



*73-87 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.

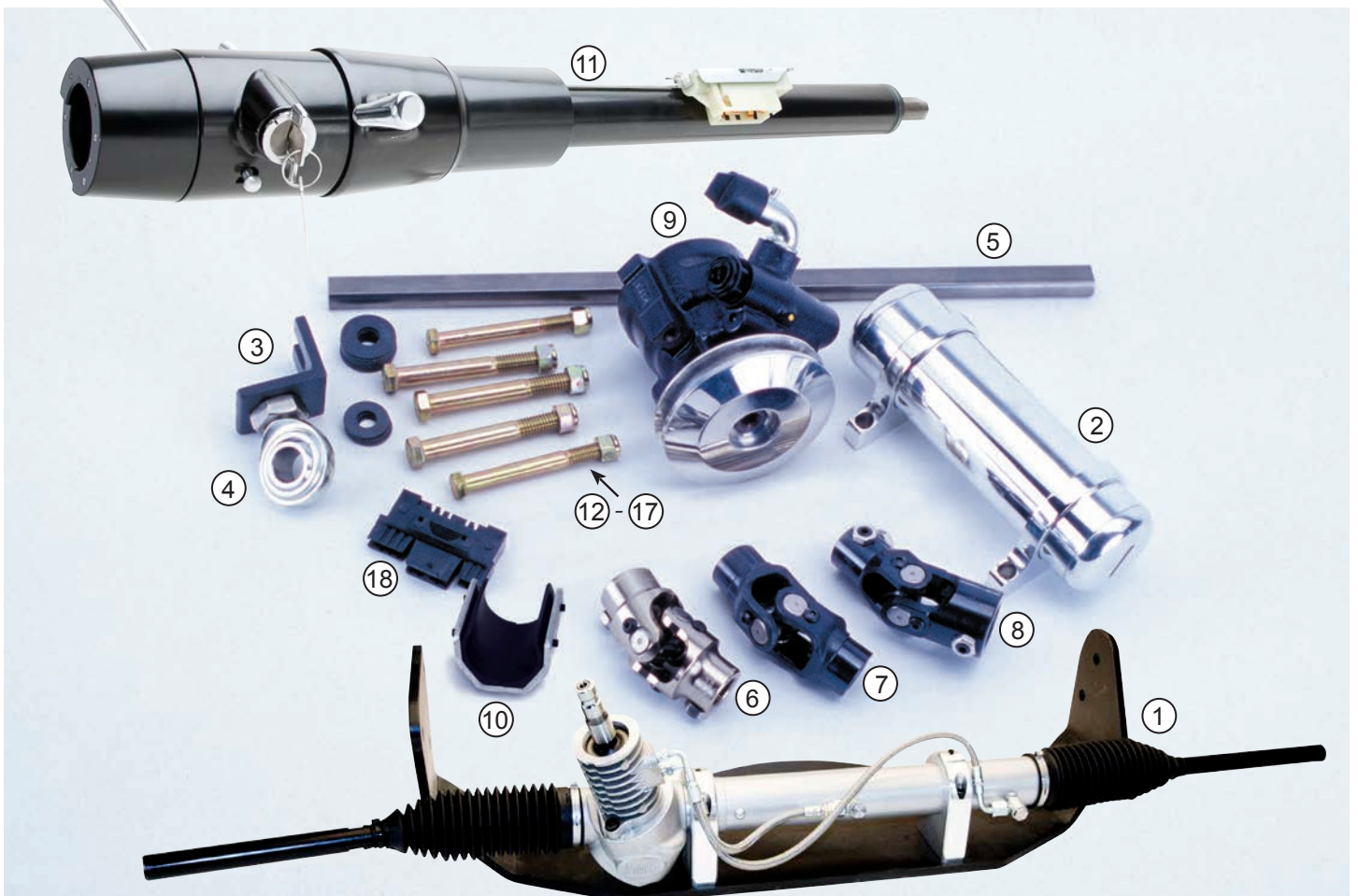
NOTE: A front end alignment is necessary after installation.

