The DC-3NH-FSX V2 Aircraft and Panels Manual

Thank you for your interest in my DC-3NH-FSX V2 aircraft and panels. The Gyro and HSI variations of the panels are derived from my earlier NH_IFR-1 and -2 panels to enable them to be used in FSX. The main differences are more realistic night lighting for the panels and the inclusion of a Radio Altitude gauge. The DC-3 model is based on the default Microsoft DC-3, but the flight dynamics have been extensively modified and improved by the very talented Dave Bitzer. To enable him to create flight dynamics that are as close as possible to the real thing he was able to call upon real DC-3 pilots who have willingly offered their skills and expertise. I hope you will agree with me that his dedicated efforts have elevated the flying performance of these DC-3 aircraft to rate them amongst the very best there is.

The package includes two complete DC-3 aircraft. The first, in DC3 Airways 'Bare' livery, employs a panel designed around the Directional Gyro. The second, in DC3 Airways 'Classic' livery, is intended to represent a slighter later period and employs a panel designed around a Horizontal Situation Indicator (HSI). I have done this to allow a choice of navigating the way you choose. The panels in both aircraft are not representative of 'True' DC-3 panels. Like many older people my eyesight isn't what it once was, so when some time ago I first began modifying panels and gauges I realised that there are other people like me who would appreciate the improved readability of gauges. With that in mind I have 'rebuilt' many of the gauges with clearer and larger displays wherever it has been possible, but hopefully without being too obvious.

Panel features.

Overhead panel: A straightforward panel with the exception perhaps of the timer, and engine start procedure. To start engine number two first 'crack' the throttles slightly and give the appropriate Primer switch a few clicks if necessary. Now move the lower right switch anticlockwise to the 'BOTH' position. Briefly left click in the area between the upper switch and the number '2' and engine number two will fire up.

For engine number one repeat the procedure using the lower left switch and click the area between the upper switch and number '1'.

Timer:

This is a simple (looking!) timer designed by Dave Bitzer that should be ample for most of your timing needs.
RST is 'Reset'. **S/S** is 'Start and Stop'.

Main panel

Simicons. This is a representative display and the Icons are vertically aligned on the lower left of the panel:

E6-B Front icon: Displays an authentic and fully useable Jeppesen E6-B Flight Computer. Clicking this icon opens the

'Front' view. A **user guide** is included in the DC-3NH Docs folder which is in the DC-3NH aircraft folder. Click on **e6b_quick_start_guide.html**

E6-B Back icon: As above but displays the 'Back' view of the E6-B.

Misc. Gauges icon: A window opens upper left showing three very useful gauges (Pictures of these and a description is below).

Digital Gauges icon: Clicking this icon will cause a number of helpful digital readouts to be displayed. Clicking again will remove them from the panel display.

Map icon: Opens the standard Map window.

Kneeboard icon: Opens the standard Kneeboard window.

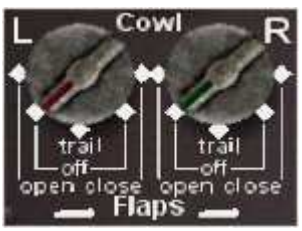
Throttle Quadrant icon: Opens the main Throttle Quadrant window. The Throttle Quadrant incorporates the '4Tank' modification by Dave Bitzer and Mark Beaumont which replaces the 'All Tanks' fuel usage of the Default DC3. You must now individually select the tanks from which you wish to draw fuel.
Included in the Throttle Quadrant is an Auto mixture selection panel. This has been created by Dave Bitzer to enable individual fuel mixture settings for each engine. Clicking on the left or right side of any sub panel will allow individual control of the setting of the mixture for either the left or right engine individually. This will be most useful if you are unfortunate enough to suffer an engine failure and need to close an engine down. Clicking in the center of a sub panel will select the mixture for both engines together.
Important. When setting fuel mixture using the Auto Mixture facility it is important that your 'manual' setting lever is set to, and left at 'Full Rich'. Failure to do this causes an interaction between the two systems which can have unpredictable results.

ATC icon: Opens the standard ATC dialogue window.

GPS icon: Opens the GPS window. This is the admirable GPS by Don Kuhn. The NAV/GPS switch is located on the Nav1 radio.

Other gauges on the Main Panel:

Cowl Flaps:



Thanks again to Dave Bitzer for developing a 'Cowl Flaps' gauge that works. This is now a very important piece of equipment as it now emulates very much the operation of the real thing.
Switch operation is via small mouse points situated over the setting points on the gauge. Small animations at the bottom of the gauge display graphically the position of the flaps.
Normal operation is for the flaps to be open when on the ground. Set to 'Trail' for take off and during the climb, and set to 'Close' for cruise.

