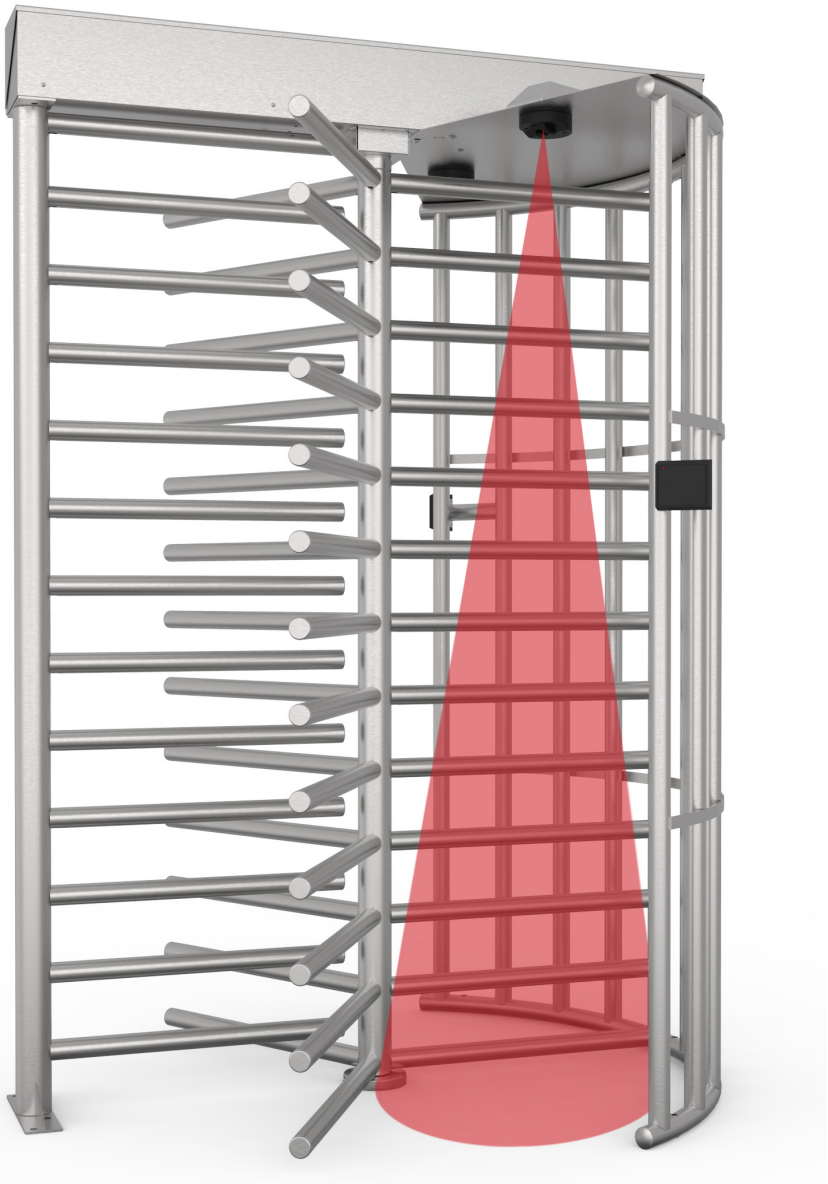
ALVARADO
dormakaba Group

Maximum Security Turnstile
Touchless Entry
Activation Sensor



Installation and Operation Instructions

Alvarado Manufacturing Company, Inc.
12660 Colony Street, Chino, CA 91710
Phone: (909) 591-8431
Fax: (909) 628-1403
support@alvaradomfg.com
www.alvaradomfg.com

PUD4562R0-1

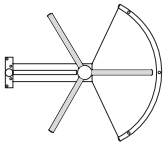
Before you begin

This guide is applies to the MST-TE (CPST & CLST) & MSTT-TE (CPSTT & CLSTT) models and assumes the turnstile has been constructed and tested according to its own installation guide.

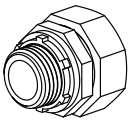
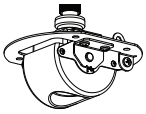
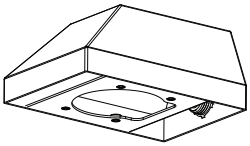
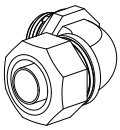
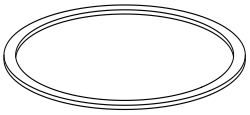
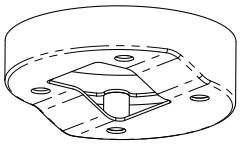
Refer to the relevant base model installation guide, MST-MC (PUD4880) or MSTT-MC (PUD4561), for reference callouts.

