

Martin M130

Clipper flying boat of

Pan American Airways System

Modelled for Flight Simulator X

And

Flight Simulator 2004 – A Century of Flight

by

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Martin M130 'China Clipper'



Introduction

The Martin M130 was the second, large flying boat type for Pan American, and unlike the Sikorsky S.42, it could actually fly the long distances required for the trans-pacific service that PanAm opened in 1935. The route was San Francisco – Honolulu – Midway Island – Wake Island – Guam – Manila.

Three aircraft were built, called 'China Clipper', 'Philippine Clipper' and 'Hawaii Clipper'. Martin had hoped to sell more, and actually lost money on the project.

For short-range flights, the M130 had room for up to 44 passengers, but on the long-distance flights only 12 passengers were carried (plus mail).

Specification:

Span	130 ft	39.60 m
Length	90 ft 10½ in	27.60 m
Empty weight	28000 lbs	12628 kg
Loaded weight	51000 lbs	23585 kg
Max speed	160 kts	288 km/h
Cruising speed	140 kts at 7000 ft.	251 km/h at 2130 m
Engines	4 Pratt & Whitney R1830 Twin Wasp S1A4G, 830 hp each	

References

Main sources for preparing this model, the textures and the documentation:

- Stan Cohen: Wings to the Orient, Pictorial Histories Publishing Company, Missoula, MT, 1985
- Scale drawing from Bob's Aircraft Documentation, www.bobsairdoc.com

Additional material from the following books was sent to me by Wayne Brown – thanks:

- Barnaby Conrad III: Pan Am: An Aviation Legend, Woodford Press, Emeryville, CA, 1999
- Roy Allen: The Pan Am Clipper: The History of Pan American's Flying-Boats 1931 to 1946, Amber Books Ltd., London, 2000

Using the panel

The main panel



The panel is based on cockpit photos in the books listed above. I'm not certain about all the details, but I hope the general look and feel is close enough to the original

The Sperry autopilot is very similar to the autopilot of the FS Douglas DC-3. You can find instructions in the Flight Simulator Learning Centre.

The autopilot defaults to 'heading hold', so the best way to engage it by using the keyboard: Press CTRL+SHIFT+H followed by CTRL+H.

Other useful keyboard shortcuts:

Altitude hold:	Press Ctrl+Z
Disengage Alt hold:	Press Z+Z (that's Z two times)

The overhead panel includes the electrical switches, starters and so on.

In FSX, you can move to the copilot's seat by pressing 'A' one or two times.

Auxiliary panels

SHIFT+2: Radio panel

This is borrowed unchanged from the FS DC-3.

SHIFT+3: The GPS map

You can use the GPS as a convenient real-time map, not for automatic navigation. Think of the GPS window as a substitute for the maps and instructions you would get from your second pilot and the radio operator. Of course, GPS did not exist in the 1930's.

SHIFT+4: Engine instruments

On the real aircraft, most of the engine instruments were located on the flight engineers panels at the rear of the cockpit area, between the wings. This is a highly simplified version.



Flying instructions

This information is available during your flight, just press Shift+F10 (in FSX) or just F10 (in FS2004) to call up the electronic kneeboard, and select the reference tab.

Before Takeoff

Elevator trim 3-4 degrees up.

Navigation lights on. By night: Panel lights on.

Takeoff and initial climb

Full throttle and RPM. Takeoff is easy at approx. 90-100 kts according to weight.

(Expect a takeoff run lasting approx. 45 seconds at full load)

When safely airborne reduce to 36 in MAP and 2450 RPM. Let the aircraft accelerate to a climb speed of 105 kts.

En route climb

Reduce MAP to 35 lbs, 2350 RPM. Adjust climb rate to keep the speed around 105 kts.

Cruise

MAP between 30 in Hg (economical cruise) and 32 in Hg (fast cruise), 2200 RPM. Reduce RPM as fuel burns off to keep the speed constant.

Economical cruising is 120 kts indicated airspeed, at 5000-7000 ft this is about 140 kts true airspeed.

The service ceiling of the Martin 130 was about 17000 ft, but if you carry passengers do not exceed 12000 ft. for more than 30 minutes at a time. The cabin is not pressurized.

