

DAIHATSU

L500, L501

STEERING

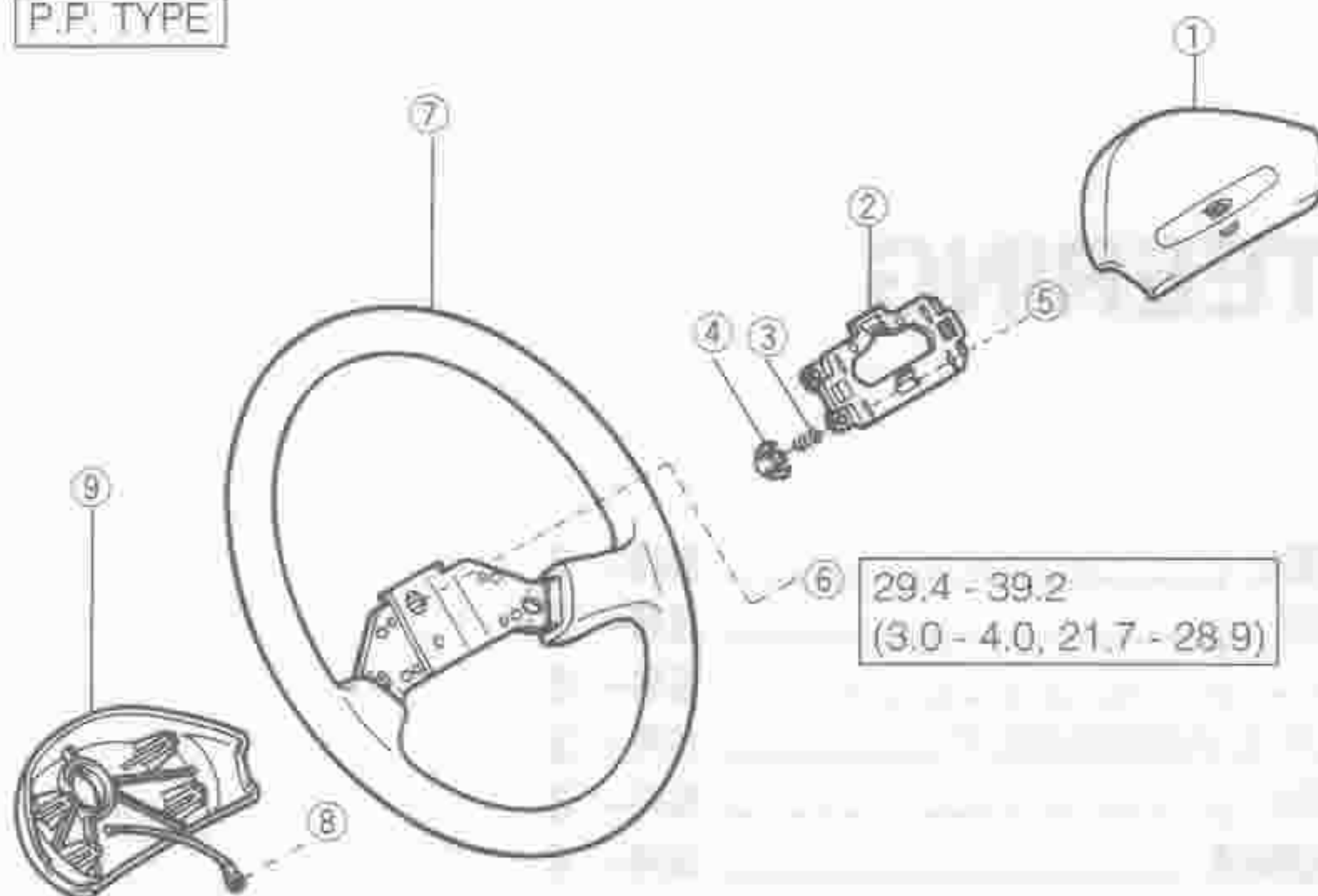
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LSP00001-00000

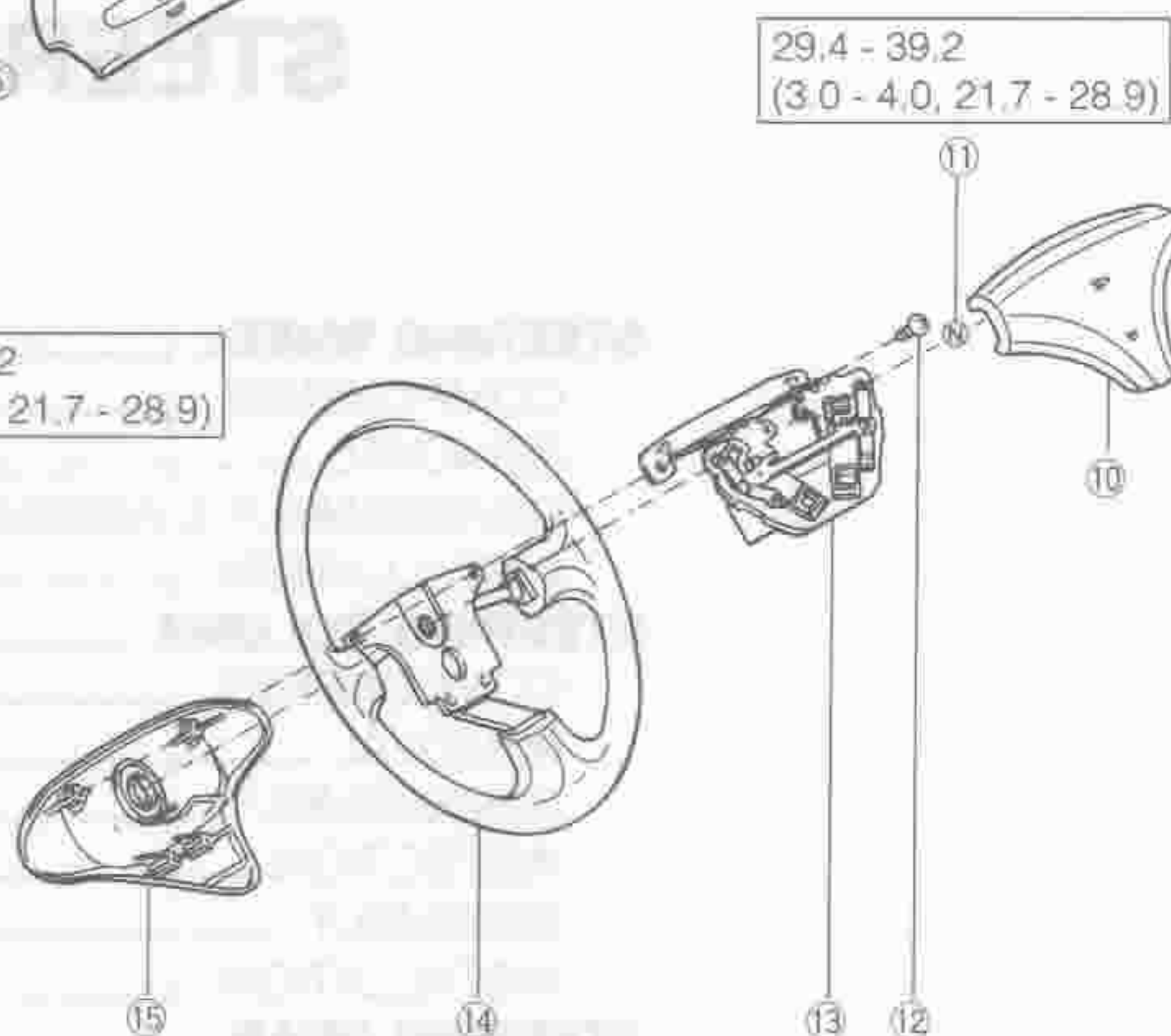
SR

STEERING WHEEL COMPONENTS

P.P. TYPE



URETHANE TYPE



 : Tightening torque
Unit : N·m (kgf-m, ft-lb)

P.P. TYPE

- ① Steering wheel pad
- ② Horn button contact plate subassembly
- ③ Horn contact spring
- ④ Horn button insulator
- ⑤ Screw
- ⑥ Lock nut
- ⑦ Steering wheel subassembly
- ⑧ Screw
- ⑨ Steering wheel lower cover

URETHAN TYPE

- ⑩ Steering wheel pad
- ⑪ Lock nut
- ⑫ Screw
- ⑬ Steering wheel pad set plate subassembly
- ⑭ Steering wheel subassembly
- ⑮ Steering wheel lower cover

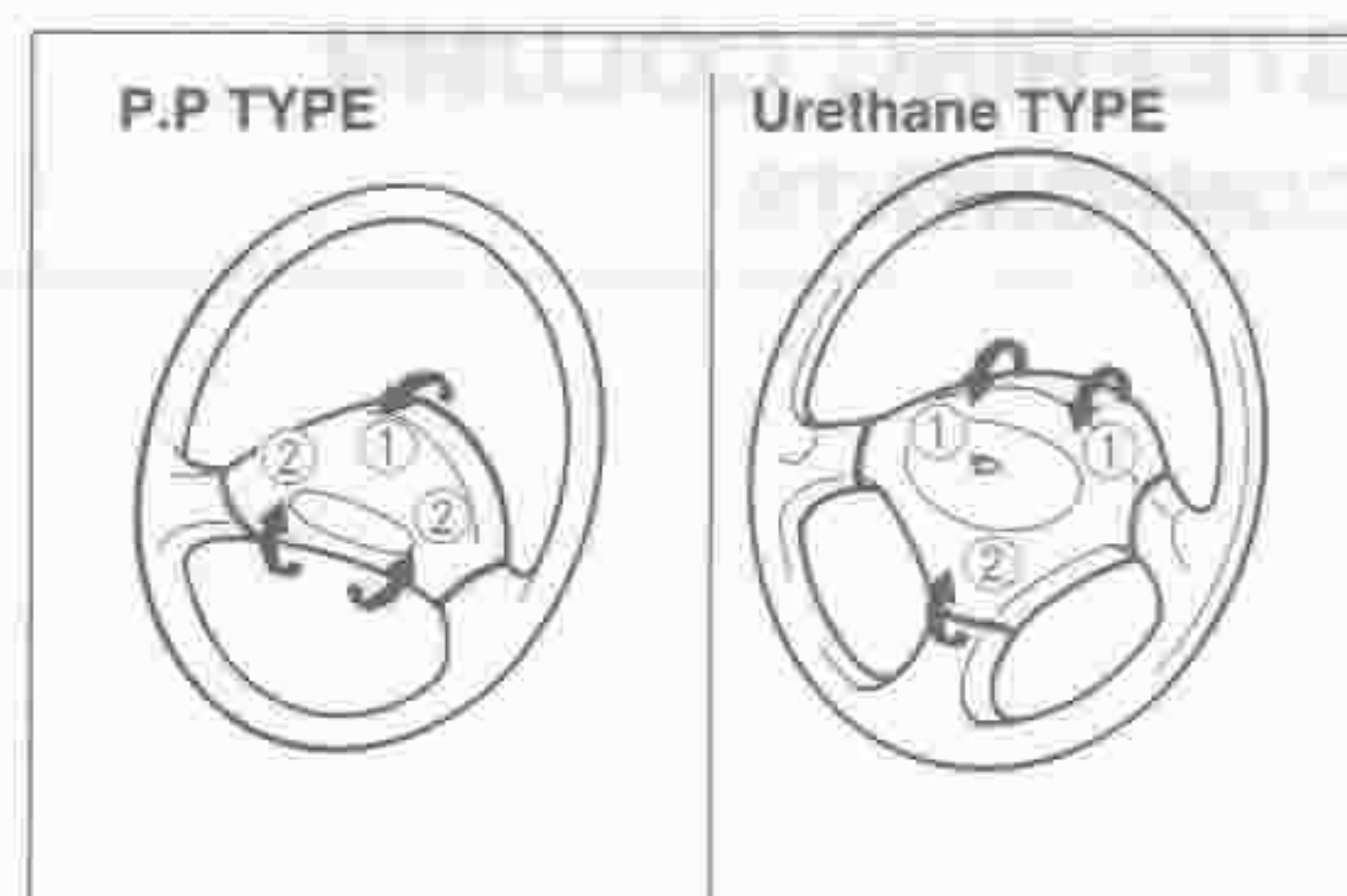
REMOVAL

1. Disconnect the battery negative (-) terminal.
2. Hold the steering wheel pad at its lower end by your fingers. Then, detach the steering wheel pad by pulling it toward your side in accordance with the sequence number in the right figure.

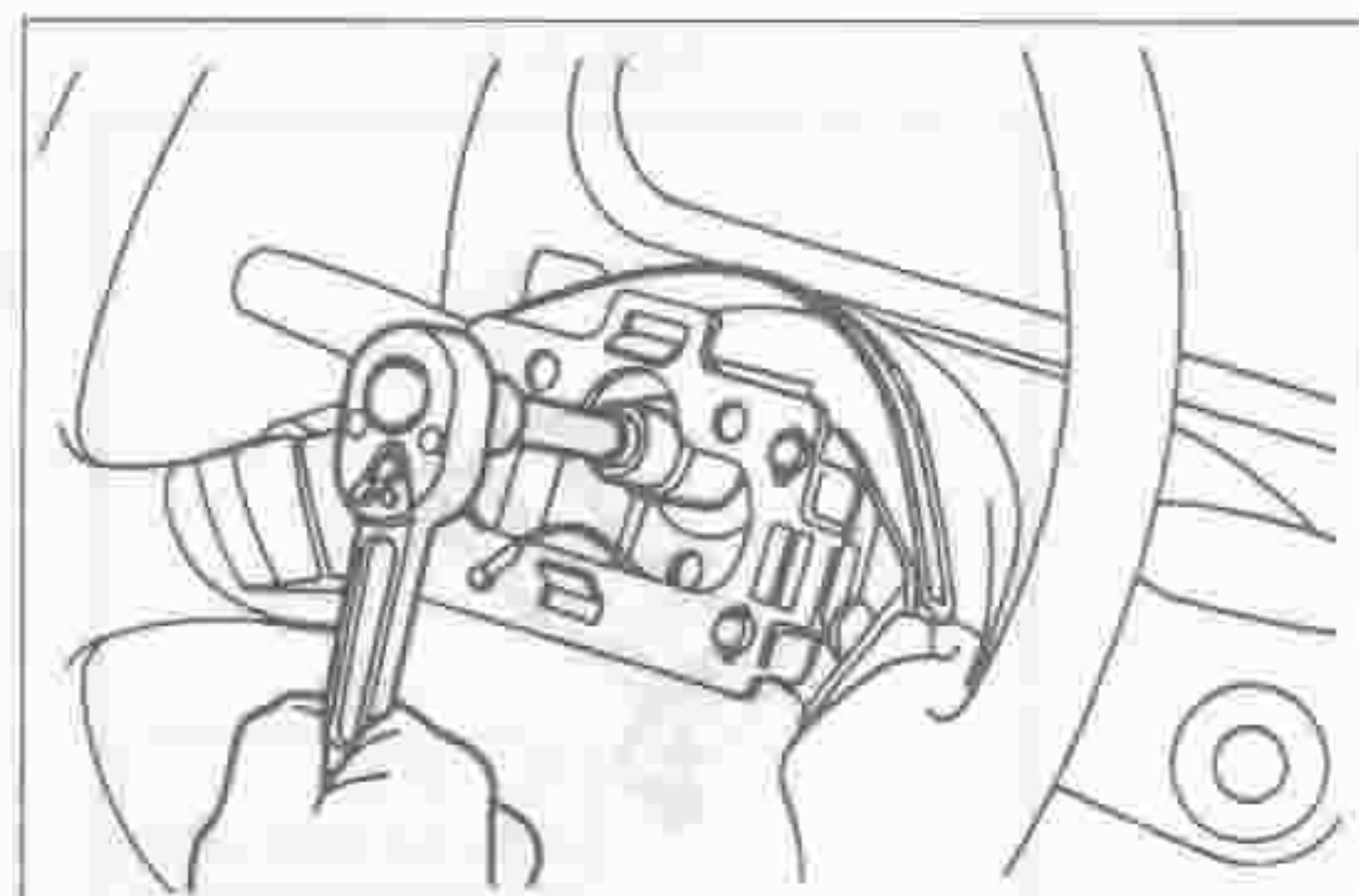
NOTE:

- Be careful not to break the claw of the steering wheel pad by pulling it excessively.

3. Remove the lock nut.



LSR00003-00002



LSR00004-00003

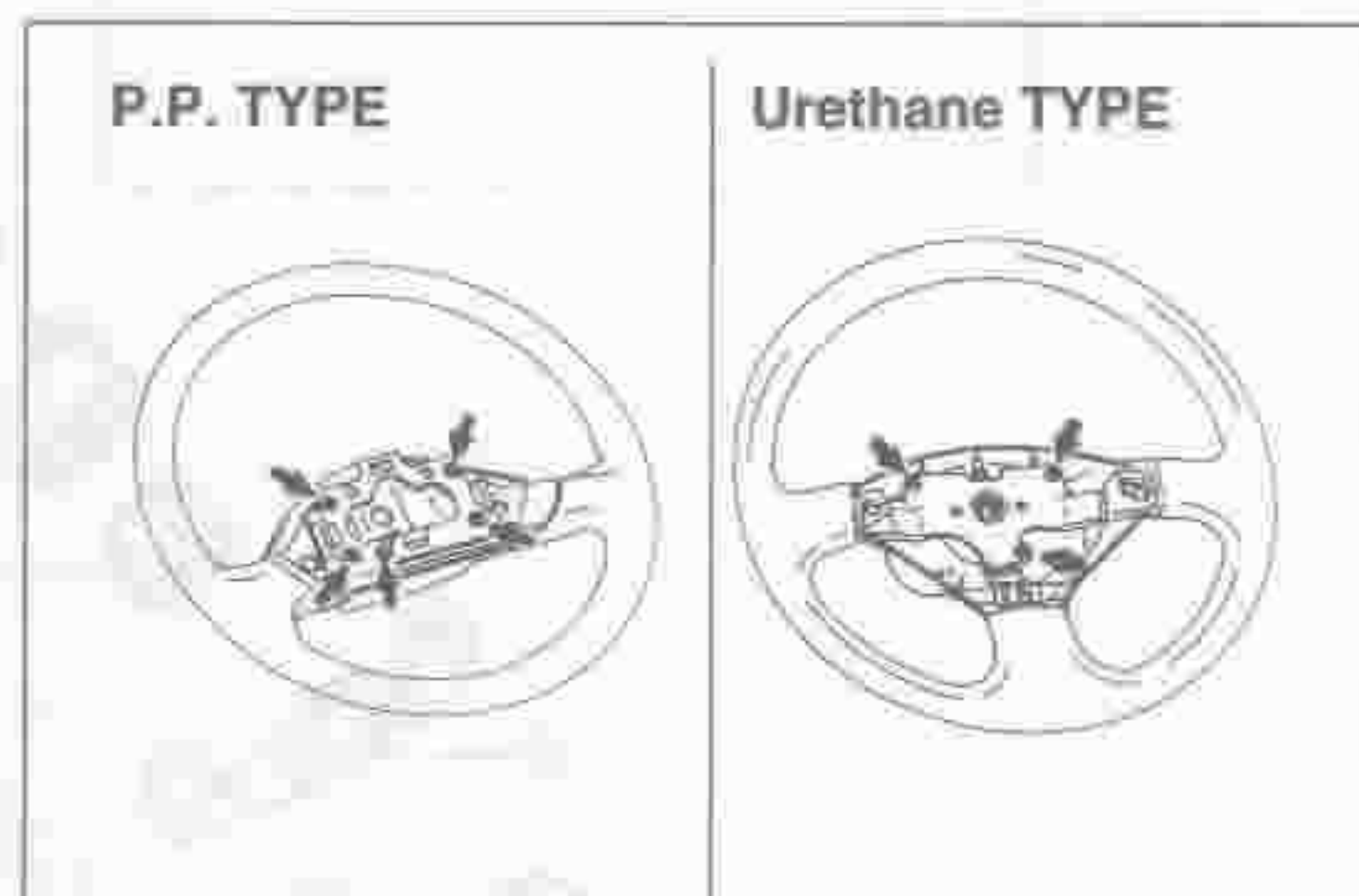
DISASSEMBLY & ASSEMBLY

NOTE:

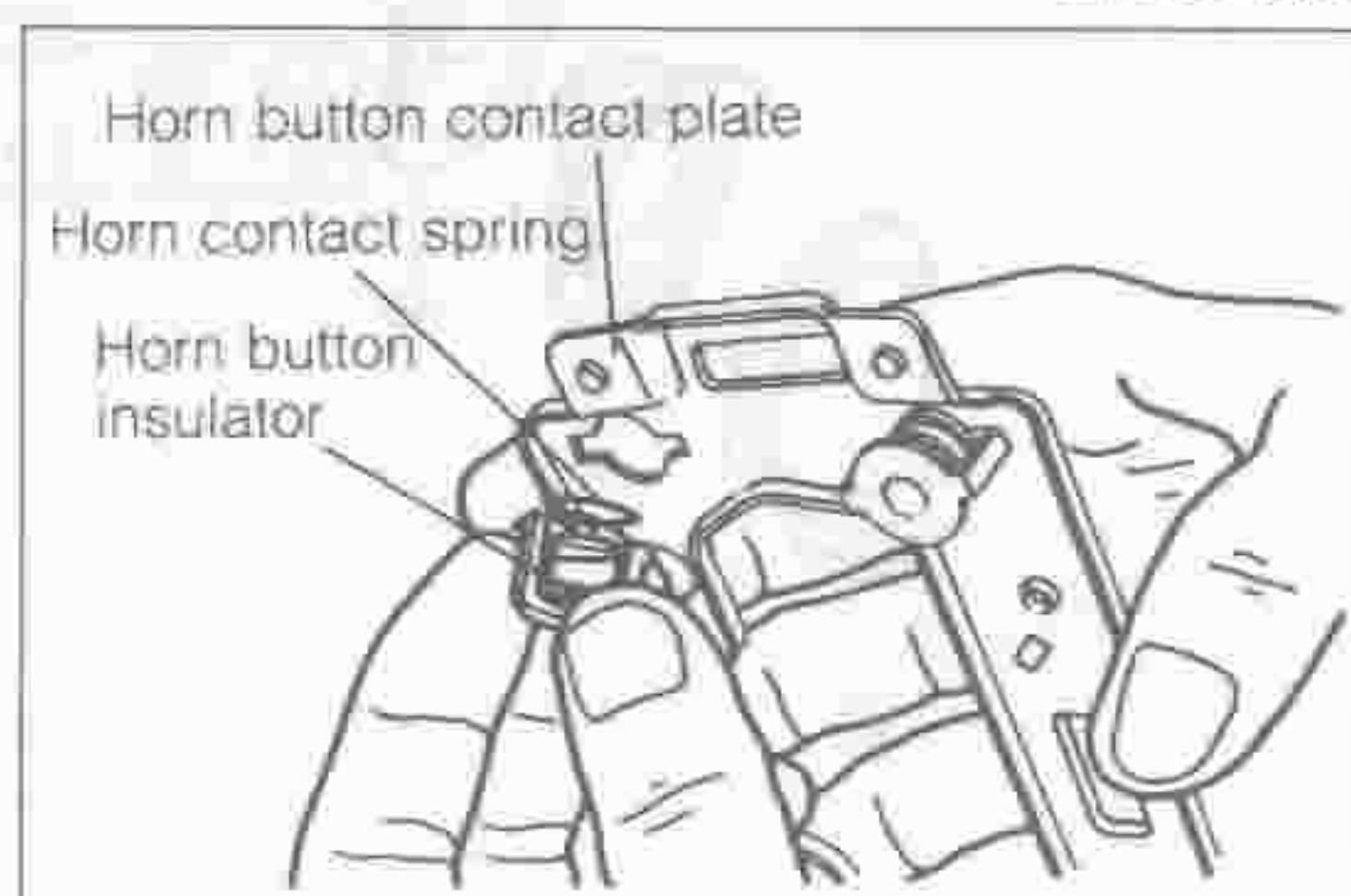
- Reverse the disassembly procedure to assemble the steering wheel.

1. Remove the horn harness.
2. Remove the horn button contact plate. (Steering wheel pad set plate subassembly)

3. Remove the horn button insulator and horn contact spring from the horn button contact plate. (P.P. type only)



LSR00005-00004



LSR00006-00005

INSTALLATION

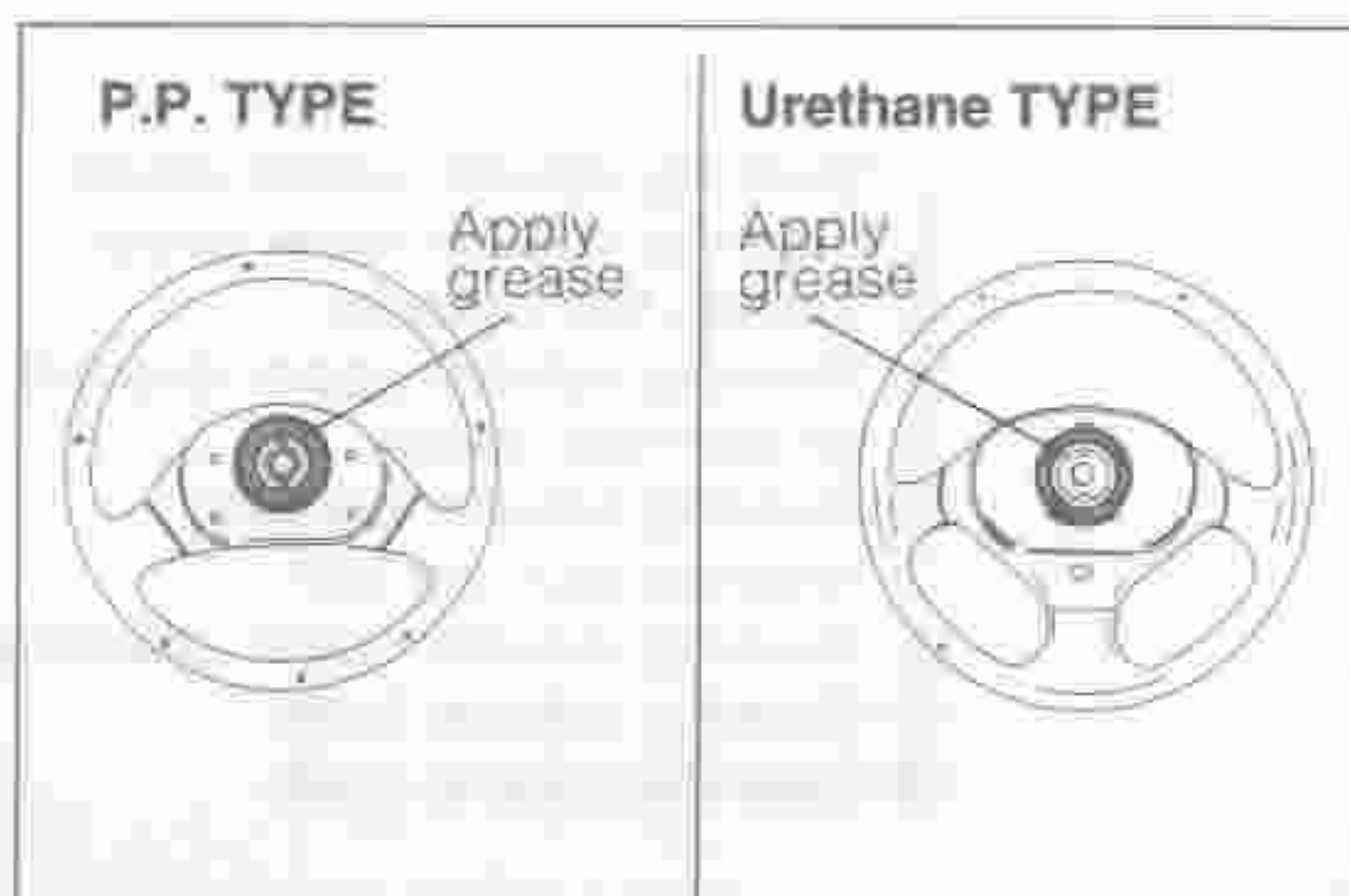
1. Apply the grease on the indicated area in the right figure.
2. Tighten the lock nut. Then, install the horn harness.

NOTE:

- Before tightening the steering wheel securely, confirm that the steering wheel assumes proper position in the vehicle's straightahead position. Adjust the position of the steering wheel, as required.

Tightening torque: 29.4 - 39.2 N·m
(3.0 - 4.0 kgf-m, 21.7 - 28.9 ft-lb)

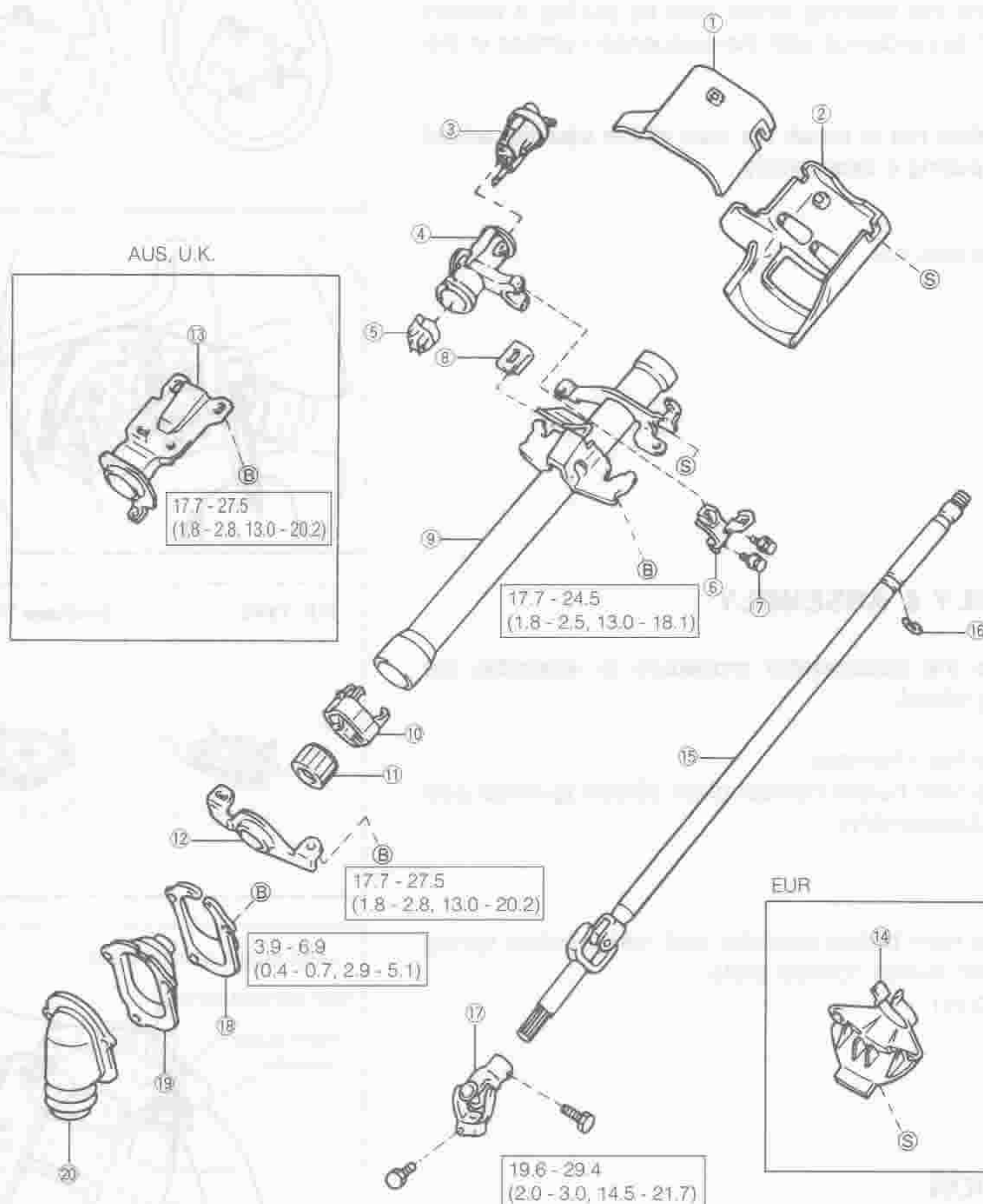
3. Install the steering wheel pad.
4. Connect the battery negative (-) terminal.



