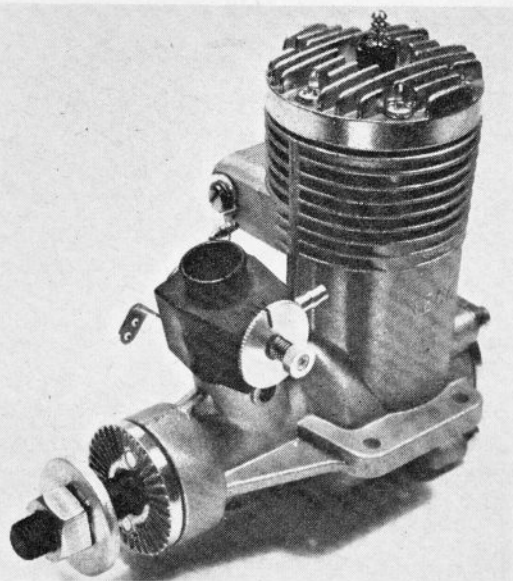
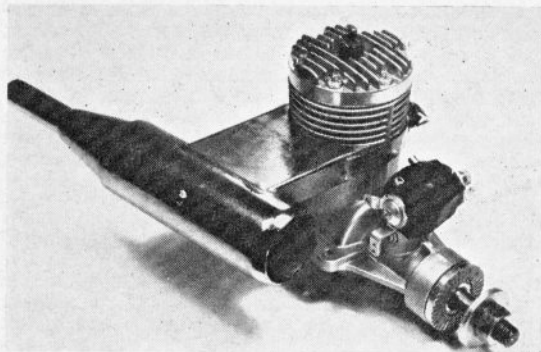


# radio motor commentary

By  
**PETER CHINN**

Latest Veco 61 R/C as now supplied with Perry carburettor. Below: Veco 61 with exhaust valve removed and replaced by Mini-Vox 'Spezial' silencer. Power loss is negligible with this silencer.



Having now had the opportunity of testing the Perry equipped Veco 61, we are glad to say that our earlier findings were *not* confirmed. On the Veco, the Perry worked admirably and was very easy to set up. Using an 11 x 7 prop., the engine idled evenly at 2,500 r.p.m. on the bench, picked up steadily as the throttle was opened and showed no tendency to run rich or weak when held at intermediate settings. Fuel suction at idling speed was obviously very good and the carburettor should be better than most in coping with wide variations in fuel head at low speeds.

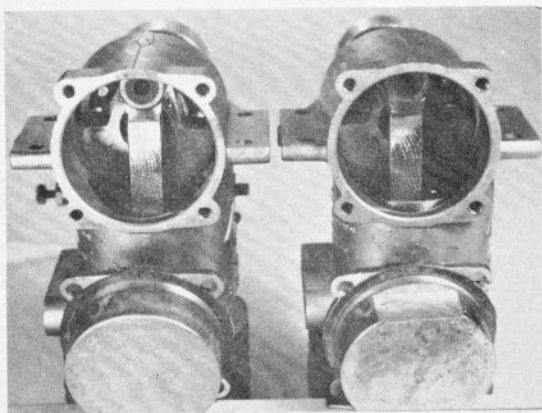
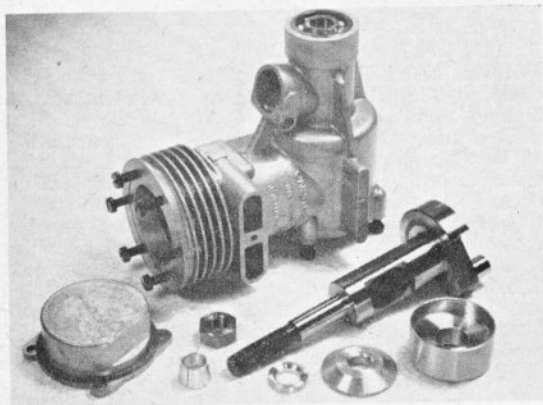
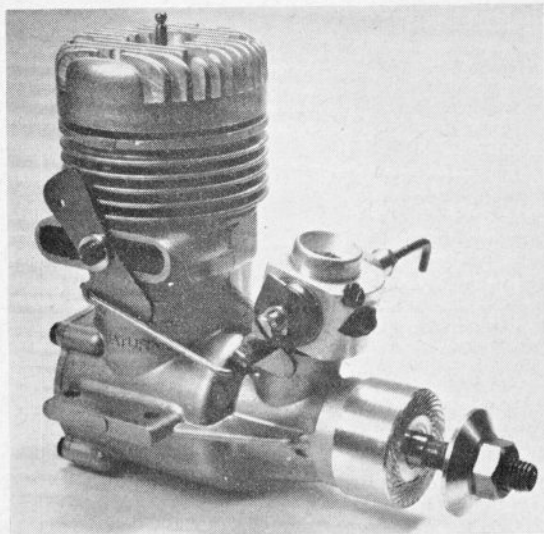
As for the engine itself, the following prop./r.p.m. figures were obtained on test after our usual running-in procedure and without a silencer.