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

Kit Inventory	pg 3
Original System Removal.....	pg 4-6
Rack and Cradle Installation	pg 7-8
Tilt Column Installation	pg 9
Universal Joint and Steering Shaft Installation	pg 10
Steering Wheel Installation	pg 11
Power Steering Pump Installation	pg 12-13
Power Steering Bleeding Procedure	pg 14
Additional Installation Products	pg 15

Item No.	Part No.	Description	Qty
1	100436	C-10 Power Rack and Mounting Cradle Assembly	1
2	FR1614	Power Steering Fluid Reservoir	1
3	BK10200	Support Bearing Bracket, Bent	1
4	FR1810	3/4" Zinc Support Bearing	1
5	FR1850	18" Length of 3/4" DD Shaft	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	FRPMP5B-V	Power Steering Pump w/ V-Belt Pulley	1
10	FR20300	Stramp Clamp	1
11	FR30106	73-87 GMC Truck Gear Shift Key Column	1
12	BOLT-3/8-16X1	1" Long 3/8"-16 Grade 8 Bolt	2
13	BOLT-7/16-14X1	1" Long 7/16"-14 Grade 8 Bolt	3
14	NUT-3/8-16	3/8"-16 Nylock Lock Nut	2
15	NUT-7/16-14	7/16"-14 Nylock Lock Nut	3
16	WASH-3/8"	3/8" Flat Washer Grade 8 Equ	4
17	WASH-7/16"	7/16" Flat Washer Grade 8 Equ	6
18	FR20118	Female Connector Kit	1

*1973-87 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 : _____

Original Steering Shaft Removal

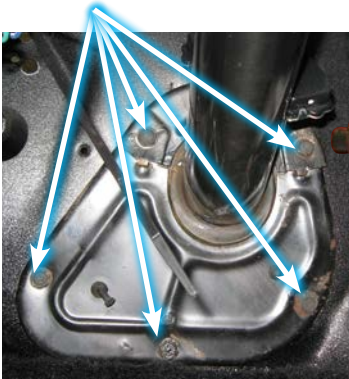


Remove the pinch bolt that retains the steering coupler to the steering column and the bolt that retains the rag joint to the steering box. Collapse shaft and remove it from the car.

Original Column Removal

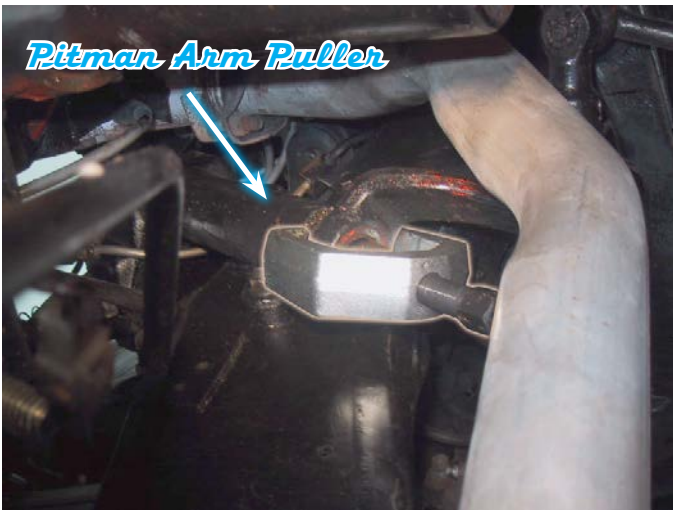
Only perform these steps if using a new Flaming River Steering Column

- 1) Disconnect the column wiring connectors.
- 2) Remove the bolts that hold the column floor mount to the firewall.

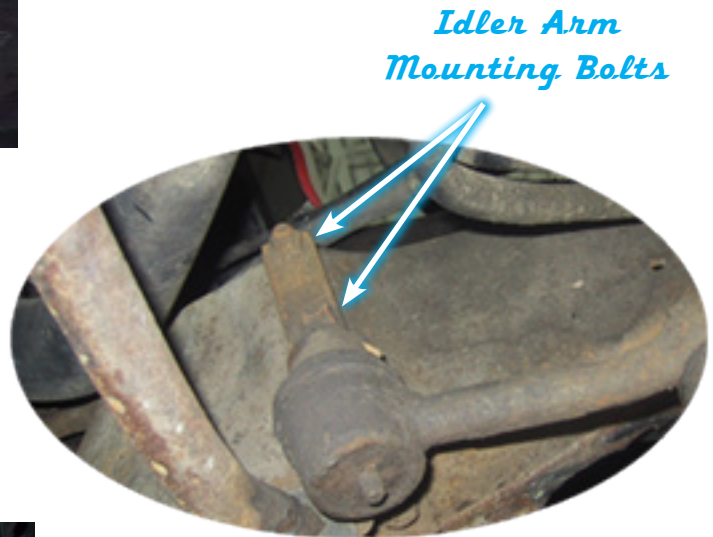


- 3) Support the column and remove the bolts that retain the under dash mounting clamp.
- 4) Remove the factory steering column from the vehicle.

Steering Box and Linkage Removal



1) Remove the pitman arm nut and then the pitman arm from the steering box using a pitman arm puller.



2) Remove the two bolts that retain the idler arm to the frame rail.



3) Remove the cotter pins and castle nuts and separate the outer tie rod ends from the spindles.



