Hoffman
H36 Dimona

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INTRODUCTION

Truth be told, the H36 Dimona is not a brilliant aircraft. As a motor aircraft it a bit unwieldy, as a glider it just not has the performance you would hope for and as a touring motor glider it seems to combine the worst of both types of aircraft. But it has something that few aircraft have, character.

Just minutes after you first climbed in (it's a bit like a sports car, you lower yourself in the seat) it is clear, this is not a Cessna, it's something else. Visibility is superb all around even as you slide the canopy down. On both sides the long slender wings seem to stretch forever. All controls are utilitarian and feel solid. It's an old bird but she seems to give you confidence. Take-off is a matter of lining up and throttle up. No need to do anything, after an amazing short run she flies of the runway on her own. Just be real careful in crosswind, those long wings have a mind of their own. Soon thereafter you will notice she seems to have grown into a huge Antonov on take-off as the control forces are much greater than you would expect. But this also means she flies very calm and there is not a hint of the nervousness some other aircraft have. Just be careful when you get in thermals because when she gets a whiff of that her glider background takes over and you will have to work to keep her straight and level.

Even though most Dimona's are flown as pure motor aircraft these days feel free to switch the engine off and save some fuel. Just be real careful when you restart in flight as the engine will have to be warmed up very carefully. Landing is a non-event, just like the take-off. Just keep in mind that the long wings will make her unwilling to land. As you park she has one last surprise, the engine is unwilling to stop and she 'diesels' and sputters a bit when you switch the ignition off. And then you know, this is not a machine, this is a friend!

SYSTEM REQUIREMENTS

- Windows XP, Vista, 7 (fully updated)
- Microsoft Flight Simulator FSX (with SP2 or Acceleration Pack)
- Dual Core CPU
- 2 GB RAM internal memory
- 512 MB graphic card
- Adobe Acrobat® Reader 8 minimal to read and print the manual ([1])

([1]) Available for free, download at: http://www.adobe.com/prodindex/acrobat/readstep.html

CREDITS

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CONTACT SUPPORT

Support for this product is offered by Aerosoft. We prefer to have a support forum for the simple reason that it is fast and efficient because customers help customers when we are sleeping.

There are special forums for this product at: http://forum.aerosoft.com/index.php?/forum/428-dimona-x/

We feel strongly about support. Buying one of our products gives you the right to waste our time with questions you feel might be silly. They are not.

SETUP OF THE MANUAL

There are several documents that make up the complete documentation.

- This operating manual, right now only available in English
- The C4 Flight Computer manual, English
- The C4 Flight Computer manual, German
- Checklist, English
- Checklist German
- Checklist for smartphones (and iPods), English
- Checklist for tablets, English

VERSIONS

There are three versions of the Dimona included in this package, they differ in the layout of the panel most of all. Note that none of the aircraft is IFR capable!

- The basic **OY-TXM** has the least instruments.
- The **D-KGAF** is equipped for CVFR meaning that it is capable of flying VFR in controlled airspace. For this it needs a transponder, directional gyro and some more additional instrumentation like VOR receiver and GPS.
- The **HB-2155** is best equipped with glider instruments including the complex C4 Competition glider computer.

AEROSOFT SOUND CONTROL

This aircraft is equipped with Aerosoft Sound Control that enhances the sound options of this aircraft in FSX. Depending on the product up to 200 additional sounds can be added. ASC is based on a special gauge that is loaded from the PANEL.cfg and is controlled by an ASC.cfg file in the panel folder. The module is linked to the aircraft and we added it with an ID code. Should you see an error that the module does not recognize the aircraft, please contact us on support@aerosoft.com.

The module should not conflict with any other FSX product and the sounds are always expanding the aircraft and not the simulated pilot, ATC or external environment. Of course the module can be

disabled by commenting the load line (adding // in front of gauge**=ASC!MAIN, 0,0, 10, 10, 1 in the panel.cfg)

If you get an error pointing to this module it is most likely caused by a problem related to Microsoft.VC90.CRT.It is known that some people got a problem in the C++ 2008 runtime files. You can find a correct set here: http://www.microsoft.com/downloads/details.aspx?FamilyID=9b2da534-3e03-4391-8a4d-074b9f2bc1bf&displaylang=en

FLIGHT MODEL

The flight model has been one of the focal points of this project. Months of tweaking created a flight model that is amazingly close to the real aircraft. This includes fully accurate stalls and spins. Do take note that this aircraft is not flown by the numbers. Ask a Dimona pilot what the Vr speed is and he will give you some vague answer. He knows the aircraft will take-off on its own when it is going 'fast enough'. It's the same with weight, officially the Dimona cannot carry a lot but it never seems to complain when you load her with two adults and 50 kg of fuel. Will need a few more meters of runway, that's all.

