

SPORTSMAN II SMALL BLOCK CHEVY CYLINDER HEAD**Technical instructions for assembled & bare head part numbers:**

011150	I-037 Bare head, 23°valve angle, 200cc intake runner, 64cc chamber, angle plug
011150 - 1	Assembled head, for Hydraulic flat tappet camshaft
011150 - 2	Assembled head, for Mechanical flat tappet or hydraulic roller camshaft
011150 - 3	Assembled head, for Solid roller camshaft
011250	I-037 Bare head, 23°valve angle, 200cc intake runner, 64cc chamber, straight plug
011250 - 1	Assembled head, for Hydraulic flat tappet camshaft
011250 - 2	Assembled head, for Mechanical flat tappet or hydraulic roller camshaft
011250 - 3	Assembled head, for Solid roller camshaft
012150	I-037 Bare head, 23°valve angle, 200 intake runner, 72cc chamber, angle plug
012150 - 1	Assembled head, for Hydraulic flat tappet camshaft
012150 - 2	Assembled head, for Mechanical flat tappet or hydraulic roller camshaft
012150 - 3	Assembled head, for Solid roller camshaft
012250	I-037 Bare head, 23°valve angle, 200cc intake runner, 72cc chamber, straight plug
012250 - 1	Assembled head, for Hydraulic flat tappet camshaft
012250 - 2	Assembled head, for Mechanical flat tappet or hydraulic roller camshaft
012250 - 3	Assembled head, for Solid roller camshaft

**Specifications:**

Intake Runners: 200cc Port Dimension: 2.000" x 1.230"

Exhaust Runners: Port Dimension: 1.350" x 1.420"

Combustion Chamber Volume: 64cc or 72cc. See cylinder head part number list for chamber size.

Valve Guides: Integral cast iron guide

Valve Guide Spacing: Ctr-Ctr = 1.900" (Intake stock location / Exhaust is moved .040")

Valve Seats: Intake = integral cast iron seat, Exhaust = Durabond Powdered metal seat .006" press fit

Valve Seat Dimension: Exhaust = O.D. 1.650" x 1.280 x .375"

Valve Seat Angles: Intake = 38°-(45°(.040))-60°-75° Exhaust = 38°(45°(.060))-500radius-75°

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

Rocker Arms: Sportsman II heads utilize a standard offset rocker arm designed for the Small Block Chevy.

NOTE: When using rocker arms greater than a 1.5 ratio, it may be necessary to elongate the pushrod guide holes in the cylinder head.

Head Bolts: standard SBC head bolt hardware (ARP bolts134-3601)

Head Studs: standard SBC head Stud hardware (ARP studs 134-4001)

Head Gaskets: Fel Pro 1003. If steam holes are needed for 400 engines, use a 1014 gasket. **NOTE:** heads are not drilled for steam holes.

If steam holes are desired, it is necessary to drill six 1/8 steam holes. To drill, invert the cylinder head with the deck side up. Using a head gasket as a template, center punch the head where the steam holes will be drilled. The three steam holes closest to the intake side of the must be drilled at a 30 degree angle toward the exhaust side of the head. The remaining three steam holes that are closest to the exhaust side of the head will be drilled straight down.

Intake Manifold: any conventional SBC intake manifolds

Pistons: Most 23° aftermarket pistons

Spark Plugs: .460" reach, 5/8" hex plug,

Emissions: To activate for emissions, the cylinder head will need to be disassembled, then you will need a 6 inch long, ¼ diameter drill bit to drill through the heat crossover passage (found in the center of the intake flange) to the exhaust bowl. When the exhaust crossover passage is drilled, this activates EGR operation making this head 50 State emissions legal under E.O. # D-343-1. Then the included exemption sticker **MUST** by law be placed next to your vehicle's emission sticker.

Head Bolt Torque Specs:

Torque all head bolts to 75 ft. lbs w/ oil. Before torquing, coat the head bolts and rocker studs with a thread sealing paste. **Note:** Refer to the factory service manual for proper head bolt tightening sequence

Rocker Arm Studs: 45 ft. lbs. w/oil

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

Maximum Valve Diameter: 2.100 Intake & 1.625 Exhaust.

