



Factory Five Racing, Inc.
Roadster Complete Kit
Assembly manual revision 4D update

Table of Contents

Optional part Instructions 1

Unpacking Your Kit 1

Front Coil-Over Shock Assembly 1

Rear Coil-Over Shock Assembly 1

2015 IRS 2

 Spindle to Upper arm 2

Pedal Box 5

 Brake switch mount 5

 Clutch Cable Quadrant 6

 Clutch Quadrant stop 10

 Frame Installation 11

 Master Cylinders 14

 Clutch Cable and Firewall Spacer 18

 Balance Bar adjustment 20

Steering Rack 22

Oil Filter Relocator 22

Brake reservoir 22



Driveshaft Diagram 25

Optional part Instructions

Part instructions for all Factory Five parts and options can be found online at:

www.factoryfiveparts.com/instructions/

Unpacking Your Kit

-  After everything is safely in your garage, open each box and do a physical inventory of all the parts.
-  Call and report any potentially missing parts within 45 days of receiving your order.

Front Coil-Over Shock Assembly

-  If using the silver double adjustable shocks, these must be mounted with the body of the shock down.

Rear Coil-Over Shock Assembly

-  If using the silver double adjustable shocks, these must be mounted with the body of the shock down.

2015 IRS

SPINDLE TO UPPER ARM



Insert the angled mount adapter into the upper arm rod end.



Reuse the $\frac{5}{8}$ " washer that was on the old bolt and place it on the new $\frac{5}{8}$ " x 4.25" bolt along with a misalignment spacer.



Attach the upper control arm to the spindle using the bolt with the misalignment spacer.



Use a $\frac{15}{16}$ " wrench, $\frac{15}{16}$ " socket and ratchet to tighten the locknut.

Wait to torque the bolts until after the other arms are installed.







Check the angle of the upper control arm rod end, make sure that the rod end is not touching the spindle and that it is aligned with the upper control arm.



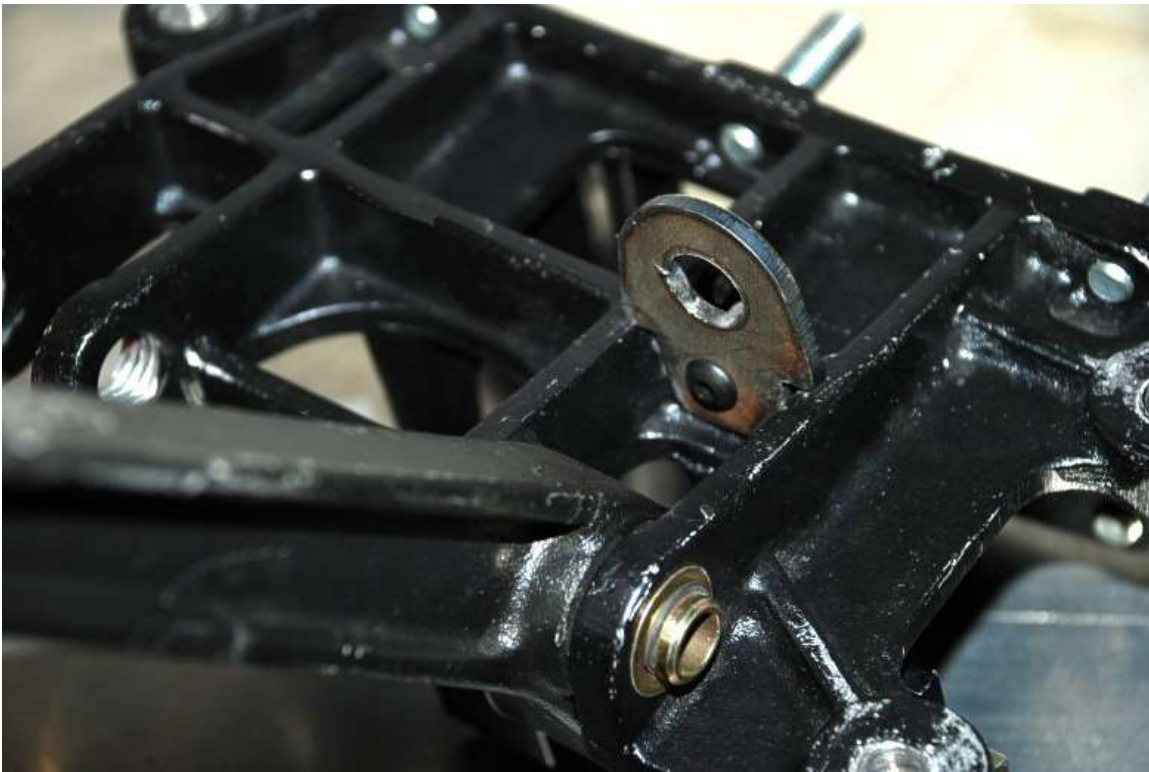
Once the car has been aligned, use a $1\frac{5}{8}$ " wrench to loosen the upper control arm large jam nut and put some Loctite on the threads where the jam nut will sit.

Retighten the jam nut.

Pedal Box

-  $\frac{1}{2}$ " , $\frac{9}{16}$ " sockets, $\frac{1}{4}$ " , $\frac{3}{8}$ " , $\frac{1}{2}$ " wrenches, $\frac{1}{4}$ " drill bit, drill, Philips head screwdriver, $\frac{3}{16}$ " , $\frac{5}{16}$ " Hex Key, snap ring pliers
-  Pedal Components, pedal box hardware.
-  This pedal box is set-up to use either a hydraulic clutch or a cable clutch. The parts and instructions required for a cable clutch installation are included below.
-  Unpack the pedal box assembly. Now is a good time to paint all of the bare steel brackets.

BRAKE SWITCH MOUNT



Place the brake switch mount between the brake pedal mount tabs on the side closest to the brake pedal pivot holes and drill a $\frac{3}{16}$ " hole through the brake switch mount hole and the pedal box.



Attach the brake switch mount to the pedal box using the black #10 screw and locknut.



