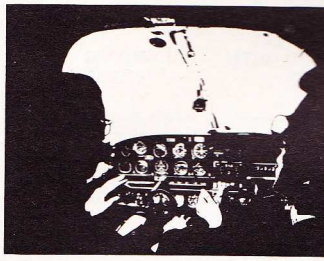


FLIGHT TEAM TEST

No 9

Wassmer WA.51A

PACIFIC

THE AIRCRAFT which we have examined previously in this series have been volume-produced conventional metal machines, generally with widespread dealer representation overseas as well as in their country of origin. For this test we have chosen a relatively unknown offering from France, a country noted for its individual approach to light-aircraft construction. The Wassmer Pacific is of particular interest because it is one of the first all-glass-fibre aircraft to reach series production.

The Wassmer company was founded in 1905 and became active as an aircraft repair organisation during the Second World War. The company subsequently undertook its own design and construction of both wooden and steel-tube-and-fabric types. In 1955 attention turned to the use of glass-fibre as a primary structural medium, and Wassmer developed a technology for application to glider and powered aircraft, which led to the first flight of the WA.50 in February 1966; flight trials of the WA.26 Squale sailplane began 18 months later.

The aircraft which the team flew was a demonstration WA.51A Pacific owned by Rollason Wassmer of Fairoaks, which has been using it for British certification trials. In fact the agent does not expect to develop a large market for this version, with its 150 h.p. Lycoming and fixed-pitch propeller; the slightly more powerful WA.52 Europa is thought to have a greater appeal, offering 160 h.p. and a variable-pitch propeller in an identical airframe. One example of this version is also in England, but it was at Redhill in the hands of the Civil Aviation Authority at the time of our test.

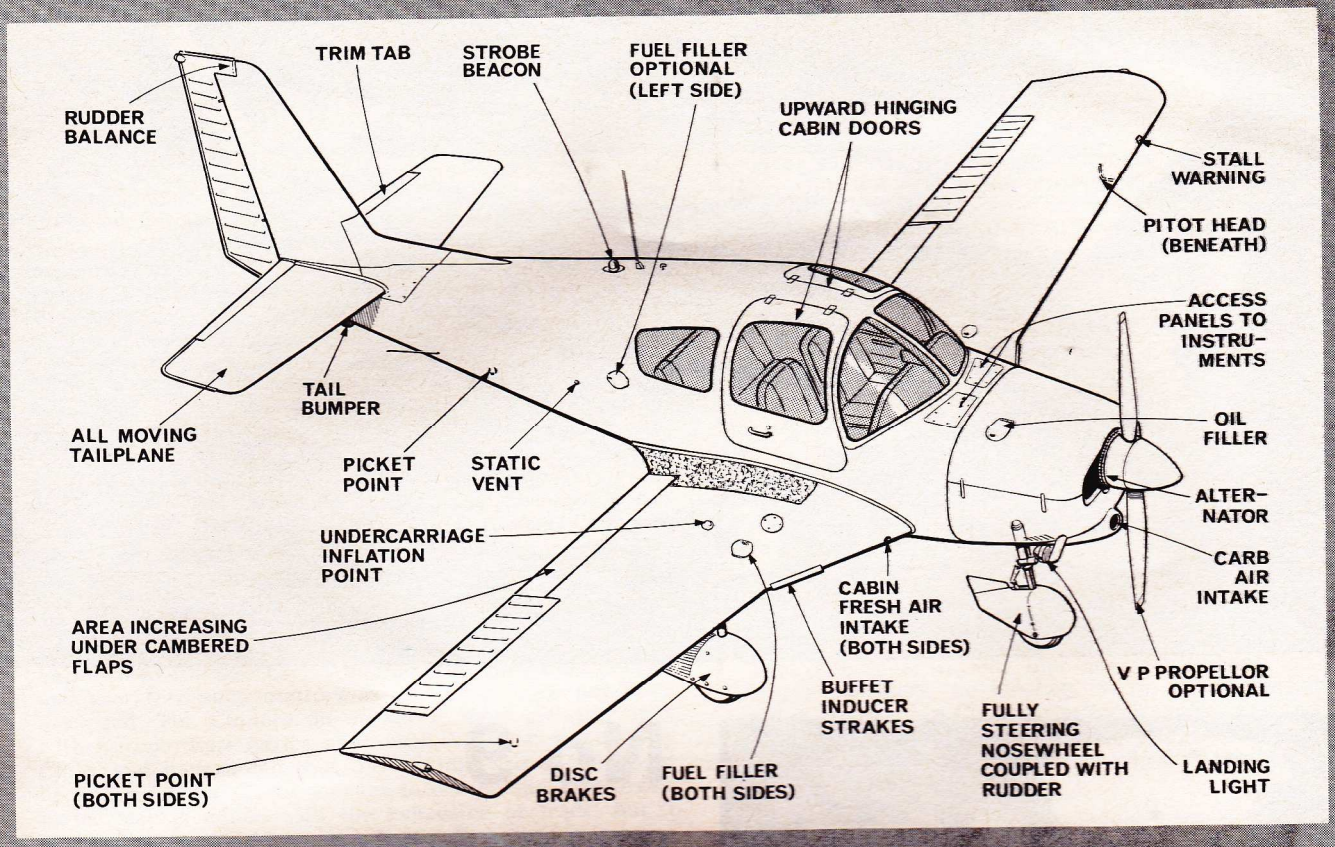
Glass-fibre was too much of an unknown for the Pacific to be given immediate certification in France, but the authorities ultimately were convinced of its strength and a full certificate was granted by the SGAC and later ratified by the German authority. In the United Kingdom the aircraft flies on a special-category clearance, but this does not arise on account of any particular suspicion of glass-fibre. Certain handling trials have still to be completed before either model is given the Redhill seal of approval.

