

The Burtz Model A Engine Kit

Introduction

Congratulations on your purchase of the Burtz Engine Kit (Cylinder Block, Crankshaft, and Connecting Rods) which has many improvements over the original stock Model A Engine.

This new engine can be built as stock, or it can be built for higher performance standards. We ask that you (or your engine builder) familiarize yourself with the unique aspects of this block kit before attempting to undertake the build.

We strongly recommend that you have your new engine built by a professional mechanic that has the knowledge, experience, and equipment to ensure a product that they can guarantee.

A step-by-step “Builder’s Guide” and assembly recommendations can be found at www.modelaengine.com.

Read this “Overview to the Burtz Block” in its entirety prior to undertaking work on your new engine.

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I. Inspection of Parts

Please inspect your new engine parts thoroughly. Be sure that all of the following parts are included.

Parts List:

Cylinder Block

Pcs: 1; Cylinder Block with 4 hard exhaust seats, 5 cam bearings installed.

Pcs: 5; Main Caps (each with studs, nuts and 2 locating dowel pins) installed.

Pcs: 4; 1/2-20 UNF tall Castle Nuts for top #1 and #3 main bearing studs (installed on temporary #1 & #3 main studs).

The following parts are packed separately:

Pcs: 4; Replacement Studs (7/16 UNF x 1/2 UNF) “stepped”; for #1 and #3 Main bearing caps.

Pcs: 4; 7/16-20 UNF 12-point nuts for main bearing studs #1 and #3.

Pcs: 2; 1/2-13x3/8 UNC setscrew main oil galley end plug.

Pcs: 2; 3/8-16x1/4 UNC setscrew oil galley plug.

Pcs: 1; 7/16-14x3/8 UNC oil galley plug.

Pcs: 1; 1/8-27 NPT slotted plug.

Pcs: 3; thrust washer half.

Pcs: 6; 8-32x3/8 Phillips flat head screw - brass - for thrust washer halves.

Crankshaft

ONE dynamically balanced crankshaft with 4 setscrew oil passage plugs.

