

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.*

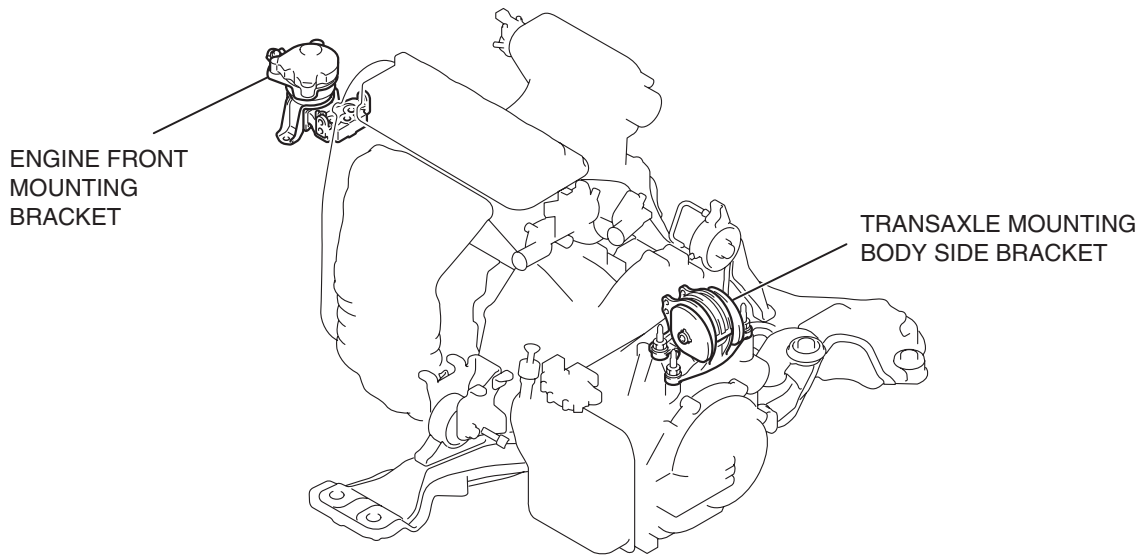
NOTE

The SRS includes the following components: SRS air bag control unit, SRS warning light, front impact sensors, air bag module, 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 (*).

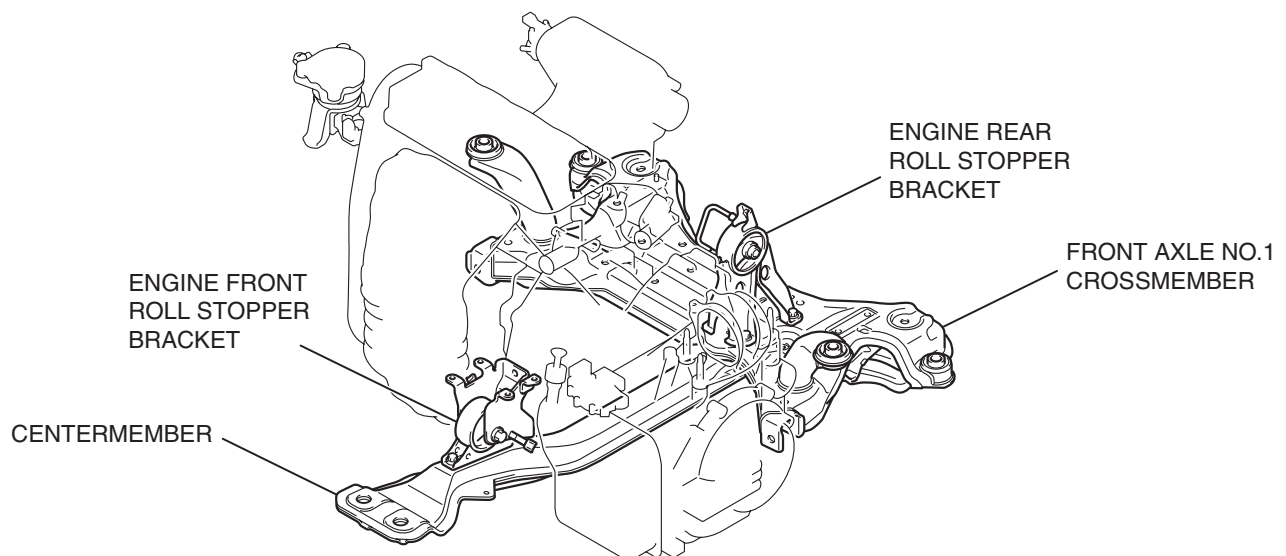
GENERAL DESCRIPTION

M1321000100618

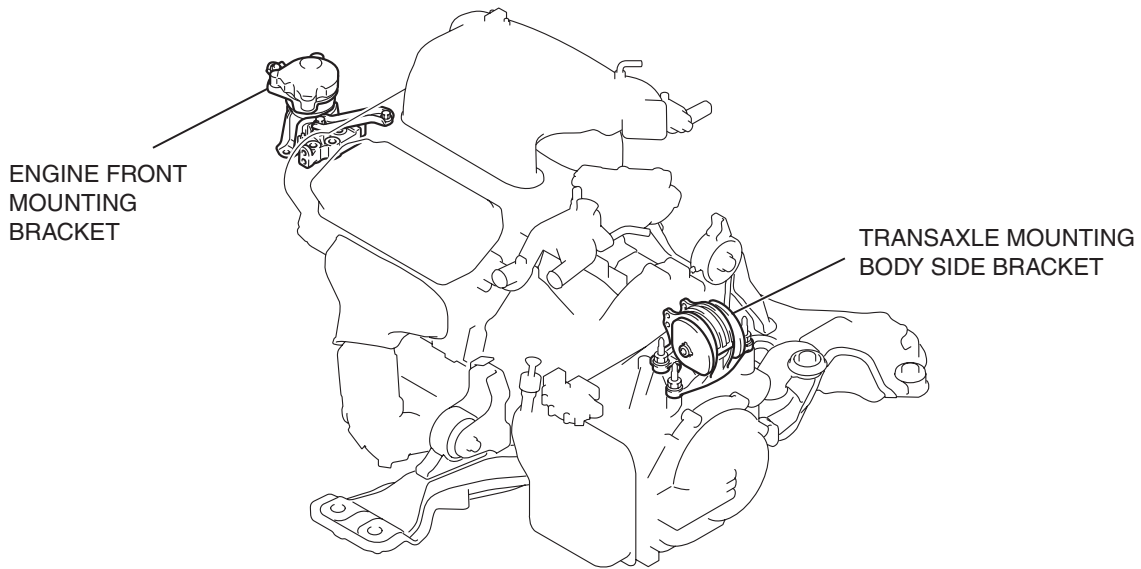
- The engine front mounting bracket is a dome-shaped fluid-filled mount for improved responsiveness during acceleration and more stable vehicle performance against road disturbances.
- The liquid-filled transaxle mounting body side bracket improves riding comfort by its refined insulator.
- A roll stopper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

