

Sportavia RS 180

Excellent controls, arrow-like stability, and a quiet cabin despite that huge bubble canopy. This German design has an all-wood structure covered with fibreglass and polyurethane.

Flight test by Alan Bramson.

Situated on Dahlemer Binz airfield not far from the Belgian border is a small German company named Sportavia-Putzer, where for some years those magnificent Fournier lightplanes have been built. (The two-seat RF-5 continues in production.) The Fournier range of sailplane-like powered aircraft was originally designed by Rene Fournier, a Frenchman who runs his own outfit named *Alpavia*; these remarkable machines continue to offer outstanding performance and economy on the power of a converted Volkswagen engine. The 'Beetle' flat four motor was originally designed for use in a pre-war lightplane, and had to be modified to power the 'People's Car'. Its employment in such aircraft as the Turbulent and the RF-4 and 5 is thus a reversion to the kind of work for which it was intended.

Sportavia have now come up with a four-seat tourer of their own design, and through their UK agents Fournier Supply Co. I was recently able to fly the demonstration RS 180 when it visited Biggin Hill. Its construction is of 3.2 mm mahogany ply covered with fibreglass and polyurethane paint, resulting in a glass-like finish. Although the fibreglass outer skin contributes to the overall strength of the airframe this is not taken into consideration in the stress calculations, so the fibreglass may be regarded as a safety bonus in addition to the protection it gives the main structure.

The RS 180 is a conventional-looking aircraft in the European tradition, with a large transparent canopy enclosure in place of the American-preferred doors. The tailplane sits about half way up the unswept fin, and there are separate elevators. The wing, which has a concave rear undersurface, carries Frise ailerons and electrically-operated split flaps. When lowered, these beautifully-made surfaces look as though they have been moulded in one piece. Two wing tanks hold a usable 48 imperial gallons of fuel. In little more than one minute two people can remove the top and bottom cowlings, thus leaving the engine (180 hp Lycoming) completely exposed for easy maintenance.

The undercarriage fairings do not enclose brake hoses, torque links etc, and as such are only doing half their job of reducing drag.



The cabin area is wide and very long with more than enough leg room for the tallest of people. It is enclosed by a large fixed bubble of clear plastic, while the forward portion of almost equal size opens towards the nose à la Robin. Two wing walkways are provided, and the canopy lock/handle may easily be reached from either side. The canopy may be locked about three inches open — useful while taxiing on a hot day.

The two front seats have an excellent adjustment system, and provide the pilots with comfortable support; while the bench seat in the rear offers passengers plenty of elbow and leg room. The seats are upholstered in a good-quality tweed material in two tones of fawn, but the cabin walls of the demonstration model have a rather dismal flock finish which does little for an otherwise tasteful cabin. The very tidy panel carries the usual flight instruments. To the right of them is an rpm indicator, with above it a blank space for a second VOR/ILS indicator. Further to the right are the VOR and radio compass instruments, followed by the radio stack. To the right again is a vertical row of engine temperature and pressure instruments.

Along the bottom edge of the instrument panel is a long row of electric switches of the rocker type, followed by fuses and thermal overload circuit breakers. On the extreme left is the key type ignition/starter switch, with next to it the now-standard red master switch. At each end of the panel there is an adjustable air vent and a pair of headset/hand mike plug sockets.

In the centre of the flight deck area is a console which divides the front compartment in two. It carries the throttle and mixture plungers, a pair of fuel gauges with a selector which points to the tank in use, the trim wheel and its position indicator, and the electric flap switch. The demonstrator is fitted with a glider hook whose release knob sprouts from a lever working in a slot cut in the top of the console.

Toe brakes are provided on the rudder pedals, and there are control sticks in place of the wheels so beloved by American manufacturers (but, I suspect, not so well liked by those American pilots who have had the opportunity of trying a stick). Two map pockets are built into the left and right hand walls of the cabin.

