



INFORMATION SHEET

Mopar A-8 Aluminum Race Engine Block

PART NUMBER P5007905AB, P5007909AB, P5155076, or P5153378

Engine Block Components

- (1) Aluminum Engine Block
- (8) Cylinder Sleeves (installed)
- (1) Hardware Kit
- (1) Set of Main Caps
- (1) Set of Main Cap Fasteners

Part Numbers

Part #	Deck Height	Nominal Bore	Max Over Bore
P5007905AB	9.100	4.125	4.180
P5007909AB	9.435	4.125	4.180
P5155076	9.015	4.125	4.180
P5153378	9.015	4.125	4.180

General Information

This block was developed as an updated version of the Mopar Aluminum "A" engine block. The original aluminum "A" engine has been used in many racing applications (i.e. USAC Sprint Car, World of Outlaws, Lemans Prototype Sports Car, Supercharged Alcohol Drag Racing, Dirt Late Model, + more).

Part numbers P5007905AB, P5155076, and P5153378 are recommended for use in sprint car applications.

P5007909AB is recommended for big inch dirt Late Model application (up to 466 CID with 4.180" bore and 4.250" stroke).

Features:

- Lightweight design A356 aluminum alloy block that is fully CNC machined.
- Approximate displacement from 320 to 466 C.I.D.
- Stock Mopar small block bore spacing.
- Large bore capability (bore sizes from 4.125" to 4.180").
- Sleeve size is 3.355" OD, 4.125" ID w/ 5.570" length on blocks P5007905AB, P5155076, and P5153378, and 6.000" length on block P5007909AB.
- Near ideal valve train geometry w/ short pushrods. The tappets are moved fore and aft in the block to straighten out the pushrod angles and to move them away from the intake ports.
- Large Cam bore - 2.125" or 60mm roller cam bearings.
- Billet steel main caps (center 3 caps are 4-bolt w/ splayed bolts).

- Deck Heights from 9.015" to 9.435".
- Dry sump oiling system only (there is no provision for a wet sump system).
- Improved windage without skirt and top end oil collected in the back of block to keep oil off crank and rods.
- Uses Mopar 340 main bearings and crankshaft.
- Uses W9 or W9-RP cylinder heads.
- Center (inner) Bell-housing bolt pattern is the same as many other sprint car blocks. The outer bolt pattern is the same as the small block Mopar (except for two of the bolts that are common with the inner bolt pattern. Slot holes in motor plate for these two bolts (if needed).

Notes

- Requires custom Mopar A-8 oil pan (custom order from Moroso, K-Line, Gaerte, and other sources). Use oil pan gasket P5007910.
- A custom fabricated valley tray is required (it is suggested that a piece of aluminum be fabricated and bent in a sheet metal brake).
- Requires unique front gear drive and cover (P5007908) on sprint cars, and Milodon gear drive set w/ Billet Gaerte timing cover on Dirt Late Models.
- Blocks P5007905, P5007909AB, and P5153378 use camshaft UGL Core P5007906, and cam bearings set P5007911. Block P5155076 is machined for use with 60mm cam journals (#1-#4 only) and should be used with cam bearing set P5153324 and UGL camshaft P5153305. The lobes on the camshaft UGL must be machined by a camshaft grinder prior to installation in the engine (cannot be used as is). These camshaft cores are for use with roller bearings and roller tappets only.
- Optional 60mm UGL cam core P5153305 and cam bearing set P5153324 (requires block machining on #1, #2, #3, and #4 cam journals to larger size 2.6757" to 2.6763 diameter. The #5 journal stays the same size).
- The suggested tappets are Jesel (.840" diam. lifter w/ dog bone). The tappet spacing is 1.587" for all cylinders except #4 and #5 which have tappet spacing of 1.487. The maximum tappet width at the wheel end is .756" wide. The tappets were relocated for maximum clearance to ports (sorry but we cannot get around this unique tappet spacing on #4 and #5 cylinders).



