



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

*58-64 Impala
Rack and Pinion
Conversion Kit*



Impala



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

NOTE: Hoses (FR1610) sold separately and not included in this kit.

Before paint or powder coating of the rack and pinion cradle system we recommend that you prefit 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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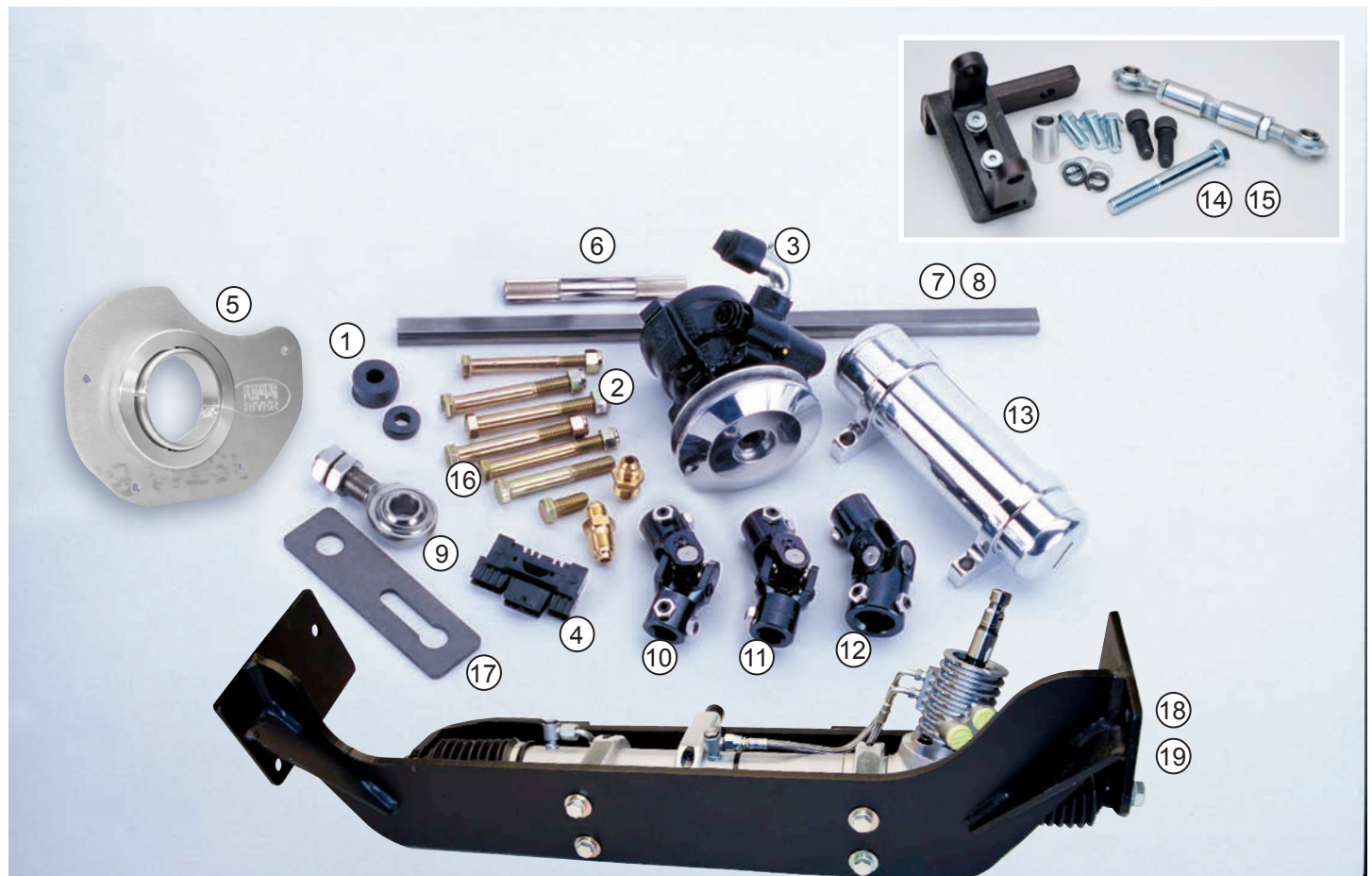
WARRANTY DISCLAIMER: Flaming River's® Limited Warranty

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	Applications
1	WASH-3/8"	3/8" Flat Washer Grade 8 Equ	10	58-64
2	NYLOCK-3/8-16	3/8-16 Nylock Lock Nut Grade 8	5	58-64
3	FRPMP5B-V	Power Steering Pump with V-Belt Pulley	1	58-64
4	FR20118	Female Connector Kit	1	58-64
5	FR20098	58-64 Impala Swivel Floor Mount	1	58-64
6	FR1870-4	3/4-36 x 3/4-36 x 4" Splined Shaft	1	63-64 Only
7	FR1850	3/4"DD x 18" Shaft	1	63-64 Only
8	FR1850-22	3/4"DD x 22" Shaft	1	58-62 Only
9	FR1810	Zinc 3/4" Support Bearing	1	63-64 Only
10	FR1789P	FR Power x 3/4"DD Universal Joint	1	58-64
11	FR1715DD	3/4"-36 x 3/4" DD Universal Joint	1	58-64
12	FR1711	3/4"-36 x 3/4"-36 Universal Joint	1	63-64 Only
13	FR1614	Power Steering Reservoir	1	58-64
14	FR1612	Power Steering Pump Bracket (Small Block)	1	Big Block Only
15	FR1613	Power Steering Pump Bracket (Big Block)	1	Small Block Only
16	BOLT-3/8-16X4.5	3/8-16 x 4.5" Long Grade 8 Bolt	5	58-64
17	100435	Support Bearing Bracket	1	63-64 Only
18	100759	58-62 Power Rack & Cradle Assembly	1	58-62 Only
19	100761	63-64 Power Rack & Cradle Assembly	1	63-64 Only
20	See Below	Tilt Steering Column	1	

