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## '54-'62 Cadillac Engine Swap, Page 1

This is the basic information for installing a '68-'85 Cadillac 472 / 500 / 425 / 368 engine into a 1954, 1955, 1956, 1957, 1958, 1959, 1960, 1961, or 1962 Cadillac car. This is by no means a comprehensive 'how-to', but all of the essential information specific to this particular engine swap. This swap is not for the faint of heart or the inexperienced. While someone of just about any skill level can successfully complete this swap, it is not what anyone (even a skilled, experienced hot-rod builder) would call 'quick and easy'. On the other hand, if you stick it out and get it in there, the results are quite rewarding.

- ⊕ We will start with engine preparation - the stuff you want to do to the engine while it's on the stand, before you even remove the old engine from the car.
  - ⊕ It's a good idea to go ahead and do a full reseal (at least everything except for the head gaskets) and a new timing chain set, prior to installing a used engine in your car. Beats the heck out of fixing leaks, etc. in the car. Also, if you are going to be changing the cam, do it now. It is not reasonable to change the cam in the car with this swap.
  - ⊕ You will need a true rear sump oil pan - Eldorado or aftermarket. The stock 425 / 368 77-85 RWD oil pans will not fit. You will also need a rear sump pickup tube (new ones are available), and you will have to move and / or re-bend the oil dipstick tube if your engine did not start out with a rear sump oil pan. Dipstick tube instructions are on the tech page - please check them out before hand, as even though it's not rocket science, it's not obvious to everyone. New dipstick tubes are available, if you are unable to re-use the original.





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## '54-'62 Cadillac Engine Swap, Page 2

- ⊕ Remove the exhaust manifolds, and extract any bolts you break along the way.
- ⊕ Change the oil pump. You will have to pull the distributor out to change the pump. Technically, you can use the original pump, but in most cases this results in excessive frame modifications, and people often end up running a bearing-killing remote oil filter, as well. With our Special Chassis Gold oil pump, the pump body is smaller, requiring substantially less frame modifications, and will allow you to keep the oil filter mounted directly to the pump, without any further modification to the frame.
- ⊕ Set up your transmission mating after pulling the engine off of the stand, before setting the engine in the car. If you need a transmission adapter, this is the time to install it. If you need to change the Flex plate, install a flywheel, pilot bushing, etc., this is the time to do it. If nothing else, test fit the tranny to the engine, and make sure everything lines up and goes together nice.
- ⊕ For the motor mounts, you can use part of the original mounts (the steel brackets that bolt to the block, with the rest cut off) and some rubber offset mounts (late 60s Dodge truck BB mounts) to line up with the stock holes in the frame. Cut the rubber off of the engine side metal part, and drill a hole, and you're done.



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### '54-'62 Cadillac Engine Swap, Page 3

- ⊕ The oil pump tends to hit the frame on these chassis. It will require crossmember modifications to clear the oil pump (and maybe the fuel pump). The special chassis pump greatly reduces the necessary crossmember modifications, but does not eliminate them on these cars. With the special chassis pump, the crossmember mod is mild enough that you can heat it with a torch and whack it with a hammer for clearance, rather than actually cutting out a section and boxing it in. Pictured at right is a heat-beat clearance job. If you are good with a hammer, it can be finished nicely to look almost factory. To clear the stock pump, the notch will extend to the bottom of the cross member, and cannot reasonably be done without cutting, re-enforcing, and boxing. Also, unlike the stock pump, with the Special Chassis pump, by the time you have clearanced the crossmember enough to clear the pump, the filter will clear. With the stock pump, you will either have to make a bigger notch to clear the filter, or a smaller notch and run a remote filter. Remote filters tend to shorten bearing life...
- ⊕ You can't use the original ('62) trans. The Th400 that came behind the 500 is the extra-long tail shaft version of the TH400. TH400 tail shafts are identified by the length of the bolt-on tail shaft housing. The standard lengths are short (4"), long (9") and Cadillac (13"). The 13" tail shaft will be back into the 'X' part of your frame, which means you have to pull the engine to pull the trans. On the up side, it's a TH400, so if you overhaul it before you put it in, you will probably never have to touch it again anyway. Alternately, you can find a short tail Buick trans, or even a Chevy trans (which will require an adapter). As long as you stick with a TH400, they are all just as tough. The best solution for a tranny is a TH400. Using the right Chevy trans mount, and a 3/16" or 1/4" thick plate to bolt it to the Cadillac trans (or using a Buick trans, or a



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## '54-'62 Cadillac Engine Swap, Page 4

Chevy trans and trans adapter) allows you to leave the trans crossmember relatively un-molested.

- ⊕ We like to flip the cross member upside down, add a piece of 3/8" steel plate for spacing and strength, and re-drill to match the mount. The welds are not strength-critical, and technically, you could simply let the through bolts from the mount hold the plate in place, as it's primary function is spacing.
- ⊕ The next issue with the trans is the shift pattern. The original trans had a substantially different shift pattern (Reverse on the far right end). On some of these cars, a '64 TH400 shift indicator can be adapted, and crafty folks might make their own indicator. There may even be an aftermarket indicator of similar generation BOP cars that can be easily adapted. Most people just shift by feel (if you are used to driving an automatic car newer than '65, you probably never look at the shift indicator, anyway).
- ⊕ You will need to have the driveshaft modified for length, and for the proper yoke. If you use the Cadillac trans, make sure you get a Cadillac yoke, because they are different than the yokes for the shorter tail shaft (in addition to being longer, the Cadillac tail shaft is larger diameter). Most driveshaft shops have the non-Caddy yoke on hand, but not the Caddy version.
- ⊕ We recommend installing the engine/ trans together, so you can see where everything will go, before setting up the engine or trans mounts.
- ⊕ For exhaust, you may be able to use some combination of stock exhaust manifolds. On the passenger's side, a stock '68-'76 472/500 or '77-'79 (425) passenger's side exhaust manifold often fits (on the early cars, the '77-'79 version fits better, but it is restrictive). On the driver's side, you may need another passenger's side manifold (a 500 one will work). A stock Eldo or non-Eldo



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## '54-'62 Cadillac Engine Swap, Page 5

driver's side manifold may fit. Or cut up the manifold and weld the collector in just the right place to make for a really clean install. Headers could be built, they will have to be custom built in the car. Exhaust fit is dependent on which brake and steering setup you have. There are variations even within the same model and year on some of these cars, so there is no standard answer. Also, many people change the brake and or steering configuration.

