

## GROUP 32

# POWER PLANT MOUNT

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## WARNINGS REGARDING SERVICING OF SUPPLEMENTAL RESTRAINT SYSTEM (SRS) EQUIPPED VEHICLES

 **WARNING**

- *Improper service or maintenance of any component of the SRS, or any SRS-related component, can lead to personal injury or death to service personnel (from inadvertent firing of the air bag) or to the driver and passenger (from rendering the SRS inoperative).*
- *Service or maintenance of any SRS component or SRS-related component must be performed only at an authorized MITSUBISHI dealer.*
- *MITSUBISHI dealer personnel must thoroughly review this manual, and especially its GROUP 52B - Supplemental Restraint System (SRS) before beginning any service or maintenance of any component of the SRS or any SRS-related component.*

## NOTE

The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, air bag module, side-airbag module, curtain air bag module, side impact sensors, seat belt pre-tensioners, clock spring, and interconnecting wiring. Other SRS-related components (that may have to be removed/installed in connection with SRS service or maintenance) are indicated in the table of contents by an asterisk (\*).

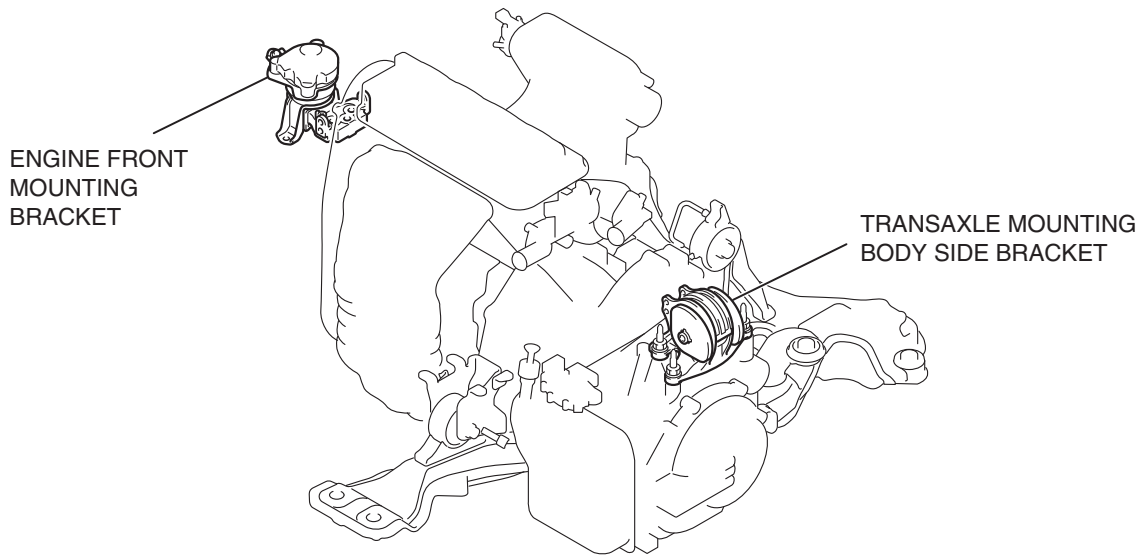
## GENERAL DESCRIPTION

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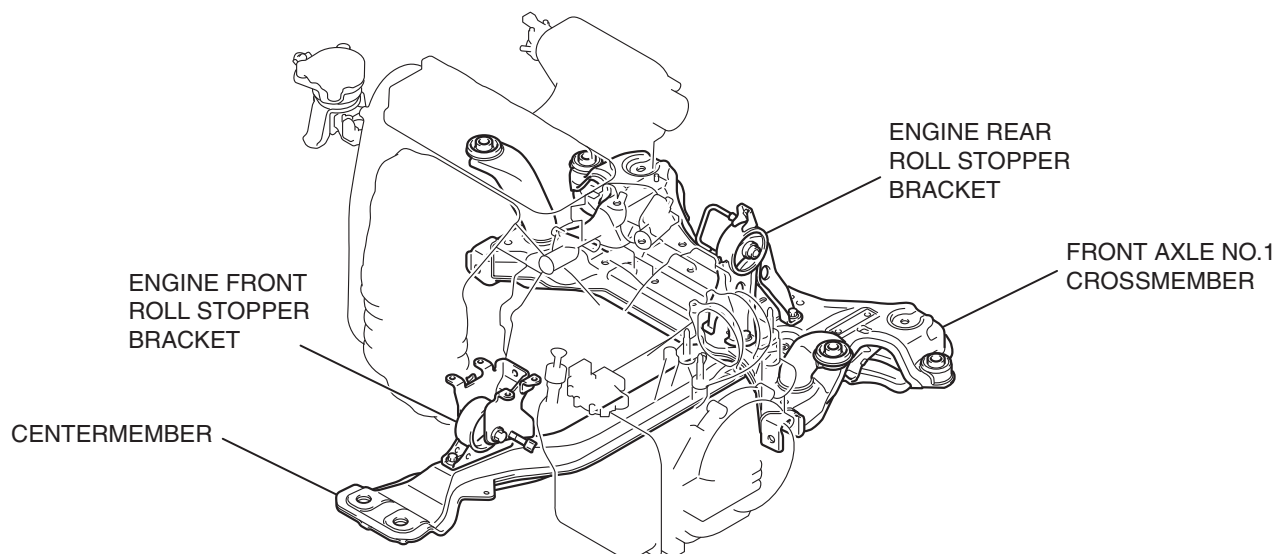
- The engine front mounting bracket is a dome-shaped fluid-filled mount for improved responsiveness during acceleration and more stable vehicle performance against road disturbances.
- The liquid-filled transaxle mounting body side bracket improves riding comfort by its refined insulator.
- A roll stopper bracket in the upper area limits engine rolling. Furthermore, large diameter insulator reduces idle vibration.

