11730FLT (no coating), 31730-1FLT (silver ceramic), & 31730-3FLT (black ceramic)
Flowtech™ Cast Iron Exhaust Manifolds for GM LS engines

NOTE: Not compatible with 2004-2006 GTO starters/bellhousings.

Thank you for making FLOWTECH™ HEADERS your choice in high-performance exhaust system components.

These Flowtech™ cast exhaust manifolds have been designed to fit into a wide variety of replacement and engine-swap applications, with final outlet connections to be fabricated by the installer. The design of the manifold passages and the position of the exit flange provide excellent performance in street/performance applications, while also providing OE performance with regard to emissions and catalytic converter function. However, this product does not have a C.A.R.B. Executive Order Exemption and therefore may or may not be legal for any particular pollution controlled application.The casting is of a High-Silicon-Moly ductile iron material and will provide trouble-free service for street/performance LS engines. Intended applications for this product are emissions-legal crate engines, such as the GM E-Rod crate-engine line and for the retro-fit installation of LS engines into popular passenger car and truck chassis.

The investment cast 304ss mating flanges that have been included with these manifolds are intended to be utilized “as-needed” to satisfy your particular installation requirements; their featured geometric dimensions will assist in the fabrication of a tightly-quartered connection between the manifolds and your exhaust system. A single 2-1/4” x 2.5” radius U-bend (not included) can usually provide sufficient bend material to route the exhaust around any close-proximity components such as lower control arm frame perches. Once clear of these obstructions, transition to a larger tube diameter, if desired, can easily be accomplished by expanding the 2-1/4” tubing with a pipe expander, or welding on a tapered transition.

If you so choose, and if the geometry of your chassis will allow, a 2-1/2” I.D. step can be machined into the outlet side of the flange to allow welding of 2-1/2” diameter tubing directly to the flange.

WARNING! Breaking in an engine with ceramic-coated versions of these manifolds will most likely result in damage to the coating and VOID all warranties providing coverage to it. Flowtech™ recommends using bare cast-iron manifolds or an old set of headers to break-in engines to avoid coating damage.

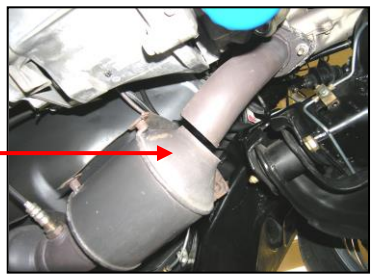
Ceramic-coated manifolds require several heat cycles to fully cure before they will withstand extreme heat, so care should be taken to provide a series of 4 to 5 intermittent heat cycles to “set” the coating prior to putting the vehicle into service. An incremental increase in run duration and throttle angle should be added to each successive cycle; initial and final run durations between approximately 1 and 7 minutes will be sufficient to set the coating.

CAUTION! When working under your car, be sure to properly support it with jack stands or ensure the locks on your vehicle lift are engaged if using one. NEVER WORK UNDER A CAR SUPPORTED BY A BUMPER JACK OR HYDRAULIC LIFTING JACK!

INSTALLATION PROCEDURE

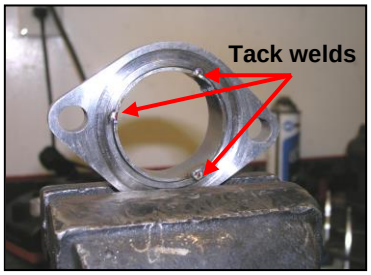
1. Disconnect the negative battery cable.
2. Remove spark plug wires.
3. Remove spark plugs, if it appears necessary to be able to remove existing manifolds/headers from vehicle.
4. Remove engine oil dipstick tube from the passenger side of engine.
5. Disconnect any exhaust components connected to outlet of existing manifolds/headers.
6. Remove the existing manifolds/headers from the engine.
7. If an entirely new exhaust system will be constructed to attach to your Flowtech™ manifolds, remove all existing exhaust components.
8. If adapting your Flowtech™ manifolds to connect to an existing exhaust system, choose a convenient interface connection point and cut and/or remove all exhaust componentry forward of that point and dress all joints for proper welding execution, as needed. An example of this step is shown in the photo below.

The Flowtech manifolds being installed on this sample application will be connected to the existing converter pipes. The chosen interface connection point was at the inlet of the converter so the pipe coming from the existing manifold was cut here as indicated by the arrow.



9. Install the Flowtech™ cast iron manifolds to the engine. Stock GM gaskets and bolts are recommended for this purpose and are listed by part number at the end of this document for reference.

10. Temporarily attach the included flanges to the outlets of the manifolds with four 10mm x 1.5 bolts (not included) to determine the appropriate amount of U-bend or straight pipe to use for the first pieces of the outlets coming off the manifolds.
11. Use a marking pen and place an index mark on the flanges and tube sections to indicate any specific rotation, as shown in the left photo below. Once satisfied with the marked position, remove the parts from the vehicle for welding.



12. On the welding bench, line up the index marks on the parts and place a minimum of three tack welds around the circumference of the flange, as shown in the right photo above.
13. Deposit a continuous weld around the flange while observing the following guidelines:

    - The connecting weld bead can be deposited as a fillet around the exterior of the flange, or around the I.D. of the face of the flange for a cleaner appearance. Welding of these flanges to any connected pipes should only be performed with either an austenitic grade stainless steel filler metal (308L for welding to 409 or 304 stainless materials, and 309L for welding to mild/low-carbon steel materials) or nickel based filler rod, such as Inconel FM 82™ or Hastelloy W™. The use of low-carbon steel fillers, such as ER70S-2 and ER70S-6 is not suitable for this application.

14. Reattach the flange assemblies to the manifold outlets and complete the mock-up of the adapters to the existing exhaust or a complete exhaust system before removing for final welding. Be sure to mark the location of O2 bungs, if needed. The photos below depict the final parts fabricated from U-bends to connect the Flowtech™ manifolds to the existing converters in the sample application.

15. Install the finished welded parts into the vehicle for the final time and fully tighten all fasteners. For an OE appearance, stock GM studs and nuts can be used at the manifold/flange connections; their part numbers are provided at the bottom of this page.
16. Reinstall the engine oil dipstick tube and spark plug wires/spark plugs.
17. Reconnect the negative battery cable to the battery.
18. Start the vehicle and check for leaks. If installed manifolds are ceramic coated, perform coating set thermal cycling procedure recommended previously in this document.

Stock GM part number reference list:

Exhaust manifold to cylinder head gasket	- **12617944** (2 required)
Exhaust manifold to cylinder head bolts	- **11518860** (12 required)
Exhaust manifold outlet seal	- **92202326** (2 required)
Exhaust manifold outlet studs (10mm x 1.5)	- **11589264** (4 required)
Exhaust manifold stud nuts (10mm x 1.5)	- **15032594** (4 required)

Flowtech Technical Support
1-866-464-6553

11730FLT
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