Short S.25V Sandringham

Modelled for Flight Simulator 2004 by

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Introduction

The Short Sandringham was a civilian conversion of the WW2 Sunderland maritime patrol flying boat. During the war, BOAC had a number of Sunderland III's in service as transports, and in 1946 22 Sunderland III's were converted to airliner standard for BOAC as the 'Hythe' class. These aircraft were properly equipped for airline passengers, but could only carry a small number.
One of the 'Hythe' class, G-AGKX, was converted as the prototype Sandringham 1. Streamlined fairings replaced the nose and tail turrets of the Sunderland, and the Sandringham 1 served first with BOAC and then Aquila Airways until 1953.
After this, a number of Sunderland V flying boats with the more powerful Pratt & Whitney Twin Wasp engines were rebuilt as airliners for a number of customers. Although only 27 Sandringhams (including the one and only Sandringham 1) were built, the version numbers ranged from 2 to 7, because the customers had the aircraft made to their own specifications.

Sandringham 2	3 aircraft for South American customers. 45 passengers on two decks.
Sandringham 3	2 aircraft for South American customers. 21 passengers on the lower deck, dining area and bar on the upper deck
Sandringham 4	4 aircraft for TEAL (Tasman Empire Airways Ltd.). 30 passengers, a galley and a bar. One of these aircraft is preserved today in Southampton, VH-BRC 'Beachcomber'.
Sandringham 5	9 aircraft delivered to BOAC as the 'Plymouth' class. They replaced the Hythe's on the routes from Britain to Hong Kong and Sydney. 22 day or 16 night passengers.
Sandringham 6	5 aircraft for DNL (Norwegian Air Lines). They were used on the difficult domestic routes to northern Norway, and retained the military ASV 6c air-to-surface radar to navigate in the difficult terrain of fjords and mountains. Three Sandringham 6's, with seats for 37 passengers, were delivered to DNL in 1946, but by 1950 all three had been lost in accidents. Two replacement aircraft were ordered, and they were transferred to SAS when the Danish, Norwegian and Swedish national airlines merged in the late 'forties.
Sandringham 7	3 aircraft delivered to BOAC as the 'Bermuda' class. 30 passengers. They served with BOAC from 1947 to 1950, when BOAC stopped all flying boat operations. One is preserved in France, being in storage at Le Bourget.

In this package you'll find four versions of the Sandringham to fly:

Sandringham 2 LV-ACT of Aerolineas Argentinas
Sandringham 5 G-AHZA 'Penzance' of BOAC
Sandringham 6 LN-IAV 'Kvitbjørn' of DNL, Norwegian Air Lines
Sandringham 6 LN-LMK 'Polarbjørn' of SAS

Enjoy!

References:

Peter London: British Flying Boats, Sutton Publishing Ltd, 2003.

Various Internet sources have been consulted as well. The most important are listed here.

www.seawings.co.uk details the Sandringham 4 'Beachcomber', an aircraft with a long life and many later modifications to the engines, instrument panel and so on. Very interesting.
http://www.kiwiaircraftimages.com/solent.html details the Short Solent 4 ZK-AMO 'Aranui' of TEAL. The Solent was a bigger and later successor to the Sandringham, and was based on the Short Seaford military flying boat.
http://www.timetableimages.com/ttimages/dnlsand.htm includes a good photo of the Sandringham 6 cockpit. I have used this as my reference when I made the panel of this model.

Using the panel

The main panel

The panel is based on this photo of one of the Norwegian Sandringham 6's from
http://www.timetableimages.com/ttimages/dnlsand.htm (copyright unknown).

You can fly this model from the 2D panel or the virtual cockpit; there is very little difference. The Sandringham 6 had the primary engine instruments (MAP and RPM gauges) on the overhead panel.

The Sandringham was custom-built for the individual airlines, so it is very likely that other Sandringhams had panels looking more like the panel of the original Sunderland V.

The overhead panels also include the vertical trim indicator, the starter buttons and the light switches.

The main panel includes the basic six instruments for blind flying, a radio compass and an ADF homing indicator. Some gauges are from other FS9 aircraft like the DC-3 or the Lockheed Vega, other gauges are from various freeware sources – please see the readme.txt file for details.

In the middle are, from above:
− Magneto (ignition) switches for the engines and switches for the main electrical systems.
− Fuel gauges and flap indicator.
− Sperry autopilot. This is the autopilot of the FS9 DC-3; you can find instructions in the FS9 Learning Centre. The best way to engage it is to press CTRL+SHIFT+H followed by CTRL+H. Then the AP is in heading hold mode, and holds pitch as well.
− Feathering buttons for the propellers. Only to be used in case of engine failure. On the real aircraft, there was also fire-extinguishing buttons here.

Auxiliary panels

SHIFT+2: Radios

This is the radio panel of the FS9 DC-3. I don't know what the radios of the Sandringham looked like.

SHIFT+3: The GPS map

You can use the GPS as a convenient real-time map, not for automatic navigation. Think of the GPS map as a substitute for the maps and instructions you would get from your second pilot and the navigator.

SHIFT+4: Throttle quadrant

You'll want to control the engines individually when you wish to turn the Sandringham on the water. Use the outer engines for this.

SHIFT+5: Engine instruments

This is a subset of the flight engineers panel of the real aircraft.

Flying instructions

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.
- Flaps 2 steps down
- Navigation lights on. Landing lights on. Pitot heat on. By night: Panel lights on.

Takeoff and initial climb

Full throttle and RPM. Takeoff is easy at approx. 110 kts.

When safely airborne retract the flaps, reduce the engines to 41" MAP, 2300 RPM. Let the aircraft accelerate to 125-135 and climb, initially at 950 fpm.

If you're not using the autopilot: Trim the aircraft for climbing with numpad 7 (nose down) or numpad 1 (nose up). Num Lock must be off.

En route climb

Reduce boost to 35" MAP, 2300 RPM.

Cruise

Boost between 28-30" MAP, 2100 RPM. Reduce RPM and/or boost as fuel burns off to keep the speed constant.

The normal cruising speed is 140 knots indicated airspeed.

The service ceiling of the Short Sandringham was about 18000 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 airports for seaplanes in some parts of the world (particularly in the U.S.A.), but elsewhere you are on your own when landing. Reduce altitude to 1000-2000 ft, and find a suitable place for landing against the wind. Taxi to the shore to let the passengers out. (Press SHIFT +E and SHIFT +E+2 to open the doors, CTRL+SHIFT+F1 to shut the engines down)

Creating a flying boat flight in Flight Simulator.

FS2004 includes some airports for seaplanes, mostly in the USA, but to create authentic Short Sandringham flights in other parts of the world, 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 FS2004 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.