

# Flight test: Sirocco 377GB

By Eric Woods

## Introduction

Although the Sirocco's shape is familiar enough from books and magazines, not many people in Britain have seen one fly, as it is only just now receiving its type approval – the first three-axis machine to do so. As I got up at 5.30 on a dark foggy winter morning and hit the road to Midland Ultralights in Leicestershire, I wondered how it would feel to fly, and whether it would look as good in the flesh as in the photos.

In fact it looked even nicer, the fuselage layout obviously owing much to the attractive sailplane designs of recent years. The empennage, including the all-flying tailplane, is all of moulded plastic – strong, virtually maintenance free and easy to clean. However, the wing is the usual tube-and-cloth construction, though it is unusual in having slightly swept back leading edges made from GRP, the idea being to present a consistent profile and thus give good flying qualities. A tab is provided for pitch trim adjustment.

Spoilers handle roll control and yaw is governed by a conventional rudder, though the set-up has one feature which as far as I'm aware is unique among light aircraft, let alone microlights – a separate nosewheel control. A nosewheel brake is provided, operated by a cycle-type lever on the steering tiller.

Although the original versions of this French design, produced by Aviasud, used flat-twin direct-drive JPX engines of 425 cc, UK licensee Midland Ultralights opted for a 377 Rotax with integral gearbox – hence the title Sirocco 377GB.

Pilot accommodation is integrally moulded into the fuselage, with the tank behind the removable seat back. Basic instrumentation is an altimeter and ASI, but the test aircraft had in addition compass, VSI, tacho, chtg and slip/skid indicator.

## Discussion

This is an aircraft which is much easier to rig if you have an assistant. Otherwise you need trestles to support the wings while you offer them up to the fuselage, having first fitted their battens. Only four pip-pins and a couple of bolts are needed to secure the wings, which can easily be stored with battens still inside. The only other job is to fit the tailplane. The whole process only takes a few minutes, but does not lend itself to being hurried.

On the test aircraft the pull start was outside the cockpit, making in-flight restarts impossible, but she fired up easily enough using the recommended

## Score chart

(A excellent, B good, C average, D poor, E very poor)

Engine	A
Flight controls	B+
Noise level	B+
Ground handling	A
Flight handling	B+
Crosswind control	*A
Ground steering	A
Climb rate	B+
Glide and sink rate	B
Speed range	**B+
Rigging and portability	B
Design and construction	A
Novice pilot suitability	B
Experienced pilot suitability	A

\*based on comments from other pilots – not personally assessed.

\*\*see comment in text.

start procedure, running very smoothly and quietly both on the ground and in flight. The beautifully finished prop is obviously well matched as there is plenty of power and no apparent vibration or prop-wash noise, most of the decibels coming from the gearbox.

Seat-back to rudder-pedal distance can be varied by a reasonable amount to customer preference, and the cockpit in general is very comfortable. The throttle, trimmer and choke fall easily to hand on the left (of course) and the nosewheel steering is on the right. A fuel gauge is easily visible behind the pilot's left arm, while the tap is behind his right arm.

I confess to playing with the novel nosewheel steering arrangement much more than necessary, as I found it fascinating and very positive. As a further aid to manoeuvring, rudder control is available at anything more than a walking pace, making taxiing and take-off very straightforward. The Sirocco tends to pop into the air rather like a Pathfinder I, although in less distance, and will happily climb at 58 mph or more unless a positive effort is made to achieve the recommended 52. I found it best to trim while airborne to maintain the recommended speed, and this does give the best climb rate – even better than the claimed figure, in my experience.

## Midland Ultralights

### Sirocco 377GB

(Three-axis)

**MANUFACTURER** — Midland Ultralights, Kilworth Marina, N Kilworth, Lutterworth, Leicester LE17 6JB; tel 0858 880484.

**SUMMARY** — Single-seat single-engined high-wing monoplane with conventional three-axis control. Wing has swept back leading and trailing edges, and constant chord; conventional tail. Pitch control by fully flying tail, yaw control by fin-mounted rudder; roll control by half-span spoilers; control inputs through stick for pitch/roll and pedals for yaw. Wing braced from above by kingpost and cables, from below by cables; wing profile modified TK7315 McCready; double-surface. Undercarriage has three wheels in tricycle formation with additional tailskid; steel-spring suspension on nose-wheel and glass-fibre suspension on main wheels. Push-right go-right nosewheel steering independent from yaw control. Brake on nose-wheel. Glass-fibre/polyester fuselage, partially enclosed. Engine mounted below wing driving pusher propeller. Leading edge in stratified glass-fibre/epoxy and tail in stratified glass-fibre/polyester; fuselage spar bidirectional stratified.

**EXTERNAL DIMENSIONS AND AREAS** — Length overall 19.0 ft, 5.80 m. Height overall 8.9 ft, 2.70 m. Wing span 33.2 ft, 10.12 m.

