



Factory Five Racing, Inc.
Hot Rod Complete Kit
Assembly manual revision 2J 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

 Optional Clutch Cable Quadrant 6

 Pedalbox Installation 8

 Clutch quadrant stop 9

 Master Cylinders 10

 Balance Bar adjustment 13

 Optional Firewall clutch cable hole 14

 Brake Reservoir 16

Engine, Transmission and Driveshaft 19

Appendix I: Driveshaft lengths 20

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, $\frac{3}{8}$ " , $\frac{11}{32}$ " , $\frac{1}{2}$ " , $\frac{9}{16}$ " wrenches, Drill, $\frac{3}{16}$ " , $\frac{1}{4}$ " , $\frac{1}{2}$ " Drill bit, $\frac{1}{8}$ " , $\frac{9}{32}$ " , $\frac{5}{16}$ " , " Hex Keys, Hammer, Vise or 2 pieces of 2 x 4, Razor knife or file or grinder, snap ring pliers, $\frac{5}{16}$ " nut driver.

🛠 Pedal Components, pedal box hardware.

👤 If using an automatic transmission or a hydraulic clutch some of these steps will not apply.

👤 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.

OPTIONAL CLUTCH CABLE QUADRANT

👉 For use with optional manual transmission components.

👉 If you are using an automatic remove the clutch pedal and disregard the next few steps.

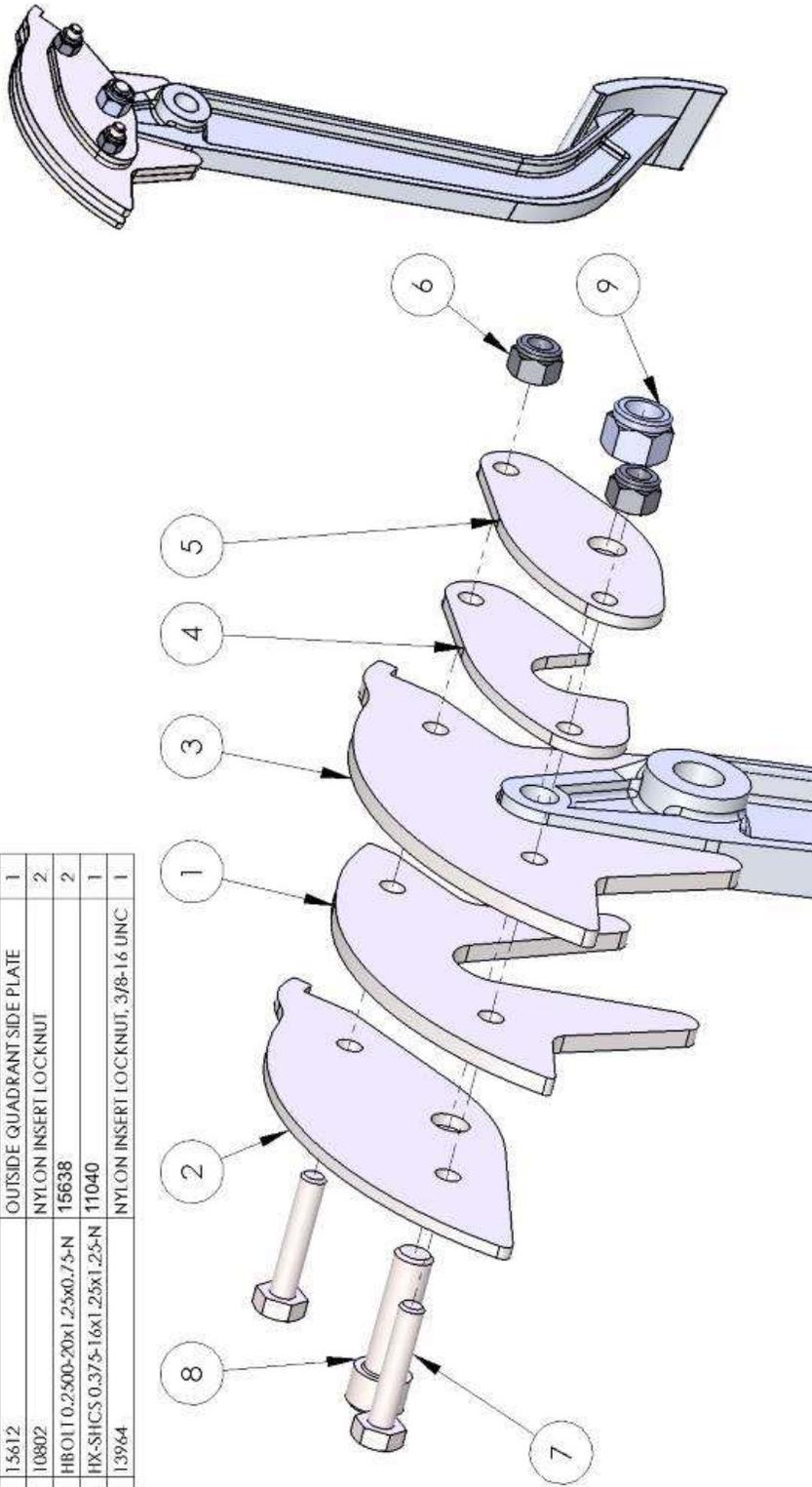
✂ $\frac{1}{2}$ " , $\frac{9}{16}$ " sockets, $\frac{1}{4}$ " , $\frac{3}{8}$ " , $\frac{1}{2}$ " wrenches, $\frac{1}{4}$ " drill bit, drill, Philips head screwdriver, $\frac{3}{16}$ " , $\frac{5}{16}$ " Hex Key, snap ring pliers



