



FORD PERFORMANCE

# M-6010-Z351 351 ALUMINUM BLOCK 9.5-INCH DECK

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**PRIOR TO INSTALLATION READ THESE INSTRUCTION COMPETELY**  
**For questions, Call the FORD PERFORMANCE Techline 1-800-367-3788**

Please visit <https://www.performanceparts.ford.com> for warranty information

### OVERVIEW:

This sheet contains important information regarding dimensions and specifications of the M-6010-Z351 blocks. The M-6010-Z351 block is an aluminum Windsor based block that comes bored to finish hone at 4.125 bore. The main bearing bores accommodate a 2.750 main journal crankshaft. These instructions should be reviewed by all engine builders, due to minor changes that could impact the engine assembly process.

### CONTENTS:

Be sure to check for the following parts included with M-6010-Z351.

- |                   |  |
|-------------------|--|
| (1) F2AE-6890-AA  | Oil Filter Threaded Insert               |
| (6) 16-SA-17ALUM  | Plug- 1 5/16"-16 NPSF O-Ring Boss (Alum) |
| (6) 22617-16      | O-Ring -16                               |
| (1) M-6026-S351   | Cam Plug                                 |
| (4) C20E-6A008-A1 | Split Dowels (Heads)                     |
| (2) EAD-6397-A    | Dowel Pin Trans.                         |
| (2) 388192-S      | Split Dowel (Front Cover)                |
| (7) 87837-S       | Pipe Plug 1/4" Hex                       |
| (3) 87839-S011    | Pipe Thread Plug 1/2"                    |
| (1) 87838-S       | Pipe Plug 3/8" Hex                       |
| (1) 22S-10        | ORB -10 Plug Zero Leak                   |

### FEATURES AND SPECIFICATIONS:

Part Number	M-6010-Z351
Material	Aluminum with iron sleeves
Bore Size	4.115-4.117 (hone finish at 4.125)
Bore Spacing	4.380
Block Deck Height (out of box)	9.512 +/- .005" (Sleeves will be above aluminum out of the box) deck to 9.500"
Siamese Bore	
Maximum Stroke recommended	4.250"
Head Bolt Size	1/2-13 UNC
Main Bolt configuration	Splayed 4 bolt main caps on positions 2, 3, 4
Main Bearing Bore Size	Main bearing bore size 2.9415" – 2.9425"
Main Cap Material	4142 Steel
Main Cap Fasteners	Studs 1/2-20 UNF (torque spec. 100 lb*ft) and 7/16-20 UNF (65 lb*ft) grade 8 HCS
Cam Bearing Bore Size	Cam bearing bore size 2.2032" - 2.2052" requires M-6261-J351, or Dura Bond 351 RHP(RHPT) for common journal camshafts
Cam Plug Size	Requires M-6026-S351 cam plug
Lifter Bore Size	Lifter bore size .8753" - .8768"
Lifter Style compatibility	Compatible with hydraulic roller lifters
Oiling System	Wet sump oiling system
Oil Filter Mounting	Block mount oil filter M-6731-FL1A
Oil Pan Configuration	Check oil pan fitment to insure clearance

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Freeze Plugs/Threaded Core Plugs	-16 AN Aluminum 24-26 lb-ft
Rear Seal Type	1 piece rear seal M-6701-B351
Maximum Displacement	454 cubic inches
Weight	120#

### **RECOMMENDED PARTS:**

Heads	Recommended cylinder heads M-6049-X2, M-6049-Z2, M-6049-Z304P(A), M-6049-Z304D(A), M-6049-D3
Head Gaskets	Head gaskets M-6051-R351
Cam Bearings	Cam bearings M-6261-J351 or M-6261-R351
Head Stud Kit	Head stud kit M-6014-Z304, M-6014BOSS
Head Bolt Kit	Head bolt kit M-6065-BOSS
Main Bearings	2.750" Main journal
Oil Filter	Oil filter M-6731-FL1A
Rear Seal	Rear seal M-6701-B351
Timing Cover	Timing cover M-6059-D351 (includes fuel pump provision)
Timing Chain and Sprocket Set	Timing chain and sprocket set M-6268-A302, M-6268-B302
Replacement sleeves	M-6012-C351

### **OILING:**

The oil circuit in this block feeds the left lifter gallery thru a cross over annulus in the rear cam bearing.

### **CAM BORES:**

All cam bores are finished to a diameter of 2.204" nominally and require a common outside diameter cam bearing.

- Use Dura Bond 351 RHP(RHPT) for common journal camshafts
- Use M-6261-J351 cam bearings for a stepped journal production type camshaft.
- Maximum cam bore diameter for roller cam bearings (1-4) 2.480" (5) 2.280"

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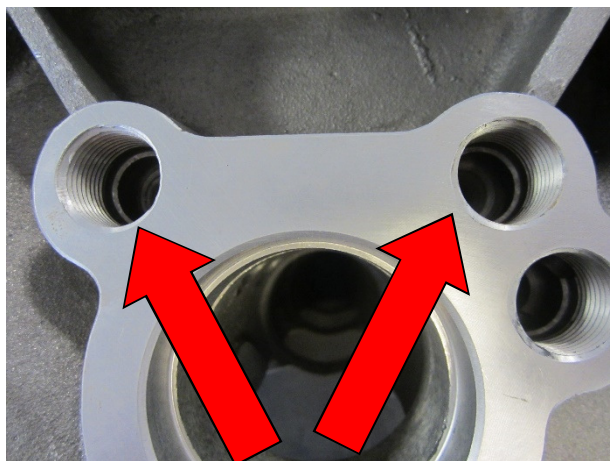
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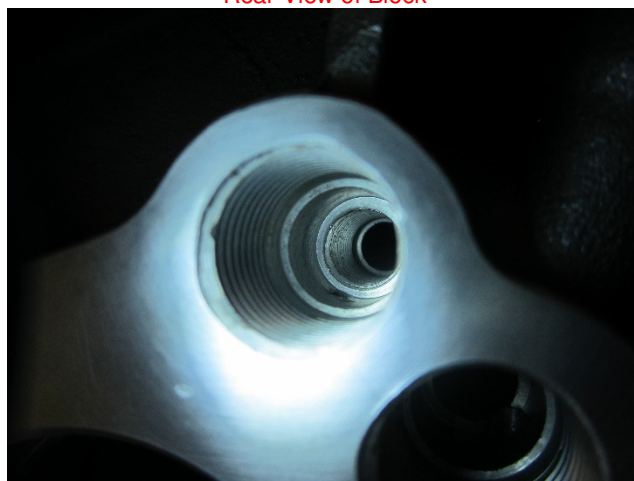
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### ADDITIONAL FEATURES:

- The two lower timing cover bolts are 3/8-16 UNC.
- Front oil gallery is threaded for a ORB -10 port fitting (plug included with block kit)
- Check cylinder heads for proper steam-hole alignment. Steam holes are designed to reduce the possibility of steam pocket formation. Due to the large number of aftermarket heads that can be used on this block, it is required to check water hole alignment between block and head.
- Check main caps for adequate clearance to oil pan.
- Designed for standard 1-piece 351 rear main seal.
- For solid roller cam applications, the rear lifter galleries are internally threaded for ¼ NPT-18 pipe plugs suitable for drilling restrictor holes. Check with the lifter manufacturer for details. See pictures below:



Rear View of Block



Close up of internal ¼ NPT-18 threads

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