|           |           |                            |
|-----------|-----------|----------------------------|
| 8,300 rpm | on 14 x 6 | Top Flite standard         |
| 9,700     | " "       | 13 x 5½ Top Flite standard |
| 10,500    | " "       | 12 x 6 Top Flite Maple     |
| 10,800    | " "       | 12 x 6 Power Prop standard |
| 10,600    | " "       | 11 x 7½ Rev-Up             |
| 11,000    | " "       | 11 x 7 Top Flite Maple     |
| 11,800    | " "       | 11 x 6 Top Flite Maple     |
| 12,500    | " "       | 11 x 6 Power Prop Maple    |

**R**EGULAR readers may recall that a year ago, in this column, we described and illustrated the improved K&B built version of the Veco 61 R/C, an example which had been loaned to us for this purpose by the U.K. distributor, Ron Irvine. Later it was announced that the 61 (and Veco 50) would no longer be fitted with the original Lee designed carburettor but would be supplied with a Perry carburettor instead. We therefore delayed running tests on the engine pending the availability of this Perry equipped version.

The Perry carburettor was fully described in the August, 1969, R.C.M.&E., when we included our impressions of it fitted to the Webra Blackhead 61. The Perry then tested was an early production sample received from the U.S.A. and, on the Webra, we found that it tended to run too rich at intermediate speeds. Commenting on this, our report ended with the words: 'This certainly contradicts all the claims previously made for the Perry carburettor and we feel, therefore, that our present findings must be discounted until we have had the opportunity to test another example. It is worth noting that, at the time our carburettor was despatched, some development work was still in progress (mainly aimed at making the idle adjustment less sensitive) and it may well be that some slight change in the shape of the fuel admission control slots will eliminate the difficulty we encountered'.

These figures were obtained on our standard R/C test fuel containing 5 per cent pure nitromethane and with the K&B long-reach bar-type glowplug as supplied with the engine. The Veco likes a bit of nitro and as much as 500 r.p.m. could be lost at the top end when running on a straight methanol and oil mixture, particularly during cold weather. In general, the level of performance reached was not markedly different from that recorded with the original Veco 61 tested in 1966. The fact that the original 61 was selected for us by the Veco factory, whereas our present test was of a perfectly stock off-the-shelf model, may have a bearing on this, of course. The Perry carburettor has much the same effective choke area as the previous Veco type, but the single low-pressure Dykes ring piston should liberate a little more power than the original high-pressure two ring type, so, all things being equal, the average K&B-Veco 61 may well have a slight edge in power over the average example of the older type.



Top: the 1970 model Super-Tigre ST.60SR has a Mag-II type carburettor plus some internal modifications. Centre: ST.60SR crankcase and crankshaft are unaltered in the new 'Saturn 60' model. Above: Sub-piston induction has been eliminated on the new model ST.60SR. Note lengthened piston skirt and clearance step in backplate. Earlier type engine shown on left.

The weights of 10 c.c. R/C engines have gone up somewhat during the past three or four years and, at 14.1 oz., the latest Veco 61 R/C is now a little below average weight for this class of engine. The engine's bore and stroke remain unaltered at 0.940 in. x 0.876 in., giving a piston displacement of 0.6079 cu. in. or 9.962 c.c. The engine retails at £33, including tax, in the U.K.

