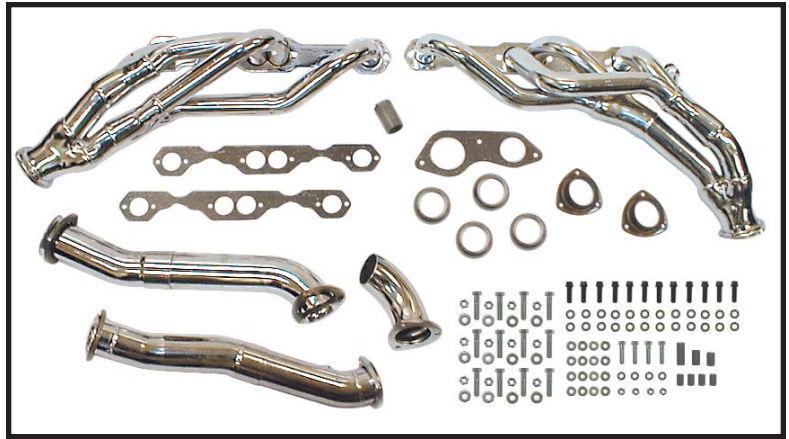


DOUG THORLEY HEADERS

BY SUMMIT INDUSTRIES

THY-302Y-FED

CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON



PARTS INCLUDED

- 1 - Right side header
- 1 - Left side header
- 2 - Connector pipe assemblies
- 2 - Catalytic converter adapters
- 2 - Header gaskets
- 4 - Conical gaskets
- 1 - Catalytic converter flange gasket

HARDWARE INCLUDED

- 12 - 3/8"-16 x 1" Header bolts
- 24 - 3/8" Star lock washers
- 12 - 3/8"-16 x 1-3/4" Hex head bolts
- 12 - 3/8"-16 Hex nuts
- 12 - 3/8" Flat washers
- 1 - 5/8" x 1" Spacer
- 1 - 5/8" x 1-1/8" Spacer
- 1 - 5/8" x 1-3/4" Spacer

TOOLS REQUIRED

- 3/8", 7/16", 1/2", 9/16", 7/8" Wrenches
- 9/16" Line (flare nut) wrench
- 10mm, 13mm Wrenches
- 5/16", 7/16", 1/2" Sockets
- 3/8", 7/16" Deep sockets
- 5/8" Spark plug socket
- 15mm Deep socket
- Ratchet and extensions
- 1/4" Allen wrench
- Pliers
- Mig welder
- Sawzall
- Torque wrench
- Rust penetrant
- High-temp sensor-safe silicon sealer (rated at 600 degrees+)

WARRANTY NOTES

- 1) The utmost care is taken at Thorley Headers to maintain the highest standards of quality. However, Thorley Headers cannot control the installation of the product. For this reason, the Thorley Headers warranty covers only the replacement of the components - not the labor for the installation.
- 2) The use of any type of "header wrapping" voids the warranty. Using any sort of wrapping material on the headers destroys the tubing's ability to dissipate heat, causing very rapid deterioration of the metal and the subsequent failure of the headers.
- 3) The chrome plating applied to all Thorley headers is a high-nickel chrome finish applied to retard corrosion. This is a "heat" chrome to preserve the metal. This finish is not "show chrome" intended for the sake of appearance. This high-nickel chrome turns colors and approaches black as it cooks into the metal. The brilliance of the chrome finish is not covered under the warranty. Contamination of the surface by foreign substances may produce other color patterns. This can be prevented by routine cleaning.

THY-302Y-FED

CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON

WARRANTY NOTES

- 4) Retain all paperwork pertaining to the purchase of your Thorley product. Save your receipt!
Your limited warranty is not valid without a receipt of purchase.

