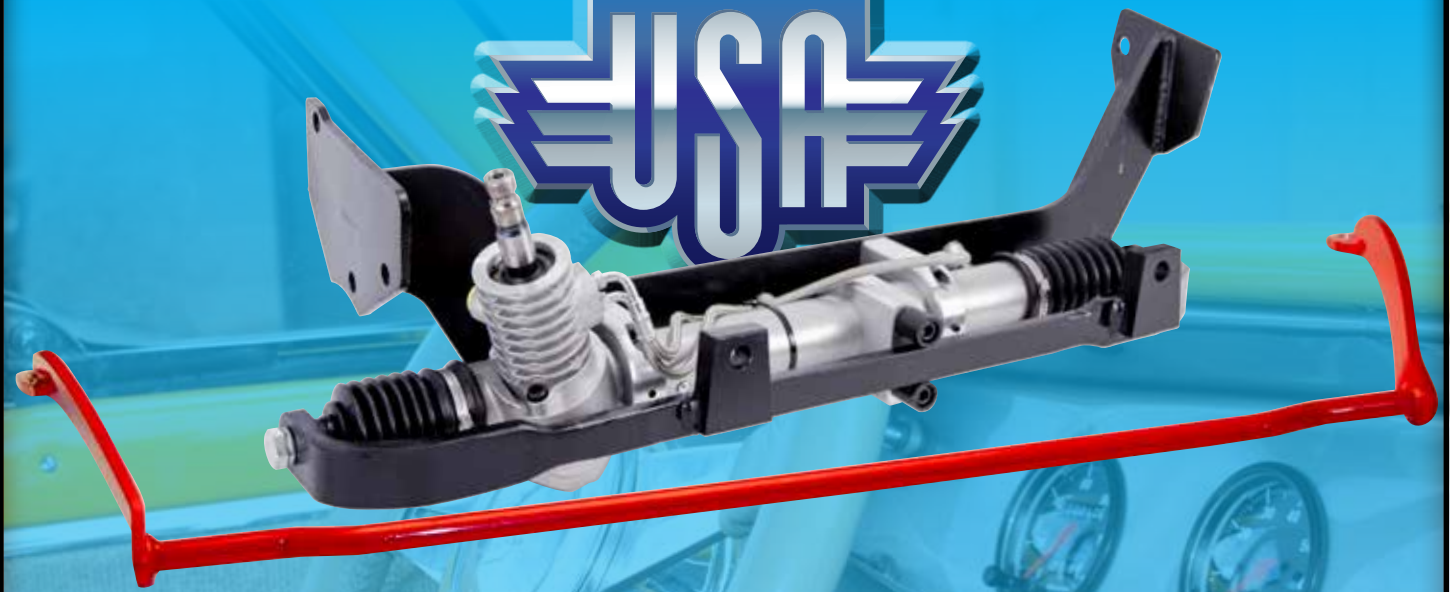




Flaming River Ind.
800 Poertner Dr
Berea, OH 44017
800-648-8022

64-67 Chevelle/ El Camino
Rack and Pinion
Conversion Kit



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

NOTE: Hoses (FR1610) and Small Block Chevy Power Steering Pump Bracket (FR1612) sold separately and not included in this kit.

Chevelle Outer Tie Rod Ends ES333RL and adjuster sleeves ES2032S must be used with this rack and pinion kit. (Must purchase separately from local or online auto parts supplier)

NOTE: Flaming River Recommends that you use synthetic or high grade power steering fluid. Before paint or powder coating of the rack and pinion cradle system we recommend that you prefit the system to ensure proper fit.

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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	Years
1	100237	Hardware Kit	1	1964-67
2	100639	Power Rack & Cradle Assembly	1	1964-67
4	100638	Sway Bar	1	1964-67
5	100435	Support Bearing Bracket	1	1964-67
6	FR1810-2	Zinc 3/4" Support Bearing	1	1964-67
7	FR1614	Power Steering Reservoir	1	1964-67
8	FRPMP5B-V	Power Steering Pump with V-Belt Pulley	1	1964-67
9	FR1934	1"DD x 3/4"DD NB Universal Joint	1	1964-67
10	FR1920	3/4"DD x 3/4"DD Forged Universal Joint	1	1964-67
11	FR1789P	FR Power x 3/4"DD Universal Joint	1	1964-67
12	FR1850	3/4"DD x 18" Shaft	1	1964-67
13	FR20101CH	64-67 GM A-Body Swivel Floor Mount	1	1964-67
14	FR20005-28	Tilt Steering Column (See Below)	1	1964-67
15	FR20118	Female Connector Kit	1	1964-67
16	FR1612	PS Pump Bracket (Small Block)	1	1964-67

