

	NAME	DATE
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TECHNICAL BULLETIN TB-221

INSTALLATION AND REMOVAL PROCEDURE

FOR

SERIES 200 PUSHBUTTON SWITCHES PCB TYPE IN A SUB-ASSEMBLY

TB-221

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1.0 PURPOSE

The purpose of this technical bulletin is to provide necessary instructions for proper installation and removal of a Series 200 switches, PCB termination into a Sub-Assembly.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this document to the extent specified herein. Where specific paragraphs are called out, all subordinate paragraphs also apply. Where individual paragraphs are not specified, the document is applicable in its entirety.

2.1. Staco Systems Documents

Series 200 SCD Specification Control Document, Series 200, Light-Emitting Diode (LED) Lighted Pushbutton Switches and Indicators

3.0 KEY COMPONENTS

- 3.1. Pushbutton removal tool P/N 15193
- 3.2. S200 switch with panel seal, panel spacer and mounting sleeves
- 3.3. Torque screw driver (capable of torquing 10 inch ounces)

4.0 PROCEDURE

4.1. Alternate Action Switch Only

Alternate action switches, when activated (or pressed), the pushbutton retained in the latch-down (or compressed) position until pushbutton is deactivated (or pressed again), it then returns to its free position.

In the latch-down position, pushbutton indentation tabs should be hidden. In the free position, pushbutton indentation tabs should be visible. See Figures 1 & 2 for pushbutton protrusion heights and indentation location.

TO PREVENT PUSHBUTTON SEAL AND PUSHBUTTON RETAINER FROM BEING DAMAGED DURING THE EXTRACTION PROCESS, ALTERNATE ACTION SWITCHES SHALL BE IN THE FREE POSITION BEFORE ATTEMPTING PUSHBUTTON EXTRACTION PROCESS.

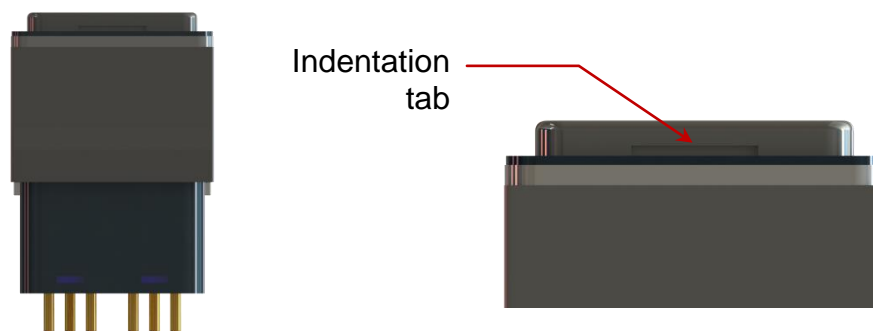


Figure 1: Free Position

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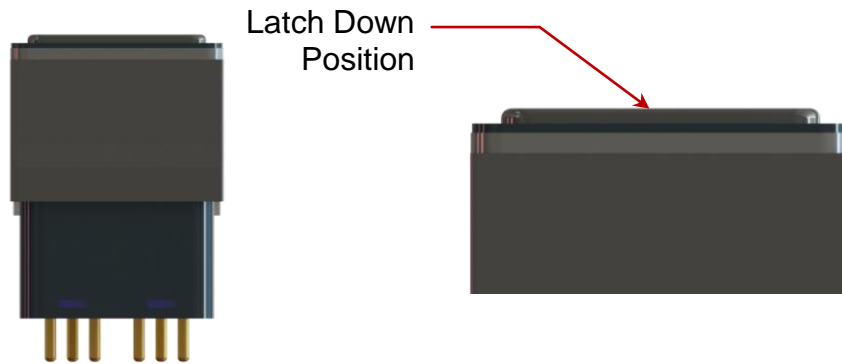


Figure 2: Latch Down Position

4.2. Installation Procedure

4.2.1. Extract pushbutton from switch / indicator housing

Using pushbutton extraction tool, see Figure 3. position the tool's gripping tabs around the two indentations, located on the pushbutton's retainer as shown in Figures 1 and 4. Clamp / squeeze the tool gently, but firmly, and pull the pushbutton away from the switch / indicator housing as shown in Figure 5. The removal force should be in the range of two (2) to five (5) pounds.

