



For the window design that requires a face-mounted operator, Truth has developed a special version of our Awning Roto Gear Operator that incorporates the case from our 22 Series Operators with the functional capabilities of the 11 Series Awning Roto Gear Operator. This operator is designed to provide positive control of the sash in any position, while producing a secure pull-in of the window at its' corners. A simple detach feature is available that disengages the operator from the sash for quick window removal and for ease in installation. Available in both front-mount and rear-mount models. Also incorporating an adjustable stabilizing tab (optional), which helps reduce flexing of window frame during operation.

WARRANTY: Protected under the terms of the Truth Warranty for Window and Door Manufacturers and Authorized Distributors. Refer to Truth's Terms and Conditions for further details.

PRODUCT APPLICATION

ASSISTANCE: If you are designing a new window profile, or are having difficulty selecting hardware for your window, please contact Truth. Our highly trained Technical Service Staff can assist you with the selection of the appropriate hardware to meet your performance requirements, as well as providing personalized application drawings.

LOGO OPTIONS: Have you considered *personalizing* your window with your company name or logo? All of Truth's operator handles are capable of accepting your own "signature". Contact Truth for further details.

CORROSION PROTECTION:

Truth's E-Gard® Hardware has a multi-stage coating process that produces a superior physical and aesthetic finish. Plus, it is resistant to a wider range of corrosive materials, including industrial cleaning materials and environmental pollutants. This proprietary process has been tested to be approximately three times better than common zinc plated finishes.

For the severe conditions associated with coastal areas, Truth has stainless steel hardware. See Tech Note #7 for further information about corrosion protection and these special hardware options.



MATERIAL: High-pressure die-cast zinc case, crank handle and knob. Hardened steel drive worm and gear arms. Optional stainless steel arms.

FINISH: Electrostatically applied, durable coatings that provide excellent resistance to chipping, scratching and corrosion while maintaining color stability for years in direct sunlight. Please refer to Truth's Color Chart for examples of Truth's most popular finish options. Truth also offers a wide range of decorative "plated" finishes - contact Truth for additional information on availability of these finishes on specific product lines.

ORDERING INFORMATION:

1. Choose operator style desired (specify by part number).
2. Specify finish number.
3. Select mounting hardware (sold separately):
 - #11454 - Contour Handle (painted) or
 - #10579 - Roto Gear Operator Handle - shown above (painted).

Optional handle styles, such as Truth's *Folding Handle*, are also available.

Order Sash Hooks - see drawings for the available model that best fits your window design.

 - #12789 - Stabilizing Tab Kit
 - #20189 - Backing Grommet (optional).
 - #20947 - Backing Plate.
 - #30171 - Rubber-cork adhesive backed gasket (optional).
 - #21306 - Protective red plastic spline cap (optional).

RECOMMENDED SCREWS:

Types of screws required determined by material of profile used. Refer to drawings for complete information on screw type and quantity needed (sold separately). For additional information regarding screw selection - see Truth Tips and Tech Note #11.

TRUTH TIPS:

1. Operator mounting screws must pass through one PVC wall and Truth Backing Plates #20947 or one PVC wall and one insert wall. Track mounting screws must pass through two PVC walls or one PVC wall and one insert wall. For this reason, it is necessary to use a longer screw than is recommended.
2. When selecting mounting screws for Truth hardware, coating compatibility is one of the most important criteria. For best corrosion resistance the coating on the screws should be the same as the coating on the hardware. For more information see Tech Note #11.
3. This operator is intended for single vent applications only, and should not be used on multi-vent applications.
4. For accurate hardware replacement, pre-drilling is recommended.
5. Truth recommends that Backing Plates (#20947) and/or a Stability Tab (#12789) be used for added support to the operator in an effort to reduce the amount of flex experienced in many PVC Profile Systems.

TRUTH TIPS (con't):

6. For metal window profiles, Truth recommends machine screws.

However, in most applications, sheet metal screws will provide adequate holding power.

7. Butt Hinges can be used with the pivot shoe operator, however, some degree of sash chatter will usually occur. Chatter is caused by the weight of the window pushing the operator closed rather than the operator pulling the window closed.

8. A window operator alone provides poor forced entry resistance and must always be used in conjunction with sash locks when forced entry resistance is required.

