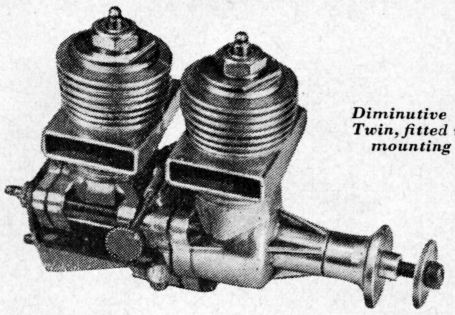
Engine Analysis

THREE INTERESTING 2.5 c.c.

K&B Allyn "SKY FURY",



Diminutive Sky Fury Twin, fitted with beam mounting bracket

AS AN OUTSTANDING example of production "model engineering" and for design ingenuity, we would rate this new American "twin" very highly. But performance-wise, frankly, we feel that it leaves much to be desired.

Apart from any considerations of novelty, or appearance, a model size twin must inevitably suffer from increased friction over a single cylinder engine of the same capacity. The fact that twin or multi-cylinder arrangements mean that piston speed can be reduced does not appear to offer benefits in model sizes and so the only other remaining advantage is that an alternative firing twin will be much better balanced, and should therefore produce less vibration—a feature particularly attractive for radio models.

Strangely enough, however, the K & B Allyn "twin" apparently ignores the fact that although alternate-firing in-line cylinders nullify the normal "out of balance" of a single cylinder unit, a farther "fore and aft" or "rocking" vibration is set up by virtue of the arrangement of the impulse strokes, one behind the other. Designed for radial mounting, the considerable overhang tends to make this "fore and aft" unbalance quite appreciable and although alternative beam mounting is available, this mount merely takes the form of an attachment anchored to the normal radial mounting points. Hence, whichever way the motor is mounted, our experience was that it vibrated just as much as any normal single-cylinder engine.

Starting is something of an art. We are tempted to say that getting the engine started at first was a feat, because of the peculiar "feel" and lack of positive compression when flicking over; the difficulty of priming each cylinder equally (finger choking being quite useless); and its apparent reluctance to run at anything other than high speed on very small props. Americans would probably get on much better since they are more used to loose piston fits and glow-motor technique, but we frankly confess that it took us over half an hour to get the "twin" running for the first time. Once it was going, and only then, was it apparent from the noise that we were dealing with a 2.5 c.c. engine. Physically, it looks a much smaller unit.

With each cylinder having its own glow plug there are several ways of connecting up the battery. We found the simplest and most satisfactory solution to be working the plugs in series, connecting one lead of a 4 volt battery, (through long leads to drop the voltage) to one plug and the other to the other plug. Getting each cylinder really wet with fuel and flicking over fast then usually produced results, but not with the consistency we have come to expect with modern engines. In fact, to save time and temper, electric starting was used for most of the subsequent test runs.

No specific performance measurements were taken, except that with a 6 x 4 Frog nylon prop. r.p.m. with Mercury No. 7 fuel, r.p.m. was about 15,000—a figure one would normally expect to be exceeded by a good 1.5 c.c. diesel. It did not appear to be very happy on larger propellers, nor was the prop. driver and shaft screw adequate to cope with larger sizes without slipping Some inconsistent running was traced to the cylinder heads working loose which, after tightening down whilst still hot, gave no further trouble. The needle The needle valve control was reasonably flexible, but appeared best left slightly on the rich side (and practically wide open for starting).

On the "engineering" side, the design is full of interest. The sketch shows the method of coupling up the main units. The front crankshaft is virtually nothing more than a propeller shaft, driven by an extension of the main crankshaft front crankpin engaging in a slot.