This gives access to the heads of the locking screws located inside the front portion of the switch / indicator as seen in Figure 7.

TO PREVENT DAMAGE TO THE FLEX CIRCUIT AND/OR THE PUSHBUTTON, PUSHBUTTON SHALL NOT BE PULLED AWAY FROM SWITCH HOUSING OPENING NO GREATER THAN 0.500".

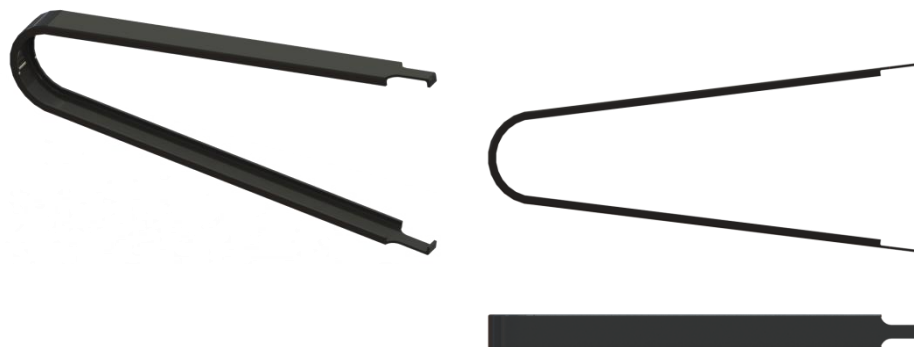


Figure 3: Pushbutton Extraction Tool (P/N 15193)

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Figure 4: Pushbutton Extraction (crimp pin termination version shown)

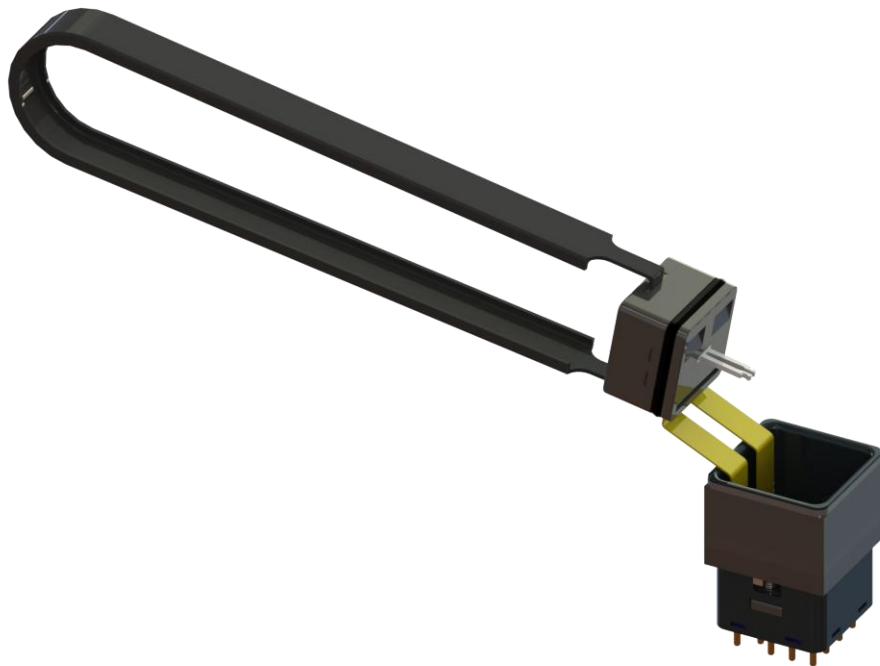


Figure 5: Pushbutton Extraction (PC termination version shown)

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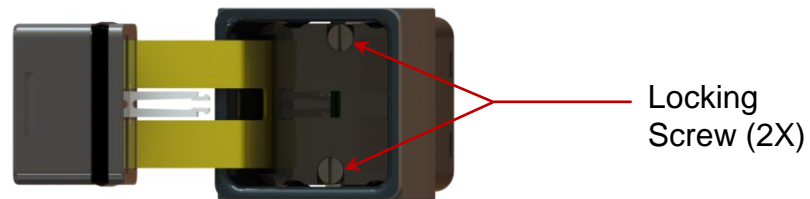


Figure 6: Locking Screw

4.2.2. Remove Panel Spacer and Mounting Sleeve from Switch / Indicator Assembly

Rotate the two locking screws counter-clockwise $\frac{1}{2}$ a turn with a screwdriver. **WARNING, DO NOT BACK OUT MOUNTING CAM COMPLETELY OUT, THIS WILL CAUSE DAMAGE TO THE SWITCH.** This will release mounting cams. Slide mounting sleeves and panel spacer off of the switch / indicator assembly. See Figures 8 and 9.

