



Factory Five Racing, Inc.
Roadster Complete Kit
Assembly manual revision 3p update

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Kit Parts Prep

There are a number of parts in the kit that are packed as bare metal. This is done to allow you to paint, powder coat, or chrome the parts as you desire. It makes the build a lot smoother if you coat these parts ahead of time so you do not have to wait for them when doing the assembly. These parts are:

13203	3-LINK UPPER LINK AXLE MOUNT	EA	1.00
15176	E-BRAKE LOWER HANDLE ASSEMBLY	EA	1.00
14734	WILWOOD PEDALBOX MOUNT	EA	1.00
14735	WILWOOD PEDALBOX REAR MOUNT	EA	1.00
14783	WILWOOD CLUTCH QUADRANT STOP	EA	1.00
14788	WILWOOD BRAKE LIGHT SWITCH MOUNT	EA	1.00
13704	SIDE EXHAUST SIDE MOUNT PLATE	EA	2.00
15143	HOOD HINGE LONG ARM	EA	1.00
25410	HOOD HINGE SHORT ARM	EA	2.00
13520	HOOD HINGE ARM SUPPORT PLATE	EA	1.00
13946	HOOD MOUNT PLATE	EA	2.00
13451	HOOD HINGE ADJUSTMENT PLATE	EA	1.00
13531	DOOR LATCH SPACER	EA	2.00
33113	TRUNK HINGE MOUNT	EA	2.00
33112	TRUNK HINGE ARM	EA	2.00
12470	QUICKJACK, LEFT SIDE (HOOK ON OUTSIDE OF CAR)	EA	2.00
12471	QUICKJACK, RIGHT SIDE (HOOK ON OUTSIDE OF CAR)	EA	2.00
12426	DRIVER SIDE 4 INTO 4 SIDE EXHAUST	EA	1.00
12427	PASSENGER SIDE 4 INTO 4 SIDE EXHAUST	EA	1.00
13861	BOX 12 A 87-95 STRAIGHT TUBES	EA	1.00

Body Removal



$\frac{5}{8}$ " socket, Ratchet, $\frac{5}{8}$ " wrench, gloves, 2 friends.



Be careful of the raw fiberglass edges, they can splinter into your skin



Unbolt the door from the hinge leaving the hinge attached to the chassis. Cut the zip ties in the door latch area.

Remove the hood and unbolt the trunk from the chassis.



Unbolt the body sides from the chassis on the underside of the car.

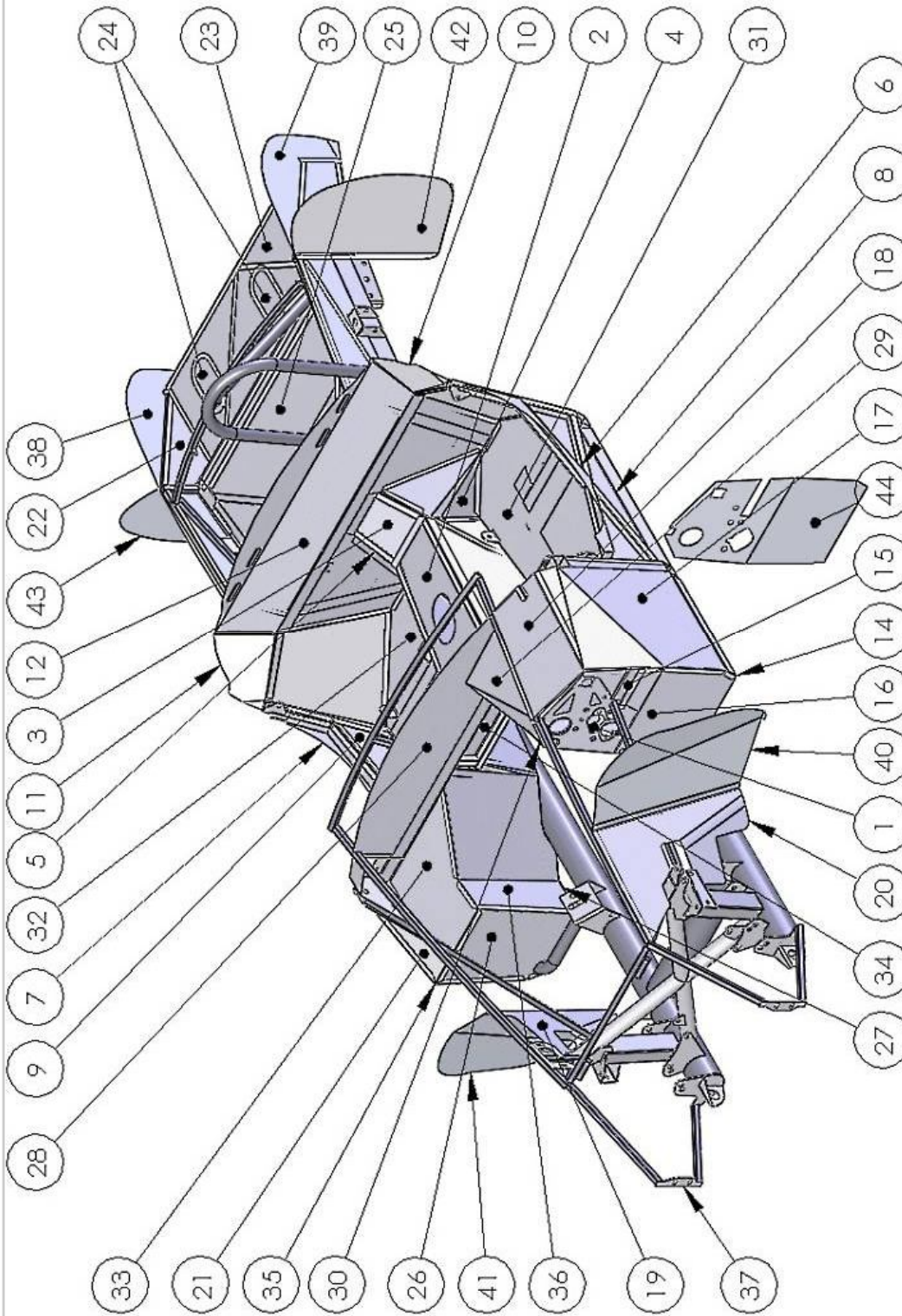
When you store the body on the ground (unsupported) for long periods of time you may get slight distortion (bowing) around the walls forward of the doors. In order to avoid the chance of this happening, we recommend putting two short 2"x 4" braces (24" long) under the windshield holes (running vertically to support the hood cowl area just forward of the doors under the windshield holes). Use these 2"x 4" 's whenever the body is on the ground, otherwise make a body buck to support it. A body buck diagram is in the appendix. The dimensions do not have to be exact. A rough shape is all that is needed to hold the body.



Body buck

Aluminum Removal

Mark each panel and take pictures of how the panels fit together (i.e. which is on top). Remove each panel after it has been marked until the chassis is bare. Keep the #8 screws to help with aluminum positioning later during build-up.



