

DCS: Detent Calculator Spreadsheet

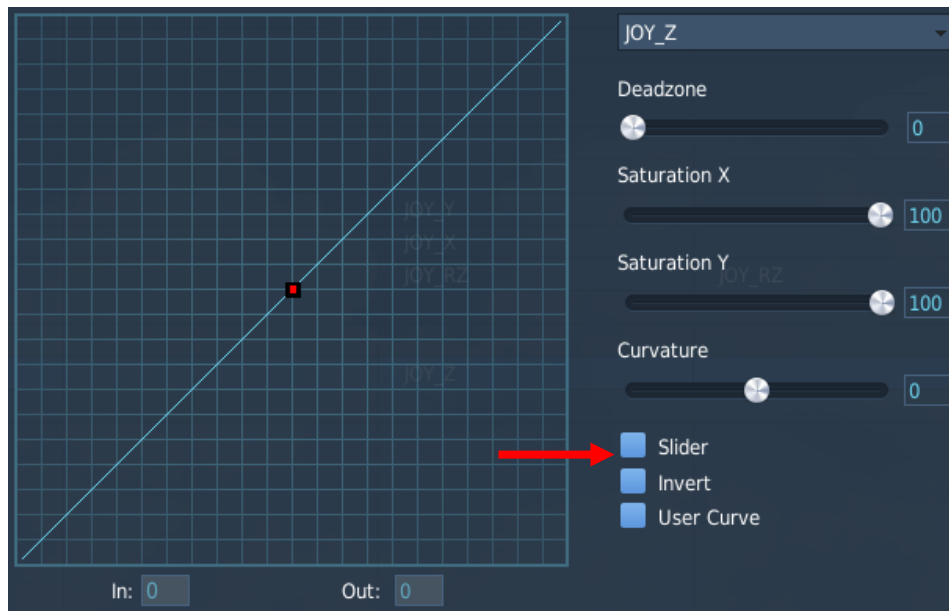
by JC of DI

Why?

DCS does not currently have a native option to adjust in-game throttle curves to account for a physical detent. While there are tutorials that exist to find an approximate curve, I wanted to find a way to create two linear sections that could be adjusted based on the location of a physical throttle detent. No installation required. You can open the original Spreadsheet with any .xlsx editor of your choice or use the Google Sheets version. All tools have been tested to ensure they give the same results. Please note that beginning with v1.018 I have made the decision to no longer include the software app that was part of previous versions due to the updates that have since been made to the spreadsheet offerings.

How?

