

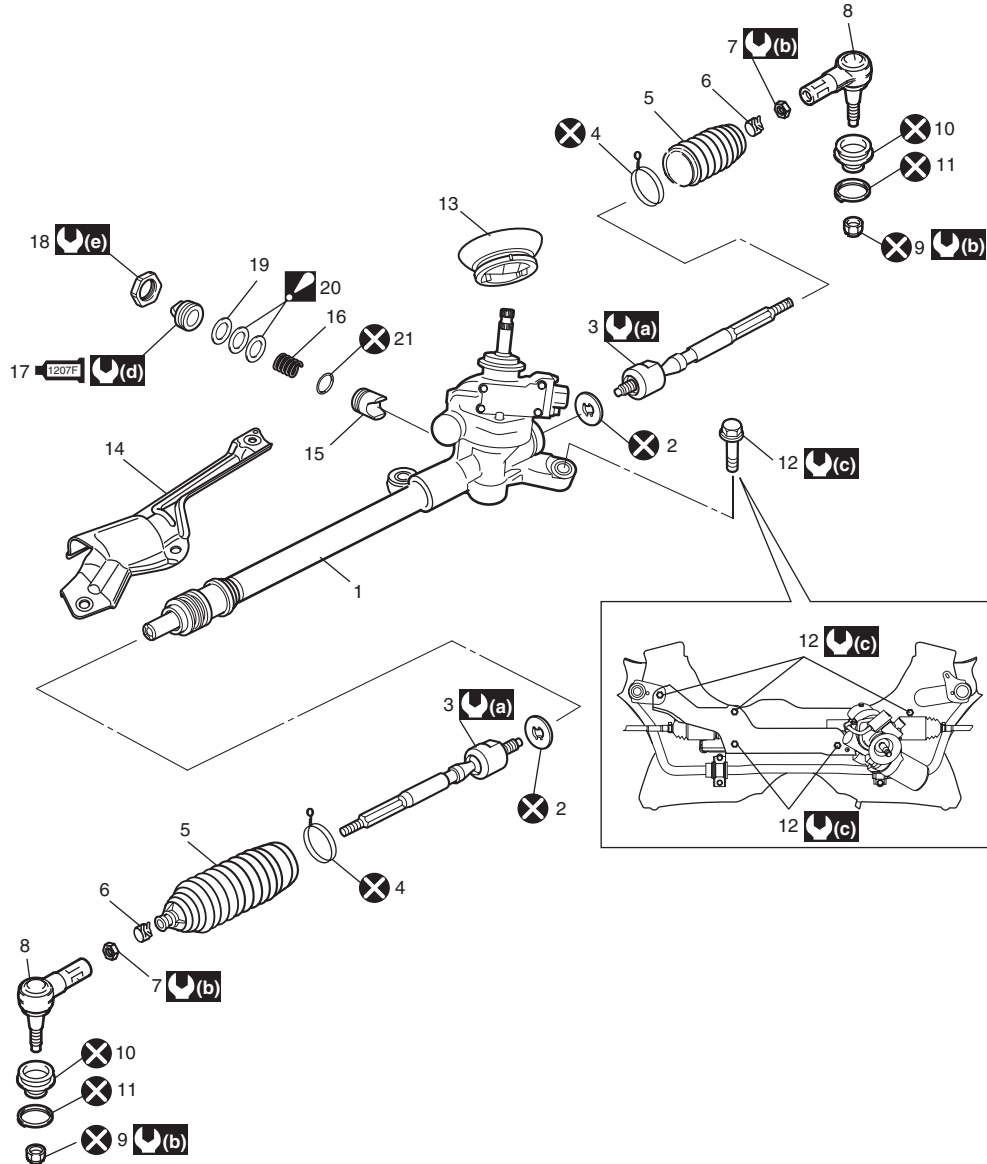
Repair Instructions

Steering Gear Case Assembly Components

S6RW0C6306001

NOTE

The figure shows left-hand steering vehicle. For right-hand steering vehicle the figure is symmetrical.



