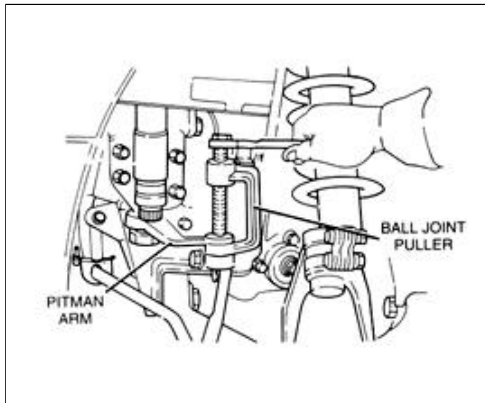




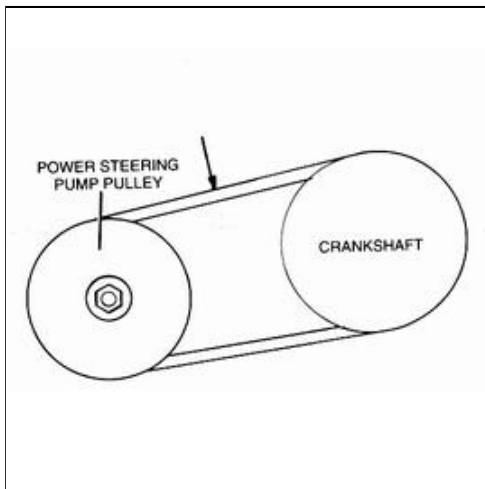
## Sportage [AL] > 2000 > Engine > 2.0 DOHC

### REMOVAL(Center Link)

1. Raise and support vehicle.
2. Remove left and right tire and wheel assemblies.
3. Remove cotter pins from the four joints of the center link.
4. Remove nuts from the four joints of the center link.
5. Using ball joint puller, separate right tie rod end assembly from center link.
6. Using ball joint puller, separate left tie rod end assembly from center link.
7. Using ball joint puller, separate pitman arm from center link.



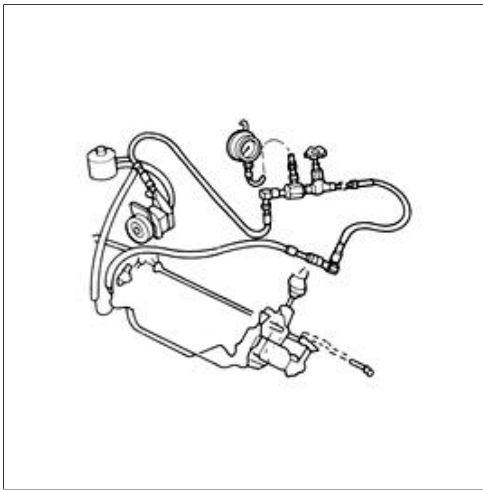
8. Using ball joint puller, separate idler arm from center link.



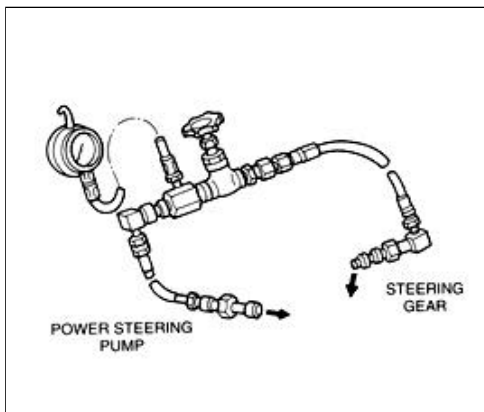
9. Remove center link.

### REMOVAL(Pitman Arm)

1. Raise and support vehicle.
2. Remove left tire and wheel assembly.
3. Mark the pitman and shaft to show correct position of pitman arm on steering gear.



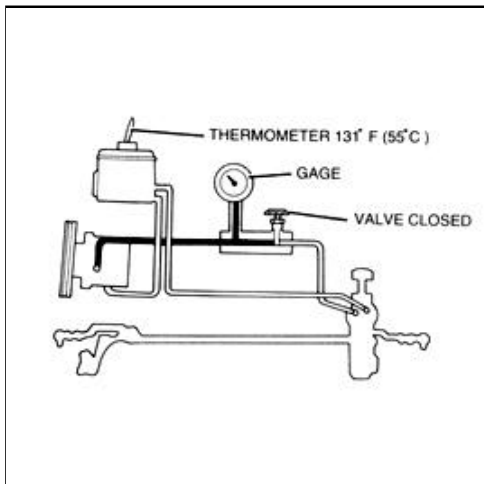
4. Remove cotter pin from nut at center link joint.
5. Remove nut from center link joint.
6. Remove nut and lockwasher from steering gear shaft.
7. Using ball joint puller, separate pitman from center link.



8. Using pitman arm puller, separate pitman from steering gear.
9. Remove pitman arm.

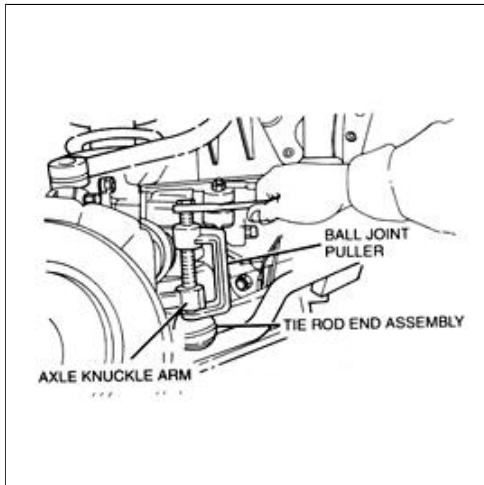
### REMOVAL(Idler Arm)

1. Raise and support vehicle.
2. Remove right tire and wheel assembly.
3. Remove cotter pin from nut at center link end of idler arm.



4. Remove nut from center link end of idler arm.

5. Remove nut from idler assembly end of idler arm.
6. Using ball joint puller, separate idler arm from center link.



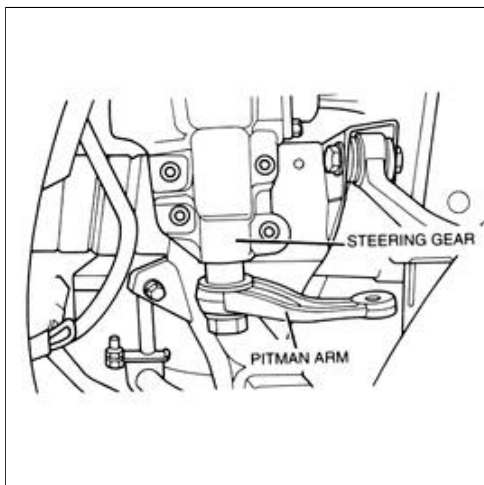
7. Using pitman arm puller, separate idler arm from idler arm assembly.
8. Remove idler arm.

