



MERLIN SHORT BLOCKS

Assembly & Kit BBC Specifications and Instructions

(Add "A" to part number for aluminum blocks)

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 MERLIN Big Block Chevrolet part numbers:

Part #	Contents:
108225 (assembly) 108325 (kit)	509 LC Block: Merlin III iron / Merlin X aluminum 9.790 deck Crankshaft: Eagle 4340 forged / 4.00 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.385 Pistons: Mahle coated 4.500 x 1.395 x 12cc dome Compression: 9.5:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108227 (assembly) 108327 (kit)	509 HC Block: Merlin III iron / Merlin X aluminum 9.790 deck Crankshaft: Eagle 4340 forged / 4.00 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.385 Pistons: Mahle coated 4.500 x 1.395 x 12cc dome Compression: 12.15:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108250 (assembly) 108350 (kit)	540 LC Block: Merlin III iron / Merlin X aluminum 9.790 deck Crankshaft: Eagle 4340 forged / 4.250 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.385 Pistons: Mahle coated 4.500 x 1.270 x 5cc dome Compression: 9.5:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108252 (assembly) 108352 (kit)	540 HC Block: Merlin III iron / Merlin X aluminum 9.790 deck Crankshaft: Eagle 4340 forged / 4.250 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.385 Pistons: Manley 4.500 x 1.270 x 46cc dome Compression: 13.5:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108260 (assembly) 108360 (kit)	572 LC Block: Merlin III iron / Merlin X aluminum 10.190 deck Crankshaft: Eagle 4340 forged / 4.500 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.700 Pistons: Manley 4.500 x 1.230 x 15cc dome Compression: 10.81:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108262 (assembly) 108362 (kit)	572 HC Block: Merlin III iron / Merlin X aluminum 10.190 deck Crankshaft: Eagle 4340 forged / 4.500 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.700 Pistons: Manley 4.500 x 1.230 x 42cc dome Compression: 13.68:1 w / 119cc / .039 x 4.540 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal
108270 (assembly) 108370 (kit)	632 LC Block: Merlin III iron / Merlin X aluminum 10.200 deck Crankshaft: Callies 4340 forged / 4.750 Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.700 Pistons: Mahle coated 4.600 x 1.120 x -6cc dish Compression: 10.6:1 w / 119cc / .039 x 4.630 gasket / down .010 Piston Rings: Total Seal Bearings: Clevite H Balancing: Internal

108272 (assembly) 632 HC
108372 (kit) Block: Merlin III iron / Merlin X aluminum 10.200 deck
Crankshaft: Callies 4340 forged / 4.750
Connecting Rods: Eagle forged H-beam 4340 L-19 bolts / 6.700
Pistons: Wiseco 4.600 x 1.120 x 33cc dome
Compression: 13.65:1 w / 119cc / .039 x 4.630 gasket / down .010
Piston Rings: Total Seal
Bearings: Clevite H
Balancing: Internal

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.

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WARRANTY CLAIMS:

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