But make no mistake, when you fly the Dimona in FSX you get a very exact representation of the real aircraft. It's the best aircraft we ever used to explore the edges of the flight envelope. When you fly her to the stall speed you will experience very predictable and repeatable behavior.

INSTRUMENTS

There is a highly realistic and rather complex set of instruments in these cockpits. While most instruments are in functionality identical to those in the default FSX aircraft, there are some that need a bit more explanation.
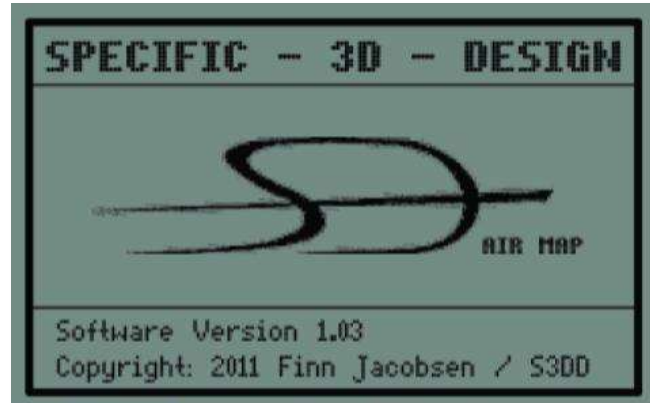
S3DD AIR MAP GPS

All models come with a small GPS device that is modeled after the popular Garmin GPS III. This instrument has its own internal battery so it can be used when the Master switch is still off. It's charged by the main electrical bus when the Master switch is on. Using the right mouse button the instrument can be swiveled (expect when it is mounted low in the dashboard).

Note: When used in Windows Vista the GPS device cannot be rotated. For some weird reason the animation will not work. Not a big issue.

To turn the GPS on, press the button with the red logo. The following start-up screen appears:

To the right is a screen showing:

SPECIFIC - 3D - DESIGN

AIR MAP

Software Version 1.03
Copyright: 2011 Finn Jacobsen / S3DD

MAP MODE

After initialization the GPS will be in Map Mode: On the left 2/3 part of the display a map is drawn, showing the current position with an aircraft symbol. North is always up. On the right 1/3 part of the display, current ground speed, distance to next waypoint, estimated time to next waypoint and a pointer depicting relative bearing to the next waypoint is shown. If the pointer points up, the aircraft is heading straight towards the next waypoint. Use the IN / OUT buttons to zoom the map in or out.

SPEED
0 K T

DIST TO NEXT
0 N M

TIME TO NEXT
00:00

POINTER
↙

The GPS can show Airports, VOR's, NDB's, Intersections and Airspace boundaries. To toggle the display of these items press the MENU button. The Setup page will now be shown:

Use the UP / DOWN cursor key (the large button) to highlight the Class (Airport, VORs, NDBs, Intersection or Airspace). Use the Left / Right cursor key to toggle the display of these items. Use the QUIT button to return to the MAP page.

Setup

Airports	ON
VORs	ON
NDBs	ON
Inters.	OFF
Airspace	ON
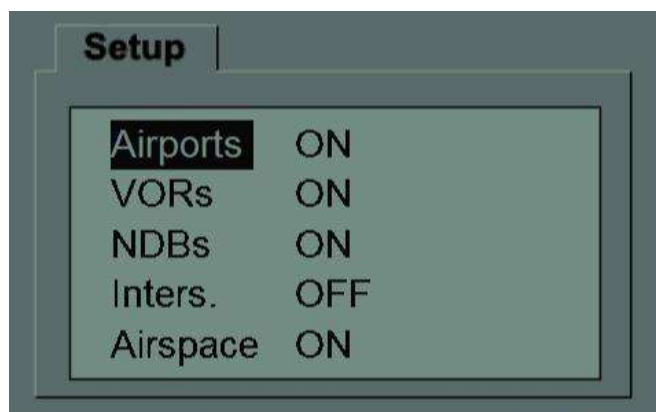
Note: the framerate of the simulator is affected by the amount of information shown!

Standard FSX flight plans can be loaded via the FSX dialog and will be displayed on the MAP page.

DIRECT TO

Using the GOTO button will allow the input of a DIRECT TO location.

Use the UP / DOWN cursor keys to change the character on the blinking field. Use the LEFT / RIGHT cursor key to move to the next or previous field. Enter an ICAO identifier for airport, VOR or NDB.

Note: Intersections are not supported in the GOTO mode.

Once an identifier is recognised, it will show facility name and nearby city - if possible. Press ENTER and the GPS will return to the Map page with the flight plan leg from the current aircraft position to the selected identifier. As everywhere using the QUIT button will halt the action and return to the MAP screen.