LSR00007-00006

STEERING COLUMN COMPONENTS

JAYCOR



- ① Steering column upper cover
- ② Steering column lower cover
- ③ Ignition key cylinder
- ④ Steering column upper bracket assembly
- ⑤ Ignition key switch
- ⑥ Steering column housing
- ⑦ Steering lock set bolt
- ⑧ Steering column upper attachment plate
- ⑨ Steering column tube
- ⑩ Steering column bush

- ⑪ Needle roller bearing
- ⑫ Steering lower tube bracket
- ⑬ Steering column lower tube subassembly
- ⑭ Intermediate link joint protector
- ⑮ Steering main shaft
- ⑯ Shaft snap ring
- ⑰ Universal joint
- ⑱ Steering shaft dust retainer
- ⑲ Steering shaft dust cover
- ⑳ Steering column hole cover shield

REMOVAL

1. Disconnect the battery negative (-) terminal.
2. Remove the steering wheel from the steering main shaft.
(Refer to SR-3)
3. Turn over carpets or silencers, as required, at the sections where the steering main shaft and universal joint pass through.
4. Remove the steering shaft dust cover with dust cover retainer from the dash panel.
5. Remove the bolts connecting the universal joint.
6. Remove the steering column lower cover.
7. Disconnect all connectors of the wire harness of the multi-use lever switch. Disconnect the connector of the ignition key switch.
8. Remove the intermediate link joint protector.
(EUR, only)
9. Remove the steering column assembly with multiuse lever switch and steering column upper cover.
10. Remove the universal joint from the steering pinion.



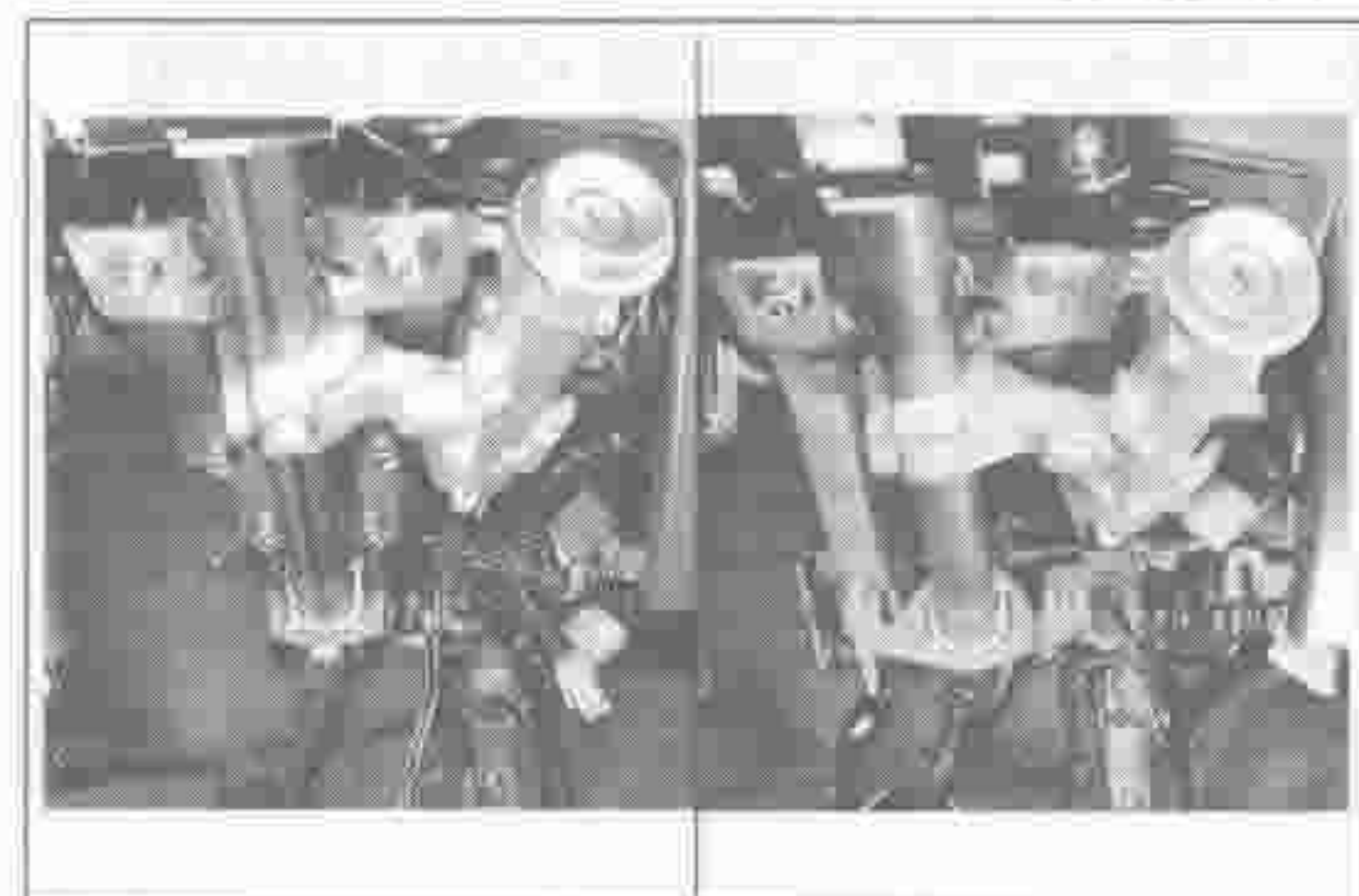
LSR00009-00008



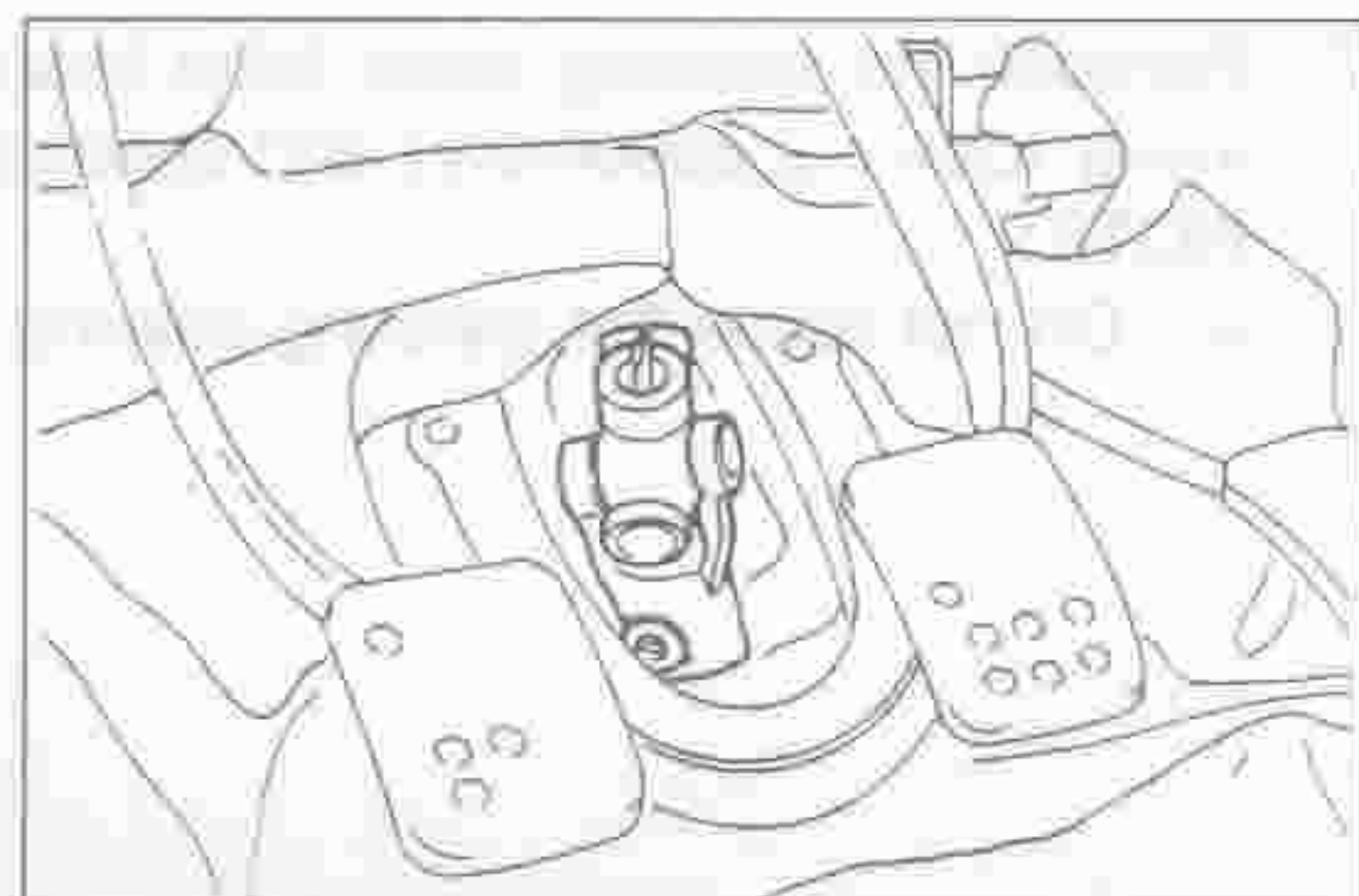
LSR00010-00009



LSR00011-00010



LSR00012-00011



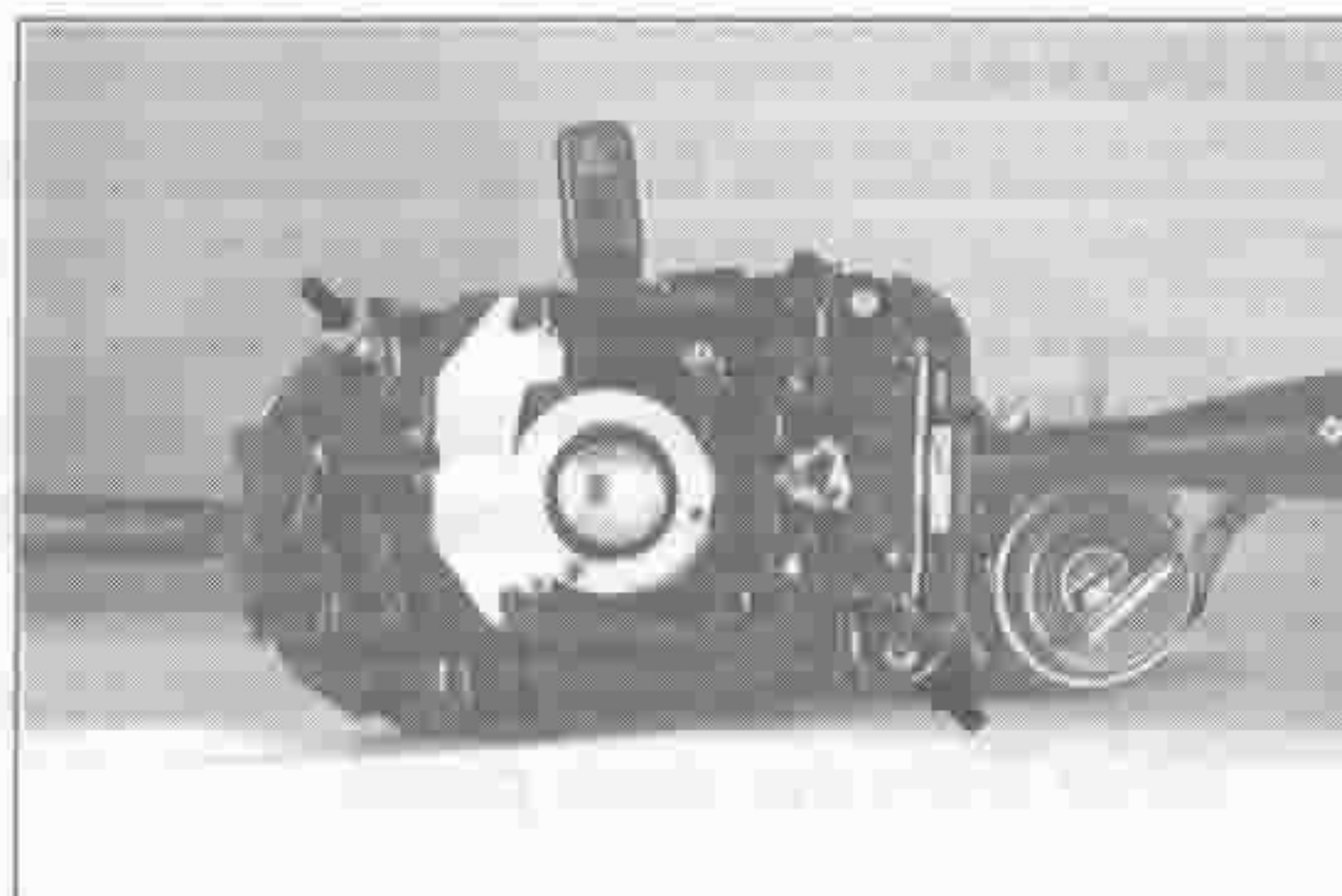
LSR00013-00012

DISASSEMBLY

1. Remove the multiuse lever switch.
2. Remove the steering column upper attachment plate.

NOTE:

- Do not reuse the steering column upper attachment plate.



LSR00014-00013

3. Remove the shaft snap ring at the steering wheel attaching section side.



LSR00015-00014

4. Set a ignition key to a position other than the LOCK position.
5. Remove the steering main shaft by tapping it, using a plastic hammer.

NOTE:

- Be sure to tap the steering wheel attaching side of the steering main shaft.



LSR00016-00015

6. Remove the needle roller bearing.

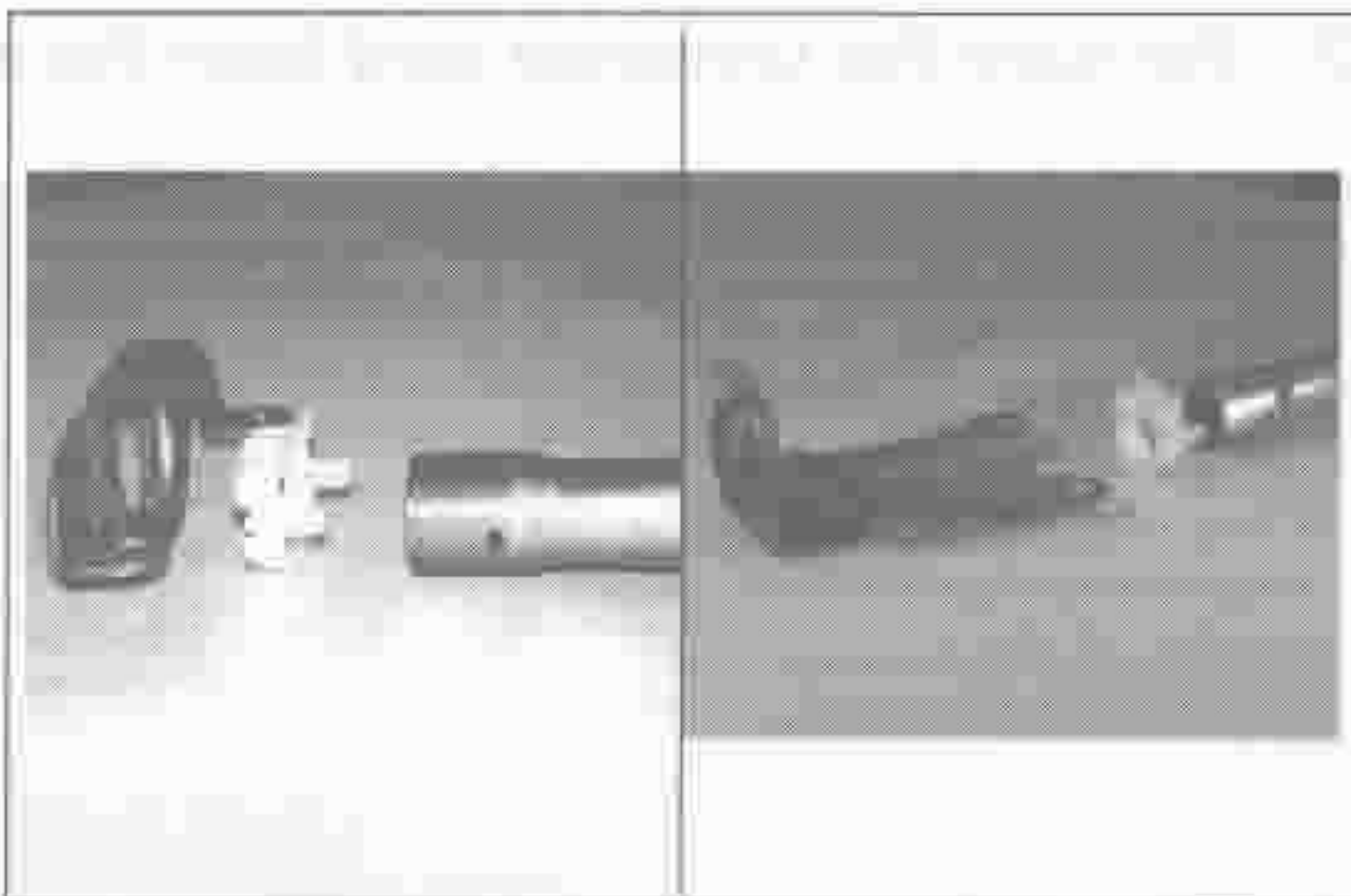


LSR00017-00016

7. Remove the steering lower tube bracket (steering column lower tube subassembly) and steering column tube bush.

NOTE:

- Do not reuse the steering column tube bush.

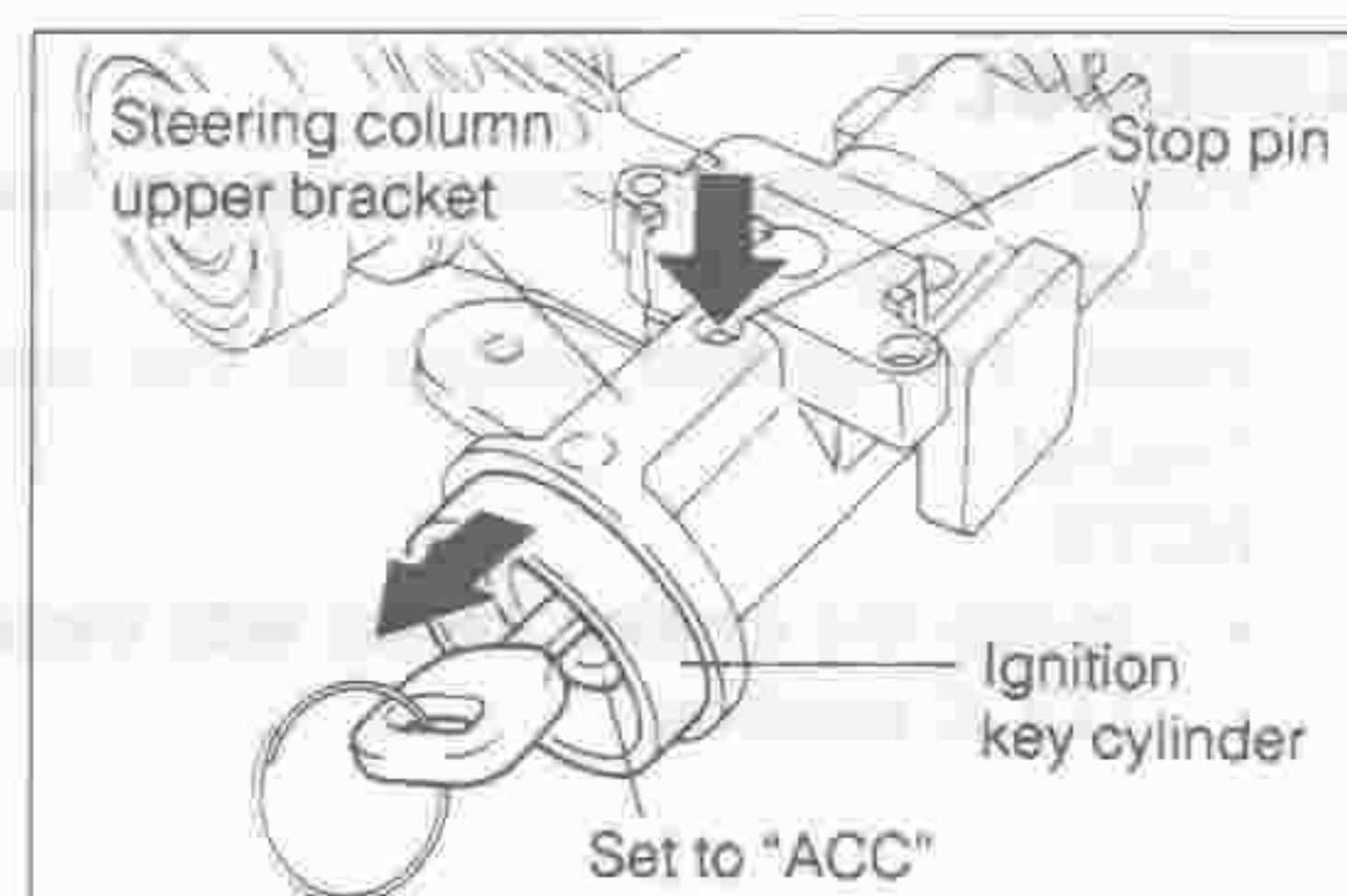


LSR00018-00017

8. Remove the ignition key cylinder from the steering column upper bracket with the switch.

NOTE:

- Set the ignition key to the ACC position and push the stop pin. Then, draw out the cylinder.
- This operation can be performed on the vehicle if the steering column cover is removed beforehand.

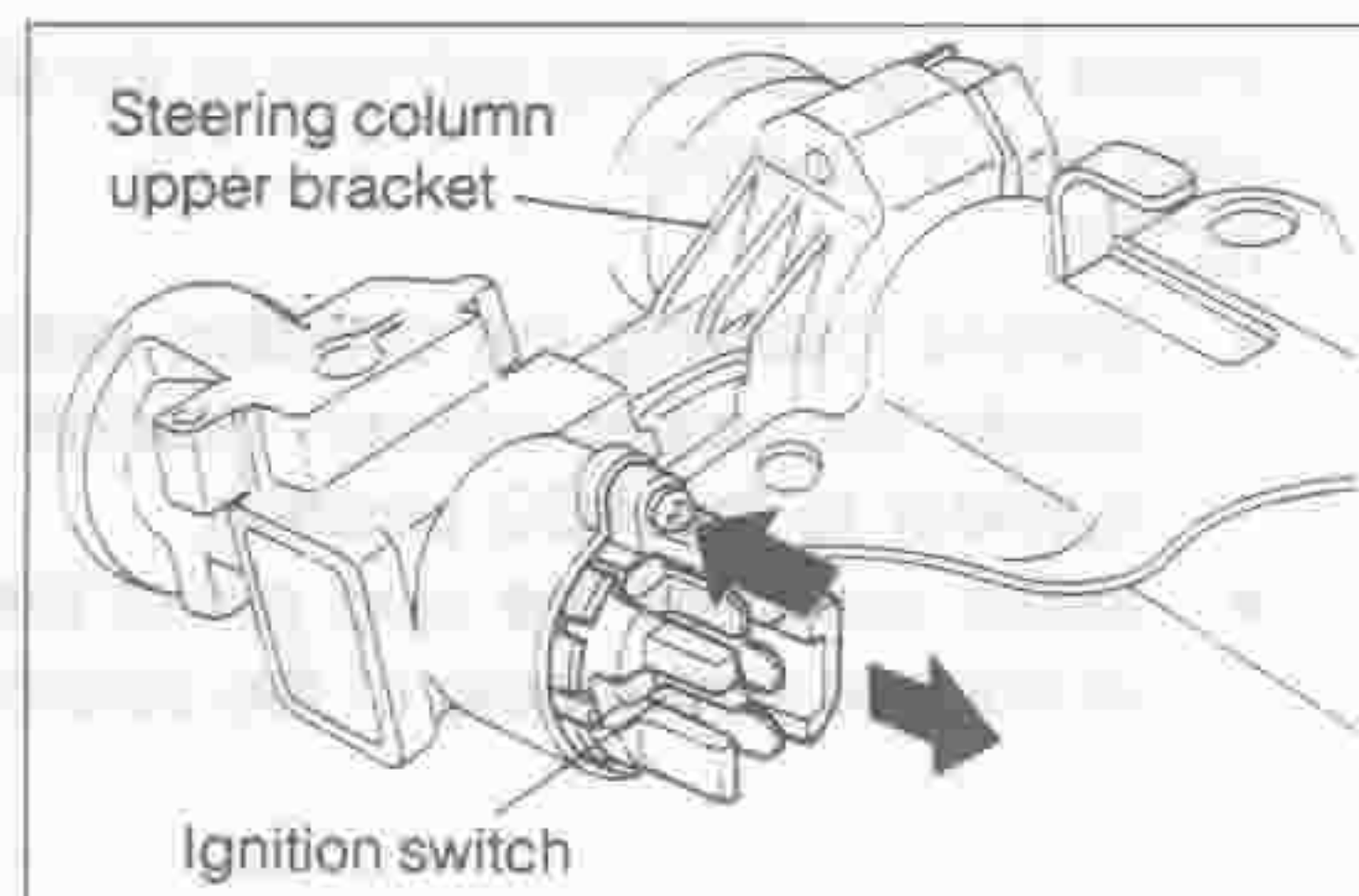


LSR00019-00019

9. Remove the ignition switch from the steering column upper bracket.

NOTE:

- This operation can be performed also on the vehicle.

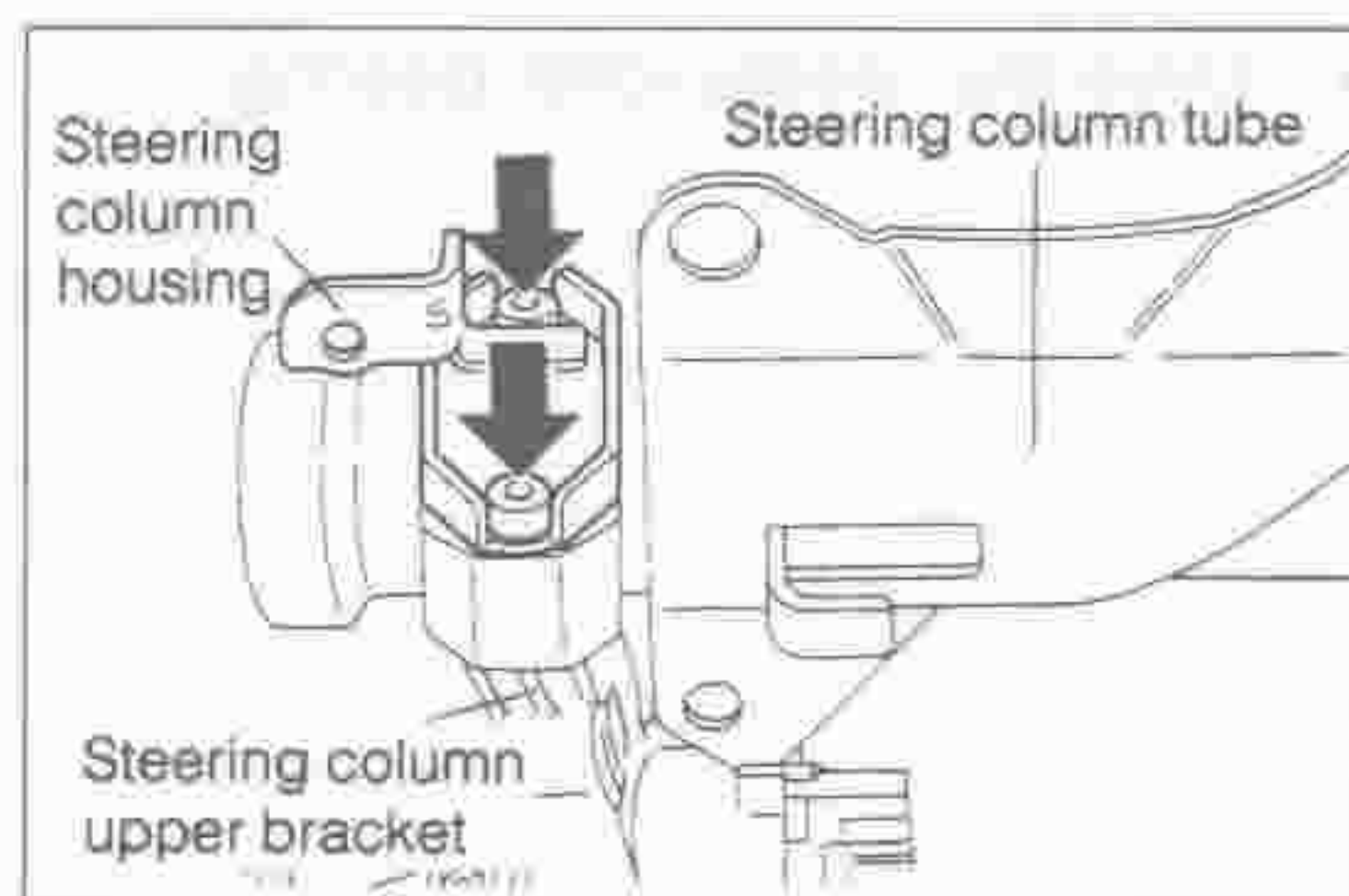


LSR00020-00019

10. Disconnect the steering column upper bracket from the steering column housing, using a drill. Remove the upper bracket from the steering column tube.