Column Varies with Part Number Ordered

FR20005-28 In kit FR330KT
FR20005-28SS In kit FR330KTPL
FR20005-28 In kit FR366KT

*1964-67 Chevelle
Cradle and Shaft
Assembly Power*



Item No.	Part No.	Description	Qty	Years
1	100237	Hardware Kit	1	1964-67
2	100643	Manual Rack & Cradle Assembly	1	1964-67
4	100638	Sway Bar	1	1964-67
5	100435	Support Bearing Bracket	1	1964-67
6	FR1810-2	Zinc 3/4" Support Bearing	1	1964-67
7	FR1934	1"DD x 3/4"DD NB Universal Joint	1	1964-67
8	FR1920	3/4"DD x 3/4"DD Forged Universal Joint	1	1964-67
9	FR1789P	FR Power x 3/4"DD Universal Joint	1	1964-67
10	FR1850	3/4"DD x 18" Shaft	1	1964-67
11	FR20101CH	64-67 GM A-Body Swivel Floor Mount	1	1964-67
12	FR20005-28	Tilt Steering Column	1	1964-67
13	FR20118	Female Connector Kit	1	1964-67

*1964-67 Chevelle
Cradle and Shaft
Assembly Manual*



Removing Original Steering System

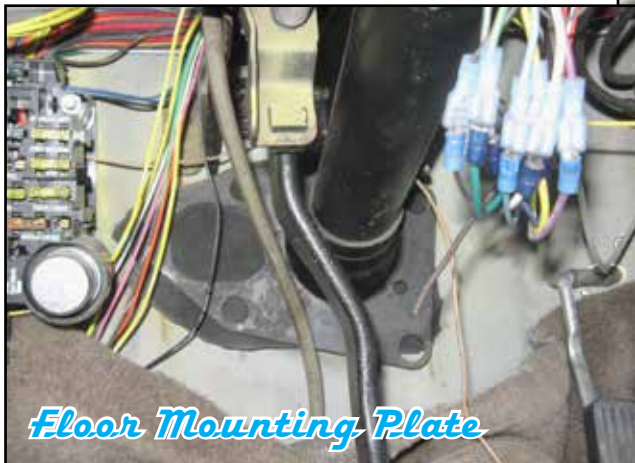
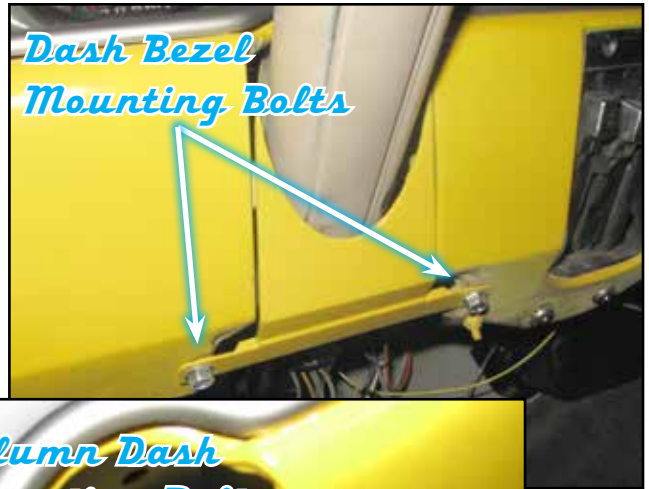
Before beginning you must first measure the width of your front end from LEFT outer tie rod end zerk to the RIGHT outer tie rod end zerk to determine the overall width of your front end. Write dimension here for further reference _____



Original System Removal



1) Disconnect the wiring at the steering column under the dash.



2) Remove the bolts retaining the dash bezel, column dash mounting bracket and floor mounting plate.

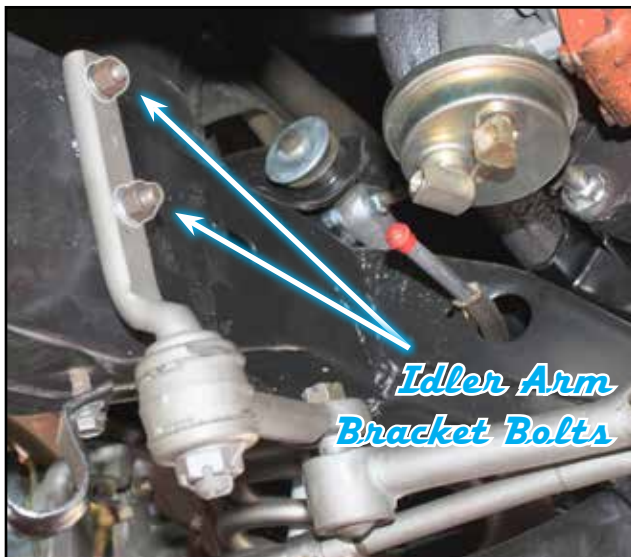


3) Remove the bolt that retains the rag joint to the factory steering box. Spread the flange and then slide the shaft off of the steering box and remove the column assembly from the car.

