



## SCAVENGER SERIES ELITE HEADERS

### 409S<sup>®</sup> Stainless Steel



WARNING: The product accompanying this document is legal only for off-highway use (except in California or states that have adopted California emission standards), racing use or for use on pre-emission-controlled motor vehicles/motor vehicle engines (pre-1966 domestic vehicles certified to California standards, pre-1968 domestic vehicles certified to federal standards and all pre-1968 foreign vehicles), per the manufacturer's application guide.

Note: Installation of this product requires an adequate work space, general mechanic's tools, general mechanical "know how" and a reasonable level of experience. Most auto enthusiasts with these resources will have little difficulty installing these headers. However, you should carefully read these instructions before attempting to install these headers. If in doubt, consult a professional mechanic. (Better to do it now than to get stuck halfway through the installation.)

Check to make sure that you have received the proper parts for your installation. The header number will be stamped on the engine flange. If you are unsure you have received the proper parts, call before you start work.

Be sure to work safe! Whenever you work under the vehicle be sure that it is located on level, solid ground and is supported by adequate safety stands. **Remember: Hot asphalt will not support most jack stands!**

Many factors affect the installation of headers, some of which are; broken or aftermarket motor mounts, accidents that impact the configuration of the frame, and/or the installation of different engines or aftermarket cylinder heads. If you are not comfortable with welding operations, we recommend that you contact a professional exhaust system specialist to install your new headers.

**Attention Customers breaking in new engines:** Due to the extreme heat generated during the break-in process, the appearance of the ceramic coating may be altered in certain areas. The protection characteristics and thermal barrier properties of the coating is never compromised. It is recommended that a cast iron manifold or old set of headers be used for this process.

The purchaser is responsible for following all installation instructions and safety guidelines supplied with your new Flowmaster Performance Exhaust Product. Flowmaster Performance exhaust assumes no responsibility for damages resulting from improper operation, misuse, abuse, or lack of reasonable care, or any problems resulting from incompatibility with other manufacturer's products.

Flowmaster uses sealing beads on its headers. We have found that when installed correctly, the raised bead around each port increases the pressure exerted on the gasket directly adjacent to the port and effectively prevents leaking gaskets. It is normal for the flange to be raised off the cylinder head the thickness of the sealing bead. It is important when installing the header, to install all bolts loosely, and then tighten evenly to ensure the flat installation of the flange. The torque sequence from one flange to another will vary, but generally every bolt on a header should be first fit snug, starting from the inside of the flange working out, alternating from top to bottom so that the bolt connects the flange to the manifold to the point where they barely touch. Second, using the same inside-out pattern, tighten each bolt until finished. This method will help prevent leakage and will give the user the best possible performance out of their new set of headers.

## Installation Instructions

# 814114

### 1968-74 CHEVELLE / EL CAMINO

396-502 Big Block (Standard Deck Height Only)

**Note:** 1968-74 Chevelle/El Camino MUST use 350/big block motor mounts and stands, L6 or 307 motor mounts and stands will NOT work.

**Note:** 1970-72 Camaro, MUST have Big Block motor mounts and stands (frame brackets.) Small block and universal aftermarket mounts will NOT work.

**Note:** 1973-74 Chevelle/El Camino have a narrower frame than the earlier years. Due to the large 2" diameter of this header, it will be necessary to modify the #1 cylinder tube on the right side by denting it slightly for clearance. If you are not comfortable doing this, we suggest you install Flowmaster Headers part #814111 with 1 3/4" tubes instead.

**Note:** Will not fit with 825 Saginaw Power Steering box (will work with 625 steering box).

## DISASSEMBLY

- 1) Place the vehicle in a location where the floor is solid and flat, with adequate lighting. Do not attempt to work on a hot engine. Heat causes metal to expand and makes removal of fasteners difficult at best. **Disconnect the battery cables from the battery.** Raise the front of the vehicle to obtain adequate access to the bottom exhaust manifold flanges. Use large base jack stands to support the vehicle. Do not rely on the jack! Block the tires to prevent the vehicle from rolling off of the jack stands.
- 2) Disconnect the spark plug wires by grasping and gently twisting the spark plug wire boots. Do not pull on the wires! Brush or blow off any debris which may have collected around the manifolds or spark plugs. This will help prevent foreign matter from entering the combustion chamber when the manifolds are removed. Spray WD-40 or some type of penetrating lubricant on all accessible exhaust manifold fasteners and fittings before attempting to remove them.
- 3) Disconnect the head pipes from the exhaust manifolds and remove the manifolds. Remove the dipstick, dipstick tube, oil filter, clutch linkage, air conditioning compressor and power steering pump if mounted to the exhaust manifold.
- 4) On late 72-74 Chevelle/El Camino remove the frame support rods, the left side will not be reused, the right side will be modified as shown in **Illustration B**. The left side motor mount will need to be modified as shown in **Illustration A**.
- 5) Replace the spark plugs finger tight so that no debris will get into the cylinders during the cleaning process.
- 6) Remove any gasket material or carbon deposits that remain on the head surface. The use of a gasket removal agent will ease the removal of any gasket material. We recommend the use of a sharp gasket scraper to remove the bulk of material and to finish the operation with a sanding block to provide a clean flat sealing surface.
- 7) After cleaning has been completed, remove the spark plugs again.
- 8) At this point it may be necessary to cut the head pipes to allow room to install the headers. If you are installing a new exhaust system you may cut the head pipes anywhere you choose, but if you are using the existing exhaust, you will need to cut the head pipes in the proper location so that they will be able to be welded to the connectors supplied with your headers.