NOTE:

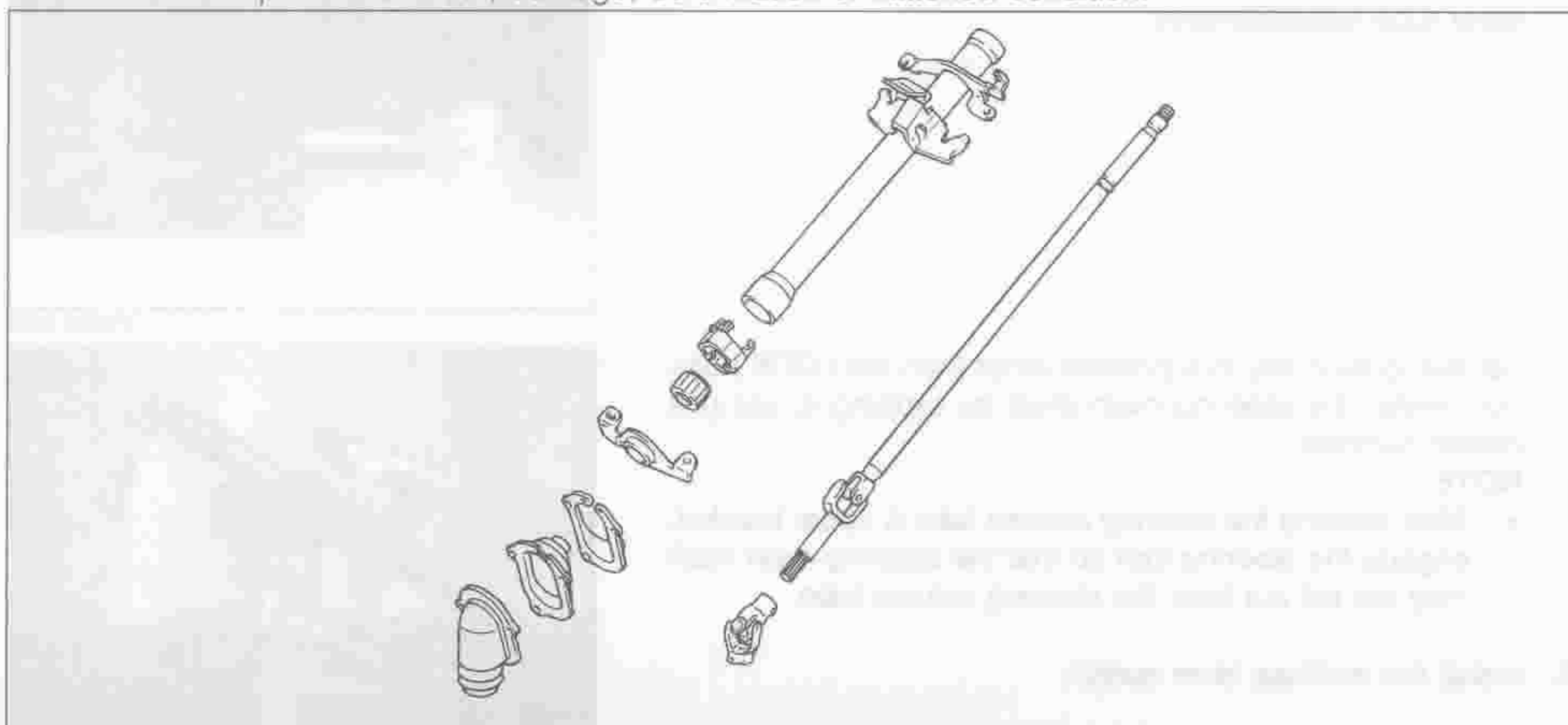
- Perform this operation only when it becomes necessary to replace the steering column upper bracket alone.
- Do not reuse the steering column upper bracket that has been once removed.



LSR00021-00020

INSPECTION

Check each component for wear, damage, deformation or flattened condition.



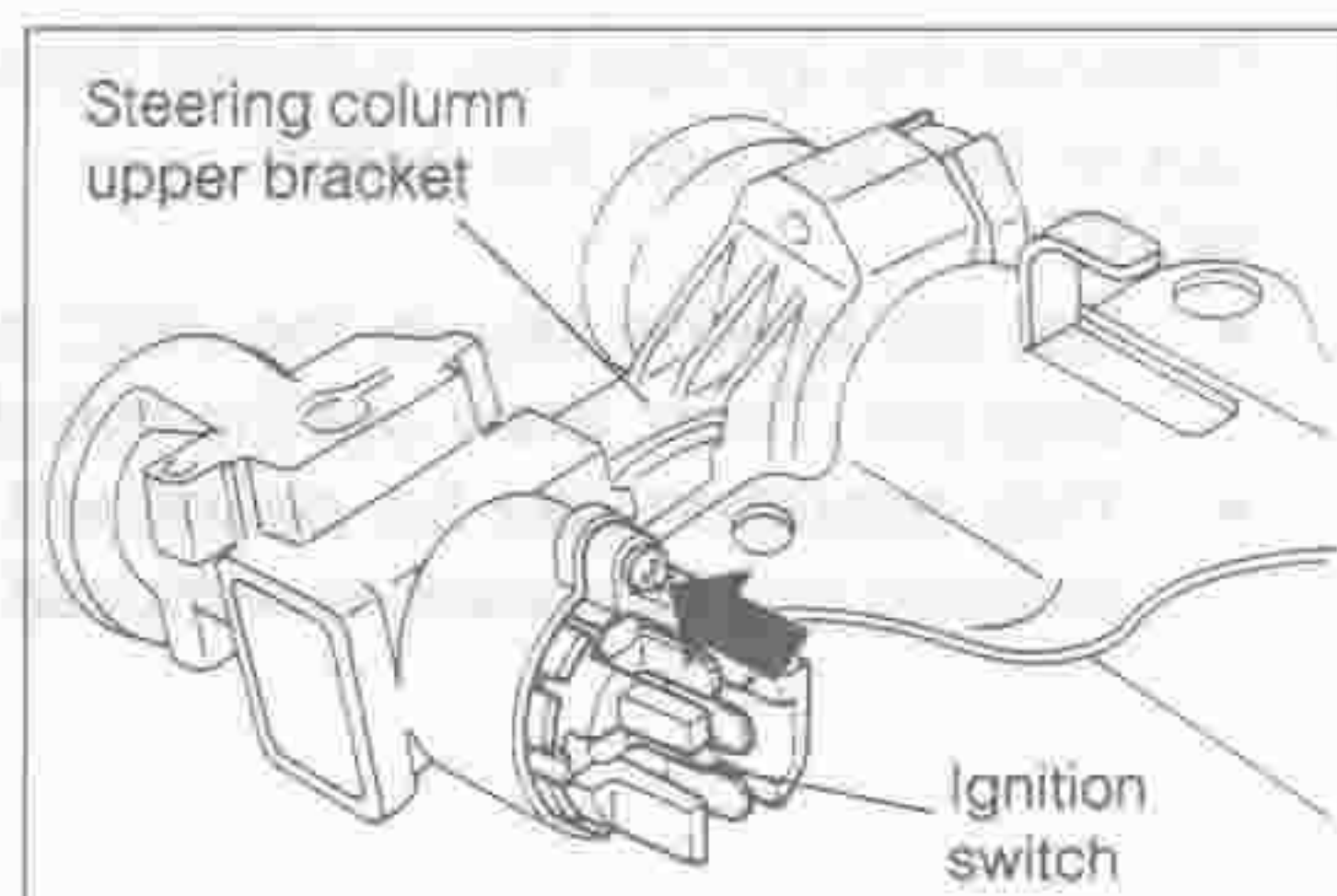
LSR00022-00021

ASSEMBLY

1. Install the steering column upper bracket to the steering column tube.
2. Install the ignition switch to the steering column upper bracket.

NOTE:

- Install the ignition switch with the switch rotor set to the LOCK position.

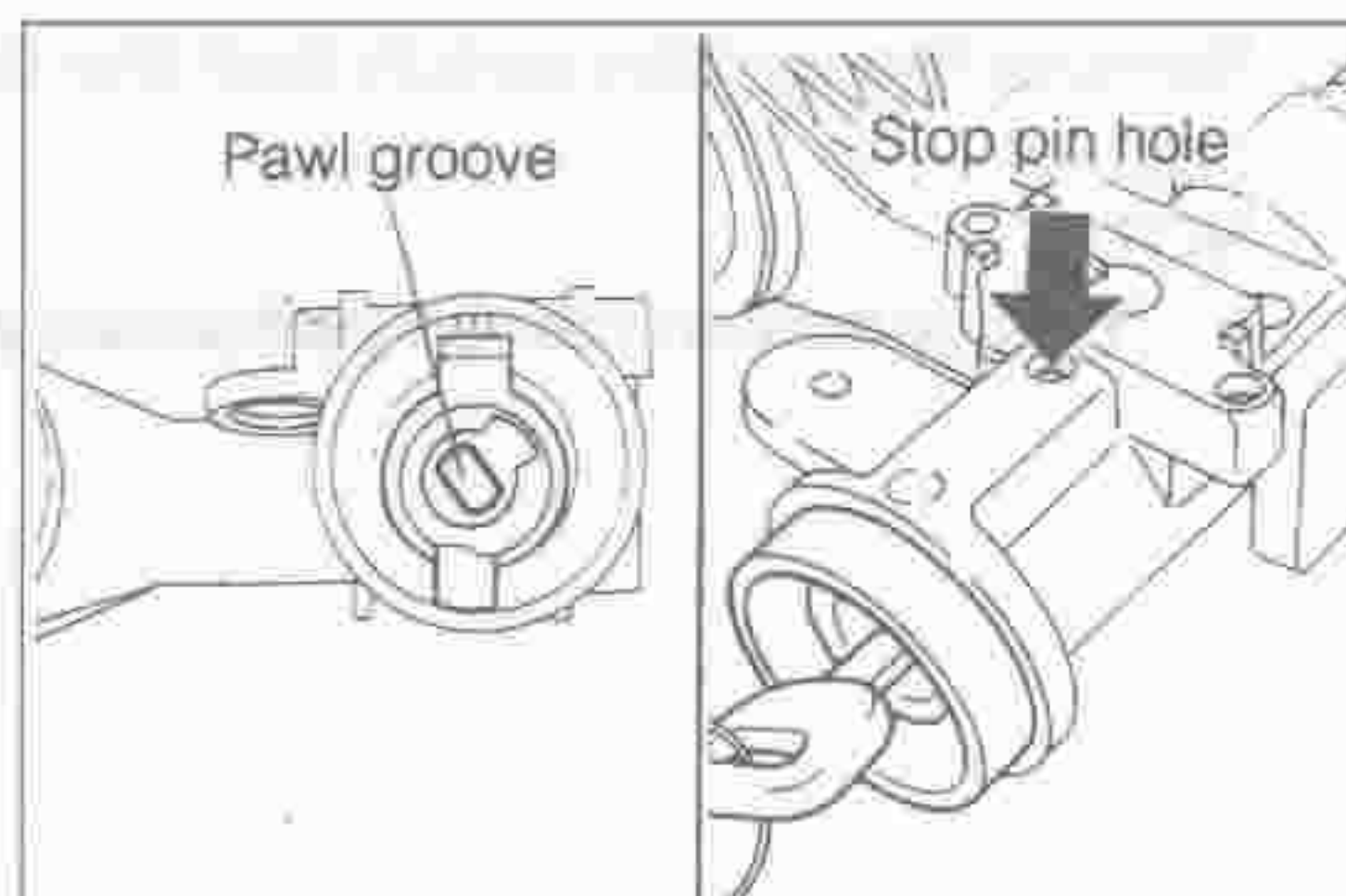


LSR00023-00022

3. Install the ignition key cylinder to the steering upper column with switch bracket.

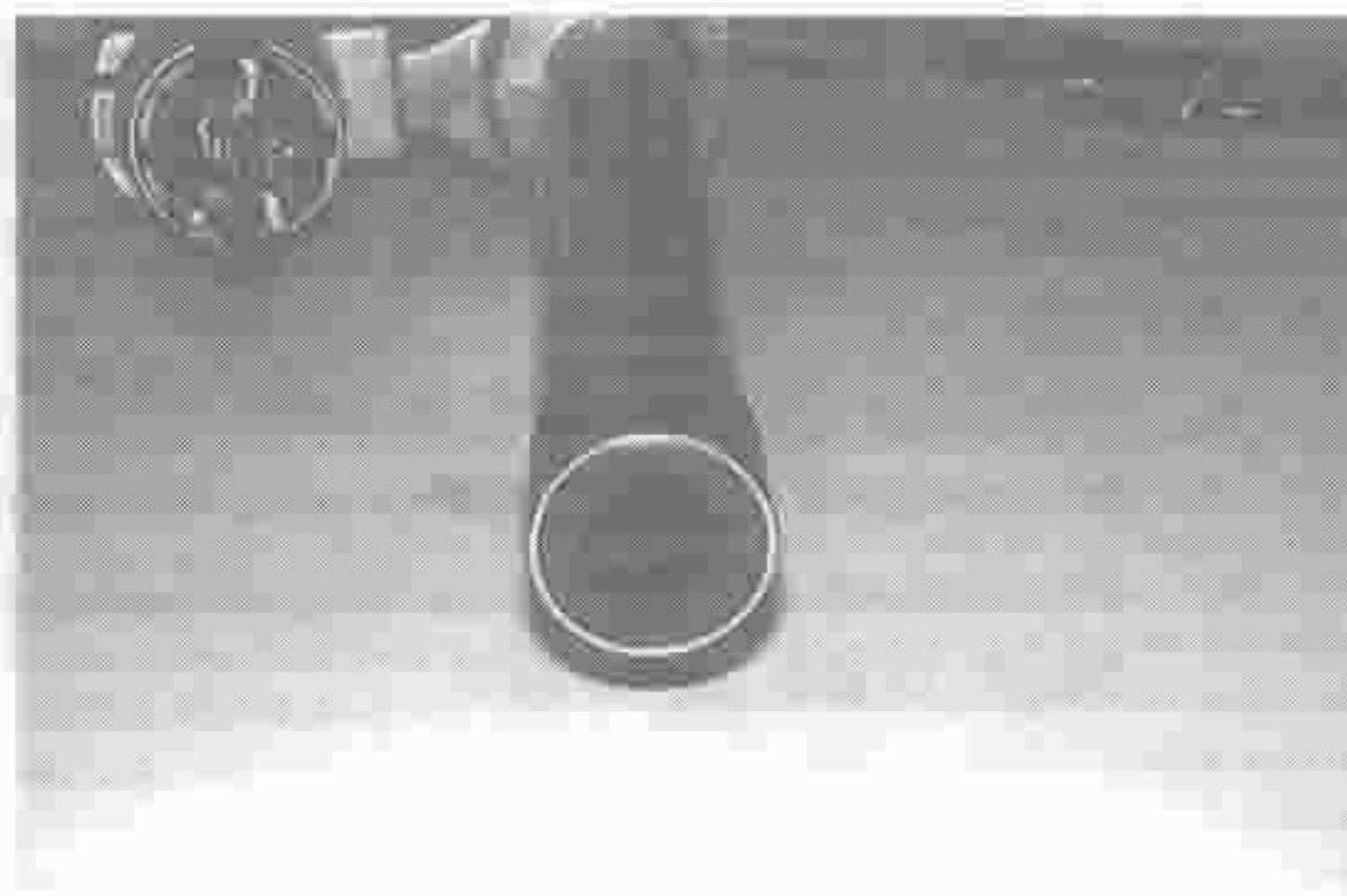
NOTE:

- Before installing the cylinder, set both the pawl groove inside the upper column bracket and the ignition key cylinder to the ACC position.
- Make sure that the stop pin of the ignition key cylinder is hooked at the hole of the column upper bracket.



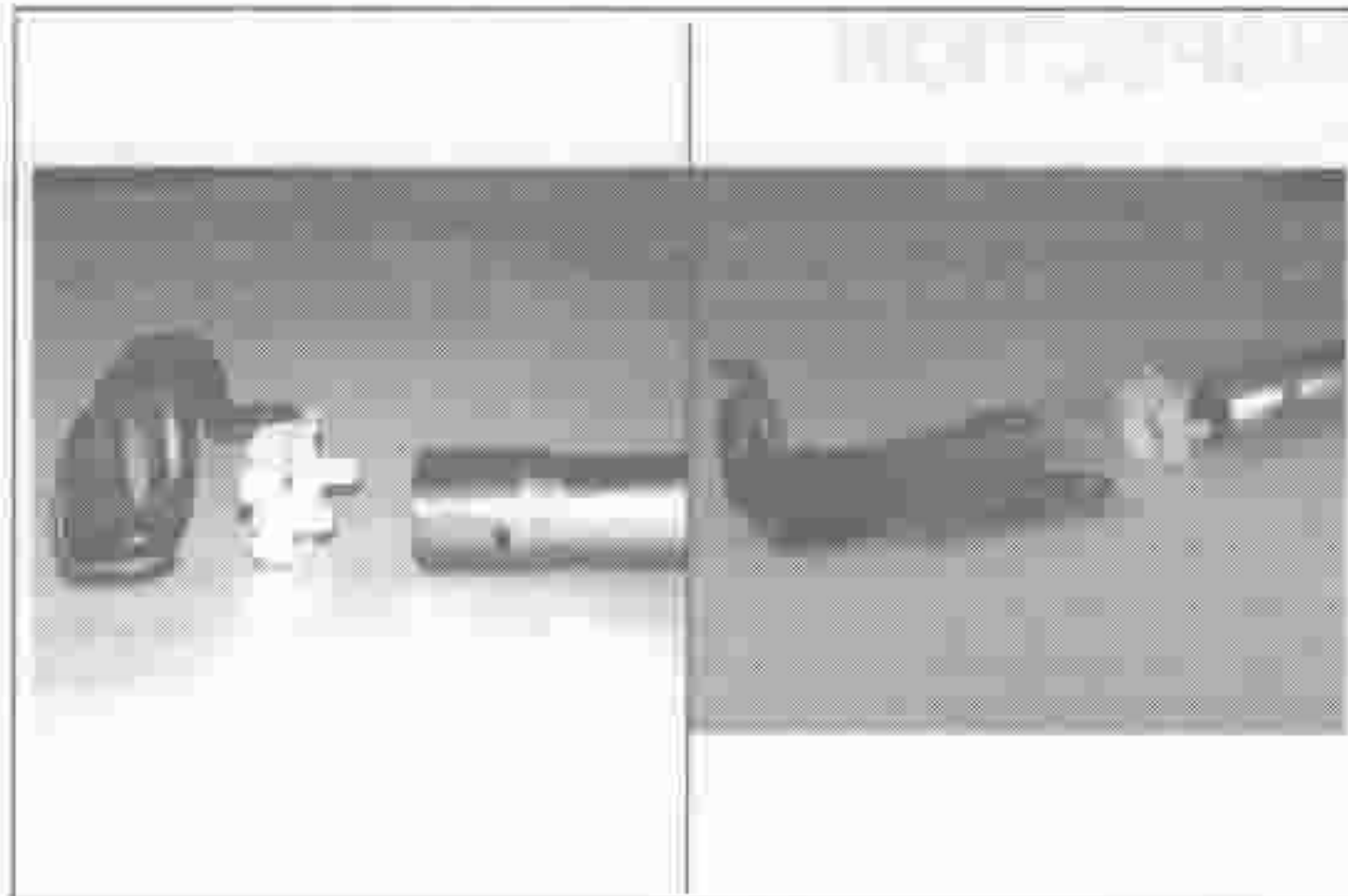
LSR00024-00023

4. Drive the needle roller bearing.



LSR00025-00024

5. Install the steering column tube bush.
6. Install the steering lower tube bracket (steering column lower tube subassembly).



LSR00026-00025

7. Set the ignition key to a position other than the LOCK position. Install the steering main shaft by tapping it, using a plastic hammer.

NOTE:

- After passing the steering column tube & upper bracket, engage the steering lock so that the steering main shaft may not fall out from the steering column tube.



LSR00027-00026

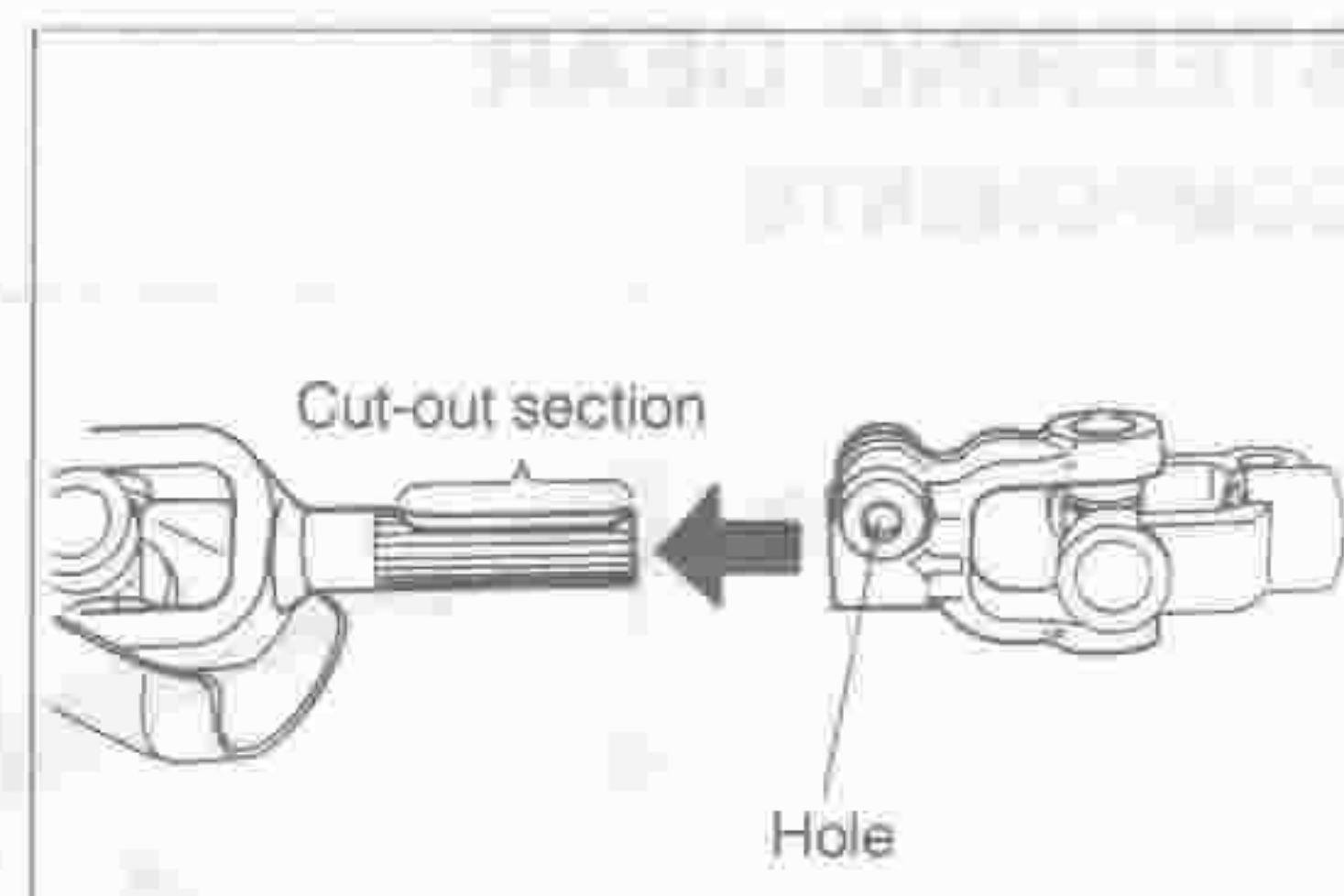
8. Install the multiuse lever switch.

INSTALLATION

1. Temporarily install the universal joint to the steering main shaft universal joint.

NOTE:

- Install the joint while aligning it with the cut-out portion of the spline section.



LSR00028-00027

2. Attach a new steering column upper attachment plate.
3. Install the steering column assembly and the steering column upper cover to the vehicle.

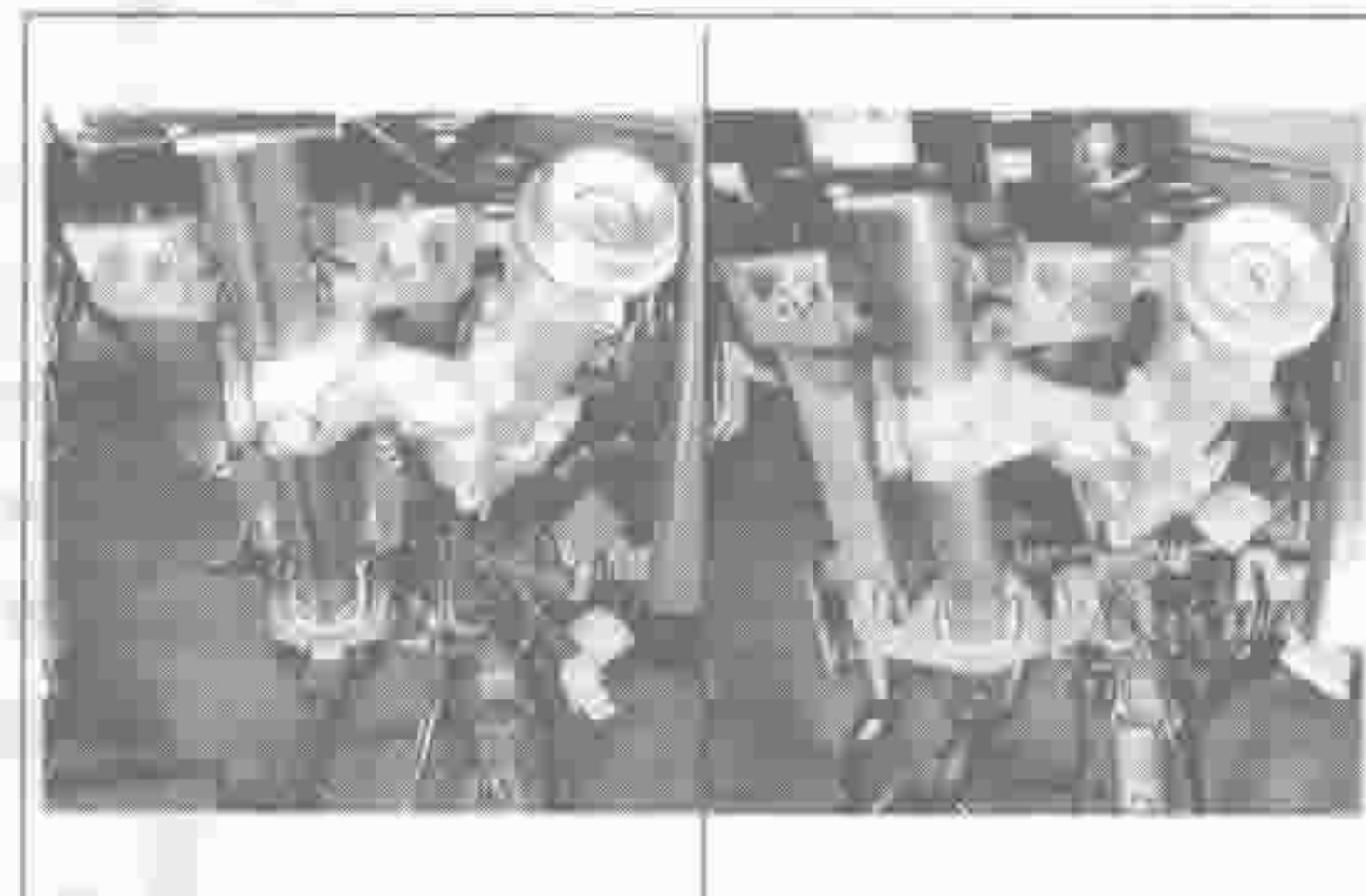
NOTE:

- With the hanger at the column tube upper side hooked to the vehicle side, tighten the bolts, starting the column lower side.

Tightening torque:

Lower side: 17.7 - 27.5 N·m
(1.8 - 2.8 kgf-m, 13.0 - 20.2 ft-lb)

Upper side: 17.7 - 24.5 N·m
(1.8 - 2.5 kgf-m, 13.0 - 18.1 ft-lb)



LSR00029-00028

4. Connect the universal joint to the steering pinion. Tighten the bolts.

Tightening torque: 19.6 - 29.4 N·m
(2.0 - 3.0 kgf-m, 14.5 - 21.7 ft-lb)

CAUTION:

- Before tightening the bolts, positively insert the universal joint down to the lower end of the steering pinion spline section.
- Tighten the bolts in the sequence of the right figure.



LSR00030-00029

5. Install the intermediate link joint protector. (EUR only)
6. Connect the connectors of the wire harness of the multiuse lever switch. Connect the connector of the ignition key switch.
7. Install the steering column lower cover.



LSR00031-00030

8. Install the steering shaft dust cover with dust cover retainer.

NOTE:

- Be careful not to allow the dash panel silencer to be caught in.