CURSOR MODE

Another option to make a DIRECT-TO flight plan, is with the help of the "Cursor Mode". When the GPS is in map mode, pressing either the UP / DOWN / LEFT or RIGHT cursor key, will put the GPS into "Cursor mode". A small cursor (blinking circle) will appear instead of the aircraft symbol.

Using the cursor keys the circle can be moved on the map and the map will center on the cursor position. A line will be drawn from current aircraft position to the cursor.

Press ENTER to select the cursor position as a Direct-To flight plan. If the ENTER button is not pressed within a few seconds or by pressing QUIT, cursor mode will be suspended and the GPS will return to Map mode. By using the cursor mode any global position can be selected as a waypoint. This is the easiest way to make a flight plan, certainly if the desired waypoint isn´t too far away.

TIP: In cursor mode finer adjustments can be made by zooming in on the map first.

NEAREST STATION

Using the NRST button will open the
NEAREST STATION list:

The LEFT / RIGHT cursor keys will change
between Airports, VORs, NDBs and
Intersections:

Use the UP / DOWN cursor keys to highlight an identifier and press ENTER to select it as DIRECT-TO,
or press QUIT to cancel the selection.

HSI PAGE

Pressing the ENTER key while being in Map
mode will bring up the HSI page.

The HSI page shows:

- Compass rose, showing ground
  track, which is the true track over
  ground, taking crosswinds and
  sideslip into account. It does NOT
  show magnetic nor true heading,
  like a normal gyro based HSI.
- Course Needle, showing the active
  flight plan leg bearing.
- Course deviation indicator bar (middle part of the Course needle), showing the cross track
  error. Each dot represents 1 nautical mile.
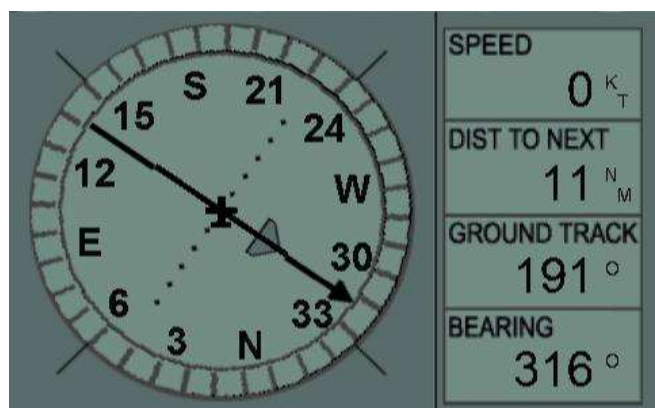
- TO/FROM flag showing the position relative from the active flight plan leg.
- Right part of the screen shows Ground speed, Distance to next waypoint, Ground track (same as Compass rose) and next waypoint bearing.

If the Ground track value and the Bearing value are equal, this indicates that the aircraft is heading straight towards the next waypoint, but not necessarily following the flight plan leg.