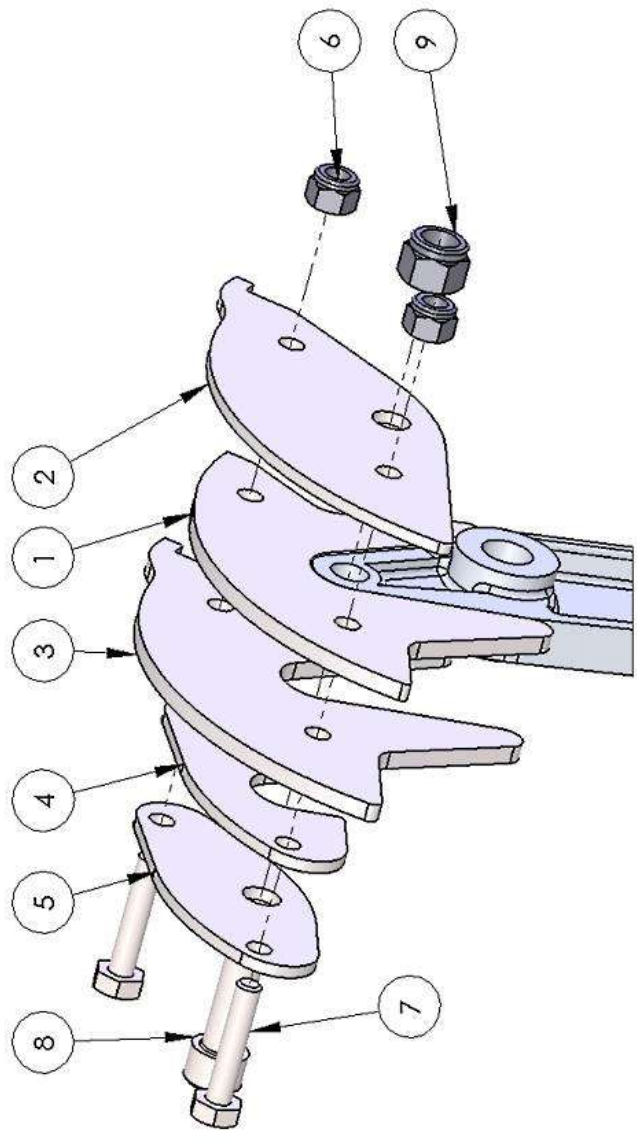
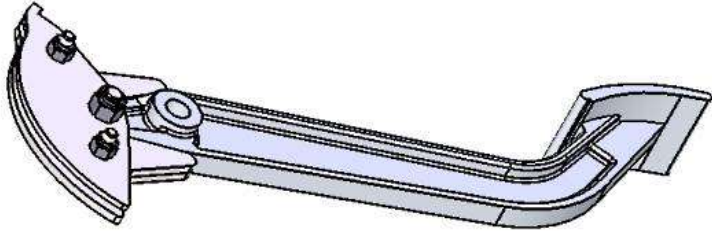
Use snap ring pliers to remove the clevis at the top of the clutch pedal.

CLUTCH CABLE QUADRANT

✂ $\frac{3}{16}$ " , $\frac{5}{16}$ " hex keys, $\frac{1}{2}$ " , $\frac{9}{16}$ " wrenches, $\frac{1}{2}$ " socket, ratchet, file

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	4/15/14	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	15608	CABLE PIVOT PLATE	1
2	15609	INSIDE QUADRANT SIDE PLATE	1
3	15610	LEFT CABLE SIDE PLATE	1
4	15611	PEDAL SPACER PLATE	1
5	15612	OUTSIDE QUADRANT SIDE PLATE	1
6	10802	NYLON INSERT LOCKNUT	2
7	H1BOLT 0.2500-20x1.25x0.75-N		2
8	H1X-SHCS 0.375-16x1.25x1.25-N		1
9	13964	NYLON INSERT LOCKNUT, 3/8-16 UNC	1



UNLESS OTHERWISE SPECIFIED:		DATE	10/4/13
ROADSTER	DRAWN	NAME	JJ
COUPE	COMMENTS:		
HOT ROD	DIMENSIONS ARE IN INCHES		
USED ON	TOLERANCES:		
APPLICATION	TWO PLACE DECIMAL +0.01		
	THREE PLACE DECIMAL +0.005		
	FOUR PLACE DECIMAL +0.001		
	MATERIAL	SIZE	DWG. NO.
	STEEL	A	15613
	FINISH	REV	A
	PRINTED	4/25/2014	SCALE: 1:3
	WEIGHT:	SHEET 1 OF 1	

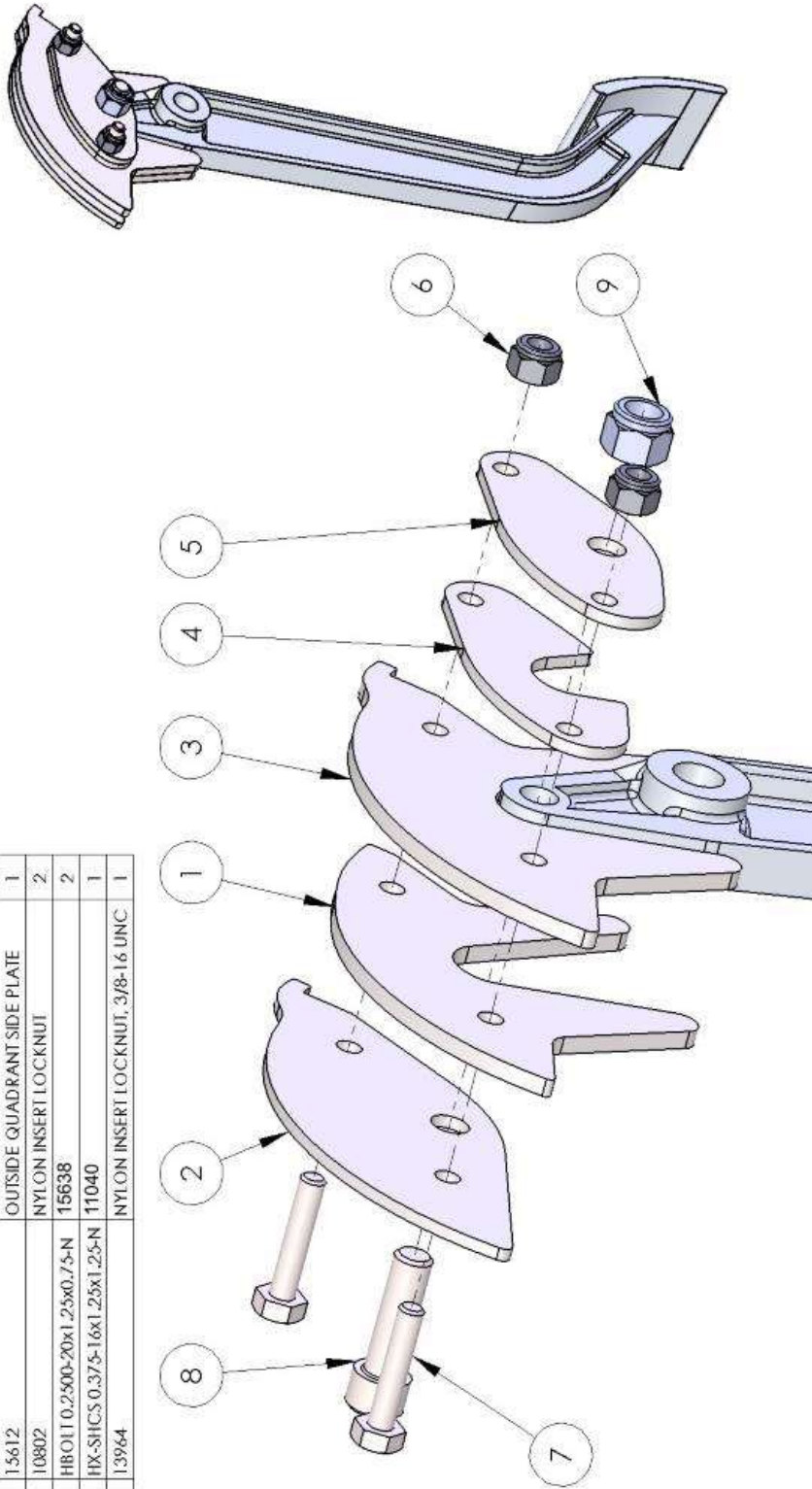
Factory Five Racing, Inc.
TITLE: WILWOOD CLUTCH QUADRANT ASSEMBLY

PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FACTORY FIVE RACING, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FACTORY FIVE RACING, INC. IS PROHIBITED.

