



WINDSOR JR./SR. CYLINDER HEADS

Iron SBF Specifications and Instructions

Technical Instructions for assembled & bare head part numbers:

WINDSOR JR.

053030	Bare 58cc
053030 - 1	58cc Hydraulic Flat Tappet Camshaft
053030 - 2	58cc Mechanical Flat Tappet and Hydraulic Roller

WINDSOR SR.

053040	Bare 64cc
053040 - 1	64cc Hydraulic Flat Tappet Camshaft
053040 - 2	64cc Mechanical Flat Tappet and Hydraulic Roller
053040 - 3	64cc Mechanical Roller

Specifications:

Valves:

1.94 Int. Replacement part # 830590 (For -1 Heads)
1.94 Int. Replacement part # 830600 (For -2 Heads)

2.02 Int. Replacement part # 830591 (For -1 Heads)
2.02 Int. Replacement part # 830605 (For -2 Heads)
2.02 Int. Replacement part # 830622 (For -3 Heads)

Valve locks: -1 & -2 Heads have 7 degree locks. Replacement part # 830305. -3 Heads use 10 degree, 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 a umbrella seal. Replacement part # 830405. -3 Heads use PC seals, Replacement part # 830410

Pushrod Guideplates: Replacement part # 830460. 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 with a 3/8 stud for -1 & -2 heads, 7/16 for -3.

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

Combustion Chamber Volume WINDSOR JR.: 58cc **WINDSOR SR.:** 64cc

Intake Runners: **WINDSOR JR.** Approx. 180cc runner volume. Port dimension: 1.98 x 1.09

WINDSOR SR. Approx. 200cc runner volume. Port dimension: 2.07 x 1.10

Exhaust Runners: Approximately 64cc runner volume. Port dimension 1.300 x 1.22

Head Bolts: Stock or ARP equivalent. World # 832585. **Head Studs:** World # 832552.

Head Gaskets: Fel-Pro 1031 L&R

Intake Gaskets WINDSOR JR. & SR.: Fel Pro # 1262 or equivalent.

Header Gaskets: Fel Pro 1415 or equivalent. Use 1487 for wide bolt pattern headers.

Spark Plugs: Cast iron heads use a .460 reach, 5/8 hex plug such as an Accel 276.

If additional spark plug to header clearance is needed, an Accel 276S may be used.

Emissions: To activate the smog rail, you will need to drill five holes in each cylinder head. One in each exhaust port and one in the heat crossover on the intake side. To begin, the heads will need to be disassembled before drilling. Then in the roof of each exhaust port, make a center punch mark in the center of the port 1/4 of an inch in. Use a 3/16 drill bit to drill an intersecting hole from the roof in the exhaust port into the smog rail. In the center of the head, on the intake side is the heat crossover passage. There you will need a 1/4 drill bit six inches long to drill through the heat crossover passage to the exhaust bowl. This procedure will activate the smog rail making the cylinder head emission legal.

CARB Exemption: When the smog rail is activated this product is certified as 50 State Legal under E.O. # D-343. The included exemption sticker MUST by law be placed next to your vehicle's emission sticker.

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, 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 Windsor Jr. 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.

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 1.625 diameter spring but NO DEEPER.

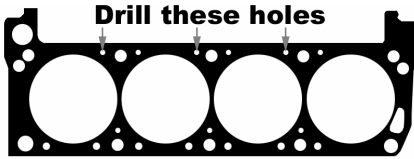
Maximum Spring Diameter: 1.550

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.



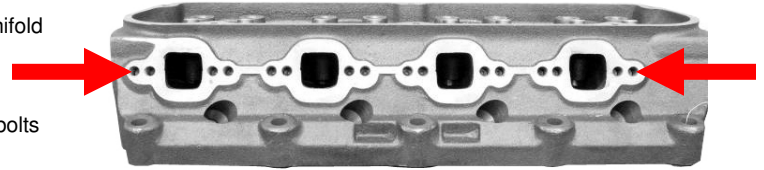
Drilling Block Water Holes for OE 289 Ford Engines:

When using Windsor Jr. heads on original 289 blocks, follow this procedure. Using a 302/351W head gasket as a template, drill the small holes to the left of the top center head bolt holes in the block using a 1/4" drill bit. Also check the intake manifold for bolt pattern. Some early intakes used more bolts. Plug extra manifold holes.

WINDSOR SR. Head Modification:

If the outer exhaust flange bolt holes are not used with your exhaust manifold or header installation, it is advisable to plug those holes. Use a 3/8 - 16 threaded set screw with thread sealant and secure tightly.

If the holes are required for exhaust headers, use thread sealant on the bolts each time they are removed and installed.



Brackets and Accessories:

1. If you need to use the AIR Reactor hole in the cylinder head to mount your accessories, a reducer bushing will need to be used. The part is available from Ford under part # F4ZZ6E086A.
2. 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 will have to be slotted for proper alignment.

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.

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SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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WPL-1060

Rev 1/08