



Tube Technologies, Inc.
 1555 Consumer Circle • Corona, CA 92878
 951-371-4878 • Fax 951-371-6143 • www.ttiexhaust.com

HEMI HEADERS INSTALLATION INSTRUCTIONS

- TTIHEMI-218
- TTIHEMI-214
- TTIHEMI-214-4

Thank you for choosing TTI Performance Headers!

Due to the numerous engine configurations and suspension combinations, we cannot ensure headers and exhaust to fit all combinations, however, we have done our best to accommodate both factory and aftermarket component combinations. e.g., Engine blocks, cylinder heads, starters, valve covers, etc.

For further product details, footnotes & fitment information, please visit our website www.ttiexhaust.com or call (951)371-4878.

BEFORE STARTING

(!) READ INSTALLATION INSTRUCTIONS THOROUGHLY and understand each of the steps involved with the installation. Review all photos, modification/illustration sheets and/or diagrams.

(!) CAUTION: Allow time for vehicle to cool down prior to the installation. Wear protective safety equipment; Eye goggles and gloves. Use an appropriate lifting device to raise the vehicle; floor hoist or hydraulic floor jack with jack stands. Do not use bumper jacks!

(!) CHECK THE ENGINE LOCATION: All K-members are not identical and the dimensions must be checked to ensure proper fitment of the headers or exhaust system. If the engine is not located correctly in the chassis, the headers will not fit properly.

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"**. If necessary, place shims between the insulator assembly and the K-frame mounting pad to achieve the proper factory dimensions.

Shims: For small position adjustments, shim packs are available through Schumacher Creative Services of Seattle, WA.

(!) CERAMIC COATING 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.

(!) HELPFUL HINT: Mask areas of header tubes with painters' tape to protect plating/coating from scratches during installation.

Parts List	Illustration sheets attached...
1 DRIVERS-SIDE HEADER	<ul style="list-style-type: none"> • Torque shaft lever repositioning: 3703 • Hemi dipstick re-shaping: 502
1 PASSENGER-SIDE HEADER	
2 HEADER GASKETS P/N GA-HG426	
18 HEADER BOLTS 3/8-16x1 - P/N B038	
1 DIPSTICK TUBE BRACKET for Auto Trans P/N 5004-3	
2 HEADER REDUCER/ADAPTERS	
2 COLLECTOR GASKETS 3.5" - P/N GA-RG35, 4.0" - P/N GA-RG40	
18 REDUCER/ADAPTER MOUNTING HARDWARE (6) 3/8-16x1.25 BOLTS, (6) WASHERS & (6) NUTS - P/N KBOR38	



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DRIVERS-SIDE

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. Remove the stock exhaust pipes from the stock cast iron manifolds. If you're replacing the exhaust system, remove the entire exhaust, including hangers.
4. Remove the starter.
5. Remove the left-side exhaust manifold.
6. Remove the oil dipstick tube. Note: The oil dipstick tube will require re-shaping to clear header. [See illustration sheet #502]
7. If equipped with Power Steering, remove the left-side motor mount nut and raise the engine approximately 1-1/2". Use a block of wood between the oil pan and the floor jack. You can now remove the stock cast iron manifolds.
8. If equipped with a 3-section kick-down linkage, remove the pivot shaft from the transmission case to allow the header to slip into place with less difficulty.
9. On models with Automatic Transmission and Floor Shifter, the adjustable swivel and the lower rod attached to the Torque Shaft Lever will require re-positioning to clear the header collector. [See illustration sheet #3703]
10. 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.
11. Turn the steering wheel to the full right stop.
12. Check the sealing surface of the exhaust ports to insure they are clean and free of any foreign material.
13. Insert the header into position simultaneously with the starter from under the car.
14. Before bolting to the cylinder head, place the starter motor into position and tighten the fasteners.
15. Lower the engine back down onto the K-frame and reinstall the engine mount fastener.
16. Place the supplied header gasket into position. Recommendation: Use a very thin layer of High-Temp Silicone Sealer on each side of gasket. Use the original studs and nuts or the supplied headers bolts to secure the header to the cylinder head.
17. Start all of the fasteners. Tighten the center fasteners first then the end ports. Torque the bolts to 35 lbs. evenly to insure a proper seal.
18. Re-connect the wiring to the starter. Adjust the wiring to ensure that there is **absolutely no contact with the header**. A minimum of 3/8" clearance is required between the header and wiring.
19. If equipped with a 3-section kick-down linkage, reinstall the pivot shaft to the transmission case and connect the kick-down linkage.
20. Reinstall the Oil Dipstick tube (modified or new Milodon flexible tube). [See illustration sheet #502]