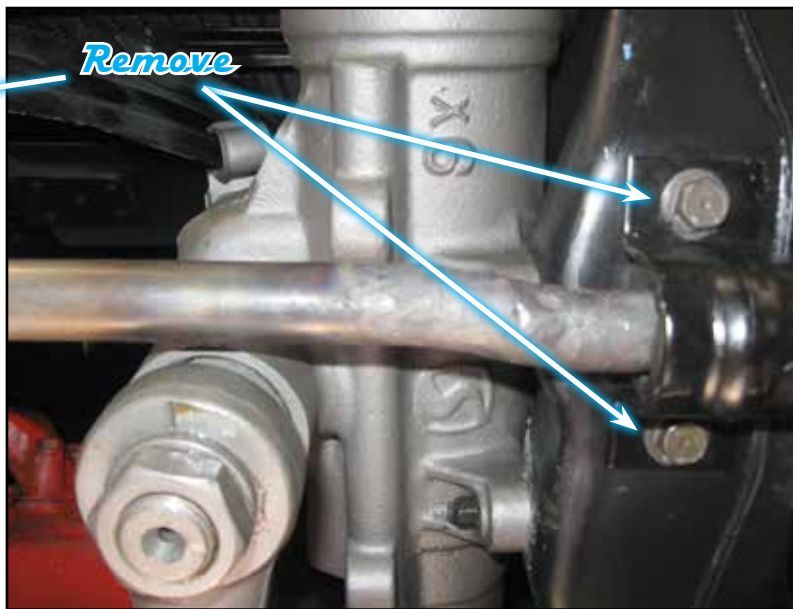


4) Remove the bolts that hold the steering box to the frame, and then remove the box from the car.

Original System Removal (Continued)



5) Remove the bolts that hold the idler arm bracket to the frame, remove the outer tie rod ends from the spindle arms, then remove the steering linkage from the car.

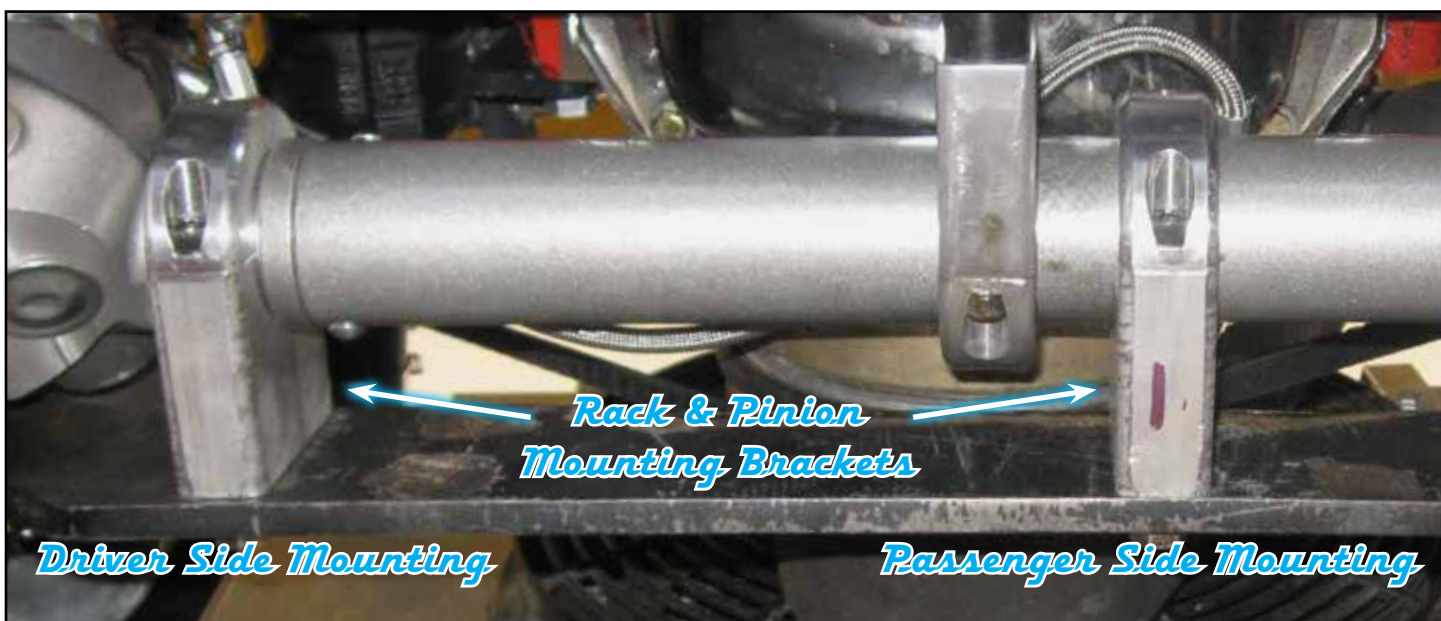


6) Remove the bolts that hold the sway bar bracket to the frame and the pin and remove the factory sway bar from the vehicle.

