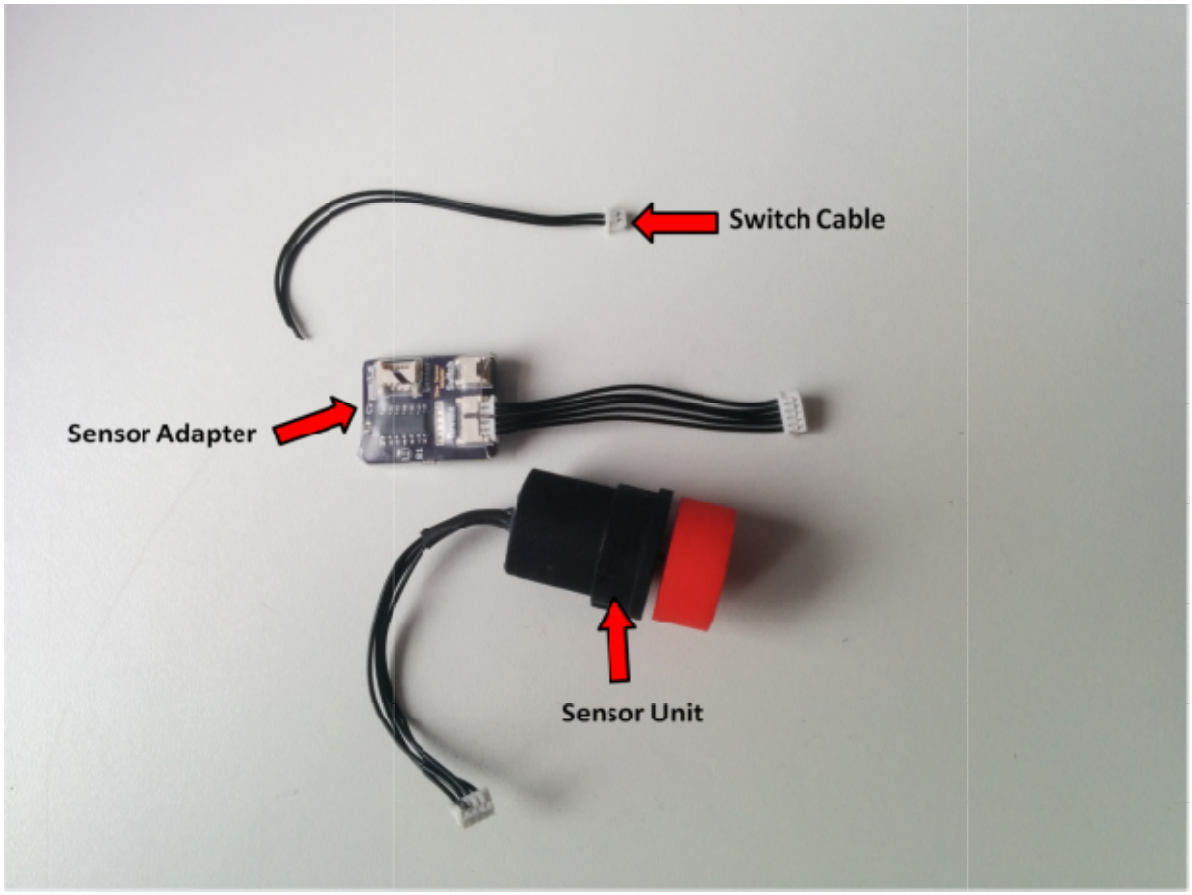
Slew sensor upgrade kit for Thrustmaster Warthog Throttle Installation Instructions

Parts:

You will receive 3 parts with the kit:

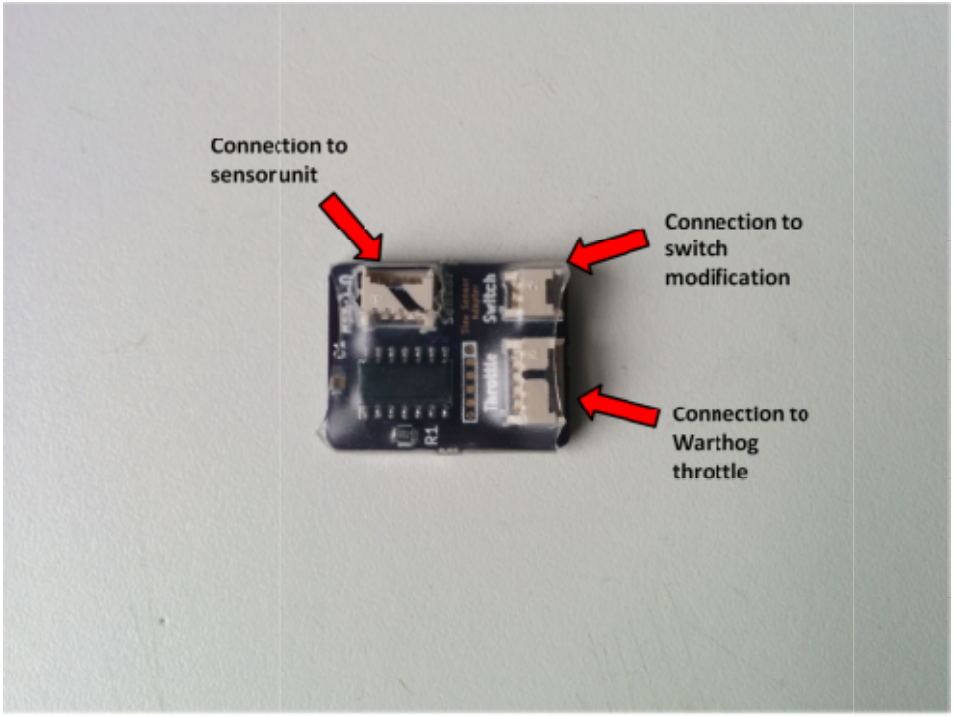


1. Sensor unit – contains the MSI Ultra 462 force sensor and fits into the throttle housing

2. Sensor adapter – connects to the sensor and throttle circuitry to convert the analogue voltage from the sensor to the digital I2C needed by the throttle

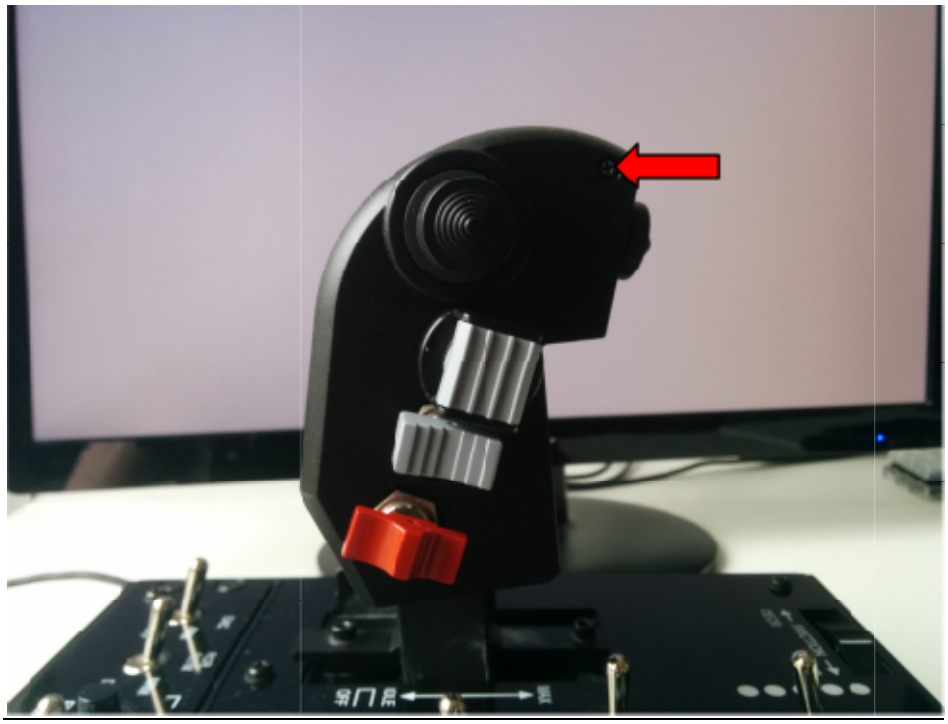
3. Switch cable – can connect to the sensor adapter to add a “Button 1” switch back to the throttle.

