

Made In

The U.S.A.

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**FLAMING RIVER INDUSTRIES
MUSTANG POWER RACK & PINION
INSTALLATION INSTRUCTION
FR40001**

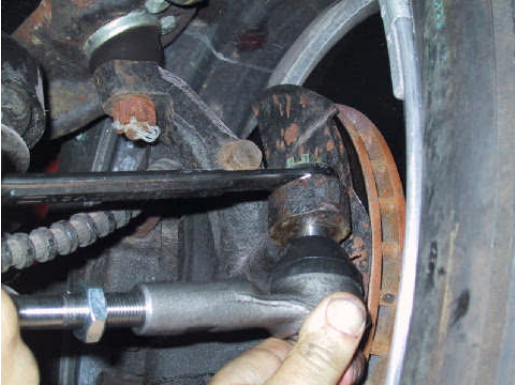
NOTE: Additional parts required for installation. Power steering lines (FR1610 –or- FR1610-F (Ford Engines)) Stage II mounting brackets for pump (FR1611 small block Chevy only) Remote reservoir (FR1614) and Flaming River Pyramid U-Joint.

NOTE: This system has been designed to operate with a 1750 lbs front end weight with 225 width tires. Any variation will change steering torque and performance of the steering system.

NOTE: After installation a front end alignment is recommended.

REMOVAL:

- 1) If replacing just a power steering rack and pinion; begin by draining all power steering fluid from the current steering system. Flush the system with fresh power steering fluid and drain. This will help keep the new rack from being contaminated.
- 2) Remove the steering coupler or u-joint from the pinion shaft of your current steering gear.
- 3) Remove the cotter pins and castle nuts from the outer tie rod ends.

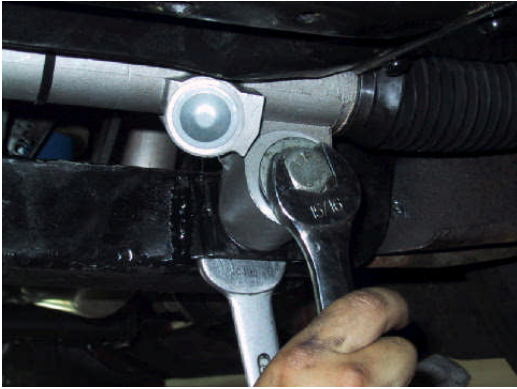


- 4) Using a pickle fork remove the outer tie rod ends the spindle assemblies.



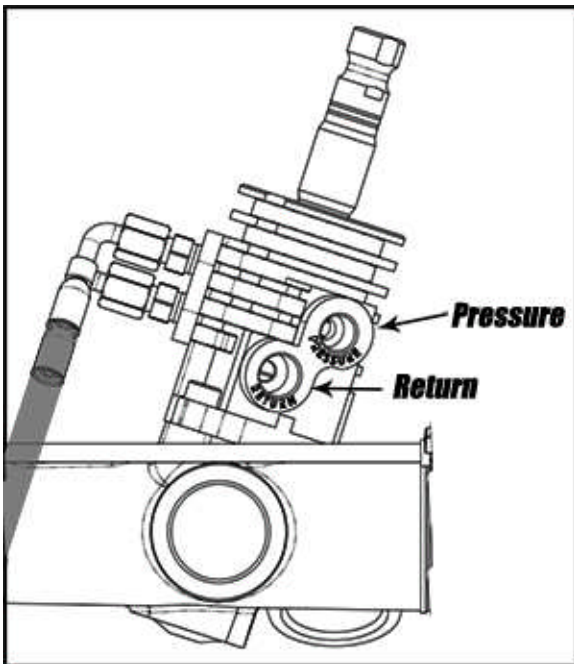
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- 5) Remove the two bolts and nuts that retain the rack to the cross member.



INSTALLATION:

- 1) Install tie rod end jam nuts and outer tie rod ends onto the new power rack. **NOTE:** If a Flaming River Manual Rack was removed the outer tie rod ends can be reused if not worn. Inner tie rod end size is 9/16-18 thread.
- 2) Before installing the rack you may want to install the power steering pressure and return line onto the rack. This may make plumbing your system easier.

