Aerosoft's DHC-2 Beaver for FS2004 and FSX

by Claudio "Cloudy" Di Veroli, published in PC FLIGHT,
The Official magazine of the "PC Pilots Ireland", Sep. 2013, pp. 32-35

The Beaver is a famous post-WWII utility aircraft, in production for decades and still in use at present. Developed for relatively short haul, with most units having no Autopilot, it is not meant for economic long flights, but is instead overpowered for heavy loading and STOL capabilities. Let us first delve deeper on the details of properly installing this complex but excellent add-on product; further below we will review its performance.

This aircraft add-on is sold directly from Aerosoft Gmbh online, available

https://www.aerosoft.com/en/flight-simulation/flight-simulator-2004/sceneries/1651/dhc-2-beaver-x?number=AS10389

either as a download for €23.95 or as a box with a CD for €25.99 plus €5.50 p&p for Ireland. I opted for the latter and received a lovely box entitled "DHC-2 Beaver X". Before installing it you should copy to your hard disk from the \Manual folder in the CD, because it is not copied by the automated install. That said, this manual is identical to the printed booklet that comes in the boxed version and, although the text is written for the FSX version, most of it applies to FS2004 as well: Aerosoft has produced here an excellent 36-page-long user guide, full of technical details rarely seen in other FS add-ons.

Let us now install the beast, which we did in both a Pentium 4 PC running under Windows XP 32-bit and a Core i7 PC running under Windows 7 64-bit. I have only tested the FS2004 version, but the only differences seem to be a few minor external details, and the slightly better textures of FSX, which are twice the file size.

I have found only two published reviews: one in www.flightsim.com for an older version (with no FS2004 alternative), the other in www.flightsimworld.com. Both are about 2 pages long: they are interesting in that they reviewed the FSX version and coincide in finding it a worthwhile improvement over the default Beaver included in Microsoft's FSX. Inevitably, however, at times these reviews focus in details that I find not relevant, and vice versa they fail to mention features I deem important. Accordingly, I found that publishing a new review was fully justified.

The CD files are dated in March 2007: the label reads v.2.30, but this only applies to the FSX version: the version for FS2004 installs as v.1.53. The product has thus been around for a few years and, according to Aerosoft, is their best-seller. The installer asks you whether you wish to have AeroCore.dll installed: this option will produce a new "Menu" in FS that allows you, without leaving the FS window, to read the PDF Manual and to open your Web Browser in the Aerosoft page (and from there to go to any other page). The Menu also includes a "Check for updates online" that, however, once inside FS and flying the aircraft, errors with the message "Unable to download the product version information".

Googling online I found that the version for FSX has an update to v.2.31, although the only download that I could find is AS_BEAVER_ASC_100.zip (N/A) which only includes a few minor fixes for the FSX version. Anyway, compared with other FS add-ons, the bugs in this one are minimal indeed.

Once the product is installed you can store away the CD. You will now find:

(a) in the FS…\Aerosoft folder a nice British Columbia-Victoria scenery,

(b) in FS…\Flights a few starting points to enjoy the scenery flying the new aircraft,

(c) in FS…\Effects no less than 30 new files,

(d) in FS…\Gauges 4 new files,

(e) in FS…\Aircraft 4 new folders named \ZZZ… for the moving aircraft included in the scenery and

(f) last but not least, also in \Aircraft, the main product consisting of 15 aircraft folders, variously named from \Aerosoft Beaver Amphibian to \Aerosoft Beaver Tundra Wheels modern, each one including one or more \Models and one or more \Textures, totalling 48 variants! The file size is not very large (248Mb installed in FS2004 and about twice as much in FSX), but I found this "embarrass de richesse" a bit annoying, with so many aircraft and variants in the FS Select Aircraft menu.

The models have slightly different and relatively simple internal cabins. Much more significant are the differences in the elaborate external views: you have two different types of floats, two different types of amphibian landing gear, two different types of wheels, three different types of windows (for 2, 5 or 8 passengers) and a plethora of different arrangement of aerials on the roof and wings, including special features such as the elaborate crop-dusting apparatus.