Maximum Spring Seat Depth: Spring seat is cut to accept a 1.550 spring. **IT IS NOT RECOMMENDED TO CUT THE SPRING SEAT DEEPER OR TO ENLARGE THE SEAT FOR A SPRING DIAMETER OVER 1.550.**

Maximum Spring Diameter: 1.550

Maximum Flat Mill: .040

Maximum Angle Mill: .175

Approximate Milling Guidelines: .0065 per 1cc

Brackets and Accessories:

1. The Sportsman II heads have accessory boltholes drilled in the factory locations.
2. Some head part #'s are drilled to accept either perimeter bolt valve cover or center bolt valve cover. However, because the larger diameter of the valve springs used on -2 heads; there may be interference with the bolt supports when using center bolt valve covers. It is HIGHLY RECOMMENDED to use the perimeter bolt style valve cover to eliminate clearance issues.
3. Before installing center bolt valve covers, the perimeter bolt valve cover bosses must be machined down on the inside of the valve cover rail. DO NOT MACHINE THE VALVE COVER RAIL! The two valve cover mounting bosses on the intake side must be machined .220 down from the valve cover rail & the bosses on the exhaust side of the rail must be machined down to a depth of .180.
4. When using Sportsman II heads with the angle plug location, it is best to use an exhaust header designed for angle plugs.

Before Final Assembly:

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. At this time install the cylinder head to the block with no head gasket and snug the bolts.

This assembly should be checked to assure that all components are compatible with your combination before assembling your engine. There is no warranty on valve springs of any type.

1. 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 head, grind the casting the needed amount. Clean the head after grinding then reinstall the head using the mock up procedure and recheck the clearance. Repeat the procedure as necessary until the desired clearance is achieved.
2. Once everything has been checked and all the desired clearances and specifications achieved, final assembly may begin.
3. If a new flat tappet 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.
4. If you bought bare castings then remember, you must wash the heads before assembly.

ATTENTION:

As a safety precaution, due to the nature of all sand castings occasionally an exhaust, valve cover, intake manifold and rocker arm studs may go through into the water jacket or an intake port some are by design. This is rare but can happen and will not always be evident by the naked eye or even sometimes may pass a pressure test. So with that said and to insure that you do not run into a problem of leaks, we recommend that you use thread sealer on these bolts or studs. Better safe then sorry!

WARRANTY CLAIMS: (See Warranty Sheet that came with item for specific details)

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.



Casting ID numbers are located under the valve cover cast into the head face. A guide plate or stud girdle may need to be removed to view. Casting numbers identify which head you may have. Use the Part Number to determine which version of the head you have. Part Numbers are located and stamped on the ends of the heads prior to 2005, then engraved on the ends of the heads after 2005. As of mid 2012 the Part Number was moved to the intake face just under the valve cover rail. Part Numbers may indicate original combustion chamber and intake runner sizes, but

heads are often modified by users over the course of time. The best way to be sure of what you have is to have the heads measured by a qualified machine shop. If you were not the original purchaser of the heads this is the only way to be certain of what you have. Prior to 2013, there is no date of manufacture on the heads. World Products cannot verify any other numbers which may have been stamped on the heads by other parties who may have made modifications.

Casting No. Description

Small Block Chevy Heads

I-037	SPORTSMAN II	200cc Intake / 64cc & 72cc Chambers / Cast Iron SBC
I-038	MOTOWN 220	220cc Intake / 64cc Chambers / Cast Iron SBC
I-039	SPORTSMAN	(Discontinued)
I-052	S/R & S/R TORQUER	170cc Intake / 67cc & 76cc Chambers - Cast Iron SBC
I-058	S/R 305	170cc Intake / 58cc Chambers / Cast Iron SBC

Big Block Chevy Heads

I-043B	MERLIN	345cc Intake / 119cc Chamber / Rectangle Port / Cast Iron BBC
I-043C	MERLIN	320cc Intake / 119cc Chamber / Rectangle Port / Cast Iron BBC
I-043D	MERLIN	269cc Intake / 119cc Chamber / Oval Port / Cast Iron BBC

Small Block Ford Heads

I-051	WINDSOR	(Discontinued)
I-056	WINDSOR JR.	180cc Intake / 58cc Chamber / Cast Iron SBF
I-057	WINDSOR JR.	180cc Intake / 58cc Chamber / Cast Iron SBF
I-061	WINDSOR SR.	200cc Intake / 64cc Chamber / Cast Iron SBF



WORLD
PRODUCTS



ARP
automotive Racing products

We recommend using ARP-Fastners for all World heads.

