



# MAN O'WAR ENGINE BLOCK

## Iron & Aluminum SBF Specifications and Instructions

Technical data and specifications for IRON block part numbers:

Part #	Bore Size	Main Size /Type	Deck Height	Stage of Readiness
087010	3.990	2.248 Nodular	8.200	Bare Block
087020	4.115	2.248 Nodular	8.200	Bare block
087050	3.990	2.248 Nodular	9.200	Bare Block
087052	3.990	2.749 Nodular	9.200	Bare Block
087060	4.115	2.248 Nodular	9.200	Bare Block
087062	4.115	2.749 Nodular	9.200	Bare Block
087070	3.990	2.248 Nodular	9.500	Bare Block
087072	3.990	2.749 Nodular	9.500	Bare Block
087080	4.115	2.248 Nodular	9.500	Bare Block
087082	4.115	2.749 Nodular	9.500	Bare Block
087110	3.990	2.248 Billet	8.200	Bare Block
087120	4.115	2.248 Billet	8.200	Bare block
087121C	4.115	2.749 Billet	8.200	Bare Block
087150	3.990	2.248 Billet	9.200	Bare Block
087152	3.990	2.749 Billet	9.200	Bare Block
087160	4.115	2.248 Billet	9.200	Bare Block
087162	4.115	2.749 Billet	9.200	Bare Block
087170	3.990	2.248 Billet	9.500	Bare Block
087172	3.990	2.749 Billet	9.500	Bare Block
087180	4.115	2.248 Billet	9.500	Bare Block
087182	4.115	2.749 Billet	9.500	Bare Block
087010-4000 to 4030	4.000	2.248 Nodular	8.200	Prepped Block
087020-4125 to 4155	4.125	2.248 Nodular	8.200	Prepped Block
087072-4000 to 4060	4.000	2.749 Nodular	9.500	Prepped Block
087082-4125 to 4185	4.125	2.749 Nodular	9.500	Prepped Block
087110-4000 to 4030	4.000	2.248 Billet	8.200	Prepped Block
087120-4125 to 4155	4.125	2.248 Billet	8.200	Prepped Block
087172-4000 to 4060	4.000	2.749 Billet	9.500	Prepped Block
087182-4125 to 4185	4.125	2.749 Billet	9.500	Prepped Block

Note: "C" designates 8.200 - 302 blocks, which require 351 style pan, pickup and pump and distributor shaft modification.

Technical data and specifications for ALUMINUM block part numbers

087510	3.990	2.248 Billet	8.200	Bare Block
087520	4.115	2.248 Billet	8.200	Bare Block
087572	3.990	2.749 Billet	9.500	Bare block
087582	4.115	2.749 Billet	9.500	Bare Block
087510-4000 to 4030	4.000	2.248 Billet	8.200	Prepped Block
087520-4125 to 4155	4.125	2.248 Billet	8.200	Prepped Block
087572-4000 to 4030	4.000	2.749 Billet	9.500	Prepped Block
087582-4125 to 4155	4.125	2.749 Billet	9.500	Prepped Block

Block Applications: The Man O'War blocks are designed to be a replacement for the small block Ford one piece seal applications, with dipstick located in timing cover. On rear pan seal it will be necessary to snip off nubs on ends of gasket so that it will fit flush against block.

Block Material: High density Cast iron / 357 T6 Aluminum

Deck Height: IRON 8.200, 9.200 or 9.500 / ALUMINUM 8.200, 9.500 (depending on part number)

Deck Thickness: Approximately .600

Cam Bearings: Standard Small Block Ford Cam bearings, Clevite # SH510S or Durabond # F-18. These fit 8.2, 9.2 or 9.5 deck blocks. **Note:** When installing cam bearings MAKE SURE the oil hole in the bearings is inline with the oil feed hole to the main bearings.

Main Bearings: Utilizes 2.248 or 2.749 Ford style main bearings. (Depending on main size of block) All blocks regardless of main journal size utilize a one piece rear main seal such as a Mr. Gasket #30 (for 2.248 size) or Mr. Gasket #31 (for 2.749 size) or equivalent.

