

Fokker F.XII

- An airliner of the 1930's

Modelled for Flight Simulator 2004 by

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Danish Air Lines version, with three Bristol Jupiter engines



Fokker F.XII

Introduction

The Fokker F.XII trimotor was a much larger aircraft than the better-known F.VIIb/3m. It was designed as a slightly smaller development of the Fokker F.IX. The F.IX was only built in two examples for KLM, who considered it too big, and asked Fokker to make a smaller version.

The first F.XII for KLM, PH-AFL 'Leeuwerik', was flown in 1930, powered by three Pratt & Whitney Wasp C engines of 425 hp. It carried a crew of two and 16 passengers, compared to the 8 passengers of the smaller F.VIIb/3m.

KLM had 8, and the associated company KNILM 2, F.XII's and used them extensively on their network, including the very long Amsterdam-Batavia (Jakarta) line. An 11th Fokker-built F.XII was delivered to AB Aerotransport (ABA) of Sweden. Later, KLM sold some of their F.XII's off to British Airways, Air Tropic and other operators.

The Danish F.XII's

Danish Air Lines (Det Danske Luftfartsselskab, DDL) ordered their first F.XII, OY-DIG 'Merkur' as modelled here, on 4. February 1933. It was built under licence at the 'Orlogsværftet' (The Naval Dockyard) in Copenhagen, and differed from the Fokker-built F.XII in some respects. The most important change was the use of a different engine, the Bristol Jupiter VI of 450 hp, probably because DDL, and the Danish Armed Forces, had other aircraft equipped with the Jupiter at the time. But the new engine was a success; DDL proudly claimed that their F.XII's had a better performance than the Dutch original, being 5-10 mph faster.

OY-DIG was delivered to DDL 19. May 1933, and the airline decided to order a second example, OY-DAJ 'Kronprinsesse Ingrid' with a more streamlined fuselage. The two F.XII's were used on the longer routes of DDL from Copenhagen to Stockholm, Hamburg, Amsterdam, London and Berlin etc. until the outbreak of World War Two.

Both aircraft survived the war, but OY-DIG 'Merkur' was broken up following an accident in December 1945. A hangar fire destroyed OY-DAJ in 1947.

Specification:

Wing Span	23.02 m	75 ft 6 in
Length	17.8 m	58 ft 5 in
Empty weight	4825 kg	10698 lbs
Max. takeoff weight	7450 kg	16519 lbs
Maximum speed	248.5 km/h	155 mph, 138 kts
Cruising speed	213 km/h	133 mph, 118 kts
Fuel consumption (cruise)	320 L/h	84.5 USG/h
Range approx	1450 km	806 n.m.
Climb to 500 m (1639 ft)	1 min 42.5 sec	
Climb to 3000 m (9836 ft)	13 min 17 sec	

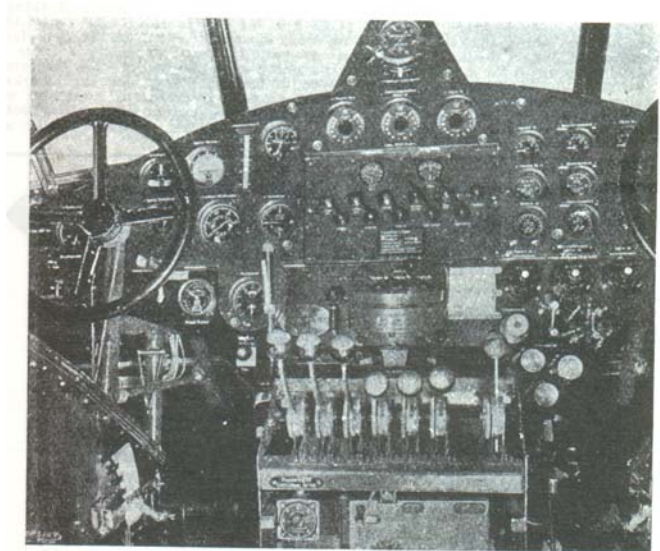
Using the panel

The main panel



The layout of the gauges is based on a photo of the cockpit of one of the two DDL F.XIIs, published in a Danish yearbook in 1935. The photo, not very clear, is shown here so you can compare! The instrumentation was fairly comprehensive, and included all the standard instruments for blind flying.

