



INFORMATION SHEET A-4 RACE BLOCKS

PART NUMBERS P5007466, P5007636AB, P5153612, P5153903, and P5007467



Block Components

This package includes the A-4 aluminum engine block assembly with main caps, main cap fasteners, cylinder sleeves, and the block hardware kit. Some of the block hardware is installed in the block and some is included in a separate package with the block.

Read all instructions before beginning machining or assembly.

Note: Please check your machined part number and compare to the features shown in the chart below to confirm that you have the proper block prior to performing any machining, or assembly of the block.

P5153612 & P5153903 – A-4/P9 Blocks

These blocks are for use with P9 cylinder heads. P5153612 is recommended for Midget race applications since the bell-housing has been machined away. P5153903 is the same except for the full small block bell-housing.

P5007466 & P5007636AB – A-4/W9 or W9RP Blocks

These blocks are for use with the W9 or W9RP cylinder heads. P5007466 is recommended for Midget race applications since the bell-housing has been machined away. P5007636AB is the same except for the full small block bell-housing.

P5007467 – A-4/P5 or P5 Hemi® Block

This block is for use with P5 or P5 Hemi® cylinder heads. This block comes with the full bell-housing.

Main Caps:

A4 blocks now come with steel billet main caps only (all 5 are cross bolted). Aluminum replacement caps can be special ordered directly from Pro Gram Engineering – phone (330) 745-1004.

Head Studs:

Head stud no longer come with the block, but are available separately. Use P4876757AB with W9 heads, P5007912 with W9RP Heads, and P5153699 with P5 or P9 heads. Note P4876757AB and P5007912 are V-8 sets so they come with enough stud to build 2 engines.

Block Features:

- Skirted design for strength and rigidity
- Uses one V-8 cylinder head (W9, W9RP, P5, P5 Hemi, or P9)
- Short overall height and length
- Lightweight design A356 aluminum alloy
- Fully CNC machined
- Approximate Displacement from 147 to 192 cc
- Bore sizes from 4.125" to 4.180"
- Stroke sizes up to 3.500" maximum
- Near ideal valve train geometry with short pushrods
- Machined for 60 mm roller cam bearings
- 2.25" main bearings
- Standard Mopar small block "LA" bell-housing bolt pattern
- Uses MSD DIS (distributor-less) or other brand direct ignition system w/ crank trigger (there is no provision for a distributor)
- Engine can be mounted strait up with a transmission or tilted over at a 45 degree angle w/o the transmission (same location as the left bank of a V-8)
- Dry sump oiling system only (there is no provision for a wet sump oiling system)
- Many Mopar small block V-8 engine components can be used with this block (i.e. W8, W9, W9RP, P5, or P9 Cylinder head, rocker arms, rear main oil seal, 6-bolt head gasket, left side header, valve cover & gasket, valves / springs / keepers / retainers, and head studs)

Notes:



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- Requires custom oil pan (midget oil pans are available from Moroso and other sources)
- Custom fabricated tappet chamber cover is required with W9, W9RP, and P5 heads (it is recommended that a piece of aluminum angle iron is used to fabricate this cover)
- Requires unique front cover and gear drive set – P5007469
- Camshaft Core – use P5007468 for blocks P5007466 & P5007636AB, use P5007505 for block P5007467, use P5153519 for blocks P5153612 & P5153903. These camshaft cores are designed for mechanical roller tappets only, and the lobes must be machined by a camshaft grinder prior to installation on the engine.
- The suggested tappets for blocks P5007466 & P5007636AB is Jesel LFD-44001 (.840" diameter lifter w/ dog bone) and dog bone kit KDR-58100 and .300" shim under the dog bone, or Crane X1039-2 (4 pieces with tie bar).
- The suggested tappet for blocks P5007466, P5153612, and P5153903 is Jesel .937" diameter keyway tappets. The key-way tappet bushings are already installed in these blocks.
- Billet Crankshafts are available from SCAT, Sonny's, LA Enterprise, Windberg, and Mopar.
- An un-machined crankshaft forging is available from Mopar – P5007573.
- Fully machined crankshafts are also available from Mopar. Billet with 3.075" stroke P5153520 (1.888" rod journals), Forged with 3.075" stroke P5007907 (2.000" rod journals)
- The suggested engine mounting is with use of a motor plate on the rear of the block and brackets that bolt onto the front of the block.
- The light weight Mopar starter (P5249644) can be used when mounted in the standard "A" engine location on the bell-housing or transmission
- A .015" oil hole should be drilled into the oil plug at the front of the oil galley under the front cover of the block (to spray oil onto the gear drive).
- W9 and W9RP carbon fiber valve covers are available from Crawford & Crawford Composites at (704) 483-4175. Fabricated aluminum valve covers are available from Gaerte Engines and from Moroso.
- The cover for the rear of the camshaft must be machined from Aluminum, and have the proper shape to hold the seal for the fuel pump on the Midget. The Midget should use a 1.125" hole w/ seal to match the fuel pump. The seal is a 5/8" size and is similar in design to these made by ARP.
- The cylinder sleeves will stand out of the deck by about .0005" - .0030" on new blocks. These sleeves will push in and take a set at about .0015" after the engine has been run. The sleeves should never go below the deck surface of the block or the head gasket will leak.
- Head gaskets are available from Cometic Gasket at (440) 354-0777.
- Header plates and headers are available from Schoenfeld at (479) 474-7529. The suggested header size is 1.875" tubing as a baseline for the Midget application.
- The camshaft thrust bearings are available directly from CV Products - part number CG120 (2 required) at (800) 448-1223. The ideal endplay for the camshaft is about zero. If needed there are shims available from Torrington in .030" and .015" sizes under part number 3446.
- The Midget application uses a cam driven sprint car water pump that bolts onto the front cover. Other applications can use an electric pump.
- The suggested main bearing set is Clevite MS590H .
- Piston pin oiling kits are available from BLP Products Inc, (phone 800-624-1358) under part number 400-505



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The attached sheet shows the suggested parts to build one of these racing engines.

For technical assistance, please contact the Direct Connection Tech Hotline - 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.

A-4 Race Blocks

Part Number	Cylinder Head	Deck Height	Nominal Bore	Over Bore	Bell-Housing
P5007466	W9,W9RP	8.400"	4.125"	4.180"	No
P5007636AB	W9,W9RP	8.400"	4.125"	4.180"	Yes
P5007467	P5,P5 Hemi	9.000"	4.125"	4.180"	Yes
P5153612	P9	8.400"	4.125"	4.180"	No
P5153903	P9	8.400"	4.125"	4.180"	Yes



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Suggested A-4 Engine Packages

