

General Ford 6.0L and 5.4, 6.8L with 5R110
Conversion Information
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* If you would like more technical information about the conversion, buy our Installation manual; available online, or call us. We also supply supplemental instructions for your specific year of truck with the parts that you buy.

***Call us at (406) 755-8878
with any further questions, we're here to serve you!***

General Ford 6.0L and 5.4, 6.8L with 5R110 Conversion Information

This information is provided to you to help you make an informed decision on your conversion. More detailed information is available in our Installation Manual, available online for \$ 25.00.

5.4 and 6.8 Conversion information

Many times customers ask about converting these trucks to a diesel due to the fact that they can be purchased reasonably. There is not too much difficulty in this, for they will accept a diesel Super Duty intercooler without modification and the frame and transmission mounting is the same as the diesel versions. You should plan to drop the fuel tank and remove the electric fuel pump. This is explained further in the installation manual. Keep in mind that a new diesel exhaust system will be required and a diesel radiator is also a good idea if you plan to do some considerable hauling.

It is recommended that a F-250 or heavier duty chassis be selected for 6 cylinder conversions. The F-150 chassis is really too light duty to handle the power and weight of the 6 cylinder Cummins, but they make great candidates for the 4cylinder conversion for great fuel economy; and don't worry- it can still pull just as hard as your V-8.

5.4 and 6.8 Automatic Transmission Section

If your truck is a Super Duty (F250 and up) with a 5.4 or a 6.8 V10 you can use a 5R110 adapter plate and a PCS transmission controller. The PCS controller requires a laptop to make adjustments, and this is the only drawback to using it, as opposed to the other controller that we offer that does not require a laptop computer. Using these parts allows you to have the flexibility to upgrade to a 5R110 transmission at a later date if your current transmission goes out, which is a 4R100, if it is a 4 speed.

Due to the differences in every customer's usage of their trucks we may sometimes say it would be ok to try their 4R100 behind the Cummins as is. An example of this would be someone who is considering the Cummins from a fuel economy standpoint and does not plan to do much heavy trailer pulling, and also would like to save as much money as possible when doing their conversion. In cases like these, the customer may decide to use the stock 4R100, even with a stock torque converter (*definitely not*

recommended for trucks pulling heavy trailers- and with the Cummins, you may notice having to brake harder to keep it from rolling through stop lights). These customers may opt for this option with the 5R110 upgrade option as their plan B at a later time.

The 5R110's are a 5 speed automatic that comes behind the 6.0 Fords. These transmissions are practically a bolt in replacement for the 4R100 (with the 5R110's transfer case or the swapped input gear). While the 4R100 transmissions can be beefed up to handle the power, the 5R110 can handle it as is in most cases. The extra gear in the 5R110 is also helpful for heavy pulling. If you can find a good used 5R110 and transfer case cheaper than rebuilding your existing tranny, it may make more sense to use the 5R110.

**See 6.0 automatic section for more information.*

General 6.0 conversion information

The Cummins into a 03-04 6.0 powered Ford is the easiest conversion out there so far. There is very little modification necessary to the truck itself. The stock radiator, shroud, and intercooler all work well in the conversion. Cruise control is still possible by adding a gas powered truck's cruise servo according to our instructions. 05 and newer trucks require different steering wheel switches from an earlier truck for the gas truck's cruise servo to work. This can be a disappointment to owners that have radio and climate controls in the steering wheel, since one option to get around this problem is to install an earlier steering wheel with the earlier cruise only switches. Currently, the only other option is to install the earlier switches into the dashboard or console.

The check engine light, and the service light (all years), will always be on and inoperable with electronic controlled Cummins engines- along with the tow/haul light (excluding the 03 models); unless you are willing to do some extra detailed work on your dash.

With F-550's especially, low gearing can be a bit of an obstacle for top speed limitations with some of the earlier unmodified 12 valve engine applications. Even with the higher rpm limited Powerstroke the 4:88 gearing these trucks come with can be un-desireable. This can be solved several different ways, including replacing the low gears with a higher set.

