D8Q4Vspeeds Version 1.5, September 2019

(1) Version History

1.5 Revision 5. September 2019. Made additions to Approach and Landing Speed Bug selection and placement.

1.4 Revision 4. September 2019. Made corrections to Approach and Landing Speed Bug selection and placement.

1.3 Revision 3. August 2019. Made corrections to Approach and Landing Speed computations.

1.2 Revision 2. December 2017. Added Fuel Mass and Zero Fuel Mass to extractions.

1.1 Revision 1. August 2016. Uses stack variables, thanks to my teacher, Roman Stoviak. Fixed ICING bug.

1.0 Initial version. July 2016. Computes V-speeds and optionally sets bugs.

(2) Description

This XML gauge can be installed as a panel window in your *Majestic* **Dash8 Q400** simulation for *FSX*. It computes the V-speeds for the MJC8Q400 for T/O and Landing, optionally applies wet runway and icing corrections, and optionally sets the bugs on the EFIS-PFD. The gauge does **not** apply headwind/tailwind corrections in case of wet runway.

(3) Requirements

Apart from an installation of the MJC8Q400 in *FSX*, the gauge also requires installation of *Tom Aguilo's* **XMLTools.dll** v2.01 for FSX. You may **either** manually install the *.dll* (provided) **and** manually edit your *dll.xml* file, **or** use the v2.01 **Installer** available to download free at:

http://fsdeveloper.com/forum/resources/xmltools-2-01-xml-expansion-module-for-fsx.148/

Manual installation

Copy **XMLTools.dll** into *FSX*'s main folder. Next, locate your **dll.xml** file which should be in:
```
C:\Users\username\AppData\Roaming\Microsoft\FSX\             or
C:\Documents and Settings\username\Application Data\Microsoft\FSX\
```
Edit the file by adding the following within `<Simbase.Document>`
```
<Launch.Addon>
     <Name>XMLTools</Name>
     <Disabled>False</Disabled>
     <ManualLoad>False</ManualLoad>
     <Path>XMLTools.dll</Path>
     <DllStartName>module_init</DllStartName>
     <DllStopName>module_deinit</DllStopName>
</Launch.Addon>
```

Important: if the *XMLVars.dll* module is installed, just locate the *XMLVars* entry and replace the *XMLVars* and *XMLVars.dll* names with *XMLTools* and *XMLTools.dll* respectively, as both modules must not be loaded at the same time. Also if *Logger.dll* is installed, remove its entry from the file.

(4) Installation

(i) Place the **D8Q4Vspeeds15.CAB** file in your *FSX\Gauges* folder.

(ii) Edit the **panel.cfg** file in your *MJC8Q400* aircraft folder this way:

```
[Window Titles]
WindowNN=V-Speed Bugger

[WindowNN]
Background_color=0,0,0
size_mm=300, 1200
window_size_ratio=1.000
position=0
visible=1
ident=750
gauge00=D8Q4Vspeeds15!D8Q4Vspeeds15,0,0,300,1200
```

where **WindowNN** is your *next* available window.

(5) Operation

T/O-Climb

-At any time with the aircraft on ground, select T/O FLAP (button turns green) to display uncorrected V-speeds for t/o and climb (at currently sensed a/c mass, altitude, ambient temperature and pressure). The code linearly interpolates on the weight axis (and altitude axis if applicable) of the MJC8Q400 T/O Speeds Card, and then rounds up to the next highest integer.

-Optionally press the WET button (button turns green) to apply the basic 8 kt wet runway correction to V1. The code cannot correct for headwind/tailwind; these would need to be applied manually later.

-Optionally press the ICE button (button turns green) to apply icing correction to V2, Vfri and Vclimb.

-Optionally press the SET button (momentarily turns green, returns to red on release) to set all 5 EFIS bugs to displayed values.

Approach-Landing

-At any time with the aircraft in the air (ideally at TOD or just prior to Approach), select LANDING FLAP (button turns green) to display uncorrected V-speeds for approach and landing (at currently sensed a/c mass). The code linearly interpolates on required axes and rounds up the result, as before.

-Optionally press the ICE button to apply icing correction to Vapp and Vref.

-Optionally press the SET button (momentarily turns green, returns to red on release) to set the solid ⏶ bug to Vref and hollow Δ bug to Vclimb.

(6) Feedback

This is a work-in-progress, and I welcome feedback on the *Majestic* forum: in the associated thread, or via the Messaging system.

(7) Acknowledgements

I thank **Tom Aguilo** for his marvelous **XMLTools** package, and **Roman Stoviak** for his invaluable help and guidance with the XML coding.

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