



**Flaming River Ind.
800 Poertner Dr
Berea, OH 44017
800-648-8022**

***67-72 Chevy. C-10
Rack and Pinion
Conversion Kit***



For safety, disconnect battery cables and ensure that vehicle is properly supported by jack stands.

NOTE: Power Steering Line Kit (FR1610) is sold separately and is not included in this kit.

Before paint or powder coating of the rack and pinion cradle system we recommend that you pre-fit the system to ensure proper fit.

NOTE: A front end alignment is necessary after installation.

NOTE: Flaming River Recommends that you use synthetic or high grade power steering fluid.

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WARRANTY DISCLAIMER: Flaming River's® Limited Warranty

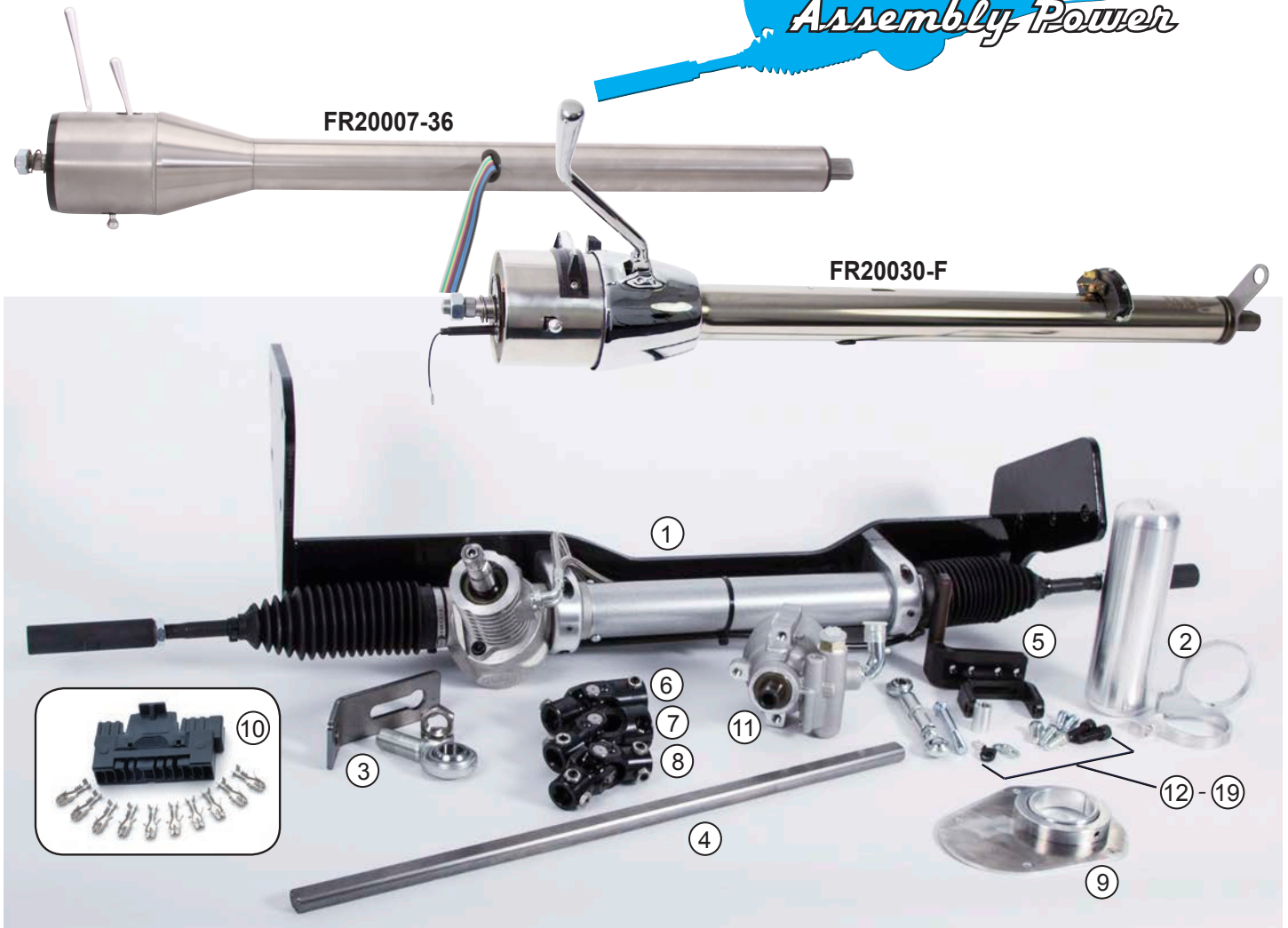
Flaming River® warrants its products to be free from defects in material and workmanship for a period of one (1) year after the date of purchase, except that: All steering columns are warranted for a period of three (3) years from the date of purchase. The Big Switch (part number FR1005) is warranted for a period of three (3) years from the date of purchase, provided that it is not mounted with a 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 voids 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 the recommended placement of the switch on the vehicle. Use qualified chassis specialists 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 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.