 Factory Five Racing, Inc.		ROADSTER KIT TITLE:	SIZE A DWG. NO. 10500 kit REV mk4	SCALE: 1:18 WEIGHT: SHEET 1 OF 2
ROADSTER	UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES TOLERANCES: TWO PLACE DECIMAL ±0.01 THREE PLACE DECIMAL ±0.005 FOUR PLACE DECIMAL ±0.001	DRAWN: JI COMMENTS:	NAME: JI DATE: 2010	PRINTED: 6/27/2012
USED ON APPLICATION	MATERIAL:	FINISH:	FINISH:	FINISH:
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	13806	BRAKE MASTER CYLINDER FILL PLATE	1
2	10563	CARPET, TRANSMISSION TUNNEL TOP COVER	1
3	10906	ALUMINUM, U-JOINT COVER	1
4	13246	14583 - TRANS TUNNEL, REAR CORNER, DRIVER	1
5	13246	13247 - TRANS TUNNEL, REAR CORNER, PASS	1
6	13799	13803 - ALUM PANEL, COCKPIT SIDE, UNDER DOOR, TOP, DRIVER	1
7	13799	14584 - ALUM PANEL, COCKPIT SIDE, UNDER DOOR, TOP, PASS	1
8	13641	14582 - ALUM PANEL, COCKPIT SIDE, UNDER DOOR, DRIVER	1
9	13641	13642 - ALUM PANEL, COCKPIT SIDE, UNDER DOOR, PASS	1
10	15022	ALUM, REAR COCKPIT CORNER	1
11	15022	ALUM, REAR COCKPIT CORNER	1
12	10823	ALUM PANEL, REAR COCKPIT VERTICAL WALL (BEHIND SEATS)	1
13	15016	ALUM. PANEL, FUEL STRAP BLOCK OFF PLATE	1
14	12985	DRIVER SIDE DROPPED FLOOR	1
15	14733	DRIVER FOOTBOX, FRONT WALL, PATCH PANEL	1
16	10904	LEFT FOOTBOX, FRONT - MUSTANG PEDALS	1
17	10554	DRIVER FOOTBOX, VERTICAL WALLS, OUTSIDE	1
18	10858	DRIVER FOOTBOX, TOP/OUTSIDE SECTION	1
19	10863	10863 - ALUM PANEL, ENGINE BAY "F", RIGHT	1
20	10864	10864 - ALUM PANEL, ENGINE BAY "F", LEFT	1
21	15015	ALUM PANEL, RIGHT FOOTBOX, TOP/OUTSIDE	1
22	15223	ALUM PANEL, TRUNK WALL REAR SIDE COVER	2
23	15222	REAR TRUNK FLOOR	1
24	12959	BLOCK OFF PLATE	2
25	10560	FRONT TRUNK FLOOR	1
26	13138	ALUM PANEL, PASS FOOTBOX, VERTICAL WALL, FRONT WALL	1
27	13634	ALUMINUM PANEL, PASS FOOTBOX, DROPPED FLOOR	1
28	10559	FIREWALL PANEL	1
29	10859	ALUM PANEL, DRIVER FOOTBOX, TOP/INSIDE	1
30	10905	ALUM PANEL, DRIVER FOOTBOX, VERTICAL WALL, INSIDE	1
31	10557	ALUM PANEL, COCKPIT FLOOR, DRIVER SIDE, W/TUNNEL WALL	1
32	10558	ALUM PANEL, COCKPIT FLOOR, PASS SIDE, W/TUNNEL WALL	1
33	10853	ALUM PANEL, PASS FOOTBOX, TOP	1
34	12806	TRANS TUNNEL FRONT VERTICAL WALL	1
35	10551	ALUM PANEL, PASS FOOTBOX, VERTICAL WALL, OUTSIDE WALL	1
36	13139	PASS FOOTBOX, VERTICAL WALL, INSIDE WALL	1
37	10500 Frame	ROADSTER FRAME	1
38	15403	15403 - OUTSIDE TRUNK WALL, RIGHT	1
39	15402	15402 - OUTSIDE TRUNK WALL, LEFT	1
40	10861	10861 - ALUM PANEL, SPLASH GUARD, DRIVER	1
41	14587	14587 - ALUM PANEL, SPLASH GUARD, PASS	1
42	14585	14585 - ALUMINUM PANEL, REAR SPLASH GUARD, DRIVER	1
43	14586	ALUM PANEL, REAR SPLASH GUARD, PASS	1
44	15142	LEFT FOOTBOX FRONT - WILWOOD PEDALS	1

Front upper control arm



Vise, Thread locker, 3/8", 3/4" wrench, 3/4" socket, Torque wrench



IFS components



The bolts and no flange locknuts for the rear bolt location are packed with the spindles.

Unpack the upper control arm assembly.



Put thread locker on the upper balljoint threads.



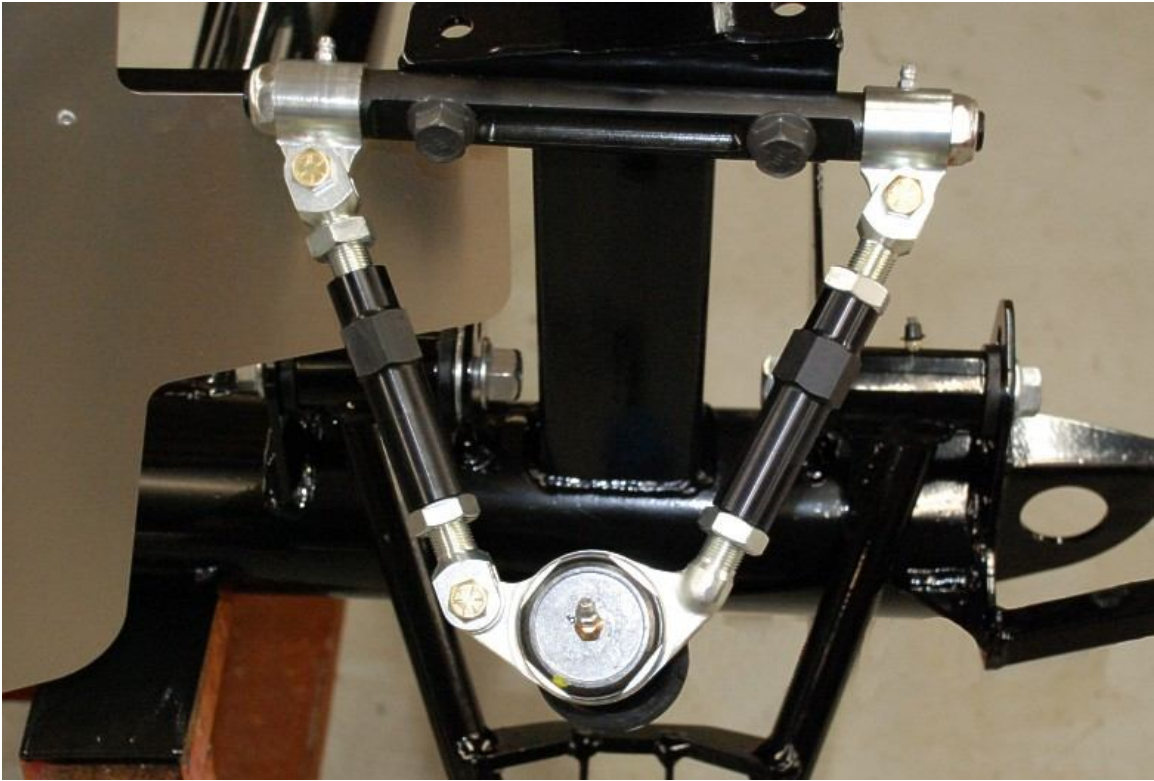
Screw the upper ball joints into the control arms so that the balljoint angles out on the bottom



Tighten the balljoint using the arm for leverage with a Vice holding the ball joint.



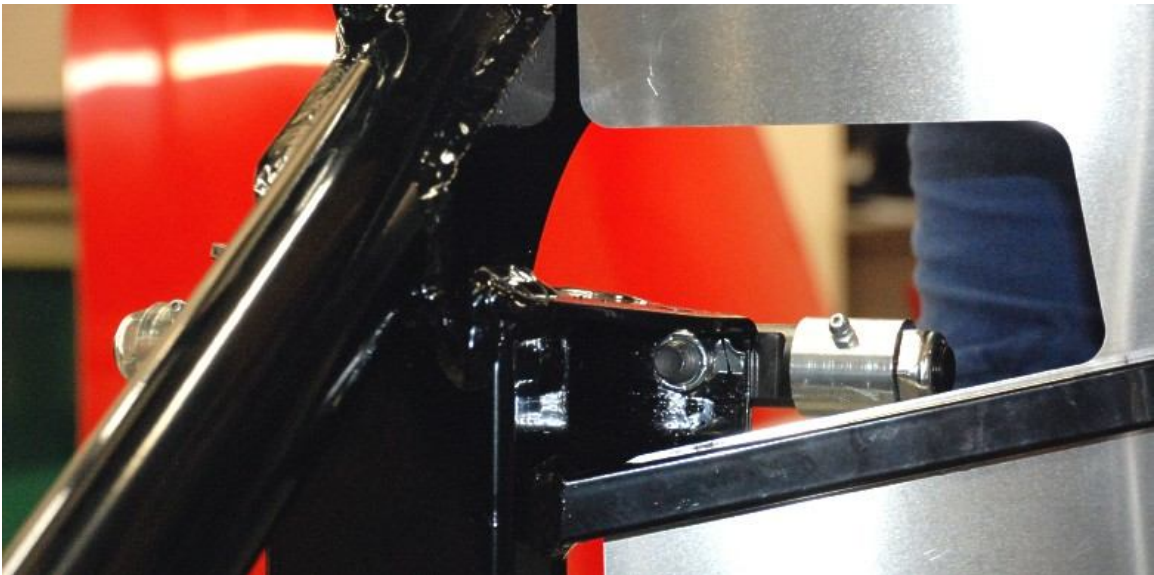
Screw the grease fittings in to the ball joints and tighten with a $\frac{3}{8}$ " wrench.



Mount the upper control arms to the chassis. Use the mount holes that are vertical on the side of the 2"x 3" tube, not the top horizontal ones.



The bolts and lock nuts for the rear control arm mount are packed with the spindles.