### REMOVAL(Idler Arm Assembly)

1. Raise and support vehicle.
2. Remove right tire and wheel assembly.
3. Remove cotter pin from nut at center link joint of idler arm.
4. Using ball joint puller, separate idler arm from center link.
5. Remove four nuts, washers, and bolts that attach idler arm assembly to vehicle.
6. Remove idler arm assembly arm with idler arm installed.

### REMOVAL(Steering Gear)

1. Raise and support vehicle.
2. Remove left tire and wheel assembly.
3. Remove cotter pin from nut at center link joint with pitman arm.
4. Remove nut at center link joint with pitman arm.
5. Using joint puller, separate pitman arm from center link.

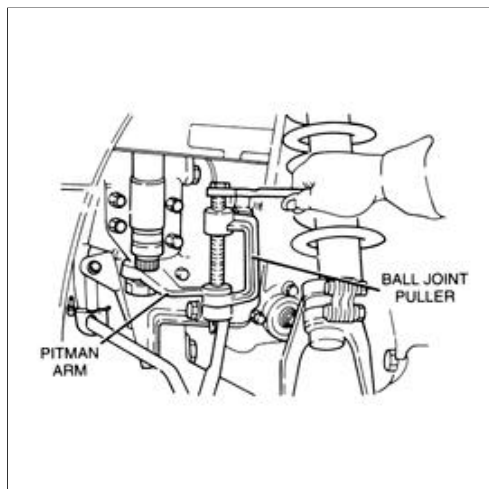


#### NOTE

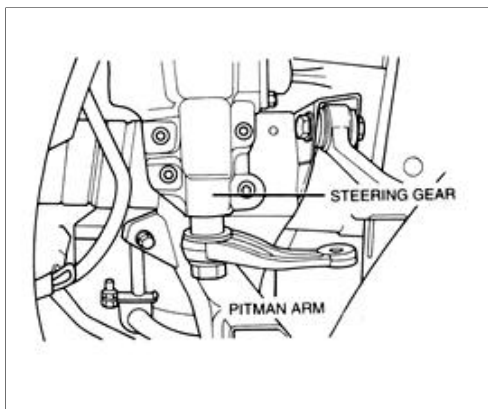
Cap or plug fluid lines and ports to prevent entry of foreign matter. Contamination of power steering fluid can damage power steering pump and steering gear.  
Remove four bolts, then remove under cover for access to power steering fluid lines between the power steering pump and the

steering gear.

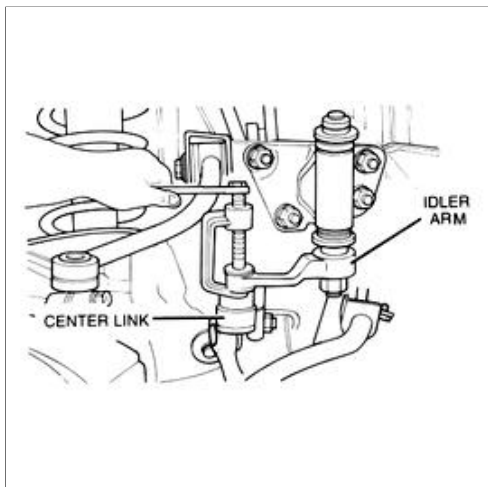
6. Position suitable container under vehicle to catch power steering fluid as fluid lines and components are drained.
7. Disconnect damping pipe from pressure hose.



8. Disconnect suction hose No. 1 from pipe assembly No. 1.  
The disconnect lines partially drain the power steering pump and the steering gear. Some fluid will remain in the steering gear. Movement of the pitman arm will expel fluid from the steering gear ports.
9. Lower vehicle for access to top of steering gear.
10. Remove coolant recovery tank and power steering reserve tank. Refer to "Reserve Tank and Bracket" in this section.
11. Disconnect damping pipe from top steering gear.



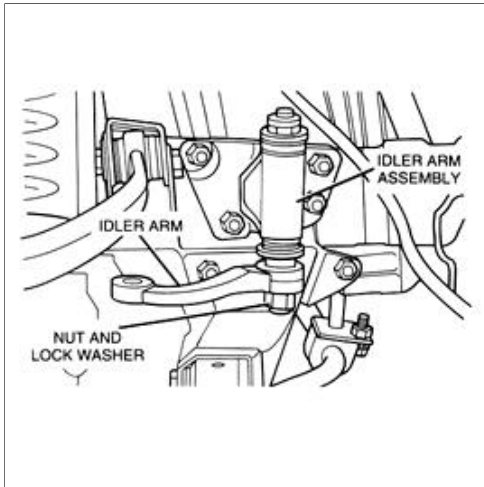
12. Disconnect and remove return hose No.1 from top of reserve tank.
13. Remove pipe assembly No.4 from top of steering gear.
14. Remove set bolt from intermediate shaft.



15. Disengage intermediate shaft from shaft of steering gear.

The intermediate shaft has a splined slip joint located under the dust boot. This permits the shaft to be compressed as necessary to disengage the steering gear shaft.

16. Remove the four nuts, washers, and bolts that attach the steering gear to the vehicle.

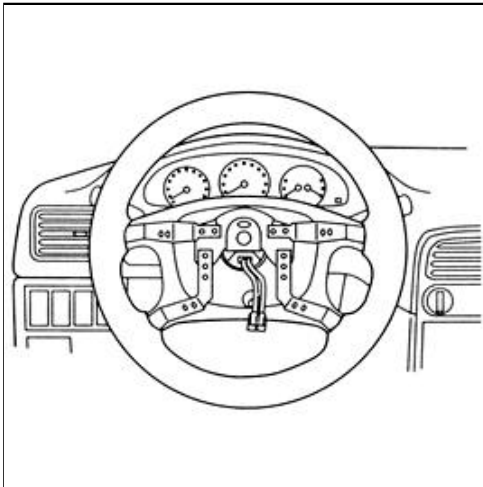


17. Lift the steering gear from the top being careful to minimize spillage of power steering fluid from the steering gear ports.