Item No.	Part No.	Description	Qty
1	102344	C-10 Power Rack and Mounting Cradle Assembly	1
2	FR1614	Power Steering Fluid Reservoir	1
3	FR1810KS	3/4" Support Bearing Kit with Straight Bracket	1
4	FR1850	18" Length of 3/4" DD Shaft	1
5	FR1612-3	C-10 Pump Bracket	1
6	FR1920	3/4" DD X 3/4" DD Universal Joint	1
7	FR1934	1" DD X 3/4" DD Universal Joint	1
8	FR1969	FR Power X 3/4" DD Universal Joint	1
9	FR20101C10	67-72 C-10 Floor Mount	1
10	FR20118	Female Connector Kit	1
11	FRPMP5B-V	Power Steering Pump w/ V-Belt Pulley	1
12	102377	7/16" Split Lock Washer	4
13	BOLT-3/8-16X1.25	1.25" Long 3/8"-16 Grade 8 Bolt	2
14	BOLT-7/16-14X1.5	1.5" Long 7/16"-14 Grade 8 Bolt	4
15	LOCKWASH-3/8"	3/8" Split Lock Washer	2
16	NUT-3/8-16	3/8"-16 Nylock Lock Nut	2
17	NUT-7/16-14	7/16"-14 Nylock Lock Nut	4
18	WASH-3/8"	3/8" Flat Washer Grade 8 Equ	2
19	WASH-7/16"	7/16" Flat Washer Grade 8 Equ	4

Column Varies with Part Number Ordered

FR20030-F In kit FR319KT
 (Column Shift w/Neutral Safety Switch at 10" from Shaft)
 FR20007-36 In kit FR319KTFS
 (Floor Shift)

*1967-72 Chevy, C-10
 Cradle and Shaft
 Assembly-Power*



Removing Original Steering System



Before beginning you must first measure the width of your front end from LEFT outer tie rod end zerk to the RIGHT outer tie rod end zerk to determine the overall width of your front end. Write dimension here for further reference _____

Caution: Before disconnecting your original steering column wiring harness please verify each wire color and function on the worksheet below. Some wire colors may vary from year to year.

Flaming River Column Wiring

P-White-Brakelight Switch
N-Dk Green-Rr Turn Signal
M-Yellow-Lr Turn Signal
L-Purple-Turn Signal Power
K-Brown-Hazard Power
J-Dk Blue-Rf Turn Signal
H-Lt Blue-Lf Turn Signal
G-Black-Horn

Color Verification to be completed before disassembly

• Brake Light Switch : _____
• RR Turn Signal : _____
• LR Turn Signal : _____
• Turn Signal Power : _____
• Hazard Power : _____
• RF Turn Signal : _____
• LF Turn Signal : _____
• Horn : _____

Factory Steering Removal



*Steering Box
with Pitman Arm*



*Power Steering
Box and Lines*



Idler Arm



*Steering Linkage - Center Link with
Inner Ends and Adjusting Sleeves*

1) Disconnect and Remove the factory intermediate shaft, by removing the pinch bolt that retains the steering coupler to the steering column and the bolt that retains the rag joint to the steering box.



Intermediate Shaft

2) Disconnect the Passenger and Driver's side outer tie rod ends from the spindle arms.



3) Disconnect the pitman arm from the steering linkage.



Factory Steering Removal (Continued)

4) Remove the two (2) bolts that hold the idler arm to the frame rail. Then remove the steering linkage from the truck.



5) Disconnect the pressure and return line from the steering box. Next, remove the four (4) bolts that attached the steering box to the frame. Then, remove the steering box from the truck.