Parts List

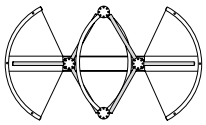
MST-TE (CPST / CLST)



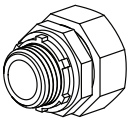
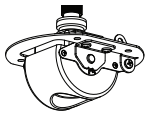
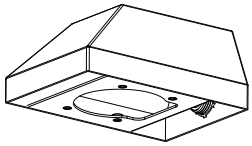
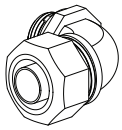
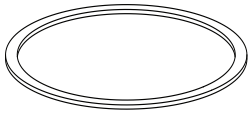
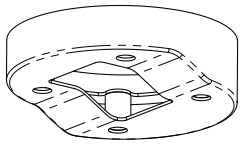
Activation Sensor Parts List

 Sensor Assembly Harness (Qty 2)	 10-32 x 5/16" - Black Oxide (Qty 8)	 Straight Conduit Fittings (Qty 2)	 Sensor Assembly (Qty 2)	 Upper Sensor Cover (Qty 2)
Flex Conduit - 36" (Qty 2)	 10-32 x 1/2" M/F Standoff (Qty 8)	 90°Conduit Fittings (Qty 2)	 Gaskets (Qty 2)	 Lower Sensor Cover (Qty 2)

MSTT-TE (CPSTT / CLSTT)



Activation Sensor Parts List

 Sensor Assembly Harness (Qty 4)	 10-32 x 5/16" - Black Oxide (Qty 16)	 Straight Conduit Fittings (Qty 4)	 Sensor Assembly (Qty 4)	 Upper Sensor Cover (Qty 4)
Flex Conduit - 36" (Qty 4)	 10-32 x 1/2" M/F Standoff (Qty 16)	 90°Conduit Fittings (Qty 4)	 Gaskets (Qty 4)	 Lower Sensor Cover (Qty 4)

Tools

- Precision flat screwdriver
- Wrench
- 1/4” Nut Driver
- 5/16” Hex Key
- Phillips Screwdriver

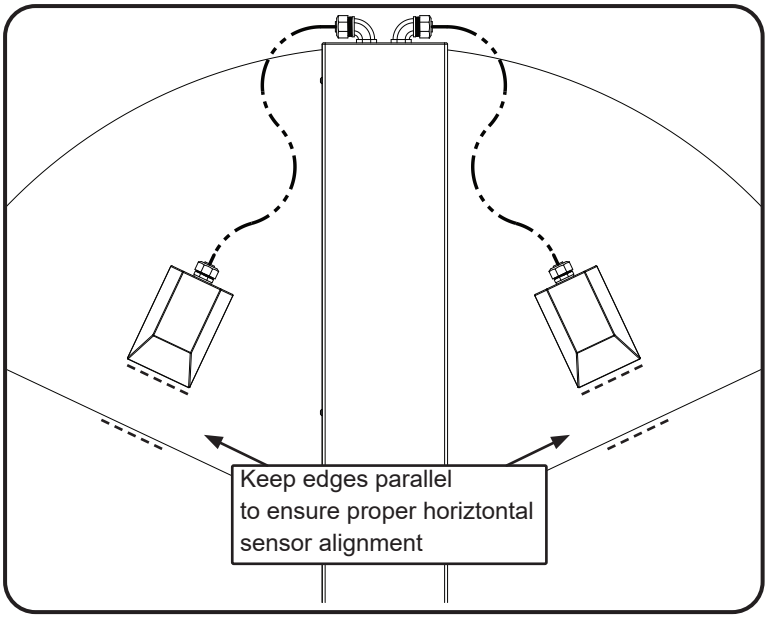
OPTIONAL

- 7/8” Stainless Steel Hole Punch

Activation Sensor Installation

1. Install conduit fittings as shown to the Upper Sensor Cover & the top channel lid. [Figure 1]
2. Install flex conduit between the Upper Sensor Cover & the top channel lid.
3. Route the sensor harness through the flex conduit. Leave the loose end of the harness near the control board.

