

## Note 81



### Ford-Cosworth big-end journal diameters

It is an interesting design point that Duckworth was able to retain a 1 15/16" (49.2 mm) big-end journal diameter unchanged from the 1959 production Ford 'New Anglia' 105E engine\* in all his engines from the 105E FJ conversion through the SCA and FVA into the 1967 DFV. It then stayed unchanged in the DFV as it was developed during F3000 racing (at a regulation 9000 RPM) until, in 1992, it was reduced to 1 25/32" (45.2 mm) to cut bearing friction. This was in parallel with similar smaller crank diameter on Cosworth front-line GP engines and, together with DFV main bearings reduced from 2 3/8" (60.3 mm) to 2 1/8" (54 mm), pin and journal averaging 9% reduced diameters, gained 2% of power (65). Materials of the crank had, of course, been improved: the spherical-graphite hollow cast iron 105E crank had been satisfactory for the FJ engines, but - from the SCA onward - nitrided En40B (3.5% Cr, 0.5% Mo, 0.5% Mn, 0.25% C, etc, 95% Fe) had been used, ie from a 120 HP to a 500 HP crank, all around 10,000 RPM, on that 1 15/16" pin.

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\* The original 105E crank had been 1 3/4" in big-end diameter, but this had cracked during development testing and was changed to 1 15/16" (156).

Fig.N81A

1959 Ford 105E  
IL4 3 3/16"/1.2932" = 1.672 60.85 cid  
(80.96mm/48.42 997 cc)  
39 HP @ 5,000 RPM

DASO 156