HSI SAMPLES

On track direct towards the active waypoint, TO / FROM flag shows TO.
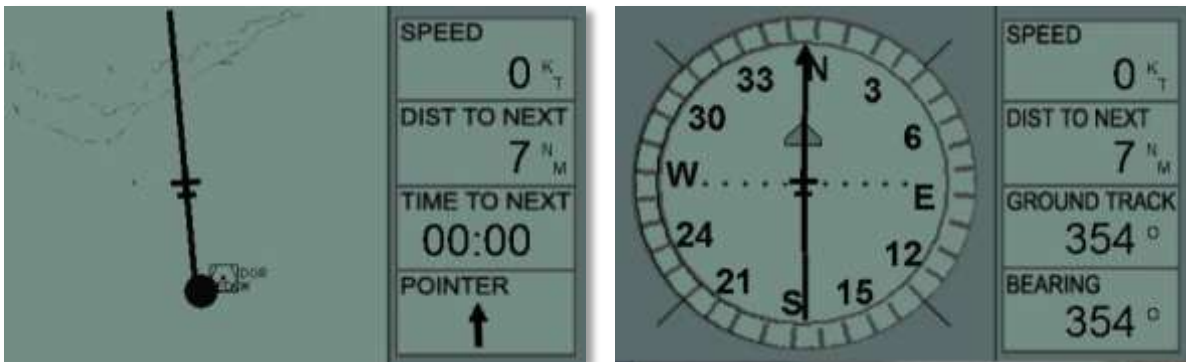
Correct heading but 3 miles to the left of the flight plan leg:
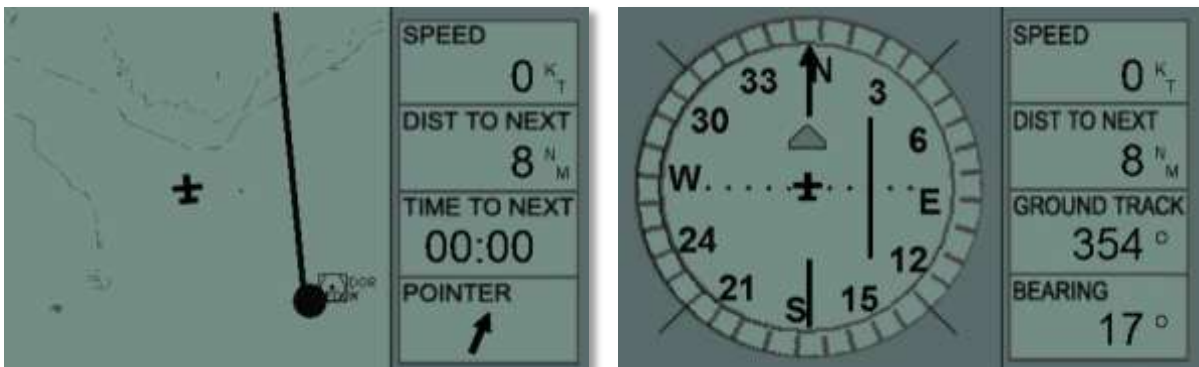
Still 3 miles left of the flight plan leg, but on an intercept heading of 40°
(Note Ground track and Bearing readings):
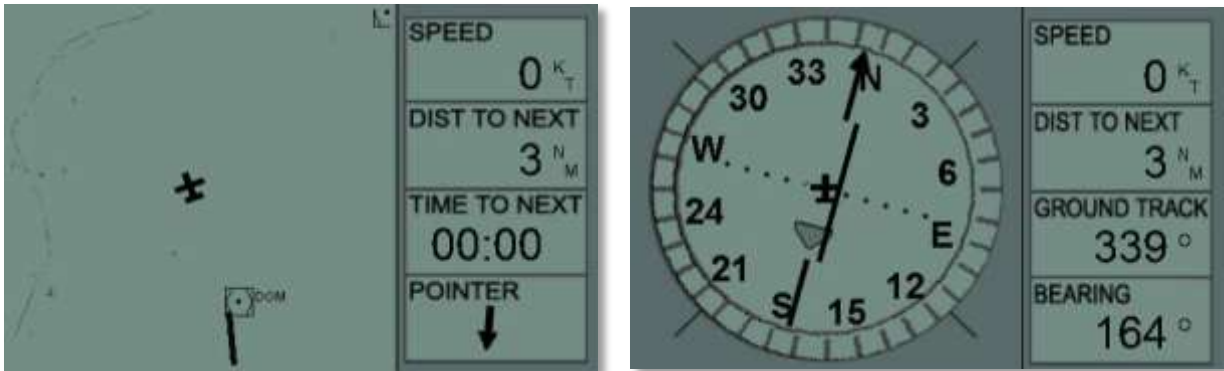
Flight plan leg behind the aircraft, note the TO/FROM flag has changed to FROM:

BECKER BXP 6401 TRANSPONDER

The Becker BXP 6401 transponder is a Mode S transponder which enables ATC to locate, identify and track the aircraft by responding to ATC radar to interrogations. In Mode S it will conduct altitude reporting, used by other aircrafts T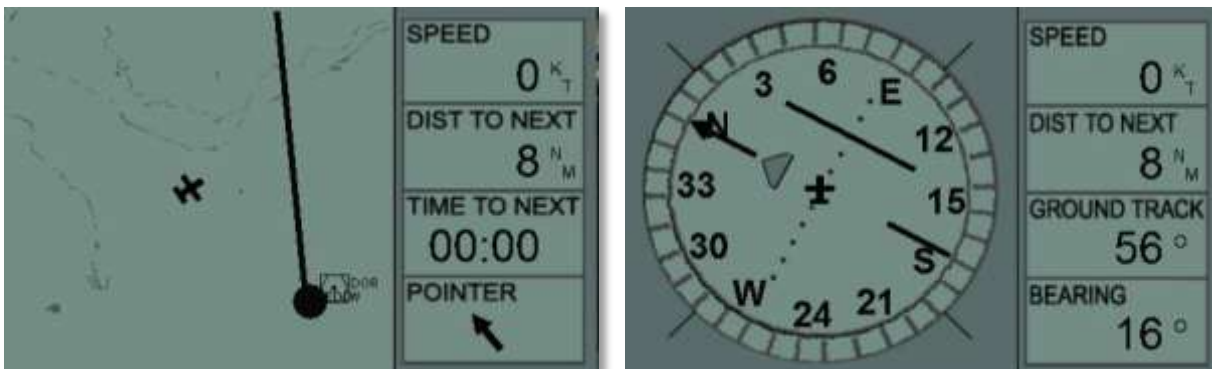CAS systems for collision warnings. The Transponder in the Dimona is supplied with electrical power via a circuit breaker.