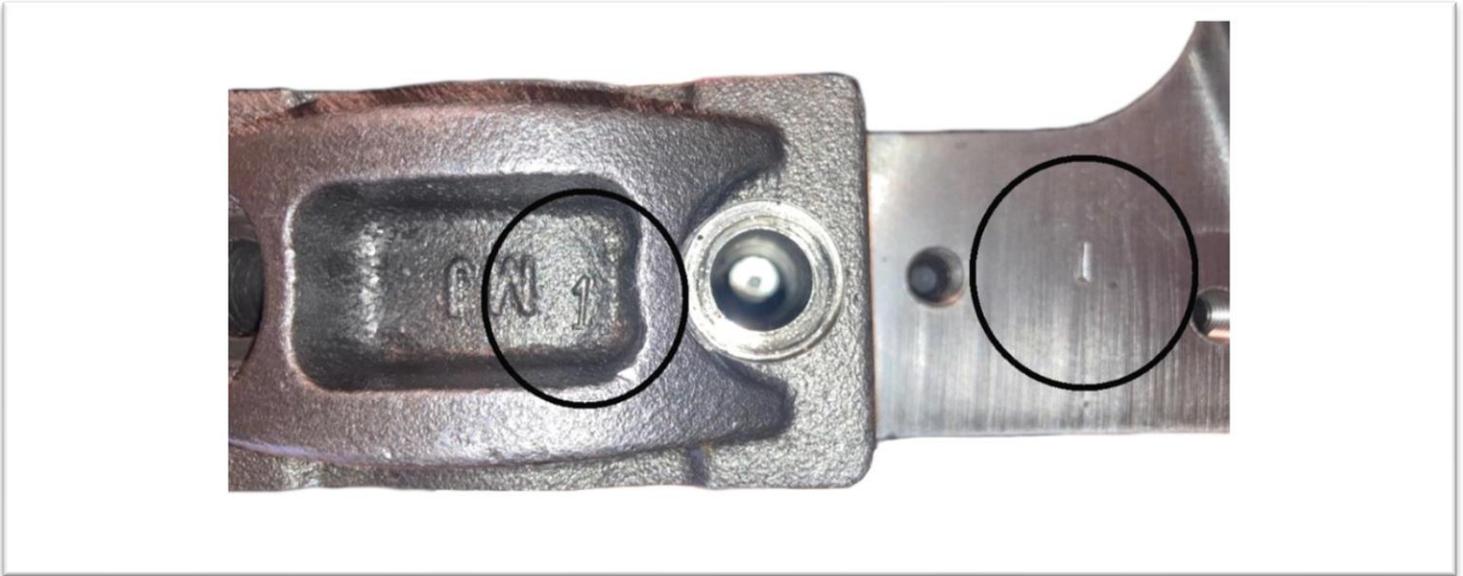
Connecting Rods

FOUR balanced connecting rods each with wrist pin bushing, and 2 dowel pins at cap interface installed; two, 12-point bolts (requires 3/8” thin walled, deep well socket for tightening).

Inspection of Parts (continued);

Notes

During the inspection of parts, notice that the main caps and connecting rod caps all have match-marks which pair them respectively to the block and connecting rods. Be sure to identify these marks before disassembly.



Note the #1, #3 main cap have four temporary studs which should be replaced with the separately packed four (4) permanent “stepped” studs UNF 1/2” to UNF 7/16” studs (see below). After installing the permanent studs, the temporary studs can be discarded.



II. Cleanliness and Detailing

The new engine parts are dirty and must be thoroughly cleaned before assembly. Light oil has been applied at the factory to prevent corrosion and has attracted dirt and dust. Oil passages and threaded holes may have machining chips and grit that must be removed. When cleaning your new parts, please take note of all drilled oil passages and where they go. For a long engine life, all parts need to be “professionally cleaned” in a solvent wash tank and with an air pressure system for cleaning oil passages and dirt collection points.

III. Add-on Parts

Interfaces on the new cylinder block and crankshaft are identical to stock (refer to Ford drawing A-6015 for the cylinder block specifications). Parts that fit an original Model A engine will fit the new cylinder block and crankshaft.

All threads in the new engine parts are either UNC, UNF, or NPT; there are no metric threads.

Add-on parts, whether new, used, NOS, or aftermarket, need to be cleaned and inspected for flatness. Flatness is critical at the cylinder block/head interface, cylinder block/manifold interface, and cylinder block/oil pan interface.

IV. Standard “Off the Shelf” Parts Required for the Build

Main Bearings: 8 pairs; Type: Clevite CB-745P or Federal Mogul 2020cp; both types are tri-metal. Use standard size.

Connecting Rod Bearings: 4 pairs; Type: Clevite CB-745P or Federal Mogul 2020cp. Both types are tri-metal. Use standard size.

Rear Main Seal: **National Industrial Seals** (refer to the Builder’s Guide for up-to-date recommendations).

V. Cam Bearings

The engine block comes fitted with 5 cam bearings and can be set up to run with either a 3-bearing camshaft or a 5-bearing camshaft. The #1, #3 and #5 cam bearings have oil passages which direct pressurized oil flow to the cam journal surfaces. If you plan to install a 3-bearing cam, the cam bearings are already pre-drilled for the #1, #3 and #5 journals so nothing further is required.

If you are planning to install a 5-bearing camshaft, you will need to drill an oil passage through the #2 and #4 upper and lower cam bearing surfaces to allow oil to flow to the cam journals (#2 and #4). Refer to the “Builder’s Guide” section at www.modelaengine.com for instructions on how to set up the block for a 5-bearing cam installation.

VI. Thrust Washers

The kit provides thrust washers to be installed at the #5 rear main cap location. There are 3 “half” thrust washers, each with two (2) screw fasteners. Two of the thrust washers are fitted to the front and rear of the cap and the third is attached to the rear of the block just below the number five main bearing saddle. Refer to the pictures below.



Rear of number 5 Cap and Block



Forward surface of number 5 Cap

VII. Oil Pressure System

The Burtz Block has a closed oil pressure system for bearing lubrication at the main caps, connecting rods and camshaft journal surfaces.

There are two access points beneath the valve chamber cover through two bolts taps (see picture below). These passages can be used for an oil pressure gauge to monitor pressure.