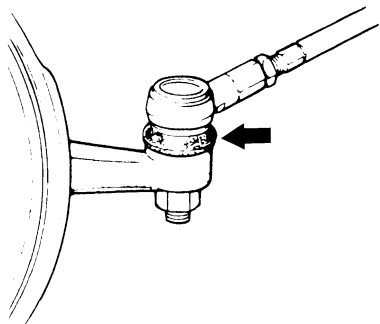
I6RW0C630010-01

1. Steering gear case	10. Boot	19. Washer
2. Tie-rod lock washer	11. Clip	20. Spring washer : Make sure of the direction of installation referring to "Steering Rack Plunger Removal and Installation".
3. Tie-rod	12. Steering gear case mounting bolt : Refer to "Steering Gear Case Assembly Removal and Installation".	21. O-ring
4. Wire	13. Steering gear case grommet	(a) : 75 N·m (7.5 kgf-m, 54.5 lb-ft)
5. Boot	14. Member bracket	(b) : 45 N·m (4.5 kgf-m, 32.5 lb-ft)
6. Rack boot clip	15. Steering rack plunger	(c) : 70 N·m (7.0 kgf-m, 51.0 lb-ft)
7. Tie-rod end lock nut	16. Steering rack plunger spring	(d) : Refer to "Steering Rack Plunger Removal and Installation".
8. Tie-rod end	17. Steering rack damper screw : Apply sealant 99000-31250 to all around thread part of rack damper screw.	(e) : 60 N·m (6.0 kgf-m, 43.5 lb-ft)
9. Tie-rod end nut	18. Steering rack damper lock nut	⊗ : Do not reuse.

Tie-Rod End Boot On-Vehicle Inspection

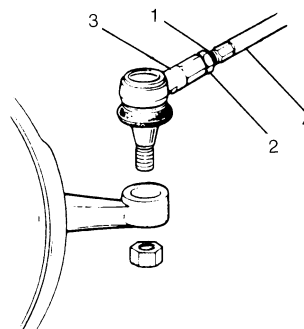
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Check boot for crack and damage. If any defect is found, replace it with a new one.



I3RM0A630024-01

4) For ease of adjustment after installation, make marking (1) of tie-rod end lock nut (2) position on tie-rod end thread. Then, loosen lock nut and remove tie-rod end (3) from tie-rod (4).



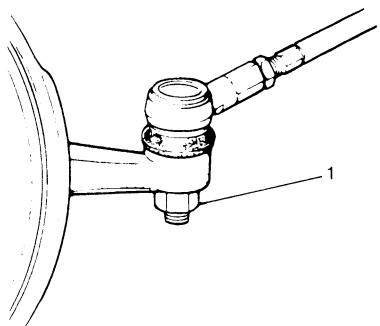
I4RS0A630041-01

Tie-Rod End Removal and Installation

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Removal

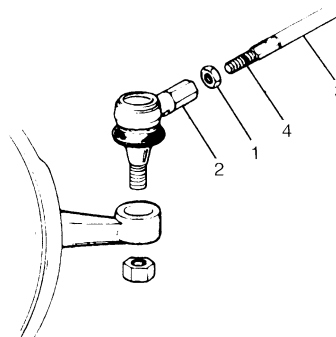
- 1) Hoist vehicle, and then remove front wheel.
- 2) Remove tie-rod end nut (1) from steering knuckle.



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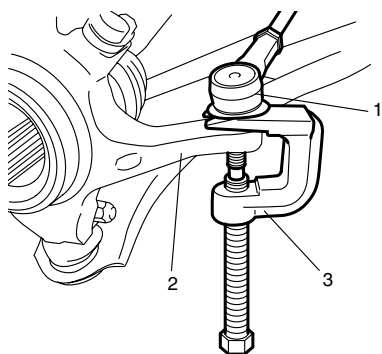
Installation

1) Install tie-rod end lock nut (1) and tie-rod end (2) to tie-rod (3). Align lock nut with mark (4) on tie-rod thread.



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3) Disconnect tie-rod end (1) from knuckle (2) using puller (3).

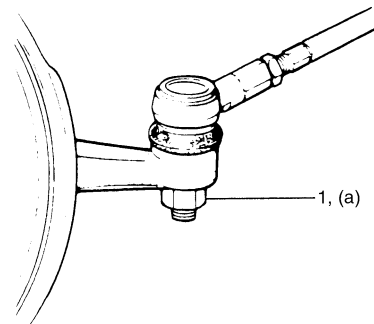


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2) Connect tie-rod end to knuckle. Tighten tie-rod end nut (1) to specified torque.

