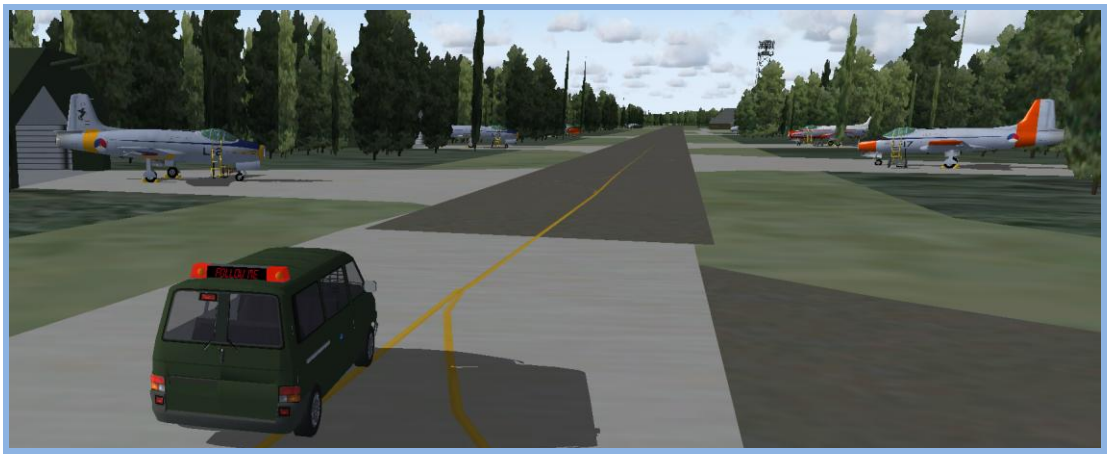
The Fokker S-14 Mach-trainer for FS9,FSX and Prepar3D



Fokker S-14 at Twente airforce base

History

The Fokker S-14 Mach-trainer was the first purpose designed and built side by side jet trainer. First flight was 19 may 1951. The aircraft was always praised for its special performance as a trainer aircraft whereby the side by side seat configuration was a great help to enable optimum communications between instructor and student pilot. Initially the aircraft was equipped with a Rolls Royce Derwent jet engine delivering some 3,600 lbf (16.0 kN) of thrust. To improve the performance even further the engine was replaced with the Rolls Royce Nene Mk3 jet engine delivering some 5,100 lbf (22.7 kN) of thrust. Planned license production in Brasil and with Fairchild in the USA was envisaged however these plans evaporated due to political changes in Brasil while Fairchild abandoned its production plans. During a demonstration flight in 1955 in the United States of America aircraft registration L-4 crashed due to unknown reasons taking the live of the Fokker test pilot Gerben Sonderman. Overtaken by the Lockheed T-33 and the Fouga Magister only 20 aircraft were build and used by the Royal Netherlands Air Force from 1955 till 1967. The aircraft were initially stationed at the Twente Airforce base and operated by the RNLAF Fighter Pilot School. Later they were stationed at the airforce basis of Soesterberg, Ypenburg and Woensdrecht.

Fokker S-14 L-11 at Soesterberg airforce base

Today still 3 aircraft exist: The prototype with PH-XIV, formally owned by the National Lucht – en Ruimtevaartlabratorium, now on display at the Aviodrome museum at Lelystad airport in The Netherlands and, RNLAF Registration L-11 at the National Military Museum at the former Soesterberg RNLAF Airforce Base and RNLAF Registration L-17 currently undergoing restoration for static display at the KLu Historical Flight at Gilze-Rijen Airforce base.