Quadrant assembly order for kits older than 6/21/16

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	4/15/14	
B	QUADRANT PARTS REORDERED	6/21/16	

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	1.5608	CABLE PIVOT PLATE	1
2	1.5609	INSIDE QUADRANT SIDE PLATE	1
3	1.5610	LEFT CABLE SIDE PLATE	1
4	1.5611	PEDAL SPACER PLATE	1
5	1.5612	OUTSIDE QUADRANT SIDE PLATE	1
6	10802	NYLON INSERT LOCKNUT	2
7	HBO110.2.500-20x1.25x0.75-N 15638		2
8	HX-SHCS 0.375-16x1.25x1.25-N 11040		1
9	1.3964	NYLON INSERT LOCKNUT, 3/8-16 UNC.	1



		DATE	10/4/13
	NAME	JJ	
DRAWN			
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES: TOLERANCES: TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001			
ROADSTER			
COUPE			
HOT ROD			
USED ON APPLICATION			
COMMENTS: KITS AFTER 6/21/16			
TITLE: WILWOOD CLUTCH QUADRANT ASSEMB			
SIZE	DWG. NO.	REV	
A	15613	B	
SCALE: 1:3	WEIGHT:	SHEET 1 OF 1	
PRINTED	6/21/2016		

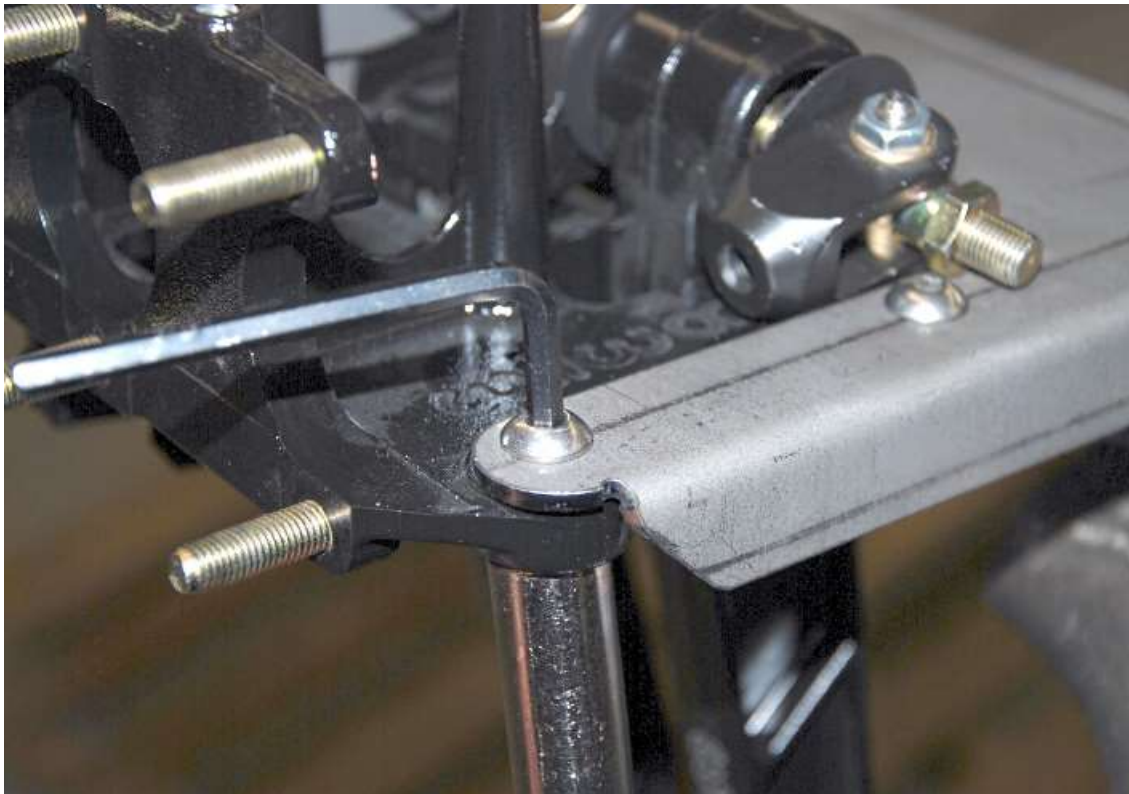
PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FACTORY FIVE RACING, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FACTORY FIVE RACING, INC. IS PROHIBITED.

nt assembly order for kits newer than 6/21/16.

Assemble the clutch quadrant to the Wilwood clutch pedal as shown above.

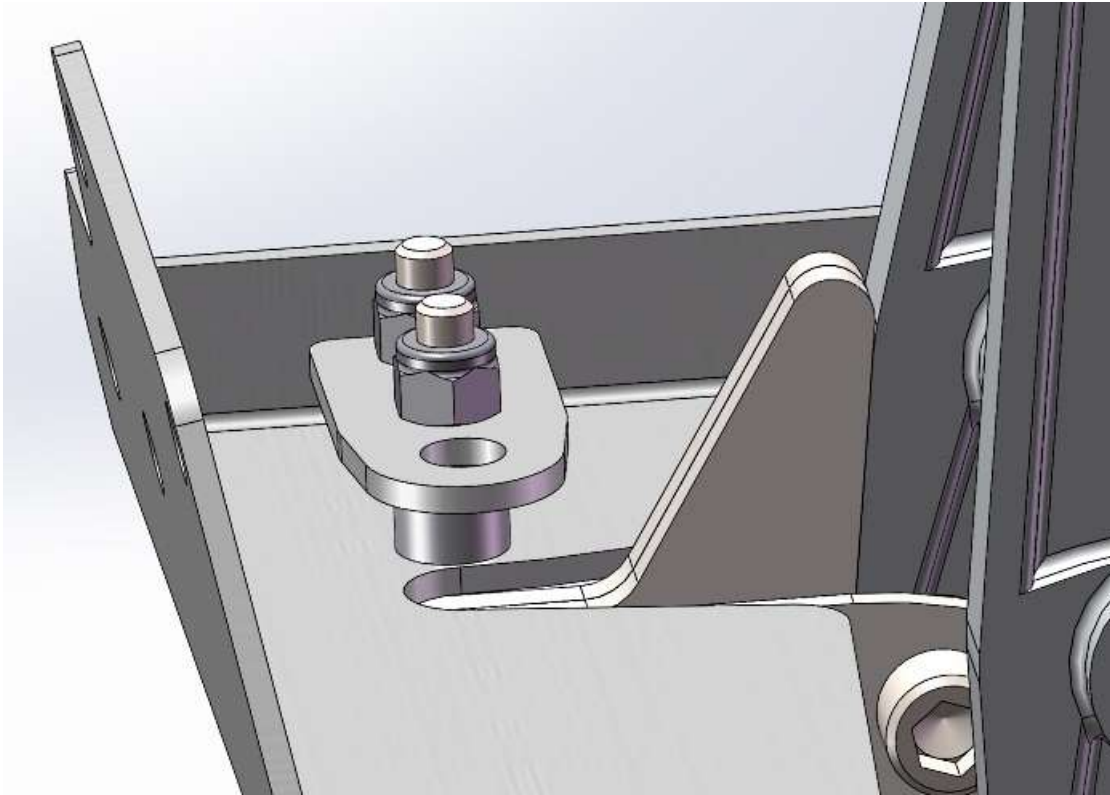


If necessary use a file to remove the forging centerline so the $\frac{3}{8}$ " bolt can go through the clutch pedal hole.