Column Varies with Part Number Ordered

FR21011...FR331KT/FR337KT FR21014... FR344KT/FR350KT
FR21012...FR332KT/FR338KT FR21015... FR355KT/FR361KT
FR21013...FR343KT/FR349KT FR21016... FR356KT/FR362KT



Additional Installation Products

STEERING WHEELS

FR20163LT
Navigator Style
Wood/Light Tan



FR20152LG
Nostalgia Style
Light Gray Leather



FR20125FW
Waterfall Style
Light Grey



Power Steering Hose Kit
FR1610

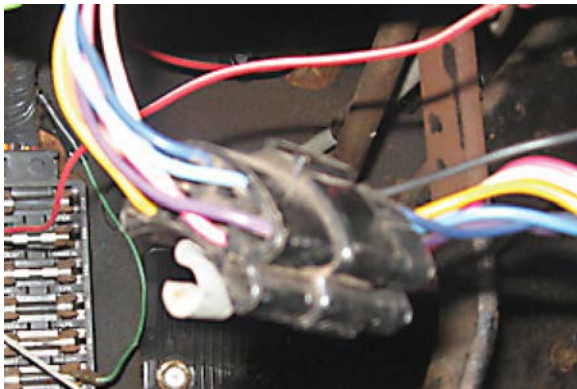
**(Recommended for Install –
Sold Separately)**

Removing Original Steering System

For safety, disconnect your battery



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 _____



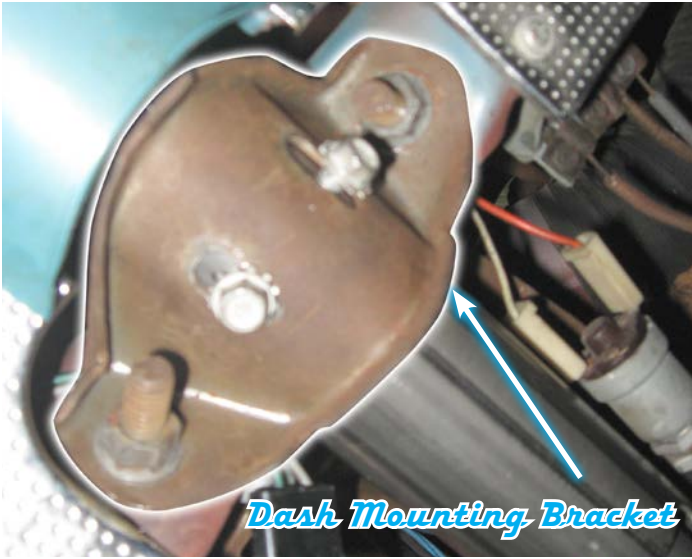
Disconnect the wiring at the steering column under the dash.

Before disconnecting the turn signal and the ignition connectors verify the wiring color to ensure proper operation. The colors listed with the ignition switch diagram below are from a stock wiring system. Wire colors may change due to the use of aftermarket wiring harnesses and wiring modifications. The use of a wiring diagram is recommended.

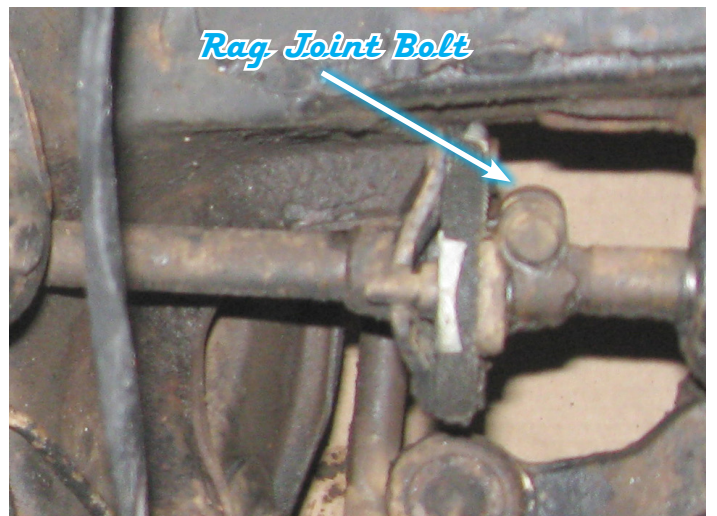
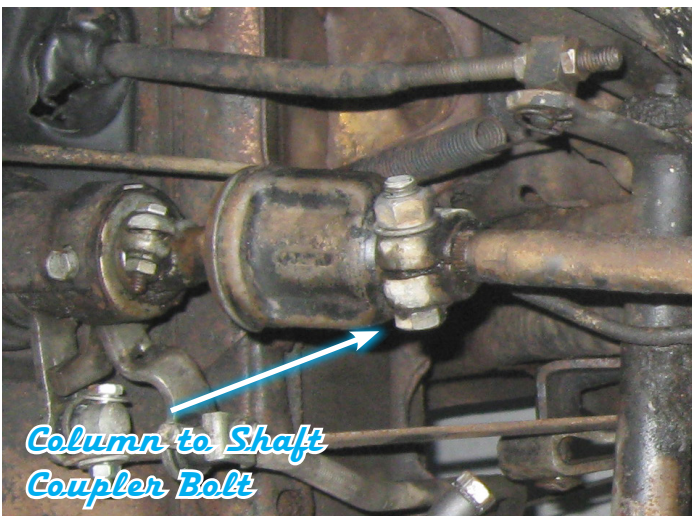
Color Verification to be completed before disassembly

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

Original System Removal: 58-62



1) Remove the bolts retaining the column dash mounting bracket and floor mounting plate.