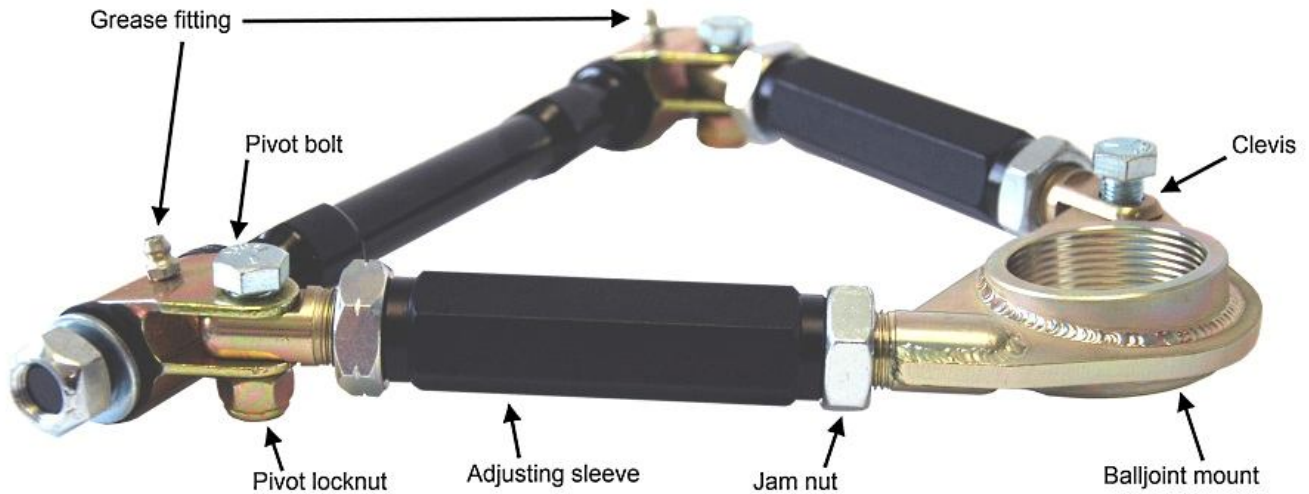
The locknut without the flange is used on the rear mounting hole.

Torque the two bolts that hold the arm to the frame to **135-149Nm (100-110 lbft)**.

Adjusting the upper control Arm



Use the diagram below for reference.



Slightly loosen the three pivot bolts using a $\frac{5}{8}$ " and $\frac{11}{16}$ " wrench.

The Pivot Bolts must be loosened while the car is being aligned and retightened afterwards

Loosen the jam nuts on both ends of each adjusting tubes using a $1\frac{1}{8}$ " wrench. Turn the adjusting tubes to lengthen or shorten the arm.

After you have adjusted the arm to the desired length, tighten down the jam nuts against the adjusting tubes, and then tighten each of the three pivot bolts. Torque the pivot bolts to 42 lbft.

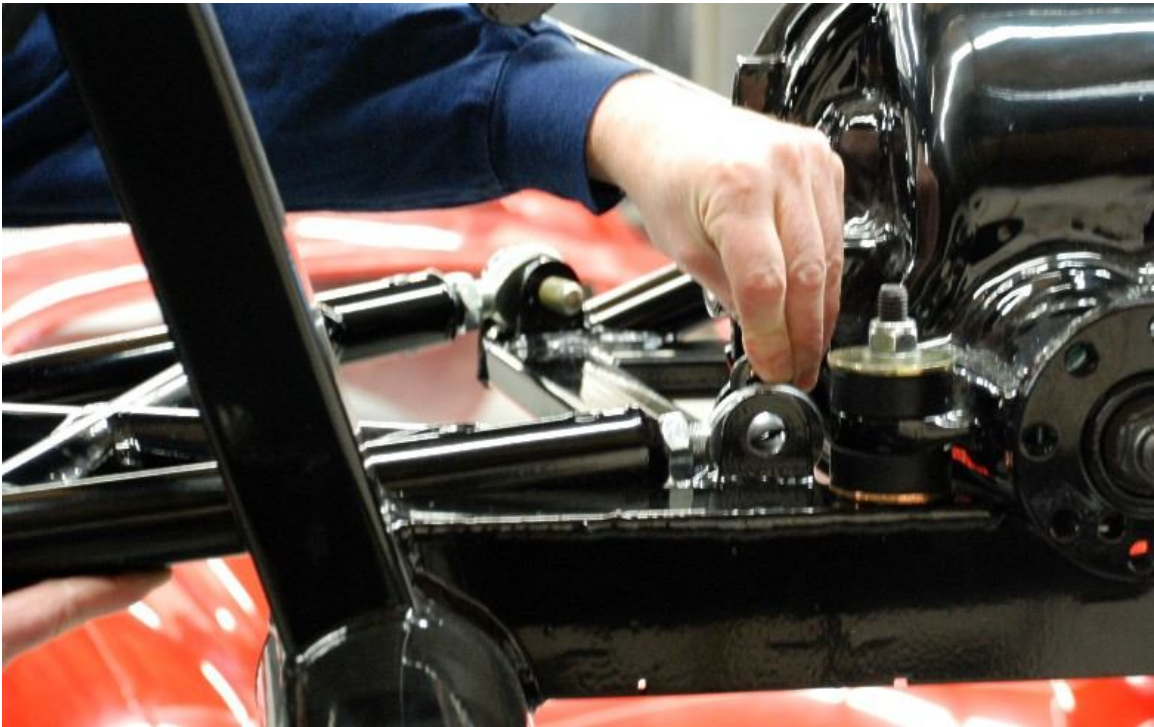
- 👉 Grease both ends using chassis grease frequently to insure smooth, trouble free operation.
- 👉 There should never be more than 1" of thread showing past the tightened down jam nuts on either end of both adjusting tubes.

Optional Independent Rear Suspension – Standard width

Lower Control Arms



Screw the rod ends with jam nuts into the lower control arm. Screw the forward joint in all the way then back out 4 turns.

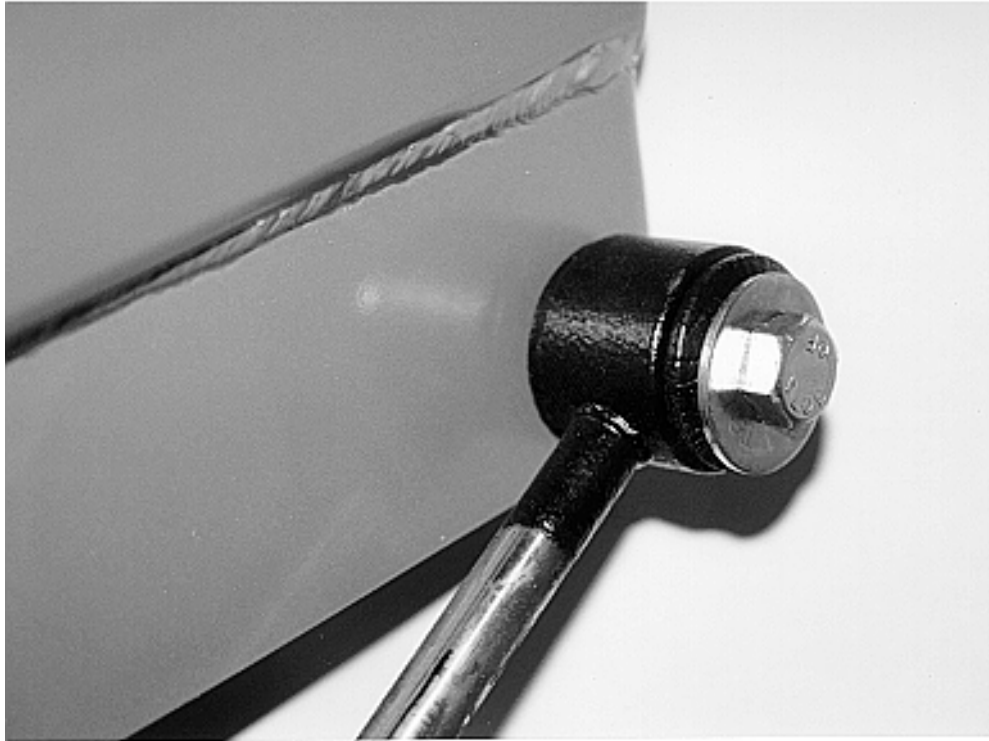


Mount the lower arms to the chassis **with the shock mount hanging down below the arm.** The rear bolt can be slip in place with no shims for now. Shim the front bolts using 3 shims on the front side of the rod end on both the left and right arms.

Hand tighten the bolts for the lower control arms. The rod ends will be adjusted later.

Quad shock Installation

Attach the body end of the Quad shock to the upper arm of the IRS with the supplied metric bolt. Attach the shaft end of the Quad shock to the rear quad shock bracket hole on the frame using the washer on the outside of the quad shock as shown in the picture.



