



23970734

98/9949 CS 98/9949

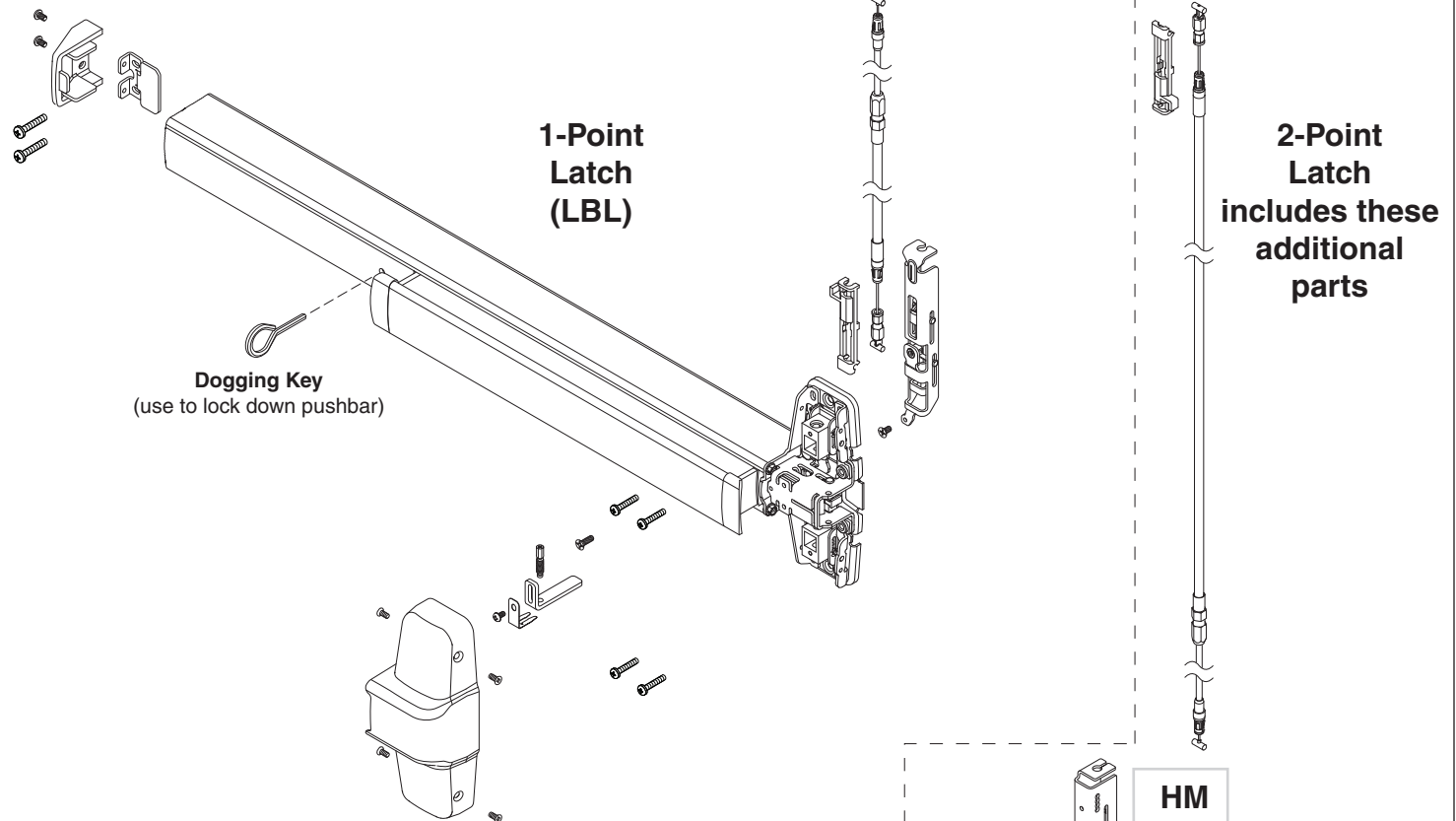
VON DUPRIN®

Installation Instructions

This instruction covers new installation of the 98/9949 concealed vertical device for hollow metal and aluminum doors.

Also covered is the CS 98/9949 retrofit cabling system for converting 98/9947 Series to 98/9949 Series (compatible with models 98/9947, 98/9947-F, 98/9947-LBR, and 98/9947-F-LBR).

See page 16 for an explanation of Warnings and Cautions used in this booklet.



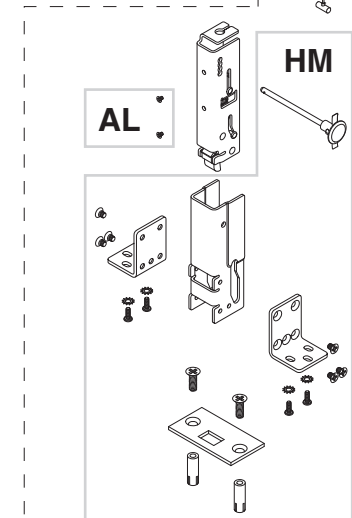
- HM** = for Hollow Metal Door applications
- AL** = for Aluminum Door applications
- RF** = for Hollow Metal Door Retrofit applications

Customer Service

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23970734 Rev. 07/16-k



CABLE IDENTIFICATION

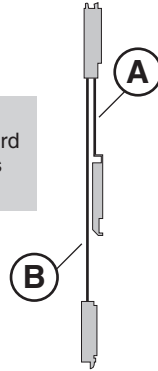
1 Identify Cables and Locations.

CABLE IDENTIFICATION		
* Door Opening Height	HOLLOW METAL AND ALUMINUM DOORS	
	A Top Cable (Red)	B Bottom Cable (White)
6' 0" - 6' 10"	47250398	47250403
6' 10" - 8' 0"	47250175	47250178
8' 0" - 9' 2"	47250176	47250179
9' 2" - 10' 4"	47250177	47250180
10' 4" - 11' 6"	47250399	47250404
11' 6" - 12' 8"	47250400	47250405
12' 8" - 13' 10"	47250401	47250406
13' 10" - 15' 0"	47250402	47250407

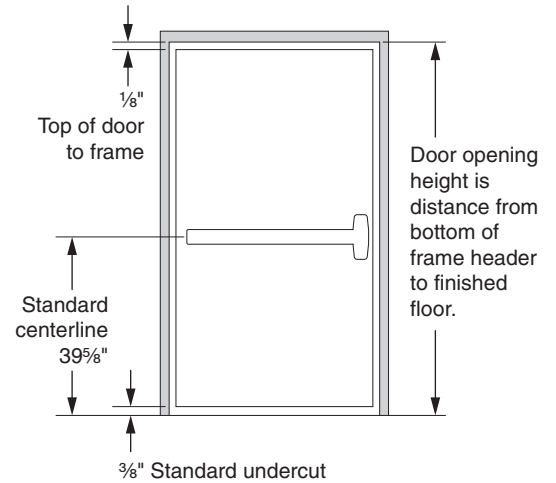
* Based on standard centerline of 39 $\frac{5}{8}$ " from finished floor

For easy identification, each cable is labeled with part number and location.

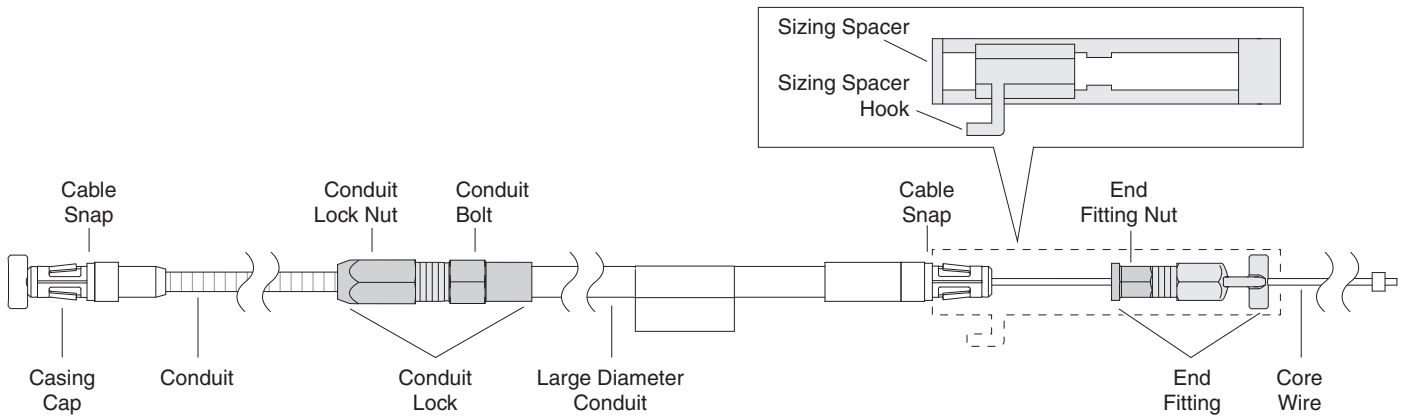
Standard Sizes



NOTE: For retrofit installations, begin at Step 19.