# INSTALLATION

## LEFT SIDE

- 1) Place a floor jack under the oil pan with a flat board for support. Loosen the transmission mount bolts or nuts. Remove the left side motor mount and jack the motor up 2" minimum. On late 72-74 Chevelle/El Camino modify the mount as shown in **Illustration A**.
- 2) Starting from below, work the passenger side header up through the chassis into position.
- 3) Lower the engine back into position and replace the motor mount.
- 4) Start a bolt on each end of the header to hold in place. Do not tighten at this time.
- 5) With the header still loose, work the clutch linkage back into position.
- 6) Reinstall and fully tighten all linkages, transmission mount bolts, and oil filter.
- 7) Slip the exhaust gasket into place and start all of the header bolts and lock washers by hand. Tighten all the bolts evenly starting at the center to a final torque of approximately 35 ft./lbs.
- 8) See **Illustration C** (69-72) or **D** (73-74) to replace the air conditioning compressor.
- 9) 1968 Chevelle/El Camino will require a ¾" spacer on the power steering bolt to head. See **Illustration E**.
- 10) Reinstall the spark plugs and plug wires.

## RIGHT SIDE

- 1) **Late 72-74 Chevelle/el Camino only**, modify the front cylinder header tube by denting slightly as shown in **Illustration F**. Be careful when doing this as once you have dented the tube, the headers are not returnable.
- 2) **Late 72 Chevelle/El Camino only**, cut the rear upper control arm mounting bolts flush with the nuts to provide header tube clearance. See **Illustration H** below.
- 3) Starting from below, work the header up through the chassis and into position. Start a bolt on either end of the header to hold in place. Do not tighten at this time.
- 4) Slip the exhaust gasket into place and start all of the header bolts and lock washers by hand. Tighten all the bolts evenly starting at the center to a final torque of approximately 35 ft./lbs.
- 5) On 73-74 check for adequate clearance where you made the dent in the header tube.
- 6) On automatic transmission cars, check that the transmission cooler lines do not contact the header tubes. Reroute if necessary.
- 7) 68 Chevelle/El Camino with air conditioning will require that you use the original exhaust manifold bolt and make a 3/8" long spacer to mount. **See Illustration G**.
- 8) Late 72-74 Chevelle/El Camino bend the frame support rod as shown in **Illustration B** and reinstall.

- 9) Using the hardware provided, install the Flowmaster Ball flange connector to the back of the header and determine the connection to the exhaust. Weld the exhaust system to the ball collector.
- 10) Reinstall the alternator, oil filter, oil dipstick tube and clutch linkage. Check the level since the oil filter was removed.
- 11) If the spark plugs have a lot of miles on them, now would be a good time to replace them. If you replace the spark plugs, make sure to put a **small** amount of anti-size on the threads.
- 12) Install the spark plugs and connect the wires to the proper plug. It may be necessary to reroute the wires to clear the headers.
- 13) Check to make sure that all wiring, brake lines, hoses, etc. are clear of the headers or any exhaust component. Make sure all necessary brackets and accessories have been replaced and secured. Reconnect the negative battery cable.
- 14) Start the engine and allow it to warm up to operating temperature. Check for any unusual noises or exhaust leaks. If everything is OK, stop then engine and tighten all bolts while the engine is still warm. **Note:** Recheck the header bolts periodically to make sure they have not loosened. Retighten after the first 500 miles and then again at 1000 miles.

