FR400002
79-93 Mustang Power Rack & Pinion
**Original Rack Removal**

**Note:** For vehicles with airbags disconnect the negative battery cable and the positive. Wait 2 minutes before proceeding. This is to avoid any accidental deployment of the airbags.

**Note:** We recommend the use of new outer tie rod ends and mounting bushings when installing this product to obtain the proper performance.

**Note:** A front end alignment is necessary after installation.

1) Position the front wheels straight ahead and the lock the steering column in place.
2) Raise your vehicle and ensure that it is properly supported.
3) Disconnect your power steering lines from the rack and pinion and cap the ends to make sure that no contamination gets into the lines.
4) Remove the pinch bolt that retains the rag joint to the rack and pinion.
5) Remove the cotter pins and castle nuts from the outer tie rod ends and then remove the outer tie rod ends from the spindles. (A tie rod end puller or pickle fork may be necessary.)
6) Next remove the nuts and bolts that mount the rack to the cross member.
7) As you lower the steering gear separate the steering shaft from the input shaft of the steering gear.
8) Remove the bolt that retains the steering shaft to the column and remove the steering shaft from the car.

**New Flaming River Rack Installation**

1) Before installing the new rack you must first notch the driver’s side engine mounting boss 3/8” wide x 3/4” long. (See photo below)

![Photo of notch](image)

2) Install the lower u-joint from the shaft kit onto the pinion shaft of the new power rack.
3) Install the rear portion of the rack and pinion mounting bushings into the mounting bosses of the new rack.
4) Slide rack over the mounting pins and install the front portion of the mounting bushings.
5) Install the steering gear mounting bolts, nuts and washers and tighten to 30-40 ft lbs.
6) Insert splined shaft in to the opposite end of the u-joint connecting to the rack. (Note: This shaft may need to be trimmed to the correct length for your application.)
7) Slide top u-joint over shaft.
8) Insert tongue into end of steering column shaft and then into DD side of top u-joint, next install through bolt. (Do not tighten bolt at this time).
9) Adjust each u-joint so that there is 7/8” of shafting into each yoke; make sure the set screw on the pinion shaft is set in the groove.
10) Snug each set screw so that it will leave a mark on the shaft including the tongue.
11) Remove the shaft and dimple (see fig B) each set screw mark using a 1/4” drill bit **Note: do not dimple pinion shaft on rack and pinion damage to rack may occur.**
12) Reassemble shaft kit in car tightening each set screw to 25 ft-lb. using red loctite or another thread locker and tighten jam nuts (fig A)

13) Install the outer tie rod ends onto the steering gear and install them into the spindles

14) Install the castle nuts and cotter pins making sure to tighten the nuts to 35-47 ft lbs.

15) Install the 5/16' pressure line and the 3/8" return line into the rack and tighten fittings.

16) Bleed system following the steps on next page.
**Correct Bleeding Procedure for Flaming River Power Rack & Pinion Systems.**

Make sure that all hoses (FR1610) are connected to the proper location. Reversing the power steering lines will cause damage to the valve that is not covered by the manufacturer’s warranty.

All hose connections must be tight. (Loose connections might not leak but could allow air into the system)

1) **OFF**  
   - Turn Ignition Off

2) **Car with wheel up**  
   - Raise front wheels off the ground.

3) **Car with wheel up**  
   - Turn the steering wheel full left.

4) **Car with wheel up**  
   - Fill fluid level to “Full Cold” level or if using remote reservoir 1” over inner tube.

5) **Car with wheel up**  
   - With assisstant checking fluid level and condition, turn steering wheel lock to lock at least 20 times.
   - Note: On systems with long return lines or fluid coolers, turn steering wheel lock to lock at least 40 times.
   - Trapped air may cause fluid to overflow. Thoroughly clean spilled fluid to allow for leak check.

6) **Car with wheel up**  
   - While turning wheels check fluid level constantly.
   - Note: No bubbles are allowed.
   - For any sign of bubbles, recheck connections then repeat step 5.

7) **Start engine.**  
   - With engine idling, maintain fluid level. Reinstall cap.

8) **Return wheels to center. Lower front wheels to the ground.

9) **Keep engine running for two (2) minutes.

10) **Turn steering wheel in both directions.

11) **Verify:**  
    - Smooth power assist
    - Noiseless operation
    - Proper fluid level
    - No system leaks
    - Proper fluid condition
    - No bubbles, no foam, no discoloration.

12) **If all proper conditions apply, bleeding is complete.**

**Important**

***Power Steering Fluid***

Use clean, new power steering fluid only.

**Special Conditions:**

- Foam or bubbles in fluid
  - Fluid must be completely free of bubbles. Instep 5, be alert to periodic bubbles that could indicate a loose connection or leaky O-Ring seal in either the return hose or pressure hose.
  - Discoloration (milky, opaque, or light tan color)

Switch ignition off. Wait two (2) minutes. Recheck hose connections. Repeat steps 7-10. If condition still exists, replace and check a possible cause:

- Return hose clamps
- Return hose o-ring
- Pressure hose o-ring
- Gear cylinder line o-rings

Fill system and repeat bleed procedure for each possible cause. Repeat steps 7-10 to verify whether noise has been eliminated.

- Pump whine or groan
  - With engine running, recheck hoses for possible contact with frame body or engine. If no contact is found, follow either method below to cool down fluid and re-pressure system.

**Method 1:** Normal Cool Down  

Switch engine off. Wait for system to cool. Install reservoir cap.

**Method 2:** Partial Fluid Replacement  

Switch engine off. Use a suction device to remove fluid from the reservoir. Refill with cool, clean fluid. Install reservoir cap.

After either method of cooling, start engine and allow engine to reach normal operating temperature. If noise persists, remove and replace power steering pump. Repeat bleed procedure following pump replacement.

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