CONSTRUCTION DIAGRAM**<2.4L ENGINE>**

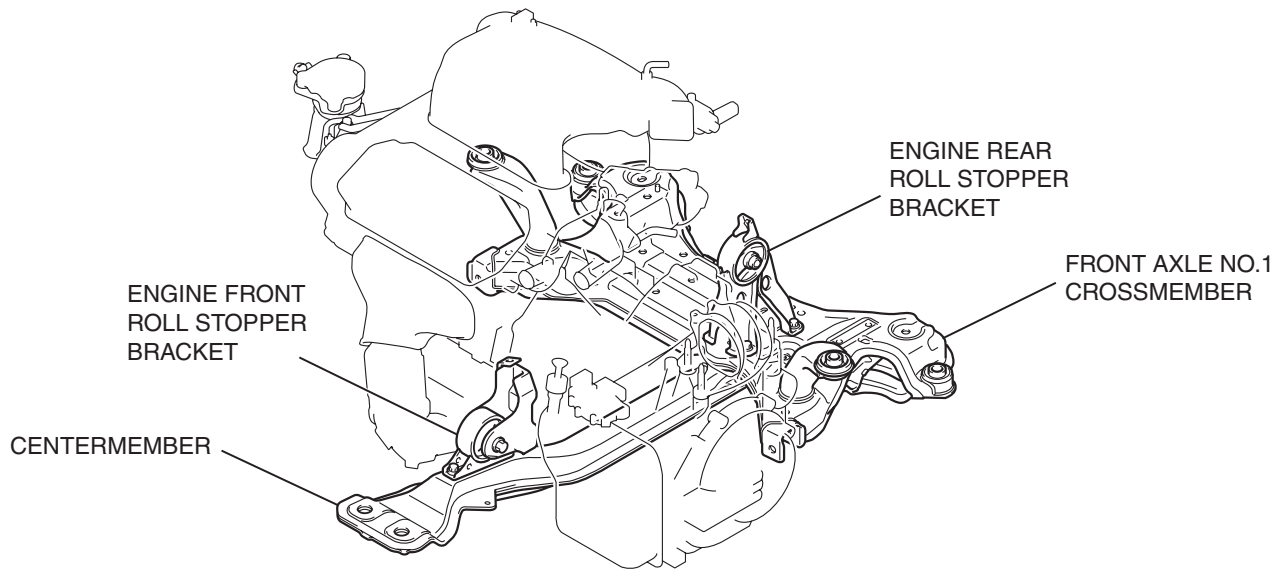
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AC305858
AC305859AB

<3.8L ENGINE>



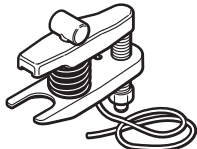
AC305860



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SPECIAL TOOL

M1321000600550

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

ENGINE MOUNTING

REMOVAL AND INSTALLATION

M1321001100901

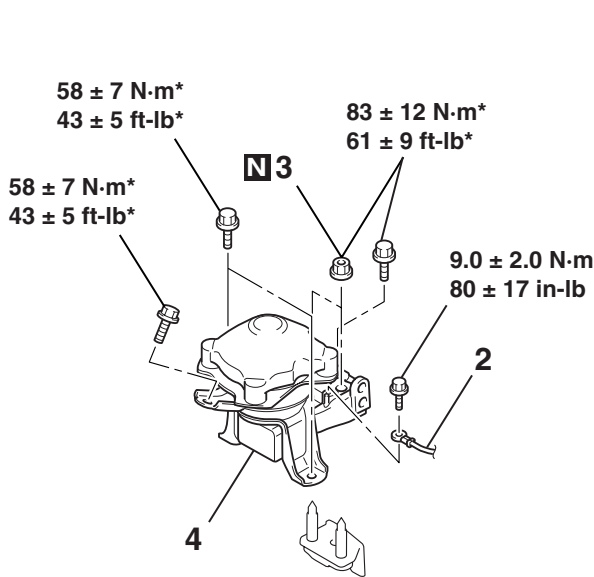
CAUTION

*: 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.

