

JEEP 304-401
1980-91 WAGONEER, CHEROKEE



PARTS INCLUDED

Ref.	Description	Ref.	Description
1)	Driver side Header	9)	2-1/2" Collector gaskets (9005)
2)	Passenger side Header	10)	3" Collector gasket (9006)
3)	Main Y-pipe Assembly 1	11)	3/8"-16 x 1" Header bolts
4)	Driver side Connector Assembly	12)	3/8"-16 x 1-1/4" Hex head bolts
5)	Pass. side Connector Assembly	13)	3/8-16 x 2-1/4" Hex head bolts
6)	3.00" Cat. Adapter Assembly	14)	3/8"-16 Hex nuts
7)	Hot air pickup	15)	3/8" Flat washers
8)	Header Flange Gasket	16)	5/16-18x1" Header Bolts

THY-616Y2-C / THY-616Y2-S-C

JEEP 304-401 1980-91 WAGONEER, CHEROKEE

TOOLS REQUIRED

Ref.	Description	Ref.	Description
1)	Heating torch	9)	3/8", 7/16" Deep sockets
2)	Mig welder	10)	15mm Deep socket
3)	Cut-off saw	11)	5/8" Spark plug socket
4)	Sawzall	12)	Ratchet and extensions
5)	3/8", 7/16", 9/16", 1/2", 3/4", 7/8" Wrenches	13)	Pliers
6)	10mm, 13mm Wrenches	14)	Crescent wrench
7)	9/16" Line (flare nut) wrench	15)	Torque wrench
8)	5/16", 7/16", 1/2", 9/16" Sockets	16)	Rust penetrant

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) 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.

THY-616Y2-C / THY-616Y2-S-C

JEEP 304-401
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INSTALLATION NOTES

- 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.

RECOMMENDED ADDITIONAL PARTS- It is recommended that you obtain these additional parts before beginning disassembly and installation:

Air injection looms - Jeep part numbers J3234691 (driver side) and J3234692 (passenger side).

Air injection loom "banjo bolts" - Jeep part number J3229425 (7 required).

Air injection loom "banjo bolt" washers - Jeep part number J0044042 (14 required).

- 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) Disconnect the hot air pickup from the air filter. Remove the air filter assembly.
- 4) Remove the spark plug wires and the spark plugs.

THY-616Y2-C / THY-616Y2-S-C

**JEEP 304-401
1980-91 WAGONEER, CHEROKEE**

INSTALLATION PROCEDURES

- 5) Spray all exhaust system-related fasteners with a liberal amount of rust penetrant and allow to soak to prevent possible breakage of bolts.
- 6) Cut the stock Y-pipe approximately six inches forward of the front edge of the transmission crossmember. (Note: It is better to cut this piece slightly longer than is necessary at this point, as it can always be re-trimmed later in the installation.)
- 7) Disconnect the stock Y-pipe at the bottom of the stock exhaust manifolds and remove the Y-pipe.
- 8) Remove the engine oil dipstick support bracket from the driver side valve cover and carefully remove the dipstick tube from the side of the block.
- 9) Disconnect the hoses that go into the air injection looms.
- 10) Unbolt the stock exhaust manifolds and remove them, with the air injection looms still attached.
- 11) Clean all traces of carbon deposits from the cylinder head exhaust port surfaces.
- 12) Secure the stock exhaust manifolds in a sturdy vise and remove the air injection looms. It is recommended that the original sealing washers be discarded and replaced with new ones (see Installation Procedures, Recommended Additional Parts on Page 3). Thoroughly clean and lubricate the air injection "banjo" fittings. Inspect the threads and replace any fittings that are questionable. Failure to replace the sealing washers and/or clean/replace the fittings can cause the fittings to break during reassembly.
- 13) Trial fit the air injection looms onto the headers with the headers off the vehicle. Make any necessary adjustments, then remove the looms before installing the headers.
- 14) Install each header and supplied header gasket from below the vehicle using the supplied 3/8"-16 x 1" (or 5/16"-18x1.00" depending on the year) header bolts. Do not fully tighten at this time.
- 15) Reinstall the dipstick tube. Reinstall the dipstick tube support bracket onto the valve cover fastener.
- 16) Place the smaller of the two connector pipe assemblies in to the main Y-pipe assembly (Note: You will have to cut 1-1/2" off the passenger side assembly if you will be using a heat riser). Then install the driver side assembly into the main Y-pipe assembly. Place the assembled Y-pipe assembly into position and attach it loosely to the passenger and driver side header collector. (See Illustrations, Figure 1)