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

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

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	HBO11 0.2500-20x1.25x0.75-N	15638	2
8	HX-SHCS 0.375-16x1.25x1.25-N	11040	1
9	13964	NYLON INSERT LOCKNUT, 3/8-16 UNC	1



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

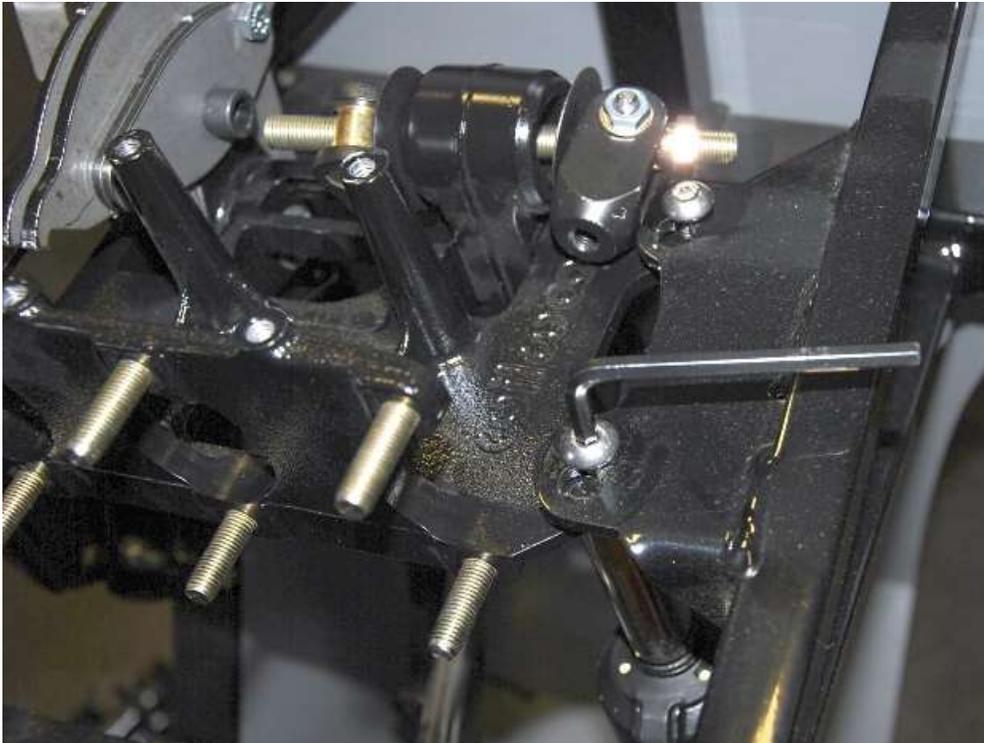
Factory Five Racing, Inc.
 5

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.

