FLYING

World's most wide magazine

March 1967/75¢



Lightplane flying in Alaska

Pilot Reports:
New 2-Place Lark, Fournier's RF-4, Fokker D.VII



Blue Ribbon Entry

The tiny and spry RF-4 offers a waiting public three faces. What's more, it's fun to fly. At left, she sits beneath a lineup of waving tricolors at the Cannes show.
by John Fricker

DRUM-LIKE FABRIC sculptures the curve of ribs and spars along the tapering sailplane wing. The fuselage is sleekly profiled in ply around a big plastic bubble for the pilot. The plane sits low on the ground like a glider on its retractable single-wheel landing gear, but with the elegantly pointed nose ending in a fiberglass-wrapped converted Volkswagen (Rectimo) engine pushing out 39 hp through a stubby wooden propeller.

When you look into this French ultralight, it becomes difficult to figure just where it fits into the aeronautical scene. M. Fournier calls his RF-4 *un avion-planeur*, but it is much more than the usual (under-) powered glider. Fly it with the Volkswagen engine either throttled down for any desired sinking speed, or switched off completely for a 20:1 glide ratio, and after a self-contained launch and lusty climb, the RF-4 offers all the silent solitude of soaring flight with none of the frustrating ground chores. Of course it has to lose something compared with conventional sailplanes, but if you are willing to settle for a 35,000-foot soaring performance, the Fournier can modestly claim that sort of height gain in its native mountains.

Open up to full cruising power, and the RF-4 becomes another animal altogether. Its airspeed effortlessly doubles to around 96 knots (110 mph) and it becomes an efficient cross-country airplane using less than three U.S. gallons of gas per hour. Of course you wouldn't choose the RF-4 for regular coast-to-coast transport, but it is nice to know that test pilot Bernard Chauvreau delivered an earlier model RF-3 to Tchad in Central Africa, over 6,000 miles from the factory at Gap, France, without undue *ennui*.

For the third face of the Fournier, you have to look past the deceptive fragility of its craftsmen-fashioned airframe of wood, fabric and fiberglass, into design strength factors of the jet fighter class. Unlike the earlier RF-3, which was utility certificated, the RF-4 is stressed to normal factors of +11 and −6 Gs, and is therefore fully aerobatic. You wouldn't choose a long-span lightly loaded sailplane-type wing for a Moscow championship-class aerobatic airplane, but the RF-4 can be coaxed into a lazy snap roll, among most conventional maneuvers. Also, you needn't ever worry about pulling the wings off a structure that broke at +13.8 Gs on test.

(continued)

With so many facets to its character, the RF-4 has something to appeal to most sporting pilots, and the main difficulty—since July, 1960, when the first RF-1 floated into the air—has been building enough *avion-planeurs*.

Development was helped by financial aid from an enlightened French government to build a couple of RF-2 prototypes for eventual flying-club use. Production of the Fournier design was then handed over to the little Jodel factory of Alpavia at Gap, where 95 RF-3s have flown away from the sod field in the shadow of the Alps.

Director of Fournier production in the Alpavia factory and its main salesman, Count Antoine d'Assche is young, tall and quietly assured—in impeccable English—about his *avion-planeur*. "One mention of the RF-3 in America," he says, "resulted in several hundred enquiries. We answered every one, but production has not been big enough so far to attempt serious marketing outside Europe." The Count has therefore arranged to move production from France to a bigger factory in Germany, where Sportavia is now beginning to build the Fournier, with Alpavia remaining main distributors.

As the latest production model, the RF-4 has one or two refinements, such as slightly different aileron design for lighter forces and a better rate of roll. It has push rods instead of cables for ailerons and elevator, and an articulated tailwheel to stand up to the rough sod fields it is expected to use in its near-sailplane role. A small fillet now fairs in the angle between trailing edge and fuselage, and the Volkswagen engine runs on rubber mounts for smoother operation. There is now a 9½-gallon (U.S.) gas tank forward of the cockpit, giving four hours' endurance at maximum cruise, although you can fly for the same length of time on just one-half gallon in the soaring regime in suitable conditions.