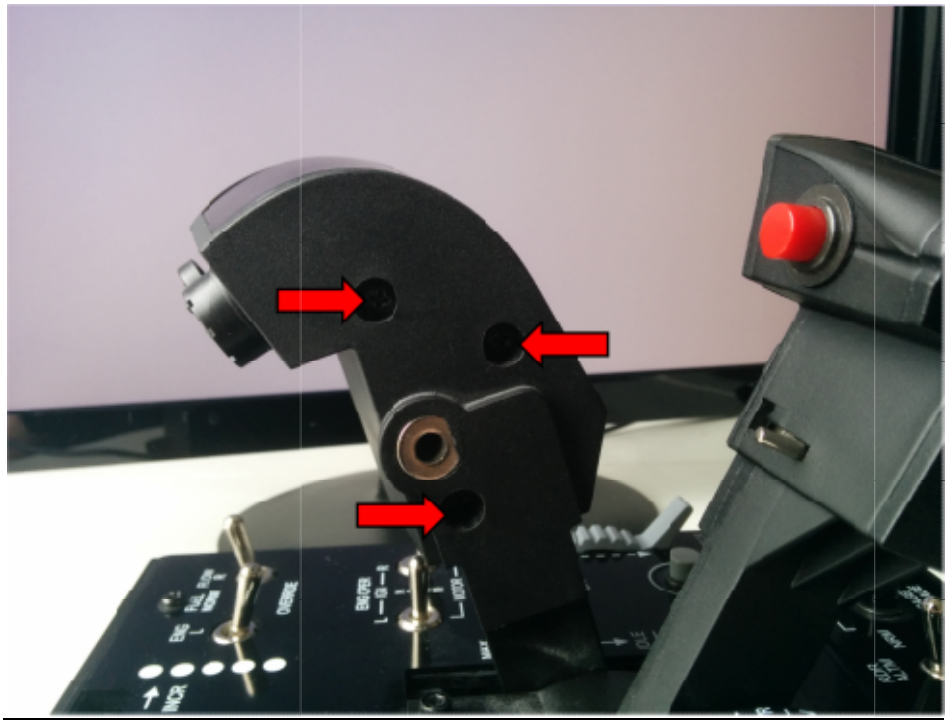
The 462 sensor does not have a push down switch like the original sensor. I have included the switch cable in case someone wants to modify another switch into their throttle somewhere. All you would need to do would be to connect some sort of normally open switch to the two wires and you would have another throttle button.



