

Fitting A New Crank

An archaic use of the word "crank" is to describe a bad tempered person: one whose disposition is driven by frustration and angered by a recognition of one's ignorance. The following guide is written to encourage those unfamiliar with the pitfalls of fitting a new crankshaft to a MMM engine and to provide "shafts" of enlightenment in a journey away from distemper.

New Crankshafts:

After market crankshafts for the MMM cars have been made for over half a century. Blueprints in my archive contain prints of Laystall cranks for K3 and P type dating from 1946. Over the last three decades, both Arrow and Phoenix have made them for prewar MG's. I am more familiar with Phoenix crankshafts, having fitted them to over a dozen engines over the years, and will confine my comments to fitting cranks of this manufacture.

The Phoenix cranks for both the six cylinder K,L, and N and the four cylinder PA and PB all differ from the original design:

1. The Phoenix cranks are counterbalanced and provide both reduced bearing loads and smoother operation. This is, however, at the expense of increased inertial loads.
2. The front and inboard bearings are of larger diameter (1.750") providing both additional strength and resistance to bend and twist.
3. They are manufactured from a better steel alloy (EN40B) and have undergone sequential heat treatment and stress relief to resist fatigue.
4. Incorporate a modern rear lip seal to replace the reverse acme thread of the original.

The Front Main Bearing:

Because the new front crank journal has been increased from the original 1.625" to 1.750", a new spigot bearing, also called bearing sleeve, needs to

be machined to accept room for babbitt. Additionally, the front housing must be modified to accept the new sleeve. This bearing sleeve may be machined from either bearing bronze C932, or steel, SAE 1020/1025. If you choose to deviate from either of these two options, you must insure that they accept tinning with ease. Avoid aluminum bronzes.

The geometry of the new sleeve will be identical to the original except with changes to insure a .050" bearing thickness and room for an oil trough.

1. The OD should be changed to: 2.050"
2. The ID should be changed to: 1.850"
3. Note: Do not machine the bearing retaining hole at this time.

The front housing bore must be altered to accept the enlarged sleeve bearing. This operation proceeds in three steps: set up, boring and chamfering. It is important that the bore be perpendicular to the housing flange and that the bore follow the exact original centerline. Although I perform this process on a vertical mill, it could be set up on any number of machines including a line bore.





The bore size should be "same size" fit or a maximum of .0005" smaller than the bearing sleeve. With a CRC lubricant and a light heat to the housing (wife's oven at 200 F), this should be installed with a light press fit. Installing a flanged bearing collar of the appropriate ID will insure the bearing enters the housing with ease. After the bearing has been pressed into the housing, the housing can be once again be mounted in the vertical mill. The location of the spigot retaining bolt hole can be indicated off the housing and the hole bored through the bearing.

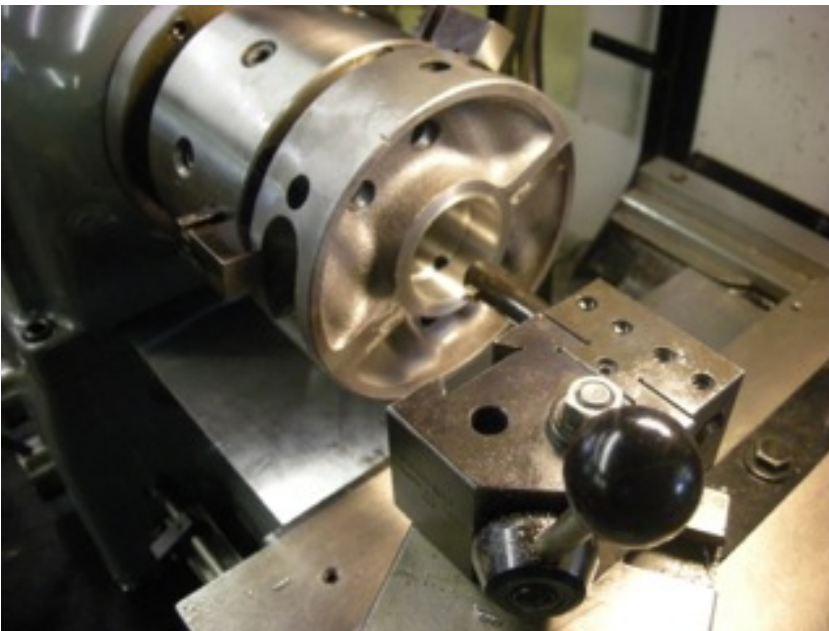


Rear and Center bearing(s)

Both the single P Type bearing and the two Six cylinder intermediate

bearings are handled in the same manner: the internal bores are machined to 1.850" and oil relief grooves machined into the center of their lengths. Both this process and the semi -sizing of the babbitt can be performed on a lathe. Take caution to indicate the outside of the bearing to insure that the original center line is maintained.

Because the rear main journal on the crank does not deviate in dimension from the original, this bearing can be handled conventionally. However, a word of caution: the rear bell housing is delicate and easily cracked. In pressing the bearing into the housing, install a ring under the center boss to insure pressure is directly under the center and not on the outside of the casting.





The results of all your efforts should lead to items of beauty suitable for line boring. Oh, and yes, an even temperament!
.....Babbitting and line boring to be addressed in a later chapter.