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PASSENGER-SIDE

21. Remove the right-side motor mount nuts and raise the engine approximately ½". Use a block of wood between the oil pan and the floor jack. You can now remove the stock cast iron manifold.
22. Since there are no provisions on the header for the Hot Air Tubes to the intake manifold, the hot air tubes to the intake manifold can be removed.
23. Remove the right-side exhaust manifold. After removing, lower the engine back onto the mount and replace the nuts.
24. On models with a 4-Speed Standard Transmission, it may be necessary to trim a casting ear from the bell housing that will interfere with the #4 header tube. This must be done prior to the header installation.
25. Turn the steering wheel to the full left stop.
26. Check the sealing surface of the exhaust ports to insure they are clean and free of any foreign material.
27. Insert the header into position from under the car.
28. Place the supplied header gasket into position and start all of the header bolts. Recommendation: Use a very thin layer of High-Temp Silicone Sealer on each side of gasket.
29. Tighten the center fasteners first then the end ports. Torque the bolts to 35 lbs. evenly to insure a proper seal.
30. On models with Automatic Transmission, attach the supplied Dipstick Tube Bracket to the rear lower header flange bolt and the fluid level tube with the supplied hardware.



FINAL STEPS

31. Re-connect the negative battery cable.
32. To transition headers to your exhaust system, attach the supplied Header reducer adapters directly to the 3-bolt header collectors using the provided nuts, bolts and gaskets.
33. 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. To ensure years of service from your headers follow our Maintenance & Care instructions. Note: It is normal for Nickle Chrome plated headers to discolor almost immediately after firing-up engine.
34. Start the engine and check for leaks.
35. Re-torque all of the header bolts after approximately 50 miles of driving.

The stock dipstick tube will not clear the Hemi Headers.

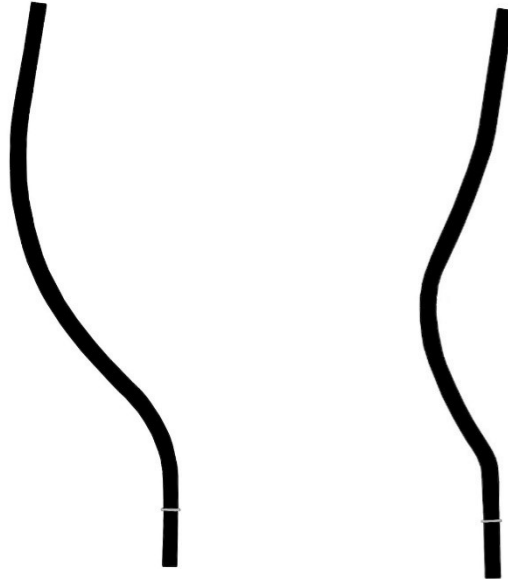
Options...

Milodon offers a flexible stainless steel dipstick and tube that will satisfy this situation



Milodon Item #22070

Do-It-Yourself Modification
Re-shape your stock oil dipstick tube



Stock shape tube

Modified shape tube



Milodon flexible dipstick.



Modified stock dipstick.



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TORQUE SHAFT LEVER REPOSITIONING