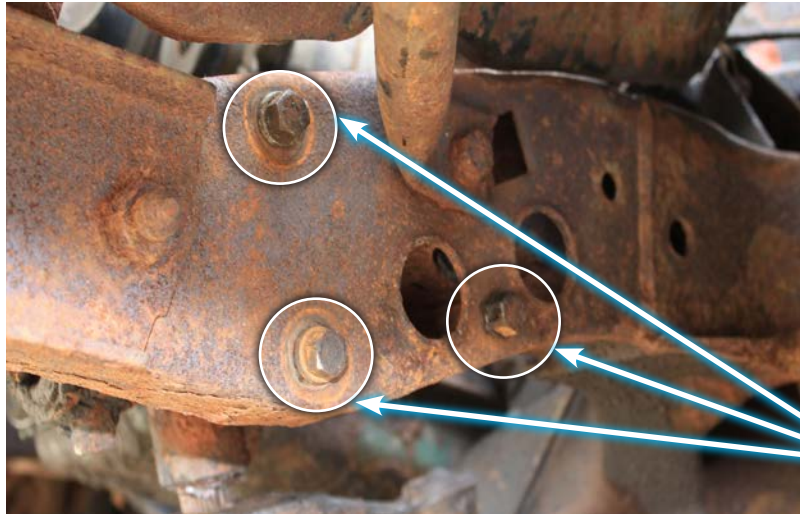


2) Remove the bolt that retains the coupler to the factory intermediate shaft. Spread the flange and then slide the column off of the shaft and remove the column from the car.

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 shaft from the car.



Original System Removal: 58-62 (Continued)

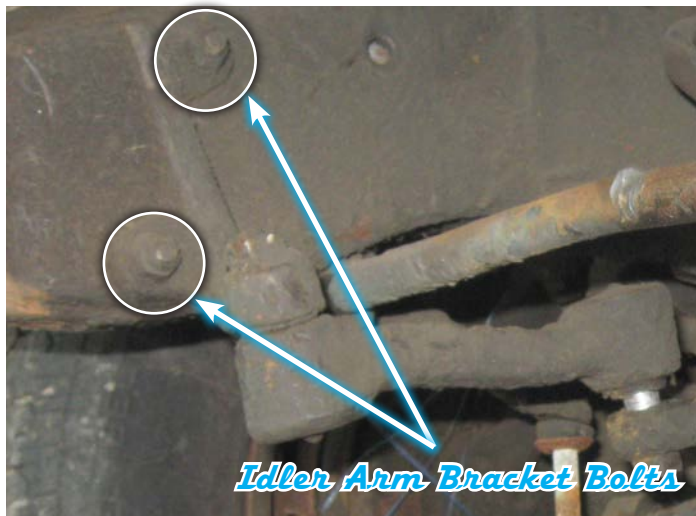


4) Remove the bolts that hold the steering box to the frame, and then remove the box from the car.



Factory Steering Box

Steering Box Mounting Bolts



Idler Arm Bracket Bolts



Tie Rod End Bolt

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



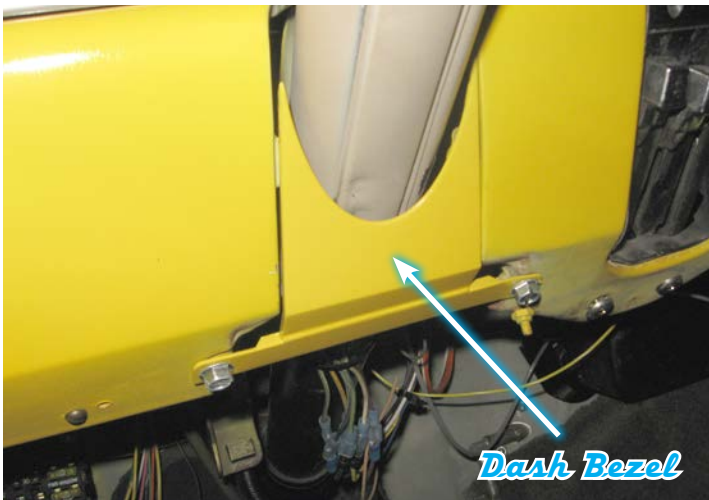
Before



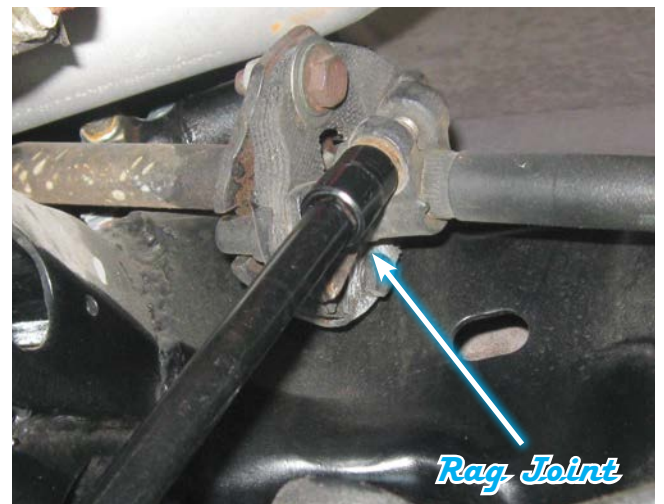
After

6) Grind down lip on the driver's side chassis so it is completely smooth. This will allow the cradle to mount flush onto the car chassis. (Lip is located on the inside of the driver's side frame rail)

