



Flying the Fourniers

PILOT report

by Mike Holtby

AFTER WORLD WAR II, with the European light aviation movement in ruins, it seemed natural that interest should return to the cheapest and easiest form of flying that could be obtained—gliding. When I was living in Germany fifteen years ago, there were already some 800 gliding and flying clubs in that country alone. It was a common sight, on any summer weekend, to see a group of villagers dragging their home-made glider up some local hillside for bungee launching. What more natural thought, then, than to step up the amount of training by putting an engine in a two seater. Logical enough, and many versions have been developed with engines positioned anywhere from the nose to the tail of the glider. Even retractable power units have been tried.

In 1960, Monsieur Rene Fournier produced his RF1, a motorised sailplane which combined the best qualities of both power and gliding machines. So impressive was the design that the French Government

financed the construction of two improved prototypes which were designated RF2, and went on to order six production machines for the National clubs. Delivery of these machines, the RF3, started in November 1963, and went on for several years, a total of 95 being sold. Their quality being made evident when one of them invaded Boeing territory to claim a world record for its class, at 36,800 feet.

Following the sale of the manufacturing rights to Sportavia-Putzer GmbH in Germany, the wing was strengthened for aerobatics, and after adding a few other improvements, the RF4D came into being, some 200 being sold to date. It was only a matter of time before a dual version was built, hence the RF5.

Fournier's representatives in the UK are Sportair Aviation Ltd, originally based at Luton under the ownership of David Campbell, but now also at Biggin Hill, where co-Directors, Brian Stevens and Neil Jensen operate the agency.

Also at the Biggin Hill base is the Sportair Flying Club, whose membership has expanded to 80 persons already.

Having some experience of the RF4, I didn't hesitate when Sportair offered me the chance to try out the RF5 recently. With the aircraft busy making sales and demonstration flights around the country, what more appropriate place to catch up with it than Lasham airfield, the mecca of the silent flight fraternity.

Duly arriving at the field late one sunny afternoon, I was met by Messrs Campbell and Jensen and given a run-down on the aircraft. Basically the Fourniers are of wooden construction like any conventional sailplane. The mainspar is laminated to increase strength, and the ribs are built around it. The wing forward of the spar is, like the fuselage, skinned in plywood, the remaining surfaces being fabric covered. Epoxy paint gives a very smooth and attractive finish to the machine.

In order to reduce storage

space, and hangarage fees, each wing folds at a point $7\frac{1}{2}$ feet from the tip. Removal of a securing pin allows the metal strip covering the wing joint to be peeled off, thus revealing the locking mechanism. This consists of a small metal lever which, when moved forward, withdraws the large steel bolt that joins the wing sections together. The outer wing is then simply swung up and inboard through 180° to lie flush with the inner section. The aileron linkage is cleverly designed so that it remains connected even after folding, a good sales point, as de-rigging at the end of a busy day can be a tiresome chore.

Landing gear consists of a single retractable main wheel, positioned in line with the wing leading edge. Unlike other Fourniers, it has two small oleo's which give a comfortable ride over rough ground. The tail wheel is steerable via the rudder pedals, and the wingtips are kept clear of the ground by two 'Pogo's', strong wire supports mounted in the mainspar, which each sport a small plastic wheel. They are, I hasten to add, far stronger than you might think.

The fibreglass engine cowling is in two sections. The lower half is located on lugs protruding from the engine mounting, while the upper section is affixed to it by three Dzus fasteners on each side. With the cowling removed, the engine is easy to work on from any angle. There's little one can say about the engine itself. Does anyone not know what a Volkswagen power plant looks like? Suffice it to say that this version is the Sportavia Limbach SL1700E, rated at 68 horsepower at 3600 rpm, and like the other variants, it's small, noisy to sit behind and will probably run for ever! The fuel tanks are positioned in the wing root, at the leading edge. They are removable, and hold a total of 13.8 Imp galls.

Climbing onto the left wing, we stepped into the cockpit. It's quite a long reach so Mini-skirted drivers will be likely to arouse even greater interest than usual. The front office is comfortable and spacious, with all controls easily reached. Before strapping in, the rudder pedals can be adjusted over a ten inch range by means of a floor mounted knob. Flying instruments are neatly positioned on the panel, below which is a central console that's really the mainwheel housing, doubling as a convenient mounting for the fuses, engine instruments, fuel gauge, magneto and other electrical switches.