I like this flight deck with a few minor

PILOT

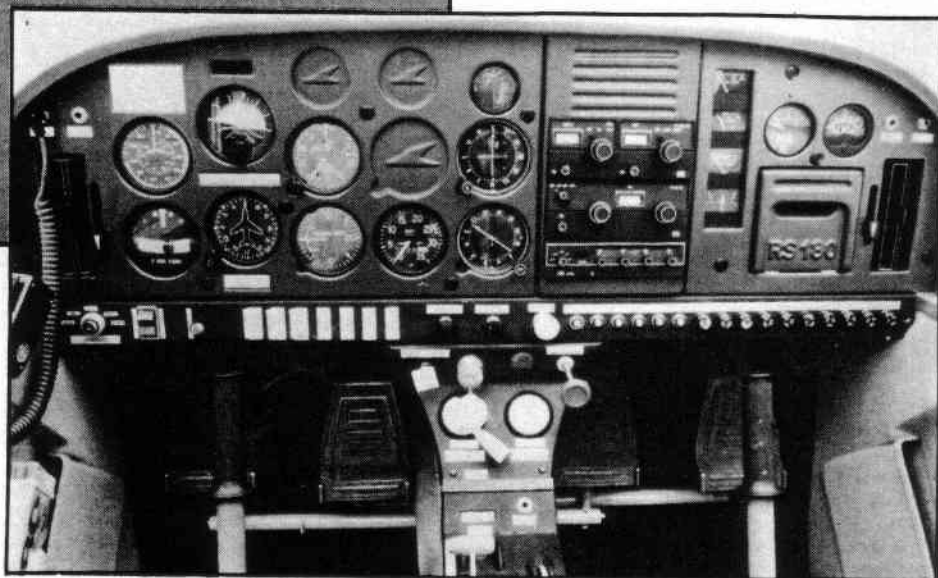


quality harness which is fitted with a quick release box for the four straps. Visibility is outstanding in all directions, and is only equalled by the little Robin trainers. The nose-wheel steering, on the other hand, could barely cope with the modest wind blowing across the taxi track. It was explained to me that spring linkage from the rudder pedals has been kept somewhat weaker than usual, to ensure that the nose-wheel remained along the axis of the aircraft while in flight. To some extent the Cessna 150/152/172 range also runs out of nose-wheel steering in a crosswind, and one can easily deal with the matter by applying a little brake on the side required. It could also be said that the Rallye and the Gulfstream American singles have no nose-wheel steering at all, direction on the ground being maintained on the brakes. Yet I think something should be done to improve RS 180 nose-wheel control while taxiing. The brakes, by the way, work well.

Broadly speaking, aeroplanes may be divided into two distinct categories. There are the bumble bees that thrash their way through the air, defying gravity and using millions of revs to maintain height which is given away at the slightest provocation. Category two is bursting to leap into the air, seems to require less and less power to stay aloft and has a tendency to climb as soon as one's attention is on other things. The Sportavia RS 180 is decidedly in the latter camp. Just 7½ seconds after opening the throttle we were off the ground and climbing at 1,200-1,500 feet a minute in the turbulent air of the day. Fully loaded they claim 900 feet a minute, but D-EMUR, the demonstration aircraft, has a fine pitch

reservations (and in expressing them I hasten to acknowledge that other pilots may be well satisfied with the present layout. I think it is a sound principle when designing a cockpit to have all related controls/instruments together. In the RS 180 the flap switch is low down on the console, while the position indicator, a good one calibrated in degrees, is at the top of the panel. Likewise the rpm indicator is separated from all other engine instruments by avionics and their related instruments; and while I would imagine the designer wanted the important engine speed indicator to be in front of the pilot, it is a pity the other engine read-outs have to be so far away. I particularly liked the excellent fuel management system, which is similar to that on the Gulfstream American Tiger/Cheetah and the Piper Tomahawk. But why spoil it by fitting a pair of fuel gauges that have only two contents marks, full and empty? Of course these are matters that can easily be rectified in production. Otherwise, inside and out, the RS 180 is beautifully finished.