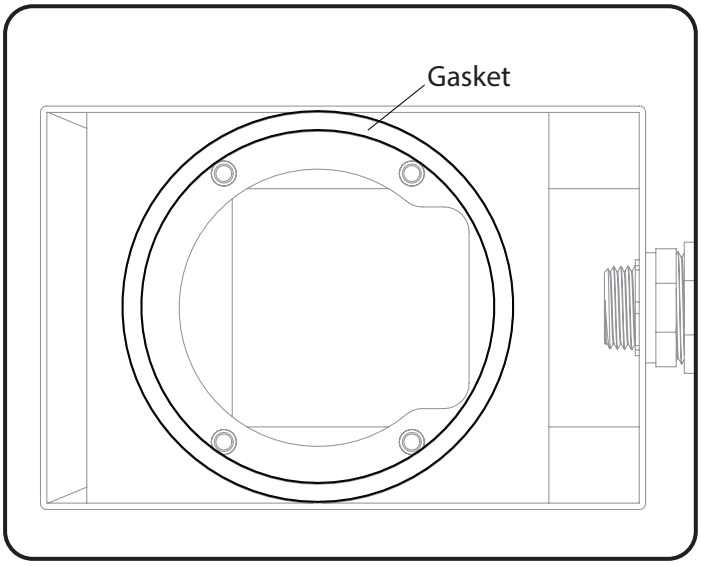
Fig. 1



NOTE

The sensor conduit location shown assumes the use of the provided 36" flex conduit lengths. If location is unavailable, using a 7/8" diameter hole punch, punch holes according to the *Conduit Routing* section of the relevant installation guide and use longer, appropriately rated flex conduit.

Fig. 2



4. Press the gasket onto the underside of the Upper Sensor Cover, ensuring the gasket is concentric with the cover hole and the adhesive is properly secured. [Figure 2]
5. Place the Upper Sensor Cover over the hole in the guard plate, ensuring the gasket fully covers the hole when viewed from below.
   Ensure edge of Upper Sensor Cover is parallel with the edge of the guard plate to ensure proper horiztonal sensor alignment. [Figure 1]

Activation Sensor Installation (Cont.)

6. On the under side of the guard plate, secure the sensor harness to the sensor assembly. Then, using four ½" standoffs, secure the sensor assembly to the Upper Sensor Cover. [Figure 3]

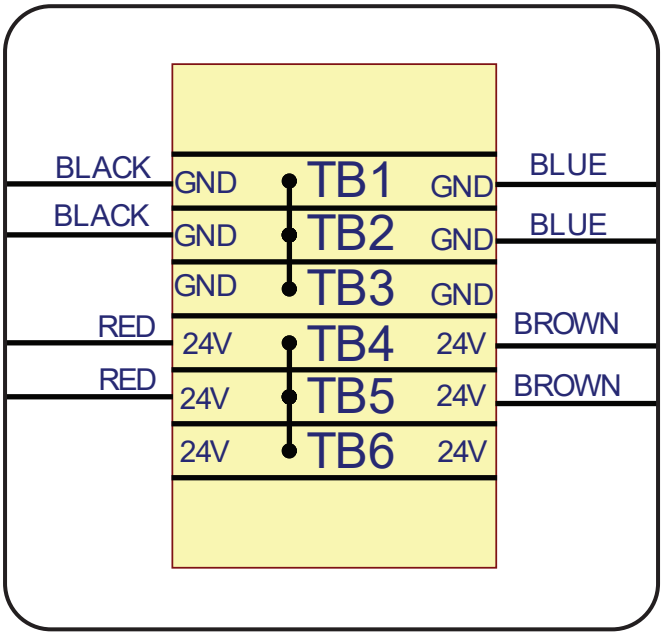
7. On the underside of the guard plate, use four 5⁄16" black oxide screws to secure the Lower Sensor Cover. [Figure 3]

NOTE Leave the Lower Sensor Cover off until final testing is complete.

