



# 737NG TILLER PRO REAL FORCE FEEDBACK

## Installation and Operation Manual

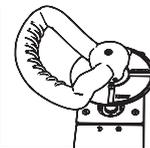
Version 2.1 - 03/2023



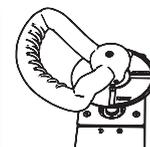
SKU	PRODUCT
289146	B737 Steering Tiller PRO Force Feedback Captain side
289147	B737 Steering Tiller PRO Force Feedback First Officer side

ENGLISH

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## DISCLAIMER

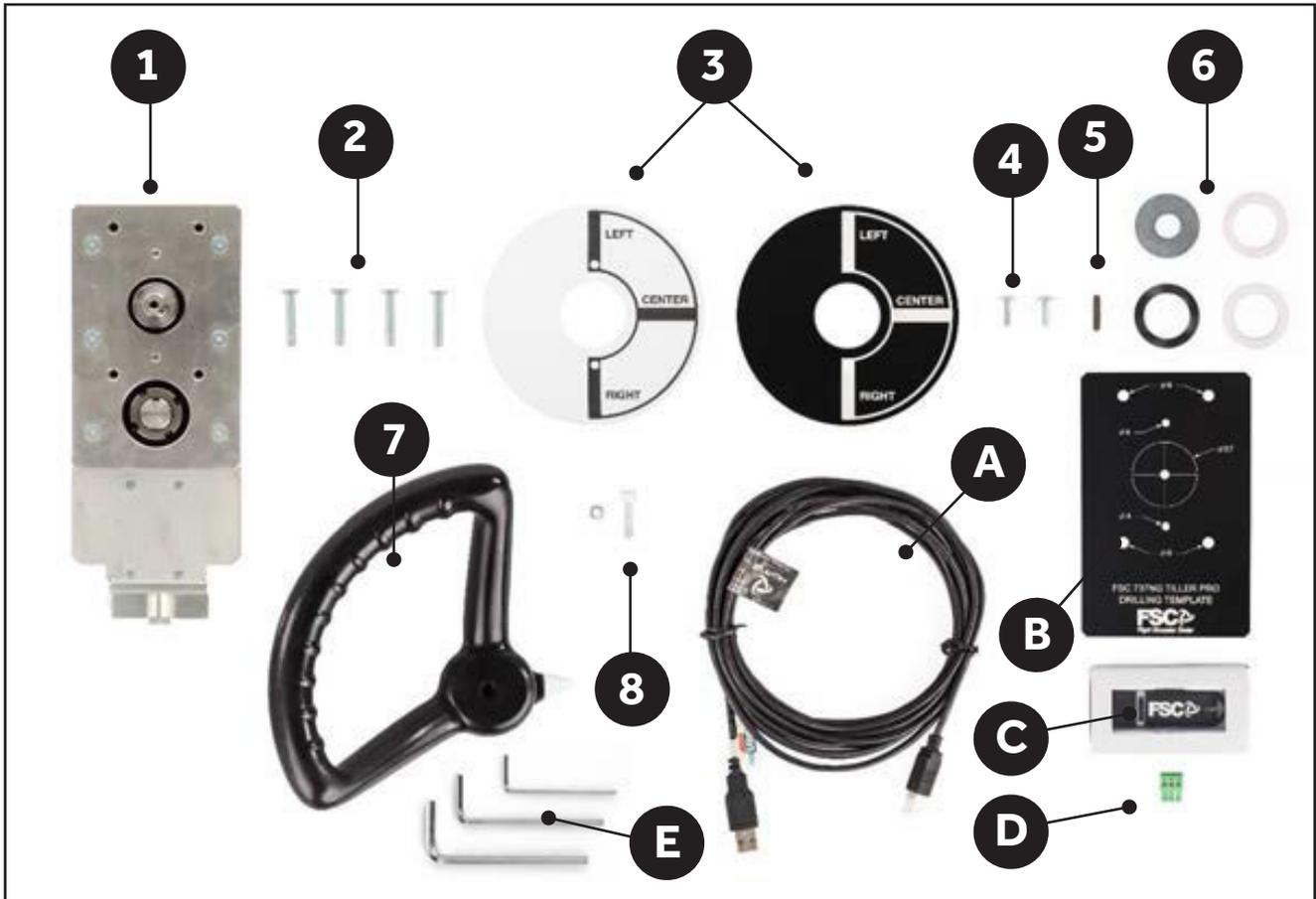
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# CHAPTER 1. OVERVIEW

## 1.1 BOX CONTENT AND FEATURES

FSC 737NG TILLER PRO provides greater control of the aircraft during taxi operations. FSC 737NG TILLER PRO kit (CPT side SKU.289147 shown), is composed by the following items:



- |   |                                  |
|---|----------------------------------|
| 1. 737NG Tiller pro (Built-in USB Interface)      | A) USB Cable                     |
| 2. Countersunk hex head screws (M5x30)            | B) Drilling template             |
| 3. Indicator plates, white and black (CPT or F/O) | C) Usb key with documentation    |
| 4. Phillips + flat screws (M4x16)                 | D) Plug for custom USB interface |
| 5. Feather key (spare)                            | E) Allen Keys                    |
| 6. Spare/adjustment Washers (3 mm/each thickness) |                                  |
| 7. Steering tiller handle (CPT or F/O)            |                                  |
| 8. Handle Allen Screw (M5x20) + split washer      |                                  |



The FSC 737NG TILLER PRO kit is a no-compromise, reliable solution built for intensive use and ultimate realism, and provides very flexible features, letting to use it in a huge variety of situations and with most simulation software currently available:

- Solid body built with precision CNC machined parts, made of aluminium, Ergal aircraft alloy and special steels. Designed and tested to withstand over 500.000 actuations
- With a system of springs and double torque cam mechanism the reaction force is always controlled, matching in realism the original hydraulic one
- Adjustable reaction force
- Smooth and harmless return to zero, through the use of a 0-MAX adjustable damper
- USB plug and play connection (no driver required)
- Easy access to electronic components
- Both black and white rotary engraved indicator plates provided, to suit your cockpit style



# CHAPTER 2. INSTALLATION

## 2.1 HARDWARE INSTALLATION

FSC 737NG TILLER PRO provides greater control of the aircraft during taxi operations.

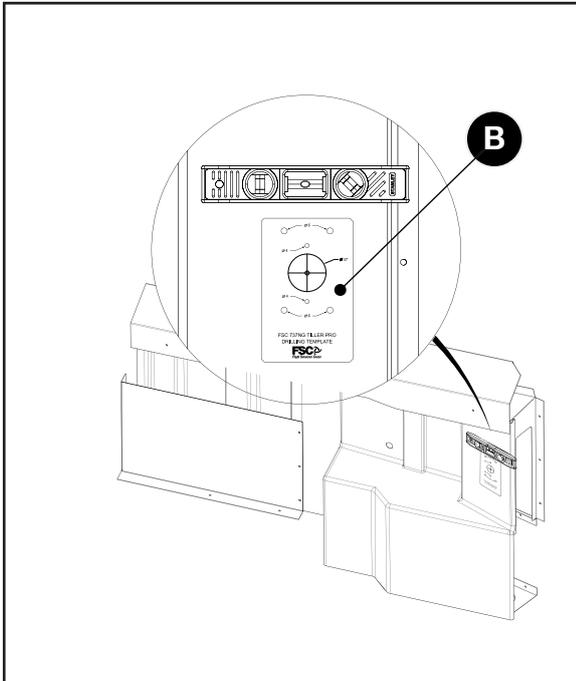


Fig.1 - Drilling template (B)- (see Chapter 1.1) + spirit level.