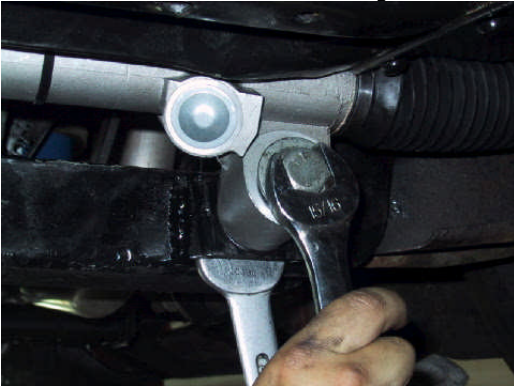


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- 3) Install rack mounting bushings through the rear of the mounting bosses. **NOTE:** If a Flaming River Manual Rack was removed the mounting bushings can be reused if not worn. (Part No. FR1600)



- 4) Install the new rack on the vehicle using the mounting bolts and nuts that were removed earlier. (Consult the manufacturer of your front end for proper torque specs of the mounting bolts.)



- 5) Install the outer tie rod ends into the spindle using the castle nuts and cotter pins.



- 6) Install steering u-joint onto pinion shaft of the rack. **NOTE:** The new Flaming River Power Rack has a pyramid style shaft that differs from the manual rack (9/16"-26) and the OEM power rack (3/4"-36).

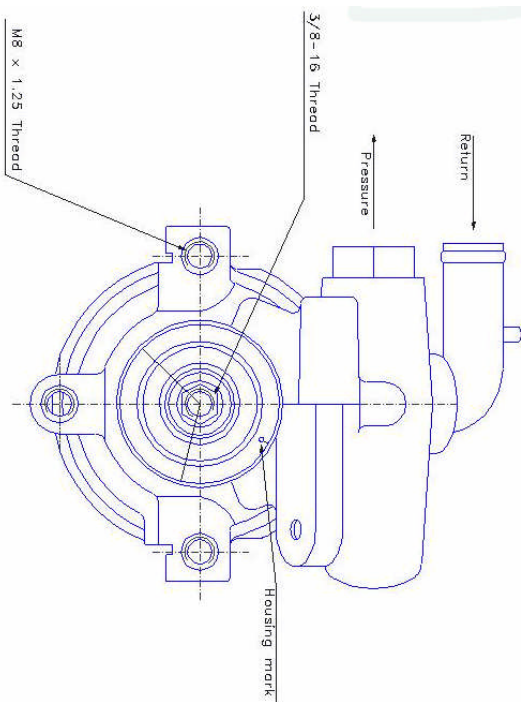
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POWER STEERING PUMP AND LINE INSTALLATION: (IF PURCHASED)

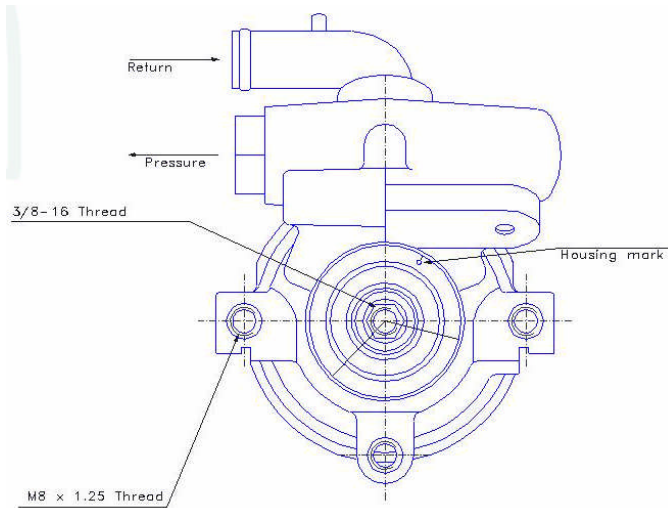
NOTE: The power steering rack and pump have been calibrated to work together for optimum performance. Use of any other power steering pump will change the performance of the rack and pinion.

NOTE: This is a Stage II style pump and requires a remote reservoir (FR1614) and the appropriate mounting brackets (FR1611 SMALL BLOCK CHEVY ONLY).

- 1) Install the power steering pump using the instructions that are included with your mounting bracket for your application. **NOTE:** If the pump is mounted on the driver's side the return port should be vertical and when mounted on the passenger side the return port should be horizontal.

