# British Aerospace Sea Harrier FA2

# Head-down display (HDD)

By Red Leader

Note: This manual is intended only for the FlightGear simulation of this aircraft, not the real aircraft.

# Notes:

The Head-down display in the Sea Harrier is a multi-function display used for displaying various information to the pilot. Due to correct model in the cockpit not having a mapped texture, the Canvas is placed on a generic model used for a Canvas demo in $FG_ROOT/Aircraft/Instruments-3d/canvas-test. The HDD will be shown by default, unless you have a FlightGear version less than 2.8, in which case Canvas itself is not available. To toggle whether it is shown or not, go to the Options dialog (Harrier > Options) and uncheck "Use Canvas HDD."

Currently, there are four pages, two with subpages. The following information is displayed;

Page 1 (Navigation):

Subpage 1: Autopilot settings.
Subpage 2: Heading and TACAN.

Page 2: Stores Management System (SMS).

Page 3: Moving map, mission computer.

Page 4 (Systems):

Subpage 1: Engine information
Subpage 2: Fuel information
Subpage 3: Environment information

The picture below shows buttons that are available in all modes.

# Page 1, Subpage 1 (Autopilot)


1. Sets the autopilot to “Altitude” (altitude hold) mode.
2. Toggles the engagement of the autopilot.
3. Sets the autopilot to “Pitch” (pitch hold) mode.
4. Sets the autopilot to “Heading” (heading hold) mode.
5. Altitude setting knob.
6. Pitch/heading setting knob

This page is the autopilot settings page. The autopilot has three modes, “Altitude,” “Pitch,” and “Heading.” All three modes turn to and then hold the set altitude, pitch, or heading, respectively. To set the altitude (limited from 0 to 60,000 ft), select altitude mode (button **1**), then kick and drag the altitude knob (knob **5**) and the altitude will be set. If Shift is held down while turning the knob, increment will be 1,000 ft, and 10 ft otherwise. To set the desired pitch angle (limited from 0 to 90 deg), set the mode to pitch by pressing button **3**. Next, turn knob **6**. If Shift is held down while turning the knob, it will increment at 10 deg, and 1 deg otherwise. To set the heading, select heading mode (button **4**) and turn knob **6**. Increments are the same as pitch.

# Page 1, Subpage 2 (TACAN)


1. Heading knob
2. TACAN tuner (2nd digit)
3. TACAN tuner (3rd digit)
4. TACAN tuner (X/Y)

The TACAN page shows the settings of and information about the TACAN receiver fitted to the Sea Harrier. The large arrow that revolves around in centre of a big circle shows the heading of the aircraft, with the top being heading = 0, and the heading in numerical form is displayed in the centre. If the autopilot is in heading mode, the heading knob (**1**) can be turned. The heading target indicator is circled in blue. The triangular arrow at the top of the circle in the above image is the TACAN bearing indicator. The TACAN channel can be set using the buttons labelled **2**, **3**, and **4**.

0**2**9Y: Set using button **2**, which loops from 0 – 9.
02**9**Y: Set using button **3**, which loops from 0 – 9.
029**Y**: Set using button **4**, which toggles between X and Y.


1. Time to that TACAN station in minutes.
2. Identification abbreviation of the station.
3. Distance to the station in nautical miles.
4. Current frequency tuned to.

# Page 2 (Stores Management System)


The Stores Management System lets the pilot safely manage and fire a wide variety of weapons. In the above screenshot, each station (numbers 0 – 6) have the name of an ordinance/store beside the station number. The state of each station is displayed on the right. For the guns the number of rounds is displayed. For other stores, STANDBY and ARMED are displayed. To toggle the arming of a station, click on the button circled in blue.

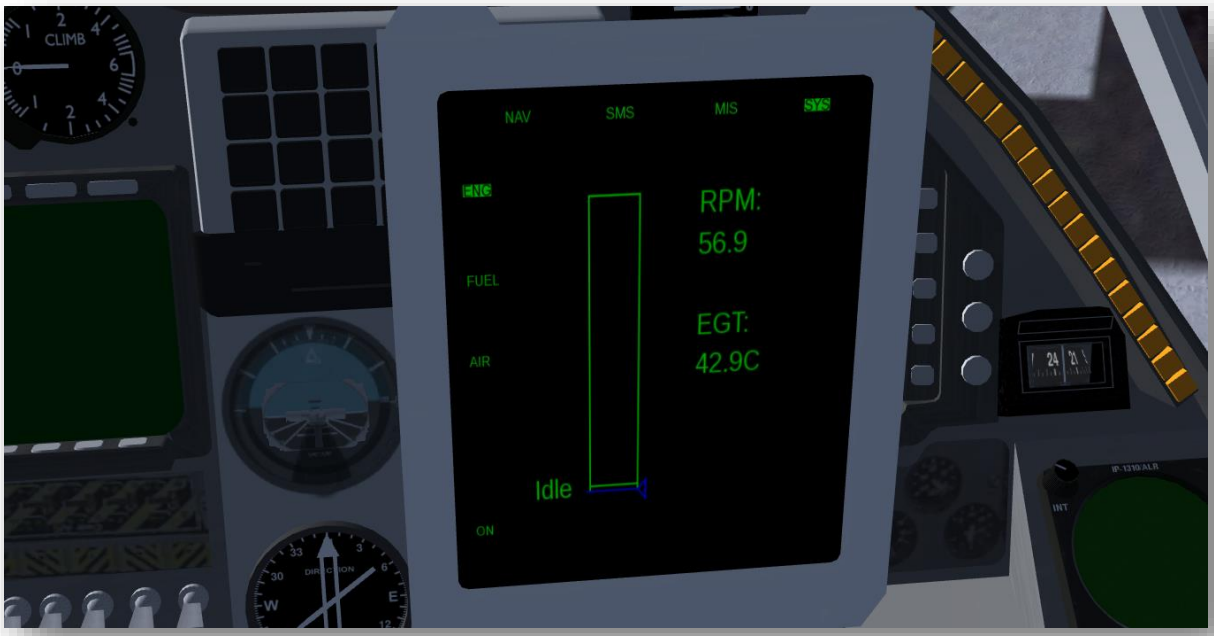
*Note: The station numbering goes from the port to starboard - i.e. station 1 is left outboard, 2 is left inboard, 3 is left fuselage, 4 is center fuselage, and so on.*

# Page 3 (Mission computer)


The moving map (simulating a mission computer) is very useful for seeing various fixes, airports, etc. near your aircraft. Using Canvas MapStructure, it shows airports, VOR stations, flightplan and DME stations. The aircraft's position is denoted by the airplane symbol. The button circled in blue in the above image changes the map's range, cycling through 5, 10, 20, 50, and 100 nautical miles. The default zoom is 20 nm.

Warning! Zooming out a lot may cause a pause as the map loads.

# Page 3, Subpage 1 (Engine)




The engine information page displays the current speed of the engine (in revolutions per minute) and the exhaust gas temperature (EGT) in Celsius. The graphic shows the throttle position, the top being full throttle. The idle throttle range is set off separately.

# Page 3, Subpage 2 (Fuel)


The fuel page shows the amount of fuel in US gallons the respective tanks currently hold. When amount of fuel in a tank drops below 10%, the value turns red.

# Page 3, Subpage 3 (Air)


The air information page displays information on the air surrounding the aircraft. Clockwise from top left, they are air pressure (this value can be used to set the altimeter), dew point in Celsius, air temperature in Celsius, and local wind speed in knots.