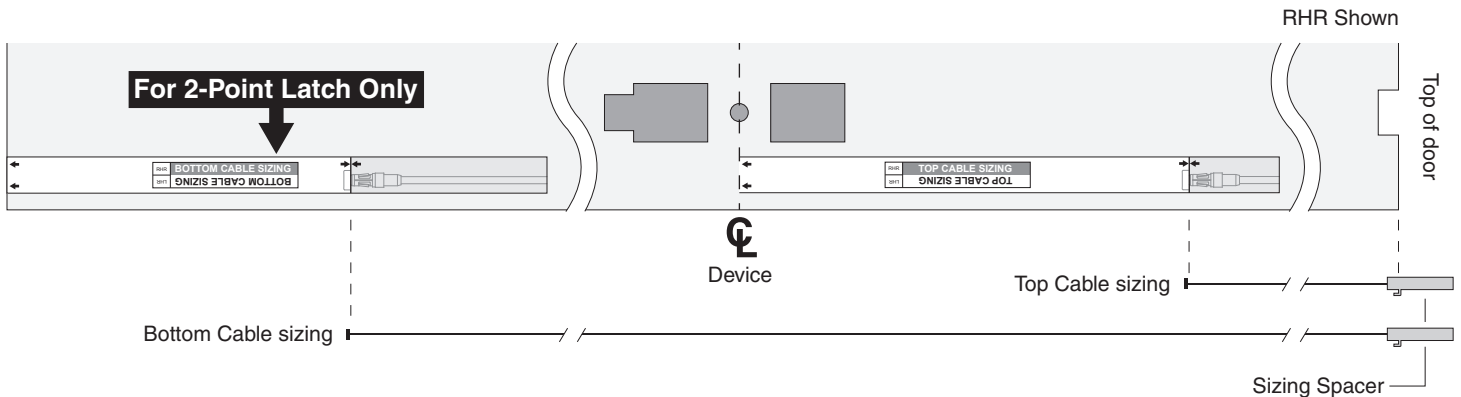
CABLE COMPONENTS



CABLE SIZING PREPARATION

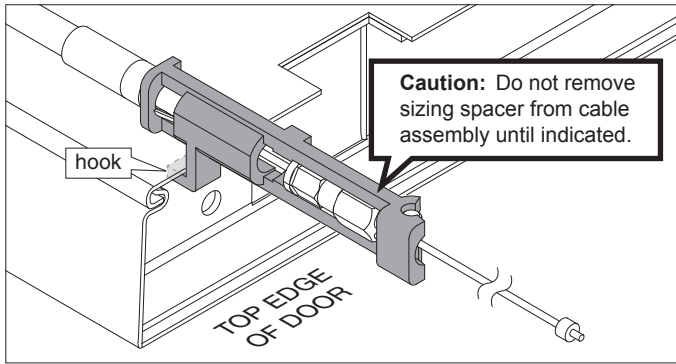
2 Align Sizing Tape to Horizontal Device Center Line as shown. For Bottom Cable Sizing (if applicable), Align Sizing Tape to Bottom Edge of Door.

Use cable components diagram above for reference.

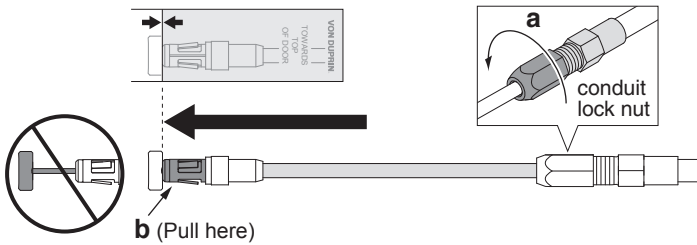


CABLE SIZING

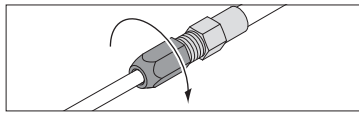
- 3** To Size Top Cable, Align Sizing Spacer Hook to Top Edge of Door.



- 4** Loosen Conduit Lock Nut 1/2 Turn. At Opposite End of Cable, Pull Casing Cap to Line on Tape.



- 5** Hand Tighten Conduit Lock Nut.

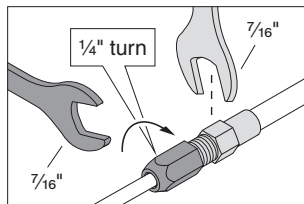


- 6** Wrench Tighten Conduit Lock Nut 1/4 Turn.

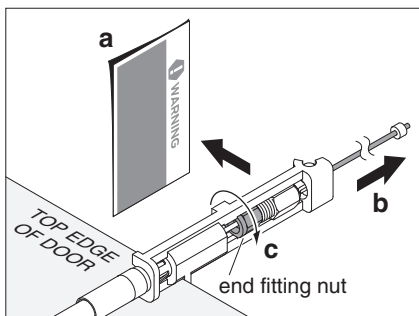
Caution: Do not overtighten.

WARNING

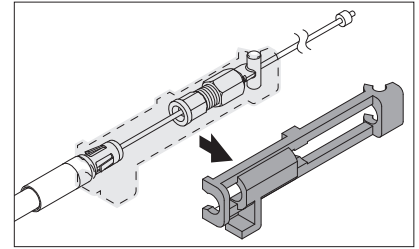
Failure to properly tighten conduit lock nut will result in device malfunction and possible lock in or lock out situation.



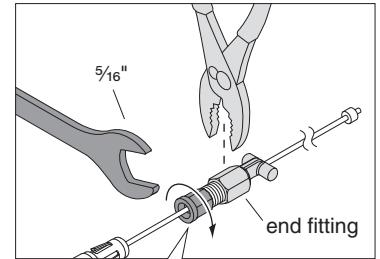
- 7** Remove Warning Label. While Pulling Core Wire Tight, Hand Tighten End Fitting Nut.



- 8** Remove Sizing Spacer. (Do not discard.)



- 9** While Holding End Fitting in Place with Pliers, Fully Tighten End Fitting Nut with Wrench.

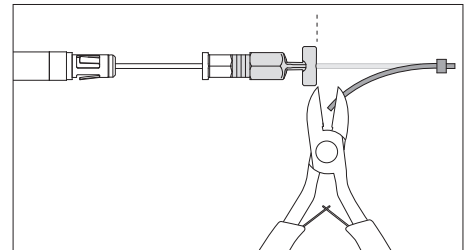


WARNING

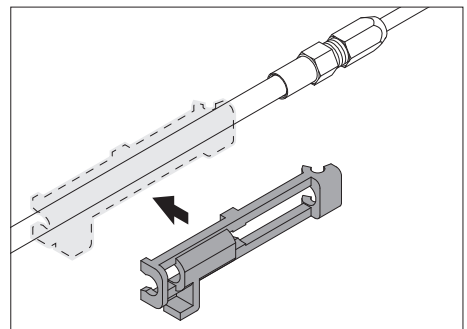
Failure to properly tighten end fitting nut will result in device malfunction and possible lock in or lock out situation.

Once tightened down, end fitting nut can't be loosened or readjusted.

- 10** Cut Core Wire Flush with End Fitting.



- 11** Snap Sizing Spacer onto Large Diameter Conduit for Storage.



- 12** To Size Bottom Cable, Align Sizing Spacer Hook to Top Edge of Door as before, and Repeat Steps 3 thru 10.

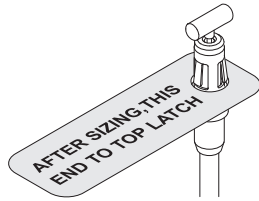
For 2-Point Latch Only

Repeat Steps 3 thru 10

CABLE INSTALLATION

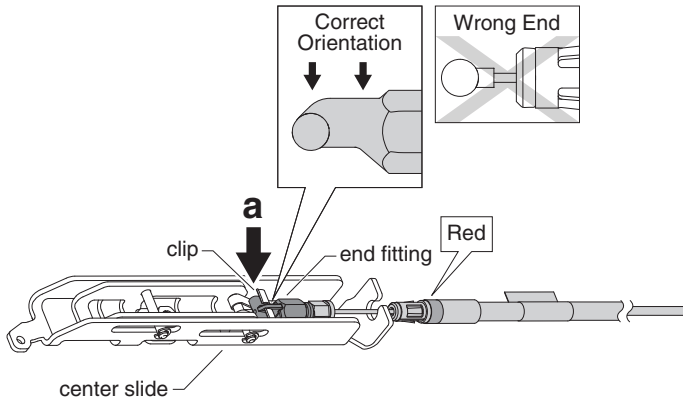
13 Flip Top Cable.

Caution: After sizing, TOP cable must be flipped 180° before installing. See tag.



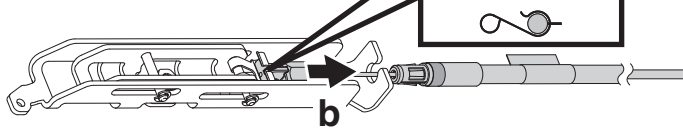
14 Install Top Cable.

- a. There is an end fitting on one end of the red cable. Position this end to clip on center slide.

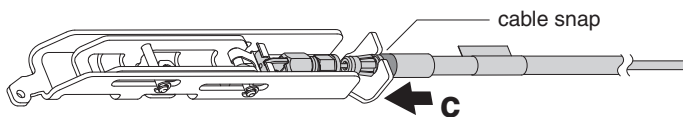


- b. Pull cable into clip to snap it into place.

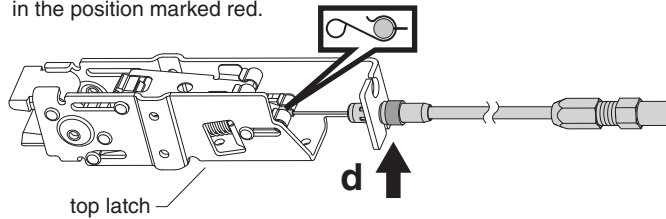
Caution: Ensure cable end is fully seated in clip.



- c. Push cable snap against center slide to secure cable.



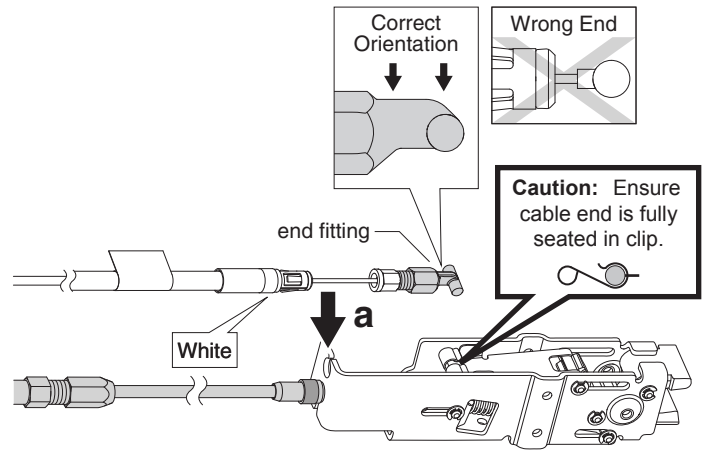
- d. Follow steps (a) thru (c) to install opposite end of red cable to top latch in the position marked red.



