



ROADRUNNER ENGINEERING NEWSLETTER

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DECEMBER, 2014

Happy New Year!

1994 - 2014



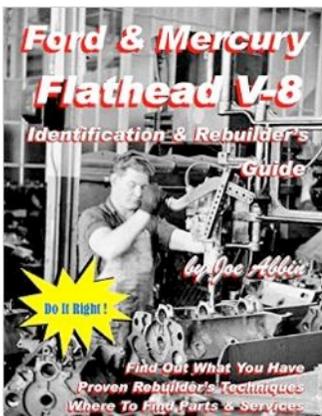
Inside This Issue

- What's Happening - Kits almost sold out again and new book is now available!
- Tech Article of the Month - Ford Flathead Crankshafts material
- Question of the Month - Crankshafts

What's Happening?

Roadrunner flathead blower kits sold out in 2012 and 2013 as reported previously. The combination of performance, appearance and price of the Roadrunner kits has made them the overwhelming favorite of flathead fans since 1997. **A limited anniversary production run is in progress, but is almost sold out!**

Alternators and automatic belt tensioners will be available again in January 2015. Call or email roadrunnerengr@msn.com for updates.



The new book is out! *Ford & Mercury Flathead V-8 Identification and Rebuilder's Guide* went on sale in August. Whether stock or modified, this 184 page book will help you to determine what you have and what you need to build a quality engine that meets your performance and appearance goals. See the Table of Contents and a preview on www.roadrunnerengineering.com. Click on "Buy the Book." Books can be purchased online at the above website (free domestic shipping) or from the Early Ford V-8 Foundation, Amazon, and other fine book sellers.



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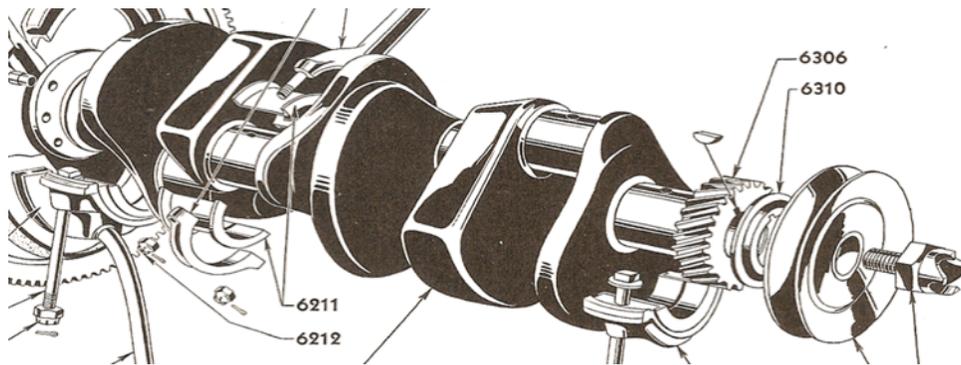
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335 HP Flathead Ford V-8 Performance Handbook reprints are still available. Get your copy while you can from the above website or other sources listed there.

Blown Flathead has been sold out for three years although used copies are available from various sources for really big bucks. The original \$11.95 price was a great investment! Don't be left out of the market on the new books.

Ford Flathead Crankshafts



How Was This Typical Ford Flathead Crankshaft Made and From What Material?

Ford literature notes that early (1932-1934) V-8 crankshafts were **forged steel**. Likewise all the relevant brochures, service bulletins and service manuals that I have examined touted that 1935 and later flathead V-8 crankshafts were cast steel. Despite the Ford literature, some claim that the later flathead crankshafts were cast Iron rather than **cast steel**. Although cast steel and cast Iron (particularly nodular cast Iron) may have similar properties, cast steel is generally superior in strength and toughness, although its high melting point makes it more expensive to cast. Cast steel is also more easily welded (think welding material to the rod journals to increase the stroke) than cast Iron.



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Iron vs. Steel

Iron is a basic element. Iron is generally not used in its pure form but is alloyed or mixed with other elements. Steel is mostly Iron alloyed with other elements. Casting requires melting which imposes limitations on the amount and type of alloying materials. So what is the difference between cast “iron” alloys and cast “steel” alloys? The differences are defined by the alloying elements, their quantities, and the casting process.

Cast Iron vs. Cast Steel

Cast Iron alloys/mixtures contain more carbon, as much as 2.3% to 4% carbon in solution and/or in varying particulate forms. These particles include carbon and carbon compound platelets or spherical nodules. Iron with carbon/graphite platelets is called “grey” cast Iron, which is hard and brittle but relatively easy to machine and naturally slippery and thus is favored for engine blocks. “Nodular” or “ductile” cast Iron is made by adding Magnesium or Cerium which promotes the formation of **spherical** nodules of pure carbon/carbon compounds rather than platelets. Nodular cast Iron was not invented until 1948, thus precluding factory use in most flatheads. Each alloy has their pros and cons with respect to wear, hardness, strength, ductility, and fabrication characteristics (e.g. weldability, machinability, etc.). Cast steel and nodular cast Iron are definitely more ductile (less susceptible to brittle fracture, i.e. tougher) than grey cast Iron and thus are favored for parts like crankshafts (and camshafts) that can flex.

As noted previously, Ford literature indicates that the 1934 and earlier flathead crankshafts and camshafts were forged steel, and then cast steel after 1934. Flathead blocks were specified as grey cast iron and the rods as forged steel.

One of my customers had a metallurgical analysis run on a 1946-1948 Ford crankshaft that revealed 94.4% Iron, 0.52% Carbon, 1% Silicon, various other elements, and no Magnesium. Cast Iron of any type would contain much larger quantities of Carbon (more than 2%). This analysis indicates that the crankshaft was indeed steel.



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Question of the Month

Flathead Ford Crankshaft Interchangeability

Question: My machine shop said my 1932 crankshaft was too worn to be refurbished. Will I have to find another 1932 crankshaft or will other crankshafts interchange?

Answer: I believe you can interchange any of the crankshafts with the 1.999" mains up through early 1936 (prior to the introduction of the insert bearing versions with the larger 2.399" mains). A side-by-side comparison would be necessary to be sure. Even later crankshafts might be used if they can be machined to replicate the 1932 version.



Roadrunner Supercharger Kits for the Ford Flathead

The Roadrunner supercharger kits for the flathead are by far the best sellers on the market. The biggest reason is they work; the most powerful and quickest street flatheads (see previous newsnotes) are equipped with Roadrunner kits. Many record holding racing flatheads are also Roadrunner equipped. Each kit is custom engineering for the application. On top of function, the Roadrunner kits maintain the timeless flathead era look. And last but certainly not least, the Roadrunner kits are very competitively priced, often half the price of other units. The low pricing is possible because the Roadrunner kits utilize the high production Weiland superchargers. Great performance, good looks, and competitive pricing, Roadrunner supercharger kits have it all!"