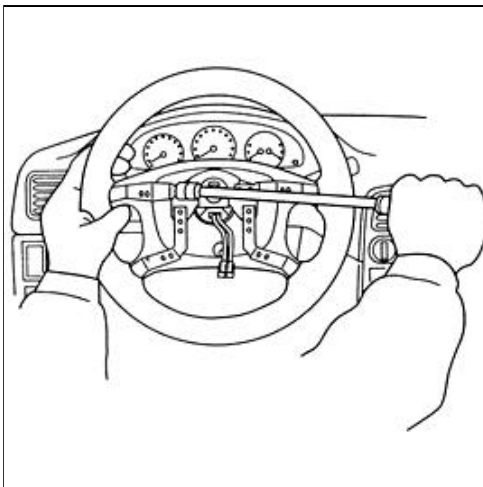
18. Make sure all fluid lines and port are capped or plugged.

### REMOVAL(Steering Wheel)

1. Disconnect negative battery cable.
2. Remove the horn cap from center of steering wheel.



3. Remove nut that attaches steering wheel.



**NOTE**

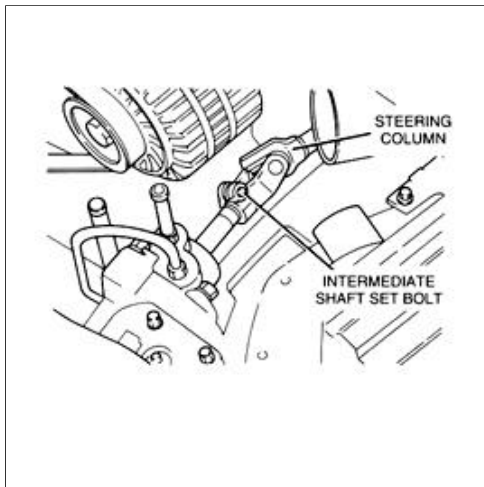
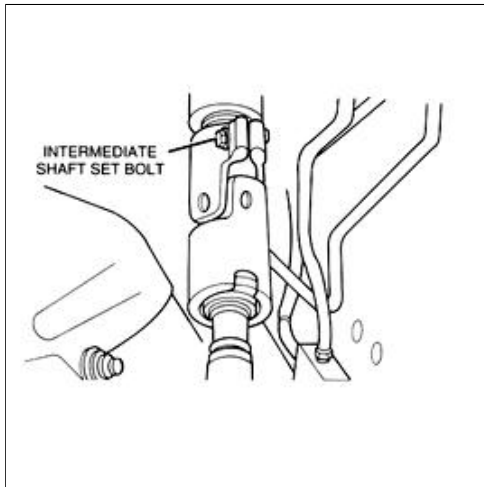
Do not try to remove the steering wheel by striking the shaft with a hammer. Hammer blows will damage the steering column. Position front wheels straight ahead and steering wheel centered (single spoke straight down) to aid in proper installation of the steering wheel.

- Using suitable steering wheel puller, remove steering wheel.

**REMOVAL(Intermediate Shaft)**

- Remove intermediate shaft set bolt at each end of shaft.

The intermediate shaft has a splined slip joint covered by a boot. the shaft can be compressed (shortened) sufficiently to disengage from steering gear and steering column.



- Disengage intermediate shaft steering gear and from steering shaft of steering column.

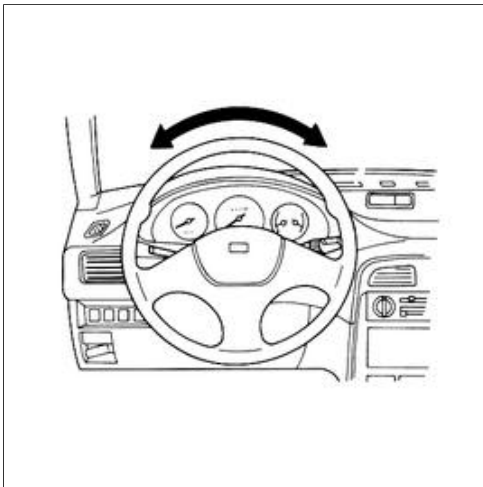
**NOTE**

Mark the alignment of intermediate shaft and steering shaft of steering column before removing.

- Remove intermediate shaft from vehicle.

**INSTALLATION(Center Link)**

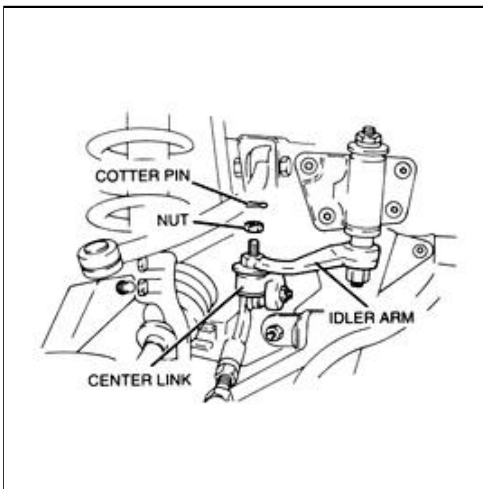
- Position center link under vehicle.
- Install left tie rod end assembly on center link ; install nut sufficiently tight to hold tie rod end assembly in place.



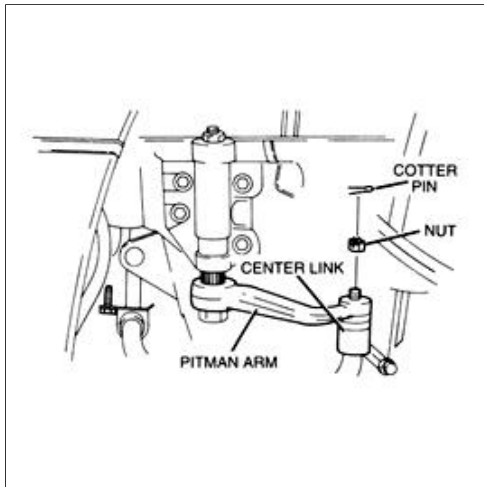
3. Install right rod end assembly on center link; install nut sufficiently tight to hold tie rod end assembly in position.



