

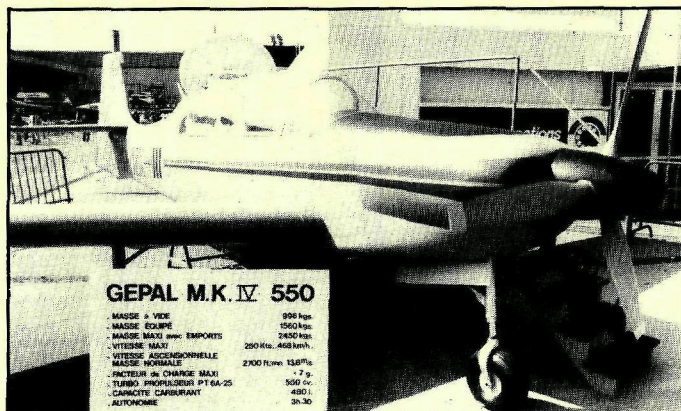
Morocco's turboprop trainer

Aero Maroc Industrie (AMI) is to build a turboprop trainer known as the Gegal Mk IV 550 for the Royal Moroccan Air Force. AMI was set up with French assistance in 1981 to overhaul Moroccan civil and military aircraft. The Casablanca-based company has installed refuelling probes on RMAF F-5s and Mirage F.1s and has also built a centreline recce pod for the latter aircraft.

On display at Paris was a full-scale mockup of Gegal III, powered by a 400 h.p. Lycoming piston engine, but Gegal IV will be powered by a 550 s.h.p. Pratt & Whitney PT6A-25 turboprop. The prototype should fly early next year. AMI needs a launch order for 40 aircraft to enter production. The 20 RMAF trainers will replace Beech T-34Cs, and the company is confident of two more orders, 25 from South America and five for an African country. AMI says that production will reach three aircraft a month with a 24-month delivery.

The all-metal Gegal is smaller and lighter than the Beech T-34C.

Four underwing hardpoints can carry a total of 900kg (1,984lb) of stores for weapons training or light-attack missions. Empty weight is 996kg (2,196lb), and normal training weight 1,560kg (3,439lb) with an armed maximum weight of 2,450kg (5,401lb). Maximum speed is quoted as 250kt, rate of climb as 2,700ft/min in the training configuration, and endurance as 3.5hr.



Mockup of AMI's piston-engined Gegal Mk III. The turboprop-powered Mk IV has been ordered by the Royal Moroccan Air Force

Romanians prefer pistons

Intreprinderea Constructiilor Aeronautice Romania (IAR) has reversed the usual trend of upgrading a piston-engined trainer by fitting a turboprop powerplant. At Paris IAR was showing the prototype IAR.831, the piston-engine version of the IAR.825TP turboprop tandem trainer shown at Farnborough last year and now in production.

Both versions are based on the same all-metal airframe whose genealogy stretches back, via the IAR.823 four-seat trainer, to the Messerschmitt Me.108. The wing is built in three parts, centre section and two outer panels, each with a fuel tank. The fuselage is of semi-monocoque construction, "simple but solid", says IAR. Both versions have retractable tricycle landing gear and are offered in three models; aerobatic, normal trainer, and light strike/weapon trainer with underwing hardpoints.

Fokker updates its products

Fokker has to improve its successful F.27 and F.28 lines to keep them selling in a depressed market, and to plan now for their replacement.

Short-term F.27 improvements are to the Dart engine, and will give about 10 per cent better fuel burn. There are approximately 400 F.27s in service; the improvements will be available to these as a retrofit kit next year, and a new Dart, the Mk551, will be installed in series production machines from October 1984.

The Dart improvements take the form of new compressor rotors and diffusers which increase the pressure ratio by 12.5 per cent and compressor efficiency by 5 per cent, and lower turbine inlet temperature. The modifications do not alter engine dimensions, though there is a 12.2kg weight increase.

The Mk551 Dart will significantly increase the F.27's dry take-off power, which will mean a 95 per cent decrease in the annual water methanol consumption needs of the typical F.27 owner, Fokker calculates.

For the longer-term future of the F.27 Fokker is studying the possibility of re-engining the aeroplane with Pratt & Whitney Canada PW124 engines, and stretching the fuselage to give it a 70-seat capacity. Present maximum F.27 capacity is about 54 seats, though it can be

modified to accommodate 60 passengers. This plan is not to be embarked upon lightly, however, because although the wing profile would not change, its structure would have to be redesigned to take the new engine, and the hydraulic system would have to be redrawn. But if the PW124 were fitted, Fokker could throw away the F.27's water meth system.

The Netherlands Civil Aviation Authority is about to certificate the F.27 with hush-kits fitted to its Darts. These are retrofittable, and bring the noise levels well within all proposed new limits.

Future plans for the F.28 include a stretch to enable it to seat 109 passengers (single class 30in pitch) and fitting Rolls-Royce's new Tay high bypass turbofans. The new engine is considerably more efficient than the present Speys, and quiet enough to beat the noise rules. A launch decision for this project would be made late this year or early 1984.

The F.XX 100-seater twin propfan project hangs entirely on a continuous study of world fuel prices. Unfortunately fuel predictions more than a year ahead are almost impossible to make. If it were absolutely predictable that in, say, ten years' time, fuel prices in real terms would rise enormously, the F.XX would be Fokker's number one programme. It would certainly kill the Tay F.28.

The F.XX would be a static stability aircraft with a cruise speed of Mach 0.7, and it would make considerable use of composite materials—possibly even in primary structures, though this would depend on launch date. The twin propfans would probably be rear-mounted.

Fokker is actively preparing to be a major producer of composite materials and components for aerospace use. Last year the company opened a 4,500m² structural composites factory at Hoogeveen, where it produces carbonfibre components for the F.16 fighter. Now the plant is used for series production of carbonfibre hinge and leg fairing doors for the Airbus Industrie A310 and A300-600. Soon an F.28 will be fitted with a Fokker-produced rudder for flight-testing.

IAR 831 AND 825TP LEADING DATA

	825TP	831
Span (ft)	33.7	33.7
Length (ft)	29.1	29.1
Height (ft)	7.8	7.8
Wing area (ft ²)	161	161
Empty weight (lb)	2,645	?
Max TO weight, aerobatic role (lb)	3,747	2,645
Max TO weight, trainer role (lb)	5,070	3,042
Max TO weight, light strike (lb)	5,842	3,306
Max speed (aero) (kt)	254	173
Max cruise (kt)	237	159
Stall speed, clean no power (kt)	62	59
Rate of climb, sea level (ft/min)	3,150	1,400
Ceiling (ft)	29,500	18,400
Endurance (hr)	31	?
Load factor (g)	+6/-3	+6/-3
Engine	P&W PT6A-25	Lyc. IO540
Power output (s.h.p./h.p.)	750	290