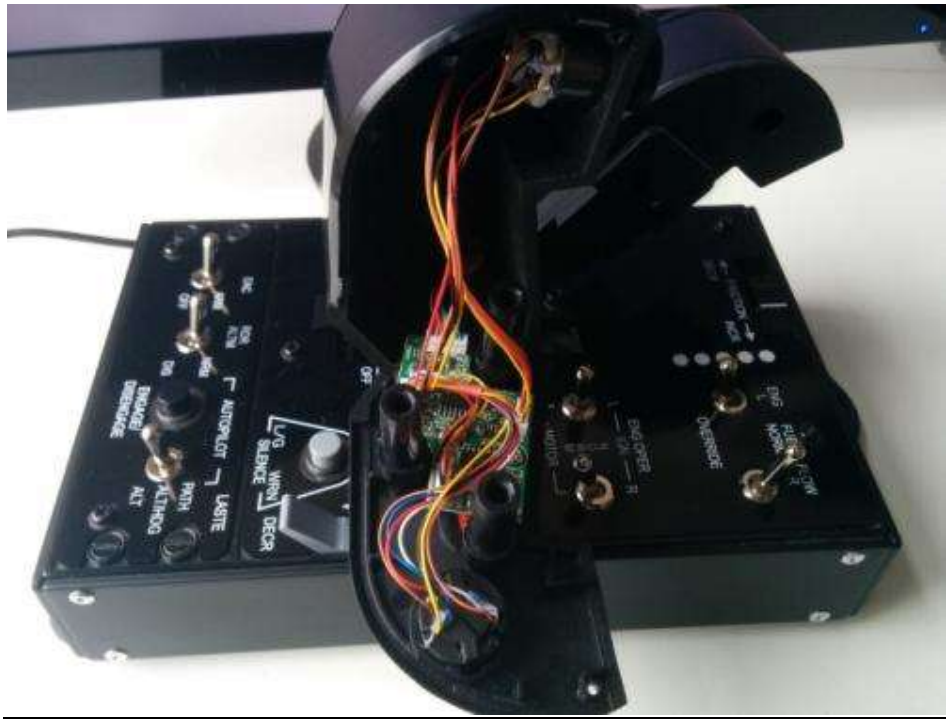
Old sensor Removal

The first step to fit the new sensor is the remove the 4 screws holding the throttle together:

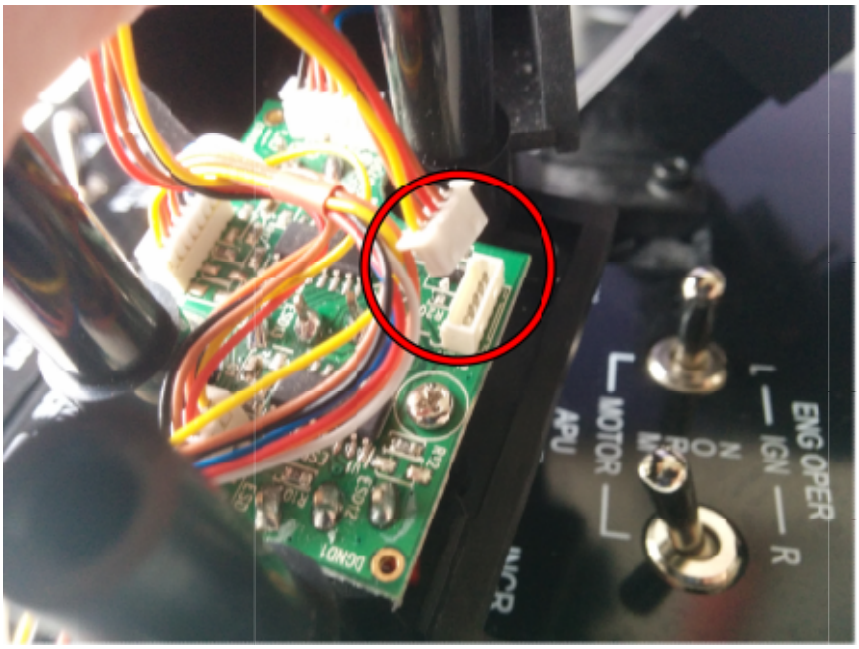




After all 4 screws are removed **carefully** separate the switch side of throttle, take care as wires are connected to both sides and they could become broken this is removed too far.