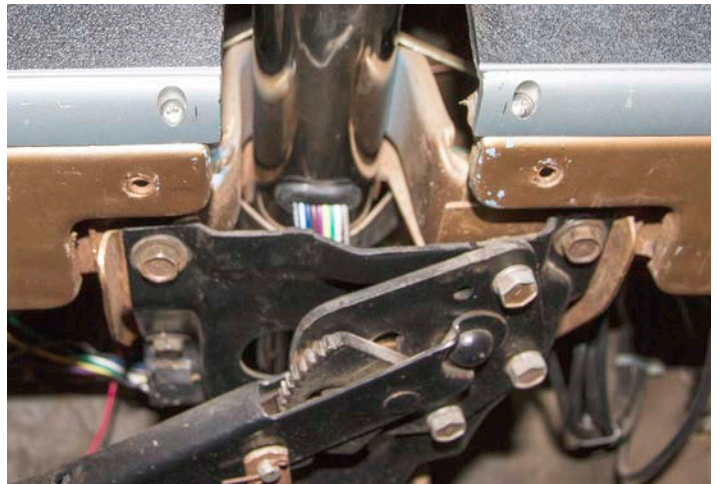
6) Remove the factory power steering pump, bracket and hoses.

Next Steps Only if Removing Factory Steering Column

7) If equipped, remove the bolts holding the parking brake to the dash.

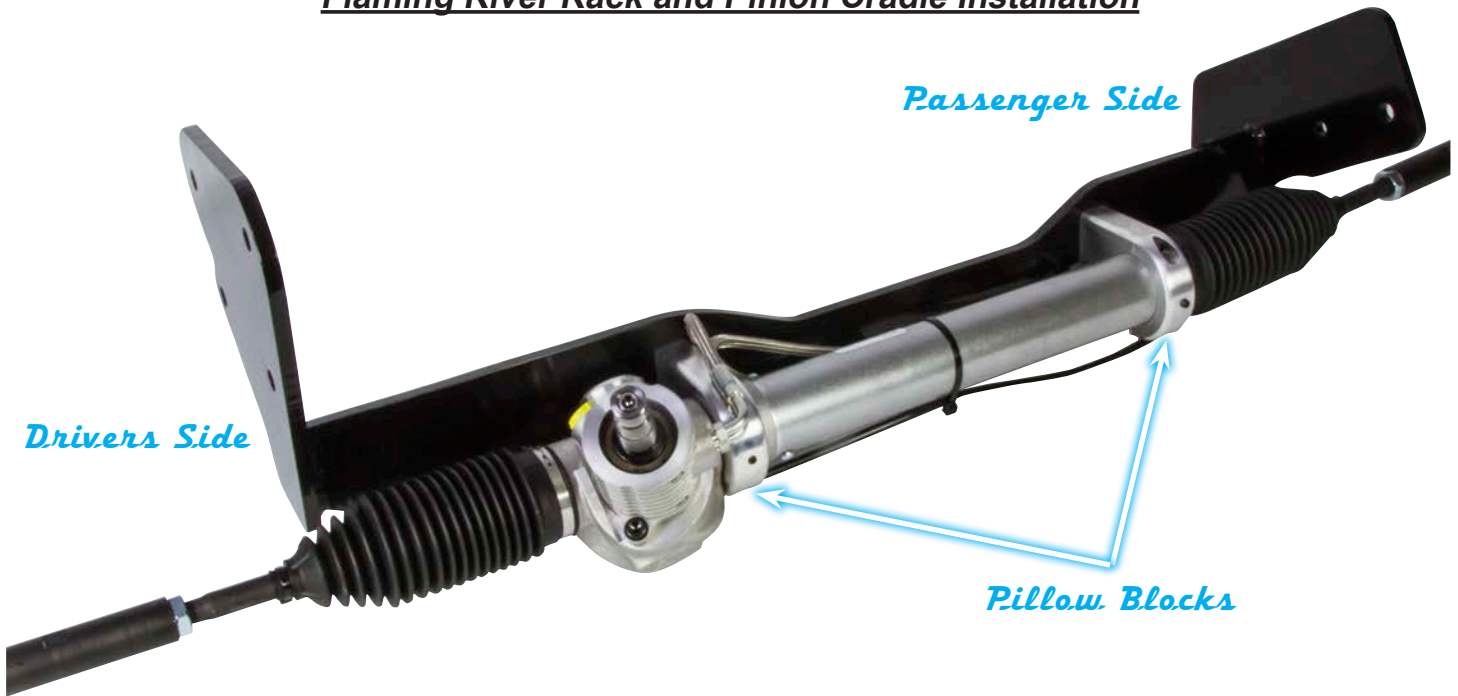
8) Remove the factory column mounting clamp and firewall/floor mounting bracket.

9) Unplug column wiring and remove steering column from truck.



*Factory steering column shown
with intermediate shaft still attached.*

Flaming River Rack and Pinion Cradle Installation



1) Hold the cradle in place aligning the four (4) mounting holes on the drivers side and install the 7/16" mounting bolts, washers and nuts.