Quadshock mounted to frame bracket.

Rear Calipers and Rotors


Push the slotted rotor onto the spindle.

Attach the caliper to the spindle using the OEM T-Bird bolts.

Torque specs

Item	Nm	Lbft
Lower control arm to frame	135-149	100-110
Upper control arm to frame	135-149	100-110
Lower control arm to Spindle	113-149	83-110
Upper control arm to Spindle	113-149	83-110
Quad shock to upper control arm	75-81	55-60
Quad shock to Spindle	75-81	55-60
Spindle CV nut	245-270	180-200

Firewall & Driver Front Footbox Aluminum

 The Footbox front for the Wilwood Pedal box is packaged with the pedalbox in the kit. The one that is shipped on the chassis is for the OEM Mustang pedalbox.

Pedal Box

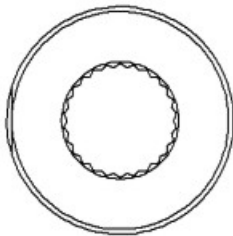
Accelerator Pedal

Check the full range of the accelerator pedal travel to ensure that there are no interferences with the pedal or travel.

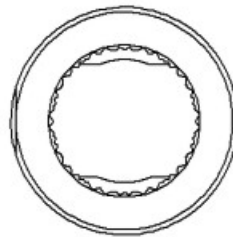
Steering Shaft



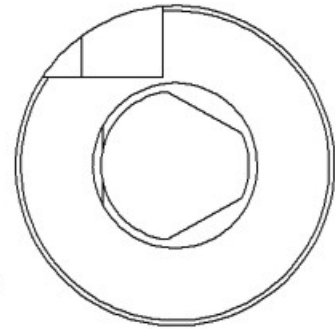
If running power steering, do not change the splined adapter in the next step.



9/16"-26 SPLINE MANUAL STEERING ADAPTER



3/4"-36 SPLINE POWER RACK ADAPTER

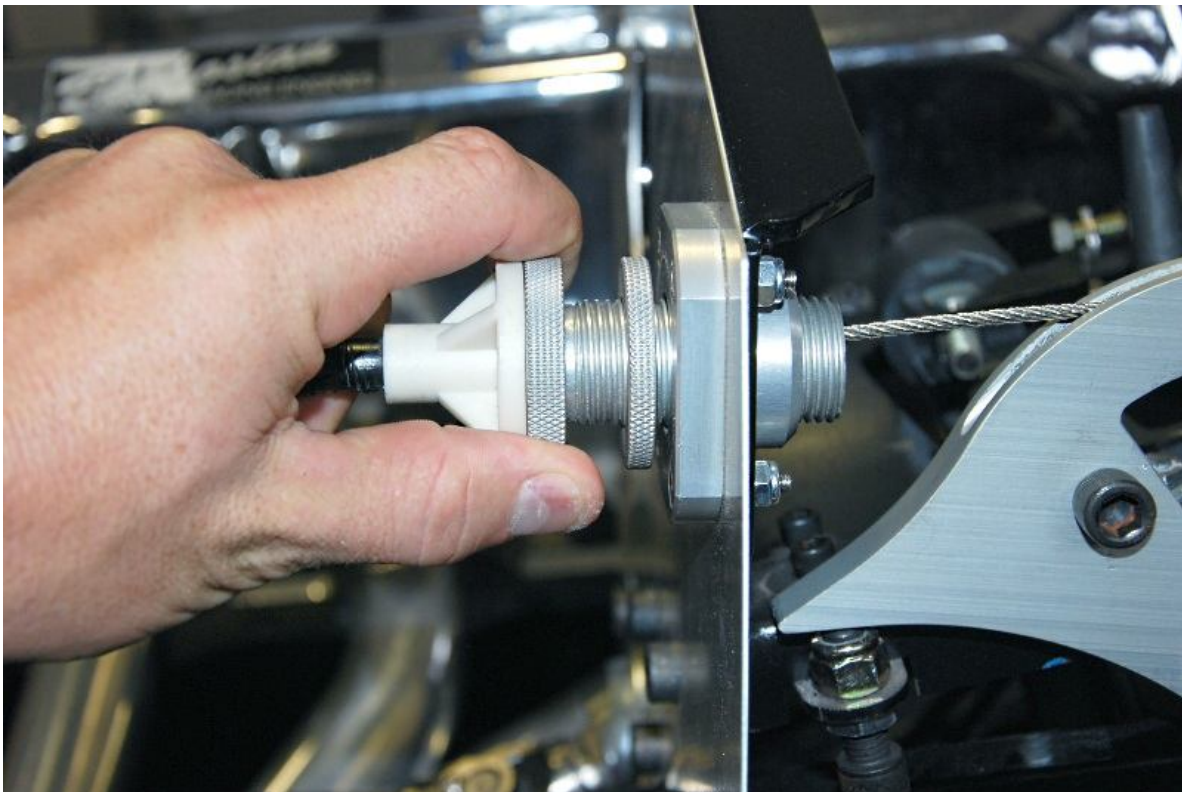


94-04 PYRAMID STEERING ADAPTER

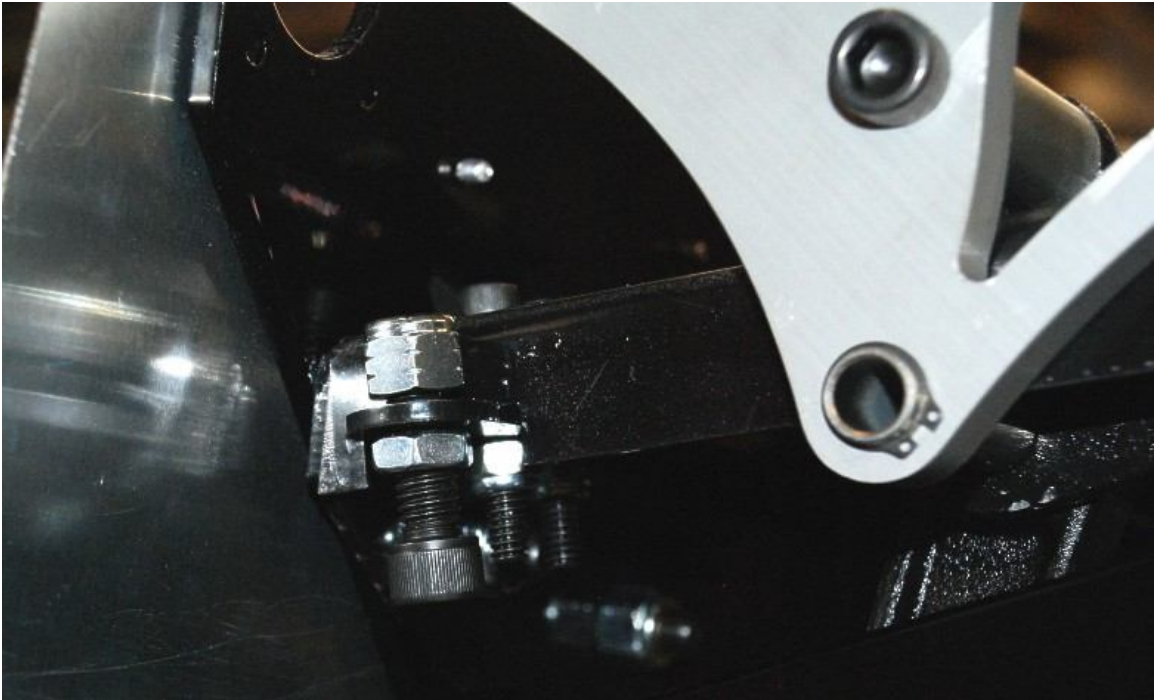


87-93 Power steering racks have a different spline than a manual steering rack and the 94-04 Power rack uses a "Pyramid" shaped end. All of these lower adapters are available from FFR.

Clutch Cable



Thread the firewall adjuster out so that the cable has no play in it.



Adjust the pedal location closer or further away as desired by screwing the height adjustment screw up or down.

Check the full range of travel for the clutch pedal.