Fokker S-14 L-17

The Fokker S-14 project was first setup by David Wooster. This latest version is a complete update of the original Fokker S-14, presented in the [fokker_s-14_machtrainer.zip file], and accomplished by a team consisting of David Wooster, Jaap de Baare, Hans Janssens and Emile Lancée and the support of various Flight Simulator Forum members. Unfortunately not too much detail is available for the production fightdeck configuration beside some pictures and drawings, so with this limited information the flightdeck 2D presentation was setup to our best knowledge. The VC cockpit was setup using the available drawings and pictures from the Prototype. Most pictures available to us for the fightdeck main instrument board give details of the prototype aircraft PH-XIV (K-1) and differ as the prototype was later used and intensively modified as a flight test platform by the National Aerospace Laboratory (NLR) of The Netherlands. For those who like to add the aircraft as an AI aircraft there is a complete new AI aircraft file incorporated including a traffic file and an amendment to the NL2000 scenery package. The AI aircraft has an animated canopy, external battery car and landing lights operating during flight.

The flightdeck configurations covered are:

1. The NLR prototype configuration

NLR VC cockpit

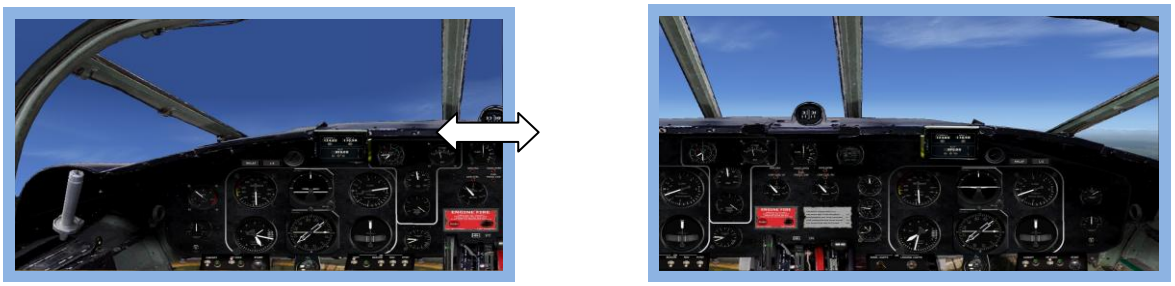
NLR 2D flightdeck for triple monitor display (optional)

NLR 2D flightdeck panoramic single monitor display (standard)

2. The Prototype K-1 and RNLAF configuration

RNLAF VC cockpit

RNLAF 2D flightdeck for triple monitor display (optional)



RNLAF 2D flightdeck panoramic single monitor display (standard)

Flightdeck triple monitor presentation

For people that use triple monitors to present the complete aircraft and scenery there is an option available to show the 2D flightdeck presentation over all three monitors. The downloaded zip file contains a separate folder “Triple Monitors 2D flightdeck” that contains all required information.

Simply amend the installed [Fokker S-14 Machtrainer Proto] and [Fokker S-14 Machtrainer RNLAF aircraft] directories with the downloaded [panel.wide K-1], [panel.wide NLR] and [panel.wide KLU] directories. And on top of that amend the applicable aircraft.cfg files with the directory reference to the wide panel files in the respective both [Fokker S-14 Machtrainer Proto K1 and NLR] directory and the chosen [Fokker S-14 Machtrainer RNLAF L1 thru L17] directory. For more information consult the attached detailed diagram in the back of this document for a graphical display of the file buildup and an overview of what changes have to be made to what specific file.

The Fokker S-14 Flightsimulator Features:

1. Retractable landing lights which operate by the CTRL L key. A known feature with the landinglights is that in some cases the lights will illuminate, however the light housing will not swing down from the wings. The solution to this is to cycle though the different Views (“S”) command and this will restore proper operation of the landinglights. This can happen when switching from one to the other aircraft type and back again.
2. The aircraft can be operated with a single Pilot or with an Instructor and a Student. Simply add or subtract the weight of the CoPilot (210 Pounds) in the Aircraft Fuel and Payload / Change Payload / Payload Settings Table.
3. The prototype registration K-1 and PH- XIV aircraft can be flown with an External Pod under the fuselage. Simply add or subtract the weight of the External Pod (200 Pounds) in the Aircraft Fuel and Payload / Change Payload / Payload Settings Table. The pod was developed as a gunpod and the aerodynamic model was flight tested. There has however never been a production model delivered.
4. Beside the external pod the prototype registration K-1 and PH- XIV aircraft can be flown with an External Sensor Boom fitted to the nose air intake central support as well. Simply add or subtract the weight of the Sensor Boom (25 Pounds) in the Aircraft Fuel and Payload / Change Payload / Payload Settings Table. The Sensor Boom was occasionally put on the prototype to ensure airspeed and attitude measurements were not disturbed by any fuselage influenced airflow.
5. The aircraft flightdeck can be configured for use with a single panoramic display or a combined widescreen setup with 3 displays operating as one. The 2D flightdeck presentation is available for both set ups. And a switching capability between pilots positions is provided for.
6. For details on the operation of different functions reference is made to the Operational Info paragraph.