### CONSTRUCTION DIAGRAM

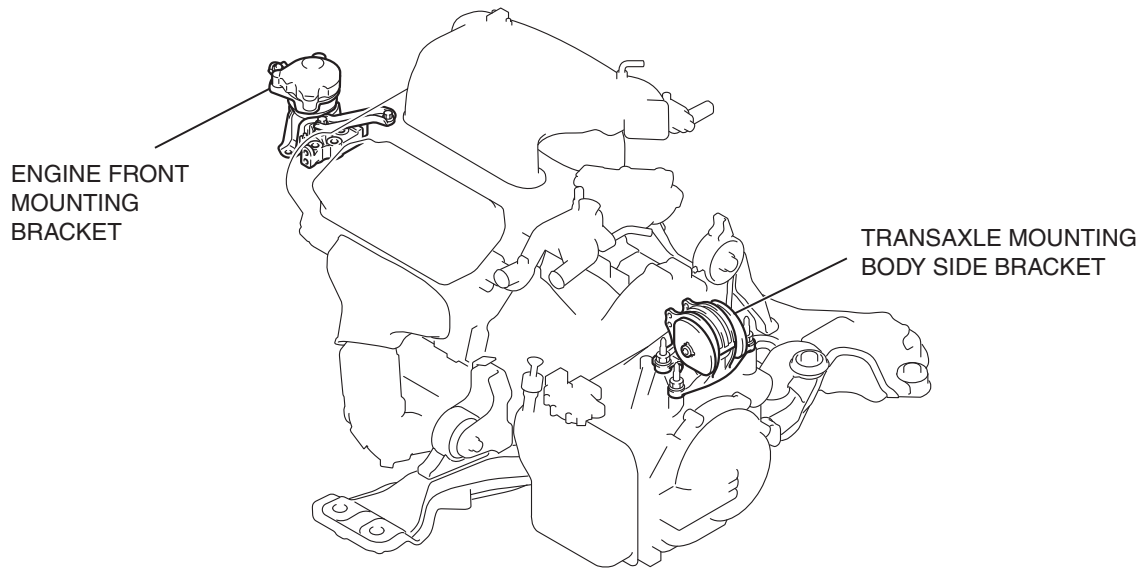
#### <2.4L ENGINE>



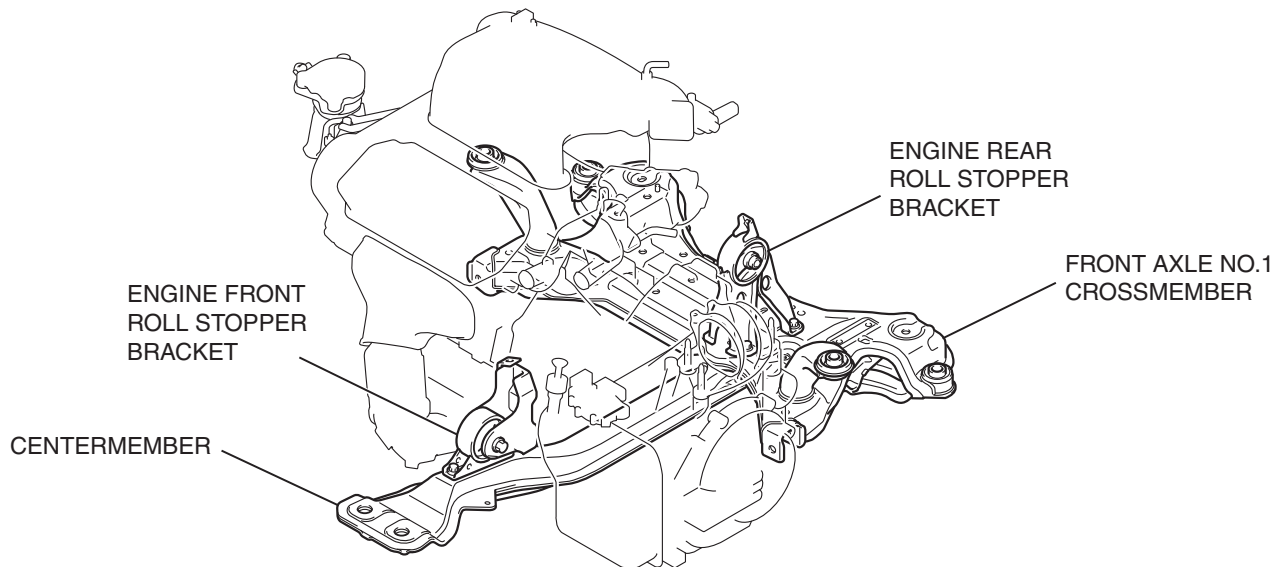
AC305857

AC305858  
AC305859AB

<3.8L ENGINE>



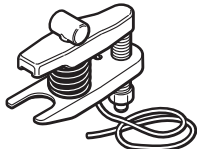
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AC305861  
AC406893AB

SPECIAL TOOL

M1321000600873

TOOL	TOOL NUMBER AND NAME	SUPERSESSON	APPLICATION
 <p>AC106827</p>	<p>MB991897 or MB992011 Ball joint remover</p>	<p>MB991113-01, MB990635-01 or General service tool</p>	<p>Knuckle and tie rod end ball joint disconnection</p> <p><i>NOTE: Steering linkage puller (MB990635 or MB991113) is also used to disconnect the knuckle and tie rod end ball joint.</i></p>

## ENGINE MOUNTING

## REMOVAL AND INSTALLATION

M1321001101755

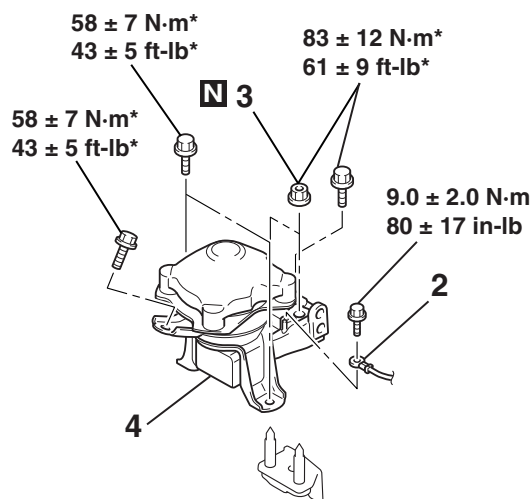
**CAUTION**

\*: Indicates parts which should be initially tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.

**Pre-removal Operation**

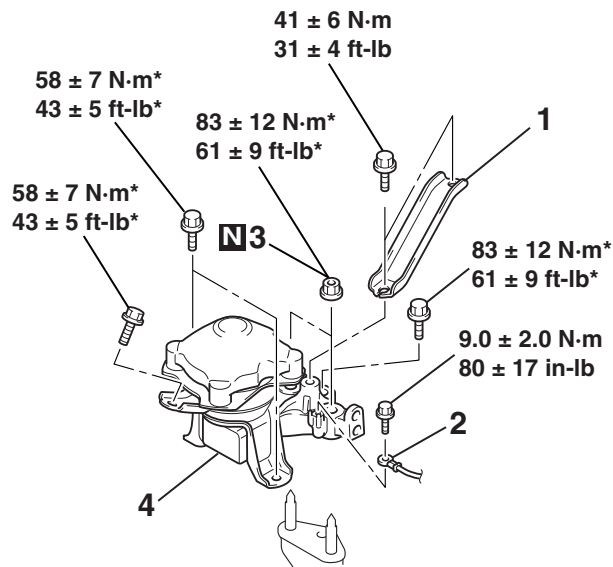
Raise the engine and transaxle assembly until its weight is not applied to the insulator, and support it securely.

