

**CHEVROLET 366-502  
90-95 CLASS "A" MOTORHOME  
WITH 4L80E AUTO TRANS**



## PARTS INCLUDED

Ref.	Description	Qty
1)	Right Side Header	1
2)	Left Side Header	1
3)	Y-pipe assembly	1
4)	Catalytic converter adapter	1
5)	Header Gaskets	2
6)	Conical Gaskets	2
7)	Collector Gaskets	2
8)	3/8"-16 x 1" Header Bolts	16
9)	3/8"-16 x 1-3/4" Hex Head Bolts	9
10)	3/8"-16 Hex Nuts	9
11)	3/8" Flat Washers	9
12)	18MM Pipe Plug	1

**THY-306Y2 / THY-306Y2-S**

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**TOOLS REQUIRED**

Ref. Description	Ref. Description
1) Heating Torch	10) 5/8" Spark Plug Socket
2) Mig Welder	11) 15mm Deep Socket
3) Cut-off Saw	12) Ratchet and Extensions
4) Sawzall	13) Pliers
5) 3/8", 7/16", 9/16", 1/2", 3/4", 7/8" Wrenches	14) Crescent Wrench
6) 10mm, 13mm Wrenches	15) Torque Wrench
7) 9/16" Line (Flare Nut) Wrench	16) Rust Penetrant
8) 5/16", 7/16", 1/2", 9/16" Sockets	17) High-temp Sensor-safe Silicon Sealer (Rated at 600 Degrees and above)
9) 3/8", 7/16" Deep Sockets	

**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.
- 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".

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#### INSTALLATION NOTES

- 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.

#### 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-306Y2-S driver side - 333827, passenger side - 357106.

- 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.)

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## **INSTALLATION PROCEDURES**

- 3) Remove the front wheels (optional).
- 4) Spray all exhaust system fasteners with rust penetrant and allow to soak to prevent the possible breakage of bolts. (Note: High-mileage vehicles may require soaking overnight and/or multiple doses of penetrant.)
- 5) Remove the air cleaner and ducting. It is recommended that the carburetor/throttle body air intake be covered to prevent contamination.
- 6) Remove the fasteners from the stock connector pipe. Remove the clamp at the catalytic converter-to-connector pipe junction.
- 7) Note the spark plug wire locations and remove the wires.
- 8) Remove the spark plugs.
- 9) 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.
- 10) Lay the spark plug wiring harness back out of the way.
- 11) If applicable, loosen the A.I.R. harnesses (smog pump fittings) at the exhaust manifolds and disconnect the hoses. (Note: It is not necessary to remove the harnesses until the stock exhaust manifolds have been removed from the vehicle.)
- 12) Disconnect the oxygen sensor wiring from the vehicle's wiring harness at the connector and remove the wire from any retention clips that may be present. Remove the oxygen sensor. (Note: Failure to disconnect the oxygen sensor lead wire so it is free to rotate with the oxygen sensor during disassembly can cause serious damage to the sensor.)
- 13) Remove the engine oil dipstick from the engine block.
- 14) Bend all exhaust manifold bolt keeper tabs away from the exhaust manifold bolts and remove the bolts.
- 15) Remove the stock exhaust manifolds.
- 16) Clean all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 17) Remove the stock connector pipe. (Note: The application of heat and/or force may be necessary to separate these components. Do not cut this junction apart. It is illegal to modify the front of the catalytic converter.)