Flaming River Rack and Pinion Installation

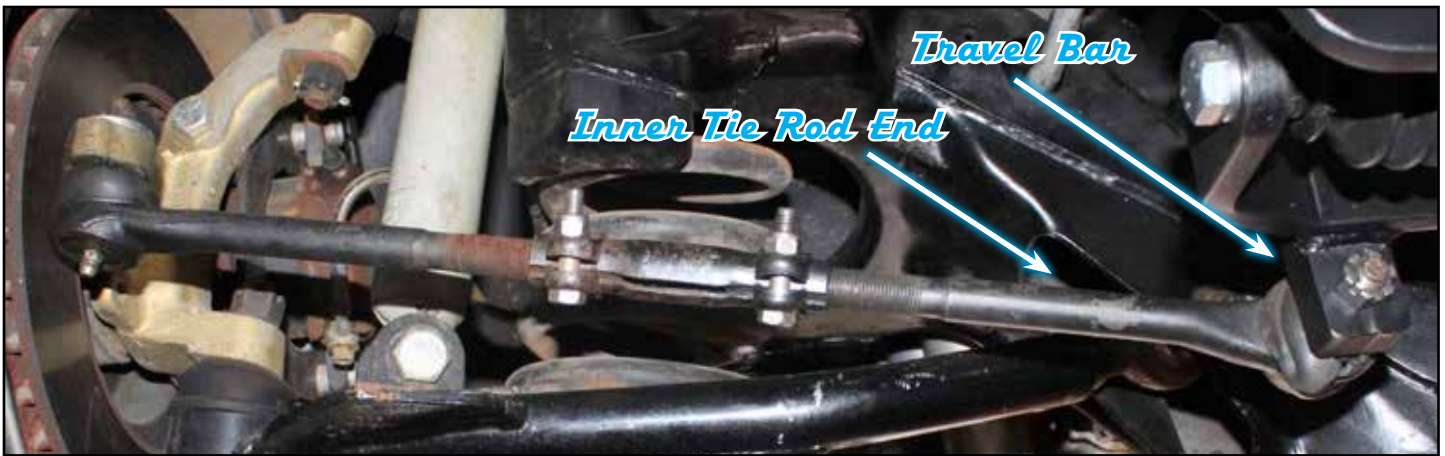


1) Install the rack and pinion cradle by sliding it into place between the frame rails. Using the new hardware, install the three (3) 7/16" bolts on the drivers side using the original holes from the steering gear box. On the passenger side, use the two (2) 3/8" bolts were the idler arm was mounted. Tighten the 7/16" bolts and nuts to 50-65 ft lbs. and the 3/8" bolts and nuts to 40-45 ft. lbs.



2) To install the Flaming River rack and travel bar system, position the rack into place, then install the rack to the cradle using the mounting brackets provided. Note: The locking set screw and the mounting cap bolts can be loosened to adjust the pinion angle which will aid in u-joint alignment.

Flaming River Rack and Pinion Installation (Continued)



3) Install the OEM inner tie rod end into the Flaming River Travel Bar. Note: If using the original parts, some adjustment of the tie rod assembly may be required when connecting to the spindle arm and the travel bar.



4) To install the outer tie rod end into the spindles, you must load the front suspension. Securely place jack stands under the lower control arms and lower the car onto the jack stands. Make sure that your wheels are centered, then install the outer tie rod into the spindle arms and tighten the castle nuts to 30-40ft lbs. Make sure to install the cotter pins through the castle nut and tie rod end and bend the tabs over.



Rack & Cradle Installed in Car

Flaming River Rack and Pinion Installation (Continued)



5) Install the new Flaming River sway bar into the vehicle by using the factory sway bar bushings and sway bar pins. Tighten to factory torque specs.

