



# SX-E TURBO KIT

GM 6.6L LML DURAMAX

INSTALLATION INSTRUCTIONS

## TROUBLESHOOTING:

Please read and understand all installation instructions before proceeding with the installation. If you have questions during the installation of this product, please email H&S Motorsports support at [tech@hs-motorsports.com](mailto:tech@hs-motorsports.com) or call (855) 623-4450.

### Included parts:

- 1 - HSM/BorgWarner SX-E Turbocharger
- 1 - HSM Divided T4 Cast Turbo Pedestal
- 1 - HSM Polished Intake
- 1 - HSM Downpipe
- 1 - HSM Oil Drain Solution
- 1 - Hardware, Clamps, Fittings, Gaskets, etc.

**Note:** *This kit may not work with the factory exhaust cooling system. Custom engine tuning may be required to run this kit properly. Consult your tuning provider with any questions regarding engine tuning for this product.*

### STEP 1



Disconnect the negative terminal from both batteries.

### STEP 2



Remove the clips and bolts from the passenger side inner fender liner and remove the liner from the vehicle.

### STEP 3



The cooling system needs to be drained. Unfortunately the LML does not have a drain valve on the radiator like most other applications so the lower radiator hose must be disconnected to drain the coolant from the system. Remove the locking clip from the radiator side connection of the lower radiator hose as shown. Slowly pull the hose away from the radiator and allow the coolant to drain into a bucket or pan. After draining, re-install the lower radiator hose to the radiator. Be sure to re-install the locking clip and verify that it is properly seated all the way around the locking groove.



**Note:** *If the engine coolant is in good condition, it can be re-used. Use a clean bucket or pan to capture the used engine coolant.*

## STEP 4



Remove the head shield bolts from the top of the factory turbocharger and remove the head shield from the vehicle. Disconnect and remove the factory air intake assembly from the vehicle. Remove the bolts from the head shield located on the back side of the exhaust cooler pipe on the passenger side up-pipe and remove the heat shield from the vehicle.



## STEP 5



Unplug all sensors from the factory downpipe assembly and set the wiring aside. Remove the secondary injector fitting and using a zip-tie, tie it up around the injector area. Unplug the secondary injector electrical connection (leave injector in place). Remove the heat shield bolts on the downpipe and remove the heat shield from the vehicle. Remove the upper and lower downpipe v-band clamps. Remove the downpipe support bolt and remove the downpipe from the vehicle.



## STEP 6



Remove the factory heater hose tube bolt from the top of the rear engine plate as shown. It may be possible to access the manifold up-pipe bolts without completely removing the hose by just gently moving it around. Remove the (3) bolts from the passenger side exhaust manifold to up-pipe connection. Remove the (3) bolts from the up-pipe to turbocharger connection and remove the factory up-pipe from the vehicle. Be sure to retain the factory gaskets and hardware as they will be reinstalled later.



## STEP 7



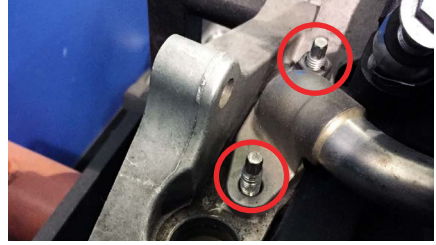
Remove the heat shield bolts from the drive side up-pipe and slide the heat shield down out of the way. Remove the (3) bolts from the driver side up-pipe to turbocharger connection. Be sure to retain the factory gasket and hardware as they will be reinstalled later.



## STEP 8



Disconnect the vane control solenoid and other factory turbocharger connections. Remove the banjo bolt and washers from the turbocharger oil feed line located on top of the turbocharger. **Do not twist the oil feed line during removal as it can be easily damaged. Gently move it around during removal and installation to clear other components.** Remove the nuts from the factory turbocharger oil drain flange at the rear engine plate.



## STEP 9



Remove the locking clip from the factory intercooler pipe intake manifold assembly as shown. Disconnect the heater grid, throttle valve, and MAP sensor wiring connections. Remove the manifold support bolts and manifold mounting bolts from the factory intake y-bridge. Remove the factory intake manifold assembly from the vehicle. Remove the v-band clamp on turbocharger inlet and remove the factory plastic intake pipe from the vehicle. Remove the (8) fasteners attaching the factory y-bridge to the intake plenums. Remove the factory y-bridge from the vehicle.