Under the instrument panel and to the left of the centre console

is the hand brake, looking rather like an umbrella handle. It operates by pulling rearwards, and rotates clockwise to lock in the parking position. Left of the brake is the yellow starter handle, while on the cockpit wall is the small conventional type throttle. There are no flaps on this aircraft, instead there are spoilers mounted behind the mainspar, halfway along the wing, and operated by a long lever beside the pilot's left knee. Extending them in flight gives a high rate of descent in a nose down attitude, without allowing a build up in speed. To the right of the panel are the fuel cock and choke, and on the right hand wall is the coarse acting trimmer, which operates a tab on the elevator. Beside the pilot's right thigh is the undercarriage handle and safety lock. To operate them, you first change hands on stick, then grasp the stubby locking lever, releasing it by pressing the thumb button on top, then pull the lever aft. With the gear now unsafe, the larger red coloured handle is free to move, and is pulled back alongside the pilot's elbow. This movement mechanically retracts the mainwheel into its well, closing the two fairing doors as it goes. The last part of the handle movement causes the locking lever to rotate forward once more, locking the wheel in the up position. Phew! It's more difficult to describe than to perform since the mechanism is very well balanced and therefore light to use, but until you're familiar with the machine it's advisable to get established in the climb before the groping starts.

With our straps secured, we swung the large bubble canopy down into place, locking it with the hook latches operable from either seat. Visibility is magnificent, with few reflections except when heading into sun. Ventilation is quite adequate, and in addition there are two small sliding windows in the left side of the hood. Baggage space for 44 lbs is behind the rear seat.

The rear cockpit has only the basic instruments on a small panel in front of the pilot, plus engine and flying controls, so starting procedure is all from the front. A couple of pumps on the throttle sufficed to prime the engine, and with the appropriate switches on, the engine fired as soon as I pulled lightly on the starter handle.

On grass, one needs fairly high power to keep moving, and so the aircraft stops easily when throttled back. However on tarmac it's easy to pick up excess speed which can be tricky, since the handbrake is not too effective, and many airfields have marker boards well inside the

Fournier's 45 ft wingspan.

Before take-off there's little to check other than 'Fuel and noise'. With a single ignition system you can't very well check for a Mag drop. Like all VW engines, the Limbach requires little warming, no more than five minutes in winter, and in this instance we found that, with the handbrake on, the engine could be accelerated rapidly to 2900 rpm, indicating that it was ready to go despite the sluggish oil temperature gauge. At this power setting, the brake would not hold, and so I continued with the take-off run, holding the stick well forward to lift the tail out of the grass and obtain the shortest take-off run.

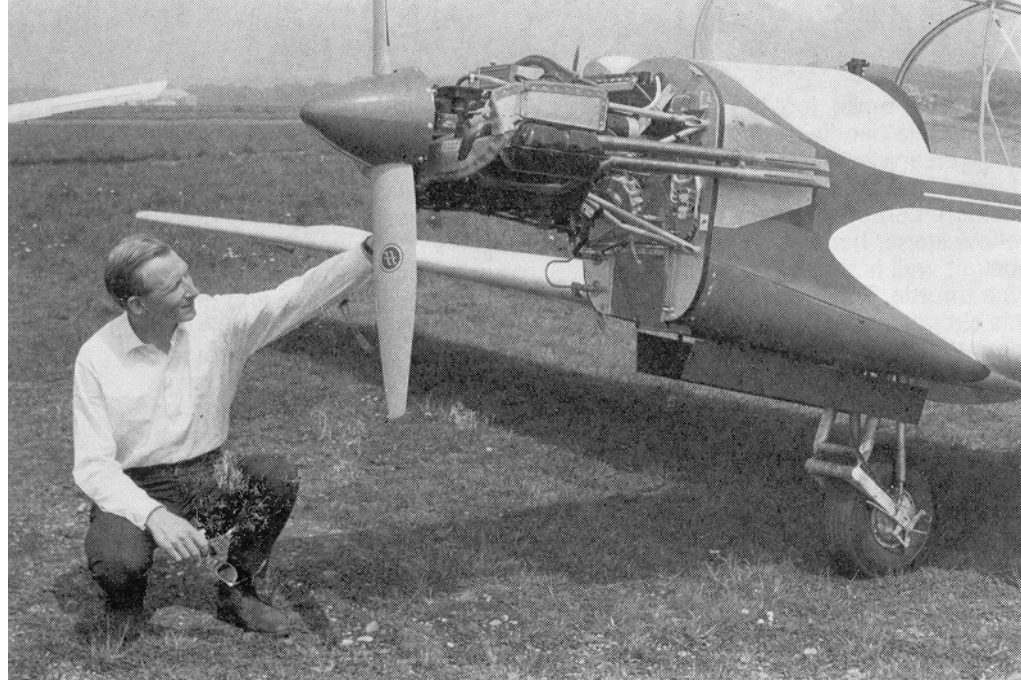
As the slipstream took effect over the tail surfaces, both rudder and elevators became quite sensitive. With a light cross wind I was over-controlling a little, and dancing gently around the line of the take-off path, until I relaxed and made smaller control movements.

