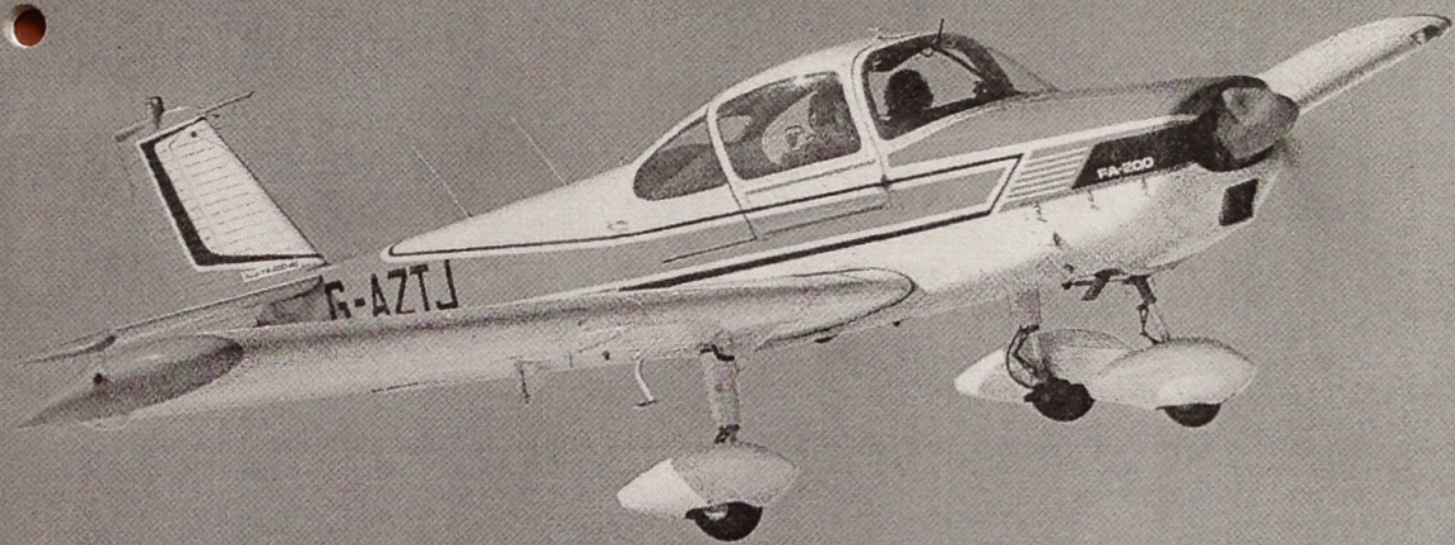


Flightcolour 67: Hawker Tomtit

FLIGHT INTERNATIONAL



JAPAN'S AIRCRAFT INDUSTRY

including

Fuji FA-200 team test

Australia 50 cents
 Belgium Fr. 20 00
 Cyprus 300 mils
 Denmark Kr. 6 00
 France Fr. 3 90
 Germany Dm. 3 00
 Greece Drs. 22 00
 Holland DR. 2 75
 Iran Rls. 65
 Italy L. 450
 Japan Yen 250

Malaysia MS 2 00
 Malta 4/-
 New Zealand 46 cents
 Norway Kr. 6 00 inkl. Moms
 Portugal Esc. 22 50
 South Africa 40 cents
 Spain Ptas. 42 00
 Sweden Kr. 3 75 inkl. moms
 Switzerland Fr. 3 50
 U.S.A. 70 cents



No 8

Fuji FA-200

AERO SUBARU

THE CHARACTERISTIC GLOOM which hangs beneath a sheet of stratus, blown in from the North Sea by an autumnal anti-cyclone, greeted the team as we flew to Fairoaks to sample the Fuji FA-200 Aero Subaru. Luckily, the visibility was not too restrictive, but the cloud sheet was just at an awkward height and prevented us from exploring to the full the aerobatic qualities whose praises had been sung in advance by Air Associates, the recently appointed distributor for the type in the United Kingdom. Nevertheless we were glad to take up their invitation to fly the Fuji—a significant aircraft because it is the first Japanese type to be granted a British certificate of airworthiness.

Memories of the Fuji as seen for the first time at Hanover were that it was slightly larger than the normal run of aircraft in its class and had a patently robust construction, but as we inspected G-AZTJ, the demonstrator, we began to see the type in its true perspective. We thought that this machine—number 166 off the production line—had a much better standard of finish than earlier ones, and we decided that two factors had led to the earlier assessment of size. The undercarriage is a little longer than is usual, so the aircraft sits high on the ground, and, of more general significance, the rear fuselage is longer than those of its contemporaries, which allows adequate directional stability and control to be achieved without recourse to a severely swept fin or a dorsal extension.

