



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

ME172191



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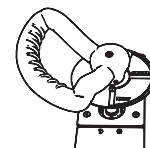


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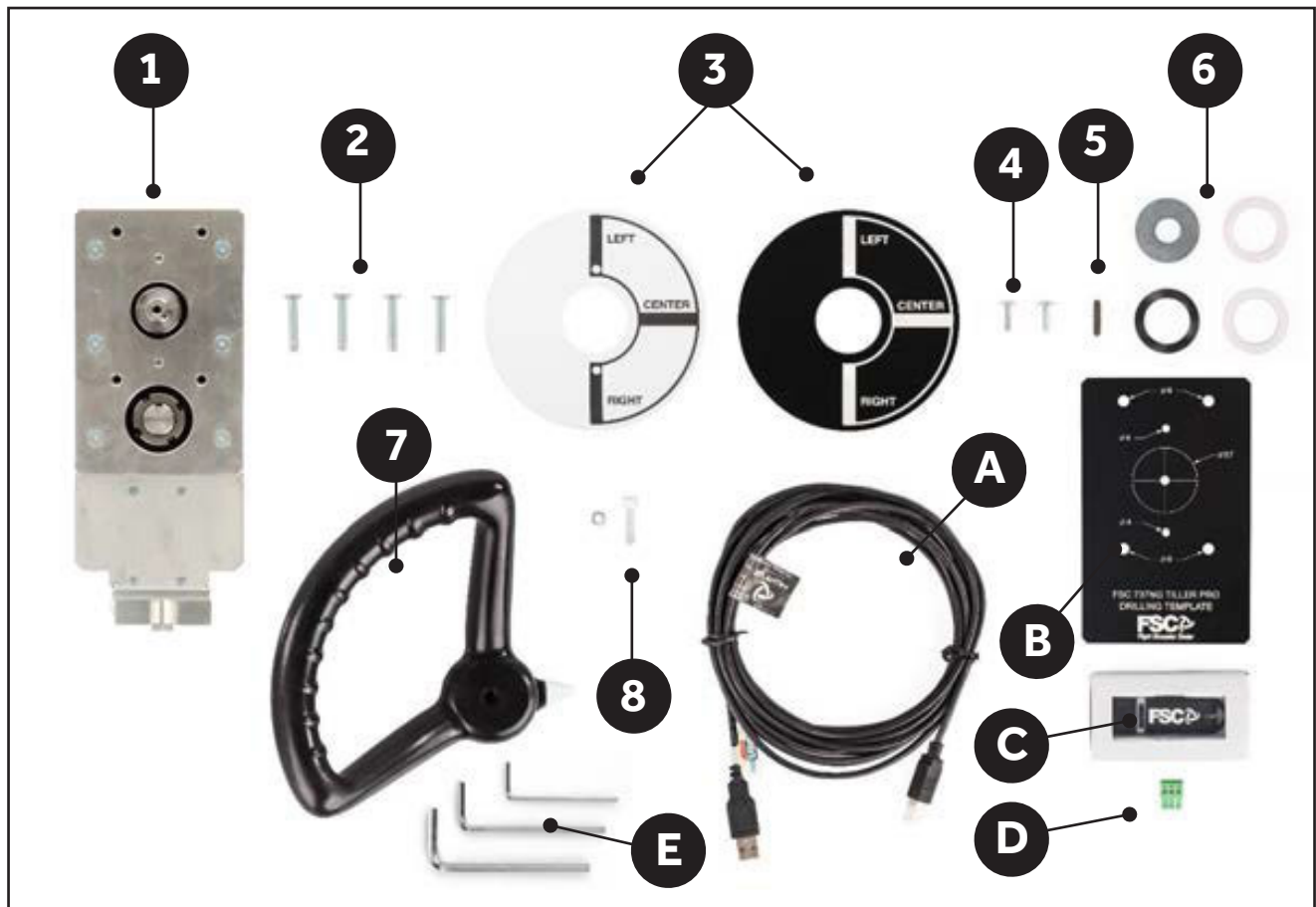


CHAPTER 1. OVERVIEW

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)
2. Countersunk hex head screws (M5x30)
3. Indicator plates, white and black (CPT or F/O)
4. Phillips + flat screws (M4x16)
5. Feather key (spare)
6. Spare/adjustment Washers (3 mm/each thickness)
7. Steering tiller handle (CPT or F/O)
8. Handle Allen Screw (M5x20) + split washer

- A) USB Cable
- B) Drilling template
- C) Usb key with documentation
- D) Plug for custom USB interface
- E) Allen Keys



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.

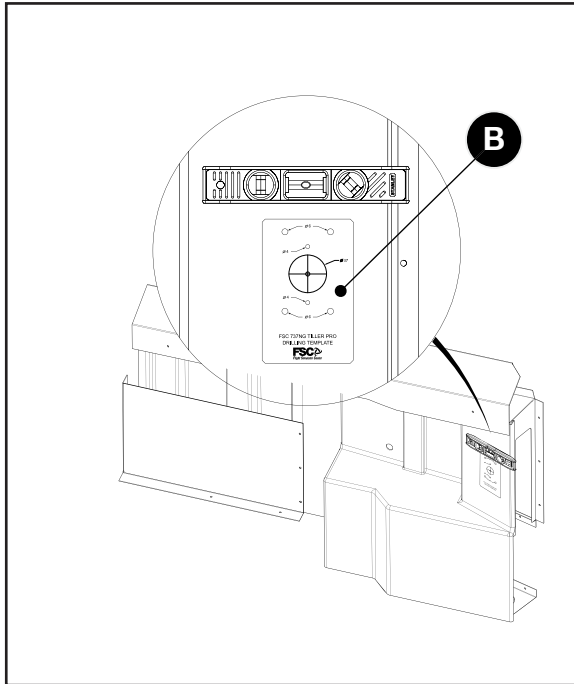


Fig.1 - Drilling template (B)- (see Chapter 1.1) + spirit level.

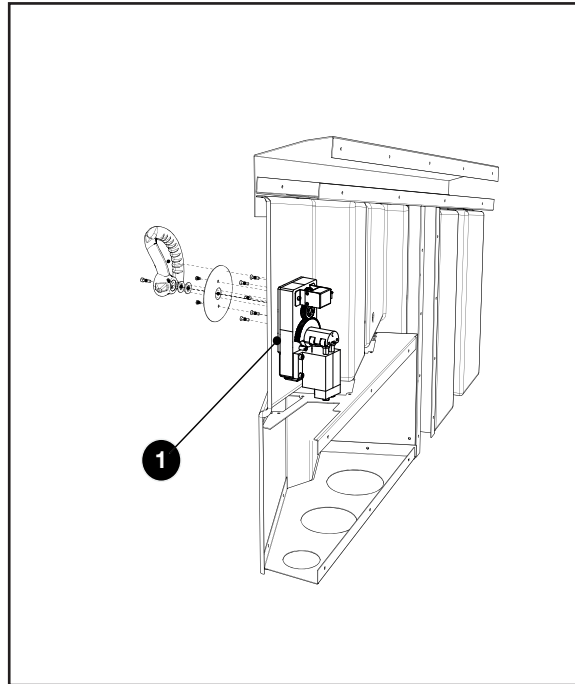


Fig.2 – Tiller body (1) on side panel.