The RF5 unsticks in some 200 yards at an indicated 56 mph, no mean performance on 68 hp. Needless to say, this power does not give a startling climb performance, and the slow acceleration to the best climb figure of 68 mph results in a rate of 500 ft/min at max auw. On this occasion we had under half fuel and were climbing at an initial 850 ft/min once the gear was up. During our climb the RF5 proved to be completely stable and docile. The elevator is sheer delight, and the ailerons, though somewhat heavier, are still pleasant to handle. The plane can be flown quite easily with thumb and forefinger alone.

Stalls without power are so gentle that it is hard to tell when they occur but for the stall warning light, a steady red, soon to be made flashing, triggered by a sensor on the right wing. A very slight burble is felt prior to a smooth nosedown pitch. The slightest relaxation on the stick unstalls her instantly. With power on, the nose has to be held high above the horizon before the speed creeps below 47 mph and she finally noses down. Relax the pressure and push on full power and you're unlikely to lose more than fifty feet.

We tried stalling from a steep turn with full power, but apart from a protesting shudder as the airflow broke up over the outer wing section, she didn't wish to know. Only a moron could reach this point without realising that all was not normal. So what happens next? So alright, we continued our moronic hauling,

Continued over page



Brian Stevens exposes the small V/W power unit

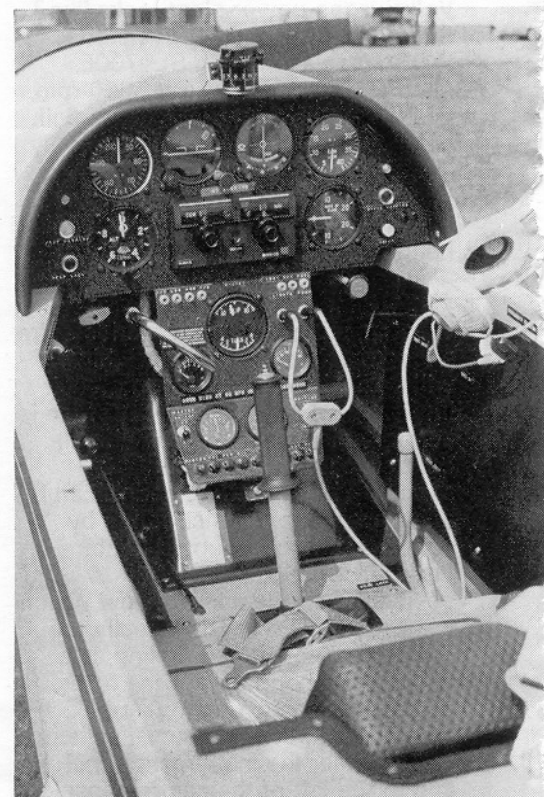
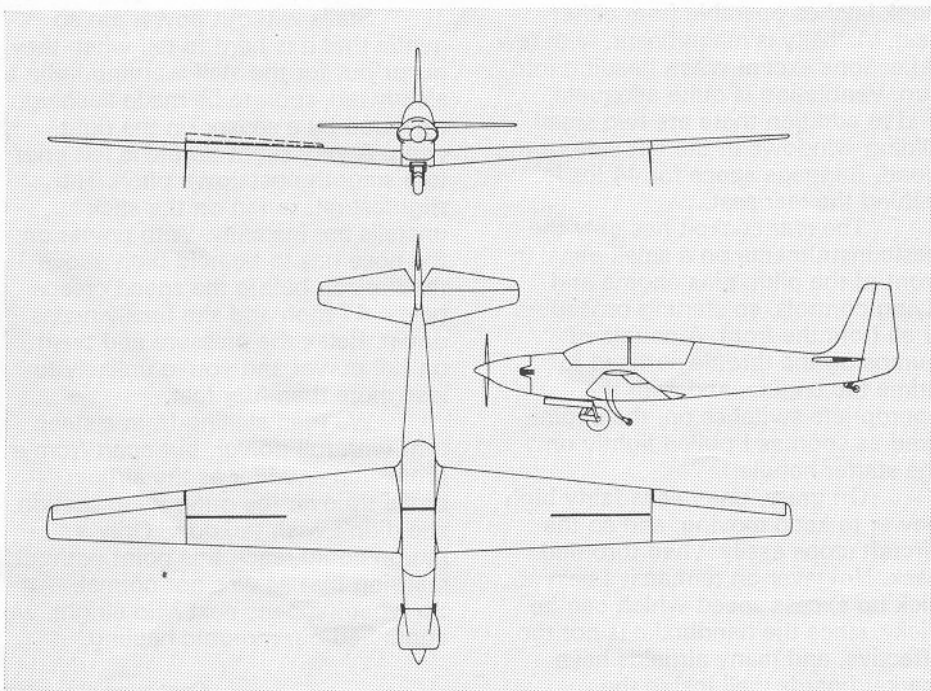
getting the nose higher above the horizon until finally we applied full top rudder, put the stick in the diagonally opposite corner and at last she fell away into a spin. Since the fuel was down to a quarter full at this point and Neil, in the rear seat, admitted to being something more than the author's 150 pounds, I expected the spin to flatten out due to the rearward centre of gravity. However, this wasn't the case, for after two wide, pitching turns, the aircraft dropped her nose and started rolling rapidly around the longitudinal axis with the airspeed rising rapidly. "Spiral dive", I decided, and climbed up again, noting how rapidly the spin stopped the moment the rudders were centralised. Several

