

# INSTALL EARLY VW 3RD & 4TH GEARS ON A "SUPER BEETLE" MAINSHAFT

## GENERAL NOTES

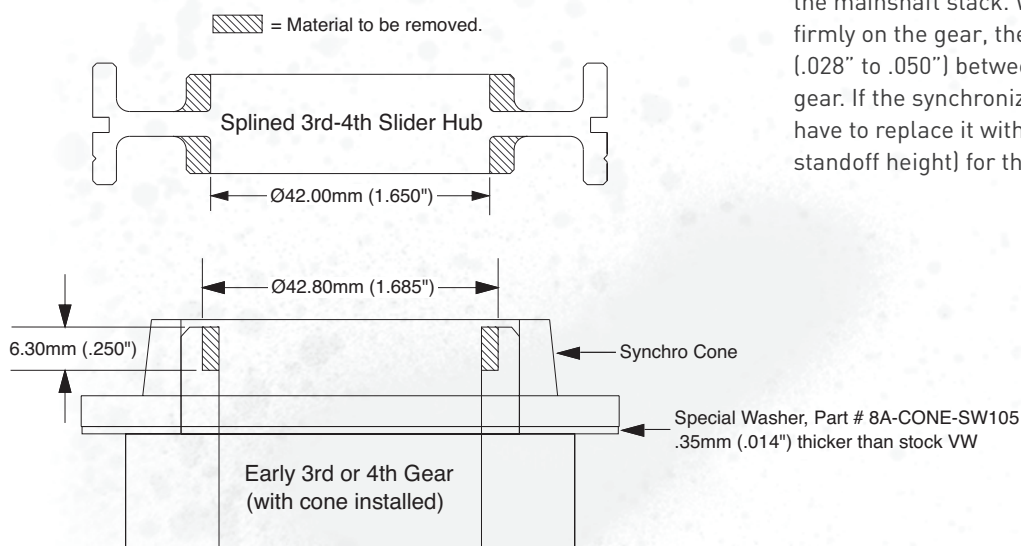
Weddle part # 8A-CONE-SW105 is designed to replace the stock VW stop washer on early style 3rd and 4th gears. The extra thickness of this washer eliminates the excessive end-clearance that would otherwise exist when early 3rd and 4th gears are installed on a "Super Beetle" splined mainshaft.

## REQUIRED MODIFICATIONS

The center section of the splined 3rd-4th slider hub must be machined down to a smaller diameter to clear the inner bore of the early style 3rd and 4th gears. Also, you will need to cut a relief in the inner bore of each gear, as shown below (see Figure 1).

**NOTE:** If your existing 3rd or 4th gear has already been welded, then you will have to machine out the welds before pressing off the synchro cone. After pressing the cone back into place, the assembly will have to be welded, honed, and surface ground to approximately 33.04mm (1.301"). We recommend that you have this done professionally if you don't have the proper equipment.

FIGURE 1: MODIFICATIONS



## TEST FITTING THE 3RD & 4TH GEARS

It's a good idea to do a test assembly of the mainshaft components **without the brass synchronizers** to make sure that the gears have enough end-clearance. This should be done as follows:

1. Install the 3rd and 4th gears, needle bearings, the slider hub, and the slider hub circlips on the mainshaft. Do not install the synchronizers at this time or you may get a false end-clearance measurement.
2. In a press, carefully apply a light load to the back of 3rd gear. This will push the slider hub up against the circlip and eliminate the slop in the assembly. Check the end-clearance on 4th gear with a feeler gauge. Clearance should be no less than .20mm (.008"). Press the stack back toward 3rd gear and check the 3rd gear end-clearance. If a gear does not have adequate clearance, additional surface grinding will be required.
3. If you are using part # 8A-CONE-SW105 washers on both 3rd and 4th gears, new synchronizer rings may tend to bind in the shift jig (this is especially true with aftermarket synchronizers, which often stand up too high). We recommend that you check the fit of the 3rd and 4th gear synchros before final assembly of the mainshaft stack. With the brass synchronizer ring pushed firmly on the gear, there should be a gap of .70mm to 1.25mm (.028" to .050") between the back of the synchronizer and the gear. If the synchronizer stands up higher than this, you may have to replace it with a good used synchronizer (with less standoff height) for the assembly to function properly.