PEDALBOX INSTALLATION

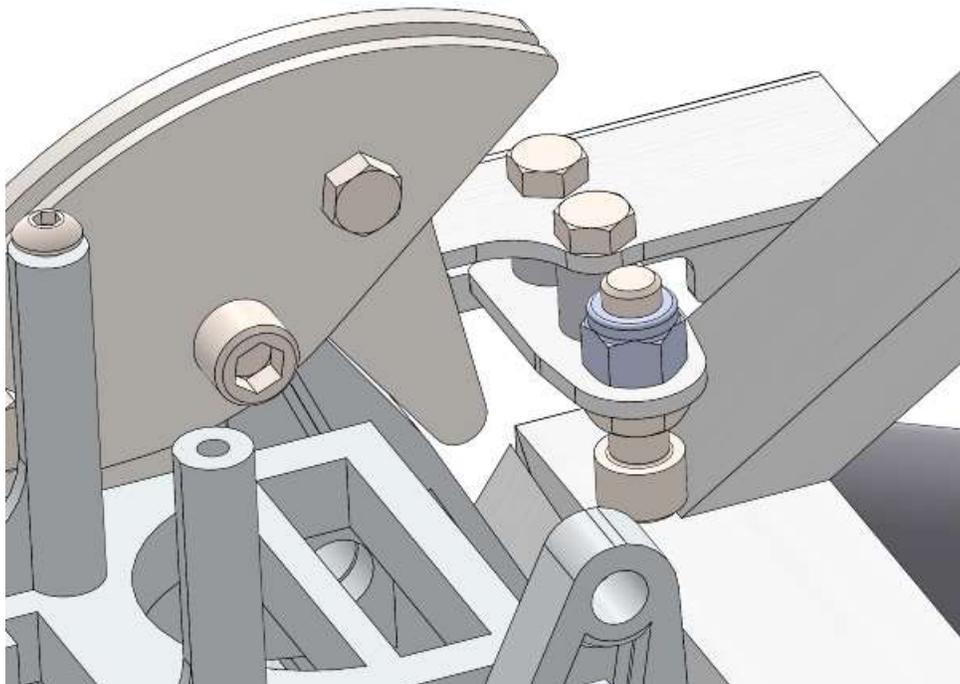


Attach the pedalbox to the underside of the frame brackets using the $\frac{5}{16}$ " x 1" button head screws, locknuts, $\frac{3}{16}$ " hex key and $\frac{1}{2}$ " socket.

CLUTCH QUADRANT STOP



If you building a manual transmission car you need install the clutch quadrant stop.



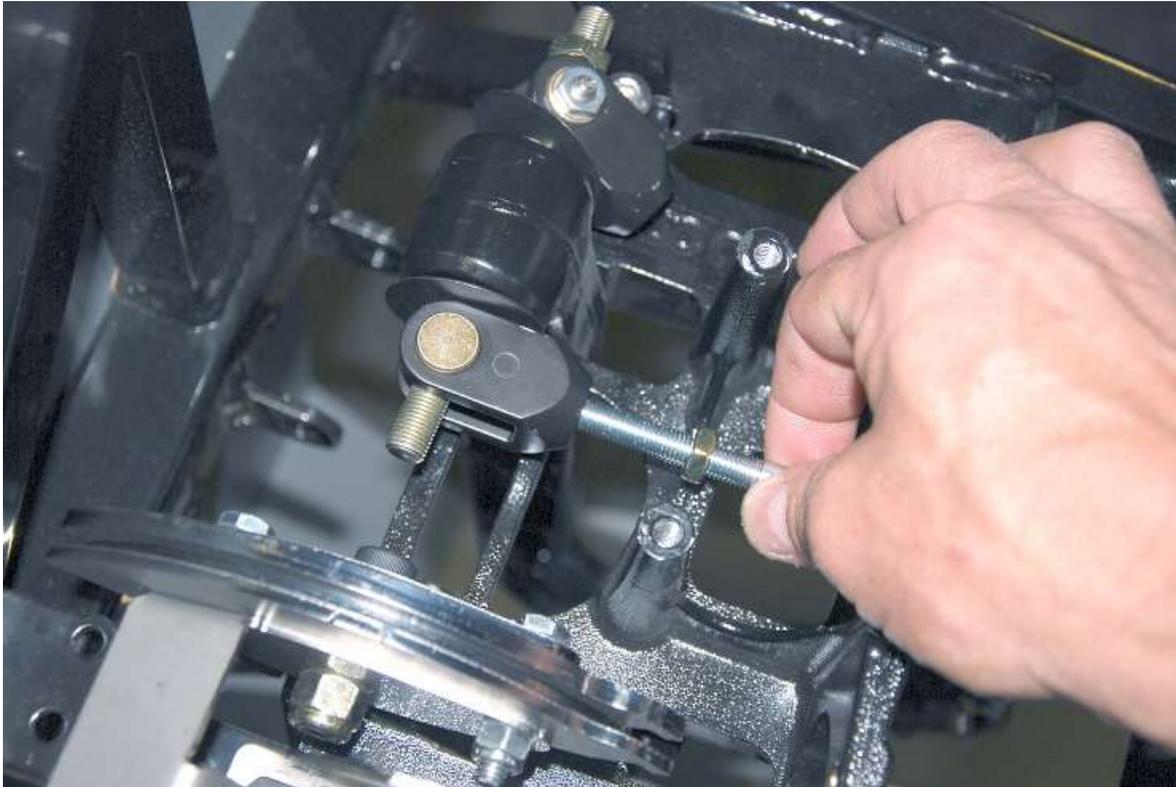
Install the aluminum spacers between the frame and the clutch quadrant stop bracket and fasten using $\frac{1}{4}$ "-20 x 1.25" screws.