Attach the Wilwood pedals to the underside of the mounting bracket using four $\frac{5}{16}$ " Button head screws, locknuts, $\frac{3}{16}$ " hex key and $\frac{1}{2}$ " wrench.

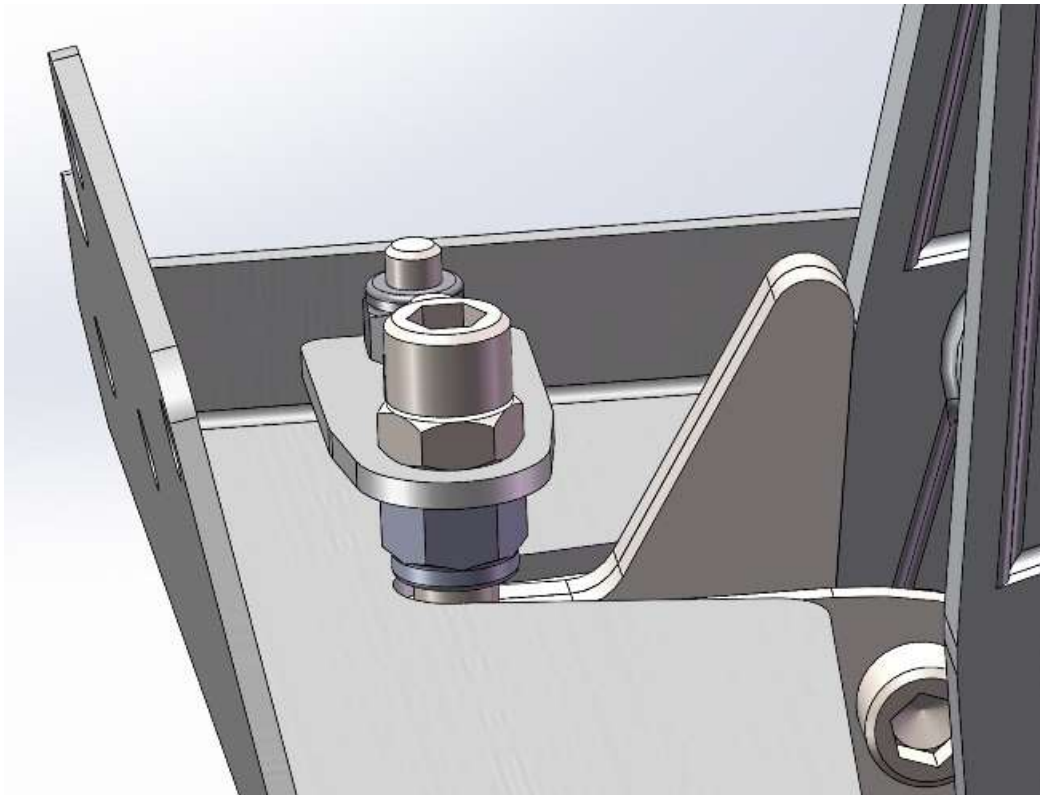
CLUTCH QUADRANT STOP



Attach the Clutch pedal stop mount to the bottom of the pedal box using two 1/4" socket head screws, spacers and locknuts.



Thread the jam nut onto the 3/8"x 1.25" screw provided in the quadrant box.



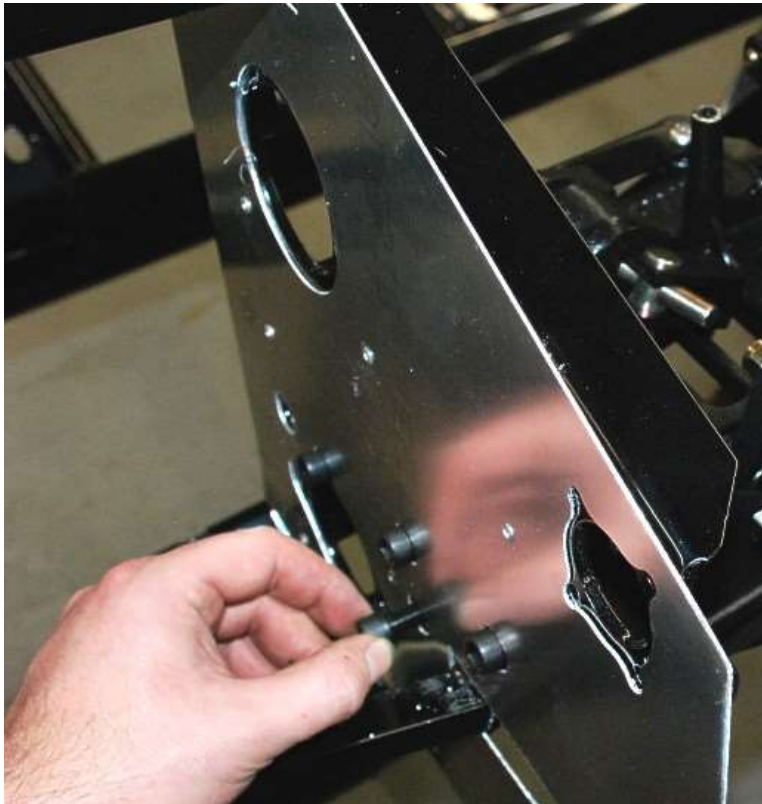
From the underside, push the screw through the quadrant pedal stop mount plate and hand tighten the locknut on the screw.