In the RF-3, a cockpit-operated valve-lifting gadget was available to help engine restarting in flight, but it was still necessary to dive like a Stuka to get the prop windmilling again. The prototype RF-4, which was entrusted to me at Cannes by Count d'Assche, did not have a valve-lifter, but will eventually have a normal electric starter plus a positioning device to stop the propeller opposite the cylinders for minimum drag. At the moment, the Volkswagen-Rectimo has to be hand-swung on the ground, but starts easily enough when cold.

"Please," said the Count, as he closed the big side-hinged plastic bubble over my head, "do not switch the engine off in flight, nor make any aerobatics." As he was sneaking me into the prototype RF-4 before it received its official testing, these conditions did not seem unreasonable, especially as (a) it was my first flight in a new type, (b) flying from Cannes meant that the only landing ground was sandwiched between the sea and the hills and was saturated by a nonstop air show of French ferocity and (c) there was no provision for helping to restart the engine in any case.

This same aircraft had been contributing daily to the air show with its vigorous aerobatics in the hands of test pilot Chauvreau, but this time it is a very straight-and-level English voice over the little 10-channel instrument-sized CSF flashlight-batteried VHF requesting taxi clearance for Fournier Kilo-Alfa for local VFR.

With your calves gripping the curved box housing the retracted landing gear, you straddle the RF-4 rather than sit in it, but the sailplane-type cockpit is surprisingly comfortable with its half-reclining seat-back, and the all-round view is superb. A full aerobatic harness with a five-point quick-release box gives full negative G restraint.

Instruments and controls are minimal: throttle on the left, next to the air brake lever; basic metric gauges on the panel; and a little trim knob on the right. On the stubby control column—not much bigger than a gear shift stick—a brake lever, used mostly for parking. Tailwheel steering through the rudder pedals provides good control for taxiing. Lateral balance is through two hoops of piano wire under the wings. The main wheel is well sprung and the landing gear manages to feel entirely conventional while remaining light and cheap, with minimum drag.

Glider pilots will know the tail-dragging feeling of being in such close proximity to the ground, although there must be at least 12 inches between the lower part of one's anatomy and the moving landscape. This embarrassingly close relationship fortunately does not long survive opening the throttle for takeoff. With single ignition, there is no mag check, and the RF-4 flies itself off in a few feet with little assistance from its pilot.

Today's drill calls for an immediate 90-degree turn after takeoff, to avoid crossing the active runway, and a climb out to sea while retracting the gear. This has a Mooney-like manual lever working through a much shorter arc on the right of the cockpit, with appropriate locks, and is very simple to operate.

It's funny how you immediately feel at home in some airplanes, and the RF-4 seems like an old friend as you bank steeply away and climb skyward at 59 knots (68 mph) indicated. There is only a metric climb and descent indicator on the panel and it seems to take a long time to reach 1,000—meters, of course—wow, that's 3,300 feet! Your stop watch says it's around 800 fpm, which seems pretty good for 39 hp.

There you are over the unreal brilliance of the beautiful bay of Cannes on a still summer evening, for once not even envying the sea gulls, and it seems natural to throttle down from about 3,200 to 2,200 rpm and loaf around to enjoy the view along the fabulous Côte d'Azur. This power setting takes only about seven hp out of the Volkswagen and yet gives straight and level flight at around 52 knots (60 mph) using only about one gallon of gas per hour.

This face of the Fournier is of quietness and tranquillity, suiting the contemplative mood. Engine noise is a low rumble, and the merest finger pressure plus a touch of coordinating rudder to keep the ball in the middle leans the RF-4 into steep and effortless turns, accompanied by an occasional flicker from the panel stall-warning light.