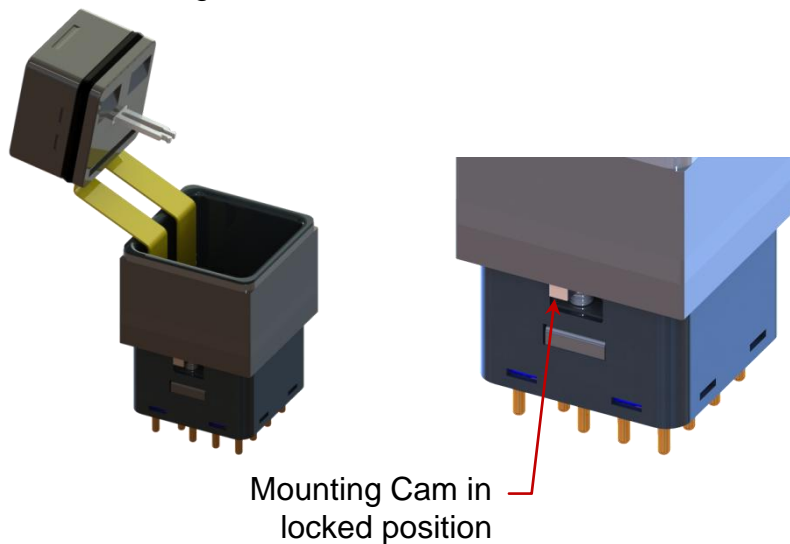


Figure 8: Mounting Cam (locked position)

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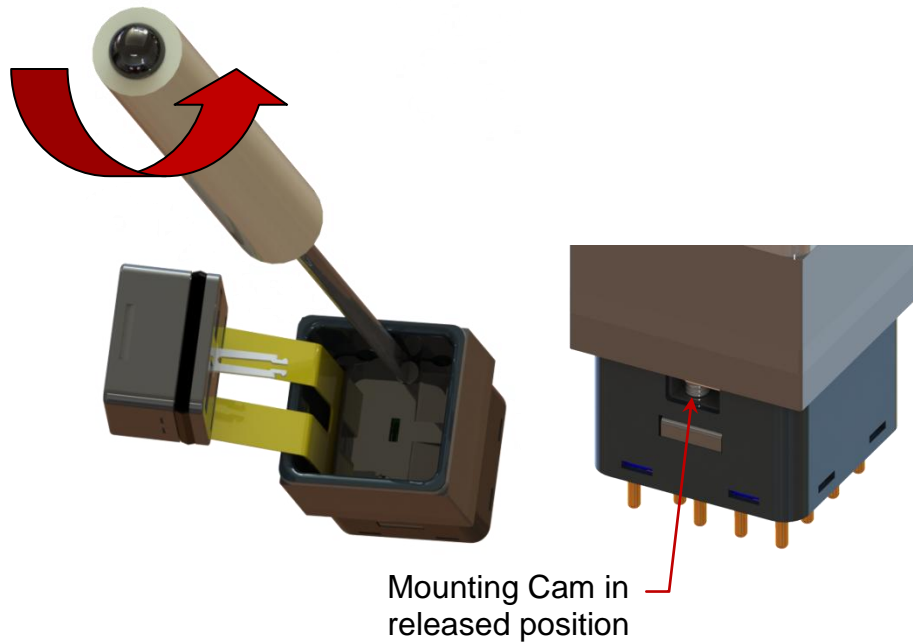


Figure 9: Mounting Cam (released position)

4.2.3. To determine the use of the panel seal panel spacer, mounting sleeves and the maximum panel thickness refer to pages 31-36 of Series 200 SCD. In this particular application shown in this Technical Bulletin we will be discarding panel seal, panel spacers and mounting sleeves as shown in Figure 10.