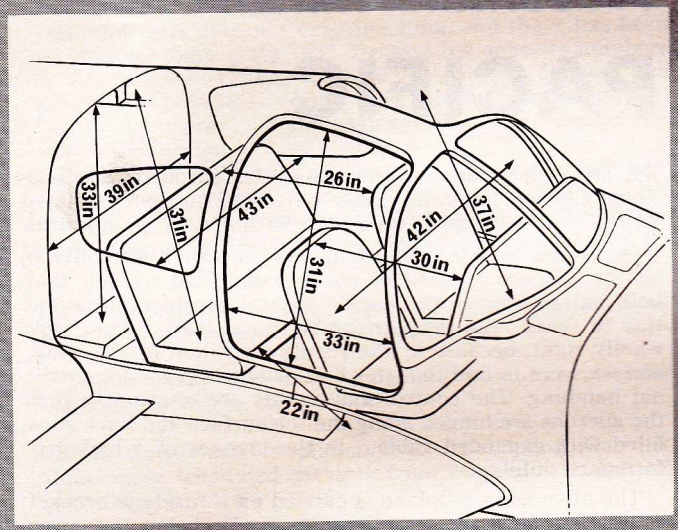
Our team was impressed by the smooth finish offered by the unusual method of construction, and we felt that both outside and in the Pacific showed considerable attention to detail. The proportions of the aircraft do not look wholly right, because of the forward position of the wing, and we were to find that this had its effect in the longitudinal handling. The control movements are unusual in that the ailerons are hinged along the top surface and have gaps filled with expanded rubber, in the manner of a high-performance sailplane.

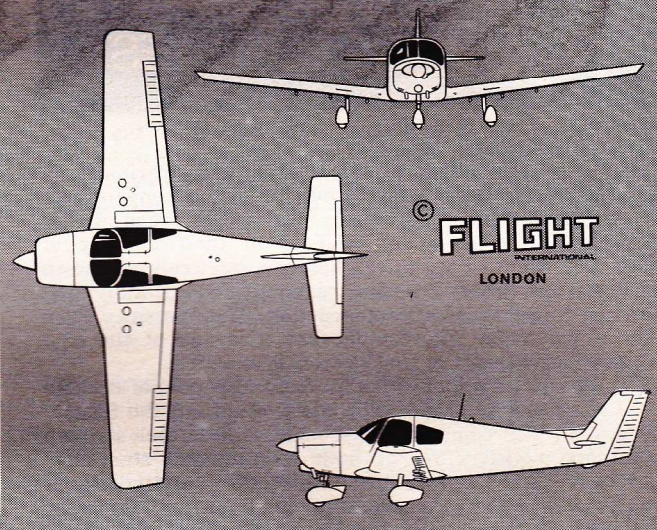
The all-moving tailplane is carried on a fuselage bracket so that it rotates about a fulcrum some 3in below the lower surface. The tab moves in the same sense as the tailplane, to which it is linked by a simple bracket which is mounted, unusually, outside the fuselage.