FRAME INSTALLATION

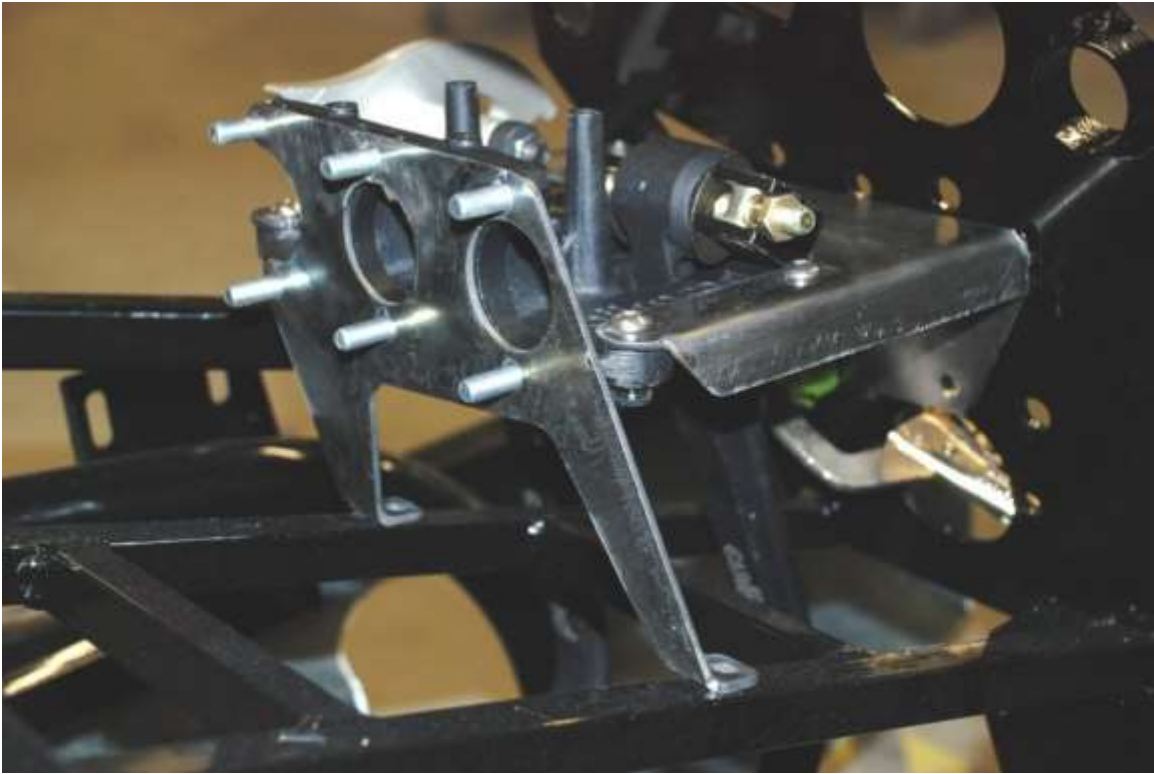
Place the pedal box assembly in the driver's footbox. Make sure that the brake pedal goes in front of the $\frac{3}{4}$ " cross tube on the frame.



Unpack the pedal box hardware from the secondary chassis components box.



Insert three $\frac{3}{8}$ " x 1" socket head screws from the pedal box hardware assembly and the one included in this pedal assembly through the front of the footbox and through the pedal box mount.



Push the rear pedal box mount onto the master cylinder mount studs and use a few of the jam nuts from the Wilwood pedal assembly to temporarily hold the rear mount in place.



Tighten two of the front $\frac{3}{8}$ " screws then use a marker to mark the locations of the rear mount holes on the $\frac{3}{4}$ " tubes.



Loosen the bolts and remove the pedal box assembly from the footbox then use a ¼” drill bit and drill to drill through the ¾” tubes at the locations marked for the rear mount.



Reinstall the pedal box assembly in the driver’s footbox; use the ¼”x 1.50” screws from the pedal box fastener assembly with a fender washer next to the head. Leave all the hardware hand tight.

MASTER CYLINDERS

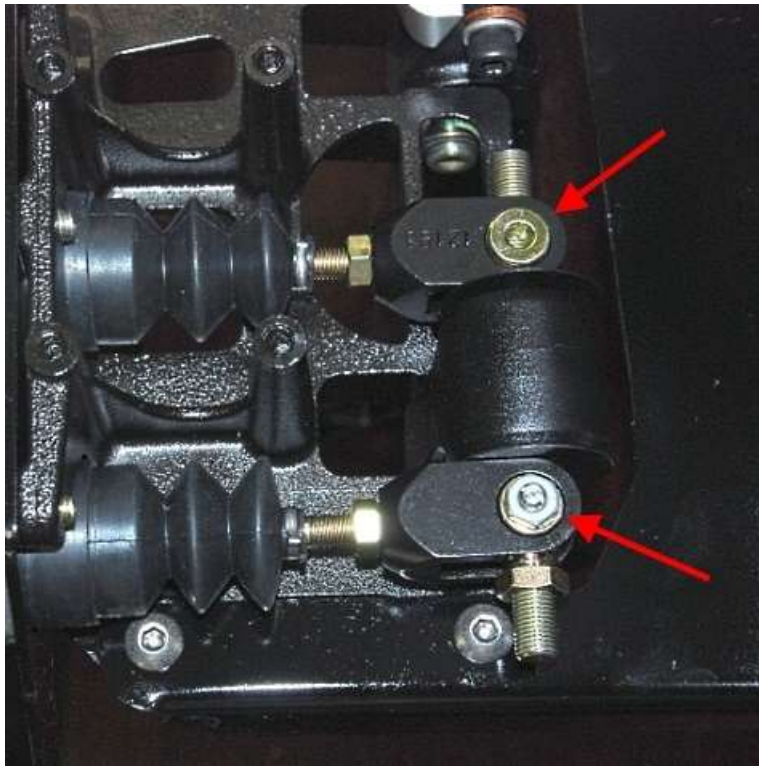
- ✂ 6mm socket, ½” deep socket, ratchet, ½” wrench
- 🔧 Master cylinders



Screw the 90° brake line adapter into the end of the master cylinder making sure that the opening points up when tight.



Put one of the master cylinders onto one of the brake master cylinder mounts and turn the threaded shaft into the threaded mount on the brake pedal. As a starting point, thread the shaft in until you can see it is flush on the other side of the mount.



👉 The brake pedal master cylinder pushrod mounts are different from each other. Only one has a screw and nut. This is normal.



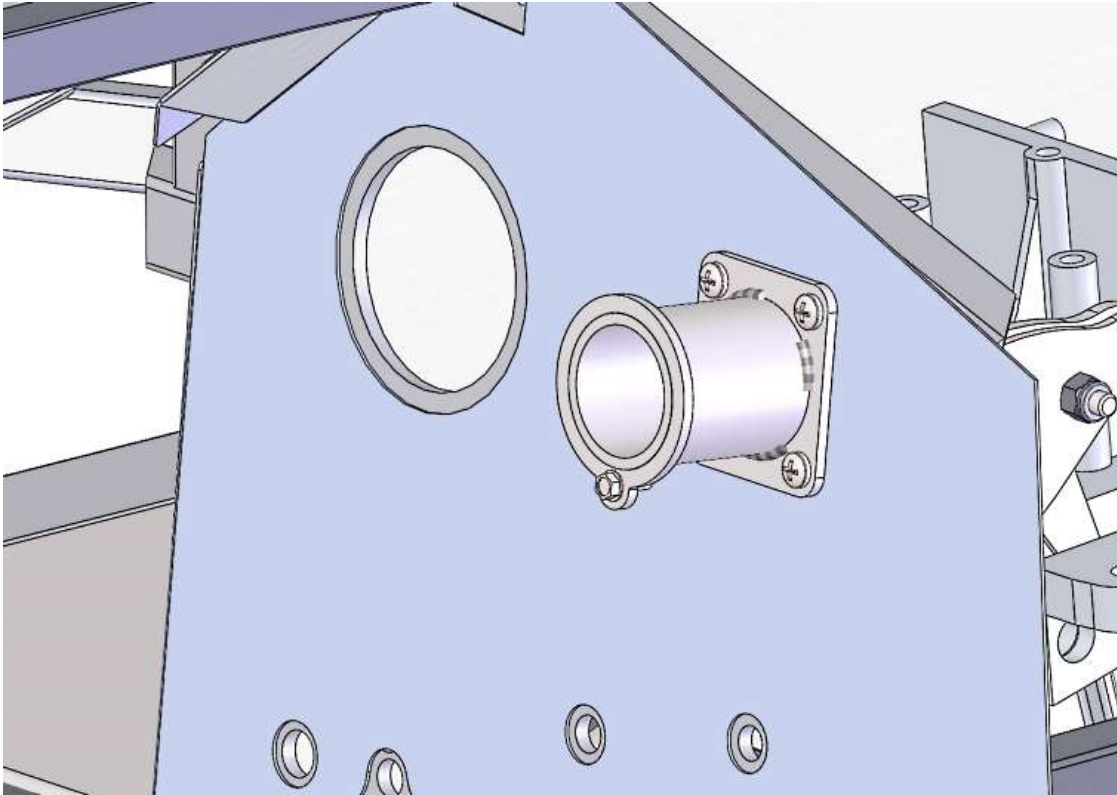
Attach and tighten the locknuts using a 1/2" wrench and 1/2" deep socket holding the master cylinder to the pedal box then repeat for the other master cylinder.



