Tube Technologies, Inc.
1555 Consumer Circle
Corona, CA 92880
Ph. (951) 371-4878
www.ttiexhaust.com

INSTALLATION INSTRUCTIONS
for TTi Small Block Header Part No':

TTI340BEW2-178 / TTI340BEW5-178

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 devise 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.

- 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. Raise the front of the vehicle with an appropriate lifting device and place on jack stands.
3. 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.
4. Remove the oil filter and the starter. Passenger-side, remove and discard the brace between the engine and the transmission. Drivers-side, remove the lower mounting stud for the starter and replace it with a bolt.
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. Drivers-side Header: Use a pickle-fork to loosen the ball joint on the drag link at the pitman arm and the left tie rod. Remove the bolt from the idler arm swing this assembly aside. Remove the drivers-side engine mount bolt and raise the engine approximately 1½". Use a block of wood between the oil pan and the floor jack.
   - On models with Automatic Transmission and Floor Shift, re-position the adjustable swivel and the lower rod attached to the torque shaft lever. Move them to the upper side of the torque shaft lever to clear the header collector. See the modified Torque Shaft Lever illustration on our sheet #3703.

- Check the cylinder head sealing surface of the exhaust ports to insure that they are clean. Place the supplied header gasket into position on the studs. Lower the engine and place the header into position on the cylinder head. Use the original studs and nuts or the provided headers bolts to secure the header to the cylinder head. Tighten the center bolts first then the end ports. Torque the bolts to 25 lbs. evenly to insure a proper seal.
- Reinstall the steering linkage assembly by reversing the disassembly procedure. Be extremely careful to re-install all nuts, bolts and pins that were removed. Install motor mount bolt.
- Install the starter and connect the wiring. Adjust the wiring to insure that there is absolutely no contact with the header. 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 ½" from a header tube is required.

7. 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 25 lbs. evenly to insure a proper seal. Install the oil filter.
8. Attach the adapter / reducers to the header collectors with the nuts, bolts and gaskets provided. The adapter / reducers are 9" long and may need to be shortened for your application.
9. 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.

<table>
<tr><td rowspan="2">1-7/8 Tubes / 3" Collectors</td><td> </td><td>(12) Zinc Plated Header Bolts 5/16-18x1</td></tr>
<tr><td> </td><td>Header Reducer / Adapter kit:
(2) 9" 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: 16</td></tr>
<tr><td>
W2</td><td>
W2 applications
P/N: GA-HG24-340W2RS</td><td rowspan="2">(2) Header Gaskets
HTX-900 exhaust gasket material is a high density fiber metal core composite.</td></tr>
<tr><td>
W5</td><td>
W5 applications
P/N: GA-HG24-340W5R</td></tr>
</table>

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HEADER APPLICATION

for TTi Small Block Header Part No':

TTI340BEW2-178 / TTI340BEW5-178

1962-1974 "B"-bodies / 1970-1974 "E"-bodies / 1976-1980 "F"-bodies / 1977-1988 "M"-bodies		Footnotes
Front End	Stock	
Engine Sizes	340 / 360 A-engines and 402 Magnum Crate engines	37
Cylinder Heads	W2 Headers: W2 Cast Iron, Indy 360-1 or Indy 360-2 W5 Headers: W5 Aluminum Race	14, 26
Auto Trans	Yes	23, 53
Standard Trans	Yes	23, 53
Floor Shift	Yes	23
Column Shift	Yes	
Push Button	Yes	
Power Steering	Yes	
Manual Steering	Yes	
Air Conditioning	Yes	
Starters	OEM or Listed starters only	10, 18
Steering Linkage	OEM only	12, 33
Clutch Linkage	OEM only (Z-bar may require modification)	55
Oil Filters	Screw-on short style or a 90° Remote Adapter	
Oil Pans	OEM or Milodon	11

Footnotes

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)
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.
16	**Header Reducers / Adapters:** Apply light grease or oil to the inside of the slips of the H-pipe and install the reducer/adapter into the slips. Bolt directly to TTI header collectors. In some cases the reducer/adapter may require shortening. Clamp in place after fitting & aligning.
18	Lightweight Mini Starters & the Powermaster Starter can easily be changed without removing the 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
26	**W2 Cylinder Heads:** Due to the confusing W2 cylinder head part no. / casting no. variations, use the following measurements to determine which header will fit your application. ? If the center bolt hole pattern spread measures 3-15/16" from the center of the left bolt hole to the center of the right bolt hole; you must use TTi's 1-3/4" W2 "STEP" Header (P/N: TTI340BEW2). ? If the center bolt hole pattern spread measures 4-3/4" from the center of the left bolt hole to the center of the right bolt hole; you must use TTi's 1-7/8" W2 Header (P/N: TTI340BEW2-178). ? Dual Bolt Pattern Heads: Either header may be used.
33	**Unisteer Rack & Pinion:** Headers will not clear.
37	Headers fit with Schumacher engine mounts or equivalent.
53	**Transmission:** Headers will 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.
55	**Z-Bars:** "A"-body applications with Standard Transmission. **Small Block:** A modified Z-bar may be required when running TTi Small Block Headers in an A-body with Standard Trans. No modification required to the ball stud bracket. TTi modified Z-bar part #ZB407

