

# Eliminator Performance Products

## Block Tech Sheet (Rev 13)

On behalf of Eliminator Performance Products we would like to thank you for your purchase of an Eliminator 460 Performance block. Carefully read this tech sheet prior to any machining or assembly.

### SPECIAL NOTE #1: CLEARANCING FOR CRANKSHAFT, CONNECTING RODS AND PISTONS

- Since there is a wide selection of crankshafts, pistons and connecting rod components for numerous engine displacement combinations, we strongly recommend checking clearances of all moving parts. We feel that it is very important to check the clearances of the crankshaft counter weights, connecting rods and pistons to the oil pan rail and bottom of the cylinder bores and main bearing bulkheads. Additional material was added to bulkheads, the bottom of the cylinder bores and other areas to increase the structural integrity of the block. The cylinder length is about 6.30" and we currently machine an additional .705" of bulkhead material below the cylinder length. This additional clearance allows the piston to move lower into the bore without interference but WE STILL RECOMMEND THAT ALL CLEARANCES BE CHECKED PRIOR TO BALANCE.

### SPECIAL NOTE # 2: CYLINDER BORE MACHING AND HONING

- Please note that there is an additional .705" of clearance from the bottom of the cylinder bore to the top of the bulkhead. This is designed to provide additional rigidity to the bottom of the bore and the bulkhead in high output and longer stroke applications. Because of this design the boring and honing process will take a little more time than a production stock block. We recommend you consult a veteran machinist or follow the below outlined process. Below is the recommended boring and honing process for an Eliminator block.
1. **First**, machine the cylinder bore to approximately 0.005" under the final finished dimension. *This means that the boring tool must be adjusted to top of the bulkhead **WITHOUT** coming in contact with the bulkhead.*
  2. **Second**, begin rough honing the block with a standard 4 inch longer roughing stone until the bore is approximately 0.001 under the finished dimension. *This means that the honing tool must be adjusted to reach the bulkhead **WITHOUT** coming in contact with the bulkhead.* Normally, the bottom ½ inch of the bore will develop a 0.0005 taper because the roughing tool could not be extended well beyond the bottom of the cylinder bore. We recommend installing a short set of finishing stones (see Sunnen catalog) and dwell hone the bottom of the cylinder bore to the desired finished dimension which will now give the desired over stroke clearance.
  3. **Third**, install lower 4 inch finishing stones and hone cylinder bore to finished dimension along with blending the bottom of the bore. Most veteran machinists have come across this issue in the past and may have another method to bore and hone the cylinder bores.

### **SPECIAL NOTE #3: CLEANING, DEBURRING AND WASHING THE BLOCK**

- Prior to the final washing and assembly, please deburr all edges. This includes the camshaft journal (before cam bearing installation), around the main bearing caps and bottom of the cylinder bores. Inspect all other edges and file any sharp edges. When washing the block, pay close attention to all oil feed holes and water passages, as machining debris may have collected here. Some core sand may exist in the water jackets as well, so rinse the water jackets thoroughly.

### **BLOCK DIMENSIONS:**

Bore diameter	<b>4.495"</b> Unfinished: <i>Premier &amp; Ultra</i> ; <b>4.355"</b> <i>Street/Race &amp; Sportsman</i>
Deck height	<b>10.315"</b> Finished
Bore wall thickness	<b>0.180"</b> Nominal @4.700" bore <i>Premier, Ultra &amp; Street/Race</i> ; all Siamese <b>0.150"</b> Nominal @4.500" bore <i>Sportsman</i> ; fully water-jacketed
Deck thickness	<b>0.830"</b> Nominal at 10.315"
Cam journal	<b>2.500"</b> Finished: <i>Premier, Ultra &amp; Street/Race</i> ; <b>2.250"</b> <i>Sportsman</i>
Lifter bore diameter	<b>0.8755"</b> Finished
Weight	<b>281 lbs</b> ( <i>Premier, Ultra</i> ), with 4.495" diameter cylinder bores. <b>276 lbs</b> ( <i>S/R</i> ) & <b>272 lbs</b> ( <i>Sportsman</i> ); with 4.355" diameter cylinder bores.

### **OIL PAN:**

Standard Ford 460 mounting flange

### **MAIN BEARINGS:**

Standard Ford 460 upper grooved bearing

### **CAM BEARINGS:**

*Premier, Ultra & the Street/Race* blocks have cam housing bores machined to 2.500" diameter, thus accepting Ford SVO/ Ford Motorsport 54mm roller cam bearings (Ford M-6261-A460), Dura-Bond 60mm slider (60040), Jesel 60mm babbitt bearings (BRG 60040), etc. Note: the cam tunnel/housing may need to be honed approximately .002" for proper Jesel bearing crush.