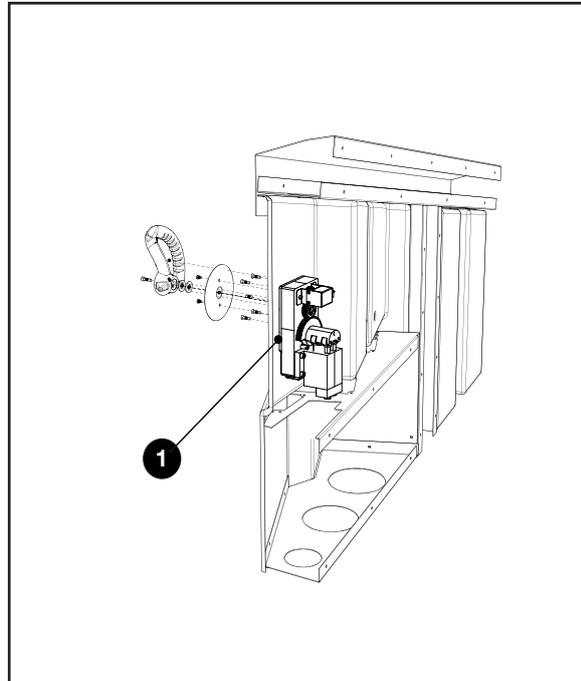


Fig.2 – Tiller body (1) on side panel.

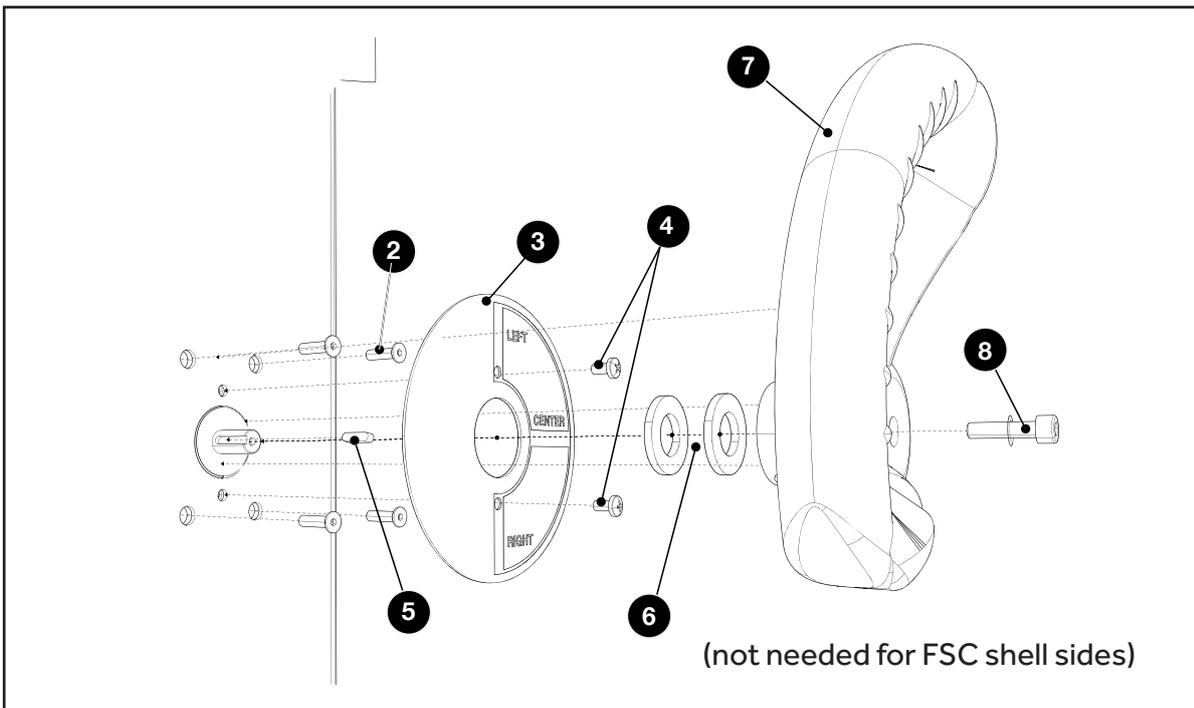


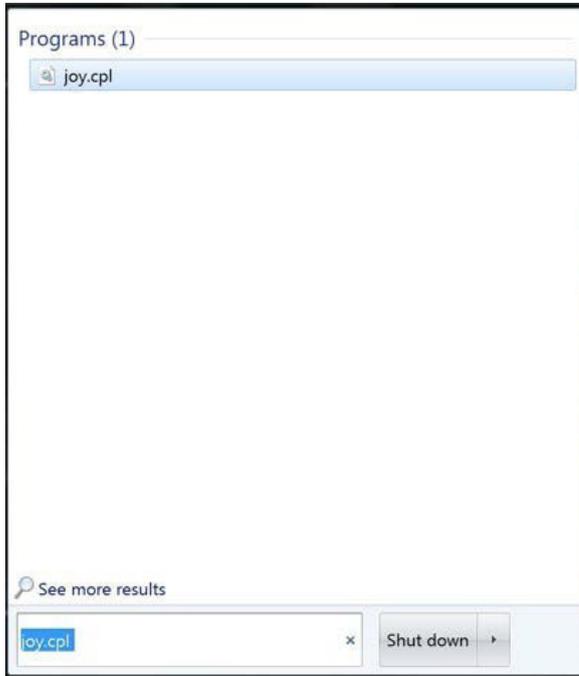
Fig.3 – Assembly sequence (2 to 8) (see Chapter 1.1 for items detail).



## 2.2 SOFTWARE SETTINGS AND CALIBRATION

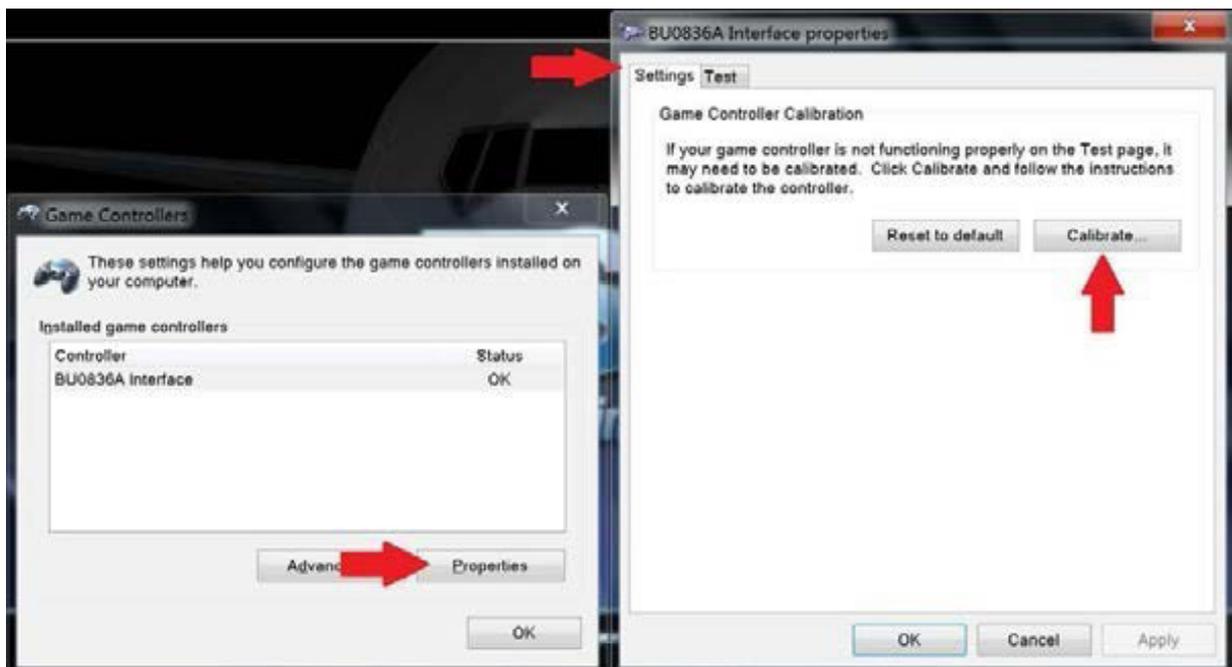
### Generic Game Controller settings (to be calibrated before configuring FSUIPC or XPLANE)

