

ZZ4 TURN KEY ENGINE KIT (12499712) Specifications

Specifications Part Number 88963870

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This "ZZ4 Turn Key Kit" 88963870 documentation should be used in conjunction with the "ZZ4/FB385 Short Block Specifications" 19172279, "ZZ4 Long Block Specifications" 19172321 and the "Serpentine Belt Accessory Drive Package Specifications" 12490896. This documentation is included within the information packet, as it builds on the ZZ4 and Serpentine Belt Accessory Drive Package. Please locate these documents and start there first.

This publication provides general information on components and procedures that may be useful when installing or servicing a ZZ4 Turn Key Engine Kit. Please read this entire publication before starting work. Also, please verify that all of the components listed in the Package Contents section below were in fact shipped with the kit.

The information below is divided into the following sections:

- Package Contents
- Torque Specifications
- ZZ4 Turn Key Engine Kit Assembly Specifications
- Service Parts List

The ZZ4 Turn key Engine Kit includes additional components to the ZZ4 Crate engine assembly which make up the turn key kit. Some key items included are the starter, fuel pump, ignition wires and supports, carburetor, filters and bypass hoses. Specific items and part numbers are listed at the end of these instructions.

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

Observe all safety precautions and warnings in the service manuals when installing the ZZ4 Turn Key Kit in any vehicle. Wear eye protection and appropriate protective clothing. Support the vehicle securely with jack stands 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 don't have the appropriate training, expertise, and tools to perform any part of this conversion safely, this work should be done by a professional.

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TITLE ZZ4 Turn Key Engine Kit Specifications	REV 07FE08	PART NO. 88963870	PAGE 1 OF 15
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ALL INFORMATION WITHIN ABOVE BORDER TO BE PRINTED EXACTLY AS SHOWN ON 8 1/2x11 WHITE 16 POUND BOND PAPER, PRINT ON BOTH SIDES, EXCLUDING TEMPLATES. TO BE UNITIZED IN ACCORDANCE WITH GM'S POS SPECIFICATIONS.	DATE	REVISION	AUTH
	15SE04	Initial Release-Jeff Kremkow	
	29OC04	Revised-Jeff Kremkow	

Package Contents:

Item	Description	Qty.	GM Part Number
1	Engine, ZZ4 Long Block Assembly	1	24502609 (ZZ4)
2	Kit, Serpentine front dress with A/C	1	12497698
3	Pump, Mechanical fuel with gasket	1	6415325
4	Push rod, fuel pump	1	3704817
5	Plate, fuel mounting	1	3719599
6	Gasket, fuel pump plate	1	12560223
7	Bolts, fuel pump	2	88891769
8	Bolts, fuel pump plate	2	9440033
9	Assembly, Air cleaner	1	12342080
10	Valve, PCV (Positive Crankcase Ventilation)	1	6487779
11	Hose, PCV	1	88964766
12	Carburetor, Holley 750 cfm	1	12485506
13	Breather	1	12341989
14	Motor, Starter	1	10465143
15	Bolt, starter (short)	1	14097279
16	Bolt, starter (long)	1	14097278
17	Hose, bypass	1	1485552
18	Fitting, bypass hose	2	6272959
19	Clamp, bypass hose	2	1470030
20	Wires, spark plug	1	12361057
21	Supports, sparkplug wires	1	12496806
22	Plug, 3/8" NPT (National Pipe Thread) internal hex	1	14090911
23	Plug, 1/2" NPT internal hex	1	25522466
24	Adapter, Oil filter	1	3952301
25	Filter, Oil	1	25013454
26	Bolts, oil filter adapter	2	3951644
27	Bolt, damper	1	3815933
28	Washer, damper	1	14001829
29	Instruction sheet	1	88963870
30	Bolt Lift Bracket	2	88963065

ZZ4 Turnkey Engine Torque specifications:

*Note: The torque values below are in addition to those documented within the ZZ4 Crate Engine and Serpentine Belt Accessory Drive Package instructions.

Fastener	Torque (lb.ft.)	Torque (Nm)	Thread Treatment	Notes
Bolts, Fuel pump plate	9	12.0 +/- 2.0	Light Oil	
Bolts, Fuel pump	30	40.0 +/- 5.0	Light Oil	
Bolts, Carburetor	20	27	None	
Bolts, Starter motor	30	40	Light Oil	
Bolts, Lift bracket	35	47.5	None	
Bolts, Wire support	9	12 +/- 2.0	None	
Bolts, Oil filter adapter	17	23	Light Oil	
Bolt, Damper	63	85.5	Light Oil	

NOTE: The following procedures may be performed before during or after your engine is installed. Your application will help you determine when the procedure should be performed.

Fuel Pump Installation:

Installation is the same as for original equipment cylinder mechanical fuel pumps.

Remove fuel pump block off plate from engine block.

Clean off any residual gasket material from block.