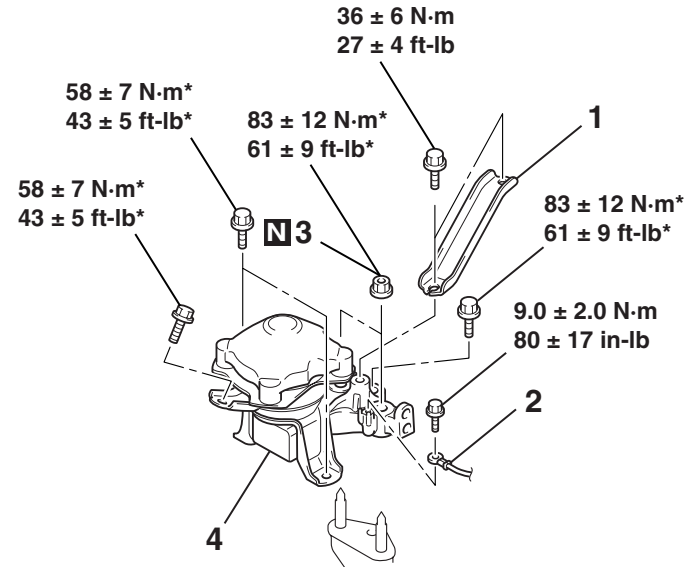
Pre-removal Operation

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

<2.4L ENGINE>



<3.8L ENGINE>



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REMOVAL STEPS

1. ENGINE MOUNTING STAY <3.8L ENGINE> <<A>>
2. GROUNDING CABLE CONNECTION

REMOVAL STEPS (Continued)

- POWER STEERING OIL RESERVOIR
- 3. SELF-LOCKING NUTS
- 4. ENGINE FRONT MOUNTING BRACKET

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.37-59).
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 <2.4L ENGINE>

M1321001400775

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.

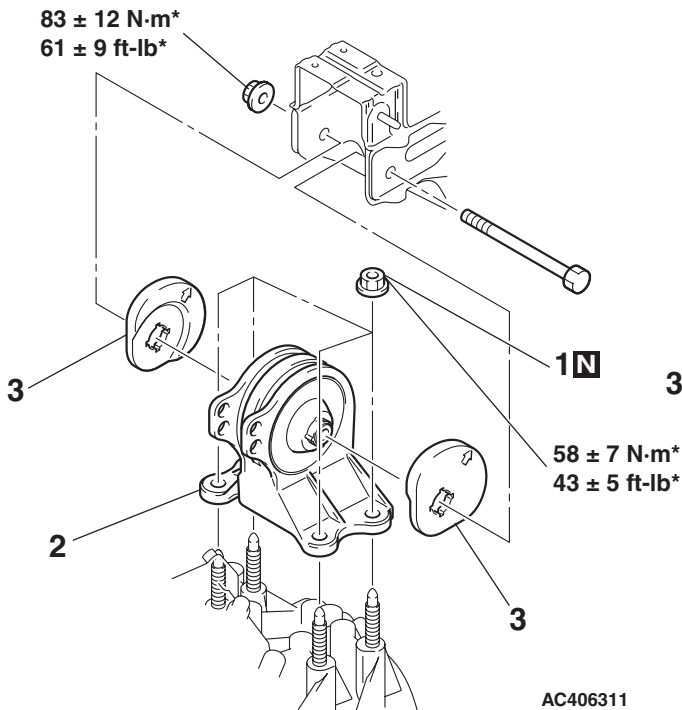
Pre-removal Operation

- ECM <M/T> or PCM <M/T> Removal [Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214].
- 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

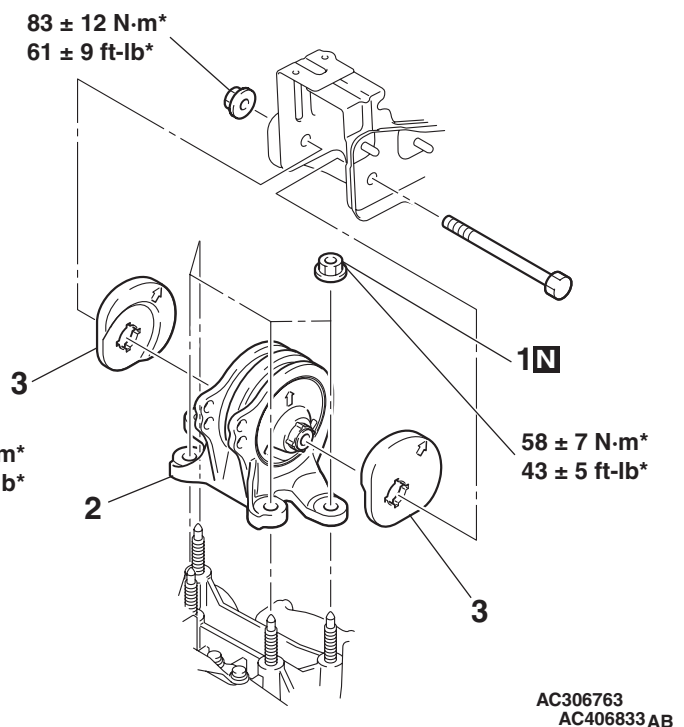
- Engine Rear Roll Stopper Bracket Installation (Refer to P.32-9).
- Centermember Installation (Refer to P.32-9).
- Battery, Battery Tray and Battery Bracket Installation
- Air Cleaner Installation (Refer to GROUP 15, Air Cleaner P.15-4).
- ECM <M/T> or PCM <M/T> Installation [Refer to GROUP 13A, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13A-1214].

<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.15-23).
1. SELF-LOCKING NUTS

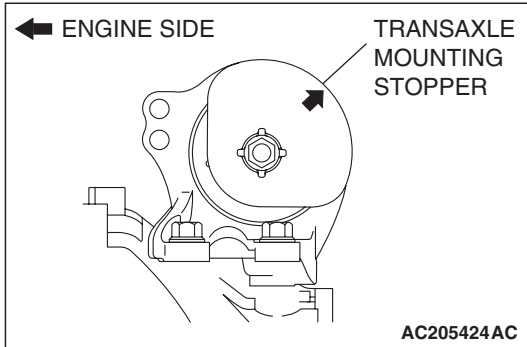
<A/T>



- 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>

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.

