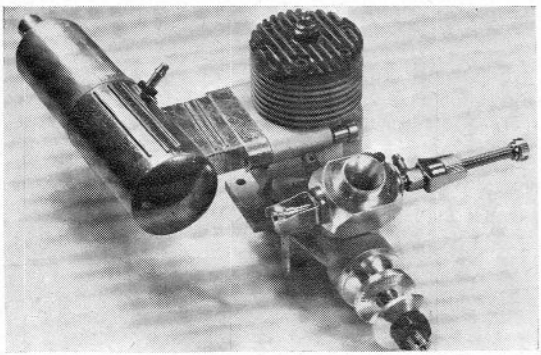
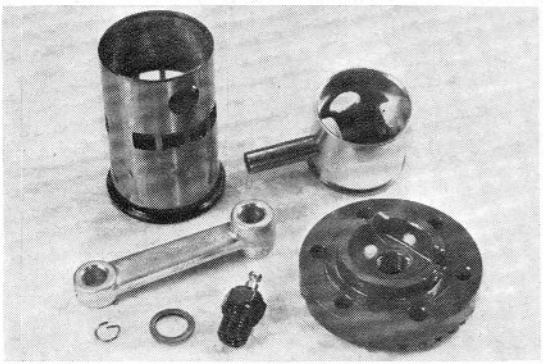
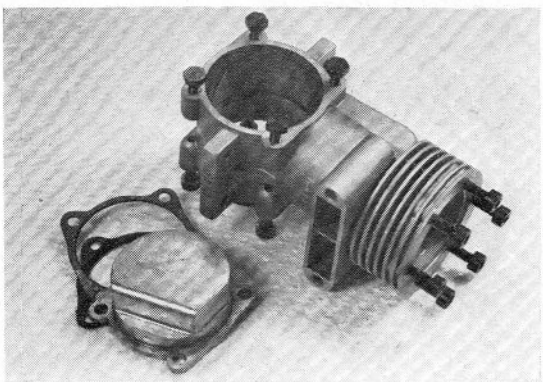
Peter Chinn's

radio motor commentary







The Webra 40. Based on the very successful Blackhead 61 design, this new engine is powerful, smooth running, easy to handle and has an excellent throttle. Seen top left with new Webra silencer. Note outlet nipple for fuel tank pressurisation. Parts of the Webra 40 closely resemble those of the 61. Main differences are single skirt port in piston and cylinder-liner and plain conrod bearings.

Webra 40 – At last

The long-awaited Webra 40 (it was actually announced eighteen months ago but, due to delays in the delivery of dies, did not go into production until February this year) is now available in the U.K. through Veron stockists. It is virtually a scaled-down version of the highly successful Webra Blackhead 61. Dimensions were reduced to produce a 'two-thirds' model and this has not only worked out as regards actual displacement: it has resulted in an almost exact one-third reduction in weight and power as well.

The Webra 40 is intended for general R/C flying including high performance aerobatic work with the smaller type of R/C stunt model. Standard equipment includes a Webra TN type carburettor with automatic mixture control and available as an extra is a new Webra silencer with bleed fitting for pressurising the fuel tank.

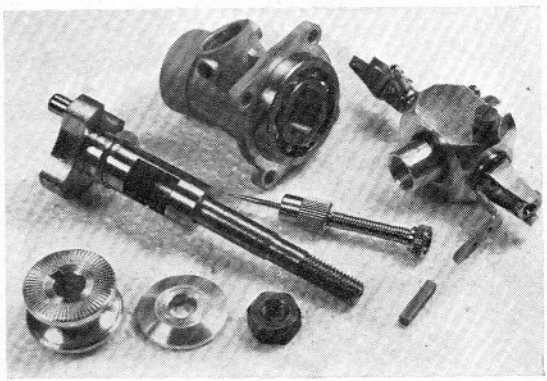
The manufacturer specifies a straight methanol and castor-oil fuel containing 25 to 30 per cent lubricant for running-in. When the engine is freed-off, a mixture containing 3 to 5 per cent nitromethane is recommended and the oil content can be reduced to 17 per cent. Suggested prop sizes are 11x5 and 10x6. After running-in, using 5 per cent nitro fuel and with the silencer fitted, we obtained the following prop speeds:

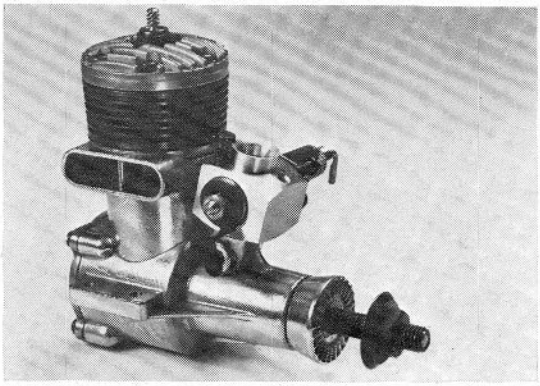
9,900	rpm	on a	12x5 Power-Prop standard
9,500	,,	,, an	11x7 Top-Flite maple
10,300	,,	,, ,,	11x6 Top-Flite maple
10,800	,,	,, ,,	11x6 Power-Prop maple
10,900	,,	,, ,,	11x5 Top-Flite standard
11,400	,,	,, ,,	11x5 Power-Prop standard
11,800	,,	,, a	10x6 Top-Flite maple
13,200	,,	,, ,,	9x6 Top-Flite maple

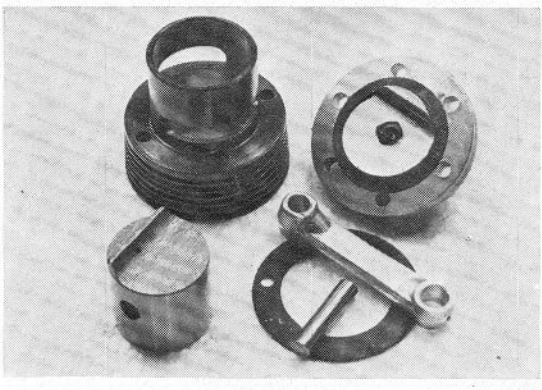
Starting was excellent. There is no provision for priming through the exhaust port when the silencer is fitted but we did not find this to be any disadvantage: under the warm climatic conditions existing at the time of testing, the engine started readily from cold after choking the intake. No choking was necessary for hot restarts – too much fuel would, in fact, delay starting.