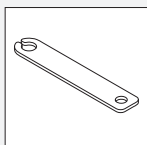
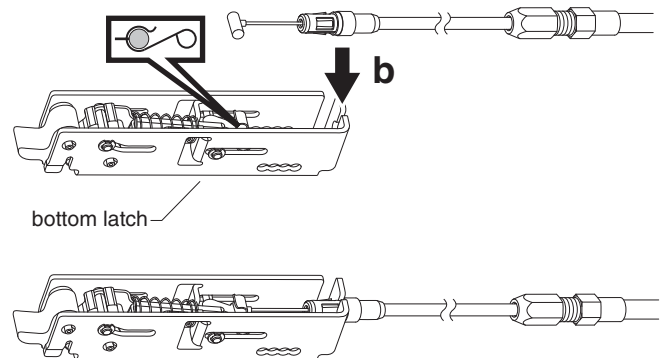
15 Install Bottom Cable.

For 2-Point Latch Only

- a. There is an end fitting on one end of the white cable. Install this end to the remaining top latch position (marked as white).



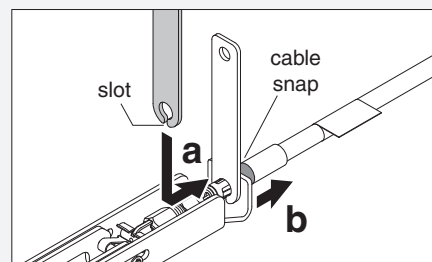
- b. Install opposite end of white cable to bottom latch.



Cable Removal

(If the cable was installed in wrong position)

A cable removal tool was included with device. Slot in tool fits over cable, holding tabs down. Pull on cable snap to loosen cable for removal.



16 Determine if Bottom Latch Retraction Adjustment is Necessary.

For 2-Point Latch Only

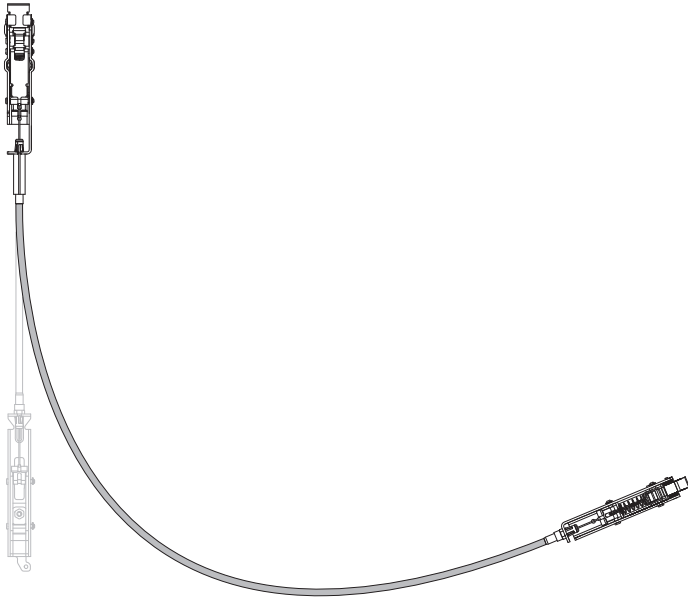
CAUTION
Critical step

CAUTION

Adjustment must be made while the top latch is in the hold-open position.

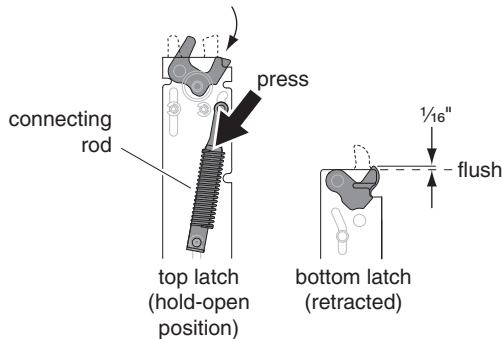


- a. Flex the cable into an L-shape as shown to simulate the installed condition of the latches.



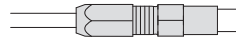
- b. To determine whether an adjustment is required, actuate the top latch to the hold-open position by pressing down on the connecting rod. Bottom latch should retract to within $\frac{1}{16}$ " of flush. If it does not, an adjustment is necessary.

If no adjustment is needed, proceed to Step 18.



17 Adjust Bottom Latch Retraction (if necessary). For 2-Point Latch Only

The conduit lock is used to make this adjustment.

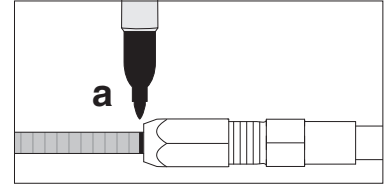


CAUTION

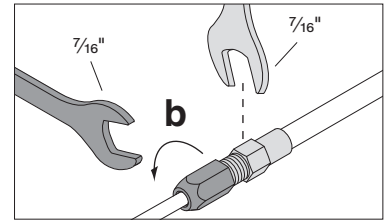
Adjustment must be made while the top latch is in the hold-open position.



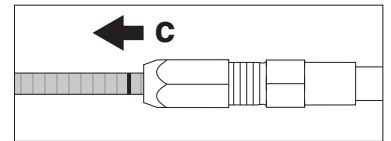
- a. Use a permanent marker or tape to mark position of bottom cable conduit.



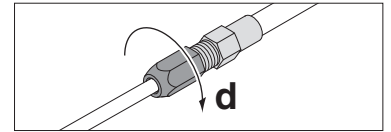
- b. Loosen conduit lock nut so conduit is free to slide.



- c. Pull until (1) extra wrap of conduit can be seen (1 wrap = $\frac{1}{8}$ ").



- d. Hand tighten conduit lock nut.



- e. Repeat Step 16. Confirm bottom latch now retracts to within $\frac{1}{16}$ " of flush.

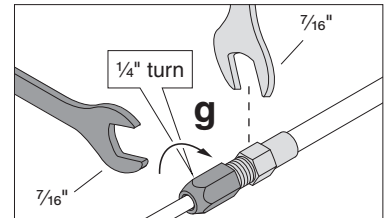
- f. If not, loosen conduit lock nut, pull out an additional wrap of conduit, and hand tighten conduit lock nut.

- g. Wrench tighten conduit lock nut $\frac{1}{4}$ turn.

Caution: Do not overtighten.

WARNING

Failure to properly tighten conduit lock nut will result in device malfunction and possible lock in or lock out situation.



18 Confirm Bottom Deadlatching. For 2-Point Latch Only

- a. Lock top latch. Flex the cable into an L-shape as before.

- b. Push against flat side of bottom latchbolt. Latchbolt should NOT release.



If latchbolt releases, return conduit to position marked in Step 17a. Repeat bottom latch retraction adjustment.

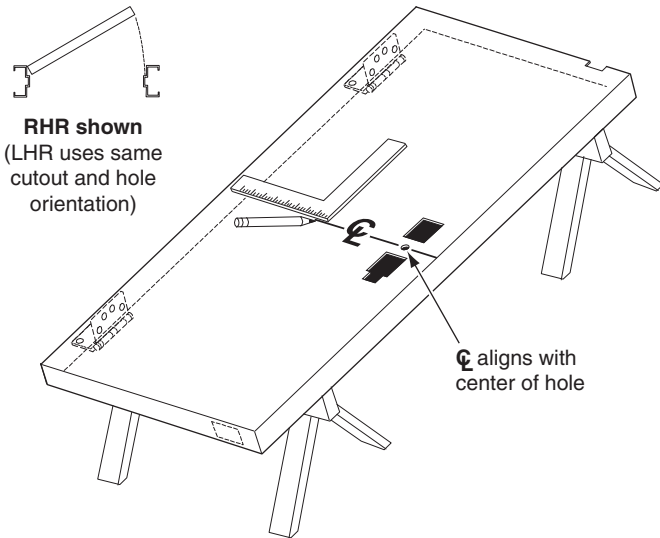
CAUTION

If no bottom latch retraction adjustment was necessary, yet the bottom latch won't deadlatch, contact technical support.

19 If Retrofit Installation

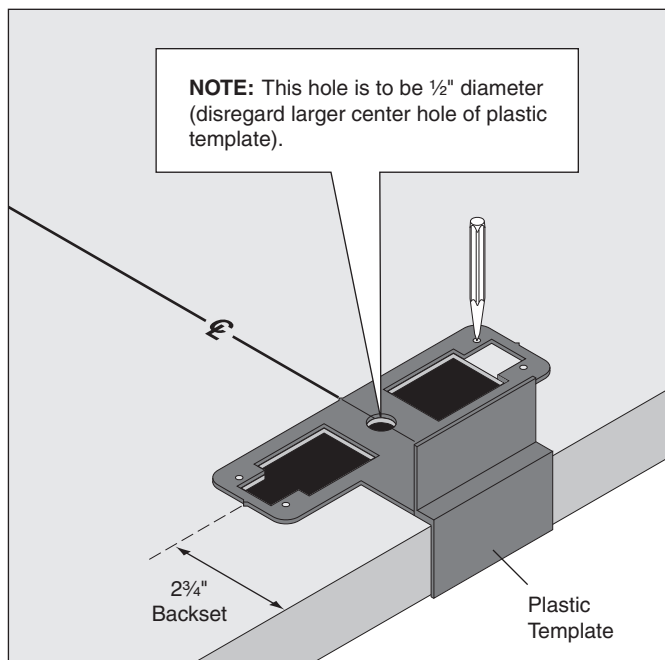
- Remove device from existing door.
- Remove existing door.
- Remove and discard existing strikes.

