark on the toe-in adjusting bolt, remove the control link.

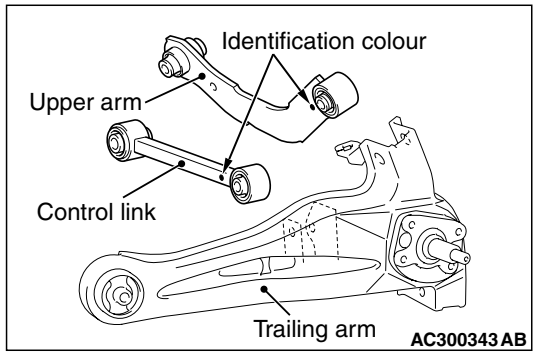
<<B>> LOWER ARM AND TRAILING ARM DISCONNECTION



After supporting the lower arm with a jack, separate the lower arm and the trailing arm.

INSTALLATION SERVICE POINT

>>A<< UPPER ARM/CONTROL LINK INSTALLATION



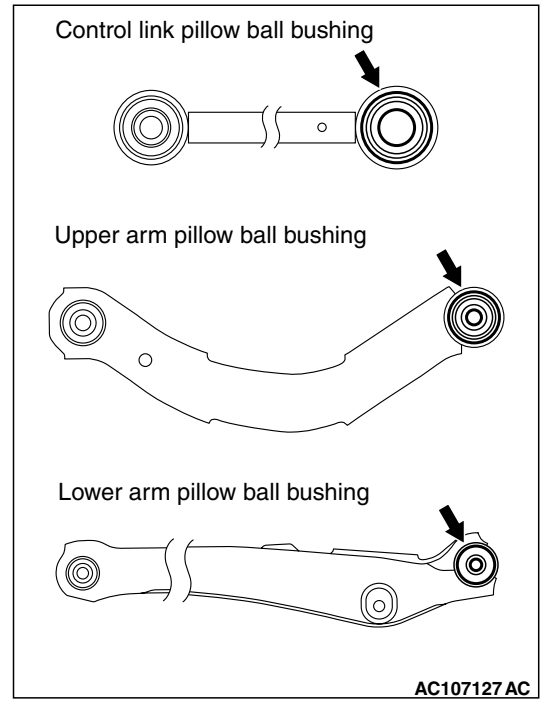
Install the upper arm/control link as shown so that its identification colour faces the trailing arm.

INSPECTION

M1341004900146

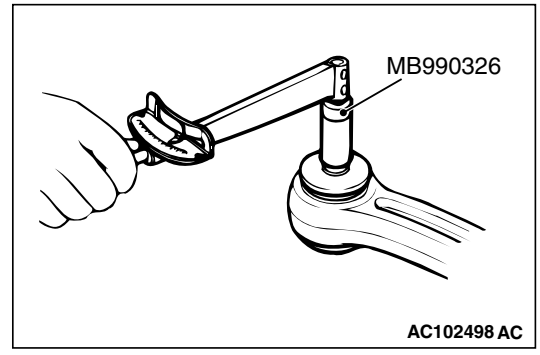
- Check the bushings for wear and deterioration.
- Check the control link, upper arm and lower arm for bending or breakage.
- Check all bolts for condition and straightness.

CONTROL LINK/UPPER ARM/LOWER ARM PILLOW BALL BUSHING STARTING TORQUE CHECK



Check each pillow ball bushing as follows.

1. Insert the mounting bolt to the pillow ball bushing. In the opposite direction, insert a washer, then install the mounting nut.



2. After rotating the inner sleeve (contained washer) several times, measure the starting torque of the pillow ball bushing using special tool preload socket (MB990326).

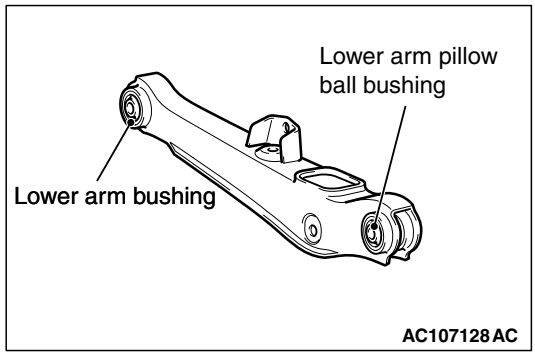
   Standard value: 0.5 – 3.0 N·m

3. If the measured value exceeds the standard value, replace the control link, the upper arm, or the lower arm pillow ball bushing.

4. If the measured value is lower than the standard value, check that the pillow ball bushing turns smoothly without excessive play. If there is no excessive play and it turns smoothly, the pillow ball bushing can be reused.

LOWER ARM BUSHING AND LOWER ARM PILLOW BALL BUSHING REPLACEMENT

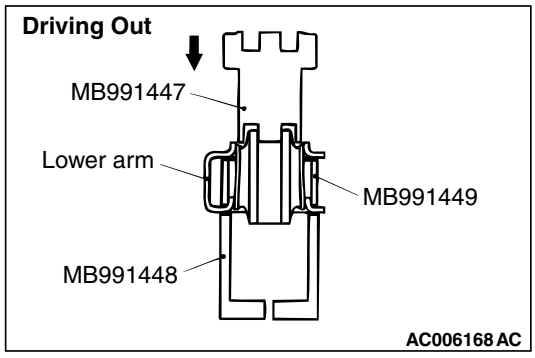
M1341011800196

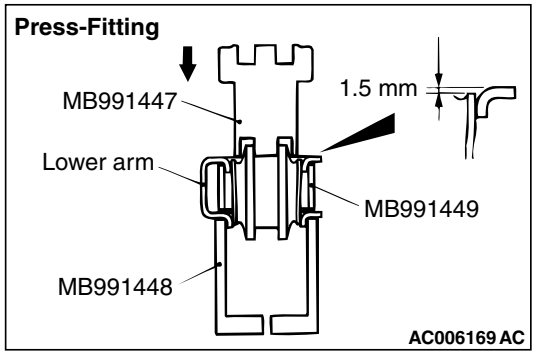


Replace the lower arm bushing and lower arm pillow ball bushing as follows.

LOWER ARM BUSHING REPLACEMENT

⚠ CAUTION
Because the outside of both edges of the bushing are different, be careful not to mistake the direction.



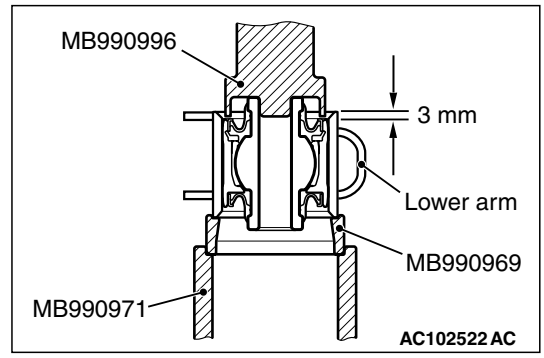


Use following special tools to drive out and press fit the bushing.

- MB991447: Bushing Remover and Installer
- MB991448: Bushing Remover and Installer Base
- MB991449: Bushing Remover and Installer Supporter

After press fitting, the space between the edges of the bushing outer sleeve and of the lower arm should be 1.5 mm.

LOWER ARM PILLOW BALL BUSHING REPLACEMENT



Use following special tools to drive out and press fit the bushing.