Application	Midget - Wedge	Drag Race -Wedge	Midget - P9	Drag Race - P9
Recommended Engine Package	A4 / W9 or W9RP	A4 / W9 or W9RP	A4 / P9	A4 / P9
Bell-housing for use w/ Transmission	None	Yes	None	Yes
Deck Height	8.400"	8.400"	8.400"	8.400"
Tappet Bore Angle	48 degree	48 degree	47 deg. Int / 59 deg. Exh	47 deg. Int / 59 deg. Exh
Main Bearing Size	2.25" Journals	2.25" Journals	2.25" Journals	2.25" Journals
Cylinder Heads	Aluminum W9 or W9RP	Aluminum W9 or W9RP	Aluminum P9	Aluminum P9
Cubic Inch Displacement (C.I.D.)	166 C.I.D.	150 - 190 C.I.D	166 C.I.D.	150 - 190 C.I.D
Connecting Rod Length	5.500" - 6.000"	5.500" - 6.000"	5.500" - 6.000"	5.500" - 6.000"
Tappet Type	.840" Mech Roller	.840" Mech Roller	keyway style .937" diam.	keyway style .937" diam.
Induction System	Kinsler or Engler	Fab. Alum. or Sprint Car	Kinsler or Engler	Fab. Alum. or Sprint Car
Stroke Length	3.000" - 3.250"	2.750" - 3.500"	3.000" - 3.250"	2.750" - 3.500"
Bore Size	4.125" - 4.155"	4.125" - 4.180"	4.125" - 4.155"	4.125" - 4.180"
Crankshaft Material	Billet or Forged	Billet or Forged	Billet or Forged	Billet or Forged
Oiling System	Cam or Belt Drive Dry Sump	Cam or Belt Drive Dry Sump	Cam or Belt Drive Dry Sump	Cam or Belt Drive Dry Sump
Ignition System (MSD DIS)	Direct w/ Crank Trigger	Direct w/ Crank Trigger	Direct w/ Crank Trigger	Direct w/ Crank Trigger
Fuel Pump	Midget - Mech. Cam drive	Electric	Midget - Mech. Cam drive	Electric
Water Pump	Cam or Crank Drive	Belt driven or Electric	Cam or Crank Drive	Belt driven or Electric
Short Block:	Part Number	Part Number	Part Number	Part Number
Engine Block w/ main caps & studs	P5007466	P5007636AB	P5153612	P5153903
Head Gasket	Cometic Gasket	Cometic Gasket	Cometic Gasket	Cometic Gasket
Gear Drive / Front Cover Set	P5007469	P5007469	P5007469	P5007469
Camshaft Thrust Bearings (2 required)	CG120 (CV Products)	CG120 (CV Products)	CG120 (CV Products)	CG120 (CV Products)
Head Stud Set	P4876757AB or P5007912 P5007573 (3.000" to 3.250")	P4876757AB or P5007912 P5007573 (3.000" to 3.250")	P5153699 P5007573 (3.000" to 3.250")	P5153699 P5007573 (3.000" to 3.250")
Crankshaft - Unmachined Forging (or custom billet)	P5007907 (3.075")	P5007907 (3.075")	P5007907 (3.075")	P5007907 (3.075")
Crankshaft Forged-w/ 3.075" stroke & 2.00" rod journals	P5153520 (3.075")	P5153520 (3.075")	P5153520 (3.075")	P5153520 (3.075")
Crankshaft Billet -w/ 3.075" stroke and 1.888" rod journals	Clevite # MS590H	Clevite # MS590H	Clevite # MS590H	Clevite # MS590H
Main Bearing Set	Moroso Custom	Moroso Custom	Moroso Custom	Moroso Custom
Oil Pan	P5007722	P5007722	P5007722	P5007722
Oil Pan Gasket	Mopar # 04778228	Mopar # 04778228	Mopar # 04778228	Mopar # 04778228
Rear Main Oil Seal	ATI	ATI or stock 318/340	ATI	ATI
Engine Damper	Mopar # 04897297AA	Mopar # 04897297AA	Mopar # 04897297AA	Mopar # 04897297AA
Damper Oil Seal				
Cylinder Head Assembly:				
Cylinder Head	P5007855 or P5007904	P5007065AB or P5007861	P5153645	P5153645
Rocker Arm Kit	T&D	T&D	Jesel	Jesel
Valve Cover - Carbon Fiber	Crawford & Crawford	Crawford & Crawford	N/A	N/A
Valve Cover - Fabricated Aluminum	Moroso	Moroso	N/A	N/A
Valve Cover - Cast Magnesium	N/A	N/A	P5153698	P5153698



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Valve Cover Gasket	Fel Pro	Fel Pro	O-Ring	O-Ring
Intake Gasket	P5007155 (W9) or Fel Pro	P5007155 (W9) or Fel Pro	P5153794	P5153794
Exhaust Header Gasket	P5007157 (W9) or Fel Pro	P5007157 (W9) or Fel Pro	P5007455 or Fel Pro	P5007455 or Fel Pro
Exhaust Headers or Flanges	Schoenfeld	Schoenfeld	Schoenfeld	Schoenfeld
Camshaft:				
Camshaft UGL (requires lobe machining)	P5007468	P5007468	P5153519	P5153519
Cam Bearing Set (60 mm roller bearing)	P5007361	P5007361	P5153700	P5153700
Pushrod Set (custom order)	Hollow Tube 3/8"	Hollow Tube 3/8"	Hollow Tube 3/8"	Hollow Tube 3/8"
Tappet (tie bar style)	Crane #X1039-2 (4 pieces)	Crane #X1039-2 (4 pieces)	N/A	N/A
Tappet (dog bone style w/ 1.386" C to C)	Jesel LFD-44001 (8 pieces)	Jesel LFD-44001 (8 pieces)	N/A	N/A
Dog Bone Kit for use w/ Dog Bone Lifters Only	Jesel KDR-58100 (1 kit)	Jesel KDR-58100 (1 kit)	N/A	N/A
Tappet (keyway style)	N/A	N/A	Jesel .937" diam. Keyway	Jesel .937" diam. Keyway

Torque Specifications:

Main Bearing Cap Studs	75 ft-lbs	
Main Bearing Cap Side Bolts	55 ft-lbs	Note: Apply full torque to vertical studs before torquing side bolts
Head Studs (1/2" W9)	100 ft-lbs	Head Studs (7/16" W9RP) 75 ft-lbs
Head Studs (3/8")	45 ft-lbs	