

HS-MOTORSPORTS.COM



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. 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 or call (855)623-4450.

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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



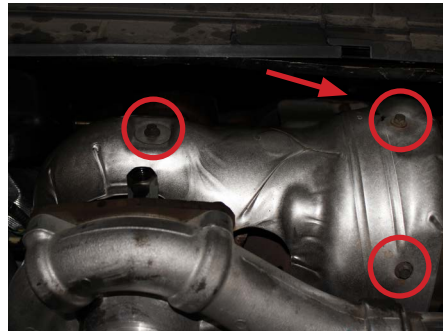
Disconnect the negative cable connection from both batteries. Locate the radiator drain on the lower driver side of the radiator and drain the cooling system. Remove the air intake system.



STEP 2



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



STEP 3



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

STEP 4



Remove the v-band clamp from the factory downpipe.



STEP 5



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



STEP 6



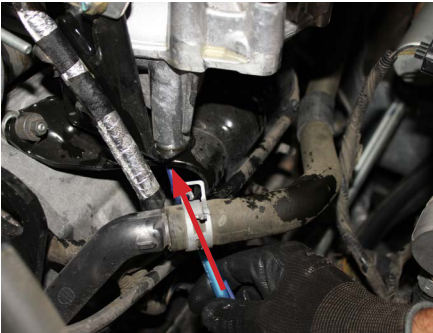
Remove the 2 coolant lines from fuel cooler assembly and remove the fuel line banjo bolts from the top side of the fuel cooler assembly.



STEP 7



Remove the fuel cooler assembly mounting bolts and remove the fuel cooler assembly from the vehicle.



STEP 8



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

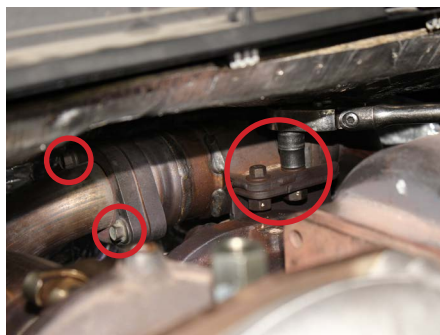


STEP 9



Remove the EGR feed pipe bolts/gaskets.

Note: The 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.

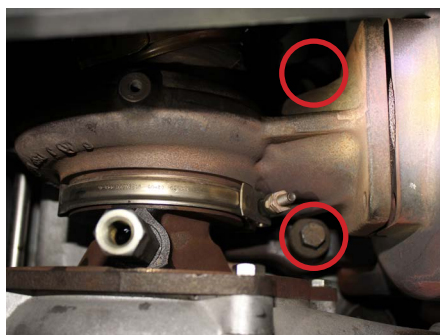
Note: A few of these bolts can be difficult to access with the cab still on the vehicle. With patience and proper tools, it can be done.

STEP 11



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

Note: The turbocharger(s) assembly is quite heavy and the removal can be made easier with the help of another person. Be careful not to set the heavy turbochargers on anything that can be damaged or broken.



STEP 12



Cover all of the now exposed oil/fuel openings and blow/clean all debris from factory turbo pedestal area. Remove the factory oil drain tube from the driver side of the factory pedestal.



STEP 13



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

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" NPT oil feed fitting. Slide the hold-down over the adapter and using pipe thread sealant, install the the fitting into the adapter. Apply some grease/lube to the o-ring before installing it onto the adapter and then installing the adapter assembly into the oil supply hole in the oil cooler. Install the previously removed factory bolt and torque to 12 ft-lbs.



STEP 15



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



STEP 16



Locate the supplied up-pipe gaskets and bolts. Thread the bolts slightly through up-pipe flanges and gaskets, just barely enough to hold the gaskets in place while the HSM turbo elbow is installed.



STEP 17



Locate the 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 for now. Loosely attach the cast manifold to the pedestal support plate using the 3/8" bolts and stepped spacers as shown.

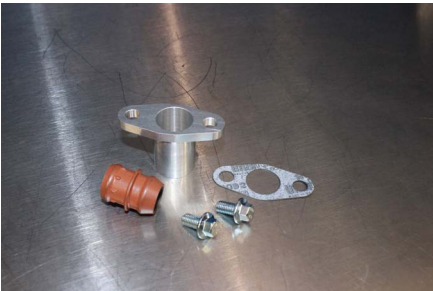


STEP 18



Locate the provided turbo oil drain parts as shown below. Grease/lube the supplied rubber drain seal and slide it into the supplied 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 the supplied T4 turbo flange gasket and slide it over the studs on the cast elbow. Using a small amount of adhesive, stick the oil drain gasket from step 18 to the top of the oil drain adapter.

STEP 20



Locate the 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



Attach the HSM turbocharger to the cast elbow using the supplied 3/8" flange nuts. Ensure that the oil drain is aligned properly with both the turbocharger center section and the OEM pedestal before tightening the flange nuts 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 the turbo oil drain aligned properly with the oil drain adapter, install the supplied oil drain flange bolts and tighten them to 18 lb*ft. Securely tighten the lower M15 pedestal support plate bolts that were installed in step 15 at this time.

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 90-degree -6an to 1/4" pipe fitting. Using pipe thread sealant, install the fitting into the oil feed port on top of the turbocharger. The fitting should face the driver side of the vehicle when tight. Install the supplied oil feed line, making sure that it is routed away from rubbing and excess heat. Ensure all oil fittings and lines are tightened properly at this time.



STEP 24



If you will not be using an external wastegate, block the wastegate port on the cast elbow using the supplied plug and clamp.

STEP 25

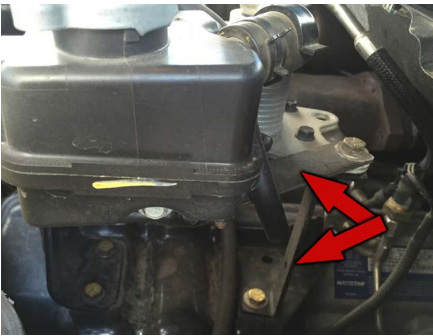


Re-install the EGR feed pipe that was unbolted/removed in step 9. Re-use the factory gaskets/hardware and torque to 20 lb*ft.

STEP 26



Locate the factory fuel cooler assembly that was removed in step 7. Remove the cooler from the aluminum boost supply tube that was on the factory turbocharger system. Locate the supplied HSM fuel cooler mounting brackets and 5/16"x1" bolts/washers/nuts. Install the fuel cooler assembly with brackets and hardware as shown. Re-install the fuel banjo bolts with supplied sealing washers and re-install the coolant lines onto the 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 install the factory v-band clamp to hold turbo and downpipe together. Ensure the downpipe clears the firewall, transmission, and any other components before tightening the v-band clamp and downpipe flange bolts securely.



STEP 28



Locate the supplied compressor discharge pipe, 3"x3" rubber coupling, 1/8" pipe plug, and two 3.5" clamps. Install the pipe plug into the pipe with thread 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 the turbocharger center section to compressor housing bolts to 20 lb*ft.



STEP 29



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