- MB990957: Lower Arm Bushing Remover and Installer
  - MB990969: Guide
  - MB990971: Base
- MB990996: Lower Arm Bushing Arbor

After press fitting, the space between the edges of the bushing outer sleeve and of the lower arm should be 3 mm.

TRAILING ARM ASSEMBLY

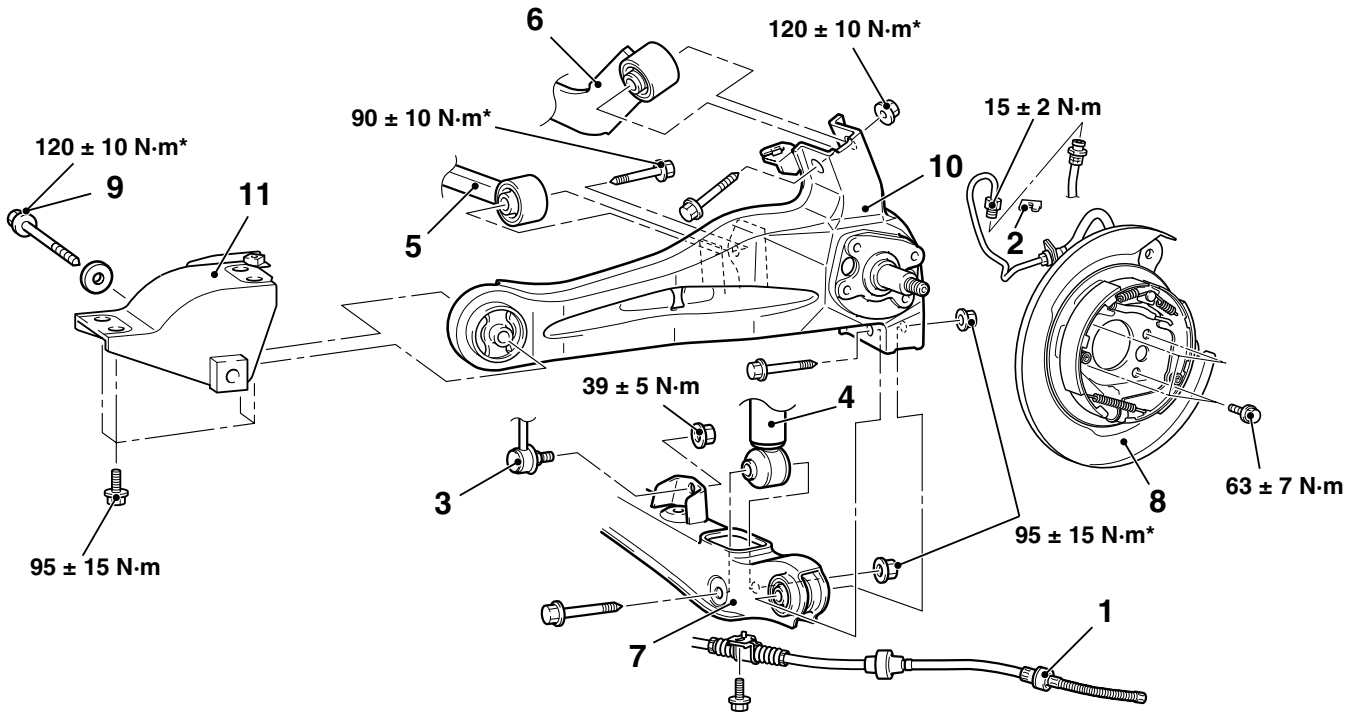
REMOVAL AND INSTALLATION <2WD>

M1341002200323

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.**

Pre-removal Operation	Post-installation Operation
• Brake Fluid Draining • Rear ABS Sensor Removal (Refer to GROUP 35B, ABS Sensor P.35B-54). • Rear Brake Caliper Assembly Removal (Refer to GROUP 35A, Rear Disc Brake Assembly P.35A-21). • Rear Hub Assembly Removal (Refer to GROUP 27A, Rear Axle Hub Assembly P.27A-5).	• Rear Hub Assembly Installation (Refer to GROUP 27A, Rear Axle Hub Assembly P.27A-5). • Rear Brake Caliper Assembly Installation (Refer to GROUP 35A, Rear Disc Brake Assembly P.35A-21). • Rear ABS Sensor Installation (Refer to GROUP 35B, ABS Sensor P.35B-54). • Brake Fluid Supplying and Bleeding (Refer to GROUP 35A, On-vehicle Service – Bleeding P.35A-6). • Rear Wheel Alignment Check and Adjustment (Refer to P.34-6). • Parking Brake Lever Stroke Adjustment (Refer to GROUP 36, On-vehicle Service – Parking Brake Lever Stroke Check and Adjustment P.36-3).



AC301223 AB

Removal steps

1. Parking brake cable connection (Refer to GROUP 36, Parking Brake Cable P.36-6).
2. Brake hose and trailing arm connection
3. Lower arm and stabilizer link connection
4. Lower arm and shock absorber connection

<<A>>

Removal steps (Continued)

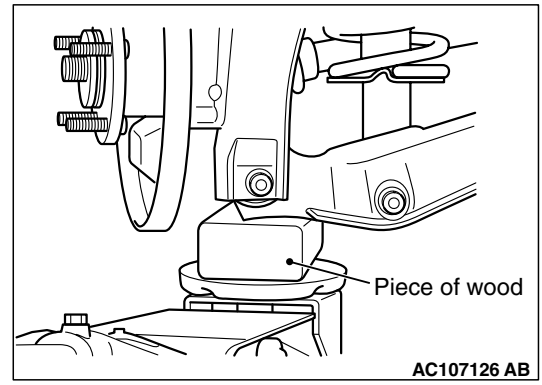
5. Control link and trailing arm connection
6. Upper arm and trailing arm connection
7. Lower arm and trailing arm connection
8. Rear parking brake assembly
9. Trailing arm and trailing arm bracket connecting bolt

Removal steps (Continued)

10. Trailing arm
11. Trailing arm bracket

REMOVAL SERVICE POINT

<<A>> LOWER ARM AND TRAILING ARM DISCONNECTION



After supporting the lower arm with a jack, separate the lower arm and trailing arm connection.

