Replacing the insulator for the outer race of the CB-end bearing

Special tools/materials required

- Insulator
- Contact adhesive (e.g. Evo-Stik, or similar)
- Possibly masking tape

Procedure

These notes apply to Lucas K1F, K2F and KVF instruments.

The outer race of the CB-end bearing is fitted in a recess in the cam housing. A thick paper insulator has a central annular portion, which fits between the outer race and the bottom of the recess in the housing, and a number of radiating fingers which are gripped between the edge of the outer race and the housing. The insulator prevents any HT current passing through the bearing.

It is not unusual for the insulator to disintegrate after many years of service, in which case the outer race may have fallen out when cam housing was removed from the magneto. However, if still in place, removal is simple. You will need an old small- to medium-sized flat-bladed screwdriver, preferably with the last 1/4" of its blade bent through an angle of about 20 degrees. Warm the housing, for example in recently boiled water or with a heat gun, and then place it in a vice with soft jaws and with the outer race uppermost. Then insert the blade of the screwdriver into the crack between the outer race and the bottom of its recess and give it a couple of gentle taps with a mallet. Reposition the blade just under half a turn around the race, and give it another couple of taps. You should see the race start to move up. Keep repeating this until the race is free.

The different bearings have different sizes of insulator. Ensure you have the correct one. The standard thickness for the insulator is 0.010". Oversize insulators are available, for example with a thickness of 0.013", for use in the case where the recess in the housing has become oversize due to a loose outer race. However, it is perfectly acceptable to make do with a standard thickness insulator and masking tape, as described below.

Fit the outer race to the balls and inner race to check which is the outboard face of the outer race that will take the insulator. Remove, and then carefully glue the insulator to that face of the outer race using the thinnest of smears of an adhesive such as Evo-Stik. If the insulator has one shiny side, it should be outermost, i.e. the non-glued side.

Once the glue is dry, fold the fingers of the insulator over the outer edge of the outer race.

Ensure that the bearing recess in the cam housing is clean. Then warm the housing in recently boiled water. Offer the outer race up to the cam housing so that it starts in its recess. Then place the outer race and cam housing in a vice with soft jaws and squeeze the outer race home.

If the outer race slides home freely or with only the lightest of squeezes, it will be necessary to pack out the insulator. To do this, remove the outer race and insulator. (If you damage the insulator in the process, it will need replacing.) Flatten

out the fingers of the insulator. Stick one turn of masking tape neatly to the outer edge of the outer race, and trim it in width. Then repeat the previous steps . Depending on the thickness of your masking tape and the amount of oversize of the recess, you may need to do this more than once to achieve a nice fit.

Once the outer race is home, you may be able to see the tips of the fingers of the insulator, but none of the fingers should be sticking out more than the rest. If it does, the insulator has got torn, and you will need to repeat the whole process with another insulator.