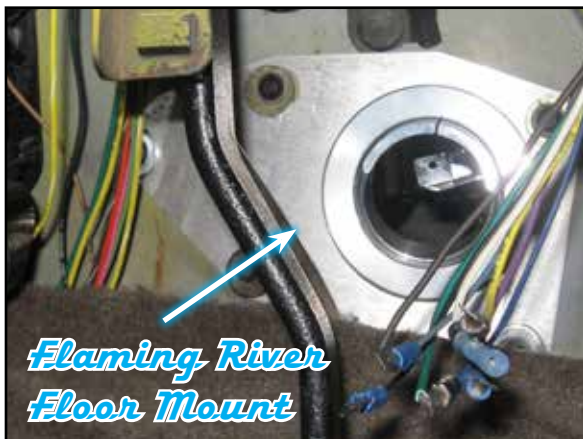
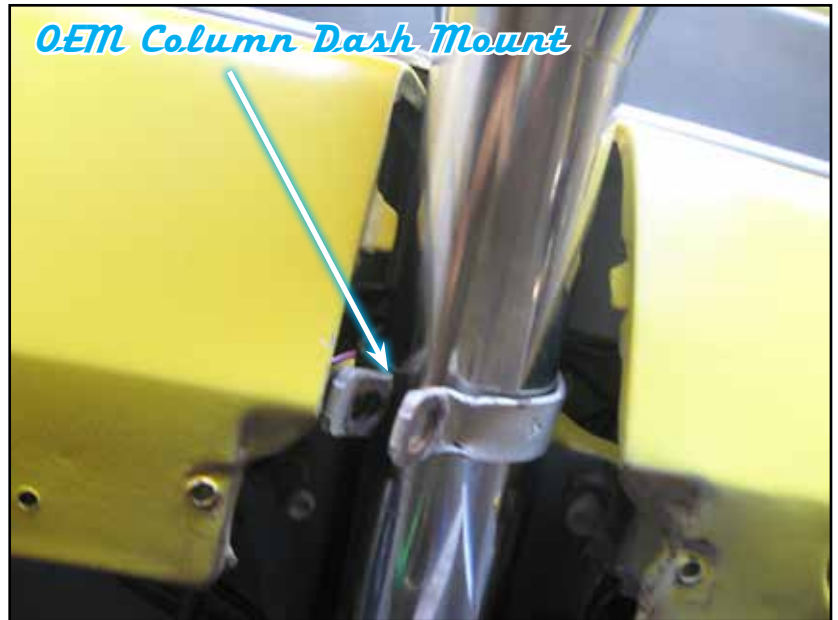
Note: The Flaming River Sway bar has been designed to use the factory sway bar bushings and pins. When installing the new sway bar, we recommend also replacing the bushings (MOOG K8266) and sway bar pins (MOOG K5227).



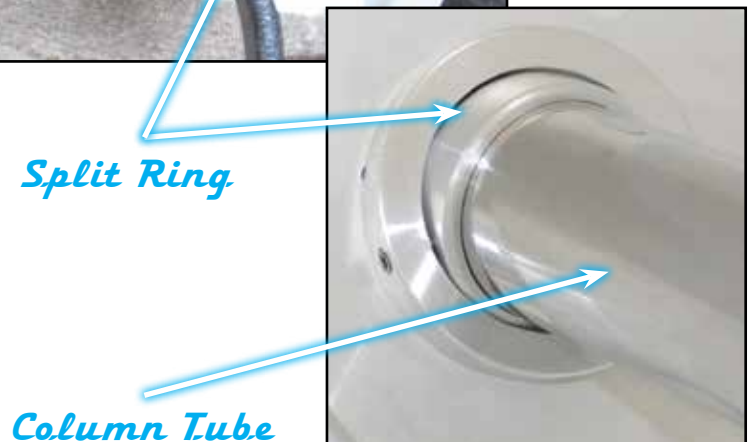
New Sway Bar Installed in Car

Flaming River Tilt Column Installation

1) Install the new Flaming River tilt column into the factory dash mounting bracket.



2) Slide new tilt column through the split ring of the new aluminum floor mount and then tighten the dash and floor mounts.



3) Replace the factory dash bezel using the screws that were removed earlier.

Connecting the Electric System

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

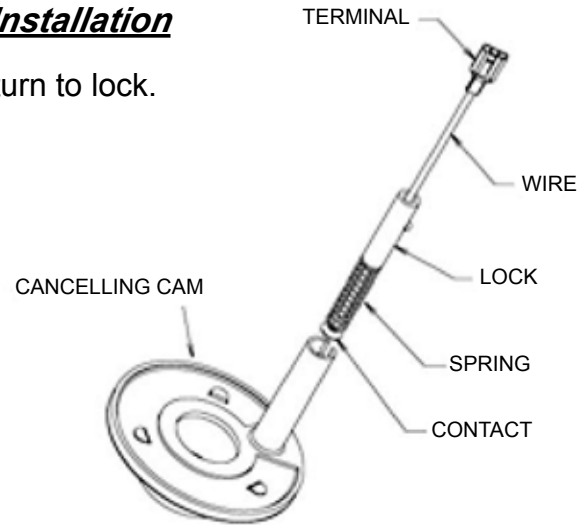
P-White-Brakelight Switch
 N-Dk Green-Rr Turn Signal
 M-Yellow-Lr Turn Signal
 L-Purple-Turn Signal Power
 K-Brown-Hazard Power
 J-Dk Blue-Rf Turn Signal
 H-Lt Blue-Lf Turn Signal
 G-Black-Horn