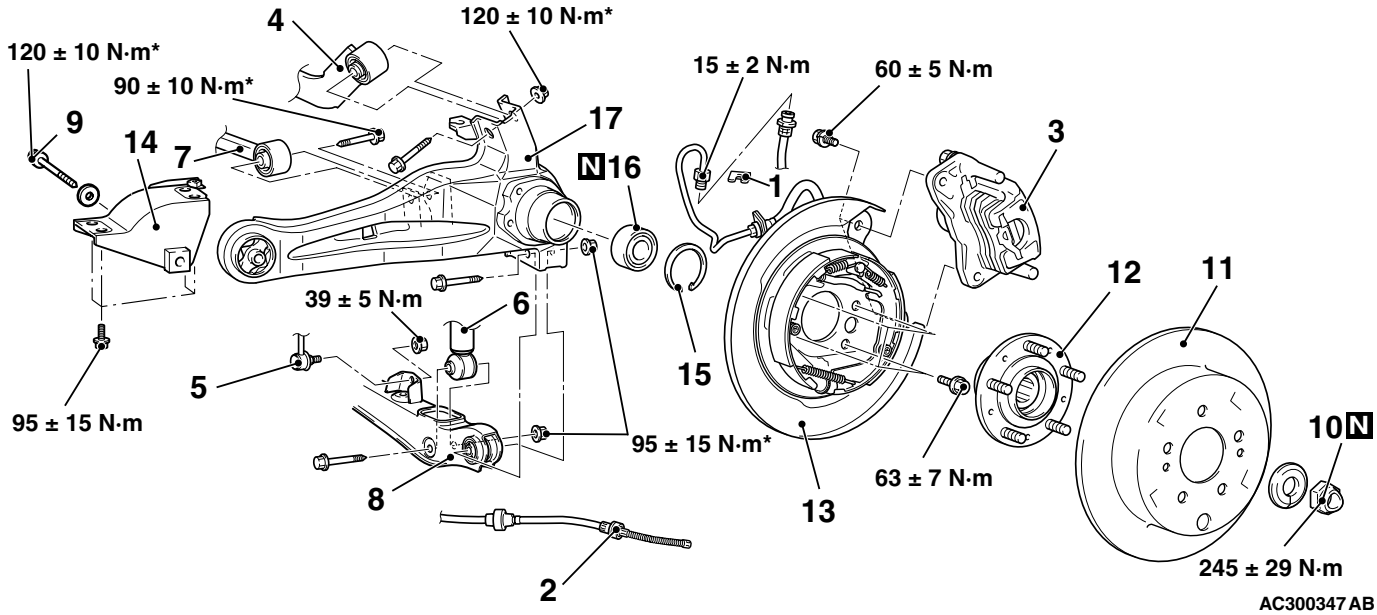
REMOVAL AND INSTALLATION <4WD>

M1341002200334

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.**

Pre-removal Operation	Post-installation Operation
• Brake Fluid Draining • Rear ABS Sensor Removal (Refer to GROUP 35B, ABS Sensor P.35B-54).	• Rear ABS Sensor Installation (Refer to GROUP 35B, ABS Sensor P.35B-54). • Brake Fluid Supplying and Bleeding (Refer to GROUP 35A, On-vehicle Service – Bleeding P.35A-6). • Rear Wheel Alignment Check and Adjustment (Refer to P.34-6). • Parking Brake Lever Stroke Adjustment (Refer to GROUP 36, On-vehicle Service – Parking Brake Lever Stroke Check and Adjustment P.36-3).



AC300347AB

Removal steps

1. Brake hose and trailing arm connection
2. Parking brake cable
3. Rear brake caliper assembly
4. Upper arm and trailing arm connection
5. Lower arm and stabilizer link connection
6. Lower arm and shock absorber connection
7. Control link and trailing arm connection

<<A>> 8. Lower arm and trailing arm connection

Removal steps (Continued)

9. Trailing arm and trailing arm bracket connecting bolt

<<B>> >>C<< 10. Drive shaft nut

11. Brake disc

<<C>> • Drive shaft connection

<<D>> >>B<< 12. Rear hub assembly

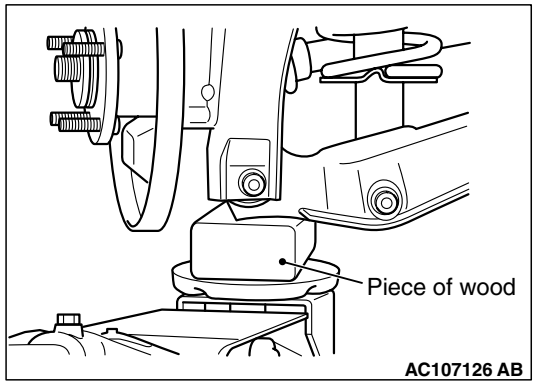
13. Rear parking brake assembly
14. Trailing arm bracket
15. Snap ring

<<E>> >>A<< 16. Wheel bearing

17. Trailing arm

REMOVAL SERVICE POINTS

<<A>> LOWER ARM AND TRAILING ARM DISCONNECTION

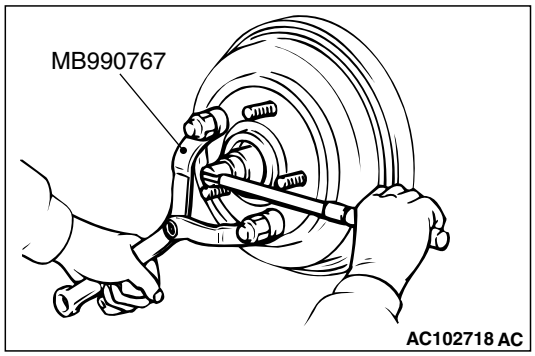


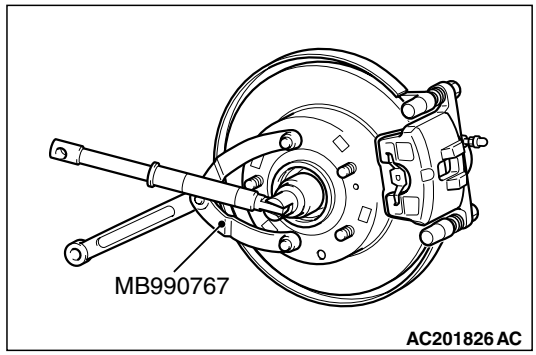
After supporting the lower arm with a jack, separate the lower arm and trailing arm connection.

<<B>> DRIVE SHAFT NUT REMOVAL

⚠ CAUTION

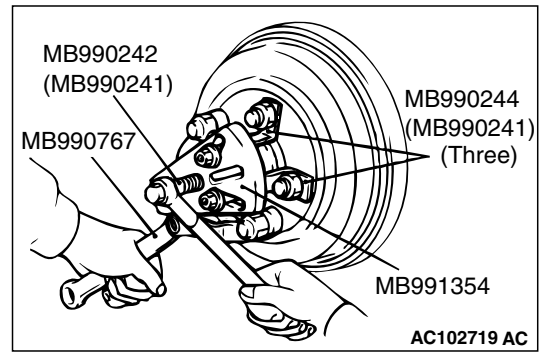
Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage to the wheel bearing before tightening the drive shaft nut fully.





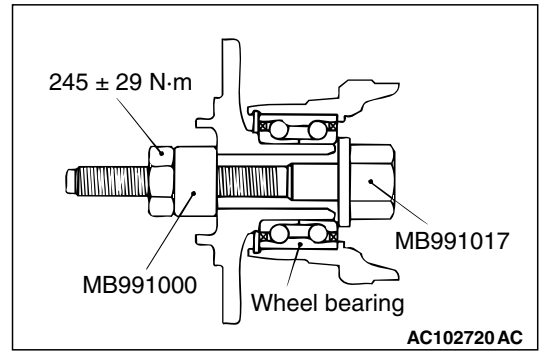
Use special tool end yoke holder (MB990767) to fix the rear axle hub, and then remove the drive shaft nut.

<<C>> DRIVE SHAFT DISCONNECTION



1. Use following special tools to push out the drive shaft from the hub.
   - MB990241: Axle Shaft Puller
     - MB990242: Puller Shaft
     - MB990244: Puller Bar
   - MB990767: End Yoke Holder
   - MB991354: Puller Body
2. Hang the drive shaft on the vehicle body with a rope.