2) On the passenger side, align the two (2) mounting holes and install the 3/8" mounting bolts, washers and nuts.



3) Tighten the 7/16" bolts to 50-65 Ft. Lbs. and the 3/8" bolts to 40-45 Ft. Lbs..

Flaming River Rack and Pinion Cradle Installation (Continued)

4) Install the outer tie rod ends into the inner rod ends and adjust tie rods until the original zerk to zerk measurement taken before disassembly is obtained (See page 4).

To install the outer tie rod ends into the spindles you must load the front suspension. (Securely placing jack stands under the lower control arms and lowering the car onto the jack stands accomplishes this.)



5) Install the outer tie rod ends into the spindle and tighten the castle nuts to 30-40 ft lbs. Make sure to install cotter pins into the castle nut and tie rod end and bend the tabs over for security.



Note: The new Flaming River Rack and Pinion has been centered in its travel from the factory. If the rack becomes off center it will turn more in one direction than the other.

***You may have to re-center the steering wheel.
To re-center the steering wheel:
remove the wheel and adapter from the column
and re-install in the straight position.***

Flaming River Column Installation

1) Install the new firewall / floor mount into the stock location using the bolts that were removed earlier.



2) Slide the Flaming River Tilt column through the new firewall / floor mount.



3) Lift the column into the dash and install the stock dash mounting bracket and re-install the factory parking brake control if equipped.



Flaming River Column Installation (Continued)

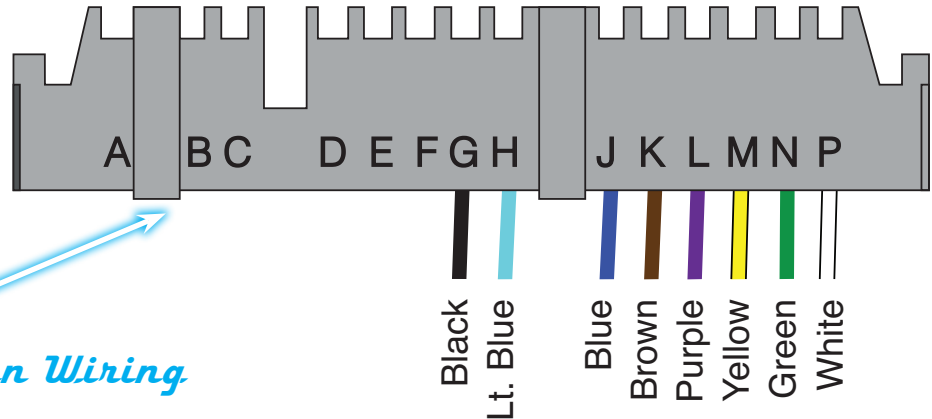
4) Using the female wiring connector (FR20118), install the wiring using the diagram filled out during disassembly.

Flaming River Column Wiring

<u>Wiring Circuit</u>	<u>Pin Location</u>	<u>Column Wiring Color</u>
Brake Light Switch	P	White
Right Rear Turn Signal	N	Dark Green
Left Rear Turn Signal	M	Yellow
Turn Signal Power	L	Purple
Hazard Power	K	Brown
Right Front Turn Signal	J	Dark Blue
Left Front Turn Signal	H	Light Blue
Horn	G	Black

Color Verification to be completed before disassembly

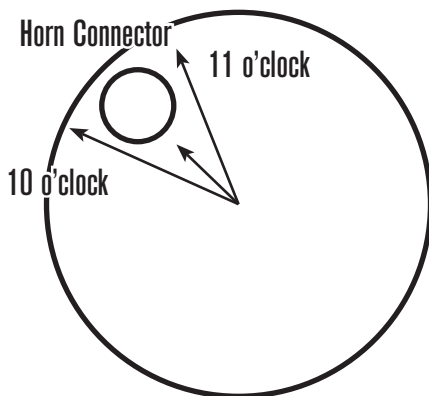
- Brake Light Switch : _____
- RR Turn Signal : _____
- LR Turn Signal : _____
- Turn Signal Power : _____
- Hazard Power : _____
- RF Turn Signal : _____
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- Horn : _____