Emergency Brake

Cables

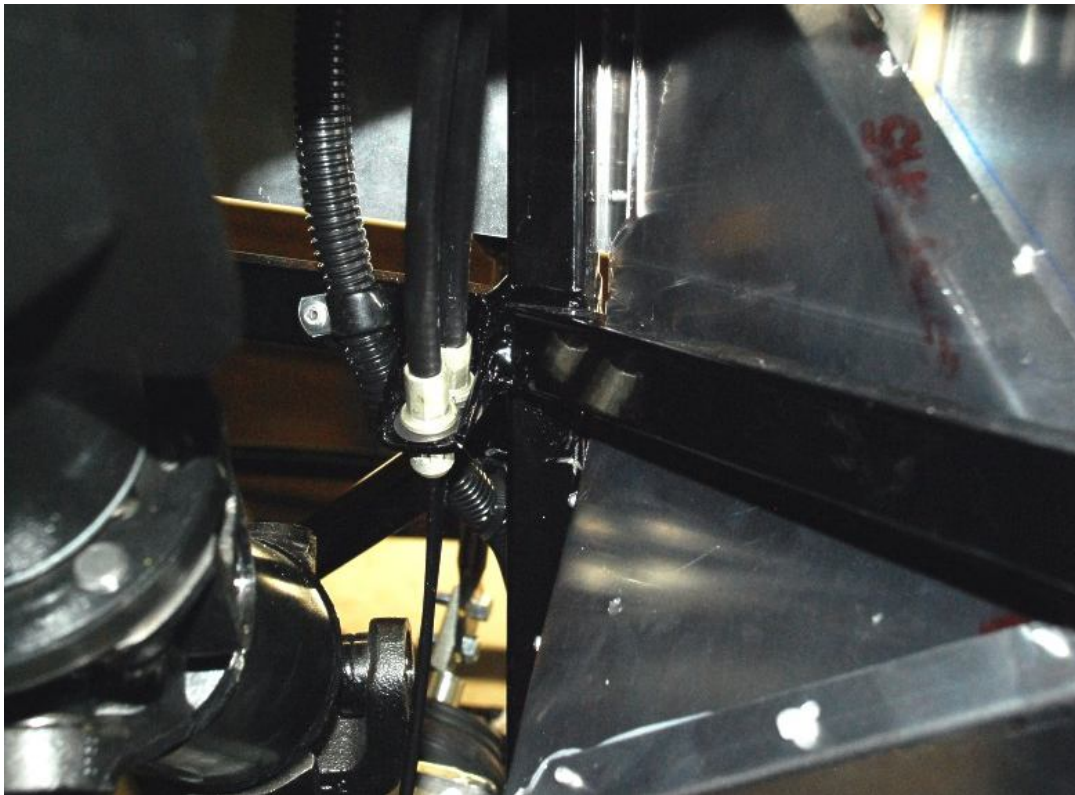
Solid Axle



Your E-brake cables should be from the same car as your rear brakes.



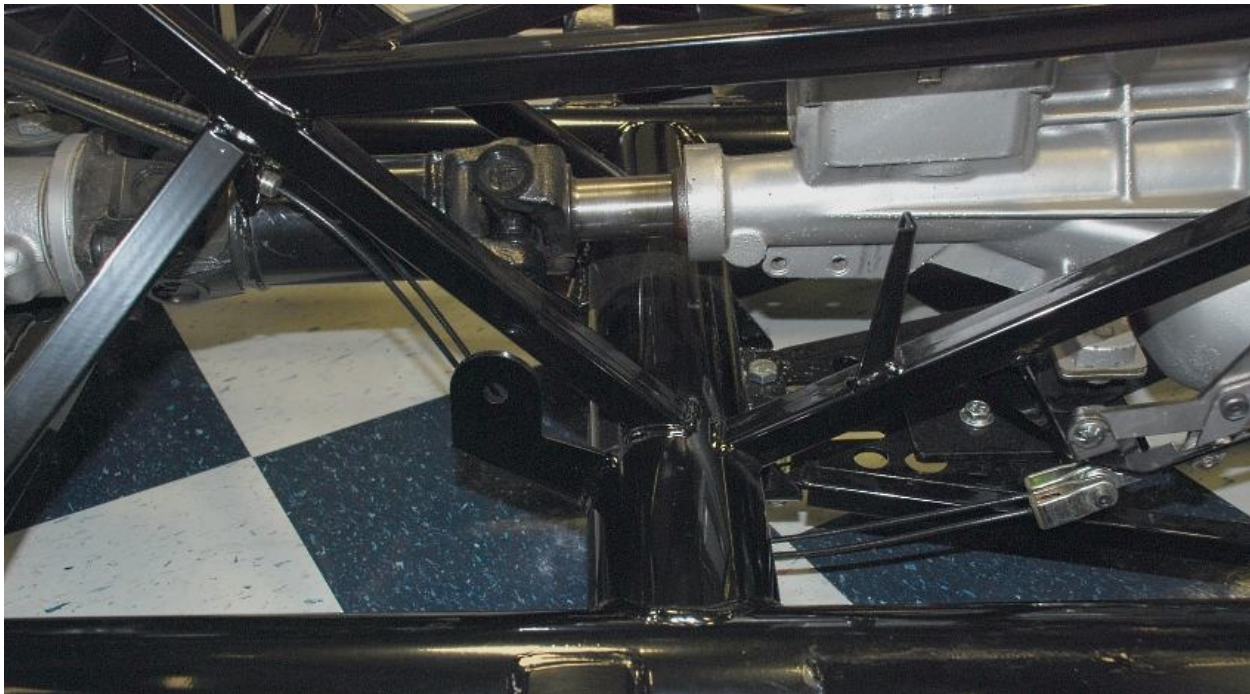
87-92 Mustang cables or the FFR cables mount to the bracket up near the 2"x 3" tube. 93-04 Mustang cables mount to the bracket near the handle.



For 87-92 and FFR cables route them through the upper bracket in the transmission tunnel until the sheath end clicks in place.



The following picture is shown without aluminum for easier viewing.



For 87-92 and FFR cables route the inner cable down under the chassis 4" crossmember.

Solid Axle



Route the cables back to the calipers and attach. Make sure your routing is out of the way of any moving parts and the cable has slack to move with the axle.

IRS



Bend and route the cables over the center section so that they curve to the rear of the lower control arm and attach the cable to the arm using zip ties from the kit.



Emergency brake cable in caliper bracket.

Optional IRS 11.65" brakes





Attach the emergency brake cable to the caliper by pulling on the back of the caliper slightly and pushing the cable into the mount. The cable will be very close to or touch the adapter bracket. If necessary, file a small angled recess in the adapter bracket. The caliper floats so it will only get further away from the bracket as the pads wear.



Bend and route the cables over the center section so that they curve to the rear of the lower control arm and attach the cable to the arm using zip ties from the kit.

Accelerator Cable

Interior Fitment

Check the full range of the accelerator pedal travel to ensure that there are no interferences with the pedal or travel.

Fuel Tank

- ✂ $\frac{9}{16}$ " and $\frac{5}{16}$ " deep sockets, ratchet, $\frac{7}{16}$ " wrench, rubber mallet, hammer, marker, punch or flathead screwdriver, $\frac{3}{16}$ ", $\frac{5}{16}$ " hex key, floor jack, friend, WD 40 or other light lubricant, drill, $\frac{1}{4}$ " drill bit.
- 🚗 OEM Fuel tank components, Secondary Body Fasteners Assembly, Fuel strap fasteners, fuel line components, fuel lines.



Unpack the fuel strap fasteners.



Unpack the 3/4" square plastic end caps from the secondary body fasteners.



Unpack the OEM fuel tank components including the tank and straps.

Fuel Tank Vent

✂ 1/4", 5/16" sockets, ratchet, (2) 1" wrenches, Teflon tape, razor knife



Wrap the vent with Teflon tape



Screw the vent into the plastic bushing and tighten.



Insert the small rubber vent gasket in the small hole on the top of the tank.



Push the vent into the grommet.

Attach a 25" section of $\frac{5}{16}$ " fuel line and fuel line clamp onto the vent.

Run the vent hose down to the $\frac{3}{4}$ " tube near the battery and attach it to the tube using a zip tie.

Fuel Pick-up and Gauge Sender



Set the rubber o-ring gaskets in place for the fuel pump pickup.



Slide the pickup down into the tank; you will have to rotate as you go to get the tubes into the sump and line up the tabs on the pick-up and slots on the tank. You can see this looking through the filler neck hole.





With the pickup all the way down slide the mounting collar and tap tightly into place with a punch and hammer.

☞ Make sure that the lock ring is held by all three locking tabs on the tank or the sender will leak.



Repeat this process for the level sender.

☞ Make sure that the lock ring is held by all three locking tabs on the tank or the sender will leak.