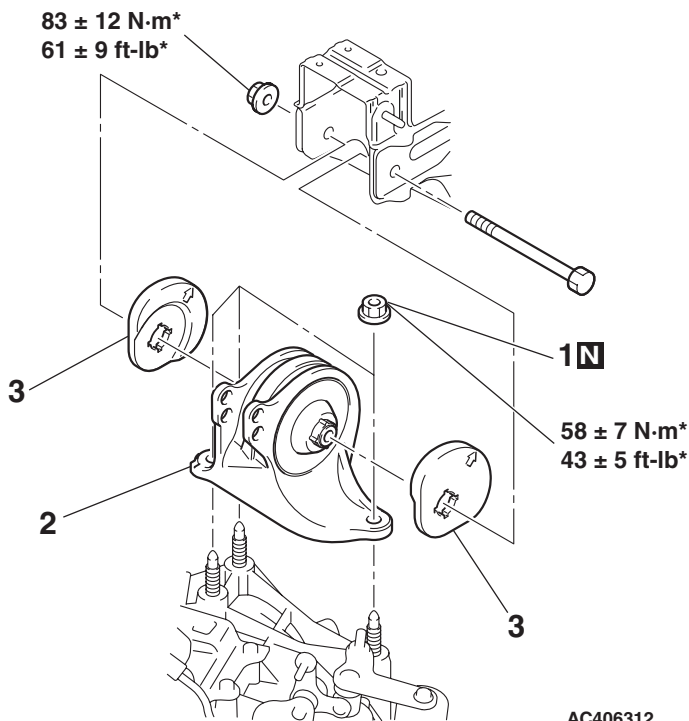
Pre-removal Operation

- ECM <M/T> or PCM <M/T> Removal [Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295].
- 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

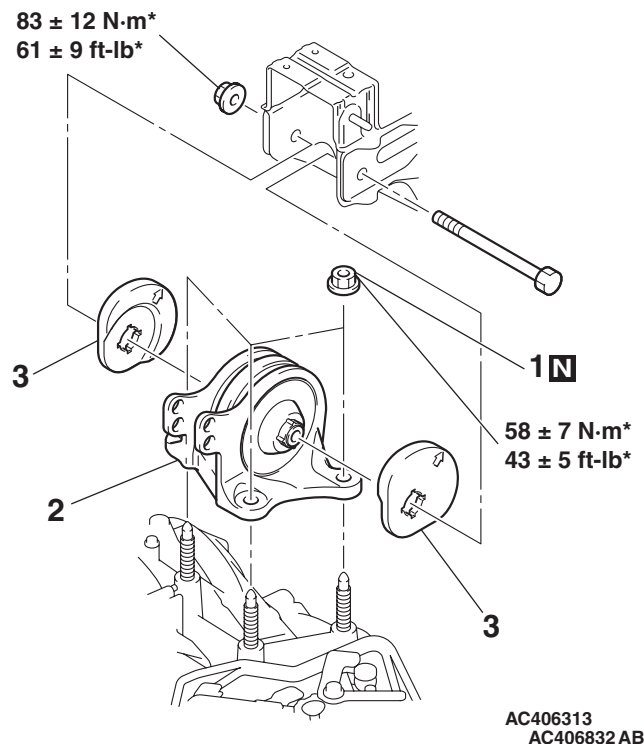
- Engine Rear Roll Stopper Bracket Installation (Refer to P.32-9).
- Centermember Installation (Refer to P.32-9).
- Battery, Battery Tray and Battery Bracket Installation
- Air Cleaner Installation (Refer to GROUP 15, Air Cleaner P.15-5).
- ECM <M/T> or PCM <M/T> Installation [Refer to GROUP 13B, Engine Control Module (ECM) and Powertrain Control Module (PCM) P.13B-1295].

<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.15-24).
1. SELF-LOCKING NUTS

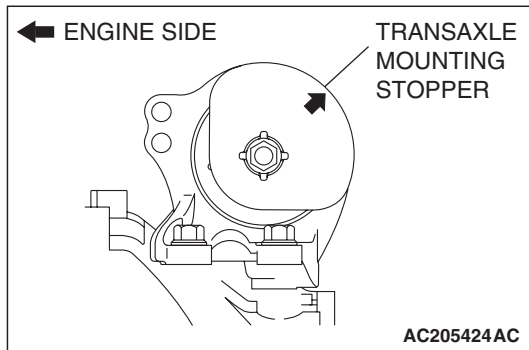
<A/T>



- 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.



