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TURBO KIT

6.4L FORD POWER STROKE

INSTALLATION INSTRUCTIONS

TROUBLESHOOTING:

Note: You will have a check engine light and/or other problems unless using this product with a compatible ECM calibration. H&S Motorsports provides compatible calibrations for H&S Performance tuning devices at www.hs-motorsports.com/calibrations. If you are not using an H&S Performance tuning device, it is **YOUR** responsibility to contact your tuning supplier to verify compatibility.

Please read and understand all installation instructions before proceeding with the installation

If you have any questions during the installation of this product, please email H&S Motorsports support at tech@hs-motorsports.com

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PARTS LIST



- One HSM Turbocharger
- One HSM Cast Turbo Manifold
- One Pedestal Support Bracket
- One Compressor Discharge Pipe
- One Oil Feed Supply Line
- Two Silicone Couplers
- Misc. Gaskets
- Installation Hardware Bag

INSTALLATION



STEP 1



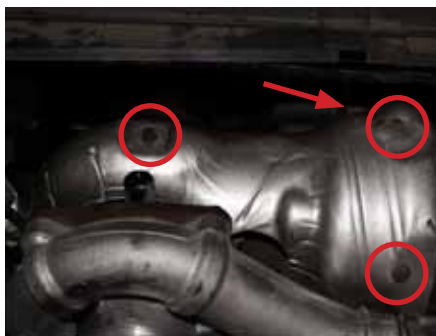
Disconnect the negative cable connection on both batteries. Locate the radiator drain on the lower driver's side of the radiator, and drain the cooling system. Remove the air intake system.



STEP 2



Remove factory turbo oil feed line assembly. Remove 4 heat shield bolts from top of factory turbochargers, and remove heat shield.



STEP 3



Spray a light amount of penetrating oil on the downpipe v-band clamp, turbocharger pedestal bolts, and manifold up-pipe bolts.

STEP 4



Remove v-band clamp from downpipe.



STEP 5



Remove the positive battery cable from the driver's side battery, then remove the battery from the vehicle. Disconnect all coolant lines from the coolant reservoir. Lift coolant reservoir assembly up and disconnect vacuum line from the bottom. Remove coolant reservoir from the vehicle.



STEP 6



Remove 2 coolant lines from fuel cooler assembly. Remove fuel line banjo bolts from top side of fuel cooler assembly.



STEP 7



Remove fuel cooler assembly mounting bolts, and remove entire fuel cooler assembly from vehicle.



STEP 8



Remove clamp connecting turbocharger to intercooler pipe. Locate the VGT wiring connection on turbocharger and unplug.



STEP 9



Remove EGR feed pipe bolts/gaskets.

Note: Entire EGR feed pipe can be removed from vehicle at this stage if you are leaving vehicle cab on. This will make the up-pipe bolts more accessible for removal later.



STEP 10



Unbolt the up-pipes from the back of the OEM turbocharger.

Note: A few of these bolts can be difficult to access with the cab still on the vehicle. With patience and proper tools, it can be done.

STEP 11



Remove turbocharger hold down bolts/clamps from the OEM pedestal. Rock the turbochargers while pulling straight upward to removed them from the vehicle.



STEP 12



Taking care to cover all exposed oil/fuel opening's, blow/clean all debris from factory turbo pedestal area. Remove factory oil drain tube from driver side of factory pedestal.

Note: Some of the following pictures were taken out of the engine bay for easier viewing.



STEP 13



Locate the supplied oil drain plug and yellow o-ring. Apply grease to the o-ring and plug the driver side pedestal oil drain.

Note: If you are not using an H&S Motorsports turbocharger, this step may be different. Please reference the instructions for the provided HSM universal oil drain kit.



STEP 14



Locate the supplied oil feed adapter, adapter hold down, black o-ring, and -6an to 1/8" oil feed fitting. Using pipe sealant, install fitting into adapter before installing into engine bay.

Note: *This is a pipe thread fitting so it will only "snug up", not bottom out in adapter. Grease o-ring and install oil feed fitting/adapter into oil supply hole in oil cooler as shown. Place HSM oil feed hold down bracket over adapter. Install factory bolt that was removed previously and torque to 12 lb*ft.*



STEP 15



Locate HSM pedestal support plate and two m14x25mm hold down bolts. Install support plate onto factory pedestal, leaving bolts just loose enough for plate to move slightly.



STEP 16



Locate supplied up-pipe gaskets and bolts. Thread bolts slightly through up-pipe flanges and gaskets, just barely enough to hold the gaskets in place.



STEP 17



Locate HSM cast turbo elbow, 3/8" double sided studs, stepped spacers, and 3/8" x 2.75" fine thread bolts. Using a stud tool, install the two supplied studs into the wastegate side of the cast elbow. Bolt the cast manifold to the up-pipes, leaving them finger tight only. Bolt the cast manifold to the pedestal support plate using the 3/8" bolts, stepped spacers, and nuts.



STEP 18



Locate the provided turbo oil drain parts as shown below. Grease rubber drain seal and slide it into the aluminum drain adapter. Install the oil drain adapter into the passenger side oil drain hole in the OEM turbo pedestal with the long offset towards the passenger side.

Note: If you are not using an H&S Motorsports turbocharger, this step may be different. Please reference the instructions for the provided HSM universal oil drain kit.