LEGALITY NOTE

The installation of headers onto any vehicle must be performed in accordance with all governmental regulations that might pertain to the particular vehicle receiving the headers. Please call your Thorley Headers distributor if there are any questions regarding the legality of the installation. **The Executive Order (“E.O.”) number for this part number is D-540.**

INSTALLATION NOTES

- 1) It is important that you read the entire instruction sheet before initiating any installation.
- 2) Thorley headers are designed to fit only factory installed engine and transmission combinations. We cannot guarantee that Thorley headers will fit in the case of “engine swaps” or “transmission swaps”.
- 3) Due to restricted room in the engine compartment, your headers may come close to certain body and chassis components. This is normal for an installation of this type. However, a careful inspection must be completed to insure that the distances and placement are reasonable and logical, especially with regard to electrical, fuel, and brake components.
- 4) Because of the requirement to raise the engine to facilitate header installation, the engine mounts should be carefully inspected at that point of the installation. It is highly recommended that questionable or deteriorated engine mounts be replaced during the installation of the headers. In some cases, the engine mounts need to be loosened and repositioned to provide optimum header clearance from some components.
- 5) Because of car-to-car variations, Thorley Headers strongly recommends that these headers be installed by a competent exhaust shop that has welding and fabrication capabilities.

THY-302Y-FED

CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON

INSTALLATION PROCEDURES

WARNING! - Do not rely on bumper jacks or chassis jacks for support during header installation. The subject vehicle should be raised and supported with jacking equipment and jackstands or ramps intended for undercarriage auto maintenance. It is extremely dangerous to work under an improperly raised and/or supported vehicle.

WARNING! - Make certain there is ample clearance around components such as brake lines, brake proportioning valves, fuel lines, hoses and pumps, and electrical components and wires. In some cases it may be necessary to relocate items that may be adversely affected by exhaust system heat.

NOTE: These procedures are documented on factory standard-equipped vehicles with original configuration compliance. Any modification of the subject vehicle may dictate modification to these procedures.

- 1) Raise the vehicle at least 24 inches and support it with jack stands or other suitable supports. (**WARNING!** - Do not rely on bumper jacks or chassis jacks for support during header installation. The subject vehicle should be raised and supported with jacking equipment and jackstands or ramps intended for undercarriage auto maintenance. It is extremely dangerous to work under an improperly raised and/or supported vehicle.)
- 2) Spray all exhaust fasteners with rust penetrant and allow to soak. High-mileage vehicles may require soaking overnight and/or multiple doses of penetrant to ensure that no bolts are broken during disassembly.
- 3) Remove the air cleaner-to-throttle body duct and set it aside. It is recommended that you cover the throttle body air intake to prevent contamination.
- 4) Disconnect the battery.
- 5) Remove the spark plug heat shields by removing the four center exhaust manifold bolts.
- 6) Note the locations of the spark plug wires and disconnect them from the spark plugs.
- 7) Remove the spark plugs.
- 8) Remove the spark plug wiring looms and the dipstick tube bracket bolt. Unplug any temperature sensor wiring that may be associated with the spark plug wiring.

THY-302Y-FED

**CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON**

- 9) Lay the spark plug wiring harnesses back out of the way to prevent possible damage.
- 10) Loosen the EGR fitting from the driver side exhaust manifold and carefully lift the EGR pipe up slightly to clear the threads.
- 11) These instructions refer to the two oxygen sensors that are upstream (ahead) of the catalytic converters. If the oxygen sensor wiring plug is secured by a hold-down mechanism that looks like a “plastic bolt”, release the hold-down mechanism first. When the plug is freed from the hold-down mechanism, compress the two parts of the connector into each other and then pry up and out on the release tab. The two parts should separate without being forced apart. (Note: Failure to disconnect the oxygen sensor lead wire at the plug so it is free to rotate with the oxygen sensor during disassembly can cause serious damage to the oxygen sensor.)
- 12) Remove the oxygen sensors.
- 13) Cut the stock driver side head pipe one inch upstream of the weld at the front of the catalytic converter.
- 14) Cut the stock passenger side head pipe just in front of the transmission crossmember.
- 15) Remove the hardware from each flange ring at the manifold-to-head pipe junctions and remove the sawed-off head pipe pieces. (Note: Inspect the inside of the front of both catalytic converters after making these cuts to ensure that no metal shavings have entered the catalytic converter. Metal shavings can quickly ruin the catalytic converter.)
- 16) Remove the engine oil dipstick tube bolt. Carefully pull the dipstick tube out of the block and set it aside.
- 17) Bend all exhaust manifold bolt keeper tabs away from the exhaust manifold bolts and remove the remaining exhaust manifold bolts. Remove the exhaust manifolds through the top of the engine compartment.
- 18) Remove the bolts from the catalytic converters-to-muffler flange and remove the two-catalytic converter assembly from the vehicle. Re-cut the passenger side head pipe one inch upstream of the factory weld at the catalytic converter inlet. File or grind away any burrs or flashing created by these cuts.