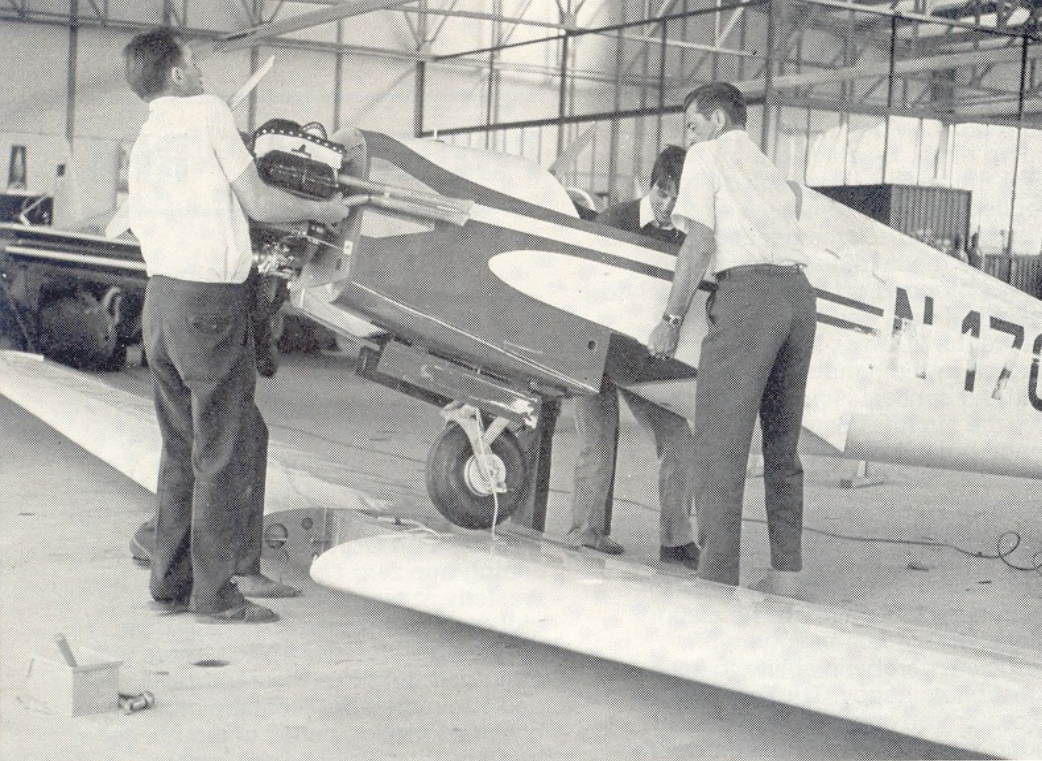
more attempts gave the same result, and since the stall warning light was on, I realised that this really is the normal spin, even though the speed stabilises at 110 mph. Boy, does that altimeter unwind! We tried spinning again another day with a forward C of G, and got the same result. It's just one of those uncommon fast spins such as the F86 Sabre used to perform. It could be that the rudder movement is limiting, and won't keep the aircraft yawing, but I think it's more likely that the large fin makes for strong directional stability.

