

Technical Bulletin number 20 - GEARBOX MAINSHAFT LENGTHS - GB GEARBOX

Symptoms of a problem in this area are that the primary sprockets do not line up and the clutch rubs on the inner or outer chaincase. This is usually experienced on the swinging arm models but can happen on any model! The clearances are very small so it is important that all the following parts must match:- Chaincases, gearbox mainshaft, output or sleeve gear (usually known as 4th gear, which technically it isn't), gearbox sprocket spacer, engine sprocket spacer, gearbox shell.

Chaincases - The only ones that can be mixed up are the swinging arm ones, the 1956-58 type does not have a wall around the gearbox sprocket to allow fitment of the FERC (Fully Enclosed Rear Chaincase), whereas the 1954-55 one does. Single cylinder inner cases have a smaller hole where they fit to the crankcase than the twins and there is a very slight difference in the thickness of the KH and FH inner cases. Cases can be identified from the casting number.

Gearbox mainshaft - Although CP and BA shafts vary with time they are all the same length, not so the GB ones. The difference is in the length of the large plain 55/64" diameter viz 3629-52 fitted to all SQ4 1952-58 3 1/2"; 3630-52 all non SQ4 1952-55 2 7/8"; 3629-56 all non SQ4 1956-58 3 1/64". The difference in the length of the non-SQ4 ones is that the clutch was moved outwards to make room for the FERC. It is possible to check the gearbox number against the engine and frame listing at www.draganfly.co.uk but the mainshaft may have been changed.

Sleeve gear - Again the CP and BA ones do not vary between models but there are 2 GB types, the length of the sleeve is 2 3/32" on the Sq4 and 1 13/16 for other models.

Sprocket Spacer - Yet again the CP and BA ones do not vary between models but there are 2 GB types, the width is .68" on the Sq4 and .43" for other models.

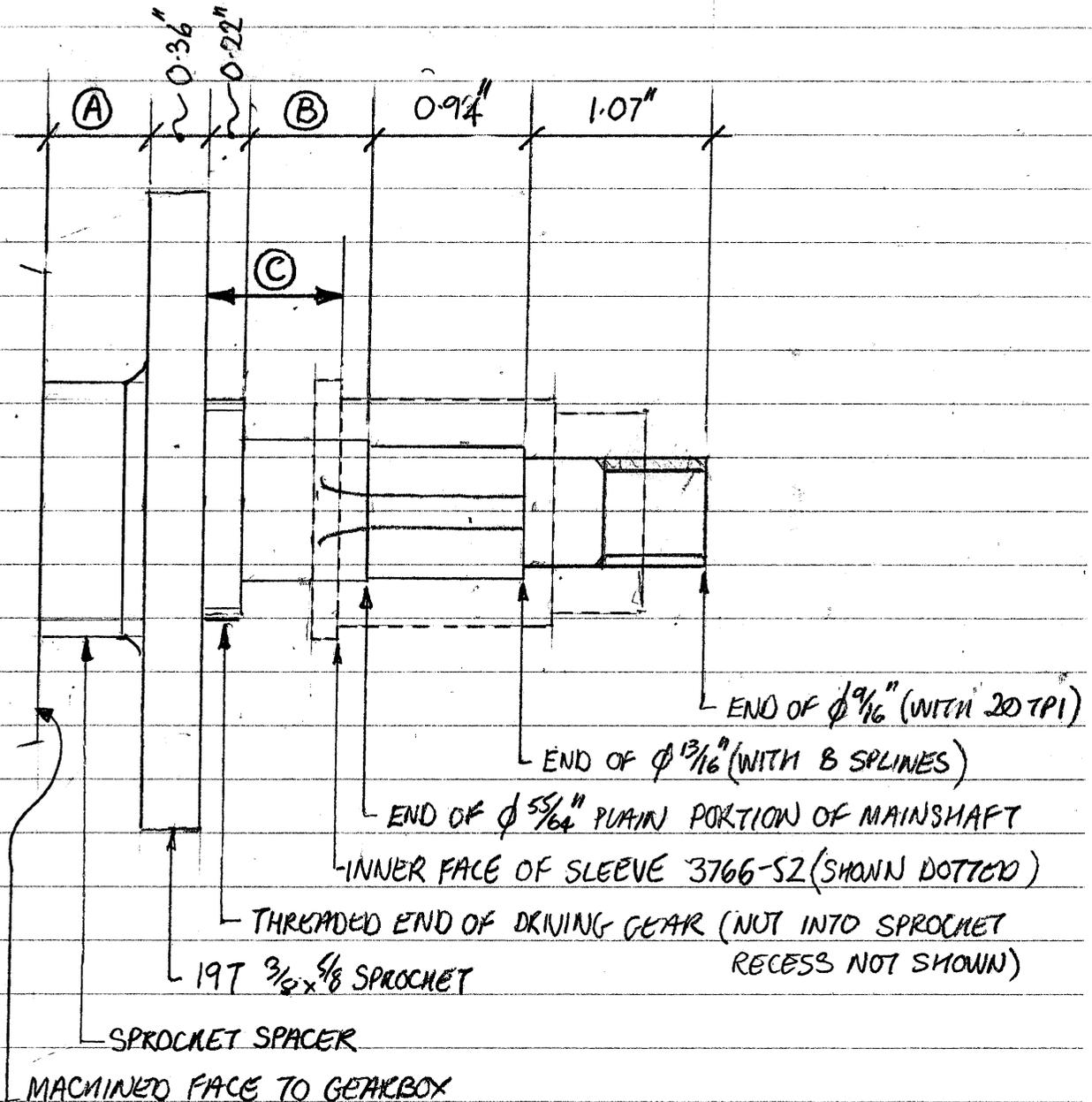
Gearbox Shell - The SQ4 uses a different shell to the other models CP and BA gearboxes (yes there is a SQ4 that uses a CP box, answers on a postcard) casting numbers are 1BAP/M13 (3000-37) for the BA and 1CP/M14 (3001-39) for the CP. All models use the same shell for the GB.

So how can we determine if the correct combination of mainshaft, sleeve gear and spacer are fitted? Check out Bruce's wonderful drawing

GEOMETRY OF GB GEARBOXES FITTED TO ARIELS

MEASUREMENTS BELOW TO APPROX NEAREST 0.01" WILL IDENTIFY!

APPLICATION	(A)	(B)	(C)
□4 ONLY (GB7)	0.6"	0.73"	0.8" (NOTE 1)
S/A 56 ON (FNH)	0.35"	0.5"	0.57"
OTHERS	0.35"	0.35"	0.42" (NOTE 2)



- (NOTE 1 0.8" APPLIES TO B.A.2 + CP.2 GEARBOX ALSO - □4 ONLY)
- (NOTE 2 0.42" " " BA.1 + CP.1 " " NOT □4)
- (ALSO NOTE BA.2 + CP2 GEARBOX OFFSETT $1/4$ " WITH DIFFERENT LUGS!)