STEP 19



Locate turbocharger mounting gasket and slide it over the studs on the cast manifold. Using a small amount of adhesive, stick the oil drain gasket from step 18 to the oil drain adapter.

STEP 20



Locate HSM turbocharger assembly, HSM turbine adapter flange, turbine adapter flange gasket, and six 5/16"x7/8" stainless bolts. Install turbine adapter flange and gasket onto turbine housing with provided hardware and torque to 20 lb*ft.



STEP 21



Bolt the HSM turbocharger to the cast elbow using the 3/8" flange nuts. Ensure that the oil drain is aligned properly with both the turbocharger center section and the OEM pedestal. Tighten flange nuts holding turbo to cast elbow to 30 lb*ft.

Note: *If you are not using an H&S Motorsports turbocharger, this step may be different. Please reference the instructions for the provided HSM universal oil drain kit.*

STEP 22



With turbo oil drain aligned with oil drain adapter, thread in the supplied flange bolts and tighten to 18 lb*ft. Securely tighten the M15 pedestal support plate bolts that were installed in step 15.

Note: If you are not using an H&S Motorsports turbocharger, this step may be different. Please reference the instructions for the provided HSM universal oil drain kit.



STEP 23



Locate the supplied -6an to 1/4" pipe fitting. Using thread sealer, install the fitting into the oil feed port on top of the turbocharger. Fitting should face the driver's side of the vehicle when tight. Install the supplied oil feed line, making sure that it is routed away from rubbing and excess heat. Tighten oil feed line fittings.



STEP 24



If you will not be using an external wastegate, block the wastegate port on the cast elbow using the supplied block and clamp. If you will be installing an external wastegate, you may proceed with the installation now.

STEP 25



Re-install the EGR feed pipe that was unbolted/removed in step 9. Re-use factory gaskets and torque to 20 lb*ft.

STEP 26



Locate factory fuel cooler assembly that was removed in step 7. Remove cooler from aluminum boost supply tube that was on the factory turbocharger system. Locate HSM fuel cooler mounting bracket's and 5/16"x1"bolts washers and nyloc nuts provided. Install fuel cooler assembly with brackets and hardware as shown. Re-install fuel banjo bolts with supplied sealing washers. Re-install coolant lines onto fuel cooler assembly.



STEP 27



Loosen downpipe flange bolts so the downpipe may be rotated slightly. Move the downpipe into position on the back of the turbocharger and loosely tighten the factory v-band clamp to hold turbo and downpipe together. Ensure the downpipe clears the firewall, transmission, and any other components. Tighten v-band clamp and downpipe flange securely.



STEP 28



Locate the supplied compressor discharge pipe, 3"x3" rubber coupling, 1/8" pipe plug, and two 3.5" clamps. Install pipe plug with pipe sealant if you are not using an external wastegate. Install rubber coupling onto discharge pipe along with two clamps, leaving loose for adjustment. Install the discharge pipe between turbocharger outlet and intercooler piping. The compressor housing on the turbocharger will need to be rotated into the correct positioning. Make adjustments so that the discharge piping is not rubbing on any components and tighten all clamps to 16 lb*ft. Re-tighten turbocharger center section to compressor housing bolts to 20 lb*ft.



STEP 29



Re-install factory coolant reservoir/battery tray assembly into vehicle making sure vacuum reservoir line is plugged in on the bottom of the assembly. Re-install all cooling lines, locking clips and bolts. Re-install driver side battery. Re-fill cooling system with approved coolant.

Note: *Old coolant may be re-used if it is new and clean, this is a decision of the installer.*

STEP 30



If you have an OEM intake system, you may need to trim it back and use provided 4" boot and clamps. If you have an aftermarket intake system, some adjustments may be necessary to fit it to the turbocharger. Make any adjustments necessary and install your intake system.



STEP 31



Re-install battery cables. Go over vehicle and make sure every step was completed, and you have tightened all hardware to specification.

STEP 32



Start engine and check for leaks. Test drive vehicle and check for leaks.

STEP 33



Enjoy the finest 6.4L turbo system on the planet, and have a nice day.

WARRANTY & DISCLAIMER

All HSM Turbo Systems are considered high performance racing parts, and are intended and developed for non-street-legal, off-highway, closed course racing use ONLY!

Installation of this product on a non-sanctioned race vehicle, on ANY road, public or private, is STRICTLY PROHIBITED in the United States and Canada. This product may cause the vehicle it is installed on to exceed federal emissions limits, and therefore cannot be installed on any vehicle that has been certified or registered for highway use. Removing your emissions equipment, including but not limited to, exhaust gas recirculation(EGR), catalytic converter, or Diesel Particulate Filter(DPF), is against federal regulations set forth by the EPA, when not used for closed-course sanctioned racing. H & S Motorsports, LLC strongly recommends that all emissions equipment be left in place at all times on any vehicle that has been registered or certified for highway use. By purchasing or installing this high performance product, you release H & S Motorsports, LLC of any and all liabilities, and assume all responsibility for making sure your vehicle is compliant with all local, state, and federal emissions regulations. By installing this product you agree to these terms and conditions, and also acknowledge that installing a high performance product on your vehicle may void your manufactures warranty. By installing this product, you assume all risks and liabilities, including but not limited to, loss of vehicle warranty, fines, and/or civil penalties. By installing this product, you assume all associated risks and liabilities, and in no way will hold H & S Motorsports, LLC liable for any unlawful use, misuse, or consequential damages.



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