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- Billet crankshafts are available from SCAT, Sonny's, LA Enterprise, Windberg and other suppliers. Mopar stocks billet crankshaft P5007903 w/ 3.800" stroke, 2.000" rod journals, and generic rear flange.
- The suggested engine mounting is with the use of motor plate on the rear, and small aluminum brackets on the front of the block (1 on each side).
- W9 Carbon fiber valve covers are available from Crawford & Crawford Composites at (704) 483-4175. Fabricated aluminum valve covers are available from Moroso, Gaerte, and other sources.
- The rear camshaft cover is part number P4510809AB (included in hardware kit with block). Dirt Late Model applications should install a cup plug in the back of this plate when not using a cam driven fuel pump.
- The cylinder sleeves will stand out of the deck by about .001 - .003" on new blocks. These sleeves will push in and take a set at about even with the deck after the engine has been run. The sleeves should never go below the deck surface of the block or the head gasket will leak.
- MLS head gaskets are available from Cometic Gasket at (440) 354-0777 or Fel-Pro.
- W9 and W9-RP Header plates and headers are available from Schoenfeld at (479) 474-7529. The suggested primary header tube size is 1.875" tubing.
- The camshaft thrust bearings are available directly from CV Products under 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.
- This block uses Chrysler 340 main bearings and has an extra bearing notch in the #5 journal to allow the use of a narrow bearing (same bearing as #2 or #4).
- Use 10-24 x .625" long pan head screws to prevent cam bearings from moving in block. (included in hardware kit).
- Use two AN-4 O-ring adapters and a short AN-4 line to allow oil to get across the valley to the tappets on the other side (included in hardware kit).
- Use oil pickup tube 05049350AB (AN-10) or 05049350 (AN-12) at rear of block to scavenge oil from block (included in hardware kit).
- **Use a second oil pickup tube with 2 holes drilled in it for oil feed tube. The two holes control the amount of oil to the tappets. (see attached drawing for location of oil holes). This oil feed fitting must also be machined shorter so that it doesn't restrict oil flow – machine away about 0.597" off the bottom of the tube.**
- Use 05049028AA water jacket plugs (4 required), and 05049022AA oil galley plugs (6 required) (included in hardware kit).
- Replacement oil feed tubes, oil pickup tubes, water jacket plugs, and oil galley plugs are available from Evernham Performance Parts – phone (704) 786-1909.
- There are a couple of extra un-used bosses on the oil galley in the valley that can be custom machined for valve spring oilers or other uses.
- The location of the left front motor mount has been moved forward by .250" to allow improved water flow around the front of the block on that side. This change will require minor changes to the motor mounts in the chassis. A .250" thick washer, or custom motor mount plate can be used with existing chassis mounts.
- Piston pin oiling is recommended since there is less oil splash to cool the underside of the pistons and piston pins w/ the cam tunnel sealed off. Piston pin oiling kits are available from BLP Products Inc, (phone 800-624-1358) under part number 400-300.

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



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Suggested "A-8" Racing Engine Packages

Application	410 Winged Sprint Car	410 Sprint Car (non-wing)	Dirt Late Model
Recommended Engine Package	A-8 / W9-RP	A-8 / W9	A-8 / W9
Engine Block	P5153378 or P5007905AB	P5153378 or P5007905AB	P5007905AB or P5007909AB
Deck Height	9.015" or 9.100"	9.015" or 9.100"	9.100" or 9.435"
Tappet Bore Angle	48 degree	48 degree	48 degree
Main Bearing Size	2.500" 340 Mains	2.500" 340 Mains	2.500" 340 Mains
Cylinder Heads	Aluminum W9-RP	Aluminum W9	Aluminum W9
Valve Angle	13 degree	13 degree	15 Degree
Cubic Inch Displacement (C.I.D.)	410 CID	410 CID	358-472+ CID
Connecting Rod Length	6.000"	6.000"	6.000"-6.250"
Piston Type	Forged Aluminum	Forged Aluminum	Forged Aluminum
Tappet Type	.840" Mech Roller	.840" Mech Roller	.840" Mech. Roller
Induction System	Engler or Kinsler Fuel Injection	Engler or Kinsler Fuel Injection	P4532598 (9.000") or P4876162 (9.560")
Stroke Length	3.625"-3.800	3.625"-3.800	Engine Builder Choice
Bore Size	4.125" - 4.200"	4.125" - 4.200"	4.125" - 4.180"
Crankshaft Material	Billet	Billet	Billet
Oiling System	Cam Drive Dry Sump - Barnes	Cam Drive Dry Sump - Barnes	Belt Drive Dry Sump
Ignition System	MSD Magnetto	MSD Magnetto	MSD Magnetto or Distributor P4876735
Fuel Pump	Mech - Rear Cam Drive	Mech - Rear Cam Drive	Mech. Belt Drive
Water Pump	Crank Drive	Crank Drive	P4876548 w/ V-belt drive
Short Block:	Part Number	Part Number	Part Number
Engine Block w/ main caps	P5153378 or P5007905AB	P5153378 or P5007905AB	P5153378, P5007905AB or P5007909AB
Head Gasket	Cometic Gasket or Fel-Pro MLS	Cometic Gasket or Fel-Pro MLS	Cometic Gasket or Fel-Pro MLS
Gear Drive / Front Cover Set	P5007908	P5007908	Milodon Gear Drive
Timing Cover	w/ Gear Set	w/ Gear Set	Gaerte Billet Timing Cover
Camshaft Thrust Bearings (2 required)	CG120 (CV Products)	CG120 (CV Products)	N/A
Head Stud Set	P5007912	P4876757	P4876757
Main Cap Set - Billet	Steel w/ Block	Steel w/ Block	Steel w/ Block
Main Cap Stud Set	w/ block	w/ block	w/ block
Crankshaft-3.800" stroke and 2.00" rod journals	P5007903	P5007903	Any Small Block Mopar w/ 318/340 Mains
Main Bearing Set	P5249058	P5249058	P5249058
Oil Pan	Moroso Custom A-8	Moroso Custom A-8	Moroso Custom A-8
Oil Pan Gasket	P5007910	P5007910	P5007910
Rear Main Oil Seal	Mopar # 04778228	Mopar # 04778228	Mopar # 04778228
Engine Damper	None	None	ATI
Damper Oil Seal	None	None	Mopar # 04897297AA
Water Jacket Core Plugs - 4 required	05049028AA	05049028AA	05049028AA
Oil Galley Plugs - 6 required	05049022AA	05049022AA	05049022AA
Oil Pickup / Oil Feed Tube - 2 required	05049350AB (AN-10) or 05049350 (AN-12)	05049350AB (AN-10) or 05049350 (AN-12)	05049350AB (AN-10) or 05049350 (AN-12)