The RF5, though stressed to +8 and -4 'G', does not permit manoeuvres involving flicks or negative 'G', this limitation preserving

both the engine and over-enthusiastic students, but other aerobatics are very pleasant. Loops start at 120 mph and require a hard pull up into the vertical. As speed falls, so the elevator becomes noticeably less effective, particularly once the engine is throttled back, and the slipstream effect is lost. But a firm pull is needed all the way round, as relaxing on the downward side of the loop allows this very sleek plane to accelerate so fast, that it's easy to exceed both the limiting speed of 155 mph and the maximum engine speed of 3600 rpm. With those long wings to look out on, stall turns are easy to perform, and again they're made easier by using power a little longer than usual, to give bite to the rudder. Barrel rolls are quite straightforward too, and to allow for the reduced airspeed and control effect during the last half of the manoeuvre, the roll is started a little faster and the nose pulled higher than is usual, otherwise one tends to skid out of the last part of the roll. Practice makes perfect, no doubt.

After this hectic session, gyrating around the countryside, we decided to take things easy for a while. Reducing to the minimum sink speed of 56 mph, I allowed the engine to idle before switching off the ignition and stopping the prop. With the gear up, and throttle closed, a battery powered warning horn rasps in your ears, but is silenced when gliding by the simple expedient of pushing the throttle wide open.





Mira Slovak demonstrates the lightness of the RF4

making yet another touch and go, when something slid up behind the starboard wing. It was Alan in another RF4, grinning from ear to ear, and dangling his watch in his left hand. "Ohmigawd. The meeting" I thought, and pointing towards base, set off home. The only means of transport that would get me to Heathrow in time now was already strapped to me, and so it was that a couple of hours later, there I was parked alongside a towering HS125.

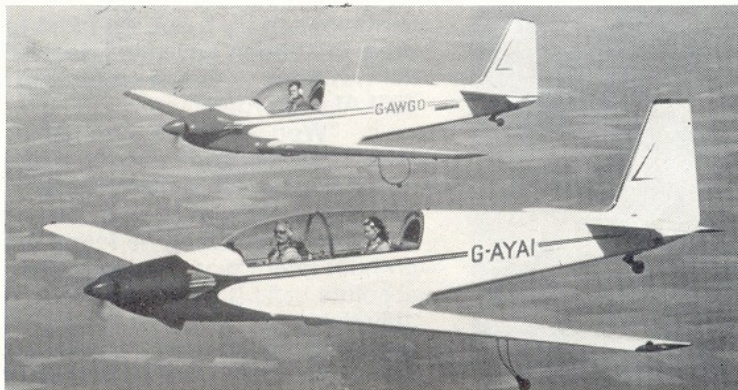
From that day on, I became firmly addicted to the RF4, and despite the arrival of the more versatile two-seater, doubt that I shall

fly it less frequently. What are the main differences between the two? To look at they present an almost identical silhouette, and apart from size there's little external change. The RF4 wings do not fold, and only contain fuel tanks as an optional extra. The single 8½ gallon tank is set between the instrument panel and firewall, with a float type fuel gauge sticking up through the filler cap. As this tends to spill a little fuel during aerobatics, some operators prefer to fit the non-spill, vented cap that is now available. A 1200 cc Rectimo VW engine churns out 39 hp at 3600 rpm, giving a range of 400 miles

at 112 mph, or an endurance of 8½ hours for the hour builders prepared to stooge along at 56 mph. With such widely varying figures, it's hard to state an operating cost for the aircraft, especially as many owners use its soaring capability almost as often as powered flights. One group told me that after paying off the initial cost of £2450 they had dropped their charges to 30s an hour, real value for money!