MASTER CYLINDERS

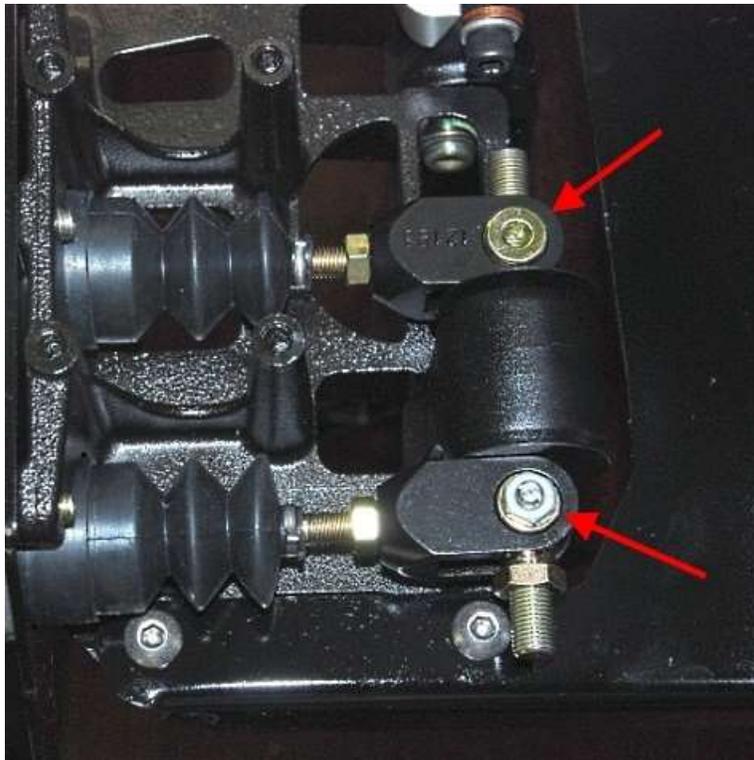
- 👤 Keep the extra washers provided with the Master cylinders; they will get used with the door hinges.
- 👤 The front master cylinder is the 0.75" master; 0.625" is the rear master.
- 🔧 6mm socket, 1/2" deep socket, ratchet, 1/2" wrench
- 🚗 Master cylinders



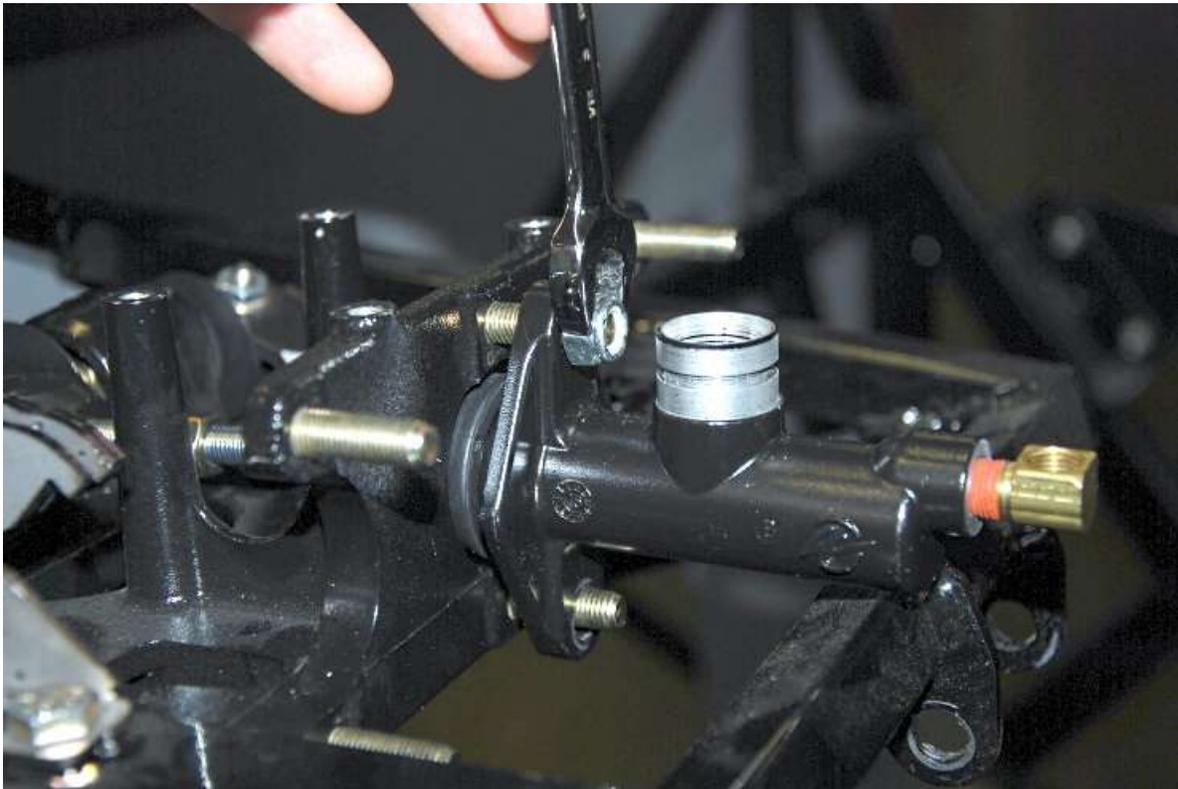
Screw the 90° brake line adapter into the end of the master cylinder making sure that the opening points up when tight.