There is no lift over the sea, but in the evening calm it is easy to measure the rate of sink at the zero thrust setting of 1,500 rpm. As the engine noise dies to a whisper and the airspeed falls to around 45 knots (52 mph), the VSI droops to indicate about one meter per second, or 3.3 feet per second down—about the same sink rate as the average primary glider. But by finding the appropriate power setting, the RF-4 can be made to correspond to any type of sailplane at sink speed, up to the highest performance possible.

Even with zero thrust, it is possible to turn comfortably on a dime at speeds down to about 41 knots (47 mph), with the stall warning light blinking away. Throttled right back, stall buffet does not happen until about 40 mph, with a bit less than full aft stick. Air brakes out, with a slight nose-down pitch, and the stall speed increases by three or four mph with equal docility and a higher rate of sink.

When it is opened steadily to maximum cruise power of 3,400 rpm, the throttle lever is a magic wand revealing the second face of the Fournier. As the speed builds up to an indicated 94 knots (108 mph), the RF-4 is transformed into a heavier, noisier and altogether more purposeful cross-country airplane. Lots of forward trim is needed to offset the nose rising with increasing speed, and all the controls—but particularly the ailerons—begin to heavy up noticeably. Lateral control becomes decidedly firmer, while at the same time the elevator becomes extra-potent. You can pull pretty many Gs with very little effort, and you begin to appreciate the beefy strength factors built into the RF-4. In the powered regime, I liked the RF-4 best at around 3,000 rpm and 70 knots (80 mph), where control response

and noise level are most pleasant. But the extra cruising speed available is useful if you are in a hurry.

It's too bad that the third and aerobatic face of the Fournier is hidden on this flight behind its experimental registration, but the control forces at speed indicate that you would have to work quite hard at maneuvers in the rolling plane. This is an inevitable result of high aspect-ratio wings, and also of the wide speed range in which the controls have to operate effectively, although the RF-4 seems as good a compromise as you are likely to get in a lightplane. Even without its aerobatic capability, the RF-4's ex-factory price of around $5,500 buys you in effect two different airplanes for the price of one, with its third face as an added bonus.

It is tempting enough at Cannes to fling the RF-4 around in wingovers, near stall-turns and other expressions of *joie de vivre*, without getting near the conservative never-exceed speed ("For young pilots," explains the Count) of 113 knots (130 mph), before sobering up to get it back on the ground.

"Bring it in high, *mon vieux*," said Bernard Chauvreau at Cannes, "and you will find that half air brakes are enough to give you a good power-off approach for landing." Threading my way through a mass of cavorting lightplanes toward the grass at right angles to the runway, I accordingly motor in to about 500 feet on base leg before throttling back, popping out half air brake and lowering the gear with a thump at 59 knots (68 mph).

The combined stall and landing gear warning light goes out, and I continue to glide in at about 52 knots (60 mph), but I am floating too close to the live runway, and even full air brake does not help much. The RF-4 sideslips most satisfactorily, however, and this instinctive maneuver successfully steepens the final descent. A brief float gives enough time to achieve a classic and easy "three-point" attitude for landing. The RF-4 stays firmly down without bouncing if the stick is right back before touchdown, and its landing run is short.

When production is firmly established in Germany, perhaps the Count may not be so diffident about selling the RF-4 in America. If it does sell in really large numbers, the Fournier will make history, since a single-seater has never yet hit the production jackpot. On the other hand, there never has been a single-seater with quite the versatility of the RF-4. And unquestionably, all the faces of the Fournier are fun. ✚



Fournier RF-4

Specifications	Basic price: NF 28,000
Engine	Volkswagen-Rectimo 4 AR 1,200, 39 hp
Wing span	36 ft., 10 in.
Length	19 ft., 8 in.
Wing area	118.4 sq. ft.
Wing loading	7.07 lb./sq. ft.
Crew	one
Empty weight	562 lbs.
Useful load	275 lbs.
Maximum gross weight	837 lbs.
Aerobatic weight	793 lbs.
Power loading	21.4 lb./hp
Fuel capacity	9.6 gals.
Oil capacity	0.5 gal.
Performance	
Takeoff distance	426 ft.
Takeoff distance over 50 ft.	885 ft.
Rate of climb	787 fpm
Service ceiling	19,685 ft.
Maximum cruise	97 knots (112 mph)
Range	356 nm (410 sm)
Stall speed	38 knots (43 mph)
Sinking speed, engine off	4 ft./sec.
Gliding angle	1:20
Landing distance	328 ft.
Landing distance from 50 ft.	754 ft.