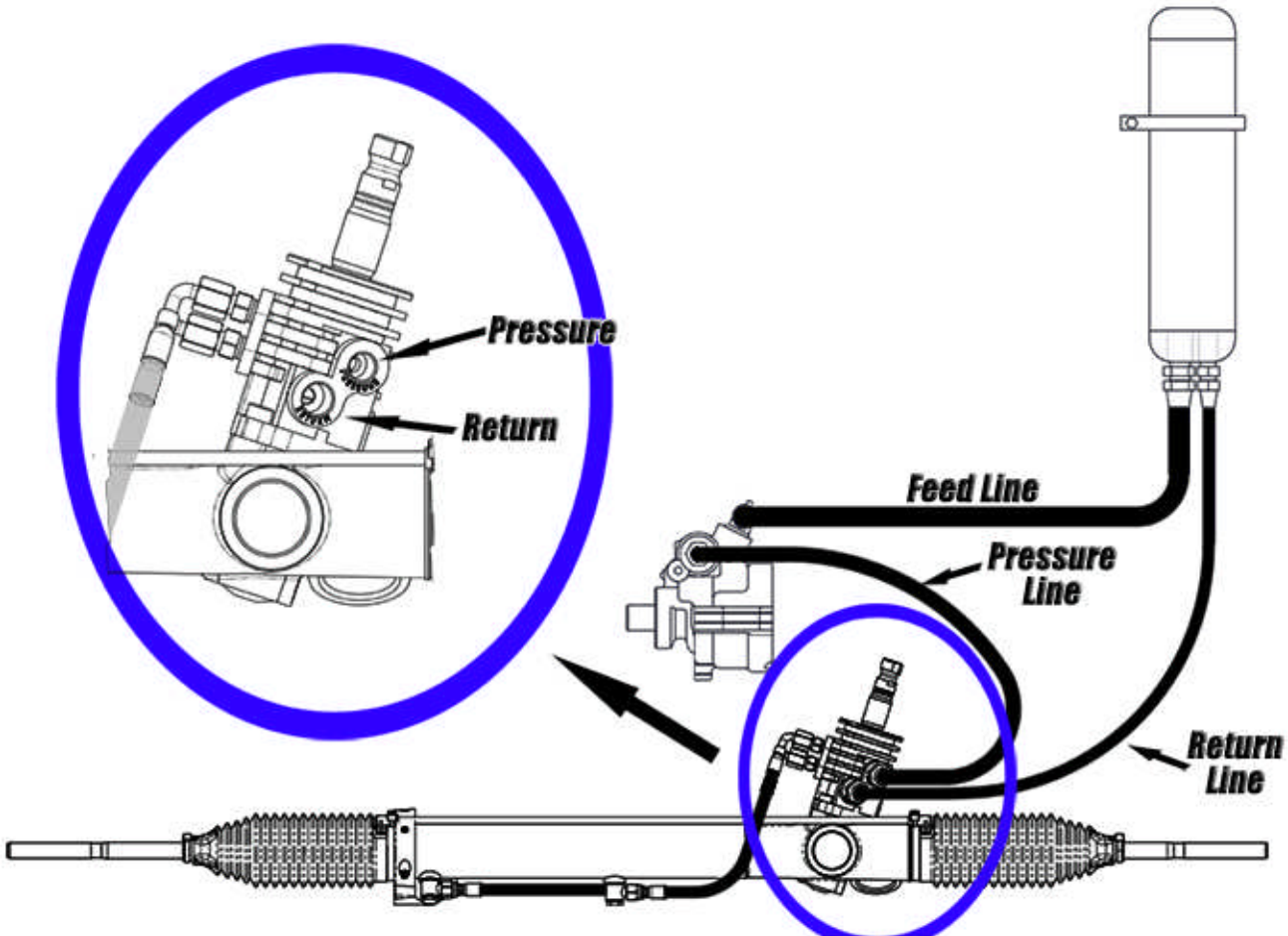


MOUNTED ON DRIVER'S SIDE



MOUNTED ON PASSENGER SIDE

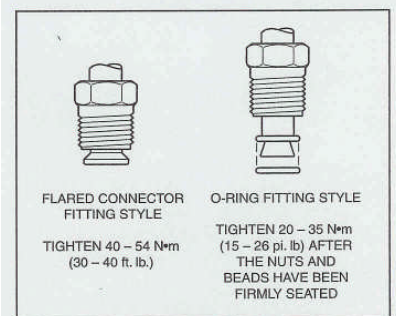
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- 1) **ALL HOSES:** Cut hose to length by using an abrasive cut off wheel or fine tooth hacksaw blade. To help avoid the stainless steel braids from flaring wrap the area to be cut in tape.
- 2) **ALL HOSES:** Trim all loose wire braids flush with tube and remove any burrs from the internal tube.
- 3) **PRESSURE HOSE (5/16 HOSE):** This hose will run from the power steering pump to the power rack valve pressure port in above diagram.