- ⊕ Speaking of steering, the '68-'80s GM power steering pump is close enough in output pressure, to use without any issues on any '54-newer Caddy. We have done this, and it works just fine. Note: The high pressure hose to the steering gearbox may be an oddball fitting (i.e. on the mid 50s cars). You can have a custom hose made by taking the old late model hose (that fits the pump) and the old original hose (that fits the gear box), to a shop with the tools to make a custom hose. Most full service auto repair shops, and any hydraulic shop, can do it.
- ⊕ You will most likely not have room for a mechanical fan. You may have to move the radiator forward just to clear the pulleys. As much as I dislike electric fans, on these cars, an electric pusher fan on the front of the radiator is the easy solution. Don't forget to add a fitting in the radiator for the heater core return (preferably on the driver's side, same radiator tank as the lower radiator hose).
- ⊕ It is not necessary to remove or modify the air boxes on cars that have them (mid 50s). You can set the engine further back if you can tuck the valve covers under the air boxes. The stock '77-'79 425 valve covers have a step-down at the ends, which adds clearance if you are trying to tuck the covers under the air boxes. Notice the outie-dings on the valve cover in the picture - this was necessary to clear the Stage 3 shaft rockers used on this engine.



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### '54-'62 Cadillac Engine Swap, Page 6

- ⊕ It is also not necessary to modify the fire wall. However, adding a little clearance there, can solve the whole radiator / fan headache. Some folks switch to a short (up and down height) cross flow radiator, and push it quite a ways forward, to run a mechanical fan. This is quite a bit of work (you are getting into messing with the support bracket for the hood latch, among other things), but it makes for a really clean install with a good old reliable mechanical fan. The later the car, the more room you have to work with without getting into the hood latch.
- ⊕ On most of these cars, you'll need a bell-crank for the throttle (if you use the stock throttle linkage) because the stock throttle linkage goes the wrong direction. We stock them, if you can't find one at your local auto parts store. If you use an aftermarket intake and carb (though we don't generally recommend aftermarket carbs for street engines), or an aftermarket intake and a Q-jet with a Chevy style linkage, you can hook the throttle linkage to the arm hanging below the throttle shaft (intended for the kick down cable for a light duty tranny). You can't use a carb with that on a stock intake, because it won't clear (you can use the carb, but you have to cut off the arm)
- ⊕ The wiring can get a little tricky. If your car has gauges, you will have to change the sending units out for the right ones. And, of course, they are in different places on the engine. The distributor will have to be re-wired, as well, as it is moving to the front.
- ⊕ If you get an electronic distributor, you will have to bypass the resistor that drops the 'key on' voltage (sometimes a resistor wire in the harness, which means re-wiring all the way back to the switch). There is info on handling this on the tech page of our website.
- ⊕ If you use an early alternator, such as for a '68, and the external regulator that goes with it, it will bolt to the stock 472/500/425/368 and be easy to wire into the old VR wires. You will also need a '62-'69 voltage regulator for an alternator. Later engines had internal regulators (wiring these into an early car is not too bad - there is a diagram on our tech page). We also carry 1 wire high

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## '54-'62 Cadillac Engine Swap, Page 7

output alternators from in various output ranges, in both chrome and polished. With a 1-wire alternator, you just run the single wire back to the battery +, and remove all of the original generator and VR wiring. However, I don't recommend it. One wire alternators can sometimes quit charging in heavy traffic, with no warning. I recommend wiring up the 3 wire alternator setup one way or another. The one-wire alternators have a rubber plug that can be removed, so you can wire them as a 3-wire alternator.

- ⊕ The rest of this swap is fairly basic - plumbing, cleanup, etc.. On the earlier cars, coolant plumbing is more complex, But it's not too hard to work out - the supply hose hooks to the engine (either the back of the passenger's side head or the block, just below the thermostat). On most of these cars, we end up using the location on the block - if it was not drilled from the factory on your engine, it is not difficult to drill and tap. The return from the heater core(s) goes to the radiator (the bung I mentioned adding to earlier).
- ⊕ If you spend time on the details, this swap comes out really nice, and leaves you with a much more powerful and lower maintenance car. It is a very time consuming swap to do nicely, but if you have the skills and the time, it can be made show-quality without the use of any special tools aside from a torch for the cross member mod. As you progress through the swap, and the time invested is stacking up, you may be tempted to rush through to get it drivable, but if you resist the urge, and do a nice job, you will be much happier with the end result.
- ⊕ Feel free to call or e-mail for advice if you run into anything you are unsure of during the swap. We are always happy to lend a second opinion from the standpoint of experience. E-mailing with pictures is often the best way to go - a picture is worth 1000 words.
- ⊕ Most of all, remember to have fun - if you look at the swap as part of the journey, and not just a means to an end, it will be much less stressful, and can be quite enjoyable.