Step 1: Setting the Curve

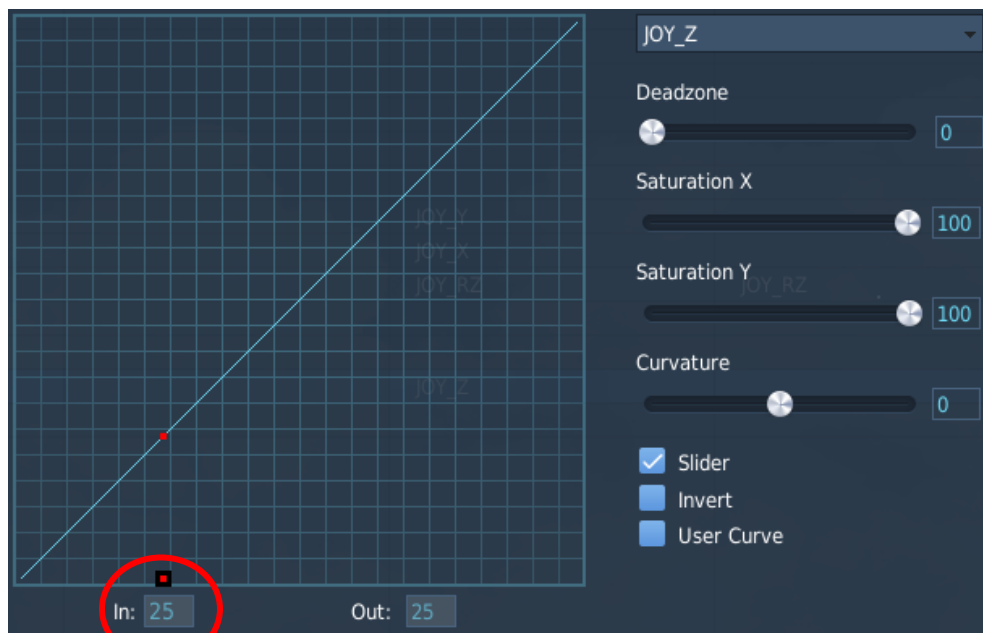


Before we can use the Calculation tool, we must determine the physical detent location on your throttle. Open any aircraft controls menu in DCS and open the thrust “Axis Tune” menu. If you have a split throttle, just choose one of the axes for now to focus on. The other will be similar enough that we can set it based on the first (or you can adjust it later by repeating this process).

The image at left is how DCS has an axis set up by default. Please note that if you require custom deadzones and limited X saturation however, there are options for these in the calculator. In order to find our detent location and eventually create the new curves, set the axis to act as a Slider (see arrow). While here, move your throttle around and notice the symbols on this graph. With it set to a slider, there is a red and black square along the bottom of the window. The red square represents the current throttle axis input. The black box around the red square

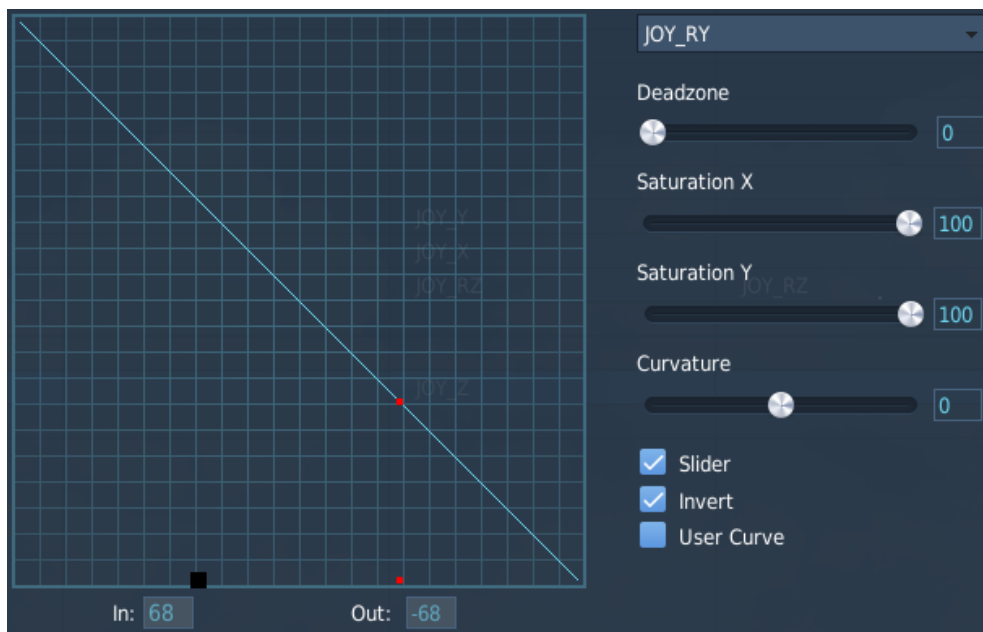
represents the output that the game is converting from your axis input. With the default curves, these symbols should follow each other.

Step 2: Finding our Detent Location



We now need to find the percentage location of our detent. With the slider option ticked, move the throttle to the detent location. This is where we want our MIL location to be – any further and we should expect to be entering into afterburner. With the revamped axis tune window in 2.8, simply read the value of the IN window. In the example at left, this value is 25.