Plug the usb cable into PC. Press "START" menu and type "Joy.cpl"



(Fig.1)

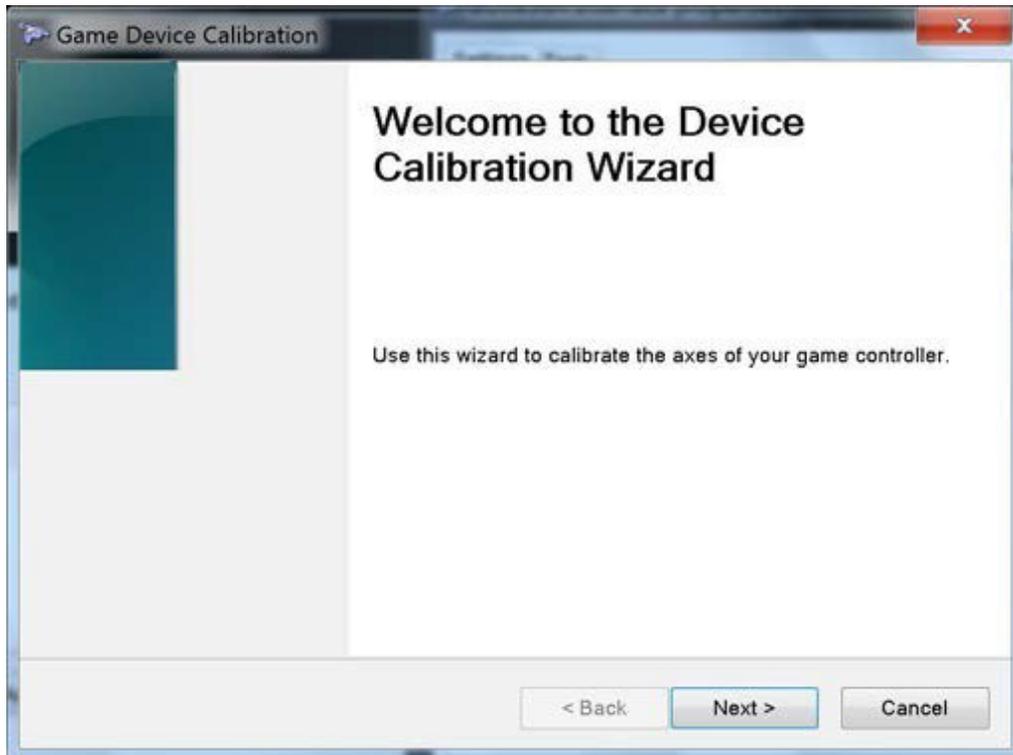
Click on "Properties" and calibrate.



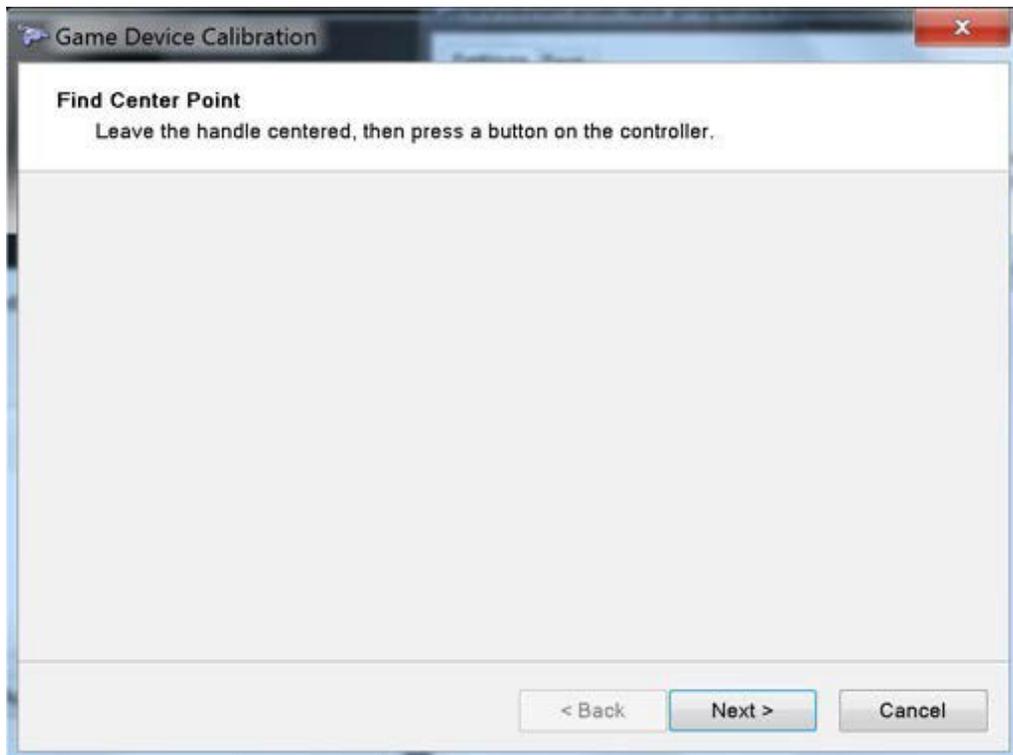
(Fig.2)



Confirm wizard with NEXT button



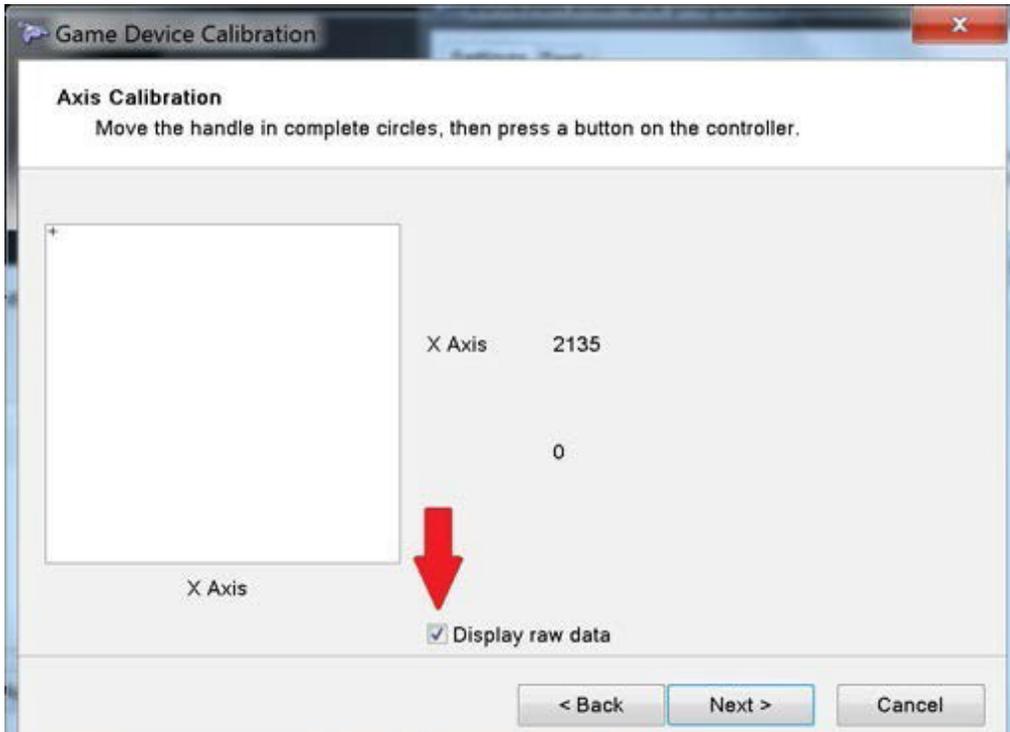
(Fig.3)  
Find center point and confirm with NEXT button