SBC Horsepower

Motown, Sportsman II and S/R Torquer

Head Bolt Kits

Chevrolet

Black Oxide

134-3601 SB 23° cast iron OEM,
GEN 111 Vortec/Trk&most
Edelbrock LT-AFR, Brodix-8,
-10, -11, -11xb, LT-1, Pro-1, Hex

134-3701 SB 23° cast iron OEM,
GEN 111 Vortec/Trk&most
Edelbrock LT-AFR, Brodix -8,-10,
-11, -11xb, LT-1, Pro-1, 12 pt

Head Stud Kits

Chevrolet

134-4001 23°OEM iron/alum Chev
Gen III Vortec/Trk hex head

234-4401 23°OEM iron/alum Chev
Gen III Vortec/Trk 12 pt

234-4301 23°OEM iron/alum Chev
Gen III Vortec/Trk 12 pt u/cut

234-4601 BBC Cast OEM,
Alum factory heads,
also early Bowtie

Valve Cover Bolts & Studs

Chevrolet

Black Oxide

100-7507 SB hex bolt 1/4-20 .812"

100-7503 SB 12pt bolt 1/4-20 .812"

200-7603 SB hex stud 1/4-20 1.500"

200-7613 SB 12pt stud 1/4-20 1.500"

Stainless 300

400-7507 SB hex bolt 1/4-20 .812"

400-7503 SB 12pt bolt 1/4-20 .812"

400-7603 SB hex stud 1/4-20 1.500"

400-7613 SB 12pt stud 1/4-20 1.500"

Rocker Studs

Chevrolet

134-7101 SB 3/8 typical application

134-7104 SB 3/8 w/roller rockers

134-7103 SB 7/16 typical application

235-7204 SB Alum. heads int. studs

235-7203 SB Alum. heads Exh. studs

Intake Bolt Kits

Chevrolet

Black Oxide

134-2001 SB 265-400 factory OE

134-2101 SB 265-400 factory OE

134-2002 SB 305-350 Vortec

134-2103 SB 305-350 Vortec

134-2004 SB 305-350 Tuned port

134-2104 SB 305-350 Tuned port

Stainless 300

434-2001 SB 265-400 factory OE

434-2101 SB 265-400 factory OE

434-2002 SB 305-350 Vortec

434-2102 SB 305-350 Vortec

434-2004 SB 305-350 Tuned port

434-2104 SB 305-350 Tuned port

NASCAR

334-2102 SB 1.000" Drilled

334-2103 SB 1.250" Drilled

Header Bolt & Studs

Chevrolet

Black Oxide .750" length

100-1101 3/8 hex 3/8 wrench

100-1201 3/8 12pt. bolt 3/8 wrench

100-1103 3/8 hex, drilled 3/8 wrench

100-1203 3/8 12pt, drilled 3/8 wrench

Black Oxide 1.670" length

100-1412 3/8 dia. stud

100-1402 3/8 dia. stud

Black Oxide 1.000" length

100-1111 3/8 hex bolt 3/8 wrench

100-1211 3/8 hex bolt 3/8 wrench

Stainless 300 .750" length

400-1101 3/8 hex bolt 3/8 wrench

400-1201 3/8 12pt bolt 3/8 wrench

400-1103 3/8 hex, drilled 3/8 wrench

400-1203 3/8 12pt, drilled 3/8 wrench

Stainless 300 1.670" length

400-1412 3/8 dia. stud

400-1402 3/8 dia. stud

Stainless 300 1.000" length

400-1111 3/8 hex bolt 3/8 wrench

400-1211 3/8 hex bolt 3/8 wrench