Color Verification to be completed before disassembly

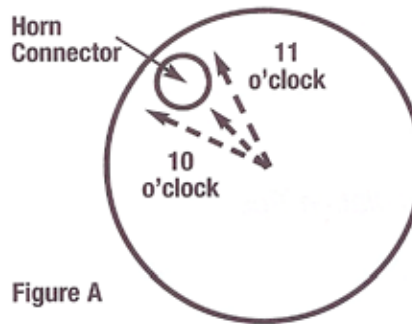
• Brake Light Switch : _____
 • RR Turn Signal : _____
 • LR Turn Signal : _____
 • Turn Signal Power : _____
 • Hazard Power : _____
 • RF Turn Signal : _____
 • LF Turn Signal : _____
 • Horn : _____

Steering Wheel Installation

1) Install horn contact kit into canceling cam tube and turn to lock.

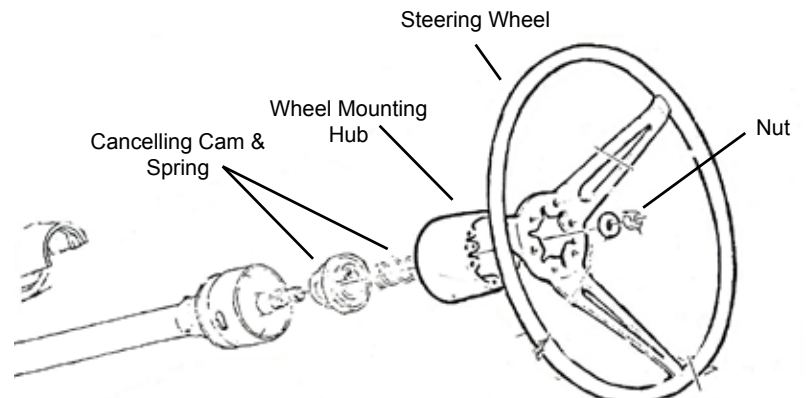


2) Be sure Rack and Pinion is in the center position before starting install of steering wheel. Align steering wheel adapter so that the canceling cam hole is at approx the 11 o'clock position and that one of the steering wheel mounting holes is at the 12 o'clock position. (After 1st test drive, it may be necessary to re-center wheel)



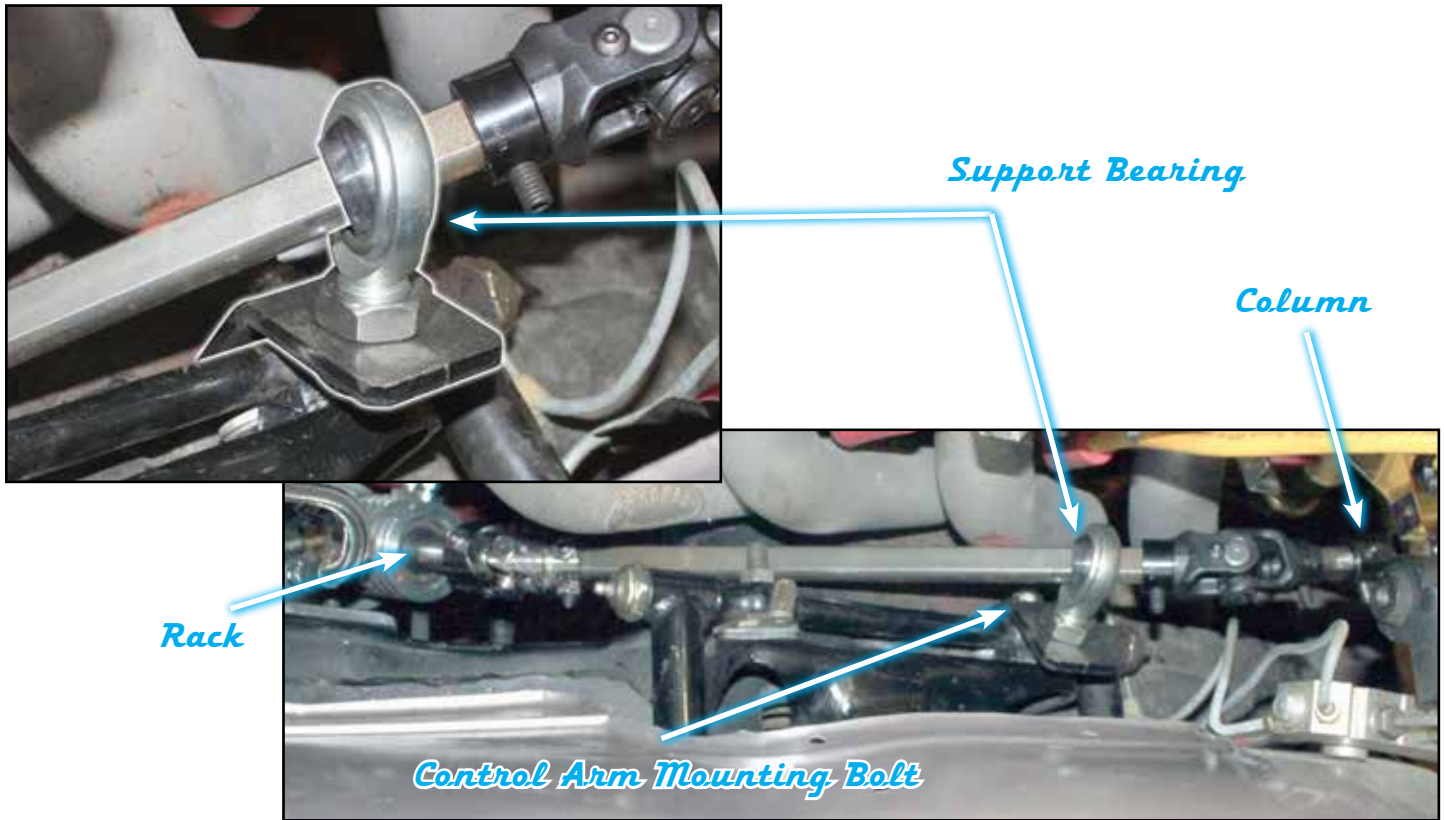
3) To install the wheel adapter run the horn contact wire through the hole for the canceling cam and place the adapter on to the splined column shaft.

