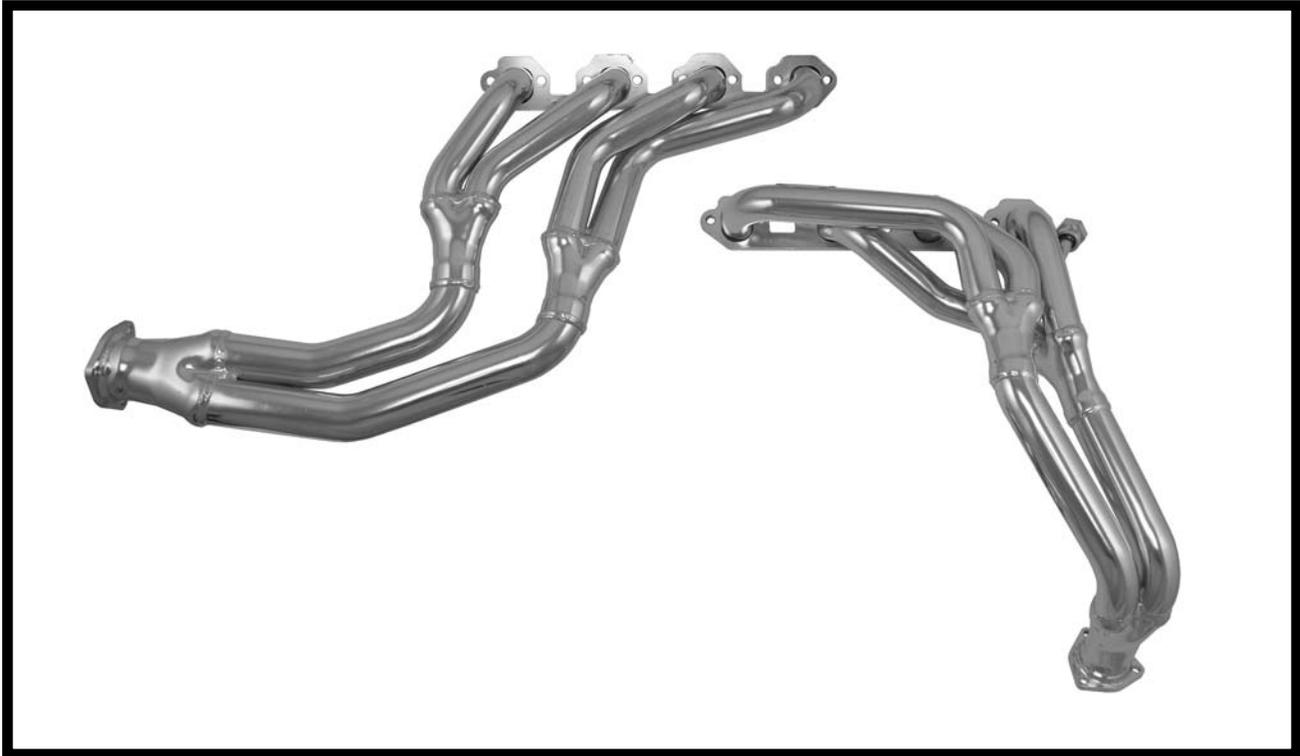


FORD 460 FUEL INJECTED 1988-92 2/4WD PICKUP, CLASS "A" MOTORHOME, CLASS "C" MOTORHOME



PARTS INCLUDED

Ref.	Description	Qty
1)	Driver Side Header Assembly	1
2)	Passenger Side Header Assembly	1
3)	Header Gasket (set of 2)	1
4)	Flared Adapters	2
5)	Conical Gaskets	2
6)	5/8" x 5/8" Spacer	1
7)	3/8"-16 x 1-1/4" Header Bolts	16
8)	3/8"-16 x 1-3/4" Hex Head Bolts	6
9)	3/8" Flat Washers	6
10)	3/8"-16 Hex Nuts	6
11)	Air Injection Gasket (-s only)	1
12)	5/16"-18 X 1" Hex Head Bolts (-s only)	2
14)	5/16" Star Lock Washers (-s only)	2
15)	5/16" Flat Washers (-s only)	2
16)	5/16" Hex Nuts (-s only)	2

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TOOLS REQUIRED

Ref.	Description	Ref.	Description
1)	7/16" , 1/2" , 9/16" Wrenches	8)	15mm Deep Socket
2)	7/8" Box wrench or O2 Sensor Socket	9)	Ratchet and Extensions
3)	15mm Box End Wrench	10)	Screwdrivers and/or Nutdrivers
4)	Large Crescent Wrench	11)	Sawzall
5)	7/16", 9/16" Sockets (shallow and deep)	12)	MIG Welder
6)	5/8" Spark Plug Socket	13)	Rust Penetrant
7)	10mm Socket	14)	Torque Wrench

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.**

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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.**

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) Remove the air cleaner-to-throttle body hoses.
- 2) Disconnect the battery.