Models

There are 2 different models of the Fokker S-14 Mach-trainer.

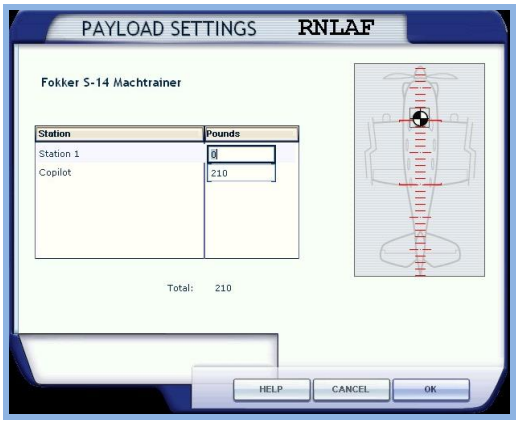
1. The Royal Netherlands Airforce model:
   a. Royal Netherlands Airforce (KLU) L-1 displaying the original texturing as delivered from the Fokker Factory.
   b. Royal Netherlands Airforce (KLU) L-1 demonstrator featuring additional Fokker logo's.
   c. Royal Netherlands Airforce (KLU) L-2 displaying an additional blue band over the fuselage and the taillogo for the Twente Baseflight.
   d. Royal Netherlands Airforce (KLU) L-3 displaying an additional blue band over the fuselage.
   e. Royal Netherlands Airforce (KLU) L-8 featuring a wide orange band over the front fuselage, wing and tail to improve visibility.
   f. Royal Netherlands Airforce (KLU) L-10 featuring orange and yellow bands over the fuselage, wing and tail to improve visibility. It is not known if the aircraft actually flew with this paintscheme. No pictures confirming this configuration were found.
   g. Royal Netherlands Airforce (KLU) L-11 featuring a wide orange band over the front fuselage, wing and tail to improve visibility. This aircraft is on display at the National Military Museum at the former Soesterberg RNLAF Airforce Base.
   h. Royal Netherlands Airforce (KLU) L-17 featuring a wide orange band over the front fuselage, wing and tail to improve visibility. This external paintscheme can be considered the standard scheme with which most aircraft flew until they were all decommissioned in 1967. This aircraft is undergoing restoration at the KLu Historical Flight at Gilze-Rijen Airforce base.

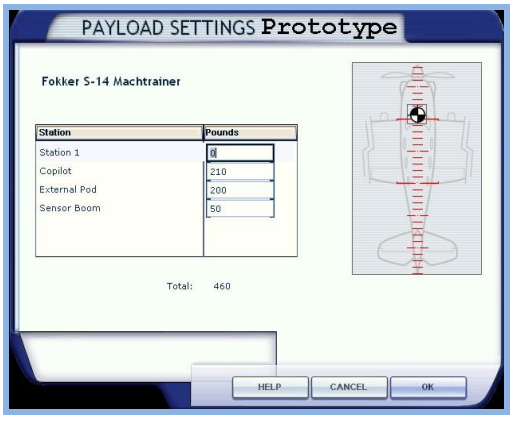
   Using the loadsheet the flightcrew can be amended to fly with an second officer in the RH seat.