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 ½” wrench holding the master cylinder to the pedal box then repeat for the other master cylinder.



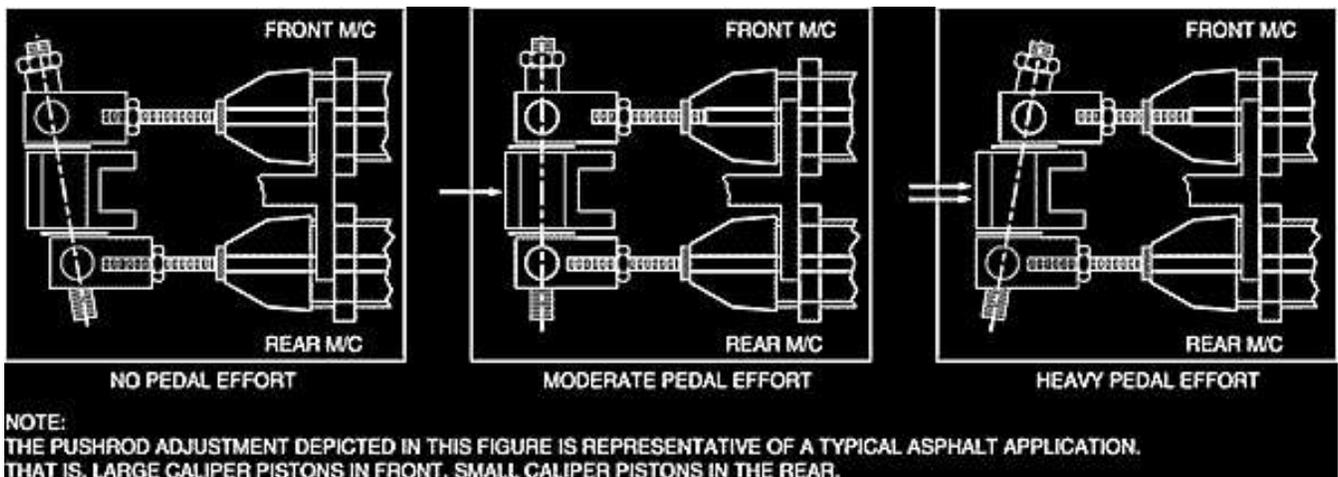
👉 Put the plastic angled inlet adapter with hose clamp on the master cylinders. Use a 6mm socket and ratchet to tighten the hose clamp.

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

BALANCE BAR ADJUSTMENT

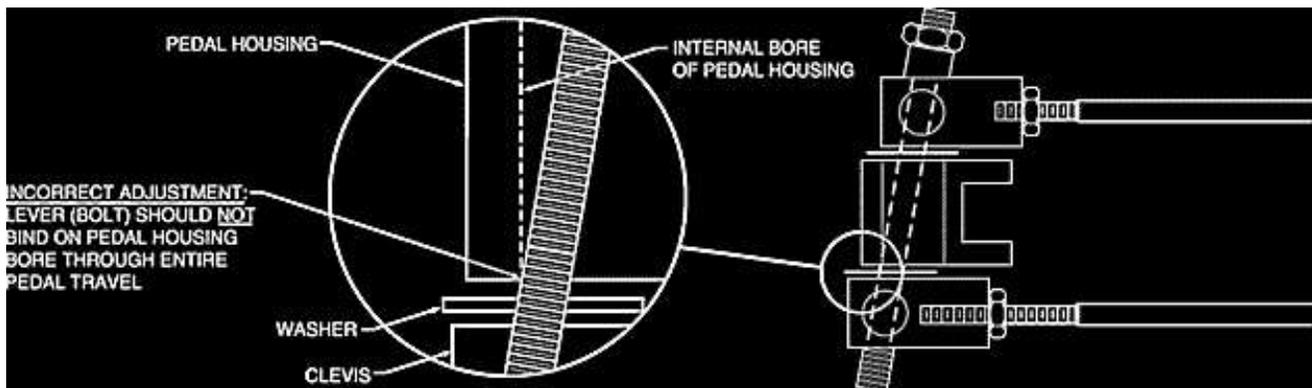
The balance bar is an adjustable lever (usually a threaded rod), that pivots on a spherical bearing and uses two separate master cylinders for the front and rear brakes. Most balance bars are part of a pedal assembly that also provides a mounting for the master cylinders. When the balance bar is centered, 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.



