“No Thanks, I Don’t Dip.”

Gary Tillstrom

Living in the part of the country where 50% of all blue jeans have that familiar “circle” in one back pocket might lead you to believe that this is about a subject completely unrelated to the T. Not so.

I’m referring to rod dippers. The little metal pieces that some folks swear by. Firstly, let me state that there are really only two types of products brought to any market. There are the products people swear by and then there are the ones they swear at. In some rare circumstances it’s actually the same product. The Model T was actually a pretty good example of this rare “by-at” market phenomenon.

The dippers sold by the T vendors today are actually Chevrolet rod dippers originally designed for use on the 194 and 216 cubic inch six cylinders. These worked well in the Chevy “stove bolt” motor as there are nozzles pointed directly at them and with each rotation, oil is squirted under pressure (15-30 PSI) directly into the scoop. I’m not sure a 216 with clean oil could ever actually be worn out either; they were a testament to Chevrolet engineering efforts.

If you’re planning to use these dippers in your model T, I would suggest you weld the scoop to the base first. The dipper is of two-piece construction with the scoop being held in place by bent tabs and a series of very poor tack welds, look closely and you’ll see what I’m talking about. These have been known to let loose on occasion. Imagine what one of these scoops could do when making high-speed contact with a magnet or your newly wound field coil. A five-minute date with the mig welder is cheap insurance. Before you scoff at this recommendation to weld them consider that they were never designed to absorb the impact of the scoop coming into contact with a puddle, which will happen upon start up when the rod trough is full of oil. The scoop never came into direct contact (impact) with the oil in the pan on the Chevrolet.

The controversial part of a rod dipper is that from an engineering standpoint they aren't needed in this application for a couple of valid reasons.

- They aren't needed based on size of the bearings in question.
- Unlike the Chevrolet six cylinder examples, there is no supply of oil under pressure being squirted at the T rod.

If your going to run dippers it means your going to be drilling a hole in the cap and if your buying rods from a T vendor they have probably been "X'ed" which has now removed 9% of the available bearing area. The consensus dating back to the railroad days for bearings the size of T rod bearings is that oil holes and grooves are not needed or even desirable.

The main bearings however are a different story and require both oil holes and grooves because of width, not diameter. One will notice that both the hole and groove for the mains are in the block and not the cap. That is because the **most desired place for any oil provision is in the unloaded portion of the bearing** (in the case of the main bearings, the caps carry the load).

When it comes to oil provisions for the rods there are all kinds of ideas with regard to "grooving the babbit". Ask ten people where the groove should be and you'll likely get ten different answers. Remember, the ideal location for oil provision is in the unloaded portion of the bearing. The absolute worst possible location for a groove is in an area that is heavily loaded! Here's the rub (no pun intended), both the top of the rod and the bottom of the cap carry loads and they alternate with each stroke. Admittedly, the rod portion is loaded much heavier than the cap and if you absolutely have to run dippers for peace of mind then the cap is the area to modify. When loaded heavily, instead of the bearing "hydroplaning" on a thin film of oil on the crankpin, the introduction of grooves in the load carrying portion of the bearing serves to provide an escape path for the very oil we're trying to keep in there allowing it to be squished out.

The engineering world in the 1920's knew this and Ford depended on oil collection at the parting line (unloaded portion of bearing) between the rod and cap rather than to cut grooves. This collection of oil renews the film on the pin each time it rotated. The rod is also oiled at the sides where in contact with the radius on the crank pin. Notice small splash type engines such as lawnmowers don't have holes or grooves for the same reason that the T doesn't (bearing size). Go ahead and count on one hand how many times you've taken up a rod in a lawnmower.

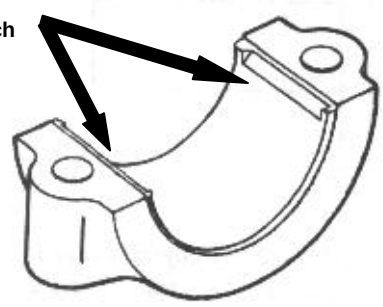
Excessive heat is the real destroyer of these bearings as babbit gives up approximately ½ of its compressive strength when elevated only 50 degrees above design. If an adequate supply of oil is available, the heat problem goes away. The elevated heat problem has the potential to become severe when your asking less bearing area to carry the same load as it had prior to size reduction. If you think less bearing area is the way to go, start adding holes and grooves.

To improve the oiling drawbacks to the T there have been many modifications developed over the years. Ford even built the late rods with a built in dipper and a hole for oil. I've never found a Ford Service Bulletin that talks about "greatly increased bearing life" due to the new style rod cap. Ford was actually quiet about this.

There are some ideas that are actually beneficial and serve to solve the problem of having enough oil up front where it's needed. If enough oil is in the trough to begin with, there is no need for the dipper. I believe in:

- An outside oil line. The bigger the better.
- A dam welded in place behind the 4th rod (to raise the oil level) at all the rod troughs. No need to get carried away here, ½ inch is plenty.
- Grind grooves in the pan cover retainers between the bolt holes. This allows the oil to run under them and into the 1st dip as opposed to alongside trying to find its way in between the 2nd and 3rd dip.
- Bevel the parting lines of both the rod and cap. This allows the maintaining of a "wedge" of oil in the unloaded portion of the bearing for the renewal of the oil film on the crankpin.

Bevel babbit at 45 degrees within 1/8th inch from the ends as shown.



Main cap illustrated, rod cap similar.

The choice to run dippers, drill caps and cut oil grooves or make any modification is up to each of us to decide for ourselves. Before modifying any part of your T, look at the potential risk as opposed to possible rewards. When it comes to dipping, I'm choosing not to; I think it's a nasty habit. ***Gary***