- 3) Raise the vehicle at least 36 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.)
- 4) 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.
- 5) Remove the connector pipe-to-exhaust manifold fasteners.
- 6) Note the spark plug wire locations and disconnect them from the spark plugs.
- 7) Label and remove any vacuum hoses which may interfere with disassembly/installation.
- 8) Remove the spark plugs.
- 9) Loosen the EGR feed line at the end of the feed tube itself. (Note: Do not attempt to disconnect this line by turning the fitting that threads directly into the exhaust manifold.) Remove the air injection manifolds.
- 10) Remove the exhaust manifold-to-cylinder head bolts, and remove the exhaust manifolds from above.
- 11) Clean all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 12) Remove the engine oil dipstick and tube assembly. (Note: Mark the location of the dipstick to ease reinstallation.)
- 13) Disconnect the oxygen sensor wiring where it exits from the wiring loom (not at its point of entry into the connector pipe). Remove the oxygen sensor. (Note: Failure to disconnect the oxygen sensor from the loom first will cause the lead wire to become twisted when removing the sensor from the connector pipe. Damaging the lead wire may adversely affect the computer fuel control system.)
- 14) Loosely install the flared adapters to the new headers to measure where you will be making your cut on the connector pipes. Cut the stock connector pipes. (leave just enough room to get the headers in and make a second cut after the headers are bolted up. Remove and discard the cut-off pieces.

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- 15) Check the included header gaskets against the headers and mark them to ensure proper orientation. (Note: It is possible to install gaskets with the incorrect side out. If port alignment is not checked prior to assembly and the header gaskets are installed "wrong-side- out", severe leaks will occur.)
- 16) Install the passenger side header (without gasket) from the bottom of the vehicle. Start but do not tighten the second bolt from the front to support the header during the next step.
- 17) Observe the header bolt holes and their locations relative to the front of the vehicle. These instructions will refer to the header bolt holes by number from front to rear of the vehicle. For example, the front bolt will be "#1 bolt" and the rear bolt will be "#8 bolt".
- 18) Remove the #2 bolt installed in step 16 install the supplied header gasket. Reinstall the #2 bolt but do not tighten it at this time.
- 19) Install the #1 and #3 bolts from the original exhaust manifold into their respective holes. Do not tighten at this time.
- 20) Install supplied 3/8"-16 x 1-1/4" header bolts in the remaining passenger side holes. Do not tighten at this time. Install the air injection to the header using the supplied adapter, gasket and 5/16" hardware.
- 21) Torque all passenger side header-to-head bolts to 20-25 ft/lbs.
- 22) Reinstall the spark plugs into the passenger side head, eliminating the stock heat shields. (Note: These headers were designed so that the stock heat shields are no longer needed when spark plug wiring is routed in a safe and sensible manner.)
- 23) Re-attach the passenger side spark plug wires.
- 24) Place the driver side header into the vehicle from below and start the EGR adapter into the fitting protruding from the header using only the first three or four threads (do not tighten). Install the header gaskets and thread the #8 header bolt loosely into the head.
- 25) Start the original, stock bolt that came from the stock exhaust manifold into the #7 bolt hole. Do not tighten. Then start the remaining supplied 3/8"-16 x 1-1/4" header bolts. Do not tighten.
- 26) Install the air injection and tighten all header-to-head bolts to 35 ft/lbs.

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- 27) Reinstall the engine oil dipstick into the pan. Reinstall the factory dipstick support bracket using the supplied 5/8" x 5/8" tubular spacer and the original manifold bolt to space the dipstick away from the header.
- 28) Tighten the EGR feed tube fitting.
- 29) Reinstall the spark plugs and wiring (without factory heat shielding) and re-attach any vacuum lines that were disconnected.
- 30) Trial fit the flared adapters from underneath the vehicle using the conical gaskets. Cut the connector pipes so that when the adapters are bolted to the header the connector pipes slide in and can be welded.
- 31) Snap the steel flanged ends of the supplied conical gaskets into the header collectors. Attach the flared adapters to both headers using the supplied 3/8"-16 x 2.00" hex head bolts, nuts, and washers. Do not fully tighten at this time.
- 32) Make any necessary final adjustments and tighten all collector-to-connector pipe hardware. Weld (do not clamp) the connector pipes.
- 33) Remove the driver side oxygen sensor wiring from the bracket at the top of the transmission, re-route the wiring through the shift linkage area, and install the oxygen sensor into the driver side header (if necessary). (Note: Ensure that the oxygen sensor wiring is routed away from areas of high heat and that there is ample slack in the wire to allow for exhaust system flex.)
- 34) Reinstall the air cleaner-to-throttle body hoses.
- 35) Re-check everything! Make sure there are no wires or hosing resting on or near the headers.
- 36) Reconnect the battery. Start the engine and check for leaks.
- 37) Because the header bolts will initially stretch when hot, we recommend adhering to the following steps:
 - a) Retorque 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.