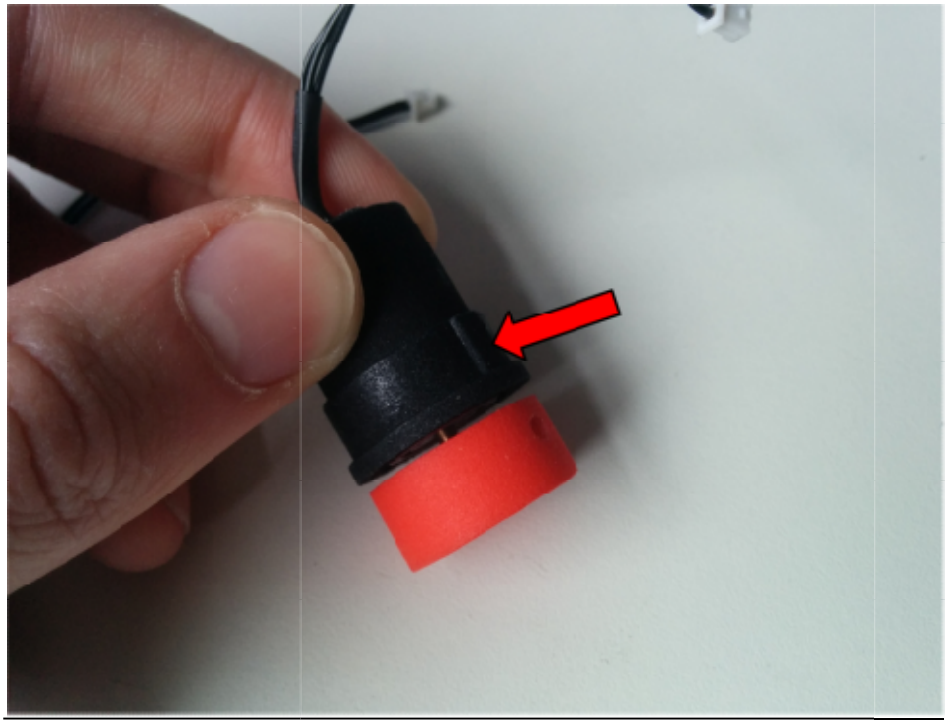
Once the side of the throttle is removed, carefully unplug the old sensor from the throttle PCB.



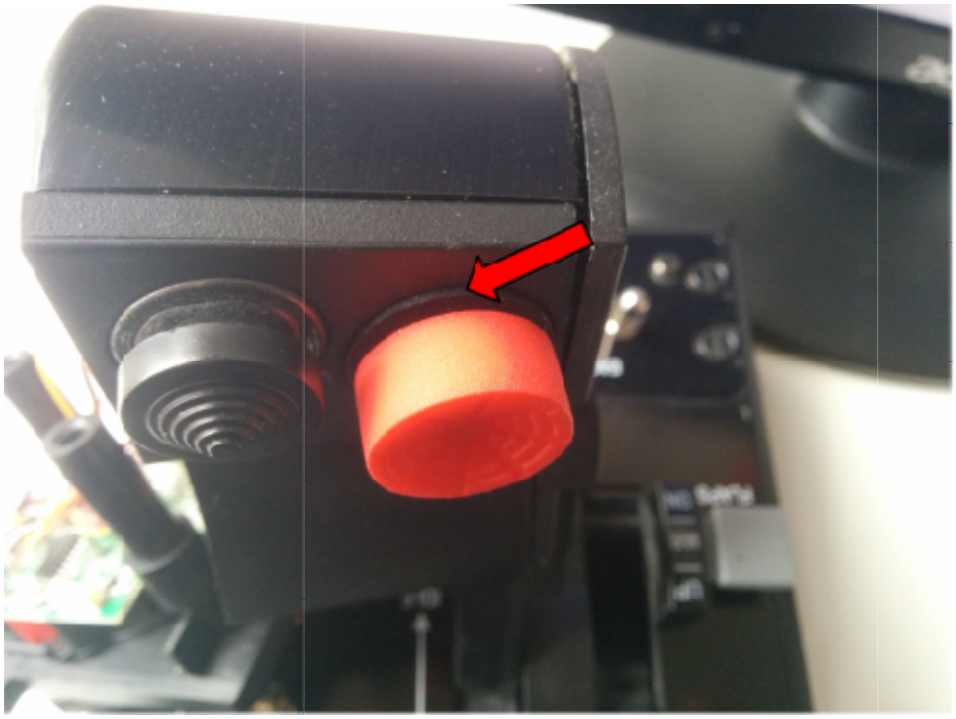
Next remove the old sensor from the throttle housing. To do this you will need to bend the small plastic clips holding the sensor in place. I find pushing them with a finger in the best way to do this. **Do not force the sensor out**. It should come out easily once the clips have been moved out of the way.