The wing is of conventional section with a small amount of incidence washout and the whole length of the trailing edge is occupied by the wide-span ailerons and flaps. The tailplane is fixed and the elevators are provided with one trim tab on the port side. The tail units and the flying controls are all made of rib-dimpled sheet alloy and the smooth top surface of the wings is broken only by the two sturdy fuel filler caps.

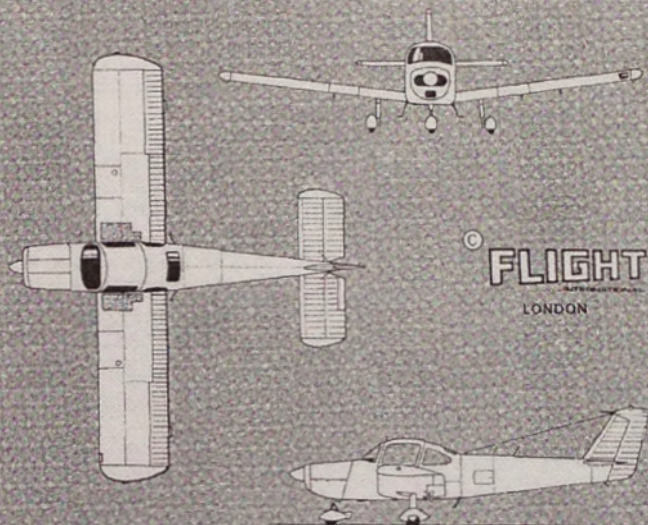
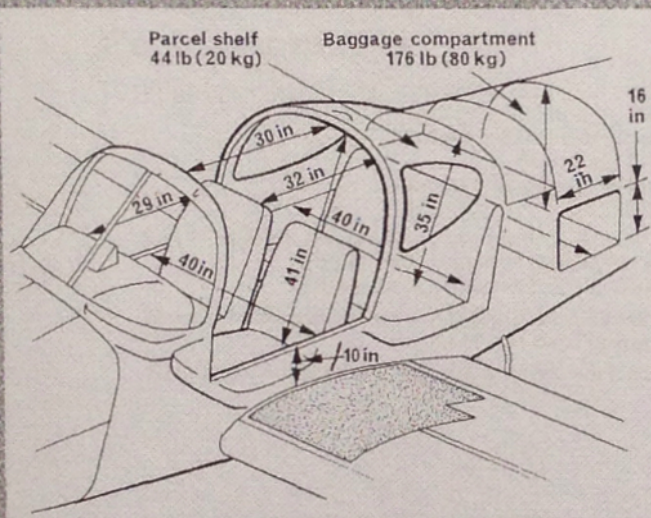
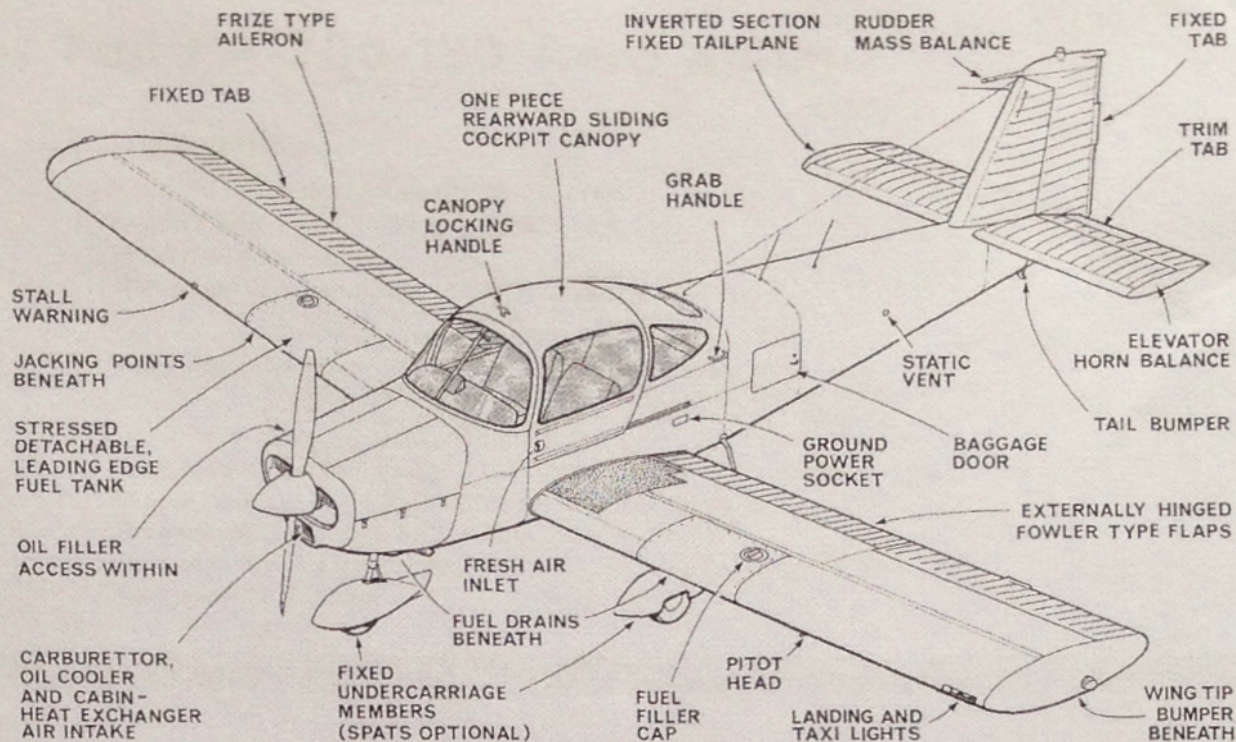
TJ carried full instrumentation, together with twin Narco 11 VHF communications and a single VOR and ADF. The panel was deep and, being all-black, had a slightly "heavy" appearance which helped to create a functional feel. Although there was no shortage of comfort we thought that the FA-200 felt more of a trainer than a touring aircraft and that its layout was almost to a military standard. As a tourer it can take four people with comfortable legroom—though not quite such generous dimensions across the shoulders—but for aerobatic flying it is limited to two seats for which shoulder harnesses must be fitted.