20 With Door Laying Flat, Draw Horizontal Device Center Line (☉).

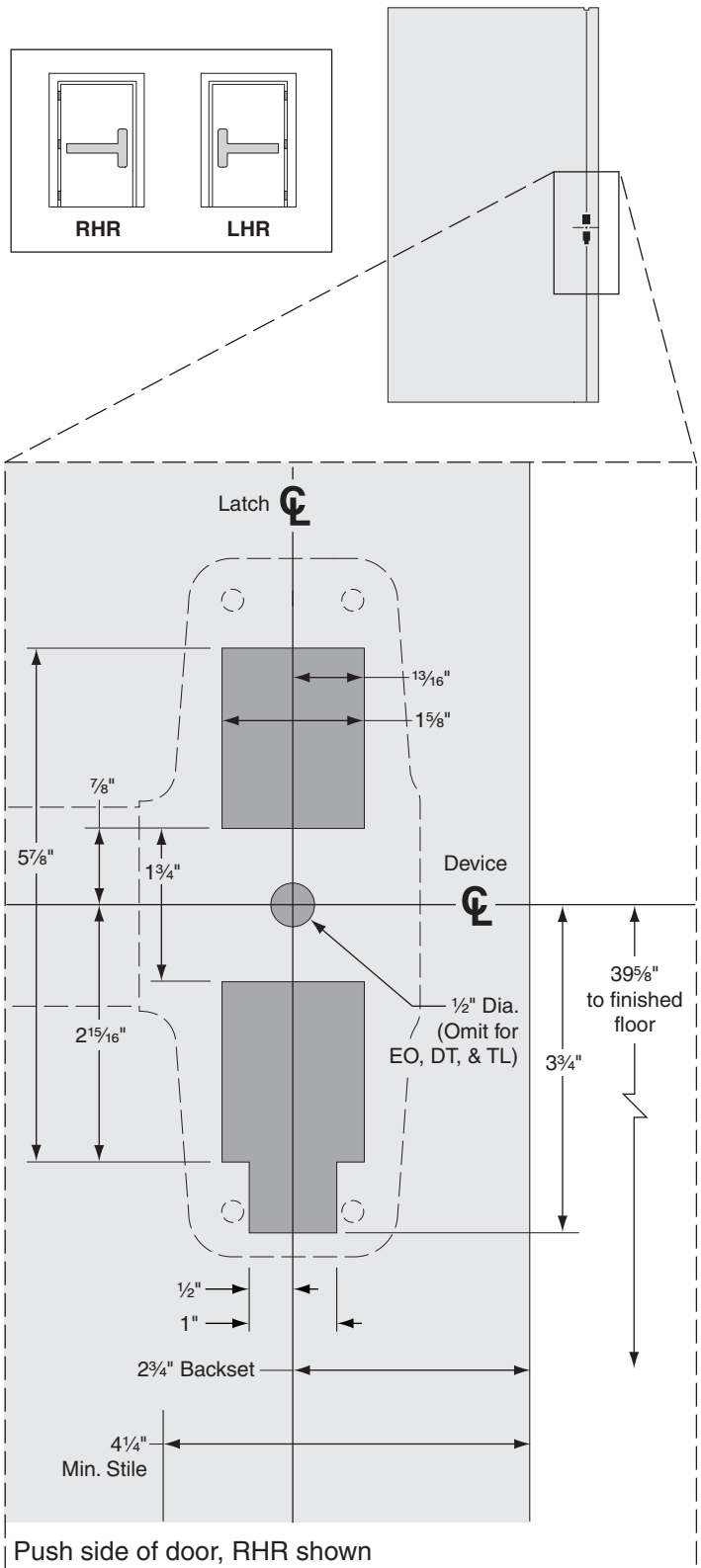


NOTE: Centerline is predetermined by cutout. If no cutout exists, refer to Step 22 to determine centerline.

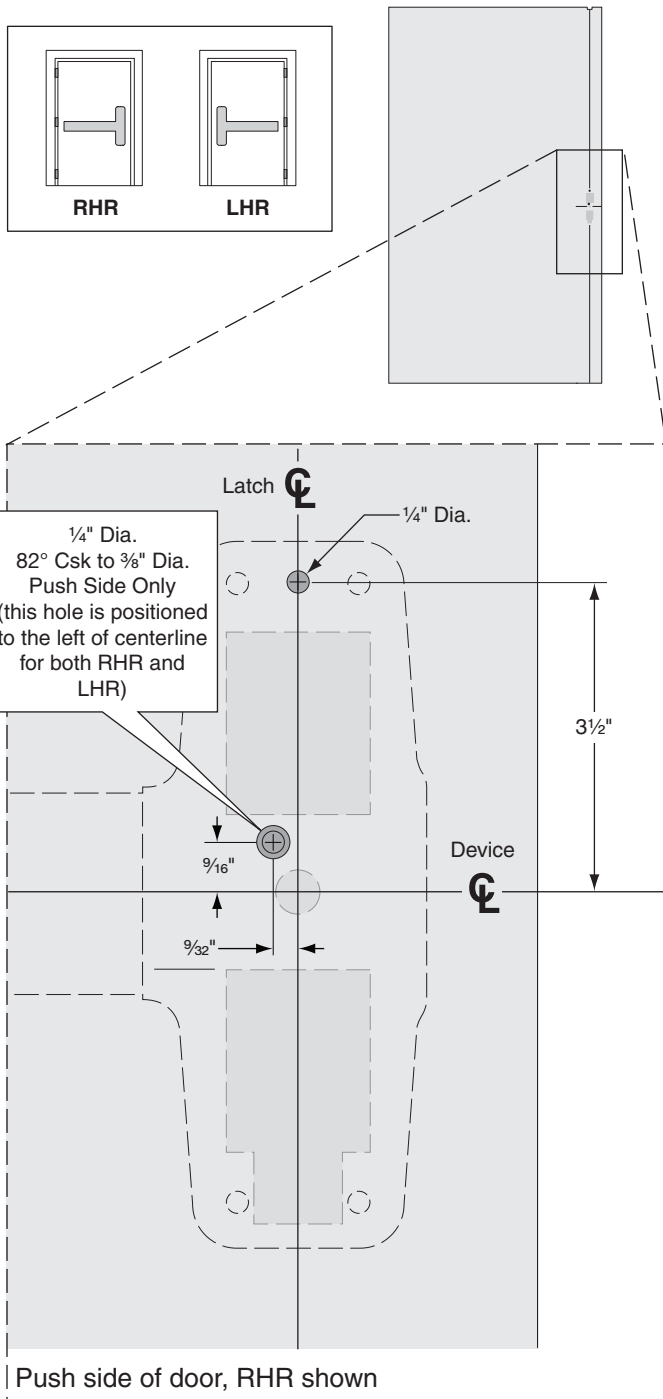
21 Align Plastic Template and Mark Door.



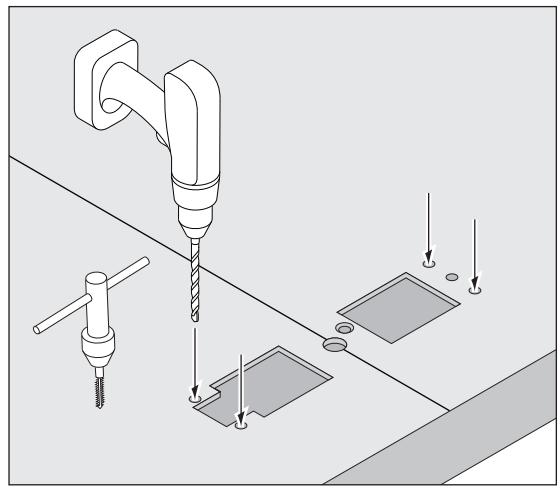
22 If Necessary, Prepare Door Cutouts.



23 If Necessary, Prepare 2 Center Slide Holes.



24 Prepare 4 Holes per Plastic Template.



Surface Mount (metal doors only)

#25

#10-24

Sex Bolts or 990 Trims

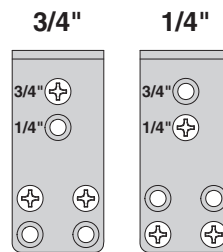
1/4" (device side)

OR

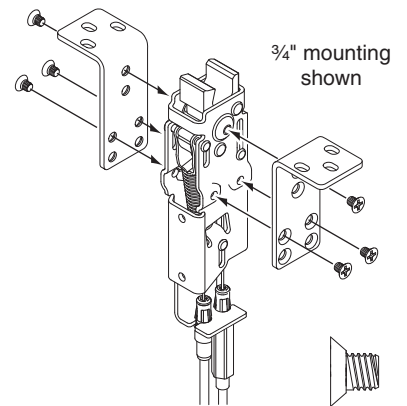
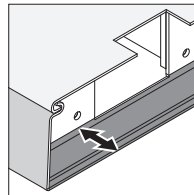
1 3/32" (trim side)

25 Assemble Latch Mounting Brackets. **Hollow Metal Only**

Top



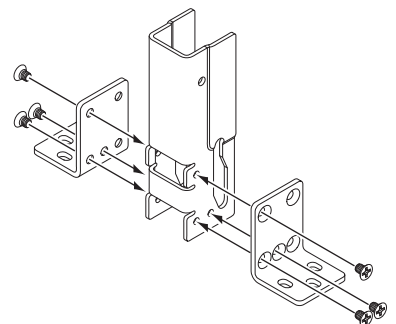
Depth from top edge of door to the channel



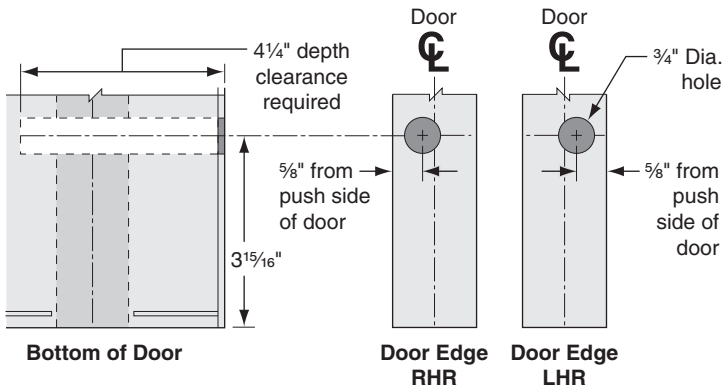
Bottom
For 2-Point Latch Only



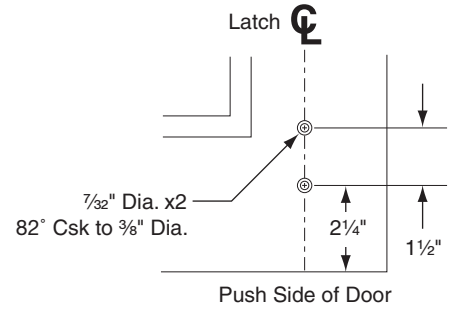
10-32 x 1/4"