Flaming River Column Wiring

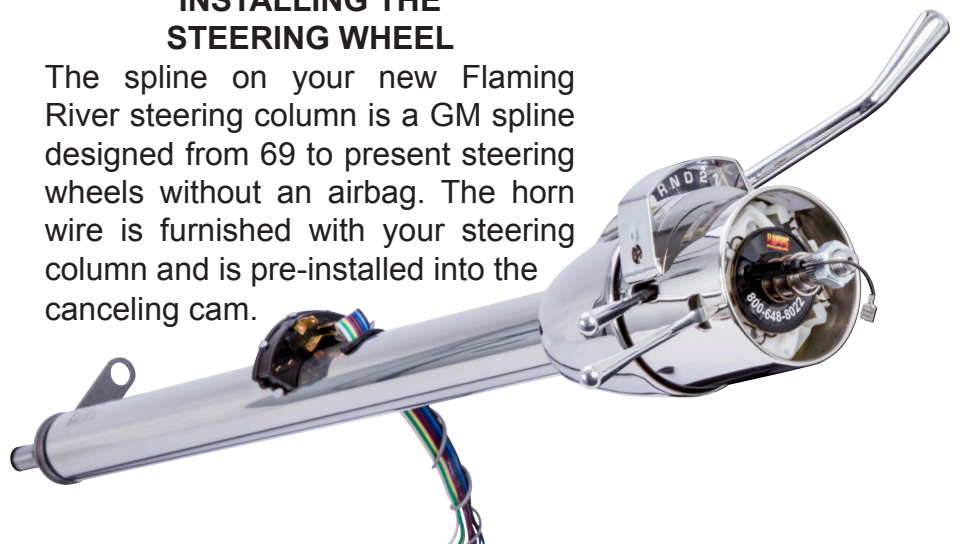
5) Follow the instructions included with the new Flaming River Column to adjust your Neutral Safety Switch (Column Shift Only) and canceling cam for proper operation.

Canceling Cam Position



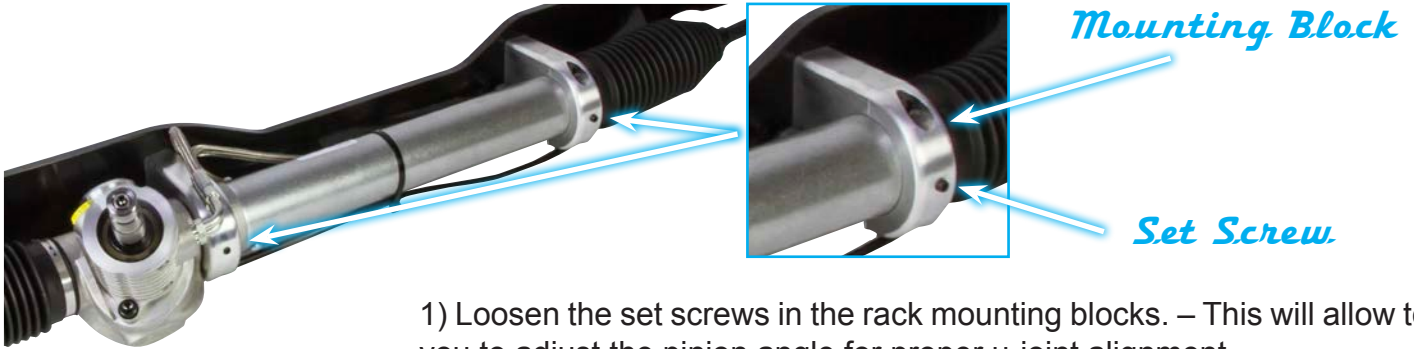
INSTALLING THE STEERING WHEEL

The spline on your new Flaming River steering column is a GM spline designed from 69 to present steering wheels without an airbag. The horn wire is furnished with your steering column and is pre-installed into the canceling cam.



Universal Joint System

**** We recommend that you regularly inspect the u-joint set screws for tightness. ****

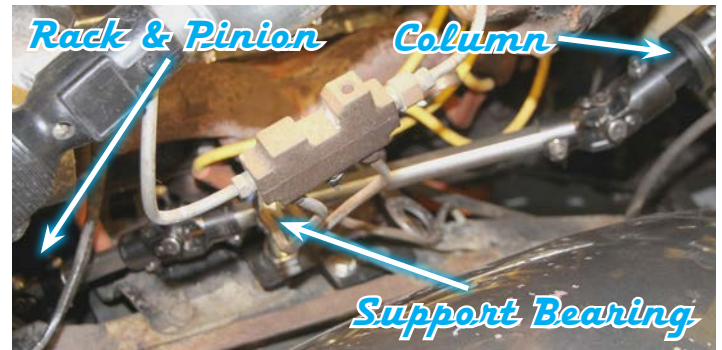


1) Loosen the set screws in the rack mounting blocks. – This will allow to you to adjust the pinion angle for proper u-joint alignment.