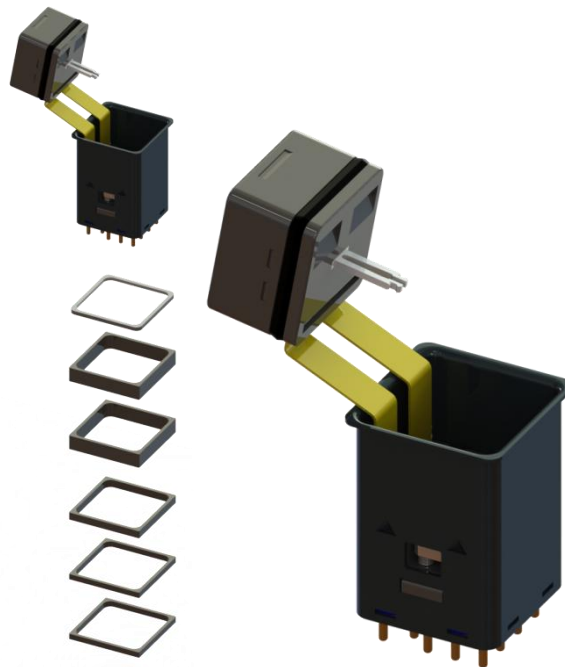


Figure 10: Switch shown with panel seal, panel spacers, and mounting sleeves removed

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4.2.4. Set Mounting Cam Position

Set mounting cam position by adjusting screw clockwise or counter-clockwise. Mounting cam positions shall be +0.010 more than final panel thickness (for this application shown, panel thickness is 0.525 inches) and shown in Figure 11.

WARNING, DO NOT BACK OUT MOUNTING CAM COMPLETELY OUT, THIS WILL CAUSE DAMAGE TO THE SWITCH.