⚠ CAUTION

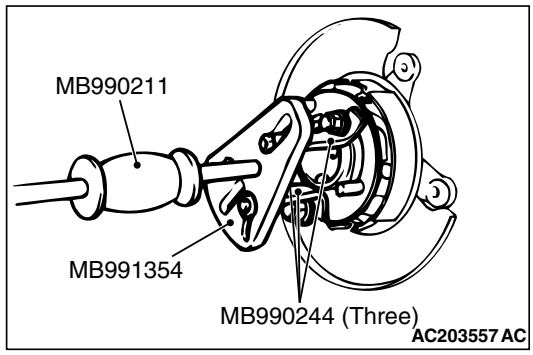


Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage when the drive shaft is removed. If, however, vehicle weight must be applied to the bearing in moving the vehicle, temporarily secure the wheel bearing by using special tools front hub remover and installer, and spacer (MB991000 and MB991017).

<<D>> REAR HUB ASSEMBLY REMOVAL

⚠ CAUTION

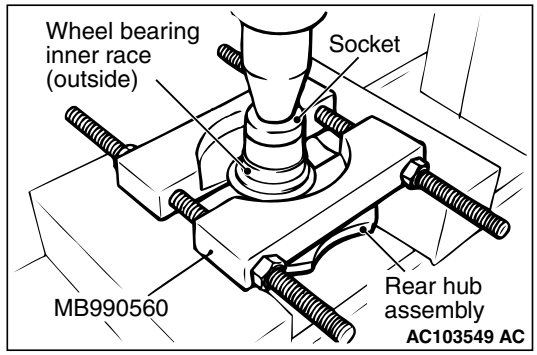
Replace the wheel bearing with a new part because wheel bearing frictional surface will be damaged when removing the hub.



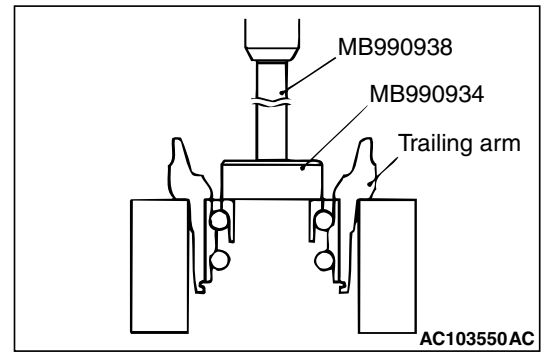
Use following special tools to pull out the rear hub assembly.

- MB990211: Sliding Hammer
- MB990241: Axle Shaft Puller
  - MB990244: Puller Bar
- MB991354: Puller Body

<<E>> WHEEL BEARING REMOVAL



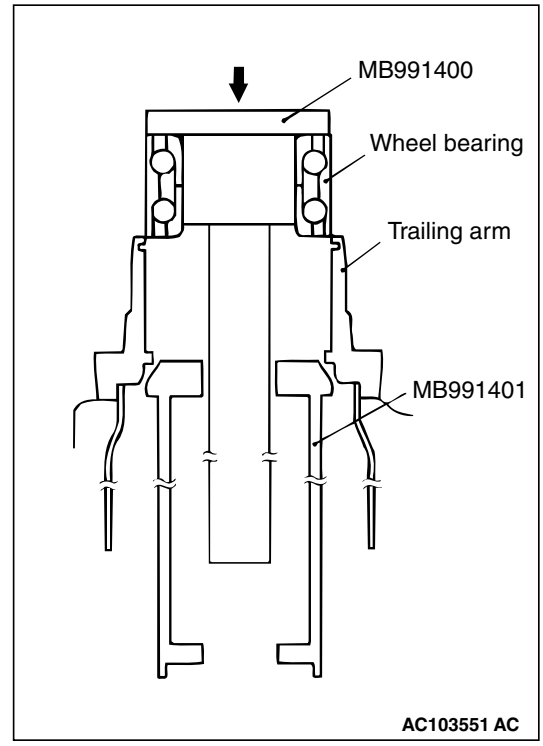
1. Use special tool bearing remover (MB990560) to remove the wheel bearing inner race (outside) from the rear hub assembly.



2. Use following special tools to remove the wheel bearing from the trailing arm.
   - MB990934: Adapter
   - MB990938: Bar

INSTALLATION SERVICE POINTS

>>A<< WHEEL BEARING INSTALLATION



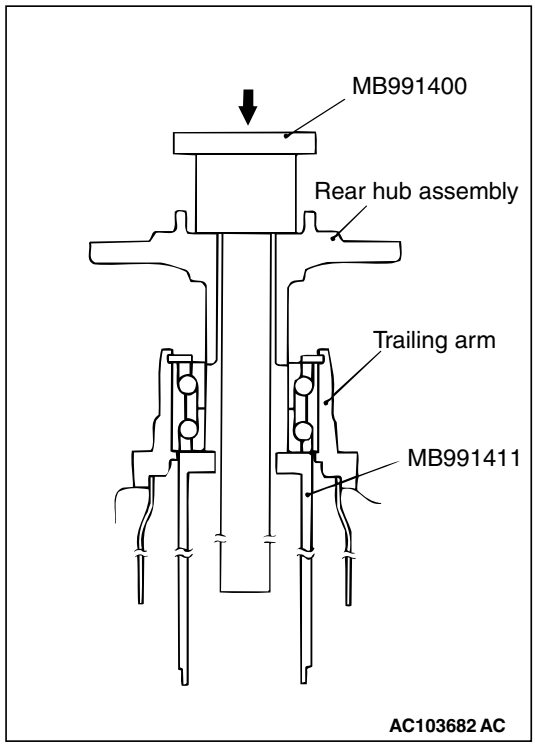
Use following special tools to press-in the wheel bearing.

- MB991400: Rear Wheel Bearing and Hub Installer
- MB991401: Rear Wheel Bearing and Hub Installer Base

>>B<< REAR HUB ASSEMBLY INSTALLATION

⚠ CAUTION

If the wheel bearing inner race has been pushed out, set the wheel bearing to the trailing arm again before installing the rear hub assembly.



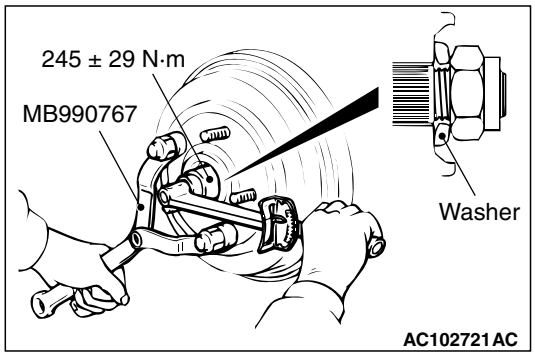
Use following special tools to press-in the rear hub assembly.

- MB991400: Rear Wheel Bearing and Hub Installer
- MB991411: Rear Wheel Bearing and Hub Installer

>>C<< DRIVE SHAFT NUT INSTALLATION

⚠ CAUTION

Do not apply pressure to the wheel bearing by the vehicle weight to avoid possible damage to the wheel bearing before tightening the drive shaft nut fully.



1. Assemble the drive shaft washer in the illustrated direction.
2. Use special tool end yoke holder (MB990767) to fix the rear axle hub, and the tighten the drive shaft nut fully.