Put the plastic angled inlet adapter with hose clamp on the master cylinders. Use a 6mm socket and ratchet to tighten the hose clamp.

Tighten all the remaining hardware mounting the pedal box to the chassis.

CLUTCH CABLE AND FIREWALL SPACER

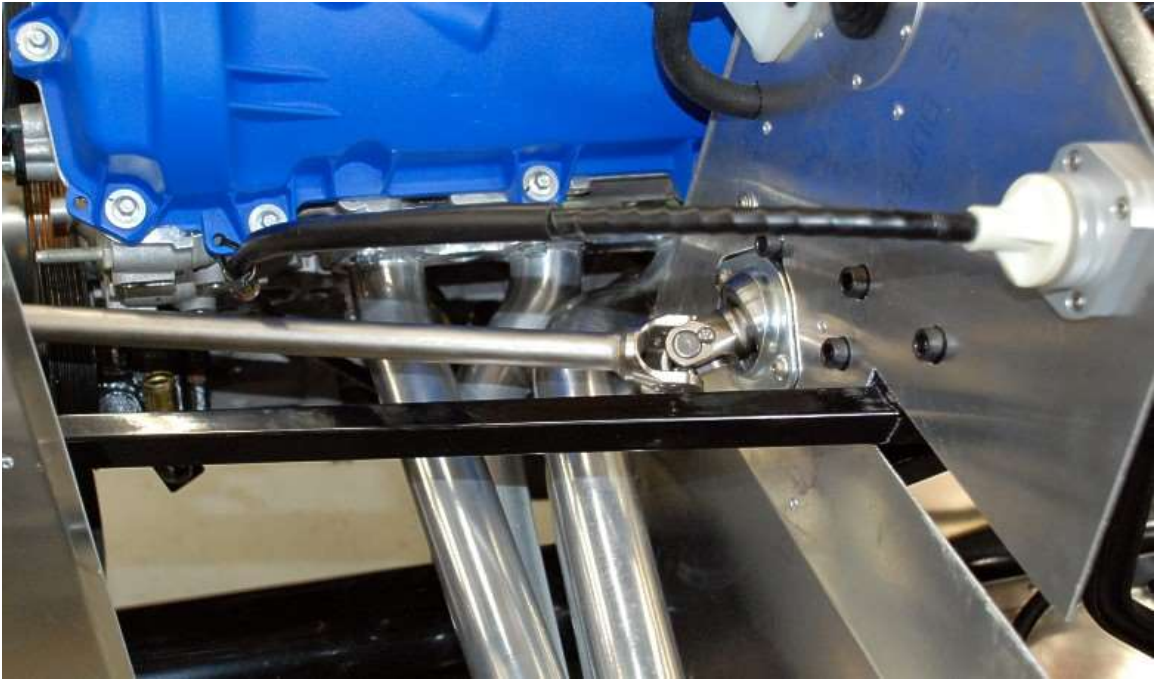


Push the firewall spacerer into the front of the footbox and attach to the front of the pedal box using the screws provided and a Philips head screwdriver and $\frac{3}{8}$ " wrench.



Slide the clutch cable boss through the firewall spacer and loop the cable over the quadrant.

Attach the clutch cable to the firewall spacer using the small #6 screw provided and ¼” wrench.



Route the clutch cable down to the bellhousing. Using zip ties or insulated clips tie the cable safely away from the headers and the moving steering components. It can be fastened to the engine using the bracket on the cable to the front lower bolt that holds the starter cable just before it leaves the block or, to the lower engine bay ¾” tubing.

- ✎ Make sure that the cable is clear of the hot exhaust header and the steering shaft or the cable may fail prematurely.



Connect the clutch cable to the bellhousing and the clutch fork.

Thread the cable end adjuster nut on so that the cable has no play in it.

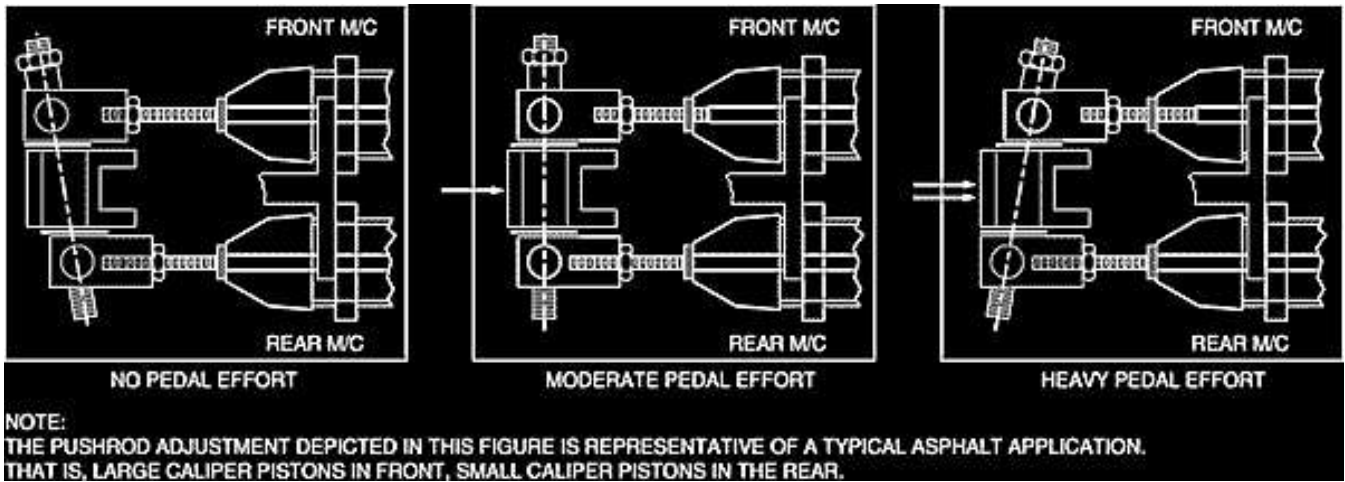
Adjust the pedal closer or further away as desired by screwing the pedal stop screw up or down.

Check the full range of travel for the clutch pedal.

