Manny
44149 Dortmund
Germany

mg@boondoggle-motors.com

Tech Tip #2

Gear Box Alignment INDIAN

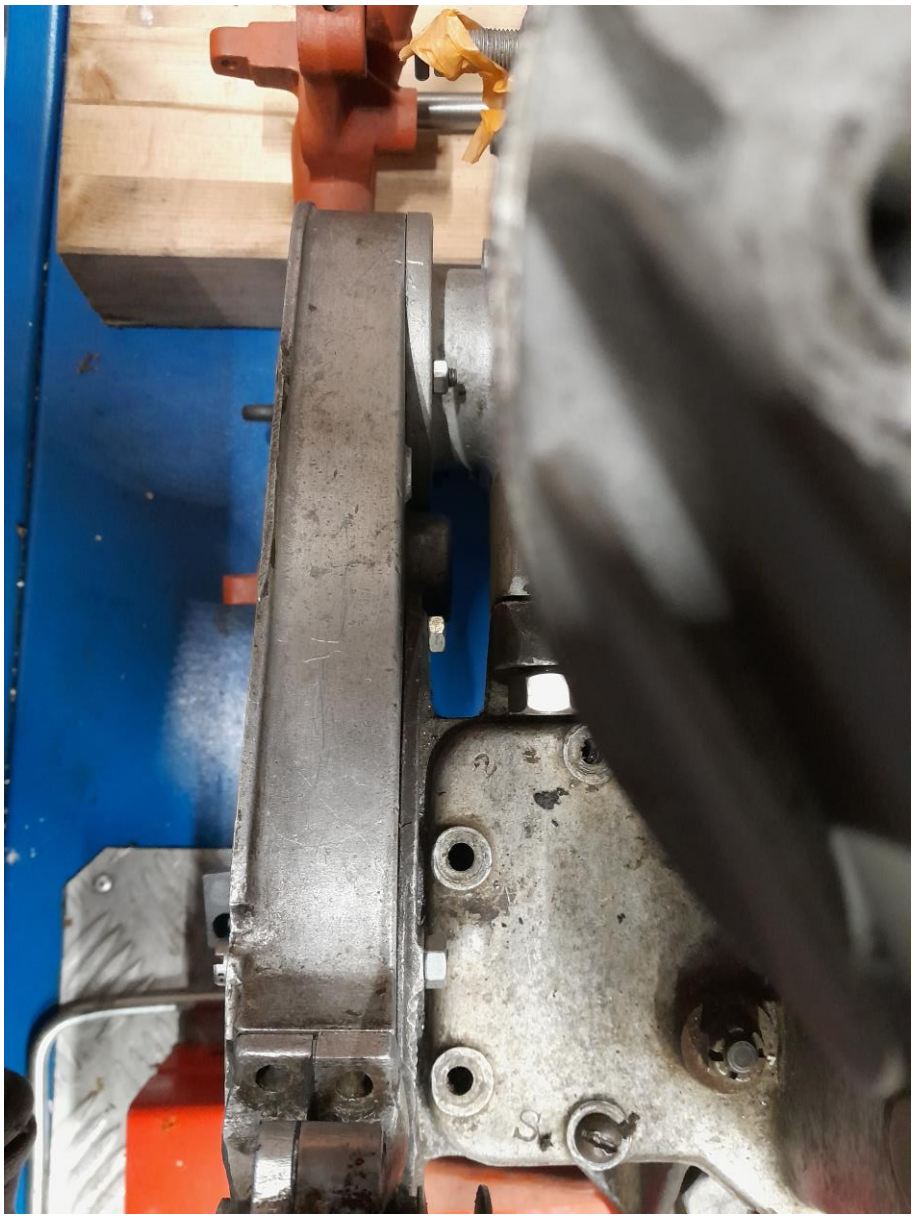
With many INDIANs where the gearbox is screwed directly to the engine housing, you can see cracks on the retaining arms of the gearbox or cracks on the inner primary drive.
The main reason seems to be a tense installation.