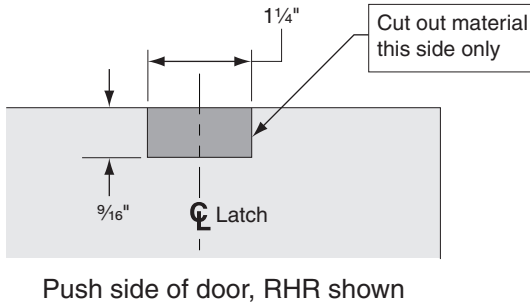
26 Prepare Access Hole for Bottom Latch Adjustment Pin.
Hollow Metal For 2-Point Latch Only



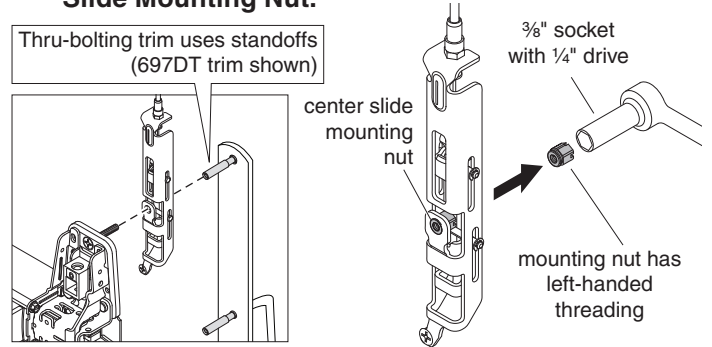
29 Prepare Bottom of Door for Latch Mounting.
Aluminum For 2-Point Latch Only



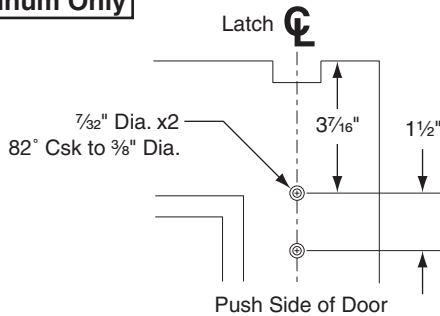
27 If Necessary, Prepare Door for Top Strike Cutout.



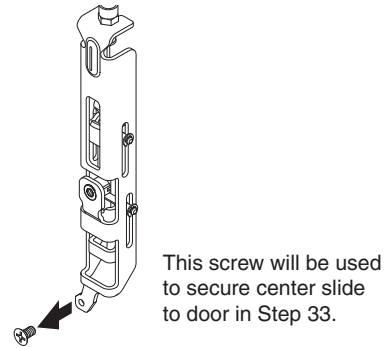
30 If Using 696/697 Thru-Bolting Trim, Remove Center Slide Mounting Nut.



28 Prepare Top of Door for Latch Mounting.
Aluminum Only



31 Remove Screw from Center Slide.

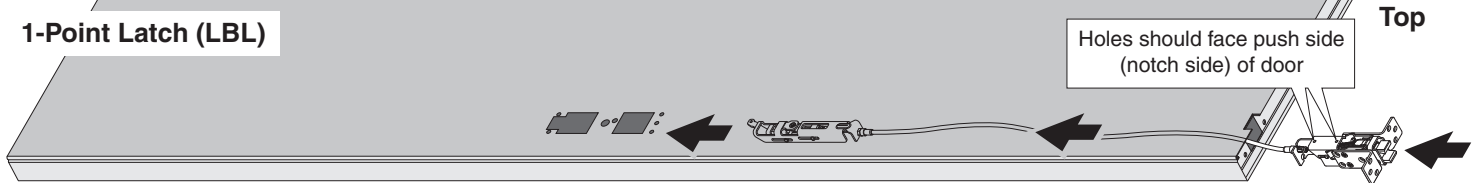


32 Slide Latch and Center Slide Assembly thru Door.

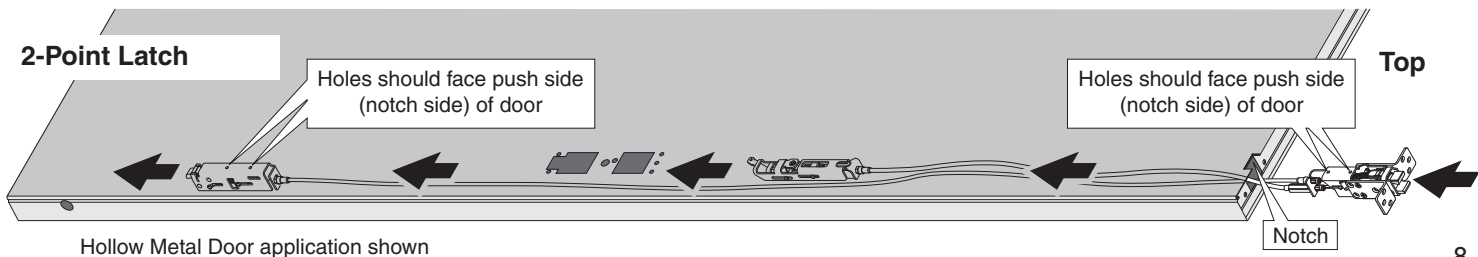
NOTE: Confirm top latch (and bottom latch, if applicable) is in correct orientation before proceeding.

NOTE: It is normal for the cable to bend inside the door, forcing the latch outward.

1-Point Latch (LBL)

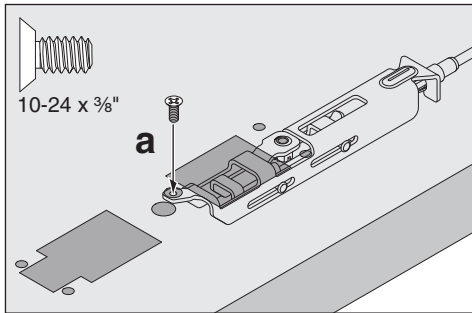


2-Point Latch

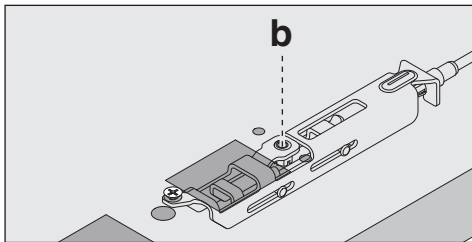


33 Secure Center Slide to Door.

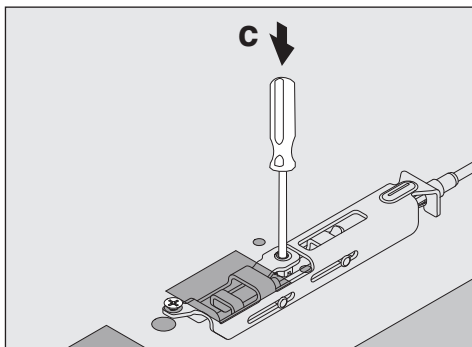
Secure center slide to door by lightly tightening lower screw.



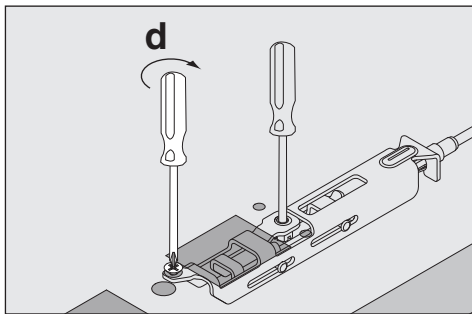
Align upper hole visually.



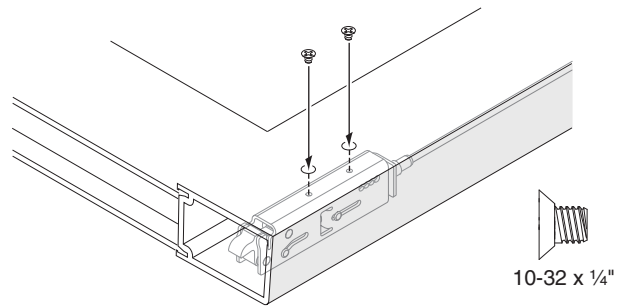
Insert small screwdriver into upper hole to prevent center slide from rotating.



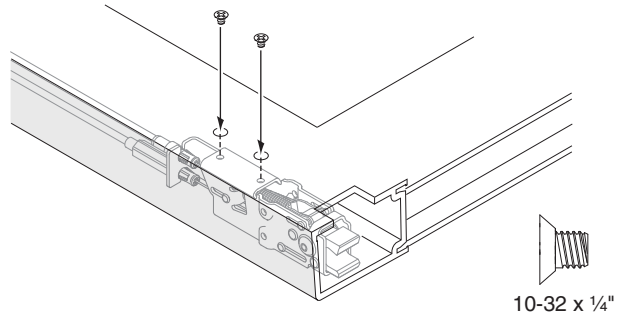
Fully tighten lower screw.



34 Align Bottom Latch and Install Mounting Screws. Aluminum For 2-Point Latch Only

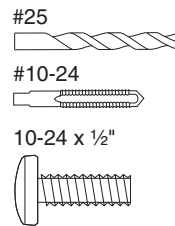


35 Secure Top Latch with 2 Screws. Aluminum Only

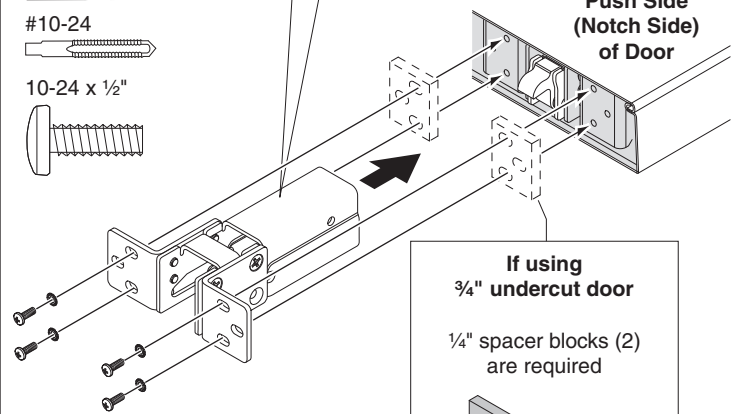


36 Install Bottom Latch Mounting Bracket Assembly. Hollow Metal For 2-Point Latch Only

NOTE: Confirm correct orientation of assembly before proceeding. Open side of housing should face pull side of door.