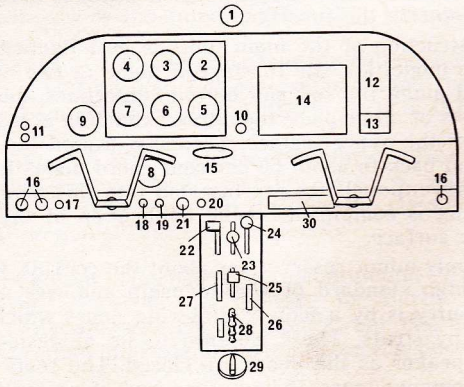
The construction of the main units is best likened to a polystyrene model kit; the fuselage is made in two mouldings, joined along the top and botton centrelines, and the wing consists of a one-piece moulding extending across the full chord of the upper surface, wrapping around the leading edge and back to about 30 per cent chord beneath. The spar and conventional ribs are inserted into this moulding and the wing is completed by the application of the rest of the lower surface.

We had only minor reservations about the cockpit, which showed a high standard of workmanship and was neatly trimmed. Entry is by a pair of gull-wing doors which are held open by struts. These collapse to lie alongside the overhead speaker as the doors are closed. The seats have ample movement—more, indeed, than any of us could use coming forward—but we felt that the harness mounting points on the centre console were too far forward and









KEY

1 Compass
2 Altimeter
3 Artificial horizon
4 ASI
5 VSI
6 Direction indicator
7 Turn and slip
8 R.p.m.
9 VOR
10 Carburettor heating
11 Microphone and head-set sockets
12 Engine instrument group
13 Fuel contents
14 Radio and nav-aids
15 Brakes
16 Heating and ventilation
17 Parking brake
18 Battery master switch
19 Auxiliary fuel pump
20 Starter
21 Magnetos
22 Throttle
23 Propeller pitch
24 Mixture
25 Flap
26 Trim indicator
27 Flap indicator
28 Fore-and-aft trim
29 Fuel cock
30 Electrics panel

Wassmer WA.51A Pacific

Dimensions

Span 30ft 10in, 9·4m
Length 24ft 7in, 7·57m
Height 6ft 10in, 2·1m
Wing area 133·47 sq ft, 12·4m²
Mean chord 4ft 6in, 1·375m
Dihedral 6° 40′
Aileron area (each) 4·16 sq ft, 0·383m² **Deflection** +23°, −13°
Elevator deflection +12°, −8°
Flaps Electrically operated Fowler **Area** (each) 7·4 sq ft, 0·688m², max deflection 30°
Wheel track 9ft 10in, 3m **Wheel base** 5ft 4in, 1·64m
Tyres nosewheel 330 × 130, mainwheels 420 × 150, all at 30lb/sq in
Weight: max 2,293lb, 1,040kg
empty 1,379lb, 625kg
c.g. range Forward limit 16 per cent chord, 8·66in, 0·22m from leading edge
Aft limit 31 per cent chord, 16·8in, 0·42½m from leading edge
Load factors +3·8g to −1·9g
Engine Lycoming O-320-E; 150 h.p. at 2,700 r.p.m.
Propeller Sensenich 74DM6S5-0-60, diameter 74in, 1·88m
Fuel capacity 33 Imp gal, 39·6 US gal, 150lit
Electrical system Alternator supplying 12V, 50Ahr battery

Performance

Flight-manual limits V_{NE} 157kt, 181 m.p.h., 290km/hr
V_{NO} 141kt, 162 m.p.h., 260km/hr
V_A 124kt, 143 m.p.h., 230km/hr
V_F 109kt, 125 m.p.h., 198km/hr

Level speeds (measured at 2,800ft) Maximum 132kt, 152 m.p.h., 244km/hr
2,500 r.p.m. 117kt, 135 m.p.h., 216km/hr
2,300 r.p.m. 111kt, 128 m.p.h., 205km/hr

Range At 75 per cent power, 2,550 r.p.m., 445 n.m., 510 miles, 835km

Stalling speeds Power off, flaps up 57kt, 66 m.p.h., 105km/hr
Power off, full flap 50kt, 58 m.p.h., 92km/hr

Marketing

Maker Wassmer Aviation, Aerodrome d'Issoire, 63, BP No 7, France
United Kingdom distributor Rollason Wassmer, Fairoaks Aerodrome, Chobham, Surrey
Price as flown £10,000
Test aircraft avionics Narco 12B VHF com/nav

WASSMER WA.51A PACIFIC

did not really give enough grip. A full harness has been proposed for the British specification.

The control grips were an unusual shape (Concorde-style is how Wassmer publicity describes them) but they gave a restful horizontal position for the hands and had the practical asset of giving good clearance above the pilot's thighs. The stick had 9in of fore-and-aft movement and rose slightly at its rearmost travel in the usual manner of all-moving light-aircraft tailplanes. We were told that there had been more than 7lb of static friction when the aircraft was delivered, but some careful lubrication and adjustment in the Rollason hangar has led to a reduction to less than 3lb; certainly we did not find the friction unpleasant.