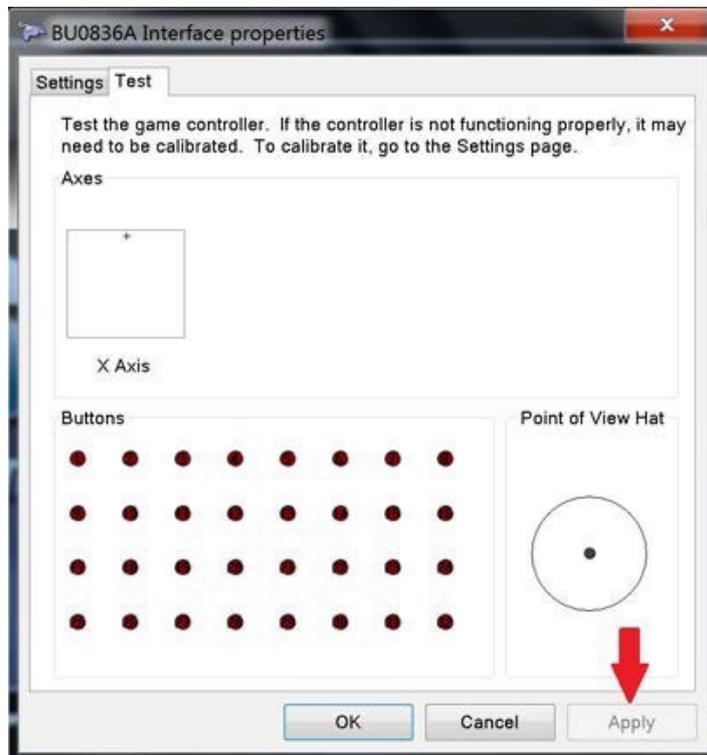
(Fig. 4)



Move axis from full left to full right to calibrate and select "Display raw data".



(Fig.5)  
Press APPLY to save calibration



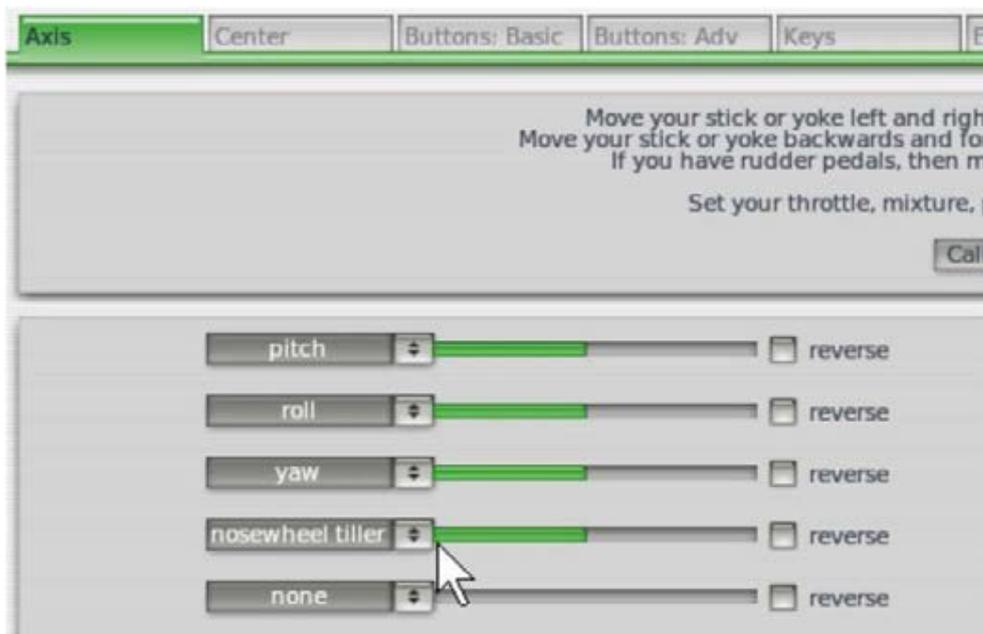
(Fig. 6)



## B737 TILLER PRO - REAL FORCE FEEDBACK

### XPLANE ONLY: One Tiller AXIS

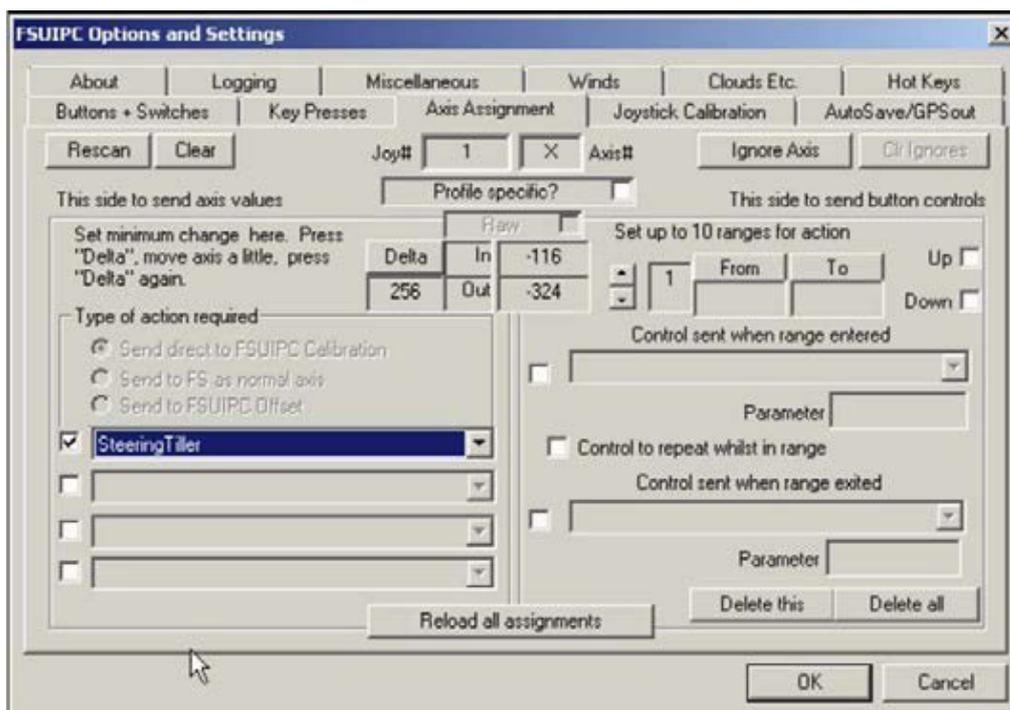
From "Settings" menu, select "Joystick, Keys & equipment", select "axis" tab, move tiller to discover the axis, then assign it from the dropdown to "Nose-wheel steering tiller".



