



MANO'WAR 18° CYLINDER HEADS

Aluminum SBF Specifications and Instructions

Technical Instructions for assembled & bare head part numbers:

200cc Runner

023005	Bare 64cc
023005-1	64cc Hydraulic Flat Tappet Camshaft
023005-2	64cc Mechanical Flat Tappet and Hydraulic Roller
023005-3	64cc Solid Race Roller

235cc Runner

023010	Bare 64cc
023010-2	64cc Mechanical Flat Tappet and Hydraulic Roller
023010-3	64cc Solid Race Roller

Specifications:

Valves:

2.02 Int. Replacement part # 830591 (For -1 Heads, (Std length))
2.02 Int. Replacement part # 830605 (For -2 Heads, (Std length))
2.02 Int. Replacement part # 830622 (For -3 Heads, (+.100 Long))

200cc Runner

1.600 Exh. Replacement part # 830593 (For -1 Heads, (Std length))
1.600 Exh. Replacement part # 830615 (For -2 Heads, (Std length))
1.600 Exh. Replacement part # 830636 (For -3 Heads, (+.100 Long))

235cc Runner

1.600 Exh. Replacement part # 830615 (For -2 Heads, (Std. length))
1.600 Exh. Replacement part # 830636 (For -3 Heads, (+.100 Long))

2.08 Int. Replacement part # 830625 (For -2 Heads, (Std. length))
2.08 Int. Replacement part # 830627 (For -3 Heads, (+.100 Long))

Valve locks: -1 & -2 Heads have 7 degree locks. Replacement part # 830305. -3 Heads have 10 degree locks. Replacement part # 830310

Valve Springs & Retainers:

-1 Heads use a 1.250 diameter spring. Seat pressure 100 lbs. @ 1.810. Replacement part # 830105. Retainer replacement part # 830210
-2 Heads use a 1.437 diameter spring. Seat pressure 125 lbs. @ 1.810. Replacement part # 830110. Retainer replacement part # 830225
-3 Heads use a 1.550 diameter spring. Seat pressure 200 lbs. @ 1.900. Replacement part # 830115. Retainer replacement part # 830235

Valve Seals: -1 & -2 Heads use an umbrella seal. Replacement part # 830405. -3 Heads use a PC seal part # 830410

Pushrod Guideplates: Replacement part # 830462. NOTE: Hardened pushrods MUST be used with guideplates. The guideplates MUST be adjusted to obtain proper rocker tip to valve tip alignment.

Pushrods: To obtain proper rocker arm geometry, pushrod length will need to be determined by using an adjustable checking pushrod.

Rocker Arms: Stud mounted stamped steel or roller rocker arm designed for a Ford application.

Rocker Arm Studs: -1 & -2 Heads use a 3/8 rocker arm stud. Replacement part # 830475. -3 Heads use a 7/16 stud Replacement part # 830480.

Combustion Chamber Volume, all: 64cc

Intake Runners: Head # 023005-200cc. Head #023010-235cc.

Head Bolts: Stock or ARP equivalent. 289/302 stock blocks use a 7/16 thread bolt and 351W and SVO blocks use a 1/2 thread bolt. Head studs may be substituted for head bolts.

Head Gaskets: Fel Pro 1031L / 1031R or equivalent.

Intake Gaskets: Fel Pro 1262R

Header Gaskets: TBD

Spark Plugs: 14mm x .750 reach plug such as an Accel 416.

Emissions: These heads designed for off-road use only.

Before Final Assembly:

1. Please inspect castings for defects or damage prior to modification, assembly or installation. Cylinder heads that have been modified, installed or used ARE NOT RETURNABLE.
2. At this time install the cylinder head to the block with no head gasket and snug the bolts.
3. Due to different ratio rockers and different deck height blocks, now is the time to check for pushrod to cylinder head interference. If the pushrod has interference with the cylinder head, remove the cylinder head, grind the casting the needed amount. Then clean the head after grinding, reinstall the cylinder head using the mock up procedure and recheck the clearance. Repeat the procedure as necessary until the desired clearance is achieved.
4. The Man O'War cylinder head has larger than stock valves. It is VERY IMPORTANT to check piston to valve clearance.
5. Once everything has been checked and all the desired clearances and specifications achieved, final assembly may begin. If a new flat tappet (hydraulic or mechanical) camshaft is being installed with a -2 cylinder head, it is HIGHLY RECOMMENDED to remove the inner valve spring during the camshaft break in procedure. After the cam is broken in, reinstall the inner valve spring.

ATTENTION:

ALL EXHAUST, VALVE COVER, INTAKE AND ROCKER, STUDS AND/OR BOLTS MUST HAVE SEALER APPLIED TO THEM AS SOME OF THEM GO INTO WATER.

Head Bolt Torque Specs (with oil) 289 - 302: Upper Row 80 ft. lbs. Lower Row 70 ft. lbs. **351W:** All bolts 100 ft. lbs. NOTE: Refer to the factory service manual for proper head bolt tightening sequence. For all Man O'War block installations use 100 ft. lbs. with moly upper and lower.

Rocker arm Studs: 55 ft. lbs.

Machine Shop Specs:

NOTE: Specs are for reference only. Always measure before machining. REMEMBER: MEASURE TWICE, CUT ONCE.

Maximum Valve Diameter: 2.08 Intake & 1.60 Exhaust

Maximum Spring Seat Depth: Spring seats may be cut for a 1.550 diameter spring but NO DEEPER.

Maximum Spring Diameter: 1.550

Maximum Flat Mill: .040

Maximum Angle Mill: .175

Approximate Milling Guidelines: .007 per 1cc

Valve Guides: When installing double valve springs, some early production castings will need the valve guide machined for PC Seals.

Brackets and Accessories:

Heads drilled for all standard accessories. Due to relocated cooling passages in the head, the accessory bolt hole closest to the exhaust side of the head has been moved approximately 1/8 inch. If this bolt hole is needed, the locating hole in the bracket may have to be slotted for proper alignment.

WARRANTY TERMS:

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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