ENGINE ROLL STOPPER AND CENTERMEMBER

REMOVAL AND INSTALLATION

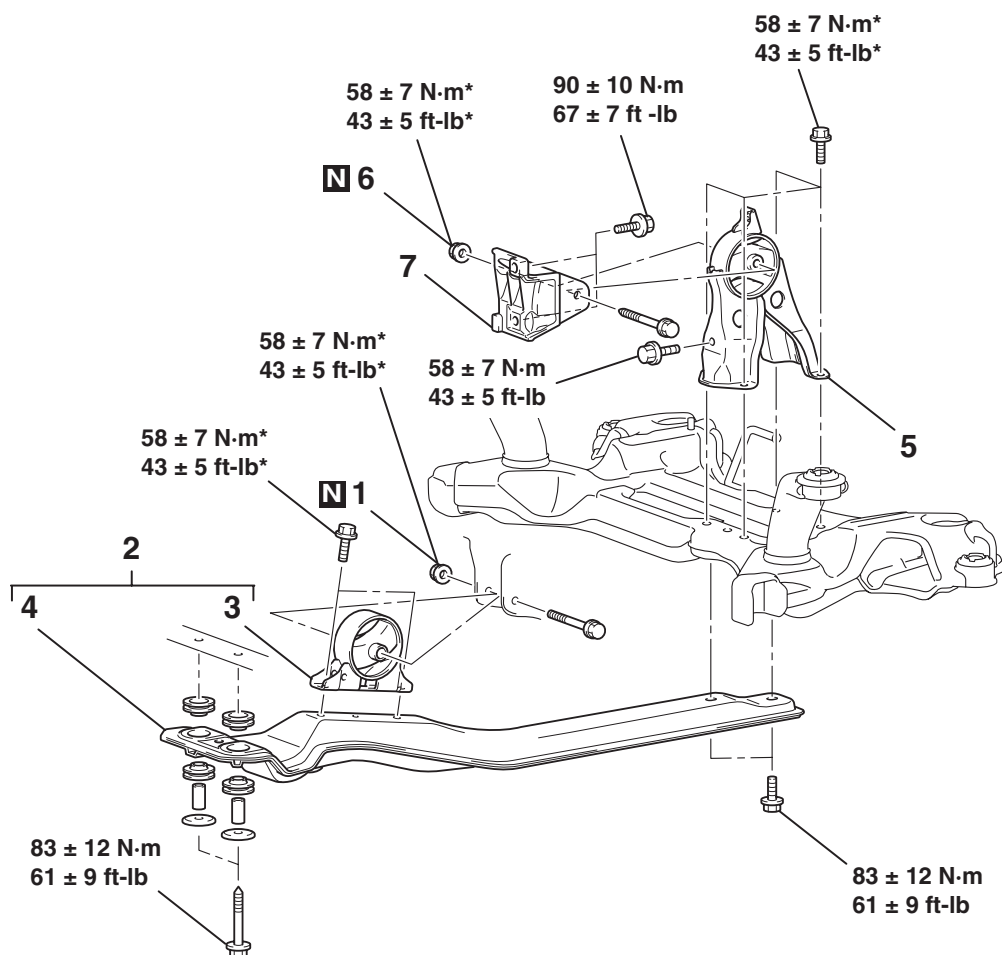
M1321002300481

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

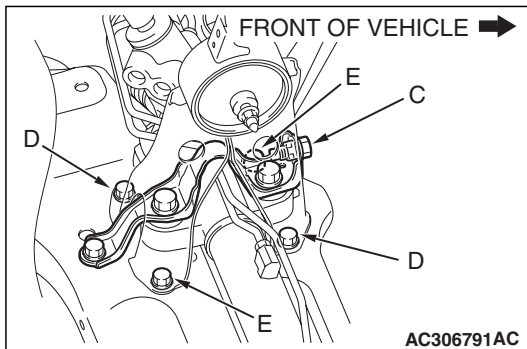
**REAR ROLL STOPPER
BRACKET REMOVAL STEPS**

- FRONT NO.1 EXHAUST PIPE AND FRONT NO.2 EXHAUST PIPE CONNECTION (REFER TO GROUP 15, EXHAUST PIPE AND MAIN MUFFLER P.15-23<2.4L ENGINE>, P.15-24<3.8L ENGINE>).
1. SELF-LOCKING NUT
 2. ENGINE FRONT ROLL STOPPER BRACKET AND CENTERMEMBER
 6. SELF-LOCKING NUT
 7. TRANSAXLE CASE REAR ROLL STOPPER BRACKET

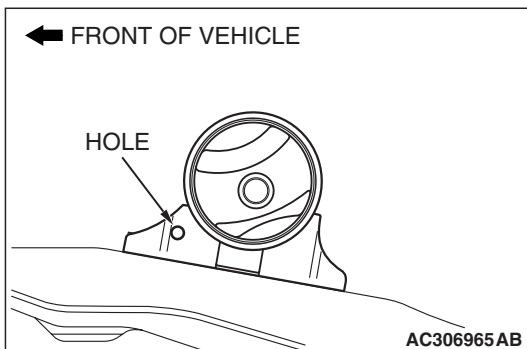
INSTALLATION SERVICE POINTS**>>A<< ENGINE REAR ROLL STOPPER BRACKET
INSTALLATION**