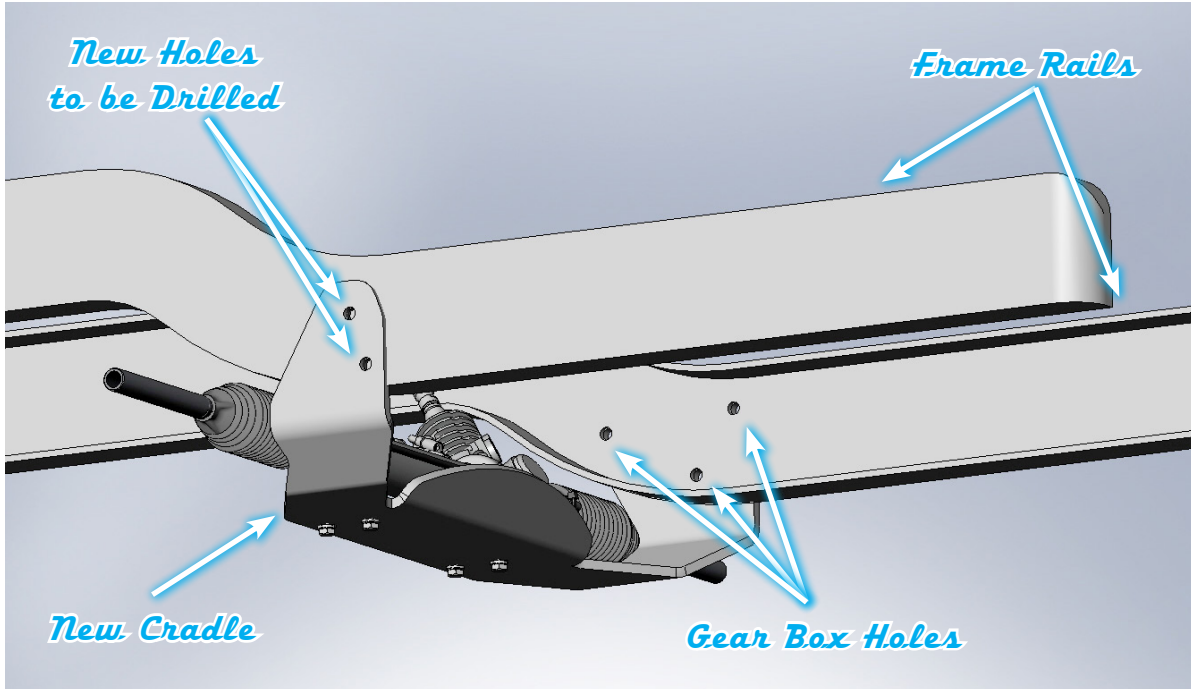
4) Next, remove the steering linkage from the car.

5) If you have power steering, remove the lines from your power box, pump and pump brackets.

6) Remove the three bolts that retain the box to the frame rail and remove the box from the car

Flaming River Rack and Pinion Cradle Installation

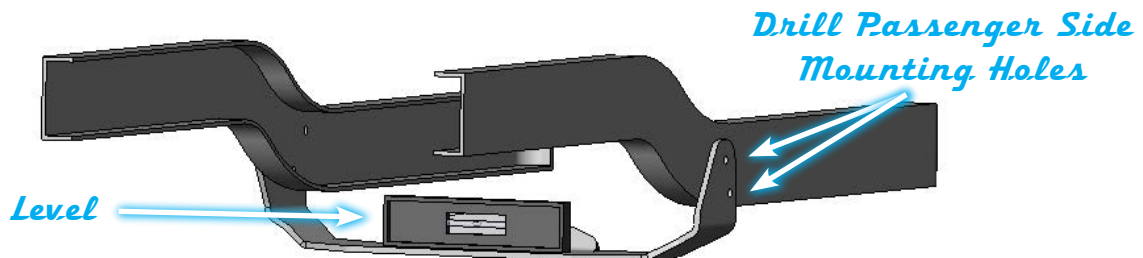
1) Remove the Rack from the cradle.



2) Install the rack and pinion cradle by sliding it over the frame rails



3) Installing the new hardware using three 7/16" bolts where the gear box was mounted and tighten the 7/16" nuts and bolts to 50-65 ft lbs.



4) Next place a level on the cradle and the level the cradle. Once the cradle is level, then mark and drill the passenger side mounting holes.

Flaming River Rack and Pinion Cradle Installation (Continued)



5) Install the new hardware using two 3/8" bolts in the newly drilled holes on the passenger side and tighten the bolts to 40-45 ft lbs.