## &lt;2.4L ENGINE&gt;



- REMOVAL STEPS**
1. ENGINE MOUNTING STAY  
<3.8L ENGINE>
  2. GROUNDING CABLE CONNECTION

## &lt;3.8L ENGINE&gt;



- REMOVAL STEPS (Continued)**
- POWER STEERING OIL RESERVOIR
  - 3. SELF-LOCKING NUTS
  - 4. ENGINE FRONT MOUNTING BRACKET

AC307311AC

&lt;&lt;A&gt;&gt;

## REMOVAL SERVICE POINT

<<A>> POWER STEERING OIL RESERVOIR  
REMOVAL

1. With the hose installed, remove the power steering oil reservoir from the vehicle. (Refer to GROUP 37, Power Steering Hoses P.37-58).
2. After removing the power steering oil reservoir, secure it with a cord in the location where the removal and installation of the engine front mounting bracket cannot be hindered.

## TRANSAXLE MOUNTING

## REMOVAL AND INSTALLATION &lt;2.4L ENGINE&gt;

M1321001401370

**CAUTION**

\*: Indicates parts which should be initially tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.

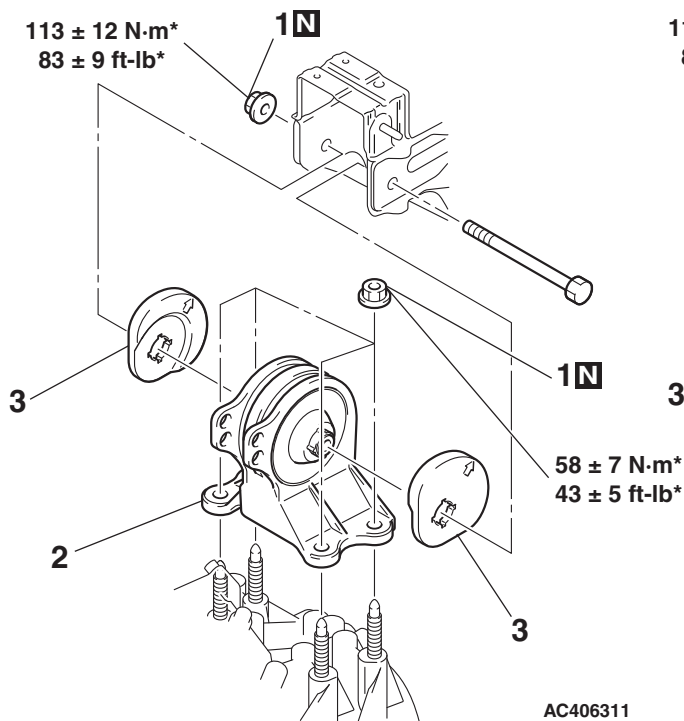
**Pre-removal Operation**

- ECM <M/T> or PCM <M/T> Removal [Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) [P.13A-1247](#)].
- Air Cleaner Removal (Refer to GROUP 15, Air Cleaner [P.15-4](#)).
- Battery, Battery Tray and Battery Bracket Removal
- Centermember Removal (Refer to [P.32-9](#)).
- Engine Rear Roll Stopper Bracket Removal (Refer to [P.32-9](#)).
- Raise the engine and transaxle assembly until its weight is not applied to the insulator, and support it securely.

**Post-installation Operation**

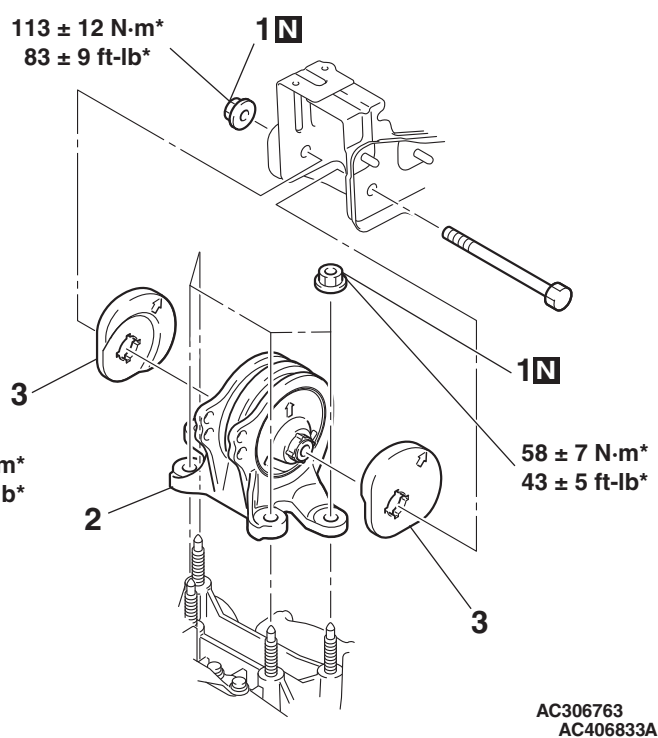
- Engine Rear Roll Stopper Bracket Installation (Refer to [P.32-9](#)).
- Centermember Installation (Refer to [P.32-9](#)).
- Battery, Battery Tray and Battery Bracket Installation
- Air Cleaner Installation (Refer to GROUP 15, Air Cleaner [P.15-4](#)).
- ECM <M/T> or PCM <M/T> Installation [Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) [P.13A-1247](#)].

&lt;M/T&gt;

**REMOVAL STEPS**

- FRONT NO.1 EXHAUST PIPE AND FRONT NO.2 EXHAUST PIPE CONNECTION (REFER TO GROUP 15, EXHAUST PIPE AND MAIN MUFFLER [P.15-24](#)).
1. SELF-LOCKING NUTS

&lt;A/T&gt;

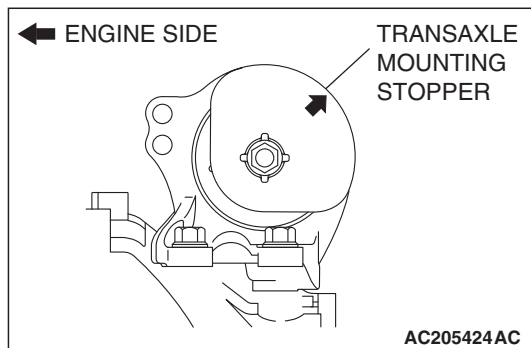
**REMOVAL STEPS (Continued)**

2. TRANSAXLE MOUNTING BODY SIDE BRACKET
  3. TRANSAXLE MOUNTING STOPPER
- >>A<<

## INSTALLATION SERVICE POINT

>>A<< TRANSAXLE MOUNTING STOPPER  
INSTALLATION

Install the transaxle mounting stopper so that its arrow points upward.