New sensor Installation

To install the new sensor, align the key on the sensor with the small keyway at the bottom of the hole in the throttle, see the picture below for reference. Carefully push the sensor into the throttle housing, it should be a snug fit so may require a small amount of force, but be sure the key is aligned correctly.



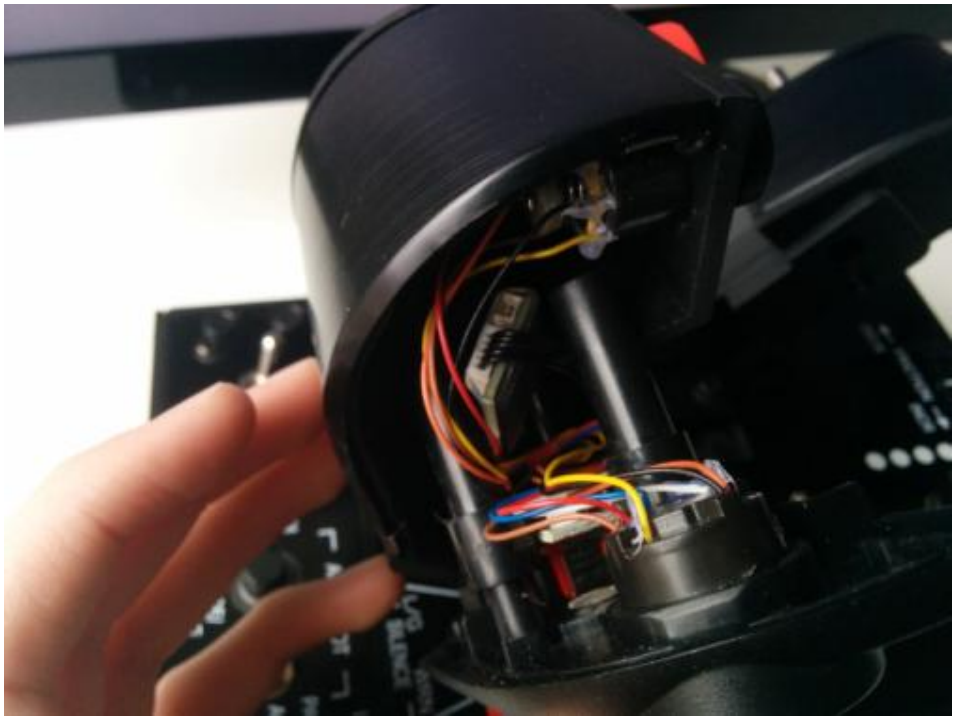
Push the sensor all the way into the throttle until it reaches a positive stop, it should look like the image below, with just a small amount of plastic protruding from the throttle.



Next, install the sensor adapter PCB, and connect to the new sensor and throttle PCB, as shown below.

