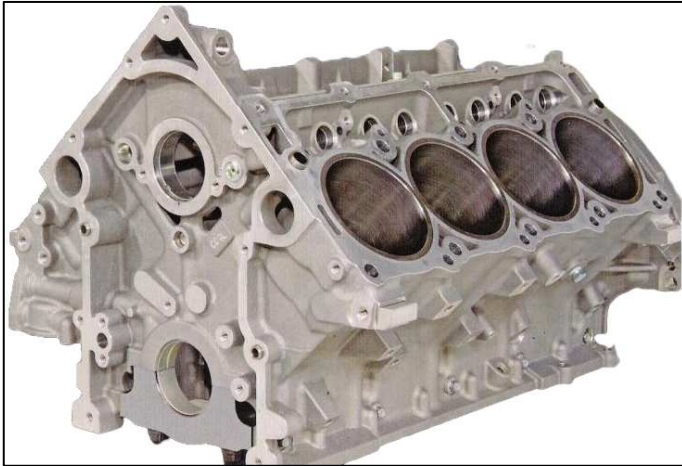




INSTALLATION INSTRUCTIONS GEN III ALUMINUM ENGINE BLOCK

PART NUMBERS P5153897, P5153898, P5155507



Engine Block Components

- (1) Engine Block Assembly (with main caps and studs)
- (1) Block Plug Kit (covers all applications)
- (1) Camshaft Bearings Installed & Line Honed

Part Number	Finished Bore	Max. Bore	Bore Honed	Crank Honed	Cam Bore
P5153897	4.055	4.060	Yes	Yes	Std.
P5153898	4.114	4.185	No	Yes	Std.
P5155507	4.125	4.155	Yes	Yes	Std.

Please check your block's part number against the features listed in the above chart before performing any machining or assembly prep.

**READ ALL INSTRUCTIONS BEFORE BEGINNING
PREP AND INSTALLATION**

SPECIAL NOTICE: This block is made from a unique aluminum casting that has features not included in the production cast iron version.

Motor Mounts:

Stock production 6.1L motor mount bosses are provided. In addition, the front of the block has additional material to permit motor plate mountings.

Main Caps + Main Bearings:

#2, #3 and #4 main caps utilize a vertical 4 bolt mounting structure for added strength. All of the 5 locations utilize the production cross bolts. The blocks are machined and line honed to the stock main bearing size. Install main bearing caps with bearing tangs facing the driver's side of the engine.

In addition, an oil saddle, or groove, is machined on the block side to permit additional oiling to the connecting rods. These special slotted main bearings are available through MOPAR P/N's:

- Lower Main Bearing 05321401AE
- Upper Main Bearing 05038401AB

See **Fig #1** for the Torque and Assembly Procedure for the Main Caps.

Service Parts for the Main Caps and Fasteners are available through Arrow Racing Engines; Website arrowracingengines.com; Main Phone Number (248) 852-5151. (See Fig #1 for the Arrow Racing Engines P/N's)

Notes:

- Service Main Caps as supplied are not to the finished size. The installer must bore and hone the caps to final size
- The Main Studs and Caps are a unique size for the aluminum casting. These will NOT fit the production cast iron cylinder block



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Lifter Bore Angle and Diameter:

The cylinder blocks as supplied are machined to the stock production 6.1L “finished” lifter bore and 45° angle.

Additional material has been added to the lifter boss area to permit “common” aftermarket larger lifters and sleeves. The design permits a 1.060” parent metal lifter bore for sleeve installation.

Oiling System:

The aluminum block utilizes the stock production oiling system from the 6.1L engine except that the lifter galley is bored through – hence these blocks can not be used for the Multi-Displacement function. The production MDS solenoid block off plugs are supplied as part of the block plug kit:

- MDS Plug 53032221AA (4 req.)
- Bolt – MDS Plug 06102164AA (4 req.)

The block is machined for the stock piston oiler cooling jets. Note that some strokes and rod combinations will not permit the stock cooling jets to be utilized. Arrow Racing Engines markets a block off plug for these specific applications.

- Block Off Plug – Oil Jet ARR-01240002 (4 req.,)

A Dry Sump oiling system has been designed by Dailey Engineering for the HEMI aluminum block. Contact Dailey Engineering (951) 296-2110 for details

Camshaft and Camshaft Bores

The aluminum block is machined for the stock production camshaft journal sizes. This process utilizes bearings that are micro-sized in the manufacturing process. MOPAR sells replacement bearings that are pre-machined. Note that the parts in FIG #1 require micro-sizing after installation in the bores. All note that the press fit for the bearings is unique for the thermal growth of the aluminum block.