With full tanks, and the right hand seat occupied by Manfred Schlieva, the aircraft's designer, I tied in using the good-



Stick controls, and a centre console for power levers, flap and trim controls. "Inside and out, the RS180 is beautifully finished."

propeller for glider towing and this is bound to improve climb performance — though at the expense of cruising speed.

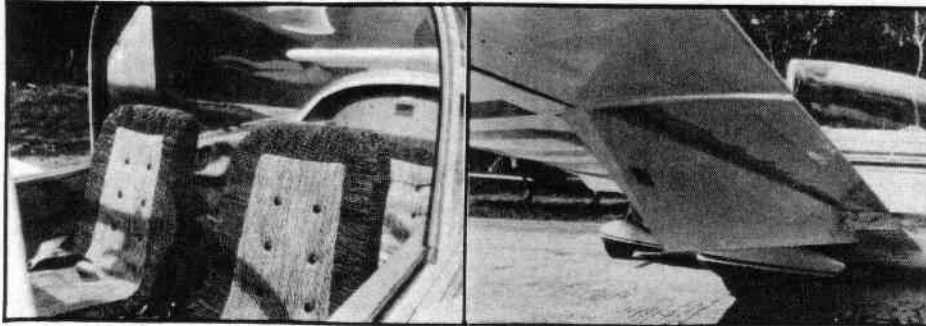
At 4,000 feet 75% power gave a TAS of 126 knots, and 63% 116 knots. Noise levels are very good having regard to all that perspex; Sportavia have devoted much development time to devising a system of exhaust silencers which reduces engine noise without causing an unacceptable power loss.

Since you sit in a large bubble, visibility in all directions is almost unrestricted — although on a sunny day I should imagine —

Sportavia RS 180

Continued

tinted screens would be an advantage in the roof. In turns one can see all around, and there are no blind spots of the kind that frighten thinking pilots in busy parts of the world. The controls are excellent, with particularly fine ailerons and a nicely-gear-ed elevator trim. If you put a wing down and then release the stick the aircraft slowly rolls itself level — which is more than many of the modern designs will do. Directionally it flies like an arrow, and, stick free, only one cycle is needed to regain a trimmed 125 knots after the nose has been displaced to effect a ten-knot speed reduction.



The beautifully-made split flaps "look as though they have been moulded in one piece." The seats are upholstered in two tones of fawn. Top and bottom cowlings can be removed by two people in one minute; and special attention has been given to soundproofing the engine.

There is no wing drop at the stall, which (flaps up) comes at 65 knots indicated. Take-off flap (20°) takes seven knots off, that and full flap (50°) results in a g-break at 55 knots. Flap limiting speed is 115 knots — well above the initial approach speed of 70 knots. In fact this is quite a strong airframe with a V_{ne} (never-exceed speed) of 174 knots — 200 mph. It is refreshing to find a newly-designed light aircraft with split flaps — as opposed to the anaemic slotted devices that have become the fashion, and which (with few exceptions) fail to produce enough drag on the approach. The split flaps on the RS 180 are effective, and (largely because of the raised tailplane) trim changes are slight. At 70 knots over the threshold it only remains to level out, close the throttle and keep it in the air until the main wheels make contact, with the aircraft in a tail-down attitude.

Pre-war wooden lightplanes such as the Miles Monarch and Falcon and the DH Moth Minor relied upon caseine glue that did not improve with age and which also took exception to damp. Modern glues are quite remarkable, and present-day wooden airframes may well outlast metal ones. Wood does not corrode or suffer fatigue problems. It is commonly believed that wooden airframes are lighter than those built from aluminium alloy, but this is not the case. Wooden airframes are generally quieter than metal ones. One has only to inspect quite old Jodels and early Robin lightplanes to appreciate the toughness of wooden construction. The RS 180, with its fibreglass outer skin, should outlast even these.