NOTE: Ensure that the instruments are switched off during engine start.

The transponder can now be turned on by rotating the left knob to STDBY. In STDBY mode the transponder will be on, but it will not respond to ATC interrogations. STDBY is normally used until the aircraft is ready for runway lineup. There is a short self-test on startup.

Turning the knob to ON will make the transponder start to respond, but without altitude reporting. The blinking R symbol, indicating that the unit responds. When the knob is at either STDBY or ON the bottom line will show the Aircraft identification number:

Turning the knob to ALT will make the transponder respond with altitude reporting when inquired. Current flight level will be displayed. Flight level is altitude in 100th of feet with the standard setting at 1013 mb. (1013,2 hpa)

To change the transponder code left click on the right button and the first digit will start to blink. Use the mouse wheel to change the value. Left click the right button again and the next digit will blink. Left click the right button when the last digit has been set. When not all digits has been set, the transponder code will NOT be changed. Press the VFR button to set the transponder code to the normal European VFR transponder code, 7000.

Remember to turn the Transponder to STDBY after landing when leaving the runway.

These are standard codes, otherwise set to the squawk code assigned by FSX's ATC:

- 0000: Military intercept code mode C or other SSR failure. Shall not be used – is a non-discrete mode A code (Europe)
- 0033: Parachute dropping in progress (UK).
- 0041 to 0057: In Belgium assigned for VFR traffic under Flight Information Services (BXL FIC)
- 0100: In Australia: flights operating at aerodromes (in lieu of codes 1200, 2000 or 3000 when assigned by ATC or noted in the Enroute Supplement Australia).
- 1000: Instrument Flight Rules (IFR) flight below 18,000' when no other code has been assigned (Canada). Non-discrete mode A code reserved use in Mode S radar / ADS-B environment where the aircraft identification will be used to correlate the flight plan instead of the mode A code.
- 1200: Visual flight rules (VFR) flight, this is the standard squawk code used in North American airspace when no other has been assigned. In Australia civil VFR flights in class E or G airspace.
- 1201: Visual flight rules (VFR) glider flight, this is the standard squawk code used in United States airspace for transponder equipped gliders when no other has been assigned.
- 1400: VFR flight above 12,500'ASL when no other code has been assigned (Canada).
- 2000: The code to be squawked when entering a secondary surveillance radar (SSR) area from a non-SSR area used as Uncontrolled IFR flight squawk code in ICAO countries. In Canada for uncontrolled IFR at or above 18,000. In Australia: civil IFR flights in Class G airspace.
- 2100: Australia: Ground testing by aircraft maintenance staff.
- 3000: Australia: Civil flights in classes A, C and D airspace, or IFR flights in Class E airspace.
- 4000: Aircraft on a VFR Military Training Route or requiring frequent or rapid changes in altitude (US). In Australia: civil flights not involved in special operations or SAR, operating in Class G airspace in excess of 15NM offshore.
- 4400 to 4477: Reserved for use by SR-71, YF-12, U-2 and B-57, pressure suit flights, and aircraft operations above FL600 (USA only).

- 5000: Aircraft in Military Operations.
- 6000: Australia: Military flights in Class G airspace.
- 7000: VFR standard squawk code when no other code has been assigned (ICAO). UK: this code does not imply VFR; 7000 is used as a general squawk.
- 7001: Sudden military climb out from low-level operations (UK). Used in some countries to identify VFR traffic (France, ...).
- 7004: Aerobatic and display code in some countries.
- 7010: VFR circuit traffic code in the UK.
- 707X: Paradrop activities in France (7070, 7071, 7072...).
- 7615: Australia: civil flights engaged in littoral surveillance.
- 7777: Military interception

Emergency codes:

- 7500: Unlawful Interference i.e., Aircraft hijacking ("seven fife, man with knife")
- 7600: Lost Communications.
- 7700: General Emergency ("seven, seven, goes to heaven")

C4 COMPETITION

The C4 competition is a flight computer that is used in glider competition (but also for recreational flights). It is capable of using the loaded flight plan, your GPS determined position and the performance of the glider to make many calculation. It is far too complex to describe them here and we are happy to be allowed by the manufacturer (Franz Pöschl GmbH) to include the actual manual. You will find that our representation of the instrument to be accurate and detailed in almost all functions. You will find the C4 Competition powerful but you have to spend half an hour of getting to know it. We assure you this will be time well spend.