Four pilots were involved in this appraisal, one of whom had only recently gained his private pilot's licence, and thus it was possible to fly a few genuine training exercises. We stress slightly the training character of the FA-200 because there are few aircraft of this weight on the British market which are cleared to plus 6g and minus 3g and have full aerobatic and spinning clearance. Not surprisingly, the model has attracted the attention of the larger flying schools and TJ was to be lent to one of them for a few days for an evaluation following our test.

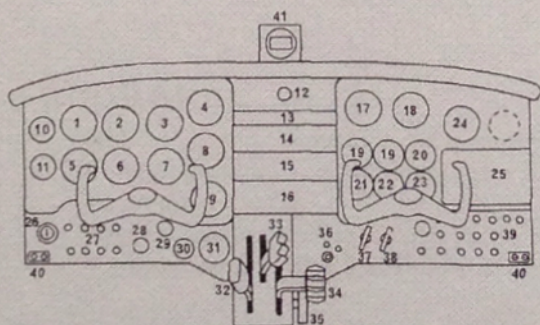
We had arrived at two minor criticisms before taxiing out. We felt that the canopy lock deserved to be made rather more positive (while welcoming the easy action of the sliding hood) and we considered that the services switches towards the bottom of the left-hand panel would be improved by colour coding; at present the pilot is faced by a row of rather crude, identical switches.

Ground handling was firm and gave a good ride over the Fairoaks grass and we liked the direct feel of the nose-wheel steering. The sitting position is high in relation to the cockpit sides and this gave a wide field of view. With two

continued on page 842



© FLIGHT
LONDON



KEY

- | | | | |
|----|--|----|-------------------------------|
| 1 | Airspeed indicator | 21 | Fuel pressure |
| 2 | Artificial horizon | 22 | Oil temperature |
| 3 | Altimeter | 23 | Oil pressure |
| 4 | Standby altimeter | 24 | Cylinder-head temperature |
| 5 | Turn co-ordinator | 25 | Map pocket and spare fuses |
| 6 | Gyro compass | 26 | Ignition switch |
| 7 | Rate of climb | 27 | Switch panel |
| 8 | VOR/ILS | 28 | Instrument lighting |
| 9 | ADF | 29 | Canopy lock |
| 10 | Vacuum gauge | 30 | Parking brake |
| 11 | Accelerometer | 31 | Clock |
| 12 | Stall warning | 32 | Throttle |
| 13 | Audio switch panel | 33 | Propeller pitch |
| 14 | VHF com 1 | 34 | Mixture control |
| 15 | VHF com 2 | 35 | Friction lock |
| 16 | ADF (digital) | 36 | Microphone sockets and switch |
| 17 | Manifold pressure | 37 | Alternate air |
| 18 | R.p.m. | 38 | Cabin-heat control |
| 19 | Fuel-contents indicators, left and right | 39 | Circuit-breaker panel |
| 20 | Ammeter | 40 | Headset sockets |
| | | 41 | Standby compass |