9. This operator can be used with all Truth 13 Series Awning and 4-Bar Hinges. To insure maximum operator efficiency, it is important that operator, hinge, and sash height be properly matched. Consult sash size table found in the Hinge section of the catalog.

10. A Spline Cap (#21306) is available to protect the operator splines from dirt and other windows from damage during shipping, installation, and final building construction.

**INCLUDE TRUTH SPECS ON
YOUR NEXT WINDOW PROJECT**

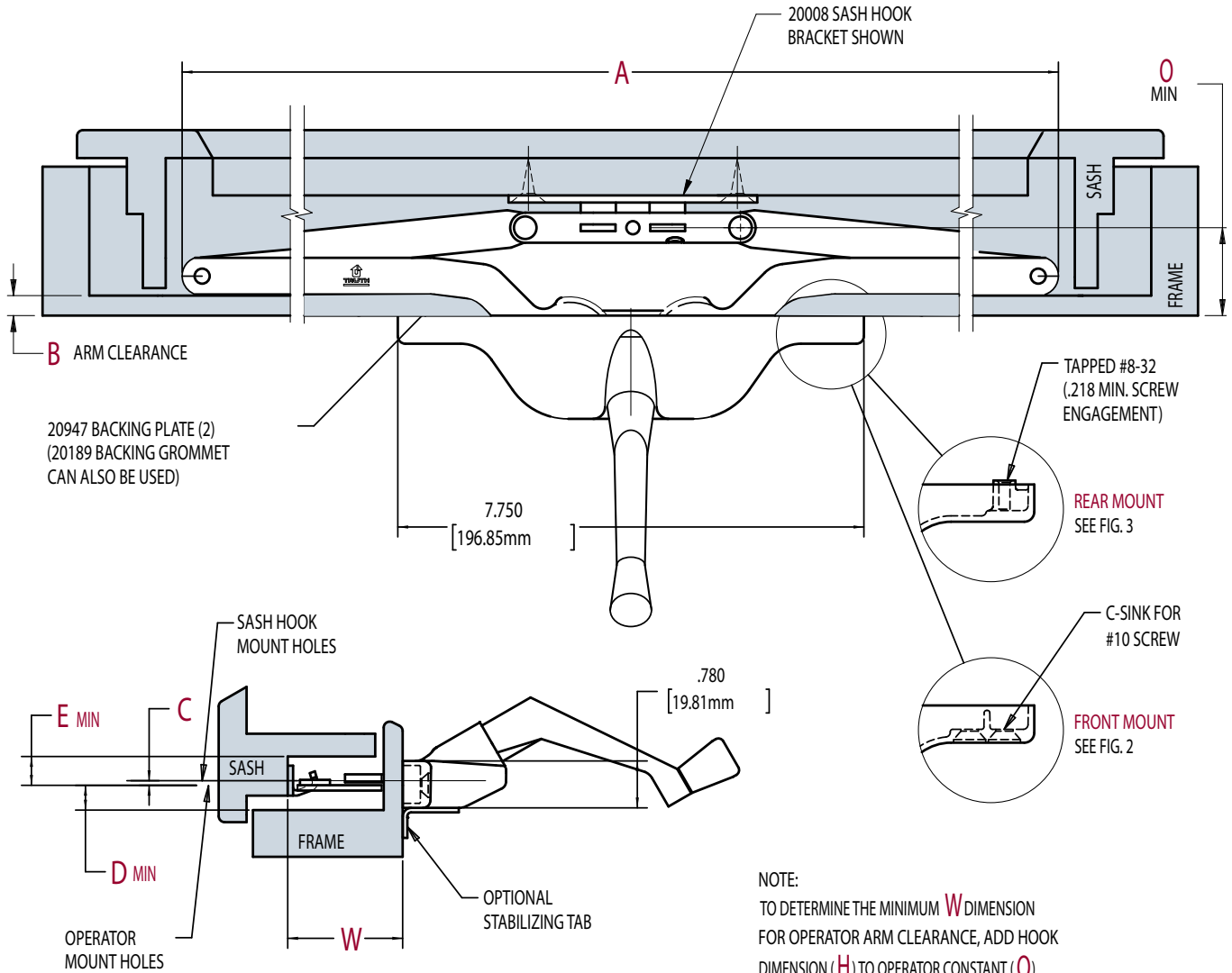
Window operators shall be provided which allow easy adjustment of window position. The mechanism should be crank operated and provide wide range of open positions. Connection to the movable sash must be easily detachable for window cleaning and maintenance.

