THE FOURNIER AVION-PLANEUR

A PROGRESS REPORT

FOURNIER IN THE U.K.

Eleven RF-4's are now flying in the UK and there's certainly no shortage of potential customers. In service with a number of flying clubs including The Leicestershire Aero Club, Leavesden Flying Club and Herts and Essex they are proving most popular with pilots as aerobatic machines and economic hour builders. It's a glider man's plane as well and an RF-4 group is extremely active at Lasham Gliding Centre.
Latest news as we go to press is that Eric Thurston, Managing Director of Herts and Essex Aero Club, has joined David Campbell and Sir Henry Dalrymple-White on the board of Sportair Limited, UK agents for Fournier. Sales and maintenance operations will in future be based at Stapleford Tawney where Thurston Engineering are well geared to carry out complete C of A's and engine overhauls on all light aircraft.
We despatched Peter Garrison to the Fournier factory in Germany who sent us back the following report. We hope to feature a more detailed airtest of the RF-4 together with further news on the two seat RF-5 in another issue.—Editor.

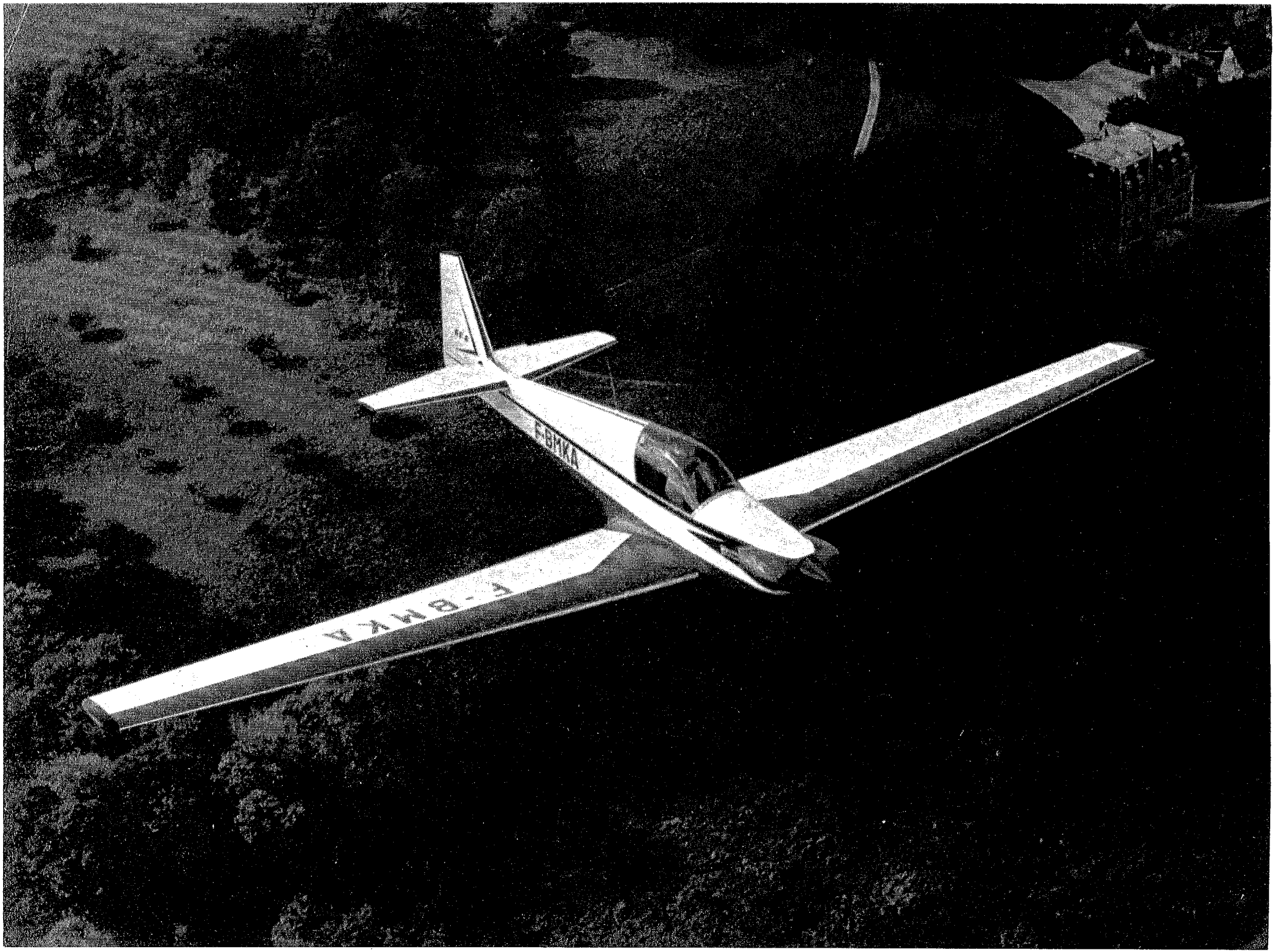
One hears a great deal on the Continent these days about international competition and 'the American challenge'; England is no different, and in the field of aviation particularly people have a way of being hypersensitive about what the other country is doing. Thus the more or less simultaneous appearance of the 'Pup' and the 'Yankee' seems to have invited comparison of the two aircraft, even though they are not particularly comparable. The Americans can point to their Braniff-style colours, bonded honeycomb structures, and relatively low price with a fair share of mercantile optimism, while the British can tout the good looks, sophisticated design, comfortable cabin and excellent handling of the 'Pup' as justification for its rather higher price. Indeed, the Senior Editor of a major American aviation monthly (he's an Englishman, as it happens) recently published a highly favourable pilot report on the 206S, and between such publicity and the export advantages of devaluation the 'Pup' might just be destined, in time, to give not only American Aircraft Co (producers of the 'Yankee) but Piper and Cessna as well a good bit of competition in their home market.