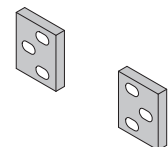
Push Side (Notch Side) of Door



NOTE: Use 2 screws per bracket (center hole not used for this application).

If using 3/4" undercut door

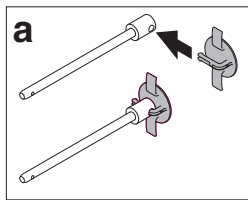
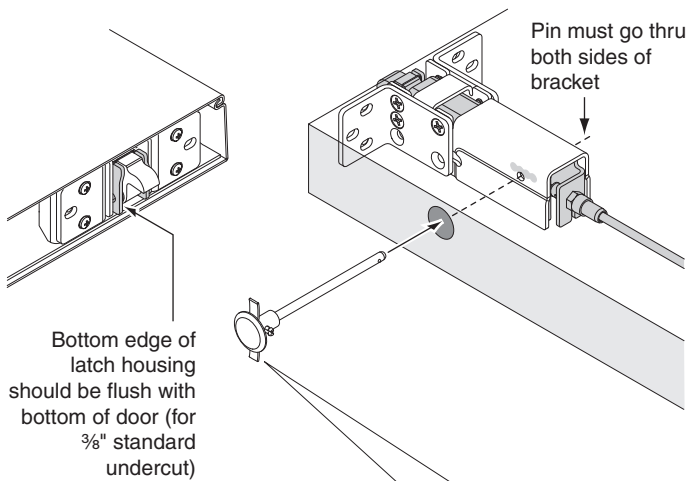
1/4" spacer blocks (2) are required



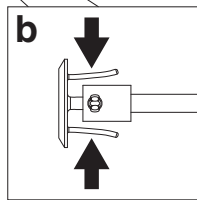
Spacer Block Kit (24231516) purchased separately

37 Insert Latch Adjustment Pin to Hold Bottom Latch in Place.

Hollow Metal For 2-Point Latch Only



Assemble pin

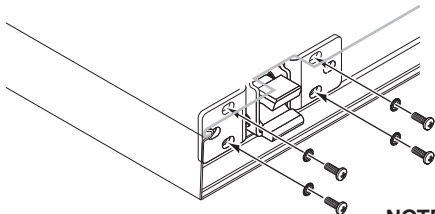
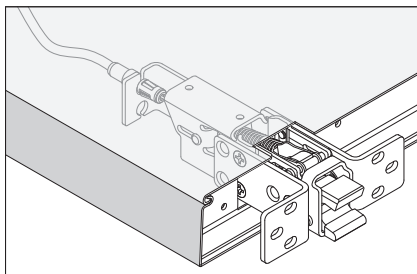


Squeeze tabs on cap, then insert pin

38 Secure Top Latch Mounting Bracket.

Hollow Metal Only

NOTE: It is normal for the cable to bend inside the door, forcing the latch outward as shown here.



- #25
- #10-24
- 10-24 x 1/2"

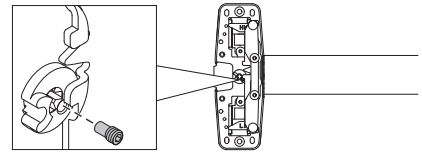
NOTE: Use 2 screws per bracket (center hole not used for this application).

39 Hang Door on Frame.

Caution: For 2-point latches, bottom latch cannot be in locked position while hanging door on frame. Latch must be retracted.

40 If Necessary, Remove NL Drive Screw.

NL drive screw
Factory installed on back of center case



With the NL drive screw removed, key locks and unlocks lever, knob, or thumb piece. For the trims listed below, **REMOVE** NL drive screw.

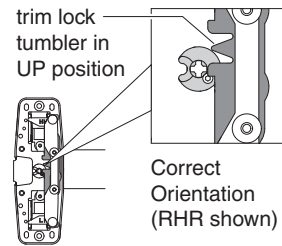
996L	696TP	990TP
996K	697TP	

With the NL drive screw installed, key retracts latch bolt. **DO NOT** remove NL drive screw for the following applications:

NL, EO, DT trims and 98/99-2 double cylinder devices (i.e. TP-2, L-2, and K-2).

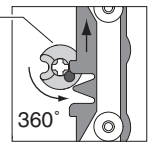
*996L-BE	*E996L	*696TP-BE	*990TP-BE
*996K-BE	*E996L-BE	*697TP-BE	

* If the trim being installed is "BE" (i.e. 996L-BE), the trim lock tumbler on the back of the device must be in the **UP** position before device is installed. This allows the trim to be unlocked at all times.



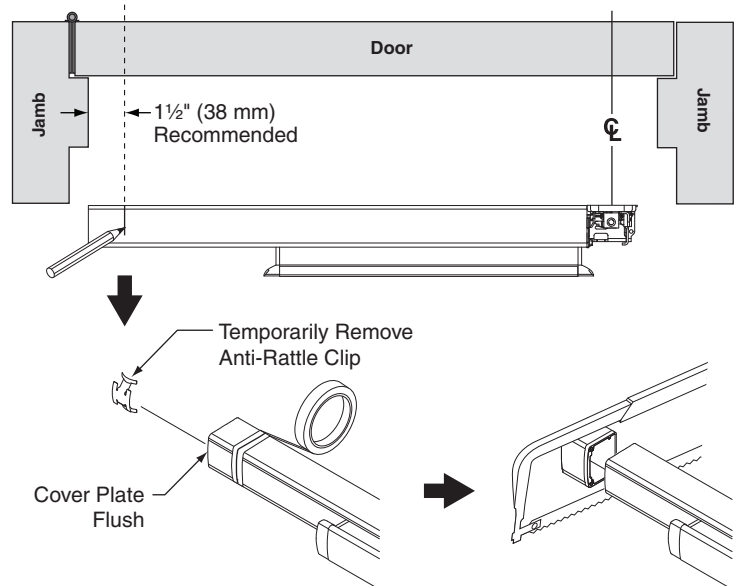
Correct Orientation (RHR shown)

If necessary, remove drive screw and rotate cam until trim lock tumbler is in UP position, then reinstall drive screw

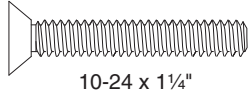
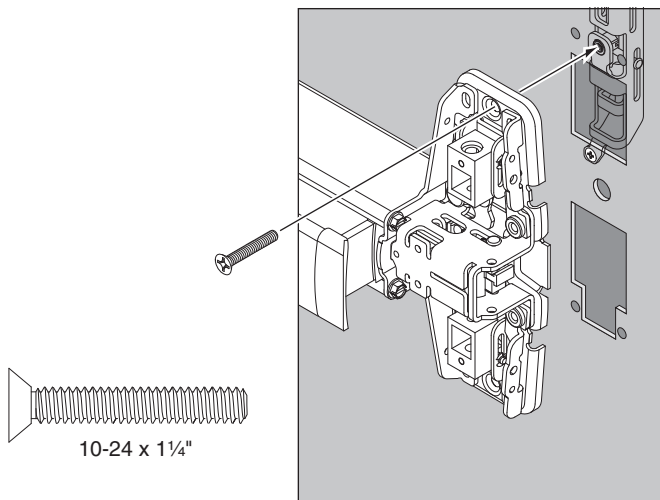


Incorrect Orientation

41 If Necessary, Cut Device.

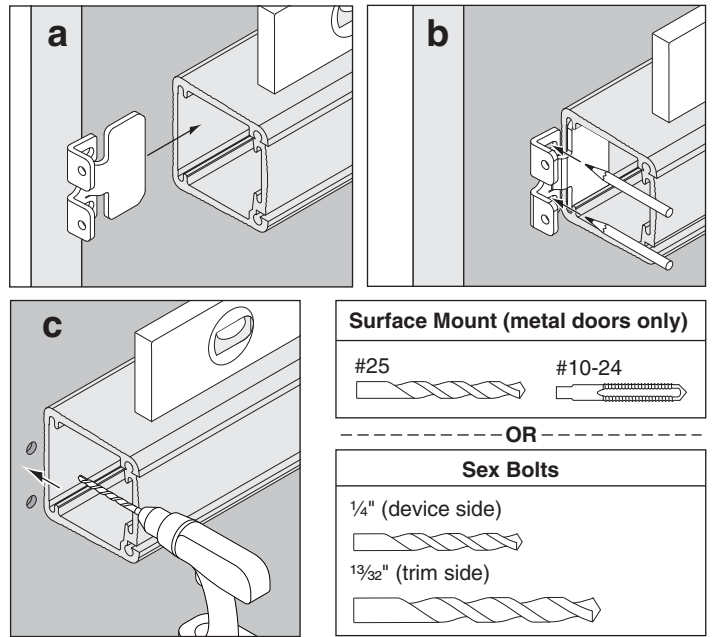


42 Install Top Center Slide Screw.

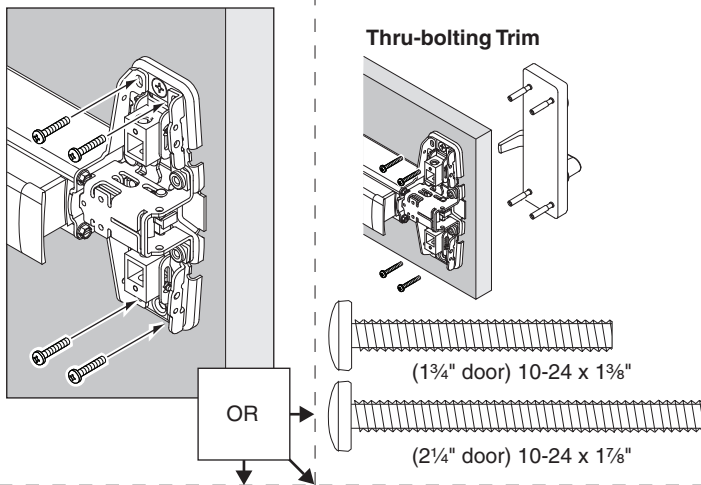


NOTE: If using 696/697 trim, this screw will pass thru top center slide hole and secure directly into trim during Step 43.