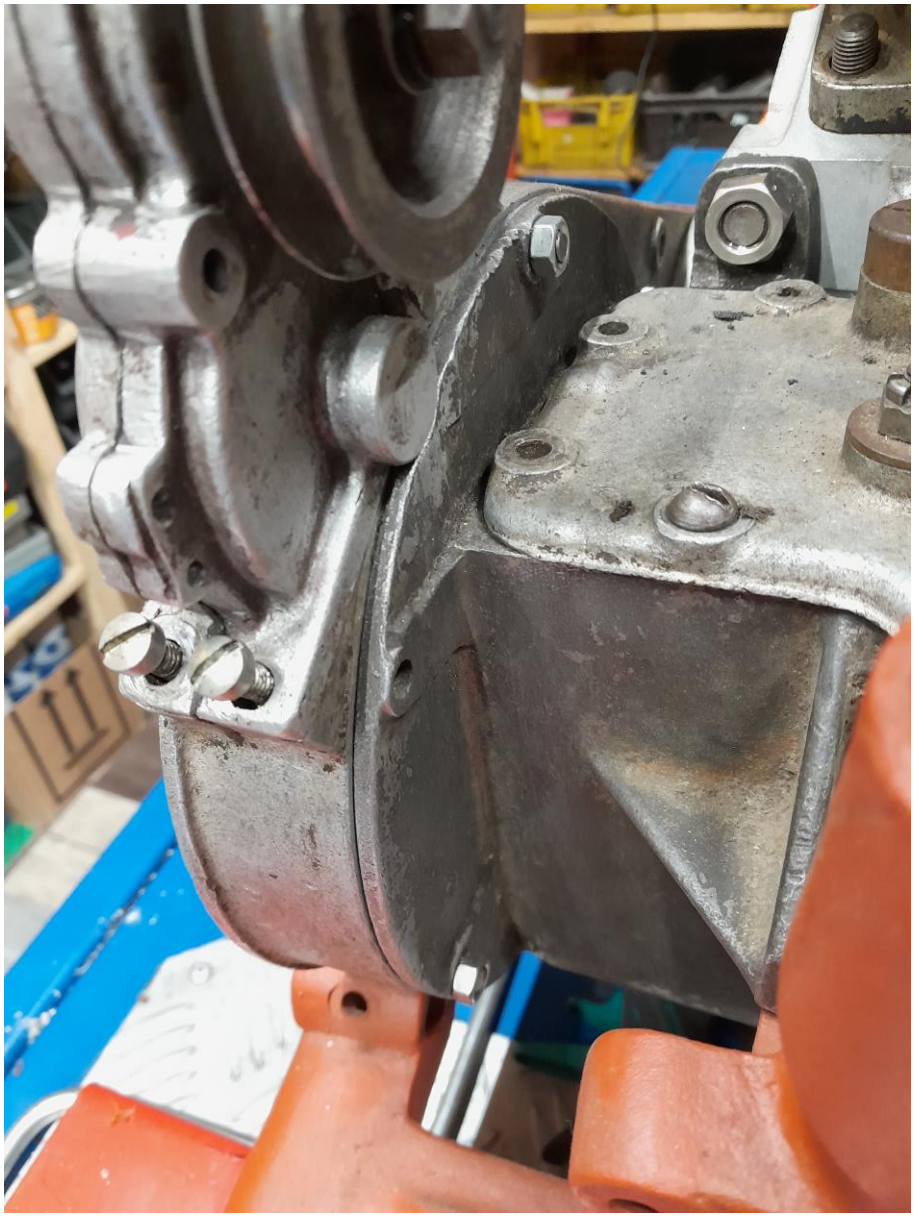
I have good experiences with the following procedure:

1. Make sure that the inner primary fits tightly, but without difficulty, on the centering collars of the engine and gearbox and that the ground plane surfaces are straight and full-surface. If this is not the case, the fits must be reworked.
The engine and transmission are not yet connected.

2. Loosely screw the engine and gearbox together so that the gearbox can still be moved.

3. Put on the inner primary and tighten it lightly with the appropriate screws. Make sure that the centering collars and the flat surfaces are properly seated.
When tightening, make sure that the gearbox is not strained on the engine.