Tightening torque: 3.9 - 6.9 N·m
(0.4 - 0.7 kgf-m, 2.9 - 5.1 ft-lb)

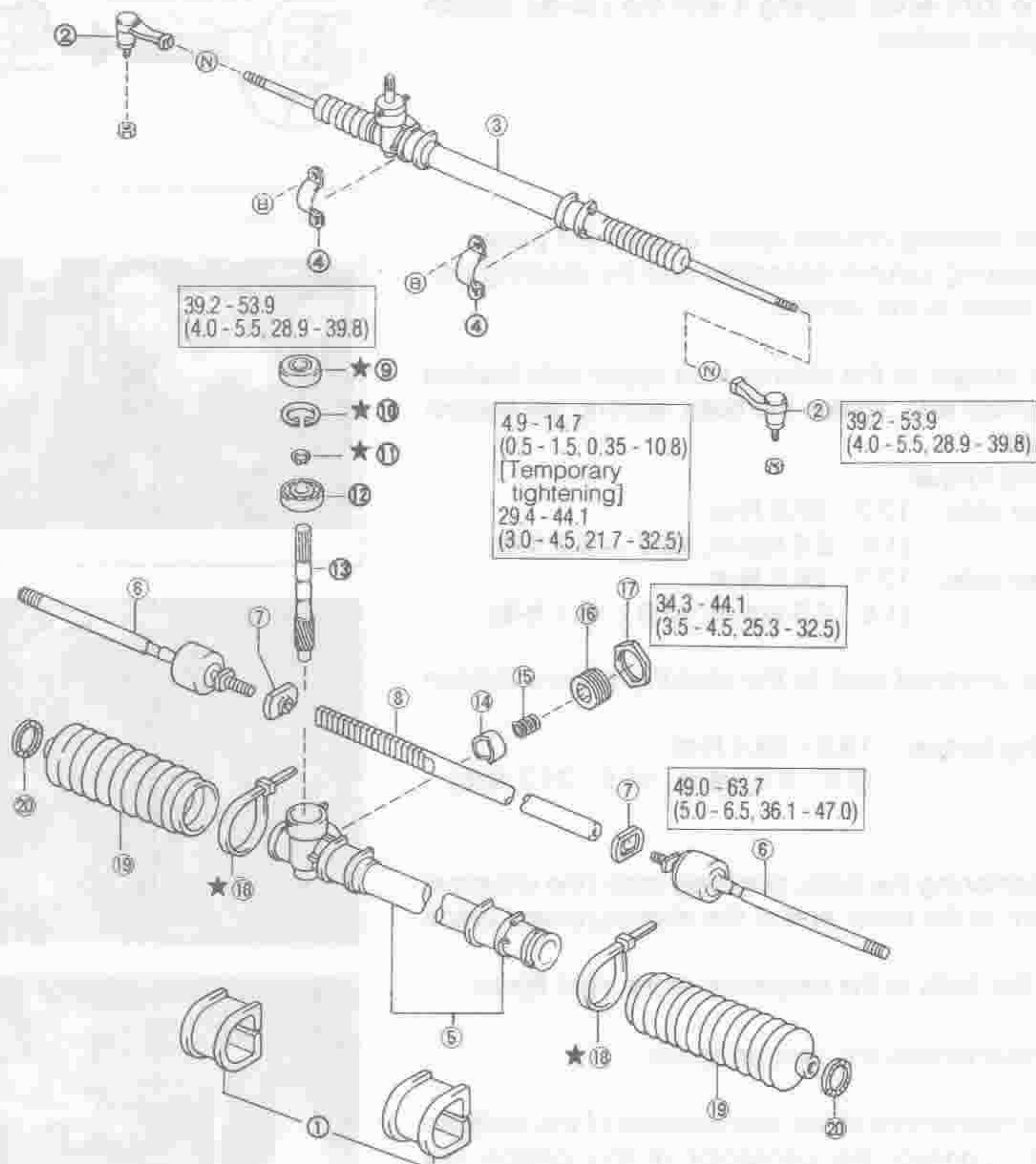
9. Install the carpet and silencer at the dash panel and floor in their original conditions.
10. Install the steering wheel.
(Refer to SR-3)



LSR00032-00031

STEERING GEAR COMPONENTS

INSTALLATION



□ : Tightening torque
Unit : N·m (kgf-m, ft-lb)
★ : Non-reusable part

- ① Steering rack housing grommet
- ② Tie rod end
- ③ Steering gear assembly
- ④ Steering rack housing No. 1 bracket
- ⑤ Steering rack housing subassembly
- ⑥ Steering rack end
- ⑦ Rack end nut
- ⑧ Steering rack
- ⑨ Oil seal
- ⑩ Hole snap ring

- ⑪ Shaft snap ring
- ⑫ Radial ball bearing
- ⑬ Steering pinion
- ⑭ Rack guide
- ⑮ Compression spring
- ⑯ Rack guide spring cap
- ⑰ Lock nut
- ⑱ Steering rack boot band No. 3
- ⑲ Steering rack boot
- ⑳ Steering rack boot band No. 2

REMOVAL

1. Turn over carpets or silencers, as required, at the sections where the steering main shaft and universal joint pass through.
2. Remove the steering shaft dust cover with dust cover retainer from the dash panel.



LSR00034-00033

3. Loosen the two bolts of the universal joint.
4. Disconnect the steering pinion from the universal joint by raising the joint.

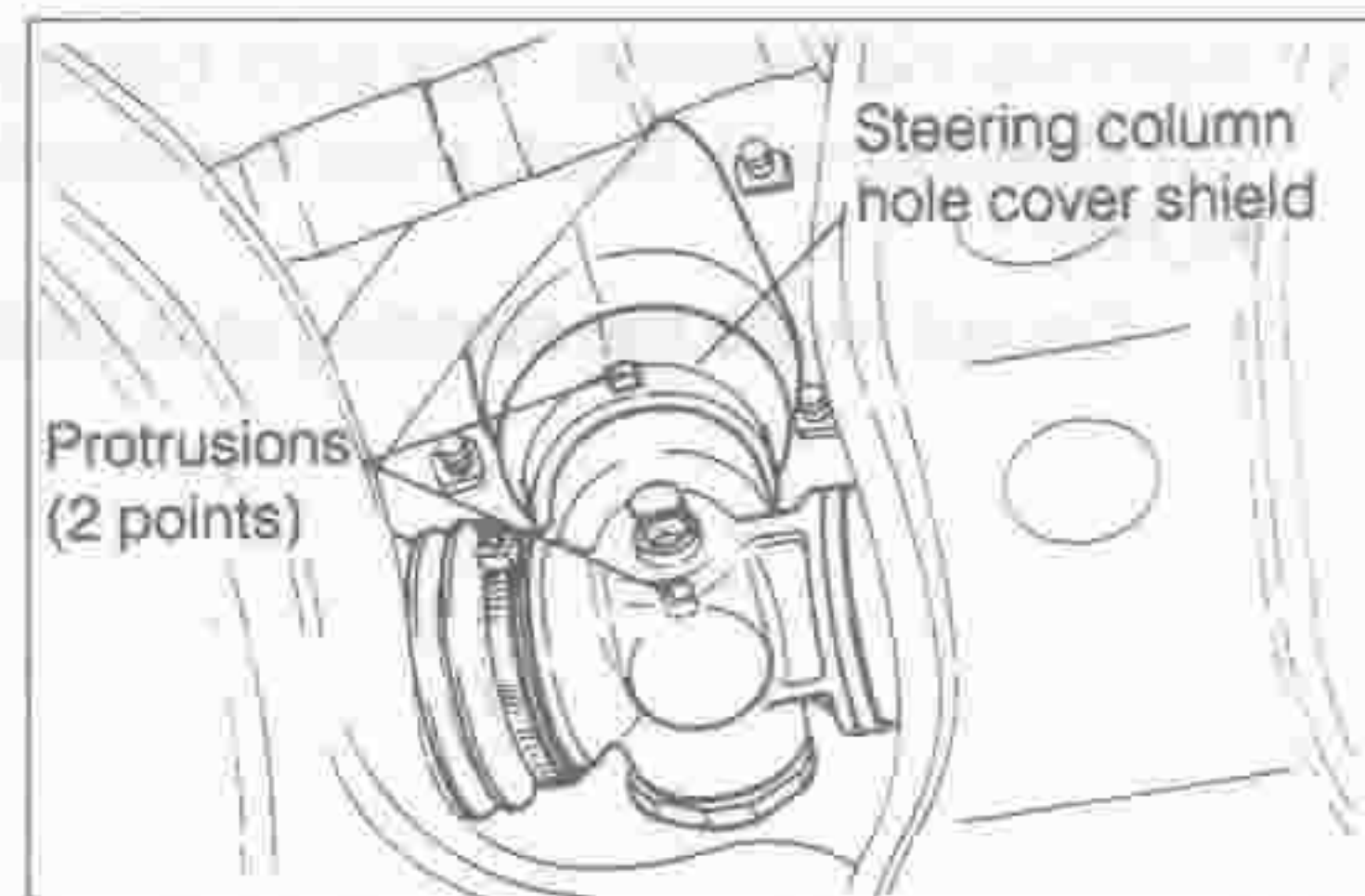


LSR00035-00034

5. Remove the steering column hole cover shield from the steering gear at the lower side of the engine compartment.

NOTE:

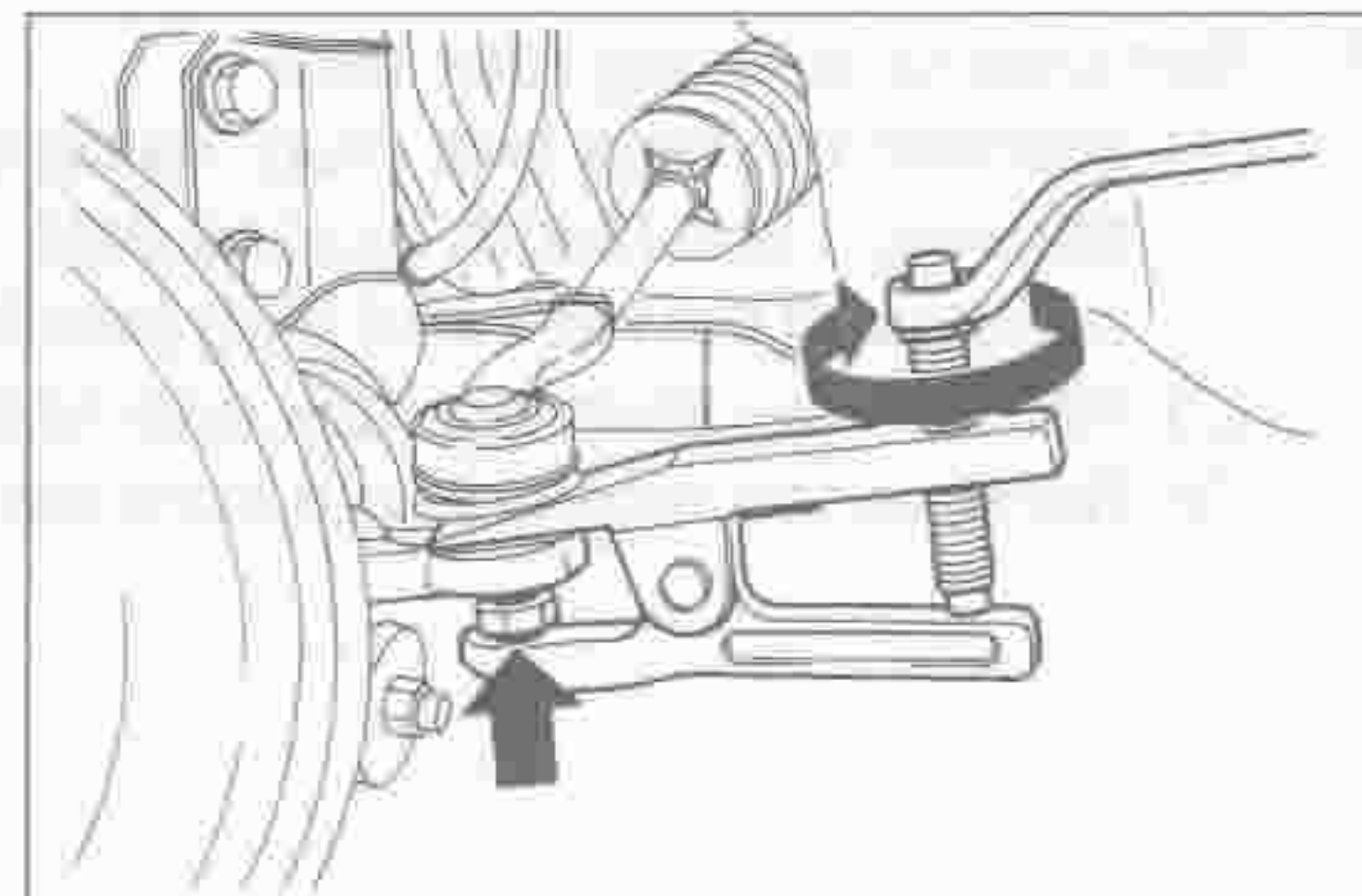
- The cover shield is retained by means of the protrusions located on the steering gear at the front and rear sides, one each.



LSR00036-00035

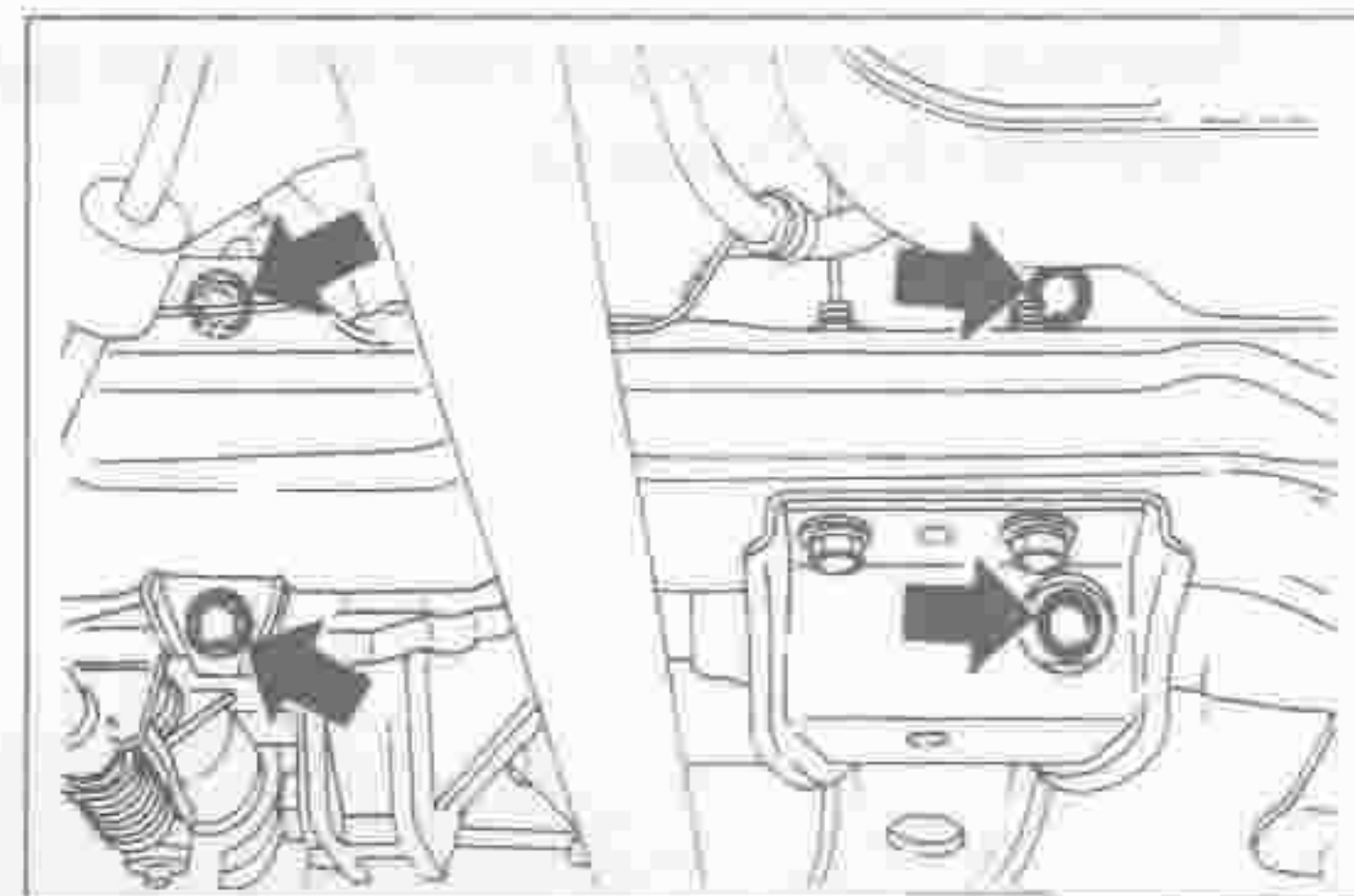
6. Loosen the nut up to the forward end position of the bolt of the tie rod end.
7. Disconnect the tie rod end from the steering knuckle, using the following SST.

SST: 09611-87701-000



LSR00037-00036

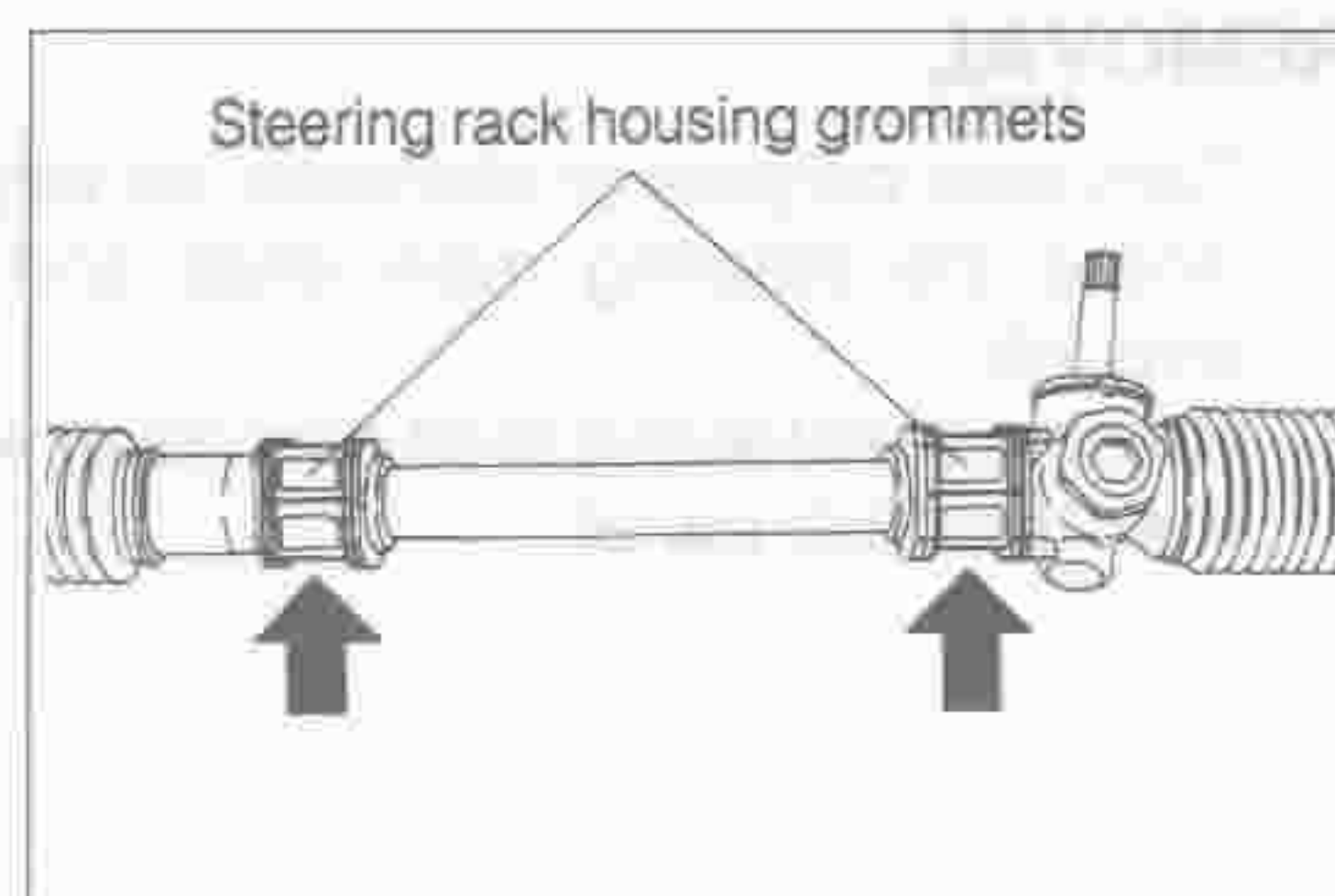
8. Remove the steering gear assembly from the frame.
9. Pull out the steering gear assembly from the vehicle.



LSR00038-00037

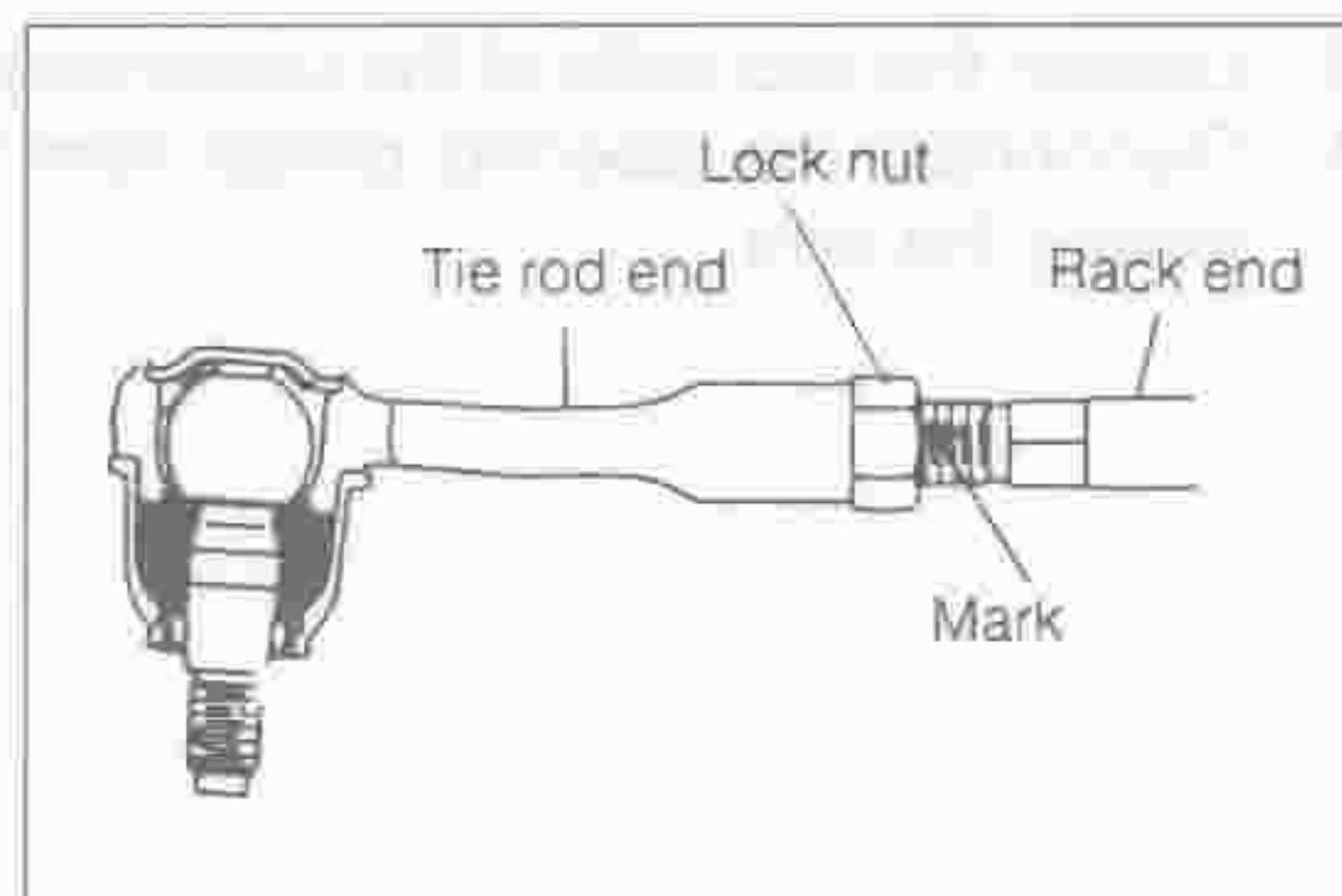
DISASSEMBLY

1. Remove the steering rack hosing grommets from the steering rack housing.



LSR00039-00038

2. Removal of tie rod end
 - (1) Before the steering tie rod end is removed, put a mark on the rack end section in order that this mark may be used as a guide to ensure easier toe-in adjustment during the reassembly.
 - (2) Slacken the lock nut. Remove the tie rod end from the rack end.

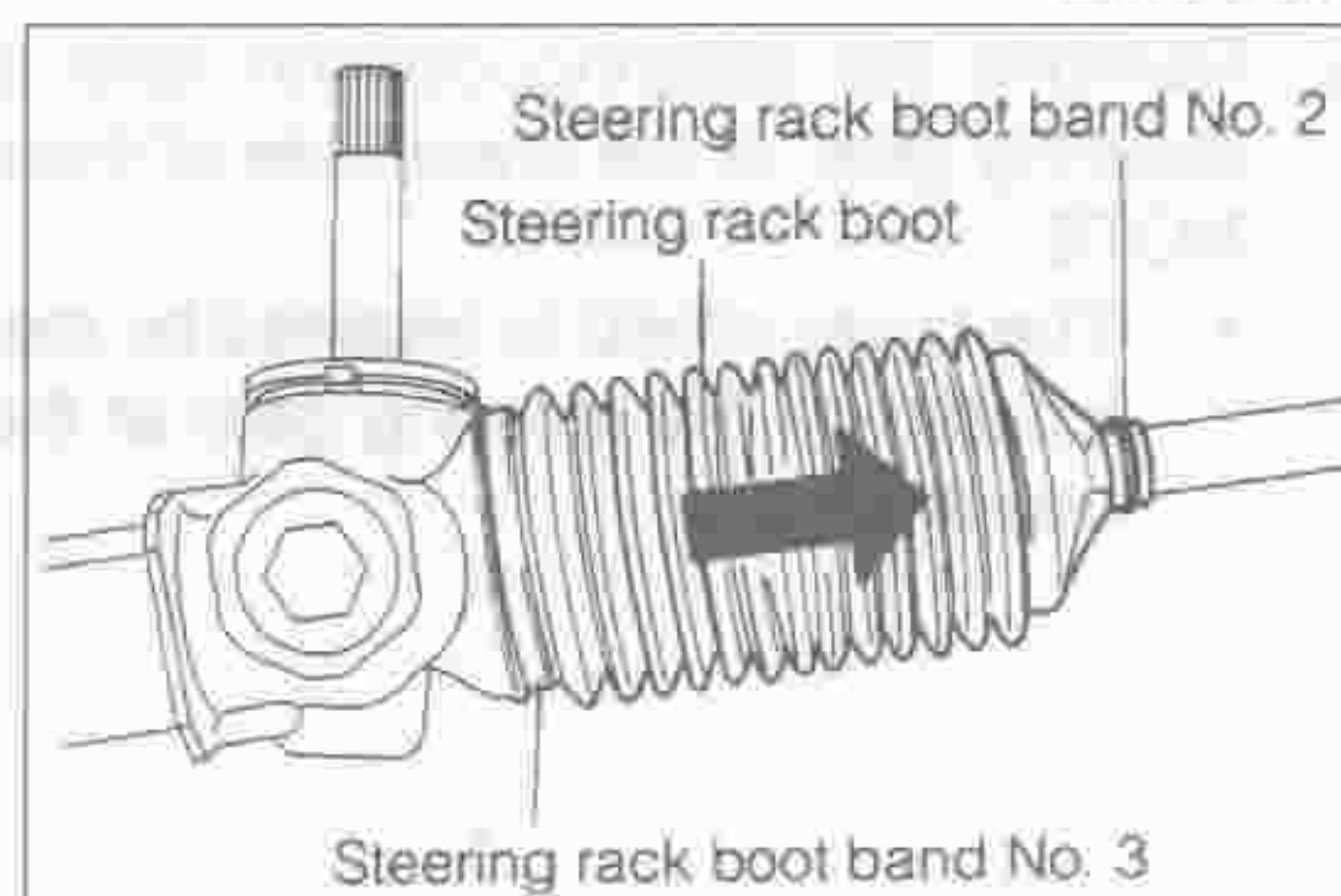


LSR00040-00039

3. Remove the steering rack boot band No. 2 & No. 3. Pull out the steering rack boots from the steering rack end.

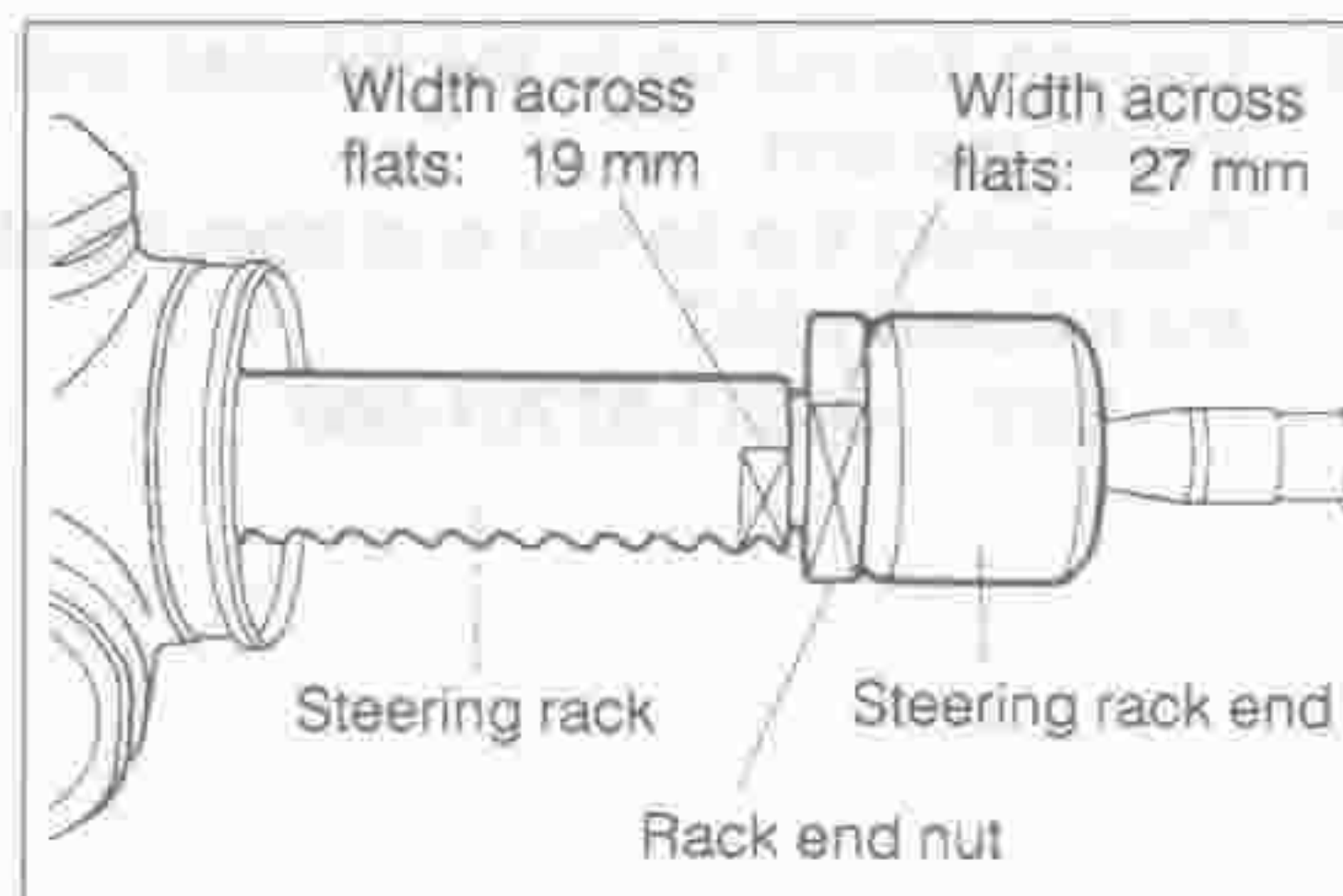
NOTE:

- Do not reuse the steering rack boot band No. 3.