The cowl flaps should be set to one of the 'Off' positions after each movement of the flaps. Briefly, this is to simulate the fact that the flaps are hydraulically controlled and pressure in the pipes must be relieved by setting the flaps to 'Off' after each operation to prevent damage to the hydraulic system.
If the flaps aren't set to the closed position when you reach cruise height you may well find yourself wondering where your airspeed has gone as the flap setting now significantly affects drag on the aircraft! Improvements are in the 'works' by Dave Bitzer to include engine malfunctions if the cowl flaps are not properly managed and engine temperatures are not monitored. Potentially serious stuff ;-)

EGT gauge:

This gauge is most useful when you choose to manually set the fuel mixture. Optimum setting is for maximum reading on the meter when 'Leaning' the mixture control from the 'full rich' position. At higher altitudes care must be taken as it is 'very' easy to slip past the 'optimum' setting and slide the mixture levers into 'Idle/Cut off!! Not too desirable!

Auto Mixture repeater:

This gauge is a fully functional repeater for the Auto mixture settings on the throttle quadrant. It saves having to open the Throttle Quadrant pop-up each time the mixture setting requires attention.

Elevator trim repeater:

This gauge is a fully functional repeater to indicate and set elevator trim settings without having to open the Throttle Quadrant pop-up window.

Flaps lever:

Yet again, thanks to Dave Bitzer for developing this gauge to work in a realistic manner. Operation of the flaps lever is done by clicking on mouse points above or below the lever. Reality has struck again and you must now consider the maximum permissible airspeed for each flap setting. If an attempt is made to lower the flaps at airspeeds in excess of the designed limit for that flap setting, the flaps will fail to operate until the airspeed falls below the designated airspeed. The Maximums are…..
160kts IAS max for ¼ flaps.
104kts IAS max for ½ flaps
98kts IAS max for ¾ or full flaps.

Low fuel enunciators:

Thanks to VP Charters Tim Cook for being the originator of these useful indicators. Illumination occurs when fuel in the Main tanks falls to 40 gallons and for the Auxiliary tanks, falls to 10 gallons.

'**LA**' is 'Left Auxiliary'.
'**LM**' is 'Left Main'.
'**RM**' is 'Right Main'.
'**RA**' is 'Right Auxiliary'.

'Tail lock' lever:

This lever has been added to the main panel to allow for the selection of the Tail Wheel Lock function without first having to select the Throttle Quadrant pop-up.

Miscellaneous Gauges…..

Descent calculator by Andrey Novikov.

I wouldn't be without this gauge which makes descent calculations very easy in both metric and Imperial. An explanation of how it functions follows…

H1: This is where you enter the current altitude. Either manually, or If you have an altitude set in the AP, hitting the left button at the bottom will transfer this altitude reading to H1 if it is above 2,000ft.

H2: This is where you enter the altitude you wish to descend to. This has to be entered manually using the mouse hotspots.

rt: This is where you enter the descent rate you have chosen in 100's. This has to be entered manually using the mouse hotspots.

W: This is where you can enter the descent speed manually. Alternatively, you can hit the right button at the bottom and your current True Airspeed will then be displayed.

S: This shows the distance in nm's to reach the altitude displayed in H2.The switch at bottom right switches calculations between nm's and Km's. As you will find when you use the gauge, changing any of the settings has an instant effect on the reading shown in 'S'.

Fuel status gauge:

A versatile gauge created by Robert K. Guy. This gauge will display numerous variations of fuel related information in Pounds, Litres or Kilogram's depending on the settings you choose. I have included the complete 'RKG_fuelstat.gau' readme file for this gauge in the DC-3NH Docs folder located within the DC-3NH aircraft folder. It is a very detailed explanation and not all refers to this particular gauge.

Fuel Consumed gauge:

This is a most useful gauge by Dirk Trotteyn. The gauge's function is to display the amount of fuel consumed in pounds. To convert this reading to US gallons you only need to divide the final pounds reading by six. To use this gauge hit the button when you wish to start recording fuel used, and then read off the amount of fuel used at the destination. One small word of **warning**, do not press 'RESET' at the end of the recording period until you have made a note of the reading. The display will revert to zero when the reset button is pressed.

Sound!!

I have chosen not to include a 'Sound' package purely in the interests of reducing file size. The default DC-3 sounds in my opinion are not the very best, but you can greatly improve the sounds by clicking on one, or both of the following links for an admirable choice of alternative DC-3 sounds……

http://douglasdc3.com/fs2004/fs9-dc3-sound.zip This is Trev Morson's wonderful DC-3 site. The link will take you straight to the DC-3 sound file. If it doesn't, the file name to look for is **fs9-dc3-sound.zip**

http://www.flightsim.com/login.htm It is necessary to log in to **Flightsim.com** if you prefer to download this very nice DC-3 sound file **dc3sndrv.zip** by Aaron R. Swindle.