RADIOS

The communication and the navigation radio are very simple. The left knob is used to switch the system on and to set the MHZ, the right knob to set the KHZ. It is important to keep them off as the aircraft is started.

Note: the setting of the frequency is done via a pure mechanical system and should work without electricity. However FSX does not allow this without running into major issues so you will need to have the master switch on to set the frequency.

PV-120 CONTROL UNIT

The propeller used on the Dimona X is a MT-Propeller Elcoprop® MTV-1-A with a max certified rpm of 2900. Propeller blade pitch is changed through an electromotor controlled by the PV-120-a control unit. The unit is supplied with electrical power through a circuit breaker that is located on the right side of the control unit (marked with '4'). If the unit isn't powered, the propeller blade pitch cannot be changed.

AUTO AND SEGEL SWITCH

The AUTO/SEGEL switch is used to toggle between the standard AUTO mode and the gliding mode where the propeller is feathered for minimal drag.

The Auto position will set the control unit to act as a constant speed governor, which means that a selected rpm will be attempted to be maintained. This is off course only possible if the engine is throttled up to achieve that. Propeller rpm can be set via the rpm selection knob within the range 1900-2900 rpm. If engine rpm is increased and reaches the selected rpm blade pitch will increase towards a coarser setting and torque demand will raise, thus keeping engine rpm on the selected setting – or at least attempting so.

If blade pitch is at full fine position a green led light, labelled START will be lit - indicating that the propeller is in the right position for take-off.

The SEGEL position will start feathering the propeller blades. The pitch control mechanism is rather slow, so expect approximately 1 minute and 20 seconds from full fine to feathered position. Near full feathered position the torque exceeds what the engine can deliver and the engine will be bogged down and stopped. The right procedure is to turn off the engine before feathering the propeller. It should also be moved out of feathered position before starting the engine.

Note: A small trick, for which the Dimona definitely not is certified, is to turn the propeller unit circuit breaker off when the START LED is lit. This will lock the blade pitch at full fine position. By doing that, the propeller will act as a fixed pitch propeller. The engine can now reach 3300 RPM, giving maximum performance for take-off, something that could get you out of a short field. Just note that the engine can't run forever at 3300 RPM, - neither so in the Aerosoft Dimona. Keeping RPM above 3000 for more than a couple of minutes and there is a high risk that the engine will be wrecked.

SAVING YOUR AIRCRAFT

The Aerosoft Dimona X has an automated save function. This means that every time you park the aircraft (on ground, no movement and engine off) all the settings are stored. The next time you load the aircraft you will find it exactly as you left it last time. This loading takes a while as some systems have to be initialized. Therefor a small display will ask you to wait a few seconds. On shut down always allow a few seconds for the saving to complete before loading another aircraft or closing FSX!

BUGS

Yes there are bugs in this product. We hope not too much of the digital kind, but when you fly in summer you will encounter the biological kind. Insects will smash onto the windscreen and leading edges.

To get rid of them click on the sponge that is stored behind the pilot seat.

FSX SETTINGS

This product needs a few tweaks to the FSX settings to allow you full control over the aircraft.

SETTINGS - REALISM

We strongly advise the aircraft realism settings as shown below. If the General slider is not at 100% the spins will not be modeled correctly. Enable automixture needs to be off because the Dimona comes with its own code for that.

To see all details of the aircraft it is important to have the Global texture resolution at Very high. You will find this setting in the SETTINGS - DISPLAY.
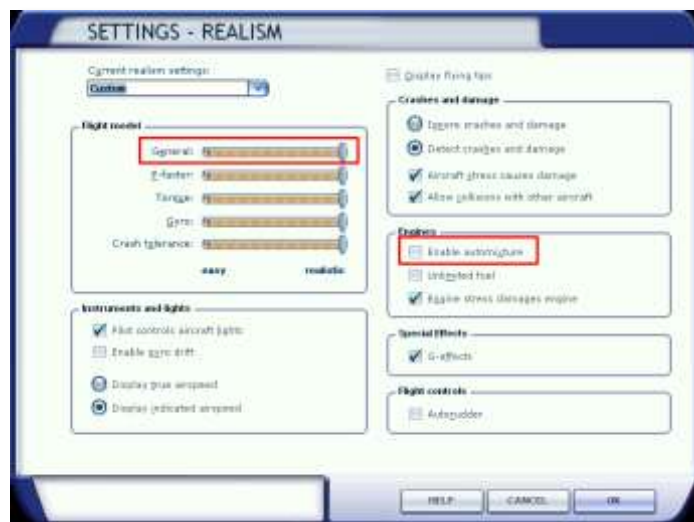
SPOILER