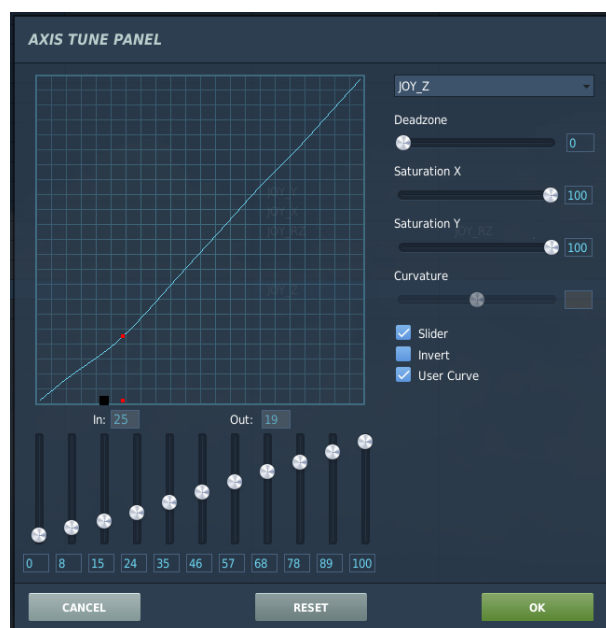
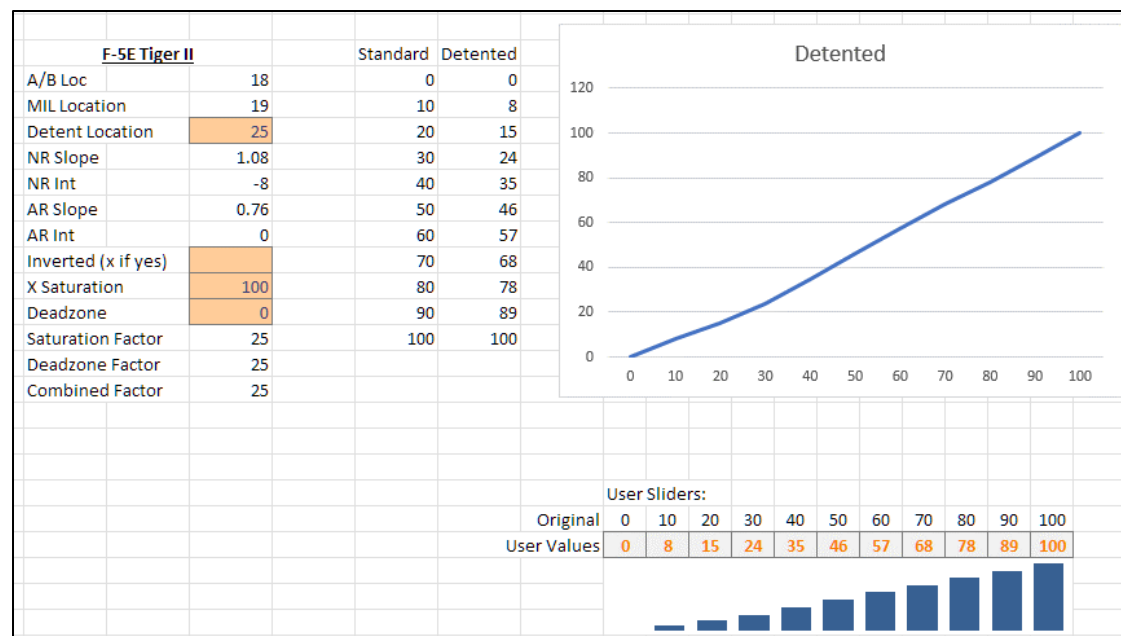
For the rest of this guide we will use 25 in examples, but you will use your personal detent location that you have found through this process. Even if you require an inverted axis, you will find your detent location through this same process – see below for more information.



At left is the same process using a Virpil throttle which by default requires an inverted axis within DCS. The detent location value will be higher than a standard non-inverted axis throttle, but the IN value will be unaffected by the axis tune window's Invert checkbox.