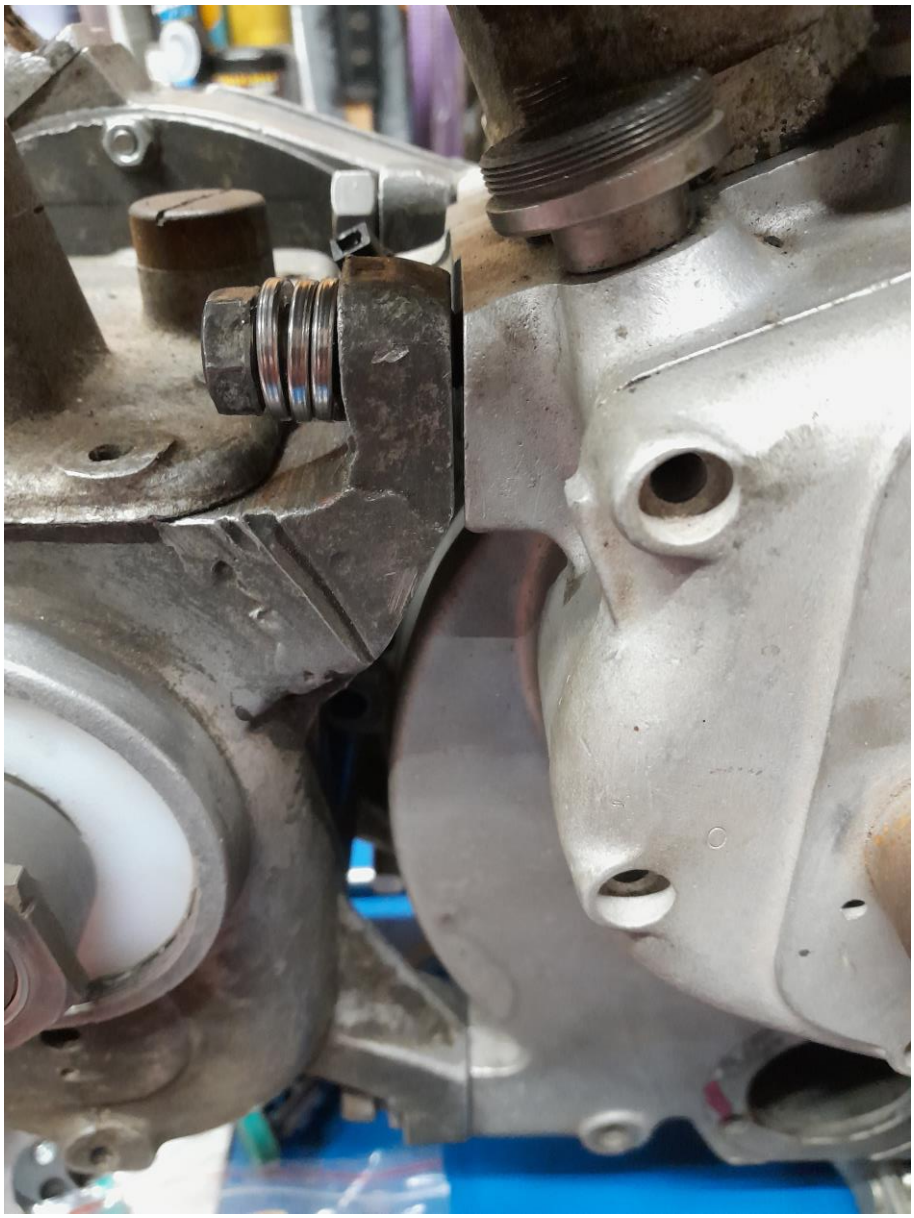


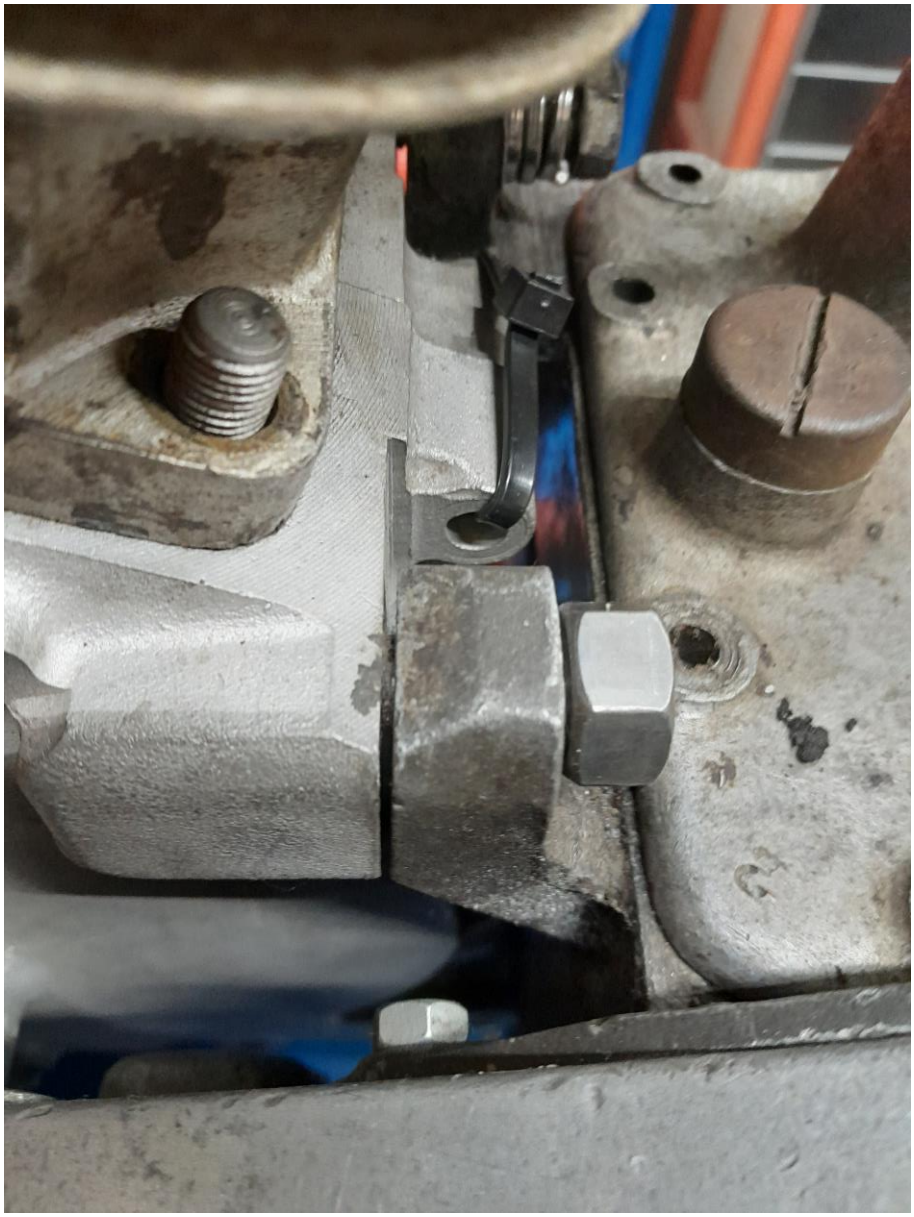
4. In most cases you will then find that not all 4 retaining arms of the gearbox are evenly in contact with the engine, although the primary firmly connects the engine and the gearbox.

The next step is then to measure the distances:

A. Check whether the flat surfaces of the arms and the engine are parallel to each other (the distance does not matter here). If not, the gear unit has to be reworked here.

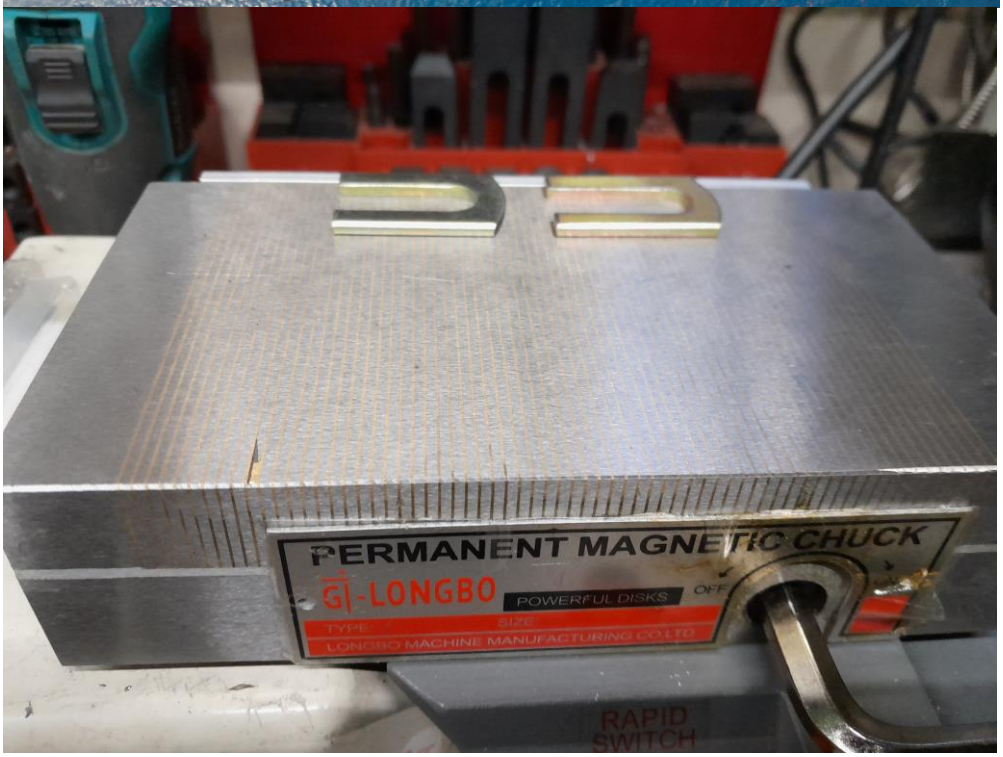
B. Measure the gaps between the gear unit feet and the engine with a feeler gauge or measuring stones and note the values.