Thread Size	English	Metric
7/16 – 14 UNC Thd.	59 – 74 ft. lb.	80 – 100 N•m
1/2 – 13 UNC Thd.	89 – 110 ft. lb.	120 – 150 N•m
9/16 – 12 UNC Thd.	89 – 110 ft. lb.	120 – 150 N•m
14mm x 2 – 6H Thd.	89 – 110 ft. lb.	120 – 150 N•m

Figure 2 Table of Torques for Attaching Gears to Frame

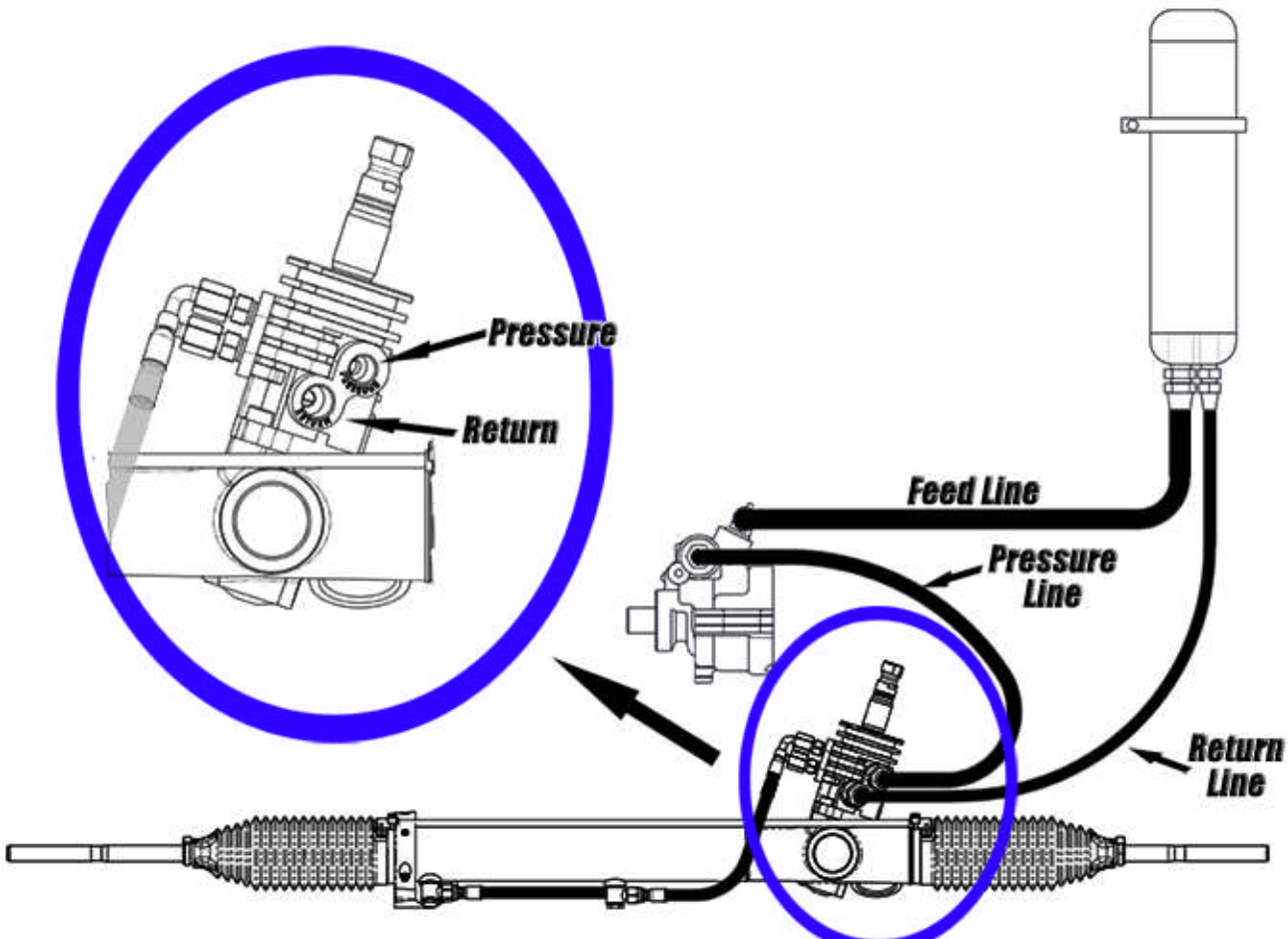


- a. Slide the Nut portion off the compression fitting over the stainless steel braid.
- b. Push the compression fitting over the internal tube and under the stainless steel braid until it is flush on the internal tube.
- c. Using a twisting motion insert barbed portion of the banjo fitting into the internal tube until it is completely seated against the compression fitting.
- d. Thread the nut onto the banjo fitting and tighten.
- e. Place one copper crush washer onto the flow control valve and place valve through the banjo fitting.
- f. Place second copper crush washer onto valve and install assembly onto the pressure port of the power steering pump and tighten.

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- 4) **FEED HOSE:** After cutting hose from steps 1 & 2 thread feed hose into bottom of reservoir, then slide chrome cover with clamp over hose and install onto the feed port of the power steering pump and tighten clamp.
- 5) **RETURN HOSE (3/8 HOSE):** This hose will go from the power rack valve return port in diagram below to the reservoir.
 - a. Install the small barbed fitting into bottom of the reservoir.
 - b. Slide the chrome cover with clamp over the hose
 - c. Slide hose with cover over the barbed fitting and tighten the clamp.

Note: Incorrectly installing the power steering lines will cause damage to the rack which is not covered by Flaming River warranty.



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BLEEDING THE SYSTEM

- 1) Raise the front wheels off the ground and support vehicle on jack stands.
- 2) Turn the wheel to the left lock and fill the reservoir with high-quality power steering fluid and allow to sit for 2 minutes.
- 3) With the engine off and someone checking the fluid level rotate the steering wheel lock to lock 20 times filling with fluid as necessary..
- 4) With the engine running, rotate the steering wheel back and forth from lock-to-lock. Repeat several times. Check fluid level and add fluid if necessary.
- 5) Lower the vehicle on the ground and with the engine running, repeat step 4. Check fluid level and add if necessary.