4. Install idler arm on center link; install nut sufficiently tight to hold idler arm in position.



5. Install pitman arm on center link ; install nut sufficiently tight to hold pitman arm in position.



6. Tighten the nuts on left tie rod end assembly, right tie rod end assembly, idler arm, and pitman arm.

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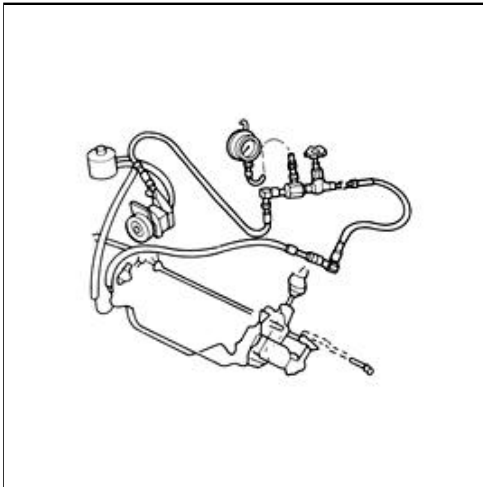
Tighten tie rod end assembly and pitman arm nuts to 36 lb ft (49 N m)  
 Tighten idler arm nuts to 36 lb ft (49 N m)

---

7. Install new cotter pin through each of four nuts.
8. Install left and right tie and wheel assemblies.
9. Lower vehicle.

### INSTALLATION(Pitman Arm)

1. Position pitman arm on steering gear and center link.



2. Install nut at center link joint.

---

Tighten nut to 36 lb ft (49 N m)

---

3. Install new cotter pin through nut at center link joint.
4. Install nut and lockwasher on steering gear shaft.

---

Tighten nut to 166 lb ft (225 N m).

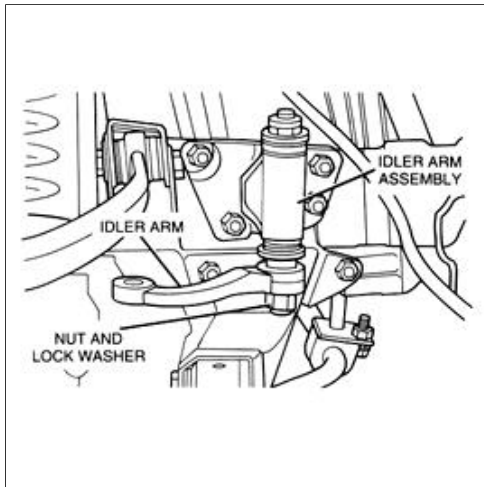
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5. Install left tire and wheel assembly.
6. lower vehicle.

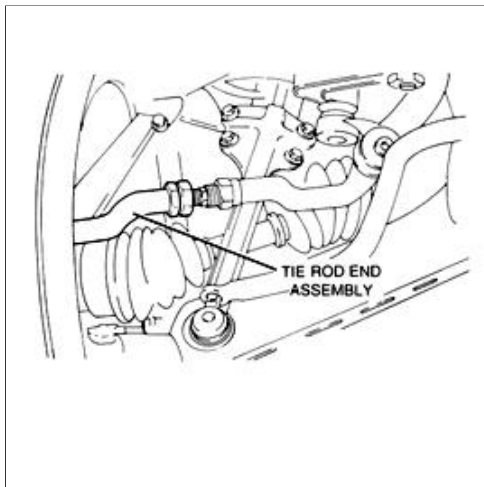
### INSTALLATION(Idler Arm)

1. Position idler arm on center link.





2. Install nut at center link end of idler arm.




---

Tighten nut to 36 lb-ft (49N m)

---

3. Install new cotter pin through nut.
4. Position idler arm on shaft of idler arm assembly.
5. Install nut and lockwasher on shaft of idler arm assembly.

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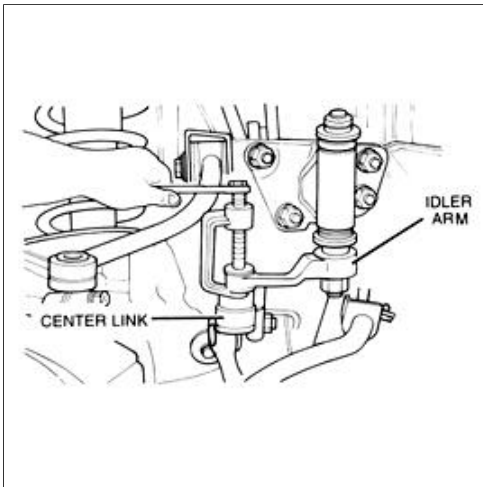
Tighten nut to 166lb-ft(225N m)

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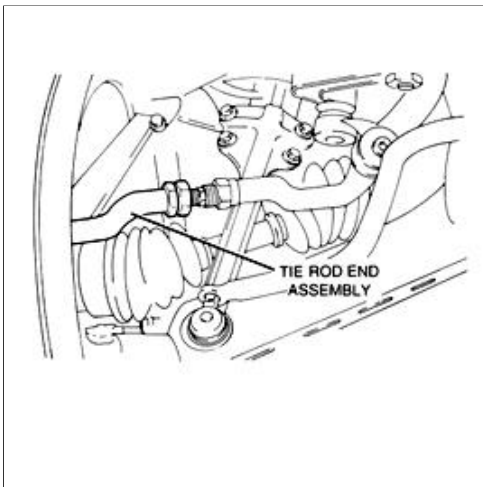
6. Install right tire and wheel assembly.
7. Lower vehicle.

### **INSTALLATION(Idler Arm Assembly)**

1. Position idler arm assembly over mounting holes and install four bolts, washers, and nuts.



2. Install idler arm on center link and install nut.




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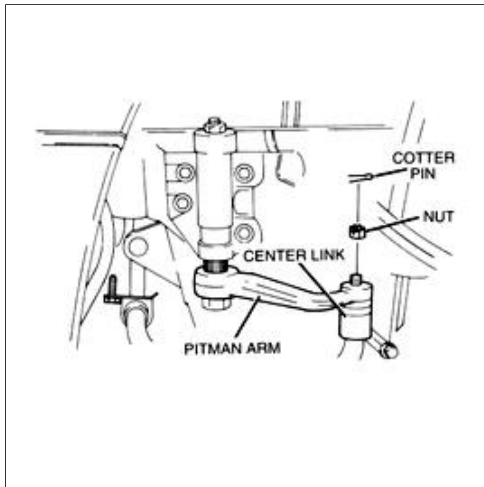
Tighten center link nut to 36 lb-ft (49 N m). Tighten assembly mounting nuts to 159 lb-ft (215 N m).

---

3. Install cotter pin through nut at center link joint.
4. Install right tire and wheel assembly.
5. Lower vehicle.

### **INSTALLATION(Steering Gear)**

1. Lower steering gear into position and insert one or more bolts to hold unit in place.
2. Raise and support vehicle.
3. Install remaining bolts and install four washer and nuts.
4. Install pitman arm on center link and install nut.