### FSX/P3D ONLY : NO Tiller AXIS, together with Rudder AXIS

### FSX/P3D With FSUIPC: One Tiller AXIS

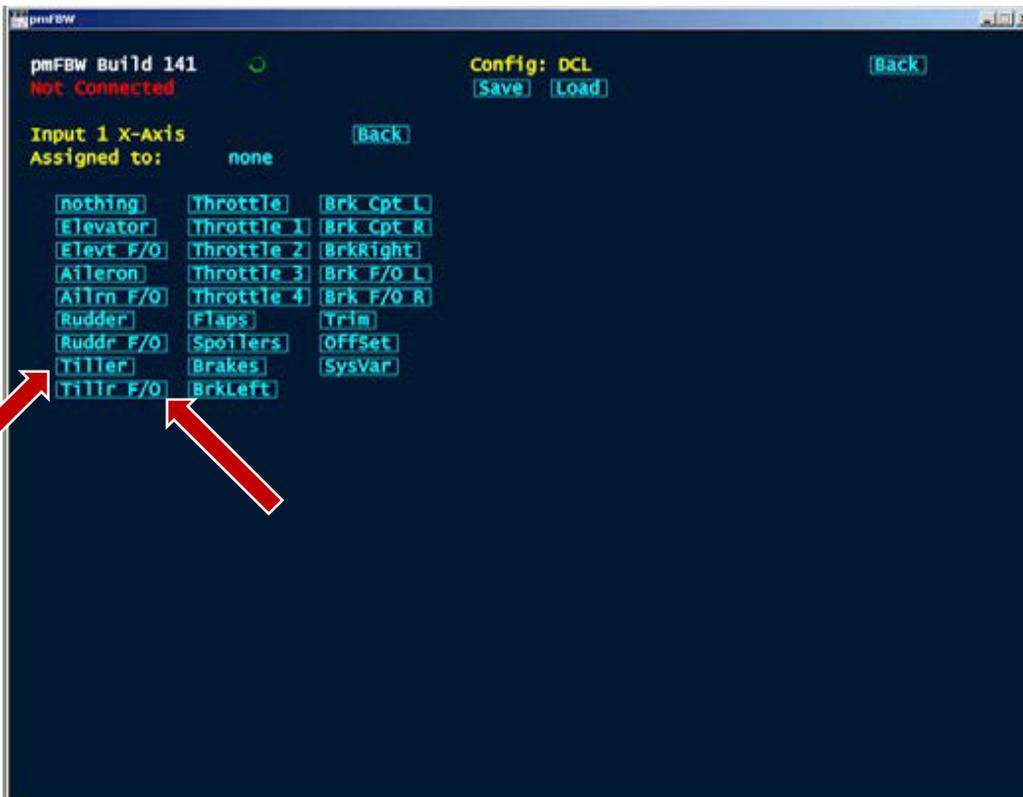
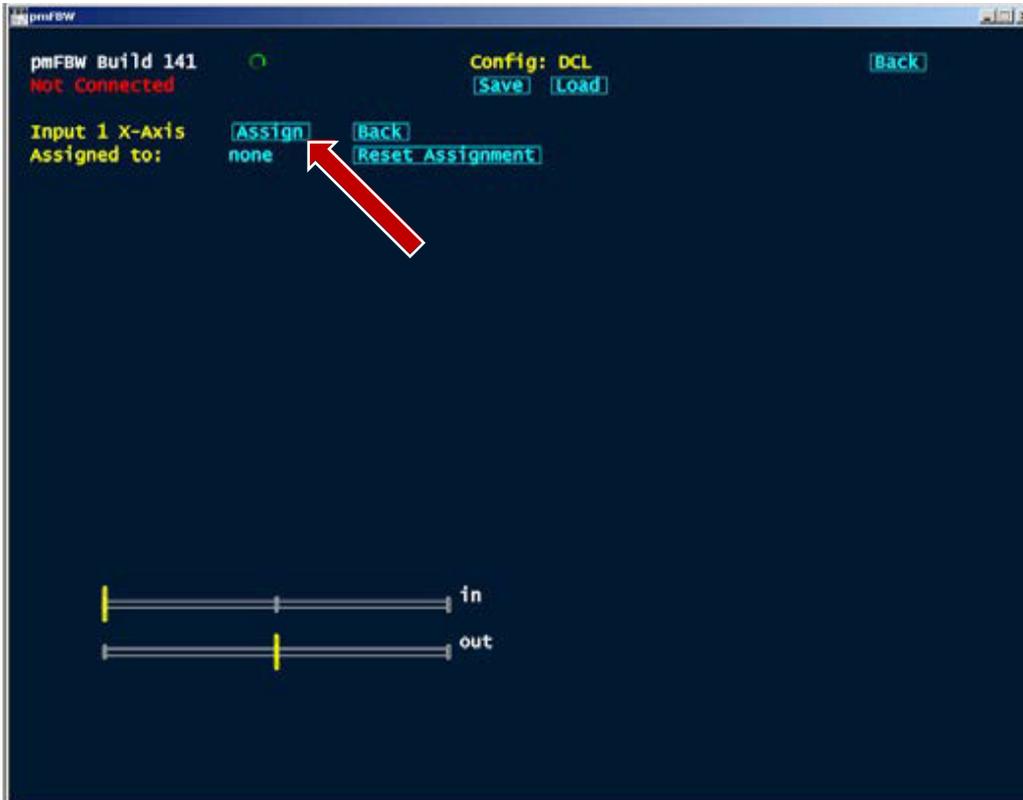
From "add ons" menu, select "FSUIPC", select "Axis assignment" tab, move the tiller to discover the axis, then under "type of action required" select the radio button "send direct to FSUIPC calibration", select "Steering Tiller" from dropdown menu.







Under the calibration page select "Assign" button to assign the Axis "Tiller" or "Tiller F/O".





## Installation and Operation Manual

Tiller direction: rotating the handle downward the "out" indicator must slide to the left, if not, select "Inverted" (arrow 1).

Press "Recalibrate" (arrow 2) and move the tiller left and right slowly to calibrate the axis.

Look at the input and output values (arrow 3): the "in" value above indicate the raw values from joystick interface, the "out" value below indicates the calculated range of values to send to simulator according to calibration filtered by "Tiller response Curve".

Release the handle to center the tiller, and press "Set Center" (arrow 4) How to change Response Curve:

Drag with mouse:

"Null" (arrow 5) to change null zone value (right to enlarge), "Width" (arrow 6) for width zone, "Max" (arrow 7) for % max excursion.

The Output Axis will move between "Null" and "Wdth", with deflection from 0% to "Max" % of calibrated value (arrow 3, "out")

Then click:

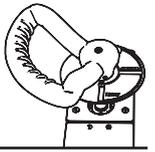
"Default" (arrow 8) for straight response,

"Curve" (arrow 9) for progressive response (like in the picture).

You can draw your own curve directly with your mouse pointer (arrow 10). To end calibration process, click "Lock Calibration" (arrow 11).

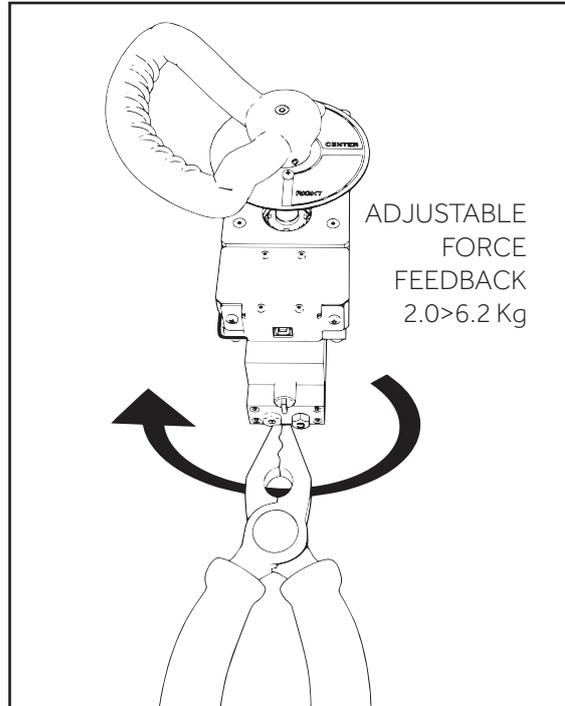
The screenshot shows the 'pmFBW' software interface. At the top, it displays 'pmFBW Build 142', 'Cycle 61', and 'Config: NULL ZONE MAGGIORATA'. Below this, there are buttons for 'Save' and 'Load'. The main area is divided into several sections:

- Input/Output Section:** Shows 'Input 1 U-Axis' assigned to 'Tiller F/O'. It displays 'Value: 513.75', 'Min 274.984375', 'Max 811.28125', and 'Ctr 514'. There is an 'Inverted' checkbox (arrow 1) and buttons for 'Recalibrate' (arrow 2) and 'Set Center' (arrow 4).
- Tiller Response Curve Section:** Shows 'in: 17' and 'out: 0'. It includes instructions: 'Curve is valid for +/- values', 'Define Null/width/MaxOut', and 'Then click on Default or Curve'. There is a checked box for 'Direct Rudder+Tiller'. Below this is a graph with a y-axis from 0% to 80% and an x-axis. A curve is shown, and there are buttons for 'Default' (arrow 8) and 'Curve' (arrow 9). A red arrow (10) points to the graph area with the text 'Click on graph to change curve'.
- Null/Width/Max Section:** The graph has three vertical dashed lines labeled 'Null' (arrow 5), 'Width' (arrow 6), and 'Max' (arrow 7).
- Lock Calibration Section:** At the bottom, there is a 'Lock Calibration' checkbox (arrow 11).