Window operators will be of scissors arm design driven by hand crank. The operator must be constructed of E-Gard® components, hardened steel worm and gear arms and high pressure zinc alloy die castings.

Window Operators shall be 22 series Scissors Arm Awning Operator as manufactured by Truth Hardware, Owatonna, MN.

22 SCISSORS ARM OPERATOR

FIG. 1 APPLICATION 22 SCISSORS ARM OPERATOR



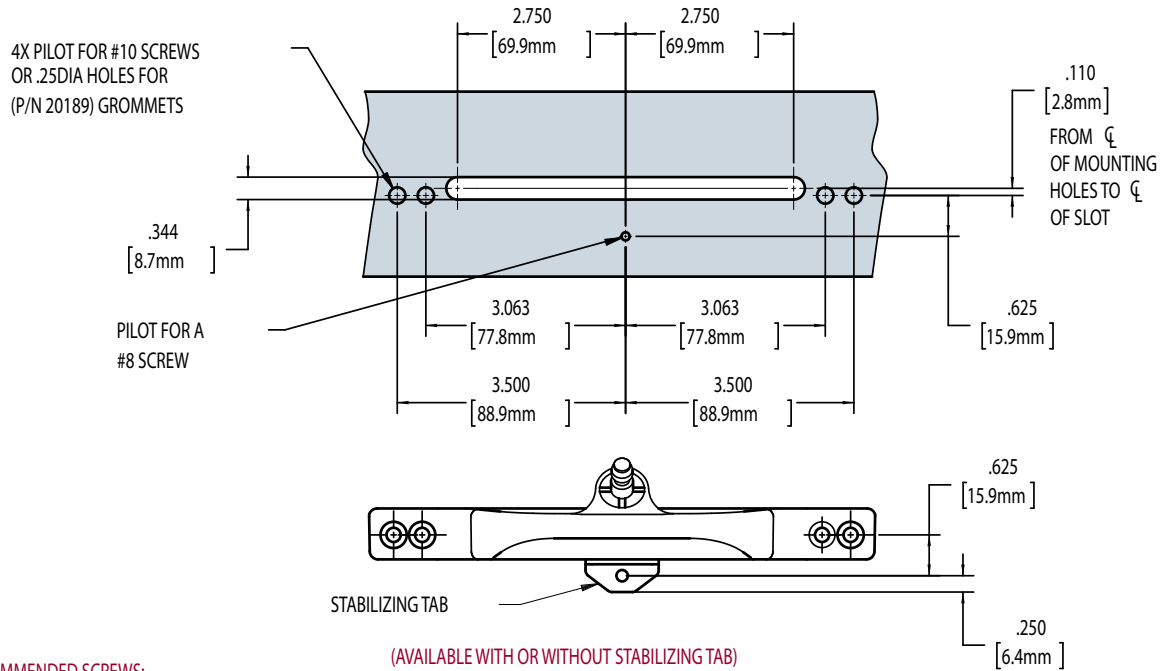
$$W = H + O$$

SASH HOOK	C	D MIN	E MIN	H
20008	.090 (2.3mm)	.220 (5.6mm)	.560 (14.2mm)	+ .410 (10.4mm)
40543	N/A			+ .845 (21.5mm)
*31336			.549 (13.9mm)	± .160 (4.1mm)

*31336 SASH HOOK BRACKET WILL ADD OR SUBTRACT FROM O DIMENSION.