## REMOVAL AND INSTALLATION <3.8L ENGINE>

M1321001401381

### ⚠ CAUTION

\*: Indicates parts which should be initially tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.

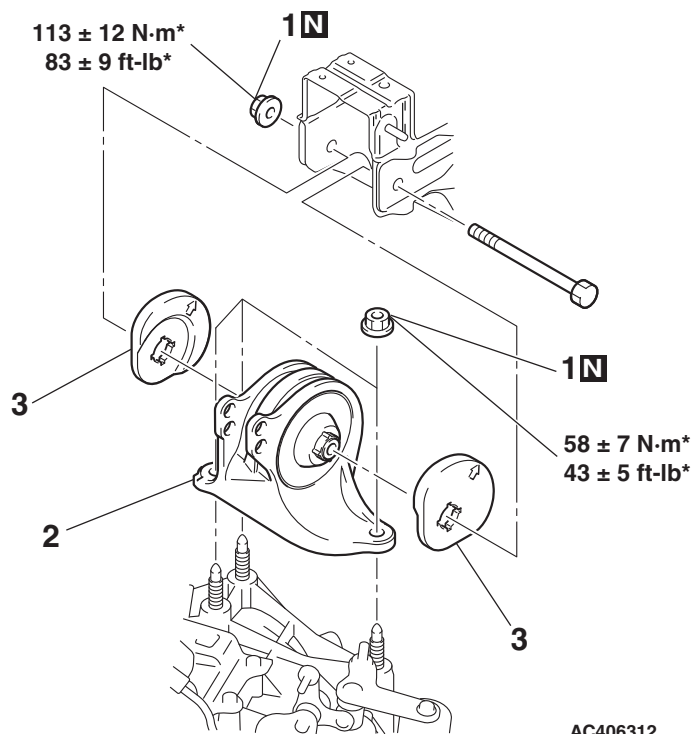
#### Pre-removal Operation

- ECM <M/T> or PCM <M/T> Removal [Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) [P.13B-1291](#)].
- Air Cleaner Removal (Refer to GROUP 15, Air Cleaner [P.15-5](#)).
- Battery, Battery Tray and Battery Bracket Removal
- Centermember Removal (Refer to [P.32-9](#)).
- Engine Rear Roll Stopper Bracket Removal (Refer to [P.32-9](#)).
- Raise the engine and transaxle assembly until its weight is not applied to the insulator, and support it securely.

#### Post-installation Operation

- Engine Rear Roll Stopper Bracket Installation (Refer to [P.32-9](#)).
- Centermember Installation (Refer to [P.32-9](#)).
- Battery, Battery Tray and Battery Bracket Installation
- Air Cleaner Installation (Refer to GROUP 15, Air Cleaner [P.15-5](#)).
- ECM <M/T> or PCM <M/T> Installation [Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) [P.13B-1291](#)].

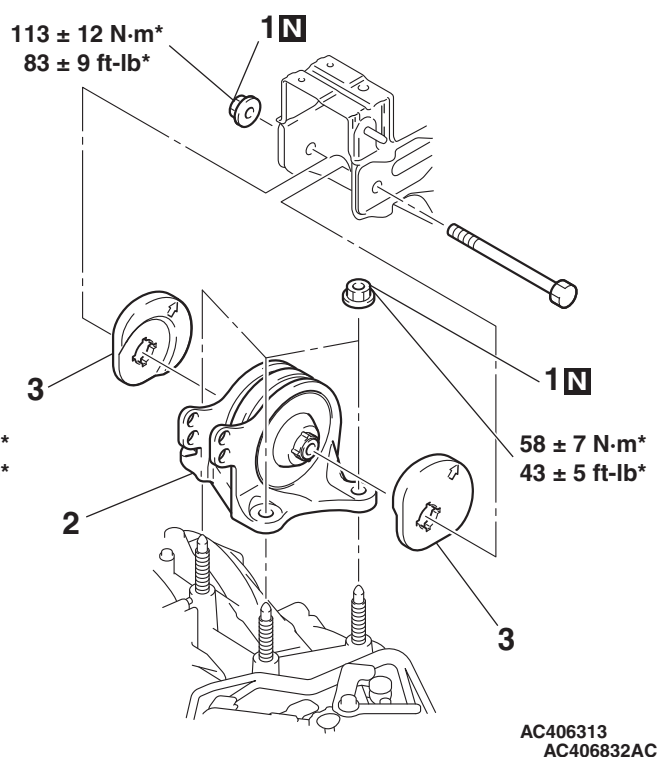
<M/T>



#### REMOVAL STEPS

- FRONT NO.1 EXHAUST PIPE AND FRONT NO.2 EXHAUST PIPE CONNECTION (REFER TO GROUP 15, EXHAUST PIPE AND MAIN MUFFLER [P.15-26](#)).
1. SELF-LOCKING NUTS

<A/T>



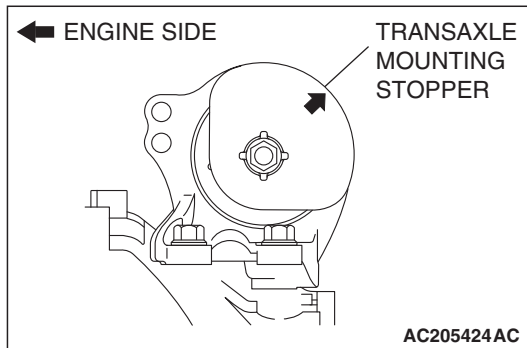
#### REMOVAL STEPS (Continued)

2. TRANSAXLE MOUNTING BODY SIDE BRACKET
3. TRANSAXLE MOUNTING STOPPER

## INSTALLATION SERVICE POINT

>>A<< TRANSAXLE MOUNTING STOPPER  
INSTALLATION

Install the transaxle mounting stopper so that its arrow points upward.