In the meantime, the French and Germans have got together to mount an attack on one corner of the aviation market in which England offers no competition—and, for that matter, no one else does either. I am speaking of the Fournier RF-4 Avion-Planeur. Formerly an all-French product except for its Volkswagen engine, built on a limited scale at an airfield beautifully situated in the French Alps and marketed by a company accordingly called Alpavia, the Avion-Planeur has outgrown its old home, and production has been taken over since January 1967 by the German firm of Sportavia GMBH-KE, and moved to a brand new factory on an isolated airfield in Germany, near the geographical centre of the Common Market. There, in the midst of rolling hills and shady forests (the company seems to have a penchant for idyllic settings) RF-4's are turned out at the rate of 8 per month.

The RF-4 is, indeed, an idyllic kind of airplane, conceived for an idyllic sort of flying, but surprisingly adaptable to a variety of more mundane applications. The name Avion-Planeur is important and tends to suffer in translation; the stress is on Avion, which means Airplane (powered) as opposed to Planeur (Sailplane). It is an Avion first, and a Planeur after—after one shuts down the engine. Not really a sailplane at all, the RF-4 is simply a single-seat sport or touring aircraft whose lift-drag ratio is so high that even with the propeller stopped it sinks at a leisurely 3.94 ft/sec; it should not be confused with the 'powered glider' genre of aircraft, whose performance under power is such as to encourage stopping the motor and if possible retracting it at one's earliest convenience. The RF-4 is first and foremost a powered aircraft—and this must be kept in mind when one weighs its price of £2,180, without radio. One must remember that it is not a matter of an outrageously costly sailplane, but of a touring aircraft unique of its kind, and of the very highest quality.

Price is a bugbear for sellers as well as for buyers, and when Rene Fournier originally developed the formula for the Avion-Planeur the idea was of a £1,200 sport plane. One is reminded of the once £1,000 BD-1, the white hope of the average pilot; wood and aluminium always seem to end up costing more than optimistic promises. Since the homebuilt RF-1 in 1960, much has changed; and with the many refinements demanded by time and Certificating Agencies, the RF-4 is quite a different bird from the old RF-1, 2, and the by now quite familiar RF-3. It is no longer the cheapest way to get into the air; indeed, except in imagination and intention, it never was. But it is certainly, at least in this writer's opinion, one of the nicest.