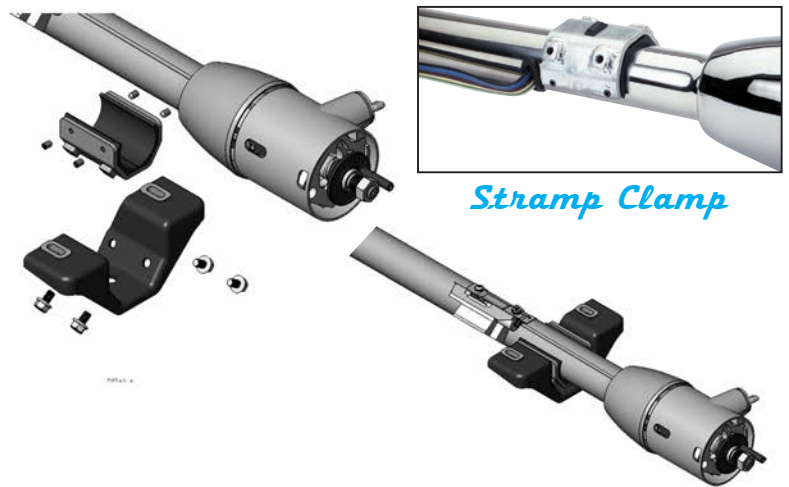
6) Re-install the power rack and pinion onto the cradle.



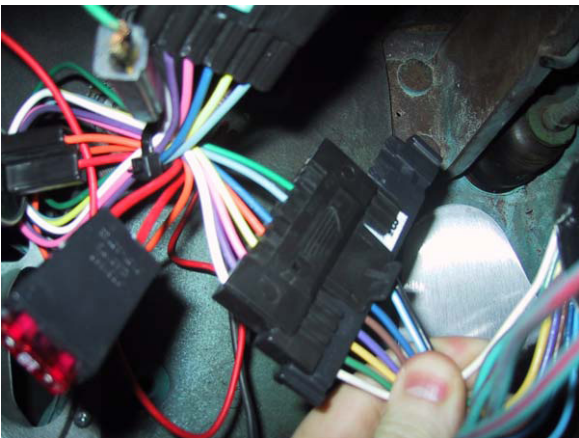
7) Install the outer tie rod ends into the inner tie rod ends and adjust tie rods until the original zerk to zerk measurement taken before disassembly is obtained. _____ (Measurement from page 4). To install the outer tie rod ends into the spindles you must load the front suspension. (Securely placing jack stands under the lower control arms and lowering the car onto the jack stands accomplishes this.) 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. When performing the front end alignment, adjust your toe by rotating the inner ends only. 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.

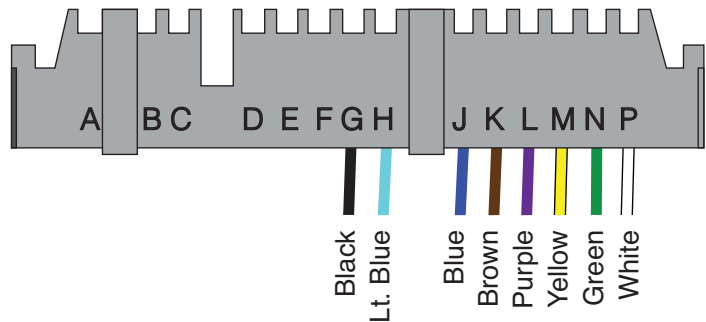
Flaming River Column Installation



- 1) Slide the new steering column through the opening in the original floor mount, and then slide the column through the opening in the firewall.
- 2) Hold the original mounting bracket from the vehicle around the column so that the mounting holes line up with the frame and determine where the column clamp needs to be placed on the column. Once this is determined place the set screws in the sides of the column clamp as shown. Tighten until the screws are snug but not cutting thru the rubber membrane or you will run the risk of scratching or marring the tube.
- 3) Mount the column clamp to the original mounting bracket using the original hardware (5/16-18 bolts) and then mount the bracket to the frame under the dash.



4) Install the wiring connector according to the diagram below.



Flaming River Column Wiring

Flaming River Column Wiring

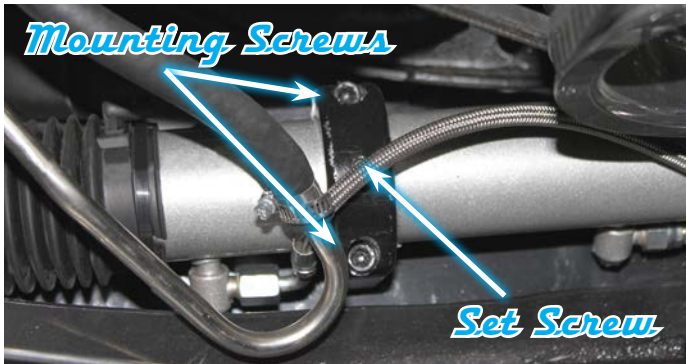
<u>Wiring Circuit</u>	<u>Pin Location</u>	<u>Column Wiring Color</u>
Brake Light Switch	P	White
Right Rear Turn Signal	N	Dark Green
Left Rear Turn Signal	M	Yellow
Turn Signal Power	L	Purple
Hazard Power	K	Brown
Right Front Turn Signal	J	Dark Blue
Left Front Turn Signal	H	Light Blue
Horn	G	Black

