



# WARHAWK SHORT BLOCKS

## Assembly & Kit LS Chevrolet Specifications and Instructions

**PLEASE NOTE: The compression ratios shown are based on World Products cylinder head chamber sizes and gasket selections only. Engine builders should calculate compression ratios based on their own parts selections.**

Technical data and specifications for WARHAWK Gen III/IV Chevrolet part numbers:

Part #	Contents:
103251A (assembly) 103351A (kit)	427 for LS1X heads Block: Warhawk aluminum 9.240 deck Crankshaft: Eagle 4340 forged /4.00 Connecting Rods: Eagle forged H-beam 4340 / 6.125 Pistons: Manley 4.125 x 1.120 x -8cc dish, 15 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.6:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.6:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
103252A (assembly) 103352A (kit)	427 for LS7X heads Block: Warhawk aluminum 9.240 deck Crankshaft: Eagle 4340 forged /4.00 Connecting Rods: Eagle forged H-beam 4340 / 6.125 Pistons: Manley 4.125 x 1.120 x -8cc dish, 12 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.6:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.6:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
103261A (assembly) 103361A (kit)	454 for LS1X heads Block: Warhawk aluminum 9.800 deck Crankshaft: Eagle 4340 forged /4.25 Connecting Rods: Eagle forged H-beam 4340 / 6.56 Pistons: Manley 4.125 x 1.120x-14cc dish, 15 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.6:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.5:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
103262A (assembly) 103362A (kit)	454 for LS7X heads Block: Warhawk aluminum 9.800 deck Crankshaft: Eagle 4340 forged /4.25 Connecting Rods: Eagle forged H-beam 4340 / 6.56 Pistons: Manley 4.125 x 1.120x-14cc dish, 12 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.6:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.5:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
103271A (assembly) 103371A (kit)	481 for LS1X heads Block: Warhawk aluminum 9.800 deck Crankshaft: Callies 4340 forged /4.500 / 2" rod journal Connecting Rods: Callies forged H-beam 4340 / 6.44 Pistons: Manley 4.125 x 1.120x-19cc dish, 15 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.7:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.5:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
103272A (assembly) 103372A (kit)	481 for LS7X heads Block: Warhawk aluminum 9.800 deck Crankshaft: Callies 4340 forged /4.500 / 2" rod journal Connecting Rods: Callies forged H-beam 4340 / 6.44 Pistons: Manley 4.125 x 1.120x-19cc dish, 12 degree notches, 1.5mm, 1.5mm, 3mm rings, .927 pin Compression: 10.7:1 w / 72cc / .053 x 4.175 MLS gasket / up .005 11.5:1 w / 64cc / .053 x 4.175 MLS gasket / up .005 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal

REQUIRED COMPONENTS		REQUIRED COMPONENT KITS	
Part #	Description	(Includes rear main seal, seal plate and gasket, cam plate valley plate and stud kit)	
Part #	Description	Part #	Description
832800	Cam retention plate	832875	9.240 deck 4 studs per cylinder
832820	Rear seal plate	832876	9.240 deck 6 studs per cylinder
832821	Rear seal plate gasket	832877	9.800 deck 4 studs per cylinder
061075	Valley cover plate	832878	9.800 deck 6 studs per cylinder
832560	9.240 deck head stud kit		
832561	9.240 deck head stud kit (6 studs per cylinder)		
832563	9.800 deck head stud kit		
832564	9.800 deck head stud kit (6 studs per cylinder)		

**WARNING:**

IT IS UP TO THE END USER TO BE RESPONSIBLE FOR THE FINAL INSPECTION OF ALL COMPONENTS. INSPECT CAREFULLY ALL ASSEMBLIES FOR DAMAGE, DEFECTS OR WRONG PARTS PRIOR TO ASSEMBLY OR INSTALLATION. ANY COMPONENT THAT HAS BEEN MODIFIED, INSTALLED OR USED IS NOT RETURNABLE.

**Assembly:** The short block assemblies are the same quality foundations that our partial and complete engines are based upon.

**Block:** A Motown, Man O'War or Warhawk (small block assemblies) or Merlin (big block assembly) block is provided with the assembled short block.

**Pistons:** Premium quality forged units. Piston to head clearance will need to be checked. Bolt the head to the block (just snug will do) and check piston to head clearance. Minimum clearance should be .050 with the head gasket. If there is not enough clearance, either use a thicker head gasket or remove material from the combustion chamber of the head. Refrain from removing any material from the piston dome.

**Connecting Rods:** The connecting rods in the short block assemblies have been profiled for clearance with the camshaft. On small block applications it is still recommended to use a cam with a base circle of 1.050 for flat tappet applications and a base circle of .875 for roller applications. A small base circle camshaft or profiling of the connecting rod OR BOTH may need to be done to limit interference (minimum .050 clearance). Going to the small base circle camshaft first would be the preferred choice. In SBC applications with 4.000 stroke, some camshaft profiles may not allow the cam to be installed at the desired centerline spec. Some compromise may be necessary to gain clearance.

**Rod & Main Bearings:** The bearings installed are Clevite H or HX style bearings.

**Crankshaft:** All crankshafts are forged steel units with a radius built into the main and rod journals for strength.

All the crankshafts supplied with the short block assemblies are INTERNALLY BALANCED. When selecting a damper and a flywheel or flexplate, these items will need to be of the neutral balance variety. SPECIAL NOTICE FOR WARHAWK BLOCKS: SEALANT MUST BE APPLIED TO THREADS OF FLYWHEEL BOLTS OR OIL LEAKS MAY DEVELOP.

**Camshaft:** The short block assembly DOES NOT come with a camshaft. It is up to the end user to select the camshaft that is right for their combination. It is also up to the end user that the camshaft they select will provide adequate piston to valve clearance. Piston to valve clearance minimum requirement is .060 clearance intake and .090 exhaust, measured with NO head gasket in place. For Small Block Chevy, in long rod and stroker combinations it is recommended to use a camshaft base circle of 1.050 for flat tappet applications and a .875 base circle for roller camshaft applications.

**Valve Springs:** When using a flat tappet camshaft, 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 springs.

**Oil Pans:** Select an oil pan that is right for the engine chassis combination and a pan that has stroker notches. Bolt the oil pan to the block without a gasket.

Rotate the engine and check for any interference between the connecting rods and the oil pan. If the connecting rods hit the pan, the pan will have to be modified in the offending area. Continue this procedure until the rods clear the pan.

**Oil:** Any good 10W-40 oil is recommended. The engine should be oil primed before starting.

**Oil Restrictors:** If oil restrictors are to be used, the Motown block uses part # 832665-2. The Merlin block uses part # 832660-2. Man O'War blocks use part # 832665-2, one restrictor on front feed engines, two on rear feed.

**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.

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

Rev 9/07