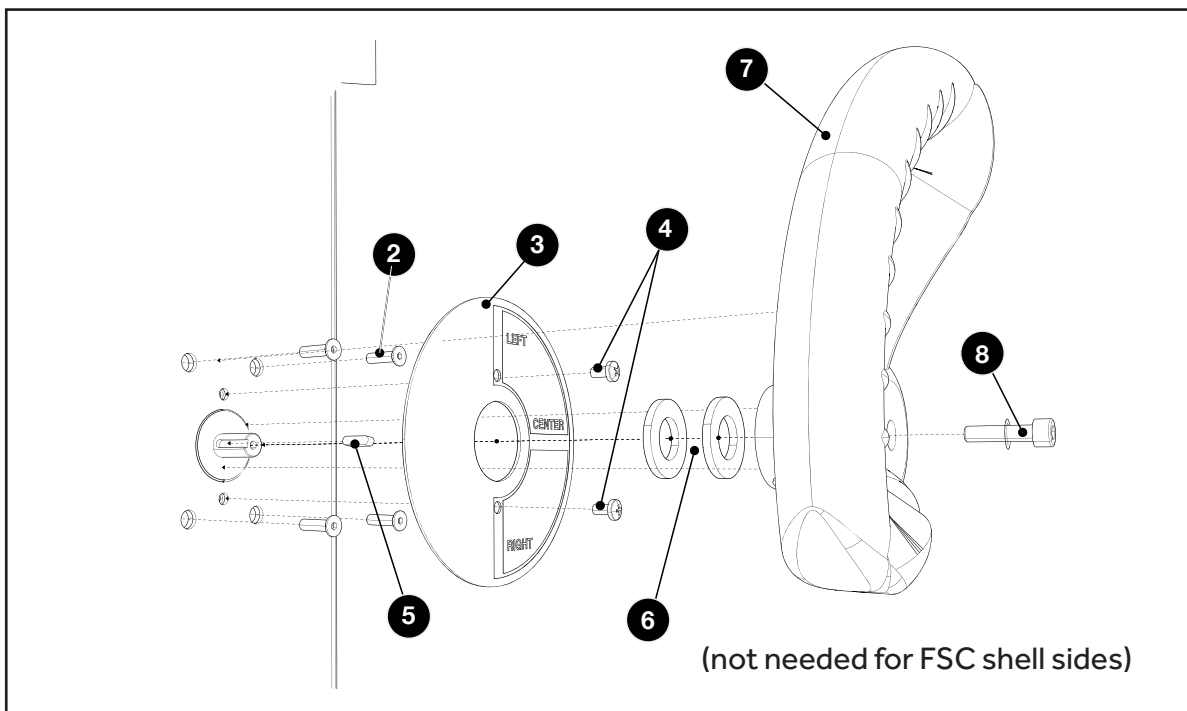


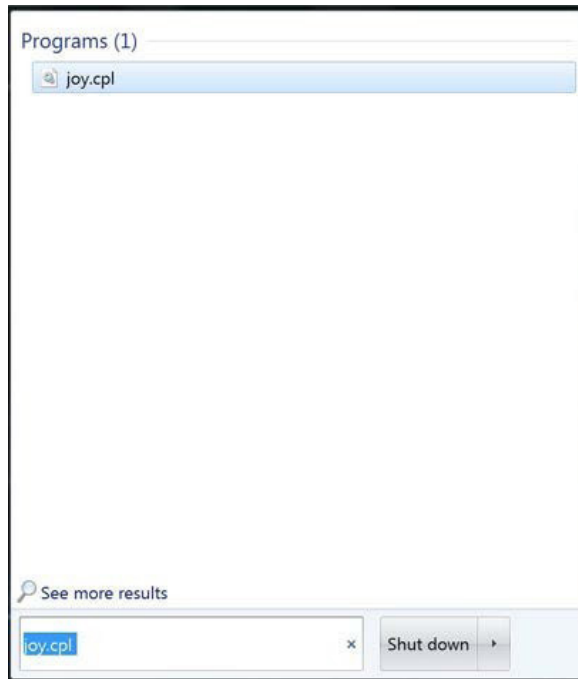
Fig.3 – Assembly sequence (2 to 8) (see Chapter 1.1 for items detail).



2.2 SOFTWARE SETTINGS AND CALIBRATION

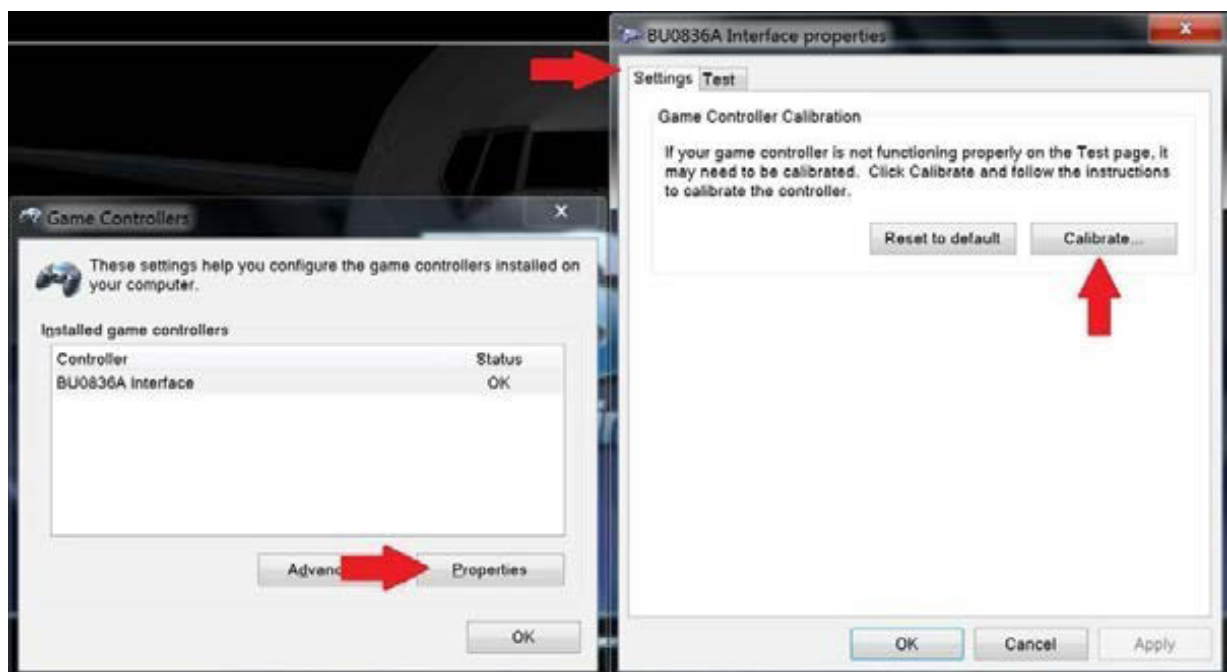
Generic Game Controller settings (to be calibrated before configuring FSUIPC or XPLANE)

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



(Fig.1)

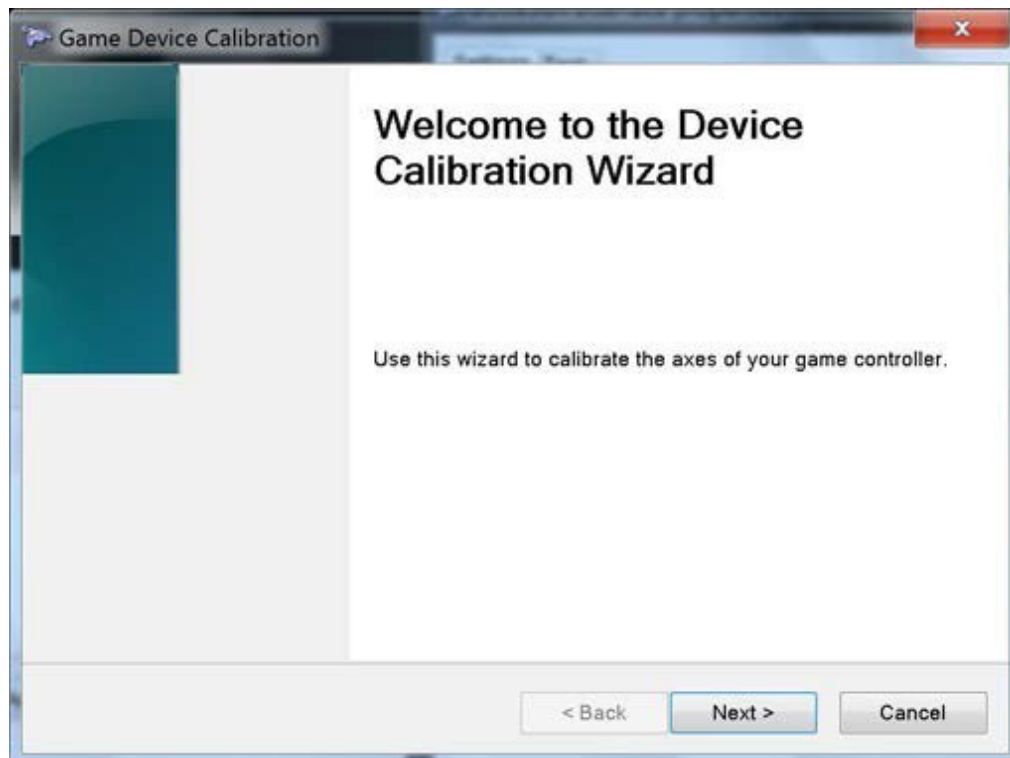
Click on "Properties" and calibrate.