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Torque Shaft Assembly

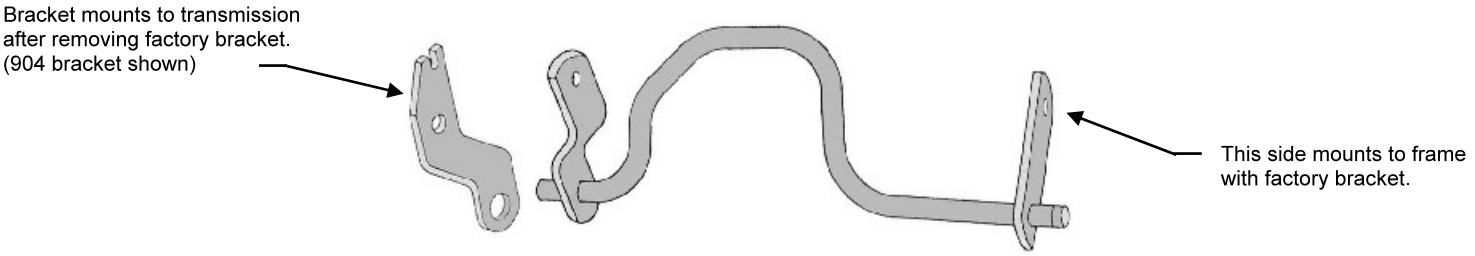
Column Shift applications only

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.

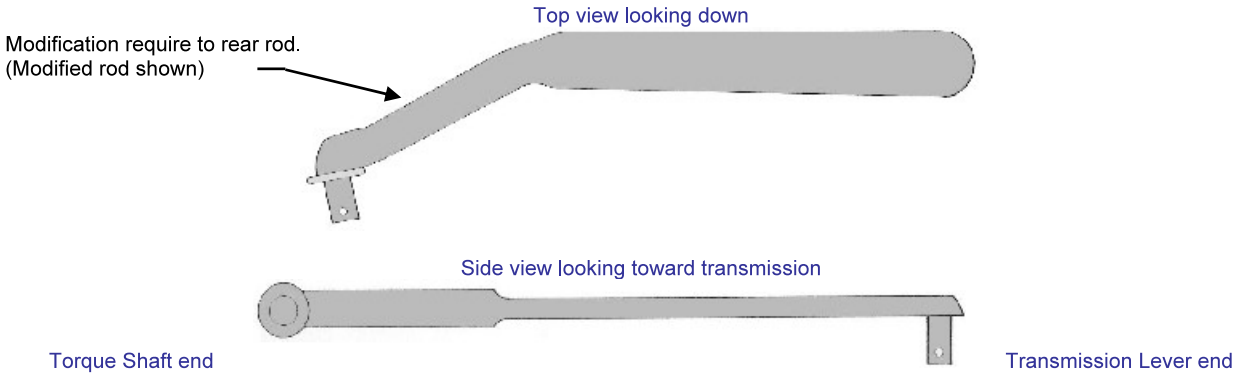
TTi Modified Torque Shaft Assembly

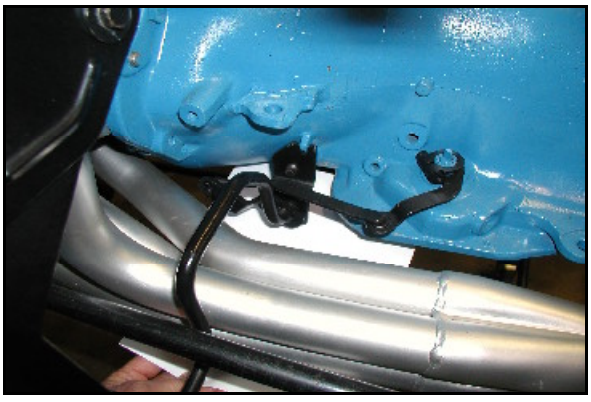
This precision bent Torque Shaft Assembly with laser cut ends go up and over the Header tubes or Exhaust Pipe which allows you to maintain your column shift linkage and is a direct bolt-on replacement of your stock straight torque shaft rod.