Color Verification to be completed before disassembly

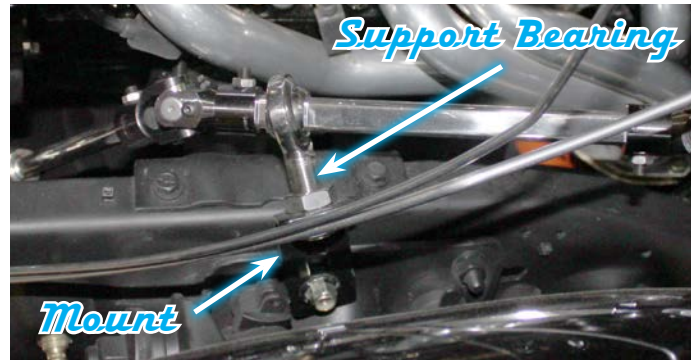
- Brake Light Switch : _____
- RR Turn Signal : _____
- LR Turn Signal : _____
- Turn Signal Power : _____
- Hazard Power : _____
- RF Turn Signal : _____
- LF Turn Signal : _____
- Horn : _____

Universal Joint System

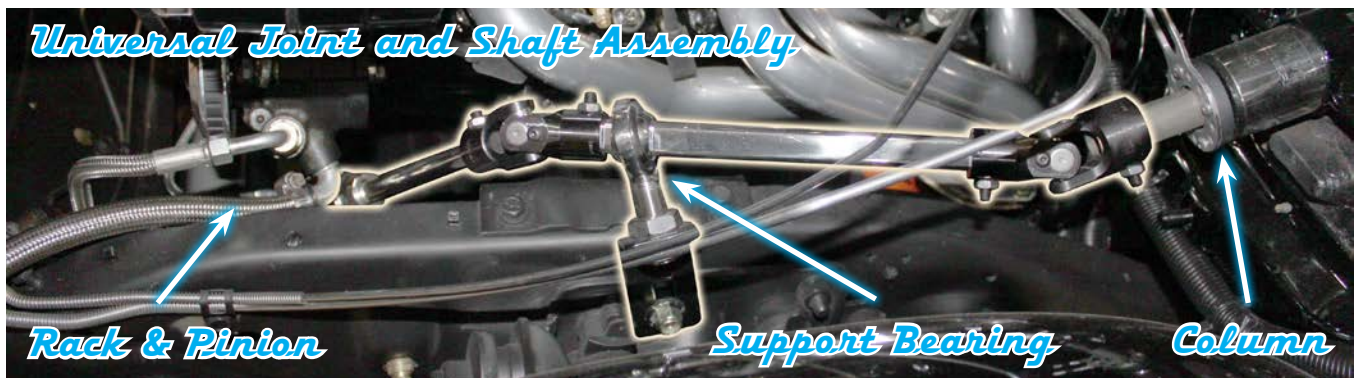
**** We recommend that you regularly inspect the u-joint set screws for tightness. ****



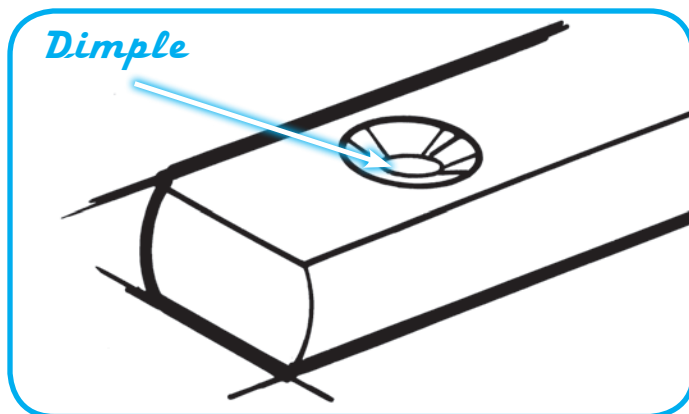
1) Loosen the set screws in the rack mounting blocks. – This will allow you to adjust the pinion angle for proper u-joint alignment.



2) Install support-bearing mount onto the inner front control arm bolt. (Picture below). 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.

