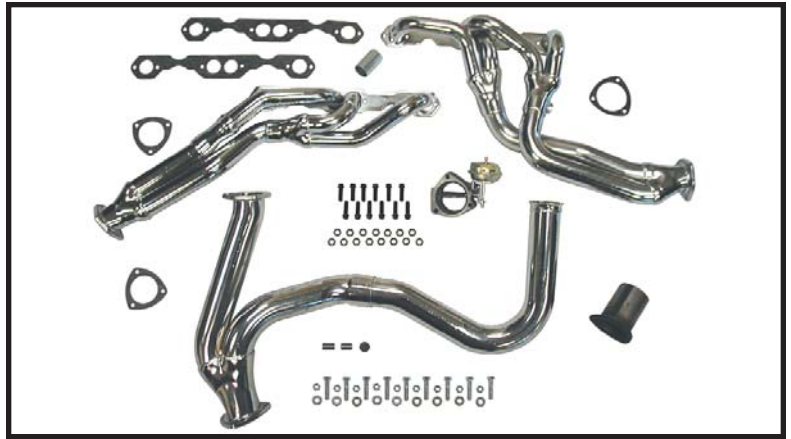


# DOUG THORLEY HEADERS

BY SUMMIT INDUSTRIES

THY-364Y10 / THY-364Y10-DA / THY-364Y10-S

**CHEVROLET 283-400  
73-91 PICKUP, SUBURBAN  
(WITH HEAT RISER)**



## PARTS INCLUDED

- 1 - Right side header
- 1 - Left side header
- 1 - Y-pipe assembly
- 1 - Hot air pickup
- 1 - Heat riser
- 1 - Catalytic converter adapter
- 2 - Header gaskets
- 2 - 2-1/2" Collector gaskets
- 1 - 3" Collector gasket

## HARDWARE INCLUDED

- 12 - 3/8"-16 x 1" Header bolts
- 18 - 3/8" Star lock washers
- 6 - 3/8"-16 x 1-1/4" Hex head bolts
- 6 - 3/8"-16 Hex nuts
- 6 - 3/8" Flat washers
- 4 - 1/4"-20 x 1-1/4" Hex head bolts
- 4 - 1/4"-20 Hex nuts
- 4 - 1/4" Star lock washers
- 4 - 1/4" Flat washers
- 4 - 3/8" Diameter spacers
- 1 - 5/8" Diameter spacer
- 1 - 18mm Pipe plug

## TOOLS REQUIRED

- Heating torch
- Mig welder
- Cut-off saw
- Sawzall
- 3/8", 7/16", 9/16", 1/2", 3/4", 7/8" Wrenches
- 10mm, 13mm Wrenches
- 9/16" Line (flare nut) wrench
- 5/16", 7/16", 1/2", 9/16" Sockets
- 3/8", 7/16" Deep sockets
- 15mm Deep socket
- 5/8" Spark plug socket
- Ratchet and extensions
- Pliers
- Crescent wrench
- 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.

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## 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.

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**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.

**NOTE:** All Thorley headers featuring air injection options are designed to accept the most readily available original equipment manufacturer's looms. Should your stock looms not match the fittings on the headers, or should you suspect that your original looms will not survive the re-installation onto the Thorley headers, your local GM parts department may be able to provide replacements using these part numbers:

THY-364Y10-DA driver side - 14102115, passenger side - 14102114.  
THY-364Y10-S driver and passenger side - 330544.

- 1) Disconnect the battery.
- 2) Raise the front of the vehicle approximately 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.)
- 3) Remove the air cleaner assembly and the engine oil dipstick.
- 4) Note the location of the spark plug wires and remove them from the spark plugs.