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Oil Cross-Over Hardware	(2) AN-4 O-ring Adapters and AN-4 Line	(2) AN-4 O-ring Adapters and AN-4 Line	(2) AN-4 O-ring Adapters and AN-4 Line
Cylinder Head Assembly:			
Cylinder Head	P5007904	P5007861	P5007855, or P5007861
Rocker Arm Kit	T&D w/ .750 offset	T&D w/ .550 offset	T&D w/ .550 offset
Valve Cover - Carbon Fiber	Crawford & Crawford	Crawford & Crawford	Crawford & Crawford
Valve Cover - Fabricated Aluminum	Moroso Custom	Moroso Custom	Gaerte or Moroso
Valve Cover Gasket	P5249581 or Fel Pro #1681	P5249581 or Fel Pro #1681	P5249581 or Fel Pro #1681
Intake Gasket	P5007155 or Fel Pro	P5007155 or Fel Pro	P5007155 or Fel Pro
Exhaust Header Gasket	P5007157 or Fel Pro #1480	P5007157 or Fel Pro #1480	P5007157 or Fel Pro #1480
Exhaust Headers or Flanges	Schoenfeld	Schoenfeld	Schoenfeld
Camshaft:			
Camshaft UGL (requires lobe machining)	P5007906	P5007906	P5007906
Cam Bearing Set (2.125" Roller Bearings)	P5007911	P5007911	P5007911
Pushrod Set (custom order)	Hollow Tube 3/8"	Hollow Tube 3/8"	Hollow Tube 3/8"
Rear Camshaft Cover Plate	P4510809	P4510809	P4510810
Tie-Bar Style Roller Tappets	Crane # 11571-16	Crane # 11571-16	Crane # 11571-16
Dog-Bone Style Roller Tappet - .840" diam.	Jesel # LFD-44000 (w/ .100" offset) or # LFD-44001 (on center)	Jesel # LFD-44000 (w/ .100" offset) or # LFD-44001 (on center)	Jesel # LFD-44000 (w/ .100" offset) or # LFD-44001 (on center)
Dog-Bone Hardware Kit	Jesel # KDR-56108	Jesel # KDR-56108	Jesel # KDR-56108
Torque Specifications:			
Main Bearing Cap Studs - Vertical	75 ft-lbs	75 ft-lbs	75 ft-lbs
Main Bearing Cap Studs - Splayed	50 ft-lbs	50 ft-lbs	50 ft-lbs
Head Studs (1/2")	100 ft-lbs	100 ft-lbs	100 ft-lbs
Head Studs (3/8")	45 ft-lbs	45 ft-lbs	45 ft-lbs