BALANCE BAR ADJUSTMENT

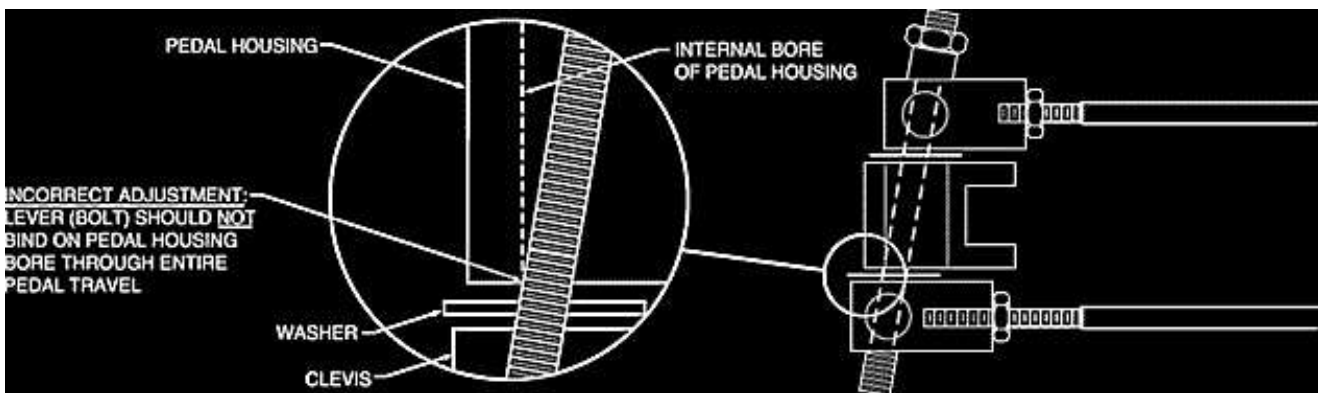
The balance bar is an adjustable lever (usually a threaded rod), that pivots on a spherical bearing and uses two separate master cylinders for the front and rear brakes. Most balance bars are part of a pedal assembly that also provides a mounting for the master cylinders. When the balance bar is centered, it pushes equally on both master cylinders creating equal pressure, given that the master cylinders are the same size bore. When adjusted as far as possible toward one master cylinder it will push approximately twice as hard on that cylinder as the other.

To set up the balance bar, thread the master cylinder pushrods through their respective clevises to obtain the desired position. Threading one pushrod into its respective clevis means threading the other one out the same amount.



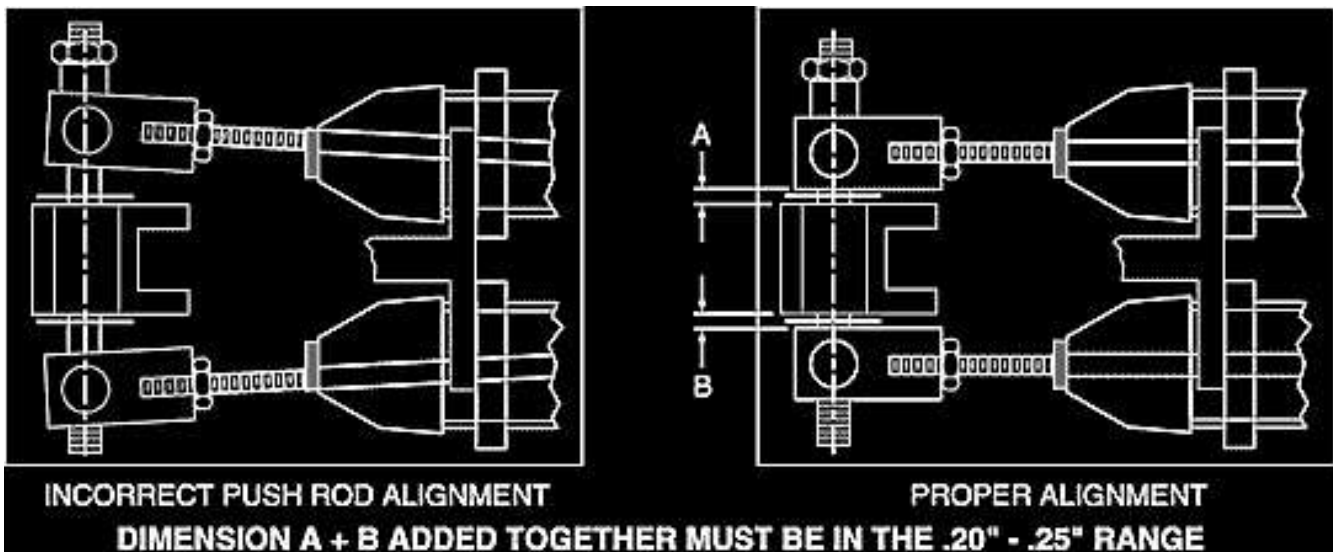
Sometimes this will lead to a “cocked” balance bar when the pedal is in the relaxed position, “no pedal effort”. This is acceptable as long as each master cylinder pushrod is completely free of pressure when the pedal is relaxed.

- ✎ The pushrod adjustment depicted in the figure is representative of a typical asphalt application. That is, large caliper pistons in front, small caliper pistons in the rear.



It is important that the operation of the balance bar functions without interference by over adjustment. This can occur when a clevis jams against the side of the pedal or the lever (bolt) hits the pedal bore during any point of pedal travel.terference.

Lever movement should be unimpeded throughout pedal travel. In the neutral position, clevises should have between .20” - .25” total clearance between the side of the pedal. The large washers between the pedal and clevis should remain loose.



Make sure that the master cylinder pushrods remain true in relationship to the cylinder during entire pedal travel; pushrods should not be pushing master cylinder pistons at an angle.

- ✎ In its non-depressed position, the pedal and balance bar should allow the pushrod of the master cylinders to fully return. This can be checked by feeling pushrods for very slight movement, not loose movement. Master cylinder pistons should be against the retaining snap ring (under boot).

Steering Rack

- ✎ The inner Tie Rod Extensions are for **stock** Power Steering Racks only.
- ✎ The inner Tie Rod Extensions are **not** for the FFR manual steering rack.
- ✎ The inner Tie Rod Extensions are **not** for the FFR power steering rack.

Oil Filter Relocator

- ✎ This is needed for push rod 302/351 engines only. The coyote engine uses different exhaust and a different oil filter

Brake reservoir

- ✎ There are two ways to plumb the brake fluid reservoirs. One way is to use two reservoirs, one for each master cylinder. The other way is only use one reservoir and put a “Y” in the line to go to the two reservoirs.
- ✎ There are also two ways to mount the reservoirs, in the engine bay or over the pedal box. If locating them in the pedal box it is necessary to cut the access panel location in the body later in the build to allow filling of the reservoir. The some of the following pictures show the older style reservoir.

Unpack the master cylinder reservoir fittings and the reservoir kit from the pedal-box assembly.



Screw in the hose barb.