Brake System

- ✂ Tube bender, $\frac{3}{16}$ " , $\frac{1}{4}$ " , $\frac{7}{16}$ " , $\frac{5}{8}$ " drill bits, drill, rivet gun, marker, tape measure, razor knife, round file or sand paper, brake fluid.
- 🛠 Pedal Components, Insulated clip hardware, Brake line components, $\frac{3}{16}$ " brake lines, Front caliper/rotor assembly


Brake reservoir



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

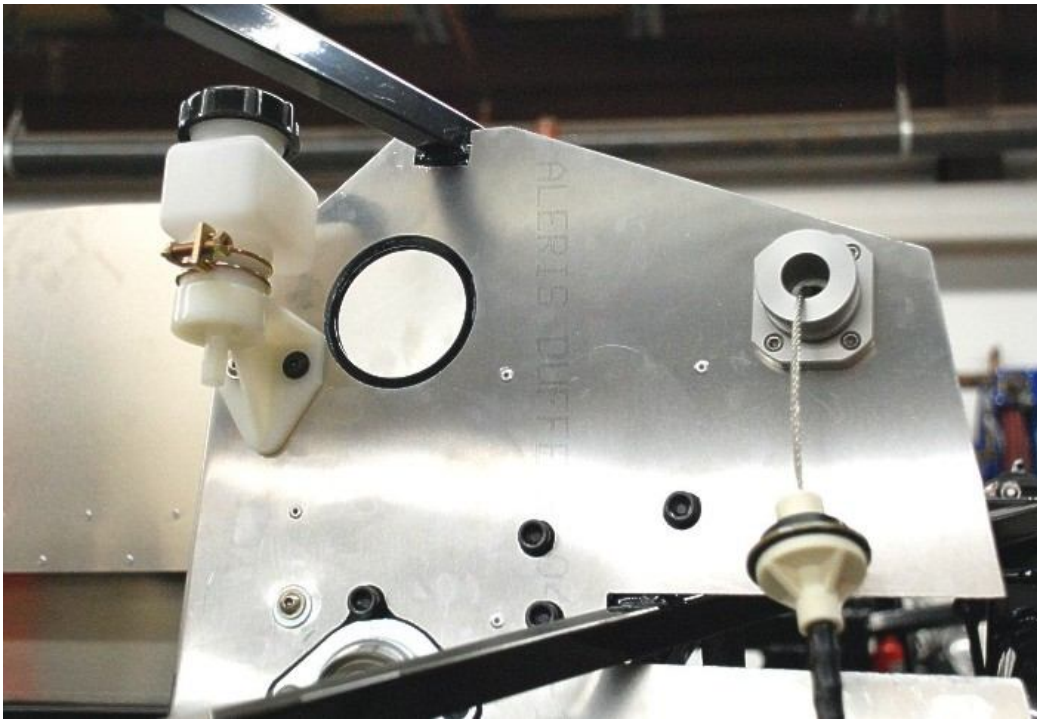


Pick and screw in the hose barb depending on how the hose will get routed.

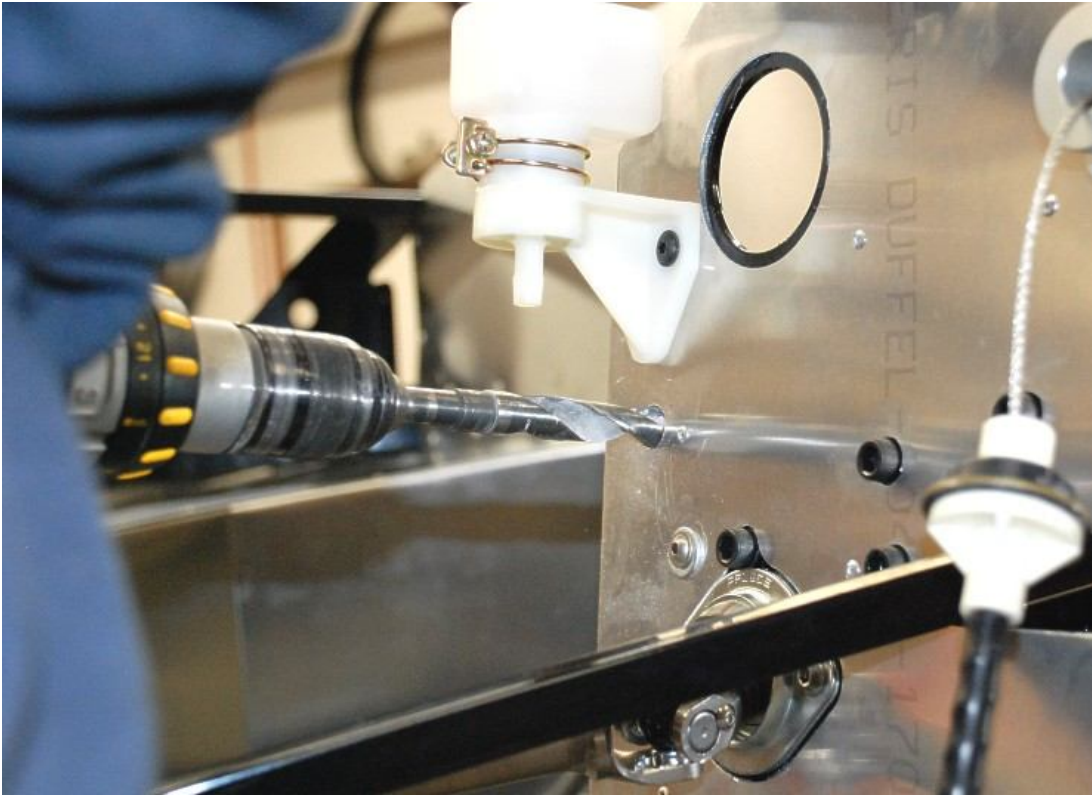
 The installation pictures show the older plastic reservoir, installation is similar to the plastic reservoir and the Coolant reservoir.



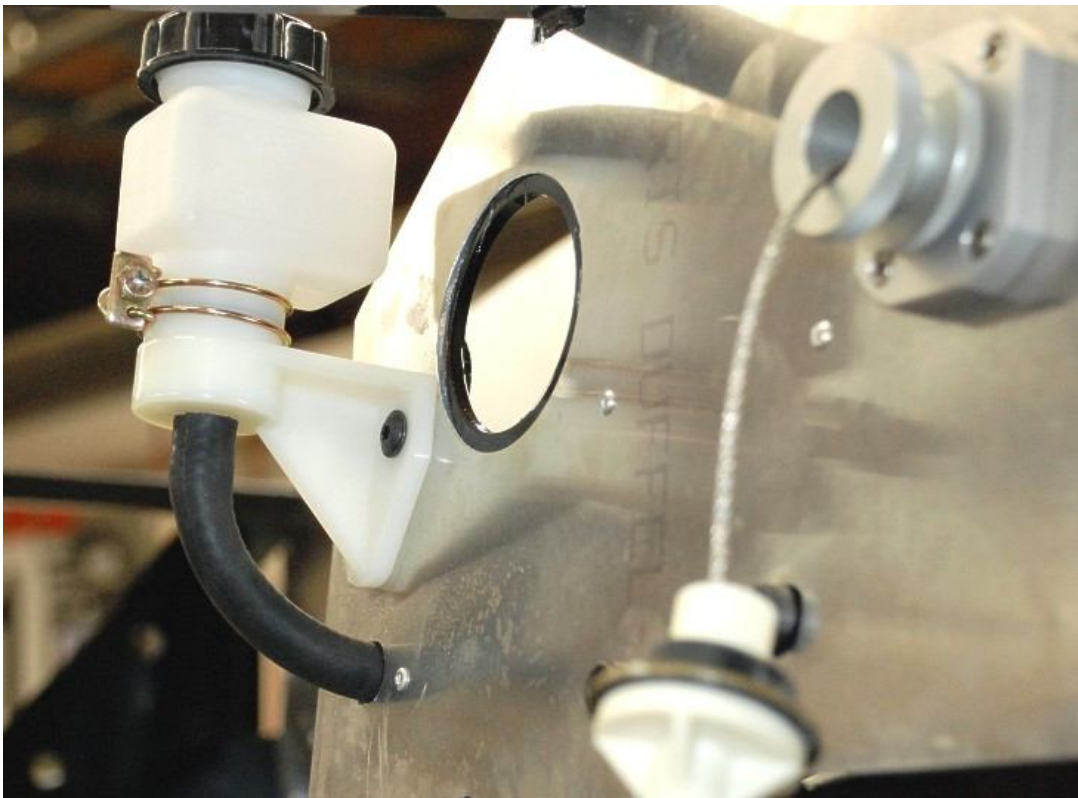
The brake reservoir mounts to the front of the footbox just inside the hood opening. Take the reservoir with cap and line it up so the top is in line with the top of the hood support tube and mark the holes.



Make sure your hole location is low enough fit a nut on the inside of the pedal box then drill out with a 1/4" drill bit and mount the reservoir. Later when installing the footbox block-off plate for the wiring harness you will need to notch it around the mount.