Fuji FA-200-180 Aero Subaru

Dimensions

Span 30ft 11in, 9.42m **Length** 26ft 1in, 7.96m
Height 8ft 6in, 2.59m **Wing area** 150.6 sq ft, 14m²
Mean chord 5ft, 1.525m
Max weight (Normal category) 2,535lb, 1,150kg
(Utility category) 2,425lb, 1,100kg
(Aerobatic category) 2,072lb, 940kg
c.g. range At 2,535lb, 27% to 36% a.m.c., 98in to 103.5in aft of datum
Forward limit of 2,017lb or less 18.5% a.m.c., 93in aft of datum
Utility-category aft limit 33% a.m.c., 101.7in aft of datum
Aerobatic-category aft limit 26% a.m.c., 97.5in in aft of datum
Load factors Normal, +3.8 to -1.52; utility, +4.4 to -1.76; aerobatic, +6.0 to -3.0
Engine Avco Lycoming IO-360-B1B; 180 b.h.p. at 2,700 r.p.m.
Propeller McCauley B2D 34C53/74E-O, diameter 74in
Fuel capacity 43.5 Imp gal, 52 US gal, 198lit
Fuel grade 91/96 octane



Performance

Flight-manual limits VNE 158kt, 182 m.p.h., 292km/hr
VNO 136kt, 156 m.p.h., 252 km/hr
Manoeuvre (normal or utility) 126kt, 145 m.p.h., 234km/hr
(aerobatic) 136kt, 156 m.p.h., 252km/hr
Flap extension 25°, 104kt, 120 m.p.h., 192km/hr
15°, 122kt, 140 m.p.h., 226km/hr
Level speeds Maximum at sea level, 122kt, 140 m.p.h., 226km/hr
70 per cent cruise at 5,000ft, 111kt, 128 m.p.h., 206km/hr
60 per cent cruise at 5,000ft, 103kt, 119 m.p.h., 191km/hr
Range to 45min reserve At 70 per cent power 570 miles, 920km
At 60 per cent power 660 miles, 1,060km
Stalling speed Power off, flaps down, 45kt, 52 m.p.h., 83km/hr

Marketing

Maker Fuji Heavy Industries, 7-2 Nishi-Shinjuku 1-chome, Shinjuku-ku, Tokyo, Japan
United Kingdom and Eire distributor Air Associates Ltd, 40 St Peters Road, London W6 9BH
Basic price £10,168
Typical equipped price £12,100
Test aircraft avionics Twin Narco Com II, Nav II, Bendix T-12D ADF, marker, intercom

FUJI FA-200 AERO SUBARU

on board and half fuel the weight was safely below the 2,072lb aerobatic limit and the acceleration on take-off was brisk. A light force produced rotation at 75kt and we found that 95kt IAS was a comfortable climbing speed, giving 700ft/min without raising the noseline sufficiently to limit visibility. Once in the air we were all aware of the well harmonised and responsive controls and we noticed that, in almost classic style, the Fuji required rudder in response to power and speed changes.

We carried out several level speed checks, finding at low level that 28in manifold and 2,600 r.p.m. gave 115kt indicated which reduced to a more representative 97kt at 4,000ft with 24in and 2,450 r.p.m. While trimming for these levels at different power settings we decided that it would be an advantage if the trim wheel were to protrude further above the centre console; we found it a little fussy in its present sunk position.

