



DIESEL CONVERSION
Specialists

406-755-8878
SALES • PARTS
INSTALLATION

1999-2007 Ford 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, or they already have one and would like diesel power. There is not too much difficulty with this conversion, as these trucks 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 also 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, as the F-150 chassis is really too light duty to handle the power and weight of the six cylinder Cummins. If you have a F-150, we would recommend the four cylinder Cummins as a good alternative.

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 4R100 transmission goes out.

Due to the differences in every customer's usage of their trucks we sometimes recommend that they try their 4R100 behind the Cummins as is if they prefer. 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 this case we may recommend that they use the stock 4R100, even with a stock torque converter (*definitely not recommended for trucks pulling heavy trailers- and be prepared for less than ideal converter stall speeds{"slippy" when not locked up or having to push the gas pedal a little harder to get going}*). These customers may opt for this option with the 5R110 upgrade option as their plan B.



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5R110 Swap

The 5R110's are a 5 speed automatic that comes behind the 6.0l Fords. These transmissions are practically a bolt in replacement for the 4R100 (with the 5R110's transfer case). While the 4R100 transmissions can be beefed up to handle the power, the 5R110 can handle it as is. 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. If you have a 5R110 already in your 05 or newer gas powered truck, and plan on doing some pulling, we would highly recommend getting a diesel torque converter. See our [5R110 Conversion Page](#) for more information.

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. 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 speed. These are very good transmissions for the conversion. The 7.3 versions are a bit less expensive to use if you are planning to swap it in place of your current transmission, as they do not require a custom fly-wheel. We are currently working on an adapter to the V10 6 speed.

Information on parts in our kits

Adapter plates:

Our adapter plates for the 5.4 and 6.8 transmissions use the stock 6.0 Ford starter. No modification is required to the transmission bellhousing. These adapter plates use either our custom flywheel or custom flexplate. The adapter plates replace the adapter already on the back of the Cummins engine, making a factory quality connection for the transmission. They are precision machined from aircraft quality aluminum.



DIESEL CONVERSION
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406-755-8878
SALES • PARTS
INSTALLATION

1999-2007 Ford 5.4 and 6.8 Conversion Information

Engine mounts:

Our motor mounts are pre-drilled for moving the transmission back and using the engine driven fan, or leaving the transmission where it is and using electric fans. We do not usually recommend using electric fans as we do hear back from a few that did and have cooling problems. It probably doesn't save you any money or time in the long run, but it is possible if you would prefer. The engine mounts are an excellent design with a bolt going all the way through the isolator, instead of relying on rubber and weak interlocking tabs to secure them to the frame crossmember.

You may be able to utilize our **custom carrier bearing mount**, which makes it possible to use your drive shafts as they are with an engine driven fan. This mount replaces your stock carrier bearing mount and moves the carrier bearing back just enough to give you room for the engine driven fan by collapsing the slip joint in your rear drive shaft. It is necessary for you to make sure you will still have enough slip in the joint when your rear suspension is compressed. Usually the rear drive shaft is fairly level in trucks that do not have a lift kit, so the drive shaft does not need to collapse very much during suspension travel. In most cases the front drive shaft on four-wheel drives will stretch enough to reach the front differential. It is necessary to move the transmission crossmember back or lengthen the slots in the mount to slide the transmission back enough to give room for the engine driven fan. Automatic trucks already have holes in the frame to move the crossmember back to accommodate the Dodge Cummins engine driven fan.

Gauge Sending Unit Adapters (Bushing Kit):

We custom build adapters to put your Ford gauge sending units into the Cummins engine so that your stock gauges still work with the Cummins engine.

Alternator Mount:

We offer an alternator mount that allows you to use the 6.0 alternator if you would like. The advantages of using this alternator is that your indicator light will still work as it should if your charging system should fail, because they are internally similar to the 5.4 or 6.8 alternator.



DIESEL CONVERSION
Specialists

406-755-8878
SALES • PARTS
INSTALLATION

1999-2007 Ford 5.4 and 6.8 Conversion Information

If you would rather use the Dodge Cummins alternator, we can provide you with an external voltage regulator. Common Rail applications do not need the external regulator.