I decided it worthwhile to produce a spreadsheet to compare the 48 variants, and after some tests I eventually reduced them down to only 8 "really-different" models with a single livery for each one:

Amphibian with 5 seats ("Beaver Air")

Amphibian with 8 seats ("Bates Air")

Firefighter

Floats with 5 seats ("Harbour Air white")

Cropduster ("Robby's Cropduster")

Skis ("Fuerza Aerea Argentina")

Standard Wheels with 5 seats ("Dutch Airforce")

Tundra Wheels (a barely-legible circle in the tail reads "Yakutat Coastal Airlines")

The models being different, the liveries are not interchangeable. For most models (except for Cropduster, Firefighter and Skis with only one livery each) quite a few liveries are provided to choose from, and for each model I decided to selected the most beautiful one. I also edited the aircraft.cfg files so that in the Select Aircraft menu my 8 models show as variants of one aircraft only.

Frankly, I would have preferred if Aerosoft had produced just this final 8 model set, saving me a full day worth of visual scrutiny, spreadsheet juggling, file management and aircraft.cfg editing.

Aerosoft Beaver - Amphibian model with Bates Air livery

Aerosoft Beaver - Float model with Harbour Air Red livery

Aerosoft Beaver - Standard Wheels model with US Air Force livery

Once in Flight Simulator, the aircraft looks beautiful externally and is frame-rate friendly, especially so in FS2004. Door 1 opens the pilot's door, Door 2 the passengers' door, and the FS control for the non-existing-speedbrake opens the engine cover instead, a nice touch.

Other external realistically moving parts are the propeller blades when you move the propeller control with the engine off, the wheels and their supports as you move along taxiways and runways, and of course the ailerons, flaperons, elevators and rudder. When the parking brake is set you see a nice pitot cover and chocks or tie-downs according to the model. The Cowl Flaps are not visible, but the instrument panel handle is effective in lowering the Cylinder Temperature by 30ºC. The custom-developed sound set is remarkably realistic.

Finally, you can select which pilot's face is shown in the external view of the aircraft! This needs to be done manually in FS2004 but a menu is available in FSX. For each set of textures, you can select a different face from a handful of genders and races. Also, the face is stored in a plain pl_face.bmp file which you may copy, editing and pasting your own photograph: very funny indeed. (In other FS aircraft this is mostly difficult to do, or even impossible when there is no separate texture for the pilot's face). See two examples below.

Aerosoft Beaver - Cloudy as a pilot of a Beaver with Skis

Aerosoft Beaver - Terry McGee as a pilot of a Beaver with Floats

Basic specs for the real-life aircraft are found in some webpages, for example http://www.flugzeuginfo.net/acdata_php/acdata_dhc2_en.php , and with some detail in the product Manual. Our flight tests have confirmed that the real-life specs are followed very closely by the simulation:

- **Take off**: Normally with Flaps on "Climb" (15º), Propeller not exceeding 2300 RPM, Throttle not exceeding 36"Hg, Rotate at 65 KIAS for Amphibian on land, 63 KIAS for Wheels, 67 KIAS on water.

- **Climb**: continuous at 700 fpm keeping Flaps on "Climb".

- **Cruise**: typical 110 KIAS at 7,000 ft.

- **Service ceiling**: 18,000 ft.

- **Approach**: final at 75 KIAS with Flaps on "Landing" (50º).

- **Touchdown**: at 60 KIAS, with no flare, and in taildragger models let the tail drop fully before applying brakes very cautiously.

- **Stall**: clean 52 KIAS, all down 40 KIAS.

STARTING. The real-life engine-starting procedure is a very complex sequence, necessarily simplified in a FS simulation: with a full rich Mixture and 1/8th open Throttle, switch on Energise, Engage, Fuel Cutoff and Fuel Pump and operate the Starter Clutch.