OPERATOR PART NO.	A OVERALL WIDTH	B ARM CLEARANCE	MOUNTING	STABILIZING TAB	APPROXIMATE SASH OPENING	O DIMENSION
22.21	21.50 (546.1mm)	.250 (6.4mm)	FRONT	ORDER (PN 12789)	15.00 (381.0mm)	1.403 (35.6mm)
22.22		.340 (8.6mm)			10.00 (254.0mm)	1.497 (38.0mm)
22.23	16.00 (406.4mm)		15.00 (381.0mm)		1.403 (35.6mm)	
22.27	21.50 (546.1mm)	10.00 (254.0mm)				1.497 (38.0mm)
22.28	16.00 (406.4mm)		.250 (6.4mm)	FRONT	15.00 (381.0mm)	
22.29		.340 (8.6mm)	REAR	10.00 (254.0mm)	1.497 (38.0mm)	

FIG. 2 FRONT MOUNT CUT OUT DETAILS



RECOMMENDED SCREWS:

OPERATORS:

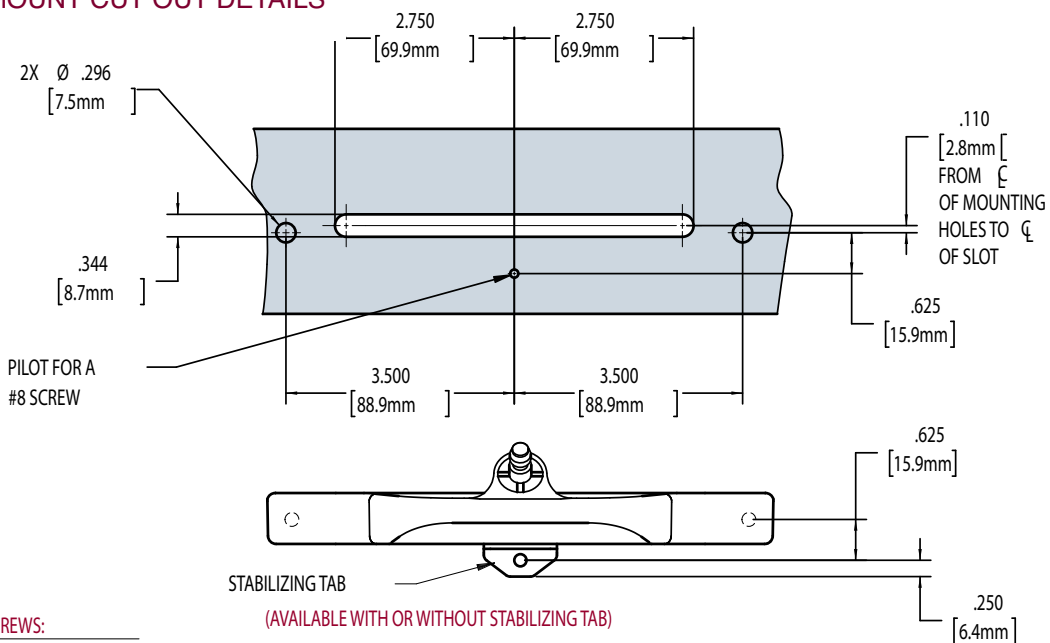
FRONT MOUNT: 4 (P/N 19700.XX) #10-24 X .688 PHILLIPS, FLAT HEAD, STEEL SHEET METAL SCREWS

1 STABILIZING TAB UNIT PACK (P/N 12789)

1 (P/N 19215.92) #8 X .750 PHILLIPS, PAN HEAD, STEEL, SHEET METAL SCREW (STABILITY TAB)

NOTE: SCREW LENGTH AND THREAD TYPE WILL BE DETERMINED BY PROFILE.

FIG. 3 REAR MOUNT CUT OUT DETAILS



RECOMMENDED SCREWS:

OPERATORS:

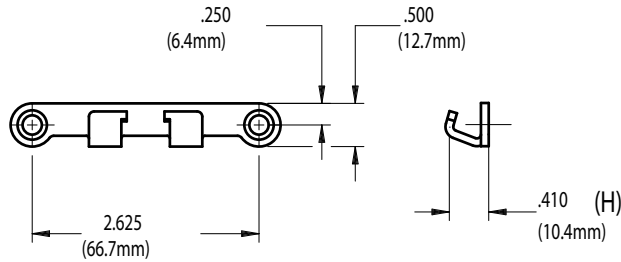
REAR MOUNT: 2 (P/N 19535.XX) #8-32 X .312 PHILLIPS, TRUSS HEAD, STEEL, MACHINE SCREWS

1 STABILIZING TAB UNIT PACK (P/N 12789)

1 (P/N 19215.92) #8 X .750 PHILLIPS, PAN HEAD, STEEL, SHEET METAL SCREW (STABILITY TAB)

NOTE: SCREW LENGTH AND THREAD TYPE WILL BE DETERMINED BY PROFILE.