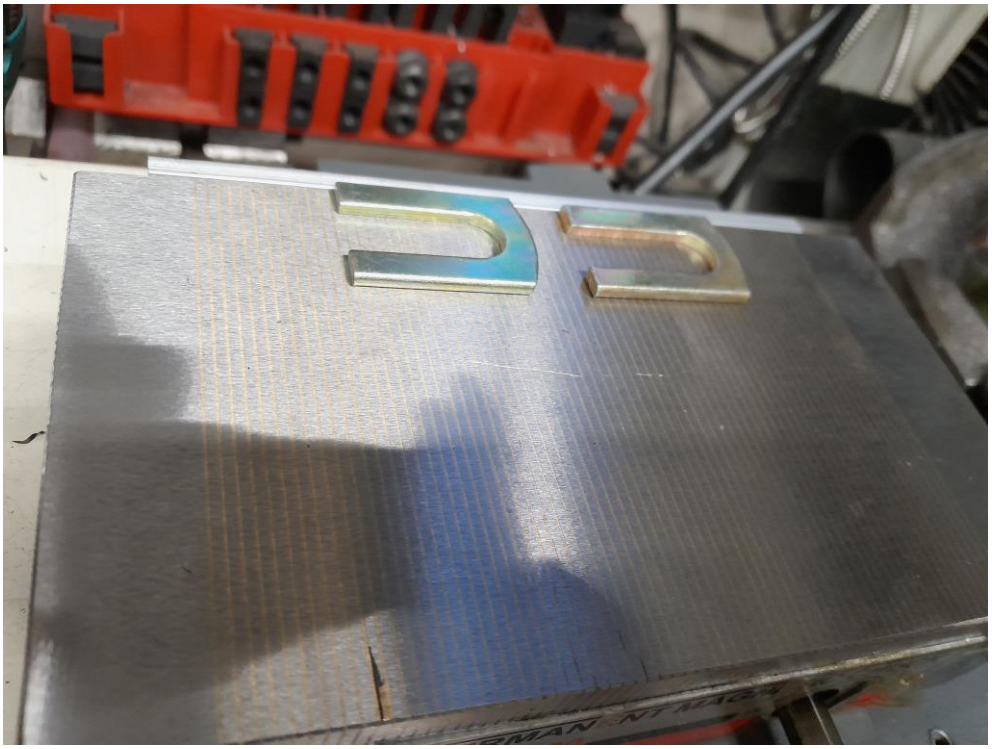




5. You could now compensate the distances with differently thick shims.
It is better to mill thicker slices down to the correct size on a milling machine with the help of a magnetic plate.
This does not always work the first time, but it is possible.

I then mark them A to D with an engraving pen.
But you can also file small notches or the like in the edge, so that later when you mount the gearbox you can install the right washers in the right places.
I also mark the arms of the gearbox with inconspicuous punch marks.





6. I then detach the primary from the engine and gearbox, insert the prepared washers between the gearbox and engine and tighten the gearbox.
The gearbox should be easy to assemble and lie absolutely flat on the engine.
After that, the primary should fit easily and without tension on the centering collars during assembly and completely rest on the plane surfaces of the engine & gearbox.

7. Then I dismantle the whole thing again until final assembly.
During final assembly, make sure that the seals between the primary and the engine or gearbox housing are of the same thickness.

As adjusting washers for the gearbox, I always use U-shaped adjusting washers that are used for axle adjustment Volvo PV544 or P121, because they are available in 4-5 different strengths and the size fits almost perfectly.
Washers from Ford Model A or other vehicles also fit.

I have also noticed that the contact surface of the gearbox at the rear of the frame is often no longer flat, so that the surfaces do not lie completely on.
To do this, clamp the gear unit on the upper plane surface on a milling machine and rework the plane surface for the frame.
If too much material is removed, a corresponding compensation plate must also be made and inserted here.