---

Tighten nut to 36 lb ft (49 N m)

---

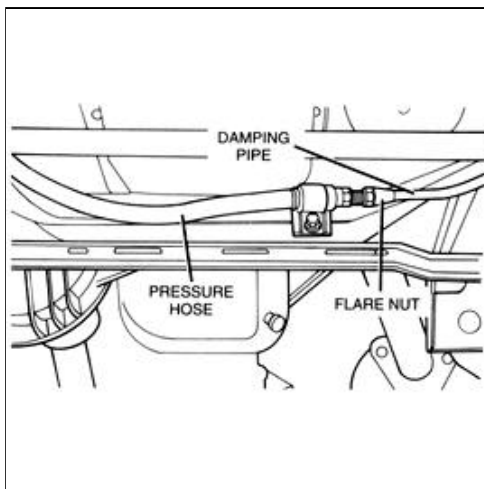
5. Install cotter pin through nut at center link.
6. Engage intermediate shaft to steering gear shaft.
7. Install set bolt in intermediate shaft.

---

Tighten set bolt to 25 lb ft (34 N m)

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8. Connect damping pipe to pressure hose.

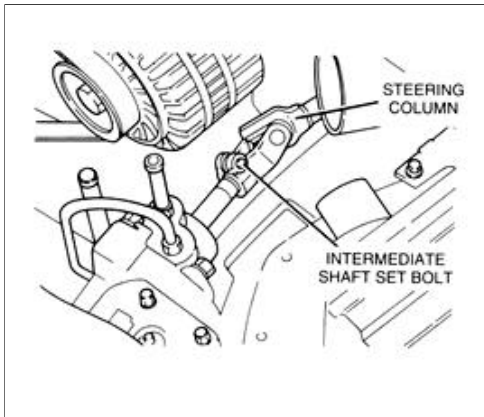



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Tighten to 29 lb ft (39 N m)

---

9. Connect suction hose No.1 to pipe assembly No.1.
10. Lower vehicle for access to top of steering gear.
11. Install pipe assembly No.4 on top of steering gear.




---

Tighten to 29 lb ft (39 N m)

---

12. Connect damping pipe to top of steering gear.
13. Install return hose No.1 on pipe assembly No.1.
14. Place reserve tank in position over bracket and press down until engagement of the detent is felt. Refer to "Reserve Tank and Bracket" in this section.
15. Install coolant recovery tank.
16. Install under cover with four bolts.

---

Tighten bolts to 18 lb ft (25 N m)

---

**NOTE**

Do not operate the engine before adding power steering fluid as required to fill the system.  
 Operation of the power steering pump with inadequate fluid will result in damage to the pump.

17. Bleed air from the system. Refer to "Bleeding" in this section.

### INSTALLATION(Steering Wheel)

1. Position front wheels straight ahead.
2. Install steering wheel on shaft.
3. Install nut on steering wheel shaft.

---

Tighten nut to 33 lb ft (45 N m)

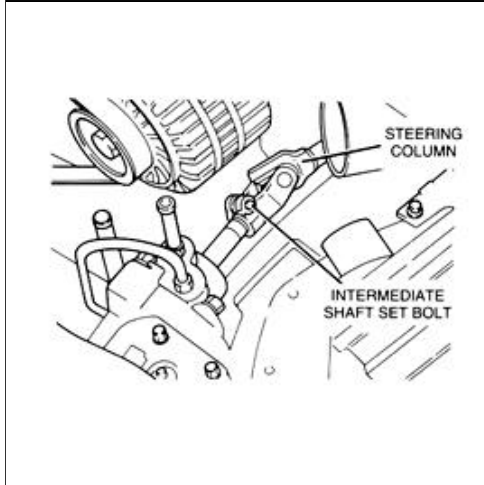
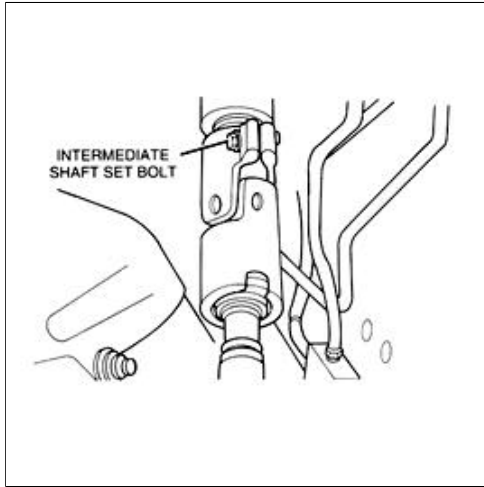
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4. Install the steering wheel air bag.
5. Connect the negative battery cable.



## INSTALLATION(Intermediate Shaft)

1. Check that steering wheel position corresponds to position of front wheels.
2. Engage intermediate shaft to steering gear and to steering shaft of steering column.  
The intermediate shaft has a splined slip joint covered by a boot. The shaft can be compressed(shortened) sufficiently to engage the steering gear and the steering shaft of the steering column.



3. Install intermediate shaft set bolt at each end.

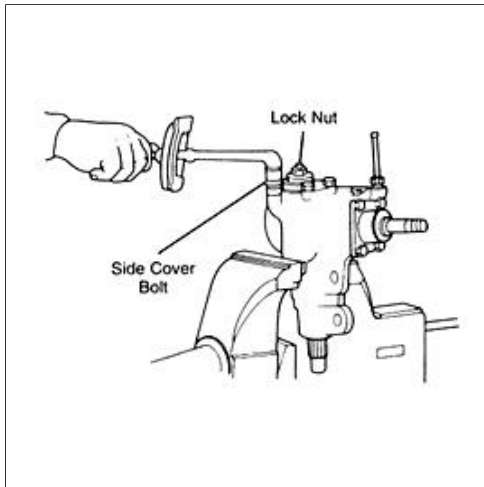
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Tighten bolt to 25 lb ft (34 N m)

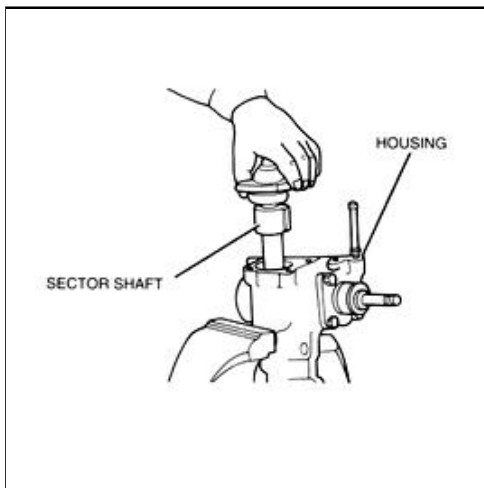
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## DISASSEMBLY