* See General Engine Information for more information.

6.0 Automatics

5R110- These transmissions work well in the conversion. Many of our customers have used them behind a 400+ horsepower Cummins just the way they are, including the stock torque converter. You do not have to do any grinding to the bellhousing for starter clearance. Another advantage to these transmissions is that they have a smaller bellhousing, which accommodates larger exhaust easier.

A few things you need to know when using this transmission is that you will need a laptop computer to work with us to get the final shift tuning just right. We precalibrate your transmission controller according to your tire size and gear ratio, getting it as close as possible to a final calibration before we send you the controller. More tuning will still be required after you get your truck running, and we are available to help you learn how to use the laptop computer to datalog the transmission shifting and receive edited calibrations from us via e-mail. This is required because of the way the 5R110 works- two trucks with the same gear ratio and tire size require different tuning! So be prepared that when you first get your truck running the transmission may not shift properly and tuning can take several days, exchanging 10 or more datalogs for edited calibrations. This valuable support is the reason why we charge more for the controller than the price you may find it for elsewhere. You also need to know that you will lose some of the tow/haul features that your transmission now has, such as higher shift points and engine braking in the tow/haul mode.

The tow/haul switch becomes a cancel overdrive switch only, and engine braking can only be utilized in third and fourth gears, regardless of tow/haul selection. So be advised that the convenience of pushing the tow/haul button to toggle between “normal” and “tow/haul” will be lost with the conversion, as the controller does not have the capability of this function with the 5R110. It is still possible to have another calibration that you can load into the controller with your laptop whenever you wish.

Standard Transmissions

Ford standard transmissions

Ford 5 speed- we make adapter plates for these transmissions as long as they were behind a 7.3 diesel or a 460 big block. This transmission was introduced in 1987. It is rated for 420 ft-lb of torque. 95 and newer transmissions are rated for 470 ft/lbs of torque.

Ford 6 speed- we make adapters for the 7.3 and 6.0 diesel six speeds. We do not currently make an adapter to the V10 6 speed. Ford started using this transmission in '99. They are rated for 520 ft/lbs of torque.

The 6.0 6spd manual transmission adapter plate uses the single mass clutch with our custom flywheel. Some stock application 6.0's have a dual mass clutch and these clutches will not work without changing to the single mass clutch. These adapter plates use the 6.0 starter.

Parts information

Adapter plates:

Our adapter plates for the 6.0, 5.4, and 6.8 conversion use a 6.0 Ford starter. *No modifications* are required to your standard or automatic transmission bellhousing. These adapter plates use either our custom flywheel or custom flexplate and may use the stock application clutch or torque converter, so no custom clutch or torque converter is necessary.

Our adapter plates are built out of aircraft quality aluminum. These adapters replace the existing adapter on the Cummins Engine, making a factory quality connection between the engine and the Ford transmission.

Mounts:

Mounts are pre-drilled for mounting in your original mount holes in your crossmember. On automatic trucks the holes are already in the frame to move the crossmember back. Some of our customers choose to leave the transmission in the stock location and use electric fans; we do not fully recommend this as we do hear back from a few who live in hot climates that have problems. It probably doesn't save you any money or time in the long run, but it is possible if you would prefer. 12 valve engine mounts accommodate either mounting position; Common rail mounts are pre-drilled for moving the transmission back for the engine driven fan.

Bushing Kits:

Bushing kits include adapters to put your Ford gauge sending units into the Cummins engine. Most trucks of these years require custom pieces for this, so they are quite helpful.

Alternator Regulator Kit:

When using the 12 or 24 valve Dodge alternator, an external voltage regulator is needed to replace the Dodge's PCM regulating function. In our experience these work better than an internal regulator that is available for these alternators. The kit also includes a wire pigtail connector and a condenser. 03 and newer engines use the Cummins ECM so the regulator isn't needed.