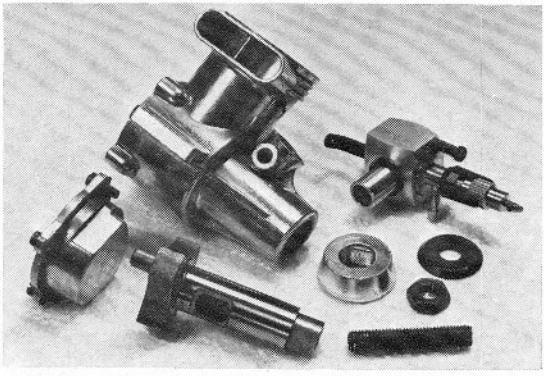
The manufacturer does not envisage the Webra 40 as a contender for pylon-racing honours under present pylon-racing regulations but if the user wishes to have more power available, he may fit the optional 8 mm. choke carburettor barrel which can be used to increase effective choke area by more than 60 per cent compared with that of the standard 6.5 mm. choke.

Actually, with the standard set-up, the Webra al-









Above left: The Irvine R/C version of the K&B Stallion 35. Carburettor is standard Kavan type. Left and above: Stallion 35 R/C parts. Note robust crankshaft with replaceable prop stud to reduce risk of expensive crash damage.

ready has quite a large choke area (23 sq. mm.) for a non-racing type 40 but we took the opportunity of checking the effect of the 8 mm. choke. As expected, this made very little difference when the engine was loaded for speeds below 10,000 r.p.m. There was, however, an increase of 300 r.p.m. on the 11x6 Power-Prop and 400 r.p.m. on the 10x6 Top-Flite maple.

The silencer, which is of a simple expansion chamber type without baffles, has a 9 mm. i.d. efflux (the same as on the Webra 61 silencer) giving an outlet area of nearly 64 sq. mm. which is fairly generous for a 40. It does, nevertheless, chop quite a bit off the engine's top-end when the 8 mm. carb is used. Less silencer and with 8 mm. choke, r.p.m. went up to 12,900 on a 10x6 Top-Flite maple and 14,400 on the 9x6.

Irrespective of the choke used, the throttle worked extremely well, especially when the silencer bleed was used to create a slight pressure in the fuel tank. Provided that the mixture control (throttle needle) was fairly accurately adjusted, the engine would idle safely at around 2,600 r.p.m. with an instant pick-up and reliable intermediate speed operation.

In design and construction, the Webra 40 is broadly similar to the Bleackhead 61. The carburettor (admittedly looking a trifle large on this engine) is the same as that used on the 61 except for different choke sizes. The engine is, of course, of the shaft-valve type with orthodox porting, twin ball-bearings in a detachable front housing, and a single ring aluminium piston. One simplification is the omission of the caged needle-bearing small-end featured by the 61. Instead, plain unbushed eyes are used at both ends of the forged aluminium alloy conrod.

The crankshaft has a 12 mm. main journal, an 8.5 mm. bore gas passage and a 5 mm. dia. pressed-in crankpin. The rectangular valve port is timed to open early at 20 deg. ABDC and to close at 55 deg. ATDC. Exhaust and transfer periods are 134 deg. and 110 deg. respectively. The drop-in cylinder liner has six exhaust ports and four transfer ports. A single skirt port is used in the piston and liner.

The Webra 40 has a bore and stroke of 21 mm. x 19 mm., giving a swept volume of 6.581 c.c. or 0.4016 cu. in. The engine weighs 295 grammes (10.40 oz.) less silencer and 356 grammes (12.55 oz.) with silencer. At a U.K. list price of £22.98 (plus £3.46 for silencer) it is fairly expensive for a 40. On the other hand, this does not seem excessive when one remembers that it cannot be very much cheaper to produce than the Blackhead 61 which sells at nearly £35.

K&B Stallion 35 R/C

The Stallion 35 engine first appeared on the American market more than seven years ago. At that time, K & B were still making their standard plain bearing Torpedo range of middle-priced engines and the Stallion was based on the 'green-head' Torpedo 35 stunt motor but was offered for only $9.95 (the Torpedo 35 was $14.95) in order to compete with other low-priced 35's of the period. Although it now costs rather more, the Stallion is still one of the cheapest medium size engines that one can buy, but K & B have always manufactured it solely as a standard 'sport type' control-line or free-flight engine without any form of throttle control and it has been left to the U.K. importers, Irvine Engines, to offer the Stallion suitably converted for radio-control use. Ron Irvine has done this simply by removing the needle-valve assembly and plastic venturi insert, shortening the intake and inserting a Kavan carburettor. This is retained by means of Allen grub screws inserted into the spray-bar holes which are tapped for this purpose.

We first tested a Stallion 35 – two of them in fact – back in 1964. Just for the record, the following