8. Inside the top channel, take the BLUE & BROWN wires from the sensor harness and connect them to the following terminals, located behind the control board -

   - **Entry**: Blue - TB1 & Brown - TB4
   - **Exit**: Blue - TB2 & Brown - TB5

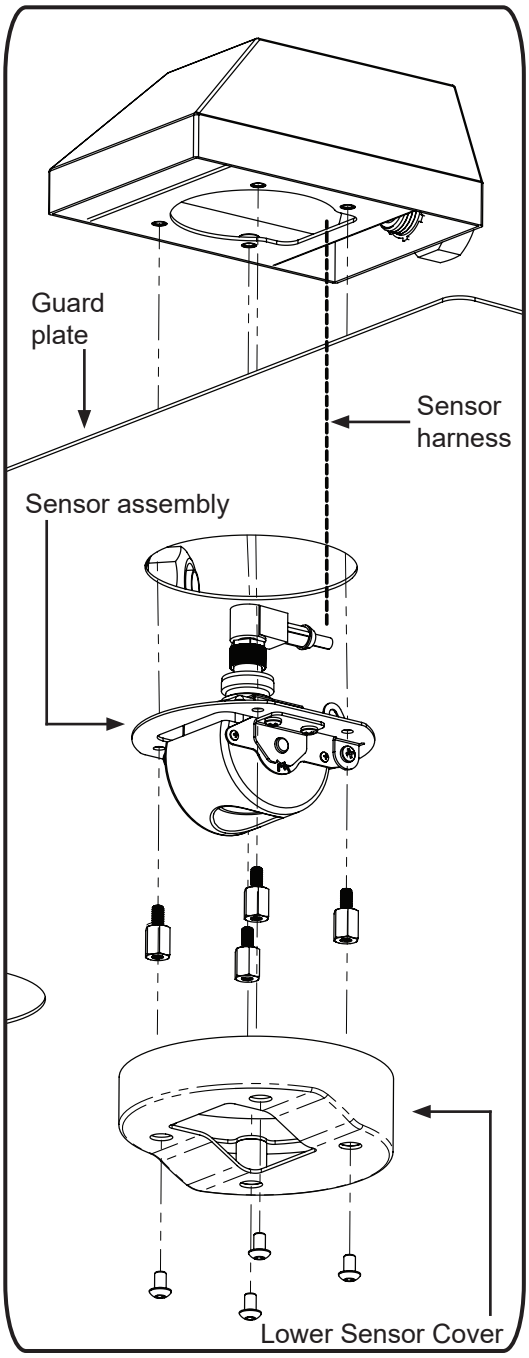
Fig. 4



9. Take the black wire from each sensor harness and attach them to the following terminals on the control board:

Direction	Terminal
Entry	IN2
Exit	IN1

Fig. 3



* Gasket not shown.

Testing Turnstile Operation

Perform the following turnstile functionality tests to validate turnstile operation.

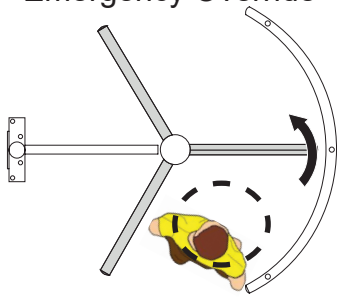
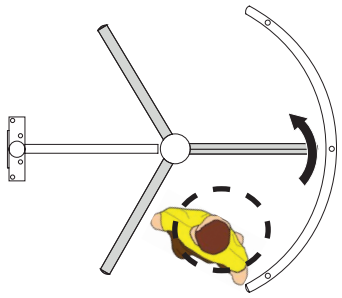
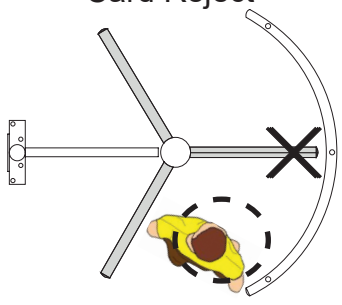
The following is assumed:

- Turnstile home position has been set.
- The access control system is operational and all access control wiring to the turnstile is connected.
- Valid access control credentials are on hand to activate the turnstile.