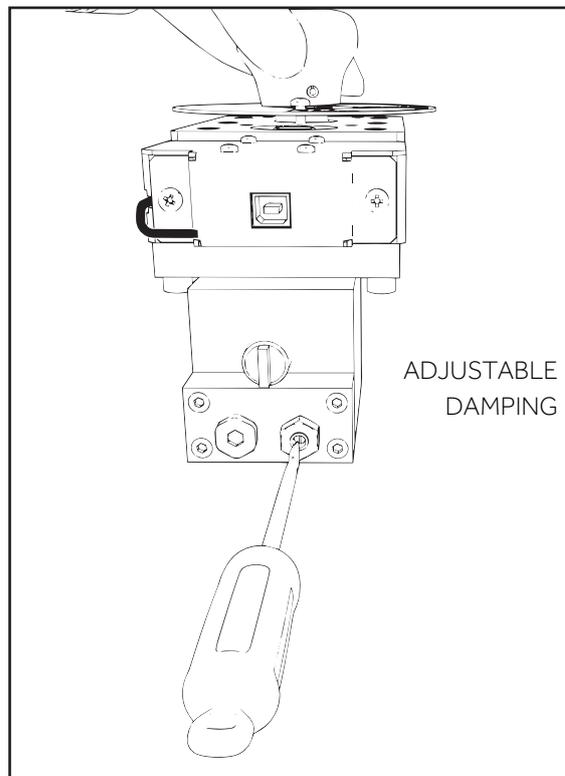


# CHAPTER 3. SETUP

## 3.1 ADJUSTING THE REACTION FORCE AND RETURN TO ZERO SPEED



Reaction force adjustment (unit is factory-calibrated to optimal feeling)



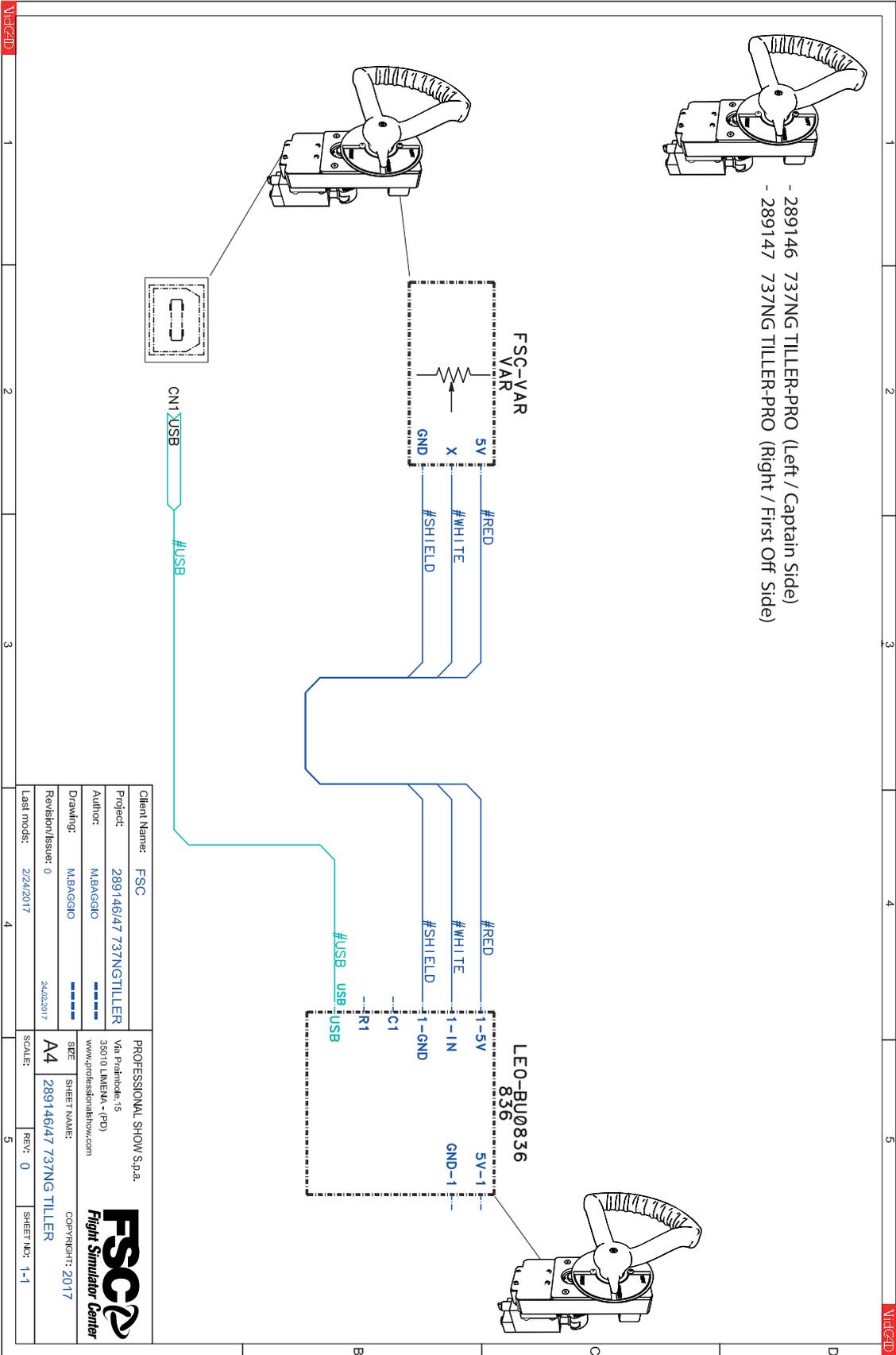
Return to zero speed adjustment ( every Tiller is factory-calibrated to optimal feeling )  
**CAUTION** - Turn the screw few degrees at a time.





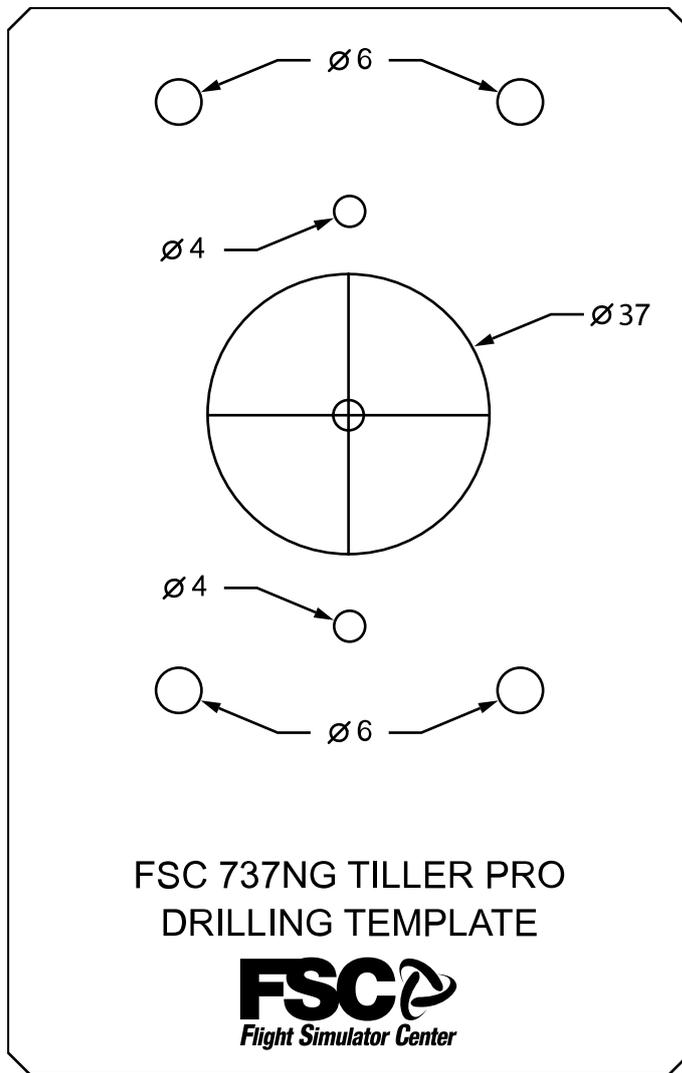
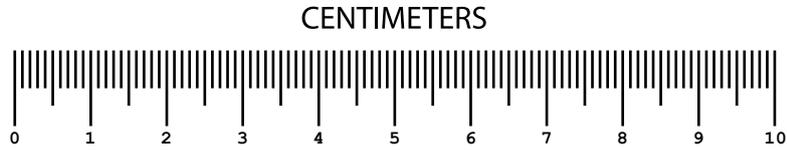


