



## M-6010-R451/R452 Ford Racing 351 Race Block INSTRUCTION SHEET

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FORD RACING PERFORMANCE PARTS

Please contact the Tech "Hot Line" for the most current instruction information (586) 468-1356

!!! PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY PRIOR TO INSTALLATION !!!

### OVERVIEW:

**Installation notes, cautions and warnings for optional head deck steam holes if cylinder head choice requires them:** This sheet will guide you in the process of opening up the steam holes in the 351 Ford Racing (M-6010-R451/R452) engine block, for the use with Yates NASCAR aluminum cylinder head (M-6049-C3L) and the High Port aluminum cylinder head (M-6049-SC1) and the High Port Yates head (M-6049-C3H). The torque specifications for the main caps, cylinder heads and water plugs are also included in these instructions, as well as the use and placement of an oil restriction kit.

### RECOMMENDED FORD RACING PERFORMANCE EQUIPMENT:

Cylinder Head Gaskets	M-6051-D331
Cylinder Head Bolt Kit	M-6065-R351
Plug & Dowel Kit	M-6026-R451
One Piece Crankshaft Seal	M-6701-B351
Restrictor Kit	M-6799-TBD

**Note:** All optional Ford Racing Performance Parts will have installation instructions per their appropriate kit.

### TOOLS REQUIRED:

Hand Drill (electric or pneumatic)  
3/16" diameter drill bit  
Torque wrench and sockets  
Flat fine tooth file  
Air compressor and air nozzle

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Factory Ford shop manuals are available from Helm Publications, 1-800-782-4356

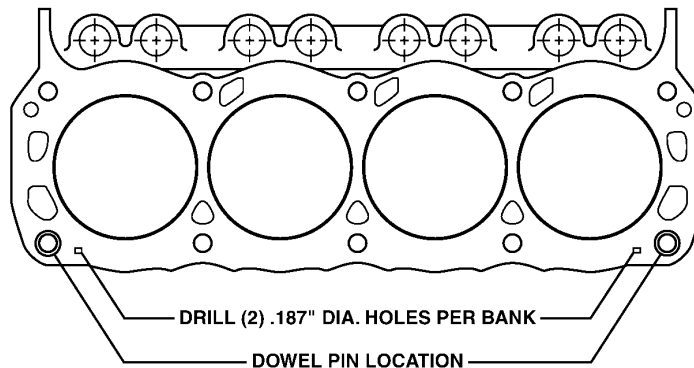
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**ENGINE BLOCK PREPARATION INSTRUCTIONS (HEAD INSTALLATION):**

- STEP 1:** Place Gasket against head deck surface and line up water holes to be used.
- STEP 2:** The steam hole locations are indented on the engine block deck surface with two dents per bank. The indentions are located near the cylinder head dowel pin area.
- STEP 3:** If the block is already installed into the vehicle and has been partially assembled, it will be necessary to tape over any block openings (piston bores, coolant passages, etc.).
- STEP 4:** Locate the indentions and drill out the indentions with a 3/16" diameter drill bit (see figure 1).
- Note: Align drill bit perpendicular to the cylinder block when performing this step**
- STEP 5:** Drill through the block surface until the steam hole is completely opened up.
- STEP 6:** Remove any burrs from the deck surface steam hole openings. Clean up any shavings.

**Figure 1**



**WATER JACKET AND OIL GALLEY PLUG INSTALLATION:**

- STEP 1:** Before assembly apply a silicone based o-ring lubricant to the o-ring seal.
- STEP 2:** Place the o-ring in the groove machined into the appropriate straight thread plug. Take care not to twist or cut the o-ring when installing on the plug.
- STEP 3:** Torque large water jacket plugs to 100 ft./lbs. and smaller oil galley plugs to 25 ft./lbs.
- Note: If desired, a small amount of removable thread locker can be used on the threads to prevent loosening from vibration.**

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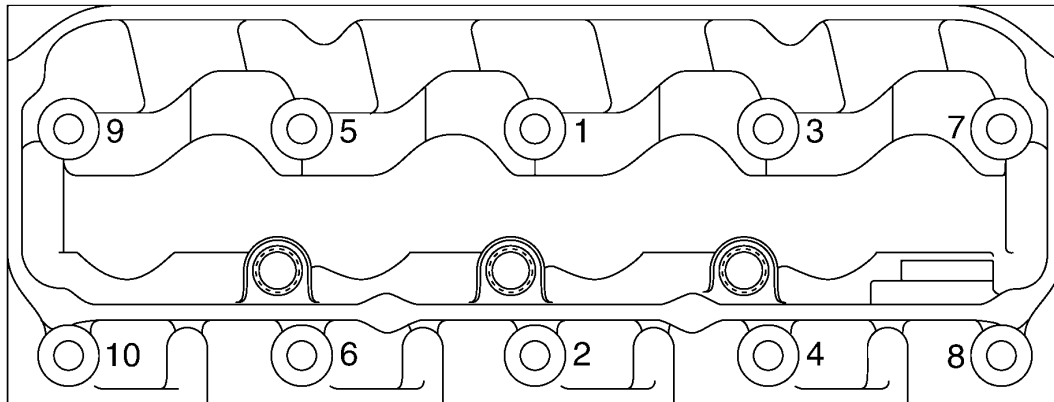
### CYLINDER HEAD INSTALLATION & TORQUE SPECIFICATION:

**FOLLOW THE CORRECT TORQUE SPECIFICATIONS AND PROCEDURE FOR PROPER CYLINDER HEAD INSTALLATION (SEE FIGURE 2). TORQUE ALL UPPER CYLINDER HEAD STUDS TO 110 FT. LBS. AND ALL LOWER CYLINDER HEAD STUDS TO 100 FT. LBS.**

Note: M-6065-B351 torque to yield bolts should be tightened per the bolt kit instructions.