Main Caps: All five main caps are four bolt with the center three being of the splayed design. The inner row of bolts are 1/2 inch thread, the outer row of bolts are 7/16 thread, and the outer 4 corner bolts are 3/8 thread. Torque specs on main bolts are: 100 ft. lbs. inner and 70 ft. lbs. outer and 45 ft. lbs. on the outer 4 corner bolts with oil.

Lifter Bores: Indexed (Lifter bore size is standard Ford diameter .8750) **Note:** When using OE style roller lifter guides (tie bars) with the spring-steel retainer on a Man O'War block, some material may need to be removed from the GUIDE where indicated. This should be checked at each lifter boss location. Remove only enough material in the indicated area for clearance. (See illustration at right)

Maximum Bore: All IRON blocks can be bored safely to a maximum of 4.200 / ALUMINUM, 4.155

Cylinder Bores: Cylinder bores are a siamese design. Because of increased wall thickness, no steam holes are needed for street use.

Cylinder Wall Thickness: @ IRON 4.200 bore cylinder wall thickness will be .200

Head gaskets: Use Fel-Pro # 1031L and 1031R **or equivalent** to ensure water jacket coverage.

Water Jackets: Expanded for better cooling.

Freeze plugs: #EPC 41B-1 5/8"

Gear Drives & Belt Drives: Due to the expanded water jackets, it is not recommended to run gear drives because of clearance issues with the backside of the idler gears and the cylinder block in the timing cover area. Jesel belt drives will work with minor grinding of the block and/ or belt drive cover.

Lubrication: There are 2 oil scavenge holes. One hole each is located on both front and back of block but will need special hardware. (Dash 8 AN). We recommend oils designated SM/SL/SJ, 15W-40 or 20W-50.



Oil System Features: As is, block is set up for OE style internal oil pump. Block has provisions to be converted to a dry sump oiling system. (On "C" blocks you must use 351 style oil pan, pump, pick up, and distributor but have the oil pump drive rod cut to length.) Oil pressure can be drawn from either the front, by the timing cover on the passenger side, or at the rear of block, at the top of the bellhousing.

Oil Restrictors: Man O'War blocks use oil restrictors special to the block, part # 832665-2. If feeding engine from the front there is only one restrictor needed on front of block. If engine is rear fed you will need 2 restrictors on back of the block.

Filtration: Integral mount for spin on filter

Oil Pan Rails: Solid (stock width) cleared for 4.250 stroke with steel rods. Splayed cap blocks may have oil pan interference with the front and rear main caps. It may be necessary to hand fit the oil pan. Pan rail is tapped 1/4x20 except four outer corners which is 5/16x18.

Clearance: Man O'War blocks can handle up to a 4.250 inch stroke with a 6.300 inch steel H-beam style connecting rod.

Camshaft: In long rod and stroker combinations it is recommended to use a camshaft with a small base circle.

Fuel Pump: Uses stock style fuel pump and stock length fuel pump pushrod.

Starter: Starter mounting pad is drilled for standard bolt patterns.

Motor Mounts: Drilled and tapped for side mounts in OEM locations. Block may need to be relieved for clearance in certain applications.

Cylinder Head Bolt Holes: Threads are 1/2" diameter. Head bolt holes are blind tapped and do not extend into the water jackets. Threads are recessed 1/2" below the deck for greater clamping loads. Bolts or studs need to be 1/2" longer than stock. FOR ALL IRON BLOCKS, World #'s 832585 for bolts and # 832552 for studs. FOR ALUMINUM BLOCKS #832552 for studs. Use #832554 for CHI heads w / studs. It is the builders RESPONSIBILITY to determine which bolts/studs used will have the proper engagement to prevent stripping the threads.

#### DEFINITIONS AND DIMENSIONS:

##### Bare Block

Due to a vast difference of opinion among professional builders regarding specifications and procedures, all blocks, when purchased bare, are finished within Ford +/- tolerances. Blocks are supplied with the following specs:

Block Weights: IRON 8.2 188 Lbs. 9.5 : 213Lbs / ALUMINUM: 108 Lbs w/caps & sleeves

Deck Height: 8.205, 9.205 or 9.505 +/- .005.

Cylinder Bore: 3.990 or 4.115 +/- .005.

Main Journals: 2.248 : 2.4416 \*\* 2.749 : 2.9421 \*\* 3.000 : 3.1926

Lifter Bores: .8750

Stroke Notch: 8.200 – 3.500. 9.200 & 9.500 – 4.250.