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## **INSTALLATION PROCEDURES**

- 18) If applicable, trial fit the A.I.R. harnesses onto the headers with the headers off the vehicle.
- 19) Install the driver side header and supplied header gasket from under the vehicle using the supplied 3/8"-16 x 1" header bolts  
Tighten to 20-25 ft/lbs.
- 20) Reinstall the driver side spark plugs.
- 21) If applicable, install the driver side A.I.R. harness onto the fittings on the header and tighten securely. Reconnect the feed hose.
- 22) Install the passenger side header and supplied header gasket from above the vehicle using the supplied 3/8"-16 x 1" header bolts  
Tighten to 20-25 ft/lbs.
- 23) Reinstall the engine oil dipstick.
- 24) Reinstall the passenger side spark plugs.
- 25) Reinstall the spark plug wiring looms and the dipstick tube support bracket. (Note: The dipstick tube may require slight, careful bending to conform to its new location. Ensure that there is at least 1/4" clearance between the dipstick tube and the headers.)
- 26) If applicable, install the passenger side A.I.R. harness onto the fittings on the header and tighten securely. Reconnect the feed hose.
- 27) Reconnect the spark plug wiring on both sides of the engine.
- 28) Install the supplied connector pipe-to-catalytic converter adapter into the entrance of the catalytic converter, with the bolt hole clocking as shown in Illustrations, Figure 1. Using a hammer and a block of wood, drive the adapter into the catalytic converter until it stops, and clamp it securely in place.
- 29) Snap the steel-flanged end of the supplied conical gaskets into the header collectors.
- 30) Attach the supplied Y-pipe assembly to the header collectors using the supplied 3/8"-16 x 1-3/4" hex head bolts, nuts, and washers, and to the catalytic converter adapter using the supplied collector gasket, 3/8"-16 x 1-3/4" hex head nuts, bolts, and washers. Tighten all hardware securely. (See Illustrations, Figure 2 for a view of the assembled system.)

## INSTALLATION PROCEDURES

- 31) Remove any covering placed on the carburetor/throttle body air intake in Step 5 and reinstall the air cleaner and ducting.
- 32) Install the oxygen sensor in the fitting in the supplied Y-pipe assembly that matches the original location of the oxygen sensor. Install the supplied 18mm pipe plug in the unused fitting on the Y-pipe assembly.
- 33) Reconnect the battery. Start the engine and check for leaks.
- 34) Because the header bolts will initially stretch when hot, we recommend adhering to the following steps:
  - a) Retighten the header bolts to 20-25 ft/lbs after approximately 20 minutes of operation.  
(Note: Remember the engine will be hot at this time. Protect yourself accordingly.)
  - b) Check and retighten the header bolts to 20-25 ft/lbs after the first month of operation.

## ILLUSTRATIONS

FIGURE 1

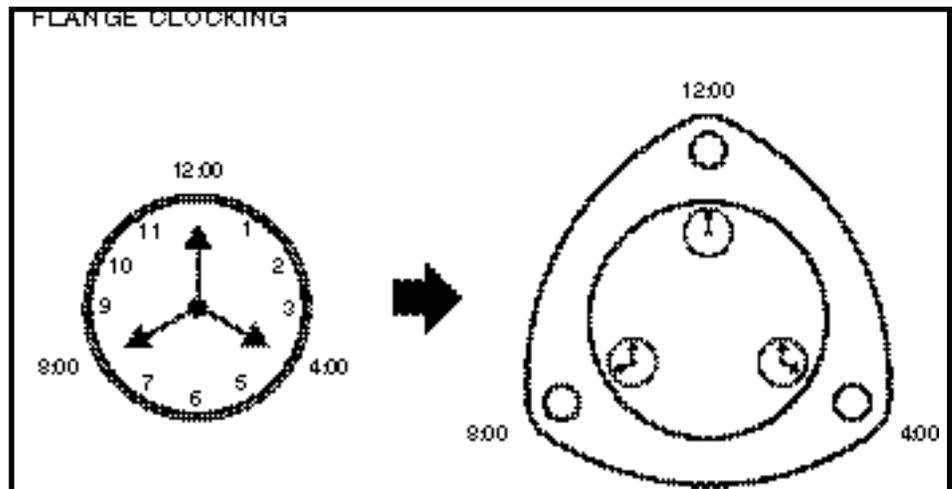


FIGURE 2