**Note:** The nuts and bolts for the factory y-bridge can be removed more easily by using a 1/4" drive 10mm wobbly socket and long extension.



## STEP 10



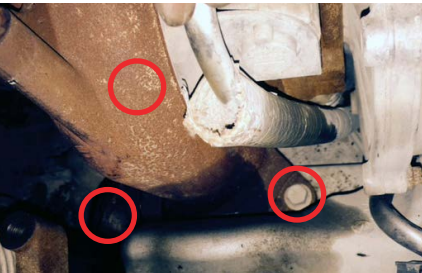
Locate the factory rubber coolant lines running in and out of the factory turbocharger (next to fuel rails). Remove the factory clamps and disconnect the rubber hose as shown.



## STEP 11



Remove the (3) main turbocharger mounting bolts. Remove the factory turbocharger assembly with the oil drain tube and coolant feed/return lines still attached. Leave the factory turbocharger heat shield on the engine block.

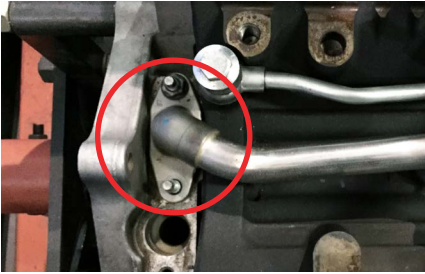




### STEP 12



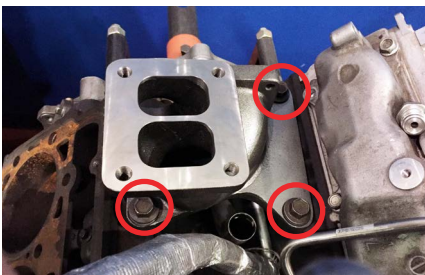
Locate the supplied HSM lower oil drain tube and new OEM oil drain gasket. Note that the gasket is offset and can only be installed correctly one way. Install the gasket onto the studs of the engine plate then install the HSM lower oil drain tube. Secure using the factory hardware and torque nuts to 20 ft-lbs.



### STEP 13



Install the supplied HSM turbocharger pedestal using the (3) previously removed factory turbocharger mounting bolts as shown and torque the bolts to 45 ft-lbs.

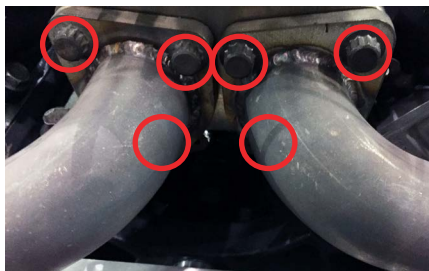


## STEP 14



Reinstall both the driver and passenger side up-pipes to the HSM pedestal using the previously removed factory hardware and gaskets. Torque the factory bolts to 40 ft-lbs.

**Note:** *The factory gaskets only fit correctly in one orientation. Make sure to have the gaskets installed properly before attempting to install hardware.*



## STEP 15



If the factory metal heater pipe was removed from the engine plate (to access up-pipe bolts), locate the supplied GM o-ring and install it onto the heater pipe. Apply a small amount of grease to the o-ring and carefully push the heater pipe back into position in the rear engine plate. Ensure that the o-ring is not pinched or pushed out during installation and secure using the factory bolt. Torque to 20 ft-lbs.





## STEP 16



Locate the supplied HSM upper downpipe section and lay it down the back side of the engine so that it may be connected at a later time.



## STEP 17



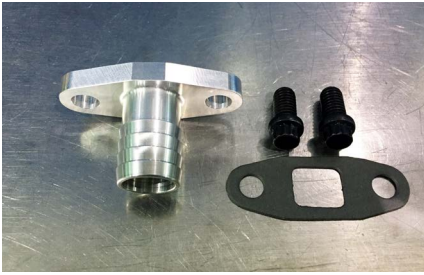
If using custom Bell turbocharger, locate the supplied HSM turbocharger, turbine flange adapter, turbine flange adapter gasket, and (6) 5/16" x 5/8" stainless bolts. Install the adapter flange to the turbine housing of the turbocharger using the supplied gasket and hardware. Torque hardware to 25 ft-lbs.