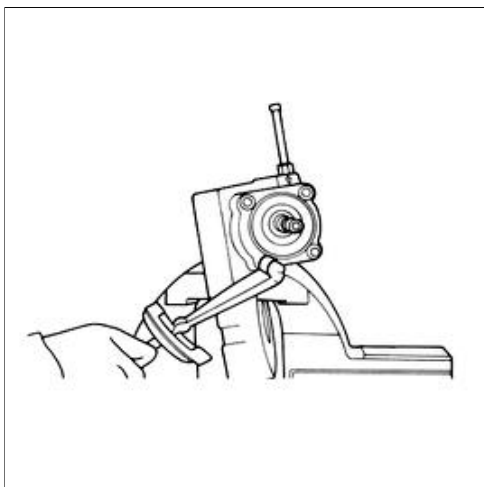
1. Prepare vise with protective cover on jaws. Install steering gear in vise.
2. Remove nut and lockwasher pitman arm shaft.
3. Mark the pitman arm and shaft to show position of arm on shaft.
4. Using pitman puller, remove pitman arm from steering gear.
5. Loosen lock nut on adjusting screw. Turn adjusting screw counterclockwise slightly to remove force applied to sector shaft.



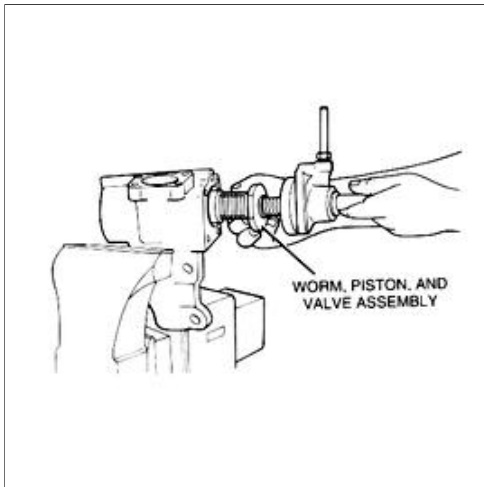
6. Remove four bolts and washers attaching side cover of sector shaft.
7. Using plastic mallet(or other means of protecting the shaft), lap end of sector shaft lightly to loosen shaft.
8. Pull sector shaft from steering gear.



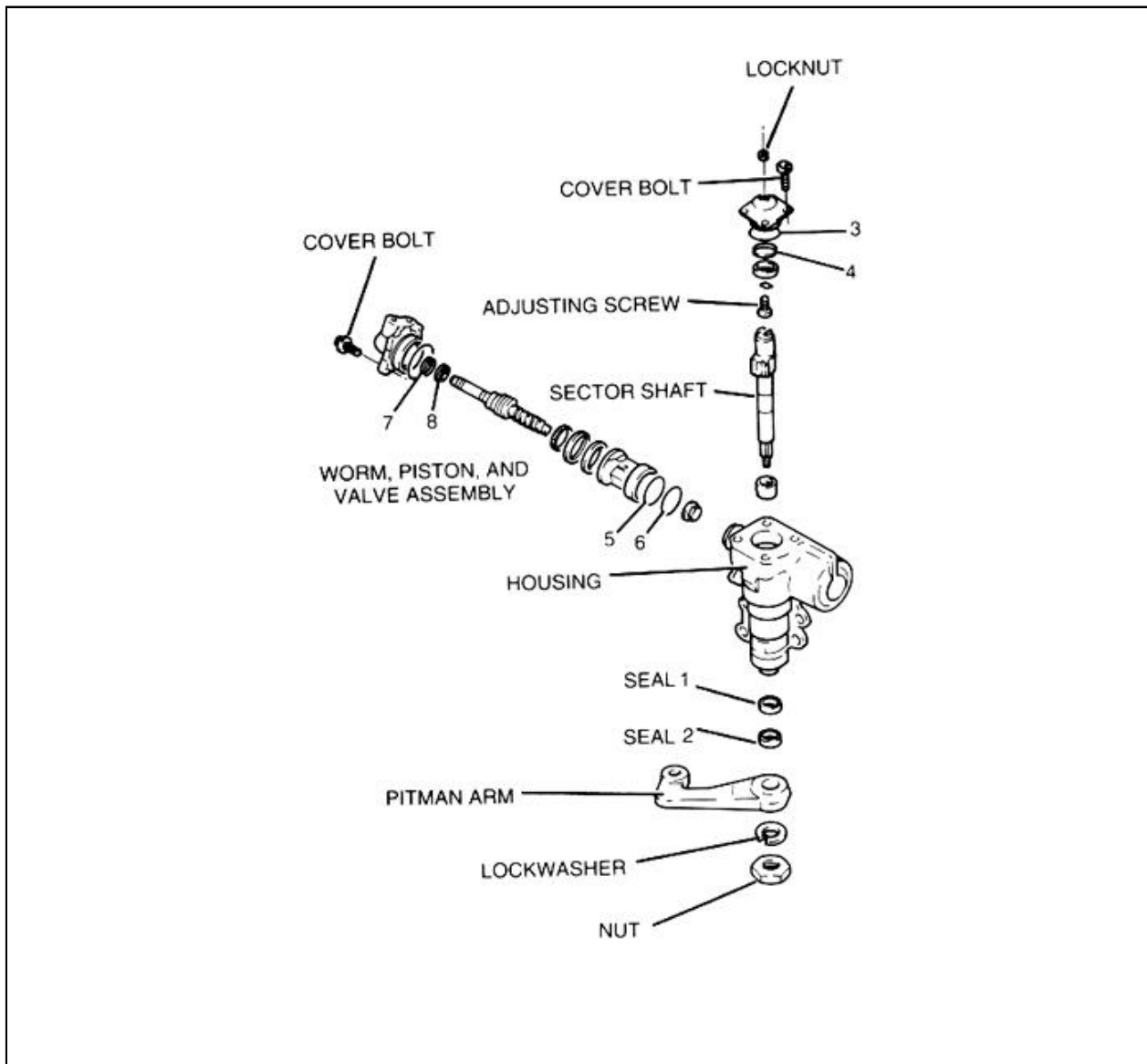
9. Loosen adjusting bolt(if required) and separate side cover from sector shaft.
10. Remove adjusting bolt from side cover assembly remove adjusting plate from adjusting screw.



11. Remove four bolts and washers from worm, piston, and valve assembly side cover.
12. Remove side cover assembly.
13. Remove worm, piston and valve assembly.