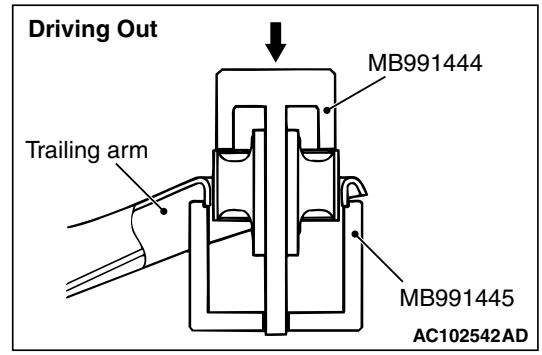
INSPECTION

M1341002300171

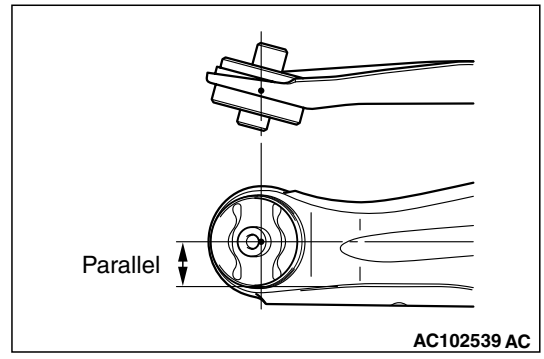
- Check the bushings for wear and deterioration.
- Check the trailing arm for bending or damage.

TRAILING ARM BUSHING REPLACEMENT

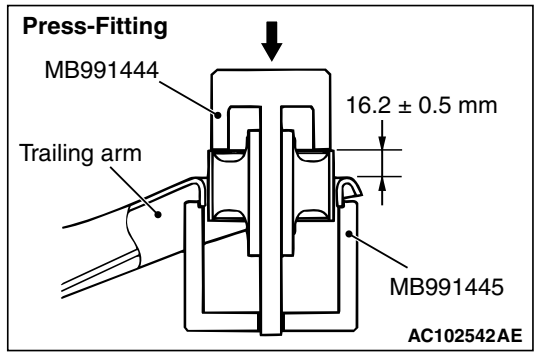
M1341011300209



1. Use following special tools to drive out the trailing arm bushing.
   - MB991444: Bushing Remover and Installer Arbor
   - MB991445: Bushing Remover and Installer Base



2. Set the installation direction and installation location of the trailing arm bushing.
   (1) Place the long projection end of the trailing arm bushing inner pipe towards the inside of the vehicle.
   (2) Make sure that the hollow of the trailing arm bushing is located as shown in the illustration.



3. Using the special tools, press the trailing arm bushing into the position shown.

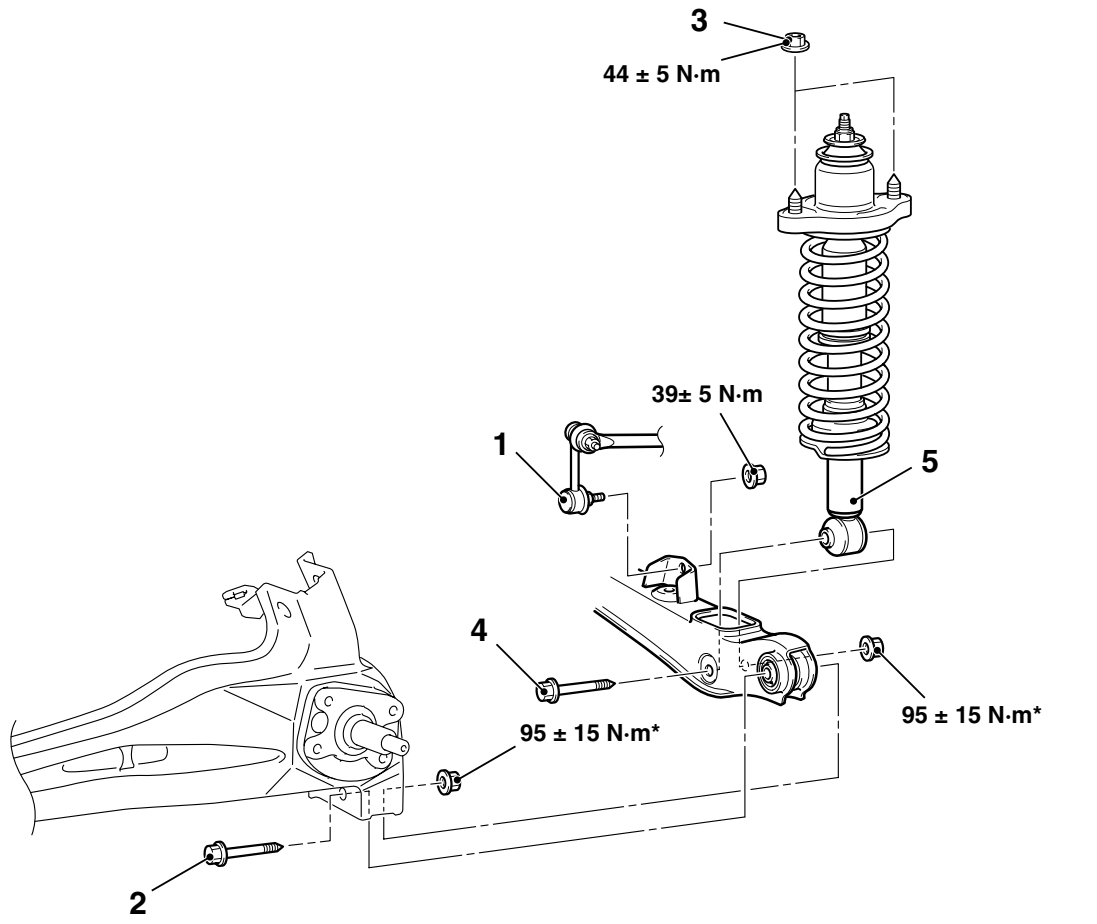
SHOCK ABSORBER ASSEMBLY

REMOVAL AND INSTALLATION

M1341002500238

⚠ CAUTION

***: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.**



AC107092 AB

Removal steps

1. Stabilizer link connection

<<A>> 2. Lower arm and trailing arm connection

3. Shock absorber mounting nut

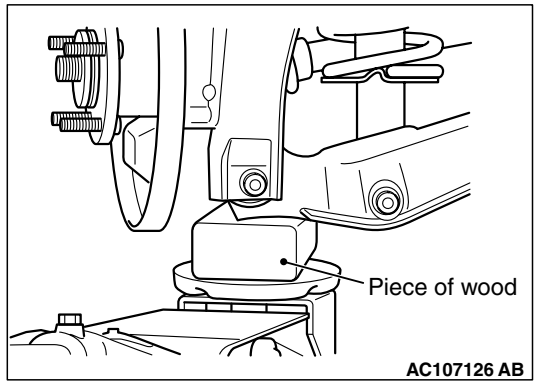
Removal steps (Continued)

4. Shock absorber and lower arm connecting bolt

>>A<< 5. Shock absorber assembly

REMOVAL SERVICE POINT

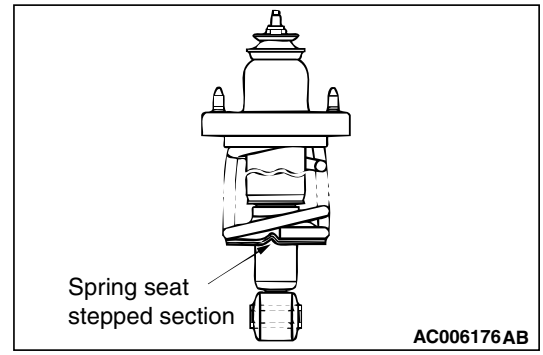
<<A>> LOWER ARM AND TRAILING ARM DISCONNECTION



After supporting the lower arm with a jack, separate the lower arm and trailing arm connection.