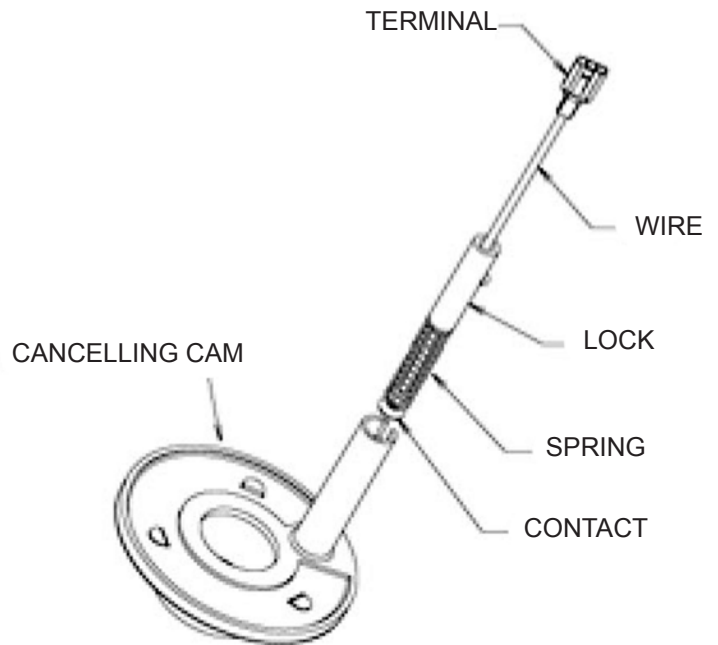
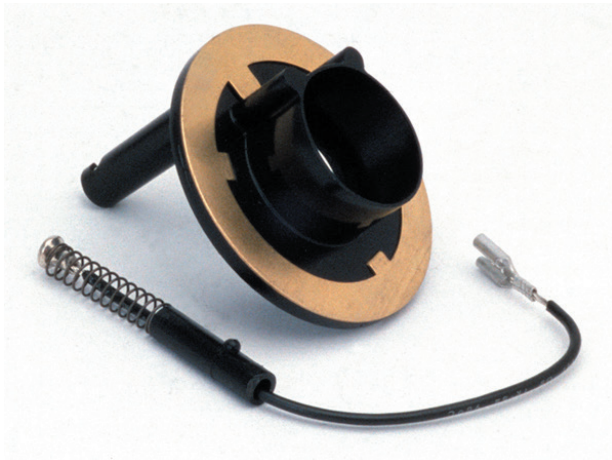
5) Remove shaft and dimple each setscrew mark using a $\frac{1}{4}$ " drill bit. (As shown below.)

6) Re-install the shafts using red loc-tite thread locker on the set screw threads. Tighten each setscrew to 25 ft. lbs. Tighten all lock nuts securely. We recommend that you inspect setscrews periodically for tightness.

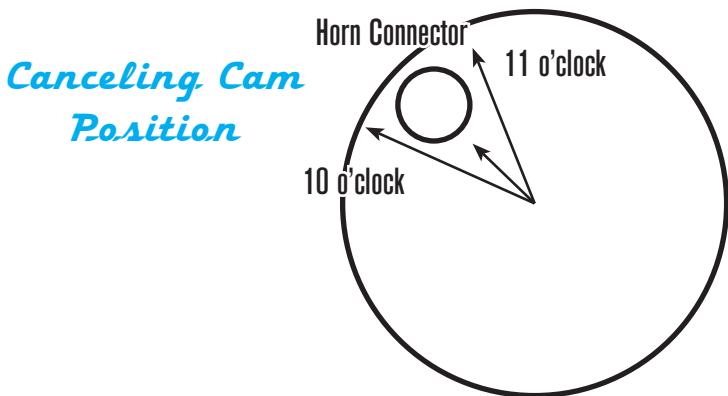
7) Re-tighten the set screw that was loosened in the rack mounting blocks in step #1.

Steering Wheel Installation

Note: Before installing the steering wheel, make sure the wheels are straight.