Constant chord 4.6 ft, 1.38 m. Dihedral 1°. Sweepback 10°. Tailplane span 7.2 ft, 2.20 m. Fin height 3.7 ft, 1.10 m. Total wing area 151 ft<sup>2</sup>, 14 m<sup>2</sup>. Total spoiler area 6.9 ft<sup>2</sup>, 0.64 m<sup>2</sup>. Fin area 4.3 ft<sup>2</sup>, 0.40 m<sup>2</sup>. Rudder area 4.1 ft<sup>2</sup>, 0.38 m<sup>2</sup>. Total elevator area 15.6 ft<sup>2</sup>, 1.45 m<sup>2</sup>. Wing aspect ratio 7.3/1. Wheel track 5.9 ft, 1.80 m. Wheelbase 4.7 ft, 1.40 m. Nose-wheel diameter overall 12 inch, 30 cm. Main wheels diameter overall 12 inch, 30 cm.

**POWER PLANT** — Rotax 377 engine. Max power 35 hp at 6750 rpm. Propeller diameter and pitch 52 × 32 inch, 1.32 × 0.76 m. Gearbox reduction, ratio 2.6/1. Max static thrust 220 lb, 100 kg. Power per unit area 0.23 hp/ft<sup>2</sup>, 2.5 hp/m<sup>2</sup>. Fuel capacity 5.3 US gal, 4.4 Imp gal, 20.0 litre.

**WEIGHTS & LOADINGS** — Empty weight 300 lb, 136 kg. Max take-off weight 529 lb, 240 kg. Payload 229 lb, 104 kg. Max wing loading 3.50 lb/ft<sup>2</sup>, 17.1 kg/m<sup>2</sup>. Max power loading 15.1 lb/hp, 6.9 kg/hp. Load factors +4.0g, -2.0g recommended, +6.7g, -3.6g ultimate.

**PERFORMANCE\*** — Max level speed 69 mph. Never exceed speed 86 mph. Max cruising speed 69 mph. Economic cruising speed 45 mph. Stalling speed 28 mph. Max climb rate at sea level 1200 ft/min. Min sink rate NC. Best glide ratio with power off 12/1 at 45 mph. Take-off distance to clear 15 m obstacle 500 ft. Take-off roll 70 ft. Landing distance to clear 15 m

► If I hadn't been told that the Sirocco had spoilers for roll control I wouldn't have guessed, as the lack of slow-speed control usually attributed to them was conspicuous by its absence. While it's quite possible to make turns without the rudder, the latter is far from redundant. It has ample power, making nicely balanced turns easily co-ordinated right through the speed range. I found I could sweep the nose round the horizon at ever increasing rates — pure fun!

Both powered and power-off stalls were carried out and in all cases were defined by a little pre-stall buffeting followed by a slight tendency to drop a wing, followed in turn by self-recovery and very little height loss.

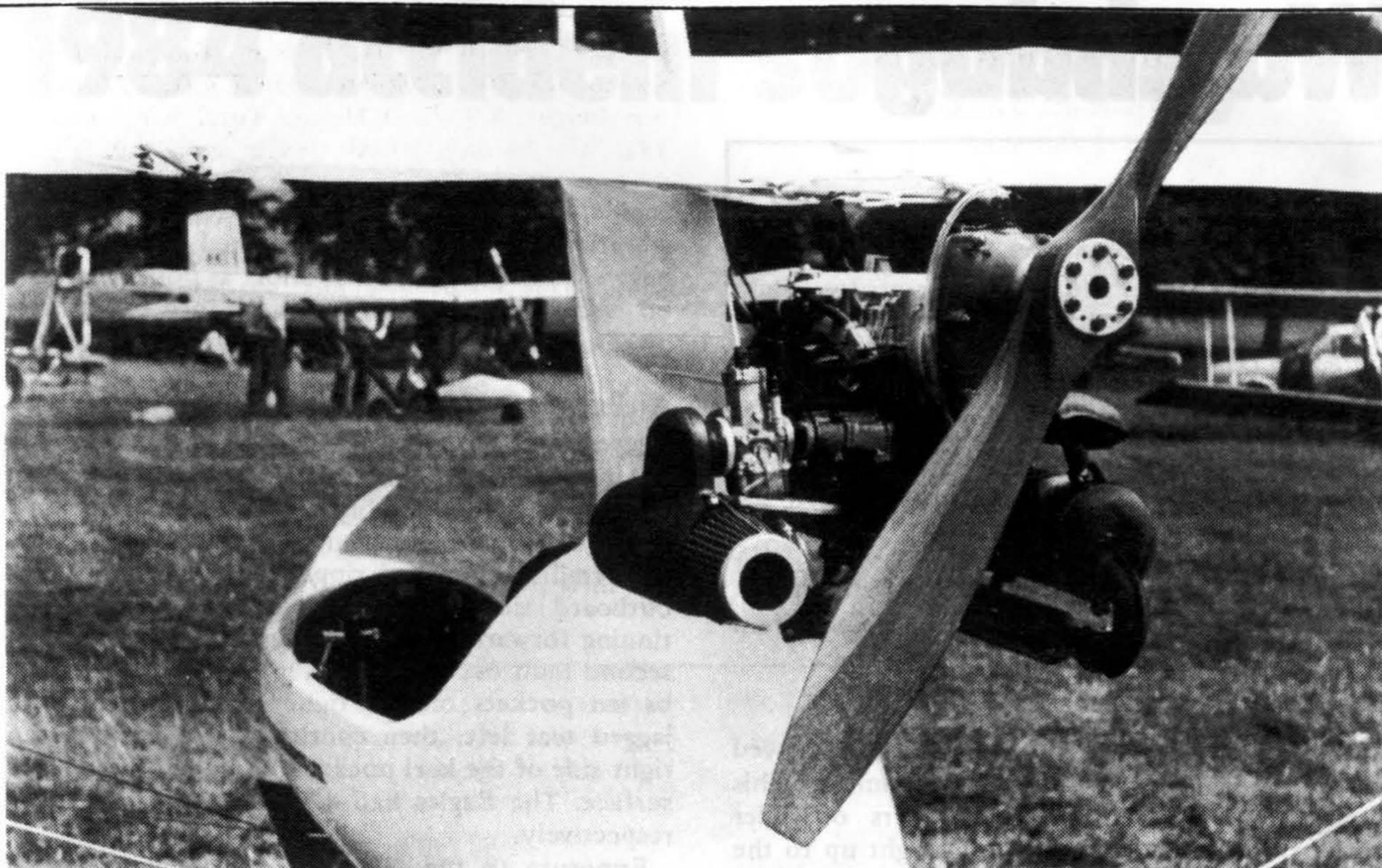
I made several approaches and landings, and if they were a little scruffy it was the fault of the pilot rather than the aircraft, as I'd spent the preceding weeks flying 260 t machines and flaring at 30 ft rather than 30 inches or less. I found the brake adequate for providing moderate retardation and useful for preventing embarrassing incidents on smooth tarmac (the aircraft is very free-running),