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- 5) If applicable, remove the spark plug wire looms (leaving the wires in the looms) and secure the looms out of the way.
- 6) Remove the spark plugs.
- 7) If applicable, remove the A.I.R. harnesses (smog pump fittings) from the stock exhaust manifolds by disconnecting them at the junctions to the hoses.
- 8) If applicable, disconnect the oxygen sensor wiring at the harness end and remove the wiring from any tie-downs that may be present. Remove the oxygen sensor. (Note: Failure to disconnect the oxygen sensor wiring so that it is free to rotate with the oxygen sensor can seriously damage the oxygen sensor.)
- 9) Remove the stock head pipes and connector pipe. (Note: The use of heat and/or force may be necessary to separate the system at this point. Do not cut this junction apart. It is illegal to modify the front of the catalytic converter.)
- 10) Clean all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 11) If applicable, trial fit the A.I.R. harnesses onto the headers, removing them before installing the headers.
- 12) On some 1981 and later models, the air conditioning bracket may require modification as shown in Illustrations, Figure 1. On some models, the alternator support bracket may require modification as shown in Illustrations, Figure 2.
- 13) (Note: The use of high-temp sensor-safe silicon sealer between the header flange and header gasket is highly recommended.) Install the driver side header and supplied header gasket from below the vehicle using the original bolt (not a supplied header bolt) in the front bolt hole and the supplied 3/8"-16 x 1" header bolts and 3/8" star lock washers in the remaining bolt holes. Tighten to 35 ft/lbs.
- 14) Reinstall the driver side spark plugs.
- 15) Reinstall the driver side spark plug wiring harness looms using the supplied 3/8" diameter spacers and 1/4"-20 x 1-1/4" hex head bolts to properly position the looms. Place one or two supplied 1/4" flat washers at each end of the spacer to prevent the bolt from bottoming out in the head.