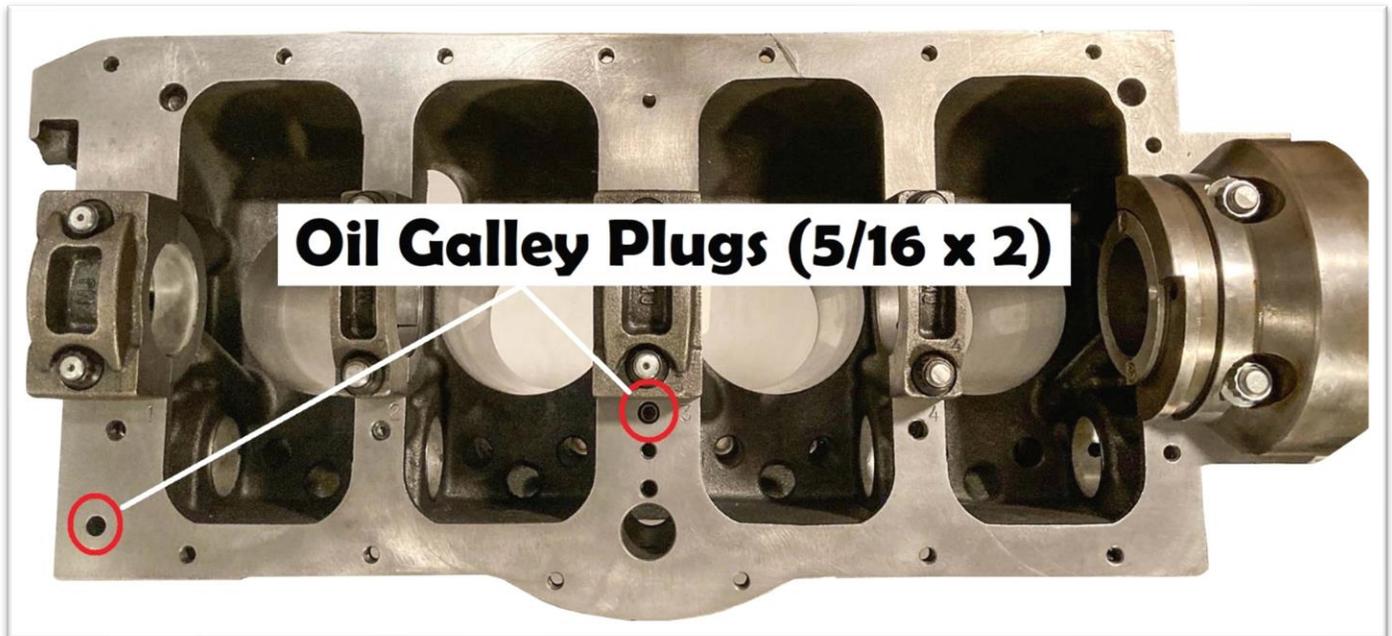


Oil Galley Plugs: There are 5 oil galley plugs that must be in place to maintain oil pressure.

The main galley runs front to rear and is plugged on each end with UNC 1/2"- 13 plugs (2); refer to pictures below.



The bottom of the block has two (2) UNC 3/8"-16 plugs which are in direct communication with the main galley (see below).



The right side of the block has 1 UNC 7/16-14 plug located on the mating surface for the timing gear cover. Also note the UNC 7/16"-14 threaded bolt hole for the bottom of the timing gear cover communicates with the pressurized oil system and can be utilized as a clean oil return point for an external filter system (refer to www.modelaengines.com for more information).



VIII. Warranty Guarantee and Limited Liability

ALLIED CLASSIC INC., warrants this product for one year to the original purchaser from the date of purchase and is limited to manufacturing defects only. If the product is used for racing or competition or has been modified in any way, the warranty is void. Wear and breakage are not covered under any circumstances. If the product shows, in our opinion, evidence of being used or installed contrary to the instructions and/or subjected to improper handling, packaging, or shipping by the customer, it will not be covered by our limited warranty. The liability to Allied Classic for losses or damages arising out of any cause, whatsoever is limited to repair or replacement, at our option only. Allied Classic will not be liable for any consequential or incidental damages. Some states do not allow the exclusion or limitation of consequential or incidental damages, so the above limitation or exclusion may not apply to you.

The new Model A engine kit and flywheel are designed to be replacement parts for the original frail parts and are only to be used in automobiles that are licensed and used on the public streets and highways at legal speeds. The new parts are not intended to be used in airplanes, racing, off-road, endurance trials, or in any other high-speed contest or application. We accept no liability and there is no guarantee for parts that fail from miss-installation, modification, or misuse.