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

M1321003200625

CAUTION

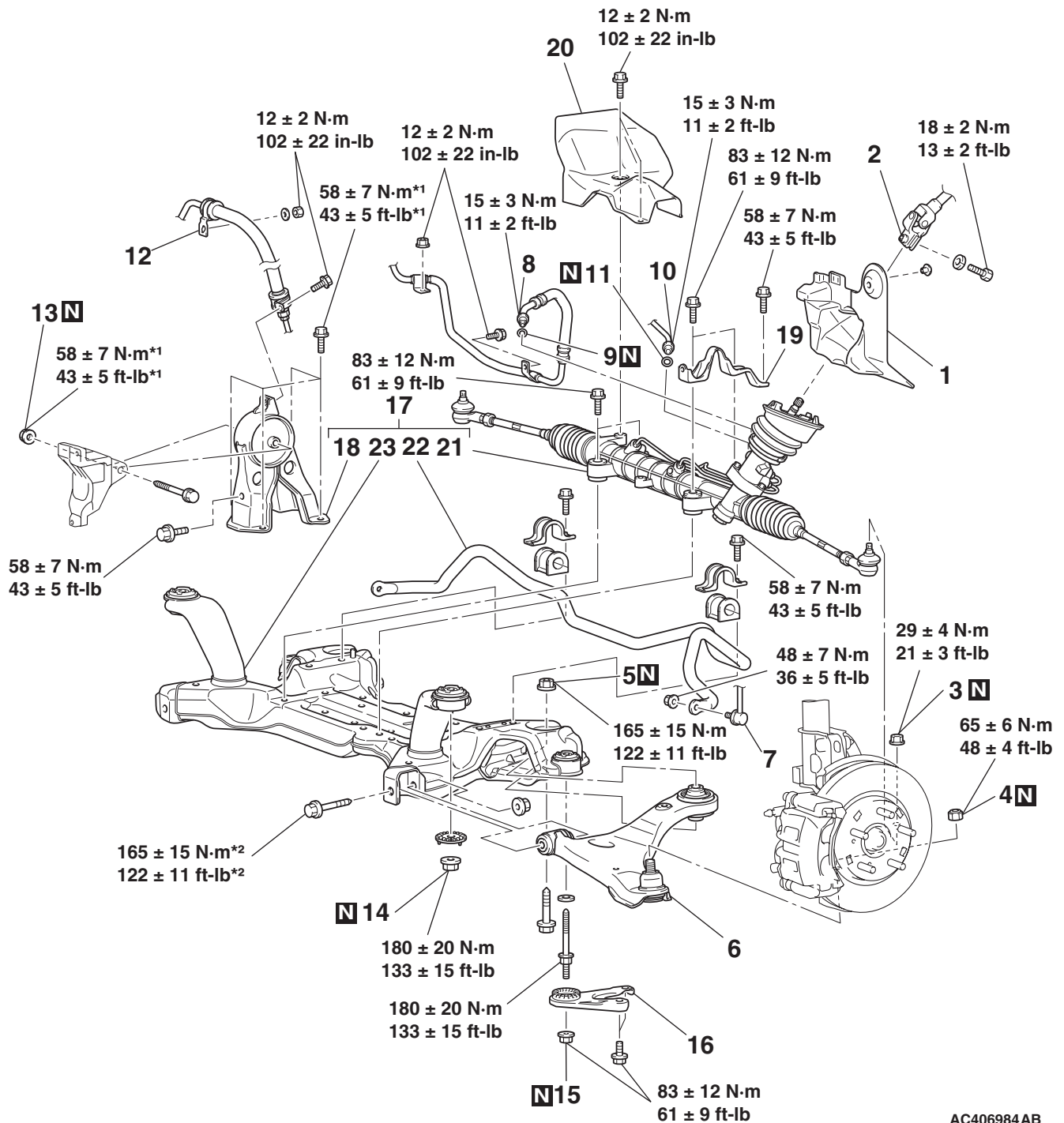
- Before removing the steering wheel and air bag module assembly, always refer to GROUP 52B – Service Precautions (P.52B-26), Air bag Module and Clock Spring (P.52B-408). Also, set the front wheels so that they are facing straight forward, and remove the ignition key. If you fail to do this, the SRS 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.37-22).
- 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-408).
- 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-408).
- 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.37-22).
- Power Steering Fluid Line Bleeding (Refer to GROUP 37, On-vehicle Service –Power Steering System Air Bleeding P.37-22).
- 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).



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REMOVAL STEPS

- <<A>> 1. STEERING SHAFT PAD
- <> 2. STEERING COLUMN ASSEMBLY AND STEERING GEAR CONNECTION
- <> 3. SELF LOCKING NUTS (CONNECTION FOR TIE ROD END)
- <> 4. SELF LOCKING NUTS (CONNECTION FOR LOWER ARM BALL JOINT)
- 5. SELF LOCKING NUTS
- 6. LOWER ARM ASSEMBLY

REMOVAL STEPS (Continued)

- 7. STABILIZER LINK CONNECTION
- 8. RETURN TUBE CONNECTION
- 9. O-RING
- 10. PRESSURE HOSE CONNECTION
- 11. O-RING
- 12. PRESSURE HOSE CLAMP
- 13. SELF-LOCKING NUT
- 14. SELF-LOCKING NUTS
- <<C>> >>D<< 15. SELF-LOCKING NUTS
- <<C>> >>D<< 16. FRONT AXLE CROSSMEMBER STAY

REMOVAL STEPS (Continued)

- <<D>> >>C<< 17. ENGINE REAR ROLL STOPPER BRACKET, POWER STEERING GEAR AND LINKAGE, STABILIZER BAR AND FRONT AXLE NO.1 CROSSMEMBER ASSEMBLY
- >>B<< 18. ENGINE REAR ROLL STOPPER BRACKET
- >>B<< 19. POWER STEERING GEAR BRACKET
20. STEERING GEAR AND LINKAGE PROTECTOR <3.8L ENGINE>
21. POWER STEERING GEAR AND LINKAGE
- >>A<< 22. STABILIZER BAR
23. FRONT AXLE NO.1 CROSSMEMBER

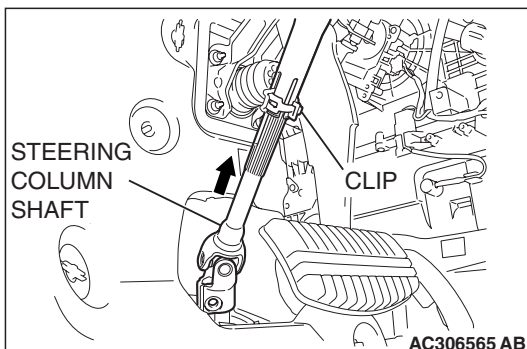
Required Special Tool:

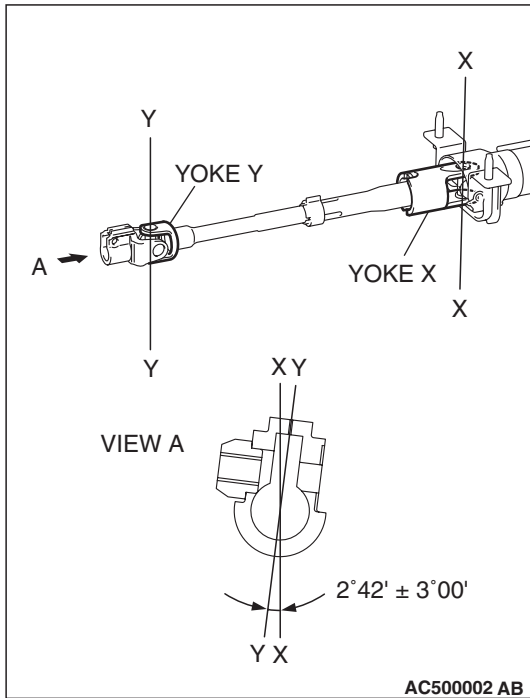
- MB991897: Ball Joint Remover

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.