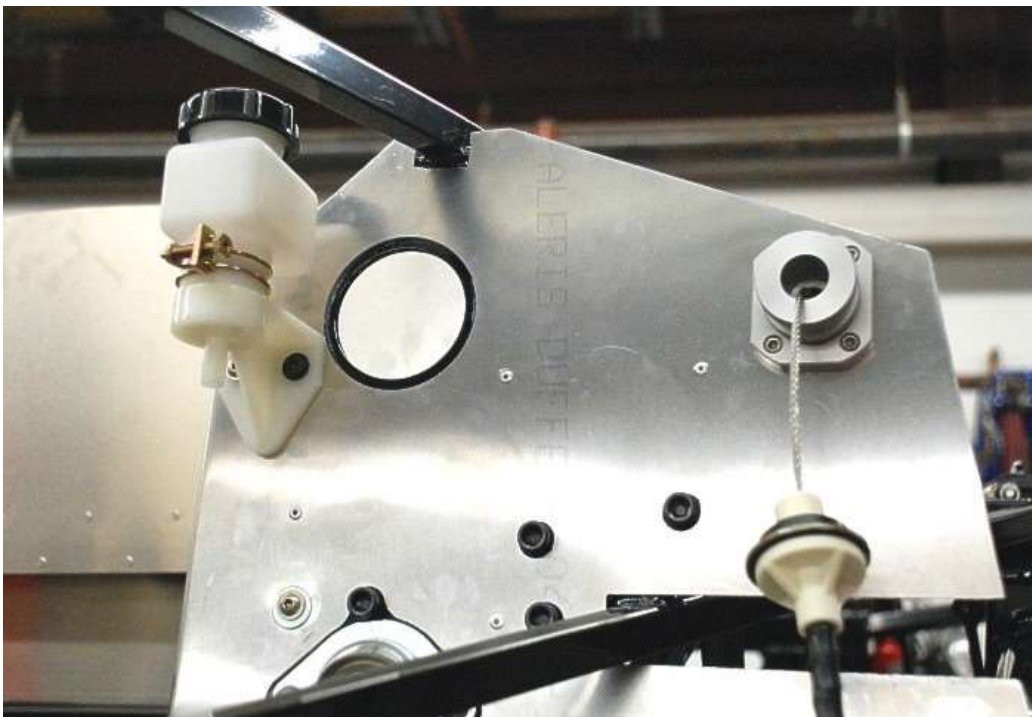


Loosely screw the mounting bracket onto the reservoir.

The installation pictures show the older plastic reservoir, installation is similar to the plastic reservoir and the Coolant reservoir.

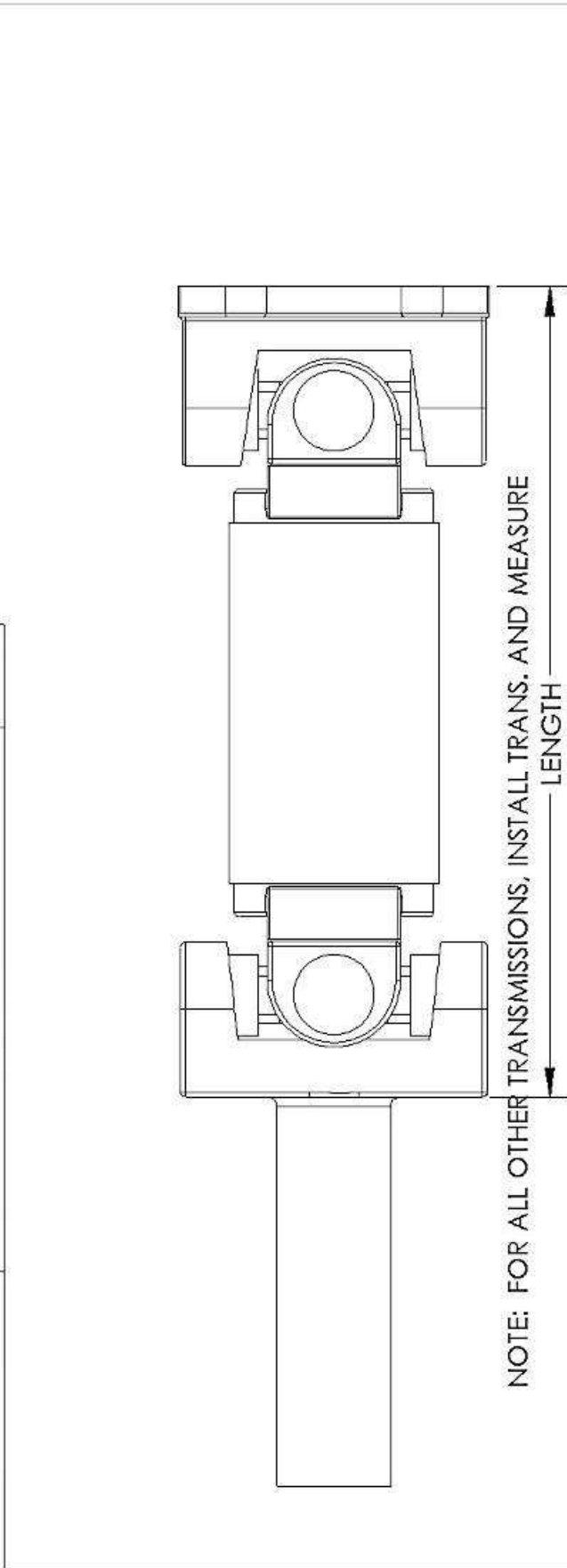


The brake reservoir mounts to the front of the footbox just inside the hood opening. Take the reservoir with cap and line it up so the top is in line with the top of the hood support tube and mark the holes.



Driveshaft Diagram

REV.	DESCRIPTION	DATE	APPROVED
A	INITIAL RELEASE	12/18/00	
B	ALL SPECIFICATIONS ADDED	6/8/04	
C	SPECIFICATIONS ADDED	8/20/04	
D	LENGTHS CHANGED	8/24/07	
E	LENGTHS ADDED	8/26/08	
F	HOT ROD LENGTHS CHANGED	10/20/08	
G	ROADSTER LENGTHS CHANGED	1/3/11	
H	HOT ROD LS ADDED	6/2/11	
I	HOT ROD S&C ADDED	12/19/11	
J	HOT ROD 700R4 ADDED, FLATHEAD DEL	4/1/14	
K	2015 IRS ADDED	2/24/15	
L	LS 4L60/65 ADDED, 700R4 DESC. CHG	3/3/15	
M	COUPE/HOT ROD 2015 IRS ADDED	6/15/15	



UNLESS OTHERWISE SPECIFIED:	NAME	DATE
DIMENSIONS ARE IN INCHES	J1	12/18/00
TOLERANCES		
TWO PLACE DECIMAL ±0.01		
THREE PLACE DECIMAL ±0.005		
FOUR PLACE DECIMAL ±0.001		
MATERIAL		
FINISH		
APPLICATION		

ROADSTER	
SPEC CAR	2015 IRS USE SPICER 2-2-489 PINION FLANGE
COUPE	
HOT ROD	
USED ON	

<p>PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FACTORY FIVE RACING, INC. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF FACTORY FIVE RACING, INC. IS PROHIBITED.</p>	<p>5 Factory Five Racing, Inc.</p> <p>TITLE: DRIVESHAFT DIAGRAM</p> <p>SIZE DWG. NO. A 13023</p> <p>REV M</p>
---	--

PRINTED	6/15/2015	SCALE: 1:2	WEIGHT:	SHEET 1 OF 1
---------	-----------	------------	---------	--------------