



Tube Technologies, Inc.
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INSTALLATION INSTRUCTIONS for TTI Big Block Header Part No': TTI383-178 / TTI440-178


TAKE TIME TO READ THE INSTALLATION PROCEDURES BEFORE STARTING

WARNING !!!

We strongly suggest that you use an old set of headers or a set of cast iron manifolds for first engine runs / cam break-ins to avoid coating damage. Excessive heat damage to the ceramic coating will **VOID** all warranties.

Header coating damage usually occurs during the first engine run when the exhaust temperatures exceed 1200°F. Excess exhaust temperatures are normally caused by excessively lean or excessively rich air/fuel mixtures and/or incorrect ignition timing.

 **Please take all under car safety precautions when installing headers, including eye protection.** When raising vehicle, use an appropriate lifting device and place on jack stands as a safety measure. Caution! Bumper jacks are intended for emergency use only and should not be used to support vehicle.

 **First check your Engine Location -** K-members are not all identical and the dimensions must be checked to ensure proper fit. Check your engine location prior to installation of your TTI Headers. TTI Headers were designed to fit with the engines located to the factory specifications. If the engine is not located correctly in the chassis, the headers will not fit properly. If necessary, place shims between the insulator assembly and the K-frame mounting pad to achieve the proper dimensions. Shim kits and engine mounts can be purchased from Schumacher Creative Services of Seattle, WA (206) 364-7151.

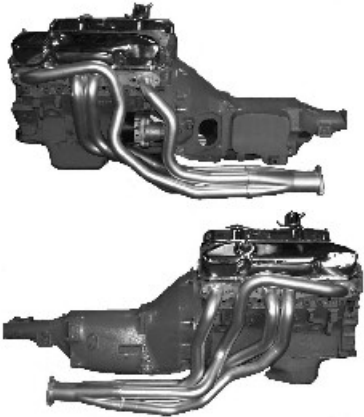



- **66-74 "B"-body / 70-74 "E"-body applications:** From the center of the crankshaft to the top of the K-frame, the correct distance is 5-1/4". The engine is also offset towards the passenger-side. Measure from the center of the crankshaft to each frame rail. The difference should be 2-1/2".

1. Disconnect the negative cable from the battery terminal.
2. Disconnect the plug wires and remove all of the spark plugs. Remove the cast iron manifolds and the stock exhaust pipes. If you are installing the complete TTI Exhaust System, then remove and discard your entire stock exhaust system, including hangers.
3. Raise the front of the vehicle with an appropriate lifting device and place on jack stands.
4. Disconnect the electrical cables to the starter and remove the starter motor. Drain the engine coolant into a suitable container before removing the exhaust studs in the cylinder heads.
 - The headers can be secured with the stock studs or with the provided header bolts. If using studs, the 2nd stud from the front must be shortened for the tube clearance on both sides.
 - Standard Shift Only: Disconnect and remove the Z-bar. The Z-bar will be reinstalled after the header is in place. Remove the oil stick tube.
5. Now is a good time to check the condition of your engine mounts. If they are worn or deteriorated, replace them now. When the engine is mounted correctly the headers will fit correctly.
6. Passenger-side Header: Check the sealing surface of the exhaust ports to insure they are clean. Place the supplied header gasket into position on the studs. Turn the steering wheel to the full left position. Insert the header into position from under the car. Use the original studs and nuts or the provided header bolts to secure the header to the cylinder head. Tighten the center bolts first, then the end ports. Torque the bolts to 35 lbs. evenly to insure a proper seal.
 - It may be necessary to raise the engine if you are using the original studs to secure the header to the cylinder head.

