

ZZ572/620 (12498792) and ZZ572/720R (12498826) Long Block Specifications

Specifications Part Number 88962928

This ZZ572 long block specification sheet should be used in conjunction with the ZZ572 short block specification sheet, GM part number 88962927.

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This publication provides general information on components and procedures that may be useful when installing or servicing a ZZ572 long block assembly. Please read this entire publication before starting work. Also, please verify that all of the components listed in the Package Contents section below were shipped in the kit.

The information below is divided into the following sections: package contents, torque information, ZZ572/620 and ZZ572/720R long block assembly specifications, and a service parts list.

The ZZ572 long block assembly includes additional components to the short block assembly which make up the long block. Some key items included are the aluminum cylinder heads, valve train, camshaft, lifters, SFI Foundation Inc. approved harmonic damper, and oil pan. Specific items and part numbers are listed at the end of these instructions.

GM recommends that you use a minimum octane rating of 92 (R+M/2) fuel in the ZZ572/620 (9.6:1 compression ratio) and 110 octane fuel in the ZZ572/720R (12:1 compression ratio) to prevent preignition.

It is not the intent of these specifications to replace the comprehensive and detailed service practices explained in the GM service manuals.

For information about warranty coverage, please contact your local GM Performance Parts dealer.

Observe all safety precautions and warnings in the service manuals when installing a ZZ572 Tall Deck Big Block Chevrolet (BBC) long block assembly in any vehicle. Wear eye protection and appropriate protective clothing. Support the vehicle securely with jackstands when working under or around it. Use only the proper tools. Exercise extreme caution when working with flammable, corrosive, and hazardous liquids and materials. Some procedures require special equipment and skills. If you do not have the appropriate training, expertise, and tools to perform any part of this conversion safely, this work should be done by a professional.

The information contained in this publication is presented without any warranty. All the risk for its use is entirely assumed by the user. Specific component design, mechanical procedures, and the qualifications of individual readers are beyond the control of the publisher, and therefore the publisher disclaims all liability incurred in connection with the use of the information provided in this publication.

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ALL INFORMATION WITHIN ABOVE BORDER TO BE PRINTED EXACTLY AS SHOWN ON 8 1/2 x 11 WHITE 16 POUND BOND PAPER. PRINT ON BOTH SIDES, EXCLUDING TEMPLATES. TO BE UNITIZED IN ACCORDANCE WITH GMSPO SPECIFICATIONS.	DATE	REVISION	AUTH
	07OC03	Initial Release - Shawn Smith	
	16FE07	Revised - Rusty Sampsel	

Legal and Emissions Information

This publication is intended to provide information about the ZZ572 engine and related components. This manual also describes procedures and modifications that may be useful during the installation of a ZZ572 engine. It is not intended to replace the comprehensive service manuals and parts catalogs which cover General Motors engines and components. Rather, it is designed to provide supplemental information in areas of interest to do-it-yourself+enthusiasts and mechanics.

This publication pertains to engines and vehicles which are used off the public highways except where specifically noted otherwise. Federal law restricts the removal of any part of a federally required emission control system on motor vehicles. Further, many states have enacted laws which prohibit tampering with or modifying any required emission or noise control system. Vehicles which are not operated on public highways are generally exempt from most regulations, as are some special interest and pre-emission vehicles. The reader is strongly urged to check all applicable local and state laws.

Many of the parts described or listed in this manual are merchandised for off-highway application only, and are tagged with the %Special Parts Notice+reproduced here:

Special Parts Notice

This part has been specifically designed for Off-Highway application only. Since the installation of this part may either impair your vehicle's emission control performance or be uncertified under current Motor Vehicle Safety Standards, it should not be installed in a vehicle used on any street or highway. Additionally, any such application could adversely affect the warranty coverage of such an on-street or highway vehicle.

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Package contents:

<u>Item</u>	<u>Description</u>	<u>Quantity</u>	<u>GM Part Number</u>
1	Long Block Assembly (ZZ572/620)	1	12498792
	OR		
1	Long Block Assembly (ZZ572/720R)	1	12498826
2	Short Block Instructions	1	88962927
3	Long Block Instructions	1	88962928

ZZ572/620 and ZZ572/720R High Performance Engine Torque Specifications:

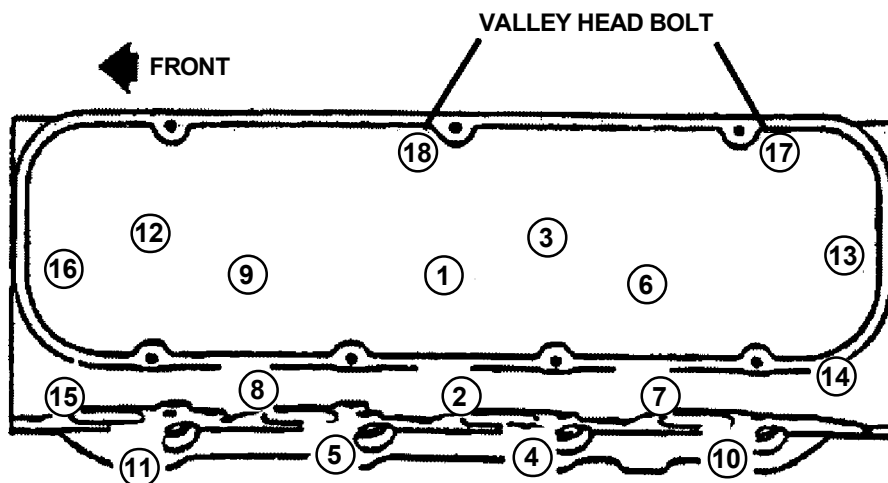
Note: See Deluxe Specifications for additional torque values not included here.

Fastener	Torque (lb.ft.)	Torque (Nm)	Thread Treatment	Notes
Windage tray studs	30	41	30 weight oil	. -
Oil pump bolt	65	88	30 weight oil	. -
Cam thrust plate bolt	10	14	Blue Loctite	. -
Cam sprocket bolt	22	30	Blue Loctite	. -
Front cover bolt	10	14	Blue Loctite	. -
Oil pan bolt	20	27	Blue Loctite	. -
Damper bolt	110	149	Blue Loctite	. -
Cylinder head bolt	70	95	Moly-lube	Torque sequence, see below
Rocker arm stud	50	68	Blue Loctite	. -
Rocker cover bolt	10	14	30 weight oil	. -
Fuel pump cover bolt	25	34	Blue Loctite	. -
Lifter retainer bolt	18	24	Blue Loctite	. -
Spark plug	25	34	30 weight oil	. -
Valley head bolt	60	81	Liquid Teflon	. -

Note: These torque values are in addition to those documented within the short block instructions.

Cylinder Head Installation:

Installation is the same as for original equipment cylinder heads with the exception of two additional cylinder head bolts located inside the lifter valley as noted below. Be sure to thoroughly clean the surface of the block and the surface of the cylinder head prior to installing. Apply Moly-lube thread lubricant to all head bolt threads. Apply liquid Teflon to the valley head bolts that protrude into the intake runners. Tighten the bolts alternately per the sequence and pattern shown below. Apply torque in 25 ft.lb. increments over two repetitions with the third repetition to the final tightening specification. A re-torque of the cylinder head bolts is recommended after heat cycling the engine.



Caution

This engine assembly needs to be filled with oil and primed. You should add the specified oil (see start-up instructions) to your new engine. Check the engine oil level on the dipstick and add accordingly.

Start-up and Break-in Procedures

1. After installing the engine, ensure the crankcase has been filled with 20w50 racing motor oil (non-synthetic) to the recommended oil fill level on the dipstick. Also check and fill as required any other necessary fluids such as coolant, power steering fluid, etc.
2. The engine should be primed with oil prior to starting. Follow the instructions enclosed with the tool. To prime the engine, first remove the distributor to allow access to the oil pump drive shaft. Note the position of the distributor before removal. Install the oil priming tool, GM part number 12368084. Using a 1/2" dill motor, rotate the engine oil priming tool clockwise for three minutes. While you are priming the engine, have someone else rotate the crankshaft clockwise to supply oil throughout the engine and to all the bearing surfaces before the engine is initially started. This is the sure way to get oil to the bearings before you start the engine for the first time. Also, prime the engine if it sits for extended periods of time. Reinstall the distributor in the same orientation as it was removed.

After the engine has been installed in the vehicle, recheck the oil level and add oil as required. It is also good practice to always recheck the ignition timing after removal and reinstallation of the distributor. See step 4 or engine specifications for the proper timing information.

3. Safety first. If the vehicle is on the ground, be sure the emergency brake is set, the wheels are chocked and the car cannot fall into gear. Verify everything is installed properly and nothing was missed.
4. Start the engine and adjust the initial timing. Set the ignition timing to 15° before top dead center (BTDC) and the engine idle to 950 RPM (ZZ572/620) or 1200 RPM (ZZ572/720R) with a timing light and the vacuum disconnected and plugged. Rotate the distributor counterclockwise to advance the timing. Rotate the distributor clockwise to retard the timing. Leave the vacuum advance disconnected.
5. When possible, you should always allow the engine to warm up prior to driving. It is a good practice to allow the oil sump and water temperature to reach 180°F before towing heavy loads or performing hard acceleration runs.
6. Once the engine is warm, set the total advance timing to 36° at 4000 RPM.
7. The engine should be driven at varying loads and conditions for the first 30 miles or one hour without wide open throttle (WOT) or sustained high RPM accelerations.
8. Run five or six medium throttle (50%) accelerations to about 5000 RPM and back to idle (0% throttle) in gear.
9. Run two or three hard throttle (WOT 100%) accelerations to about 5000 RPM and back to idle (0% throttle) in gear.
10. Change the oil and filter. Replace with 20w50 racing motor oil (non synthetic) and a PF35L AC Delco oil filter. Inspect the oil and the oil filter for any foreign particles to ensure that the engine is functioning properly.
11. Drive the next 500 miles under normal conditions or 12 to 15 engine hours. Do not run the engine at its maximum rated engine speed. Also, do not expose the engine to extended periods of high load.
12. Change the oil and filter. Again, inspect the oil and oil filter for any foreign particles to ensure that the engine is functioning properly.
13. Do not use synthetic oil for break-in. It would be suitable to use synthetic motor oil after the second recommended oil change and mileage accumulation. In colder regions, a lower viscosity oil may be required for better flow characteristics.