Tightening torque

Tie-rod end nut (a): 45 N·m (4.5 kgf-m, 32.5 lb-ft)



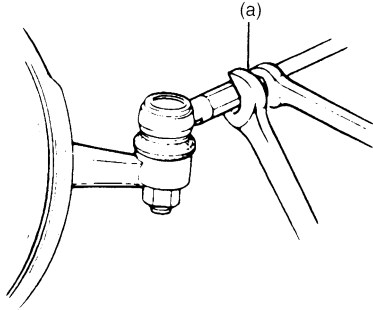
I3RM0A630029-01

6C-38 Power Assisted Steering System:

- 3) Inspect for proper toe referring to "Front Wheel Alignment Inspection and Adjustment in Section 2B".
- 4) After confirming proper toe, tighten tie-rod end lock nut to specified torque.

Tightening torque

Tie-rod end lock nut (a): 45 N·m (4.5 kgf-m, 32.5 lb-ft)



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- 5) Tighten wheel bolts to specified torque and lower hoist.

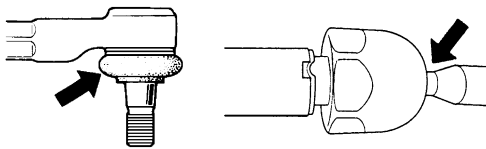
Tightening torque

Wheel bolt: 85 N·m (8.5 kgf-m, 61.5 lb-ft)

Tie-Rod End Inspection

S6RW0C6306004

- Inspect for play in ball joint.
 - Inspect for play in rack end ball joint.
- In either case, if found defective, replace.

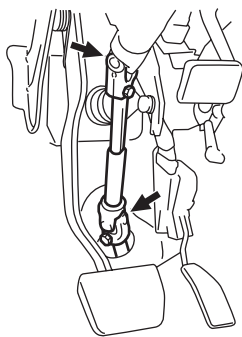


I4RS0A630043-01

Steering Shaft Joint On-Vehicle Inspection

S6RW0C6306005

Check shaft joint for wear, breakage and any other damage and replace if any defect exists.



I4RS0B630012-01

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Steering Gear Case Assembly Removal and Installation

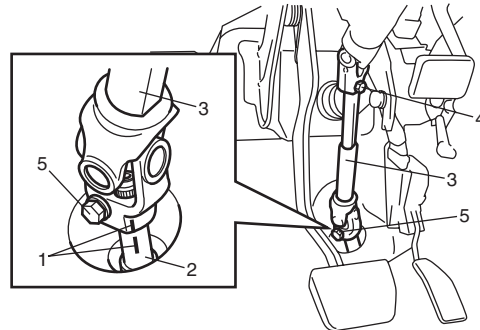
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Removal

⚠ CAUTION

Be sure to set front wheels (tires) in straight direction and remove ignition key from key cylinder before performing the following steps, otherwise, contact coil of air bag system may get damaged.

- 1) Remove steering joint cover.
- 2) Make alignment marks (1) on pinion shaft (2) and joint of steering lower shaft (3) for a guide during reinstallation.
- 3) Loosen joint bolt (steering column side) (4) and remove joint bolt (pinion shaft side) (5) and disconnect steering lower shaft (3) from pinion shaft (2).

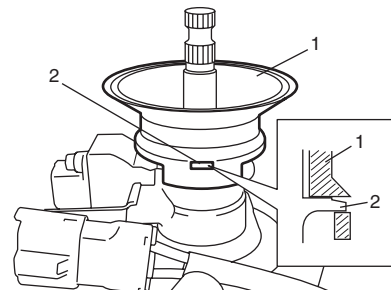


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- 4) Disconnect torque sensor connector and P/S motor connector from steering gear case.
- 5) Remove front suspension frame with steering gear case referring to "Front Suspension Frame, Stabilizer Bar and/or Bushing Removal and Installation (2WD Model) in Section 2B" or "Front Suspension Frame, Stabilizer Bar and/or Bushing Removal and Installation (4WD Model) in Section 2B", and then remove steering gear case.

Installation

- 1) Install grommet (1) as shown in figure.