The first nice thing is apparent on a preflight walkaround. The plane is designed with grace and finesse, and is a delight to look at. Its awkward landing gear, like a duck's walk,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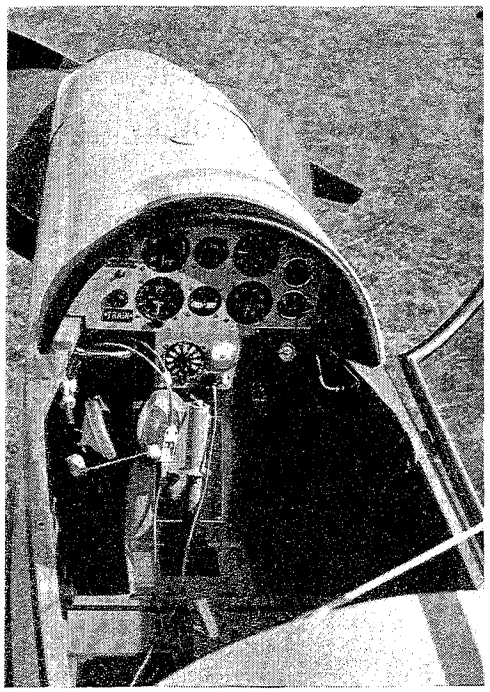


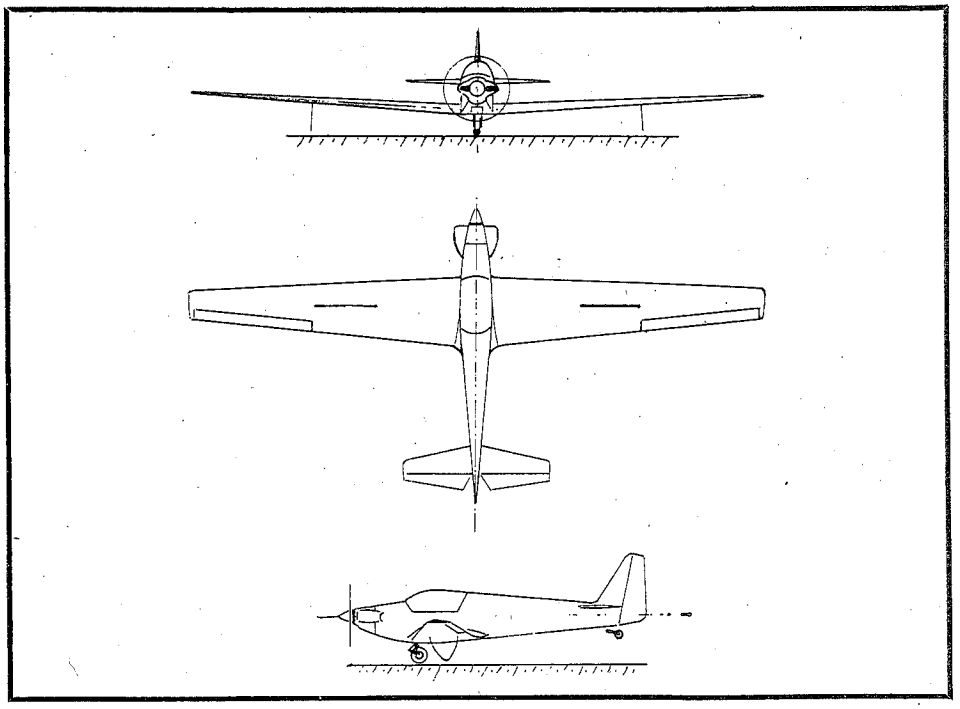
merely reminds you that it is meant for the air. It is the kind of airplane one likes to keep clean. The external surface is of the smoothness and fairness typical of high-quality wood construction. On most examples the cowlings, canopy, and wing- and fin-root fillets fit admirably; in any case the fairness remains above average, and a certain amount of variation is to be expected in what is in large part a hand-made product. The controls are very tightly gapped—a relief from the sight of those disastrous Jodel house - door - type articulations. Having visited the factory in Germany I can testify that the inside of the plane is as meticulously constructed and finished as the outside—that Teutonic thoroughness Lufthansa talks about.