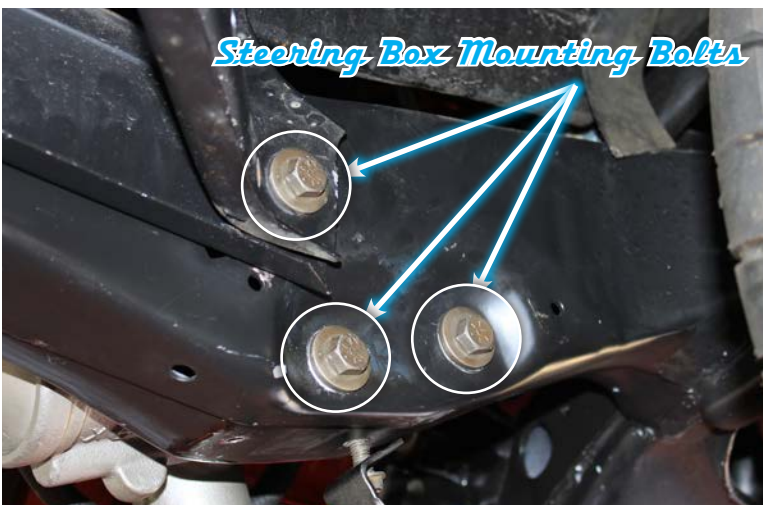
Original System Removal: 63-64



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

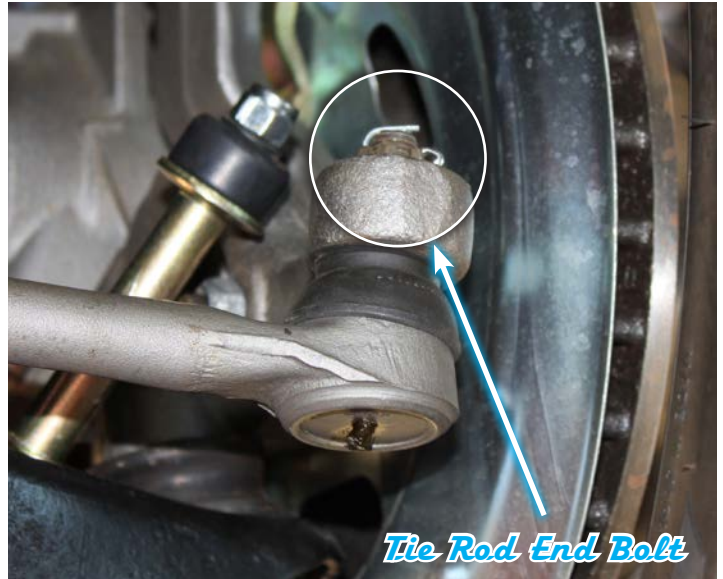
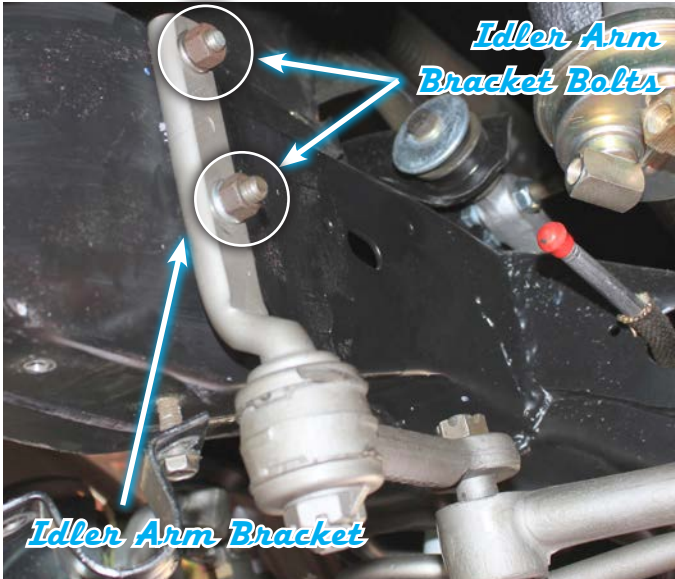


2) Remove the bolt that retains the rag joint the factory steering box. Spread the flange and then slide the shaft off of the steering box and remove the column assembly from the car.



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

Original System Removal: 63-64 (Continued)

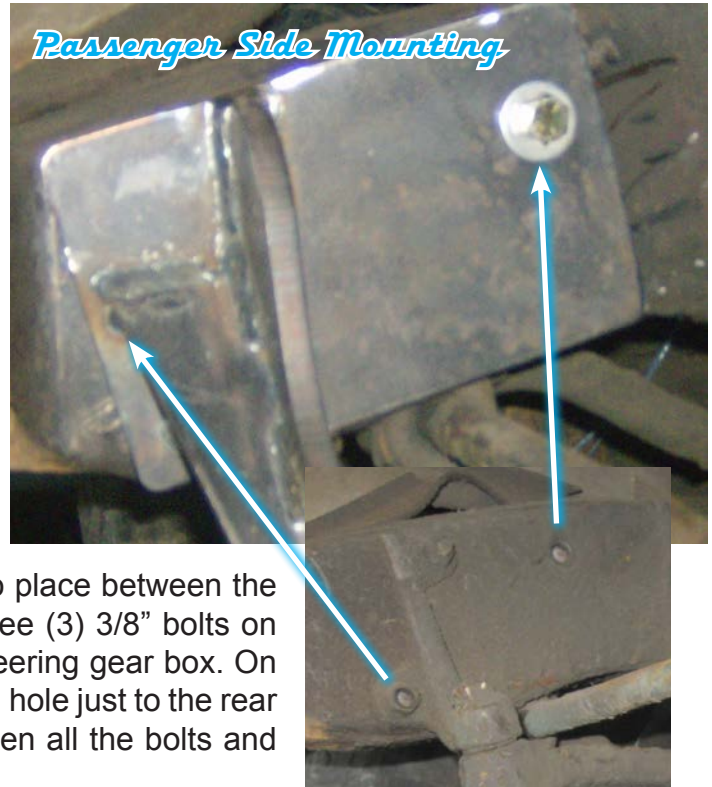
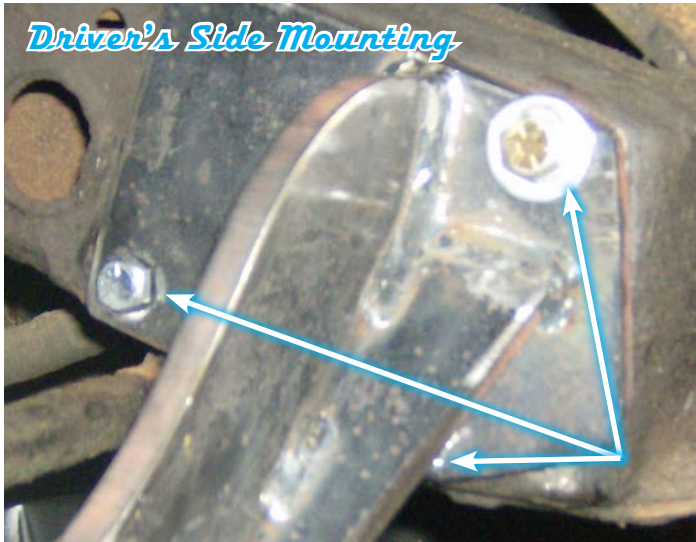


4) Remove the bolts that hold the idler arm bracket to the frame and the bolts that hold the outer tie rod ends to the spindle arms, then remove the steering linkage from the car.