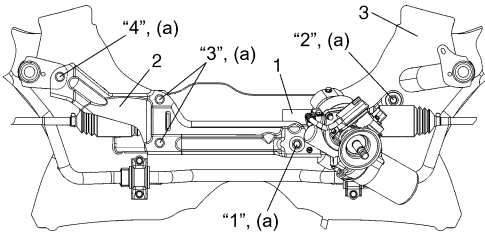
I5RW0A630018-02

2. Protrusion

- 2) Install steering gear case to suspension frame (3) as follows.
 - a) Set member bracket (2) to steering gear case (1).
 - b) Install all steering gear case mounting bolts by hand.
 - c) Tighten steering mounting bolts in numerical order and specified torque.

Tightening torque

Steering gear case mounting bolt (a): 70 N·m (7.0 kgf-m, 51.0 lb-ft)



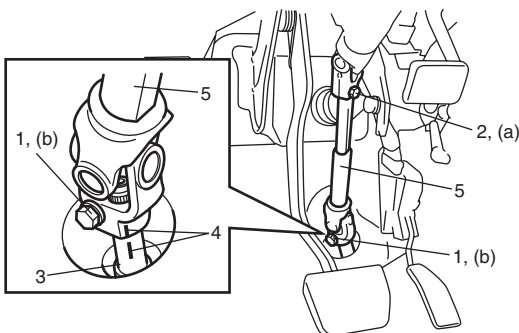
I7RW01632009-01

- 3) Install front suspension frame with steering gear case to vehicle referring to Steps 4) – 22) of “Front Suspension Frame, Stabilizer Bar and/or Bushing Removal and Installation (2WD Model) in Section 2B” or “Front Suspension Frame, Stabilizer Bar and/or Bushing Removal and Installation (4WD Model) in Section 2B”, and then install steering gear case to vehicle.
- 4) Connect torque sensor connector and P/S motor connector to steering gear case.
- 5) Be sure that steering wheel and brake discs (right & left) are all straight-ahead position and then insert steering lower shaft (5) into steering pinion shaft (3) with matching marks (4).
- 6) Tighten steering shaft joint lower bolt (1) and upper bolt (2) to specified torque (tighten lower side first and then tighten upper side).

Tightening torque

Steering lower shaft assembly upper joint bolt (a): 25 N·m (2.5 kgf-m, 18.5 lb-ft)

Steering lower shaft assembly lower joint bolt (b): 25 N·m (2.5 kgf-m, 18.5 lb-ft)



I5RW0A630020-01

- 7) Install steering joint cover.

Steering Rack Boot Inspection

S6RW0C6306007

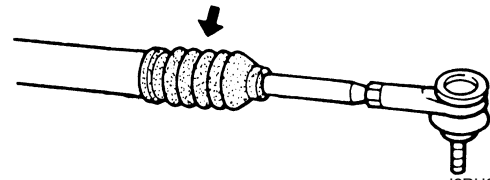
Hoist vehicle.

Inspect each boot for tear. A torn boot allows entry of dust and water which can cause wear to steering rack and pinion to produce noise as well as rust to result in malfunction of steering system.

Even if boot tear is small, replace with new one.

Also, check each boot for dent. If there is a dent, keep boot in most compressed state for some seconds to correct dent.

Boots should be visually inspected for any damage, dent and tear during every periodical inspection at specified intervals and whenever vehicle is hoisted for any other purpose.



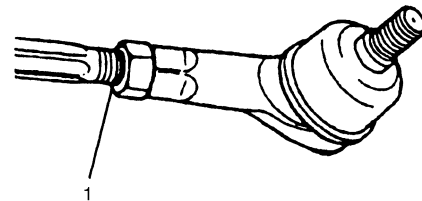
I2RH01630012-01

Tie-Rod / Rack Boot Removal and Installation

S6RW0C6306008

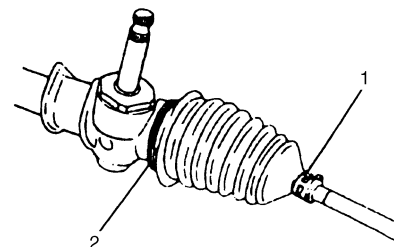
Removal

- 1) Remove steering gear case assembly referring to “Steering Gear Case Assembly Removal and Installation”.
- 2) Remove member bracket from steering gear case assembly.
- 3) For ease of adjustment after installation, make marking (1) of tie-rod end lock nut position of tie-rod thread.