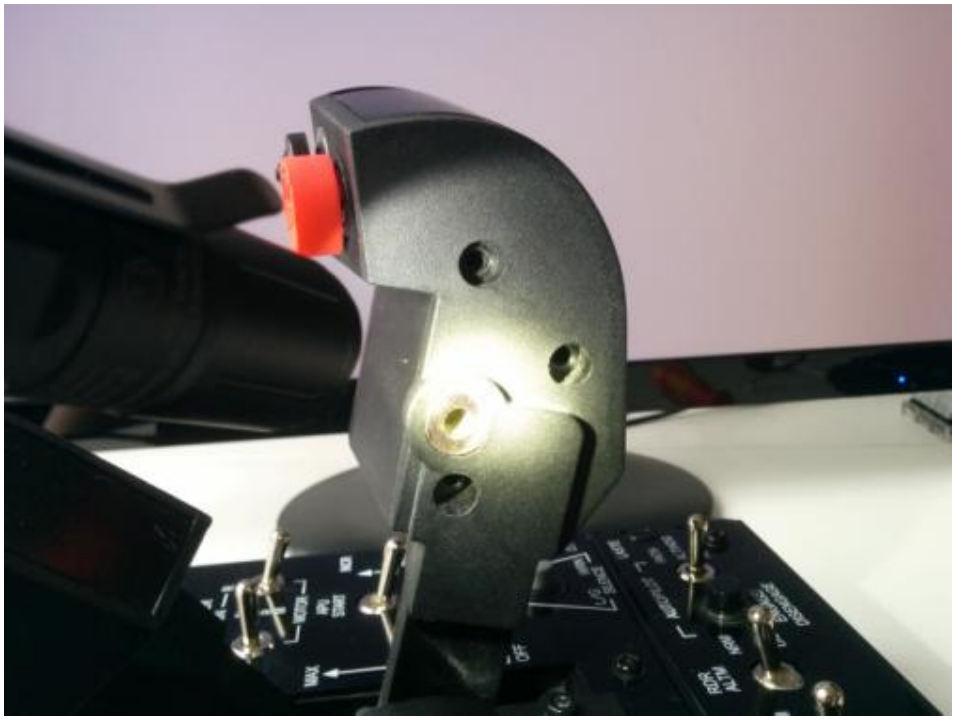
Now you are ready to reassemble the throttle, carefully reorganise the cables back into the throttle. **Take care with the 3 plastic pillars for the screws, they sometimes fall off when putting the throttle back together and are all required to be in place the protect the cables from the screws.**

Also take care that all wires are out of the ways of the plastic posts and screw holes and none will get crushed when you reassemble the throttle, as this could cause damage.



Once the throttle halves are back together, install the small screw into the switch side.

After this is done, I recommend using a bright light to look into the back 3 screw holes to double check all 3 plastic pillars are in place and no wires will be crushed when the screws are installed, if you can see any wires or missing pillars, then you will need to take the throttle apart again to reorganise everything.



If everything is good, install the last 3 screws.

Calibration

If you have an older Warthog throttle (before 2013 approximately), and you have never updated your firmware, you may need to do this before my kit will be properly detected. Please see the Thrustmaster website for instructions on how to do this. Please contact me if you have any issues

http://ts.thrustmaster.com/faqs/eng/thr_eng_00136.pdf

To calibrate the new sensor you will need to run the Thrustmaster throttle calibration utility,

DO NOT USE WINDOWS CALIBRATION.

The program comes with a configuration text file "A10_calibration.txt", this is read by the calibration program to set a number for parameters. It must be in the same directory as the program when the calibration is run.

For best performance I have modified the A10_calibration.txt configuration file to reduce the dead zone on the slew sensor axes, change:

Note: the values are different compared to my other kits – make sure you have downloaded the correct one.

Old:

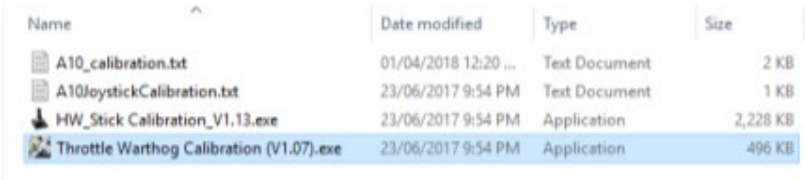
```
Standard_DZ_SX = 0x10;    // 20
Standard_DZ_SY = 0x10;    // 21
```

New:

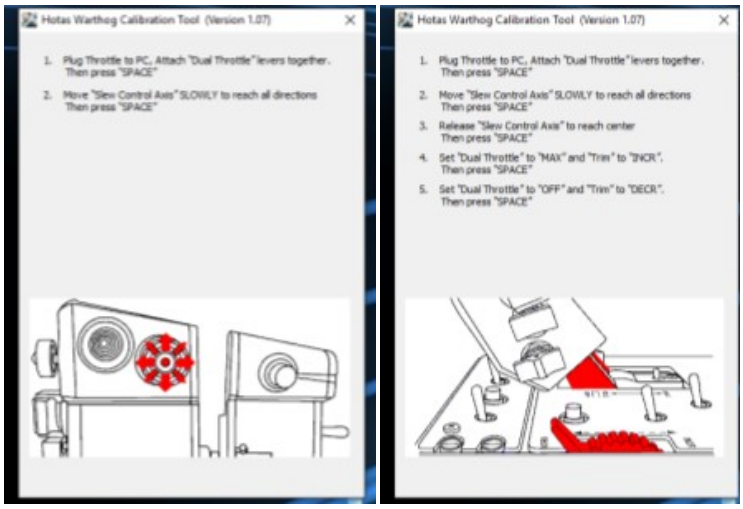
```
Standard_DZ_SX = 0x01;    // 20
Standard_DZ_SY = 0x01;    // 21
```

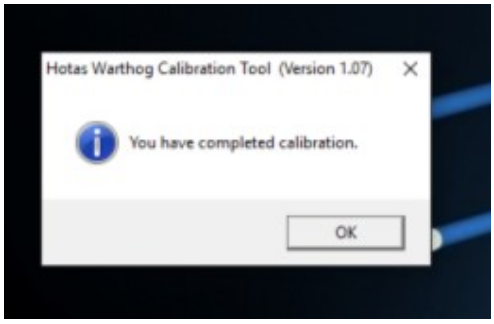
This has already been done in the configuration file I provide.

Now run the Throttle Warthog Calibration utility, and follow the on screen instructions:

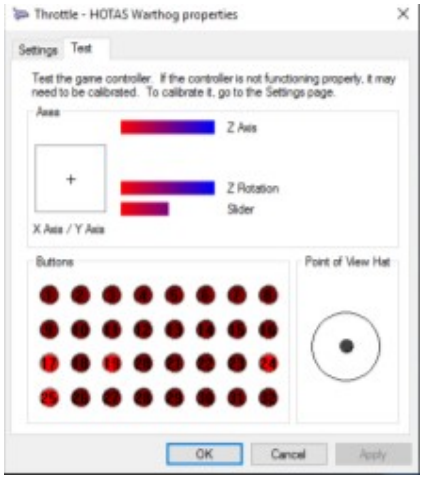


When moving the control the full deflection, it should take less than 1Kg (2lbs) of force the reach maximum, this is indicated by a mechanical stop. Applying too much force should not damage the unit, but it is not recommended to apply very large amount of force regularly.

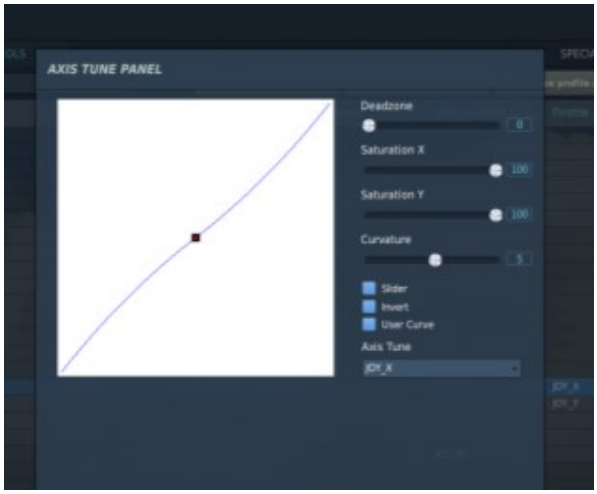




Once the calibration is completed, verify everything is working properly in the Windows game controller menu, or in game.



I recommend the following axis profile for HOTAS slew X/Y, however it is of course up to personal preference.


AXIS TUNE PANEL
Deadzone
Saturation X
Saturation Y
Curvature
Slider
Invert
User Curve
Axis Tune
JOY_X