Getting into the cockpit is half the fun—a slightly wider walkway might be a welcome modification for pilots unskilled in ballet or yoga—but once one is inside there is plenty of room in every direction except up. I am six feet tall and my hair brushed the canopy; seven-footers may have to forgo the pleasure. The safety harness is of the five-branch acrobatic type. The pilot's position is adjustable by means of cushions; controls are quite well placed, though I felt that the airbrake actuator handle was a trifle too far aft for my liking. In addition to the usual instruments (basic panel is standard equipment, including variometer) and controls there are a lot of little levers and handles in the cockpit; the most vitally interesting of which, at the moment, is the engine pull-starter. The old RF-3 had to be cranked by hand on the ground, and air restart was by a nose - dive - cum - valve - lifter arrangement; but the RF-4 has a cable starter (a la outboard motor) operated by pulling a lever in the cockpit. The engine starts very easily even in sub-freezing weather, though sometimes at the expense of one's thumb, since the usually very scrupulous manufacturers have neglected to pad the bracket in which the gas and choke controls are mounted, and which is dangerously close to the path of the starter lever. One learns the lesson once and for all, of course. On the subject of sharp edges, I might also mention that the red canopy-jettison handle looks brutally stiff and since it sticks out into the cockpit it might be nice if someone rounded its edges or cased it in plastic.

Taxying is simple even in wind, ground control is excellent, and the balancer wheels on the wings do their job well; foregoing a mag check, since there is only one mag, and a carb heat check because the carb is permanently heated, you can taxi straight to the runway and be off. Acceleration is what one would expect in an airplane with this kind of power loading; the tail comes up in twenty feet or so, and the nose in four hundred or so, at about 55 mph. Here the low wing loading and high aspect ratio take over from the high power loading, and climb is rapid—almost 700 ft/min at just under 70 mph, for a climb ratio of better than 8.7/1. For reasons of cooling, a climb speed of 81 mph is recommended for protracted ascents. Gear is retracted (a nice feeling in this kind of airplane) by operating a release lever followed by the gear lever, and then confirming up lock by means of the release lever, which should return to its lock position. The process is rapid and effortless.

On take-off one immediately notices the lightness of the controls. Roll and direction are what is usually understood by light, and the elevator is super light, comparable in resistance to that of a light sailplane. This is disconcerting at first, like driving a Volkswagen after becoming accustomed to the steering of an Oldsmobile. One gets used to it, but the fact remains that the elevator feels slightly out of proportion to the ailerons. I was reminded of the Bellanca 260, in which the opposite is the case—a light responsive roll control combined with somewhat heavier elevator—but the psychological effect of constant mild surprise is similar.

What you do once in the air is your choice—that is one of the nicest things about the RF-4. It's good at everything. Travelling: cruise 112 mph for 4 hours on 9 gallons of fuel—a fuel consumption of 50 mpg! Sightseeing: slow-fly at 60, using less than 1 gph, for 10 hours, if you can hold out that long. An RF-4 remained aloft for 15 hours last June in England, travelling a total distance of 1,300 miles between sunrise and sunset, and consuming *in all* slightly more than 2 gallons of fuel per hour. Aerobatics: unlike the RF-3, the RF-4 is stressed to Aerobatic Category Requirements, with limit load factors of +6 and −3 at gross weight. An airframe tested to destruction gave up the ghost at 13.8 g's—which suggests that the airplane is even stronger than it claims to be. Furthermore, unlike, say, the Citabria, which until the Yankee came along was the USA's only inexpensive aerobatic lightplane, the RF-4, which—



Champion, beware!—is now beginning to be exported to the US, is aerobatic not only in the sense that it doesn't break easily, but also in the sense that it will do what you want it to. The roll response of the RF-3 left something to be desired, but that of the RF-4 is up to about 40 or 45 deg/sec (a subjective estimate).

Frise ailerons are employed, with differential displacements; there is still a certain amount of adverse yaw—which for a student is, in my opinion, desirable, and certainly no inconvenience for an experienced pilot. For serious aerobatics some pilots might prefer that the rudder pedals were pivoted from above on a longer radius than their present floor mounting provides; but I found them perfectly satisfactory. Entry speeds for most manoeuvres are in or near the yellow; but speed builds up very rapidly in a shallow dive, and the airplane performs aerobatics very nicely with the engine stopped as well.