# APPENDIX B - B1 SCHEMATICS





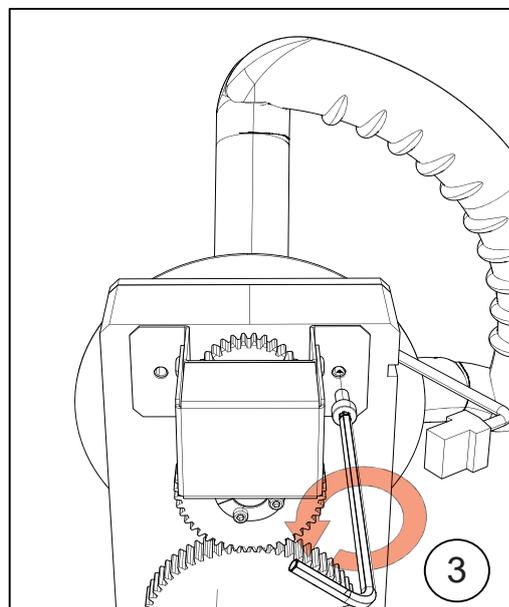
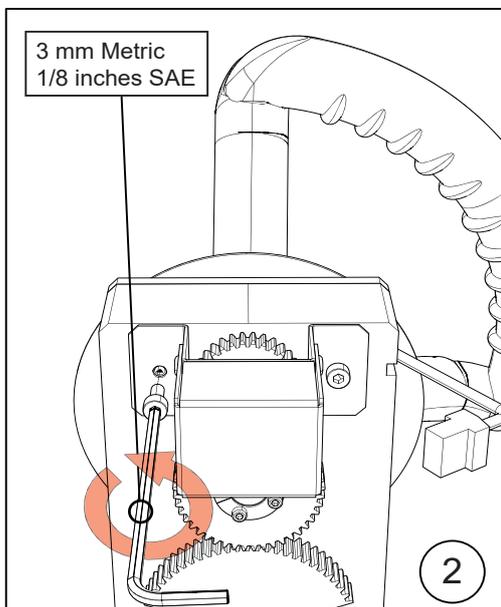
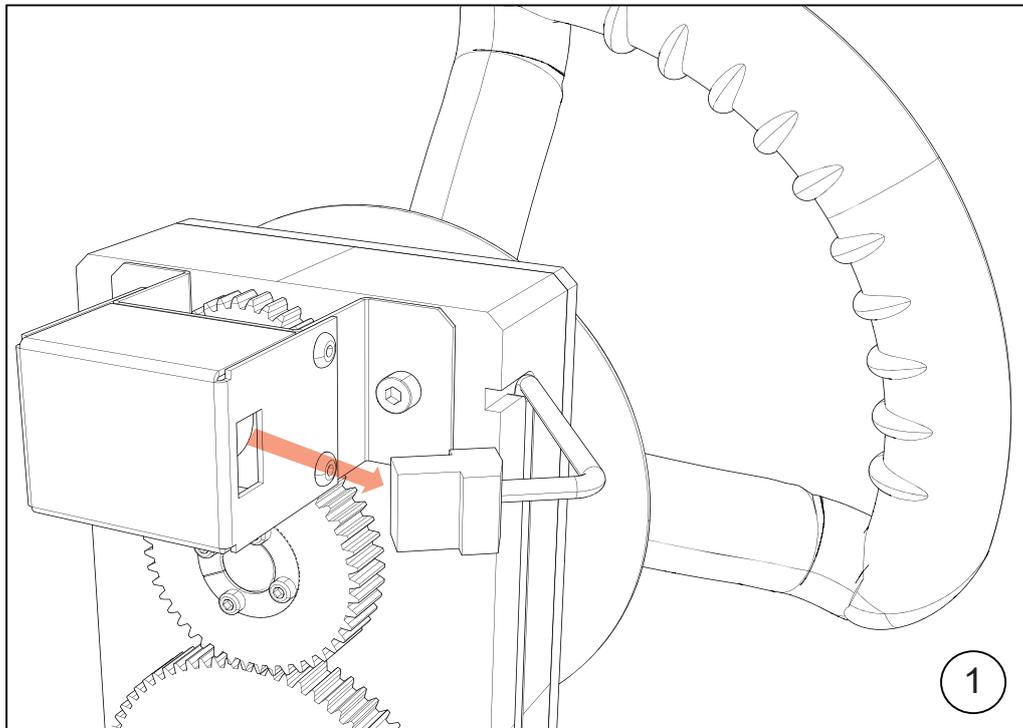
# APPENDIX C - C1 DRILLING TEMPLATE

