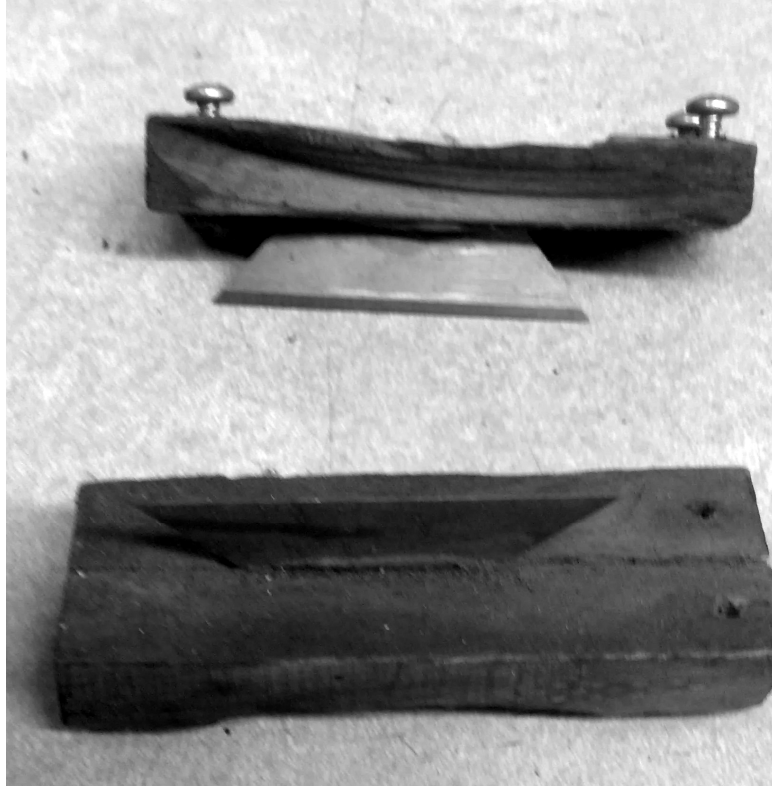


Poor Man's Balancer (part two).
Tom Carnegie

Rule B2q of the Montana 500 states:
*“There must be one stock piston, rod
and cap assembly in the engine. Excep-
tions: Cap may be drilled for dipper,
and grooved for oil. The other three (3)
assemblies can be balanced to this
one.”*

I think that most folks will agree that a well balanced motor is a happy motor, but balancing three rods to a fourth one can be a bit tricky. This is how I do it.

The equipment you need will be a .750” wrist pin, a digital postal scale and a set of knife edges. A flathead for V-8 wrist pin, circa 1948 is .750” and should be easily obtainable. Most cheap postal scales have .1 ounce increments, which is OK, but one gram increments would be better. .1 ounce is 2.8 grams. The knife edges that I use are made from box knife blades embedded into a piece of wood.



***Box knife blades embedded into wood.
There are three screws to level the blades.***

First, I find four fairly light rods to begin with. I then have them babbitted, sized and otherwise finished the way I intend to run them. I then weigh each on the postal scale. At the time of this writing a suitable scale is available at office supply

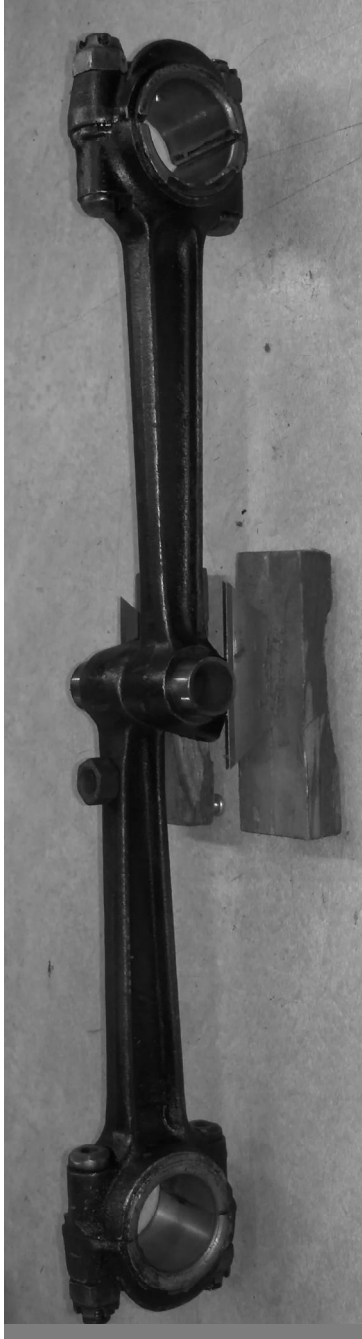
stores for less than \$100.00. The lightest rod will become the “standard”. Material is removed from the three “heavy” rods until their weight approaches that of the light rod. Ultimately, we want the overall weight of all of the rods to be the same. Be careful to not get grit into the babbitt if you grind on the rods.

Next thing is to ascertain that the light rod has the lightest “big end”. The big end is the end that goes onto the crank pin. Usually the big end of the light rod will be the lightest, but if it is not, there are a few tricks that you can do to make it relatively lighter. One trick is to turn the outside diameter of the babbitt down. I do this by clamping the rod onto a mandrel and turning the babbitt off on a metal lathe. Another is to use heavier rod cap bolts in the heavy rods. Rule D2 states: Rod bolts and nuts choice (are optional). One

trick that I have seen employed but don't approve of is to add weight, usually in the form of a bead of weld to make the heavier rods heavier, if needed. It seems to me that this practice could weaken or distort the rod or damage the babbitt.

I have tried various methods to weigh the big ends of the rods. One popular way is to support the little end of the rod with a string, and weigh the big end on the scale. This works, sort of, but where the fulcrum point is makes a difference and is hard to get exactly the same on each rod. Here is a description of the process that I use to determine if the big ends of two rods are the same weight.

Put the small end of the standard rod and one heavy rod onto a common wrist pin. As I mentioned before, flat-head Ford V-8 wrist pins are .750" in



Rods on knife edges. Note nut used to balance the rods.

diameter. The stock Model T wrist pin is .740" in diameter, so the T rods will "grip" nicely to the V-8 wrist pin without any sort of clamp bolt. Set up the two rods so that each big end is extending 180 degrees from the other big end. Then put the wrist pin onto a set of knife edges. The heavier big end will drop. If the heavy rod drops, more weight needs to be removed from it.

Now the trick, and it is a bit tricky, is to get the rods to all weigh the same and at the same time get the big ends to weigh the same. If the entire rods all weigh the same and the big ends all weigh the same, the rods are balanced. You may want to practice on a set of junk rods that you don't care too much about to get a feel for the process. If you do this carefully you will have a well balanced and happy set of rods.