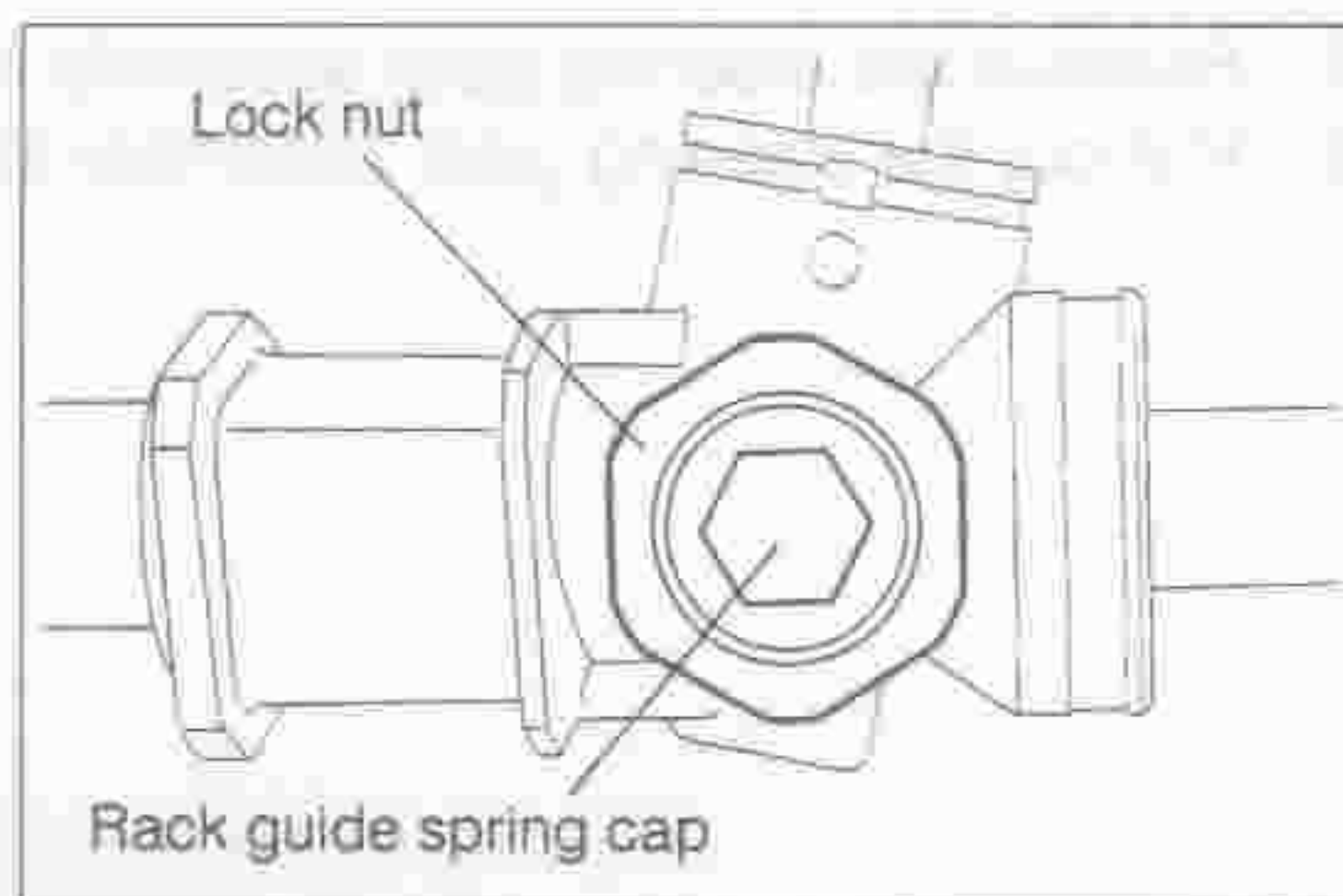
LSR00041-00040

4. Removal of steering rack end
 - (1) Slacken the rack end plug, using the flat sections of the steering rack (width across flats: 19 mm) and the flat sections of the rack end plug (width across flats: 27 mm).
 - (2) Remove the steering rack end from the steering rack.
 - (3) Remove the rack end nut from the steering rack end.



LSR00042-00041

5. Remove the lock nut from the rack guide spring cap of the steering rack housing.

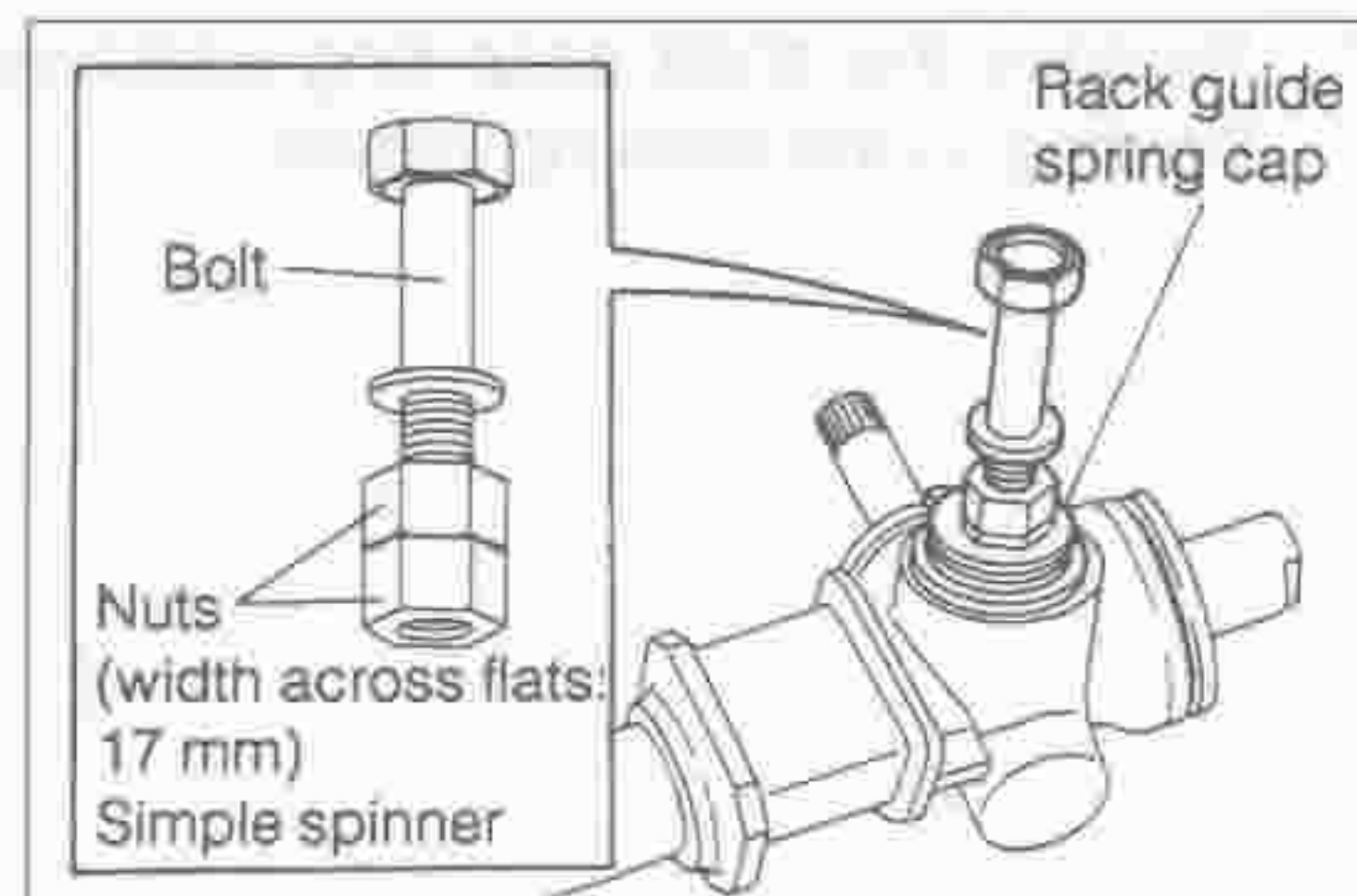


LSR00043-00042

6. Remove the rack guide spring cap from the steering rack housing, using a simple spinner.

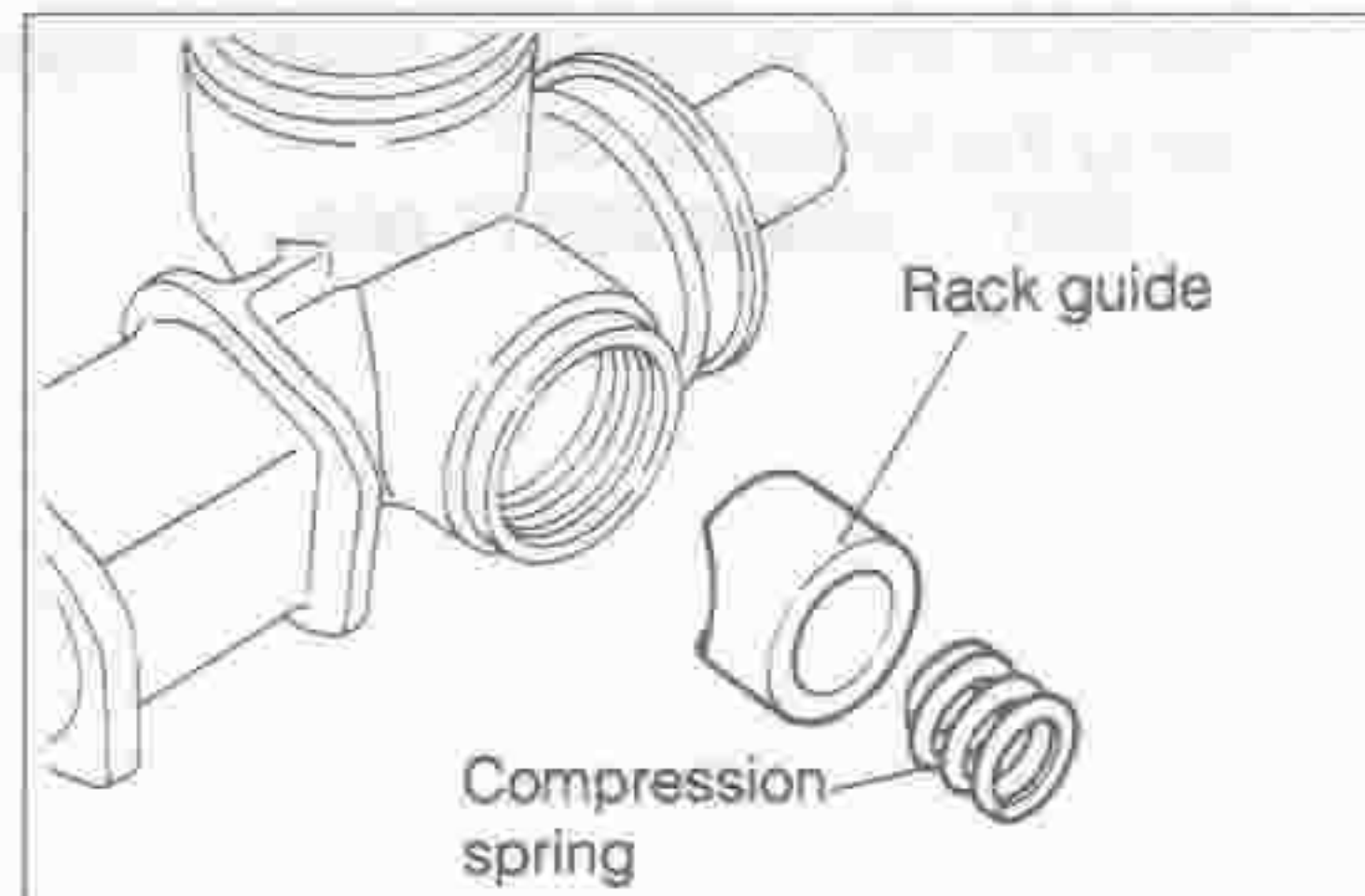
NOTE:

- The simple spinner can be fabricated by securing a double nut to a bolt whose width across flats is 17 mm.



LSR00044-00043

7. Remove the compression spring and rack guide from the steering rack housing.

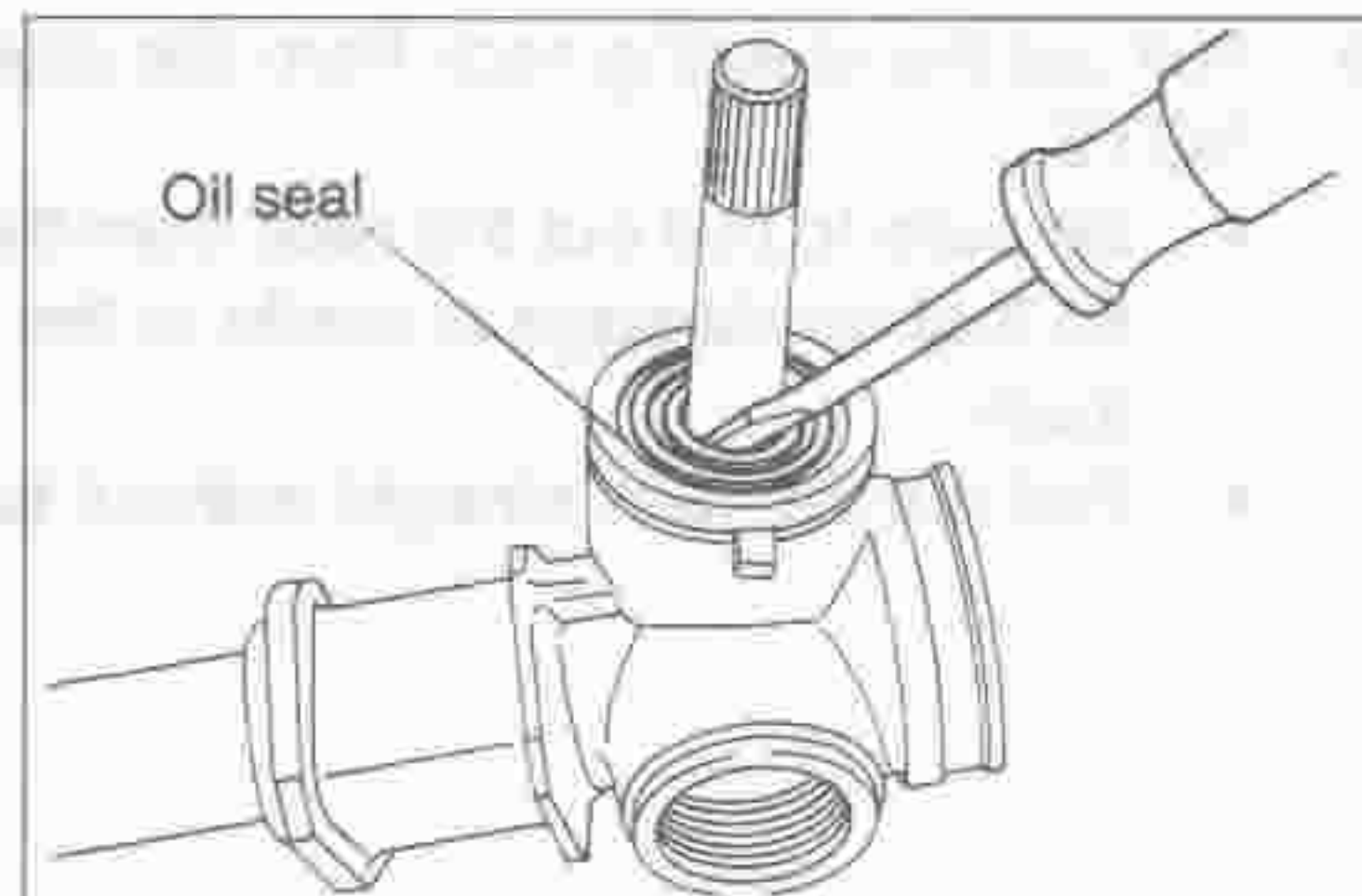


LSR00045-00044

8. Remove the oil seal from the steering rack housing, using a screwdriver or the like.

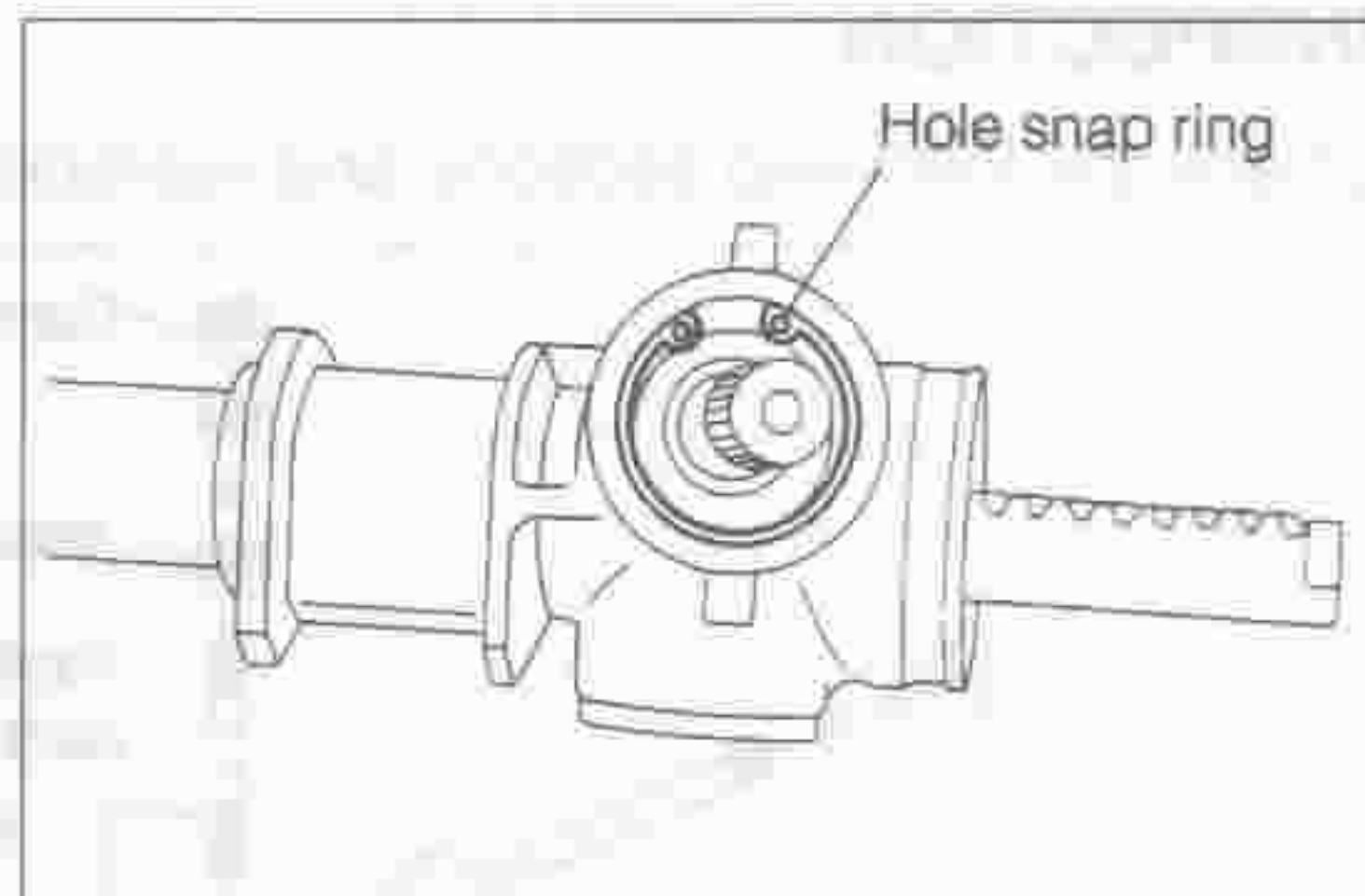
NOTE:

- Be very careful not to damage the steering rack housing and pinion.



LSR00046-00045

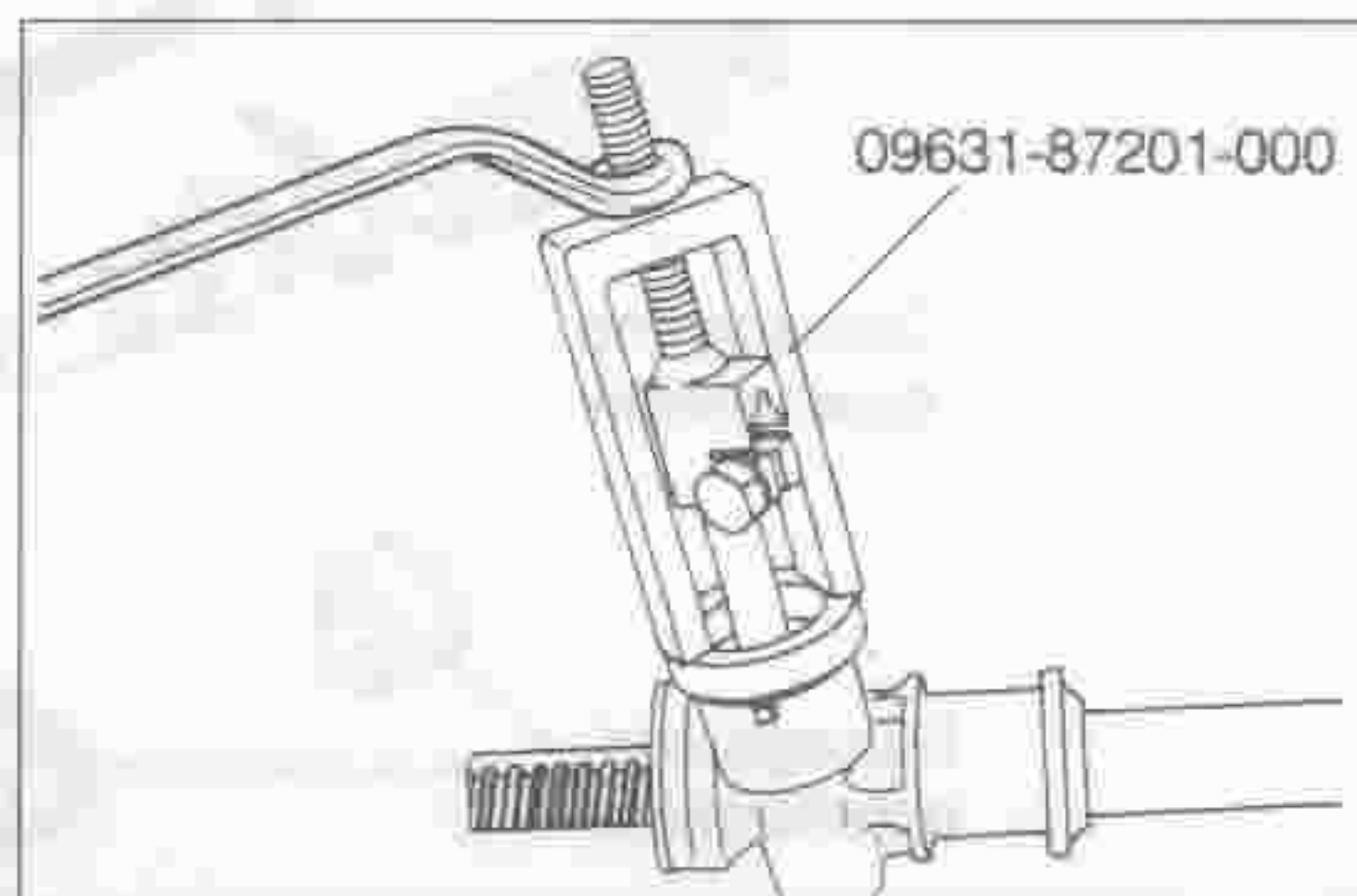
9. Remove the hole snap ring which secures the radial ball bearing from the steering rack housing.



LSR00047-00046

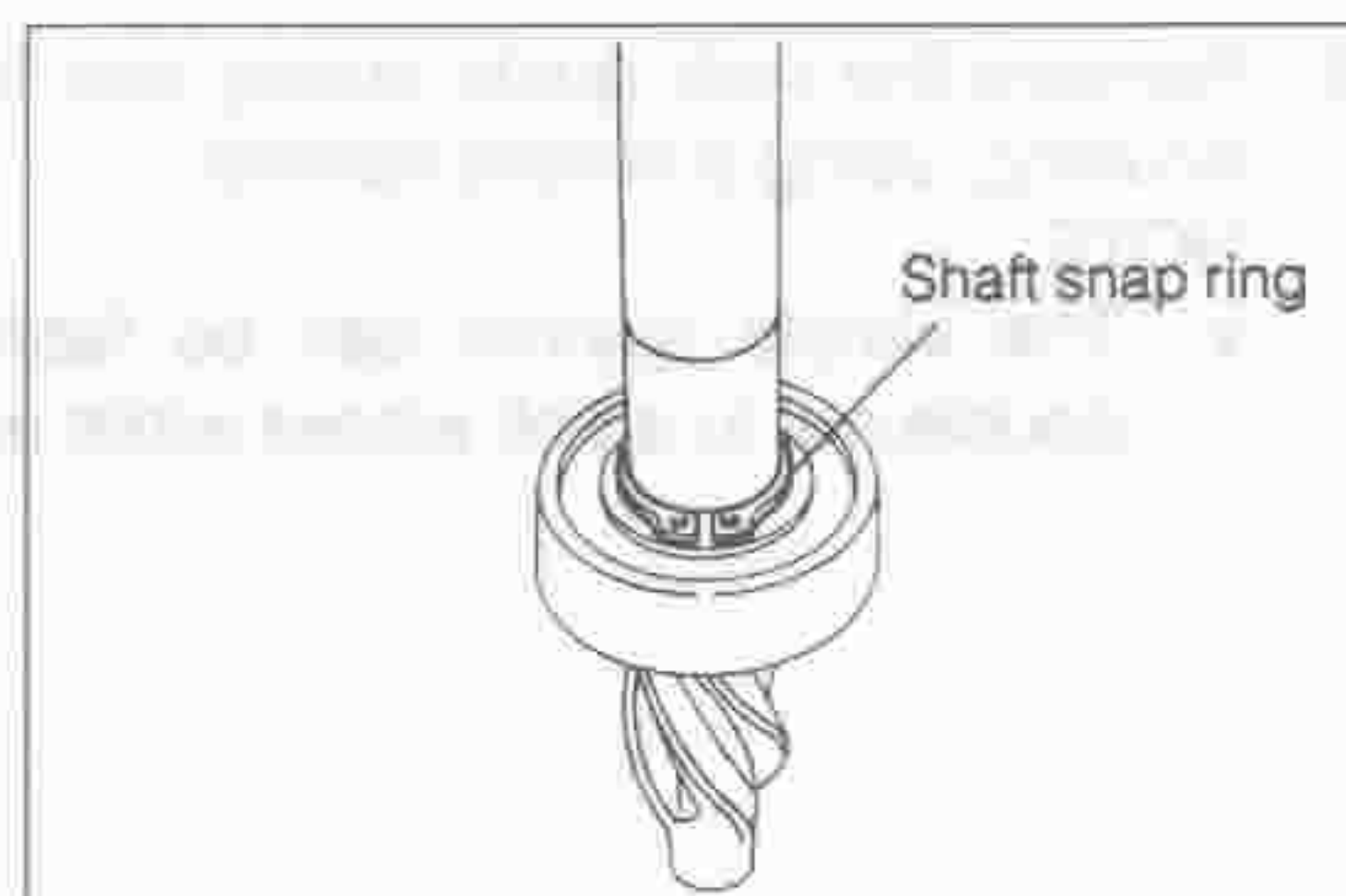
10. Remove the steering pinion and radial ball bearing from the steering rack housing, using the following SST.

SST: 09631-87201-000



LSR00048-00047

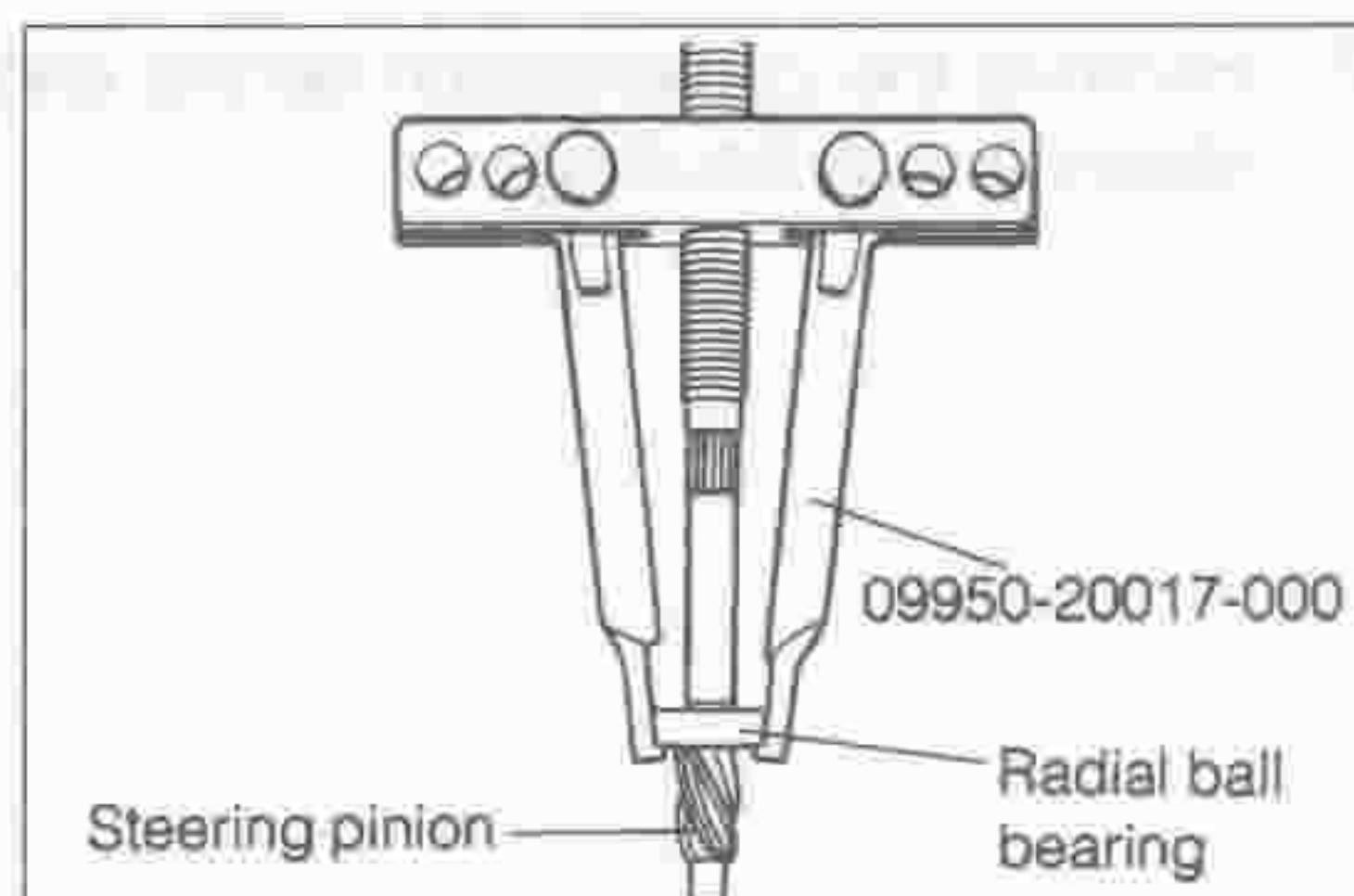
11. Remove the shaft snap ring which secures the radial ball bearing to the steering pinion.