7. **Drivers-side Header:** Remove the drivers-side engine mount bolt and raise the engine up approximately 1-1/2". Use a block of wood between the oil pan and the floor jack. Turn the steering wheel to the full right position.
 - Check the sealing surface of the exhaust ports to insure that they are clean. Place the supplied header gasket into position on the studs. Insert the header into position from under the car. Before fastening the header to the cylinder head place the starter motor into position and tighten the fasteners. Now, lower the engine back down on to the K-frame and re-install the engine mount bolt. Secure the header to the cylinder head. Use the original studs and nuts or the provided header bolts. Tighten the center bolts first then the end ports. Torque the bolts to 35 lbs. evenly to insure a proper seal.
 - Connect the wiring to the starter. Adjust the wiring to insure that there is absolutely no contact with the header. A minimum of 3/8" clearance is required between the header and the wiring.
 - Due to variations in the routing of brake lines, it may be necessary to re-position a brake line to achieve adequate clearance from a header tube. A minimum clearance of 1/2" from a header tube is required.
 - Insert the oil stick tube into position. Some designs fit between the header flange and the #1 cylinder tube, some fit outside of the #1 header tube. Slight bending may be required for proper fit.
 - Re-install the clutch Z-bar at this time.
8. Attach the adapter / reducers to the header collectors with the nuts, bolts and gaskets provided. The adapter / reducers are 5" long, slightly angled and marked Left & Right. Shortening may be required for your application.
9. Re-install the spark plugs, wires and engine coolant. Re-connect the negative battery cable.
10. Now that your headers are installed, wipe down the tubes with hot soapy water or an environmentally safe Orange Cleaner Degreaser and a soft cloth to remove any grease or skin oils (finger prints) from the header tube surface. Never use abrasive cleaners.
 - It is normal for Chrome plated headers to discolor almost immediately after firing-up engine.
 - To insure years of service from your ceramic-coated headers it is suggested to follow our Header Maintenance & Care procedures.
11. Start the engine and check for leaks.

 **Re-torque all of the header bolts after approximately 50 miles of driving**

To complete the rest of your exhaust system installation, we highly recommend the use of our TTI Performance Exhaust Systems. The 2-1/2" or 3" O.D. kits will bolt directly to the TTI Headers. Our exhaust systems come complete with all hardware and all new hanger assemblies. They are manufactured with aluminized tubing and are mandrel bent by the latest technology CNC tube benders insuring precision fit on every installation.

 <p>1-7/8" Tubes / 3" Collectors</p>		(2) Header Gaskets P/N: GA-HG24-440 HTX-900 exhaust gasket material is a high density fiber metal core composite.
		(12) Zinc Plated Header Bolts 3/8-16x1
	 <p>Marked Left & Right</p>	Header Reducer / Adapter kit: (2) Angled 5" long aluminized tubes with welded 3-bolt 3/8" thick flanges. (2) 3-bolt 1/16" thick gaskets. (6) 3/8-16x1.25 zinc plated HH bolts grade 2, nuts & washers. Footnote: <u>16</u>



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HEADER APPLICATION
 for TTI Big Block Header Part No':
TTI383-178 / TTI440-178

1966-1974 "B"-bodies / 1970-1974 "E"-bodies		
Engine Size	383/400 B-engines & 440 RB-engines	<u>34</u> , <u>37</u>
Cylinder Heads	OEM, Edelbrock Performer RPM, Indy 440EZ, Bulldog or Stage 5	<u>13</u> , <u>14</u> , <u>49</u>
Front Ends	Stock or Tubular K-frame	<u>60</u>
Auto Trans	Yes	<u>23</u> , <u>53</u>
Standard Trans	Yes	<u>53</u>
Floor Shift	Yes	<u>23</u>
Column Shift	Yes	<u>6</u>
Push Button	Yes	
Power Steering	Yes	
Manual Steering	Yes	
Air Conditioning	Yes	
Starters	OEM or Listed Mini Starters only	<u>10</u>
Flywheel / Bellhousing	10.5" or 11"	
Steering Linkage	OEM only	<u>12</u>
Clutch Linkage	OEM only	<u>22</u>
Oil Filters	OEM	
Oil Pans	OEM or Milodon	<u>11</u>
Valve Covers	OEM or Cast Aluminum	