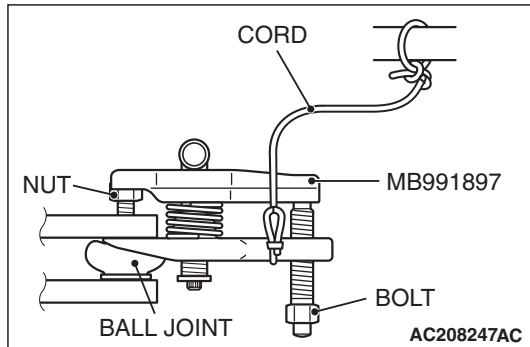


NOTE: If the steering column shaft is removed accidentally, remove the steering column assembly and be sure to insert the steering column shaft into the steering column as shown in the figure.

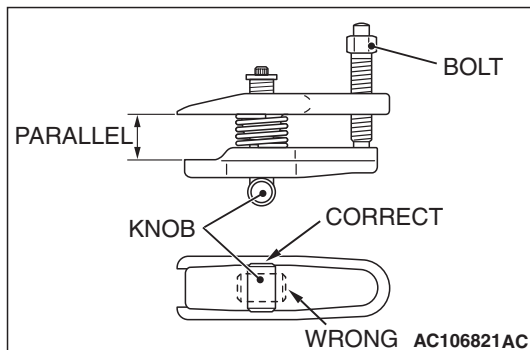
<> SELF LOCKING NUTS (CONNECTION FOR TIE ROD END AND LOWER ARM BALL JOINT) REMOVAL

⚠ CAUTION

- Do not remove the nut from ball joint. Loosen it and use special tool MB991897 to avoid possible damage to ball joint threads.
- Hang special tool MB991897 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. Install special tool MB991897 as shown in the figure.

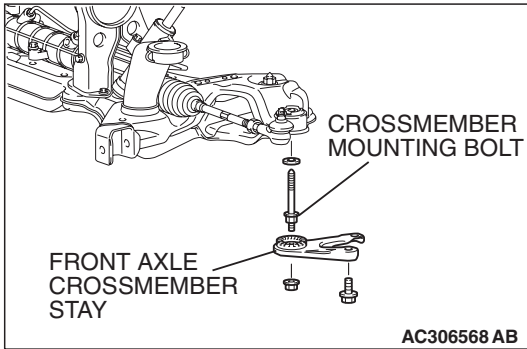


2. Turn the bolt and knob as necessary to make the jaws of special tool parallel, tighten the bolt by hand and confirm that the jaws are still parallel.

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.

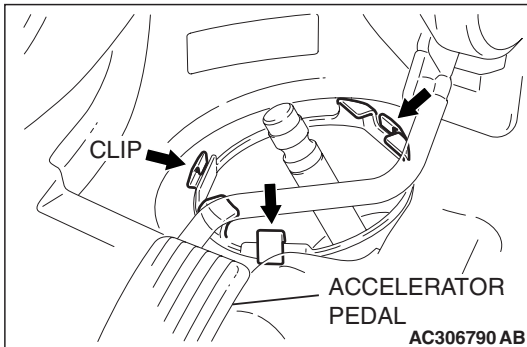
<<C>> FRONT AXLE CROSSMEMBER STAY
REMOVAL



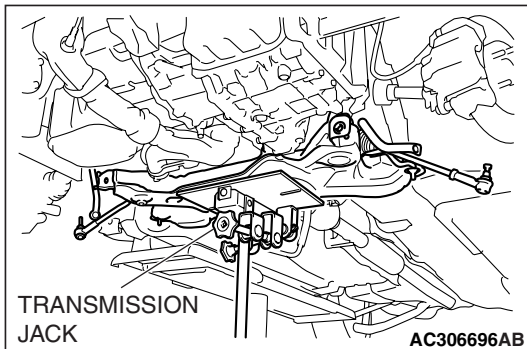
The crossmember mounting bolts should not be unscrewed when the front axle crossmember stay is replaced. However, the bolts may become loosened when the front axle crossmember stay is removed. Retighten the bolts to 180 ± 20 N·m (133 ± 15 ft-lb).

<<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.



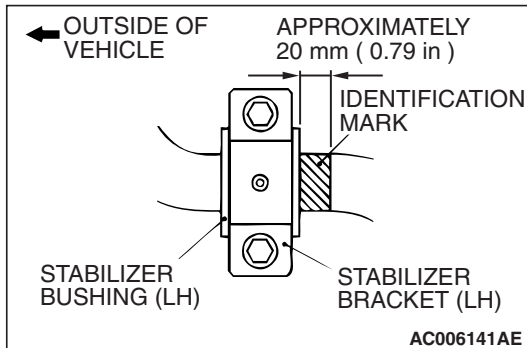
2. Use a transmission jack to hold the crossmember, and then remove the crossmember mounting nuts and bolts.
3. Lower the crossmember with the rear roll stopper, the stabilizer bar and the steering gear.