*Sportsman* blocks are machined 2.250" diameter to accept standard bearings Dura-Bond (F30-series), Clevite (SH-1111S), 54mm Jesel babbitt bearings (BRG 60020), etc. Note: the cam tunnel/housing may need to be honed approximately .002" for proper Jesel bearing crush.

### **TORQUE SPECS FOR MAIN BEARING FASTENERS: use 30 wt Motor Oil**

Generously apply 30 wt motor oil to the threads on all threaded fasteners. Install the studs into the block until the fastener's counter bore bottoms out. **DO NOT TORQUE** the studs into the block.

Torque Specs for *Premier* block (and all performance blocks with fasteners upgraded to ARP):

125 lb-ft, 30 wt oil: ½" ARP Main Studs, caps #1 thru #5 (inside); quantity 10

100 lb-ft, 30 wt oil: ½" ARP Bolts, caps #2 thru #4 (outside); quantity 6

75 lb-ft, 30 wt oil: 7/16" ARP Bolts caps #1 and #5 (outside); quantity 4

Torque Specs for *Ultra, Street/Race, and Sportsman* block fasteners (not upgraded to ARP):

110 lb-ft, 30 wt oil: ½" Eliminator Main Bolts, caps #1 thru #5 (inside); quantity 10

100 lb-ft, 30 wt oil: ½" Eliminator Bolts, caps #2 thru #4 (outside); quantity 6

75 lb-ft, 30 wt oil: 7/16" Eliminator Bolts caps #1 and #5 (outside); quantity 4

### 3/8" NPT PIPE PLUGS INSTALLED ON THE PASSENGER SIDE, FRONT FACE OF THE BLOCK AT 2 LOCATIONS:

We recommend the pipe plug inserted into the priority oil hole be ground from the rear side with a total material removal of .125" to .150" so as to NOT restrict the oil flow to the main bearing.

### OIL RESTRICTION:

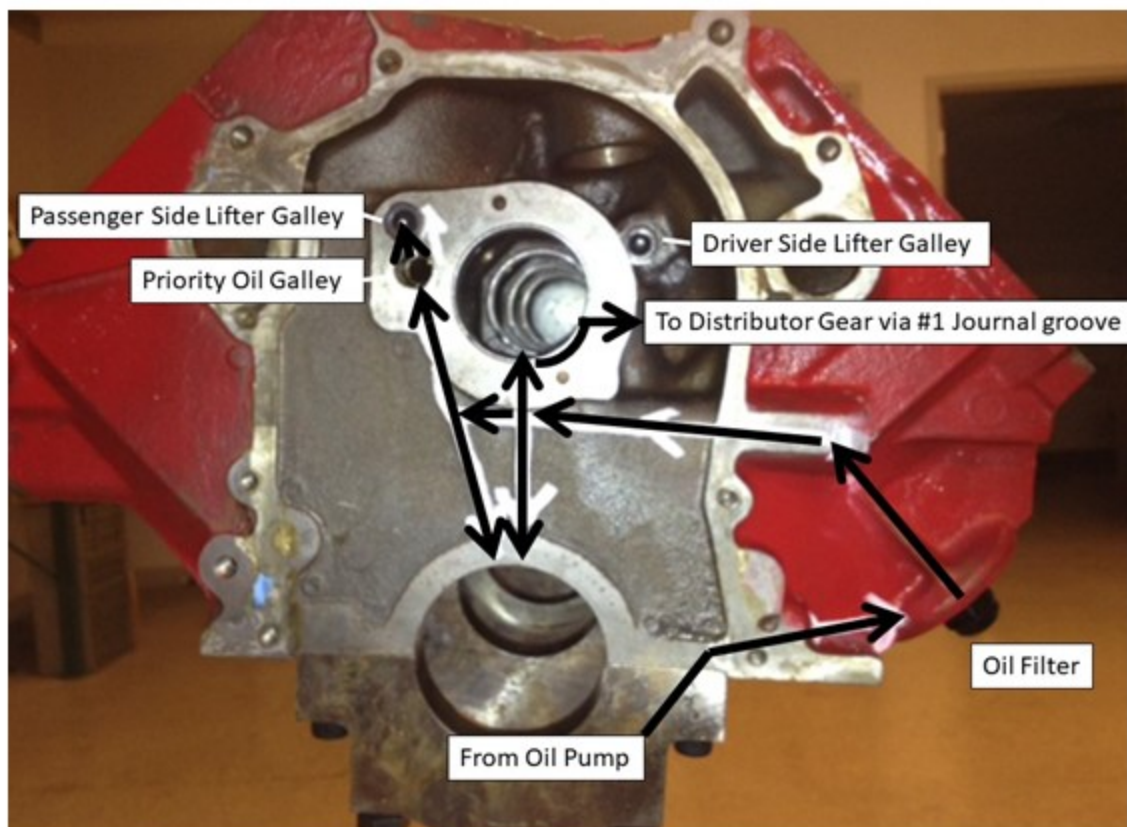
If mechanical lifters are to be installed the oil supply to the lifter galleries can be restricted. Looking at the front of the block, there are three oil galleries tapped for a 3/8" NPT plug (supplied). The upper oil galley on the passenger side of the block has also been internally tapped for a 1/4" NPT pipe plug on both ends. This allows the use of a 1/4" NPT pipe plug to be installed behind the 3/8" NPT plugs at both ends. Therefore, priority oiling options include:

- Drill a .120" hole in the front restrictor plug, and no hole in the rear restrictor plug
- Drill a .080" hole in the front restrictor plug, and a .080" hole in the rear restrictor plug.  
Note: using a restriction to the lifter galley prioritizes oil across the mains and cam.
- Etc.

**NOTE #1:** Not recommended when bronze lifter bushings are installed, because oil is being restricted by the hole in the bushing

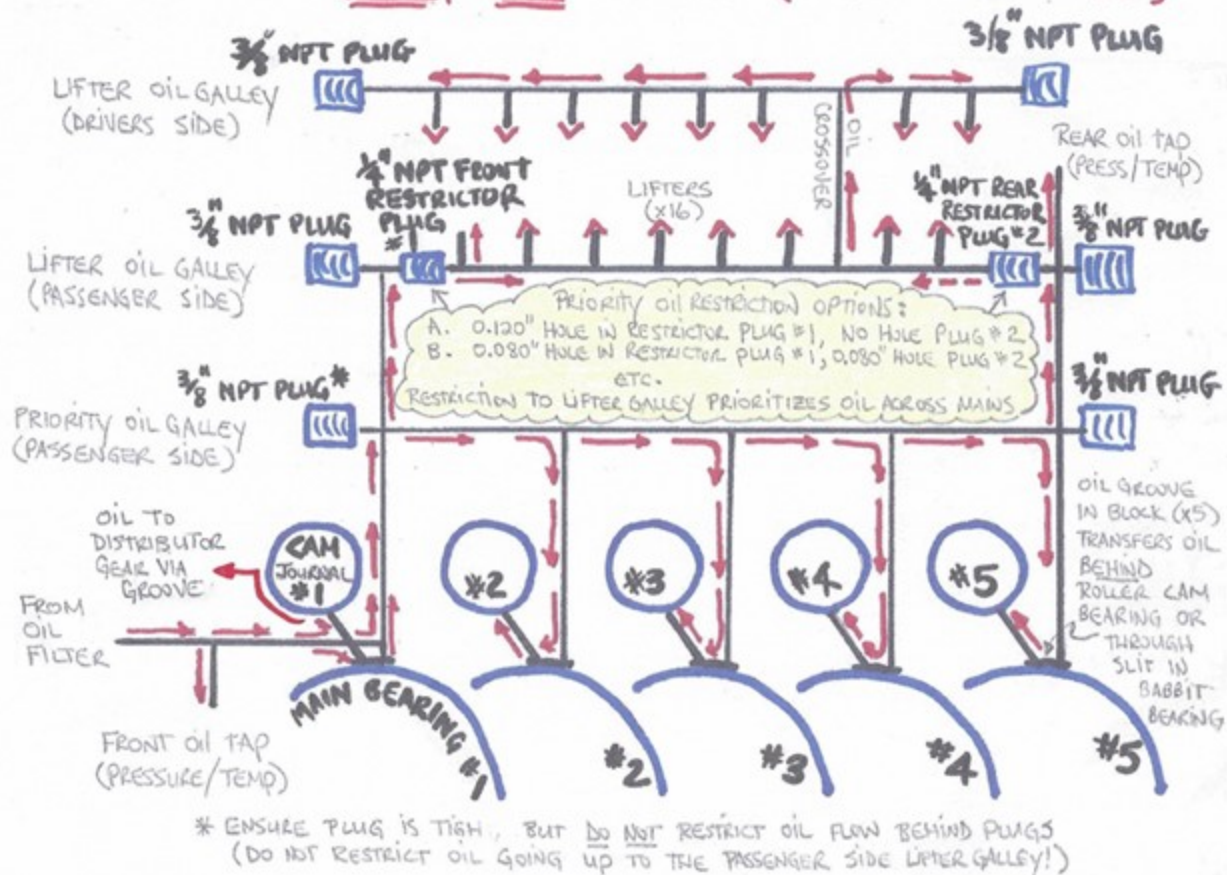
**NOTE #2:** Oil pressure taken from upper rear of block may show lower pressure (20 to 30 psi) due to the restrictor and oil bleed off from the lifters. Normal oil pressure can be obtained if taken from the front of the block. See priority oiling schematic.