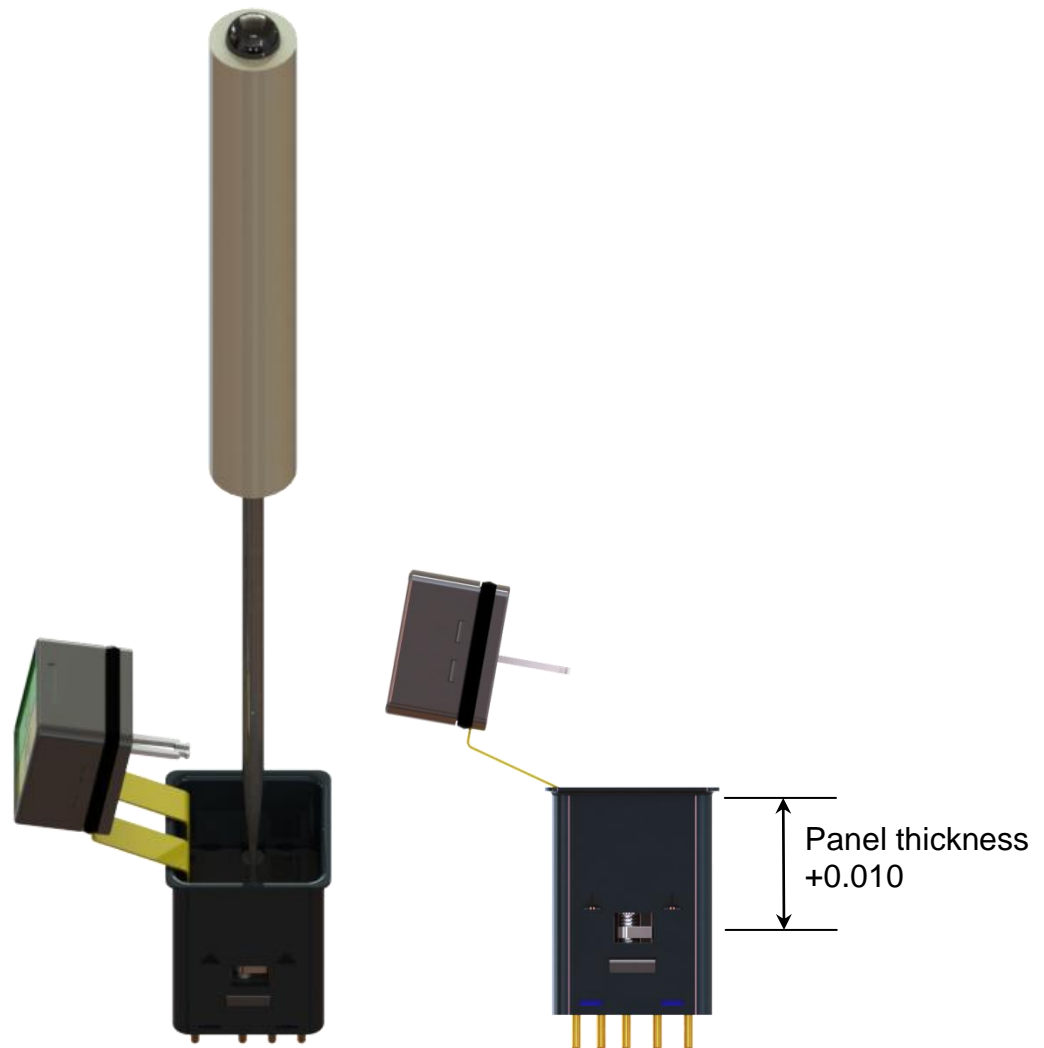


Figure 11: Set Mounting Cam Position

4.2.5. Install Switch / Indicator Assembly onto Mounting Panel

Install pushbutton switch/indicator through panel cut-out from front of panel. switch / indicator is marked with word "TOP" to help properly orient position of the assembly in the panel. See Figure 12. For switch / indicator install in panel, see Figure 13.

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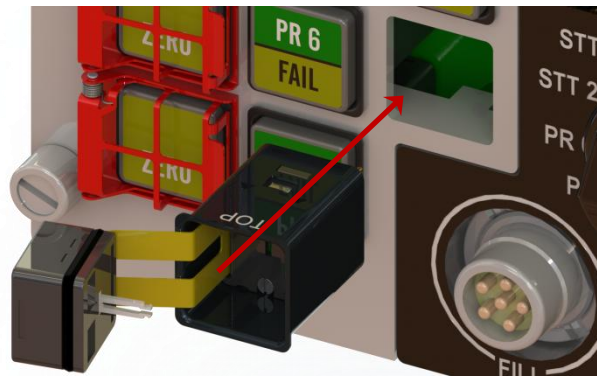


Figure 12: Switch Orientation (flush mount version shown)



Figure 13: Switch Installed (flush mount version shown)

As required for application, replace panel spacer and mounting sleeves as appropriate for the panel thickness.

NOTE: SEE FIGURE 11 FOR THE OPTIMUM LOCATION OF THE MOUNTING CAM BEFORE FINAL TORQUE.

The panel spacer, together with two different thickness mounting sleeves, 0.080" and 0.060", provide various options for fitting the switch/indicator assembly to mounting panels with thicknesses ranging from essentially zero to a maximum of 0.500.

Rotate locking screws clockwise to bring mounting cams to lock position. recommended mounting torque is 10 ounce inches (0.07Nm). See Figures 14, 15 and 16.

