

Cox 'Conquest' 15

For something like 15 years, the COX 'Tee-Dee' .09 and 'Tee-Dee' .049/.051 engines have been the most powerful motors available in the 1.5cc and .8cc classes. Back in the early Sixties, Cox also made a 2.5cc contest motor, the 'Tee-Dee' 15, subsequently developed into the '15 Special' and '15 Special Mk.II', which enjoyed some success in the FAI free-flight power class until outpaced by the Super-Tigre G15 which, itself, was eventually ousted from first place by the all-conquering Rossi 15.

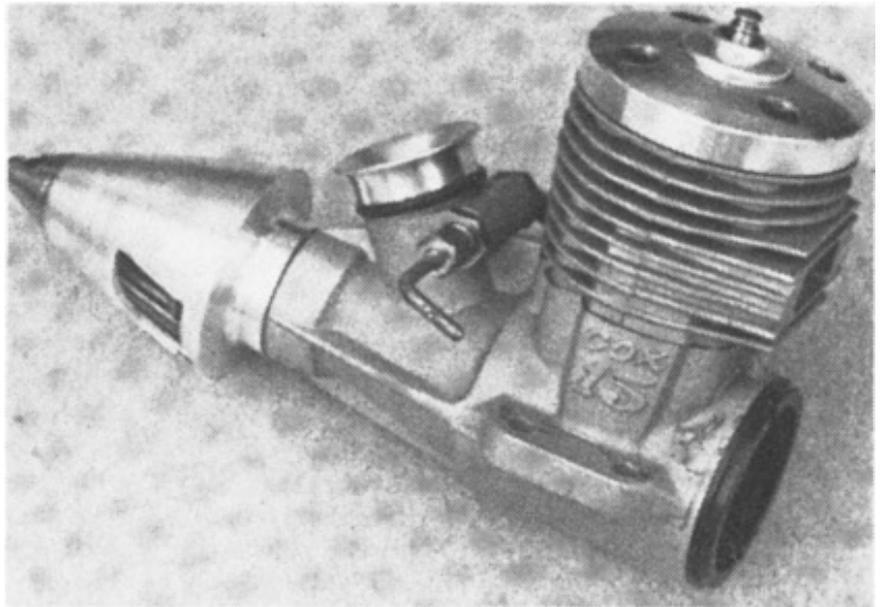
Now, after the best part of ten years without a competitive motor in the 2.5cc contest class, Cox are reentering this field with a totally new engine, the Cox 'Conquest' 15.

This new motor breaks completely with traditional Cox design that has been part of the model engine scene for most of the past 25 years. It has, for example, a die cast crankcase instead of one machined from extruded aluminium bar and its crankshaft runs in ball bearings instead of directly in the case material. It has a finned aluminium cylinder jacket with hardened liner instead of a machined one-piece unhardened steel cylinder, with integral fins and it uses Schnuerle type porting with rear exhaust.

At the time of writing, the new Cox 15 has not yet reached retailers' shelves, but Dave Goodwin of Sheffield has managed to acquire one of the first examples released from the factory. This might well be the only one in the UK at present and we are indebted to Dave for sending it along for a look-see.

It is very clear that in the design and construction of this motor, Cox were influenced by the Rossi and were not oblivious, either, to the existence of the Australian Taipan rear-exhaust 2.5cc engine (see *AeroModeller* Engine Test article, August 1975 issue).

For example, although its external styling may hide the fact, the design of the crankcase and jacket is very similar to that of the Taipan. As on the Taipan, the jacket separates from the main casting just above the crankcase thereby simplifying casting of the three transfer channels, the 18mm o.d. of the cylinder liner being used to



align the two parts. Four long screws pass through the jacket from the cylinder head to tie the complete cylinder assembly to the crankcase. The piston and conrod assembly are fairly conventional. The lightweight lapped cast-iron flat-crowned piston has a thin skirt and small bosses and is coupled to a forged aluminium connecting-rod by a hollow gudgeon-pin retained by wire circlips.

The crankshaft has a slightly bigger main journal (11mm o.d.) than the Rossi (10.5mm) or Taipan (10mm). As on the Rossi (but not the latest Taipan) the shaft is of the internally counterbalanced type. It has a combined prop-driver/spinner-backplate mounted on the front end with a split taper collet. The machined aluminium spinner and steel nose cone are much the same as on the Rossi, except that the spinner shell is not dovetailed into the spinner backplate. A departure from conventional practice is the gas passage through the shaft which, instead of being parallel, is divergent: 6mm i.d. at the forward end of the long rectangular valve port, opening up to 8mm at the exit.

The cylinder head design is much the same as the Rossi's, consisting of a drop-in glowhead insert secured by a separate machined ring forming the outer part of the head. The glowhead has a trumpet shaped combustion chamber similar to that of the Rossi (itself inspired by the original Cox Tee-Dee shape) but has a slightly smaller o.d. It could possibly be used as a (less expensive?) alternative to

the Rossi glowhead, but the Rossi glowhead will not fit the Cox.

The standard carburettor assembly is similar to the Rossi's which, however, was based on a Cox design anyway. It consists of a machined venturi intake having six peripheral jets fed from a tangent mounted needle-valve assembly. The venturi has a 1/4in. (6.35mm) throat, giving an effective choke area of just under 32sq.mm or 12 per cent larger than the standard 6mm Rossi venturi. The venturi is fitted into a large i.d. intake boss which feeds a long narrow induction port offset in the direction of rotation for a tangential gas flow.

One minor point on which the Cox differs from both the Rossi and the Taipan is its use of a screw-in crankcase backplate and this is unorthodox in that, rather than a paper gasket, it uses an O-ring which is compressed by a tapered seat in the crankcase opening.

The Cox Conquest is a more robustly built motor than previous 2.5cc Cox units and is about 0.6oz heavier than the Rossi, scaling 179 grammes or 6.3oz.

Cox are also offering the Conquest in a throttled version for radio-control. This is equipped with a Perry carburettor and a plain prop driver without spinner assembly. It also has a one-piece finned cylinder-head that accepts conventional glowplugs.

We hope to be able to publish test figures for the new Cox 15 in due course.