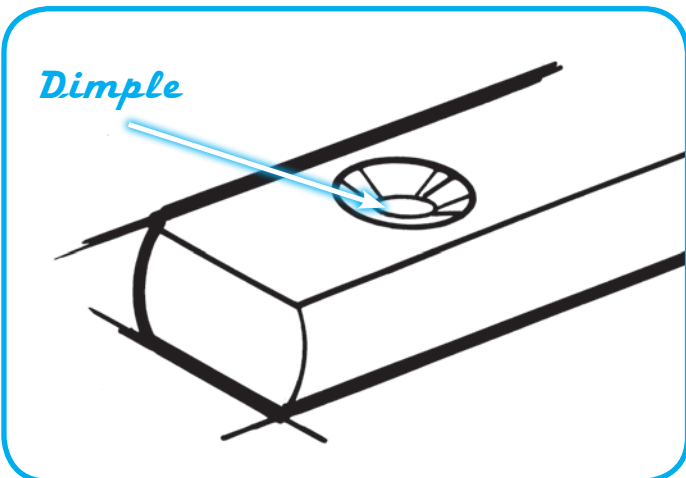


2) Install support-bearing mount onto the chassis.

Note: The angle of this mount is set for most applications. Some adjustment may be necessary for the correct angle and u-joint alignment.



3) We recommend the use of $\frac{3}{4}$ " wood dowel rod to mock up the steering shaft to obtain the correct length of the shafts.

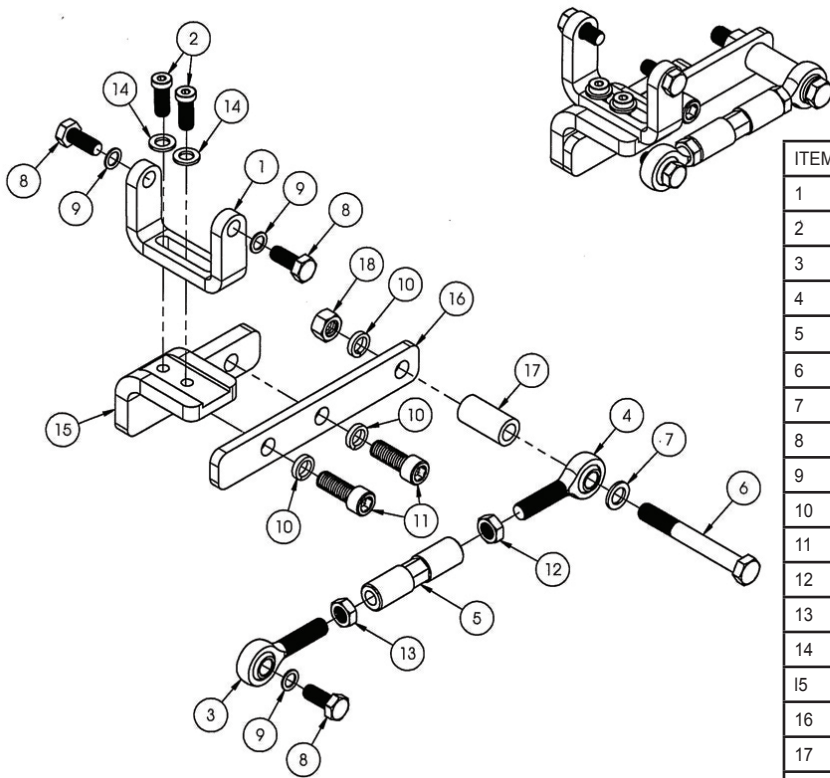


4) Install your shaft kit and snug each set screw so that it will leave a mark in the shafts.

5) Remove shaft and dimple each setscrew mark using a $\frac{1}{4}$ " drill bit. (As shown below.)

6) Re-install the shafts and u-joints using a red thread locker on the set screw threads. Tighten each set screw to 25 ft. lbs. and then tighten all jam nuts securely.