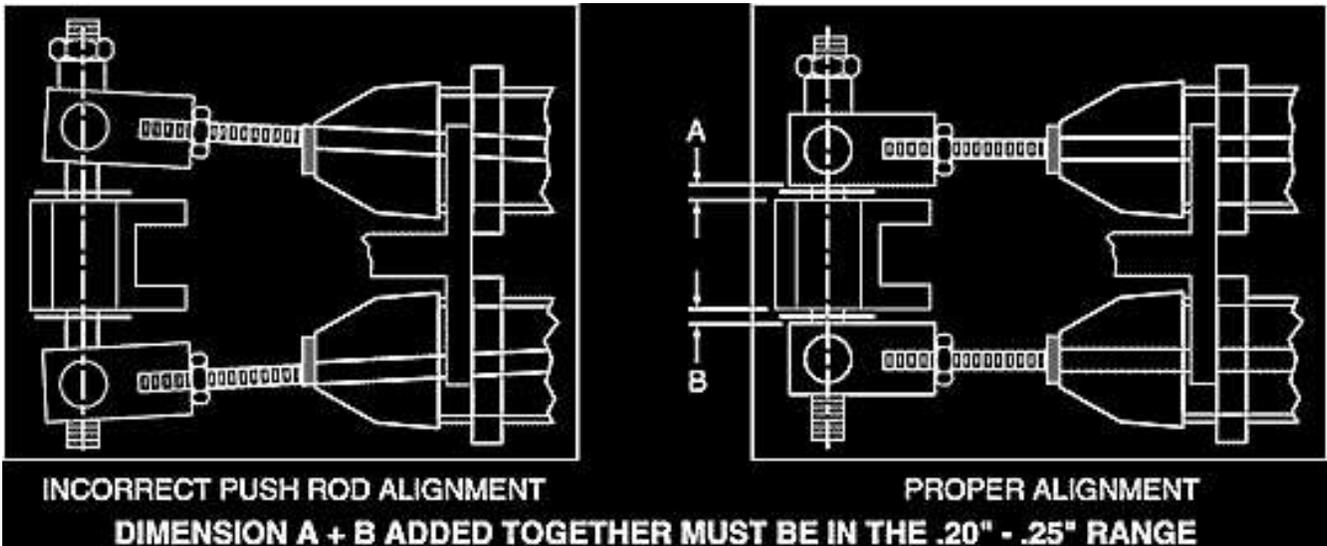
Sometimes this will lead to a “cocked” balance bar when the pedal is in the relaxed position, “no pedal effort”. This is acceptable as long as each master cylinder pushrod is completely free of pressure when the pedal is relaxed.

👉 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.

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.