4) Tighten the adapter-retaining nut securely until the adapter is approximately 1/16" away from the column shroud. (Overtightening can cause wheel to rub).



Universal Joint System

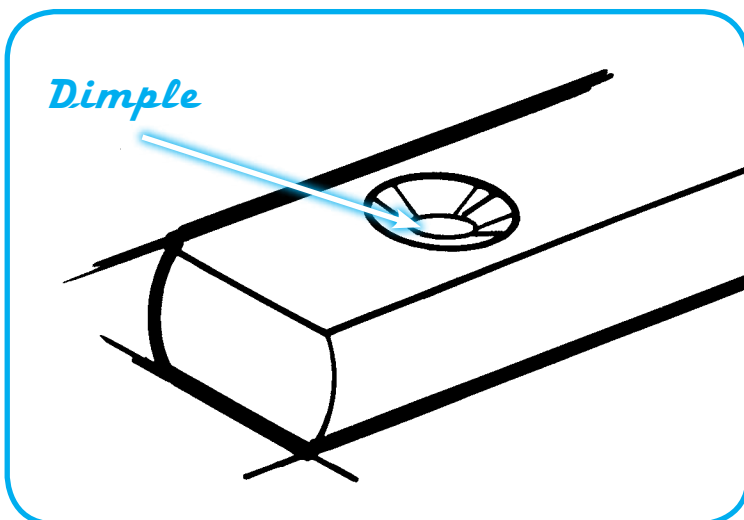
1) Install the support bearing and bracket, with the bend facing towards the outside of the car, onto the rear control arm mounting bolt.



2) Using a 3/4" wooden dowel rod, mock up the steering shaft to obtain the correct shaft lengths and u-joint angle.

3) Once the correct shaft lengths are obtained, install shafts and u-joints snugging down each set screw so that it leaves a mark in the shaft.

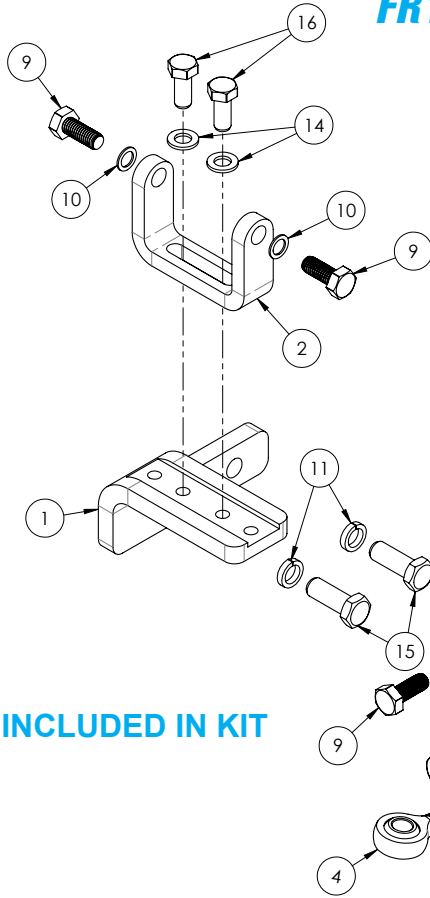
4) Remove the shafts and using a 1/4" drill bit, dimple each mark left by the set screws. (As shown below.)