The Sportavia RS180 is in direct competition with the Robin DR 400/180 Regent. Both aircraft are of wooden construction, the Regent having Dacron-covered wings; both fly on 180 hp Lycoming engines; and both have similar cabin enclosures with forward-sliding canopies.

Of the two the RS 180 has a slightly wider



and rather longer cabin than the Robin Regent; and I would say it is quieter. The Robin Regent is about 10-12 knots faster at 75 per cent power, has a 50 nm range advantage with the standard 42 gallon fuel system (250 nm greater range when the optional 53 gallon system is fitted), and has the advantage of a separate baggage door.

The Sportavia RS 180 has a maximum authorised take-off weight of 2,425 pounds. Empty weight is quoted as 1,411 pounds but by the time a full instrument panel is added along with a simple avionics installation and other essential bits and pieces that is likely to be 1,460 pounds, leaving a useful load of 965 pounds. Full fuel weighs 348 pounds, leaving a payload of 617 pounds — which allows three 170 pound adults to be carried along with 99 pounds of baggage, or two 170 pound men and two 113 pound

(about 8 stone) women and 51 pounds of baggage. In this condition it will fly its no-reserve 750 nm — say 600 nm allowing for take-off, climb and 45 minutes' diversion. A full cabin, four 170 pound adults plus 99 pounds of baggage, leaves 186 pounds for fuel — about 26 gallons — and that reduces the range to only 325 nm with reserves.

The RS 180 and the Regent make interesting comparisons. Both aircraft are beautifully made and finished to high standards; each design offers superb visibility — the RS 180 through 360 degrees by virtue of its bubble canopy design; and both handle in typical European fashion — move the controls and the expected happens with precision. The RS 180 has a slightly heavier airframe, and since maximum weight is the same in each case, the Regent offers a correspondingly better useful load. The RS 180



pays for its larger cabin in cruising speed, and Sportavia must be throwing away a few knots by not designing their undercarriage fairings with more care. The DR 400 with its Jodel-type wing is an old design, whereas the RS 180 has emerged in recent years. However, notwithstanding the advantage of recency, it fails to equal the sheer *efficiency* of the Regent. Yet it is a fine aircraft by any standards.

I am told that it performs well as a glider tug, and this is bound to increase its potential market. As such it would not need a full instrument panel nor various other extras like wheel fairings, pitot heater, navigation and landing lights etc. Allowing for the cost of fitting a glider hook and release gear, doing without these items would save around £1,200.

As a tourer the Sportavia RS 180 is a big comfortable four-seater of average performance but impeccable manners. It is easy to fly, pleasant to handle and beautifully made. And they have tried to do something about cabin noise levels — with some success, too. □

Sportavia RS 180

Dimensions

Wing span	34 ft 5 ins
Wing area	156 sq ft
Wing loading	15.5 lbs/sq ft
Power loading	13.47 lbs/hp
Length	23 ft 5 ins
Height	8 ft 4 ins

Weights

Max take-off	2,425 lbs
Empty (basic aircraft)	1,411 lbs
Useful load	1,014 lbs
Max fuel	48 imp galls
Max baggage	99 lbs

Performance (with cruise prop)

75% cruise at 8,500 ft	132 knots
Rate of climb	900 ft/min
Service ceiling	17,700 ft
Max range (no reserves)	750 nm

Take-off distance
(50 ft screen) 1,476 ft

Engine

Lycoming O-360-A3A carburettor-type of 180 hp.

Propeller

Choice of fine pitch climb/glider-towing propeller, or cruise propeller. A three-blade Hoffmann constant speed propeller is offered as an option, increasing the cruising speed to 140 knots at 75% power.

Price

With full panel, lighting, pitot heater, wheel fairings but no radio approximately £25,000.

Agents

Fournier Supply Co., 204 Coldharbour Lane, London SW9 8SA.

RS 180

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