# ENGINE ROLL STOPPER AND CENTERMEMBER

## REMOVAL AND INSTALLATION

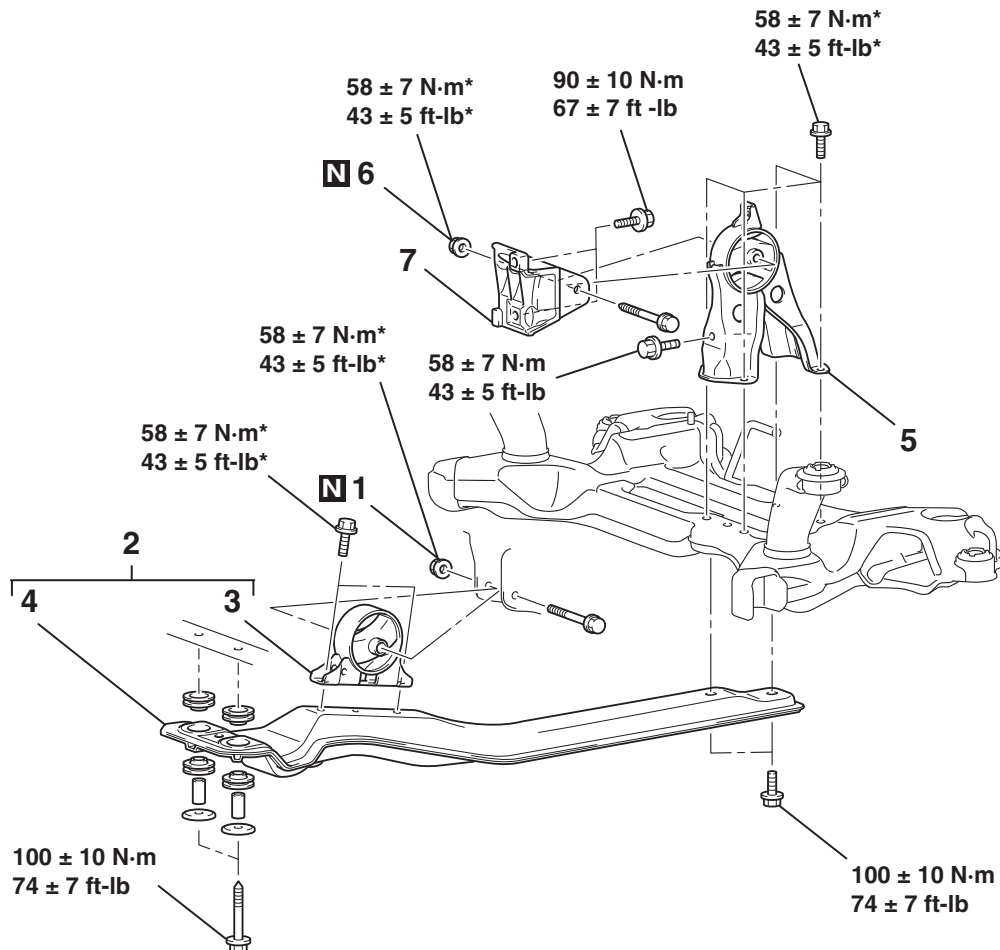
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### CAUTION

\*: Indicates parts which should be initially tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.

#### Pre-removal and Post-installation Operation

- Side Under Cover Removal and Installation (Refer to GROUP 51, Under Cover P.51-8).



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#### FRONT ROLL STOPPER AND CENTERMEMBER REMOVAL STEPS

1. SELF-LOCKING NUT
2. ENGINE FRONT ROLL STOPPER BRACKET AND CENTERMEMBER
- >>B<< 3. ENGINE FRONT ROLL STOPPER BRACKET
4. CENTERMEMBER

#### REAR ROLL STOPPER REMOVAL STEPS

- FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY (REFER TO P.32-11).
- >>A<< 5. ENGINE REAR ROLL STOPPER BRACKET

**REAR ROLL STOPPER  
BRACKET REMOVAL STEPS**

- FRONT NO.1 EXHAUST PIPE AND FRONT NO.2 EXHAUST PIPE CONNECTION (REFER TO GROUP 15, EXHAUST PIPE AND MAIN MUFFLER [P.15-24](#)<2.4L ENGINE>, [P.15-26](#)<3.8L ENGINE>).

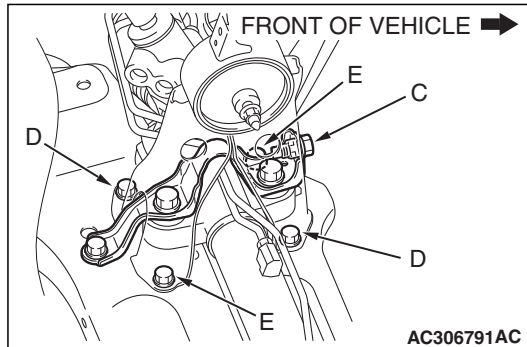
**REAR ROLL STOPPER  
BRACKET REMOVAL STEPS**

1. SELF-LOCKING NUT
2. ENGINE FRONT ROLL STOPPER BRACKET AND CENTERMEMBER
6. SELF-LOCKING NUT
7. TRANSAXLE CASE REAR ROLL STOPPER BRACKET

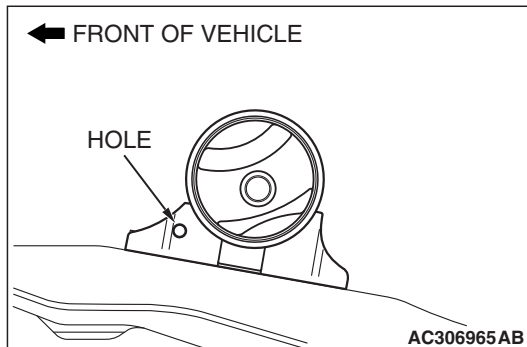
**INSTALLATION SERVICE POINTS****>>A<< ENGINE REAR ROLL STOPPER BRACKET  
INSTALLATION**

Tighten the bolts in the following sequence:

1. Tighten bolts E finger tight.
2. Tighten bolt C and then tighten bolts D.
3. Tighten bolts E.

**>>B<< ENGINE FRONT ROLL STOPPER  
BRACKET INSTALLATION**

Install the engine front roll stopper bracket so that its hole points towards the front side of the vehicle.



# CROSSMEMBER

## REMOVAL AND INSTALLATION

M1321003201673

### CAUTION

- Before removing the steering wheel and air bag module assembly, always refer to GROUP 52B – Service Precautions (P.52B-28), Air bag Module and Clock Spring (P.52B-423). Also, set the front wheels so that they are facing straight forward, and remove the ignition key. If you fail to do this, the SRS clock spring will be damaged, causing the SRS air bag to be inoperative and serious injury.
- \*1: Indicates parts which should be initially tightened, and then fully tightened after placing the vehicle horizontally and loading the full weight of the engine on the vehicle body.
- \*2: Indicates parts which should be temporarily tightened, and then fully tightened with the vehicle on the ground in the unladen condition.