In an aircraft that is designed to glide as efficient as possible it can be amazingly hard to land as the aircraft will tend to glide a long way in the ground effect. The use of the spoiler is thus very important and you will need smooth control over it. If your control hardware has an additional slider (like for example the Saitek X52) we strongly advise you to assign that to the spoilers so you can control the spoilers in small steps.
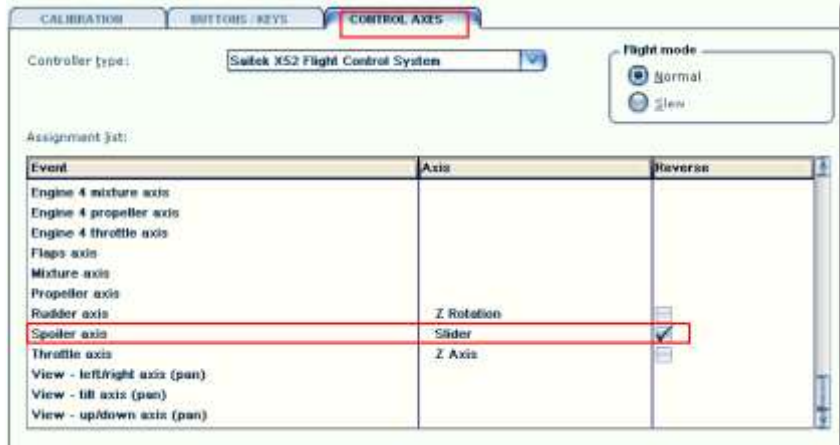
TECHNICAL DATA

- Wing Span   16 Meters (52 ft.)
- Length   6.85 Meters (22 ft.)
- Wing Area   15.20 m^2 (164 sq. ft.)
- Wing Ratio   16.8
- Maximum Gross Weight   770 kg (1698 lbs.)
- Maximum Wing Loading   50. daN/m^2 (10,38 lbs/sq. ft.)
- Airfoil   Wortman FX 63-137
- Engine   Limbach L 2000 EB 1.C (59 kw/80 hp. at 3,400 Rpm)
- Propeller   Mühlbauer MTV-1-A. 1.6m diameter, max 2900RPM

LIMITATIONS

- Engine Type: Limbach L 2000 EB 1C
- RPM Limitations: Due to prop 2900 RPM
- Maximum take-off RPM: (maximum 5 minutes) 3,400 RPM (2900)
- Max ambient atmospheric temp: + 38^0 C (+100 F)
- Maximum RPM: 53 KW (72 hp.) 3,000 RPM
- Red Line: 3,400 RPM (2900)
- Operating RPM: Green Arc 700 – 2900

Caution: Avoid RPM during cruise below 2300 min!

- Maximum Oil Pressure (red line)   4 bar (55.8 psi)
- Minimum Oil Pressure (red line)   1 bar (13.9 psi)
- Operating Range (green arc)   1 - 4 bar (13.9 — 55.8 psi)
- Maximum Oil Temperature (red line) 120 C (248 F)
- Operating Range (green arc)   50 - 120 C (122 — 248 F)
- Minimum Temperature (red line)   50 C (122 F)
- Maximum Cylinder head temp (red line) 250 C. (482 F)
- Maximum volt engine running: (red line) 14 VDC

Vne	275 km/h	149 kts	170 mph
Vb	210 km/h	113 kts	130 mph
Va	176 km/h	35 kts	109 mph
Vle	275 km/h	149 kts	170 mph
Vsl	70 km/h	38 kts	44 mph
Vso	70 km/h	38 kts	44 mph

AIRSPEED INDICATOR MARKINGS (IAS):

• Red Line(Maximum allowable Airspeed)	275 km/h	149 kts	170 mph
• Yellow arc (Caution range) mph	210-275 km/h	113-149 kts	130-170
• Green arc (Normal range)	73-210 km/h	42-113 kts	48-130 mph
• Yellow Triangle (Approach Speed)	95 km/h	51 kts	59 mph
• Blue Line (Best Climb Airspeed)	95 km/h	51 kts	59 mph
• Airspeed for best climb ratio	85 km/h	46 kts	53 mph

TRANSLATION OF GERMAN PLACARDS

Almost all the labels in the cockpit are in German as this was how most aircraft was delivered. For your convenience here is a short list with translations. Of course the non-German versions have an English labelled cockpit.

|	
• STÖRKLAPPEN	AIRBRAKE
• RADBREMSE	WHEEL BRAKE
• VOLLGAS /GAS / LEERLAUF	FULL / THROTTLE / IDLE
• AUF / ZU	OPEN / CLOSED
• EIN / AUS	ON / OFF
• LÜFTUNG	CABIN AIR VENTILATION
• ZÜNDUNG	IGNITION
• KRAFTSTOFFPUMPE	FUEL PUMP
• HAUPTSICHERUNG	MAIN FUSE
• KOPFLASTIG TRIMMUNG	NOSE DOWN TRIM
• SCHWANZLASTIG TRIMMUNG	NOSE UP TRIM
• PARKBREMSE	PARKING BRAKE
• CHOKE	CHOKE