It is the responsibility of the engine builder to finish the block to his or the end user's preferences. Freeze plugs, oil galley plugs and cam bearings are not included or installed. However, stock Ford hardware can be used except freeze plugs which measure 1 5/8 inch.

##### Prepped Block

Man O'War blocks when purchased prepped, will be sized to the above specs with the following exception: Cylinder Bores: 4.000, 4.125 or 4.155. All prepped blocks will be painted (except aluminum) and have dowel pins, freeze plugs, cam bearings and oil galley plugs installed. The block will just need a final cleaning and be ready for assembly (due to anti-rust applied).

##### Before Final Assembly:

1. Before any machine work or assembly begins, thoroughly inspect the block for any defects. Remember you are the final inspector. Once machine work has begun, the block is NON-RETURNABLE.
2. Due to the nature of aluminum blocks with ductile iron sleeves we highly recommend that the sleeves be pressed down to ensure that they are bottomed in the block prior to decking. You may find that after decking and cleaning the block that the sleeves may rise .001" to .002" above the deck. You can proceed with assembly as this will not affect the operation of the block. This condition will be corrected by the torquing of the cylinder heads.
3. Make sure block is free of debris. Clean block thoroughly.
4. Lifter bores are machined to the factory spec of .8750. Lifter diameters vary by manufacturer. Slight honing of the lifter bores may be needed proper lifter to lifter bore clearance.
5. Long rod and stroker applications need to be dry assembled and checked for connecting rod to block interference. Grinding of the oil pan rail may be necessary. Clearance needs to be kept at a .050 minimum.
6. Man O'War blocks come with a deck height of 8.200, 9.200 or 9.500 depending on part number. If a lower deck height is desired, PLEASE measure the deck before any cutting is done. REMEMBER: MEASURE TWICE AND CUT ONCE.

##### WARRANTY TERMS:

World Products Inc. (World) manufactures parts to meet QS 9000 specifications. In addition, all parts go through several inspection procedures before shipping. However, YOU ARE THE FINAL INSPECTOR. Please note: Inspect all parts before doing any machine work or assembly. Remember the saying "measure twice and cut once." If any defects are found or suspected, call World before proceeding. World will replace or repair at its option any defective part which has not been modified or misused within one year of INVOICE purchase date. Any modification or marine use of parts will void all warranties.

WORLD MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, REGARDING PARTS. THIS WARRANTY IS EXCLUSIVE AND IT IS EXPRESSLY MADE IN LIEU OF, AND WORLD HEREBY DISCLAIMS ANY AND ALL OTHER WARRANTIES, EXPRESSED, IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSE.

World's sole and exclusive obligation and liability with respect to parts sold is expressly limited to repair or replacement, at World's option, of parts. In no event will World be liable for any claim of any kind for direct or indirect incidental, consequential or special damages, whether known or unknown, including without limitation, cost of labor, installation, disassembly, lost revenues and profits, loss of property, production, or injury to persons and/or property. The maximum liability of World for any and all damages with respect to any part is limited to an amount not to exceed the original purchase price of the part. This warranty gives you specific legal rights and you may also have other rights which vary from state to state. DO NOT CALL THE DEALER FROM WHICH YOU PURCHASED YOUR PARTS. If you have any questions, please contact Customer Service, World Products 631-981-1918 (Fax 631-734-0467).

##### WARRANTY CLAIMS:

Contact Customer Service to obtain a Return Material Authorization number directly from World Products for any warranty return. DO NOT CONTACT YOUR DEALER. DO NOT RETURN PARTS WITHOUT AUTHORIZATION. Returned product must be shipped prepaid. Collect shipments will be refused. Returned parts must have RMA number on the outside of the package, a copy of original bill of sale inside and a written explanation of the suspected defect. If the item is found defective, World Products will repair or replace it at its discretion and return it freight prepaid. No additional labor claims will be paid. There will be no exceptions to this rule.

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#### SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

#### ALL SALES FOB RONKONKOMA, NEW YORK

WORLD PRODUCTS

51 Trade Zone Court · Ronkonkoma, NY 11779

(631) 981-1918 · Fax (631) 981-1712

www.worldcastings.com

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