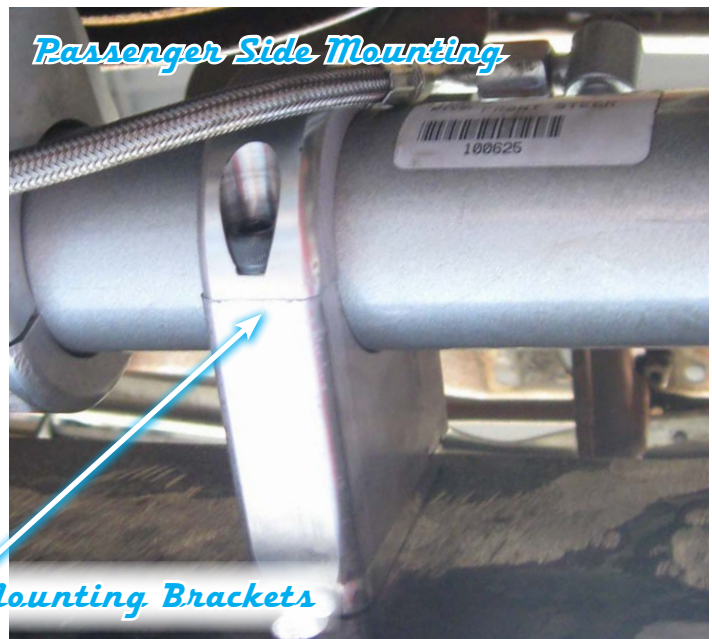
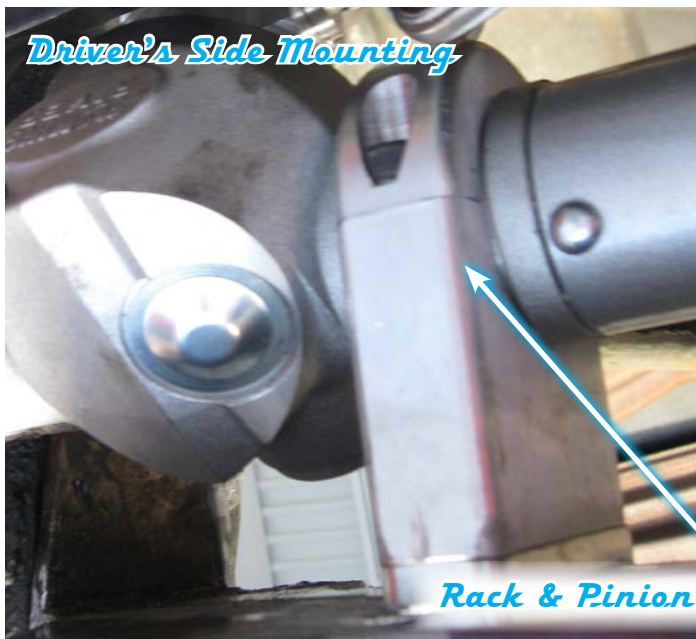


5) Remove the bolts that hold the sway bar bracket to the frame and the pin and remove the factory sway bar from the vehicle.

Flaming River Rack and Pinion Cradle 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) 3/8" bolts on the drivers side using the original holes from the steering gear box. On the passenger side use the bottom idler arm bolt and hole just to the rear of the idler arm and use the (2) 3/8" bolts and tighten all the bolts and nuts to 40-45 ft. lbs..



Rack & Pinion Mounting Brackets

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

Flaming River Rack and Pinion Cradle 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 the to the spindle arm and the travel bar.

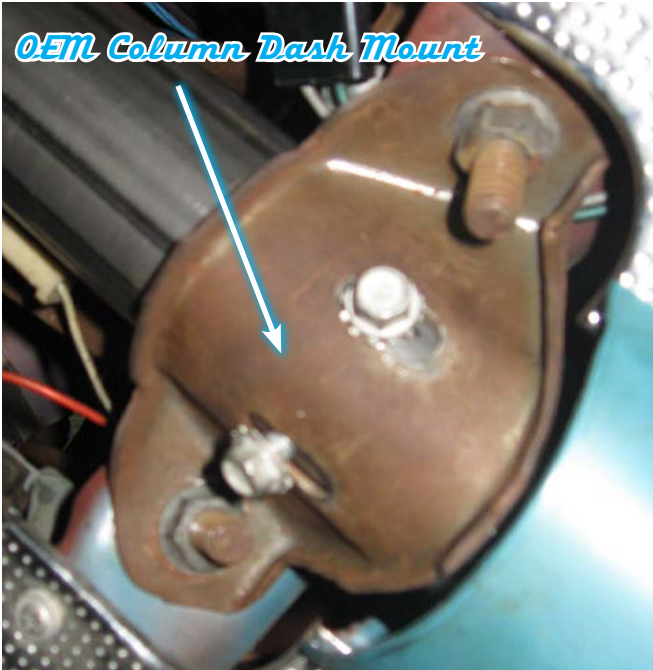
4) To install the outer tie rod ends, make sure that your wheels are centered, then install the outer tie rod into the spindle arms and tighten the castle nuts to 30-40ft lbs. Make sure to install the cotter pins through the castle nut and tie rod end and bend the tabs over.



