

REHER-MORRISON HEAD LUG KIT #300-250

-INSTALLATION INSTRUCTIONS-

-General-

This kit was developed to help eliminate the lack of clamping force between the deck of the block and the cylinder heads on cylinder #'s: 2,3,6 & 7, on Mark IV through Mark VI Big Block Chevrolet engines. This problem can be significant on engines with more than 11.5 to 1 compression and in all racing applications.

Installing this kit provides the “missing head bolts” to this outstanding engine series, which work in conjunction with most high performance heads available in the marketplace today. Once installed, it eliminates the problems of blowing out the head gaskets between the intake and these cylinders. It will allow your engine to contain higher cylinder pressures and deliver more of the power potential it offers.

-Please Note-

The installation of the RM#300-250 Head Lug Kit is not a **“Do It Yourself”** operation. It requires a competent machinist with the proper equipment and a considerable amount of judgement to compensate for variations from block to block and even variations from side to side in the same block due to core shift, etc. Please give this job to a qualified machine shop to assure a successful installation! ***This document is only a guideline and not intended to be precise step by step instructions.***

-Before Starting-

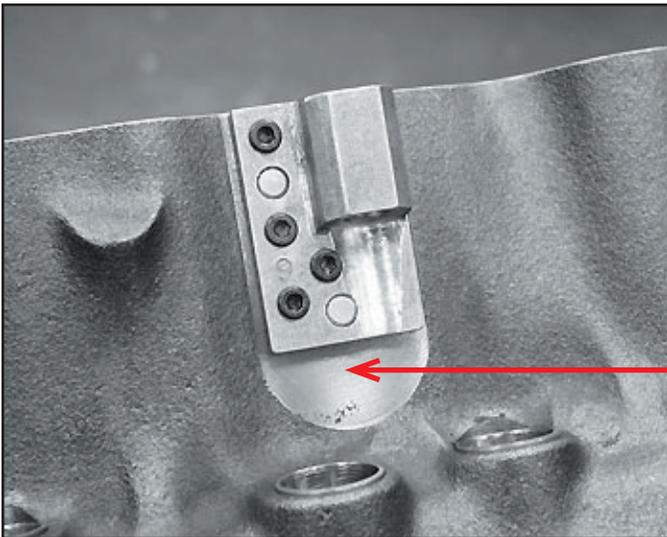
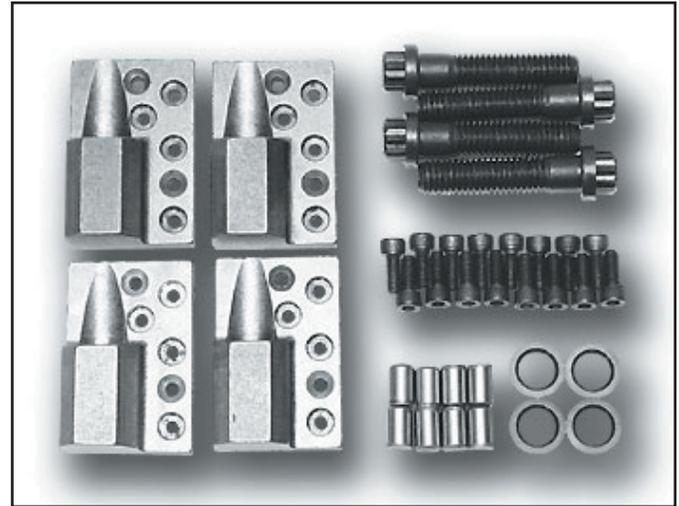
- Please read these instructions. If you have any questions call Reher-Morrison at (817)-467-7171.
- Make sure to check the wall thickness of the block where it must be faced for a pad to mount the head bolt lug. Wall thickness should not go below 0.125” after the pad is machined! Improper machining will permanently damage the block and render it unusable!
- Make sure block dowel pins are installed in the deck of the block, since they provide the proper alignment of a head gasket which is used as a template during the installation.
- If you are going to install bronze lifter sleeves, install them before starting to avoid interference with the lugs while trying to machine the lifter bores.

-Installation-

1. Machine a pad to mount the lugs against, using the head gasket as a template to determine the areas where the pads need to be located. This pad should be at 92° from the deck of the block to compensate for casting draft of the block. Machine the minimum amount of material to achieve a pad 1¾” wide. More material may be removed later if it is necessary to keep the stud/bolt hole from coming out the side of the lug. Remember to keep the minimum wall thickness to at least 0.125”!
2. Align the lug with the head gasket template and clamp it in place using vise grips or a similar tool. Use soft aluminum or hard rubber or plastic to protect the cylinder walls. Make sure the lugs are square with the block and at least flush with or a little higher than the deck of the block!
3. Using the lugs as a drill fixture, drill the 4 bolt holes (not the 2 dowel holes) for each lug in the pads already machined using a #21 drill bit. Use caution to drill just into the water jacket.
4. Remove the lugs and tap the holes with a 10-32 tap.