INSTALLATION SERVICE POINT

>>A<< SHOCK ABSORBER ASSEMBLY INSTALLATION



Install the spring seat stepped section so that it points towards the rear side of the vehicle.

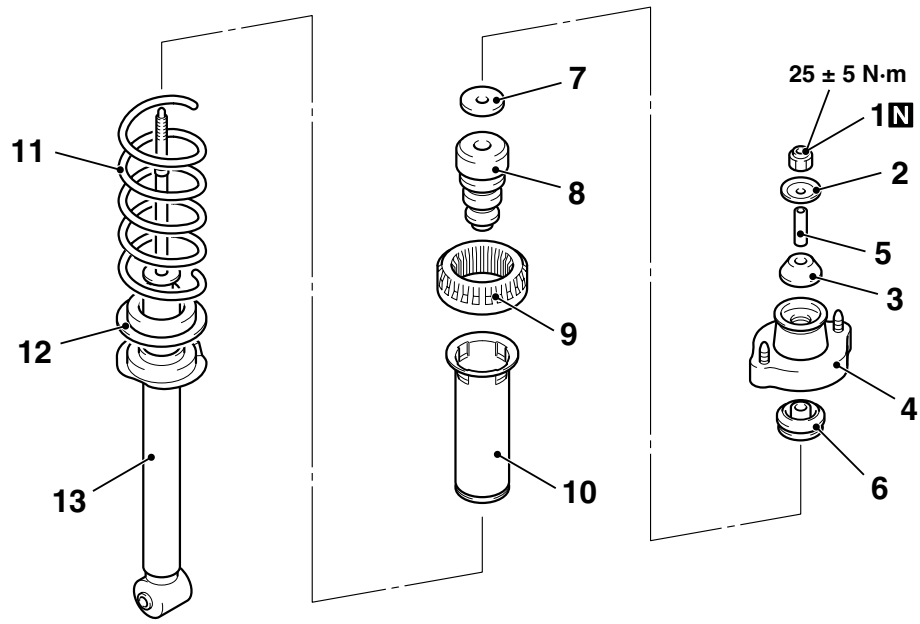
INSPECTION

M1341002600149

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

DISASSEMBLY AND REASSEMBLY

M1341005300211



Disassembly steps

<<A>>	>>D<<	1.	Self-locking nut
		2.	Washer
		3.	Upper bushing B
	>>C<<	4.	Bracket assembly
		5.	Collar
		6.	Upper bushing A
		7.	Plate
		8.	Bump rubber

Disassembly steps (Continued)

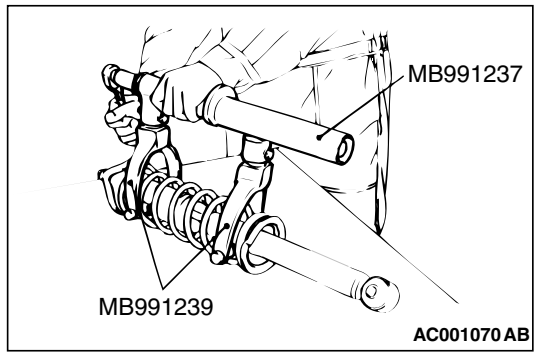
	>>A<<	9.	Upper spring pad
		10.	Dust cover
	>>B<<	11.	Coil spring
	>>A<<	12.	Lower spring pad
<<B>>		13.	Shock absorber

DISASSEMBLY SERVICE POINTS

<<A>> SELF-LOCKING NUT REMOVAL

⚠ CAUTION

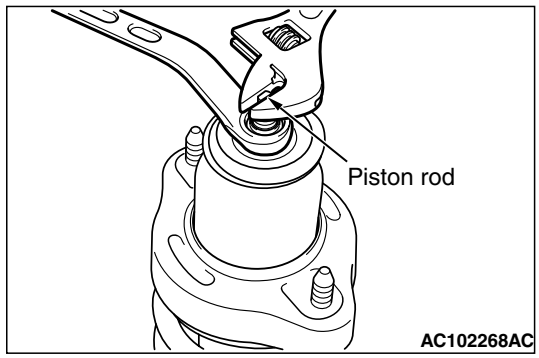
- **To hold the coil spring securely, install special tool arm set (MB991239) evenly, and so that the space between both arms of the special tool will be maximum within the installation range.**
- **Do not use an impact wrench to tighten the bolt of special tool spring compressor body (MB991237). It will break the special tool.**



1. Use following special tools to compress the coil spring.
   - MB991237: Spring Compressor Body
   - MB991239: Arm Set

⚠ WARNING

Do not use an impact wrench to remove the self-locking nut. Vibration of the impact wrench will cause special tools (MB991237 and MB991239) to slip and cause personal injury.

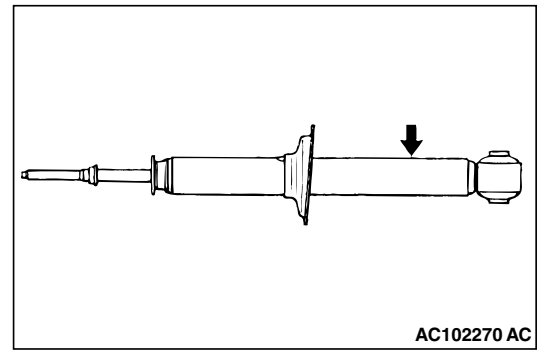


2. While holding the piston rod, remove the self-locking nut.

<<B>> SHOCK ABSORBER DISPOSAL

⚠ WARNING

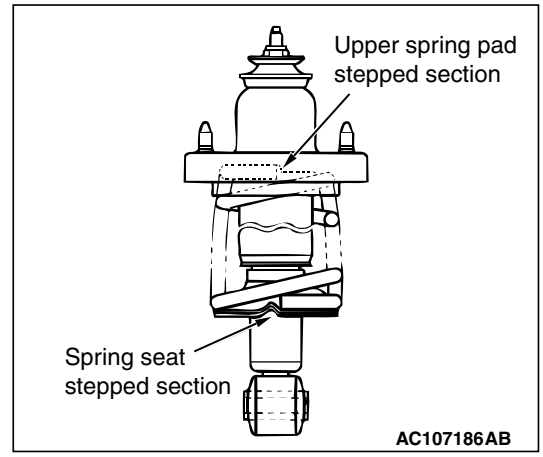
Wear goggles when drilling to protect your eyes from flying metal debris.



The gas must be discharged from the shock absorber before discarding it. Place the shock absorber horizontally with its piston rod extended. Then drill a hole of approximately 3 mm in diameter at the location shown in the illustration and discharge the gas.