### Latest Super-Tigre ST.60

In last September's issue, the then-new 'SR' (single-ring) version of the Italian Super-Tigre ST.60 R/C engine was described. Since that time some further changes have been made to the ST.60SR. These include a new piston, cylinder-liner, crankcase backplate and carburettor. In the U.S.A., this new model is billed as the 'Saturn 60' - which at least makes it simple to identify.

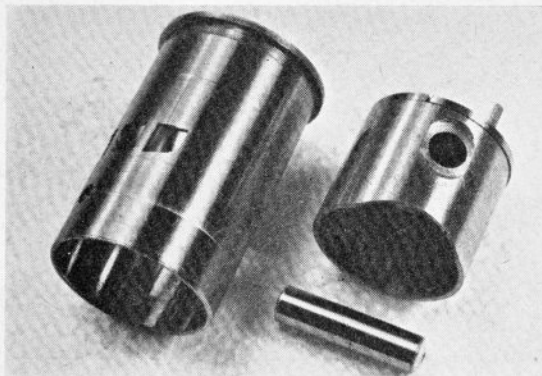
One of the snags of all previous ST.60 and ST.56 models was the cutaway piston skirt which, by uncovering the outer exhaust ports at the top of the stroke, reduced overall fuel suction at the carburettor (especially noticeable at idling speeds) and, when a silencer was used, caused adulteration of the fresh gas in the crank chamber with exhaust gases. The piston skirt cutaways were necessary to clear the crankshaft counterbalance and backplate at bottom-dead-centre because of the engine's use of a short connecting-rod in the interests of a compact and lightweight design. In the Saturn 60 however, two simple modifications have been adopted. Firstly, the backplate casting has been modified, enabling a step to be machined on its inner periphery. This has permitted the rear cutaway on the piston skirt to be eliminated. Secondly, the bottom edge of the front outer exhaust port has been curved upward so as to avoid its corner being uncovered by the front cutaway.

The Saturn 60 is fitted with one of the recent Mag-II type carburettors instead of the 'R/C Slider' pattern used for the previous SR model. The Mag-II has an effective choke area of approximately 20 sq. mm., total restriction being much the same as, if not slightly more than, that of the unit that it replaces. One other new feature of this engine is its use of a Dykes type ring - it is the first Super-Tigre engine to use a Dykes ringed piston.

Available for use with this and other 'ST' series .51 to .60 cu. in. engines, is the new Super-Tigre S.56 silencer. This is similar in principle to the Mini-Vox air-scavenged type. In marked contrast to the standard baffled expansion chamber pattern ST silencers, the new ST unit has even bigger outlet areas than the Mini-Vox and it has been claimed that it causes no power loss at all. Just how true this is and at what cost in loss of muffling effect, is something we hope to check on a test of the ST.60SR very shortly.