#### Pre-removal Operation

- Power Steering Fluid Draining (Refer to GROUP 37, On-vehicle Service – Fluid Replacement P.37-20).
- Air Bag Module and Steering Wheel Assembly Removal (Refer to GROUP 37, Steering Wheel P.37-27).
- Clock Spring Removal (Refer to GROUP 52B, Air Bag Module and Clock Spring P.52B-423).
- Accelerator Stopper Removal (Refer to GROUP 17, Accelerator Pedal P.17-9).
- Centermember Removal (Refer to P.32-9).

#### Post-installation Operation

- Centermember Installation (Refer to P.32-9).
- Accelerator Stopper Installation (Refer to GROUP 17, Accelerator Pedal P.17-9).
- Clock Spring Installation (Refer to GROUP 52B, Air Bag Module and Clock Spring P.52B-423).
- Steering Wheel Assembly and Air Bag Module Installation (Refer to GROUP 37, Steering P.37-27).
- Check the dust cover for cracks or damage by pushing it with your finger.
- Power Steering Fluid Supplying (Refer to GROUP 37, On-vehicle Service – Fluid Replacement P.37-20).
- Power Steering Fluid Line Bleeding (Refer to GROUP 37, On-vehicle Service – Power Steering System Air Bleeding P.37-21).
- Checking Steering Wheel Position with Wheels Straight Ahead.
- Front Wheel Alignment Adjustment (Refer to GROUP 33, On-vehicle Service – Front Wheel Alignment Check and Adjustment P.33-6).



## REMOVAL STEPS (Continued)

- ## TSB Revision

**REMOVAL STEPS (Continued)**

9. O-RING  
10. PRESSURE HOSE CONNECTION  
11. O-RING  
12. PRESSURE HOSE CLAMP  
13. SELF-LOCKING NUT  
14. SELF-LOCKING NUTS  
15. SELF-LOCKING NUTS  
16. FRONT AXLE CROSSMEMBER STAY  
17. ENGINE REAR ROLL STOPPER BRACKET, POWER STEERING GEAR AND LINKAGE, STABILIZER BAR AND FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY

**REMOVAL STEPS (Continued)**

18. ENGINE REAR ROLL STOPPER BRACKET  
19. POWER STEERING GEAR BRACKET  
20. STEERING GEAR AND LINKAGE PROTECTOR <3.8L ENGINE>  
21. POWER STEERING GEAR AND LINKAGE  
22. STABILIZER BAR  
23. FRONT AXLE NO.1 CROSSMEMBER

**Required Special Tool:**

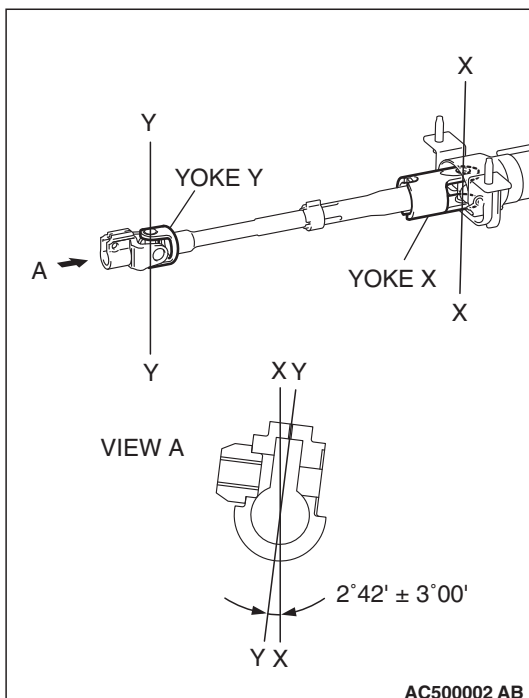
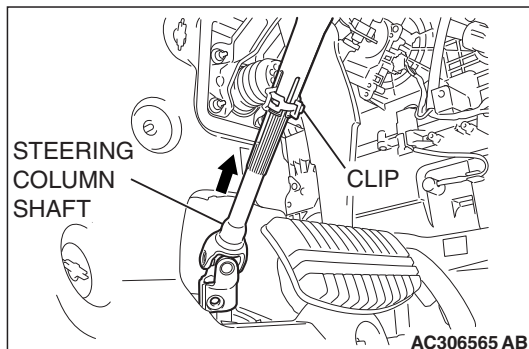
- MB991897 or MB992011: Ball Joint Remover

**REMOVAL SERVICE POINTS**

**<<A>> STEERING COLUMN ASSEMBLY AND STEERING GEAR DISCONNECTION**

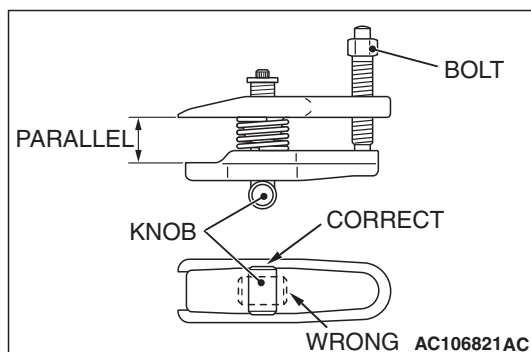
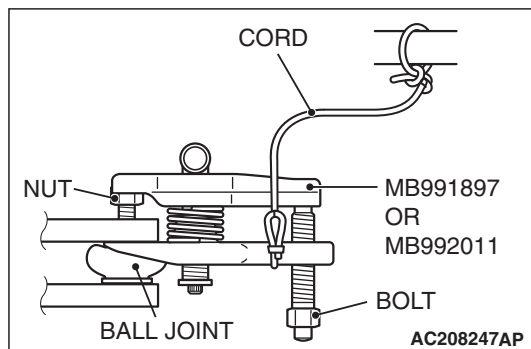
Pinch the steering column shaft clip with pliers, and pull up the shaft in the direction shown to disengage the steering column assembly.

*NOTE: If the steering column shaft is removed accidentally, remove the steering column assembly and be sure to insert the steering column shaft into the steering column as shown in the figure.*



<<B>> SELF LOCKING NUTS (CONNECTION FOR  
TIE ROD END AND LOWER ARM BALL JOINT)  
REMOVAL**⚠ CAUTION**

- Do not remove the nut from ball joint. Loosen it and use the special tool to avoid possible damage to ball joint threads.
- Hang the special tool with a cord to prevent it from falling.



1. Replace the self locking nut for lower arm ball joint with a regular nut, because the original one too bit large to install special tool MB991897 or MB992011. Install the special tool as shown in the figure.