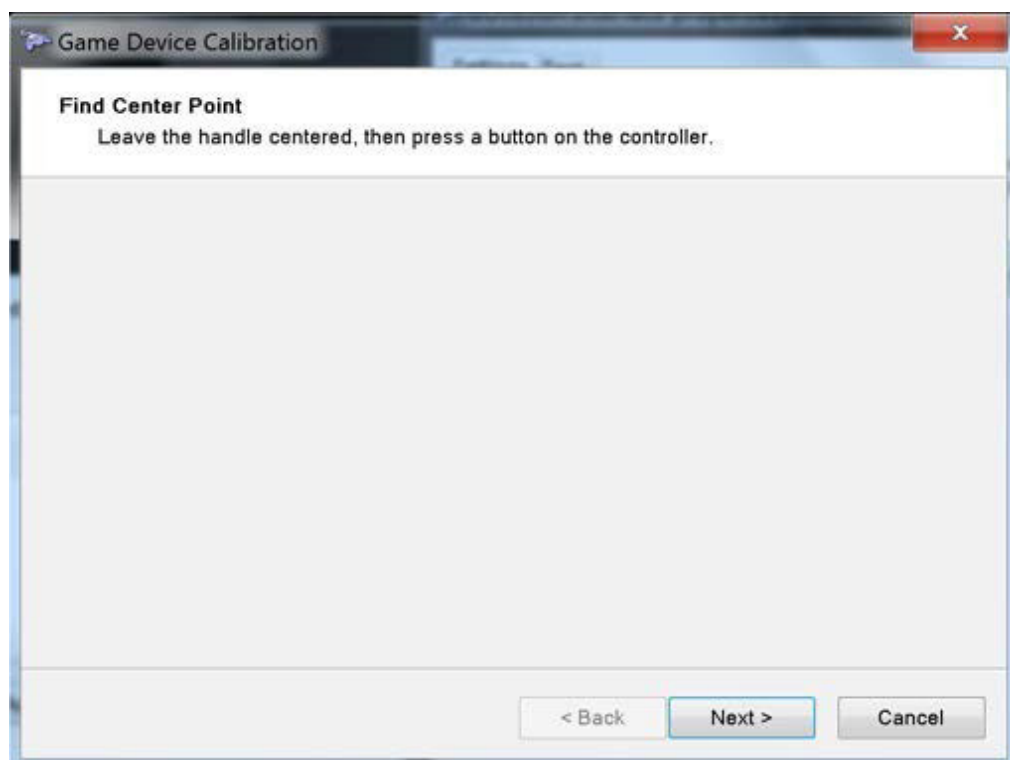
(Fig.2)



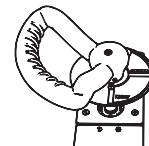
Confirm wizard with NEXT button



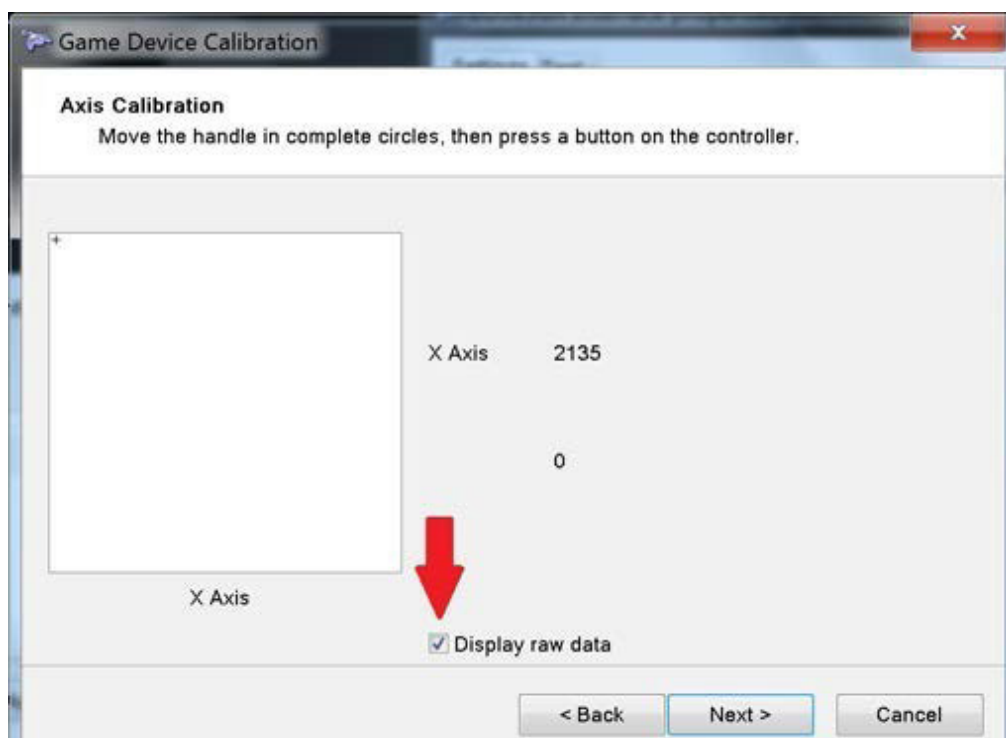
(Fig.3)
Find center point and confirm with NEXT button



(Fig. 4)

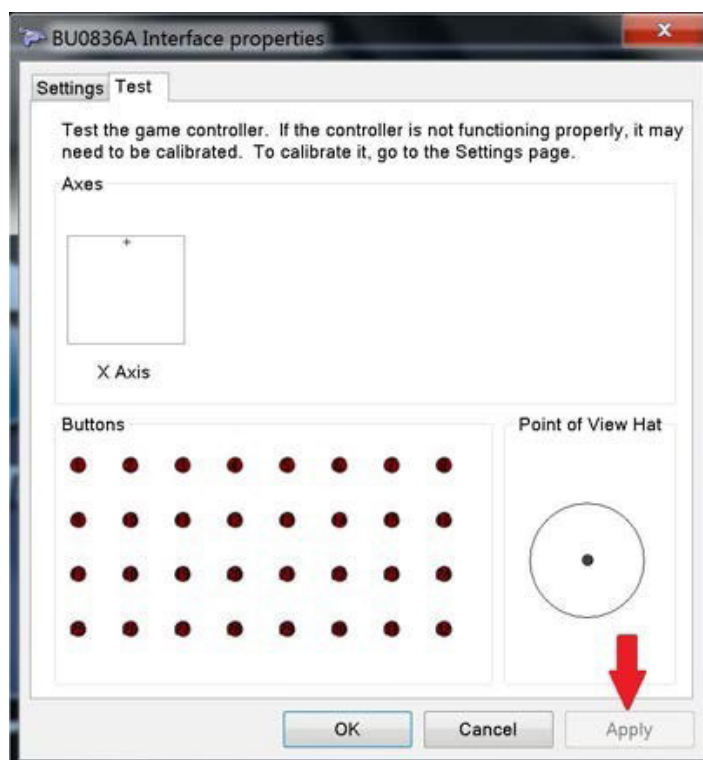


Move axis from full left to full right to calibrate and select "Display raw data".

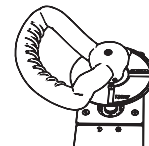


(Fig.5)

Press APPLY to save calibration



(Fig. 6)



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XPLANE ONLY: One Tiller AXIS

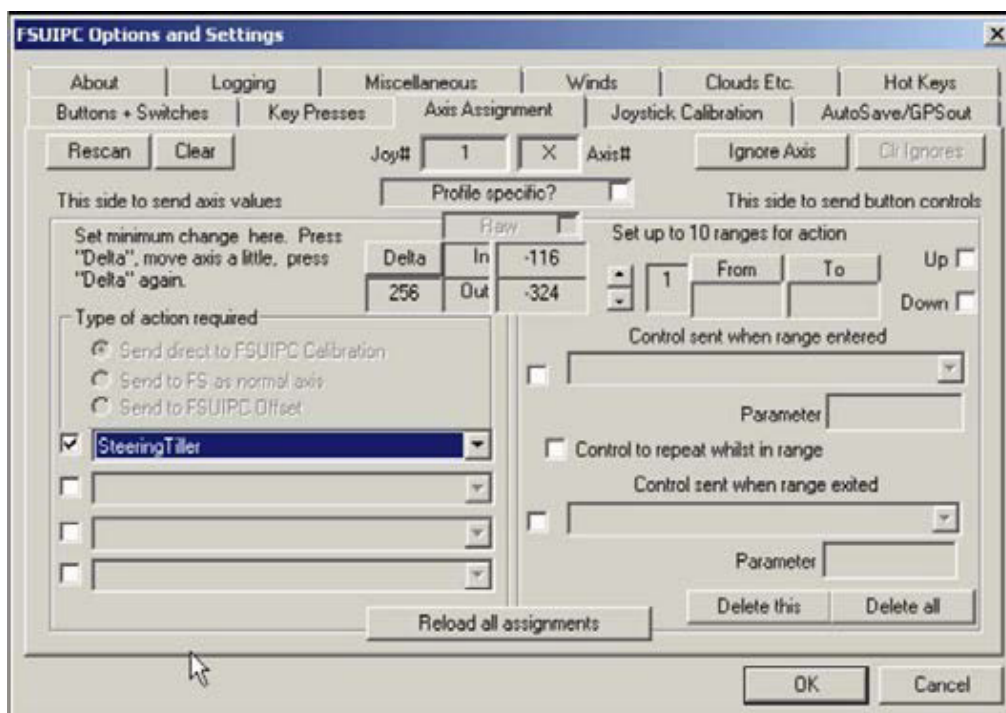
From "Settings" menu, select "Joystick, Keys & equipment", select "axis" tab, move tiller to discover the axis, then assign it from the dropdown to "Nose-wheel steering tiller".