Exhaust manifolds:

We sell exhaust manifolds that work nice in the conversion for the 12 valve and 98.5-02 24 valve engines. These manifolds place the turbo in a better place for a/c box clearance, and they also make exhaust and turbo oil drain connections easier as well. For the 24 valve engines, other exhaust pieces are necessary as well when using our exhaust manifolds. Using these manifolds requires re-orientation of the turbo housings for proper oil draining. This also requires fixing the waste gate shut in most cases- which does not adversely affect the engine. However we recommend using a boost gauge to avoid boost pressures over 40 psi. We also offer a flexible oil drain tube for the turbo that makes the drain tube a snap, and gaskets for the new manifold for a reasonable extra cost.

Tach kit:

These parts are necessary to make your factory tachometer work. Providing this signal to your Ford PCM computer also is necessary for the air conditioning and factory transmission temperature gauge to work as well. If you are someone who would like to save a little money, you can make a bracket for your stock crank sensor and save \$178.00. Most 12 valve engines 94 and newer already have the tach sensor base, which is bolted to the front cover at about 11:00 to the balancer. You will have to drill and tap a hole in it for our sensor mount to bolt to it. The tachometer signal can bypass the Ford PCM on 99-01 trucks only. This allows you to use 4 notches ground in the balancer to produce the correct signal pulse for the tach to work.

If you have a Common Rail engine, or do not wish to do any grinding on your balancer, you can purchase our 4 tooth tach ring. Bypassing the Ford PCM will require you to do some wiring down at the Ford PCM, and if you would like cruise control you will be dealing with some other wires at this connector as well.

All trucks 2002 and newer require the tach ring that bolts onto the front of the Cummins crankshaft balancer, for the sensor to send the correct signal pulse to the Ford PCM that makes the tachometer work.

Transmission Controller:

When we sell you a controller for the 5R110, we include pre-programming for your gear ratio and tire size. We also modify the controller's wiring harness to make it easier to install into your truck. We expect to assist you with wiring and tuning, which many customers have realized is very valuable. More information on the controller is in the previous automatic transmission section.

Air filter kit:

We sell a K&N air filter; with a pre-cleaner, pipe and hose to connect to your turbocharger. This kit is pretty basic, but gives you the parts you need to quickly get an air filter plumbed from your turbo to just behind the passenger side headlight. This does require the passenger side battery to be moved over to the driver's side.

A/C manifold:

This manifold bolts to the back of a '94 and newer Dodge a/c pump, making the a/c plumbing less of a challenge. All you will need to do is have some new hoses crimped between our manifold and your Ford pieces at the drier and evaporator.

Radiator Hose kit:

This kit includes the radiator and heater hoses that work well in the conversion and a specially bent lower radiator hose connector tube. Plan on having to do a little trimming and fitting, but having the basics can help a great deal.

Parts you will need to get on your own:

Even if you buy everything we sell, you will need to come up with a few parts on your own, such as an exhaust down pipe (usually a Dodge down pipe can be a good start), and intercooler tubes (again Dodge stuff can be a good start). Automatic transmission equipped trucks will require a throttle position sensor. Depending on the year and what transmission your Cummins engine had on it originally, you may need to purchase a throttle position sensor, or look into other options. All 24 valve engines already have a throttle position sensor that can be used for the transmission controller.

Sometimes customers buy engines out of industrial applications. These engines may not have the correct brackets for conversion friendly accessories.

* See General Engine Information for more information.

Considering having us doing the conversion for you?

Give us a call and find out how we can do a professional conversion on your truck for a reasonable price. We have an international airport for travel from and back to our shop, and also can help with shipping options getting a disabled truck here.

Used Engines

We offer used engines as an option to reduce the bottom line cost of a conversion. Since we have many sources to find used engines, we try to keep a few in stock. We test cylinder compression, and also run the engine on a test stand to make sure it is a good runner, so you don't have to take as much of the risk involved in buying a used engine.

We can often sell used 12 valve engines for as low as \$4500.00. At your option, we can also add high performance upgrades for an additional cost. With the right parts, most Cummins engines can provide over 400 hp without sacrificing a great deal of longevity.

***We also offer new long blocks that we finish out for you!
Call for an estimate. (406) 755-8878***

We look forward to working with you on your conversion!