

Installing a 460 into a 67-70 Cougar

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#1:  **Installing a 460 into a 67-70 Cougar** Author: **TheRktmn**, Location: TX, USA  Posted: Wed Dec 07, 2016 9:38 am

This post describes how I installed a 460 in my 69 Cougar without cutting it all up. Hopefully it will be of some help to those of you who are considering this swap.

Installing a Lima (429/460) engine into a 67-70 Cougar

Dropping a 429 or a 460 into an early Cougar (or Mustang) seems to be becoming more popular, and I know that when I did mine there was not a whole lot of information available, so I figured that I would share my experiences with you here.

First of all, I want to say that contrary to what the purists and naysayers preach, the swap is possible, it is affordable, they don't overheat, they are streetable, can have factory power steering and power brakes, and it can be done as a bolt in conversion. My 1969 Mercury Cougar XR7 is rolling proof of that. Keep in mind that this car was built as a driver with stops at local show and shines and an occasional run at the drag strip so what you have to do to your particular car may differ. As I said, this was to be a drop in bolt in project. I can drop a 351W back into this car and no one will ever know that it ever had a 460 in it.

These cars came with FE (390/427/428) engines from the factory. The Lima and FE are the same width. The widest part simply falls in a different spot. The Lima is longer though and this causes some clearance issues at the radiator. The Lima is also taller than the FE and the FE is certainly easier to change the sparkplugs in.

However, the Lima makes TONS of stump pulling torque at a very low RPM and a stock rotating assembly is good for 6000 RPM anyway. A Lima engine is cheaper, easier to find parts for and a hell of a lot better looking too (IMHO). So, here we go....

Get your s* stuff together**

Before you start ripping and tearing it's a good idea to get your plan and parts together. There are several vendors that offer conversion kits to do this. [Crites Restoration](#) and MPG Head Service are a couple. I used the Crites mounts in my conversion and they use Boss429 style frame mounts and insulators, which raise the engine approximately one inch. They also bring the motor forward about 1". From what I hear the MPG

set up does not do either of these, but is not a bolt in kit.

Both Crites and MPG offer complete kits with long tube headers (I believe Crites even has the plates to notch your shock towers if you want to.), but I went with shorty style headers from FPA for ground clearance.

You will also need a transmission. The Lima engines have the same bell housing bolt pattern as the 351M/400 engines, so a C6 or AOD will bolt right up. You can also get C4 bell housings for Lima engines, but make sure that you build it strong enough to hold all the torque.

Don't sweat (or forget) the little stuff

Your conversion may vary depending on what equipment you bolt to your engine, your chassis, etc., but here are the little things that I had to do:

- I used the original FMX crossmember and elongated the holes in the rear mount about $\frac{1}{2}$ " to line it up.
- I had to have a driveshaft made since the C6 is longer. I ended up cutting 3.5" off of my 351W/FMX driveshaft length. To figure your new driveshaft length, do this: Once the engine, tranny and rear end are in place stick a yoke into the transmission and bottom it out. Then pull it back about 1". Measure from the center of the u-joint cup back to the center of the u-joint cup on the rear end. That is your driveshaft length. Easy, huh? I had a new shaft made and it cost \$100 with new u-joints and balanced.
- All Cougars from 68 on came with reinforcement plates welded around the lower shock towers. The quality of these installations varies. I had to cut out 2 small pieces out of the plate on the right side. Strangely enough the left side was fine. Looking back, I could have just hammered those 2 small areas back, but I cut them instead. Either way works.
- When I did my test install with the headers I noticed that the header on the driver's side was hitting the frame mount in the back and this was keeping the engine from dropping all the way in. How did I discover this? Because the bolt wouldn't slide through from the front and the engine was obviously crooked. A few minutes with a grinder on the Crites frame mount and that obstacle was cleared.
- No matter how much you look, bang and grind you are going to get some banging at an idle. This is

due to the engine being on rubber mounts and being able to move around. I have a fairly mild cam and I still got them. I fixed this by installing a torque strap like the one described [here](#). By putting some preload on the strap I solved a bunch of annoying knocks.

- Find an angled oil filter adapter. I believe that Ford Racing offers them, but you can get one in a junkyard from a truck or van. Any V8 (except an FE) will fit. Be sure to get all 3 pieces - adapter, bolt and block insert. While not necessary for the swap it will make things cleaner and neater in the area of the engine bay.
- Power steering drop bracket. You may need one you may not. I put one on to help keep the header heat away from the bellows type cover on the PS ram.
- Sway bar: If you want to run a front sway bar you will need to switch from the straight small block style to the bent big block one. The SB one might work but is right tight to the oil pan. I used a 1" bar from Mustangs Unlimited.