INSTALLATION SERVICE POINTS

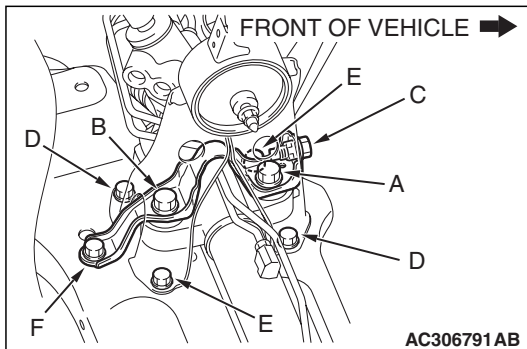
>>A<< STABILIZER BAR INSTALLATION

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

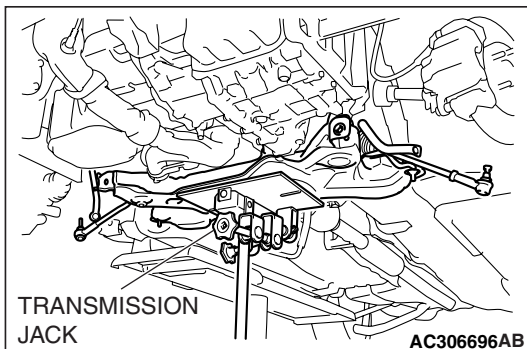
>>B<< POWER STEERING GEAR
BRACKET/ENGINE REAR ROLL STOPPER
BRACKET INSTALLATION

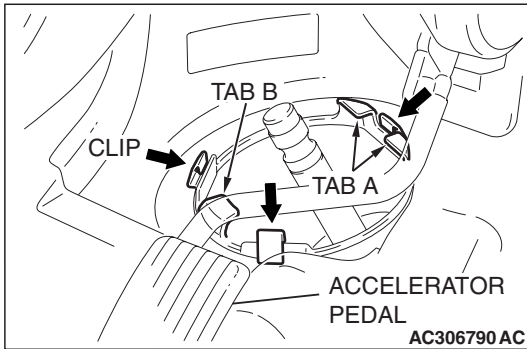
Tighten the bolts in the following sequence:

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 transmission jack to lift the crossmember assembly.

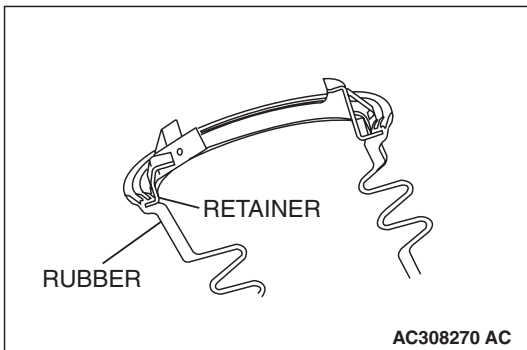
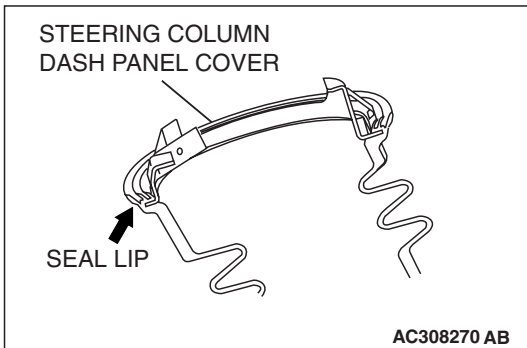




- From inside the vehicle, pull tab A and then tab B to secure the three clips to the body panel.

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

- 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.

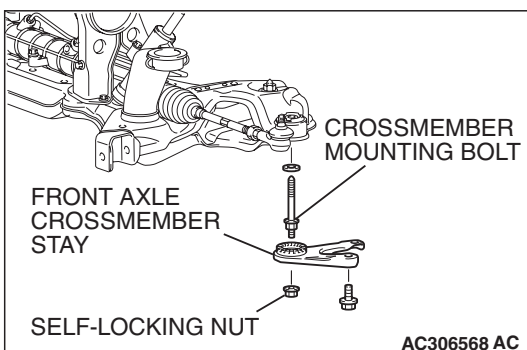


- After installing the steering column dash panel cover, check that the steering column dash panel cover rubber is not disengaged from the retainer. If there is any doubt, release the clips from the body, engage the rubber again and reinstall to the body.

- 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 ± 20 N·m (133 ± 15 ft-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**

M1321004100386

ITEM		SPECIFICATION
Crossmember		
Engine rear roll stopper bracket bolt and nut		58 ± 7 N· m (43 ± 5 ft-lb)
Front axle crossmember stay bolt and nut		83 ± 12 N· m (61 ± 9 ft-lb)
Front axle No.1 crossmember bolt and nut		180 ± 20 N· m (133 ± 15 ft-lb)
Lower arm assembly bolt		165 ± 15 N· m (122 ± 11 ft-lb)
Lower arm assembly nut (flange nut, self-locking)	M14	165 ± 15 N· m (122 ± 11 ft-lb)
Lower arm assembly nut (nut, self-locking)	M14	65 ± 6 N· m (48 ± 4 ft-lb)
Power steering gear and linkage bolt		83 ± 12 N· m (61 ± 9 ft-lb)
Power steering gear bracket bolt	M10	58 ± 7 N· m (43 ± 5 ft-lb)
	M12	83 ± 12 N· m (61 ± 9 ft-lb)
Pressure hose clamp bolt and nut		12 ± 2 N· m (102 ± 22 in-lb)
Pressure hose nut		15 ± 3 N· m (11 ± 2 ft-lb)
Return tube clamp bolt and nut		12 ± 2 N· m (102 ± 22 in-lb)
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)
Engine mounting		
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>		36 ± 6 N· m (27 ± 4 ft-lb)
Grounding cable bolt		9.0 ± 2.0 N· m (80 ± 17 in-lb)
Engine roll stopper and centermember		
Centermember bolt		83 ± 12 N· m (61 ± 9 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)
Transaxle mounting		
Transaxle mounting body side bracket nut (nut, flange)	M12	83 ± 12 N· m (61 ± 9 ft-lb)
Transaxle mounting body side bracket nut (nut, self-locking)	M12	58 ± 7 N· m (43 ± 5 ft-lb)