LSR00049-00048

12. Remove the radial ball bearing from the steering pinion, using the following SST.

SST: 09950-20017-000

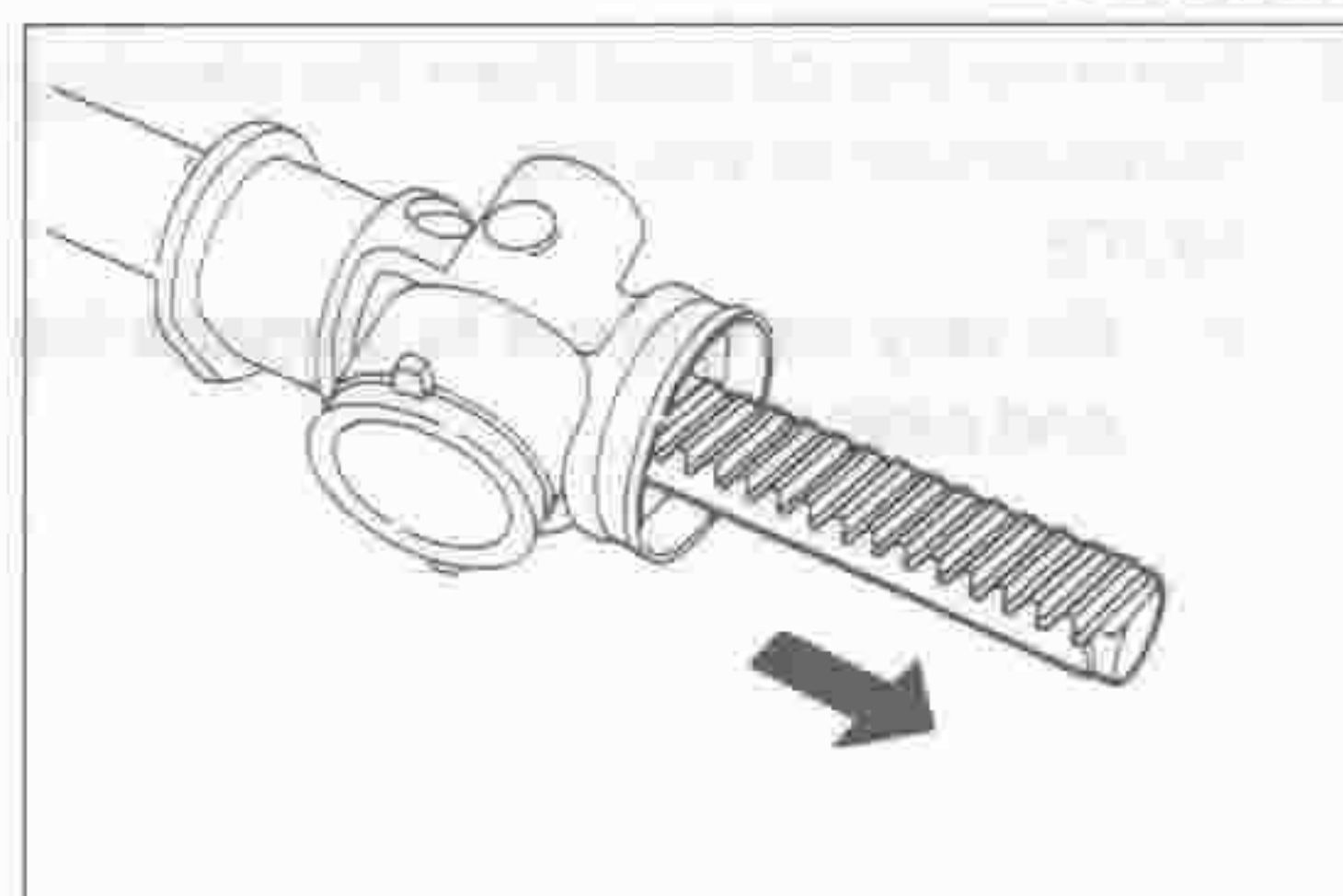


LSR00050-00048

13. Pull out the steering rack from the steering rack housing.

NOTE:

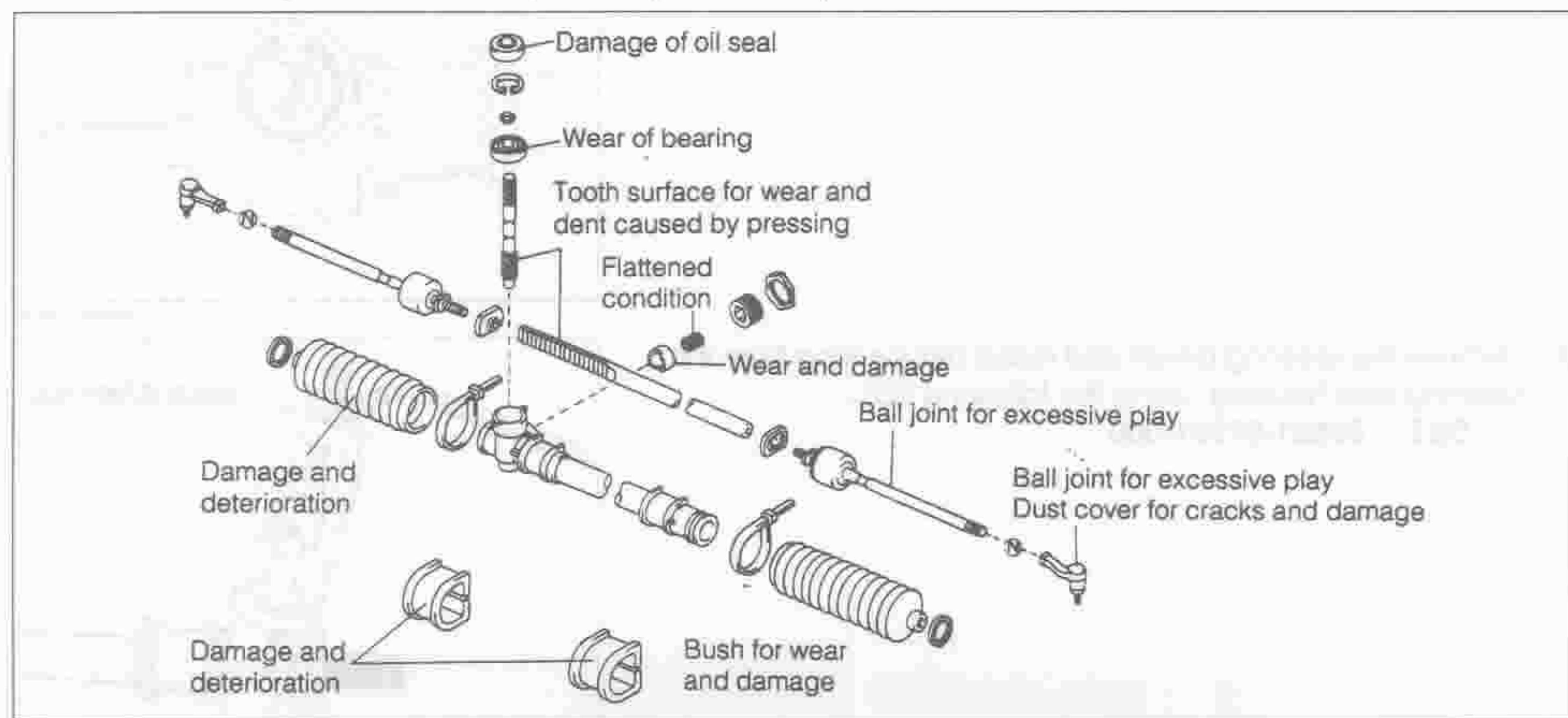
- Be sure to pull out the rack from the pinion installing side so that no damage is made to the rack bush by the rack tooth.
- Pull out the rack straight without turning it.



LSR00051-00050

INSPECTION

Check the following sections and replace any defective part.



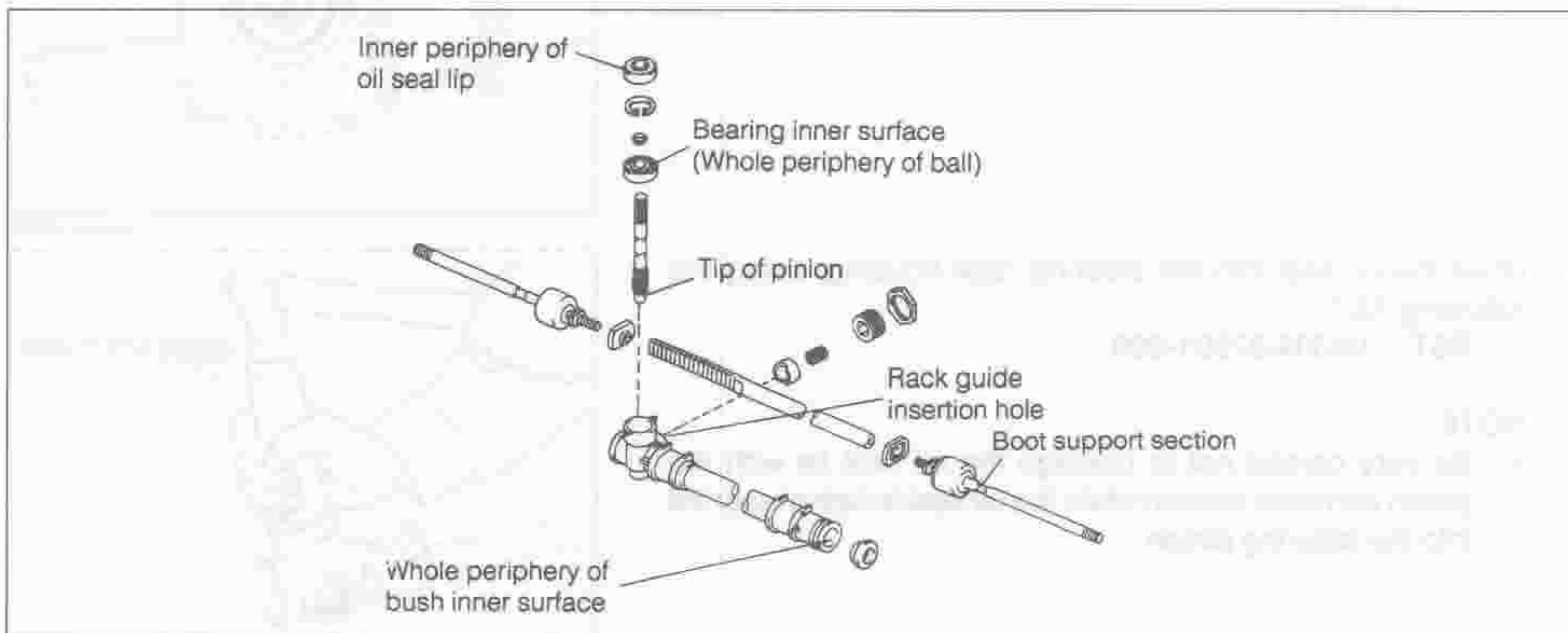
LSR00052-00051

ASSEMBLY

1. Apply the designated grease to the points given below.

Designated Grease: Molybdenum disulphide lithium base grease (NLGI No. 2)

[Daihatsu EP grease: 999-2404-8483-00]

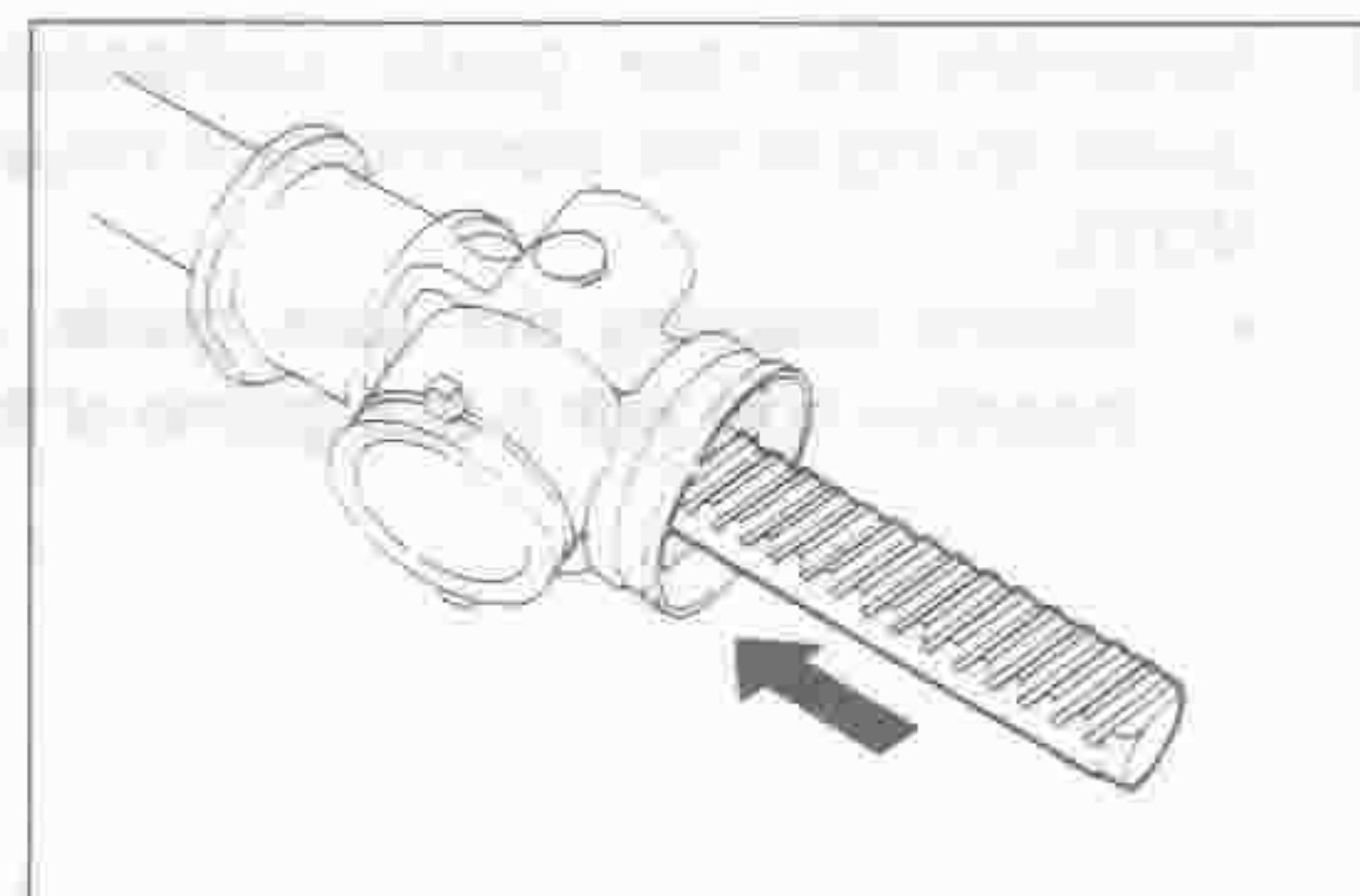


LSR00053-00052

2. Insert the steering rack into the steering rack housing.

NOTE:

- Be sure to insert the rack from the pinion installing side so that no damage is made to the rack bush by the rack tooth.
- Insert the rack straight without turning it.
- Be careful to avoid getting grease on both ends of the rack.

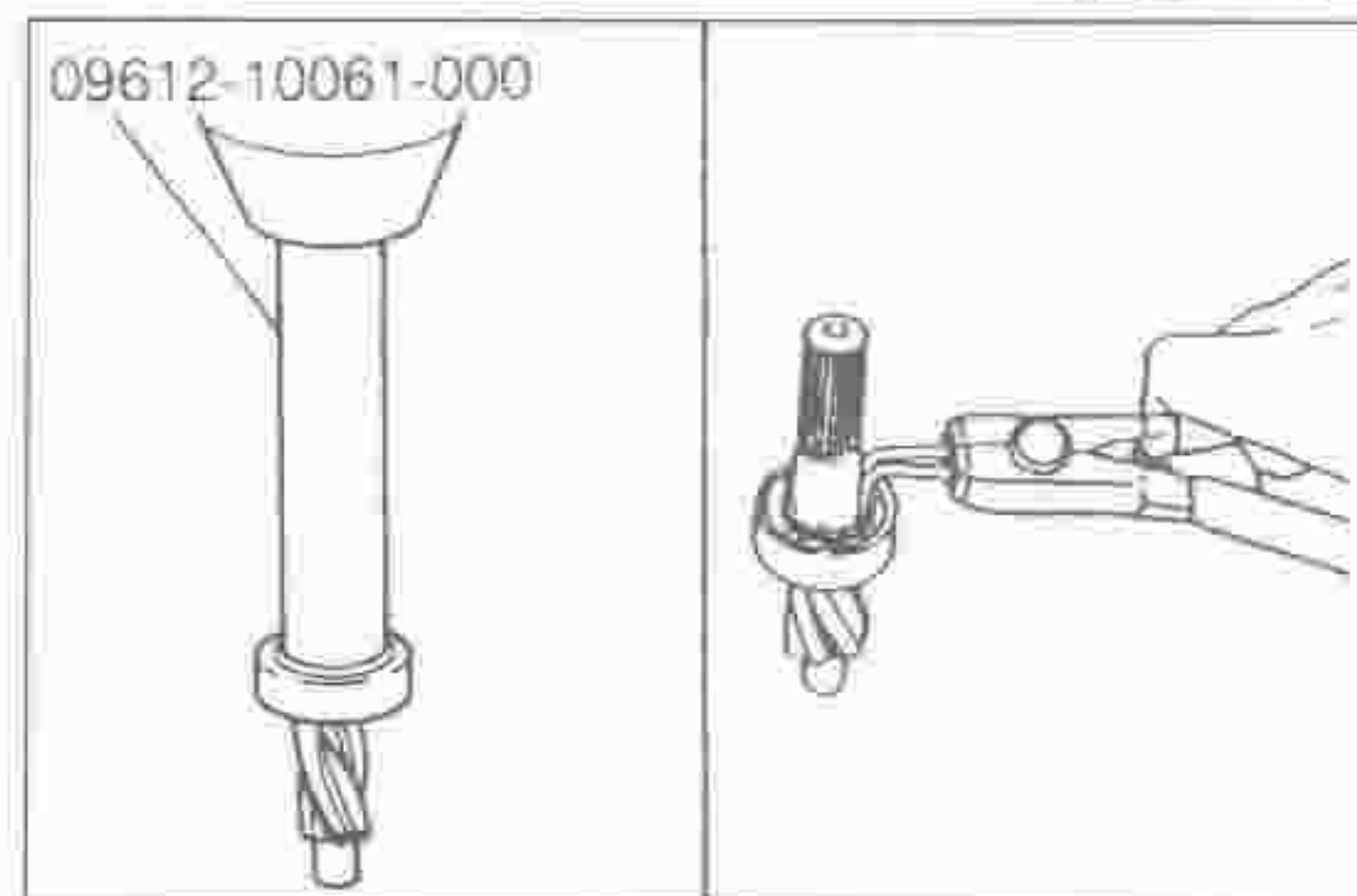


LSR00054-00053

3. Drive the radial ball bearing into the steering pinion, using the following SST.

SST: 09612-10061-000

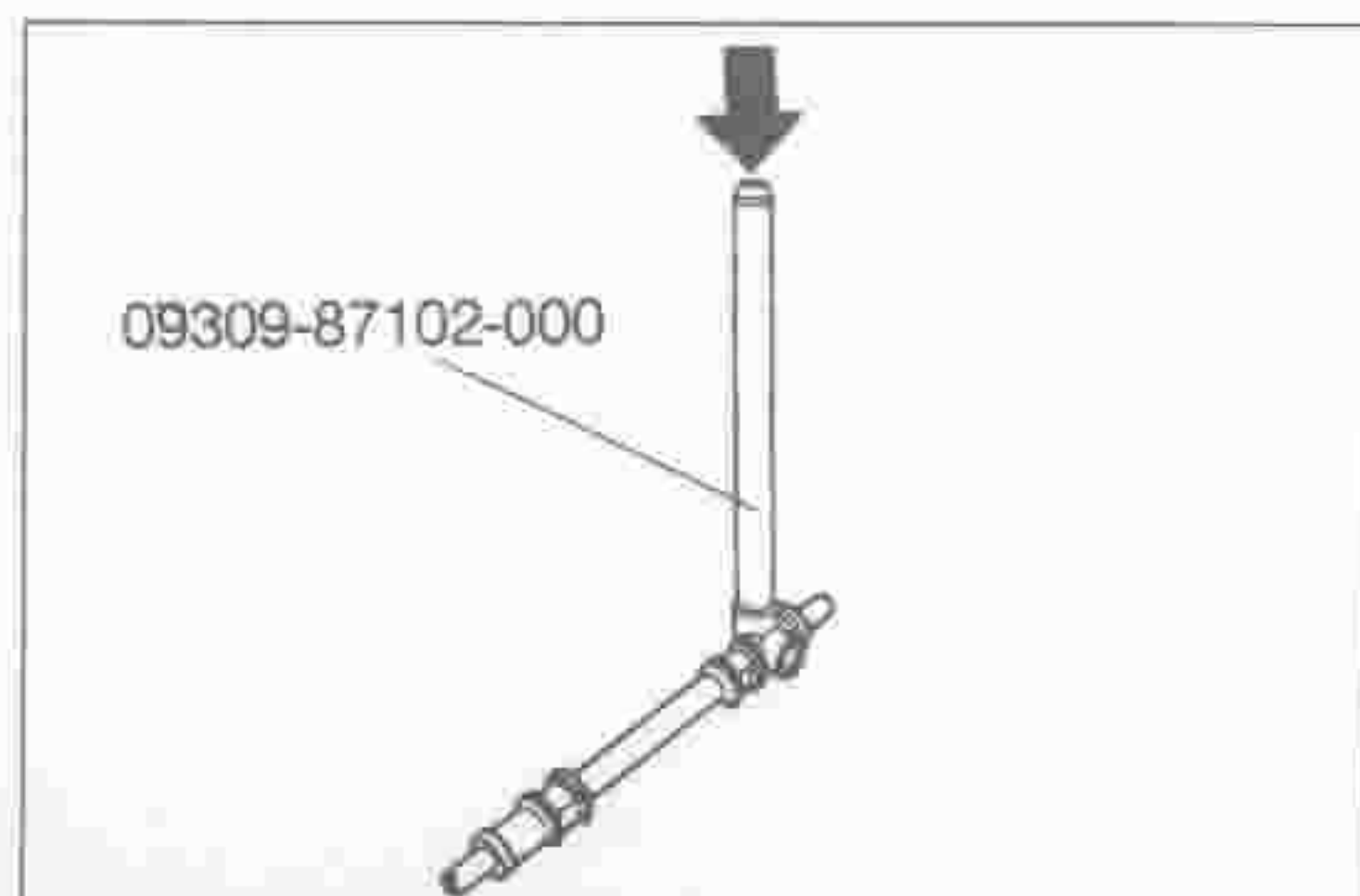
4. Secure the radial ball bearing to the steering pinion with the shaft snap ring.



LSR00055-00054

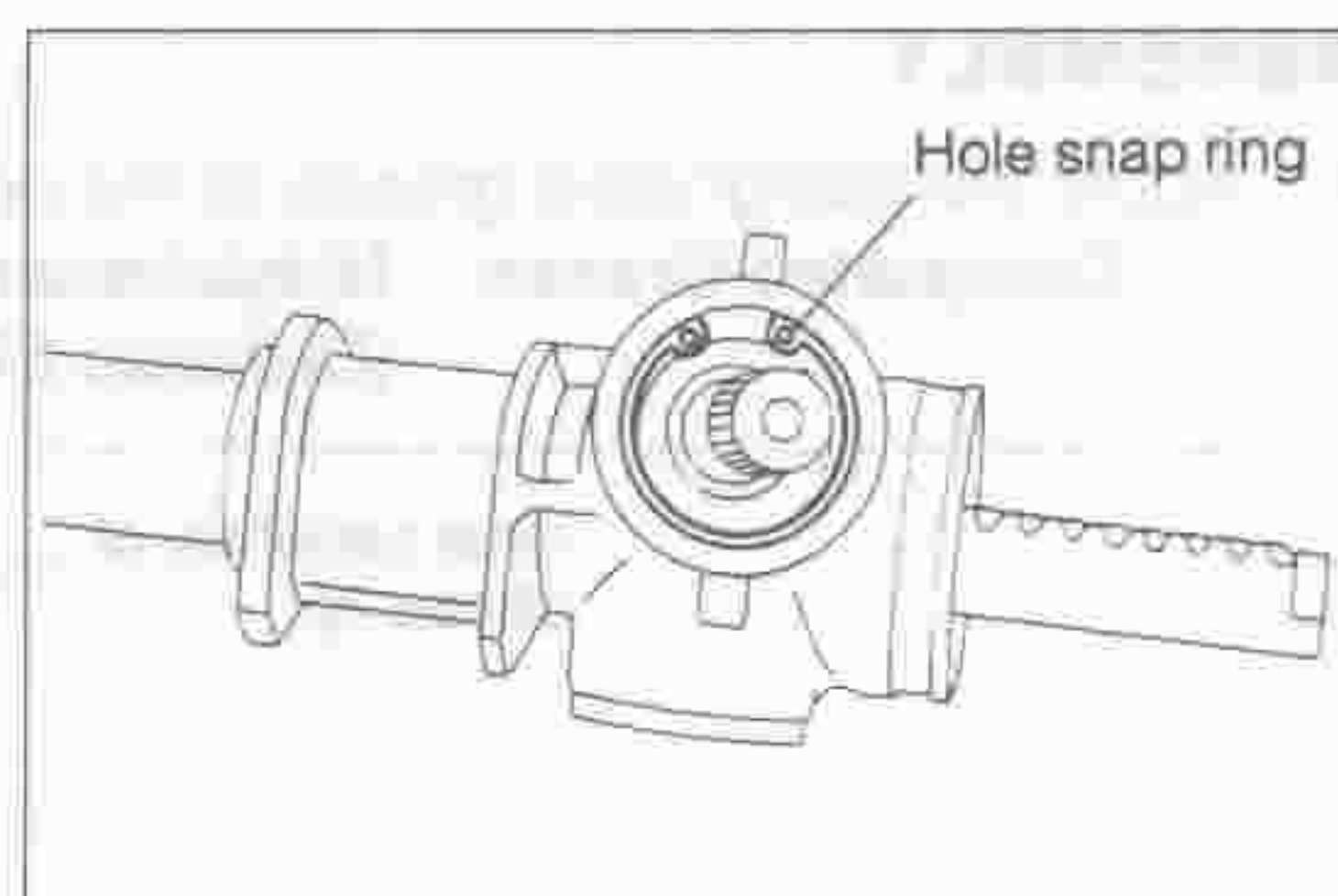
5. Drive the steering pinion and radial ball bearing into the steering rack housing, using the following SST.

SST: 09309-87102-000



LSR00056-00055

6. Secure the radial ball bearing with the hole snap ring.



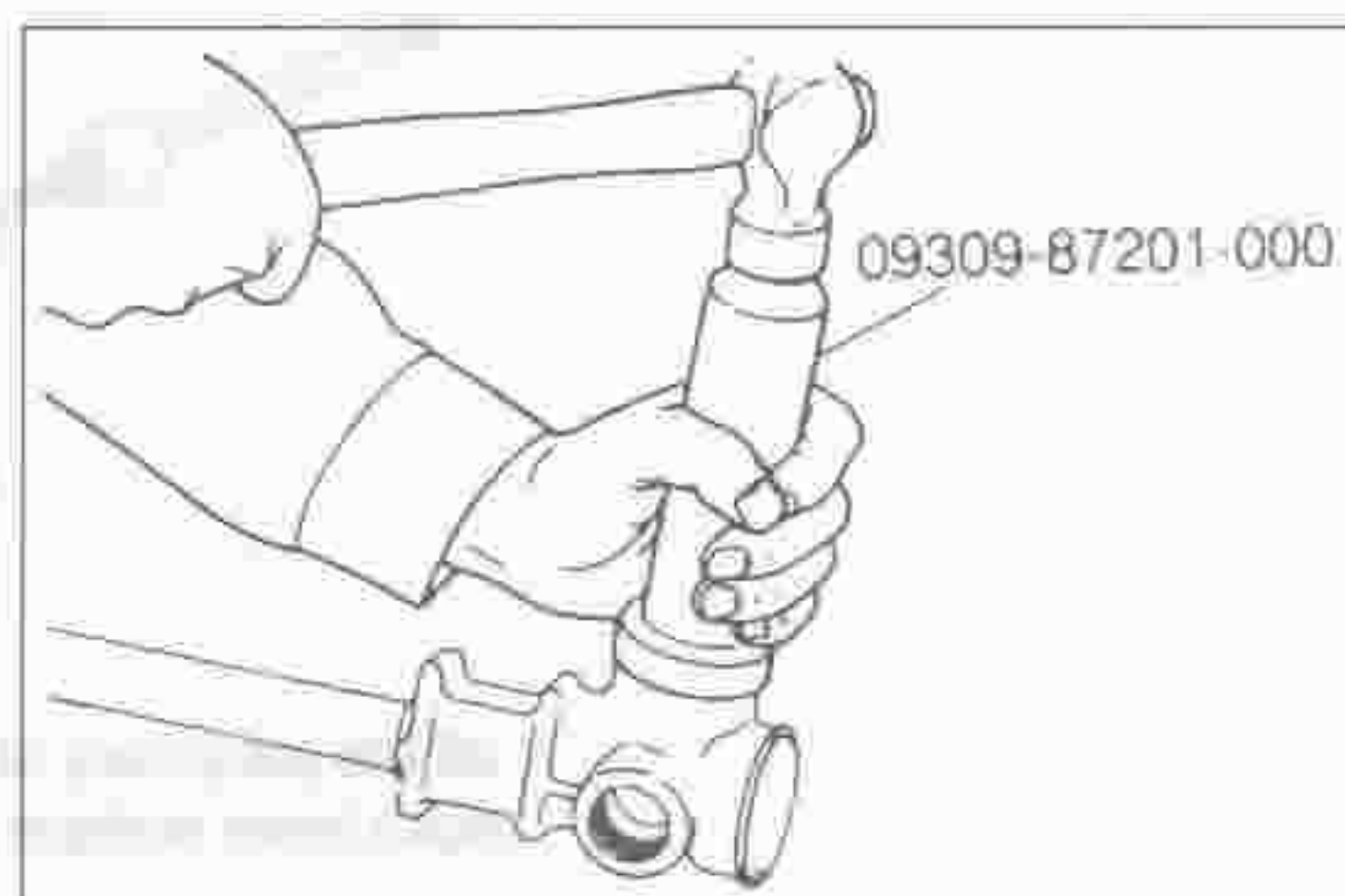
LSR00057-00056

7. Drive the oil seal into the steering rack housing, using the following SST.

SST: 09309-87201-000

NOTE:

- Be very careful not to damage the oil seal lip with the pinion serration section while the oil seal is being inserted into the steering pinion.

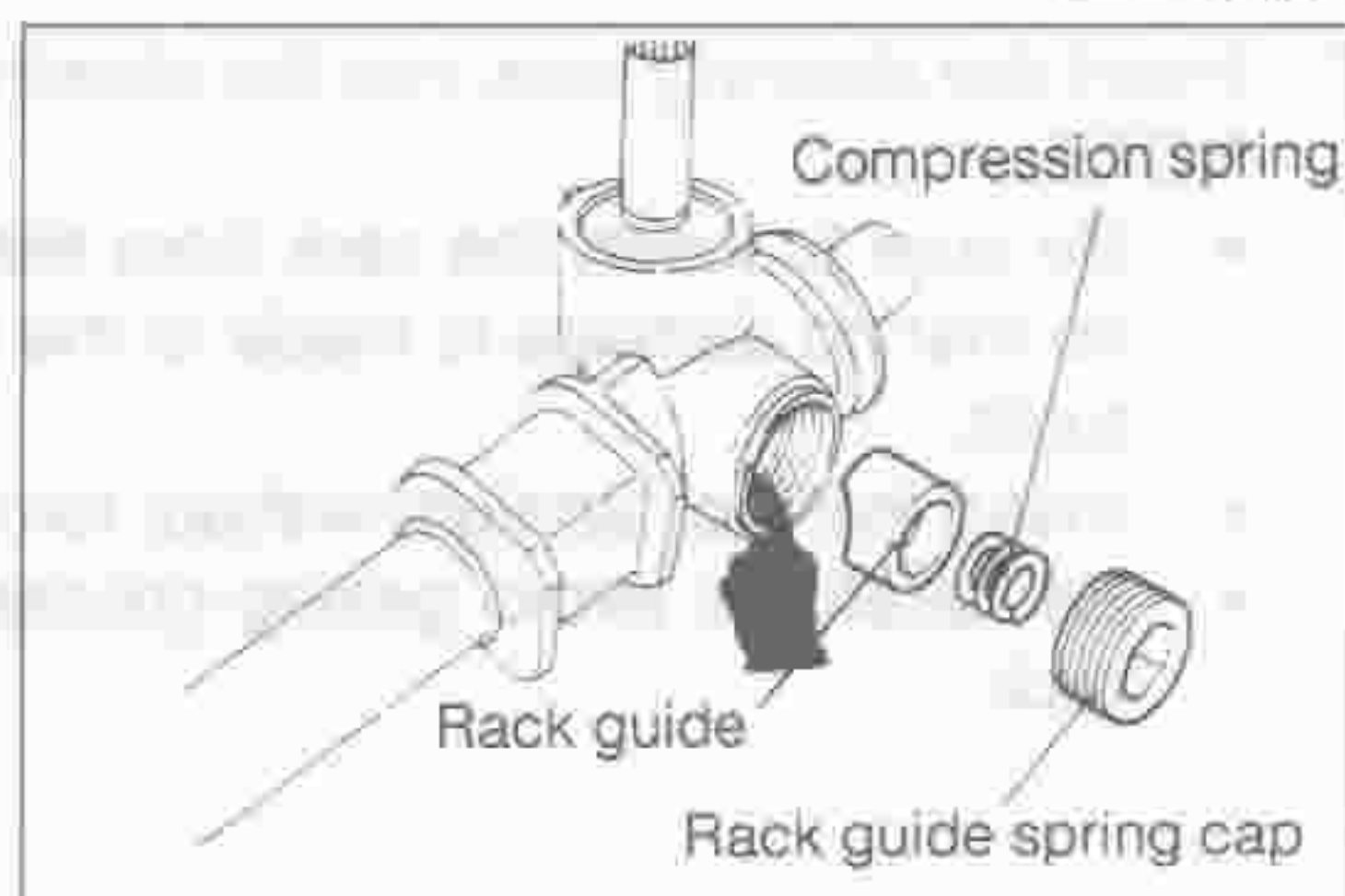


LSR00058-00057

8. Assemble the rack guide, compression spring and rack guide spring to the steering rack housing.

NOTE:

- Before inserting the rack guide, pack the rack guide insertion hole with 6 to 8 grams of the designated grease.

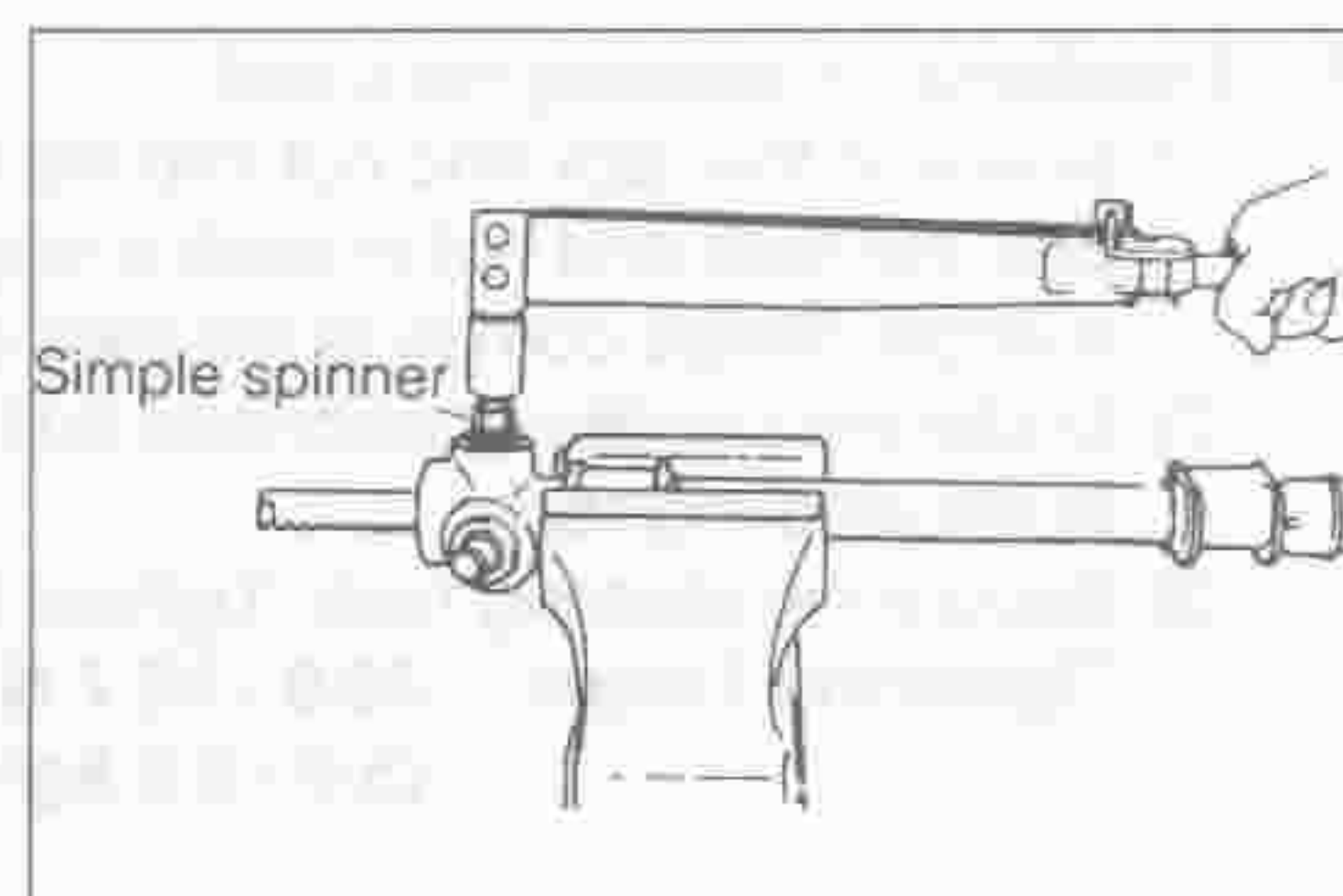


LSR00059-00058

9. Adjustment of rack preload

- (1) Using a simple spinner, tighten the rack guide spring cap to the following torque.

Tightening Torque: 6.9 N·m (0.7 kgf-m, 5.1 ft-lb)



LSR00060-00069

- (2) To settle the steering rack, move the rack 20 times back and forth over the whole stroke by turning the steering pinion.

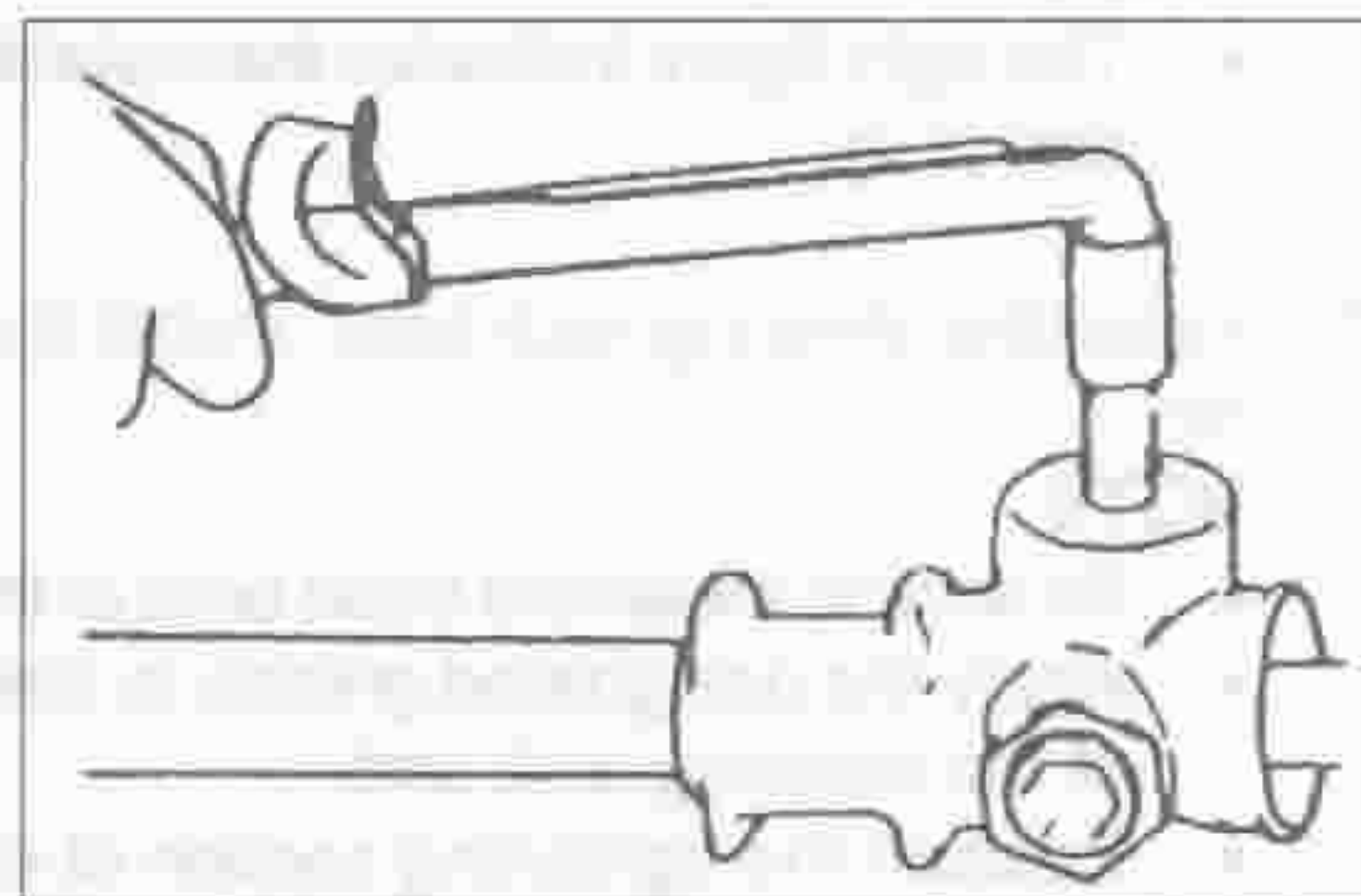
NOTE:

- Install the steering wheel directly to the pinion. Then, turn the pinion.

- (3) Loosen the rack guide spring cap once. Tighten the cap again to the following torque.

Tightening Torque: 12.3 ± 2.0 N·m

(1.25 ± 0.2 kgf-m, 9.05 ± 1.4 ft-lb)



LSR00061-00060

NOTE:

- Tighten the cap at its neutral position.

- (4) Loosen the rack guide spring cap $45^\circ - 60^\circ$.

- (5) Measure the pinion preload, using the following SST.

SST: 09616-87701-000

Specified Value: 0.49 - 1.18 N·m

(0.05 - 0.12 kgf-m, 0.35 - 0.84 ft-lb)

NOTE:

- If the preload does not conform to the specification, repeat the operations described in the steps (1) to (5) above.

10. Tightening of lock nut

- (1) While preventing rotation of rack guide spring cap with a simple spinner, tighten the lock nut.

Tightening Torque: 34.3 - 44.1 N·m

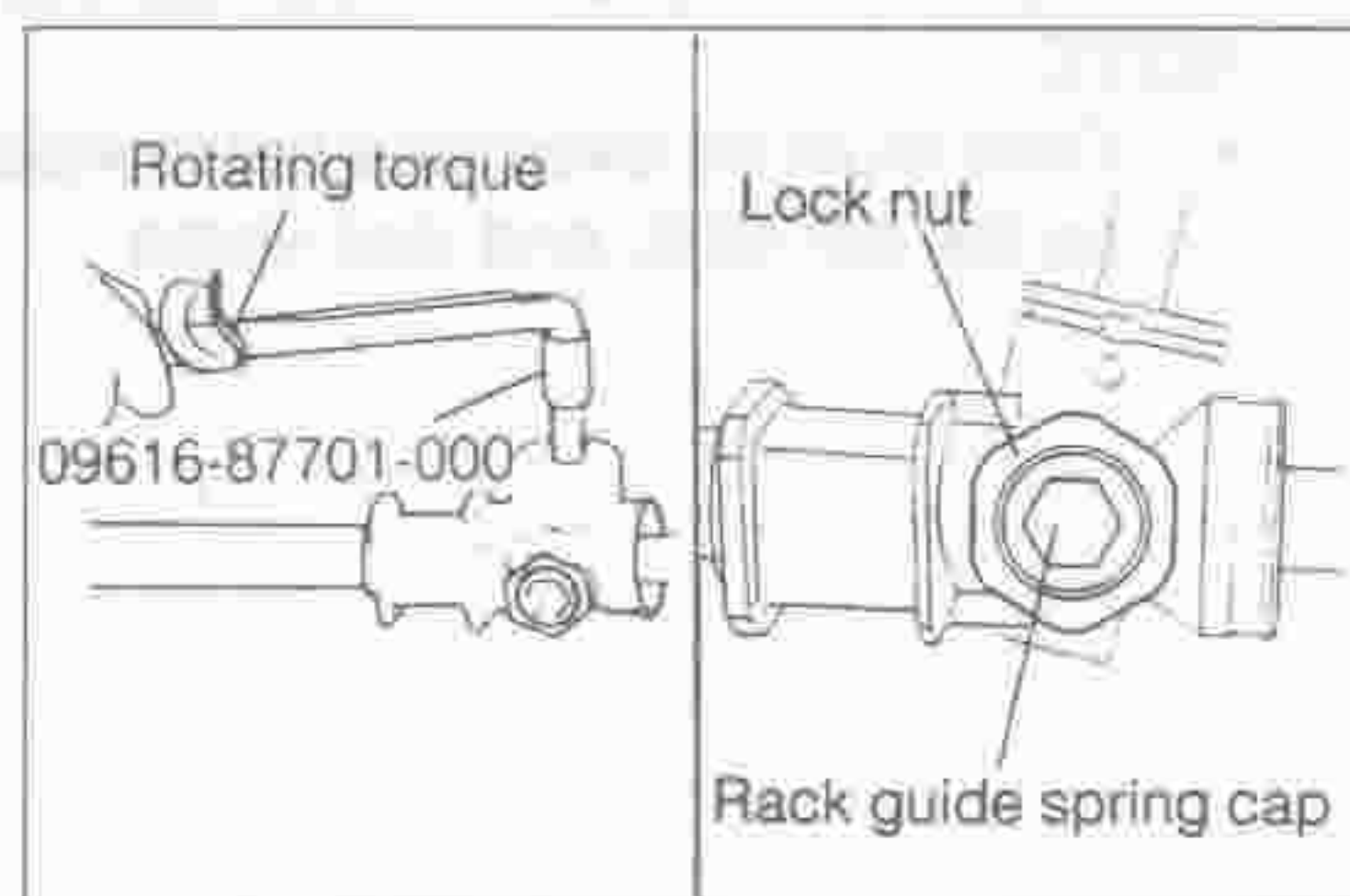
(3.5 - 4.5 kgf-m, 25.3 - 32.5 ft-lb)

- (2) Check the pinion preload again, using the following SST.

SST: 09616-87701-000

Specified Value: 0.49 - 1.18 N·m

(0.05 - 0.12 kgf-m, 0.35 - 0.84 ft-lb)



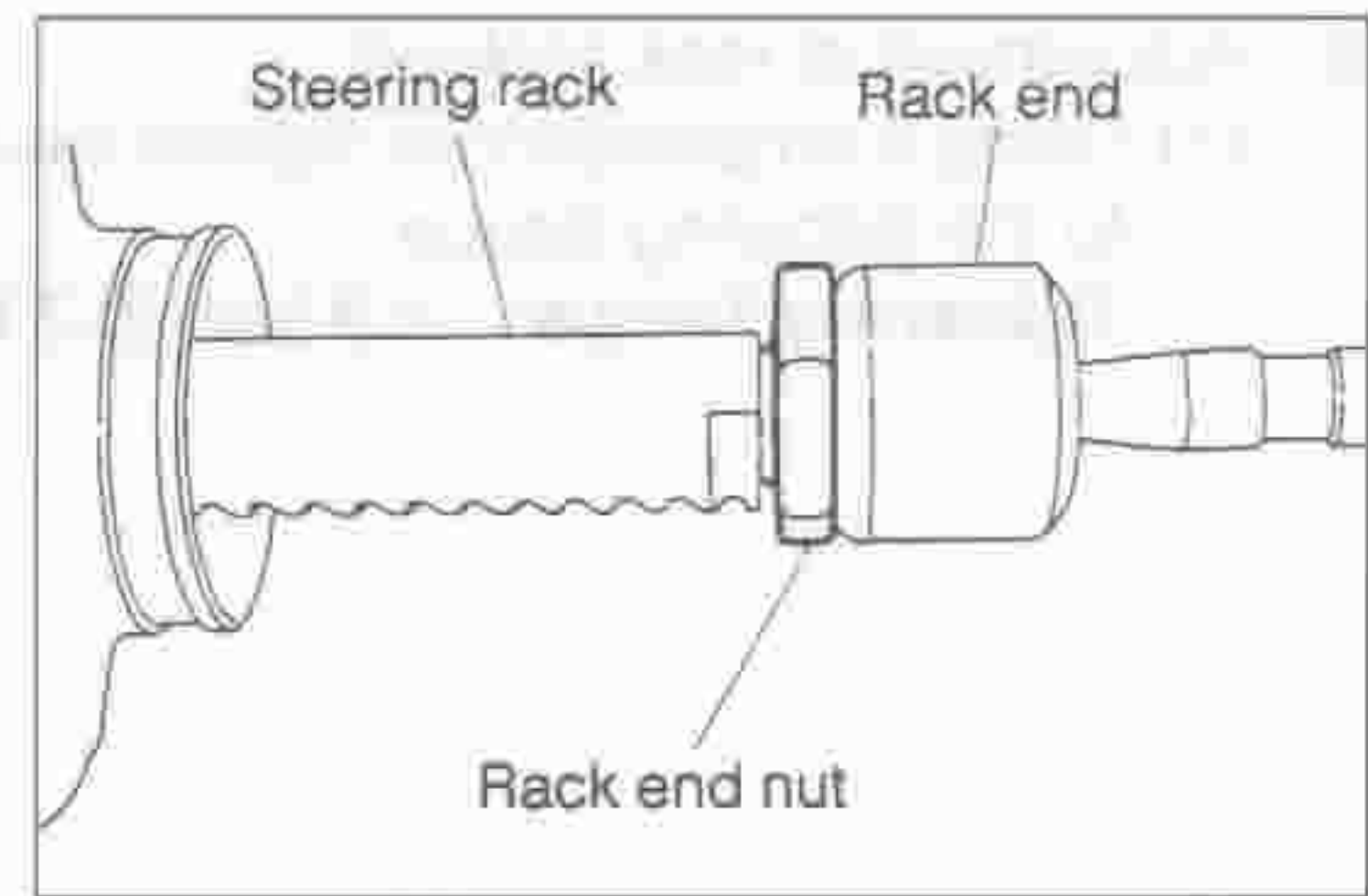
LSR00062-00061

11. Installation of steering rack end

- (1) Screw in the rack end nut into the rack end.
(Set the rack end nut in such a way that the side having a larger flange comes to the rack end side.)
- (2) Under the condition described in (1), tighten the rack end to the steering rack.
- (3) Secure the steering rack. Tighten the rack end nut.
Tightening Torque: 49.0 - 63.7 N·m
(5.0 - 6.5 kgf-m, 36.2 - 47.0 ft-lb)

NOTE:

- The right figure indicates the installing direction of the rack end plug.

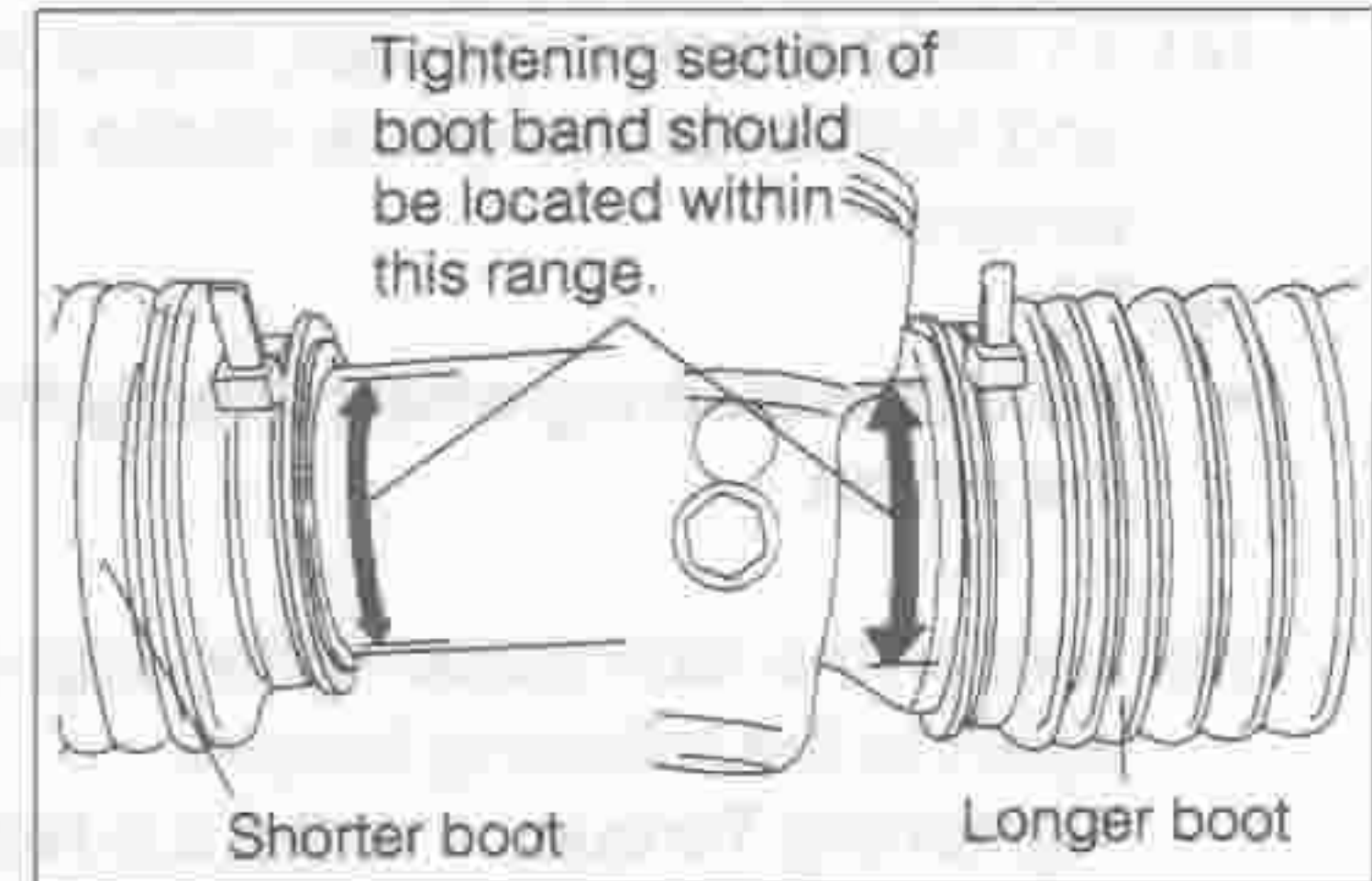


LSR00063-00062

12. Install the steering rack boot. Install the boot band No. 2 and No. 3.

NOTE:

- Be sure to install the short boot at the steering pinion side.
- Apply the designated grease to the boot installing section of the steering rack end.
- Position the tightening section of each boot band in such a way that it faces forward as indicated in the right figure when the steering gear is installed on the vehicle.



LSR00064-00063

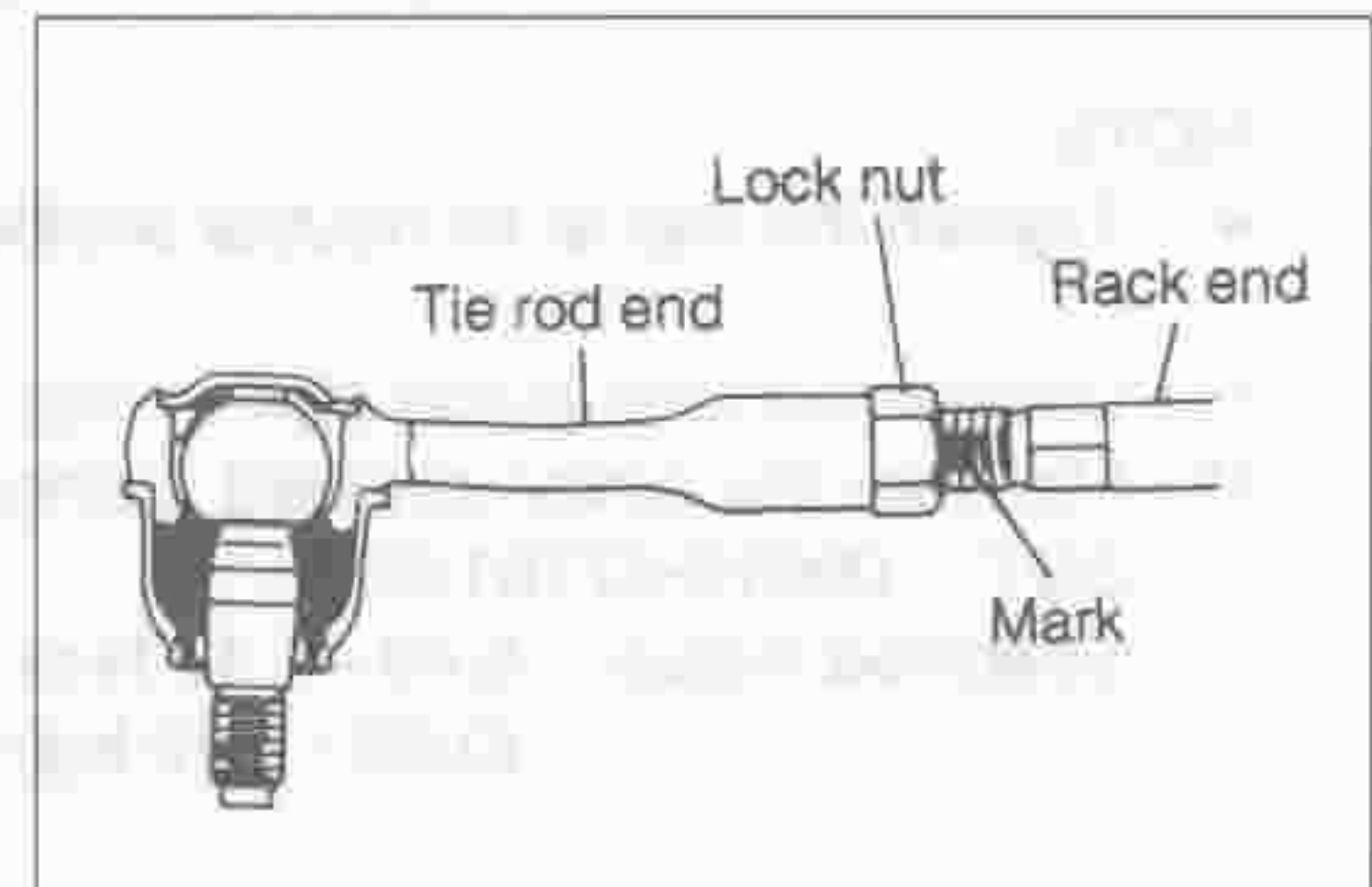
13. Installation of tie rod end

- (1) Screw in the lock nut and tie rod end into the rack end up to the mating mark. Tighten the lock nut temporarily.
Tightening Torque: 4.9 - 14.7 N·m
(0.5 - 1.5 kgf-m, 0.35 - 10.8 ft-lb)
[Temporary tightening]

- (2) Tighten the lock nut securely after the toe-in check and adjustment have been carried out.