Power Steering Pump Installation



ITEM NO	QTY	PART NO.	DESCRIPTION
1	1	100633	BRACKET, MOUNT PUMP PS
2	2	100634	SCREW, 5/16-18 X .75 SOC HD LOW PROFILE
3	1	100667	HEIM JOINT, END ROD 3/8-24 RH
4	1	100668	HEIM JOINT, END ROD 3/8-24 LH
5	1	100720	SPACER, ADJ 0.62 X 2.52 WI 3/8-24 RH-LH
6	1	100722	BOLT, 3/8-16 X 3.00 HEX HD GR 8
7	1	100723	WASHER, FLAT 0.39 X 0.62 X .05
8	3	100724	BOLT, M8X1.25 X 20 HEX HD GR10.9
9	3	100725	WASHER, FLAT 0.32 X 0.47 X .04
10	3	100726	WASHER, LOCK SPLIT 3/8 HIGH COLLAR
11	2	100727	SCREW, 3/8-16 X 1.00 SOC HD CAP
12	1	100728	NUT, 3/8-24 JAM LH
13	1	100729	NUT, 3/8-24 JAM RH
14	2	100730	WASHER, FLAT 0.32 X 0.57 X .06
15	1	102221	BRACKET, MOUNT PUMP-MOTOR CIO
16	1	102222	PLATE, MOUNT PUMP-MOTOR CIO
17	1	102223	SPACER, 0.39 X 0.63 X 1.25 ALUM
18	1	102274	NUT, 3/8-16 HEX GRADE 8

1) Assemble the power steering pump bracket using the drawing above.



2) Install the power steering pump and bracket onto the lower driver's side of the motor using the mounting holes on the lower front of the engine block.

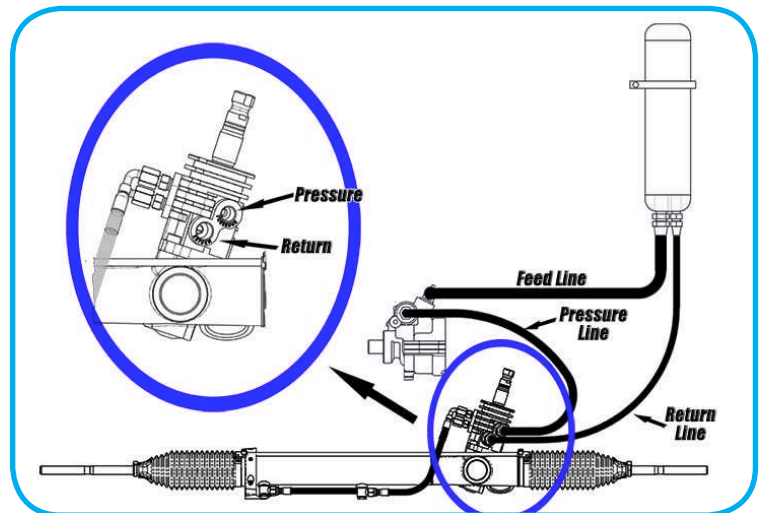
Power Steering Lines (FR1610 Not included in Kit)

Included in the FR1610 kit is a 1/2" feed line that connects from the remote reservoir to the power steering pump. This is attached using the two stainless steel hose clamps. The 3/8" Double Crimped Pressure Line will attach the pressure port of the power steering pump and to the pressure side of your steering gear. AN fittings with o-rings are included to complete the installation. The single crimped 3/8" line is used for the return line from the steering gear to the reservoir. This will attach to the steering gear to the reservoir using a AN Fitting and the 1/4"NPT barbed fitting with a stainless steel hose clamp. Custom length hose kits can be ordered from Flaming River by providing a drawing with dimensions.

When cutting the stainless steel hose, it is easier to use a chop saw or cut off wheel. Wrap the hose in black electrical tape and cut through the tape to help avoid fraying. You may need to use a side cutter to trim any frayed stainless steel line. The lines can be installed to the 90 degree fittings loose until to ensure proper line routing. To tighten, hold the line itself and tighten the fittings to 10-12 ft lbs.

Note: Over crimping or kinking the line may cause damage to the Teflon liner and voids warranty.

Note: If you are not using
FR1610 P/S Line Kit you must
order Fittings Kit Part # FR1632
for the rack.



Note: If using the original power steering pump, you must first flush the pump of any power steering fluid. Contaminated power steering fluid may cause damage to the new rack and pinion.

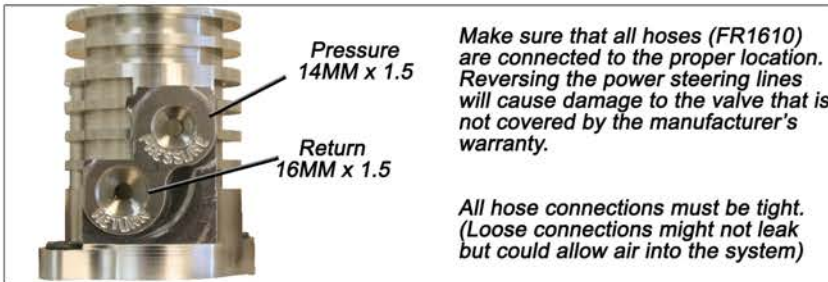
Note: If the power steering fluid is foamy, let the vehicle sit for 10 minutes and then repeat the bleeding procedure.