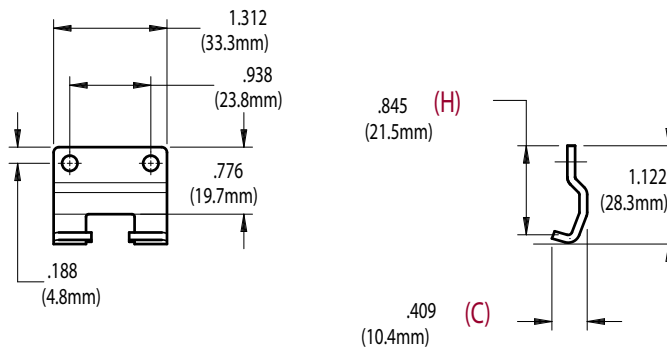
FIG. 4 SASH HOOK 20008.XX



RECOMMENDED SCREWS:

WOOD: 2 (P/N 19240.XX) #8 X 1.0 PHILLIPS, FLAT HEAD, SHEET METAL SCREWS
 PVC & METAL: 2 - #8 PHILLIPS, FLAT HEAD SCREWS (LENGTH AND THREAD TYPE DETERMINED BY PROFILE)

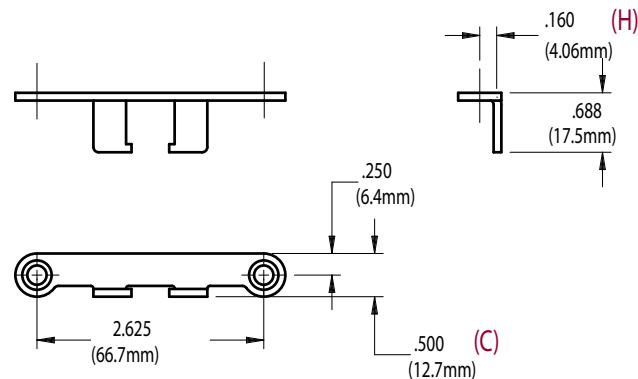
FIG. 5 SASH HOOK 40543.XX



RECOMMENDED SCREWS:

WOOD: 2 (P/N 19230.XX) #8 X 1.0 PHILLIPS, PAN HEAD, SHEET METAL SCREWS
 PVC & METAL: 2 - #8 PHILLIPS, PAN HEAD SCREWS (LENGTH AND THREAD TYPE DETERMINED BY PROFILE)

FIG. 6 SASH HOOK 31336.XX



RECOMMENDED SCREWS:

WOOD: 2 (P/N 19240.XX) #8 X 1.0 PHILLIPS, FLAT HEAD, SHEET METAL SCREWS
 PVC & METAL: 2 - #8 PHILLIPS, FLAT HEAD SCREWS (LENGTH AND THREAD TYPE DETERMINED BY PROFILE)