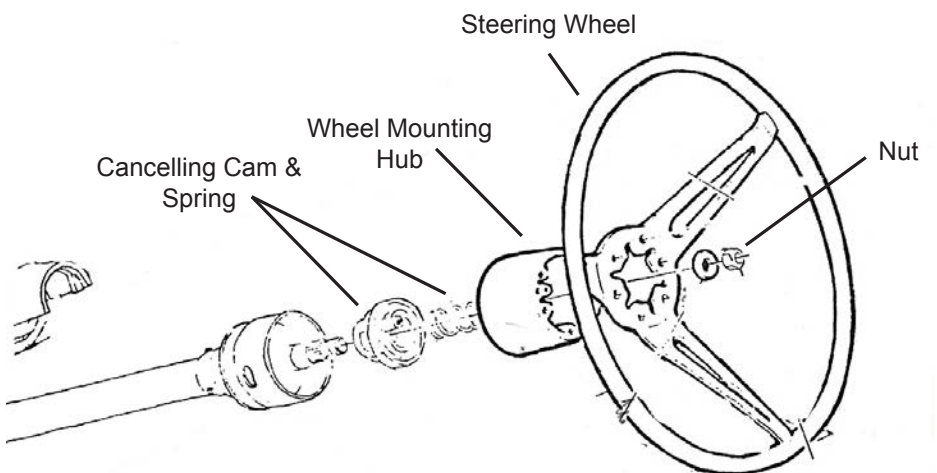
1) Install horn contact kit into canceling cam tube and turn to lock (Included with column).



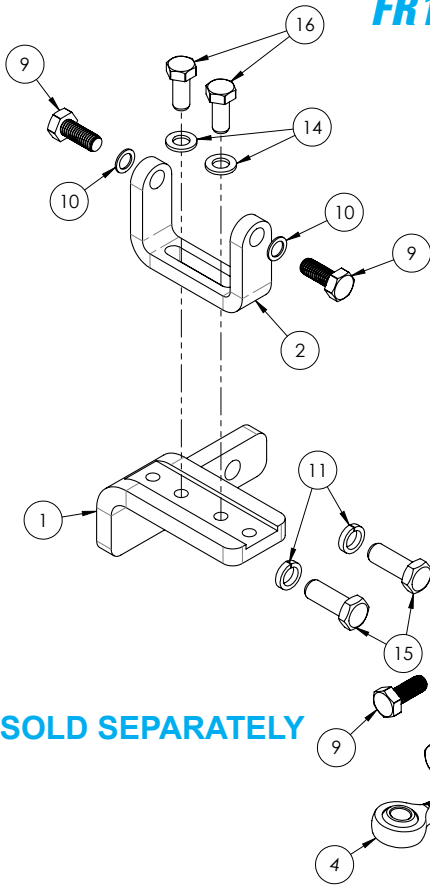
2) Align steering wheel adapter so that the canceling cam hole is at approx the 11 o'clock position and that one of the steering wheel mounting holes is at the 12 o'clock position.

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 until the adapter is approximately 1/16" away from the column shroud.