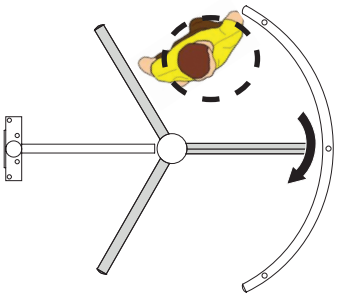
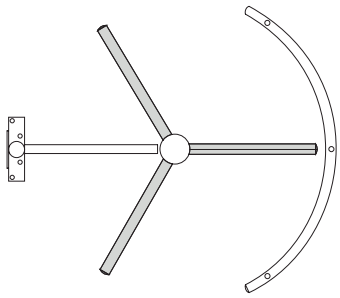
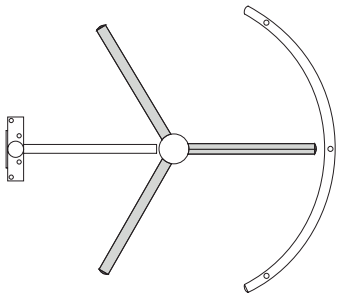
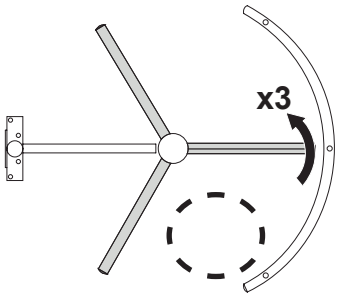
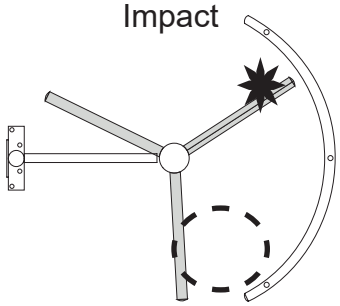
If valid access control credentials are not available, use the test buttons (CWPASS & CCWPASS) located on the control board to simulate an activation. See *Turnstile Control Board Layout* section of the relevant base model installation guide for button location.

Approximate activation sensor field-of-view shown as dotted circle.

See *Activation Sensor Adjustment* if the activation sensor requires repositioning.

Function	Test Procedure	Turnstile Response
Emergency Override 	• Provide an activation. • Enter the turnstile to begin the rotation. • Complete the passage.	• Roto will complete rotation as user walks through. • Roto will reset to the Home position after passage. • OPTIONS: Activation Lights (JS2) change from RED to GREEN; lights reset after passage.
Loss of Power 	• Enter the turnstile. • Complete the passage.	• Roto will complete rotation as user walks through. • Roto will reset to the Home position after passage. • OPTIONS: Activation Lights (JS) are constantly illuminated GREEN.
Card Reject 	• Provide an activation. • Enter the turnstile. • Verify turnstile remains locked.	• Turnstile remains locked. • OPTIONS: EL & Activation Lights (JS) illuminated constantly RED.

Testing Turnstile Operation (Cont.)

Function	Test Procedure	Turnstile Response
Emergency Override 	• Provide (or remove, if N.C.) a sustained dry contact to CWFA / CCWFA. • Enter the turnstile to begin the rotation. • Complete the passage.	• Roto will free-spin in the direction receiving the sustained dry contact (CWFA / CCWFA) • Roto will remain in free-spin until contact is removed (or reestablished, if N.C). • OPTIONS: Activation Lights (JS) will flash green.
Loss of Power 	• Turn J-Box toggle switch to OFF. • Push the roto from each direction.	• Push the roto from each direction, confirm either happens: • if Fail-Lock: Remains locked. • if Fail-Safe: Is unlocked and allows passage.
Card Reject 	• Provide a contact short to CWREJ & CCWREJ.	• Turnstile remains locked. • OPTIONS: Activation Lights (JS) remain illuminated RED.
Stacking 	• Using the control board test buttons, CWPASS & CCWPASS, provide 3x activations within 2s of each other. • Wave your hand in front of the activation sensor to begin the rotation. • Repeat 2x.	• Roto continues the rotation, completing the passage. • Roto will continue to rotate until the remaining "stacked" credentials are allowed passage then re-lock.
Impact 	• Provide an activation. • Wave your hand in front of the activation sensor. • Mid-passage, use your hand to firmly PULL the arms towards you BRIEFLY. • Immediately step out of the turnstile.	• Roto will stop for 3s. • Roto will attempt to resume activation. • Cycle will repeat until obstruction is cleared. • OPTIONS: Activation Lights (JS) will change back from GREEN to RED.