14. Remove seals (identified as items 1, 2, 3 and 4 in the illustration).
15. Remove seals (identified as items 5, 6, 7 and 8 in the illustration).  
Further disassembly is not recommended.

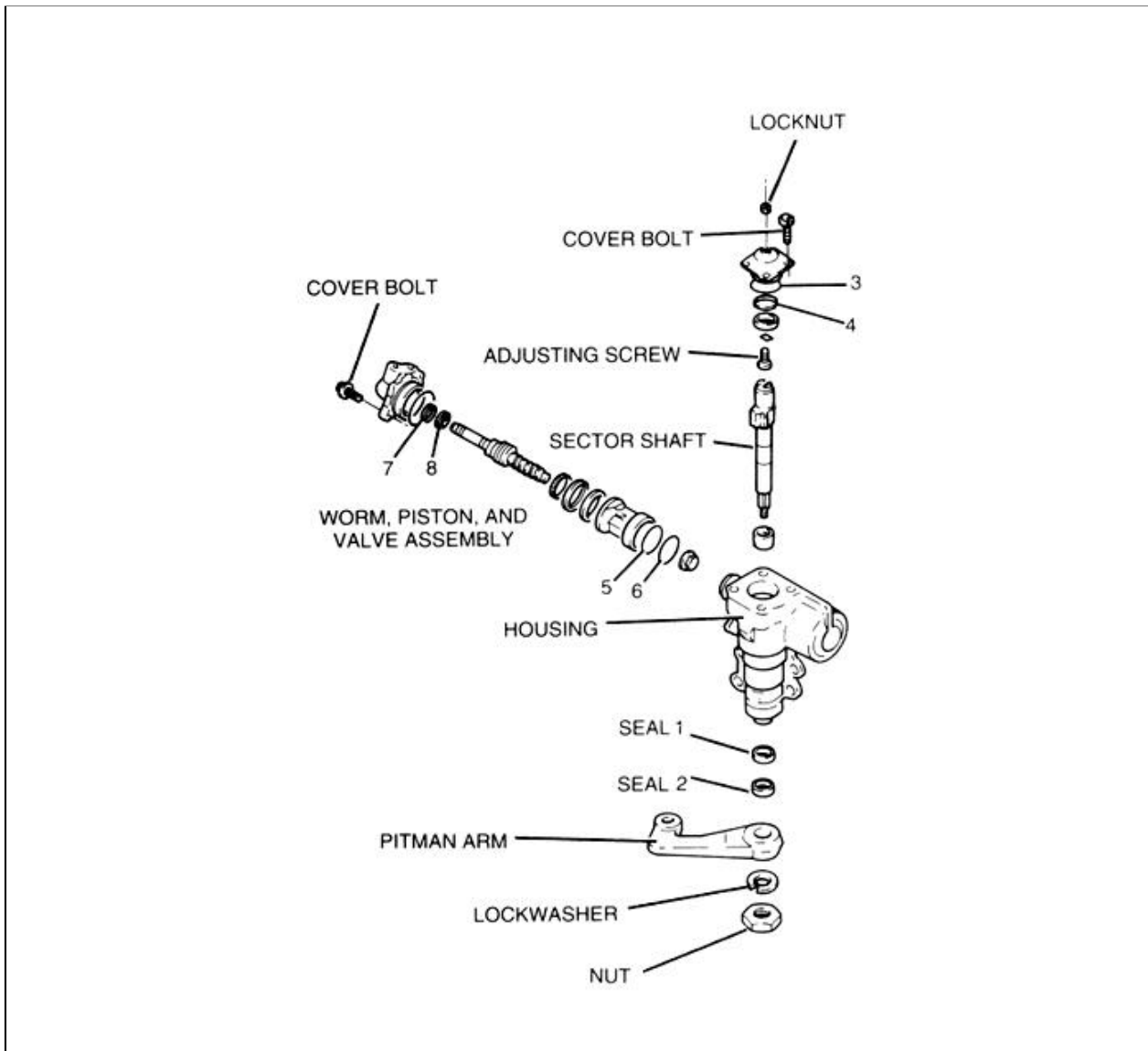


### DISASSEMBLY (Idler Arm)

1. Place assembly in a vise having padded jaws.

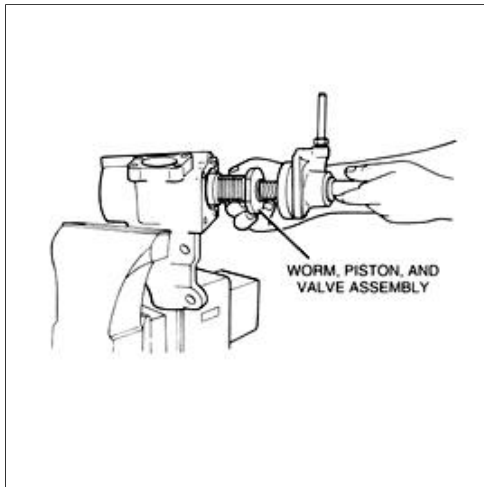
2. Remove cotter pin from nut.
3. Remove nut and washer.
4. Using plastic mallet, gently tap end of shaft to loosen, then pull shaft(with idler arm attached) out of housing.
5. Install idler arm(with shaft) in vise. Remove nut and lockwasher attaching idler arm.
6. Using pitman puller, remove idler arm from shaft.
7. Remove bushings from each end of housing.

## ASSEMBLY



1. Place steering gear body in vise with padded jaws.
2. Lubricate new seals with power steering fluid, then install the seals.  
Seals are provided in two kits. One Kit provides seals identified(in the illustration) as 1,2, 3 and 4 the other kit provides seals identified as 5, 6, 7 and 8.
3. Install worm, piston and valve assembly in steering gear body.