2. The Prototype model:

   a. The Prototype K-1 (now PH- XIV) as painted by the Fokker factory for demonstration purposes and as displayed during the Paris Airshow. Using the loadsheet the aircraft can be equipped with a nose sensor boom or external pod. And the flightcrew can be amended to fly with an second officer in the RH seat.

   b. The Prototype PH- XIV (was the K-1 prototype) as painted for the National Aerospace Laboratory (NLR). Using the loadsheet the aircraft can be equipped with a nose sensor boom or external pod. And the flightcrew can be amended to fly with an second officer in the RH seat.





Operational info

Speeds

Airspeed limitations I.A.S.

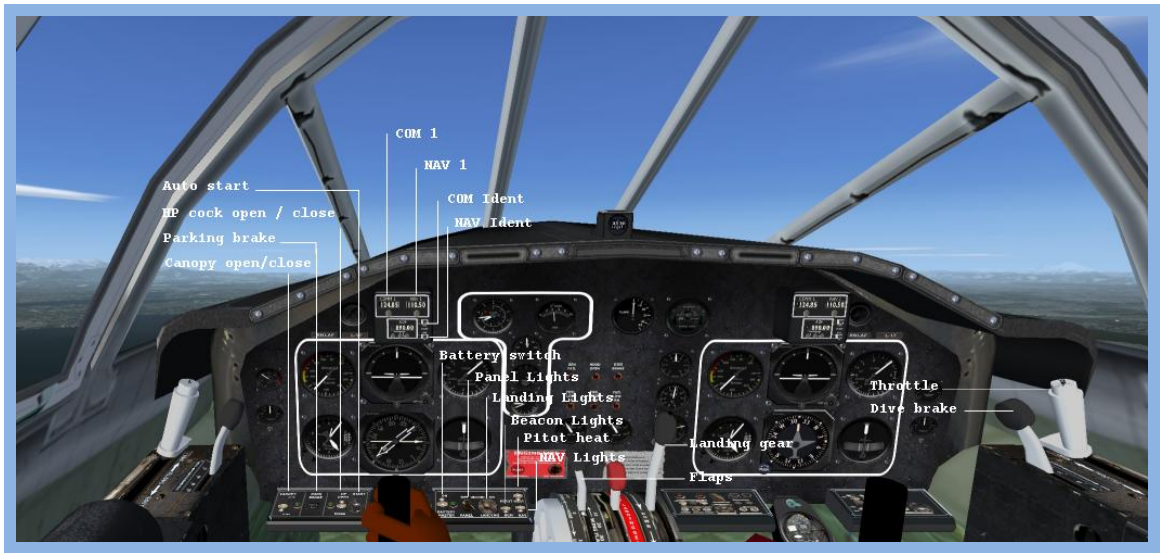
Airspeed not to be exceeded:	475 KTS
Mach number not to be exceeded:	0.83
Flap operation and flaps down:	140 KTS
U/C operation and U/C down:	140 KTS

Take off speeds: At Typical service loads the nose can be raised at about 80 knots and the aircraft flown off at 100 knots.

Stall speeds:	Undercarriage and flaps up	85 to 95 KTS
	Undercarriage and flaps down	75 to 85 KTS
Landing speed:	Initial approach	130 knots
Airfield boundary crossed	100 knots	

Flightdeck

The assigned functions to various buttons and switches is similar for both models. Positioning of the switches is identical in the VC and 2D cockpit layout.



Larger images are presented at the end of this document.

CREDITS

Aircraft model, flight model, panels, gauges and textures by David Wooster, Jaap de Baare, Hans Janssens and Emile Lancee.
A special thanks goes to the Lelystad Aviodrome and Royal Netherlands Airforce Historical Flight museum for their support in finding as much detail as possible and allowing us to take detailed pictures supporting the designs.

SUPPORT

Thank you for downloading the Fokker S-14 Mach-trainer we hope you enjoy it.