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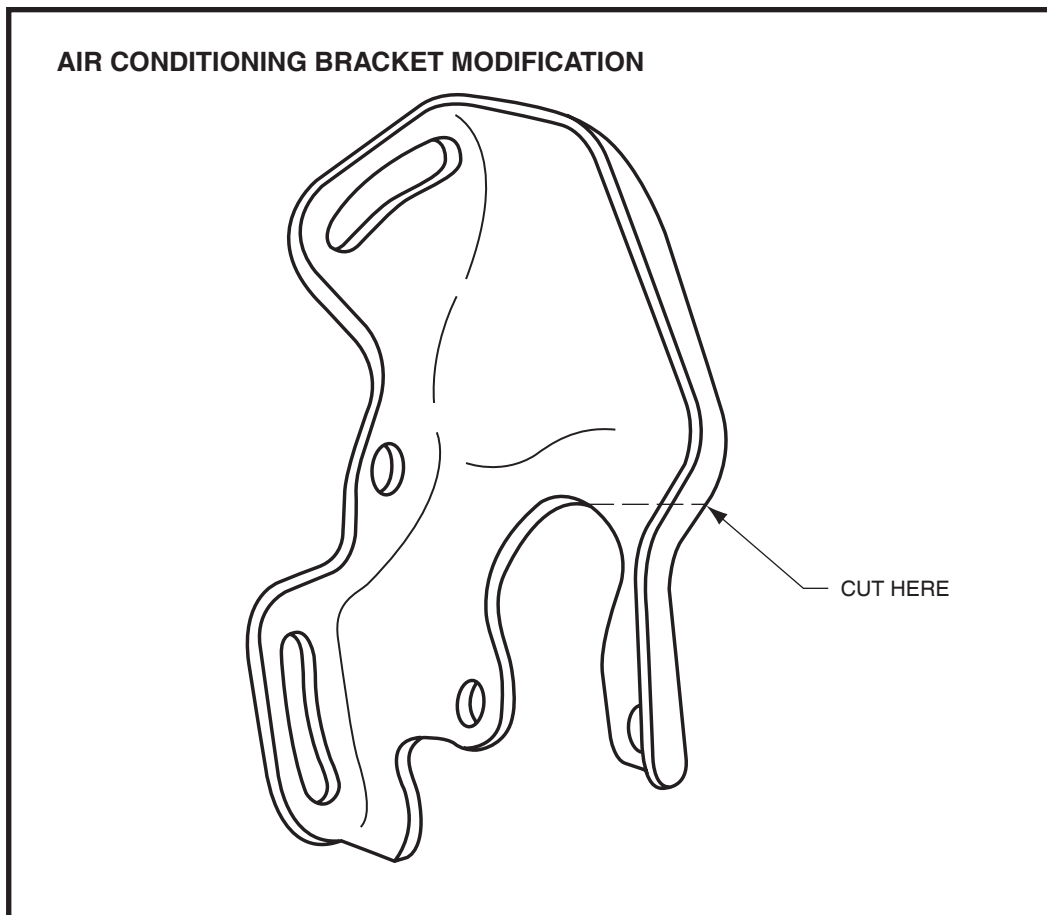
- 16) If applicable, reinstall the oxygen sensor into the fitting in the header. If no oxygen sensor is present, install the supplied 18mm pipe plug in the fitting in the header.
- 17) If applicable, reinstall the A.I.R. harness onto the driver side header and securely tighten the fittings. Reconnect the feed hose.
- 18) (Note: The use of high-temp sensor-safe silicon sealer between the header flange and header gasket is highly recommended.) Install the passenger side header and supplied header gasket from below the vehicle using the supplied the 3/8"-16 x 1" header bolts and 3/8" star lock washers. Tighten to 35 ft/lbs.
- 19) Reinstall the engine oil dipstick.
- 20) Reinstall the passenger side spark plugs.
- 21) Reinstall the passenger side spark plug wiring looms (and if applicable, the dipstick tube support bracket) as in Step 15. (Note: The dipstick tube may require slight, careful bending to conform to its new location. Allow at least 1/4" clearance between the dipstick and the header.)
- 22) If applicable, reinstall the passenger side A.I.R. harness on the header, tighten securely, and reconnect the feed hose.
- 23) Reinstall all spark plug wiring.
- 24) Install the supplied catalytic converter adapter into the entrance of the catalytic converter, with the bolt hole clocking as shown in Illustrations, Figure 3. Use a hammer and a block of wood to drive the adapter in until it stops, then reinstall the clamp.
- 25) Attach the supplied Y-pipe assembly to the header collectors and the catalytic converter adapter using the appropriately-sized supplied collector gaskets, 3/8"-16 x 1-1/4" hex head bolts, nuts, and washers. The supplied heat riser should also be installed between the header collector and the Y-pipe assembly at this point, using the hardware included in the heat riser box. (See Illustrations, Figure 4 for a view of the assembled system.)
- 26) Reinstall the air cleaner assembly.
- 27) Reconnect the battery. Start the engine and check for leaks.

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- 28) 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.