COCKPIT LAYOUT

01- Stopwatch	15 - Ventilation
02 - Vertical Speed Indicator	16 - Heater
03 - Attitude Indicator	17 - Ignition
04 - Horizontal Situation Indicator	18 - Master Switch
05 - Clock	19 - Starter Switch
06 – Altitude Indicator	20 - Choke
07 - Airspeed Indicator	21 - Cylinder Heat Temperature
08 - C4 Flight Computer	22 - Oil Temperature
09 - GPS (see note)	23 - Oil Pressure
10 - MT Propeller Controls	24 - Circuit Breakers
11 - Transponder	25 - Manifold Pressure Indicator
12 - Fuel Pump	26 - Volt Meter
13 - Anti Collision Light	27 - Fuel Quantity
14 - Navigation Lights	28 - RPM indicator

Note: The GPS device can be swiveled if the right mouse button is pressed on the device and the mouse is moved
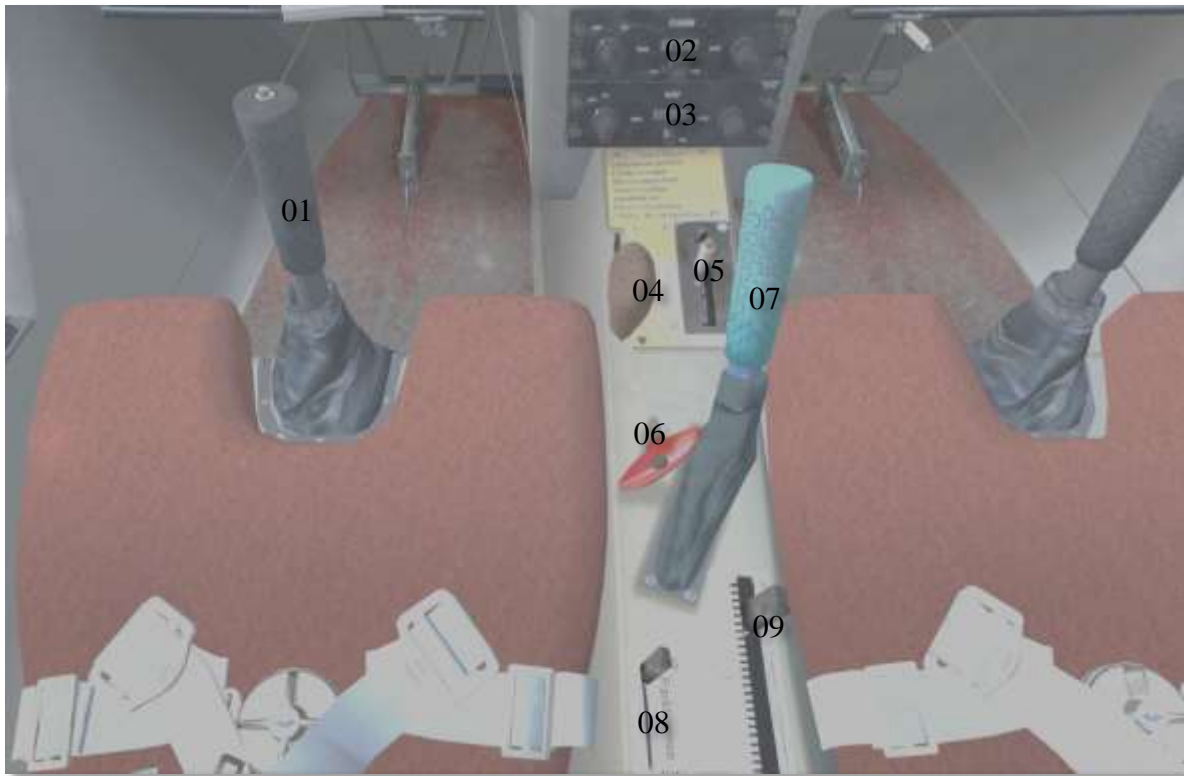
01- Control Yoke	06 - Emergency Cabin Release (not simulated)
02 - Communication Radio	07 - Spoiler / Air Brake
03 - Navigation Radio	08 - Parking Brake (see note)
04 - Throttle	09 - Elevator Trim
05 - Cowl Flaps	

Note: The parking brake does not function as in most other aircraft. To set the brakes, extend the spoiler fully, slide the parking brake knob fully back and retract spoiler. To release just slide the parking brake knob forward.