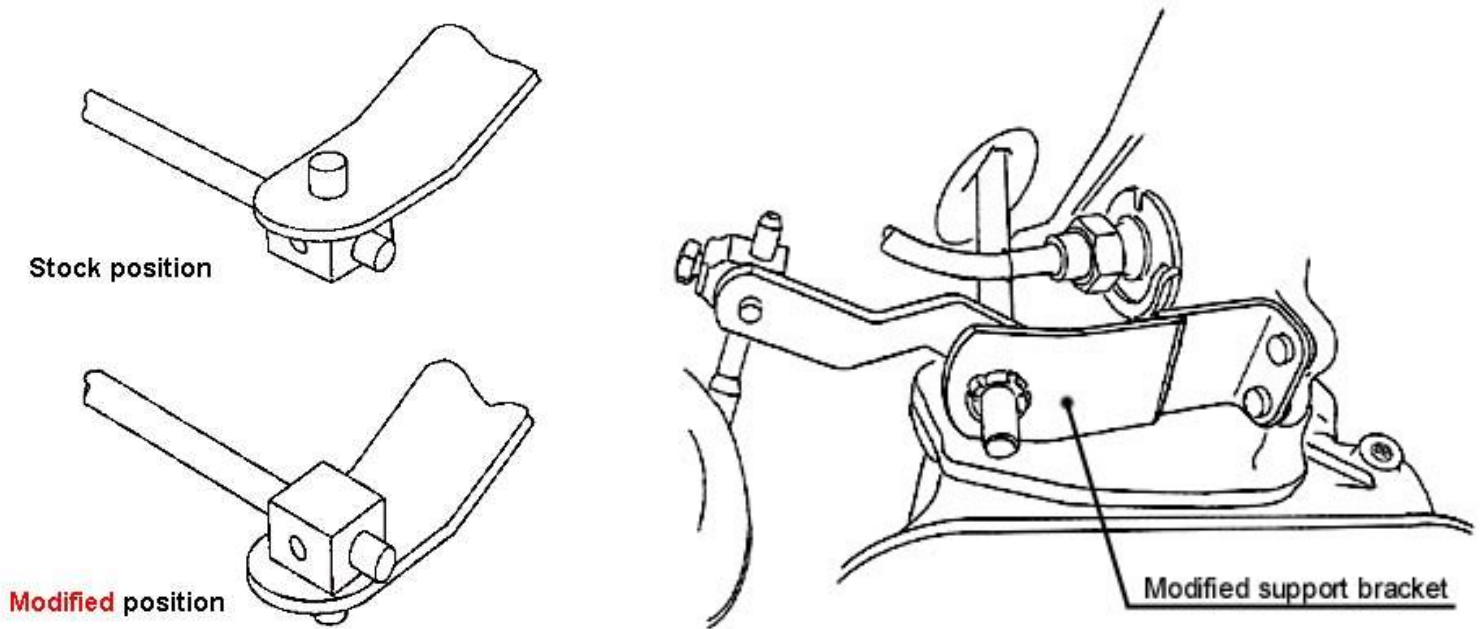
Auto Trans and Floor Shift

Sheet #3703

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.





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(!) CERAMIC COATING FACT

Ceramic coating is a very durable finish compared to other finishes however; it does not eliminate the risk of scratches during installation, rock chips made by road debris, swirl marks, and water spots. Maintenance & care is advised to insure years of service of your coated headers.

(!) INSTALLATION TIP TO PROTECT YOUR HEADERS FINISH

Mask areas of header tubes with painters' tape to protect the coating from scratches during installation.

TTi HEADER COATING OPTIONS

CERAMIC COATING (Silver satin finish): The main function of ceramic coating is to protect the steel surface against rust and corrosion. Advantages of ceramic coating; increases part life longevity, does not "blue" like chrome, and withstands temperatures up to 1200°F. Note: Exceeding this temperature may/will result in discoloration of the header tubes, turning them a dark gray color.

POLISHED CERAMIC COATING (Silver high-luster finish): The initial step in process is the same as the above ceramic coating option. The external coating is then ceramic tumbled as the final step to give the headers/exhaust component that appealing high-luster polished appearance.

BLACK CERAMIC COATING (Black satin finish): The initial step in process is the same as the above ceramic coating option to protect the steel surface against rust and corrosion. The external coating is then prepped, and spray with the black ceramic coating.

*Black ceramic coating is a more delicate finish than the silver ceramic coat. If scratched or dinged, the exterior black coating may/will flake, chip or peel. ** Discontinued option **

THERMAL BARRIER: Internal coating is designed to reduce heat which in turn, extends part life by reducing corrosion and thermal fatigue. Thermal barrier keeps under hood temperatures approximately 50°F cooler, which also protects other engine components from heat damage.

Ceramic Coating and Thermal Barrier by Engineered Applications located in Vernon, CA.

NICKEL-CHROME PLATED (Exterior Only): Decorative chrome plating is a less expensive coating process used to inhibit corrosion and will not provide thermal protection. Nickel-chrome plated parts are much more susceptible to bluing, blistering, peeling, and corrosion due to exhaust temperatures. This process carries no warranty other than to be free from defects at the time of purchase prior to installation only.

Nickel Chrome Plating done by Valley Plating Works, Inc. located in Los Angeles, CA.



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MAINTENANCE & CARE

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TTi strives to offer the highest quality header coatings available on the market today. However, high performance coatings do require care and maintenance. The following tips are suggested to ensure years of service of your Nickel-Chrome, Silver Ceramic Coated, Polished Silver Ceramic Coated, and Stainless Steel Headers.

AFTER INSTALLATION and BEFORE ENGINE RUN: Remove grease and/or skin oils from the header tube surface. Stains & fingerprints will show when header gets hot.

- Nickel Chrome Plated Headers: Wipe down tubes with rubbing alcohol and a soft cloth, dry thoroughly.
- Silver Ceramic Coated, Polished Silver Ceramic Coated and Stainless Headers: Wipe the tubes down with an environmentally safe Orange Cleaner Degreaser or mild soap, warm water and a soft cloth, dry thoroughly.

(!) WARNING - First Engine Runs: 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. For this reason, we strongly suggest that you use an old set of headers or a set of cast iron manifolds for your first engine run / cam break-in.

This will ensure that you will not damage the coating or void the warranty of your new TTi ceramic-coated headers.