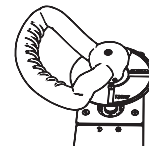


FSX/P3D ONLY : NO Tiller AXIS, together with Rudder AXIS

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.

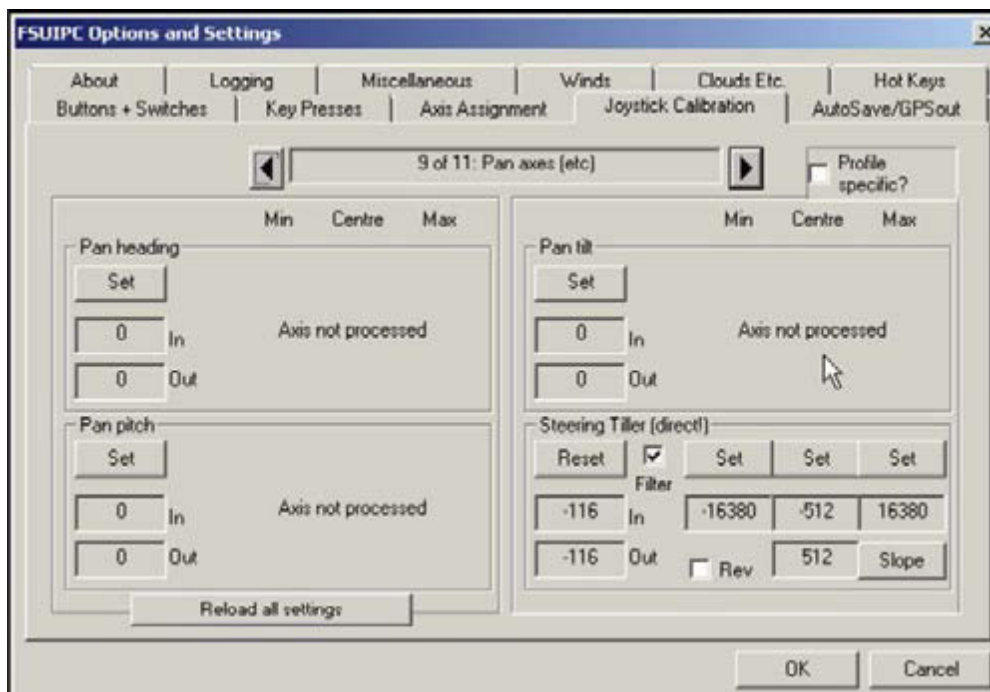




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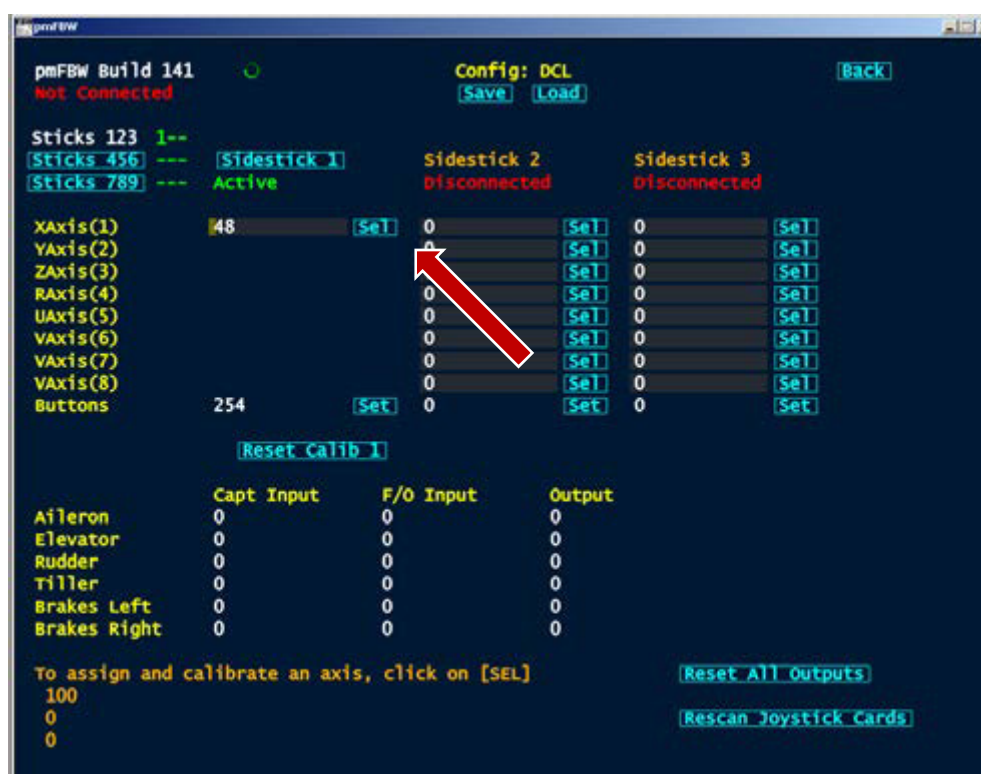
From "Joystick calibration" tab, select "Pan axes (etc)" page.

From "Steering Tiller(direct!)" move the tiller to discover min,center & max values then press "Set" buttons to confirm values..



Magenta FBW with XPLANE/FSX/P3d: Two separate Tiller AXIS

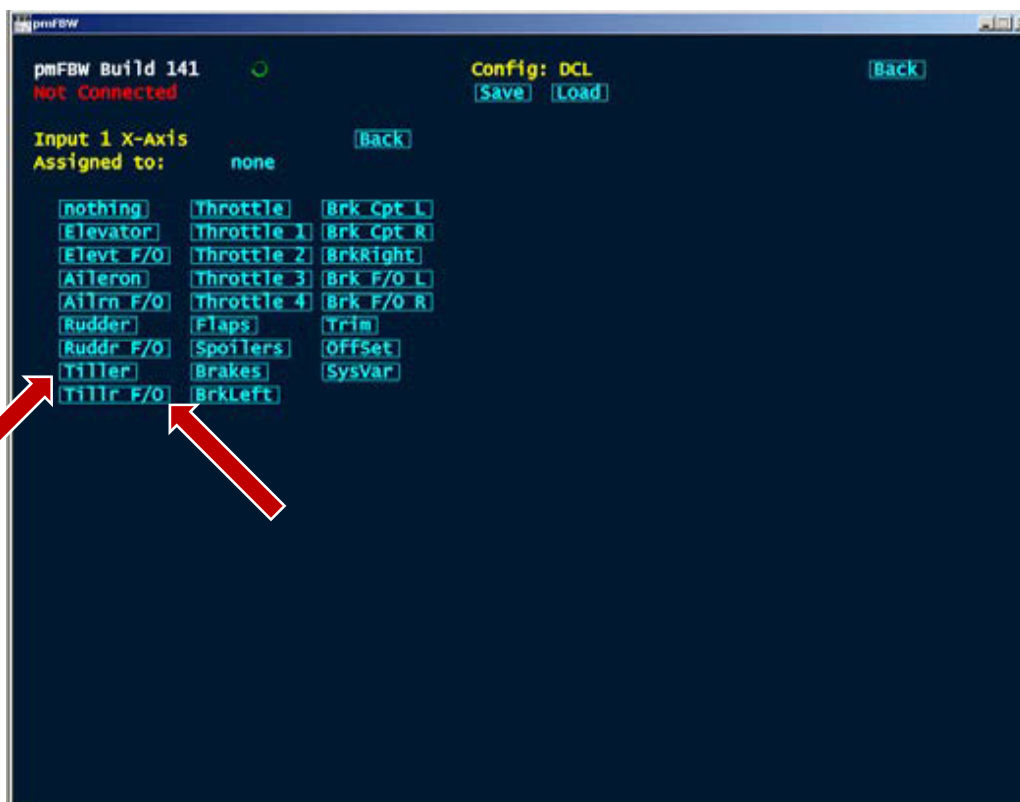
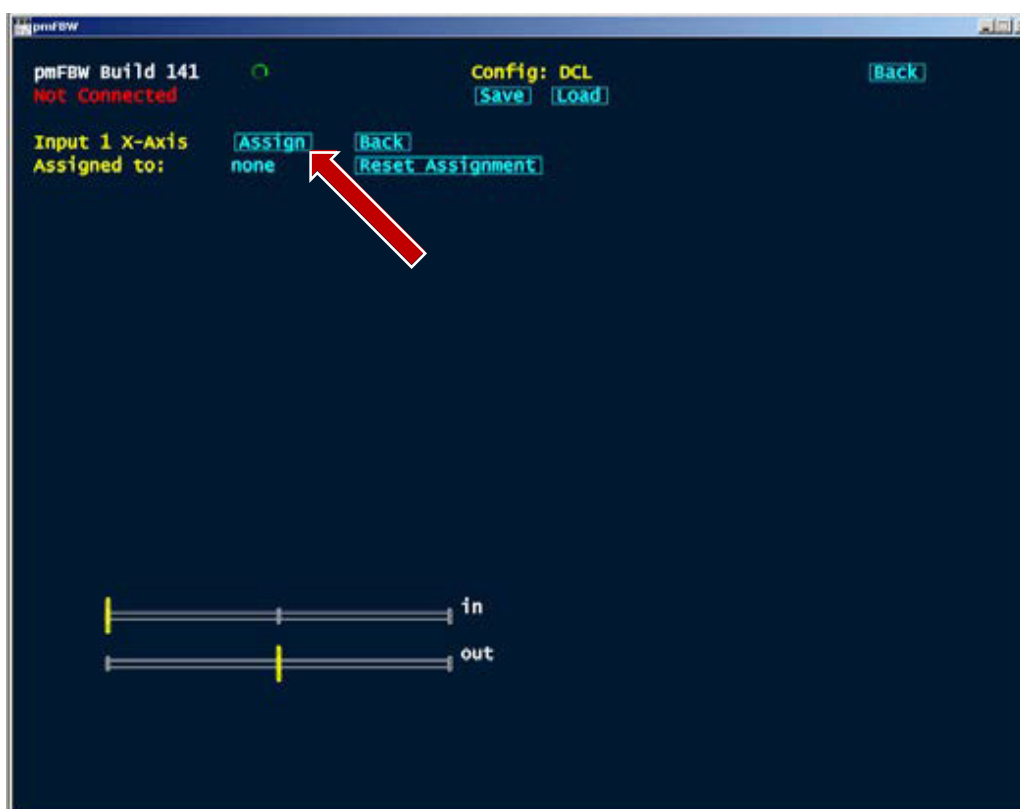
From FBW main page press "Calibrate" move Tiller to discover the axis. Near the axis press "Sel" to select and calibrate.