The panel layout was very tidy, with the flight instruments and radios being mounted on the pale-grey upper panel, the main brake T-handle and r.p.m. gauge on the centre wooden strip, and the switches and parking brake ranged along the lower edge. The main brake lever could be pulled out some 4in from the panel and then, if the small parking brake was applied, the T-handle could be released; the parking brake held the aircraft satisfactorily during engine runs.

The plain angled central console contained the throttle and mixture levers, the electric flap selector and indicator, the elevator trim and indicator and the fuel selector cock. This last we found came nicely to hand and had positive detents to ensure safe tank selection.

Starting the warm engine called for no priming and it burbled quietly into life after two or three turns on the starter. We thought the engine instruments were clear and liked their being canted slightly to the left to improve their presentation. The carburettor heat control, on the other hand, seemed out of place in the centre of the panel, although its twist-and-pull action was easy enough.

On tarmac the Pacific rolled easily, but it needed plenty of power to keep moving on some of Fairoaks' wetter grass areas. Ground manoeuvrability was adequate, but tight turns called for firm use of the rudder pedals. The low cowling line gave a splended view and, although the roof line was low, we did not find the visibility impaired in the air.

We found that the recommended position of the flaps for take-off was not the customary "first notch" but almost two-thirds down, as indicated by a red datum line painted near the flap leading edge; the flaps were Fowler-type and closely shielded.

With full fuel and two on board the Pacific does not have a dramatic acceleration on take-off from wet grass, but once there was sufficient elevator control to take some weight off the nosewheel we found that the aircraft would lift off easily at about 50kt with the aural accompaniment of the loud stall-warning horn. One member of the team who had flown the Europa felt that the extra 10 h.p. gave a noticeable improvement in the take-off performance.

A natural climbing speed was 80kt, which gave just over 900ft/min after the flaps had been raised. This is best done, we felt, in two stages as there is a marked nose-up trim change as the flaps travel in. The climbing attitude was shallow and the nose was not obstructive.

With its clean contours and high-quality surface finish the Pacific would gain speed quickly for measured level speed checks and was very slow to lose it when power was reduced. Variations in power gave only small longitudinal trim changes in the natural sense, but we felt that a case could be made for a rudder trim.

With full power, 2,700 r.p.m., at 2,800ft we recorded 127kt indicated, a figure which can be reached by the more powerful Europa with about 75 per cent power. A representative fast cruise gave 113kt using 2,500 r.p.m. and we found that reduction below the Lycoming "red band" at 2,450 r.p.m. gave a comfortable cruise at 109kt indicated. The overall noise level was low and the comfort was further enhanced by the lack of vibration.

We flew straight stalls in the clean condition and with full flap down, with power reduced to idling in both cases. The aircraft was trimmed at 90kt for the clean stalls and

"Flight" photographs

there was a progressive increase of stick force as the speed decayed. The warning horn sounded at 69kt and there was ample natural buffet induced by the wing leading-edge strips before the nose pitched down at 57kt. Long before this speed was reached the aircraft had taken up a marked sink.

Stalls with full flap lowered gave less warning buffet, and when the break came the right wing lowered as well as the nose. Again the stick force was normal from a trimmed speed of 75kt; the horn sounded at 61kt and the stall was reached at 50kt.

Although it is designed as a four-seat touring aircraft, the Pacific is limited by the special-category approval to only one person in the back seat. The basic centre of gravity tends, as the outside appearance suggests, to be aft and it moves further aft as fuel is burnt off. We became particularly aware of this limitation when we flew sustained steep turns as the stick force/g was light by the general standard of this class of aircraft. It is in respect of handling at aft c.g. that further clearance flying is in hand.

The team found the Pacific delightful to fly in the circuit. The flap limiting speed is sufficiently high to impose no restraint and we were recommended to use one-third flap from the start of the downwind leg. This could comfortably be entered at 90kt, from which the speed reduced naturally to 70kt after full flap had been taken on the final approach. We found full flap was needed quite early because otherwise the aircraft would soon pick up speed. Control on the approach was easy, with the light ailerons giving good response in turbulence, but full nose-up trim was used to give a gentle flare from 65kt. Even from this low speed the Pacific floated further than usual due to a pronounced ground cushion, before settling gently at about 48kt.

We were glad of the opportunity to fly the Pacific as it represents an individual approach to light-aircraft design and construction. We hope that the problem of c.g. limitation will soon be overcome, because the comparatively low stability has given light handling which we all enjoyed. ■