### IMPORTANT CHECK LIST

- **Be sure that all brake lines and fuel lines are clear of headers and/or connector pipes.**
- **All spark plug wires, battery cables or other electrical components should be clear of headers and/or connector pipes.**
- **If dipstick tube has been removed, make sure it is installed properly and that the dipstick has been replaced.**
- **Double check the tightness of all bolts including brackets and accessories.**

### PARTS LIST

| <u>Qty:</u> | <u>Description</u>               |
|-------------|----------------------------------|
| (1)         | Drivers Side Header Assembly.    |
| (1)         | Passenger Side Header Assembly   |
| (2)         | Header Gaskets                   |
| (2)         | 3½" to 3" Ball Flange Connectors |
| (16)        | 3/8"-16 x 1" Header Bolts        |
| (4)         | 3/8"-16 x 2¼" Ball Flange bolts  |
| (20)        | 3/8" Lock Washers                |
| (4)         | 3/8"-16 Hex Nut                  |
| (4)         | 3/8" Flat Washers                |
| (2)         | 3/8" Spacers                     |
| (1)         | Flowmaster Decal                 |

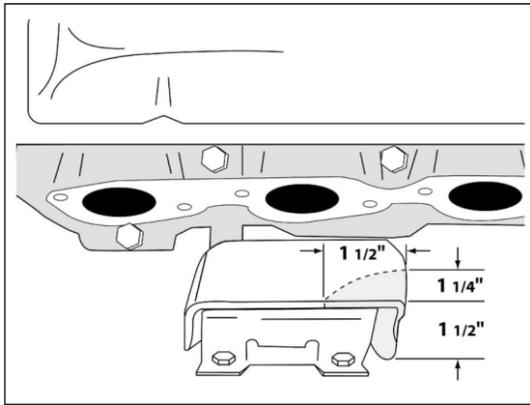


Illustration A (Late 72-74 Chevelle)

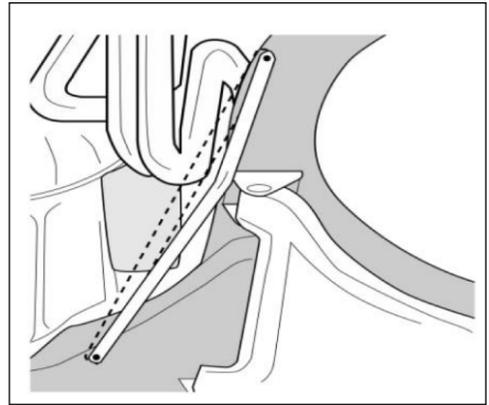


Illustration B (72-74 Chevelle)

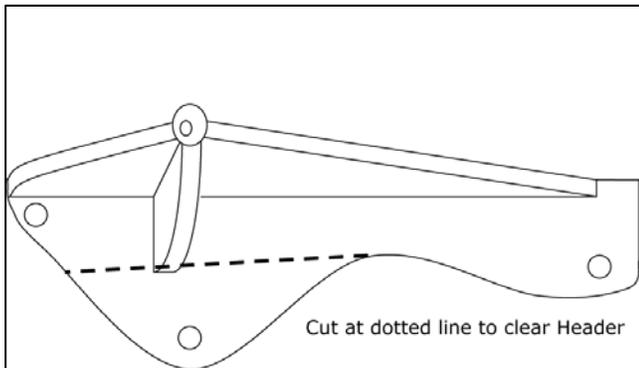


Illustration C (69-72 A/C Bracket)

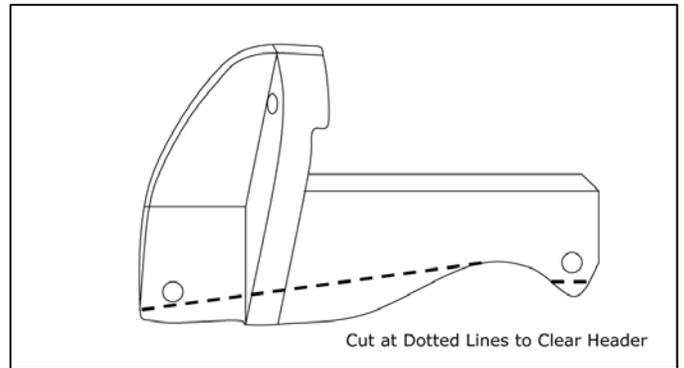


Illustration D (73-74 A/C Bracket)

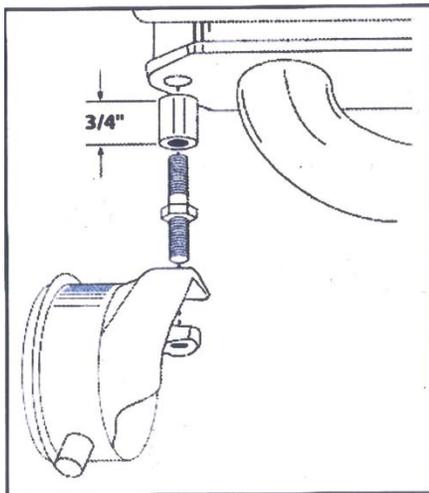


Illustration E (68 Power Steering)