ZZ572/620 and ZZ572/720R High Performance Engine Assembly Specifications:

Compression 9.6:1 for ZZ2572/620. 12:1 for ZZ572/720R
 Cylinder Head: Aluminum rectangular port with stainless steel valves
 Valve Diameter (Intake/Exhaust): 2.25+1.88+
 Chamber Volume: 118cc
 Dual valve springs
 Average Spring Rate: 480 lbs.in for ZZ2572/620. 652 lbs.in for ZZ572/720R
 Camshaft: Hydraulic roller tappet for ZZ2572/620. Mechanical roller tappet for ZZ572/720R
 Lift:632+intake and exhaust for ZZ2572/620. .714+intake and exhaust for ZZ572/720R
 Duration: 254° intake, 264° exhaust @ .050+tappet lift for ZZ2572/620
 278° intake, 282° exhaust @ .050+tappet lift for ZZ572/720R
 Centerline: 109° ATDC intake, 119° BTDC exhaust
 Advertised Duration: 316° intake, 326° exhaust @ .004+tappet lift for ZZ2572/620
 310° intake, 314° exhaust @ .004+tappet lift for ZZ572/720R
 Rocker Arm Ratio: 1.7:1, Aluminum roller rocker
 Timing Chain: Heavy duty single roller design
 Oil Pan: 6 - quart Gen VI
 Oil Pressure (Normal): 55 psi @ 1500 RPM
 63 psi @ 5000 RPM using 20w50 racing oil
 Recommended Oil 20w50 synthetic racing oil (after break-in)
 Oil Filter: AC Delco part # - UPF35L
 Valve Lash 1/8 turn down for ZZ2572/620. .014" cold and .020" hot for ZZ572/720R
 Fuel: Premium unleaded - 92 (R+M/2) for ZZ2572/620. Race fuel - 110 (R+M/2) for ZZ572/720R
 Maximum Engine Speed: 6000 RPM for ZZ2572/620. 6750 RPM for ZZ572/720R
 Spark Plugs: AC Delco R45XLS for ZZ2572/620. AC Delco R42XLS for ZZ572/720R
 Spark Plug Gap035+
 Firing Order: 1-8-4-3-6-5-7-2

Note: These specifications are in addition to those documented within the short block instructions.

Information may vary with application. All specifications listed are based on the Latest Production Information Available At The Time Of Printing.

ZZ572/620 Service Parts List:

<u>Part #</u>	<u>Quantity</u>	<u>Name</u>	<u>Part #</u>	<u>Quantity</u>	<u>Name</u>
12498792	1	Engine Asm, 572 Long Block	3921912	8	Stud, Vlv Rkr Arm Ball
12499190	1	Engine Asm, Partial	3860038	4	Guide, Vlv Lftr Push Rod
25534368	1	Block Asm, Eng	12366990	8	Cap, Vlv Spr
455005	5	Bolt/Screw, Cr/Shf Brg C (Long)	12366987	4	Valve, Int
15651246	10	Bolt/Screw, Cr/Shf Brg C (Short)	88963128	4	Valve, Exh
88962212	1	Bearing, Cr/Shf	88963935	4	Locator, Vlv Spring
88961556	8	Bearing, Conn Rod (Kit)	88963937	8	Shim, Vlv Spr
88961554	1	Crankshaft	88963933	8	Spring Asm, Vlv
12499434	1	Bearing Kit, Cam/Shf	88963936	8	Seal, Vlv Stem Oil
88962926	8	Rod Asm, Conn	12366992	16	Key, Vlv Stem
6264902	1	Seal-Cr/Shf #5 Brg Cap Oil	88960332	8	Bolt/Screw, Cyl Hd (Long)
10101164	1	Seal Asm-Cr/Shf Rr Oil	88960333	16	Bolt/Screw, Cyl Hd (Medium)
12499212	8	Ring Kit, Pstn	88960334	8	Bolt/Screw, Cyl Hd (Short)
88962925	8	Piston Asm, (W/Pin)	17120060	16	Lifter Asm-Vlv
10126796	1	Bolt/Screw-Cr/Shf Bal	88961558	8	Rod, Exh Vlv Push
12371053	1	Chain Pkg, Timing (Bb Chevy)	88961559	8	Rod, Int Vlv Push
10230954	1	Cover Asm-Eng Frt (W/ Tmg Ind)	25534355	1	Breather, C/Case Vent
88962814	1	Dampener, Torsional	88962074	1	Baffle Asm, Oil Fill
14085759	2	Gasket Asm-Vlv Rkr Cvr	12551397	8	Restrictor-Vlv Lifter Rot
88961561	2	Gasket, Cyl Hd	12551399	1	Retainer-Vlv Lifter
10106407	1	Gasket-Oil Pan	6487779	1	Valve Asm Unit-Cr/Case Vent
10240721	1	Pan Asm-Oil	12341993	1	Cap, Oil Filler Push-In Chrome
12499200	1	Cover, Vlv Rocker Lh *572*	12341988	1	Grommets, Valve Cover
12499200	1	Cover, Vlv Rocker Rh *572*	19131250	1	Pump Asm, Oil (W/ Scrn)
12361323	1	Arm Kit, Valve Rocker Alum Roll	3865886	1	Shaft Asm
5613878	8	Spark Plug	3866604	1	Stud-O/Pmp
3864814	1	Washer-Cr/Shf Bal	88962187	1	Baffle Asm, Oil Pan
88961557	1	Camshaft Asm, Eng	88962919	4	Bolt/Screw, Cyl Hd (Cyl Head Valley)
12499255	2	Head, Cyl			

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ZZ572/720 Service Parts List:

<u>Part #</u>	<u>Quantity</u>	<u>Name</u>	<u>Part #</u>	<u>Quantity</u>	<u>Name</u>
12498825	1	Engine Asm, Partial 572	88961915	14	Washer, Vlv Cover
25534368	1	Block Asm, Eng	88961160	2	Head, Cyl
455005	5	Bolt/Screw, Cr/Shf Brg C (Long)	3921912	8	Stud, Vlv Rkr Arm Ball
15651246	10	Bolt/Screw, Cr/Shf Brg C (Short)	3860038	4	Guide, Vlv Lftr Push Rod
88962212	1	Bearing, Cr/Shf	12366990	8	Cap, Vlv Spr
88961556	8	Bearing, Conn Rod (Kit)	12366987	4	Valve, Int
12499434	1	Bearing Kit, Cam/Shf	88963128	4	Valve, Exh
12508998	5	Bearing-Camshaft	88963935	8	Locator, Vlv Spring
88961554	1	Crankshaft	88963937	8	Shim, Vlv Spr
88963227	8	Piston Asm, (W/Pin)	88963936	8	Seal, Vlv Stem Oil
12499212	8	Ring Kit, Pstn	12366992	16	Key, Vlv Stem
88962926	8	Rod Asm, Conn Kit	88963934	8	Spring Asm, Vlv
6264902	1	Seal-Cr/Shf #5 Brg Cap Oil	88962284	8	Rod, Int Vlv Push
10101164	1	Seal Asm-Cr/Shf Rr Oil	88962283	8	Rod, Exh Vlv Push
12371053	1	Chain Pkg, Timing (Bb Chevy)	25534355	2	Breather, C/Case Vent
10230954	1	Cover Asm-Eng Frt (W/ Tmg Ind)	88962074	2	Baffle Asm, Oil Fill
88962814	1	Dampener, Torsional	12341993	1	Cap, Oil Filler Push-In Chrome
25160561	1	Filter Pkg-Oil	3894337	2	Grommet-Oil Fil Cap
14085759	2	Gasket Asm-Vlv Rkr Cvr	88960332	8	Bolt/Screw, Cyl Hd (Long)
88961561	2	Gasket, Cyl Hd	88960333	16	Bolt/Screw, Cyl Hd (Medium)
10106407	1	Gasket-Oil Pan	88960334	8	Bolt/Screw, Cyl Hd (Short)
10240721	1	Pan Asm-Oil	88962919	4	Bolt/Screw, Cyl Hd (Cyl Hd Valley)
88962920	1	Lifter, Vlv	88962216	1	Camshaft Asm, Eng
12499200	1	Cover, Vlv Rocker Lh *572*	19131250	1	Pump Asm, Oil (W/ Scrn)
12499200	1	Cover, Vlv Rocker Rh *572*	3865886	1	Shaft Asm
12361323	1	Arm Kit, Valve Rocker Alum Roll	3866604	1	Stud-O/Pmp
5613100	8	Plug-Spark	88962187	1	Baffle Asm, Oil Pan
3864814	1	Washer-Cr/Shf Bal			