THY-302Y-FED

**CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON**

- 19) Remove all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 20) (Note: The use of high-temp sensor-safe silicon sealer between the header flange and header gasket is highly recommended.) Move the driver side header and supplied header gasket into position from below the vehicle. Carefully start the EGR feed tube nut onto the fitting on the header, then start supplied 3/8"-16 x 1" header bolts and 3/8" star lock washers in all bolt holes. Do not fully tighten at this time.
- 21) Fully tighten the EGR feed tube, and tighten all header bolts to 35 ft/lbs.
- 22) (Note: The use of high-temp sensor-safe silicon sealer between the header flange and header gasket is highly recommended.) Place the passenger side header and supplied header gasket into position from above the vehicle. Start supplied 3/8"-16 X 1" header bolts and 3/8" star lock washers in all bolt holes except the one at the oil dipstick tube bracket location. Do not fully tighten at this time.
- 23) Using the original exhaust manifold bolt and a supplied 5/8" spacer of appropriate length, reinstall the dipstick tube at the original dipstick bracket position.
- 24) Tighten all header bolts to 35 ft/lbs.
- 25) Place the catalytic converters assembly back into position, but do not tighten.
- 26) Snap the steel flanged end of the supplied conical gaskets into the header collectors. Assemble the supplied connector pipe assemblies and attach them to the header collectors using the supplied 3/8"-16 x 1-3/4" hex head bolts, nuts, and washers. Do not fully tighten at this time. Snap the steel flanged end of the supplied conical gaskets into the supplied catalytic converter adapters and attach the adapters to the connector pipes using the supplied 3/8"-16 x 1-3/4" hex head bolts, nuts, and washers. Leave all hardware loose to allow necessary movement for proper alignment. (See Illustrations, Figure 1 for a view of the assembled system.)
- 27) If necessary, do a final trim on the catalytic converter inlets. (Note: Do not cut either of the catalytic converters downstream of the front catalytic converter body weld.) If it is necessary to cut more off, trim the connector pipes.

THY-302Y-FED

**CHEVY 350 VORTEC
96-98 PICKUP, SUBURBAN,
TAHOE, YUKON**

- 28) The factory exhaust hangers allow the exhaust system to “swing” front-to-rear. This is because the system can expand up to two inches in length as it heats up. This system must be set up so that the exhaust system is swung slightly forward on the hangers to prevent ongoing damage to the hangers.
- 29) When all components are properly positioned and aligned, apply tack welds at all connections. Inspect the system one last time to ensure proper positioning and alignment, then remove the connector pipes-and-catalytic converters assembly and full-circle weld all connections. Inspect closely for leaks, as even a small leak will cause the oxygen sensors to feed false readings to the computer.
- 30) Reinstall the connector pipes/catalytic converters assembly using the supplied catalytic converter flange gasket. Fully tighten all hardware.
- 31) Reinstall the oxygen sensors and carefully plug them back in.
- 32) Reinstall the spark plugs and spark plug wires. Reattach the spark plug wiring looms using the supplied 1/4”-20 x 1-1/4” hex head bolts, 1/4” washers, and 3/8” spacers. (Note: Avoid overtightening the loom bolts. Doing so may cause them to break off in the head. Check the loom bolts for bottoming out in the threads before they get tight, and shim them up as necessary using the supplied 1/4” washers.)
- 33) Remove any covering placed over the air intake in Step 3, and reinstall the air cleaner ducting.
- 34) Reconnect the battery. Start the engine and check for leaks.
- 35) Because the header bolts will initially stretch when hot, we recommend adhering to the following steps:
 - a) Retighten the header bolts to 35 ft/lbs after approximately twenty minutes of operation. (Note: Remember the engine will be hot at this time. Protect yourself accordingly.)
 - b) Check and retighten the header bolts to 35 ft/lbs after the first month of operation.

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ILLUSTRATIONS

FIGURE 1