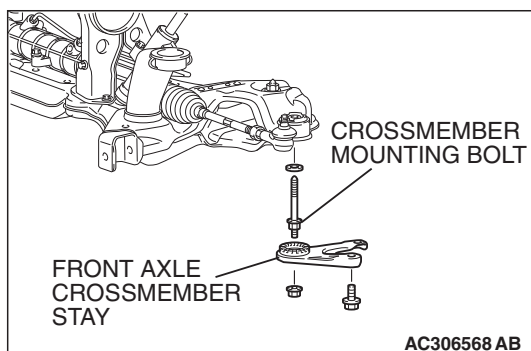
2. Turn the bolt and knob as necessary to make the jaws of special tool parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

*NOTE: When adjusting the jaws in parallel, make sure the knob is in the position shown in the figure.*

3. Tighten the bolt with a wrench to disconnect the lower arm ball joint, tie rod end and remove the self locking nut.

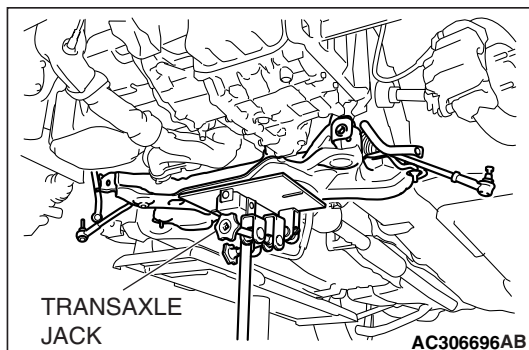
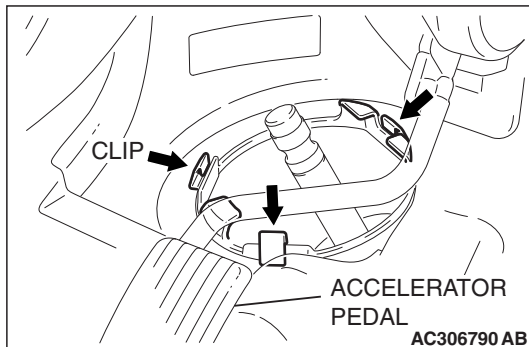
<<C>> FRONT AXLE CROSSMEMBER STAY  
REMOVAL

The crossmember mounting bolts should not be unscrewed when the front axle crossmember stay is replaced. However, the bolts may become loosed when the front axle crossmember stay is removed. Retighten the bolts to  $180 \pm 20$  N·m ( $133 \pm 15$  ft-lb).



## <<D>> ENGINE REAR ROLL STOPPER BRACKET, POWER STEERING GEAR AND LINKAGE, STABILIZER BAR AND FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY REMOVAL

1. From inside the vehicle, loosen the 3 shown clips from the body panel.

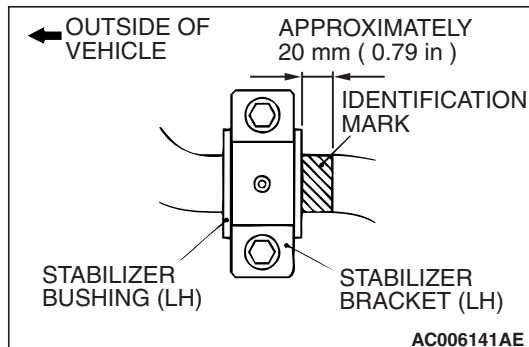


2. Use a transaxle jack to hold the crossmember, and then remove the crossmember mounting nuts and bolts.
3. Lower the crossmember with the rear roll stopper, the stabilizer bar and the steering gear.

## INSTALLATION SERVICE POINTS

### >>A<< STABILIZER BAR INSTALLATION

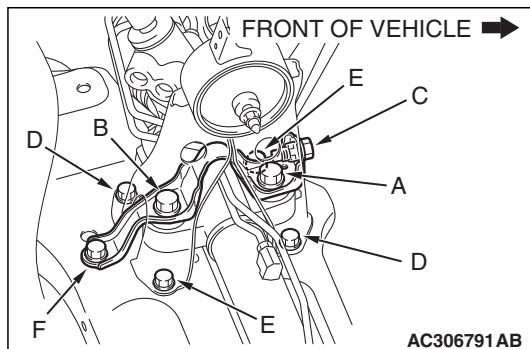
Align the stabilizer bar identification mark with the right end of the bushing (LH).



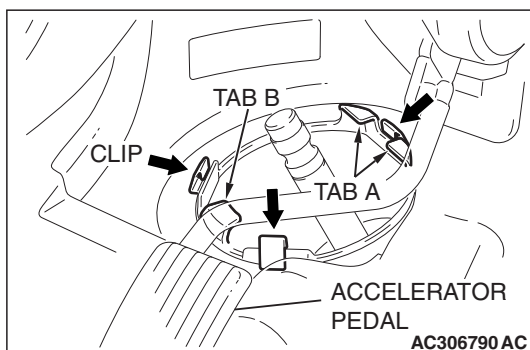
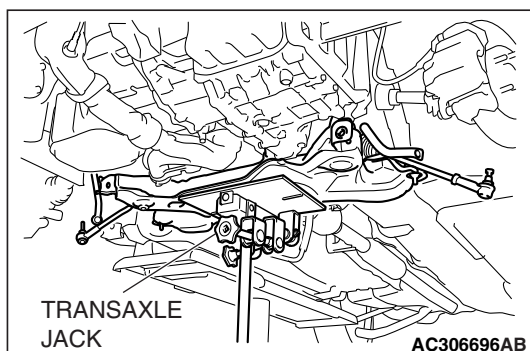
**>>B<< POWER STEERING GEAR  
BRACKET/ENGINE REAR ROLL STOPPER  
BRACKET INSTALLATION**

Tighten the bolts in the following sequence:

1. Tighten bolt A and then tighten bolt B.
2. Tighten bolts E finger tight.
3. Tighten bolt C and then tighten bolts D.
4. Tighten bolts E and then tighten bolt F.

**>>C<< ENGINE REAR ROLL STOPPER BRACKET,  
POWER STEERING GEAR AND LINKAGE,  
STABILIZER BAR AND FRONT AXLE NO.1  
CROSSMEMBER ASSEMBLY INSTALLATION**

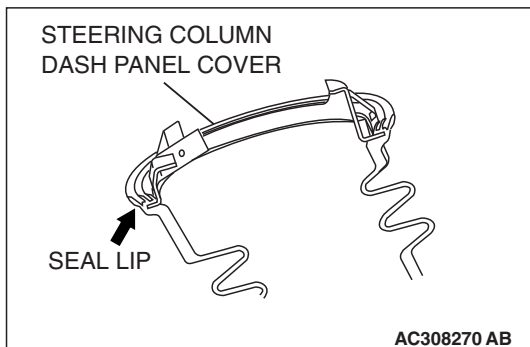
1. Use a transaxle jack to lift the crossmember assembly.