Figure 2

INTAKE SIDE



EXHAUST SIDE

### MAIN CAP INSTALLATION & TORQUE SPECIFICATIONS:

**STEP 1:** Before assembly apply ESE-M2C74-B oil or equivalent assembly lubricant to crankshaft journals, thrust faces and rear journal.

**STEP 2:** The rear cap must be assembled with the crank seal groove towards the rear of the engine block.

**WARNING: ALL SADDLES IN ENGINE BLOCK MUST BE CLEAN AND FREE OF CHIPS, DIRT AND OTHER FOREIGN MATERIAL.**

**STEP 3:** Lubricate bearings and main cap bolts with clean motor oil.

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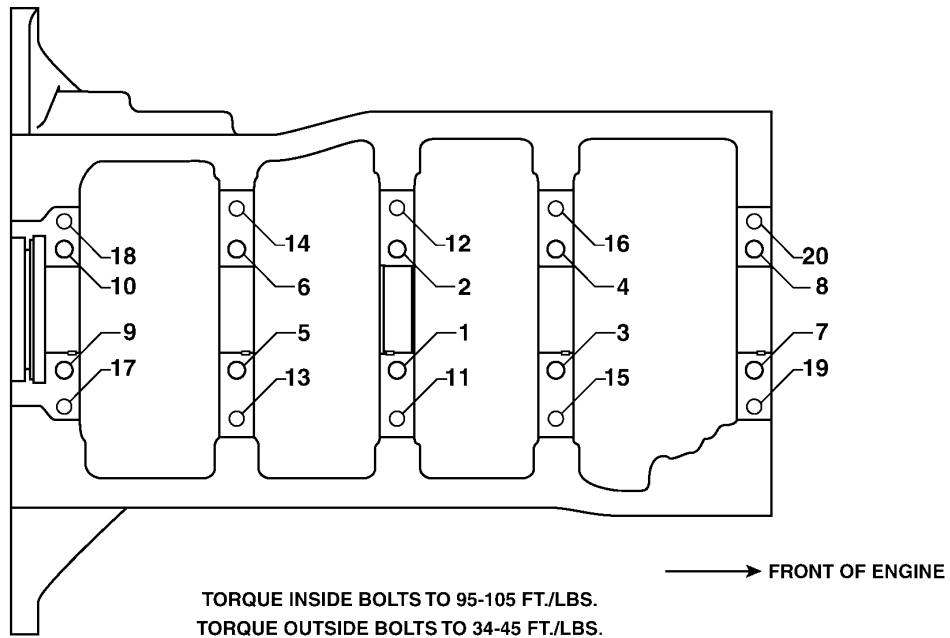
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**STEP 4:** Install the main caps and bearings, with the arrows pointing towards the front of the engine block.

**STEP 5:** Caps must be seated in saddle prior to bolt torque.

**FOLLOW THE CORRECT TORQUE SPECIFICATIONS AND PROCEDURE FOR PROPER MAIN CAP INSTALLATION. TORQUE THE MAIN CAP BOLTS, STARTING IN THE CENTER OF THE MOTOR AND WORKING TOWARDS THE ENDS OF THE ENGINE BLOCK (SEE FIGURE 3).**

Figure 3



### USEFUL DIMENSIONS:

Deck Height	9.200"
Bore CL to CL	4.380"
Main Bearing Diameter	2.749" (R451) – 2.249" (R452)
Camshaft Bearing Diameter	2.0835"-2.0825"

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### **ADDITIONAL BLOCK INFORMATION:**

This page contains important information regarding dimensions/specifications of the M-6010-R451/R452 Street Block. The items listed here may have changed from earlier Ford Racing blocks, and should be noted even by experienced engine builders.

### **FEATURES/SPECIFICATIONS OF THE M-6010-R SERIES BLOCKS:**

#### **Cylinder Bores**

Cylinder bores are semi-finished to a diameter of 3.950"  $\pm$  0.0050"

#### **Main Bearing Bore**

Main bearing bores are semi-finished to the following diameters:

M-6010-R451: 2.940"  $\pm$  0.0010"

M-6010-R452: 2.440"  $\pm$  0.0010"

#### **Lifter Bores**

Lifter bores are finished to a diameter of 0.8745" - 0.8752"

#### **Cam Plug and Dowel Kit**

R4xx series blocks require Ford Racing part number M-6026-R451 as a replacement cam plug, o-ring and dowel kit.

#### **Cam Bores**

All cam bores are finished to a diameter of 2.204"  $\pm$  0.001" prior to bearing liner installation.

#### **Cam Bearings**

R4xx series blocks require Ford part number C2OE-6261-A (5 required) bearing liners, or Ford Racing part number M-6262-R351 for precision, service cam bearings.

#### **Water Jacket and Oil Galley Plugs**

R4xx series blocks have been manufactured with straight thread o-ring plugs. Do not use NPT plugs in these passages. Replacement plugs are available from Ford Racing, part number M-6026-R452, and replacement o-rings are available as part of the plug and dowel kit, part number M-6026-R451.

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