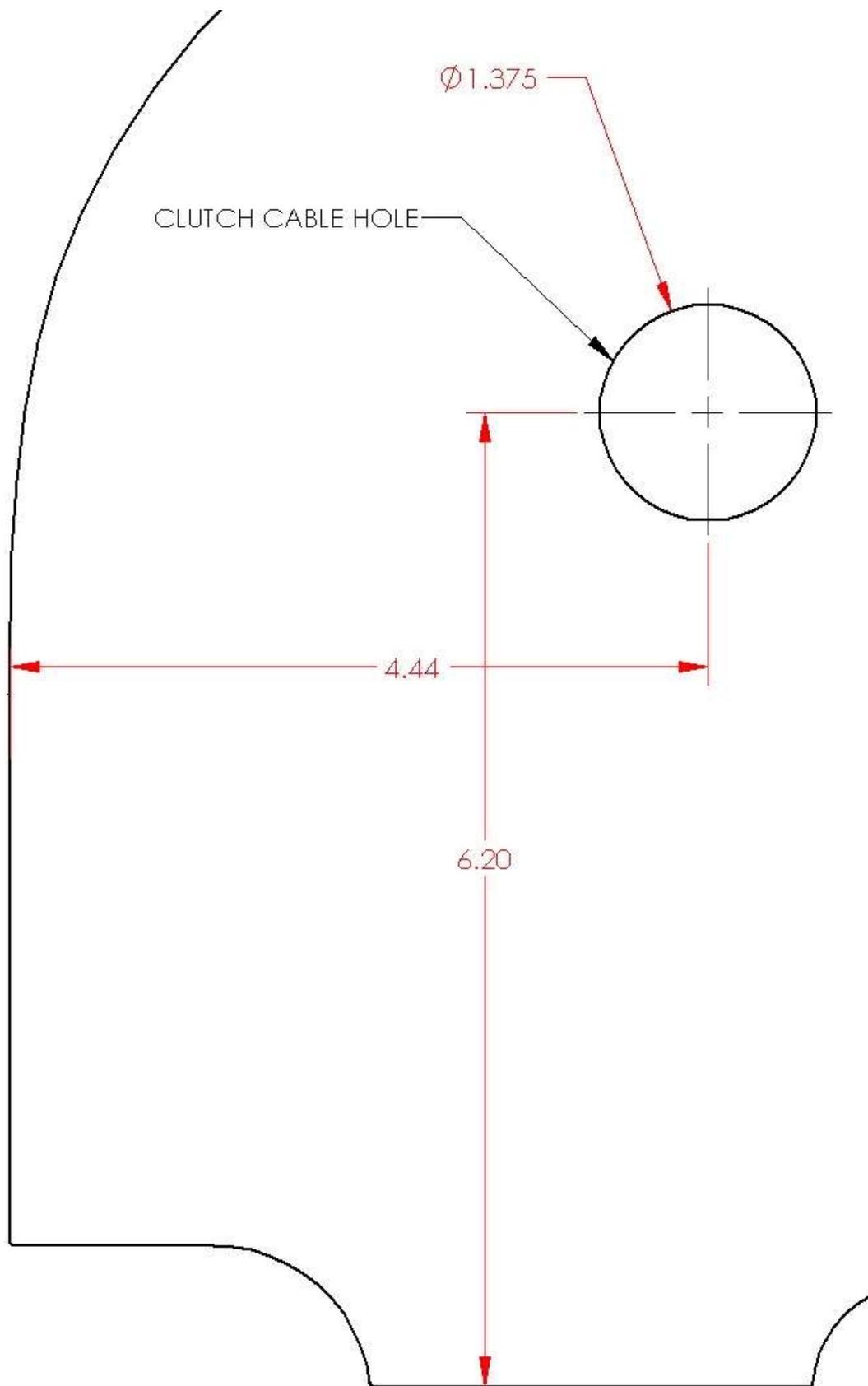
Make sure that the master cylinder pushrods remain true in relationship to the cylinder during entire pedal travel; pushrods should not be pushing master cylinder pistons at an angle.

- 👉 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).

Optional Firewall clutch cable hole

- ✂ 1.375" hole saw, drill, $\frac{3}{16}$ " drill bit, silicone
- 🚗 Manual Transmission components
- 👉 For use with optional manual transmission components.

If you are building a manual transmission car, lay the following template face down on the front surface of the firewall.



Drill the center mark with a $\frac{3}{16}$ " drill bit
Drill the firewall for the clutch cable.

Attach the clutch cable to the firewall spacer using the small #6 screw provided and $\frac{1}{4}$ " wrench.

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 reservoir can either be mounted in the engine bay on the firewall or on the inside of the firewall depending on personal preference.



Mounted inside, the reservoir would be accessed through the hole in the cowl made later in the body section.

One Reservoir

Use some tape on the frame or firewall then locate the brake fluid reservoir and mark the hole locations.

☞ Make sure that the top of the reservoir cap is below the top of the firewall or the cap will hit the body.

Remove the reservoir and use a $\frac{5}{16}$ " nut driver to drill/screw the self-tapping #10 screws into the frame and the points marked.

Remove the screws and mount the reservoir.

Attach the hoses to the reservoir and the master cylinders.

Use the $\frac{5}{8}$ " line clips and the $\frac{1}{4}$ "-20 x $\frac{1}{2}$ " socket head screws to attach the hoses to the top of the pedal box.

Two Reservoirs

Use some tape on the frame then locate the brake fluid reservoir and mark the hole locations on the frame.

☞ Make sure that the top of the mounting flange is below the top of the frame tube or the cap will hit the body.

Remove the reservoir and use a $\frac{5}{16}$ " nut driver to drill/screw the self tapping #10 screws into the frame and the points marked.

Remove the screws and mount the reservoir.

Attach the hoses to the reservoirs and the master cylinders. Be careful tightening the aluminum master cylinder fittings. There is no pressure in the line so hand tight to prevent any leaks is all that is needed.

Use the $\frac{5}{8}$ " line clips and the $\frac{1}{4}$ "-20 x $\frac{1}{2}$ " socket head screws to attach the hoses to the top of the pedal box.