Always consult your factory manual for proper torque settings for your vehicle. We recommend periodically checking clamp bolts as well as any mounting hardware used to install this system and tighten bolts as needed per SAE torque ratings.

NOTE: If the fluid is extremely foamy, let the vehicle sit for a few minutes and repeat steps 1-5.

NOTE: Trapped air in the system will cause a milky appearance in the fluid. Trapped air will also cause the fluid level to rise in the reservoir when the engine is not running.

Warranty Disclaimer

Flaming River warrants its products to be free from defects in material and workmanship for a period of one (1) year after the date of purchase, except that: All steering columns are warranted for a period of three (3) years from the date of purchase. The Big Switch (part number FR1005) is warranted for a period of three (3) years from the date of purchase provided that it is not mounted steel bracket and provided further that it is adequately protected from environmental conditions. All electrical products other than the Big Switch are warranted for a period of ninety (90) days from the date of purchase. Flaming River's warranty liability is limited to the replacement of defective products. Flaming River is not liable for any labor costs associated with any warranty claim, or for any incidental or consequential damages. Improper installation, abuse, racing, and or modification of the products void this warranty. No warranty of merchantability or fitness for a particular purpose is made by Flaming River with respect to any of its products.

Warnings and Recommendations: It is the customer's responsibility to determine the suitability of a given Flaming River product for the customer's uses. Likewise, it is the customer's responsibility to install a Flaming River product. Contact the vehicle manufacturer whenever installing a switch to confirm the appropriateness of using such a switch and recommended placement of the switch on the vehicle. Use qualified chassis specialist for the installation of all steering related components. Be aware that the installation of certain Flaming River products may adversely impact a manufacturer's warranty with respect to certain vehicles and other manufactured goods. Flaming River will repair or replace any product found to be found defective in material or workmanship. Improper installation, abuse, racing and or modification **VOID WARRANTY. Flaming River is not responsible for any labor costs associated with any warranty.**