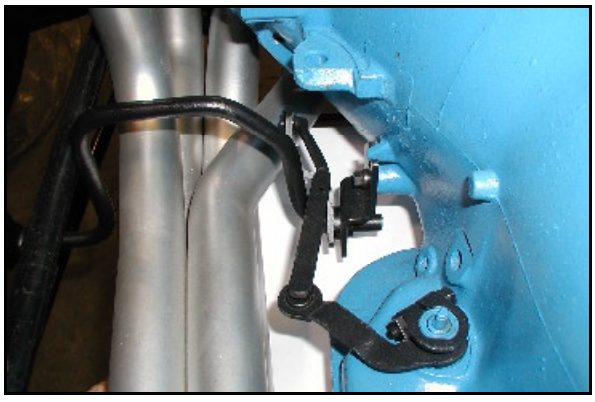


Transmission: 727 P/N: B7174TSA-7 (Narrow bracket) / 904 P/N: B7174TSA-9 (Wide bracket)

Rear rod transmission to Torque Shaft Assembly







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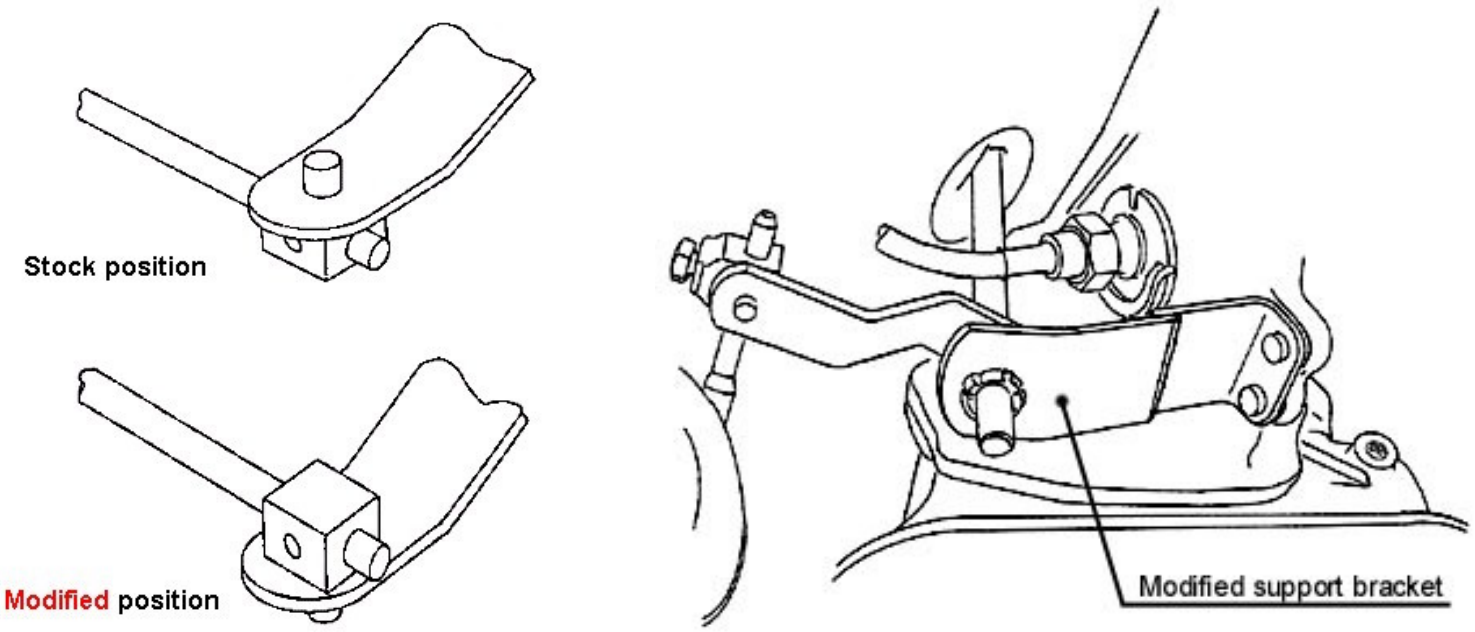
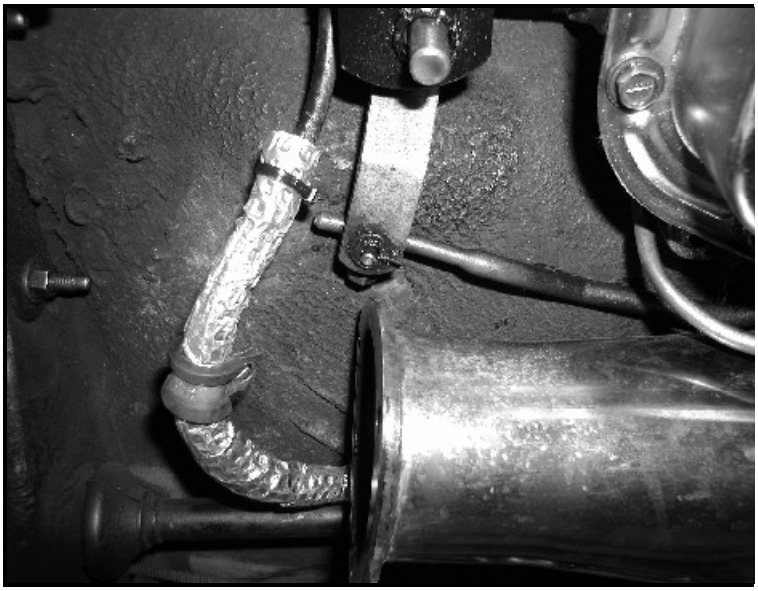
Torque Shaft Lever

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 ¼" and re-welded, making it shorter and moving the shift lever away from the collector.





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