Digital gauges:

Below is an image of the area on the **Directional Gyro main panel** containing the digital readouts. Selection of the digital readouts display is made by clicking on the **Dig Gau's** icon. Most of them I am sure will be fairly obvious to interpret. I have included a pointer to a 'mysterious' yellow arrow which is featured on the Directional Gyro display. This is a permanent feature that rotates around the aircraft and indicates the wind direction relative to the aircraft at all times.

HSI Panel differences.

The small yellow arrow on the circular gauge below the HSI gauge displays the wind direction relative to the aircraft. This is switched ‘On’ and ‘Off’ when the digital display is selected.

The NAV1 digital reading is a repeater of the HSI OBS Setting.

Virtual cockpit ?

Yes, there is one 😊 But, not a very good one perhaps! It isn’t a replica of the 2D panel as I would have liked, but I still have a lot to learn in this respect!

Warning

During testing it was found that occasionally, when The DC-3 NH aircraft was selected after another 'add-on' aircraft had previously been selected, some gauges failed to display properly. This isn't a problem with the DC-3 NH aircraft and has happened with other aircraft in FSX too. A rather tedious thing to do perhaps, but may I suggest that when you want to fly the DC-3 NH aircraft it is best to close down FSX and restart using a default aircraft such as the Ultralight. Then select either the Gyro or HSI DC-3.

One more thing

As with all aircraft that are installed as add-ons you will find that the first time you select the aircraft you will find warning panels popping up asking if you really want to use this gauge or that gauge etc. Just say yes to everything and you won't be asked these questions on subsequent selection.

Credits.

I feel my main job in this venture has been to bring together the work of a most talented group of people. My thanks to you all……

Thanks to Dave Bitzer for the …well! Everything this incredible man has contributed to this and many other projects. Almost none of his work is 'visual' so you cannot relate to him in that way. Only when you begin to realise that the DC-3 you are flying flies better with more realistic behaviour of switches/levers etc and performs more like a DC-3 should is when you should become aware of his programming skill and expertise.

Thanks to Mark Beaumont and Ian Richardson for the wonderful DC3 Airways Bare and Classic aircraft liveries, and to Mark again, along with Dave, for his work on the four tank modifications and the Auto Mixture gauges, and no doubt much more.

Thanks to Andy Hatcher for the very much cleaned up DC-3 panel bitmap. Does anyone now use the original..?

Thanks to Hans-Joerg Naegele for kindly allowing me to freely use his most recent set of VNConnie radios. Their 'Period' nature is perfect for the DC-3 and without them my choice of a suitable radio stack would have been very limited.

Thanks to J.B. Guy for providing us with his excellent fuel status gauge.

Thanks to Andrey Novikov for providing us with his excellent descent calculator.

Thanks to Dirk Trotteyn for the most useful fuel consumed gauge.

Thanks to Don Kuhn for his permission to use his Garmin G530 GPS receiver. This gauge is a huge improvement over the original Microsoft version and should considerably enhance your enjoyment if you navigate by GPS. A user guide has been included in the DC-3NH Docs folder which is located within the DC-3NH aircraft folder.

A special Thank You goes to my trusty Beta testers, Ray Grigson, Tim Cook, Frank Stout and Roy Marsh. And a thank you to Charlie Wood who asked me how Microsoft created the pleasant night lighting in the default DC-3. I didn't know, so found out and decided it may be pleasant in the NH panels too!

Finally, I would like to add a profound Thank You to Microsoft for providing the opportunity for a lot of old folks to re-live their past in such an enjoyable manner.

If by chance I have failed to include an acknowledgement to any item you feel should be acknowledged as yours, I profusely apologise and please get in touch via the email address below so hopefully we can discuss it.

Legal bits

These are freeware Aircraft and Panels. Please note that some gauges, bitmaps and technical documentation are copyrighted by their authors, which must be respected.

No part of this package, under any circumstances, can be bundled in commercial products of any kind or included in any package that includes the exchange of money or credit.

These aircraft must not be posted to any public archive, such as AVSIM.com or FlightSim.com.

This freeware aircraft and panel package is installed at your own risk. No member of DC-3 Airways, its management staff, or its member-pilots can be held at risk for any problems imagined to be caused.

That is ***it***; after the dire warnings! please enjoy your flying with my aircraft and panels. And another Please, if you have any suggestions, good or bad! Feel free to contact me at dc3.charters@ntlworld.com

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