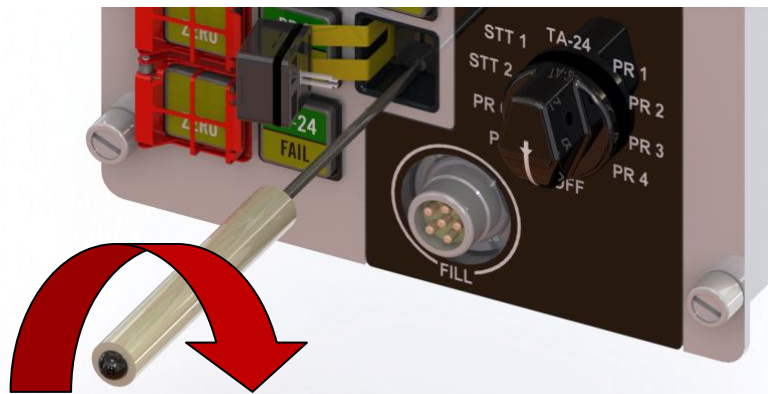


Figure 14: View showing rotating screws clockwise to appropriate torque

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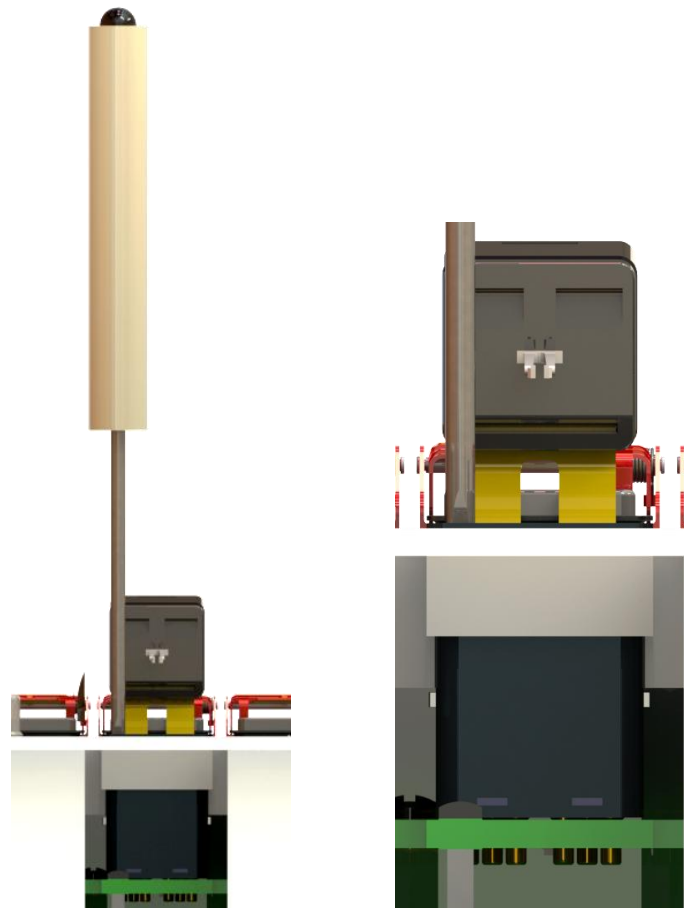


Figure 15: Side view showing panel cut-away prior to mounting cam torque

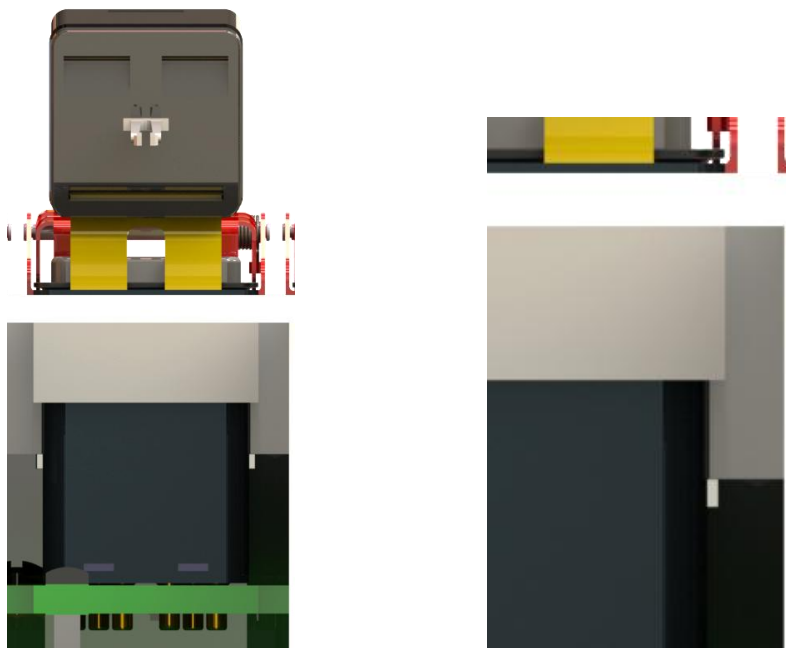


Figure 16: Side view showing panel cut-away post mounting cam torque

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4.2.6. Pushbutton Installation

To insert the pushbutton properly, align the pushbutton shaft, located at bottom center of the pushbutton, to the shaft cutout, which located inside the top portion of the switch / indicator of the switch housing, and push gently until the pushbutton is properly seated. See Figure 17.



