

POSTWAR DOUGLAS CRANKSHAFTS

Crankshaft Rebuilding Using INA Bearings and new crankpins made from EN36 Steel

Bearing Number RNA 49/28 (45mm OD x 32mm ID x 17mm wide)

First produce replacement crankpins from EN36 steel, the centre section should be 1.270" dia x .660" long and the ends 1.165" dia x .640" long. The pins should be bored to .625" dia, concentric with the O.D. When finished, the pins should be case hardened to a depth of .030 - .040".

Dismantle crankshaft and determine whether standard or modified.

- 1) If conrods have been lined, then grind out bigend eye to 44.95mm (0.5mm (.002") interference fit on bearing). Dismantle the RNA 49/28 bearing by pushing out rollers using a pin punch through the oil hole, then grind down width of bearing to .648" (approx .010" from each side). Thoroughly clean and reassemble bearing and press it into the conrod. (I prefer to position bearing so that oil hole is at top of conrod – as fitted in the engine).
- 2) If conrods are original, dismantle bearing, grind down width to .648" and then grind down outside diameter to remove oil groove, then bore/grind bigend eye of conrod to give .05mm (.002") interference fit on bearing, reassemble bearing and press into conrod. (again with oil hole at top of conrod).

Set up the crankpin on a true running mandrel, grind and lap the centre section to give a sliding fit (without any play) in the fitted bearing, then grind each end of pin to give .002" interference fit in crank webs and clean up ends of centre section to .652" long (giving .004" endfloat on conrod). Grind 10 degree x .020" chamfer on ends of pin (assists reassembly of crankshaft). Press crankshaft assembly together again starting with the two crankpins in the centre web, fit the conrods making sure they are the right way up (small end oil slot uppermost with front rod to the right, rear rod to the left). Now press on rear crank web using 5/8" silver steel as alignment pin through other crankpin and hole in web (use an old/spare centre web as a gauge for parallelism of webs – they are .650" thick). Repeat the procedure for the front web. Make alloy plugs (5/8" dia x 5/32") for the ends of the crankpins. Fit a new oil thrower to rear of crank before fitting rear main bearing.

Rebuilding by this method results in the bigend eye of the conrod assy being smaller in dia than the original – thus restoring the end float even if the crank webs are worn!



Conrod and Bigend Assy

RNA 49/28 Bearing
and new Crankpin