Finally, Sailplaning: there are two ways of attacking this regime. One is to throttle back to about 1,600 rpm, at which point the engine runs quite quietly and the sink rate is that of a high-performance sailplane. The other is to hunt up wave or thermal activity of sufficient strength by cruising around at low speed under power, and then to stop the engine, level the prop, and pretend you're in a *bona fide* glider, silence and all. The prop fairs nicely against the cowling, and only the last few inches are unmitigated drag—a nice example of the careful and imaginative designing that is apparent all over this airplane. With the motor stopped, you are, of course, heavy for a sailplane, and you cannot use all the gentle currents you normally could; but this disadvantage is more than offset by the possibility of going up any time one likes, under one's own power, and remaining aloft as long as one likes looking for the fairly strong thermals one needs. Midair restart is simple, rapid, and reliable—and rendered exciting by a slight initial tendency on the pilot's part to overcontrol on the stick while hauling on the starter lever—which is not, after all, quite as light as the elevator.

Landing—and it is a shame to land when one is having so much pleasure flying—is easy enough, the airbrakes (not dive brakes, note—they have, like the gear, a placard speed of about 90) giving a sink rate of better than 1,000 ft/min, and the monowheel gear behaving just like, or better than, conventional gear. One tends, again, to overuse that elevator at first, but this is no great problem since stall is long in coming, with ample warning from light, buzz, and buffet. Landing roll is of course very short; one holds pattern speeds in the 60's and 70's, and touches down a bit under 50, rolling little more than a hundred yards.

Optional equipment for the RF-4 includes a monoski landing gear attachment, a parachute, and an oxygen system. This last little titbit is for the use of wave riders; an RF-4 stopped its engine at 19,000 ft in the Pyrenees two years ago and then proceeded to climb to 35,000—which ought to give some idea of the airplane's possibilities. The other side of the coin is shown by Bernard Chauvreau's delivery flights to Africa—6,000 miles and more over desert and jungle by 500 and 600 mile stages, the long magneto never faltering. It is a general rule among aircraft designers that if you try to design an airplane for two applications, it will do both badly; this tends to be true of airplane-auto combinations, for instance, and of powered gliders. It is certainly not true of the RF-4—but perhaps precisely because Fournier designed only a high-efficiency touring aircraft, and the glider just came along of its own accord. The RF-4 is pure airplane—something to warm a pilot's or a designer's heart. Its usefulness in a variety of roles is obvious, and its ridiculously low operating cost makes it an excellent solo trainer, adaptable both to conventional training programmes and also to transition to gliding. Specialised applications with commercial usefulness include what the French call aerological prospecting—thermal and wave hunting in advance of sailplanes—which could be invaluable at large soaring centres. The first reflection of a commercial operator, particularly with regard to the usefulness of the RF-4 as a trainer aircraft, is that what is lacking is a big sister—a two-seat version for initial training, from which the student could transition to the RF-4 after solo while the instructor turns to new students in the two-seater. Well—it's coming. The RF-5, a slender and shark-like two-seat tandem prototype, began its certification flights in Germany in January. Equipped with a larger engine and electric starter, and with a 45 foot foldable wing (folding and unfolding take about 30 seconds and no tools), the RF-5 has performance and handling characteristics practically identical to those of the RF-4. It is intended to begin production, at a low rate, about the end of this year.

But the RF-5 will be a bit of a rare bird for some time to come. The price will be more than half again that of the RF-4, and production will be limited, with priority on orders being given to owners and operators of RF-4's; and so the RF-5 is likely to be, for several years at least, the specialty of flight training centres utilising the formula of RF-4 and RF-5 side by side. The formula is an ideal one, and should find no lack of adherents.

The RF-4, then, continues to be a real pilot's airplane, at once sensitive and tractable, justifying its really quite low price by a combination of features which no other airplane provides, and an allure which is, to my eye at least, pure sports car. It started out as a homebuilt, and earned its own way into series production; 160 have been sold to date. It did not have to be pushed—that ought to speak for itself. British sales of the Sportavia line are handled by Sportair Aviation Ltd now based at Stapleford. □