E-mail David Wooster for model related questions at: this4david2@gmail.com or
E-mail Emile Lancée for texture or flightdeck related questions at: lanceeemile@gmail.com

COM 1
NAV 1
COM Ident
NAV Ident
Auto start
FF cock open / close
Parking brake
Canopy open/close
Battery switch
Panel Lights
Landing Lights
Beacon Lights
Pitot heat
NAV Lights
Throttle
Dive brake
Landing gear
Flaps

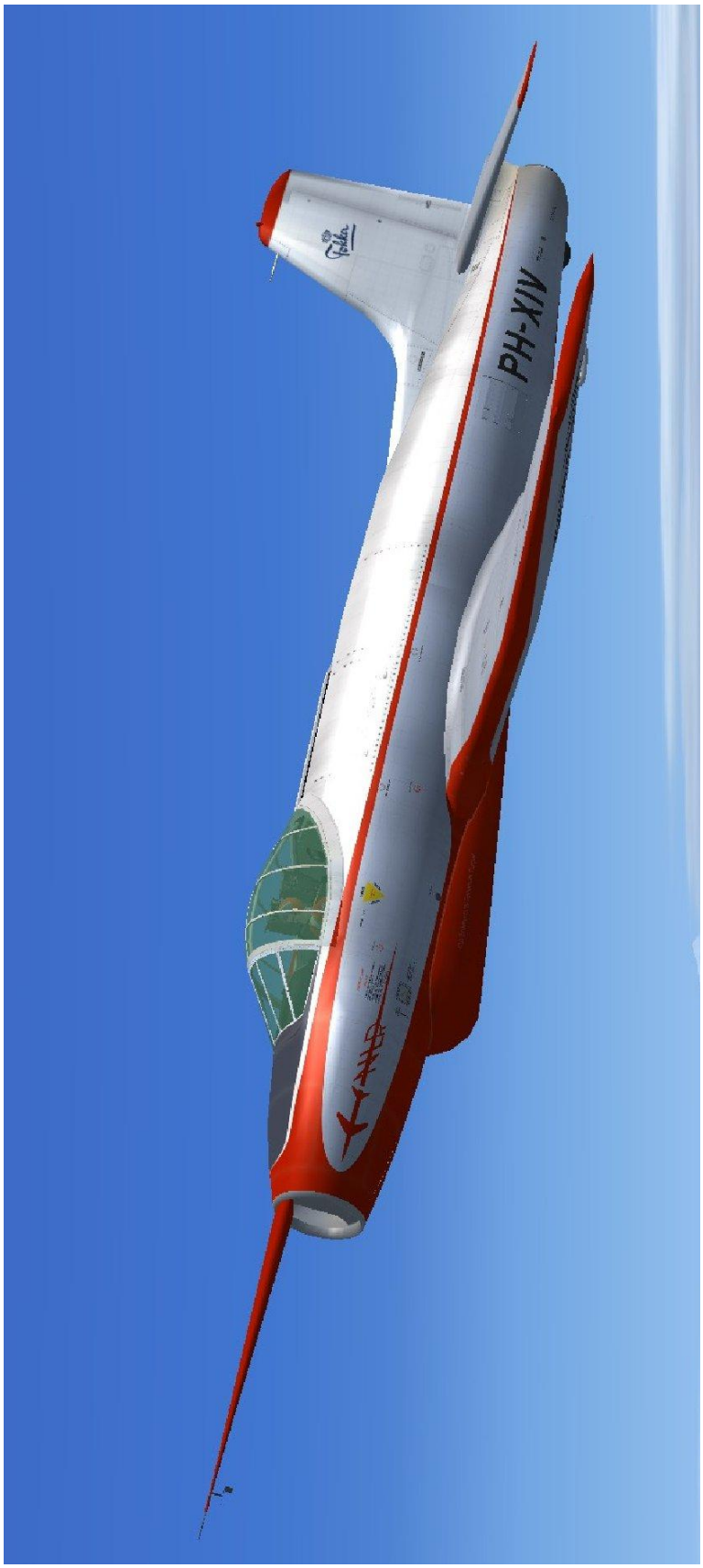

Switching from Capatain to Coplot side
GPS


Switching from Copilot to Captain side
GPS

Fokker S-14 Mach-trainer prototype

Fokker S-14 Mach-trainer prototype

Operated by the National Aerospace Laboratory (NLR) of The Netherlands



Royal Netherlands Airforce L-17