but it is not designed to make reparation for poor landing technique. Fortunately the undercarriage is well up to the job; it is similar in operation to the Cessna light singles and the nosewheel, always the potential weak link on a tricycle arrangement, looks adequately strong, though its steering system renders it open to abuse by the heavy footed.

### Conclusion

The Sirocco has been described as a plastic Pathfinder I, but that does not do it justice. I made the Pathfinder's initial test flight, and, worthy though the aircraft was at the time, the Sirocco is a great advance on it. Like any good flying machine, the Sirocco responds to positive but gentle handling, and this applies as much to the trim and nosewheel steering as to the flying controls. It's delightful to fly, so much so that it's very hard to find anything to criticise.

We quote in the panel the figures used for the type approval, but I have a hunch that they are conservative. Certainly in flight the instruments say you're doing better, and the seat of your pants says



obstacle 500 ft. Landing roll 165 ft. Service ceiling 10,500 ft. Range at average cruising speed 186 mile. Noise level NC.

*\*Under the following test conditions – Airfield altitude 0 ft. Ground temperature 15 °C. Ground wind speed 0 mph. Ground pressure 1013 mB. Payload 229 lb, 104 kg.*

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Light figures are supplied by manufacturer.

*NC means data not available.*

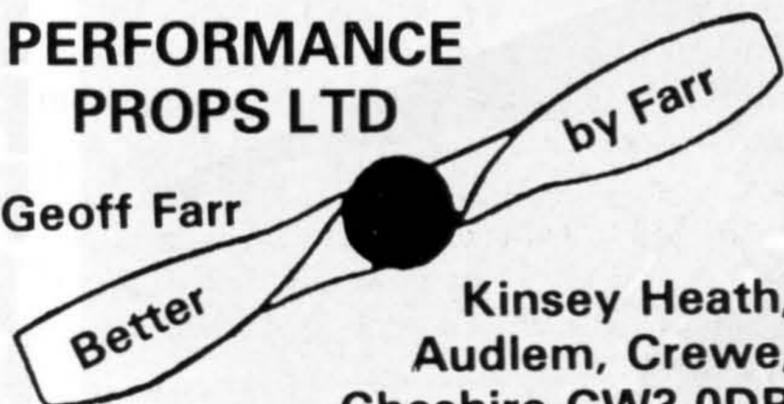
you're doing better, but strangely the aircraft does not look especially fast to a ground observer. It would be interesting to set it against the Shadow, or the faster trikes such as the Gemini Flash and Puma Sprint.

The score chart tells its own story, and is the most favourable this magazine has ever printed.

But before closing, I must also add a word of praise for the constructors, Midland Ultralights, whose frank attitude I found very refreshing. The Sirocco is just the machine to build a bridge to the doubters among the conventional fliers, and I'm happy to say that its constructors seem to be doing just that.

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