- Speaking of won't fit: Don't buy an MSD billet #8580 distributor and expect your hood to close. Ask me how I know. I have a rebuilt Duraspark distributor in mine.
 - Oil pan: I used a stock 429 7 quartt pan from Ford Racing. Plenty of room.
- Lower crossmember: All V8 cars have this brace for a reason. With the Crites mounts and FPA headers this stays with room to spare.
- Export brace, Monte Carlo Bar, Sub-frame connectors: I highly recommend a one piece export brace. Monte Carlo bar? The straight one will go in, never tried a curved one. Sub-frame connectors? A must! The 460 engine has a lot of torque and twisting your ride is no way to enjoy it. I installed a set of bolt-in style connectors from Competition Engineering. I bolted them in before the engine install, and then welded them to be sure. BTW - The Mustang ones DO FIT the Cougars.
- Springs. I had FE springs in the front of my Cougar. The ride was not too bad, but I thought that the

front end sat too high. Probably because of all the lightening I did. I changed to SBF (351W) with a 1" drop and am much happier with the look. Amazingly enough she corners better now, too.

- Starters? I have used both the mini and the stock Ford unit. Both go in and out easy with the headers in. No heat issues.
- Battery relocation: I did move my battery to the trunk but with the fuel tank being the trunk floor NHRA says that's a no-no. So I put it back under the hood. Plenty of room. I have since gotten a [Taylor battery box](#) and moved the battery back to the trunk.
- If you are not installing power steering then you can gain another $\frac{1}{2}$ " or so of clearance between the water pump and radiator by using a water pump and pulley set from a 68 or 69 Thunderbird or Lincoln. Make sure that you get all of the pulleys and brackets as well as the harmonic balancer and spacer. The early and late styles are not interchangeable. The early style balancer has 2 grooves in it that act as pulleys.



- Accessory brackets. I looked long and hard because my engine came from an 85 Ford truck and had that huge cast PS/AC bracket and all I could find were brackets that put the PS pump way too high. I got to thinking that Cougars and Mustangs came with 429s in the early 70s and did a web search.

The 71 429

CJ Mustang and Cougar Megasite

had

pictures of just what I needed

! I ended up getting my brackets off a late 70s Ford truck. I also picked up a set from a 74 Cougar with a 460.

- Belts and hoses: I used the belts from a 71 Cougar with a 429. For the top hose I used a molded one from a 69 Cougar 428, cut to fit. A molded hose for the 71 Cougar 429 works well on the bottom.
- Air breather assembly. With the engine sitting up higher I had to either swap my Eliminator hood scoop for a Boss429 one, or give up my Performer RPM intake manifold. I went with an Edelbrock Performer 460 intake, which is essentially an aluminum reproduction of the factory 4V manifold. Using this manifold and an Edelbrock carburetor I can run a 14" x 2.25" air filter element in a 289 HiPo chrome breather under my Eliminator hood scoop. If you want to run factory looking RamAir you're going to have to play games with drop bases and everything else.

**So put it in,
already!**

Alright, so you've got your parts and pieces and you're ready to put it in. Here's how I did it:

Have the radiator out of the car. Leave all accessories (alt, pulleys, PS pump and brackets) off of the engine. I do have the WP on as it makes a great handle for swinging and jiggling the engine.

- Put the frame mounts (they are marked L and R and Forward) into the engine bay but leave them loose. Put the insulators onto the block and tighten them down.
- Do a dry run with just the engine and headers installed to check the side-to-side clearance. I customized one tube on each header to make a bit more room.



- Bolt the engine and tranny together (don't forget the torque converter).
- Bolt on the left (drivers) side header. Tighten it right up.
- Start lowering the engine & tranny assembly into the engine bay. A tilt device for your hoist is a good thing to have here since the tail shaft has to be way down to clear everything.
- About the time the engine is lined up but still up in the air - above the shock towers - I install the right (passenger) side header and tighten it down. You can swap this header once the engine is in and bolted down (it takes about an hour to R&R it) but it's a lot easier to do it now.
- Finish lowering the engine/tranny assembly into place. Put in the rear crossmember, line everything up and then tighten it down. That's it. It's in. This part takes me about 30 minutes working by myself in a 1 stall garage with a chain falls to raise and lower the engine.