I4RS0A630044-01

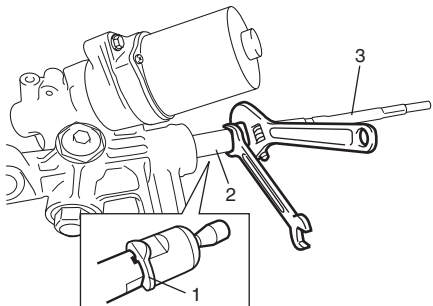
- 4) Loosen tie-rod end lock nut and remove tie-rod end.
- 5) Remove boot band (2) and clip (1).
- 6) Remove boot from tie-rod.



IYSQ01630034-01

6C-40 Power Assisted Steering System:

- 7) Unbend bent part of tie-rod lock washer (1).
- 8) Remove tie-rod (3) from rack (2).



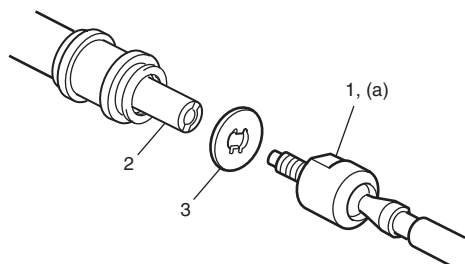
I5RW0A630021-01

Installation

- 1) Install tie-rod (1) and new tie-rod lock washer (3) to rack (2).
- 2) Hold rack with soft jawed vise and tighten tie-rod to specified torque.

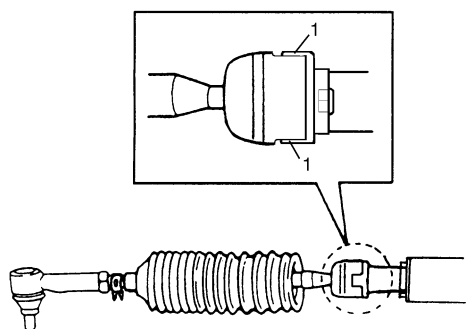
Tightening torque

Tie-rod (a): 75 N·m (7.5 kgf-m, 54.5 lb-ft)



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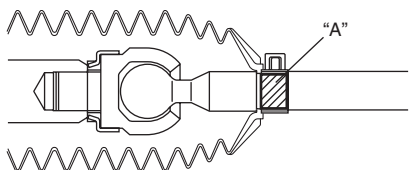
- 3) Bend lock washer at 2 places (1) as shown in figure.



I4RS0A630035-01

- 4) Apply grease "A" to boot inside as shown in figure. Position boot properly in grooves of gear case (or rack side mount) and tie-rod. After this, check to ensure that boot is free from twist and dent.

"A": Grease 99000-25050 (SUZUKI Super Grease E)



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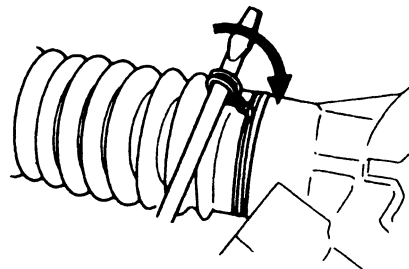
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- 5) Clamp boot with clip and wire. Wire should be new and should go around the boot twice. Pull its both ends together by screwdriver or such and make sure that the wire won't be crossed. Then twist the ends 4 – 5 times, the twisted ends should be bent in the circumferential direction.

NOTE

After clamping, make sure that the boot installation part is fixed.

If the boot turns easily by hand, tighten with higher torque to fix it firmly.

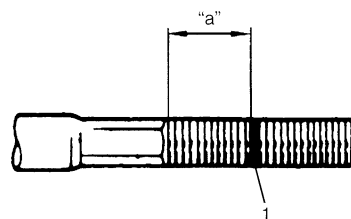


IYSQ01630035-01

- 6) Install tie-rod end lock nut and tie-rod end to tie-rod. Position lock nut to marking (1) made in removal.

NOTE

When tie-rod was replaced, measure length "a" on removed tie-rod and use it on new replacement tie-rod so as to position lock nut properly.



I3RM0A630052-01

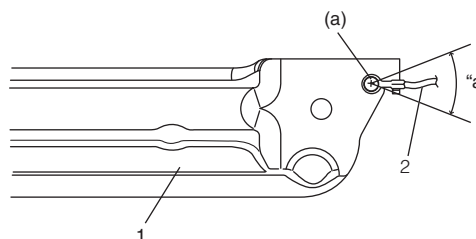
- 7) Install member bracket (1), and then install earth cable (2) as shown in figure.