**ILLUSTRATIONS**

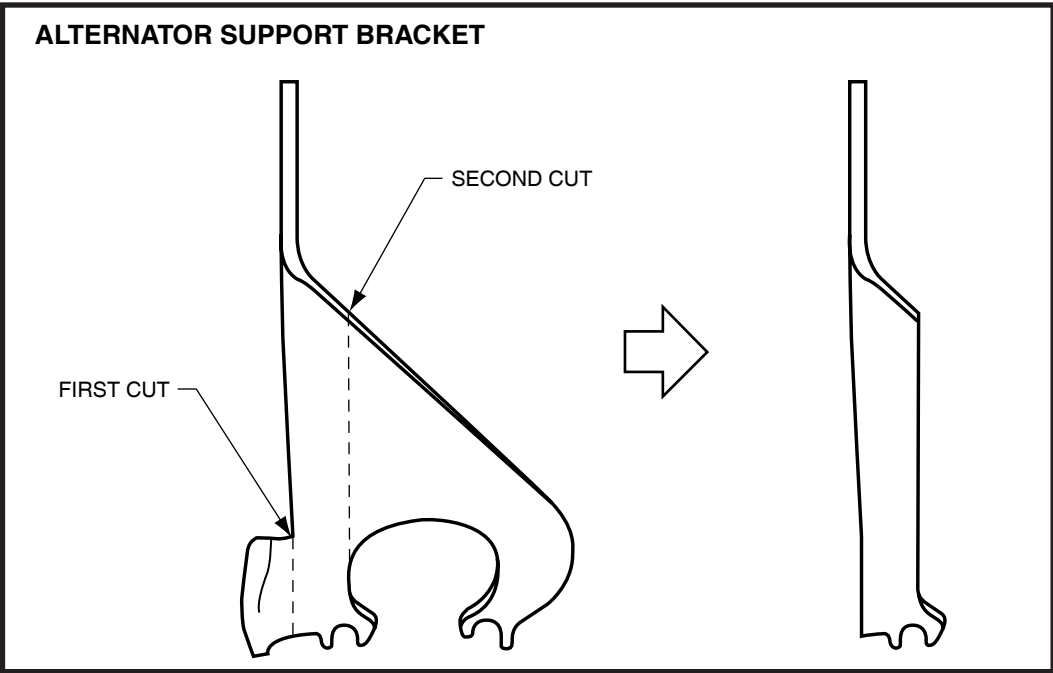
**FIGURE 1**



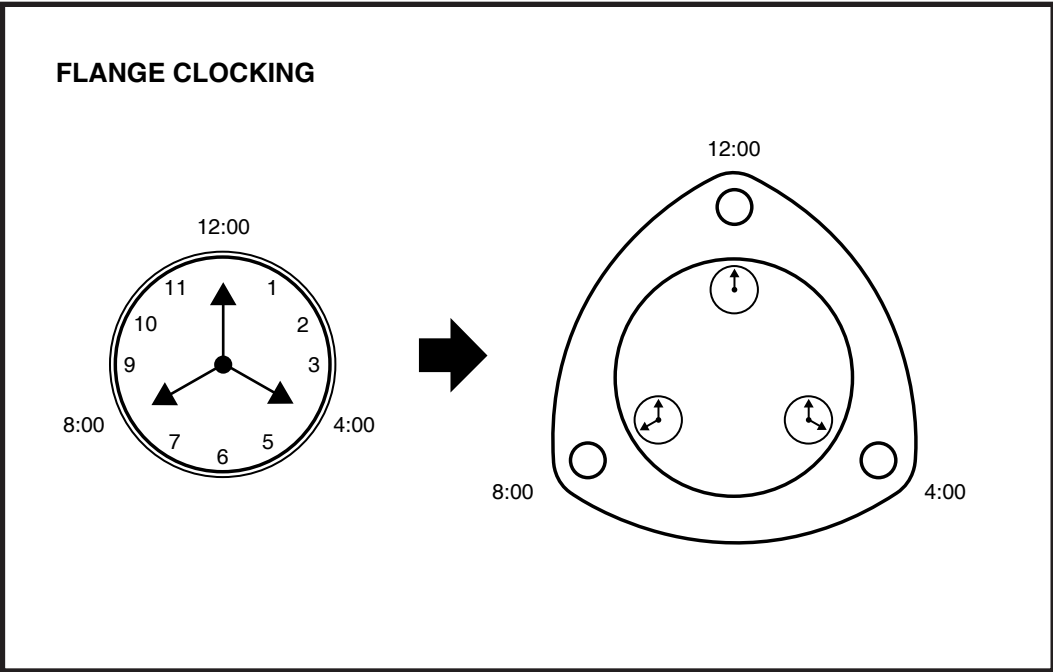
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**ILLUSTRATIONS**