## STEP 18



Locate the supplied HSM oil drain adapter fitting, drain adapter gasket, (2) 3/8" 12-point drain adapter bolts, 4" drain hose, and (2) 7/8" hose clamps. Install the oil drain adapter fitting onto the bottom of the turbocharger using the supplied gasket and bolts. Torque bolts to 20 ft-lbs. Install the drain hose onto the oil drain adapter using one of the supplied 7/8" hose clamps and tighten the clamp. Slide the other 7/8" hose clamp onto the previously installed oil drain tube (on engine).



## STEP 19



Locate the supplied 10mm x 1.5 x 25mm flange bolts and T4 mounting gasket. Place the T4 mounting gasket on the HSM pedestal (on engine) and carefully install the turbocharger assembly down onto the HSM pedestal while sliding the turbo oil drain hose onto the lower oil drain pipe. **USE EXTRA CARE TO AVOID DAMAGING THE OIL DRAIN HOSE AT THIS TIME.** After ensuring that the oil drain hose and the T4 mounting bolts are properly aligned, install the supplied 10mm flange bolts and torque to 30 ft-lbs. Ensure that the oil drain hose is installed far enough onto the oil drain tube that the hose clamp will seat properly and tighten the lower drain hose clamp on the straight part of the drain hose/tube.



## STEP 20



Locate the supplied 12mm banjo bolt and new OEM copper double washer. Install the washer on each side of the factory oil feed line and connect the oil feed line to the oil feed fitting on top of the turbocharger using the supplied 12mm banjo bolt. Torque bolt to 25 ft-lbs.



## STEP 21



Locate the coolant lines that were disconnected from the factory turbocharger. Remove the factory rubber line from the metal tube on the passenger side top of the engine as shown. Cut the other factory coolant line just behind the molded 90-degree bend and attach it to the metal line (where the first rubber line was removed). Reinstall the factory clamp.



## STEP 22



Using the supplied exhaust v-band clamp, attach the upper HSM downpipe to the back side of the turbocharger. Do not fully tighten the clamp at this time, as some adjustment may be necessary for the remainder of the exhaust installation. Locate the supplied lower downpipe section and 3.5" exhaust band clamp. Slide the lower downpipe section onto the upper downpipe and attach the lower downpipe to your existing exhaust system. Once the downpipe assembly is installed and adjusted properly, tighten all clamps.

**Note:** *Some additional modification may be required for proper fitment with some exhaust systems.*



## STEP 23



Using the factory boot and supplied v-band clamp, reinstall the factory driver side intercooler pipe onto the turbocharger compressor outlet. Verify that the pipe has proper clearance from other components and tighten all intercooler pipe clamps.

**Note:** *On some vehicles, it may be necessary to loosen the compressor housing bolts and adjust the housing for proper pipe clearance. We orient the housing in a way that it will fit on most applications, but we have found some slight variances between vehicles that can cause minor interference issues. Because of this, some additional adjustment may be necessary on some vehicles.*



## STEP 24



Apply a small amount of grease/lube on the o-rings/gaskets of the previously removed factory Y-bridge and reinstall the Y-bridge using the factory hardware. Start all lower bolts first and carefully tighten them down evenly until the upper hardware may be installed. Torque all Y-bridge hardware to 89 in-lbs.



## STEP 25



Locate the supplied HSM 4" 90-degree intake boot and (2) 4" worm gear clamps. Slide a clamp onto one end of the boot and loosely install the boot onto the intake of the turbocharger (the boot will be a tight fit with the factory Y-bridge and will rest against it when installed). Locate the supplied HSM 45-degree intake pipe and install it into the other end of the 90-degree boot. Attach the other end of the 45-degree intake pipe to the vehicle intake system. Adjust all intake system components to ensure proper fitment and clearance, then tighten all clamps.



## STEP 26



Reinstall the previously removed factory cold-side intercooler pipe assembly using the factory clamps and hardware. Reconnect all electrical connections.



## STEP 27



Refill the coolant system to the proper level using OEM approved coolant. Reinstall the factory inner fender liner using the factory clips and hardware.

## STEP 28



Reconnect the vehicle batteries. Double check all work to ensure all hardware and clamps are secure. Start the engine and check for any leaks.

## KIT INSTALLED



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