Rack and Cradle Installed in Car

58-62 Flaming River Column Installation

OEM Column Dash Mount



1) Install the original column mounting bracket onto the new Flaming River Tilt Column.



Split Ring

2) Slide new tilt column through the split ring of the new aluminum floor mount.



Column Tube

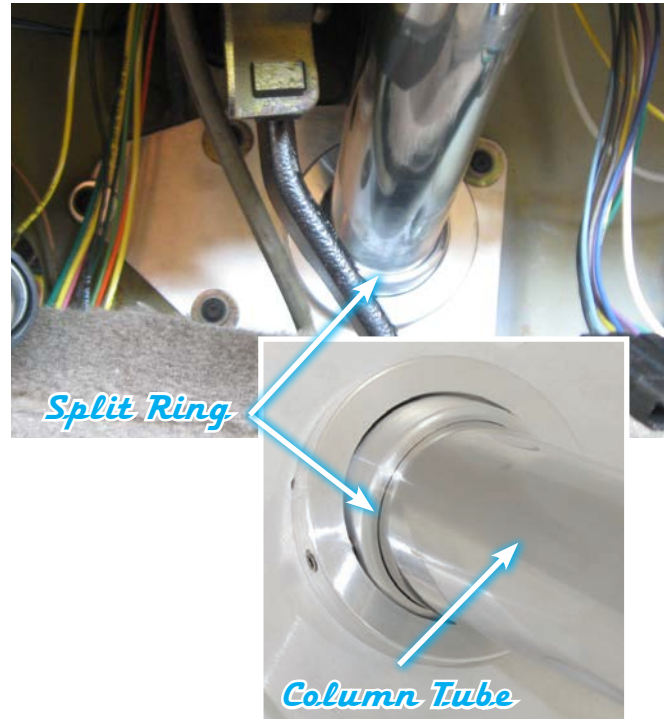


Factory Dash Bezel Mounted to Flaming River Tilt Column

3) Place the column through the firewall and under the dash, tighten the mounting screws under the dash. Using the new hardware provided, fasten the floor mount to the firewall.

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

63-64 Flaming River Column Installation



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

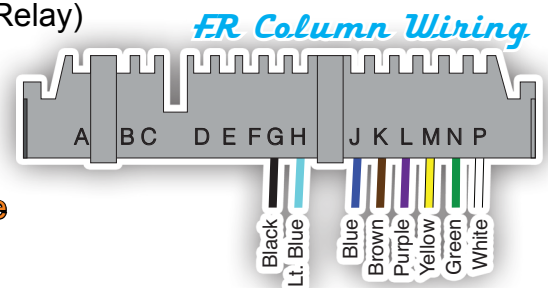
2) Slide new tilt column through the split ring of the new aluminum floor mount and then tighten the dash and floor mounts.



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

Connecting the Electric System (58-64)

<u>Function</u>	<u>FR Column</u>	<u>Location</u>	<u>Vehicle Wiring</u>
Horn	Black	G	Brown (Horn Relay)
Lt Front Turn Signal	Light Blue	H	Green/White
Rt Front Turn Signal	Blue	J	White/Black
Hazard	Brown	K	See Note
Turn Signal - Power	Purple	L	Blue
Lt Rear Turn Signal	Yellow	M	Green/Orange
Rt Rear Turn Signal	Green	N	Orange/Blue
Brake Light	White	P	Green



Note: The hazard power wire goes to a 12v power source from the vehicle's fuse panel. This feature will add 4-Way Emergency flasher to the car.