Angle "a"

: Within 20°

Tightening torque

Earth cable bolt (a): 4.0 N·m (0.4 kgf-m, 2.8 lb-ft)



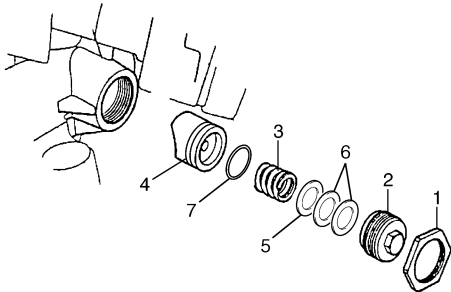
I6RW0C630011-01

Steering Rack Plunger Removal and Installation

S6RW0C6306009

Removal

- 1) Loosen lock nut (1) with holding damper screw (2).
- 2) Remove lock nut (1), rack damper screw (2), rack plunger spring (3), washer (5), spring washers (6), O-ring (7) and rack plunger (4).



I5RW0A630024-02

Installation

- 1) Install plunger (1), new O-ring (6), washer (4), spring washers (5) and spring (2) as shown.

NOTE

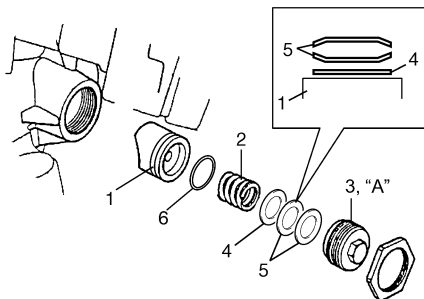
Do not wipe off grease previously applied to new plunger.

- 2) Apply sealant to rack damper screw (3) and tighten them as follows.
 - a) Tighten damper screw to 25 N·m (2.5 kgf·m, 18.0 lb-ft).
 - b) Loosen damper screw until 180°.
 - c) Retighten damper screw to 3.9 N·m (0.39 kgf·m, 3.0 lb-ft).
 - d) After tightening rack damper screw to specified torque, turn it back by 10° or less.

"A": Water tight sealant 99000-31250 (SUZUKI Bond No.1207F)

Tightening torque

Rack damper screw (a): Tighten 25 N·m (2.5 kgf·m, 18.0 lb-ft) and loosen 180° and then tighten 3.9 N·m (0.39 kgf·m, 3.0 lb-ft) and turn it back by 10° or less by the specified procedure.



I5RW0A630025-03

- 3) Pinion rotation torque should be checked with rack position centered.

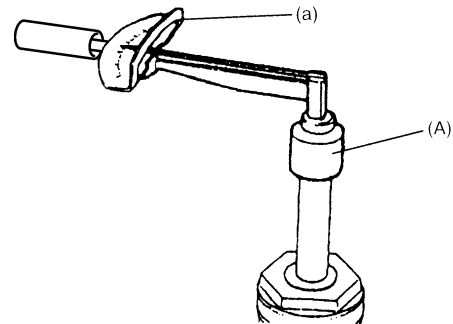
Also, check if rack as a whole moves smoothly.

Special tool

(A): 09944-18220

Tightening torque

Rotation torque of pinion (a): 2.2 N·m (0.22 kgf·m, 1.5 lb-ft)



I3RM0A630055-02

- 4) After adjustment, tighten lock nut to specified torque with holding damper screw at the position.

Tightening torque

Steering rack damper lock nut: 60 N·m (6.0 kgf·m, 43.5 lb-ft)

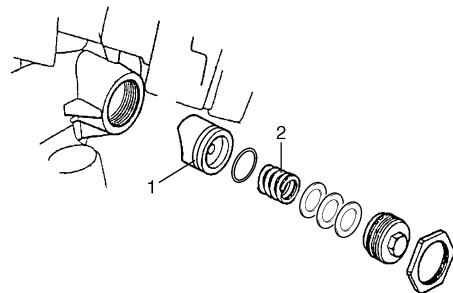
Steering Rack Plunger Inspection

S6RW0C6306010

NOTE

Do not wipe off grease applied to rack plunger which is removed.

- Inspect rack plunger (1) for wear or damage.
- Inspect rack plunger spring (2) for deterioration. If any abnormality is found, replace.



I5RW0A630026-02