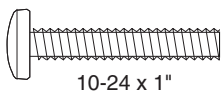
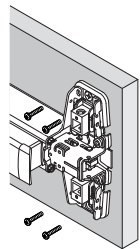
44 Mark and Prepare 2 Holes.



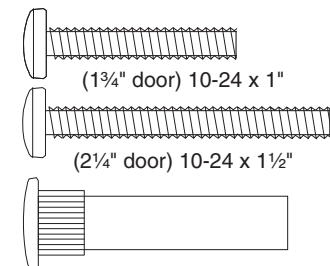
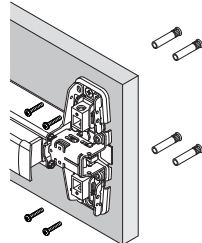
43 Attach Center Case to Door.



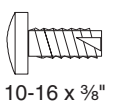
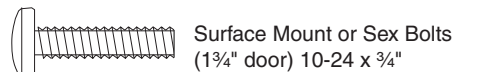
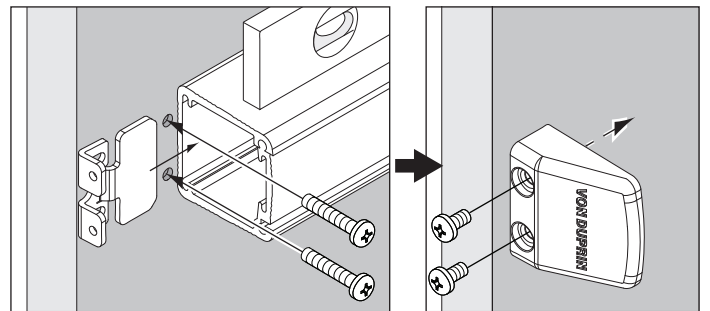
Surface Mount (metal doors only)



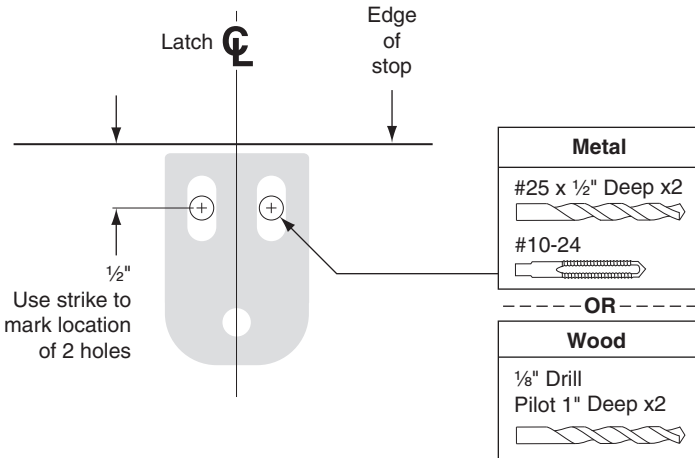
Sex Bolts



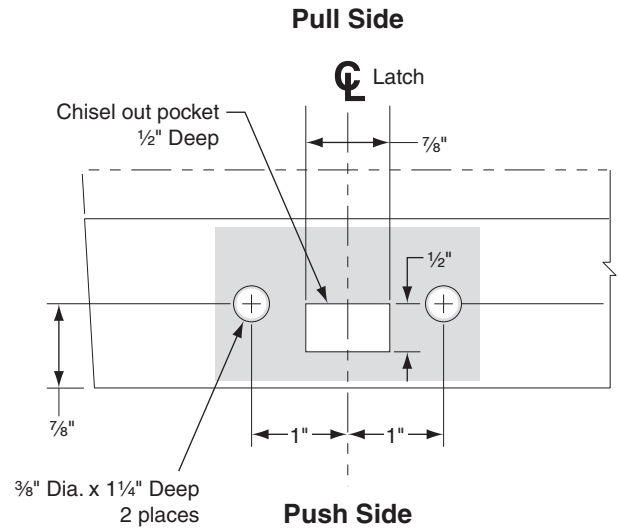
45 Install End Cap Bracket and End Cap.



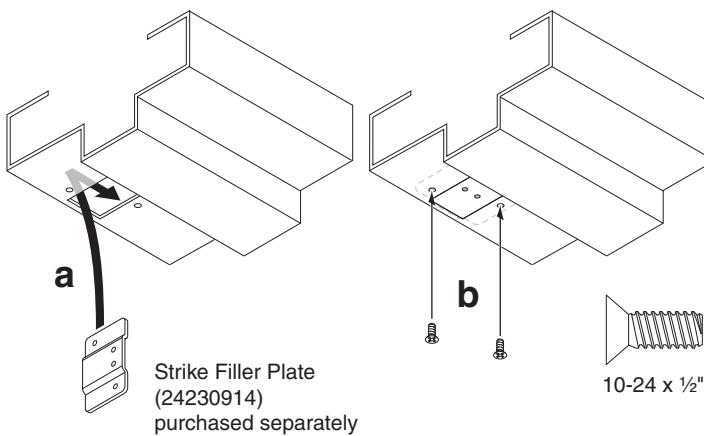
46 If New Installation, Prepare Door Frame for Top Strike.



49 Prepare Floor for Bottom Strike.
Hollow Metal For 2-Point Latch Only



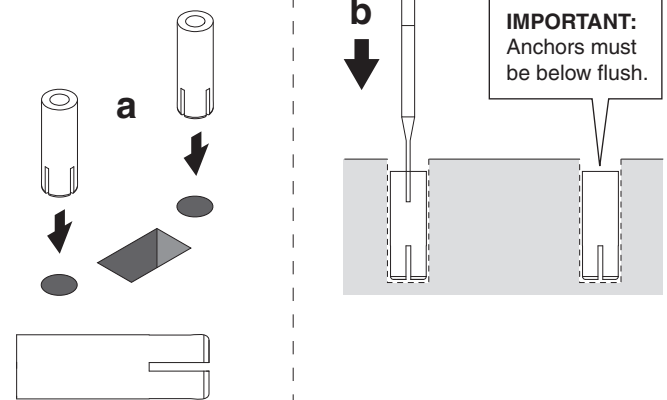
47 If Retrofit Installation, Install Steel Cover Plate to Cover Existing 338 Strike Opening in Accordance with the Frame Manufacturer's Fire Listing.



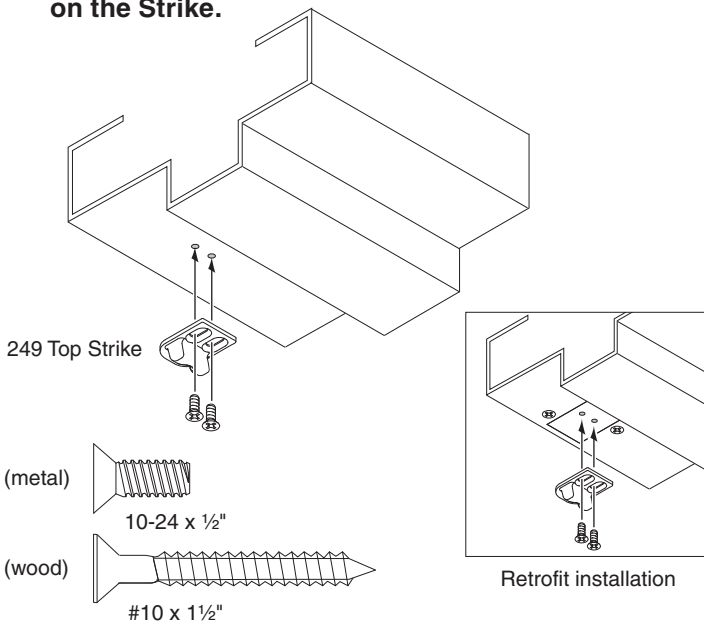
50 Install Bottom Strike.
Hollow Metal For 2-Point Latch Only

Clear holes of debris, then drop in anchors (slotted end first)

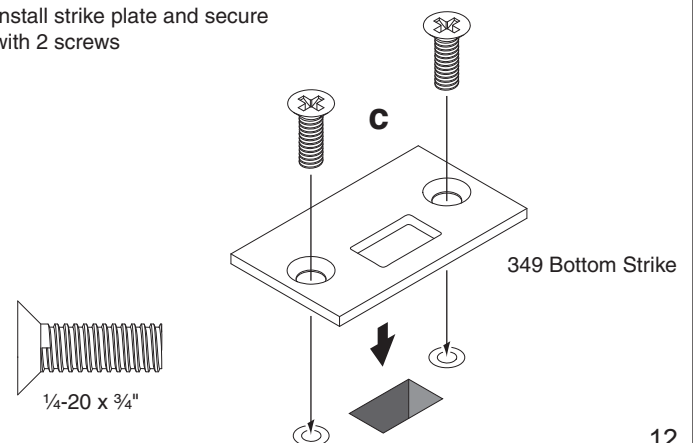
Secure the anchors using a hammer and punch



48 Install 2 Top Strike Screws Using the Slot Features on the Strike.



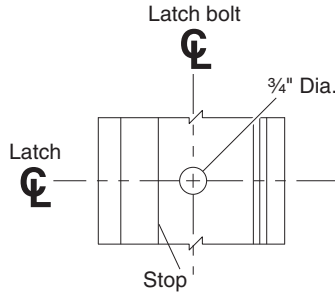
Install strike plate and secure with 2 screws



51 Prepare Threshold.

Aluminum For 2-Point Latch Only

- After closing door with bottom latch installed, mark location where bottom latch bolt is contacting the threshold.
- Drill a $\frac{3}{4}$ " diameter hole in the threshold.