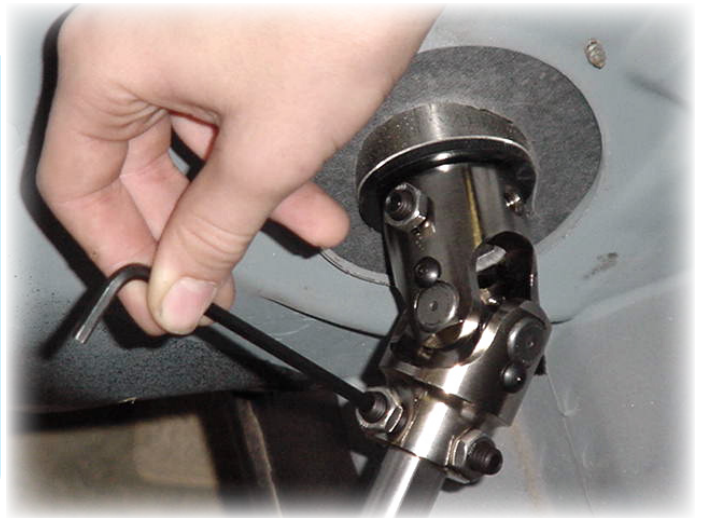
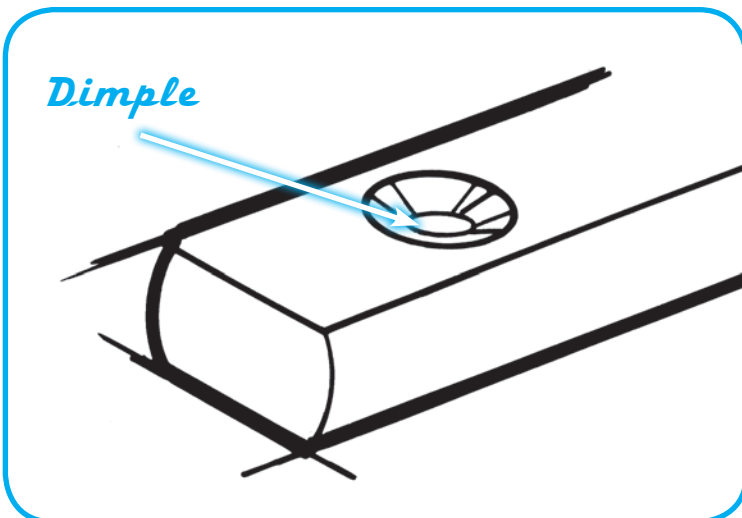
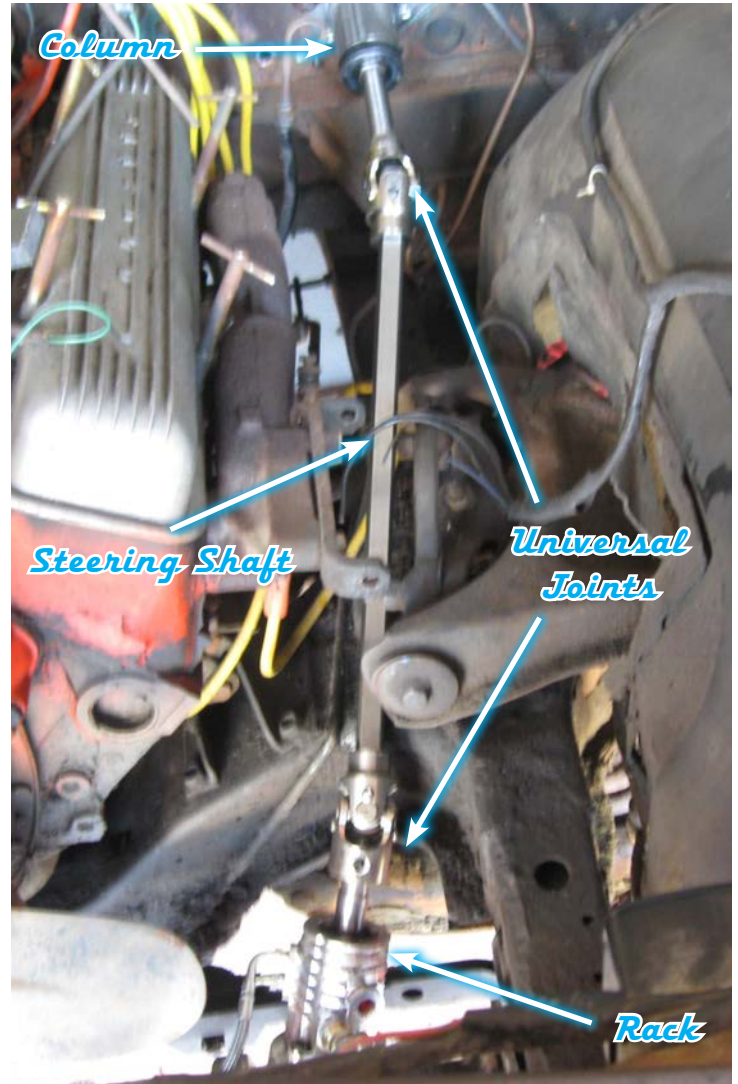
Universal Joint System

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

2) 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.

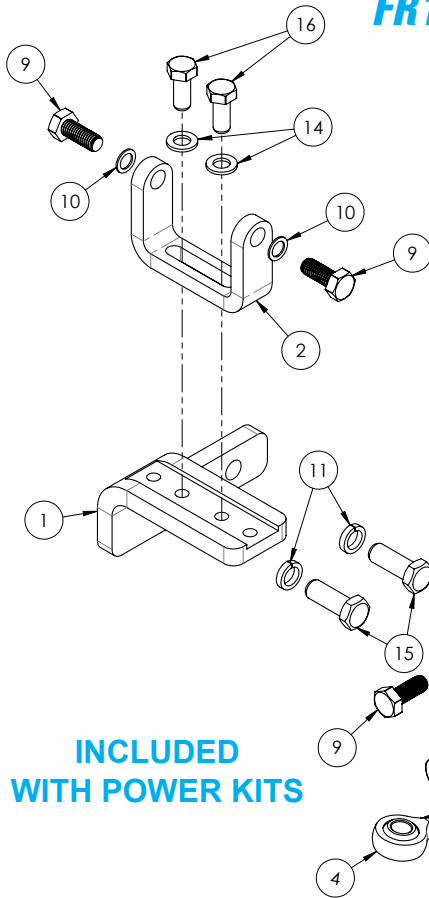
3) Remove the shafts and using a 1/4" drill bit, dimple each mark left by the set screws.