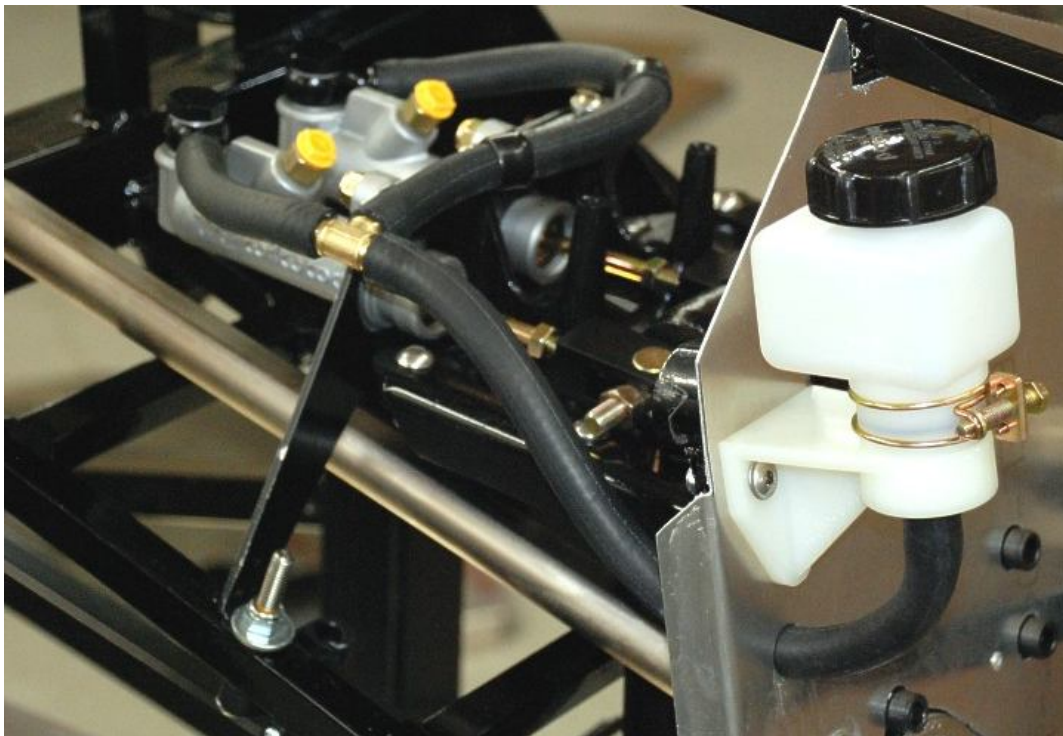
Drill a $\frac{5}{8}$ " hole one inch down from the bottom of the reservoir. This hole is for the fluid line to run through so take extra time with a file and round all the edges making sure there are no burrs left or sharp spots.



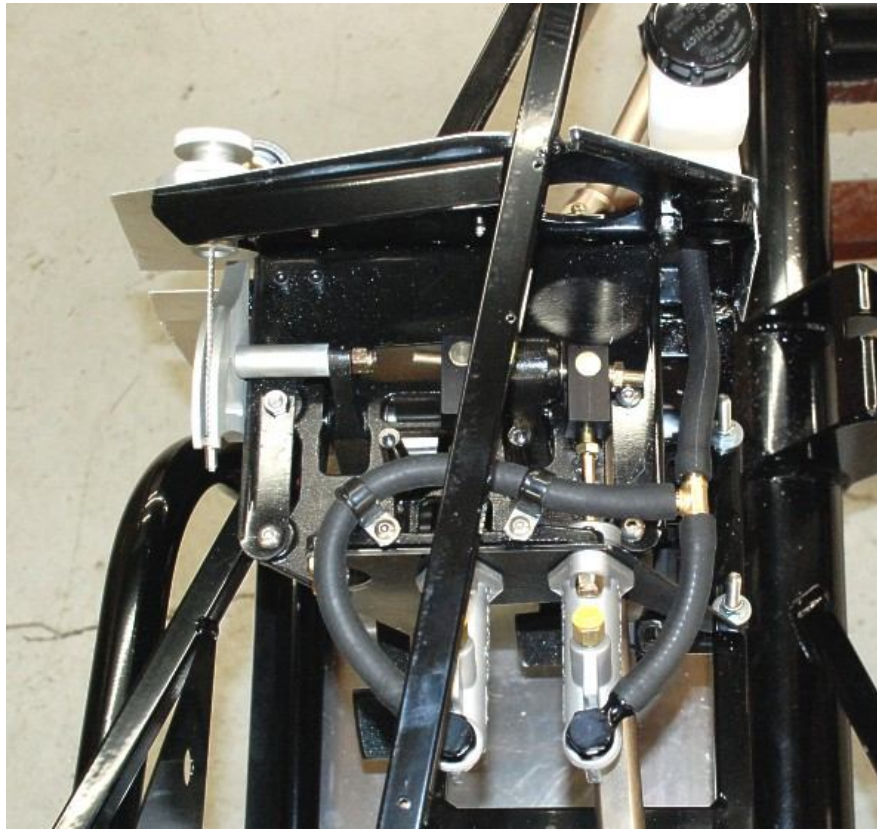
Route the fluid line for the master cylinders through the hole and press onto the bottom of the reservoir.



Loosely install the banjo fittings on each master. Make sure there is a crush washer on either side of the fitting.



Route the line from the reservoir to the master cylinders splitting it using the T provided. Make sure that the line cannot get in the way of moving parts, especially the brake pedal!



Use insulated clips from the secondary chassis box or zip ties to hold in place and tighten the banjo fittings on the master cylinders.

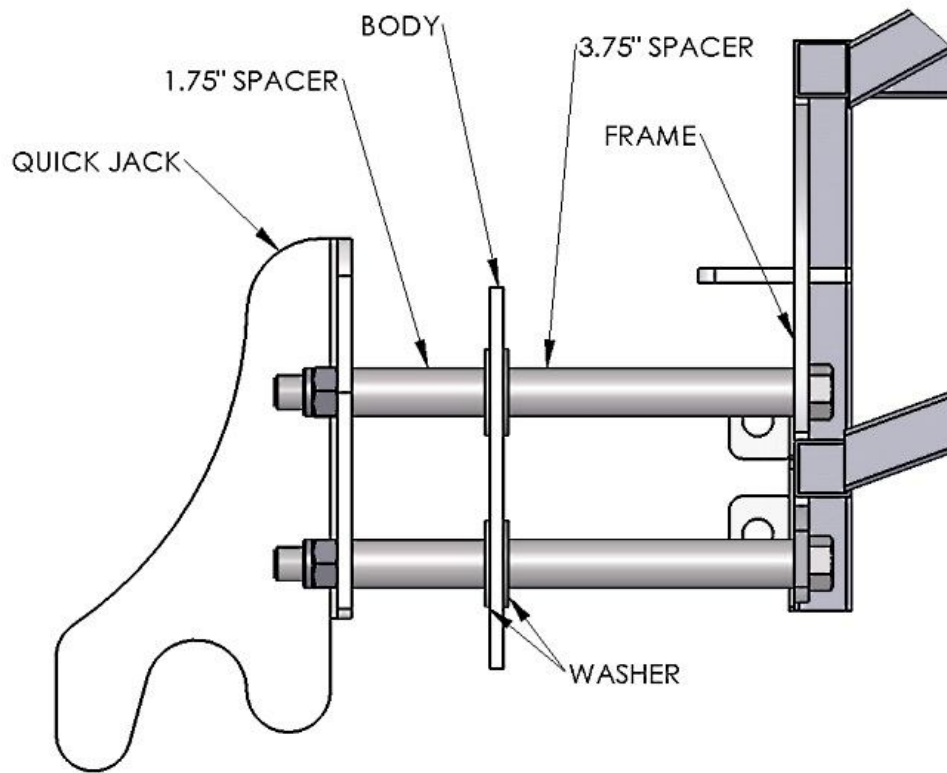
Rolling Chassis Check

Rattle Patrol

Review the race car check list in the Appendix.

Mounting the Body

Rear Quick Jacks



The long sleeves go between the body and chassis with washers on both ends of all sleeves.