Footnotes

6	Column Shift applications: Due to various manufacturing designs; If your drivers-side stock straight torque shaft rod is mounted below the torsion bar, a modified " <u>Torque Shaft Assembly</u> " will be required. The stock straight torque shaft rod passes directly through the space where the TTI header tubes or TTI exhaust pipe (to manifolds) must go. 71-74 B-body / 70-74 E-body: Sheet # SHT7174TSA
10	Starters: Chrysler Lightweight Mini Starters - part #'s: R53005984, 56027702AC Mopar Performance Lightweight Mini Starters - part #'s: P5249644AB, P5007860, P4286522 PowerMaster Adjustable Starter - part # 9523
11	Oil Pans required: 7-3/4" - 8-3/4" sump depth / Milodon part #'s: 30935, 30936, 30940, 30941
12	Pitman Arm and Idler Arm: Headers will not clear the "Fast-Ratio" pitman and idler arms, which are 3/4" longer than stock arms. (Stock idler arm measures 5-1/4" from center to center)
13	Edelbrock Heads: Header designed with adequate plug clearance for angled plugs.
14	If your cylinder head is not listed, TTI will not guarantee fit due to clearance issues, ie; Deck height, port locations or bolt pattern.
22	Some Z-bars may require modification to clear header.
23	Torque Shaft Lever: Applications with an Auto Transmission & Floor Shifter will require the adjustable swivel and the lower rod attached to the torque shaft lever to be re-positioned to clear the header collector. Do-it-yourself modification Instruction sheet: #3703
34	Due to the 440 RB-engine (Raised-block) being 1/2" taller and a 1/2" wider than a 383/400 B-engine (Low-block), the headers cannot interchange.
37	Headers fit with Schumacher engine mounts or equivalent.
49	Head Studs / B & RB-Engines: Headers will not clear <u>cylinder head</u> studs, you must use bolts.
53	Transmission: Headers <u>will</u> fit with the Tremec TKO-500 / TKO-600 5-speed by Keisler. It is imperative that the output end of the tail shaft is in exactly the same position as the "stock" transmission output shaft for the Headers to fit properly.
60	Tubular K-frame, Coil Over Suspensions: Magnumforce Tubular K-member suspension / Reilly Motorsports (RMS) AlterKtion suspension system.



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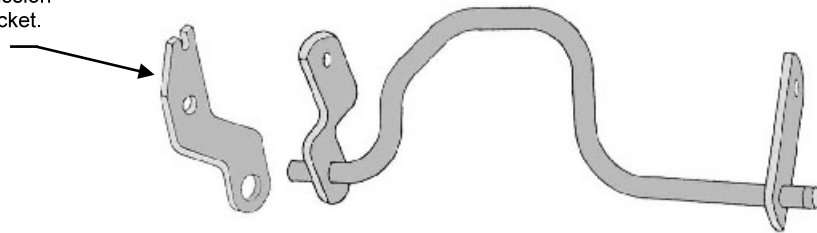
Due to various manufacturing designs of the column shift linkage in some 71-74 B-body and 70-74 E-body vehicles, you may require a TTi modified design "Torque Shaft Assembly". A Torque Shaft Assembly is required if the Drivers-side stock straight torque shaft rod is mounted below the torsion bar. The stock straight torque shaft rod passes directly through the space where the Header tubes or the Exhaust Pipe (to manifolds) must go.

⚠ Torque Shaft Assembly will not clear TTi's 2" or 2-1/8" Big Block Headers.

TTi Modified Torque Shaft Assembly

This precision bent Torque Shaft Assembly with laser cut ends get up and over the Header tubes or Exhaust Pipe which allows you to maintain your column shift linkage and is a direct bolt-on replacement of your stock straight torque shaft rod.

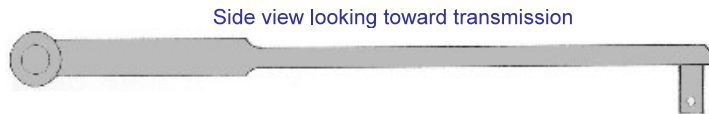
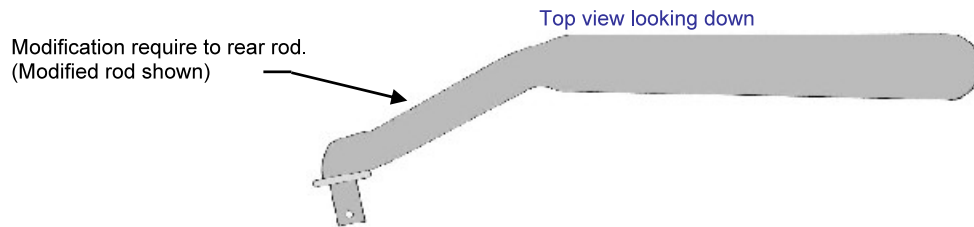
Bracket mounts to transmission after removing factory bracket. (904 bracket shown)



This side mounts to frame with factory bracket.

Transmission: 727 P/N: B7174TSA-7 (Narrow bracket) / 904 P/N: B7174TSA-9 (Wide bracket)

Rear rod transmission to Torque Shaft Assembly



Torque Shaft end

Transmission Lever end



Automatic Transmission with Floor Shifter will require repositioning of the adjustable swivel and lower rod attached to the torque shaft lever. Move them to the upper side of the torque shaft lever to clear the header collector. Some models will require additional modification for clearance of the shifting lever. (See diagram)

The support bracket is cut through and overlapped approximately 1/4" and re-welded, making it shorter and moving the shift lever away from the collector.