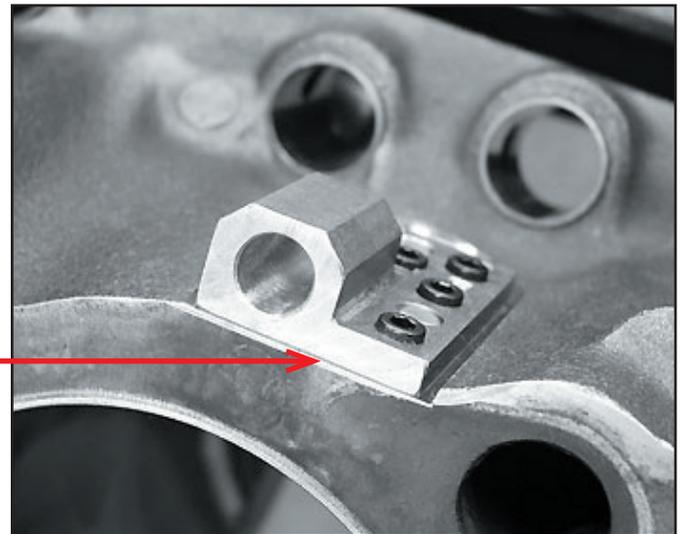
5. Next drill bolt holes in lugs with a #10 drill bit, and bolt the lugs in place with the sixteen 10-32 socket head cap screws. (This isn't the final assembly so just snug them down and do not use sealant or chemical locking compounds yet).
6. Now, drill the two dowel pin holes for each lug with a 9/32" (0.281") drill bit. Then, ream these holes to 0.311" all the way into the holes drilled for the dowels in the casting of the block. Again using caution to drill just into the water jacket.
7. Number stamp the lugs and the block so that the lugs can be reinstalled in the same locations. Remove the lugs from the block and ream the dowel pin holes in the lugs (not the holes in the block) with a 0.3125" reamer (The dowels are 0.312" in diameter).
8. Reinstall the lugs with the socket head cap screws loosely, so the dowels can be installed easily and install the dowel pins into the casting of the block through the lugs. Once they are installed, tighten the socket head cap screws. (This is still not the final installation so do not use sealants or chemical locking compounds).
9. Make sure the block is machined to its final deck height. Surface mill the top of the installed lugs, parallel to the deck surface of the block. Mill the top of the lugs 0.005" to 0.006" lower than the deck surface of the block.
10. Use a head gasket with the additional head bolt holes for a template. Fel-Pro High Performance Gaskets (available from Reher-Morrison) come with the holes required. Scribe a circle on the top of each lug through the hole in the head gasket template. Remove the head gaskets and the lugs.
11. The stock angle of the head bolt holes is 10°, which many times can cause interference between a socket and the face of the lugs, the head of a torque wrench and the lifter bores and/or valley of the block. Changing the bolt angle to 12° will help eliminate these interference problems! If your heads are already drilled and tapped for the studs/bolts, measure the angle of the two holes in the cylinder heads and decide now if you want to change it. It is possible to re-mill the holes and use a thread insert to change the angle. With a mill vise, drill a 29/64" (0.4531") diameter hole for the 7/16"-12 Point Bolt supplied with the kit. This hole should be drilled at the angle determined above (either 10° or 12°) minus the 2° that we allowed for the draft angle.
12. Next turn the lugs over and with the mill vise, spot face the bottom of the lug perpendicular to the head bolt you just drilled. This is to assure that the head bolt and washer, installed from the bottom of the lug through the head, seat flat when installed. Do not be alarmed if the hole isn't centered in the lug.
13. Reinstall once again before final assembly and check that the lifters can be installed into their bores with the lugs installed. If not, remove the lugs and machine them for clearance.
14. Final Step! Install the lugs once again, but this time use sealant and chemical locking compound if you feel inclined. The job is completed and you can install your heads with the confidence that you are now able to maximize the power your engine can produce thanks to better head sealing on each cylinder. Suggested torque is 45 ft./lbs.

Parts List: 4-Head Lug Bosses
 8-5/16" x 1/2" Dowel Pins
 16-10-32 x 1/2" Allen Head Cap Screws
 4-7/16"-14 x 2" 12 Point Head Bolts
 4-7/16" Hardened Washers #200-8501



From the side you can see the pad that was faced for the installation, as well as, see how the dowel pins take the load, not the retaining bolts. *(Only cut mounting pad to minimum depth to clean-up the surface, especially on Mark 4 blocks.)* Also, note why you must install lifter sleeves before installing the lug and why the bolt angle of 12° makes it easier to install.

When the installation is complete the lug will be below the surface of the block 0.005" to 0.006". The bolt hole will be perpendicular to the surface of the block and the bolt angle should be at 12° for the easiest installation of the additional head bolt as shown in this overhead view.



Thank you for having purchased this superior product from Reher-Morrison Racing Engines. This kit is just one of many unique and well engineered products we have developed for racing engines. Of course, we also stock one of the nations's largest inventories of racing components for BB and SB Chevrolet engines. Please call us for more information or to place your orders.

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