

# **Fokker F.XII**

## **- An airliner of the 1930's**

**Modelled for Flight Simulator 2004 by**

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**KLM version, with three Pratt & Whitney Wasp 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.

Danish Air Lines (Det Danske Luftfartsselskab, DDL) ordered two F.XII's, built under licence at the 'Orlogsværftet' (The Naval Dockyard) in Copenhagen. They 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. Both aircraft survived the war. The DDL version is available as a separate download, released in December 2004.

### **The Amsterdam-Batavia Line.**

For normal airline use, the FXII carried 14-16 passengers, but for the long far eastern route from Amsterdam, Holland to Batavia, Dutch East Indies (now Jakarta, Indonesia), the cabin was equipped for just four to six passengers in a convertible day/night layout. The navigator shared the cabin with the passengers.

A good source of information on the internet is (2005)

[http://www.avsim.com/hangar/flight/dc2uiver/adambatavia/amsterdam\\_batavia\\_eng.htm](http://www.avsim.com/hangar/flight/dc2uiver/adambatavia/amsterdam_batavia_eng.htm)

### **Specification:**

Wing Span	23.02 m	75 ft 6 in
Length	17.8 m	58 ft 5 in
Empty weight	4350 kg	9645 lbs
Max. takeoff weight	7250 kg	16075 lbs
Maximum speed	240 km/h	150 mph, 133 kts
Cruising speed	205 km/h	128 mph, 114 kts
Range approx	1480 km	822 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 what pictures I have been able to find - there are many pictures in books and on the internet claiming to show the FXII cockpit, but some of them are so different that it is difficult to believe they show the same aircraft! I think there is a lot of confusion between various Fokker Trimotors, particularly between the F.XII and the slightly later F.XVIII. Apparently, the F.XII was built with a very basic panel, but this was later modified with more complete instrumentation, and that is what I have tried to reconstruct here.

The most important engine instruments, the pitch indicator and the altimeters were placed between the two pilots, with the rest of the engine instruments in front of the second pilot. In front of the captain were the other flight instruments, and the electrical panel. In the 2D-panel I've re-arranged the engine gauges so you can see all 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. To get a good view of the most important gauges, you can move the seat back a little (Ctrl+Enter), or you can zoom out to 75%.

## **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.

For the long route to Batavia, only six passengers were carried, and the chairs were of a different kind.



## ***Flying instructions***

(Pratt & Whitney Wasp 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 right. 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 31" MAP, 1900-2100 RPM. Begin to climb, initially at 700-900 fpm (depending on weight), and let the aircraft accelerate to 105 mph (91 kts)

### **En route climb**

At low altitudes: Approx. 31" MAP, 19-2100 RPM, speed 105 mph (91 kts) indicated, expect a climb rate of 600-700 fpm. Above 4000 ft., adjust throttle from time to time to keep RPM at 2100.

### **Cruise**

Cruising RPM is 2000 at all altitudes. This should give you a true air speed of ca 127 mph. The corresponding indicated air speeds at altitudes are:

Altitude (ft)	IAS (mph)
6000	116
8000	114
10000	108
11000	106

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.
Fokker aircraft in general, scale drawing of KLM F.XII	Hegener: Fokker – the man and the aircraft, Harleyford Publications Ltd. 1961
Cutaway drawing and general info.	Fokker Cassette, undated, but it is from around 1970 and, as far as I know, published by Fokker.