Additional material has been added to the camshaft tunnel to permit machining for 60mm roller bearings. Please refer to the manufacture of the bearings for the proper press fit in an aluminum block. A rib has been added to the valley of the block and a boss to the front core to permit machining of positive retention devices for the roller bearings as well. The machining will depend on the bearing selected for the application. The rear camshaft plug will need to be selected for the various bore size.

Timing Chain / Front Drive System:

The aluminum block is designed to utilize the stock production timing chain, sprockets, and guide plates.

Bosses and oil feeds have been added to the front of the block to accommodate aftermarket chain and gear drive systems.

Cylinder Heads:

Stock cylinder head assemblies will bolt directly on to these blocks. Head bolt holes have been designed to utilize the stock 6.1L Head bolts as well as the MOPAR Head Stud Kit P/N P5155517

Note that Fig #1 shows the torque values and sequence for the Production head bolts. If you are utilizing MOPAR or aftermarket studs – please follow the manufactures recommendation.



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Cylinder Bores:

All blocks (except P5153898) are manufactured using a Torque Plate boring and honing process for the cylinder bores and other key features for the block. This process provides an extremely cylindrical bore when the cylinder heads are assembled. All measurements for the final bores should be performed utilizing the deck plates that are specifically designed for these blocks. The Deck plates are available from Arrow Racing Engines:

Torque Plate P/N	Size
55-05-0009	4.055" Bore
55-05-0011	4.125" Bore
55-05-0020	4.185" Bore

Always use a Cylinder Head Gasket when utilizing the Torque plates.

The Cylinder blocks are designed to use the stock production cylinder head gasket for the P5153897 block. Aftermarket gaskets have been designed and are available for the larger cylinder bore versions. Please make sure that the gasket provides sealing of the water jacket to the interface of the liners.

Deck Height:

Blocks are machined to a stock 6.1L HEMI deck height of 9.239". At this height the deck is .500" thick.

Front Cover:

Stock front cover, Water Pump, Oil Pump and the Front End Accessory Drive (FEAD) components can be used with these blocks. Aftermarket dampers are available for various types of applications.

Bell Housing Pattern:

The aluminum block utilizes the stock transmission attachment pattern as the production 6.1L HEMI engine. The rear face of block pattern accommodates use of stock components as well as many popular aftermarket components.

Plug Kit:

The following parts are included with all of the block part numbers:

Item:	Part Number	Qty
Rear Cam Bore Plug	06507663AA	1
Pipe Plug -Oil 3/8-18 NPT	6034331	7
Dowel - Front Cover	06506332AA	2
Dowel - Transmission	1122532	2
MDS Plug	53032221AA	4
Bolt – Oil Jet Plug M6 x 1	06104179AA	8
Dowel – Head Deck	5240849	4
Pipe Plug - 1/4-18 NPSF	06036592AA	2
Pipe Plug - 1/4-18 NPT	06036307AA	1
Cup Plug – Front Oil Gallery	06036286AA	1
Cup Plug – Dip Stick Tube	06036458AA	1

Other Recommended Components:

•See Attachment



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For technical assistance regarding the GEN III Aluminum Hemi Block, please contact the Mopar Performance Tech Line Monday-Friday, 7:00am - 3:00pm EST at 1(888) 528-HEMI or 1(888) 528-4364.

NO PARTS WARRANTY – “AS IS”

Mopar Performance parts beginning with a “P” prefix are sold “as is” unless otherwise noted. This means that parts sold by Mopar Performance carry no warranty whatsoever. **Implied warranties, such as warranties of merchantability, are excluded.** (An implied warranty of merchantability means that the part is reasonably fit for the general purpose for which it was sold). The entire risk as to quality and performance of such parts is with the buyer. Should such parts prove defective following their purchase, the buyer and not the manufacturer, distributor or retailer, assumes the entire cost of all necessary servicing or repair. Chrysler, Dodge and Jeep® vehicle and parts warranties are voided if the vehicle or parts are used for competition. The addition of performance parts does not by itself void a vehicle’s warranty. However, added performance parts (parts not originally supplied on the vehicle from the factory) are not covered by the vehicle’s warranty, and any failure that they may cause is also not covered by the vehicle’s warranty.