Engine, Transmission and Driveshaft

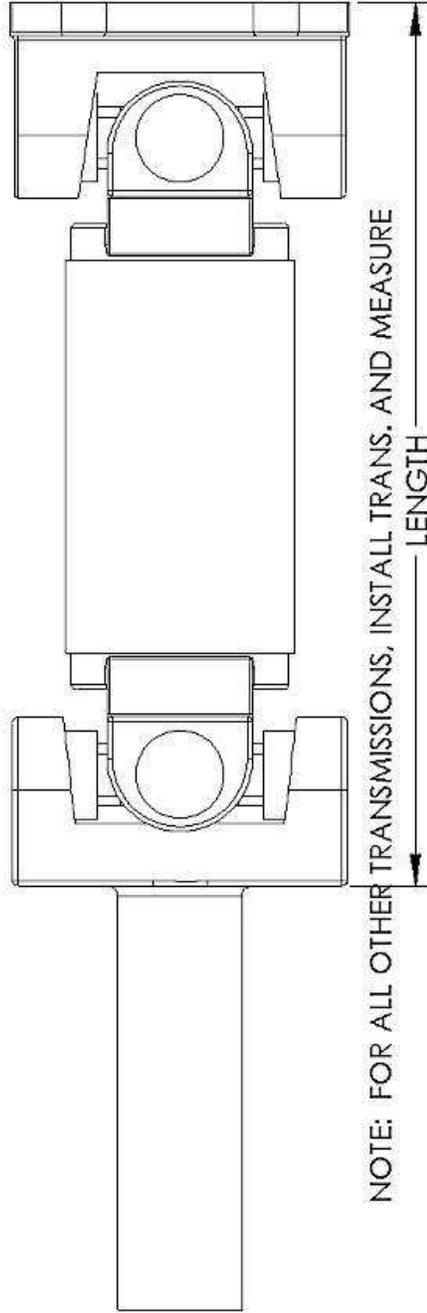
- ✎ If installing a small block Chevy, LS or Ford Coyote Engine, go to www.factoryfiveparts.com/instructions/ for installation instructions.
- ✎ Appendix I has the various driveshaft lengths that we stock if you are using a unique engine or transmission.

Fill the engine and Transmission with fluids. See Appendix K for specifications and capacities.

Appendix I: Driveshaft lengths

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 38C ADDED	12/19/11	
J	HOT ROD 700R4 ADDED, FLATHEAD DEL	4/7/14	
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	

Mk. IV ROADSTER	302/351 W/2015 IRS USING T-5/AOD USE 2-2-489 FLG	8.375"
Mk. IV ROADSTER	302/351 USING T-5 OR TREMEC TRANS.	10.625"
Mk. IV ROADSTER	4.6L/COYOTE W/2015 IRS USING TKO USE 2-2-489 FLG	10.625"
COUPE	302/351 W/2015 IRS USING TKO USE 2-2-489 FLG	10.625"
Mk. IV ROADSTER	4.6L USING T-45 OR 3650 TRANS., BB USING TKO	12.875"
COUPE	302/351 USING T-5 OR TREMEC TRANS.	12.875"
HOT ROD	CHEVY W/2015 IRS USING 700R4	30.875"
HOT ROD	302/351/4.6L W/2015 IRS	31.375"
HOT ROD	CHEVY W/2015 IRS USING 4L60/4L65E	31.875"
HOT ROD	CHEVY W/2015 IRS USING TKO	32.3125"
HOT ROD	302/351/4.6L USING T-56	32.50"
HOT ROD	4.6L USING T-45 OR 3650	33.00"
HOT ROD	CHEVY USING 700R4	33.75"
HOT ROD	302/351/4.6L USING T-5/AOD/TKO	34.25"
HOT ROD	CHEVY USING 4L60E/4L65E	34.75"
HOT ROD	CHEVY USING TREMEC TRANS	35.1875"



NOTE: FOR ALL OTHER TRANSMISSIONS, INSTALL TRANS. AND MEASURE LENGTH

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
ROADSTER	DIMENSIONS ARE IN INCHES	JJ	12/18/00
SPEC CAR	TOLERANCES	DRAWN	
COUPE	TWO PLACE DECIMAL +0.01	COMMENTS	
HOT ROD	THREE PLACE DECIMAL +0.005	2015 IRS USE	
USED ON	FOUR PLACE DECIMAL +0.001	SPICER 2-2-489	
APPLICATION	MATERIAL	FINION FLANGE	
	FINISH		
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.		TITLE: DRIVESHAFT DIAGRAM	DWG. NO. A 13023
SCALE: 1:2 WEIGHT:		SIZE A	REV M
PRINTED: 6/15/2015		SCALE: 1:2 WEIGHT:	SHEET 1 OF 1



Factory Five Racing, Inc.