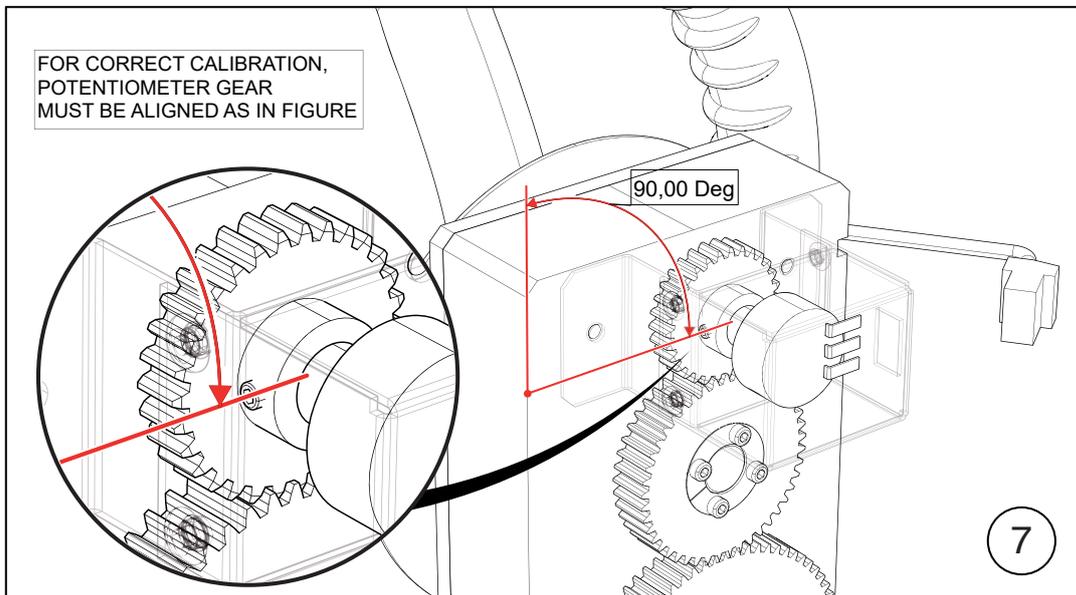
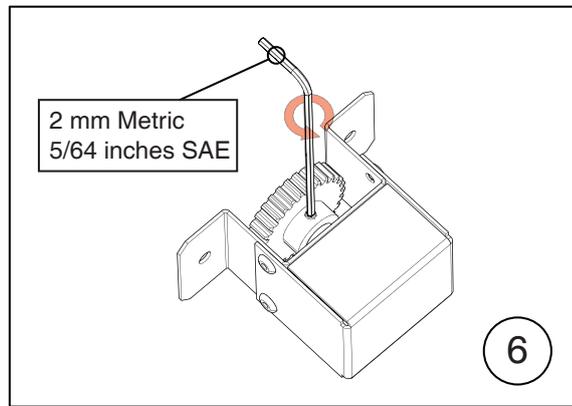
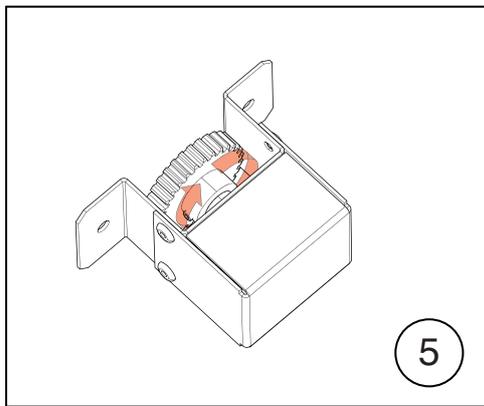
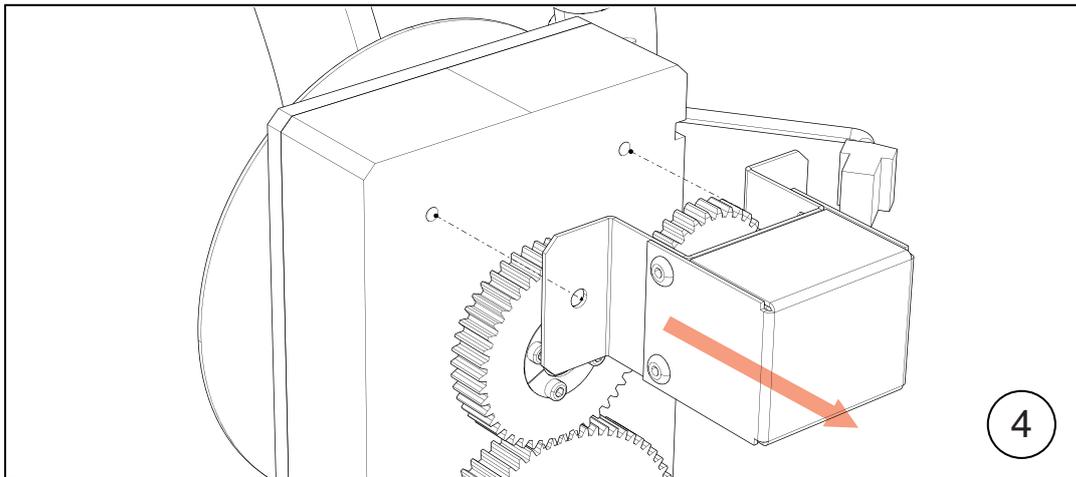


\*This template is 1:1 scale. Please check with provided reference scale before drilling.



## APPENDIX D - D1 POTENTIOMETER REPLACEMENT





Please check potentiometer mechanical calibration (see Chapter 2.2 for procedure and Fig.5 for raw data value reading).

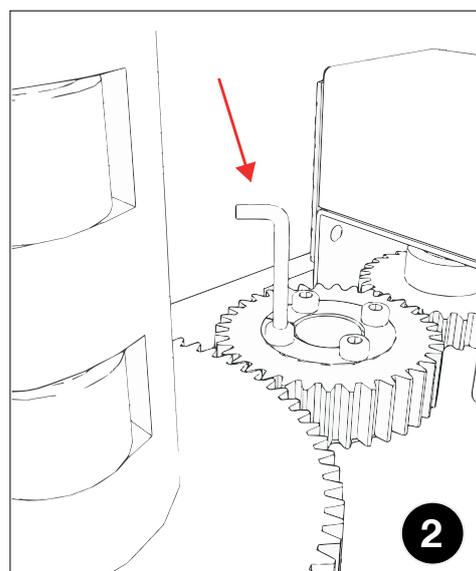
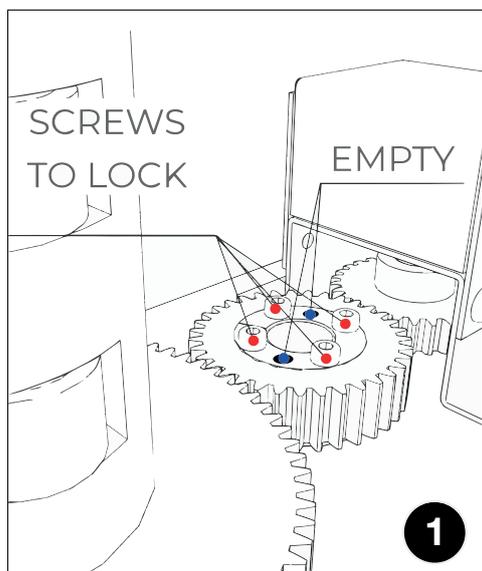
Pot is mechanically centered when X Axis value is as close to 2048 as possible



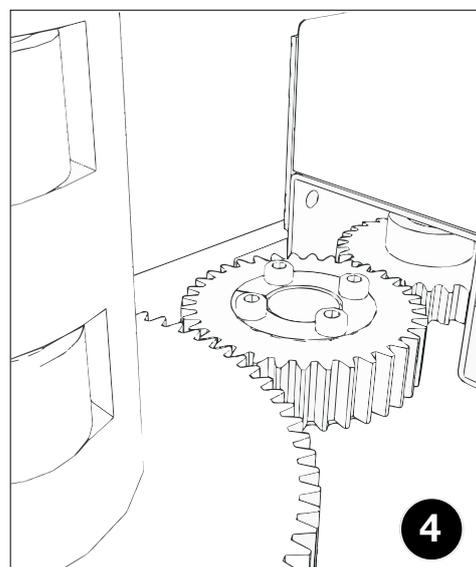
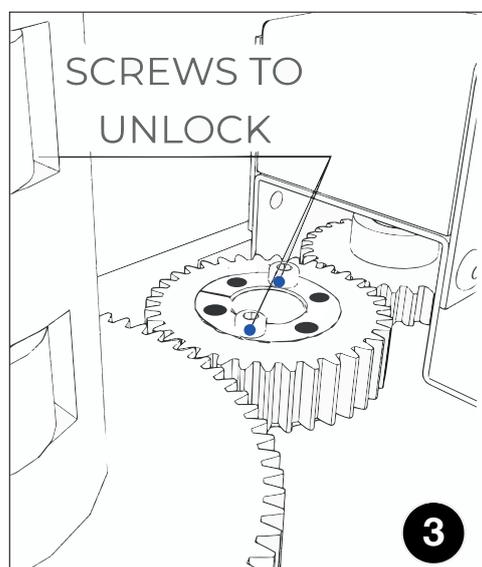
## APPENDIX E - E1 MECHANICAL RE-ALIGNMENT / LOOSING THE KEYLESS LOCKING DEVICE

For special and specific projects or applications that require handle disassembly.

How to unlock the keyless locking device to freely move the handle shaft, and tighten it back in right position.



Remove the 4 screws (Fig.1+2)



After removing the existing four screws, use two of them as indicated and tighten until you feel a click: this way keyless locking device will be unlocked and shaft will be free to turn.

Set handle in right position and screw again the four screws in original position. Be careful to tight the four screws sequentially little by little.

Please check potentiometer mechanical calibration (see Fig.5, Chapter 2.2). Pot is mechanically centered when X Axis value is as close to 2048 as possible.



## HOW TO CONTACT SUPPORT

To contact the support team, check the news and download the latest drivers, please consult the official website at the following address <https://www.fsc.it> or write a e-mail to [support@fsc.it](mailto:support@fsc.it)



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