Slide fuel pump pushrod into engine block, and then install fuel pump mounting plate, gasket and bolts.

Install fuel pump, gasket and bolts. Ensure fuel pump pushrod is in correct contact with the top of the fuel pump lever. Connect fuel supply and return lines to pump.

Carburetor, Breather, PCV and Air cleaner installation

Push supplied breather into grommet on driver side valve cover.

Install carburetor and gasket onto intake manifold, using hardware supplied with carburetor.

Push PCV valve into passenger side valve cover grommet.

Connect PCV hose between PCV valve and large port on carburetor. Note If vehicle is using vacuum assisted power brakes it may be necessary to find a vacuum source for brake booster.

Install double ended threaded rod into top center of the carburetor, then install air cleaner assembly and gasket.

Secure air cleaner assembly with the wing nut.

Bypass Hose and Plugs

*Note: Before installing bypass hose be sure you have the correct rotation water pump installed on your engine.

The correct water pump is supplied with the Serpentine Belt Accessory Drive Package.

Install 1 bypass hose fitting into intake manifold and one into water pump.

Take the supplied bypass hose and cut to size, to fit between the water pump and intake manifold fittings.

Install bypass hose and secure with supplied hose clamps.

Starter Motor Installation

Bolt starter to engine block using supplied bolts gear end of starter will mesh with flexplate.

Connect wires to starter. (see instructions enclosed in starter box)

Lift Bracket Kit Installation

Install one bracket and bolt onto front of passenger side cylinder head.

Install the other bracket and bolt onto the rear of the drivers side head.

Note: If installing the lift brackets before the spark plug wires and brackets you will have to remove the rear lift bracket when installing the driver side spark plug wire support.

Spark plug wires and support installation

Install spark plug wires from distributor cap to spark plugs. See chart below.

V-8 Small Block 90° Boots

Cylinder 1 : 39.0" Cylinder 2 : 41.5"

Cylinder 3 : 37.0" Cylinder 4 : 35.5"

Cylinder 5 : 32.0" Cylinder 6 : 31.5"

Cylinder 7: 30.0" Cylinder 8 : 29.0"

Install large metal support brackets to the back of the cylinder heads. Install small metal support brackets to the sides of the head. Route the spark plug wires into the plastic clips and slide clips onto the metal supports.

TITLE	ZZ4 Turn Key Engine Kit Specifications	REV	07FE08	PARTNO.	88963870	PAGE	3	OF	15
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Oil filter adapter and filter installation

Be sure oil filter adapter and mounting location are clean and free of burrs. Place adapter into mounting location and install mounting bolts. Install bolts evenly and torque to 17lbft. Install oil filter onto oil filter adapter.

Crankshaft damper Bolt and Washer

Before installing crank pulley, install crankshaft washer and bolt through damper into crankshaft. Hold crankshaft in place torque bolt to 63lbft

ZZ4 Turnkey Engine Specifications:

*Note: The specifications below are in addition to those documented within ZZ4 Crate Engine and Serpentine Belt Accessory Drive Package instructions.

Component	Characteristics
Pump, Fuel	Heavy Duty mechanical fuel pump. This high capacity pump has a removable lower housing that can be rotated to position the inlet and outlet as required by the chassis and plumbing.
Carburetor	Vacuum secondary, automatic electric choke, dual feed, center hung fuel bowls. Includes gasket, mounting studs and nuts.
Motor, Starter	Lightweight high performance starter originally used on Camaro Z28 LT-1. Can be used on any big or small block Chevy V8 WITH 12 3/4" (153 tooth) flywheel.
Wires, Spark Plug	Performance spark plug wire set, with GM Performance Parts logo and 90° spark plug boots.

**Information may vary with application. All specifications listed are based on the latest production information available at the time of printing.

ZZ4 Turnkey Engine Service Parts List

GM Part No.	Description	Qty/ Engine
6415325	Pump, Mechanical fuel w/ gasket	1
3704817	Pushrod, fuel pump	1
3719599	Plate, fuel pump mounting	1
12551502	Gasket, fuel pump plate	1
14081295	Bolts, fuel pump	2
9440033	Bolts, fuel pump plate	2
12342080	Assembly, Air cleaner	1
6421746	Element, Air cleaner	1
6487779	Valve, PCV	1
88964766	Hose, PCV	1
12485506	Carburetor, Holley 750 cfm (vacuum secondary)	1
12341989	Breather	1
10465143	Motor, Starter	1
14097279	Bolt, starter (short)	1
14097278	Bolt, starter (long)	1
1485552	Hose, bypass	1
6272959	Fitting, bypass hose	2
1470030	Clamp, heater hose	2
12361057	Wires, spark plug	1
12496806	Support Kit , spark plug wire	1
14090911	Plug, 3/8" NPT internal hex	1
25522466	Plug, 1/2" NPT internal hex	1
3952301	Adapter, oil filter	1
25013454	Filter, oil	1
88963868	Instruction Sheet	1