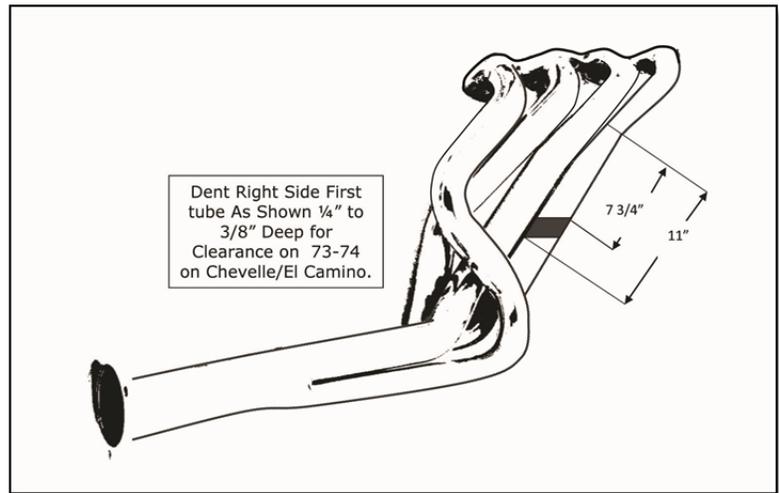


Illustration F (73-74 Right Side Tube Mod)

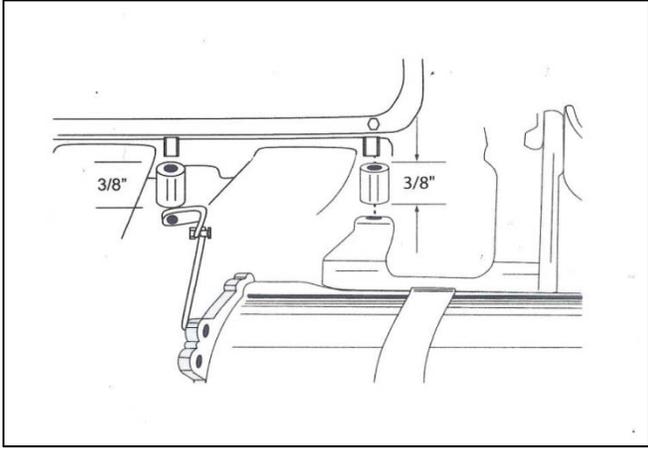


Illustration G (68 Chevelle A/C)

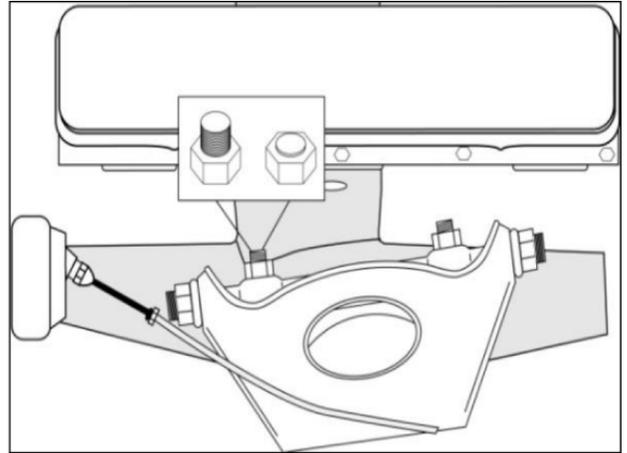


Illustration H (73-74 A Arm Bolt Modification)

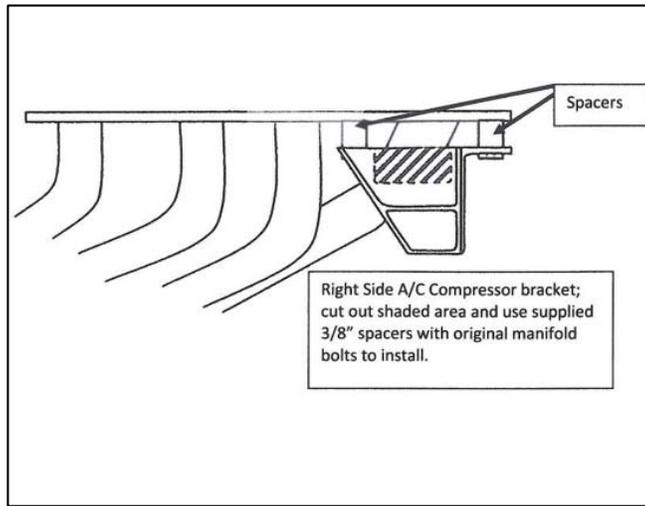


Illustration I (Right Side A/C Compressor Bracket)