Finishing Touches

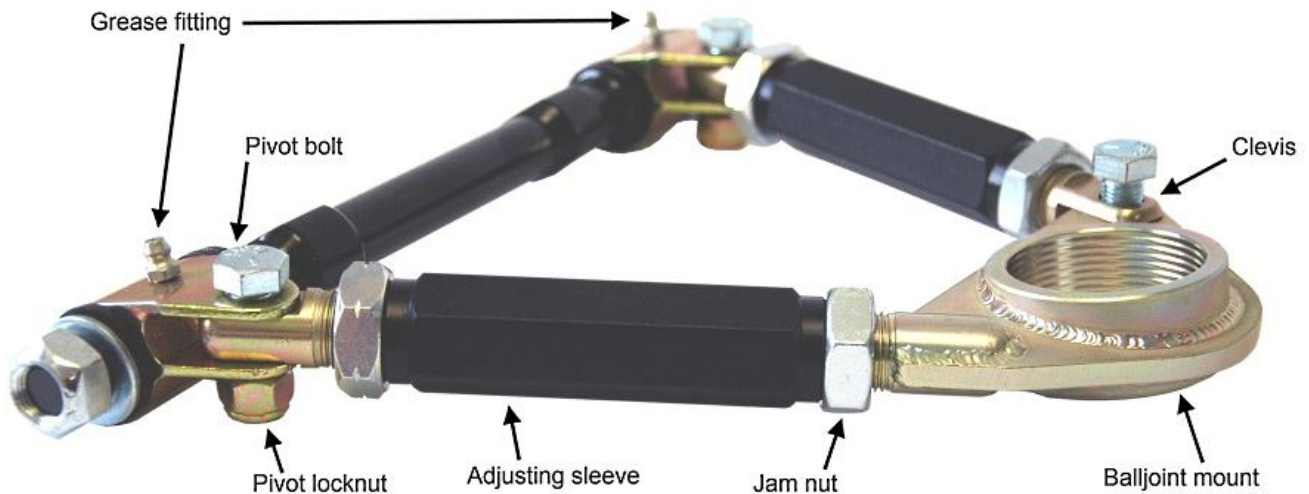
Review the Race car checklist in the appendix.

Alignment Specifications

Adjusting the upper control Arm



Use the diagram below for reference.



Slightly loosen the three pivot bolts using a $\frac{5}{8}$ " wrench and socket.

Loosen the jam nuts on both ends of each adjusting tubes using a $1\frac{1}{8}$ " wrench. Turn the adjusting tubes to lengthen or shorten the arm.

After you have adjusted the arm to the desired length, tighten down the jam nuts against the adjusting tubes, and then tighten each of the three pivot bolts. Torque the pivot bolts to 42 lbft.

Grease both ends using chassis grease frequently to insure smooth, trouble free operation.

☞ There should never be more than 1" of thread showing past the tightened down jam nuts on either end of both adjusting tubes.

The Pivot Bolts must be loosened while the car is being aligned and retightened afterwards

Optional Parts

Check out factoryfive.com for the latest options available.

Instructions are available in the parts catalog at www.factoryfiveparts.com

Performance Reference Material and Technical Support

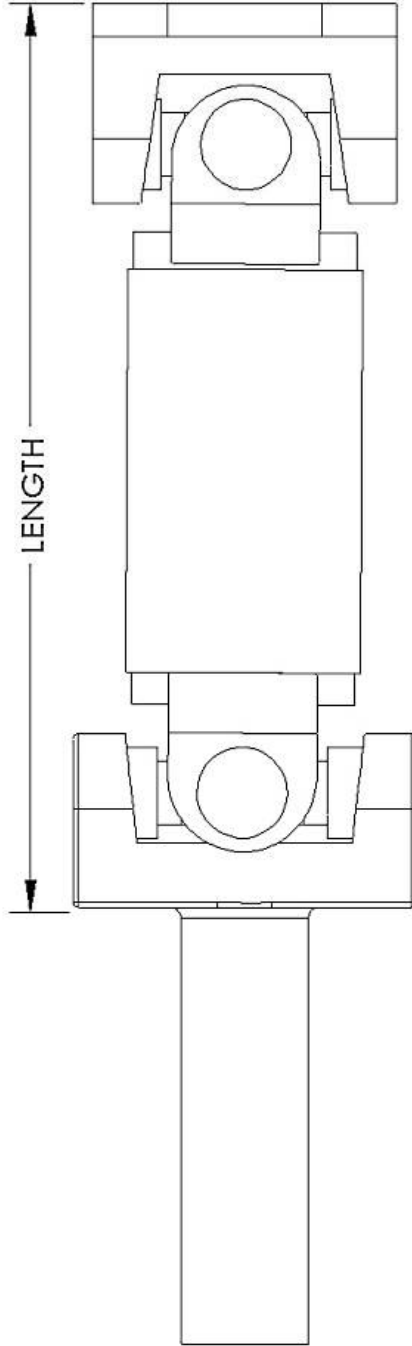
Maintenance

Check the items on the race car check sheet in the Appendix on a yearly basis or before track days depending on how hard the car is driven.

Templates

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 L'S ADDED	6/2/11	
I	HOT ROD SBC ADDED	12/19/11	

Mk. IV ROADSTER	302/351 FORD ENGINE USING T-5 OR TREMEC TRANS.	10.625"
Mk. IV ROADSTER	4.6L USING T-45 OR 3650 TRANS., BB USING TKO TRANS.	12.875"
COUPE	302/351 USING T-5 OR TREMEC TRANS.	12.875"
HOT ROD	302/351/4.6L USING T-5, AOD OR TREMEC TRANS.	34.25"
HOT ROD	302/351/4.6L USING T-56 TRANS.	32.50"
HOT ROD	4.6L USING T-45 OR 3650 TRANS	33.00"
HOT ROD	FLATHEAD FORD	32.00"
HOT ROD	LS USING TREMEC TRANS	35.1875"
HOT ROD	SMALL BLOCK CHEVY USING TKO	37.5625"



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

UNLESS OTHERWISE SPECIFIED:		NAME	DATE
ROADSTER	DIMENSIONS ARE IN INCHES	J1	12/18/00
SPEC CAR	TOLERANCES:	DRAWN	
COUPE	TWO PLACE DECIMAL ±0.01	COMMENTS	
HOT ROD	THREE PLACE DECIMAL ±0.005		
USED ON	FOUR PLACE DECIMAL ±0.001		
APPLICATION	MATERIAL		
	FINISH		
		PRINTED	12/19/2011

5 Factory Five Racing, Inc. TITLE: DRIVESHAFT DIAGRAM SIZE DWG. NO. A 13023 REV i	
SCALE: 1:2	WEIGHT: SHEET 1 OF 1

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Appendix D – Race car check sheet



CAR _____

Date _____

Steering

- Steering wheel tight _____
- Universal joint set screws tight _____
- Rack mount bolts tight _____
- Tie rod ends tight _____
- Tie rod to spindle bolts tight _____
- Steering free lock to lock _____

Front Suspension

- Ride height _____
- Front wheel bearings tight _____
- Upper and lower ball joints tight with cotter pins _____
- Upper control arm bolts tight _____
- Upper control arm jam nuts and clevis nuts tight _____
- Lower control arm bolts tight _____
- Shock mounting bolts tight _____
- Spring collars taped/tight _____
- Tire pressure set (recommend 22-25 psi) _____
- Lug nuts tight (90 lb-ft) _____

Brakes

- Front Caliper bolts tight _____
- Rear caliper bolts tight _____
- Rotors clean no cracks or groves _____
- Brakes bled/bleeders tight _____
- No leaks under pressure _____
- Master cylinder bolts tight _____
- Reservoir full _____
- Flexible lines tied up and undamaged _____

Cockpit

- Seat securely bolted _____
- Harnesses securely bolted _____
- Harnesses free from cuts or abrasions _____
- Pedals travel freely and bolts secure _____
- Throttle return springs hooked up _____
- Brake push rod secure and clip tight _____
- Interior wiring tight _____
- Shifter tight and free _____
- Mirrors tight and adjusted _____
- Windshield side bar screws tight _____
- Inspection/registration up to date _____

Electrical

- Battery charged _____
- Battery mount and connections secure _____
- Brake lights functioning _____
- All wires free and clear of moving or hot parts _____

Rear Suspension


- Ride height _____
- Shock mounting bolts tight _____
- Spring collars tight/taped _____
- Wheel bearings tight (IRS) _____
- Tire pressure set (recommend 22-25 psi) _____
- Lug nuts tight (90 lb-ft) _____

Transmission

- Clutch height/freeplay adjusted _____
- No leaks _____
- Driveshaft universal joints no bind or wear _____
- Output shaft snug no bind _____
- Drive shaft bolts tight _____
- Transmission mount bolts tight _____
- Bellhousing bolts tight _____
- Starter tight _____

Engine

- Oil level checked/changed/cap tight _____
- Water level checked inc reservoir _____
- Plug wires tight inc coil _____
- Belts tight _____
- Engine mount nuts tight _____
- Fuel lines no leaks under pressure _____
- No coolant or oil leaks _____
- Exhaust tight _____
- Fuel level checked _____

 This list is not complete but a suggested list of items to check before driving. It is also a good idea to check these items on a yearly basis or sooner depending on how hard the car is driven