Figure 17: Pushbutton Installation

4.3. Removal Procedure

4.3.1. Extract pushbutton from switch / indicator housing

Using pushbutton extraction tool, as shown in Figure 3. Position the tool's gripping tabs around the two indentations, located on the pushbutton's retainer as shown in Figures 18 and 19. Clamp/squeeze the tool gently, but firmly, and pull the pushbutton away from the switch / indicator housing as shown in Figure 19. The removal force should be in the range of two (2) to five (5) pounds.

This gives access to the heads of the locking screws located inside the front portion of the switch / indicator as seen in Figure 20.

TO PREVENT DAMAGE TO THE FLEX CIRCUIT AND/OR THE PUSHBUTTON, PUSHBUTTON SHALL NOT BE PULLED AWAY FROM SWITCH HOUSING OPENING NO GREATER THAN 0.500”.

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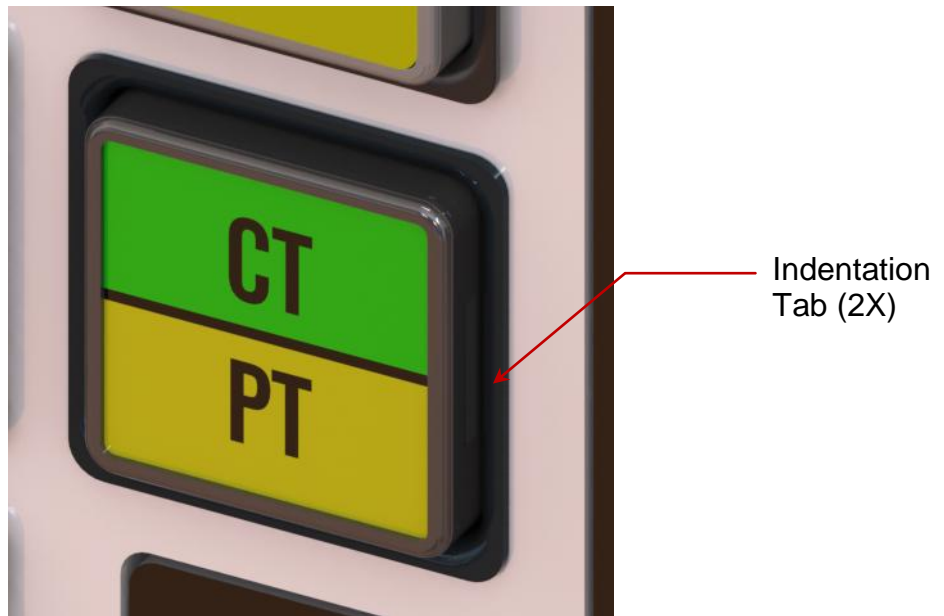


Figure 18: Indention Tabs when installed in panel



Figure 19: Pushbutton removal when installed in panel

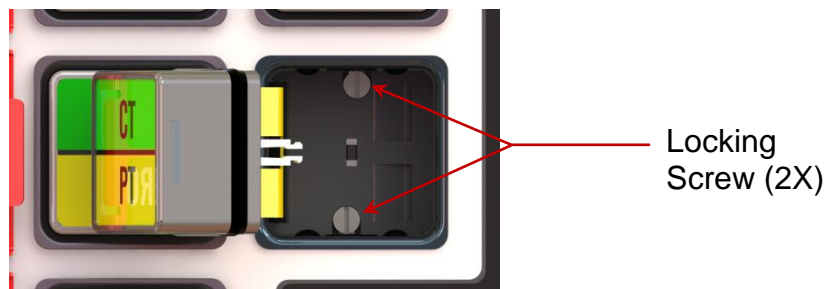


Figure 20: Locking screws shown when installed in panel

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4.3.2. Remove Switch / Indicator Assembly from panel

Rotate the two locking screws counter-clockwise $\frac{1}{2}$ a turn (one full turn maximum) with a screwdriver. **WARNING, DO NOT BACK OUT MOUNTING CAM COMPLETELY OUT, THIS WILL CAUSE DAMAGE TO THE SWITCH.** This will release mounting cams. Slide the switch / indicator assembly from panel. See Figures 21, 22 and 23.