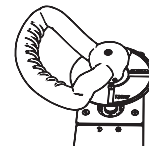




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Under the calibration page select "Assign" button to assign the Axis "Tiller" or "Tiller F/O".





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.

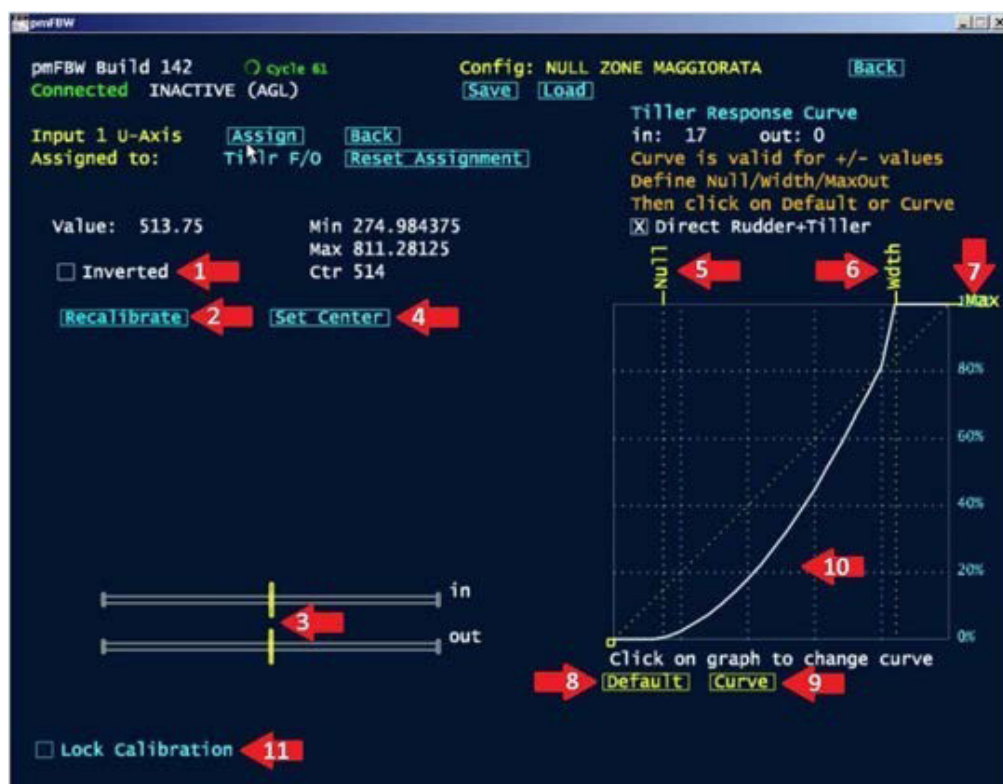
The Output Axis will move between "Null" and "Wdth", with deflection from 0% to "Max" % of calibrated value (arrow 3, "out")

Then click:

"Default" (arrow 8) for straight response,

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

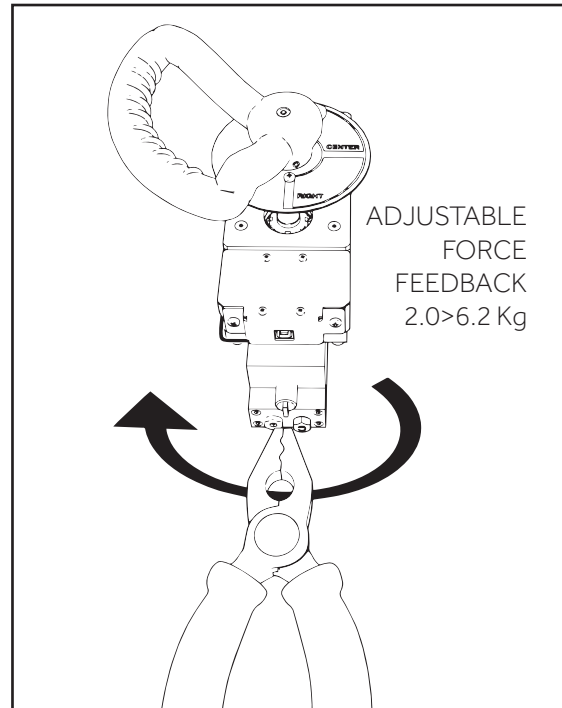
You can draw your own curve directly with your mouse pointer (arrow 10). To end calibration process, click "Lock Calibration" (arrow 11).



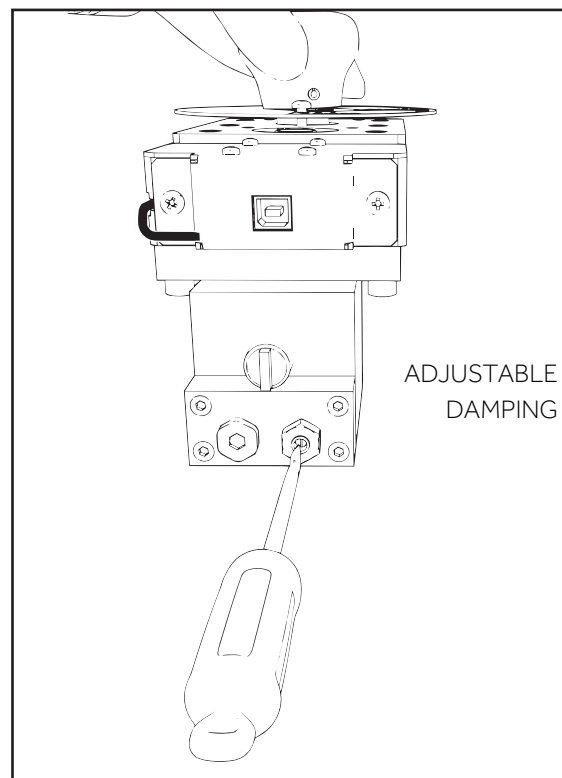


CHAPTER 3. SETUP

3.1 ADJUSTING THE REACTION FORCE AND RETURN TO ZERO SPEED

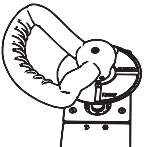


Reaction force adjustment (unit is factory-calibrated to optimal feeling)