REASSEMBLY SERVICE POINTS

>>A<< LOWER SPRING PAD/UPPER SPRING PAD INSTALLATION



<LOWER SPRING PAD>

Align the stepped section of the lower spring pad with the stepped section of the spring seat of the shock absorber, and install the lower spring pad.

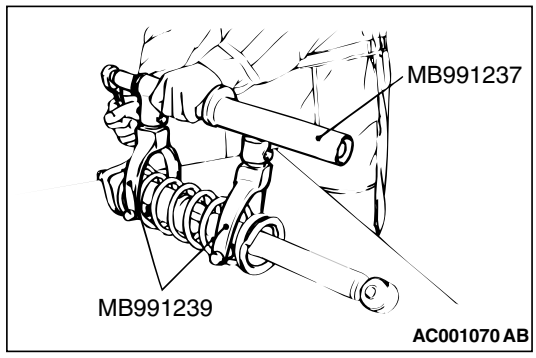
<UPPER SPRING PAD>

Align the stepped section of the upper spring pad with the end of the coil spring, and install the upper spring pad.

>>B<< COIL SPRING INSTALLATION

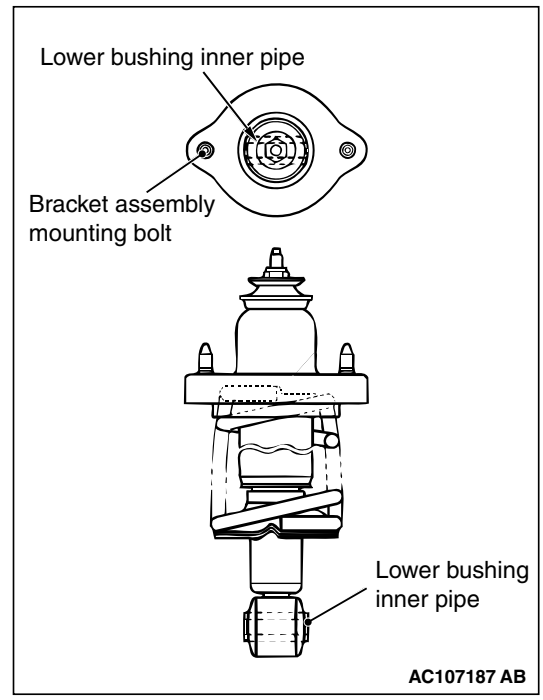
⚠ CAUTION

Do not use an impact wrench to tighten the bolt of special tool spring compressor body (MB991237). It will break the special tool.



1. Use following special tools to compress the coil spring, and install it to the lower spring pad.
   - MB991237: Spring Compressor Body
   - MB991239: Arm Set
2. Align the end of the coil spring with the stepped section of the lower spring pad.

>>C<< BRACKET ASSEMBLY INSTALLATION



Install the bracket assembly so that the lower bushing inner pipe of the shock absorber and the line between the bracket mounting bolts are straight when looking from above.

>>D<< SELF-LOCKING NUT INSTALLATION

1. Temporarily tighten the self-locking nut.

⚠ CAUTION

Do not use an impact wrench to tighten the self-locking nut, otherwise the self-locking nut will be damaged.

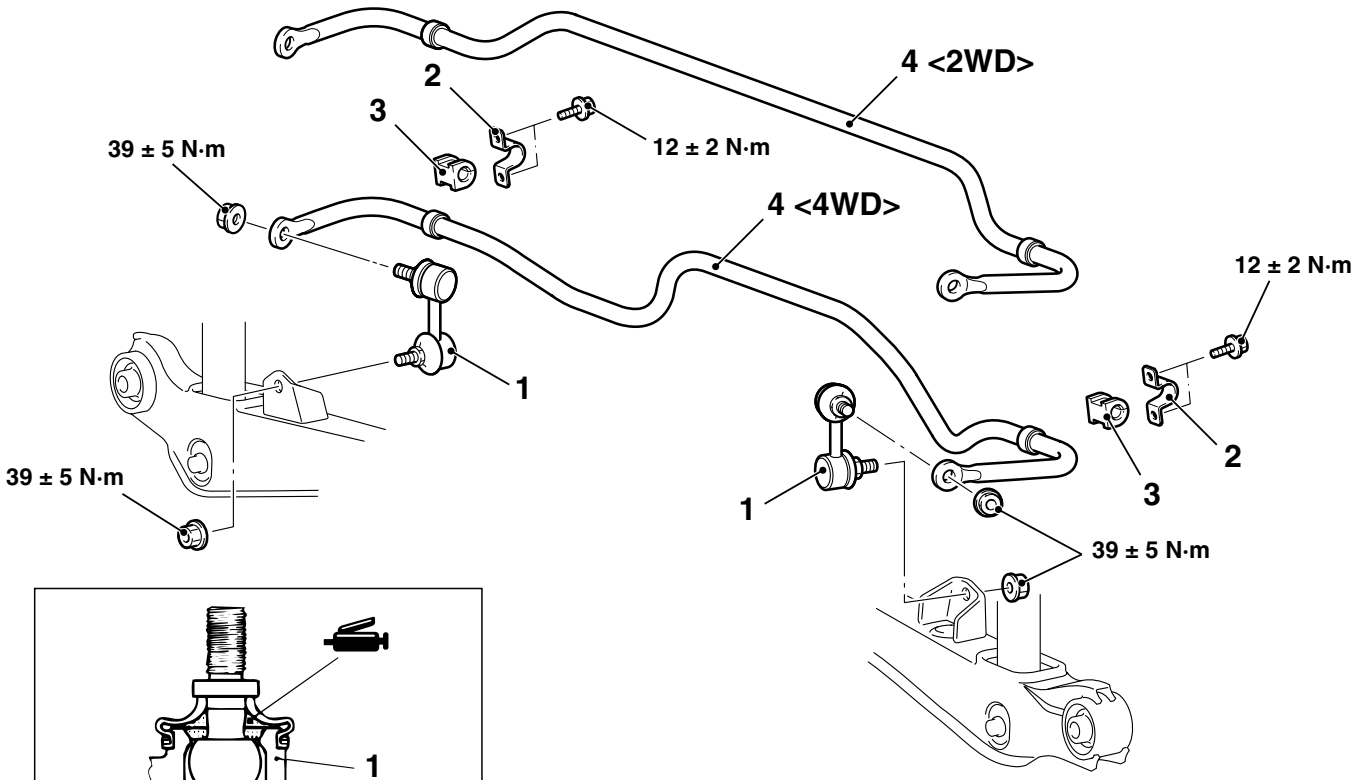
2. Remove the special tools, and then tighten the self-locking nut to 25 ± 5 N·m.

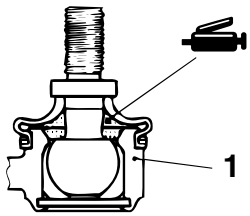
STABILIZER BAR

REMOVAL AND INSTALLATION

M1341003000236

Post-installation Operation
- Press the dust cover with your finger to check that there are no cracks or damage in the dust cover.