Best of Shows / *continued*

In addition to the static displays of aircraft, many the like of which you've never seen, there seems to be someone buzzing the field, performing low-level aerobatics or executing short-field takeoffs toward the crowd from dawn until dusk. If that doesn't keep you amused, you may always tune in the bilingual controller in the mobile tower who is trying to keep track of the melee over the field while clearing a stream of traffic to land and refereeing a half dozen airplanes sparring for position as number one for takeoff.

This colorful get-together takes place at a pleasant rural airport just west of the city of Cannes and a prettier spot you've never seen. Lying in a shallow saucer ringed on three sides by rough green and brown hills and on the fourth by *mare nostrum*, the airport has a hard surface north-south strip of some 3,600 feet and an east-west grassy

gasoline) and an Avis girl trying harder.

As for Cannes itself, it's a delightful playground for the permanently rich and the temporarily slothful. It's a resort town with rows of fine hotels, palm-lined streets and cabana-ed beaches. It has marinas crammed with elegant yachts and alleys lined with bizarre night spots. It has fine shops and good restaurants, a busy casino and pretty girls. The town sits with its feet in the waters of the Mediterranean and bakes under the blazing sun. On good days it looks as if it might rise slightly like a well-made cake.

How do you get there? Of course, you can take your plane if your ratings and your range will see you safely across the big A. Otherwise you had better go commercial, and having previously dickered with one of the foreign distributors of a U.S. manufacturer, you will hopefully have a plane suitable to your needs and

English, and procedures, navigation and fees are all very much like the U.S., particularly if you travel VFR (see "Gone Flying to Europe," FLYING, December 1965).

On the trip we made last year, our bird turned out to be a Cessna Turbo System Centurion. As you may know, this is the 210 Centurion with a fuel-injected 285-hp Continental and turbo-charging added. It's a burly beast with plenty of room for four and baggage or, instead of baggage, two lightweights with short legs. Ours was loaded with ARC dual omni, ADF and a complete IFR package. It was handsomely done inside and Bill West, manager of Cessna's Brussels office, had washed and tuned it to perfection.

Gerry Van Os supervised our check-out. Walk-around is standard and start up requires only that you don't load up the engine. Takeoff roll is short with

Just for fun.



Any pilot worth his wings would throb for the chance to hop into the cockpit of this Fournier RF-4, start her up and do some real stick and rudder flying. Just for fun.

John Fricker is no exception. John is FLYING's European Contributing Editor, and when he saw the little single-seater at the Cannes Air Show, he knew he had to fly it. Which wasn't easy because the plane hadn't been certificated yet. But John persisted in his determined British way, and won. And followed up his test flight with the pilot report on page 118 of this issue of FLYING.

John Fricker is well qualified. Before he joined FLYING in 1962, he spent 18 years on the staff of England's "Aeroplane" magazine, wrote most of their pilot reports, and at this writing has flown something like 175 different types of aircraft. He now also publishes a confidential military aircraft newsletter that is considered the best in Europe.

So John Fricker knows European aviation, and he knew you'd be interested in reading about an aerobatic plane with a Volkswagen engine you can shut down when you want to do some soaring. That's why he writes about a Fournier RF-4 with as much zeal and enthusiasm as when he reports on a Fan Jet Falcon.

It's this kind of reporting that keeps the challenge and the fun and the excitement alive in aviation. And gives you the whole idea of FLYING: **To get you into the cockpit of a plane if you're not yet a pilot. To make a better pilot of you if you are one. And to help you discover new ways to use an airplane as a source of travel, pleasure and business expansion.**

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