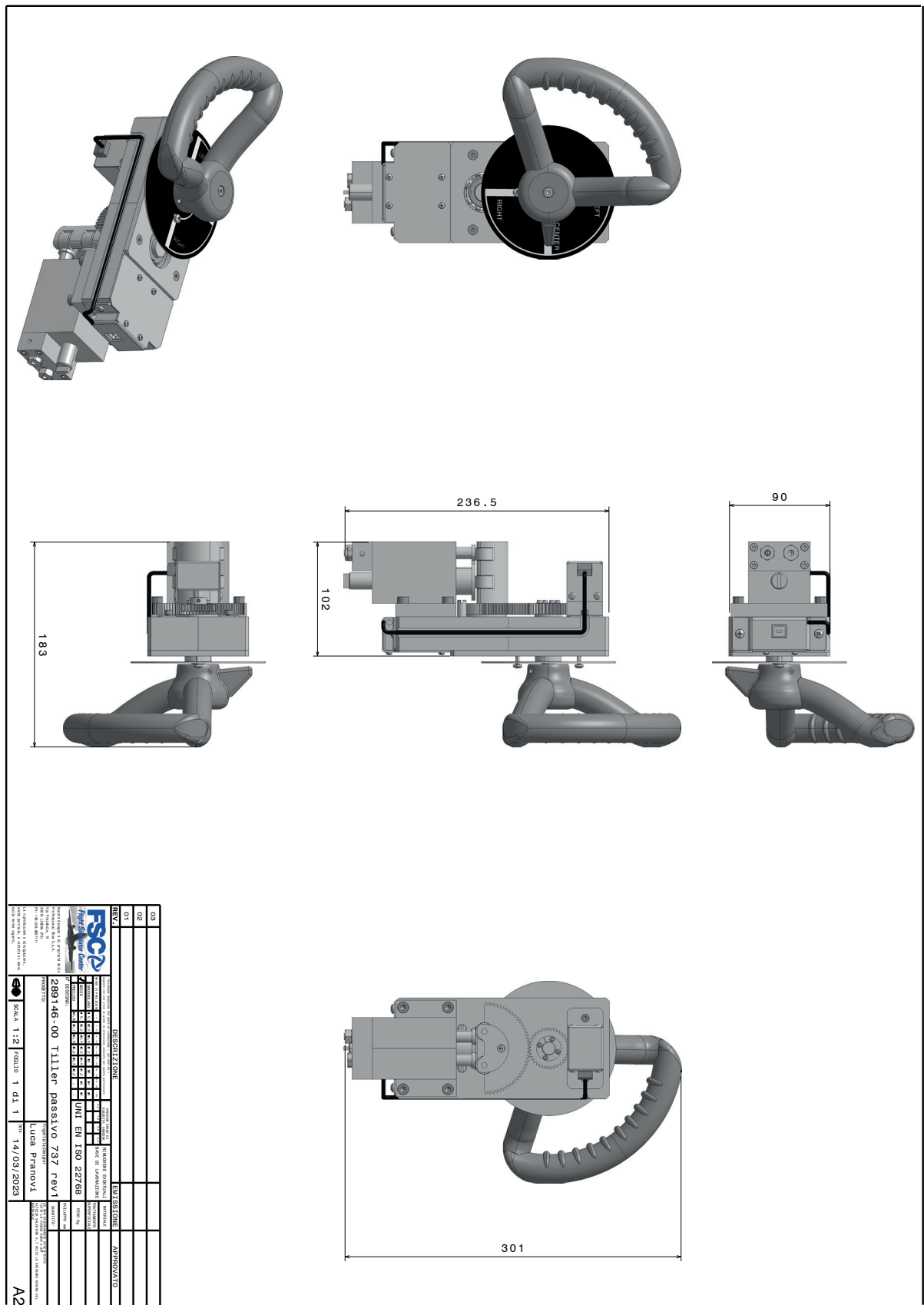


Return to zero speed adjustment (every Tiller is factory-calibrated to optimal feeling)

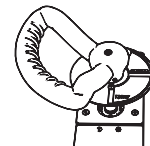
CAUTION - Turn the screw few degrees at a time.



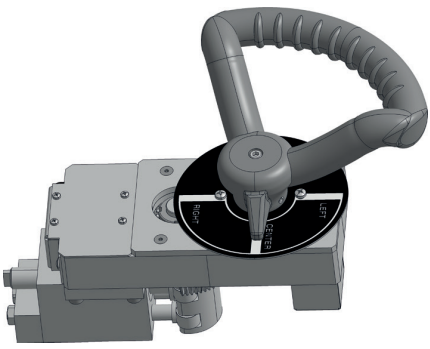
APPENDIX A - A1 DIMENSION AND WEIGHT

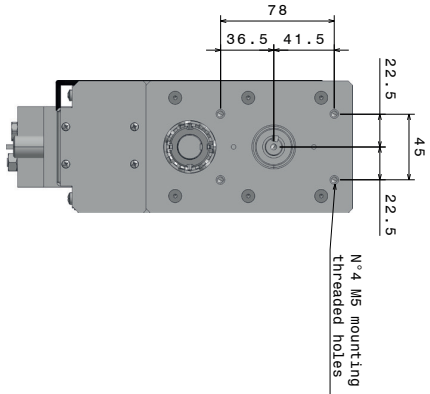


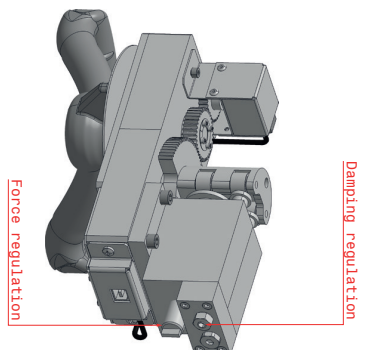
* Dimensions in metric units (mm). Weight is 4 Kgs / 8.6 lbs

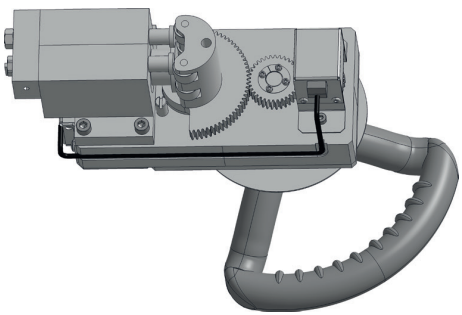


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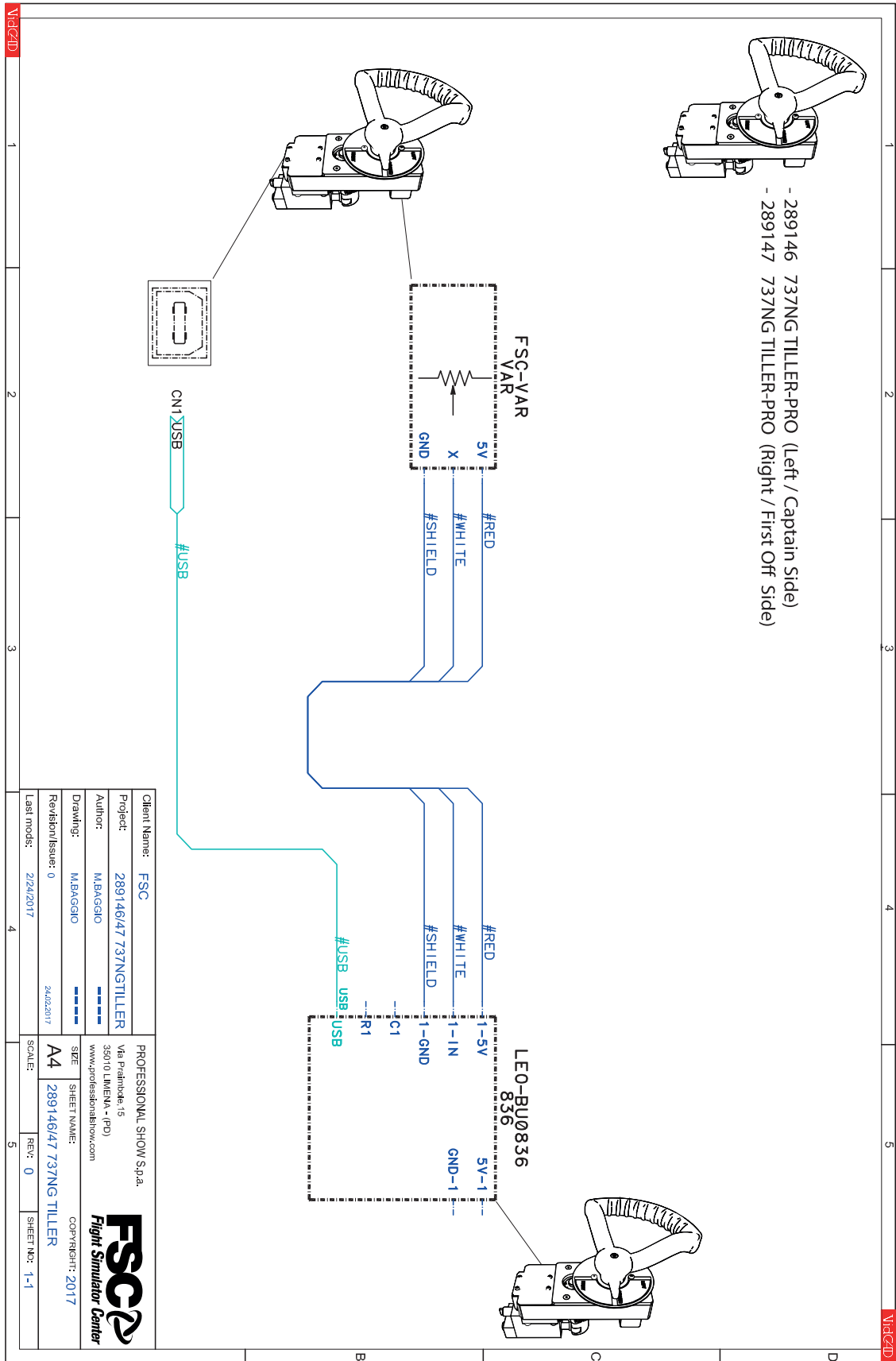