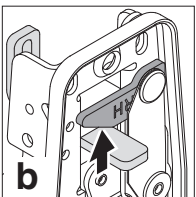
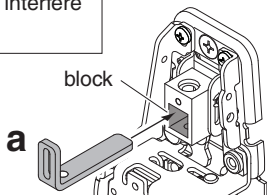
52 Install Lift Finger and Retainer Clip.

NOTE: Lift finger installation must be performed while the latches are in the extended (latched) position.

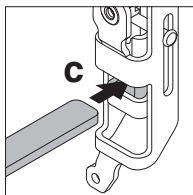
Slide L-shaped lift finger thru block in device center case and then into center slide

For 2-Point Latch Only

Push cable to the side so it does not interfere with lift finger.

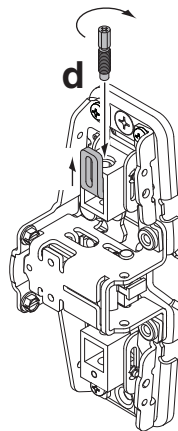


Lift finger must pass below locking tumbler (back of center case shown for clarity)



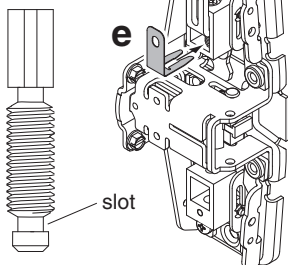
Lift finger must insert into center slide here

Insert adjustment screw and rotate clockwise with screwdriver to raise lift finger until it is snug against block



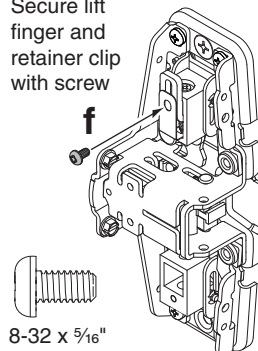
Install retainer clip against lift finger, snapping it into the slot of the adjustment screw

It may be necessary to back out adjustment screw a couple turns to see slot.



Secure lift finger and retainer clip with screw

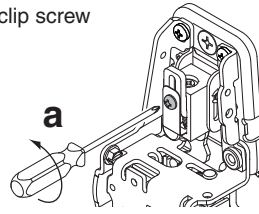
8-32 x $\frac{5}{16}$ "



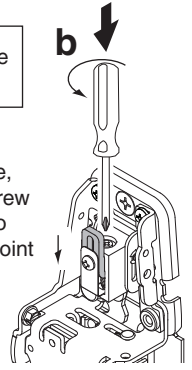
53 Adjust Lift Finger.

NOTE: Lift finger adjustment must be performed while the latches are in the extended (latched) position.

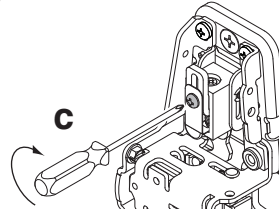
Loosen retainer clip screw



While maintaining downward pressure, turn adjustment screw counterclockwise to lower lift finger to point where top latch unlocks with push pad depressed halfway



Tighten retainer clip screw



54 Confirm Top Deadlatching.

- Lock top latch.
- Push down on top latchbolt. Latchbolt should NOT release.

If latchbolt releases,

- Loosen retainer clip screw.
- Rotate adjustment screw clockwise a couple turns to raise lift finger.
- Retighten retainer clip screw.

push
top latch (locked)



55 Perform Functional Test of Door.

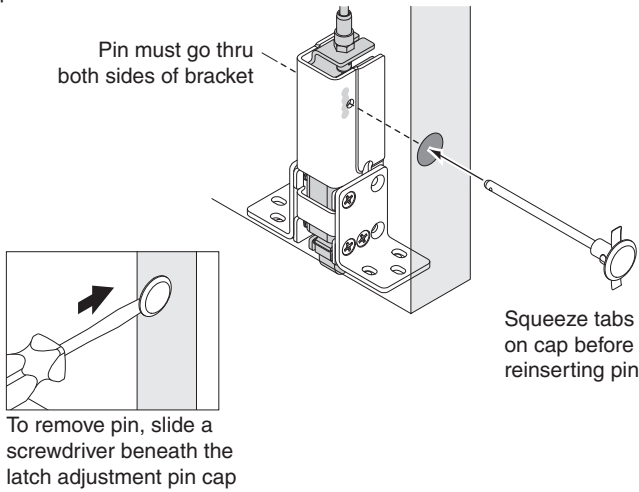
- Depress pushbar. Door should begin to open when pushbar is nearly fully depressed. If necessary, refer to Step 53 to readjust lift finger.
- With door closed, top latch should be secure.

For 2-Point Latch Only

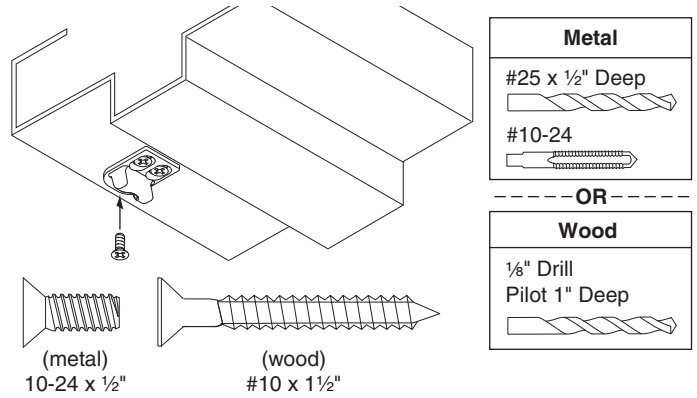
- With door closed, bottom latch should be secure.
- Confirm that bottom latch does not drag against floor when door is opened.

Hollow Metal For 2-Point Latch Only

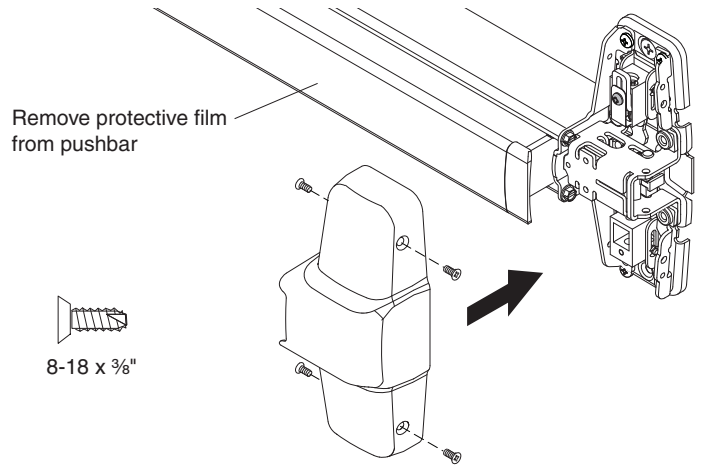
If this occurs, remove latch adjustment pin and raise latch, then reinsert pin in next notch.



56 Adjust Top Strike as Necessary, then Install the Third Strike Screw to Fix the Strike Position.



57 Install Center Case Cover.



OPTIONAL EQUIPMENT

CD (CYLINDER DOGGING)

1. Remove mortise cylinder cam and reinstall in reverse (Figure 1).
2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 2).
3. Remove key to slide cover plate in position in the mechanism case.

CD function conversion

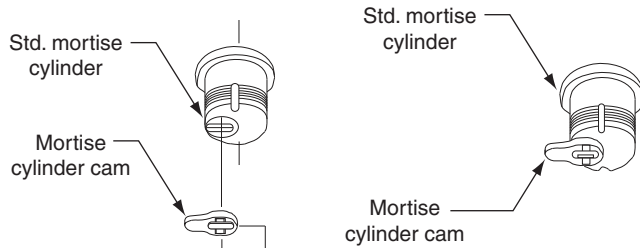


Figure 1

Dogging procedure

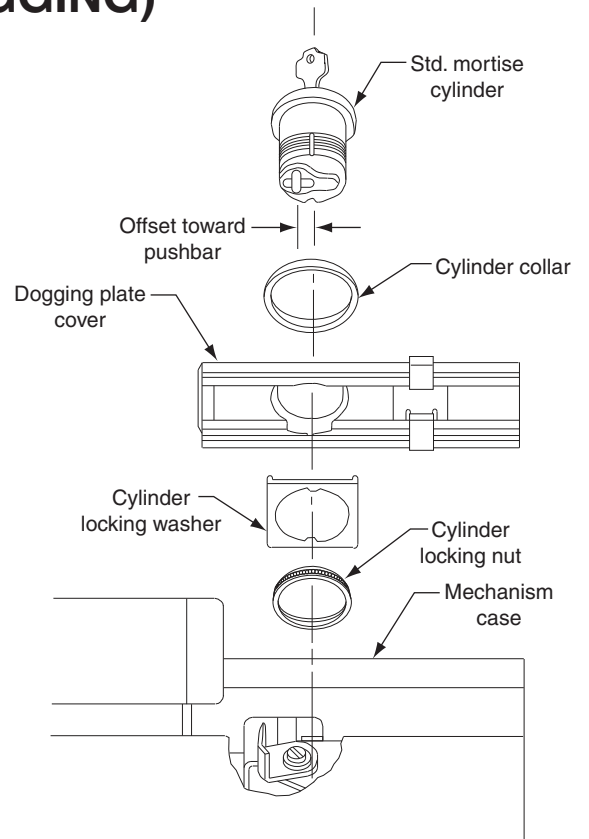
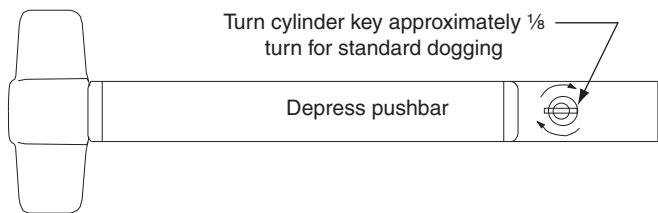


Figure 2

WARNINGS AND CAUTIONS

WARNING

Warnings indicate potentially hazardous conditions, which if not avoided or corrected, may cause death or serious injury.

CAUTION

Cautions indicate potentially hazardous conditions, which if not avoided or corrected, may cause minor or moderate injury. Cautions may also warn against unsafe practices.

Caution: Cautions indicate a condition that may cause equipment or property damage only.