New Model A Engine Project - Update 19 August 2019
by Terry Burtz, Campbell California

Updates

In case someone reads this without seeing the article on the new Model A engine, the article can be found at: http://www.modelaengine.com
If anyone has a question, concern, comment, or suggestion, please let me know at model.a.engine@hotmail.com and I'll do my best to resolve the issue.

New Engine

This project started in 2007 and stalled in 2015 because of sky-rocketing cost and the lack of quality control at foundries in California.
Previous updates, pictures, and videos can be found at: http://www.modelaengine.com
Also see: https://www.fordbarn.com/forum/showthread.php?t=265782 for additional information.

I use the term "new engine" loosely because the only new parts are the **cylinder block, crankshaft, and connecting rods**. All interfaces for mating parts are identical to original and have been documented from original Ford drawings.

In the 2 July 2019 update, I was happy to state that the project was resurrected and I would be working with others to have the "new engine" manufactured in China at a factory that manufactures OEM parts for several customers.

The others that I will be working with include John, Bill, and Leonard. John has a company in Hong Kong and Virginia and has over 30 years of experience in having things manufactured in China and imported into the USA. One of John's products is a vintage cast iron 4-cylinder 3-main L-head cylinder block similar to a Model A cylinder block. John will be responsible for manufacturing and quality assurance. Bill will be responsible for accounting and disbursements. Leonard will be responsible for receiving orders and shipping the "new engines" to customers, and maintaining a list that ties customer names to the hidden serial number (part of quality assurance). I am the 4th member of the team and I will be responsible for everything related to engineering.

The 4 of us met at Leonard's home in Santa Ana, CA on the morning of Friday, August 16 to get to know each other and discuss our working relationships, and responsibilities. Leonard and his wife Kay were preparing for an annual meeting where the members of the Orange County Model A club, Southern California Oldsmobile Club and Antique Engine Club get together for a fun and educational meeting on Saturday, August 17.

After meeting with Leonard on Friday, John, Bill, and I retreated to the hotel where we were staying to have a 5 hour technical discussion regarding the new engine project.

Many things were discussed including surface finishes, dimensional tolerances to 4 digits in certain areas, casting wall thickness, press and slip fits for dowel pins, hard exhaust valve seats, replaceable camshaft bearings, balancing, different alloys of iron (cast and ductile) that will be used for different parts, small parts that will be included like the dowel pins that locate the flywheel housing to the cylinder block, main bearing studs, and nuts, dowel pins in the crankshaft where the flywheel is attached, woodruff key for crankshaft timing gear, connecting rod wristpin bushing, connecting rod bolts, and much more. Also discussed is the need for verification of design by third parties before the factory is turned on for production.

We talked about asking for a small quantity (6 sets of parts at most) for evaluation before production. One set of parts will be used for display and shown with pan rail up so people can see the 5 main bearings, crankshaft counterweights on both sides of each connecting rod, bosses for oil passages, rear main seal design, and many other features. The other sets of parts will be built by others for testing and evaluation.

John is a hands-on, grease under the fingernails type of guy who has a passion for detail and we can talk for hours about everything from Chinese culture and their way of doing things to the smallest technical detail.

On Saturday at Leonard's, I gave about an hour-long presentation to the attendees regarding the "new engine" which included features of the new design, history of problems with working with foundries in California, how the project stalled in 2015 because of the lack of quality control and spiraling cost increases, and how the project was resurrected when Leonard put me in contact with John. After I spoke, there was a question and answer discussion where the audience asked technical questions and I was happy to answer them.

This photo was taken at the meeting while I was talking.

I am wearing the straw hat by the "no speed limit" sign and John is wearing the white shirt and standing in front of the black toolbox.

John will be traveling to China in early September for technical discussions with the factory. If any questions arise, I am a phone call or Email away.

Even with the added tariff on auto parts from China, our goal is to provide a quality product at an affordable price that is competitive with the cost of a rebuilt engine.

A deposit to cover 1/2 of the tooling cost has been made, and tooling is now being designed.

Cylinder Block

As mentioned in the 2 July 2019 update, 2 cylinder blocks were sent to China. One was original and the other was the one good casting made by Lodi Iron Works. In addition, SolidWorks files of the internal cores and machining were sent.

Although existing tooling has made cylinder blocks in 2 different foundries in California, all new tooling will be made in China. The reason for this is because the factory in China needs to assume full responsibility. The factory in China has been told that my SolidWorks files of the interior are for reference and can be modified as needed, however the SolidWorks file for machining cannot be modified. If the factory in China were to use my tooling and/or interior SolidWorks files as is and had a problem, it could be argued that we gave them direction and that I was responsible for the problem.

Connecting Rod, Main Caps, and Crankshaft

These parts are much simpler than the cylinder block and they will be made of malleable iron. The 1932 Ford V-8 crankshaft was cast malleable iron, and most modern engines use malleable iron crankshafts.

SolidWorks models have been provided and the instructions to the factory in China is to follow the SolidWorks models.

Dimensional and balancing tolerances are being specified to be equal or exceed the tolerances on the Ford drawings.

Next Update

We are hopeful that we will have the first machined samples available by late fall and will send updates including pictures as the project matures.

Terry Burtz, Campbell, Calif.