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A2							

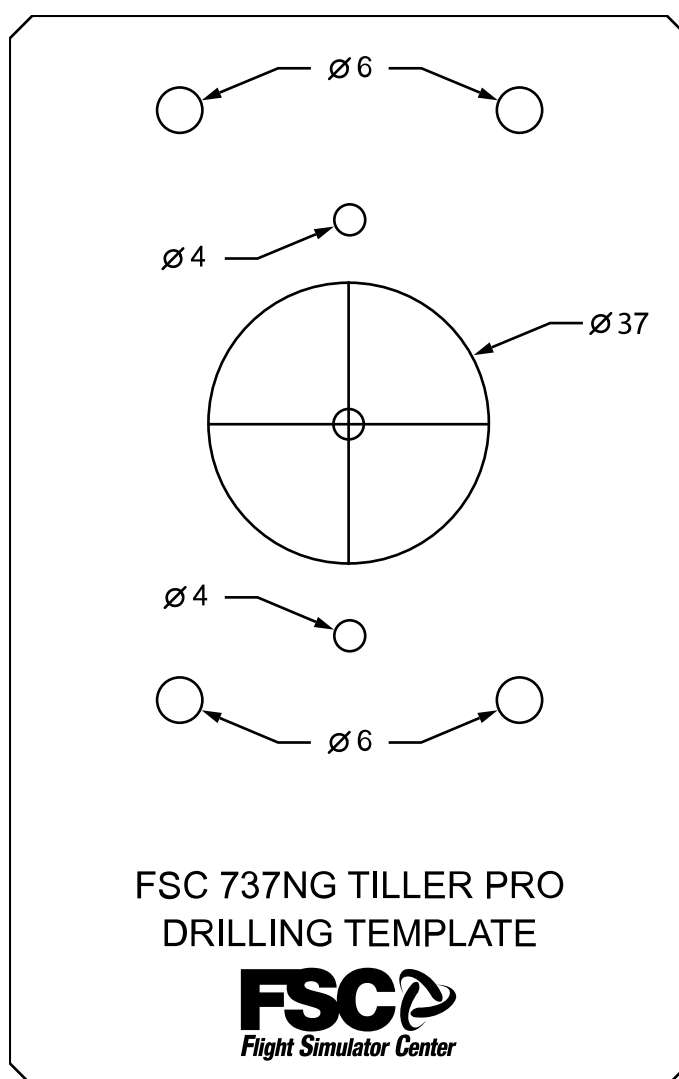
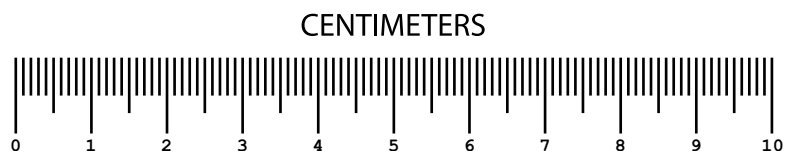


APPENDIX B - B1 SCHEMATICS





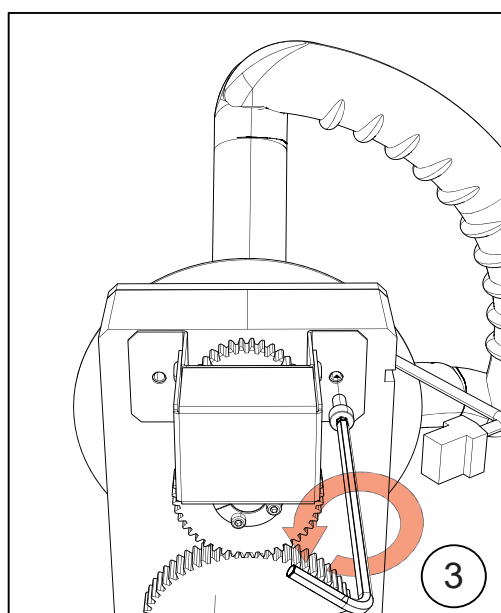
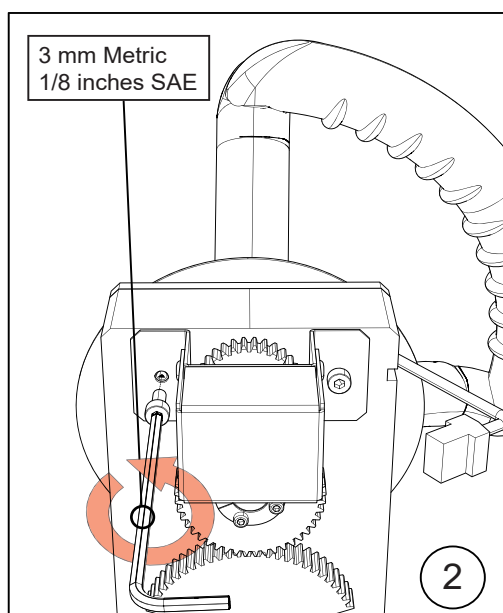
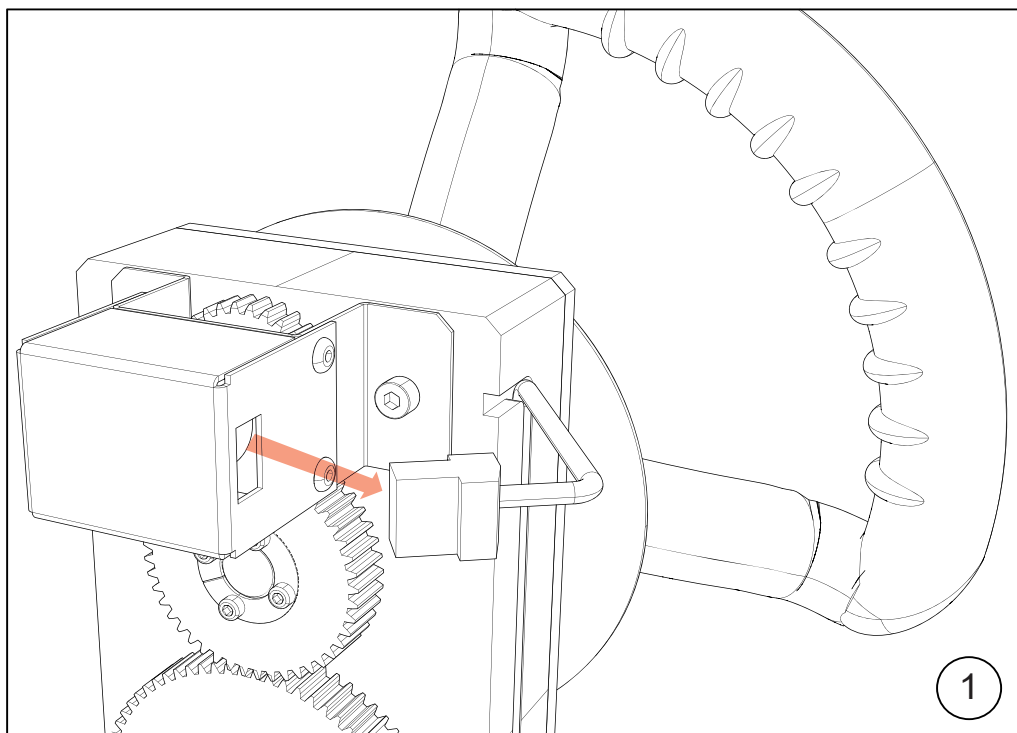
APPENDIX C - C1 DRILLING TEMPLATE