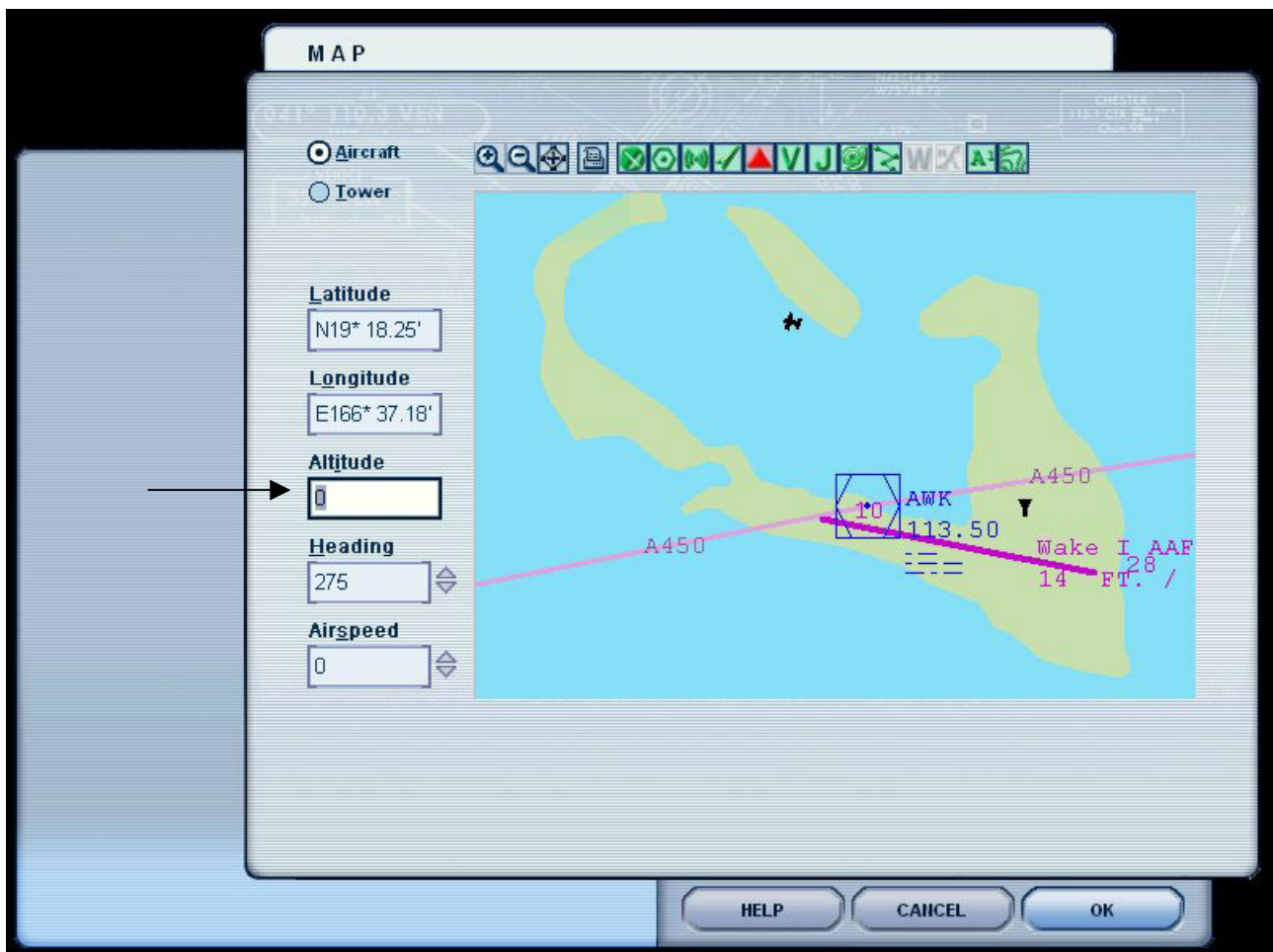
Descent and landing

Flight Simulator includes “runways” for flying boats in some parts of the world (particularly in the U.S.A.), but elsewhere you are on your own when landing. Reduce altitude to 1000 ft, and find a suitable place for landing against the wind. Taxi to the shore to let the passengers out. (Press SHIFT+E to open the doors, CTRL+SHIFT+F1 to shut the engines down)

Creating a flying boat flight in Flight Simulator.

Flight Simulator includes some airports for seaplanes, mostly in the USA, but to recreate authentic Martin Clipper flights across the Pacific, you can do as follows:

- 1) Find the ordinary airports closest to your point of departure and your destination. Use the flight planner to create a VFR flight plan, and save it.
- 2) Say 'yes' to let Flight Simulator move your aircraft to the selected departure airport. This will put your flying boat on the concrete runway!
- 3) Open map view (select the map icon on the panel, or press ALT+W+M). Move your aircraft to the water using the mouse. Set the altitude to 0 ft.
- 4) You are ready to taxi and takoff! Save the flight if you plan to use that point of departure another time.



This screenshot shows the approximate position of the PanAm Clipper Base at Wake Island!