### In Praise of a Big 'un

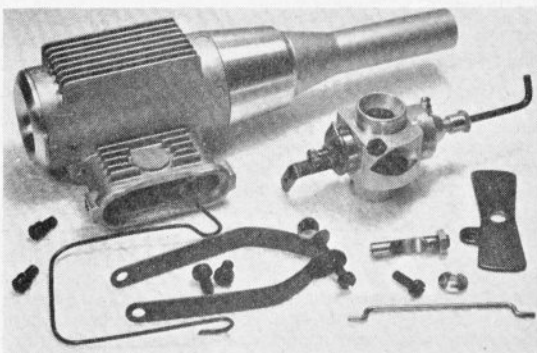
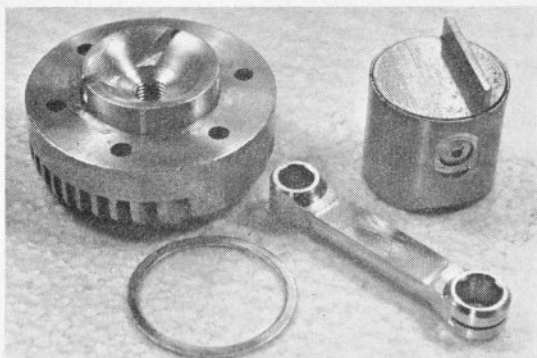
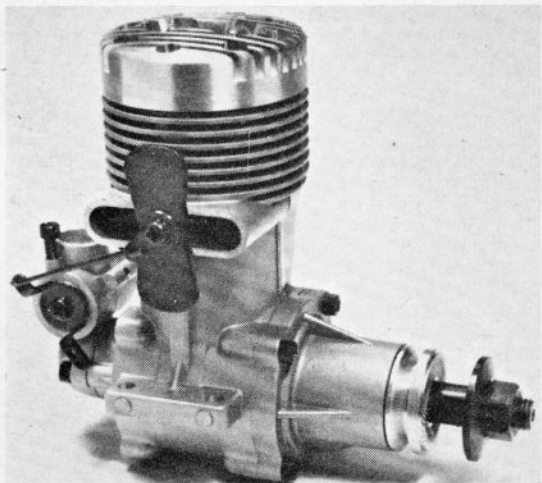
\* As to the O.S.80, I have never operated a better all round engine. On the tri-motor, all three engines start on the very first flip at least 50 per cent. of the time, which continues to amaze everyone. We set the three engines in sync. by ear and often fly all morning or all afternoon without touching a needle valve. And to round out a perfect engine, we have had absolutely no trouble with idle. Often, we reload another test unit, leaving the engines at idle, and simply tip the plane up on one wing to load the unit. I can honestly say that we have had less trouble running three O.S.80 engines than most people, including "yours truly", have with one typical 60.



Above: front outer exhaust port on ST.60SR is reshaped to prevent sub-piston induction. This has enabled piston skirt cutaway to be retained at front to clear crankshaft counter-balance. Above right: 1970 ST.60SR parts include a new piston with Dykes ring—the first ST engine to be so equipped. Right: New extractor type Super-Tigre S.56 silencer is applicable to the ST.60SR. Clip or strap type fitting optional. Also shown here is engine's Mag-11 carburettor.

So wrote Dan Parsons in a recent article in *R/C Modeller* magazine. The article was an account of government sponsored work being carried out in the United States by Sandia Laboratories of New Mexico with R/C models. The models have been used for various projects including experiments with automatic tracking systems, for carrying telemetering equipment to altitudes approach for carrying telemetering equipment to altitudes approaching 20,000 feet and for dropping test vehicles. The three-engined model was designed to carry a 12 lb. dummy 'bomb', enclosed within a big bulky fuselage and O.S.80's were chosen because of the power and reliability they had demonstrated in a previous twin-engined project.

The all-up weight of the 9 ft. span model is some 37 lb. The rectangular planform wing has a chord of 18 in. giving a wing area of  $13\frac{1}{2}$  sq. ft. (and a wing loading of nearly 44 oz./sq. ft.) and initial rate of climb is quoted as approximately 1,000 f.p.m. Maximum level flight speed is given as about 70 m.p.h. and stalling speed is estimated at 28 m.p.h. When the report was written the model had made about 200 drops at altitudes ranging from 25 to 4,000 feet.



The O.S. Max-H.80 R/C is now rather expensive in the U.K., having gone up in price, since it was introduced three years ago by approximately 50 per cent. to £43 10s. Also, having a swept volume of 13.23 c.c., it is, notwithstanding the wishes of many scale enthusiasts, outside FAI and SMAE rules. A marine version, however, is available for the power boat people who are under no such restrictions. Basically, the engine is a scaled up version of the rear induction type O.S. Max-H.60 with the addition of one or two refinements, including a 7 x 11 mm. roller bearing conrod big end. A description of the 80 appeared in the May, 1967 issue of *R.C.M.&E.*

Largest (and in U.K. most expensive) of current engines is 13.2 c.c. O.S. Max-H.80 R/C. £130 worth were used to power one American model. See text. Apart from twin plug head and roller-bearing big end, engine is virtually a scaled-up O.S.60.