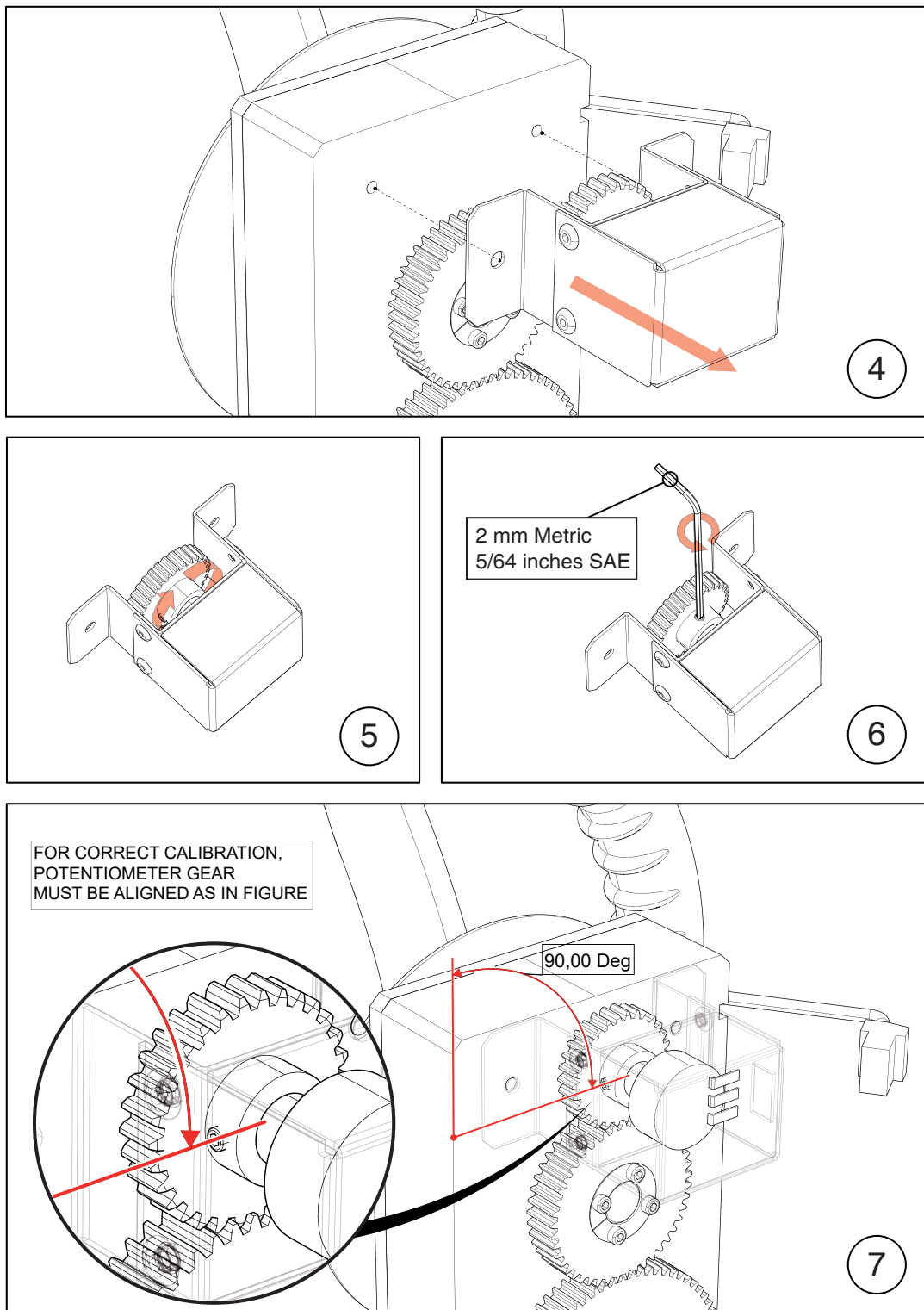


*This template is 1:1 scale. Please check with provided reference scale before drilling.



APPENDIX D - D1 POTENTIOMETER REPLACEMENT





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

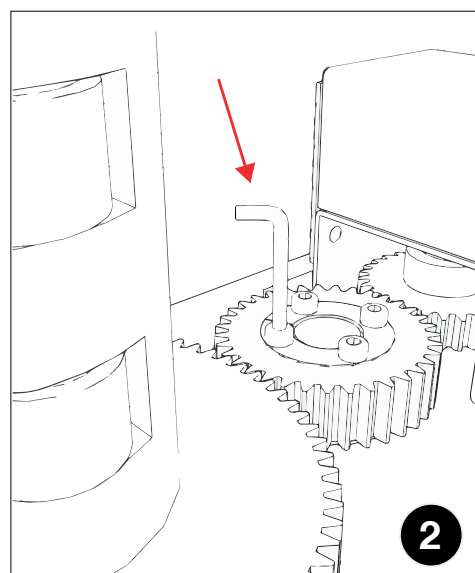
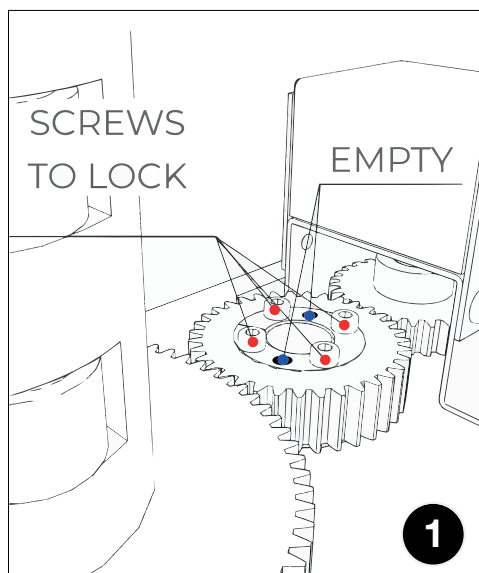
Pot is mechanically centered when X Axis value is as close to 2048 as possible



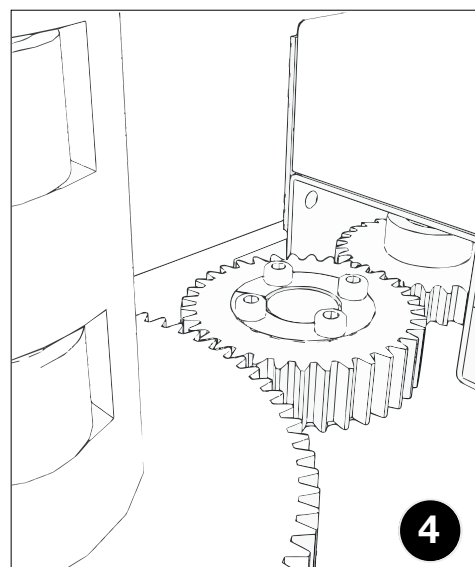
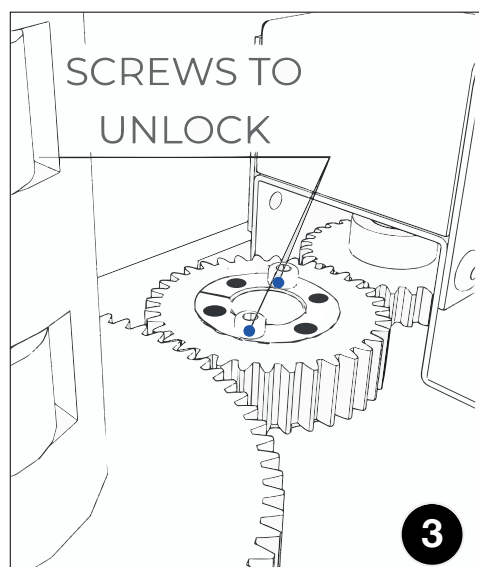
APPENDIX E - E1 MECHANICAL RE-ALIGNMENT / LOOSING THE KEYLESS LOCKING DEVICE

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.



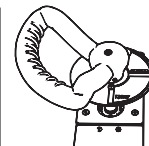
Remove the 4 screws (Fig.1+2)



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.

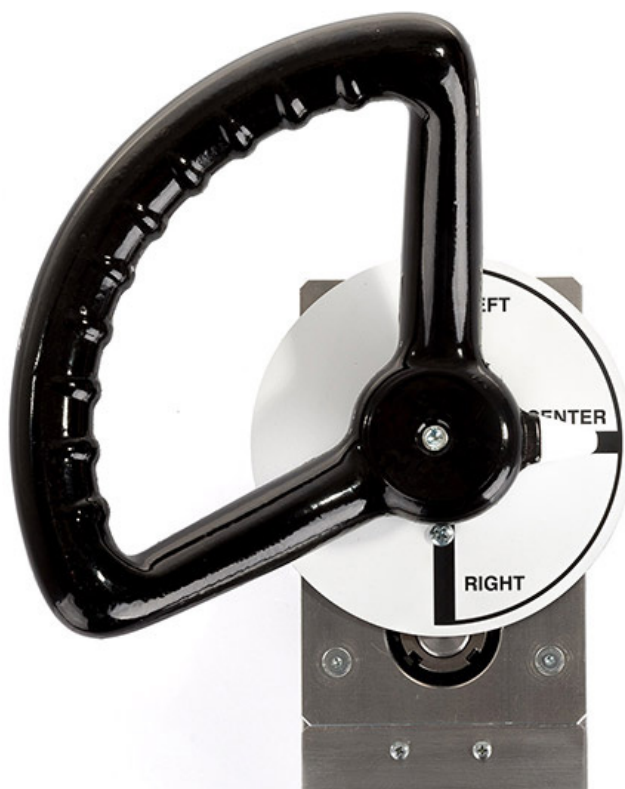
Set handle in right position and screw again the four screws in original position. Be careful to tight the four screws sequentially little by little.

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



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Flight Simulator Center



www.fsc.it

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