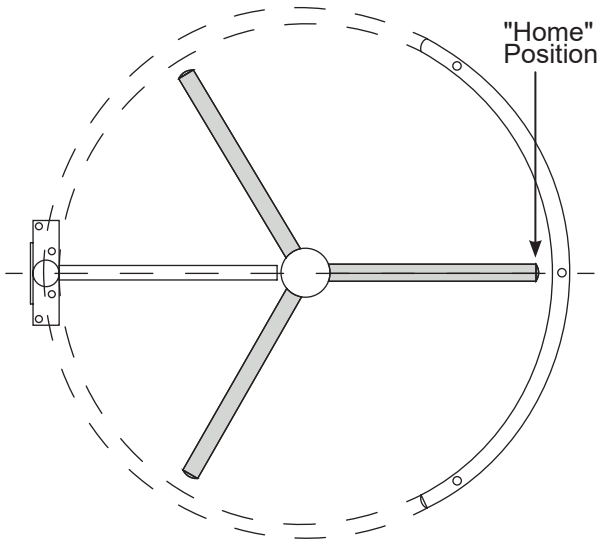
User Activation and Passage Instructions

Print and distribute this page to inform users how to properly operate the turnstile.

⚠ IMPORTANT

- Always walk slowly through the turnstile
- Always use caution when using the turnstile

Fig. 5



Follow the steps below on how to use the turnstile.

1. The turnstile should always be in the "Home" position before access is requested (i.e. an access contol card is presented to the card reader). [Figure 5]

2. Request access (i.e. present an access control card to the card reader) to activate the turnstile. The following signs will confirm the turnstile has received the activation:
   - The solenoid will "fire" and produce a click-type sound.

   - If applicable, the User Status Light will turn green.

3. Immediately step into the turnstile; default sensor activation area shown as dotted circle [Figure 6]. The roto will automatically rotate as you complete the passage. Stay near the yoke and take short steps. Once through the passage area, move out of the way of the roto arms.

⚠ CAUTION

Never grab the roto arm at point “A” and pull it in front of you. This would result in the roto completing the rotation, and re-locking, before you are through the turnstile.

⚠ CAUTION

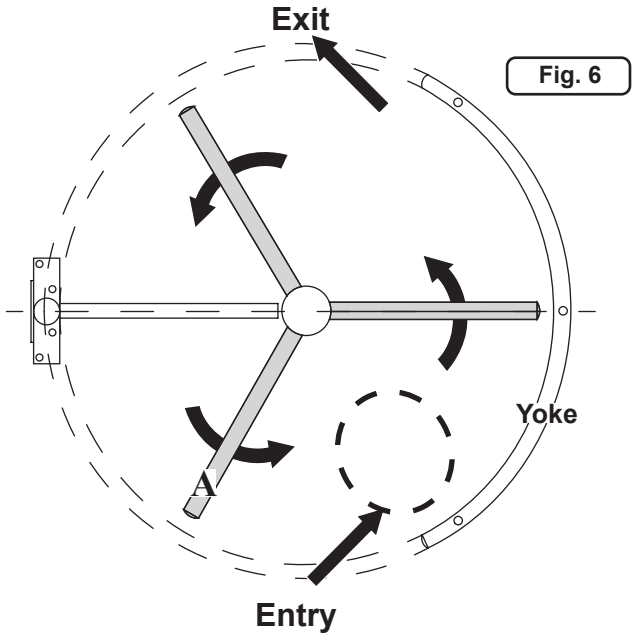
After completing the passage, the turnstile arms will continue to rotate; completing the 120 degree rotation. Taking long strides can cause the arm following you to strike your heels; Foam heel and arm guards are available.

4. Step completely out of the turnstile.

⚠ CAUTION

If a user does not enter the turnstile before the defined time-out period elapses, the turnstile will re-lock. The user will be required to provide an additional access

Fig. 6



Activation Sensor Adjustment

The steps laid out in the *Activation Sensor Installation* section places the default sensor activation area directly beneath the sensor assembly, in the middle of the passageway. During testing, if the sensor is not picking up users reliably or you would like to reposition the activation area, the sensors' field-of-view can be adjusted along the vertical and horizontal axis to move the activation area to the desired location.

Moving the activation area on the vertical axis:

1. Using a 5/16" wrench and a Phillips screwdriver, lightly loosen the two pivot screws on either side of the sensor assembly. [Figure 7]
2. Use the 4 position notches to set the activation sensors' vertical field-of-view angle. Adjust as necessary to move activation area further out from the turnstile, tighten hardware in desired notch position. [Figure 7 & 8]

   NOTE: Longest notch represents sensor "eye" location. [Figure 7]
3. Test to verify sensor activation area is in the desired location.

