

Steering System

GENERAL	ST -2
MECHANICAL POWER STEERING SYSTEM	ST -9

GENERAL

EPJB0100

SPECIFICATIONS

Shaft and joint type	Collapsible, universal joint with tilt column
Steering gear type	Rack and pinion
Rack stroke	142 ± 5.5 mm
Power steering pump type	Vane type
Maximum steering angle (In a empty car)	Inner wheel : $35.1^\circ \pm 1^\circ 30'$ Outer wheel : 30.7°
Steering wheel turns	2.93 turns

SERVICE STANDARD

Steering wheel free play	0-30 mm	
Tie rod end ball joint starting torque	0.5-2.5 Nm	
Adjusting belt tension	Tension (kgf)	Belt deflection (mm)
New belt	75 ± 10	8.8 - 11.0
Used belt	50 ± 5	12.5 - 14.3
Checking tension	50 ± 10	11.7 - 15.3
Oil pump pressure (Max.)	78-83 kgf/cm ²	

TIGHTENING TORQUE

EPJB0200

Item	Nm	kg·cm	lb·ft
Steering column and shaft			
Airbag module mounting bolt	4-6	40-60	3.0-4.4
Steering column to column member mounting (upper)	13-18	130-180	9.6-13.3
Steering column to column member mounting (lower)	13-18	130-180	9.6-13.3
Steering wheel lock nut	35-45	350-450	25.8-33.2
Joint assembly	15-20	150-200	10.8-14.5
Steering gear box			
Pressure hose to gear box	12-18	120-180	8.9-13.3
Return tube to gear box	12-18	120-180	8.9-13.3
Tie rod rack	80-100	800-1000	59.0-73.8
Tie rod end lock nut	50-55	500-550	36.9-40.6
Yoke plug lock nut	50-70	500-700	36.9-51.6
Pinion and valve assembly self locking nut	50-70	500-700	36.9-51.6
End plug	50-70	500-700	36.9-51.6
Feed tubes	10-16	100-160	7.4-11.8
Tie rod end to knuckle	24-34	240-340	17.7-25.1
Crossmember mounting bracket	60-80	600-800	44.3-59.0
Crossmember and steering gear box	90-110	900-1100	66.4-81.1
Oil pump			
Pressure hose to oil pump	55-65	550-650	40.6-47.9
Oil pump mounting bolt	22-23(Long one)	220-230	16.2-24.3
	17-26(Short one)	170-260	12.5-19.2
Oil pump pressure switch	17-23	170-230	12.5-17.0
Oil pump bracket mounting bolt	39-60	390-600	28.8-44.3
Pump cover to pump body	33-43	330-430	24.3-31.7
Suction connector to oil pump body	13.6-18.4	136-184	10.0-13.6
Flow control valve connector to pump body	70-80	700-800	51.6-59.0
Steering hoses and oil reservoir			
Oil reservoir bracket mounting bolt	4-6	40-60	3.0-4.4
Cooler tube clamp mounting bolt	4-6	40-60	3.0-4.4
Tube clip and tube bracket	4-6	40-60	3.0-4.4
Pressure hose bracket mounting bolt	4-6	40-60	3.0-4.4
Clamp hose	4-6	40-60	3.0-4.4

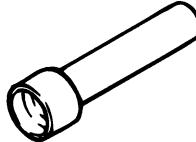
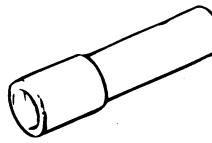
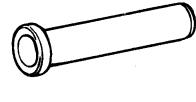
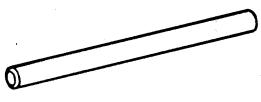
LUBRICANTS

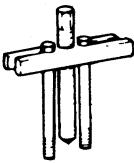
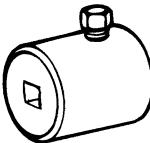
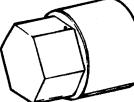
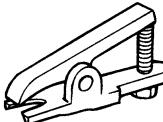
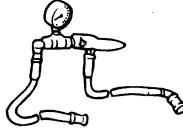
EPAH0150

Items	Specified lubricant	Quantity
Steering column bearing	Multipurpose grease SAE J310a, NLGI No.2	As required
Steering gear box rack, pinion gear part	Multipurpose grease SAE J310a, NLGI No.2	As required
Bellows	Silicone grease	As required
Oil pump	Power steering fluid (PSF-3)	As required
Power steering fluid	Power steering fluid (PSF-3)	1.0 lit (0.88 qts.)

SPECIAL TOOLS

EPAH0200

Tool (Number and Name)	Illustration	Use
09222-21100 Valve stem oil seal installer	 HCT56-01	Installation of the pinion gear bearing
09222-32100 Valve stem oil seal installer	 HCT56-02	Installation of the oil pump oil seal
09431 - 11000 Front oil seal installer	 EPA9005C	Installation of the pinion gear oil seal
09432-21601 Bearing installer	 EPA9005D	Installation of the pinion gear bearing
09517-21400 Drift	 EPA9005E	<ol style="list-style-type: none"> 1. Removal of the pinion gear bearing 2. Removal of the pinion bearing outer race

Tool (Number and Name)	Illustration	Use
09561-11001 Steering wheel puller	 HCT56-07	Removal of the steering wheel
09565-11100 Preload socket	 EPA9005G	Measurement of the main shaft preload
09565-21000 Pinion bearing remover and installer	 EPA9005H	Removal and installation of the pinion gear bearing
09565-31300 Yoke plug torque wrench socket	 EPA9005I	Removal, installation and adjustment of the steering gear yoke plug
09568-31000 Tie rod end puller	 EPA9005J	Separation of the tie rod end ball joint
09572-21000 Oil pressure gauge	 EPA9005K	Measurement of the oil pressure (use with 09572-33100, 09572-21200)

Tool (Number and Name)	Illustration	Use
09572-21200 Oil pressure gauge adapter	 EPA9005L	Measurement of the oil pressure (use with 09572-21000, 09572-33100)
09572-33100 Oil pressure gauge adapter	 EPA9005M	Measurement of the oil pressure (use with 09572-21000, 09572-21200)

TROUBLESHOOTING

EPJB0500

Symptom	Probable cause	Remedy
Excessive play in steering wheel	Loose universal joint Loose steering gear mounting bolts Loose or worn tie rod end	Retighten Retighten Retighten or replace as necessary
Steering wheel operation is not smooth	V-belt slippage Damaged V-belt Low fluid level Air in the fluid Twisted or damaged hoses Insufficient oil pump pressure Sticky flow control valve Oil leakage in the oil pump Deteriorated or damaged gear box or valve body seals	Readjust Replace Replenish Bleed air Reposition or replace hoses Repair or replace oil pump Replace Replace the damaged parts Replace
Steering wheel does not return properly	Excessive turning resistance of tie-rod end ball joint Universal joint excessively tight Inner tie rod and/or ball joint cannot turn smoothly Loose mounting of gear box to gear box mounting bracket Worn steering shaft joint and/or body grommet Distorted rack Damaged pinion bearing Twisted or damaged hoses Damaged oil pressure control valve Damaged oil pump input shaft bearing	Replace Adjust Replace Retighten Correct or replace Replace Replace Reposition or replace Replace Replace
Noise	Hissing Noise in Steering Gear There is some noise with all power steering systems. One of the most common is a hissing sound when the steering wheel is turned and the car is not moving. This noise will be most evident when turning the wheel while the brakes are being applied. There is no relationship between this noise and steering performance. Do not replace the valve unless the "hissing" noise becomes extreme. A replaced valve will also make a slight noise, and is not always a solution for the condition.	

Symptom	Probable cause	Remedy
Rattling or chucking noise in the rack and pinion	Interference with hoses from vehicle body	Reposition
	Loose gear box bracket	Retighten
	Loose tie rod end and/or ball joint	Retighten
	Worn tie rod and/or ball joint	Replace
Noise in the oil pump	Low fluid level	Replenish
	Air in the fluid	Bleed air
	Loose pump mounting bolts	Retighten

NOTE

A slight “grinding noise” may be heard immediately after the engine is started in extremely cold weather conditions (below-20°C). This is due to power steering fluid characteristics in extreme cold conditions and is not an indication of a malfunction.

MECHANICAL POWER STEERING SYSTEM

SERVICE ADJUSTMENT

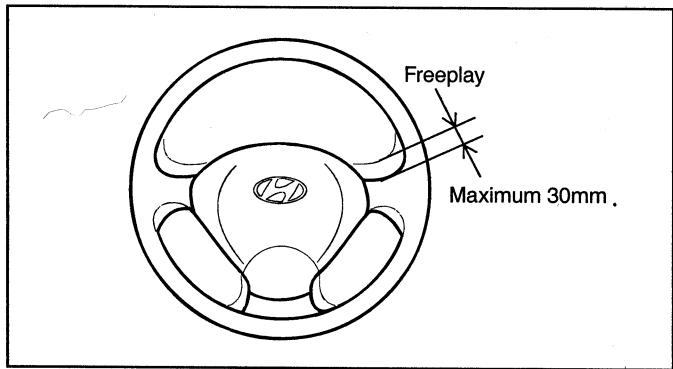
PROCEDURE EPJB0600

CHECKING STEERING WHEEL FREE PLAY

1. Start the engine with the steering wheel in the straight ahead position.
2. Measure the play while turning the steering wheel to the left and right.

Steering wheel free play [Standard value] : 30 mm (1.1 in.)

3. If the play exceeds the standard value, inspect the connection between the steering shaft and steering linkage.



EPJA010A

CHECKING STEERING ANGLE

1. Place the front wheel on a turning radius gauge and measure the steering angle.

Wheel angle [Standard value]

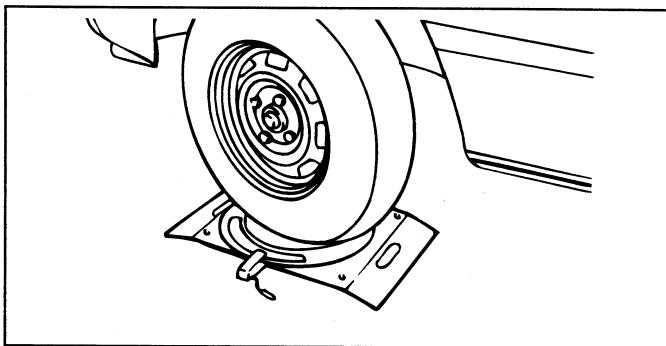
Inside wheel : $35.1^\circ \pm 1^\circ 30'$

Outside wheel : 30.7°

2. If the measured value is not within the standard value, adjust the toe and inspect again.

NOTE

1. After adjusting the tie rod, assemble the bellows so they are not twisted.
2. The inner steering angle is changed 0.86° per each rotation of the tie rod.

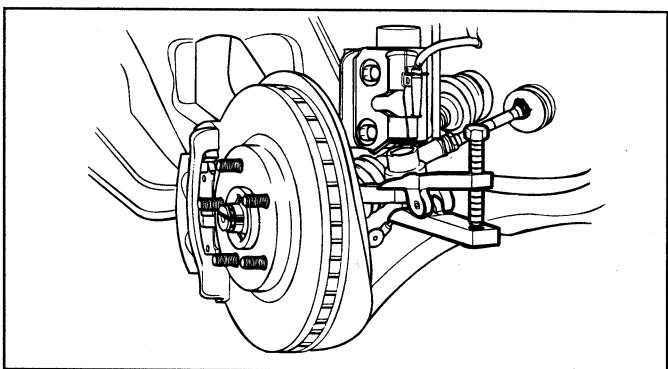


EPA9002A

CHECKING THE TIE ROD END BALL JOINT STARTING TORQUE

EPJB0700

1. Disconnect the tie rod and knuckle with the special tool (09568-31000).



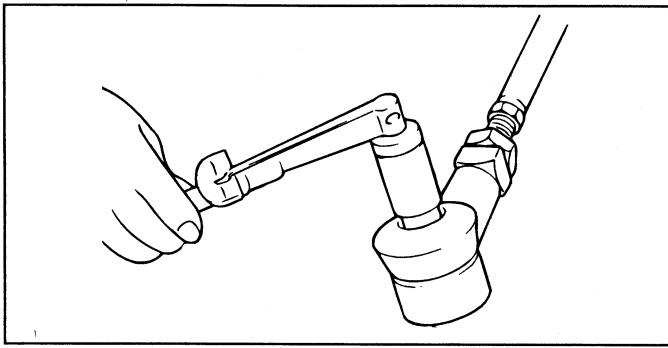
EPJA020J

2. Shake the ball stud several times to check for looseness.
3. Mount two jam nuts on the ball joint, and then measure the ball joint starting torque.

Standard value :

0.5-2.5 Nm (5-25 kg·cm, 0.36-1.78 lb·ft)

4. If the starting torque exceeds the upper limit of the standard value, replace the tie rod end.
5. Even if the starting torque is below the lower limit of the standard value, check the play of the ball joint and replace if necessary.



EPA9003A

CHECKING STEERING WHEEL

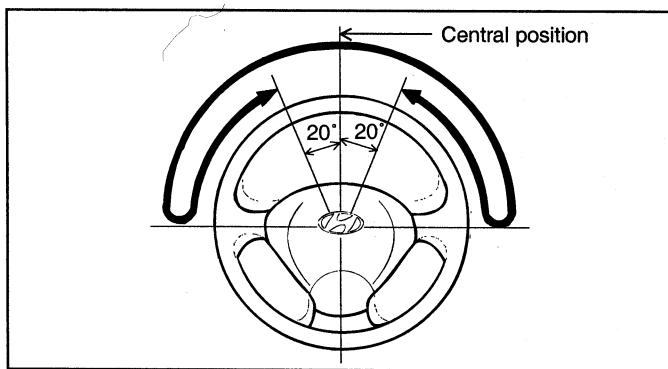
RETURN EPJB0800

Check the steering wheel return and confirm the following points:

1. The force required to turn the steering wheel and then return should be the same for both moderate turns and sharp turns.
2. When the steering wheel is turned 90° and held for a couple of seconds while the vehicle is being driven under 23-30kph (12-19 mph), the steering wheel should return to within 20° from its central position when it is released.

NOTE

If the steering wheel is turned very quickly, steering may be momentarily difficult. This is not a malfunction because the oil pump output will be somewhat decreased.



EPJB080A

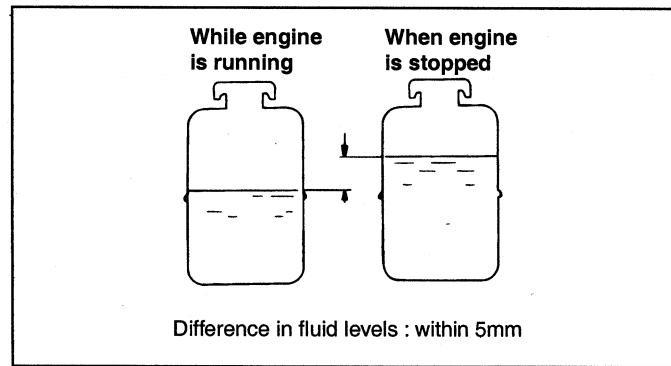
CHECKING POWER STEERING FLUID

LEVEL EPJB0900

1. Position the vehicle on a level surface.
2. Start the engine. With the vehicle kept stationary, turn the steering wheel several times continuously to raise the fluid temperature to $50-60^\circ\text{C}$ ($122-140^\circ\text{F}$).
3. With the engine at idle, turn the steering wheel fully clockwise and counter-clockwise several times.
4. Make sure that there is no foaming or cloudiness in the reservoir fluid.
5. Stop the engine and check for any difference in fluid level between a stationary and a running engine.

NOTE

1. If the fluid level varies 5 mm (0.2 in.) or more, bleed the system again.
2. If the fluid level suddenly rises after stopping the engine, further bleeding is required.
3. Incomplete bleeding will produce a chattering sound in the pump and noise in the flow control valve, and lead to decreased durability of the pump.

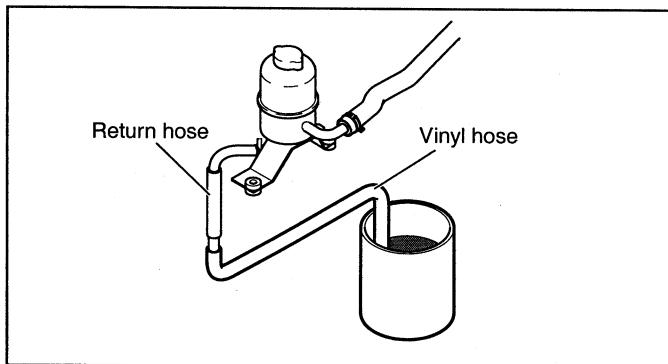


H7ST012A

REPLACING POWER STEERING FLUID

EPJB1000

1. Jack up the front wheels and support them with jack stands.
2. Disconnect the return hose from the oil reservoir and plug the oil reservoir.
3. Connect a vinyl hose to the disconnected return hose, and drain the oil into a container.



4. Disconnect the high-tension cables and ignition coils.

While operating the starter motor intermittently, turn the steering wheel to the limit of left and then to the limit of right several times to drain the fluid.

After that, connect the high-tension cables and coils.

5. Connect the return hoses securely, and then fill the oil reservoir with the specified fluid.

6. Start the engine.

Check for oil leakage.

7. Stop the engine.

Power steering fluid

Type : PSF-3

Total quantity : Approx. 1.0 liter (0.88 qts)

AIR BLEEDING

EPJB1100

1. Fill the power steering fluid reservoir up to the "MAX" position with specified fluid.

NOTE

1. When bleeding fluid, replenish the fluid so that the level never falls below the bottom of the filter.
2. If air bleeding is done while the vehicle is idling, the air will be broken up and absorbed into the

fluid. Be sure to do the bleeding only while cranking.

2. Jack up the front wheels.
3. Disconnect the ignition coil high tension cable, and then, while operating the starter motor intermittently (for 15 to 20 seconds), turn the steering wheel to the limit of left and then to the limit of right five or six times.
4. Connect the high tension cable, and then start the engine (idling).
5. Turn the steering wheel to the left and then to the right, until there are no air bubbles in the oil reservoir.

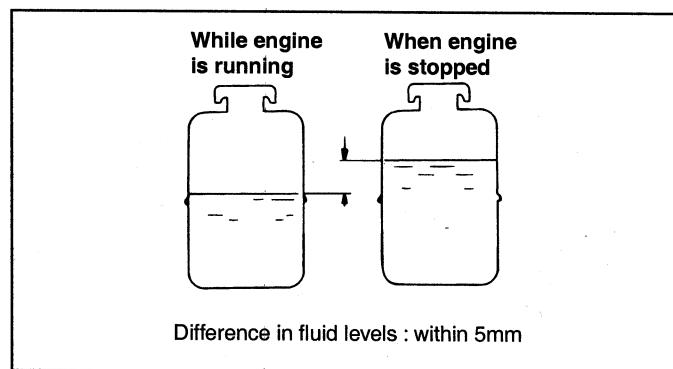
NOTE

Do not hold the steering wheel turned to either side for more than ten seconds.

6. Confirm that the fluid is not milky, and that the level is between "MAX" and "MIN" marks on the reservoir.
7. If the fluid level changes up and down considerably when the steering wheel is turned left and right or fluid overflows from the reservoir when the engine is stopped, air bleeding should be done again.

NOTE

1. If the fluid level varies 5mm (0.2 in.) or more, bleed the system again.



2. If the oil level changes up and down when the steering wheel is turned or the fluid overflows from the reservoir when the engine is stopped, further air bleeding is required. If the air isn't removed, it can cause cavitation in the pump, noise and may damage the pump.

CHECKING POWER STEERING BELT TENSION

EPJB1200

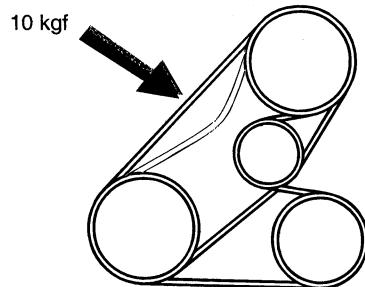
1. Press the V-belt, applying a pressure of 98 N (10 kg, 22 lb) at the specified point, and measure the deflection to confirm that it is within the standard value range.

V-belt deflection [Standard value]

Regular inspection : 11.7-15.3 mm (0.46-0.60 in.)

New belt : 8.8-11.0 mm (0.35-0.43 in.)

Used belt : 12.5-14.3mm (0.49-0.56 in.)



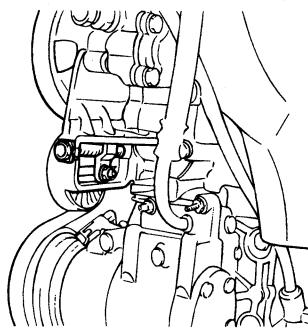
EPJA015A

2. Install the V-belt. Loosen the adjusting bolt and then adjust the tension of the V-belt.

After that, tighten the hinge bolt and flange nut to the specified value.

NOTE

When adjusting tension of the V-belt, tighten the hinge bolt and flange nut temporarily so that the pulley does not lean to one side, then adjust the tension.



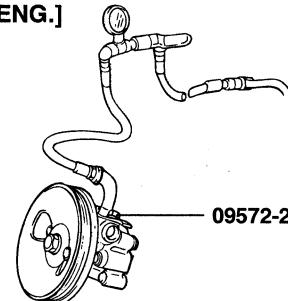
EPA9016D

OIL PUMP PRESSURE TEST

EPJB1300

1. Disconnect the pressure hose from the pump, and then connect the special tool between the pump and the pressure hose as illustrated.

[V6, DOHC ENG.]



09572-22100

EPA9006A

2. Bleed the air. Start the engine and turn the steering wheel several times so that the fluid temperature rises to approximately 50~60°C (122~132°F) operating temperature.
3. Increase the engine speed to 1,000 rpm.
4. Close the shut-off valve of the special tool and measure the fluid pressure to confirm that it is within the standard value range.

Oil pump pressure [Standard value]

Relief pressure : 7.6~8.1 MPa (78~83 kg/cm, 1102~1175 psi)

CAUTION

Don't keep the shut-off valve on the pressure gauge closed for more than ten seconds.

5. Remove the special tool and then tighten the pressure hose to the specified torque.

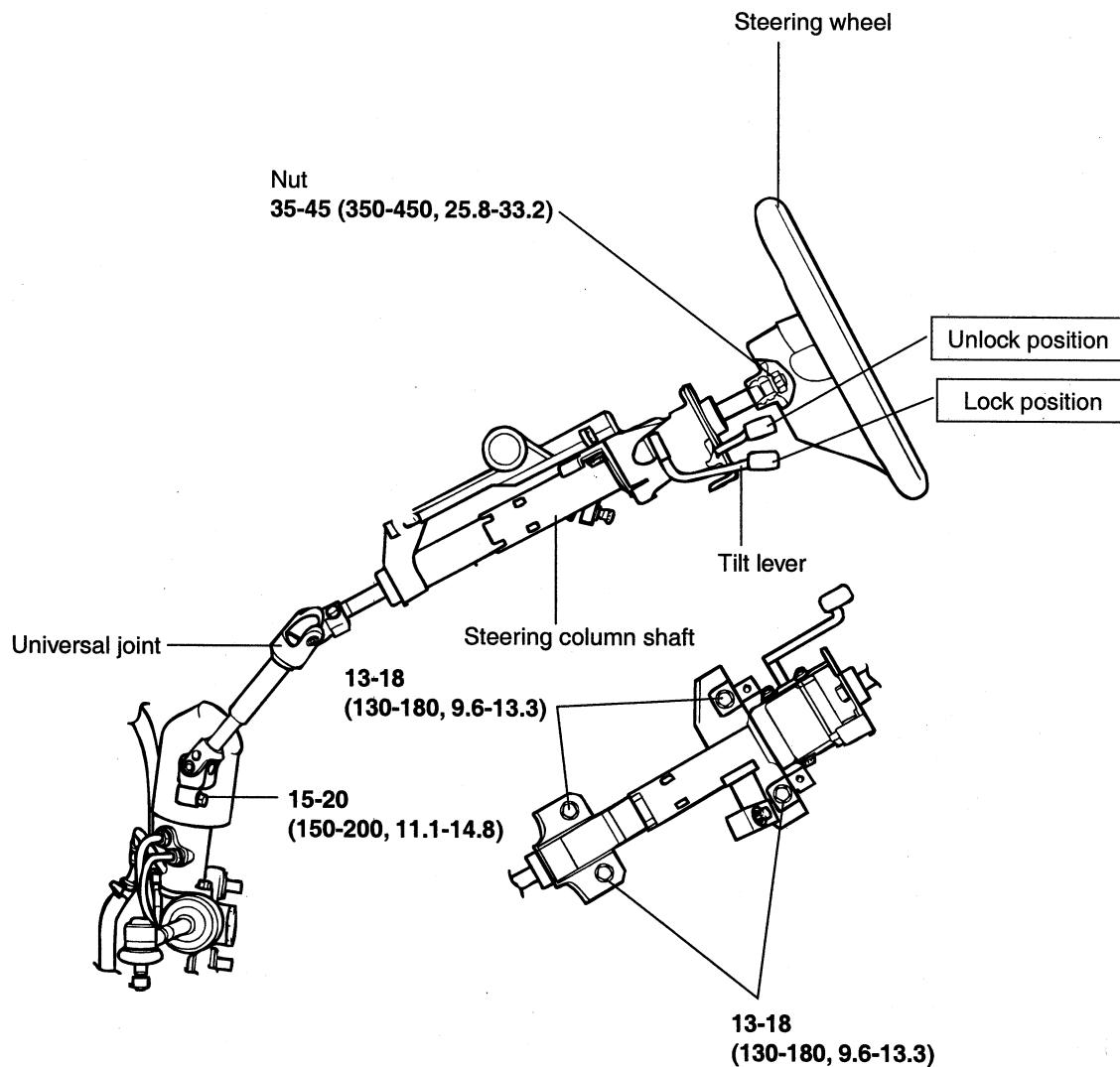
Tightening torque : 55~69 Nm (550~690 kg.cm, 40.6~50.9 lb.ft)

6. Bleed the system.

STEERING COLUMN/SHAFT

COMPONENTS

EPJB1400

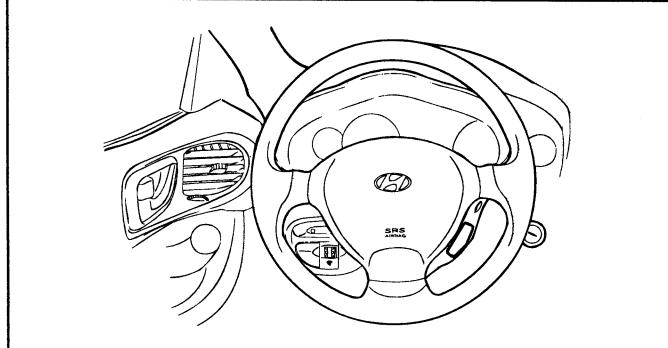


TORQUE : Nm (kg.cm, lb.ft)

REMOVAL

EPJB1500

1. Remove the cover on both sides under the steering wheel.
2. Remove two bolts by using a hexagonal wrench.

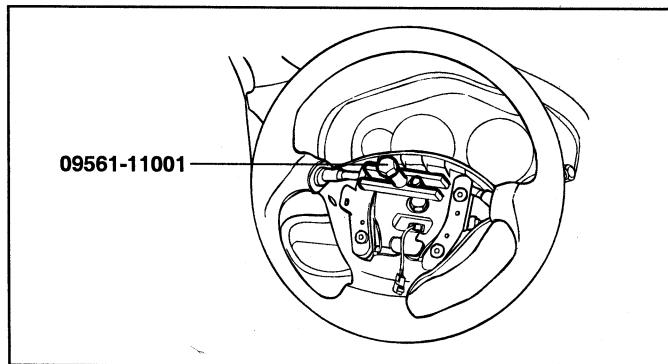


EPJA020K

3. Disconnect the DAB and horn connector, and remove the steering wheel lock nut.
4. Using the SST, remove the steering wheel.

CAUTION

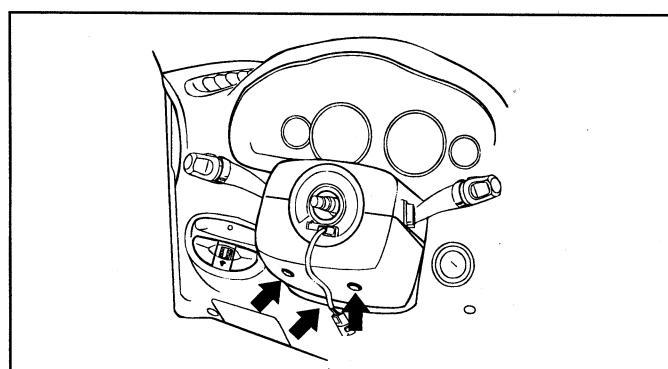
Do not hammer on the steering wheel to remove it; doing so may damage the collapsible shaft.



09561-11001

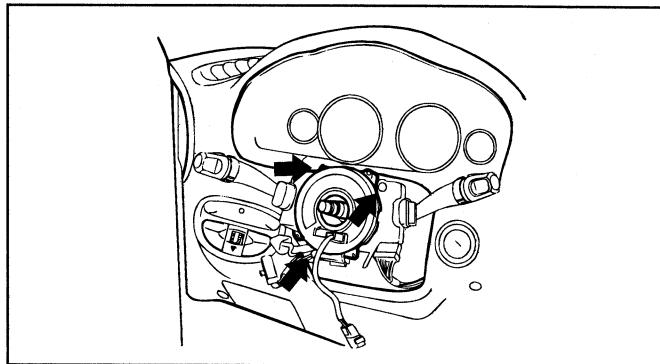
EPJA020B

5. Remove steering column lower shroud and upper shroud.



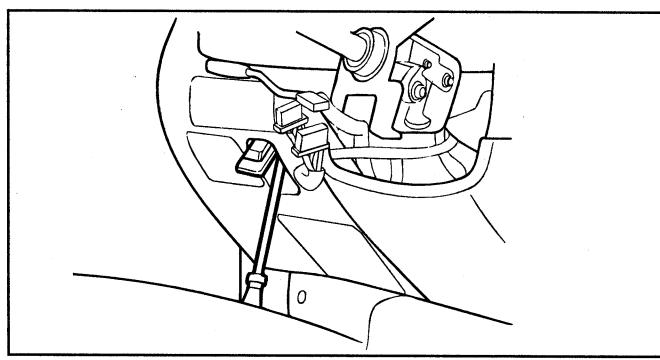
EPJA020C

6. Disconnect connectors and remove the multifunction switch.



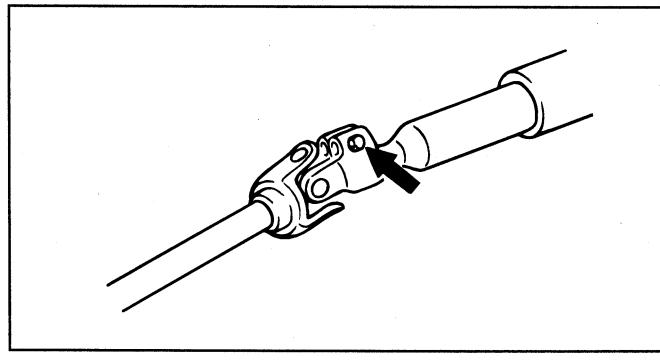
EPJB150A

7. Remove the switch on the left side of the lower crash pad.
8. Remove the lower cover.
9. After removing all connectors, remove the steering column shaft.



EPHA002C

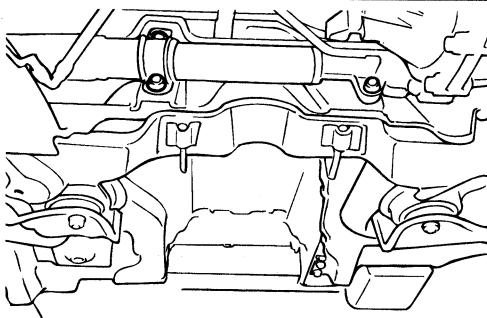
10. Remove the bolt that couples the universal joint and the pinion. Pull out the universal joint from the gear box.



HEW56-10

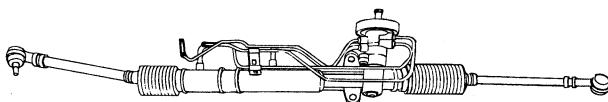
11. Remove the bolts mounting the dust cover.

12. Remove 4 bolts mounting the steering column.



EPHA002D

13. Drain the power steering fluid and disconnect the return hose and pressure hose.



EPHA002F

14. Remove the steering column and shaft with the universal joint and dust cover.

INSPECTION

EPHA0800

1. Check the steering shaft for damage or distortion.
2. Check the upper and lower bearing for wear or damage.
3. Check the joints for play, damage or rough movement.
4. Check the tilt bracket for cracks or damage.
5. Check the cover or boot for damage.
6. Check that the steering lock mechanism operates properly. If necessary, replace.

ASSEMBLY

EPJB1700

1. Assembly is the reverse of disassembly.
2. When installing the steering lock, align the hook and shaft groove with the steering column.

INSTALLATION

EPJB1800

1. Before installation, apply multipurpose grease to the groove inside the bearing and contracting surfaces of the boot and cover assembly.

2. Connect the steering lower shaft and joint assembly.

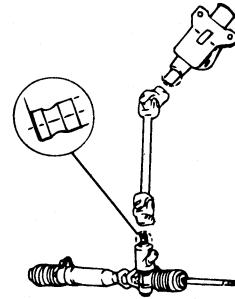
NOTE

When installing, mount the U-joint to the gear box first, then to the steering column shaft.

3. Install the dust cover to the column shaft assembly.
4. Install the steering column assembly to the column member assembly.
5. Install the multifunction switch and connect the connectors.
6. Install the lower cover and steering column upper and lower shroud.
7. Install the steering wheel.

NOTE

When installing, do not use a hammer because the collapsible column shaft could be damaged.

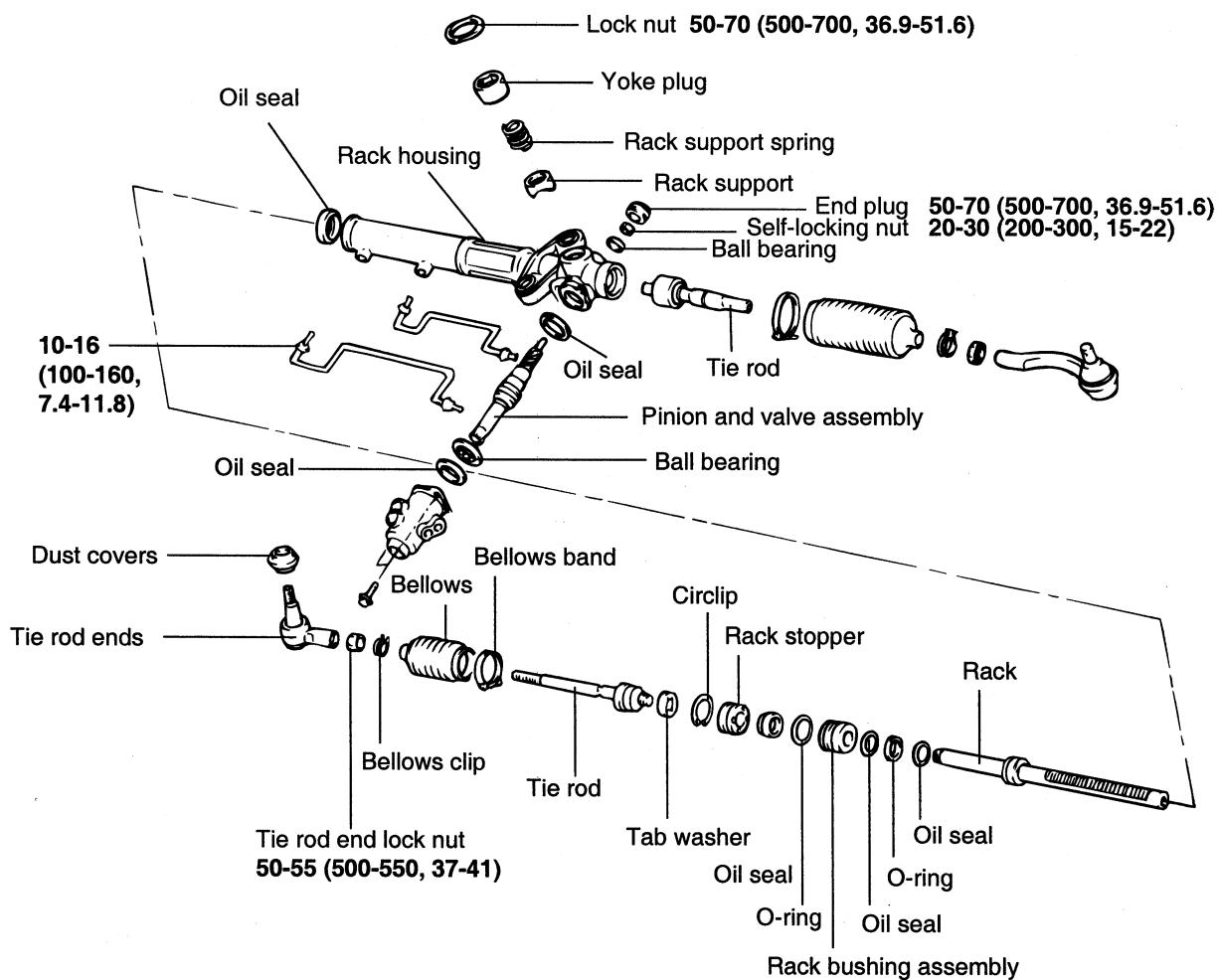


HCT56-39

POWER STEERING GEAR BOX

COMPONENTS

EPJB1900

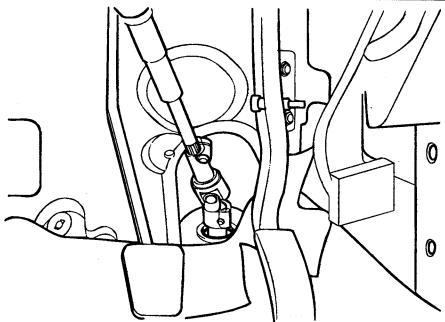


TORQUE : Nm (kg·cm, lb·ft)

REMOVAL

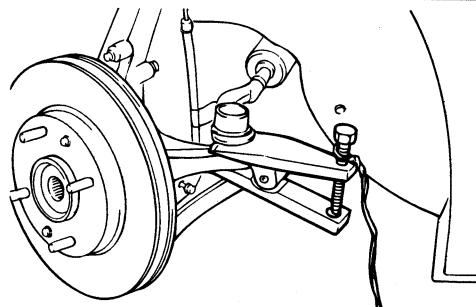
EPJB2000

1. Drain the power steering fluid.
2. Disconnect the pressure hose and return tube.
3. Remove the joint assembly connecting bolt.



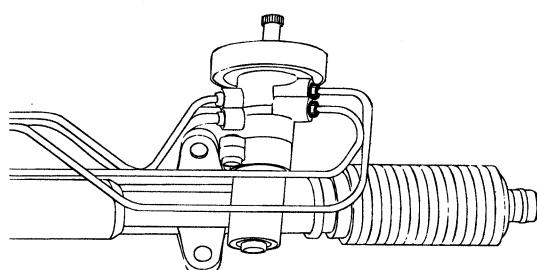
EPHA003A

4. Using the special tool (09568-31000), disconnect the tie rod end from the knuckle arm.



EPA9020F

5. Remove the feed tube.

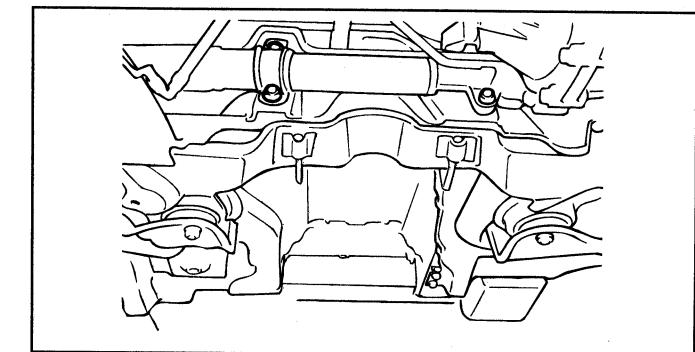


EPHA003B

6. Remove the steering gear box mounting bolts and remove the steering gear box assembly together with mounting rubber.

CAUTION

When removing the gear box, pull it out carefully and slowly to avoid damaging the boot.

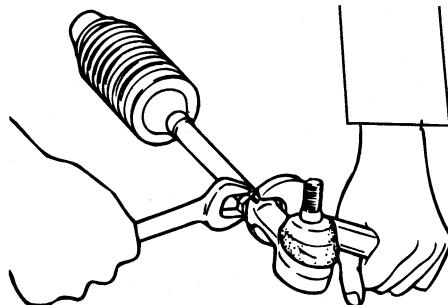


EPHA002D

DISASSEMBLY

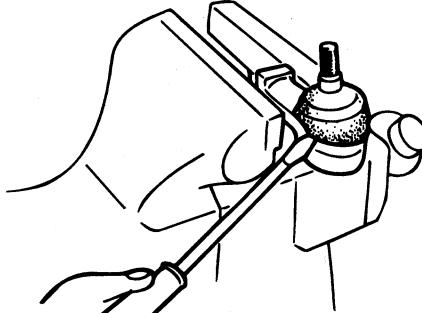
EPJB2100

1. Remove the tie rod end from the tie rod.



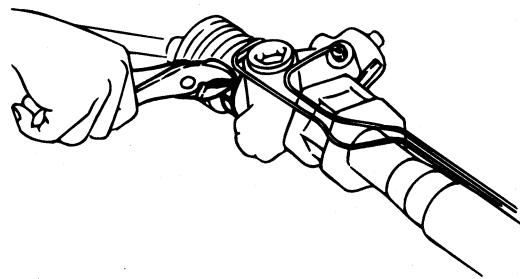
EPA9013F

2. Remove the dust cover from the ball joint.



EPA9013G

3. Remove the bellows band.



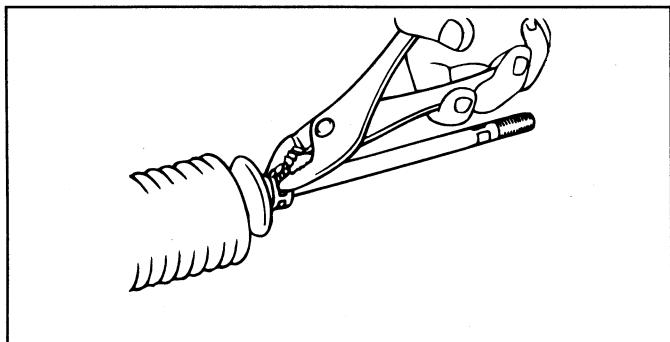
EPA9013H

4. Remove the bellows clip.
5. Pull the bellows out toward the tie rod.

NOTE

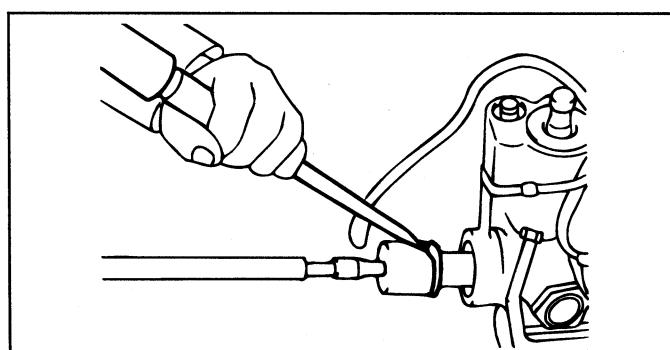
Check for rust on the rack when the bellows are replaced.

6. Remove the feed tube from the rack housing.



EPA9013I

7. While moving the rack slowly, drain the fluid from the rack housing.
8. Unstake the tab washer which fixes the tie rod and rack with a chisel.

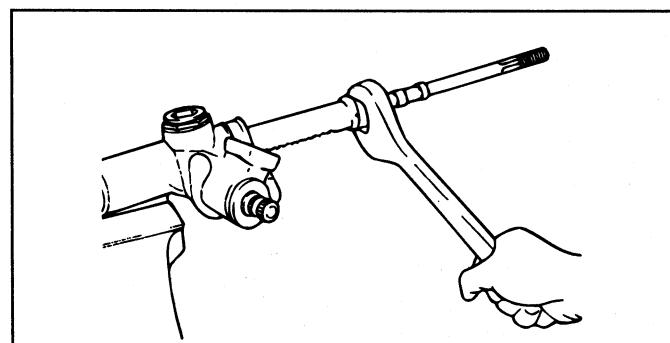


EPA9013J

9. Remove the tie rod from the rack.

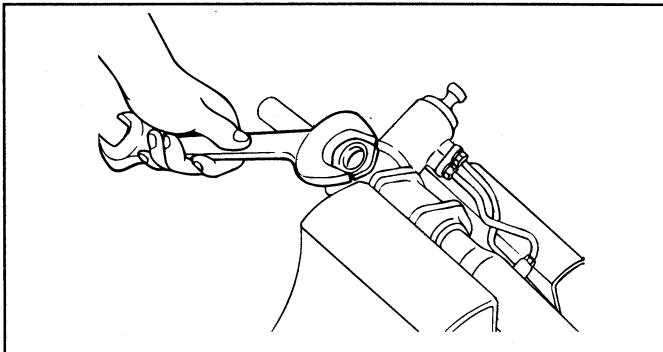
CAUTION

Remove the tie rod from the rack, taking care not to twist the rack.



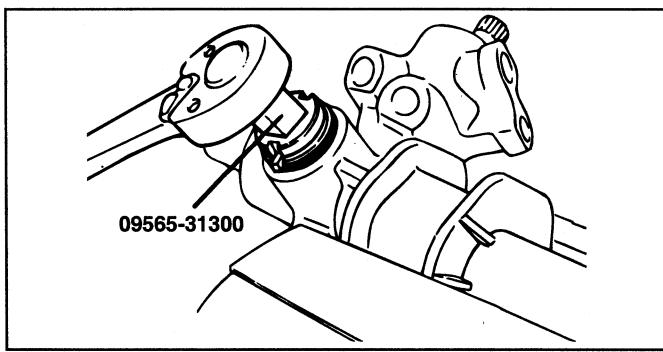
EPA9013K

10. Remove the yoke plug lock nut.



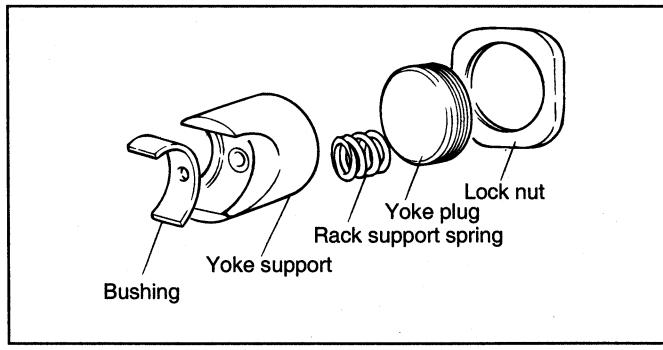
EPA9013H

11. Using the special tool (09565-31300), remove the yoke plug.



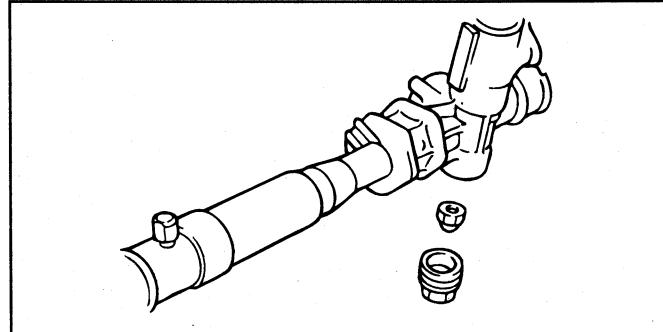
EPA9013M

12. Remove the rack support spring, yoke support and bushing from the gear box.



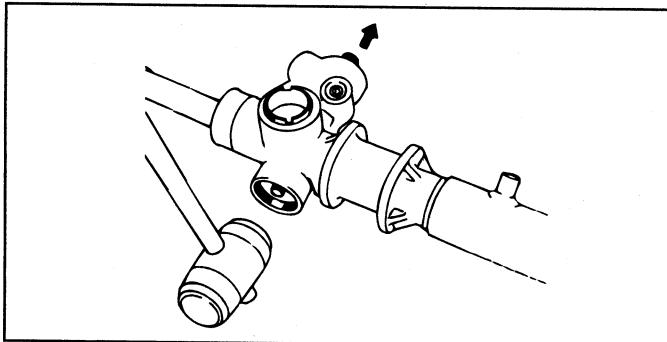
EPA9013N

13. Remove the end plug and self-locking nut.



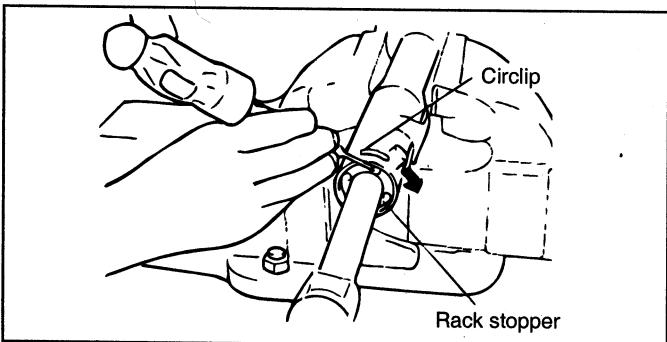
EPA9013O

14. Detach the dust seal.
15. Remove the snap ring with snap ring pliers.
16. Remove bolts mounting the valve assembly to the rack housing.
17. Remove the pinion and valve assembly together with the oil seal (upper) using a soft hammer.



EPA9013P

18. Turn the rack stopper clockwise until the end of the circlip comes out of the slot in the gear housing.

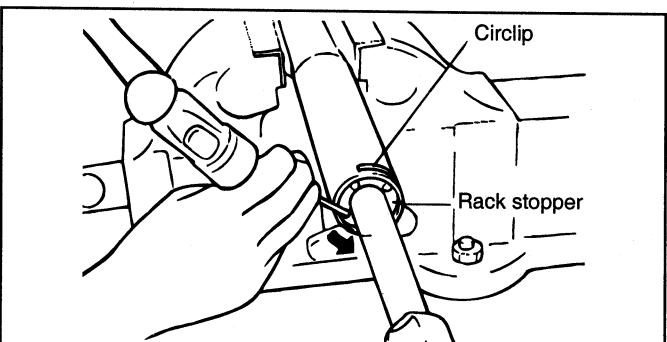


EPA9013Q

19. When the end of the circlip comes out from the notched hole of the housing rack cylinder, turn the rack stopper counter clockwise and remove the circlip.

CAUTION

Do not damage the rack when disassembling.

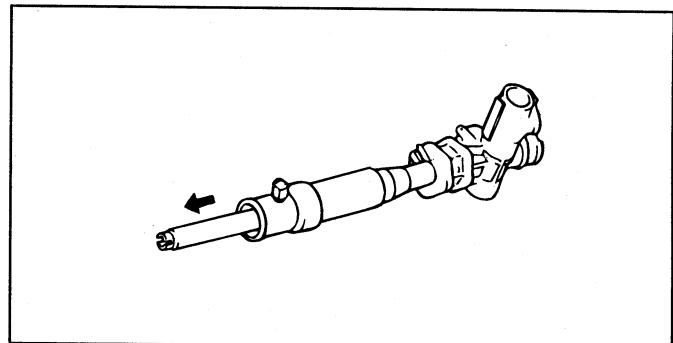


EPA9013R

20. Remove the rack stopper, rack bushing and rack from the rack housing by moving it toward the piston side.

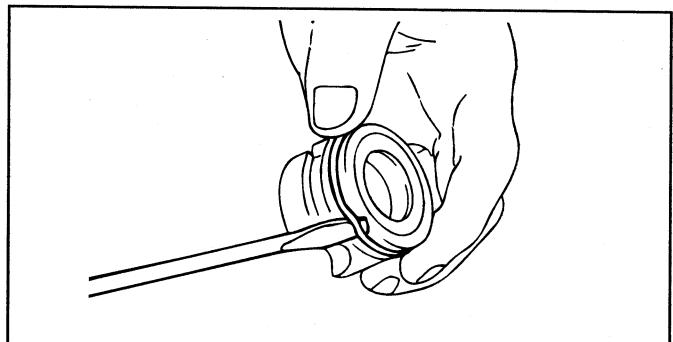
CAUTION

When the rack has been removed, be sure to replace the housing side oil seal with a new one.



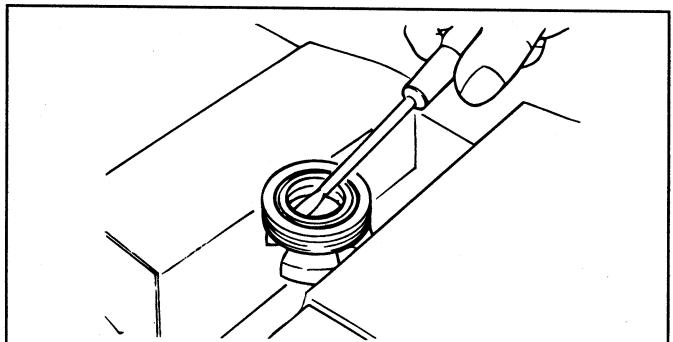
EPA9013S

21. Remove the O-ring from the rack bushing.



EPA9013T

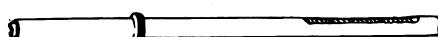
22. Remove the oil seal from the rack bushing.



EPA9013U

INSPECTION EPJB2200**1. Rack**

- 1) Check for rack tooth face damage or wear
- 2) Check for oil seal contact surface damage or wear
- 3) Check for bending or twisting of rack
- 4) Check for oil seal ring damage or wear
- 5) Check for oil seal damage or wear



EPA9013Y

2. Pinion valve

- 1) Check for pinion gear tooth face damage or wear
- 2) Check for oil seal contact surface damage
- 3) Check for seal ring damage or wear
- 4) Check for oil seal damage or wear



EPA9013Z

3. Bearing

- 1) Check for seizure or abnormal noise during bearing rotation
- 2) Check for excessive play
- 3) Check for missing needle bearing rollers

4. Others

- 1) Check for damage of the rack housing cylinder bore
- 2) Check for boot damage, cracking or ageing

ASSEMBLY EPJB2300

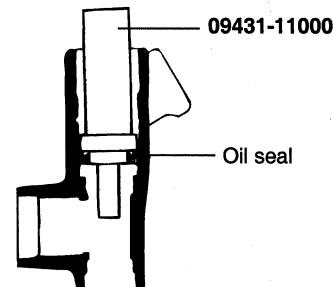
1. Apply the specified fluid to the entire surface of the oil seal.

Recommended fluid :Power steering fluid (PSF-3)

2. Using the special tool (09431-11000), install the oil seal to the specified position in the rack housing.

CAUTION

1. Note the direction of the oil seal.
2. Use a new oil seal.



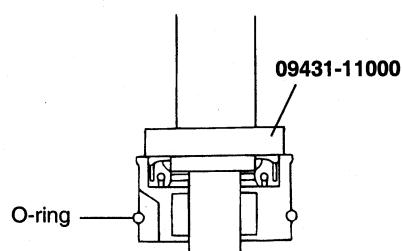
EPA9014C

3. Apply the specified fluid to the entire surface of the rack bushing oil seal.

Recommended fluid :Power steering fluid (PSF-3)

4. Install the oil seal in the rack bushing.

5. Apply the specified fluid to the entire surface of the O-ring and install the rack bushing using the special tool (09431-11000).

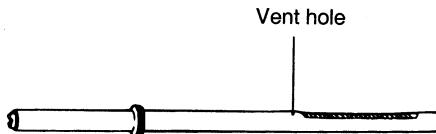


EPA9014D

6. Apply the specified grease to the rack teeth.

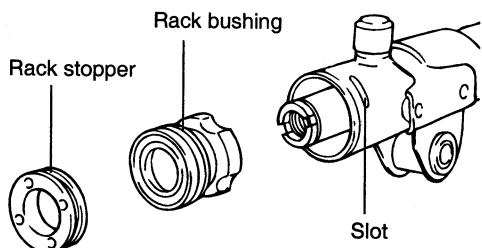
CAUTION

Do not plug the vent hole in the rack with grease.



EPA9014E

7. Insert the rack into the rack housing. Install the rack bushing and rack stopper.

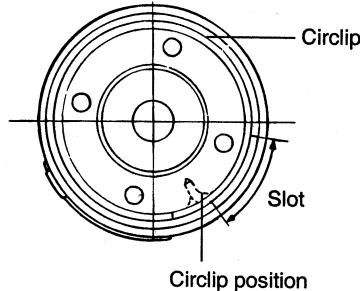


EPA9014F

8. Push the rack stopper until the circlip groove of the rack stopper is aligned with the notched hole of the rack housing and then install the circlip while turning the rack stopper.

CAUTION

The circlip end should not be visible through the notched hole of the rack housing.



EPA9014G

9. Apply the specified fluid and grease to the pinion valve assembly and install the rack housing assembly.

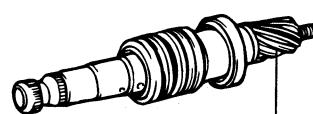
Recommended fluid :

Power steering fluid (PSF-3)

Recommended grease :

Multipurpose grease SAE J310a, NLGI #2 EP

Power steering fluid

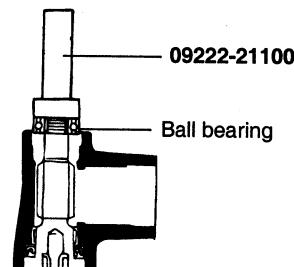


Multipurpose grease

EPA9014H

10. Install the ball bearing using the special tool (09222-21100).

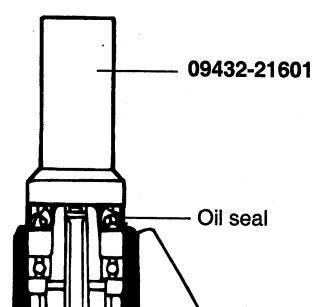
11. Install the pinion and valve assembly to the valve housing.



EPA9014I

12. Install the oil seal using the special tool (09432-21601).

13. Install the snap ring with snap ring pliers.

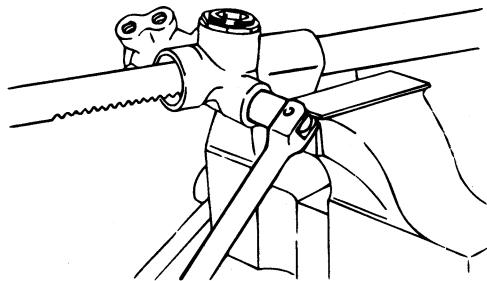


EPA9014J

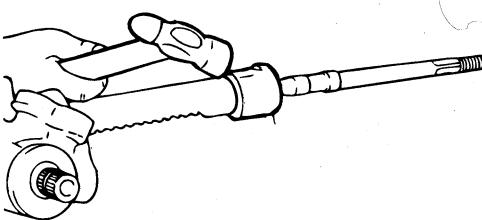
14. With the pinion turned completely clockwise, tighten the self-locking nut.

CAUTION

Always replace the self-locking nut with a new one.



EPA9014K



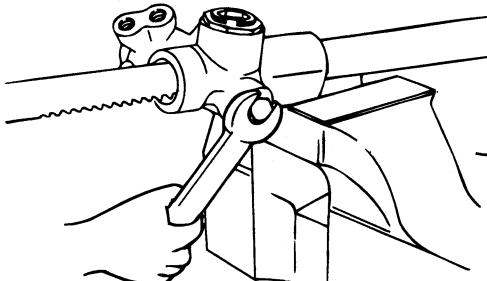
EPA9014M

15. Apply semi-drying sealant to the threaded section of the end plug and tighten to the specified torque.

Tightening torque :

End plug : 50-70 Nm

16. Stake the end plug at two points on its circumference with a punch.



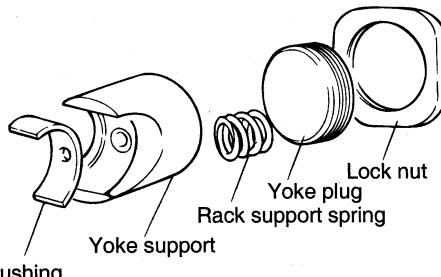
EPA9014L

17. Install the tab washer and then the tie rod and hammer the tab washer end at two points lightly to the tie rod.

CAUTION

1. Align the tab washer pawls with the rack grooves.
2. Use a new tab washer.

18. Install the bushing, rack support yoke, rack support spring and yoke plug in the order shown. Apply semi-drying sealant to the threaded section of the yoke plug before installation.



EPA9013N

19. With the rack placed at the center position, attach the yoke plug to the rack housing. Tighten the yoke plug within the range of 20-25 Nm (200-250 kg.cm, 14.5-18 lb.ft), using the special tool. Loosen the yoke plug for approximately 20° and tighten the locking nut to the standard value.

Tightening torque

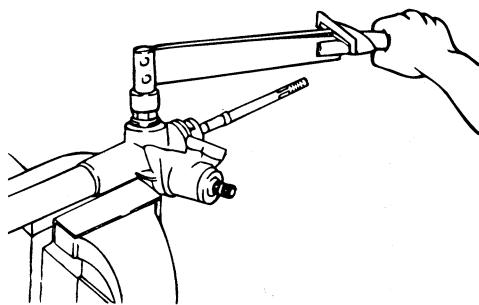
Locking nut : 50-70 Nm (500-700 kg·cm, 36-51 lb·ft)

20. After adjusting, install the yoke plug with a lock nut.

NOTE

When it cannot be adjusted within the specified return angle, check the rack support plug components or replace.

21. Tighten the feed tube to the specified torque and install the mounting rubber with adhesive.



EPA9014O

22. Apply the specified grease to the bellows mounting position (fitting groove) of the tie rod.

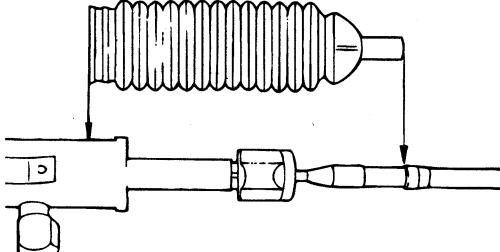
Recommended grease

Multipurpose grease SAE J310a, NLGI #2 EP

23. Install the new attaching band to the bellows.

CAUTION

When the bellows are installed, a new band must be used.



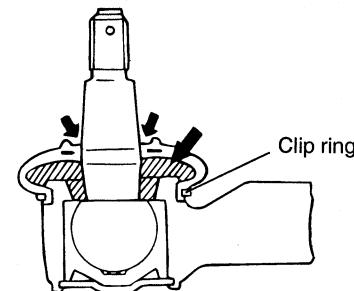
EPA9014P

24. Install the bellows in position, taking care not to twist it.

25. Fill the dust cover inner side and lip with the specified multipurpose grease, and place the dust cover in position with the clip ring attached in the groove of the tie rod end.

Recommended grease

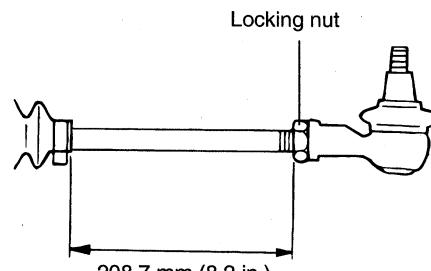
Multipurpose grease SAE J310a, NLGI #2 EP



EPA9014Q

26. Install the tie rods so that the length of the left and right tie rods equals the standard value.

Tie rod free length [Standard value] :208.7 mm (8.2 in.)



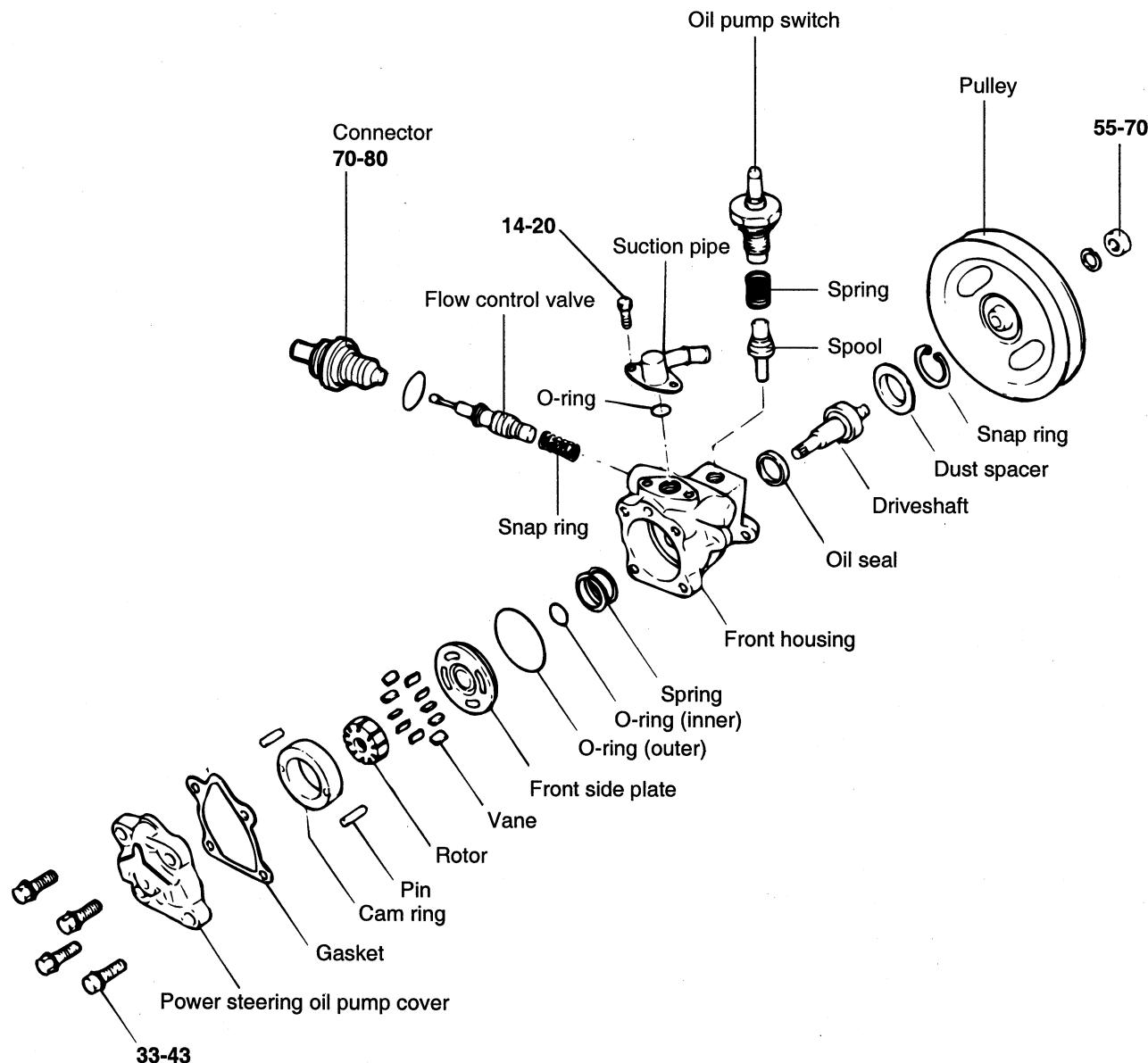
EPAH115A

27. Install the powersteering gear box assembly to the vehicle.

POWER STEERING OIL PUMP

COMPONENTS

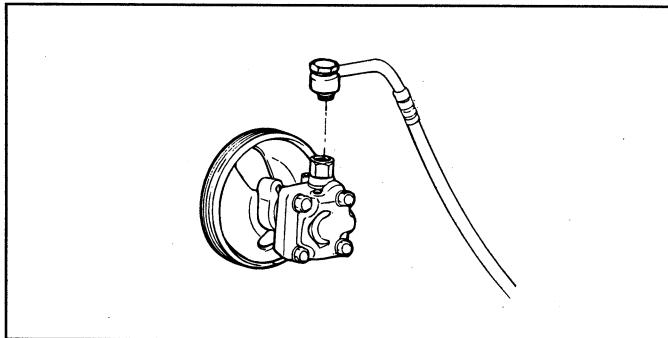
EPJB2400



TORQUE : Nm (kg·cm, lb·ft)

REMOVAL EPHA1250

1. Remove the pressure hose from the oil pump.
2. Disconnect the suction hose from the suction connector and drain the fluid into a container.

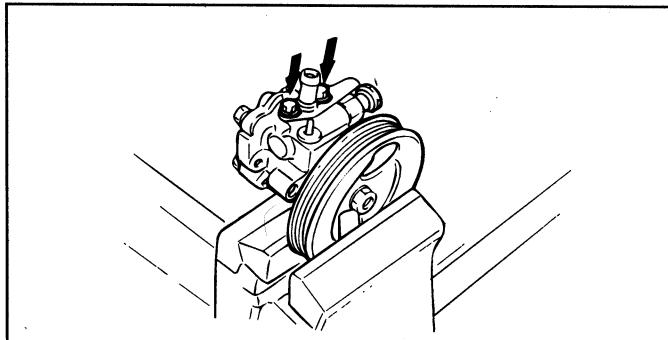


EPA9016A

3. To remove the drive belt, loosen the oil pump mounting bolt.
4. Remove the oil pump mounting bolts and disconnect the pressure switch connector.

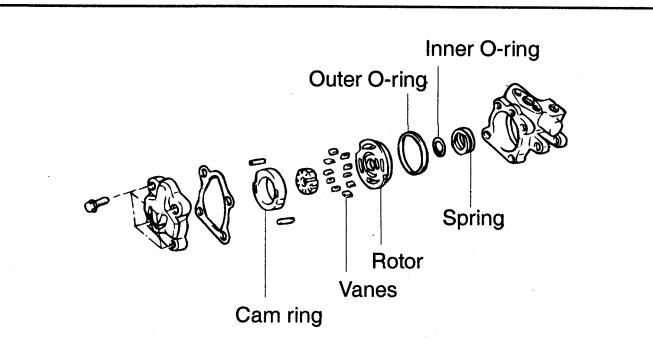
DISASSEMBLY EPJB2600

1. Remove the suction pipe and the O-ring from the oil pump.



EPA9017A

2. Remove the rear cover with its gasket and pin.
3. Remove the cam ring.
4. Remove the rotor and vanes
5. Remove the front side plate.

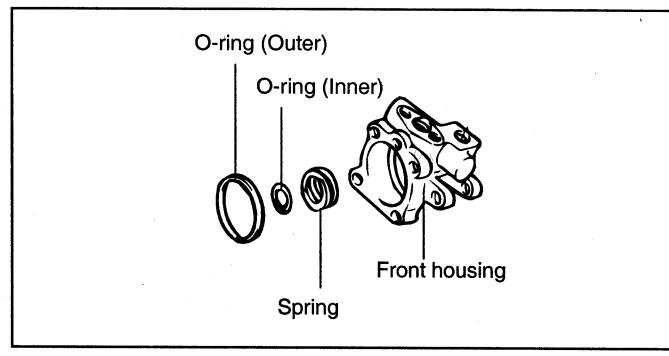


EPA9017B

6. Remove the inner and outer O-ring.
7. Remove the spring.

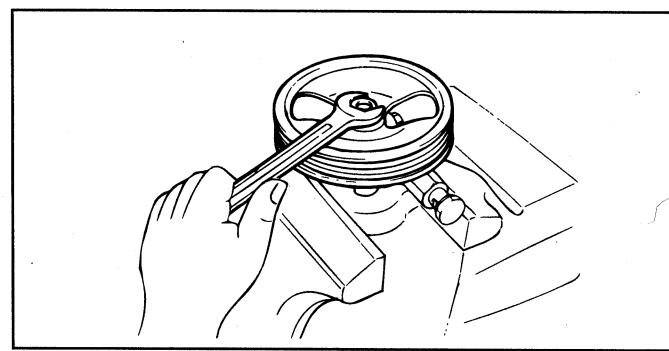
NOTE

When assembling, use a new gasket and O-ring.



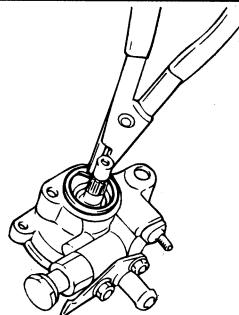
EPA9017C

8. Remove the pulley nut and the spring washer.
9. Pull off the pulley and the woodruff key.

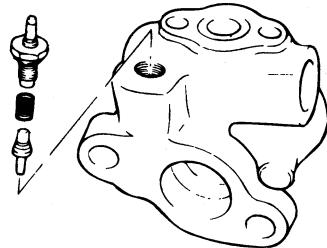


EPA9017D

10. Remove the snap ring using snap ring pliers.
11. Remove the drive shaft and bearing using a plastic hammer.



EPA9017E

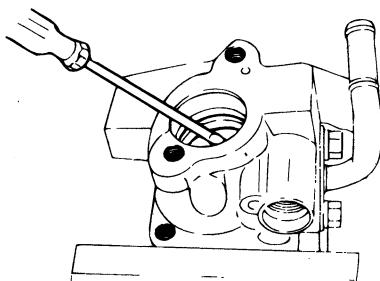


HCT56-96

12. Remove the oil seal from the oil pump body.

NOTE

When assembling, use a new oil seal.



HCT56-94

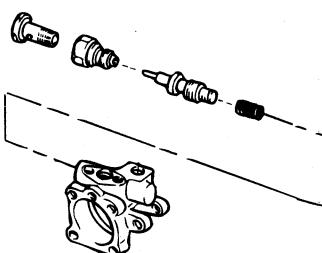
13. Remove the guide bracket and nut.

14. Remove the connector from the oil pump body, and then remove the flow control valve and flow control spring.

15. Remove the O-ring from the connector.

CAUTION

Do not disassemble the flow control valve.



EPA9017G

16. Remove the oil pump switch.

17. Take the spring and the spool out.

18. Remove the O-ring from the oil pump switch.

INSPECTION

EPJB2700

1. Clean all disassembled parts with a suitable cleaning solvent.
2. If any inside parts of the oil pump have been damaged, replace the pump as an assembly.
3. If the pulley is cracked or deformed, replace it.
4. If oil leaks around the drive shaft oil seal, replace the oil seal.
5. If the serrations of the pulley or drive shaft are deformed or worn out, replace them.

ASSEMBLY

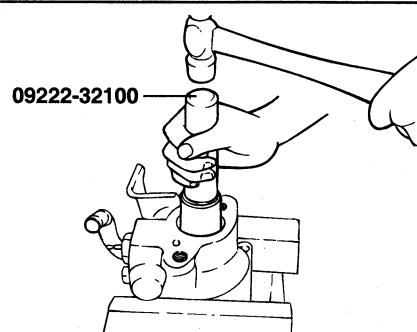
EPJB2800

1. Install the oil pump switch.
2. Install the flow control valve spring, valve and connector in the pump body.

NOTE

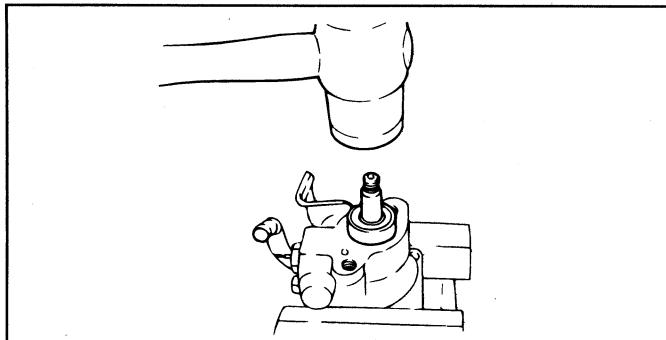
Apply a thin coat of power steering fluid to all parts including the oil seal and O-ring.

3. Install the guide bracket and nut.
4. Using the special tool (09222-32100), install the oil seal into the pump body.



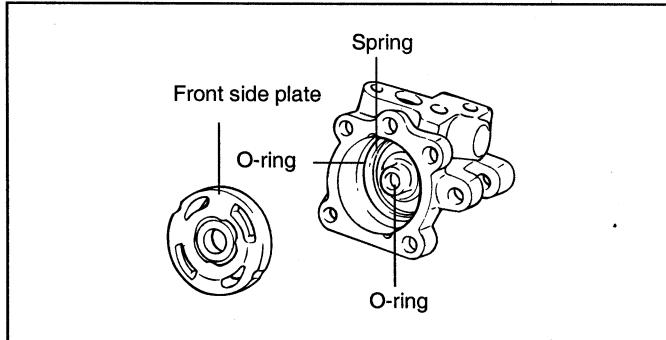
EPDA044A

- Gently insert the shaft assembly and install the snap ring.
- Install the pump pulley with the woodruff key in position.



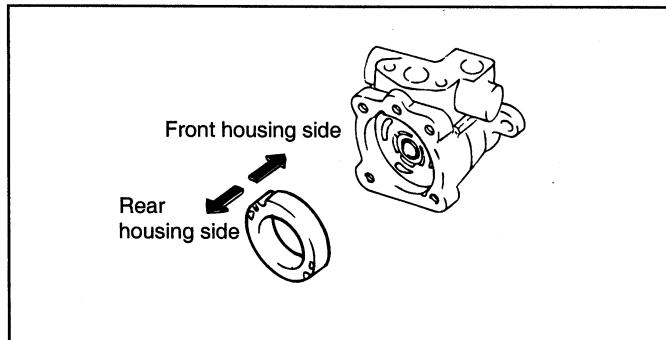
HCT56-98

- Install the spring and the inner and outer O-rings.
- Install the front side plate.



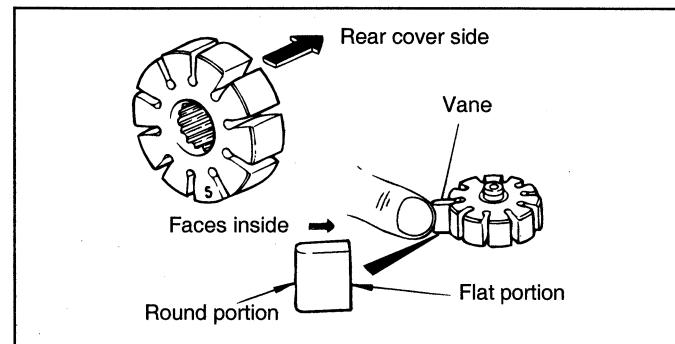
EPA9018C

- Insert the pins into the pin grooves of the front housing, then install the cam ring, paying attention to its direction.



EPA9018D

- Install the rotor with its punch-marked side facing towards the front side plate.
- Install the vane plates with the round end facing outward.



EPA9018E

- Install the gasket and rear cover.

- Tighten the suction connector.

INSTALLATION

EPJB2900

- Install the oil pump to the oil pump bracket.
- Install the suction hose.
- Install the ribbed V-belt and adjust its tension.
- Connect the pressure hose to the oil pump, and the suction hose to the oil reservoir.

NOTE

Install the hoses so that they are not twisted and they do not come in contact with any other parts.

- Replenish the reservoir.

Recommended fluid :

Power steering fluid (PSF-3)

- Bleed the system.
- Check the oil pump pressure.
- Install parts by referring to the torque specification.