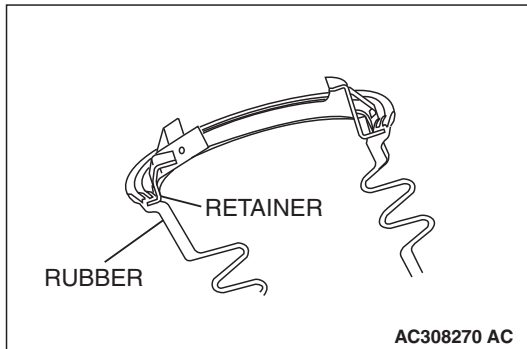


2. From inside the vehicle, pull tab A and then tab B to secure the three clips to the body panel.

*NOTE: When securing the steering column dash panel cover to the body panel, be careful that the seal lip does not move backwards.*

3. Check that it has been secured by pressing down the tip of the clips by your finger. Also check that the steering column dash panel cover is installed securely to the steering gear.

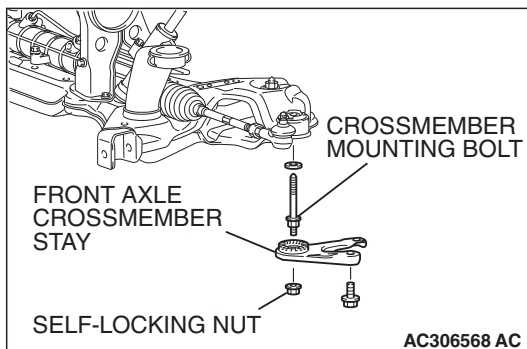




4. After installing the steering column dash panel cover, check that the steering column dash panel cover rubber is not disengaged from the retainer. If there is any doubt, release the clips from the body, engage the rubber again and reinstall to the body.
5. Tighten the crossmember mounting nuts and bolts.

### >>D<< FRONT AXLE CROSSMEMBER STAY/SELF-LOCKING NUTS INSTALLATION

Ensure that the crossmember mounting bolts have been tightened to  $180 \pm 20 \text{ N}\cdot\text{m}$  ( $133 \pm 15 \text{ ft}\cdot\text{lb}$ ), and then install the front crossmember stay with the self-locking nut.



### INSPECTION

- Check the crossmembers for cracks or damage.

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## SPECIFICATIONS

### FASTENER TIGHTENING SPECIFICATIONS

M1321004100579

ITEM		SPECIFICATION
<b>Crossmember</b>		
Engine rear roll stopper bracket bolt and nut		$58 \pm 7 \text{ N}\cdot\text{m}$ ( $43 \pm 5 \text{ ft}\cdot\text{lb}$ )
Front axle crossmember stay bolt		$100 \pm 10 \text{ N}\cdot\text{m}$ ( $74 \pm 7 \text{ ft}\cdot\text{lb}$ )
Front axle crossmember stay nut		$83 \pm 12 \text{ N}\cdot\text{m}$ ( $61 \pm 9 \text{ ft}\cdot\text{lb}$ )
Front axle No.1 crossmember bolt and nut		$180 \pm 20 \text{ N}\cdot\text{m}$ ( $133 \pm 15 \text{ ft}\cdot\text{lb}$ )
Lower arm assembly bolt		$165 \pm 15 \text{ N}\cdot\text{m}$ ( $122 \pm 11 \text{ ft}\cdot\text{lb}$ )
Lower arm assembly nut (flange nut, self-locking)	M14	$165 \pm 15 \text{ N}\cdot\text{m}$ ( $122 \pm 11 \text{ ft}\cdot\text{lb}$ )
Lower arm assembly nut (nut, self-locking)	M14	$65 \pm 6 \text{ N}\cdot\text{m}$ ( $48 \pm 4 \text{ ft}\cdot\text{lb}$ )
Power steering gear and linkage bolt		$83 \pm 12 \text{ N}\cdot\text{m}$ ( $61 \pm 9 \text{ ft}\cdot\text{lb}$ )
Power steering gear bracket bolt	M10	$58 \pm 7 \text{ N}\cdot\text{m}$ ( $43 \pm 5 \text{ ft}\cdot\text{lb}$ )
	M12	$83 \pm 12 \text{ N}\cdot\text{m}$ ( $61 \pm 9 \text{ ft}\cdot\text{lb}$ )
Pressure hose clamp bolt and nut		$12 \pm 2 \text{ N}\cdot\text{m}$ ( $102 \pm 22 \text{ in}\cdot\text{lb}$ )
Pressure hose nut		$15 \pm 3 \text{ N}\cdot\text{m}$ ( $11 \pm 2 \text{ ft}\cdot\text{lb}$ )
Return tube clamp bolt and nut		$12 \pm 2 \text{ N}\cdot\text{m}$ ( $102 \pm 22 \text{ in}\cdot\text{lb}$ )

ITEM		SPECIFICATION
Return tube nut		15 ± 3 N·m (11 ± 2 ft-lb)
Stabilizer bracket bolt		58 ± 7 N·m (43 ± 5 ft-lb)
Stabilizer link nut		48 ± 7 N·m (36 ± 5 ft-lb)
Steering column assembly bolt		18 ± 2 N·m (13 ± 2 ft-lb)
Steering gear and linkage protector bolt <3.8L ENGINE>		12 ± 2 N·m (102 ± 22 in-lb)
Tie rod end nut		29 ± 4 N·m (21 ± 3 ft-lb)
<b>Engine mounting</b>		
Engine front mounting bracket bolt	M10	58 ± 7 N·m (43 ± 5 ft-lb)
Engine front mounting bracket bolt and nut	M12	83 ± 12 N·m (61 ± 9 ft-lb)
Engine mounting stay bolt <3.8L ENGINE>		41 ± 6 N·m (31 ± 4 ft-lb)
Grounding cable bolt		9.0 ± 2.0 N·m (80 ± 17 in-lb)
<b>Engine roll stopper and centermember</b>		
Centermember bolt		100 ± 10 N·m (74 ± 7 ft-lb)
Engine front roll stopper bracket bolt and nut		58 ± 7 N·m (43 ± 5 ft-lb)
Engine rear roll stopper bracket bolt and nut		58 ± 7 N·m (43 ± 5 ft-lb)
Transaxle case rear roll stopper bracket bolt		90 ± 10 N·m (67 ± 7 ft-lb)
<b>Transaxle mounting</b>		
Transaxle mounting body side bracket nut (body side)		113 ± 12 N·m (83 ± 9 ft-lb)
Transaxle mounting body side bracket nut (transaxle side)		58 ± 7 N·m (43 ± 5 ft-lb)