Cockpit layout is similar to that of the RF5. The rudder pedals are fixed position flat wooden plates, and cushions are needed for the pilot to obtain the correct reach. The control column is shorter than the larger machines', needing lighter pressures. The long undercarriage lever is even better balanced than the 5's, by releasing the slightly different locking device, the retraction handle swings unaided into the up or down position, needing only a light push to lock it home. Being normally sprung, without any oleos, the small mainwheel gives a harder ride than the big plane, but that's only noticeable on very rough ground. Finally there's the engine starter. This is a curved handle projecting down from its hinge point behind the instrument panel. Pulling it rearwards first engages a spring loaded pulley and cog system, with the crankshaft gearwheel at the front of the engine, and when a firm pressure is felt on the handle, a sharp pull will spin the prop through a full turn. Normal ground starts are made by hand swinging the prop, to save wear on the gear teeth, but the hand crank is useful for setting the dead prop into a horizontal, minimum drag position when soaring.

SPORTAIR



The Fournier RF4 and RF5

FOURNIER RF4

- The ultra-light that out-performs all others
- ★ Delightful handling—a pilot's dream
 - ★ Aerobatic ★ Exceptional gliding qualities
 - ★ 112 mph cruise on 2.1 gals per hour.

FOURNIER RF5

- Brilliant 2-seat version of RF4
- ★ Same handling and glide characteristics
 - ★ Aerobatic ★ Full electrics
 - ★ Ideal for PPL, IMC and Night training
 - ★ 112 mph cruise on 3.1 gals per hour

SPORTAIR AVIATION LTD. Biggin Hill Airfield, Kent Tel 3110 Luton Airport, Beds Tel 29684



There shouldn't be any problems in converting from the larger aircraft. RF5 students will feel completely at home in the 4, and will undoubtedly enjoy its lively performance. There are no restrictions on inverted flight, and the faster roll rate makes aerobatics easier to perform. Those who have seen Brian Stevens' uninhibited displays at airshows during the last few seasons, know what this graceful plane can do, while flights across the Sahara desert and Mira Slovak's Transatlantic epics demonstrate once and for all the difference between a Powered Glider and a real Motor Sailplane. □

FOURNIER FACTS

Wing span

Empty weight

Max permitted weight

Useful load

Range at 112 mph cruise (20 min reserve)

Endurance at 56 mph cruise

Range at 56 mph cruise

Endurance at 56 mph cruise

Take-off run

Landing run

Service ceiling

Minimum sink rate in glide

Max speed

Stall speed

Aspect ratio

RF4

37 ft

595 lbs

860 lbs

265 lbs

400 miles at 110 mph

3 hrs 40 mins

560 miles at 60 mph

8 hrs 30 mins

145 yds

110 yds

19700 ft

4 ft/sec

155 mph

44 mph

11

RF5

45 ft
(29.7 ft folded)

925 lbs

1430 lbs

505 lbs

435 miles

4 hrs 20 mins

600 miles

10 hrs

217 yds

197 yds

1600 ft

4.6 ft/sec

155 mph

47 mph

12.25

GLOS · AIRTOURERS



THE SAFEST - THE STRONGEST

LOW RUNNING COSTS

PROVEN
and
IMMEDIATE

Spares Service

STAVERTON
AIRPORT



CHELTENHAM

Telephone: CHURCHDOWN 3385

AVIATION BOOKS GALORE!

History – Reference
Modelling – Engineering
Computers – Navigation
Flying – Construction

We carry a comprehensive U.K. and International range of books on all aspects of aviation. Also *armour*.

Send for free list today
Personal Callers Welcome

Motor Books

& Accessories, 33 (P) St. Martin's Ct., London W.C.2. Tel: 01-836 5376.

NORTHERN EXECUTIVE AVIATION LTD

are pleased to announce that as from 1st May, 1970, in addition to Piper Sales and Charter, they will be offering full Maintenance facilities for Piper Aircraft at Manchester Airport (South Side).

For details contact:

CHIEF ENGINEER

Hangar 522, Manchester Airport

Wilmslow, Cheshire

Tel: 061-437 2870

