

DOUG THORLEY HEADERS

B Y S U M M I T I N D U S T R I E S

THY-220

**2003-06 FORD RANGER
4.0L OHC, NO EGR, 2/4WD**



PARTS INCLUDED

- 1 - Driver Side Header
- 1 - Passenger Side Header
- 2 - Head Flange Gaskets

TOOLS REQUIRED

- 1-1/4", 12mm Wrenches (various lengths)
- 1/4" or 3/8" Ratchet and extensions
- 7/32", 5mm, 8mm, 13mm, 15mm Deep sockets
- 7/16" Sockets (one shallow, one deep)
- Ratchet and extensions
- High-temp sensor-safe silicon sealer (rated at 600 degrees+)
- Rust penetrant
- Torque wrench

HARDWARE INCLUDED

- 12 - M8 x 1.25 x 25mm Flanged Hex Head bolts
- 12 - 3/8" Star lock washers
- 4 - 3/8"-16 x 2-1/2" Hex Head bolts
- 4 - 3/8"-16 Hex nuts
- 4 - 3/8" Lock washers
- 8 - 3/8" Flat washers

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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- 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 have a catalytic converter, as long as all original emission control devices are connected and functioning properly. As a result, **the Executive Order ("E.O.") number for this part is D-540-2.**

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 Ford parts department may be able to provide replacements using these part numbers:

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REMOVAL PROCEDURES

- 1) Disconnect the battery.
- 2) 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.) With jack stands in place, remove both front tires.
- 3) Spray WD-40 or equivlant on all manifold studs and crossover pipe fasteners and allow to soak.
- 4) Unplug the all O2 sensors from wire looms and remove O2 sensors from stock manifolds.
- 5) Remove the transmission dipstick.
- 6) Remove both stock exhaust manifolds.
- 7) Remove the crossover portion of the stock exhaust system.
- 8) Take the exhaust system out of the rubber hangers and move rearward as far as possible.
- 9) Remove all studs from the cylinder head using a 5mm socket.
- 10) Clean all traces of carbon deposit and sealing surfaces with scotch brite.
- 11) The oil dipstick tube can be left place.

INSTALLATION PROCEDURES

- 12) Install the supplied gaskets, with high temp, sensor safe RTV silicone sealant.

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- 13) Loosely install both headers using the supplied 8mm bolts and star washers hardware.
- 14) Loosely install the factory crossover pipe to the headers using the supplied 3/8"-16 hardware.
- 15) Re-install the O2 sensors.
- 16) Snug the entire system and adjust if necessary for best fit.
- 17) Once you are satisfied, tighten down the headers starting in the center working your way outward.
- 18) Re-install transmission dipstick stick.
- 19) Tighten the crossover pipes at the header connection, then at the rear of the exhaust system.
- 20) Double check all bolts to make sure everything is tightened and no wires are resting on the headers. Make sure there is ample clearance around the new headers.
- 21) Reconnect battery and start the engine. After engine is started check for leaks.
 - a) Retighten the header bolts to 35 ft/lbs after approximately twenty minutes 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.
 - c) Refer to owners manual for the “Relearning Process”