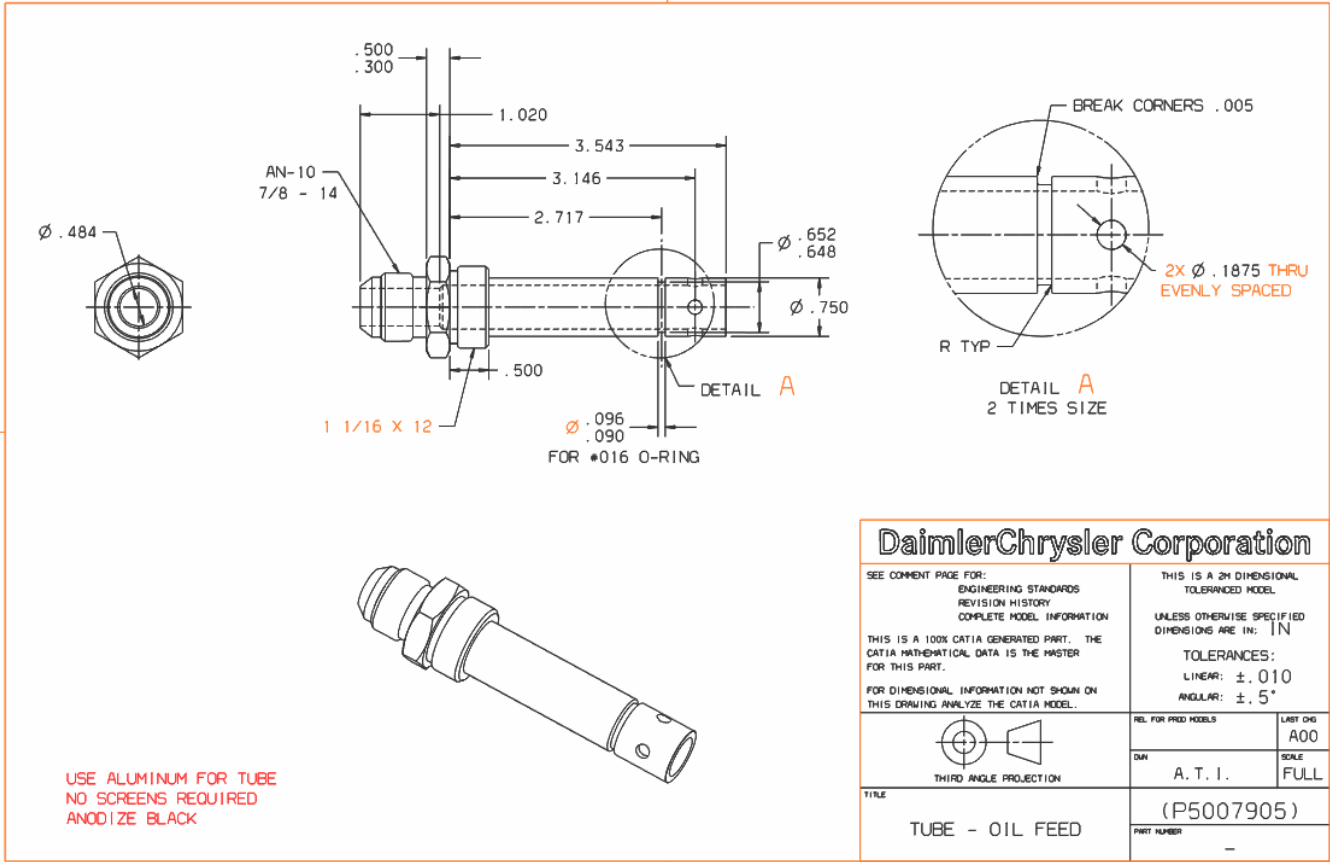


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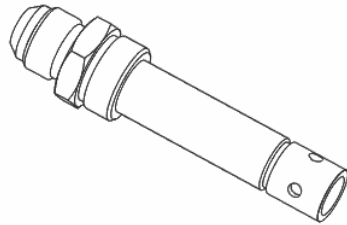
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SCALE - 2.000



USE ALUMINUM FOR TUBE
NO SCREENS REQUIRED
ANODIZE BLACK



DaimlerChrysler Corporation

SEE COMMENT PAGE FOR:
ENGINEERING STANDARDS
REVISION HISTORY
COMPLETE MODEL INFORMATION
THIS IS A 100% CATIA GENERATED PART. THE
CATIA MATHEMATICAL DATA IS THE MASTER
FOR THIS PART.
FOR DIMENSIONAL INFORMATION NOT SHOWN ON
THIS DRAWING ANALYZE THE CATIA MODEL.

THIS IS A 2D DIMENSIONAL
TOLERANCED MODEL.
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN: IN
TOLERANCES:
LINEAR: ± .010
ANGULAR: ± .5°



THIRD ANGLE PROJECTION

REL. FOR PRD MODELS	LAST DWG
DWG	SCALE
A. T. I.	FULL

TITLE	(P5007905)
TUBE - OIL FEED	PART NUMBER
	-

B SIZE SHEET