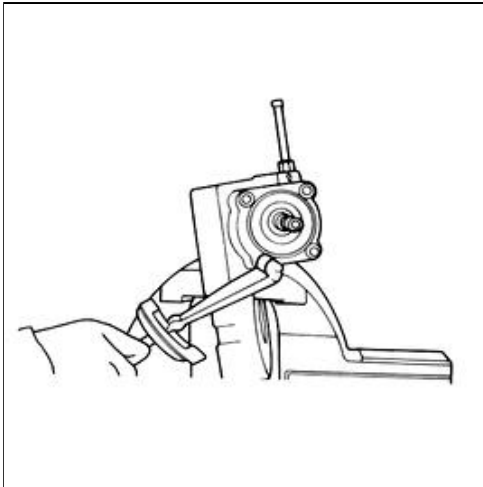




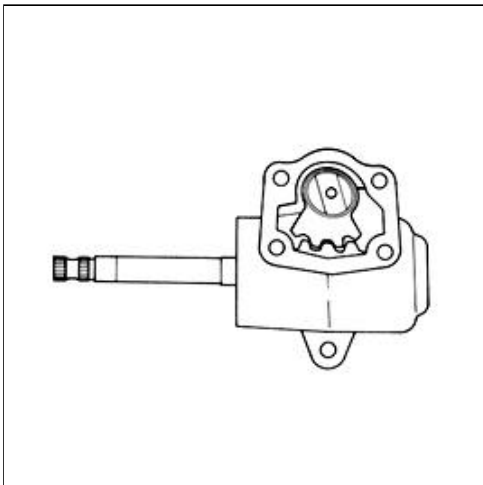
4. Install four bolts and washers attaching cover to body.

Tighten bolts to 25lb ft(34N m)

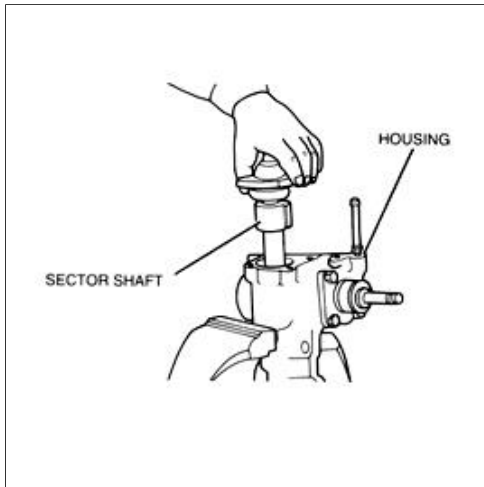
While performing the following two steps, make sure that the worm gear and sector gear are centered. If either gear is not centered, the left/right steering will be unequal.



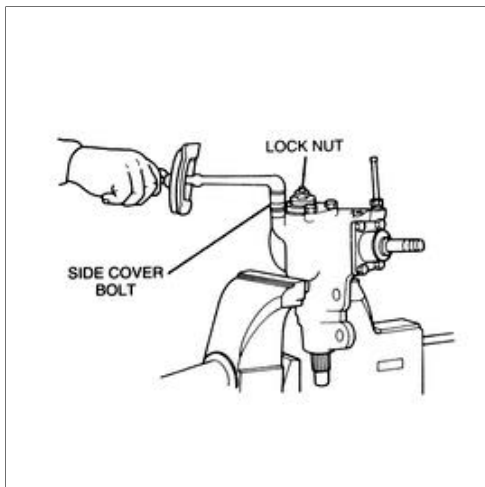
5. Rotate the worm gear shaft to position the center of the gear in the center of the sector gear opening to permit installation the sector gear.



6. Insert the sector gear shaft into steering gear body and engage teeth of sector gear with worm gear.



7. Place adjusting plate on adjusting screw with beveled side of hole next to the round "had" of the screw.
8. Install screw in the sector shaft side cover.
9. Engage the adjusting plate into the end of the sector shaft. Adjust the adjusting screw further as required to permit installation of the cover on the steering gear body.
10. Install four bolts and washers to attach side cover.




---

Tighten to 25lb ft(34N m)

---

## ASSEMBLY

1. Install new bushings at each end of housing.
2. Insert shaft through the bushings.
3. Install washer and shaft nut.  
Do not tighten shaft nut at this time.
4. Position idler arm on end of shaft and install nut and lockwasher.
5. Place idler arm in end a vise having padded jaws.  
Make sure thatb enough threads are engaged to prevent accidental separation of the idler arm.
6. Tighten nut at idler arm.

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Tighten idler arm nut to 166lb ft(225N m)

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7. Tighten shaft nut at opposite end of shaft.

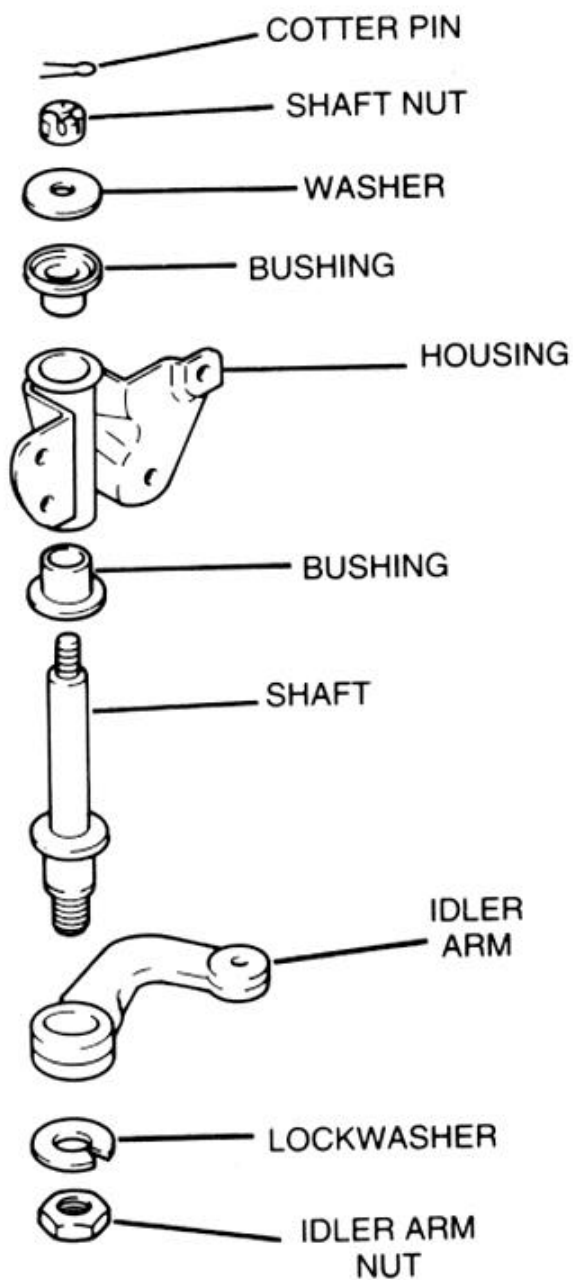
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Tighten shaft nut to 80lb ft(105N m)

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8. Install new cotter pin through shaft nut.

## INSPECTION(Idler Arm)



1. Visually inspect shaft for deformation, scoring, rust, indications of excessive wear, damage to splines, and damage to threads.
2. Check idler arm for deformation, damage to splines, and damage to bore that interfaces with center link.