THY-616Y2-C / THY-616Y2-S-C

**JEEP 304-401
1980-91 WAGONEER, CHEROKEE**

INSTALLATION PROCEDURES

- 17) Trial fit the supplied catalytic converter adapter between the connector pipe and the catalytic converter. If necessary, make a final cut on the stock tubing and install the catalytic converter adapter onto it. Ensure that the flange on the catalytic converter adapter is “clocked” to match with the flange on the connector pipe (See Illustrations, Figure 2), then weld the catalytic converter adapter to the existing pipe.
- 18) Attach the entire connector pipe assembly (including your heat riser if needed) using the appropriate supplied collector gaskets and hardware. Do not fully tighten at this time.
- 19) Starting in the center of the header flanges and working toward the ends, tighten the header bolts to factory specs.
- 20) Tighten the connector pipe hardware to factory specs.
- 21) Reinstall the air injection looms. (Note: One new sealing washer goes on each side of the loom as it is attached to the headers.)
- 22) Reconnect the air injection feed hoses to the looms.
- 23) Reinstall the spark plugs and spark plug wires.
- 24) Reinstall the air cleaner and install/attach the supplied hot air pickup.
- 25) Reconnect the battery. Start the engine and check for leaks.
- 26) Because the header bolts will initially stretch when hot, we recommend adhering to the following steps:
 - a) Retighten the header bolts to factory specs 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 factory specs after the first month of operation.

THY-616Y2-C / THY-616Y2-S-C

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ILLUSTRATIONS

FIGURE 1

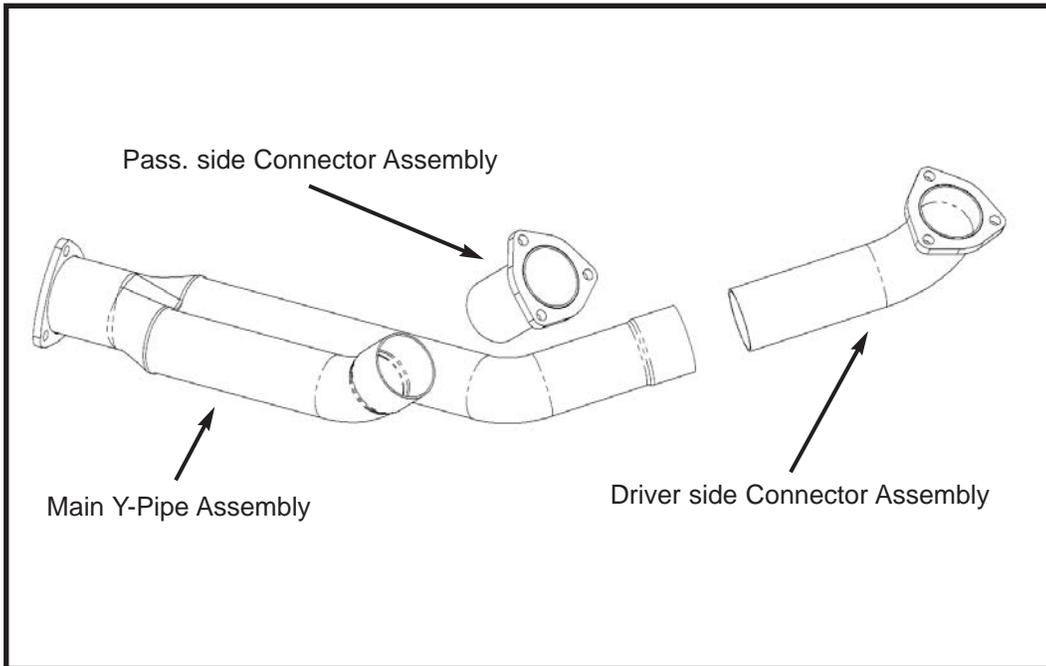


FIGURE 2