To follow this guide you will still simply use the detent location from the IN value. Even though it appears abnormally high compared to the rest of the guide numbers, by using the inverted option on the calculator this will still generate a proper user curve for your throttle.

Step 3: Open the Detent Calculator Spreadsheet



With our detent number found, we can go to the DCS spreadsheet. Open the spreadsheet and select the tab for the plane of your choice. The main cell you should need to change is the first highlighted “Detent Location” value, which we will set as the whole number that we found earlier. The “User Values” row on the bottom right will be your new values that you will plug into the User Curves. If you have dual throttles, the detent should be close enough that we can mirror these numbers for the other throttle axis in a twin-engine jet, though you can also set per-throttle curves. **If you use an inverted axis, changes to X Saturation or Deadzone**, please ensure these settings are correct in the spreadsheet to ensure a proper detent calculation.

Once the User Curves are added click OK to complete, hop into free flight and confirm that any movement forward of the detent location engages afterburner. Also check that returning the physical throttle to the detent location reduces engines back to MIL. Also check on twin-engine jets that both engines respond as desired. To complete our example, note the final image at left of our completed curves for an F-5E with a physical throttle detent at 25. Do note that DCS applies a smoothing filter to curves, so on some aircraft it may be difficult to perfectly achieve the intended “linear” look to the graph. The in-game result should be effective nonetheless.

FAQ:

Q: I set it up correctly, but the afterburners engage too quickly after MIL.

A: Subtract 2 to your Detent Location number in your choice of Calculator tool and readjust your curves. In the example from earlier, we would use 28 as our Detent Location in the tool despite our actual location of 30. If you are using an inverted axis, you would add two to your detent location (from actual 75 to adjusted 77, for example).

Q: My left engine reaches afterburner before my right engine.

A: Some physical dual-throttles have a small misalignment when linked which can cause one engine to run higher than the other. If you find this is the case for you, repeat the process to find the Detent Location for your second axis and enter it into the Calculator. In testing this has shown to overcome a small axis misalignment and create a more aligned engine response.

Q: What's up with the Special Options detent numbers for some modules?

A: Razbam and Aerges have been gracious enough to provide settings for the F-15E, M-2000C, and Mirage F1 which allow us to set the afterburner detent location via the Special Options. For these modules I have added a new section to the calculator which will use your detent location to provide the number you should use for this Special Option slider. However, as these sliders are limited and would not cover all detent locations, I have also updated the calculator to be adjustable based on the default position number. If you need to use the user curves, please reset these AB detent options to defaults first.

What else?

Thank you to Mouchi56 for being the first user and tester of DCS: Detent Calculation Spreadsheet. Thank you also to zildac on the ED forums for helping test the inverted, saturation, and deadzone options over multiple attempts. Thank you to those who continue to spread the word about this calculator and have helped it reach over 3,000 downloads at the time of writing this update. And finally, a special thank you to Ella_L on Discord for their generosity and encouragement to update the calculator for the F-15E.

Inspired by countless amazing community tools and individuals, and RedKite for the first Afterburner Detent guide that led me to create this. Thank you to everyone in the DCS community who takes their time to help others.

Special credit to Bailey who helped in countless ways, including creating all the code to convert my spreadsheet into the previously-included Detent Calculator Software. If you would like to check out the code, head over to GitHub here: <https://github.com/asherao/DCS-Detent-Calculator>
Find more of Bailey's work on the DCS User Files site. <https://www.digitalcombatsimulator.com/en/files/filter/user-is-baileywa/apply/>

The aircraft A/B and MIL values were determined by me in July of 2023 through in-game testing. The numbers are not infallible, but I am confident in them after multiple tests. I have protected portions of the spreadsheet to prevent any accidental loss of data, but if you would like to modify it yourself there is no password required to unprotect the document.

If there are any questions, concerns, or feature requests please feel free to reach me on Discord, username jcofdi.

Thank you very much for your time. Enjoy the flights!

– JC