Exhaust manifolds:

We sell exhaust manifolds that work much better 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 than the stock variety, and also make exhaust and turbo oil drain connections easier as well.

For the 24 valve engines, other exhaust pieces are necessary when using our exhaust manifolds to provide an adjustable elbow connection for the downpipe.

Both of these manifolds require you to re-orient your turbo housings to allow your oil drain to be pointed down correctly. This usually requires you to heat the exhaust housing on the turbo to remove the bolts and the housing so the housing can be re-oriented. Fixing the wastegate shut is also necessary because once the turbo is re-oriented the actuator will hit the engine block. Fixing the waste gate shut does not usually have any adverse effects on the engine, but we do recommend using a boost gauge to monitor and limit boost pressures to less than 40 psi.

We also offer manifold gaskets, and new exhaust manifold to turbo studs if you would rather not try to get the studs out of your stock manifold. Also helpful is a flexible turbo drain tube that connects to the stock hose and elbow that is left in your engine block when you remove the stock drain tube connected to the turbo. If you would rather, it is possible to heat this tube up to bend and twist it to allow reconnecting it after you re-orient your turbo housings.

Tach kit:

The tach kit consists of the **base, mount, sensor, and tach ring**. 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, factory transmission control, and transmission temperature gauge to work as well. The universal sensor and mount we make is the easiest way to supply the tach signal, since we currently do not make a mount for the stock 5.4 or 6.8 crank sensor.



DIESEL CONVERSION
Specialists

406-755-8878
SALES • PARTS
INSTALLATION

1999-2007 Ford 5.4 and 6.8 Conversion Information

If you have the time, you can make a bracket for your stock crank sensor and save some money if you wish, although they are a quite awkward to mount because of their length.

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.

Except for 99-01 applications (these trucks can use 4 notches in the Cummins balancer) all 5.4 or 6.8 trucks 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. It is not necessary to buy a diesel instrument cluster for your truck.

Transmission Controller:

The Compushift controller for the 4R100 (stock transmission in trucks of this year group) is user friendly and does not require a laptop computer. It comes with a programmer / display box that provides you the ability to make many adjustments.

If you have a laptop computer we would also recommend the PCS controller. This controller has a "Calibration B" function which is great for making a towing or racing calibration using your original cancel overdrive switch.

Air filter kit:

We sell a K&N air filter; with a pre-cleaner, pipe and hose to connect to your turbocharger. We offer two styles of air filter kits. The kit to use with these trucks is DCS part# 1097. It requires relocating the passenger side battery to the driver's side. This takes some fabricating skill to make the brackets to mount the passenger side battery tray and another one just like it on the driver's side, but it provides a nice roomy area for the air filter.

The DCS part# 1571 positions the air filter between the passenger side battery and the radiator. This is not the kit to use for these trucks unless you are using a 6.0 diesel radiator.



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INSTALLATION

1999-2007 Ford 5.4 and 6.8 Conversion Information

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 a 99 style a/c tube at the drier (a picture of one is in our manual), and the stock line connected to your condenser.

Radiator Hose kit:

This kit includes the radiator and heater hoses that work well in the conversion and a specially bent aluminized steel lower radiator hose connector tube along with hose clamps.

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), a diesel exhaust system for the same year and style of your truck, a Ford Super Duty diesel radiator and intercooler, and intercooler tubes (again Dodge stuff can be a good start). We may be able to supply you with these, but our supply is limited at this time. If you live in a colder climate, we would also recommend adding an additional battery for longer starter cranking ability.

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.



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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.

New, rebuilt, or used engines

We have many sources to find engines. Fully dressed new or rebuilt engines cost between \$10,000- \$13,000 or more, depending on what power options you would like.

When we sell a used engine, we test cylinder compression, and we run the engine to make sure it is a good running engine so you don't have to take any of the risk involved in buying a used engine. We can often sell used 12 valve engines for as low as \$4500.00.