FR1612 Small Block Chevy Power Steering Pump Bracket



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

SOLD SEPARATELY



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

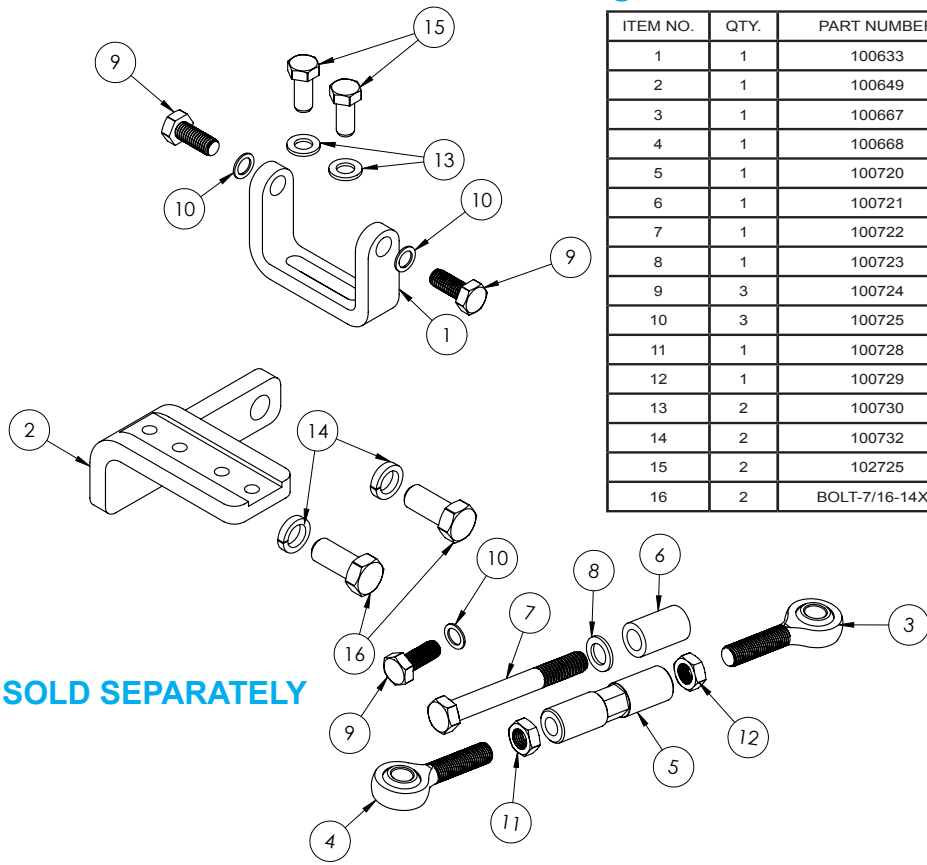


Install adjuster to pump using bolt (9) and washer (10) supplied



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



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

SOLD SEPARATELY



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

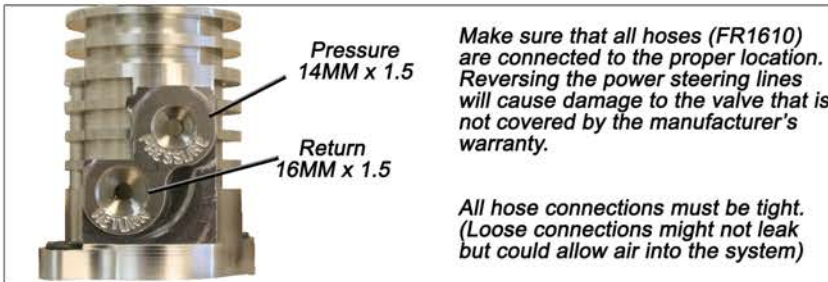


Remove upper water pump bolt. Install spacer (6) and adjuster with bolt (7) and washer (8) supplied



Instruction Bulletin #1021

Correct Bleeding Procedure for Flaming River Power Rack & Pinion Systems.



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.
- 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.

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.

- 6) While turning wheels check fluid level constantly.

- 11) If all proper conditions apply, bleeding is complete.

- 12) If any problem remains see "Special Conditions".

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.

Additional Installation Products

HIGH OUTPUT ALTERNATORS



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

SMOOTH BODY SHOCKS



Front
FR70046



Rear
FR70048



Power Steering Hose Kit
FR1610
**(Recommended for Install –
Sold Separately)**

STEERING WHEELS



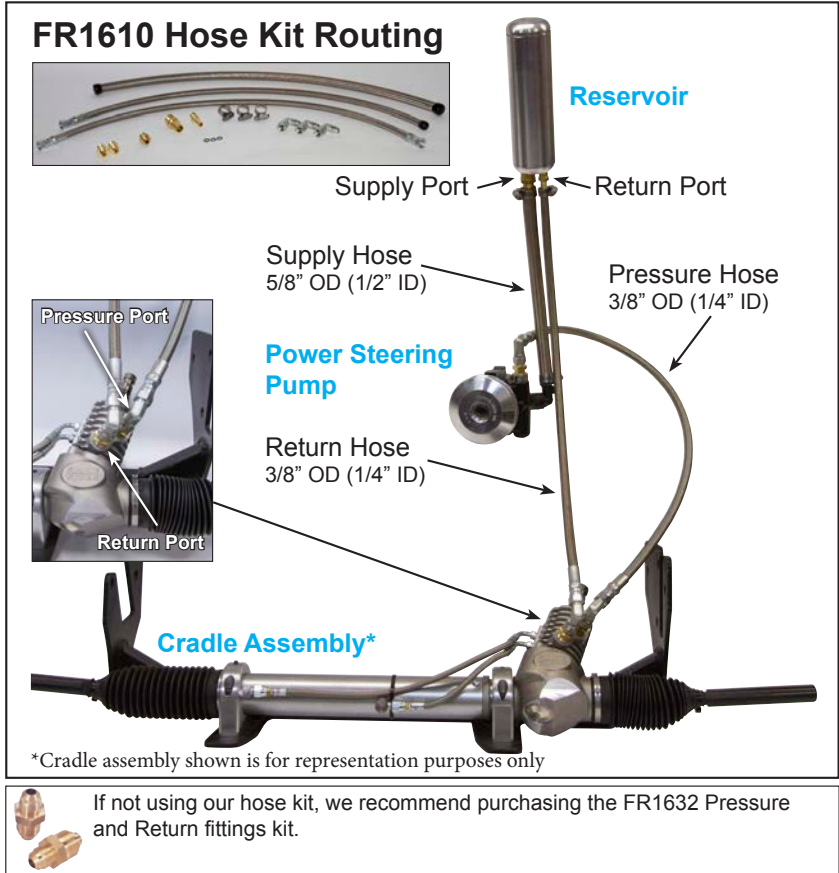
FR20163LT
Navigator Style



FR20152LG
Nostalgia Style



FR20130BK
D Wheel Black



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.