The most important engine instruments and the electrical panel were placed between the two pilots, with the rest of the engine instruments in front of the second pilot. In the 2D-panel I've re-arranged the gauges so you can see the instruments for engine no. 1 (the nose engine). The virtual cockpit has the gauges arranged in a more authentic fashion.



Virtual Cockpit



You can fly this model from the Virtual Cockpit. I recommend a zoom of 75%. Adjust your view so you can see the most important gauges all the time.

Auxiliary panels

SHIFT+2: Radio panel – inherited without change from the FS2004 DC-3, I don't know what the radios of the F.XII looked like. Tune ADF and NAV radios, switch between ADF and NAV modes for the dual-needle radio compass (see below).

SHIFT+3: The GPS map. Of course, GPS did not exist at that time, and you can only use it as a convenient real-time map. You cannot use it for automatic navigation. Think of the GPS window as a substitute for the maps and instruction you would get from your second pilot.

SHIFT+4: Throttles, mixture control and starter switches for the three engines.

SHIFT+5: Dual-needle radio compass. Tune the receivers on the radio panel (SHIFT+3).

SHIFT+6: An autopilot. The real aircraft did not have an autopilot, but it is convenient on long flights (you can pretend your second pilot is flying the aircraft!). The autopilot is that of the FS2004 Lockheed Vega, so you can find instructions in the FS2004 Learning Centre. The autopilot defaults to 'heading hold', so the best way to engage it is by using the keyboard: Press CTRL+SHIFT+H followed by CTRL+H.

Getting a passengers view!

If you don't intend to fly the F.XII from the Virtual Cockpit, you can use it to get a passenger's view instead. Enter the virtual cockpit, lower your view a little with shift+backspace, and move backwards with ctrl+enter. After a few seconds you are in the cabin! The seats in the first two rows are accessible in this way. Take a look around the cabin first, and then move to a window seat using the key combinations:

Shift+backspace	down
Shift+enter	up
Ctrl+backspace	forward
Ctrl+enter	backwards
Ctrl+shift+backspace	left (facing forward)
Ctrl+shift+enter	right (facing forward)

(With a tool like 'Virtual Camera' you can move around even more freely).



I have modelled the cabin interior from the old photo shown here, scanned from a book from 1936. It shows the interior of a Fokker Airliner with a 20-seat layout, so it is not an F.XII, but more likely its slightly larger predecessor, the F.IX.



Flying instructions

(Bristol Jupiter engines)

This information is available during your flight, just press F10 to call up the electronic kneeboard, and select the reference tab

Before Takeoff

Elevator trim 1 division up, rudder trim ½ division left. Both settings are important.

Takeoff and initial climb

Full throttle. The tail rises by itself at 60 mph (50 kts.). Take off at 80 mph (70 kts).

When safely airborne reduce to 27" MAP, 1600-1700 RPM. Begin to climb, initially at 800-1000 fpm (depending on weight), and let the aircraft accelerate to 110 mph (95 kts)



En route climb

At low altitudes: Approx. 27" MAP, 16-1700 RPM, speed 110 mph (95 kts indicated), expect a climb rate of 700-800 fpm. Above 4000 ft., adjust throttle from time to time to keep RPM at 1700.

Cruise

Cruising RPM is 1600 at all altitudes. Examples, all resulting in a true air speed of ca 133 mph:

Altitude (ft)	MAP (in Hg)	IAS (mph)	Fuel flow (USG/hr) per engine
6000	21.5	122	30.6
8000	20.5	118	29,4
10000	19.5	112	27.8
11000	19.1	110	27.3

So flying higher is better! If you are carrying passengers, do not climb above 12000 ft. The cabin is not pressurized.

Landing

The Fokker FXII has no flaps. Landing speed is about 65 mph (58 kts).

References

Scale drawing and info on the DDL FXII's	Modelflyve Nyt 2 / 1990. This scale drawing by L.Eriksen was prepared from the original drawings used by the Naval Dockyard, Copenhagen, as preserved in The Danish National Archives, Copenhagen.
Cutaway drawing and general info.	Fokker Cassette, undated, but it is from around 1970 and, as far as I know, published by Fokker.
Cockpit photo	'Hvem Hvad Hvor', Politikens Forlag 1935.