4) 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
WITH POWER KITS**

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

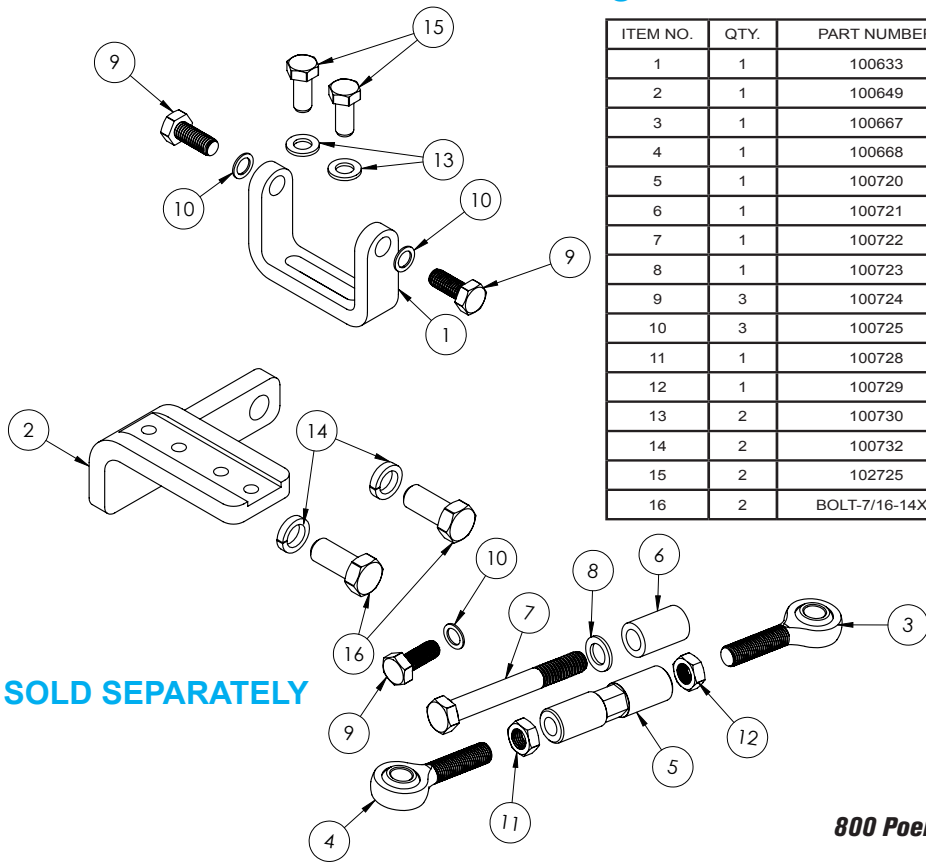


Install adjuster to pump using bolt (9) and washer (10) supplied



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

FR1613 Big Block Chevy Power Steering Pump Bracket



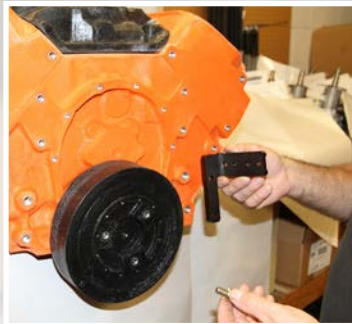
SOLD SEPARATELY

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	100633	BRACKET, MOUNT PUMP PS
2	1	100649	BRACKET, MOUNT PUMP-MOTOR SB
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	1	100728	NUT, 3/8-24 JAM LH
12	1	100729	NUT, 3/8-24 JAM RH
13	2	100730	WASHER, FLAT 0.32 X 0.57 X .06
14	2	100732	WASHER, LOCK SPLIT 7/16 HIGH COLLAR
15	2	102725	SCREW, 5/16-18 X .75 HEX HD GR8
16	2	BOLT-7/16-14X1	BOLT, 7/16-14 X 1.00 HEX GR8



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Power Steering Pump Installation/Big Block Chevy



Install L-shaped bracket (2) on engine with bolts (16) and lockwashers (14) supplied



Install pump bracket (1) to L-shaped bracket (2) with bolts (15) and washers (13) supplied



Install pump to bracket (1) using bolts (9) and washers (10) supplied



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

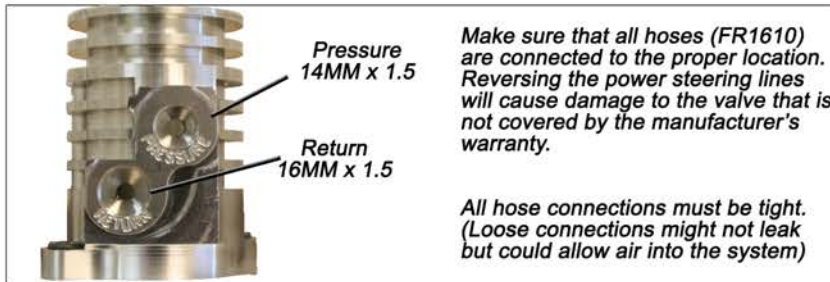


Remove upper water pump bolt. Install spacer (6) and adjuster with bolt (7) and washer (8) supplied



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.

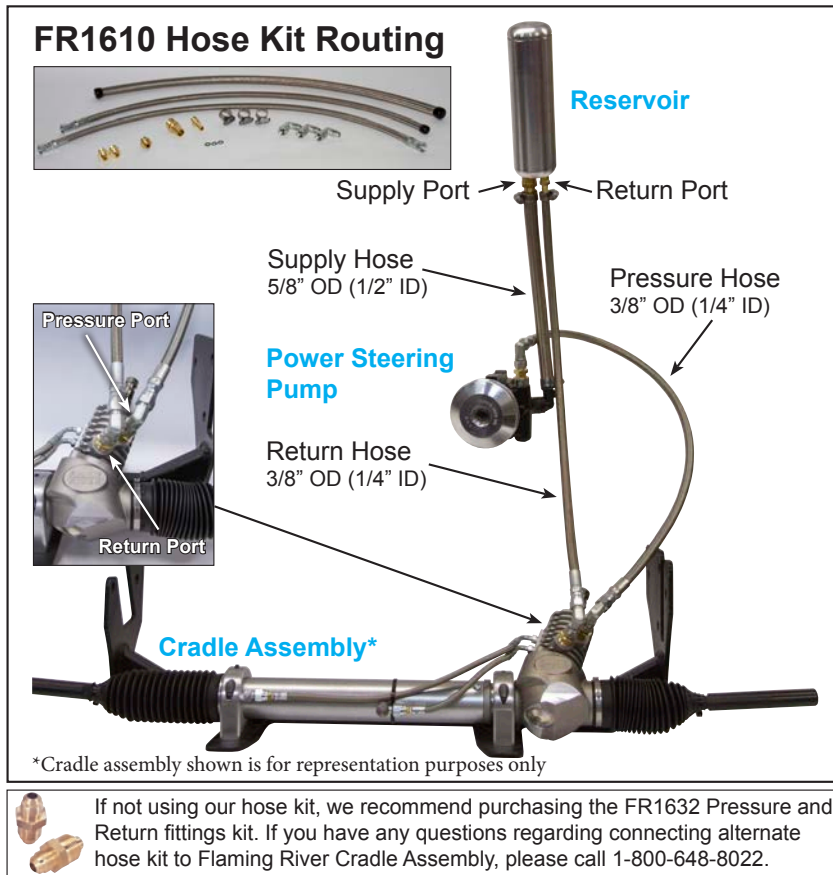
Method 2:
Partial Fluid Replacement

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:

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. It is the customer's responsibility to determine the suitability of a given Flaming River® product for the customer's uses. 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.



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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