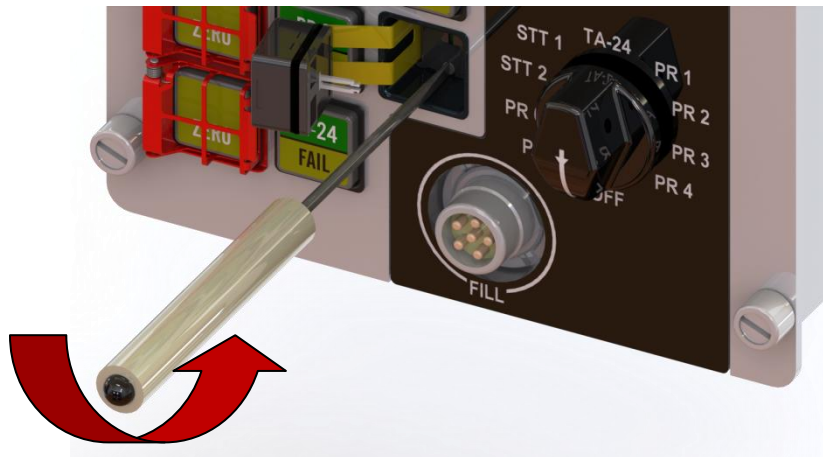


Figure 21: Rotate the two locking screws counter-clockwise $\frac{1}{2}$ a turn

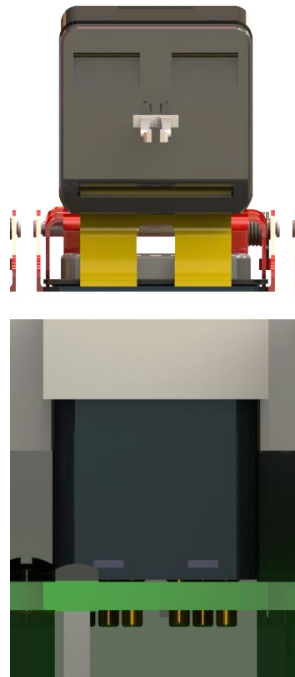


Figure 20: Side view showing panel cut-away with mounting cams in released position

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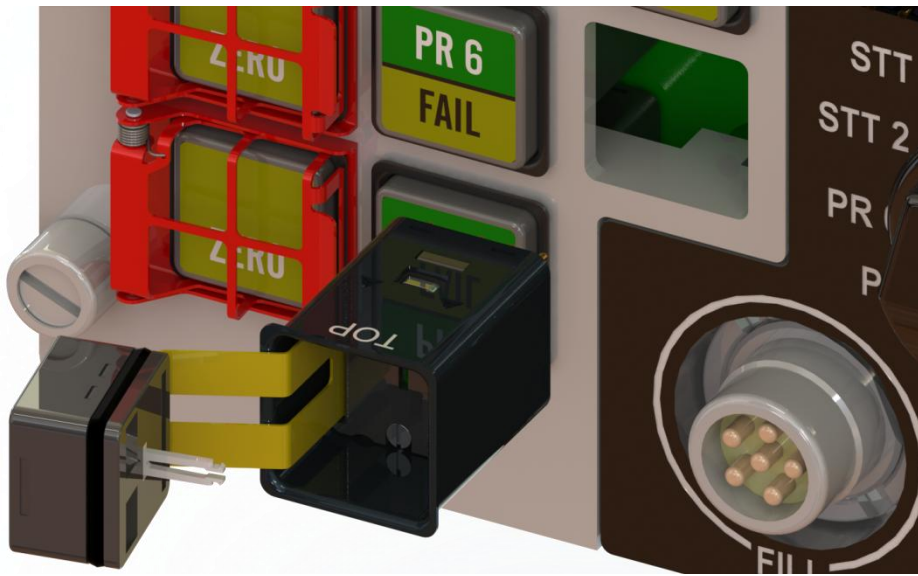


Figure 20: Switch / Indicator shown removed from panel

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