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.



Instruction Bulletin #1021

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)

Important

***** Power Steering Fluid*****
Use clean, new power steering fluid only.

- 1) Turn Ignition Off
- 2) Raise front wheels off the ground.
- 3) Turn the steering wheel full left.
- 4) Fill fluid level to "Full Cold" level or if using remote reservoir 1" over inner tube.
- 5) With assistant checking fluid level and condition, turn steering wheel lock to lock at least 20 times.
- 6) While turning wheels check fluid level constantly.
- 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) If all proper conditions apply, bleeding is complete.
- 12) If any problem remains see "Special Conditions".

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

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.

Note: No bubbles are allowed.

For any sign of bubbles, recheck connections then repeat step 5.

Special Conditions:



- Foam or bubbles in fluid
Fluid must be completely free of bubbles. In step 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.
- Discolored fluid (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-pressurize 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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Additional Installation Products

HIGH OUTPUT ALTERNATORS



Die Cast w/Chrome Housing
FR1108C 170 Amp
FR1109C 240 Amp

STEERING WHEELS



FR20163LT
Navigator Style

SMOOTH BODY SHOCKS



Front
FR70046



Rear
FR70048



FR20152LG
Nostalgia Style



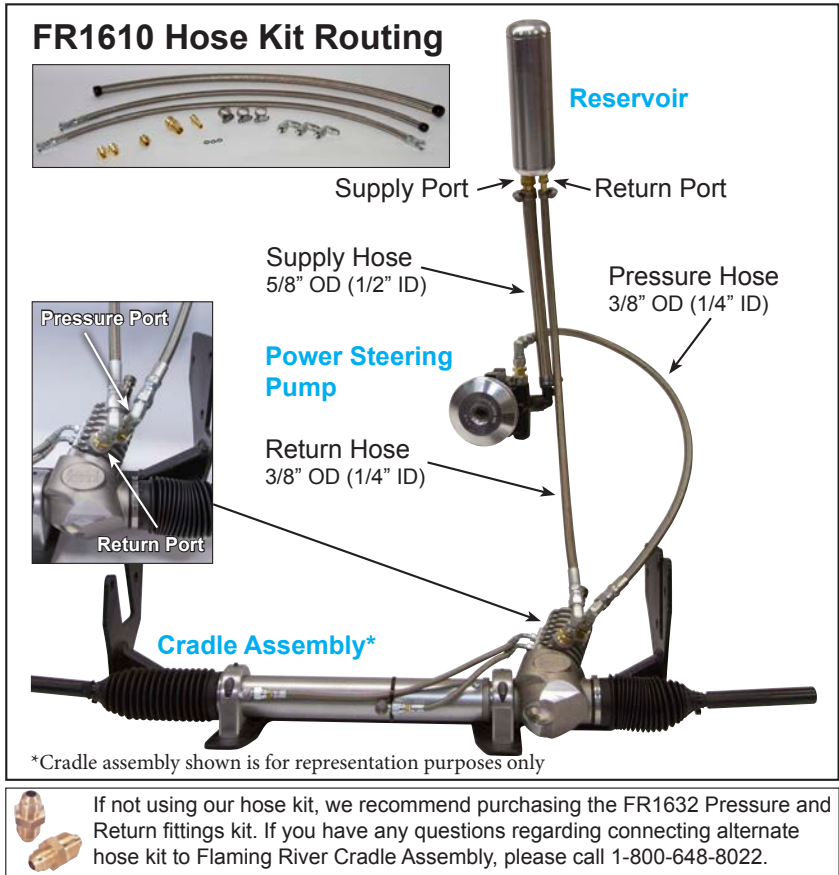
Power Steering Hose Kit
FR1610

**(Recommended for Install –
Sold Separately)**

Outer Tie Rod Ends ES350L
(Purchase from local auto or online parts supplier)



ES350L



In order to ensure the best customer experience possible, we've created a Customer Satisfaction Survey to gather important feedback about different facets of our business. We would appreciate it if you could please take a couple of minutes to fill out this survey about your experience.

The results of the survey will be used to improve and gather feedback about customer service, technical and sales support, order processing and fulfillment, manufacturing, and new product development.

Upon completing the survey, you will be issued a discount coupon code to be used on your next online purchase at www.flamingriver.com/survey.



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