HELPFUL HINT TO EXTEND THE LIFE OF YOUR HEADERS and EXHAUST SYSTEMS: Exhaust corrosion will occur if moisture (condensation) is not cleared out of the tubes. Make sure that the vehicle is driven at least 20 to 30 minutes whenever the car is started to completely dry out all liquid / acid that is created by the combustion process in the engine. Failure to do so will cause pre-mature rotting of the tubes from the inside out.

STORING CAR FOR AN EXTENDED PERIOD OF TIME: Some precautions must be taken. park the car over a large sheet of plastic or tarp. This will protect your car and headers from moisture seeping up through the floor. Wipe down and dry the headers thoroughly. Then coat the headers with WD-40 or an equivalent where the tubes are welded to the header flanges and where the tubes come in close proximity to each other (especially where the four tubes enter into the collector). These areas are prone to rusting, as the coating is unable to get between the tubes in the unexposed areas of the header. If rust occurs, it will travel into and under the coating and create a stain. When you are ready to start the car after storage, wash the WD-40 off by following the cleaning procedures.

CLEANING: Road grime, oil, grease, and surface deposits (surface rust) created by moisture/water from your header coatings, use an environmentally safe Orange Cleaner Degreaser, warm water and a soft cloth. Two or Three cleanings may be required. Be sure to dry thoroughly.

For more aggressive header coating cleanings from baked-on oils/fluids, melted-on microfiber towels or plastic grocery bags try a Super-fine "0000" Steel wool pad or use an Ultra-fine Scotch-brite pad. If all else fails, use a high-temp aluminum color spray paint. The color should blend once the header tubes heat up. (High-heat spray paints: Krylon 1402, VHT Flameproof SP117)

Polish compounds to revitalize header coatings

- Silver Ceramic & Polished Silver Ceramic: Nevr-Dull, Mothers PowerMetal or The Wax Shop
- Stainless Steel: Nevr-Dull Wadding Polish
- Nickel Chrome Plating: "Bluing" discoloration is inevitable. You cannot remove it, although there are products that claim to do so like, Blue-Job Chrome Polish.

(!) POLISHED SILVER CERAMIC COATING: Unfortunately, you cannot bring back a "High Luster" Polish appearance once stained or discolored.



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90-DAY LIMITED WARRANTY

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Mfg. by Tube Technologies, Inc. (TTi), Corona California

TTi warrants all products to the original purchaser to be sold free of defects in material and workmanship for 90-days from date of purchase. In the event of an alleged defect in material or workmanship contact TTi at (951) 371-4878. Please provide a proof of purchase reference at time of call for quicker look-up. Ex: Invoice #, Packing List # or Sales Order #.

TTi does not warrant products that have been damaged caused by abuse, neglect, accident, improper installation or use on other applications other than recommended by TTi Performance Exhaust and Headers. Under no circumstances will TTi replace, repair or refund any product that has been altered in any way, mutilated or shows evidence of the use of insulating wrap products. TTi will not warranty cost of removal or re-installation of a product or will not be responsible for any shipping charges incurred. TTi will not assume responsibility for mufflers meeting individual customer's preference or the specific sound ordinances in any city, county and/or state. TTi reserves the right to make changes in design, materials and specifications or to make product changes as deemed necessary without prior notice.

RETURN POLICY

Returned merchandise is subject to a 10% restocking fee. TTi does not refund freight. Contact TTi at (951) 371-4878 or the Authorized TTi Distributor from whom the merchandise was purchased through to receive a "Return Merchandise Authorization Number" (RMA #). Proof of purchase required! (Invoice, Packing List or Sales Order #) Return the merchandise along with a copy of your proof of purchase to: TTi Returns Dept. • 1555 Consumer Circle • Corona, CA 92880. Enclose a written reason for the return with a contact phone number and clearly write the RMA # on the outside of the box. Merchandise must be received in resalable condition. Final issuance of credit / refund is subject to receipt and inspection of merchandise by Tube Tech. Inc.

Note: Parts damaged in transit due to insufficient packaging may incur repair charges.

For general packaging guidelines to help prepare your package for safe shipping read our Packaging Guidelines & Procedures.

2-YEAR LIMITED CERAMIC COATING WARRANTY

by Engineered Applications, Vernon California

In the event of an alleged defect in the coating; peeling, chipping, flaking or rusting, complete a "Coating Warranty Return Form" and return it along with parts to: Engineered Applications.

Proof of Purchase required! (Invoice or Packing List)

Final determination of warranty is subject to receipt and inspection of parts by EA. EA will not accept liability for products that have been damaged caused by abuse, neglect, accident, improper installation, shows evidence of insulating wrap products or show evidence of adverse conditions such as; High heat temperatures encountered during engine break-in.

(!) Note: Engineered Applications sole responsibility is strictly to strip-off existing coating, recoat and return it back to you. EA will not warranty any labor related costs.