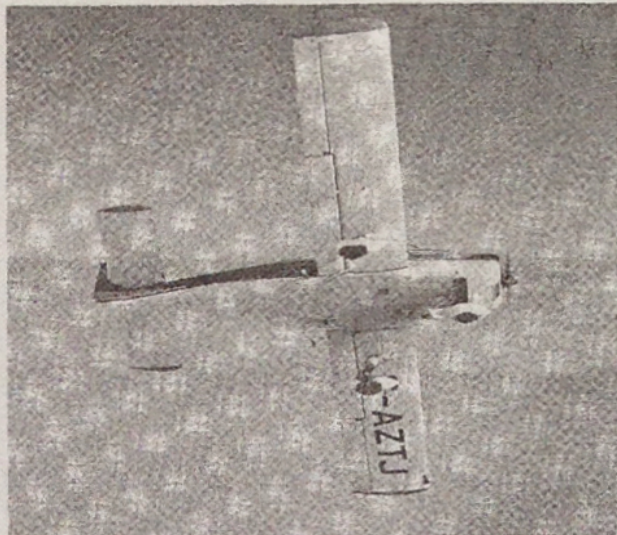
Farnborough radar provided the necessary coverage for a climb through cloud and rendezvous with the photographic aircraft and this, albeit short, stage of the flight was sufficient to show that the aircraft was a good instrument platform, pleasantly stable and with the panel arranged to give a relaxing scan.

The height of the cloud layer prevented our making any sustained spins but it was possible to investigate the stalling and the spin entry. We found that with the power reduced to idling and with flaps up we were limited by elevator movement and were unable to produce a clear-cut stall. As the speed was reduced slowly the stall-warning horn sounded at 65kt, giving a rather weak note, and with further speed reduction the control column reached the aft stop at 62kt. When it was held there the nose lowered very slowly, full aileron control being retained throughout.

Lowering flap, still with power off, gave a nose-up trim change and reduced the speed for first aural warning to 52kt. Again it was possible to reduce speed until the elevator was at the limit of its travel at a fluctuating 48kt, but this time the left wing lowered slowly and it was possible to feel a small nibbling of the ailerons. When we tried to induce a stall from a steep turn with cruising power we could do no more than make the horn sound, and even that needed a firm stick force.

We found that it was necessary to be deliberate about entering a spin; if the rudder was applied too late, or the stick brought back too gently, a spiral dive ensued, but with firm pro-spin control we felt the characteristic bite of auto-rotation and the speed stayed down. Full opposite rudder soon stopped the rotation and it was not necessary to move the stick more than half-way forward to stabilise in the recovery dive. The nose appeared to be low in the spin but this impression was probably influenced by the low cut-off angle which we had noted earlier.

The flight manual recommends that loops are started



from 135kt and rolls from 115kt. Looping was comfortable, but from the recommended entry speed we found that we needed to keep a firm back pressure if we were not to hang at the top with no airspeed left. The coaming and wingtips gave easy references for keeping straight throughout but it was during this, more than any other manoeuvre, that we decided that more glazed area in the roof would be an advantage. We understand that a modification is already in hand to take care of this.

Surprisingly, considering the rudder arm available, we found that controlling the last quarter of a roll was not easy, possibly because of allowing the speed to decay excessively by raising the nose too high at entry. The ailerons were first-class and the Fuji provides just enough of a challenge to produce a well co-ordinated slow roll; holding the third point of a four-point hesitation will call for plenty of practice.

Longitudinal stability was good, in response to both slow and quick disturbances. The reaction to fore-and-aft stick jerks was almost deadbeat; if the aircraft was taken to 20kt above or below its cruising trimmed speed it regained that speed smoothly on release of the stick.

Once we had returned to the circuit all the members of the team were reluctant to finish carrying out roller landings and finally return to dispersal. We found that 85kt IAS gave a comfortable downwind leg, allowing plenty of time for checks and leaving the speed to be reduced in easy stages by flap selection and power reduction to arrive at the threshold at 65kt. Again the low noseline fooled us slightly into expecting a longer float and this impression was enhanced by the ample elevator and aileron control which remained right down to the hedge. It was interesting during the circuit work to see the ease with which our newly licensed member was able to place the aircraft precisely on finals and the lack of effort involved in producing a smooth landing.

We might fairly summarise the behaviour of the FA-200 as needing the minimum of effort to fly smoothly. Indeed, we feel that in its training role it is almost too forgiving and that a little more "bite" in the stall and spin would be an advantage. We accept, however, that this might detract from the private-owner appeal and are well pleased with the compromise which Fuji has adopted.

Air Associates is hoping to work up to a steady flow of FA-200s so that there will always be two available for demonstrations, two on the boat in transit from Japan and a further two earmarked on the production line. We feel that the aircraft is almost unique among the light singles on the civil market in offering a wide performance envelope coupled with an exceptionally strong airframe. It has the rugged feel that promises long, reliable service and is reasonably priced. Japan has played a strong card for her first entry into the British market. ■