**FIGURE 2**



**FIGURE 3**



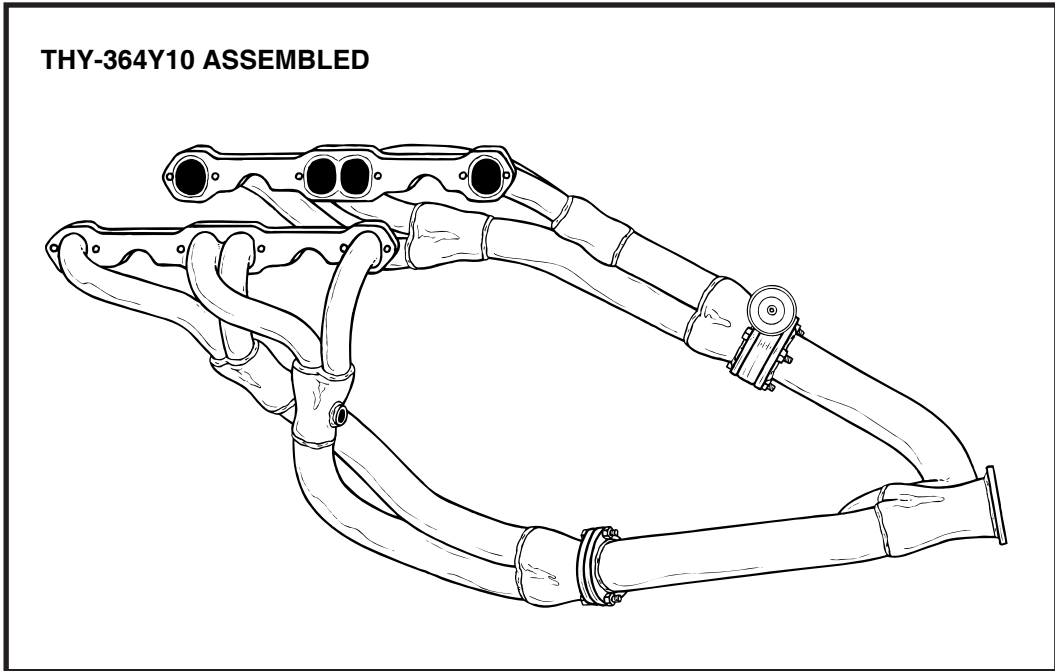
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**ILLUSTRATIONS**

**FIGURE 4**

**THY-364Y10 ASSEMBLED**



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## Heat Riser Information

### What is a heat riser?

The heat riser is a valve that closes off the exhaust on one bank of a V8's cylinders when the engine is cold. This routes the hot exhaust gases from the closed-off bank through the exhaust cross-over at the center of the intake manifold, and out through the exhaust manifold on the "open" side. The exhaust heat helps the gasoline in the cold intake manifold reach evaporation temperature more quickly, eliminating "puddling" of raw gasoline in the intake manifold and making the vehicle much more driveable when it is cold. As the engine warms up, the valve opens, allowing the exhaust to flow out through both headers.

### What is an "E.F.E. valve"?

"E.F.E." stands for Early Fuel Evaporation, and "E.F.E. valve" is often considered to be another name for the heat riser. However, some vehicles have what is referred to as an "E.F.E. *system*". An E.F.E. system might include both a heat riser in the exhaust manifold, and a hot air pickup that draws the engine's intake air across one of the exhaust manifolds to preheat it during cold start conditions. Whatever combination your vehicle came equipped with in its stock configuration is what must be reinstalled and reconnected when Thorley headers are installed in order for your vehicle to be smog legal. If in doubt, consult your new-car dealership parts department or an authorized smog inspection/maintenance station.

### What controls the operation of the heat riser?

There are two types of heat risers: mechanical and vacuum. The mechanical types use a bi-metallic strip which works like a heat-sensitive spring, opening the valve when it gets hot enough. The vacuum type uses a vacuum canister similar to the vacuum advance on an ignition distributor. Vacuum routed through a heat-sensitive switch (usually monitoring engine coolant temperature) pulls the valve closed when the engine is cold, and then allows it to open by shutting off the vacuum supply when normal operating temperature is reached.

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# Heat Riser Installation Variations