NOTE:

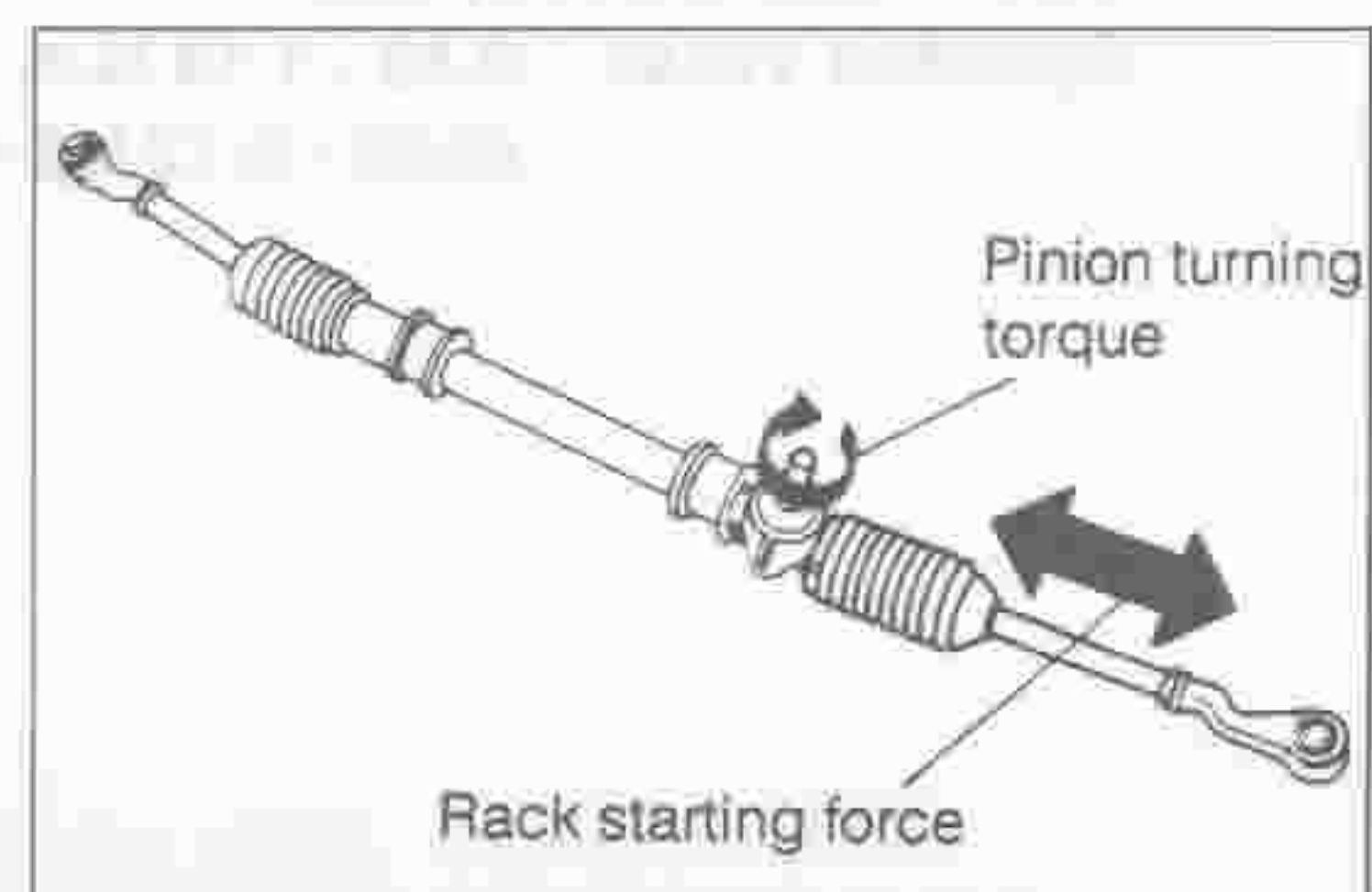
- Care must be exercised not to install the right tie rod end on the left side, and vice versa.



LSR00065-00064

14. Check the steering gear assembly for the following items.

- (1) Measure the rack starting force in the rack axial direction.
Specified Value: 107.8 - 205.9 N
(11 - 21 kgf, 80 - 152 lb)
- (2) Measure the pinion turning torque (preload) at the rack full-stroke.
Specified Value: 0.49 - 1.18 N·m
(0.05 - 0.12 kgf-m, 0.35-0.84 ft-lb)
- (3) Visually inspect the steering gear assembly for damage or deformation.

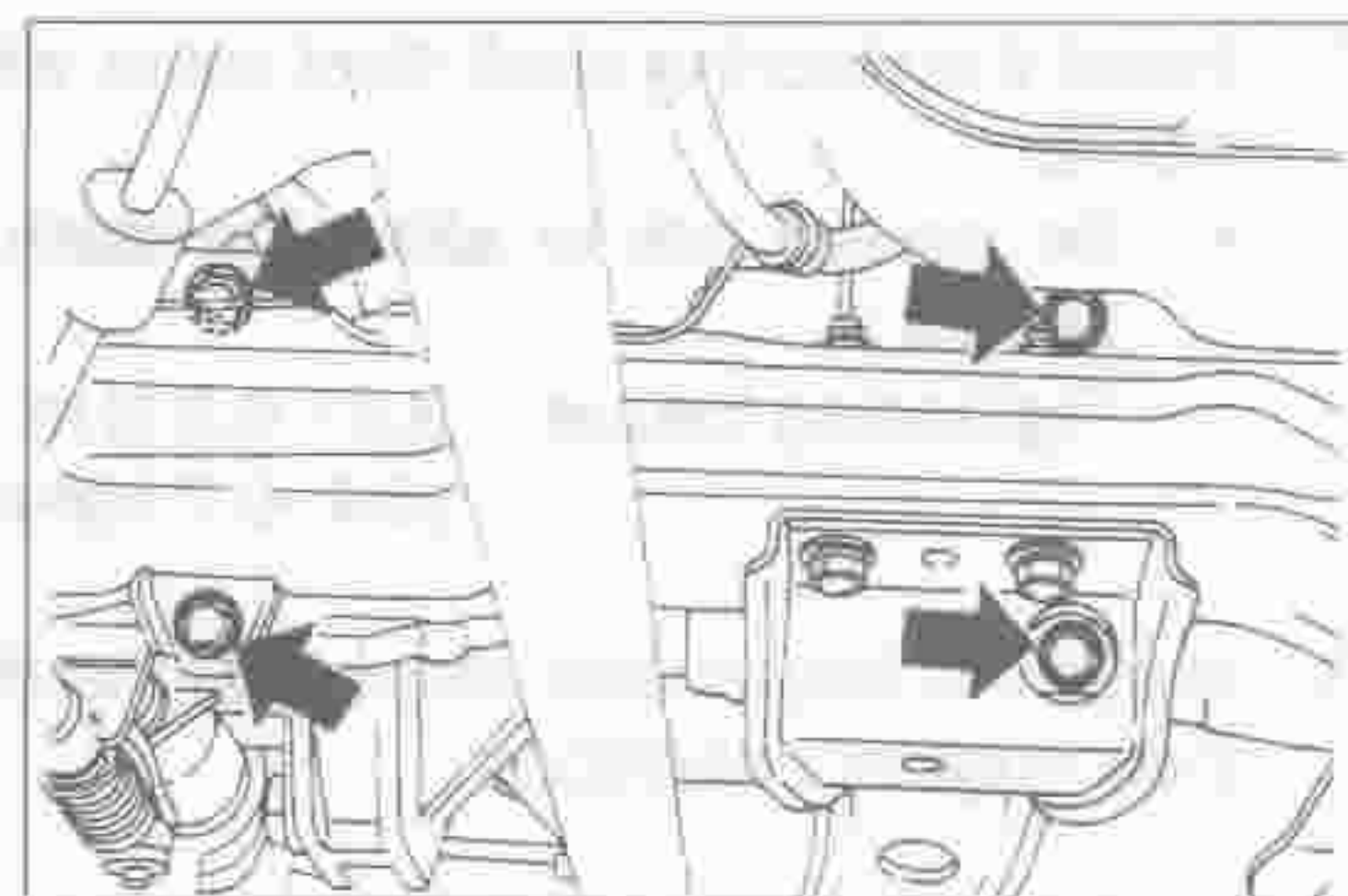


LSR00066-00065

INSTALLATION

1. Insert the steering gear assembly into the attaching position of the vehicle.
2. Install the steering gear assembly to the frame.

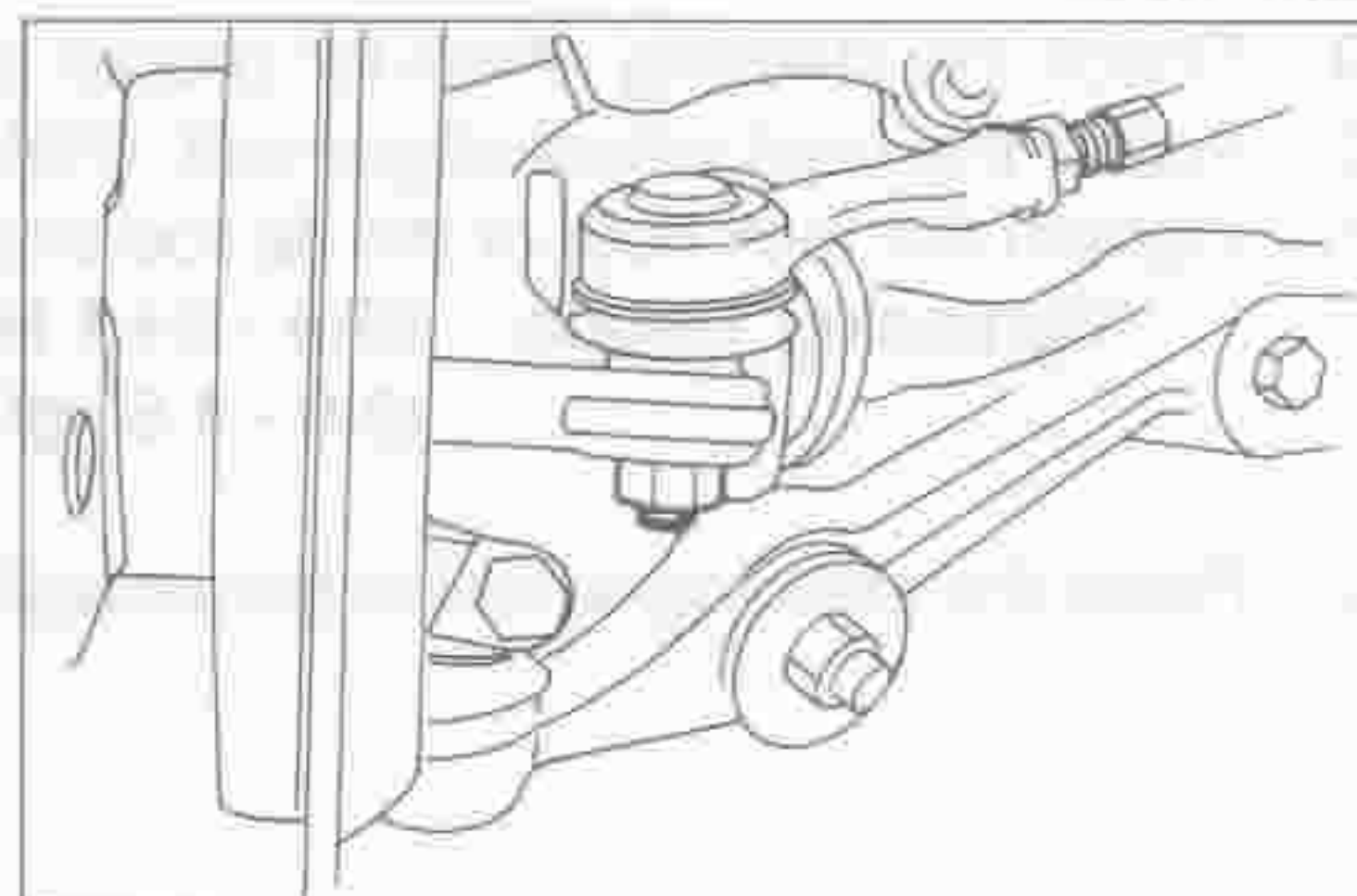
Tightening Torque: 39.2 - 53.9 N·m
(4.0 - 5.5 kgf-m, 28.9 - 39.8 ft-lb)



LSR00067-00065

3. Connect the tie rod end to the steering knuckle.

Tightening Torque: 39.2 - 53.9 N·m
(4.0 - 5.5 kgf-m, 28.9 - 39.8 ft-lb)

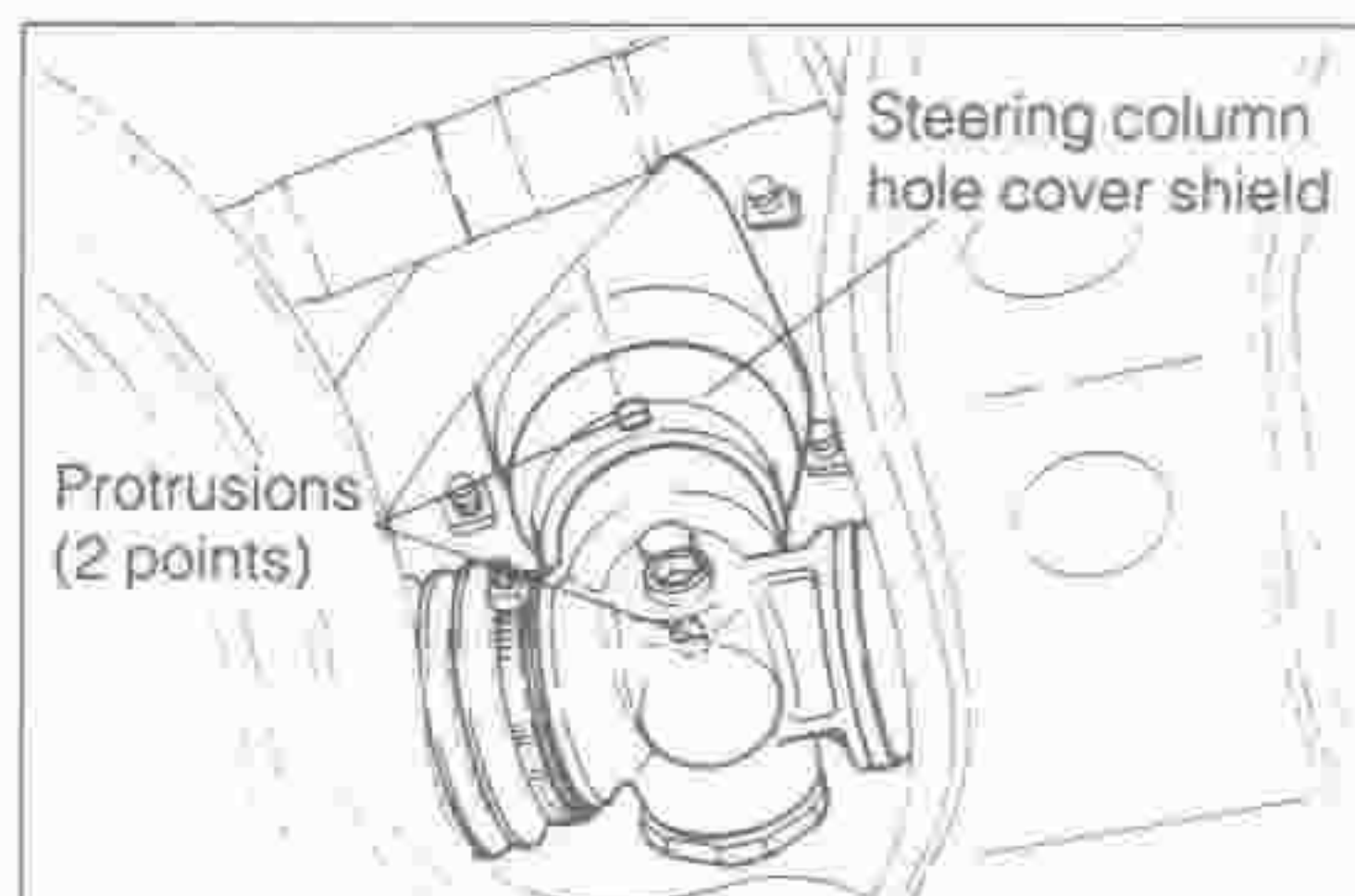


LSR00068-00067

4. Install the steering column hole cover shield to the steering gear.

NOTE:

- Install the steering column hole cover shield positively to the protrusions and groove at the installing section at the steering gear side.

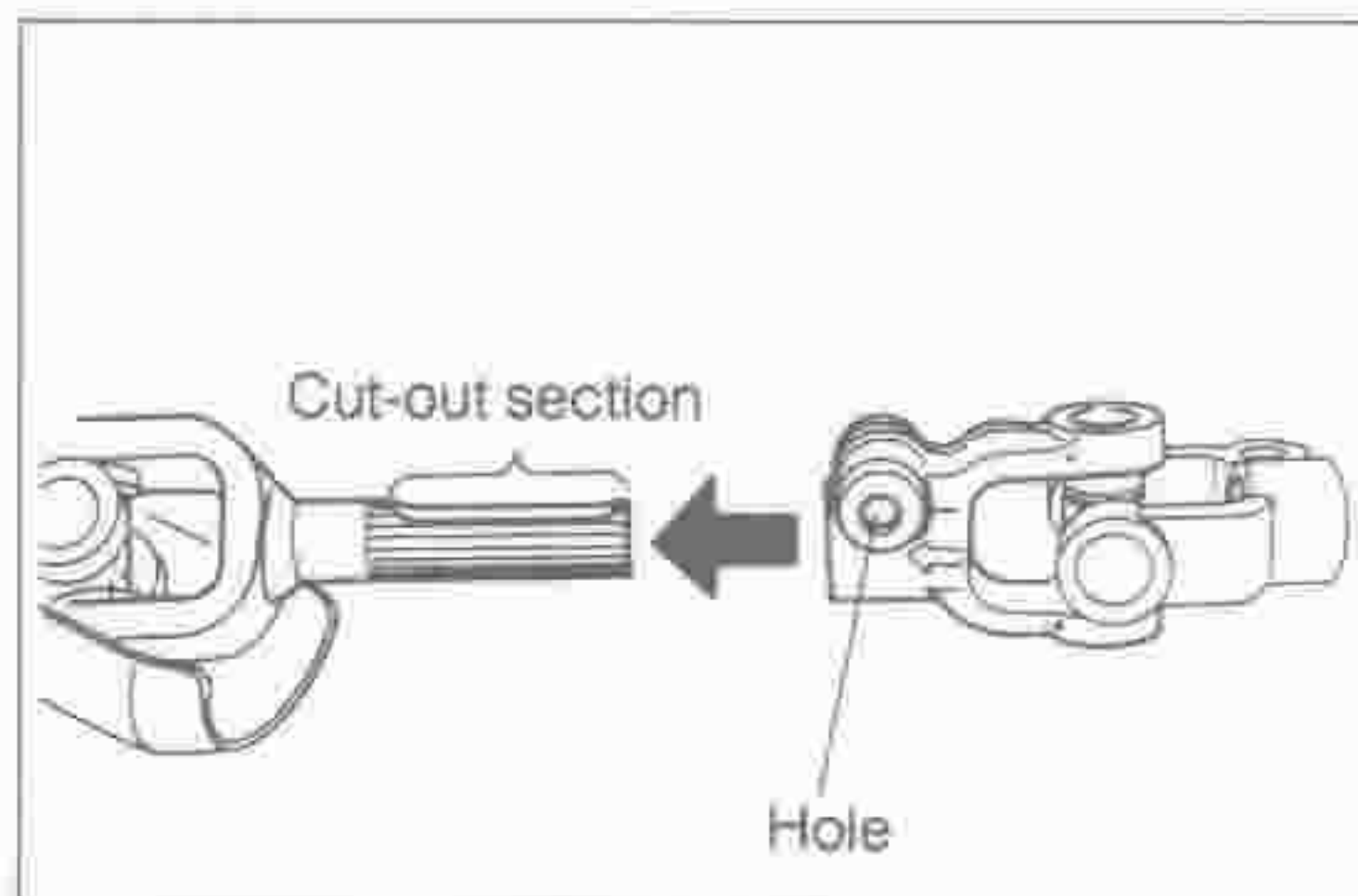


LSR00069-00068

5. Temporarily install the universal joint to the steering main shaft universal joint.

NOTE:

- Insert the joint while aligning it with the cut-out portion of the spline section.



LSR00070-00069

6. Connect the universal joint to the steering pinion. Tighten the bolts.

Tightening Torque: 19.6 - 29.4 N·m
(2.0 - 3.0 kgf-m, 14.5 - 21.7 ft-lb)

CAUTION:

- Before tightening the bolts, positively insert the universal joint down to the lower end of the steering pinion spline section.
- Tighten the bolts in the sequence of the right figure.



LSR00071-00070

SR-20

7. Install the steering shaft dust cover with dust cover retainer.

NOTE:

- Be careful not to allow the dash panel silencer to be caught in.

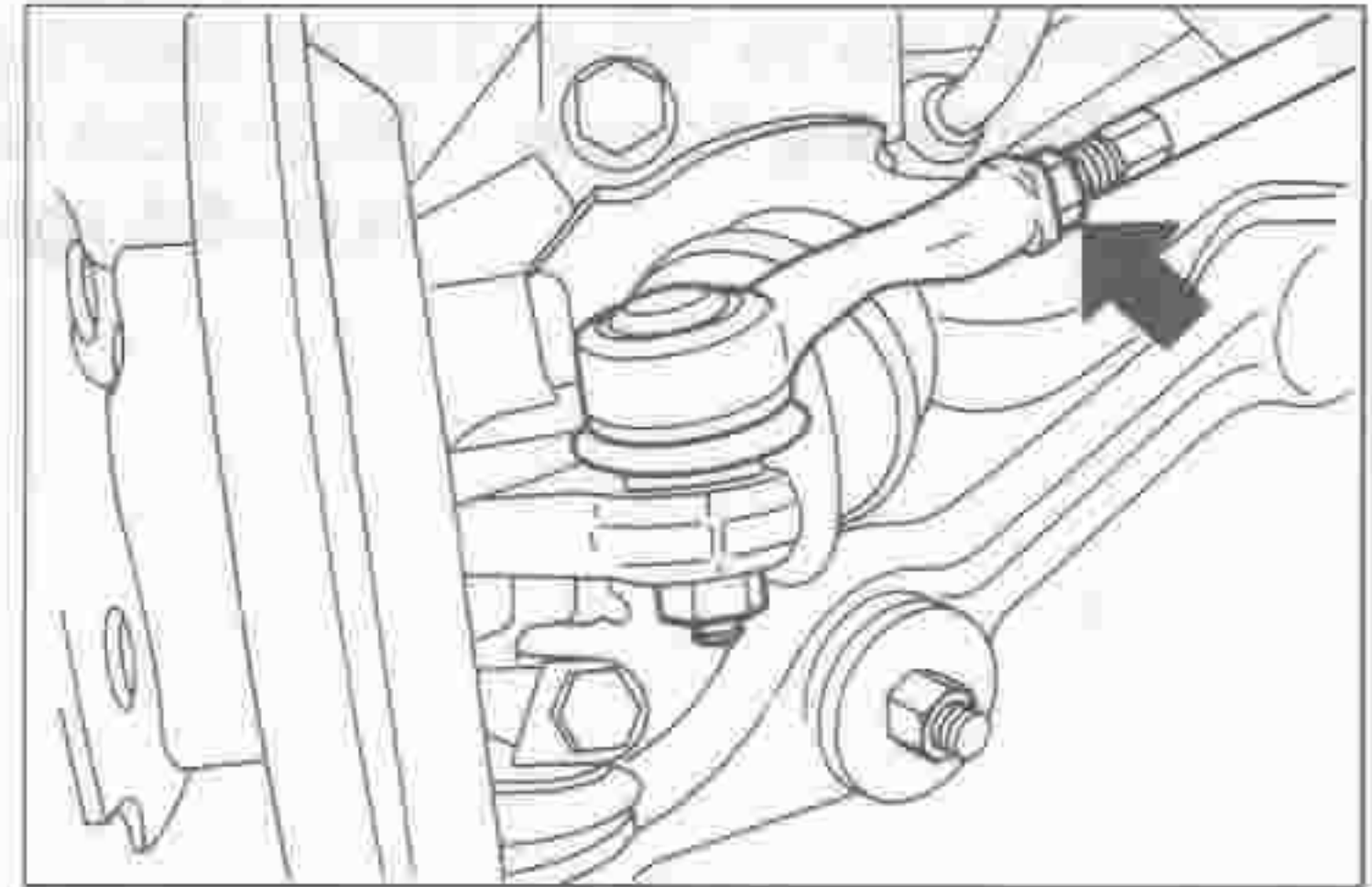
Tightening torque: 3.9 - 6.9 N·m
(0.4 -0.7 kgf-m, 2.9 - 5.1 ft-lb)

8. Install the carpet and silencer at the dash panel and floor in their original conditions.



LSR00072-00071

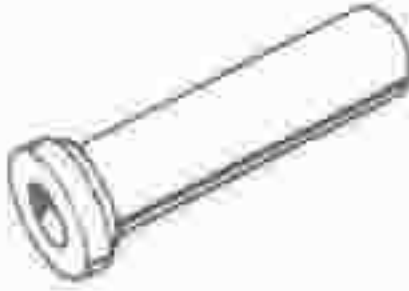
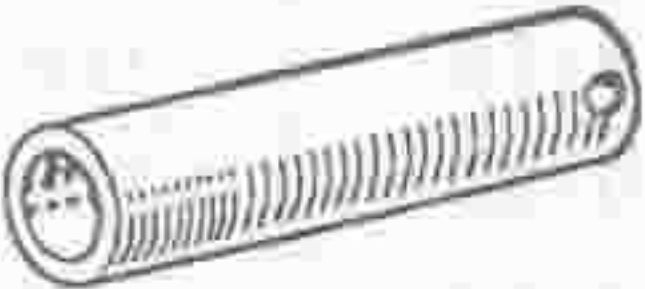
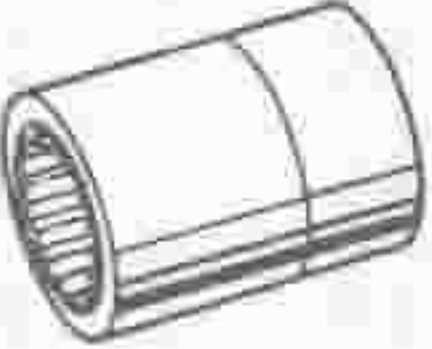
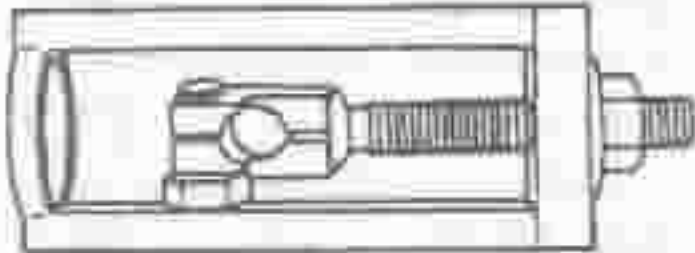
9. Check the steering wheel for proper play.
10. Adjust the front wheel alignment. (Refer to FS section)
11. Tighten the lock nuts of the tie rod ends.
Tightening Torque: 29.4 - 44.1 N·m
(3.0 - 4.5 kgf-m, 21.7 - 32.5 ft-lb)



LSR00073-00072

12. Place the steering wheel in the straightahead condition.

SSTs

Figure	Part No.	Part name
	09309-87102-000	Output shaft bearing replacer
	09309-87201-000	Transmission bearing replacer
	09611-87701-000	Tie rod end puller
	09612-10061-000	Steering pinion bearing replacer
	09616-87701-000	Steering pinion bearing adjusting socket
	09631-87201-000	Steering pinion bearing remover
	09950-20017-000	Universal puller

SERVICE SPECIFICATIONS

Item	Specified value	Remarks
Steering wheel play	Within 10 mm (0.39 inch)	
Steering rack starting force	107.8 - 205.9 N (11 - 21 kgf)	with rack boots
Steering pinion preload	0.49 - 1.18 N·m (0.05 - 0.12 kgf·m)	

LSR00075-00074

TIGHTENING TORQUES

Tightening components		Tightening torque		
		N·m	kgf·m	ft·lb
Steering column assembly × Body	Lower side	17.7 - 27.5	1.8 - 2.8	13.0 - 20.3
	Upper side	17.7 - 24.5	1.8 - 2.5	13.0 - 18.1
Steering pinion × Universal joint		19.6 - 29.4	2.0 - 3.0	14.5 - 21.7
Dust cover retainer × Dash panel		3.9 - 6.9	0.4 - 0.7	2.9 - 5.1
Steering wheel × Steering main shaft		29.4 - 39.2	3.0 - 4.0	21.7 - 28.9
Steering gear assembly × Frame		39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Tie rod end × Steering knuckle		39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Tie rod end lock nut (temporary tightening)		4.9 - 14.7	0.5 - 1.5	0.35 - 10.8
Tie rod end lock nut		29.4 - 44.1	3.0 - 4.5	21.7 - 32.5
Rack guide spring cap lock nut		34.3 - 44.1	3.5 - 4.5	25.3 - 32.5
Rack end nut × Steering rack		49.0 - 63.7	5.0 - 6.5	36.2 - 47.0

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