Fig. 7

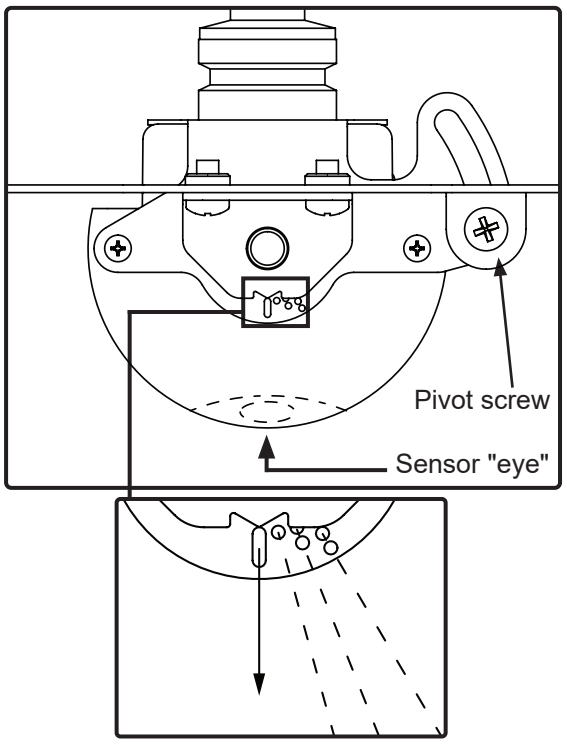
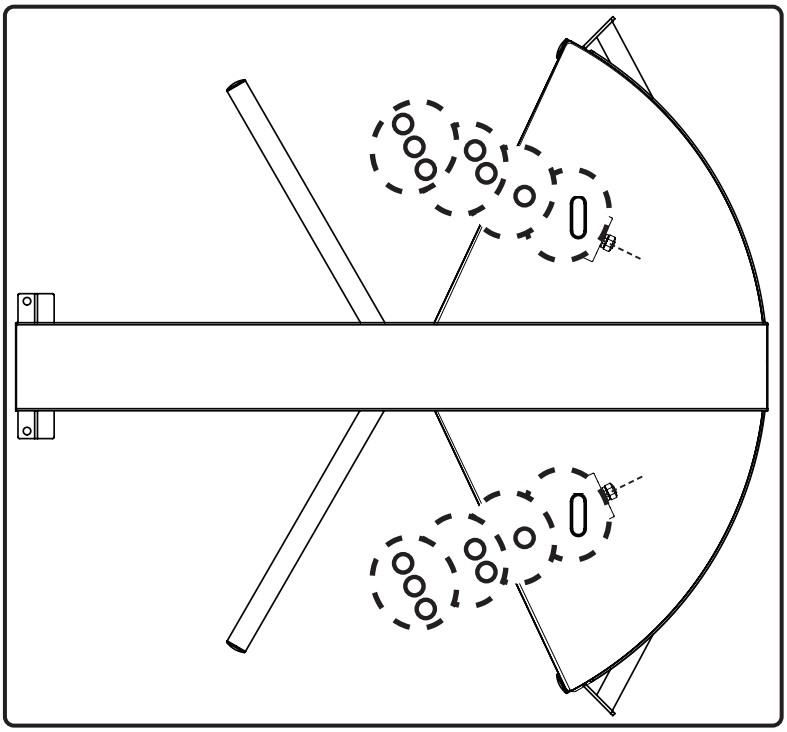


Fig. 8



***Activation area size and locations are approximate.**

Activation Sensor Adjustment (Cont.)

Moving the activation area on the horizontal axis:

1. Remove the 4 stand-offs securing the sensor assembly in place.
2. Gently pull the Upper Sensor Cover up to release the adhesive on the gasket.
3. Rotate Upper Sensor Cover left / right of the centerline. Adjust as necessary to move the activation area towards or away from the roto. [Figure 9]
4. When in the desired position, firmly press the Upper Sensor Cover back onto the gasket & reattach the sensor assembly to the Upper Sensor Cover with the 4 stand-offs.
5. Test to verify activation sensor field-of-view is in the desired location.
6. Reattach the Lower Sensor Cover.

Fig. 9