TAXYING. This is easy, and will show the wings oscillating well before you enter a ground loop.

TAKEOFF AND LANDING. Precaution is needed: you have to follow quite strictly the above takeoff and touchdown speeds if you really wish to operate in short runways. Land any slower and you may stall before touchdown; land any faster and you will either use a long runway or have to apply significant wheel brakes risking a ground loop, especially with taildragger models.

FLYING. Once airborne there is no Autopilot to help you, but it is not difficult to keep the plane steady, even in bad weather, and it is a pleasure to fly it. Due to the realistic rotational inertia of the large propeller, both on the runway and airborne expect a frequent—and variable—use of right Rudder Trim to keep the aircraft flying straight. This is not a light aircraft and very realistically feels larger and heavier than it looks. It is certainly not meant for aerobatics: bring it to full speed and you can indeed perform simple loops and rolls, but expect the gravity carburettor to render the engine very inefficient (although it does not quit) when flying inverted.

INSTRUMENT PANEL. We now come to the bugbear of the "Cloudy reviews": the instrument panel. The panel is what the pilot sees most of the time, and is therefore even more important than the exterior. In large airliners, there is no way a flat screen can accommodate the panel, and PC pilots find the 3D Virtual Cockpit very attractive, as hundreds of switches can be reached in their "logical" positions. At this point, whether the panel has a real-life resolution, or the switches are easy to reach or else, it becomes secondary matter. Things are VERY different in a small general aviation aircraft: here it is perfectly possible to have an almost photographic panel, yet showing all the gauges and switches in only half the screen, leaving the upper half for scenery view and without the need to invoke additional windows.

2D Cockpit. Aerosoft's Beaver does not carry a 2D Cockpit for the FSX version, but for FS2004 it includes one that, although still not perfect, is better than most. This Beaver's 2D Cockpit is based on beautiful photographic background textures. I object to the upper rim following the original angle: just modifying it slightly (dispensing with the NO SMOKING sign) would give the user almost a full inch worth of additional much useful mid-screen-real-estate. This change also allows to fit, over the Magnetic Compass, the Outside Air Temperature gauge and small Trim gauges which are precisely there in the real cabin. The lower central row with four startup switches is realistic, but a Fuel Pump switch should have been added there, even if in the real-life aircraft it is located further down. By the same token the following switches should have been in the 2D Cockpit: Panel Lights, Avionics, Carburettor Heat, Water Rudder for Floats and Amphibians, and Gear Lever for the latter (Wheels versions have fixed gear).

2D Cockpit by Cloudy. With the few additions noted above, the panel is complete and (except for the GPS which most of us have on a specific on/off little window) it does not require any additional windows. In the process I also improved the scarce legibility of some labels, typically those in the throttle quadrant. The pilot can concentrate in the bush flying, yet having always all the gauges and switches in view. It took me two days to produce these changes in my own Beaver installation, and I found them really worthwhile, although it meant having to produce special matching FS gauges for the new switches.

Aerosoft Beaver - 2D Cockpit, modern type by Aerosoft

Aerosoft Beaver - 2D Cockpit, early type by Aerosoft

Aerosoft Beaver - 2D Cockpit, same with modern radios and Cloudy's improvements

3D VIRTUAL COCKPIT. It is very nice, although not as "natural looking" as the 2D Cockpit and the exterior. It has some bugs: sometimes, when operating either the Flaps lever or the Magnetos knob, the features fail to move in the panel. This is the main shortcoming of the Virtual Cockpit in Flight Simulator most often than not, when something is wrong, not even the most knowledgeable user can fix it, while instead fixing things in a 2D Cockpit is always possible.

Aerosoft Beaver - Virtual Cockpit, early type

Summing up, and in spite of very minor details that could have been improved upon, this most loved classical bush-flying aircraft has been beautifully and accurately produced by Aerosoft, and is a very worthwhile addition to the palette of the General Aviation flightsimmer, who will find hours amazement and sheer joy flying it.