Specified grease:
Multipurpose grease SAE J310, NLGI No.2 or equivalent

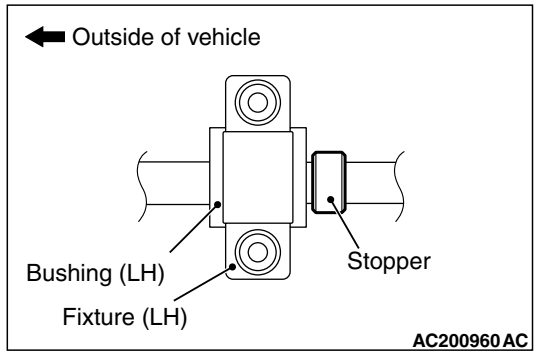
AC301224 AB

Removal steps
1. Stabilizer link
>>A<< 2. Fixture

Removal steps (Continued)
>>A<< 3. Bushing
>>A<< 4. Stabilizer bar

INSTALLATION SERVICE POINT

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



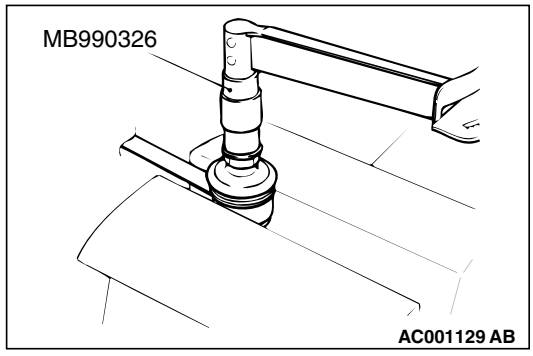
Install the stabilizer bar, the bushings and the fixtures so that the stoppers come inboard of the bushings.

INSPECTION

M1341001400272

- 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 TURNING TORQUE CHECK



1. After shaking the ball joint stud several times, install the nut to the stud and use special tool preload socket (MB990326) to measure the turning torque of the ball joint.

   Standard value: 1.7 – 3.1 N·m

2. If the measured value exceeds the standard value, replace the stabilizer link.
3. If the measured value is lower than the standard value, check that the ball joint turns smoothly without excessive play. If so, it is possible to re-use that ball joint.

STABILIZER LINK BALL JOINT DUST COVER CHECK

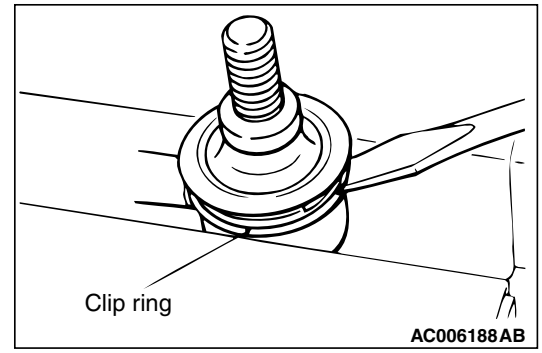
1. Check the dust cover for cracks or damage by pushing it with your finger.
2. If the dust cover is cracked or damaged, replace the stabilizer link.

   NOTE: Cracks or damage of the dust cover may cause damage to the ball joint. When it is damaged during service work, replace the dust cover (Refer to P.34-22).

STABILIZER LINK BALL JOINT DUST COVER REPLACEMENT

M1341010900220

Only when the dust cover is damaged accidentally during service work, replace the dust cover as follows:



1. Remove the clip ring and the dust cover.
2. Apply specified grease to the inside of a new dust cover.

   Specified grease: Multipurpose grease SAE J310, NLGI No.2 or equivalent

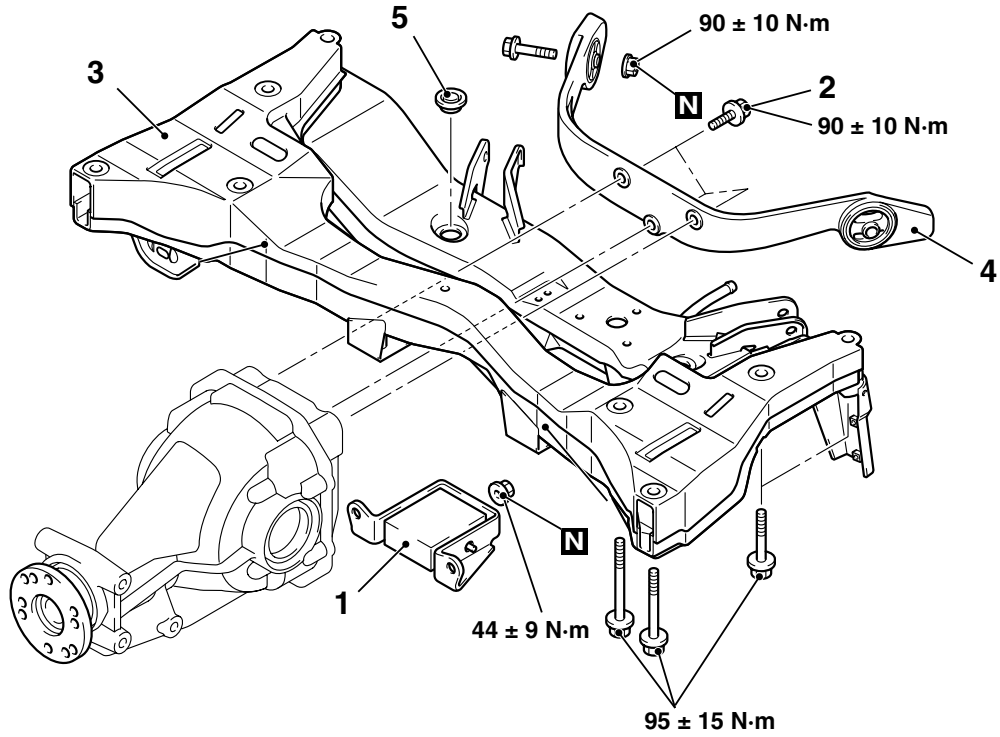
3. Wrap plastic tape around the stabilizer link stud, and then install the dust cover to the stabilizer link.
4. Secure the dust cover by the clip ring.
5. Check the dust cover for cracks or damage by pushing it with finger.

REAR SUSPENSION CROSSMEMBER

REMOVAL AND INSTALLATION

M1341006800156

Pre-removal Operation	Post-installation Operation
• Main Muffler, Centre Exhaust Pipe Removal (Refer to GROUP 15, Exhaust pipe and Main Muffler P.15-8). • Control Link, Upper Arm, Lower Arm Removal (Refer to P.34-7). • Stabilizer Bar Removal (Refer to P.34-21). • Fuel Filler Neck Protector Removal (Refer to GROUP 13B, Fuel Tank P.13B-7).	• Fuel Filler Neck Protector Installation (Refer to GROUP 13B, Fuel Tank P.13B-7). • Stabilizer Bar Installation (Refer to P.34-21). • Control Link, Upper Arm, Lower Arm Installation (Refer to P.34-7). • Main Muffler, Centre Exhaust Pipe Installation (Refer to GROUP 15, Exhaust pipe and Main Muffler P.15-8). • Rear Wheel Alignment Check and Adjustment (Refer to P.34-6).



AC107129 AB

Removal steps
1. Dynamic damper <4WD>
2. Differential support arm connecting bolt <4WD>

Removal steps (Continued)
3. Rear suspension crossmember
4. Differential support arm <4WD>
5. Plug

INSPECTION

M1341006900067

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

NOTES