**NOTE #3:** If your block was manufactured prior to December 1, 2007; please call us since the priority oiling was machined slightly different.





## ELIMINATOR BLOCK PRIORITY OILING SCHEMATIC (OIL FLOW SHOWN IN RED)



### #1 Cam Journal

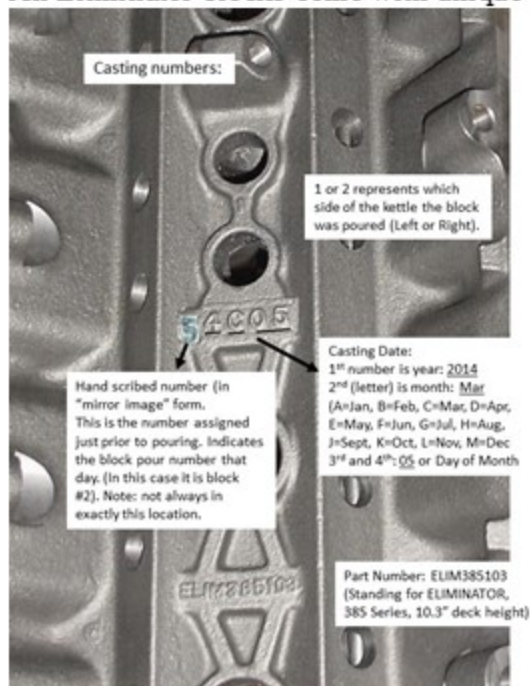
Oil is delivered to the distributor gear by coming up the oil feed hole at Cam Journal #1 and traversing along an oil groove to the oil feed hole going to the distributor gear. A groove is essential when using roller cam bearings since there is no slit in the bearing as shown in the picture. The oil flows in the groove behind the backside of the roller cam bearing. Oil grooves were not machined in Eliminator blocks until ~2014. If a groove is not present, hand grind one as indicated in red. Obviously, for a distributor-less setup, need to plug #1 cam feed from the mains. Use a 5/16" tap and install set screws.



For a 60mm roller cam bearing setup with a typical distributor arrangement; do not use the standard width 20mm size roller cam bearing in the #1 cam journal location, as it interfere with the distributor shaft. Instead, use a 60mm x 12mm in the #1 journal (with Red Loctite) and the 60mm x 20mm in journals #2 - #5. Engine builds with greater than a 60mm roller cam bearing will require a distributor-less setup.

## SERIAL NUMBER:

All Eliminator blocks come with unique serial number for both casting and machining.



## FRONT COVER:

Accepts a standard Ford 460 front cover

## OIL FILTER (WET PUMP):

Has a standard oil filter pad. Utilizes a standard oil filter adapter (nipple): D7AZ6890A

## OIL PUMP:

Accepts a standard oil pump. Will have clearance for the 4 bolt main caps

## REAR MAIN SEAL:

Ford two piece type

As you look over this block, you will notice many design features that will enhance your engine's reliability and performance. Some of these features are, 18-bolt cylinder head mounting (*Premier & Ultra*), main journal oil groove, reinforced lifter valley (*Premier & Ultra*), thicker walls, four bolt main caps at all 5 main journals, machined for roller cam bearings (*Premier, Ultra & Street/Race*), reinforced engine mount pads, thicker material around cam journals, very beefy bulkheads, superior cast iron alloy, factory chamfering/deburring and state of the art CNC machining by Eliminator.

If you have any questions, issues or suggestions to make our product line the best that it can be, please call or e-mail us, and thank you again for choosing *Eliminator Products*: (248) 408-4949.

Remember:

**Life Goes By Fast... Go Faster!**