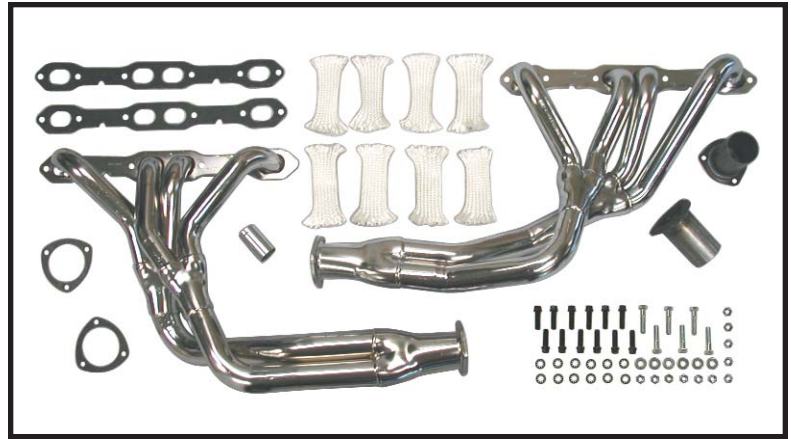


# DOUG THORLEY HEADERS

BY SUMMIT INDUSTRIES

THY-109Y

DODGE 440  
74-80 VAN, MINI-MOTORHOME



## PARTS INCLUDED

- 1 - Right side header
- 1 - Left side header
- 2 - Reducers
- 1 - Hot air pickup
- 8 - Heat sleeves
- 2 - Header gaskets
- 2 - Collector gaskets

## HARDWARE INCLUDED

- 12 - 3/8"-16 x 1-1/4" Header bolts
- 12 - 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
- 5 - 3/8"-24 Hex nuts

## 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. This part number is considered a legal replacement part on vehicles that do not have a catalytic converter, as long as all original emission control devices are connected and functioning properly. As a result, **this part number does not require an Executive Order (“E.O.”) number.**

## 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:** Many vehicles came factory-equipped with an early fuel evaporation valve, also known as a heat riser valve, attached on the bottom of one of the stock exhaust manifolds (see "Heat Riser Information", attached). Thorley Headers offers an improved-design high-flow replacement heat riser, P/N HR212-3M, which bolts directly to the header collector flange. This part number is not included and must be purchased separately from your authorized Thorley Headers distributor.

- 1) 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.)
- 2) Disconnect the battery.
- 3) Drain and retain the coolant from the radiator.
- 4) Remove the engine cover ("doghouse") and heat shields.
- 5) Remove the spark plugs.
- 6) Remove the spark plug heat shields and the inspection plate from behind the brake master cylinder.

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- 7) Remove the starter. (Note: It is advisable to mark your wires to ensure they are returned to the proper locations.)
- 8) Remove the stock cast iron manifolds.
- 9) Clean all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 10) It is recommended that you leave the studs in the heads. If one should back out, use high-temp sensor-safe silicon sealer (a thick layer on the threads of the bolt) or teflon tape around the coarse threads to seal in the coolant. Reinstall the studs by locking two nuts together on the fine-thread end. Ensure that the stud goes all the way into the head (approximately one inch). (Note: If you must remove some of the studs, pull all four of the middle studs and leave one on each end. Use only high-temp sensor-safe silicon sealer or teflon tape to seal the threads anywhere supplied header bolts are used, and ensure that one supplied star lock washer per bolt hole is used to provide a proper seal. Carefully check to ensure there are no water leaks from the bolt holes.)
- 11) Apply a thin film of high-temp sensor-safe silicon sealer around the ports on the heads.
- 12) Apply the supplied header gaskets to the cylinder heads. (Note: The two notches on each gasket must align with the two matching notches on each header flange to ensure a proper fit.)
- 13) Place the headers into position from under the vehicle, and start nuts onto all studs. Starting in the middle of the header flanges and working toward the ends, tighten all hardware to 35 ft/lbs.
- 14) Replace the starter and reconnect the wires. (Note: The use of a factory starter heat shield [Chrysler P/N 1934547] and clamp [Chrysler P/N 1928293], available from your Chrysler dealership, is highly recommended.)
- 15) Replace the coolant drained from the radiator.
- 16) Using the supplied heat sleeves on the spark plug wires, reinstall the spark plugs and plug wires.
- 17) Attach the supplied reducers to the header collectors using the supplied collector gaskets, 3/8"-16 x 1-1/4" hex head bolts, hex nuts, and flat washers.

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- 18) Cut the stock head pipes appropriately to fit the reducers, and attach by welding.
- 19) Replace the engine cover (“doghouse”).
- 20) Reconnect the battery. Start the engine and check for leaks.
- 21) 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.