5) 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.

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

FR1612 Small Block Chevy Power Steering Pump Bracket



INCLUDED IN KIT

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	100632	BRACKET, MOUNT PUMP-MOTOR SB
2	1	100633	BRACKET, MOUNT PUMP PS
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 W/ 3/8-24 RH-LH
6	1	100721	SPACER, 0.392 X 0.62 X 1.00 ALUM
7	1	100722	BOLT, 3/8-16 X 3.00 HEX HD GR8
8	1	100723	WASHER, FLAT 0.39 X 0.62 X .05
9	3	100724	BOLT, M8 X 1.25 X 20 HEX HD GR10.9
10	3	100725	WASHER, FLAT 0.32 X 0.47 X .04
11	2	100726	WASHER, LOCK SPLIT 3/8 HIGH COLLAR
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	2	100779	SCREW, 3/8-16 X 1.00 HEX HD GR8
16	2	102725	SCREW, 5/16-18 X .75 HEX HD GR8



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Power Steering Pump Installation/Small Block Chevy



Install L-shaped bracket (1) on engine with bolts (15) and lockwashers (11) supplied



Install pump bracket (2) to L-shaped bracket (1) with bolts (16) and washers (14) supplied



Install pump to bracket (2) using bolts (9) and washers (10) supplied



Install adjuster to pump using bolt (9) and washer (10) supplied

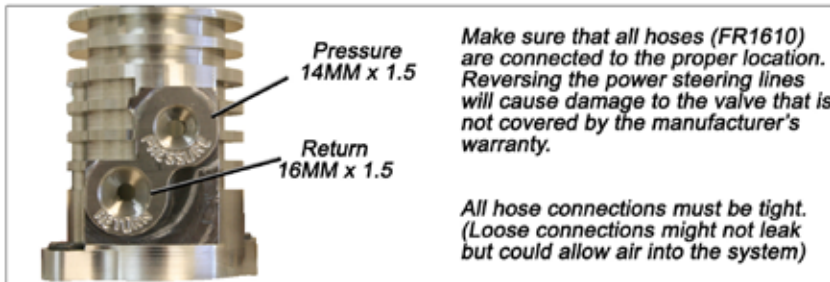


Remove upper water pump bolt. Install spacer (6) and adjuster with bolt (7) and washer (8) supplied



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.

WARRANTY DISCLAIMER:

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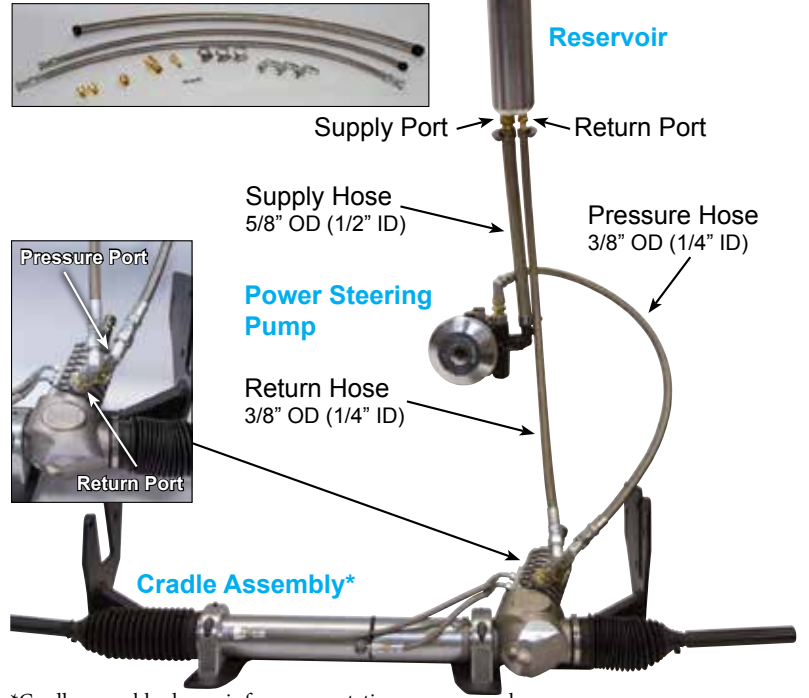
Additional Installation Accessories (Sold Separately)

SHOCK KITS



Power Steering Hose Kit FR1610

FR1610 Hose Kit Routing



*Cradle assembly shown is for representation purposes only



If not using our hose kit, we recommend purchasing the FR1632 Pressure and Return fittings kit. If you have any questions regarding connecting alternate hose kit to Flaming River Cradle Assembly, please call 1-800-648-8022.

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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