FIG. 7 GASKET 30171

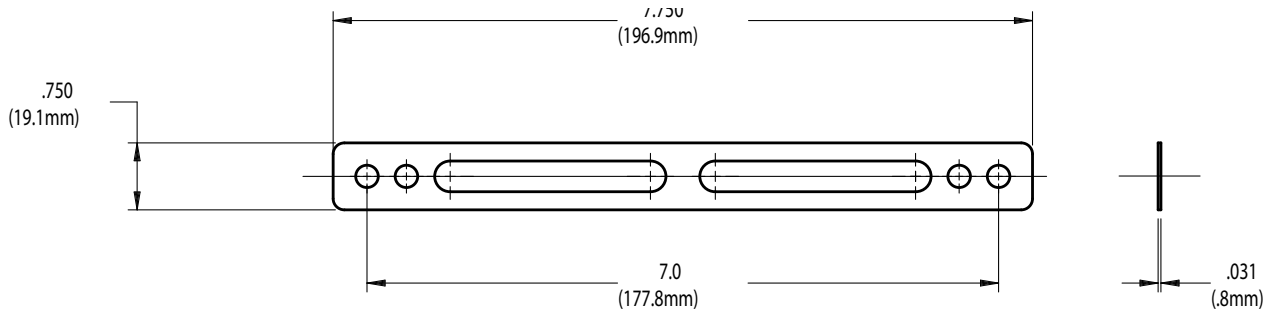
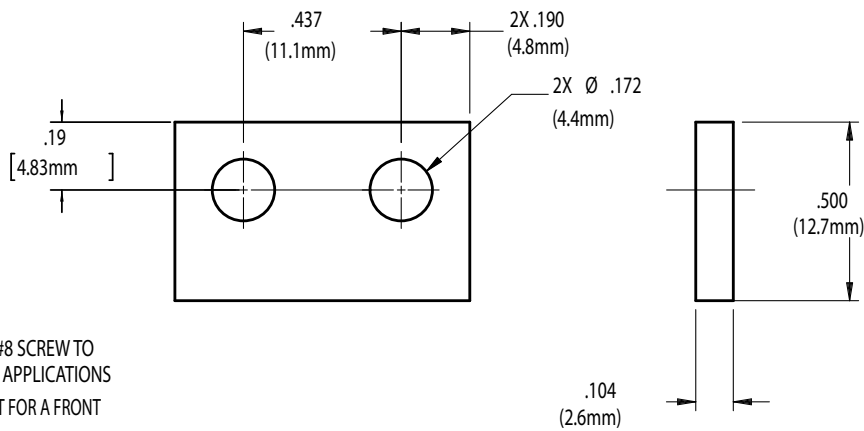


FIG. 8 BACKING PLATE 20947.XX



NOTES:

BACKING PLATE IS DESIGNED FOR #8 SCREW TO PASS THROUGH FOR REAR MOUNT APPLICATIONS AND FOR A #10 SCREW TO TAP INTO IT FOR A FRONT MOUNT APPLICATIONS.

FIG. 9 BACKING GROMMET 20189

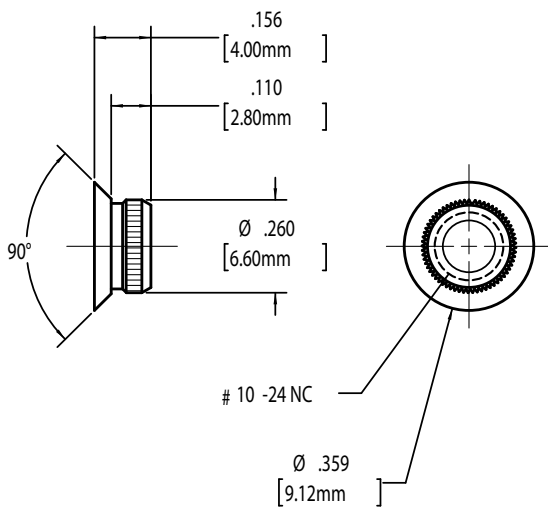
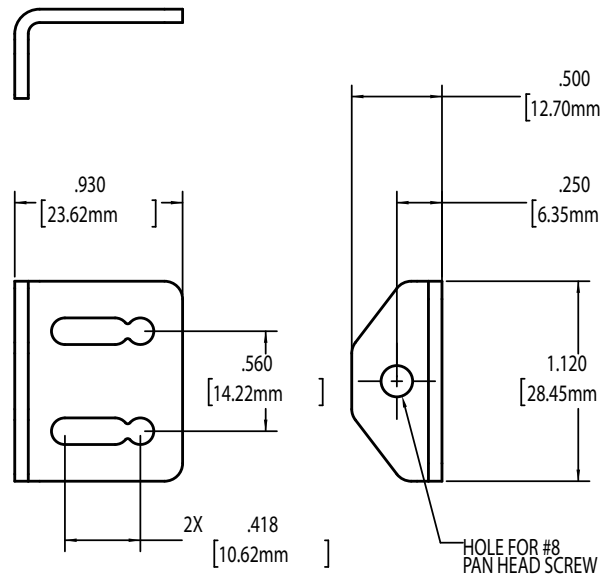


FIG. 10 STABILIZING TAB 12789



NOTE: