



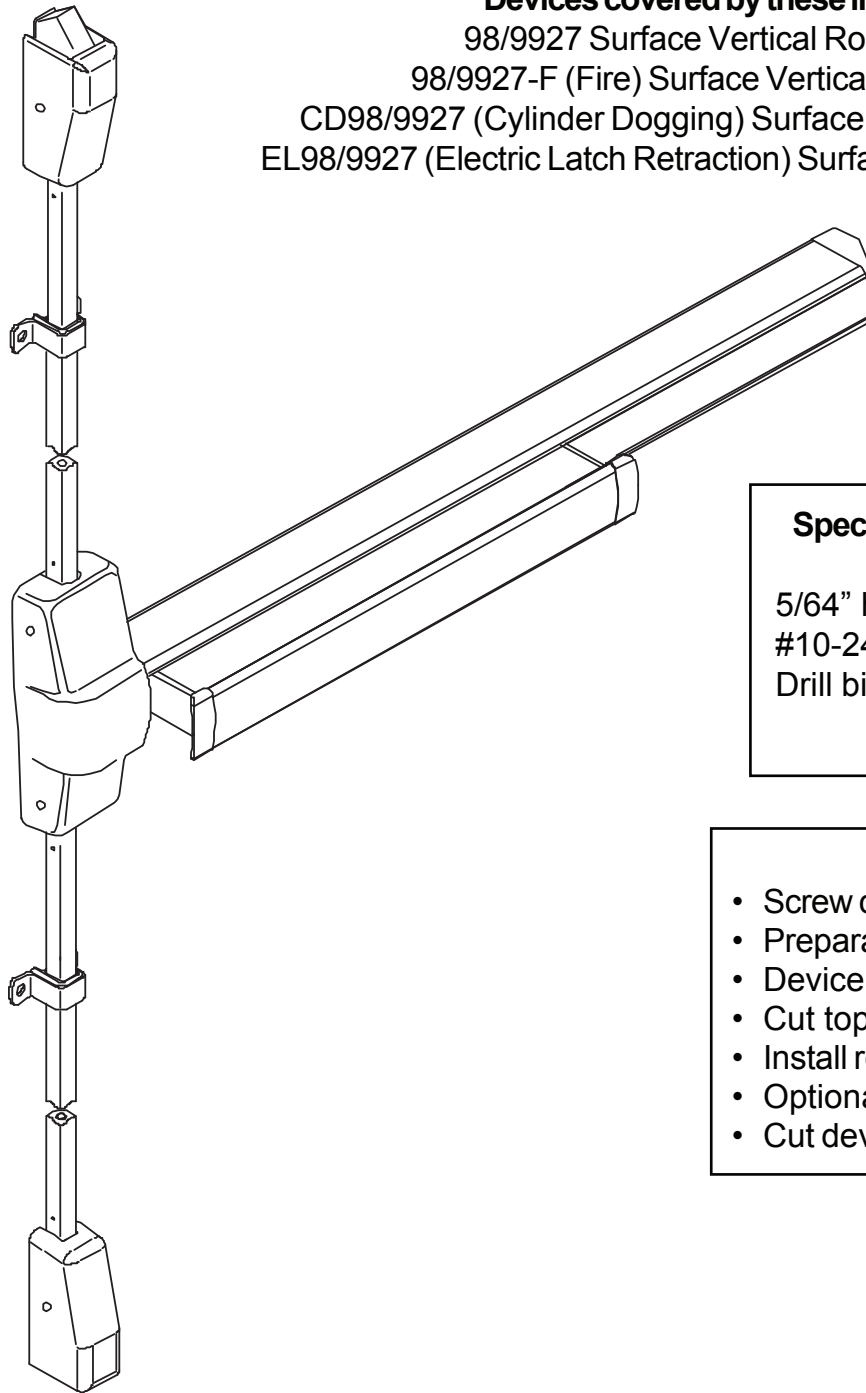
911375-00

98/9927

VON DUPRIN®

Surface Vertical Rod Exit Device

Installation Instructions



Devices covered by these instructions:

98/9927 Surface Vertical Rod Exit Device

98/9927-F (Fire) Surface Vertical Rod Exit Device

CD98/9927 (Cylinder Dogging) Surface Vertical Rod Exit Device

EL98/9927 (Electric Latch Retraction) Surface Vertical Rod Exit Device

Special tools needed:

5/64" hex wrench

#10-24 tap

Drill bits: #25, 1/8", 1/4",
5/16", 13/32"

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- Screw chart 2
- Preparation chart 3
- Device installation 4-6
- Cut top rod 7
- Install rod extension 7
- Optional equipment 8
- Cut device 8



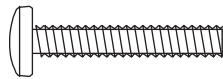
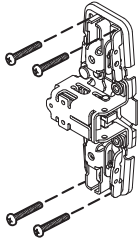
Customer Service

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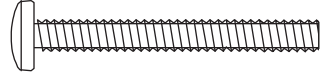
SCREW CHART

A



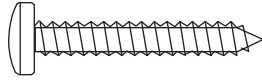
#10-24 X 1"

Surface mount or
Sex bolts (1-3/4" door)



#10-24 X 1-1/2"

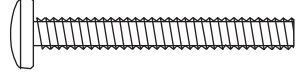
Sex bolts (2-1/4" door)



#10 x 1-1/4" Wood screw

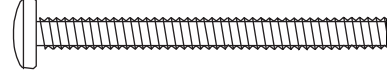
Surface mount (wood)

- Packaged with trim -



#10-24 X 1-3/8"

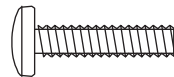
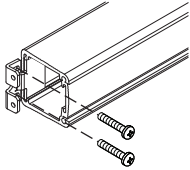
990 trims (1-3/4" door)



#10-24 X 1-7/8"

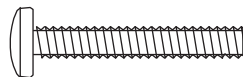
990 trims (2-1/4" door)

B



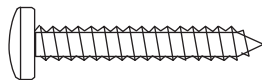
#10-24 X 3/4"

Surface mount or
Sex bolts (1-3/4" door)



#10-24 X 1-1/8"

Sex bolts 2-1/4" door



#10 x 1-1/4" Wood screw

Surface mount (wood)

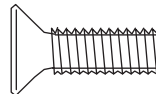
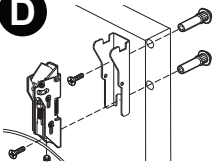
C



#10-16 x 3/8" Thread cutting

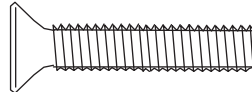
End cap

D



1/4-20 X 3/4"

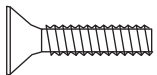
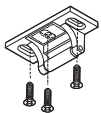
1-3/4" door



1/4-20 X 1-1/4"

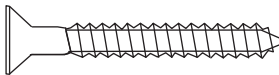
2-1/4" door

E



#10-24 X 3/4"

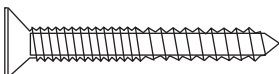
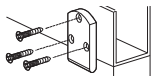
Metal frame



#10 x 1-1/2" Wood screw

Wood frame

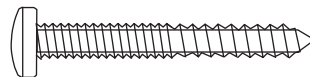
F



#10-12 x 10-24 x 1-1/4" Combination

Metal or wood frame

G



#10-12 x 10-24 x 1-1/4" Combination

Variable floor surfaces

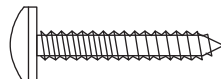
H



#8-32 X 1/4"

Latch covers

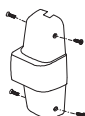
I



#10-12 x 10-24 x 1" Combination

Metal or wood door

J

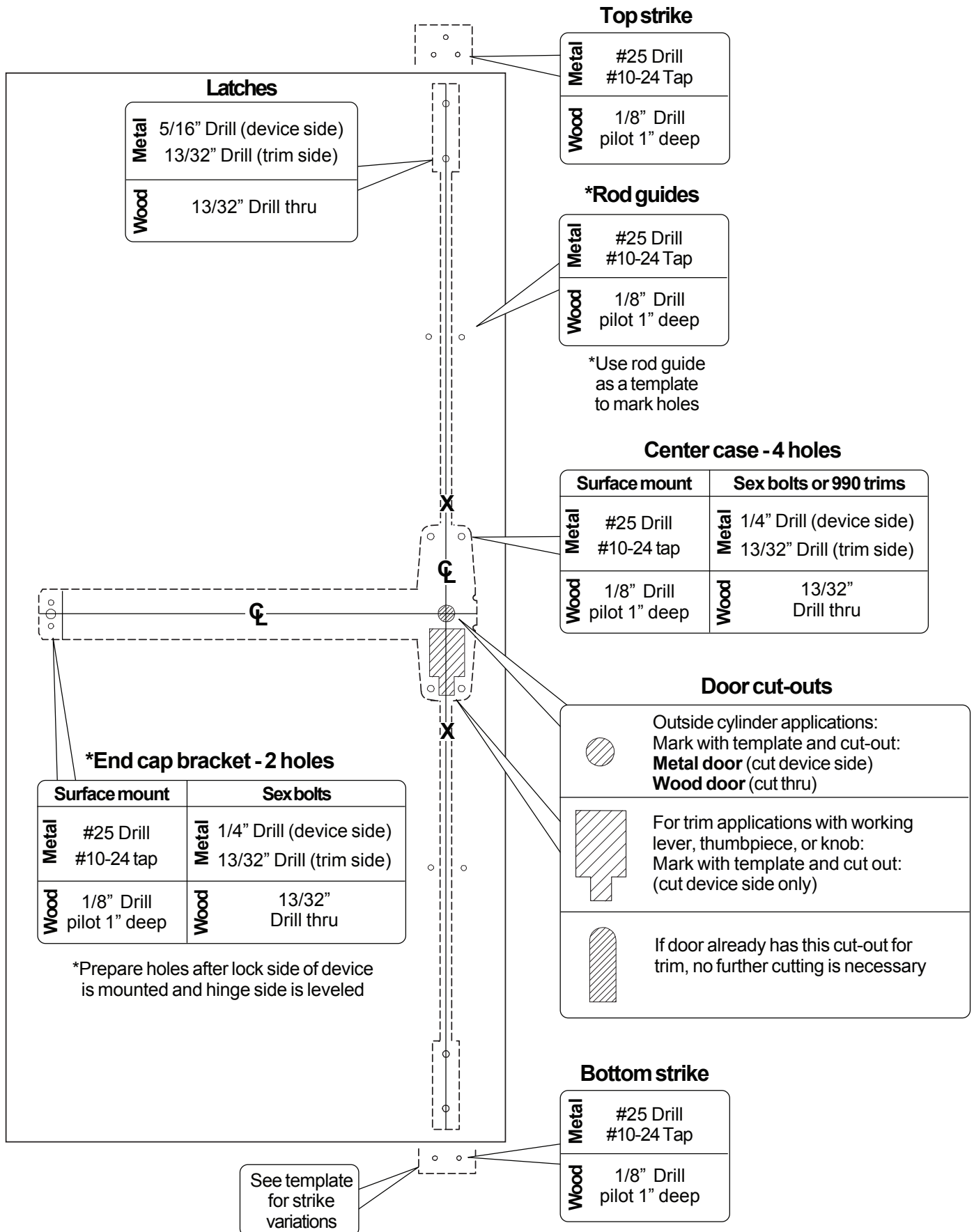


#8-18 x 3/8" Thread cutting

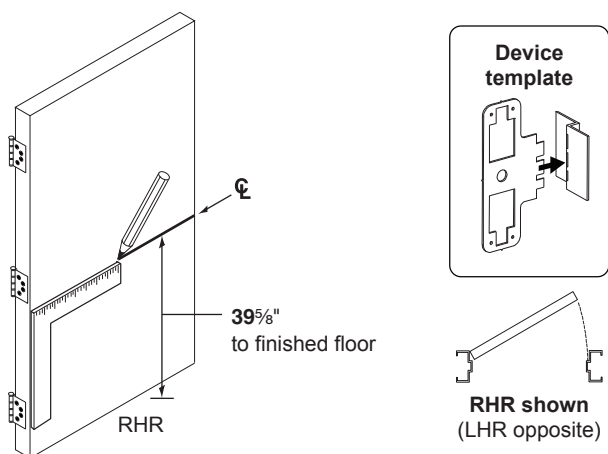
Center case cover

PREPARATION CHART

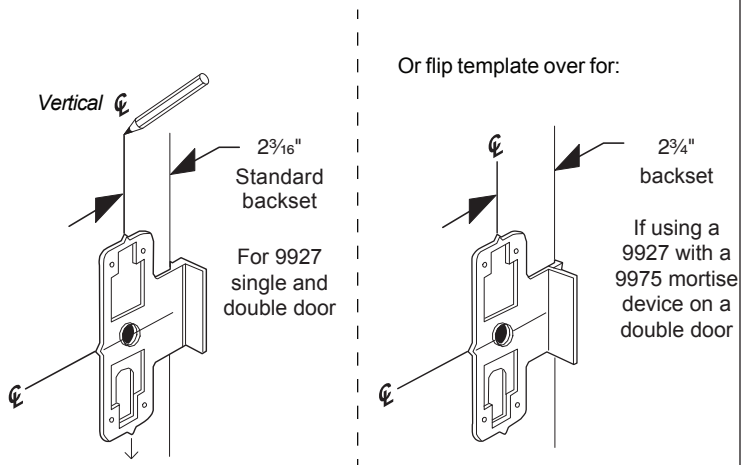
Go to instructions on next page before using Preparation Chart



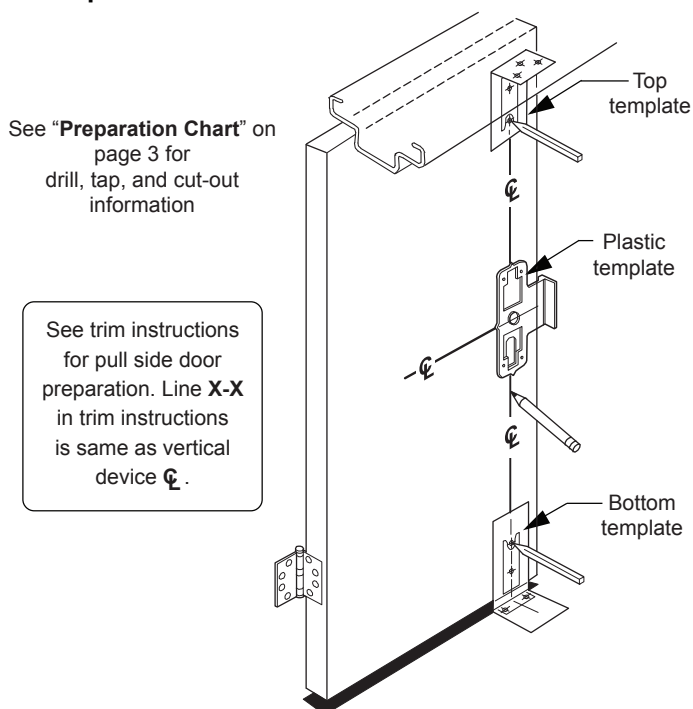
1 Draw Horizontal Center Line (☿) and Assemble Device Template



2 Position Template as Shown and Mark Vertical ☿



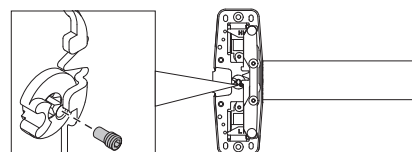
3 Align Top and Bottom Templates Along ☿ and Prepare Door



4 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.

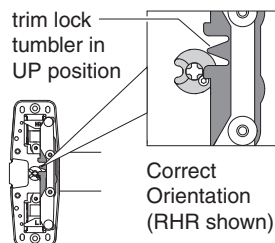
996L	696TP	990TP
996K	697TP	

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

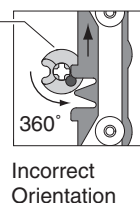
NL, EO, DT trims and 98/99-2 double cylinder devices (i.e. TP-2, L-2, and K-2).

*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.

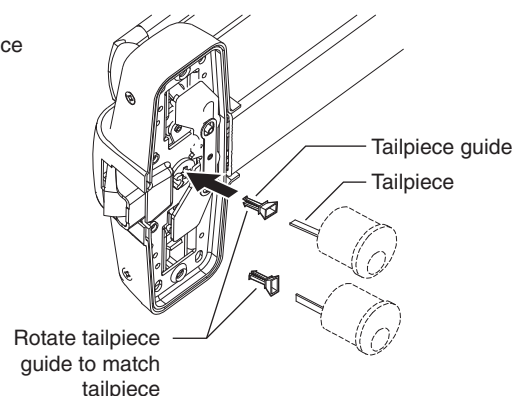


If necessary, remove drive screw and rotate cam until trim lock tumbler is in UP position, then reinstall drive screw

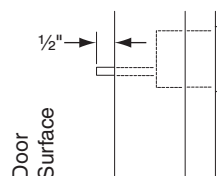


5 If Using a Cylinder with a Tailpiece, Prepare Device and Cylinder

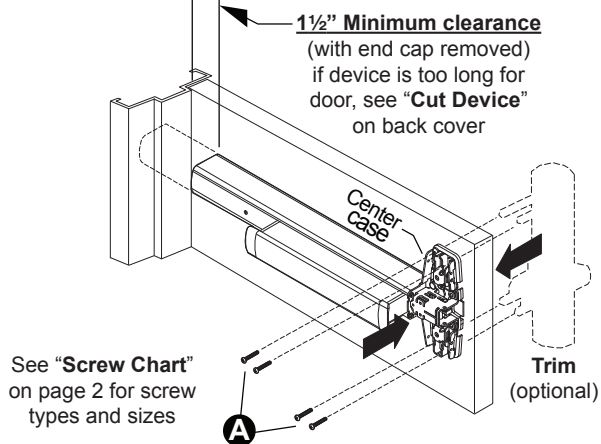
a. Install tailpiece guide.



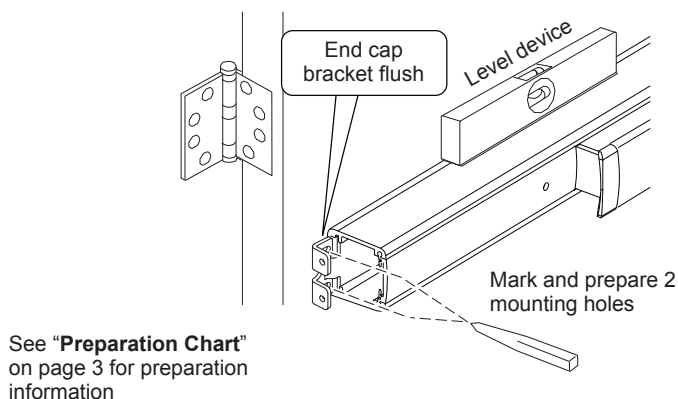
b. Cut tailpiece as needed.



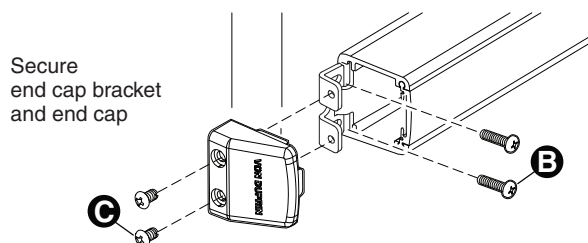
6 Install Trim (if using) and Secure Device Center Case to Door



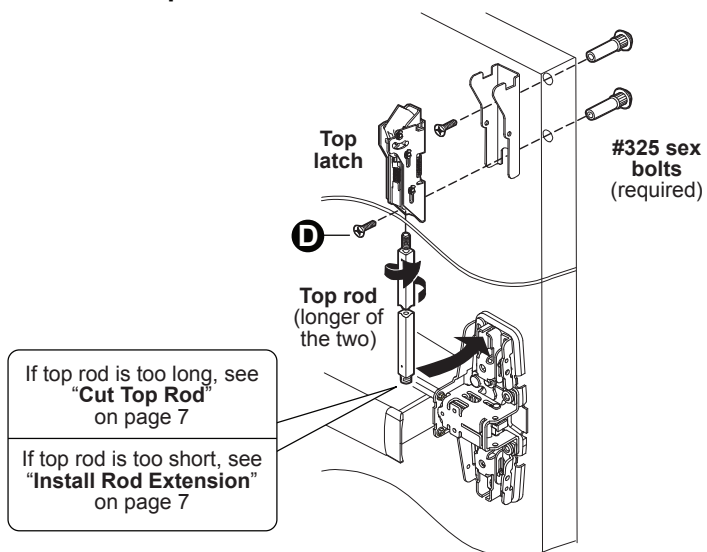
7 Mark and Prepare 2 Holes for End Cap Bracket



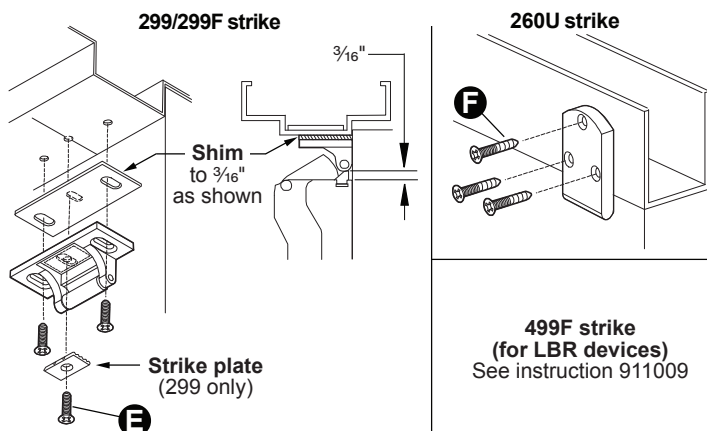
8 Install End Cap Bracket and End Cap



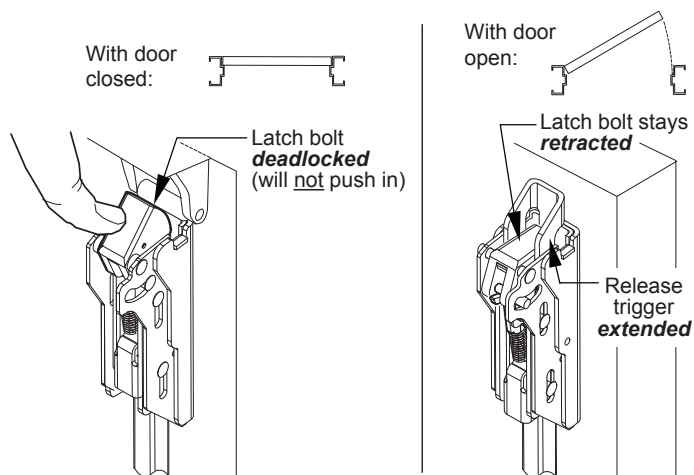
9 Install Top Latch and Rod



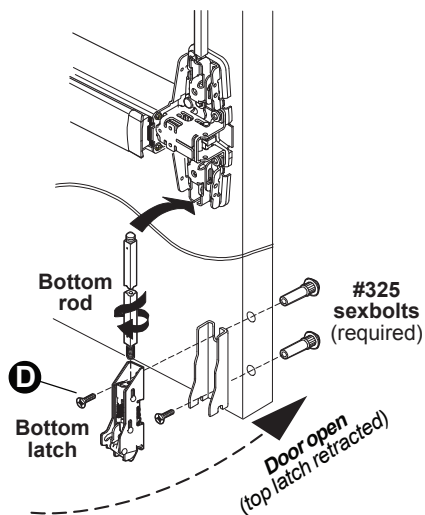
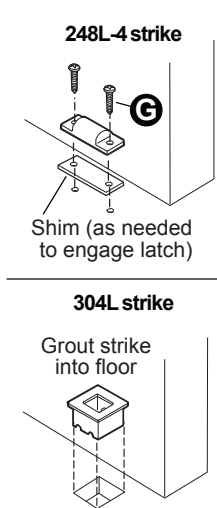
10 Install Top Strike



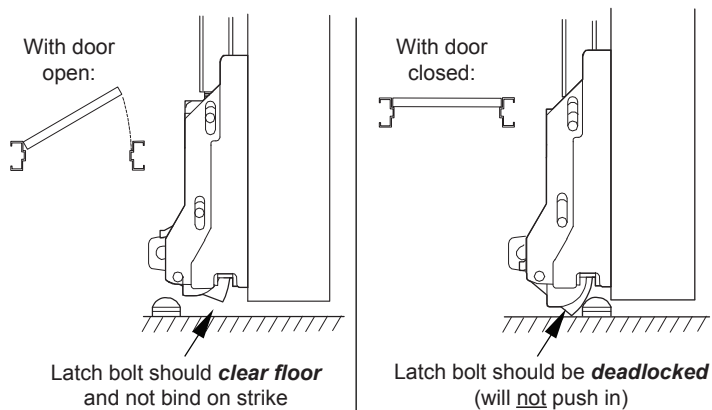
11 Adjust Top Rod (Screw Rod Into or Out of Latch) Until Adjusted as Shown



12 Install Bottom Strike, Latch, and Rod

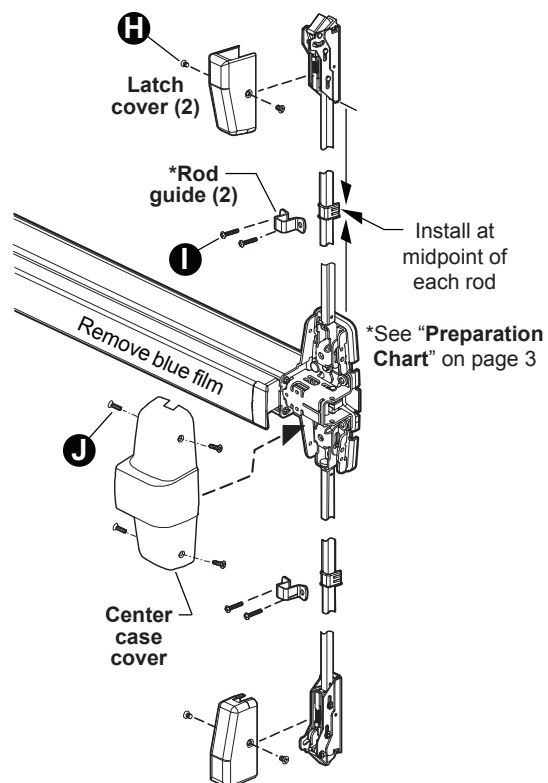


13 Adjust Bottom Rod with Door Open (Top Latch Retracted)



Open and close door a few times and check for deadlatching when door is closed. Readjust rods if needed.

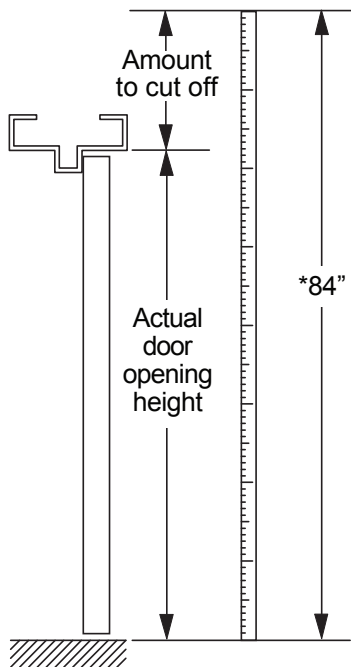
14 Install Rod Guides and Covers



CUT TOP ROD

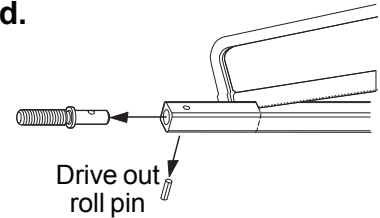
1. Measure amount to cut off rod as shown below.

Note: Rod cutting is required for doors shorter than 7'.

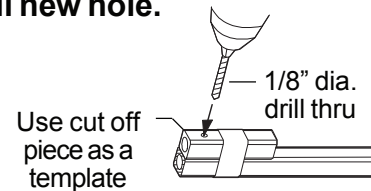


*Rods are factory sized for 7' (84") door. Measure actual door opening height and subtract that number from 84" to get amount to cut off top rod.

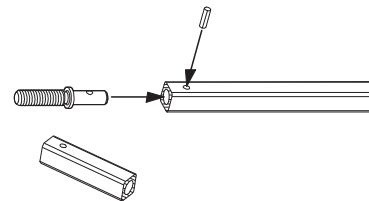
2. Cut rod.



3. Drill new hole.

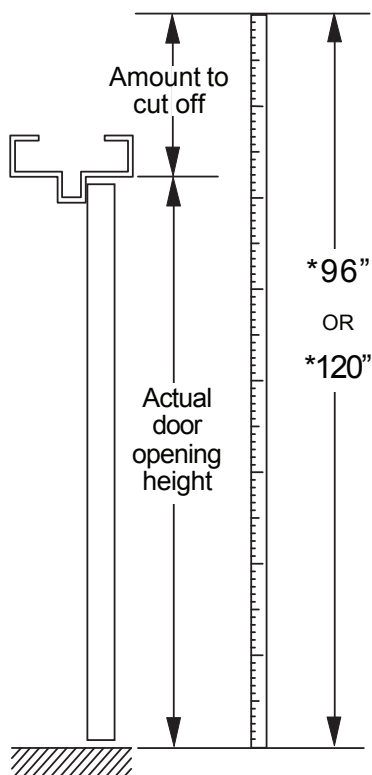


4. Reinstall rod end and roll pin.



INSTALL ROD EXTENSION

1. Measure door opening to determine amount to cut off rod extension.

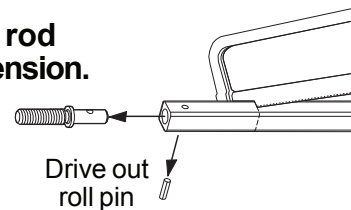


*Standard door heights:

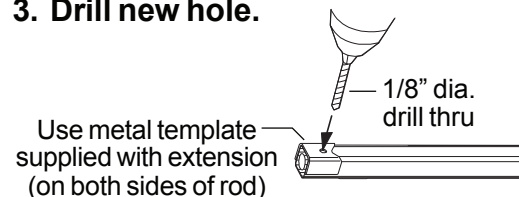
With no extension	7' (84")
With 1' extension	8' (96")
With 3' extension	10' (120")

*Rods are factory sized for door heights shown above. Measure actual door opening height and subtract that number from 96" (for 1' extension) or 120" (for 3' extension) to get amount to cut off extension.

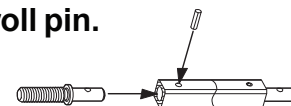
2. Cut rod extension.



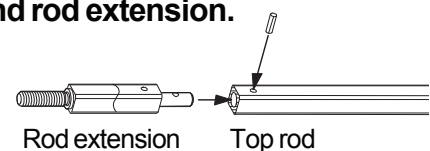
3. Drill new hole.



4. Reinstall rod end and roll pin.



5. Connect top rod and rod extension.



OPTIONAL EQUIPMENT - CONTINUED

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.

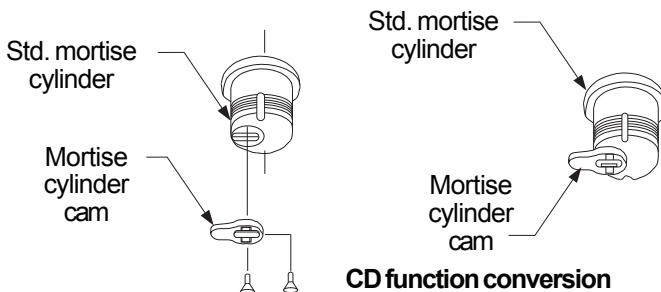


Figure 1

Dogging procedure

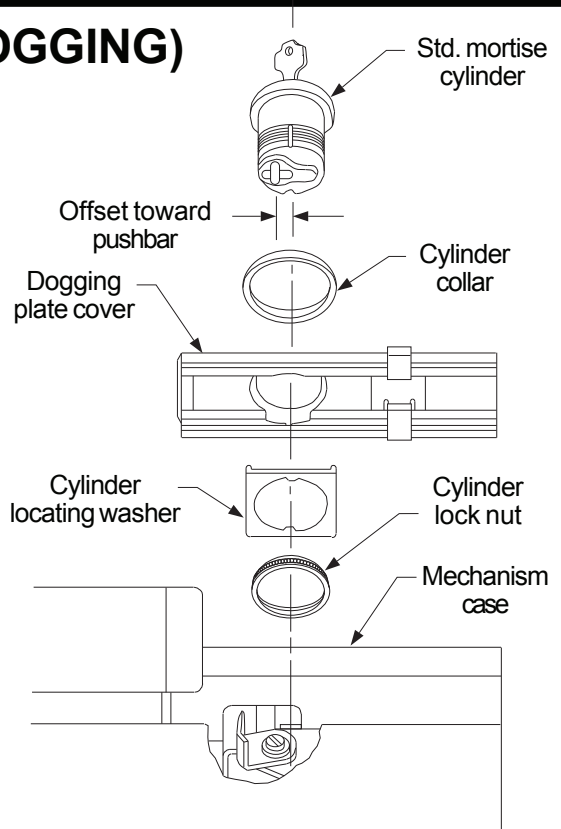
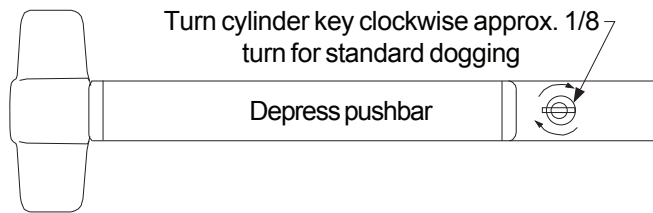
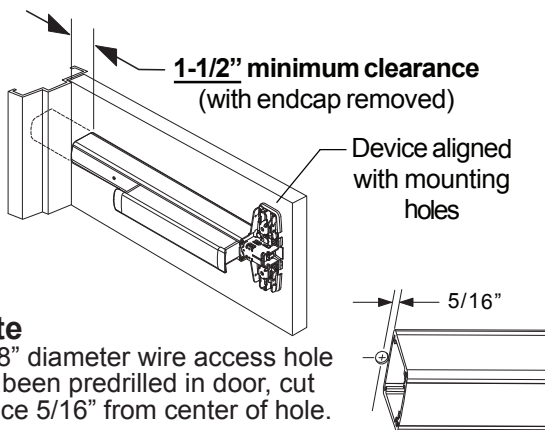


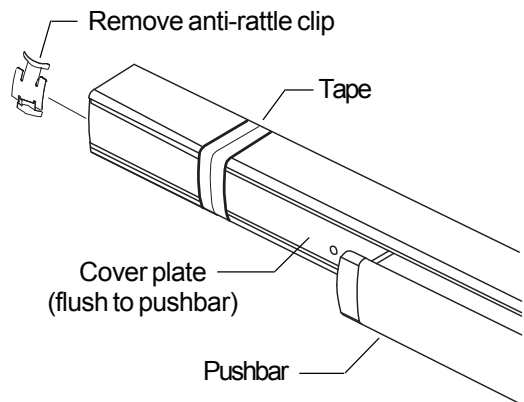
Figure 2

CUT DEVICE

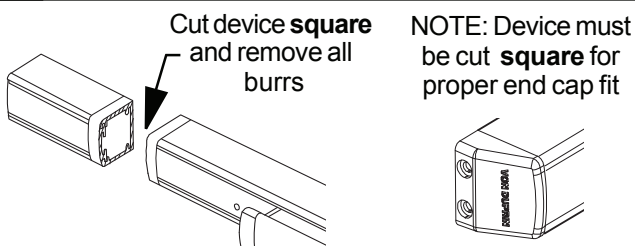
1 Measure amount to cut off device.



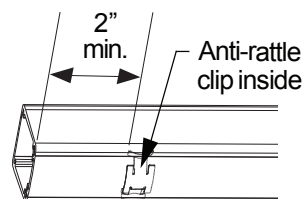
2 Tape and mark area being cut.



3 Cut device square.



4 Slide anti-rattle clip into device.





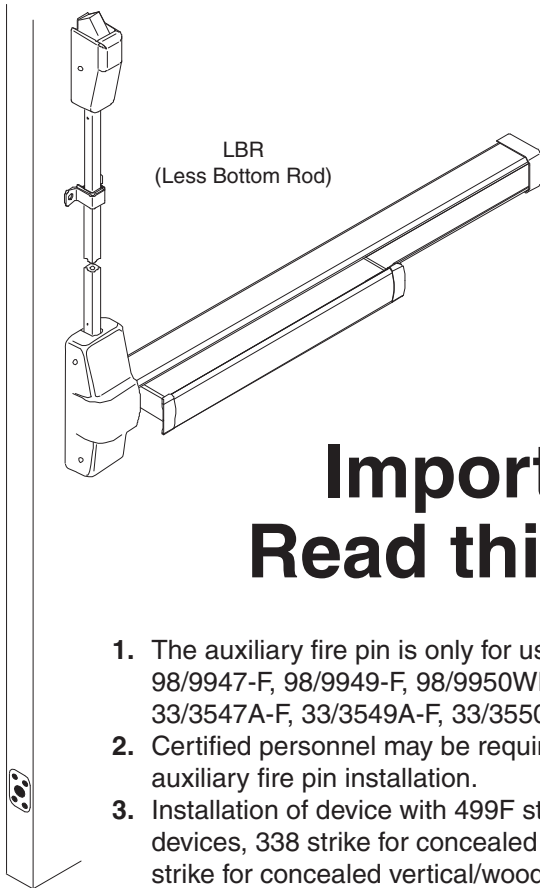
911009-00

For LBR/LBL Devices

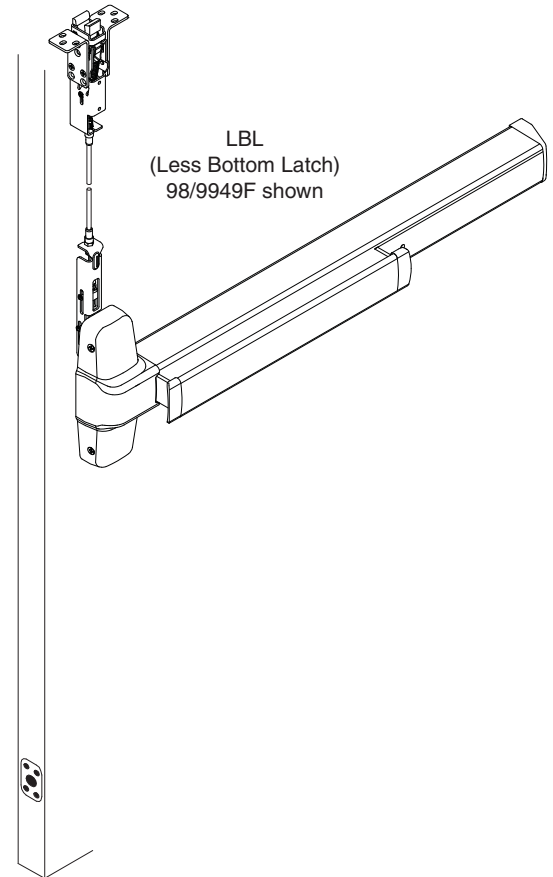
Auxiliary Fire Pin

VON DUPRIN®

Installation Instructions



LBR
(Less Bottom Rod)



LBL
(Less Bottom Latch)
98/9949F shown

Important: Read this first!

1. The auxiliary fire pin is only for use with Von Duprin 98/9927-F, 98/9947-F, 98/9949-F, 98/9950WDC-F, 33/3547-F, 33/3527A-F, 33/3547A-F, 33/3549A-F, 33/3550AWDC-F, and 2227-F devices.
2. Certified personnel may be required to perform field prep for the auxiliary fire pin installation.
3. Installation of device with 499F strike for surface vertical rod devices, 338 strike for concealed vertical rod devices, and 249 strike for concealed vertical/wood door concealed vertical cable devices is required to maintain fire listing. **For 499F installation, see page 3 of these instructions.**
4. Follow device installation instructions omitting the bottom rod or cable, bottom rod guide (where applicable), bottom latch, and bottom strike.
5. Install auxiliary fire pin assembly per template on page 2.

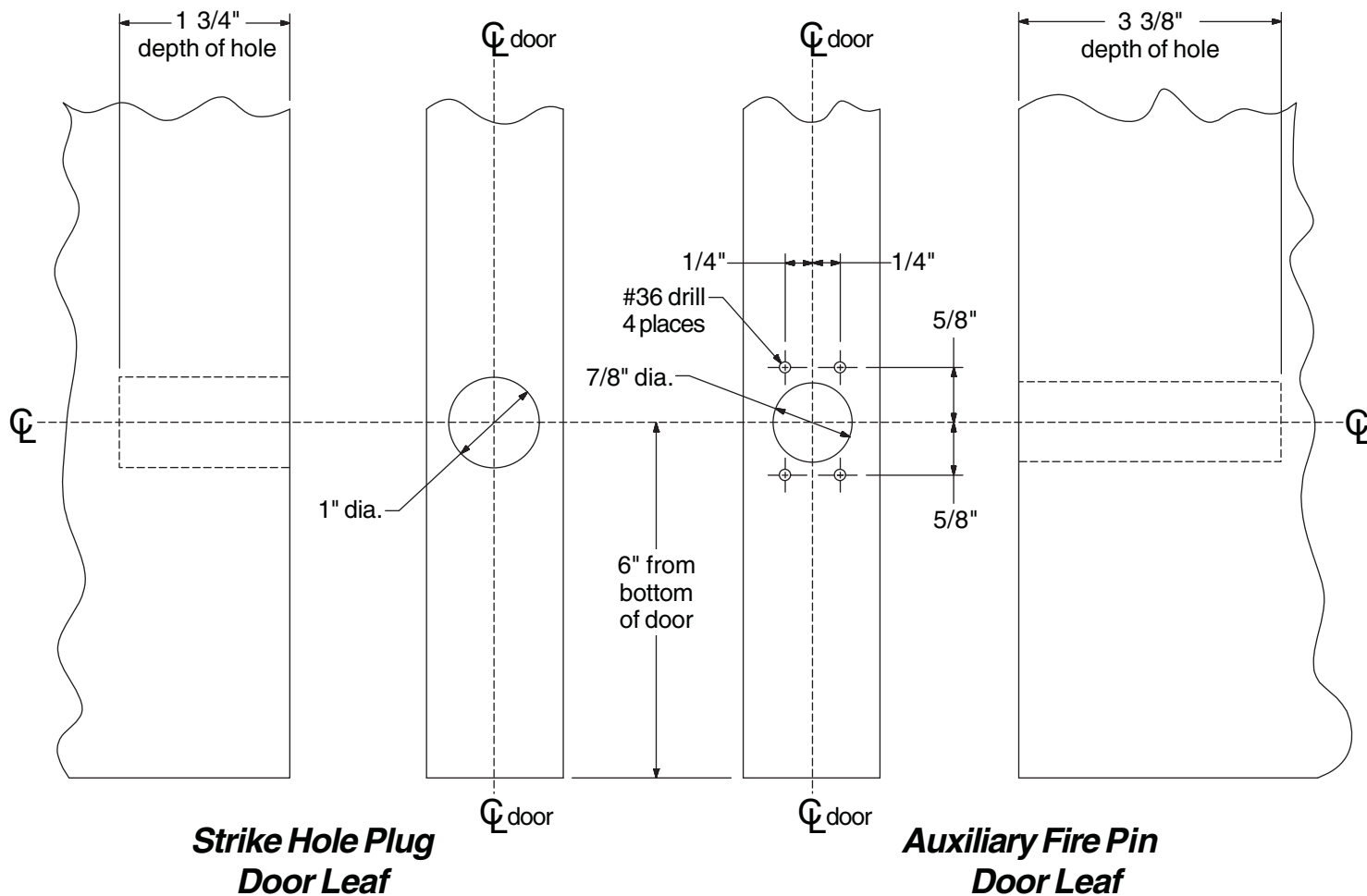


NOTE

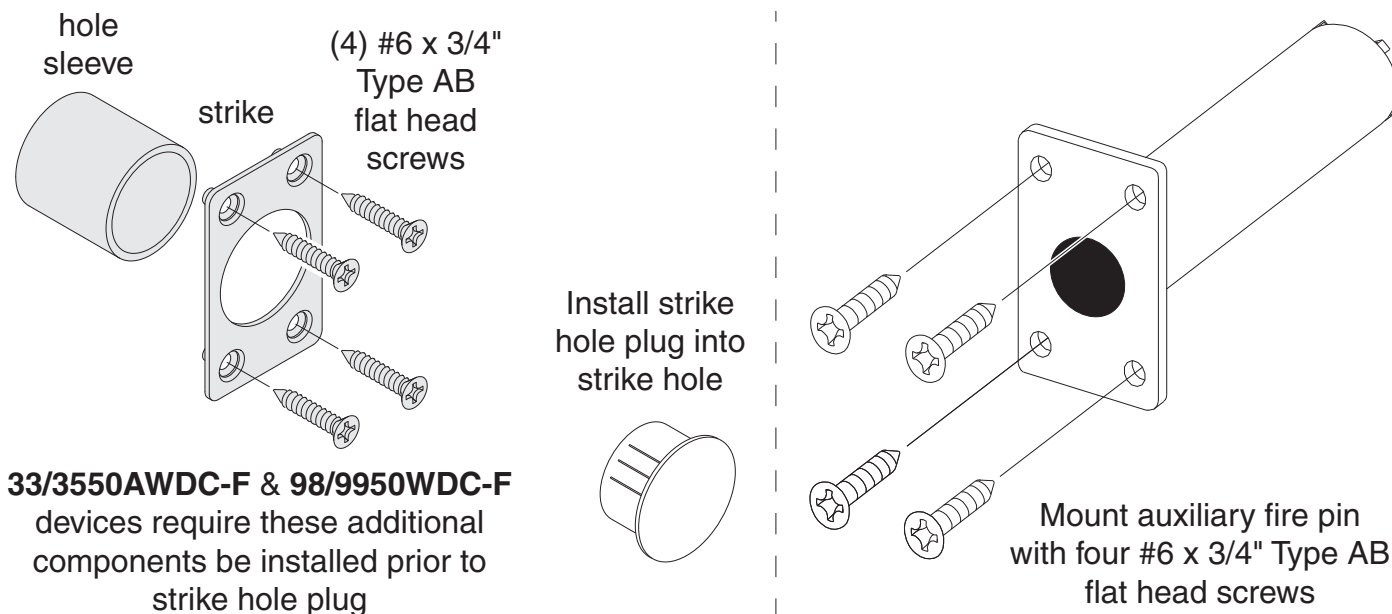
One (1) auxiliary fire pin assembly is supplied with two LBR/LBL devices. It does not matter which door leaf the auxiliary fire pin is installed on. However, the pin must be installed to maintain the fire listing. The purpose of the auxiliary fire pin assembly is to keep the doors in alignment during a fire. In a fire, the bolt extends from the auxiliary fire pin into the strike hole in the opposite door leaf. The black cap visible on the face of the auxiliary fire pin and the strike hole plug must melt in order for the bolt to extend. If an Edge Guard is used, make sure it is modified to allow clearance for the Fire Pin and Plastic Cap to be mounted to the door edge after the Edge Guard is installed. See Edge Guard Preparation on page 4 for more information.

INSTALLATION

1 Prepare auxiliary fire pin mounting hole, screw holes, and strike hole in door.



2 Install strike hole plug and auxiliary fire pin.



33/3550AWDC-F & 98/9950WDC-F devices require these additional components be installed prior to strike hole plug

3 Install 499F strike.



NOTE

Install the 499F strike for 98/9927-F LBR and 33/3527A-F LBR devices only. For concealed vertical LBR and LBL devices, follow device instructions for strike installation.

- 3.1. Prepare the door and frame for the top latch and strike per 299F template in device instructions.
- 3.2. Adjust 499F strike to position shown in Figure 3-1.
- 3.3. Install remaining three screws (see Figure 3-2).
- 3.4. Prepare door for strike hook (see Figure 3-3) and install strike hook. Figure 3-4 shows relative positions of strike, strike hook, and top latch.

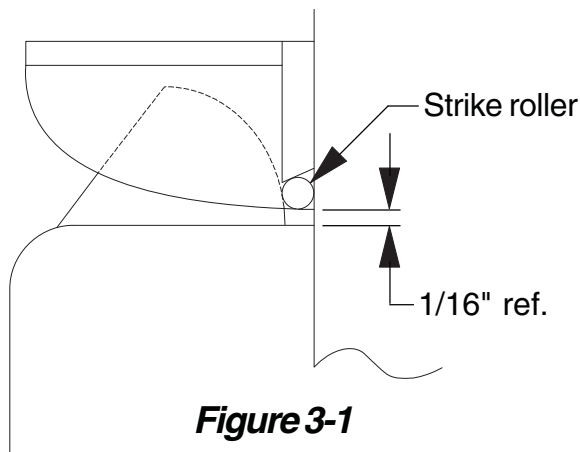


Figure 3-1

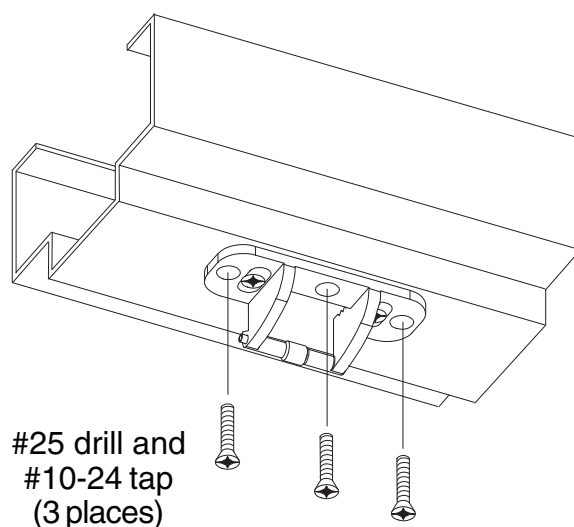


Figure 3-2

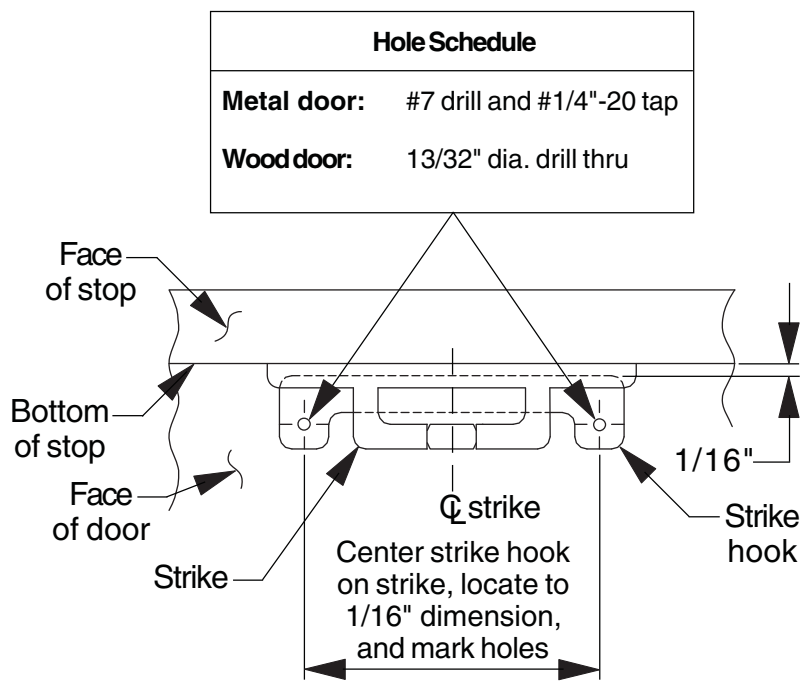


Figure 3-3

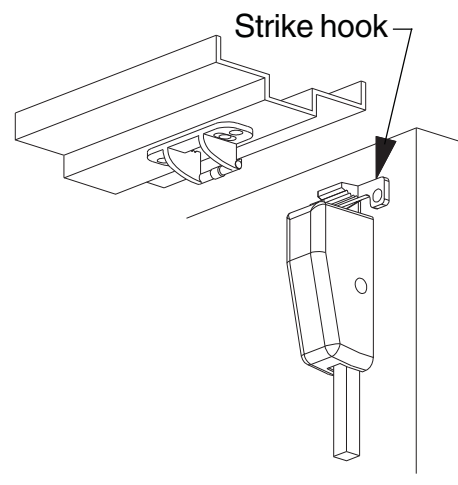


Figure 3-4

EDGE GUARD PREPARATION

If using Edge Guards, clearance holes must be cut into Edge Guards before they are installed on door as shown in Figure 4-1.

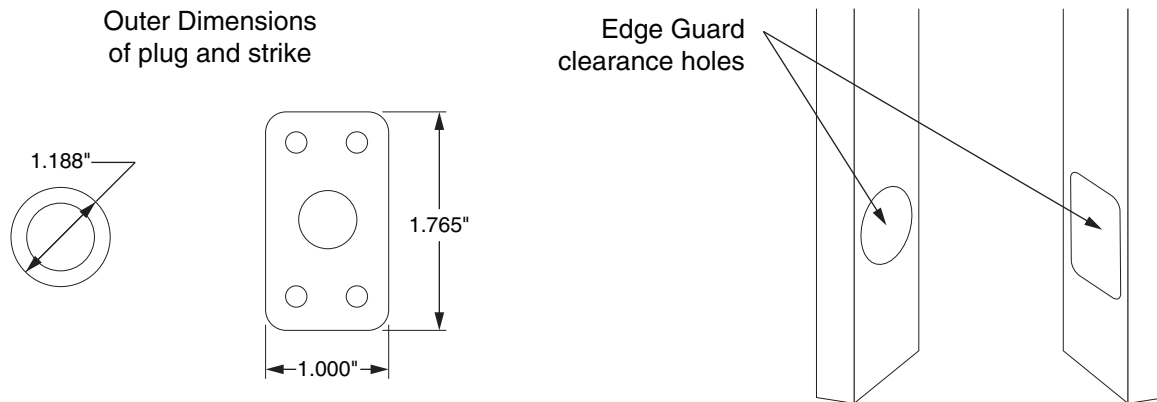


Figure 4-1

Edge guard near exit device center case can extend no further than .0625" from edge of door, as shown in Figure 4-2, or interference with device center case could occur. If Edge Guard is wider than specified, it may need to be trimmed in that area to clear center case.

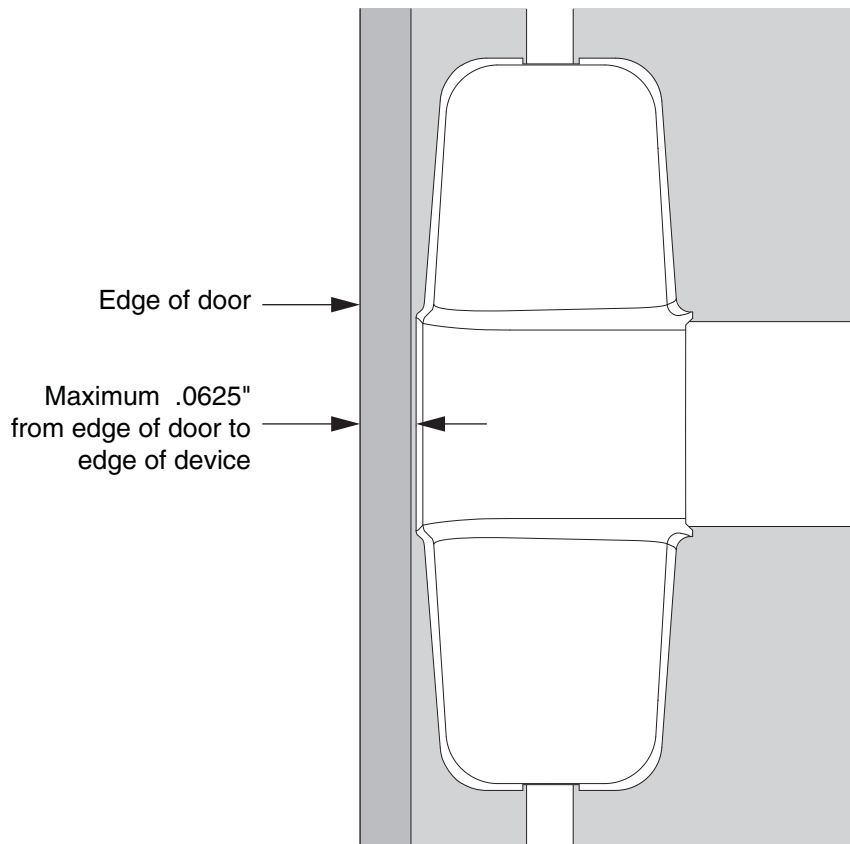


Figure 4-2



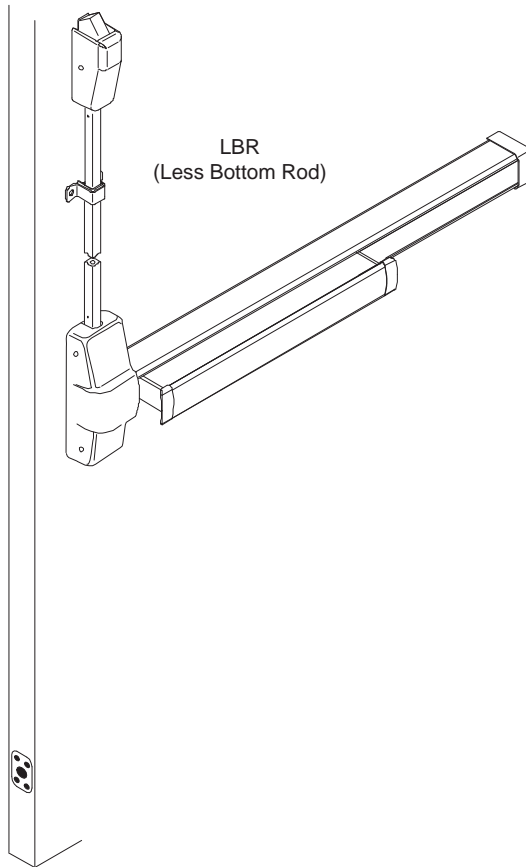
911010-00

LBR

VON DUPRIN®

Fire Pin/Strike Kit

Installation Instructions



WARNING

For surface vertical rod installations, incorrect strike installations can result in latching failure in a fire condition. This can result in severe injury or death.

Installer: Discard installed strikes and replace with correctly installed 499F strikes supplied with this kit. Failure to install the 499F strikes on Surface Vertical Rod LBR-F devices will void the UL Fire Label.

Important: Read this first!

1. LBR Fire Pin/Strike Kit is for use only with Von Duprin 98/9927-F, 98/9947-F, 33/3547-F, 33/3527A-F, 33/3547A-F, and 2227-F devices.
2. Any door preparation must be performed by an installer that is certified by the door manufacturer.
3. Installation of device with 499F strike for surface vertical rod devices, and 338 strike for concealed vertical rod devices is required to maintain fire listing. **For 499F installation, see page 3 of these instructions.**

Parts List

Description	Quantity
Auxiliary Fire Pin Assembly	1
#6 x 3/4" Sheet Metal/Wood Flat Head Screw	4
Strike Hole Plug	1
499F Strike Assembly	2
Return Spring	2
Centercase Hole Plug	2

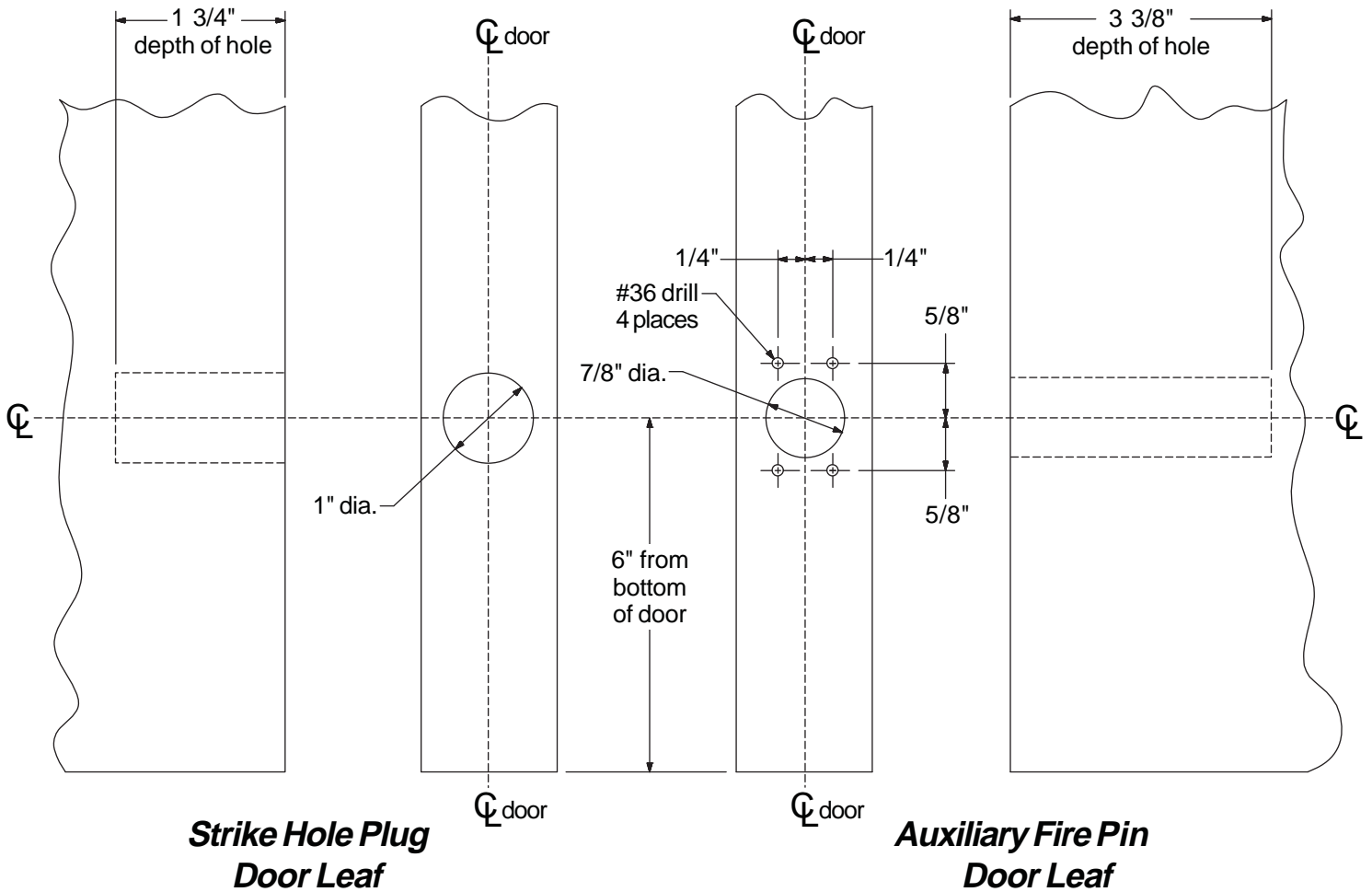


NOTE

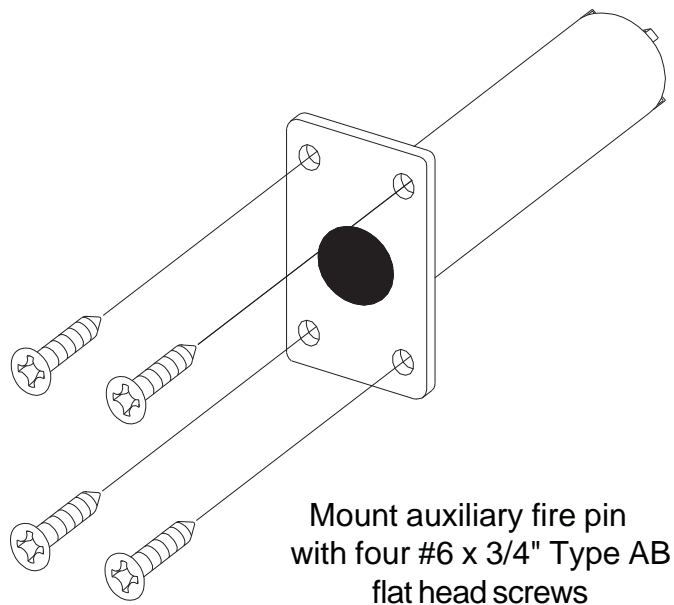
One (1) auxiliary fire pin assembly is supplied with two LBR devices. It does not matter which door leaf the auxiliary fire pin is installed on. However, the pin must be installed to maintain the fire listing. The purpose of the auxiliary fire pin assembly is to keep the doors in alignment during a fire. In a fire, the bolt extends from the auxiliary fire pin into the strike hole in the opposite door leaf. The black cap visible on the face of the auxiliary fire pin and the strike hole plug must melt in order for the bolt to extend. If an Edge Guard is used, make sure it is modified to allow clearance for the Fire Pin and Plastic Cap to be mounted to the door edge after the Edge Guard is installed. See Edge Guard Preparation on page 4 for more information.

INSTALLATION

1 Prepare auxiliary fire pin mounting hole, screw holes, and strike hole in door.



2 Install strike hole plug and auxiliary fire pin.



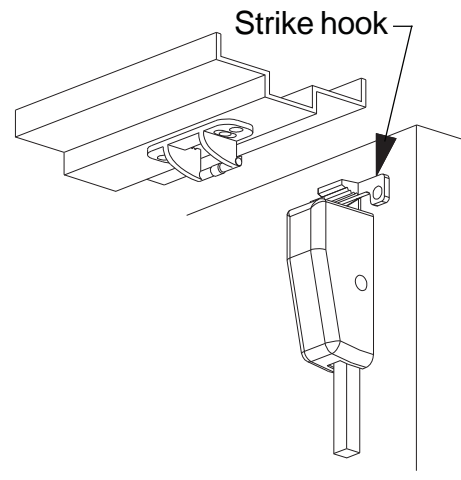
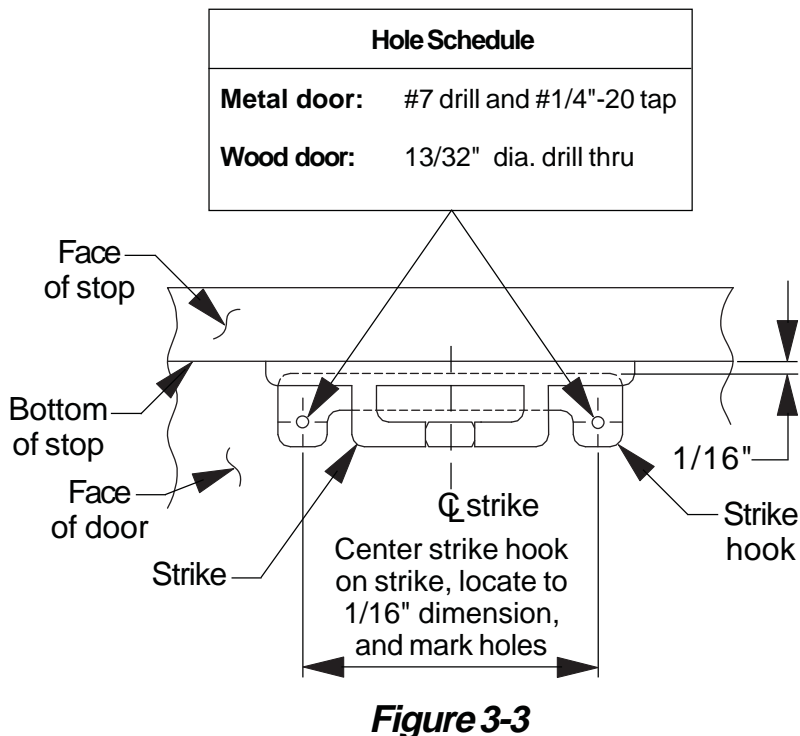
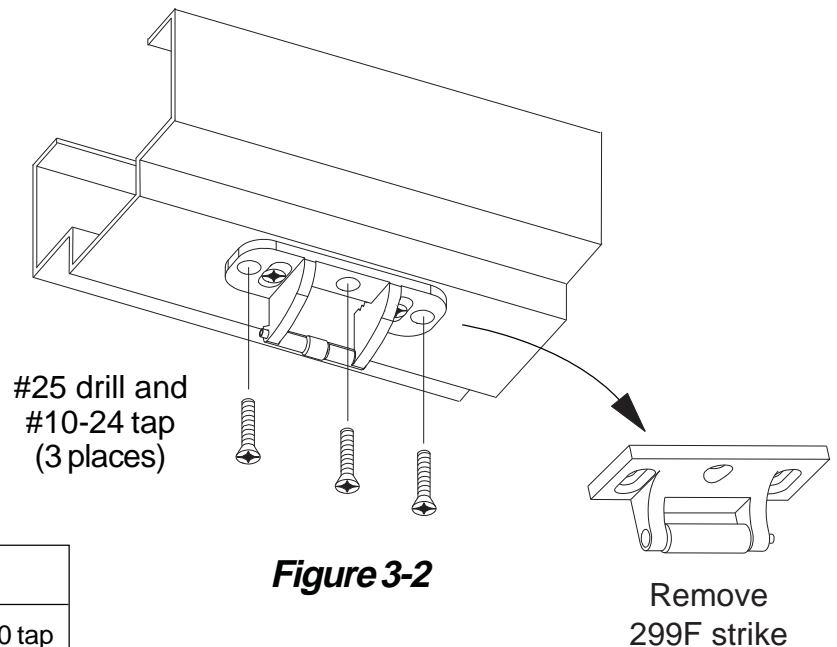
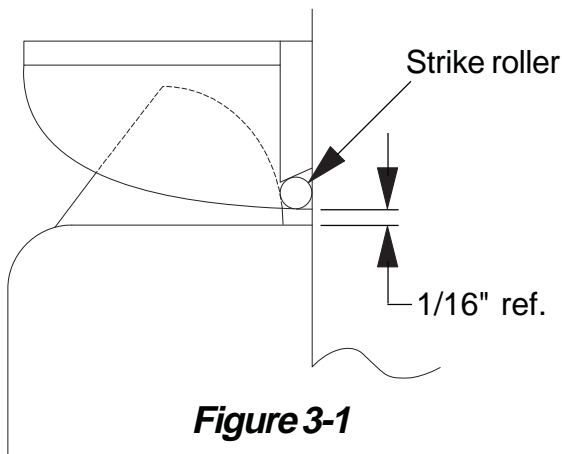
3 Install 499F strike.



NOTE

The 499F strike installation is only for 98/9927-F-LBR, 33/3527A-F-LBR, and 2227-F-LBR devices. For concealed vertical rod LBR devices, skip this procedure.

- 3.1. Replace 299F strikes with 499F strikes as shown below.
- 3.2. Adjust 499F strike to position shown in Figure 3-1.
- 3.3. Install remaining three screws (see Figure 3-2).
- 3.4. Prepare door for strike hook (see Figure 3-3) and install strike hook. Figure 3-4 shows relative positions of strike, strike hook, and top latch.



EDGE GUARD PREPARATION

If using Edge Guards, clearance holes must be cut into Edge Guards before they are installed on door as shown in Figure 4-1.

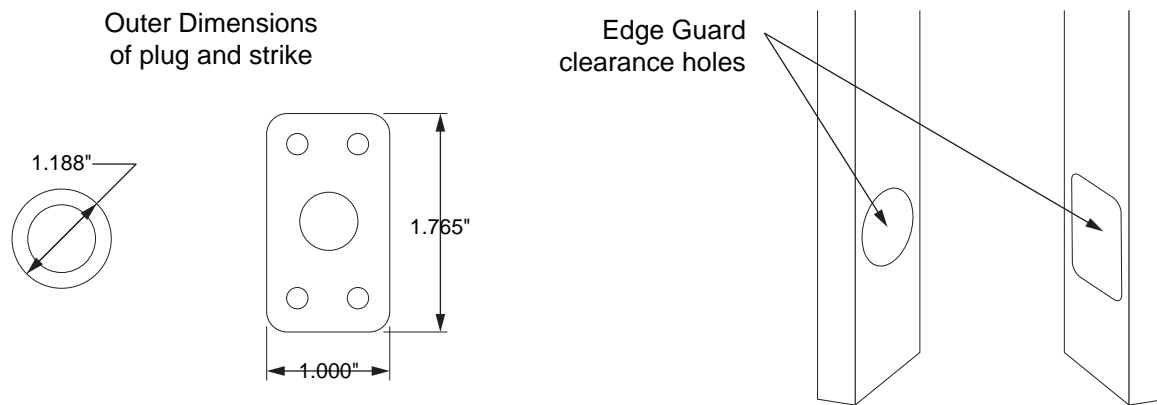


Figure 4-1

Edge guard near exit device center case can extend no further than .0625" from edge of door, as shown in Figure 4-2, or interference with device center case could occur. If Edge Guard is wider than specified, it may need to be trimmed in that area to clear center case.

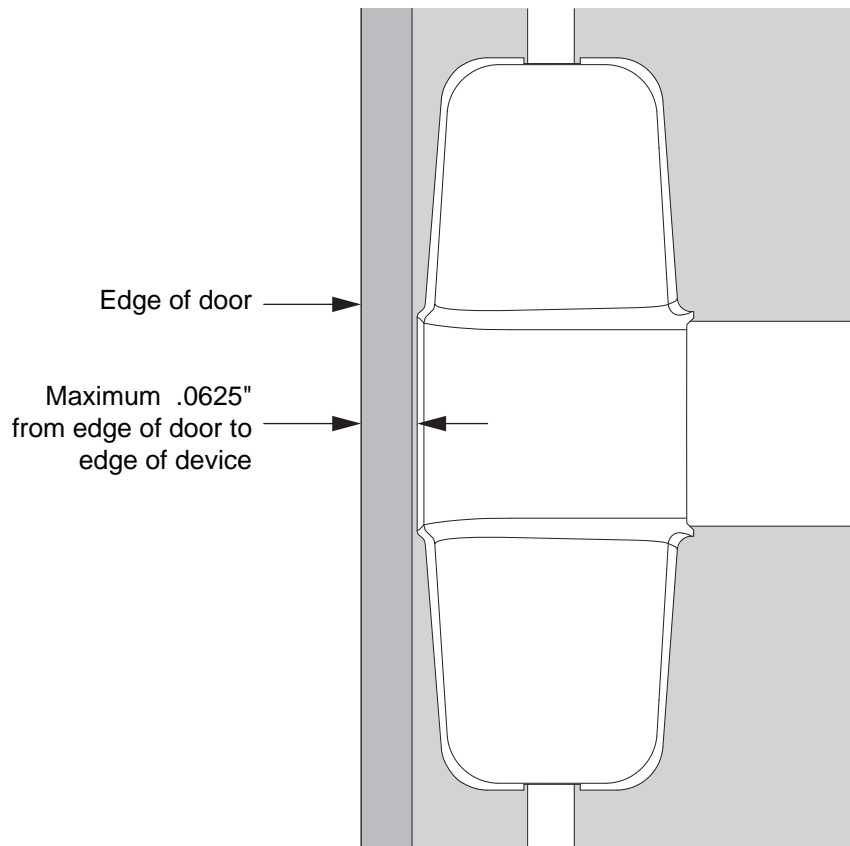


Figure 4-2

RETURN SPRING REPLACEMENT

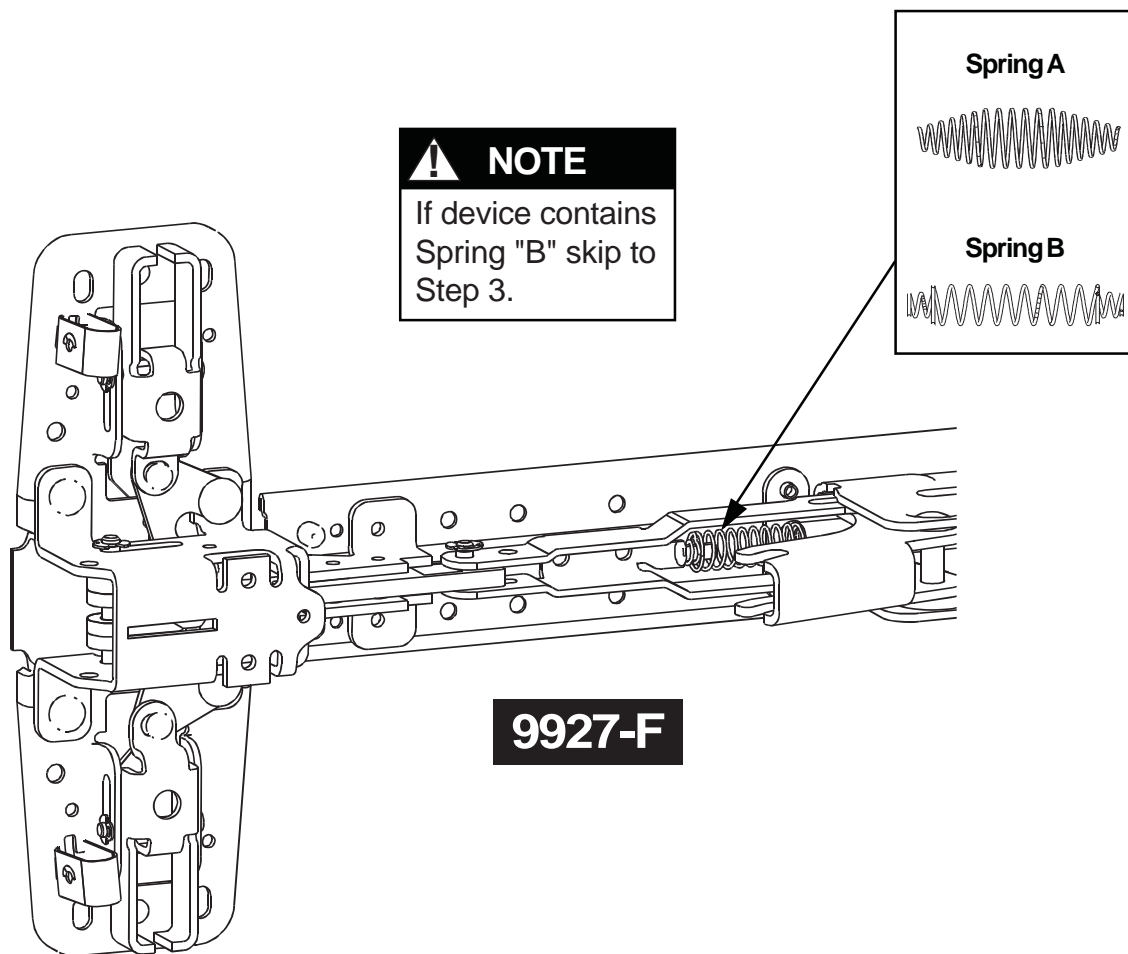


WARNING

Installation of the wrong spring can result in latching failure in a fire condition. This can result in severe injury or death.

Installer: Make sure correct return spring is installed per instructions below.

- 1 Determine which spring the device baseplate contains comparing to the following two springs:



- 2 Remove return spring "A" and replace with spring supplied in kit.

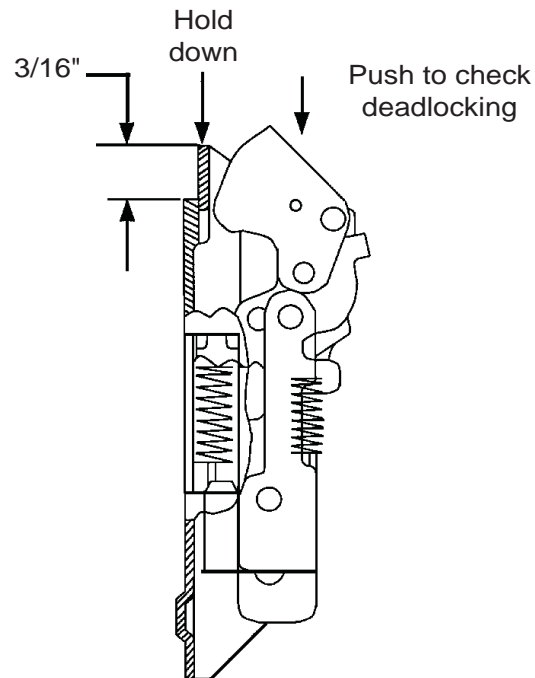
- 3 Repeat steps 1 and 2 for device on other door leaf.

- 4 Reinstall devices.

VERTICAL ROD ADJUSTMENT PROCEDURE

33/3527A-F-LBR, 98/9927-F-LBR, & 2227-F-LBR

- 1 Screw top vertical rod to top latch case.
- 2 Push rod upward slowly until it has fully extended top latch bolt to achieve deadlocking as shown.
- 3 Adjust top vertical rod until rod snaps into centercase.

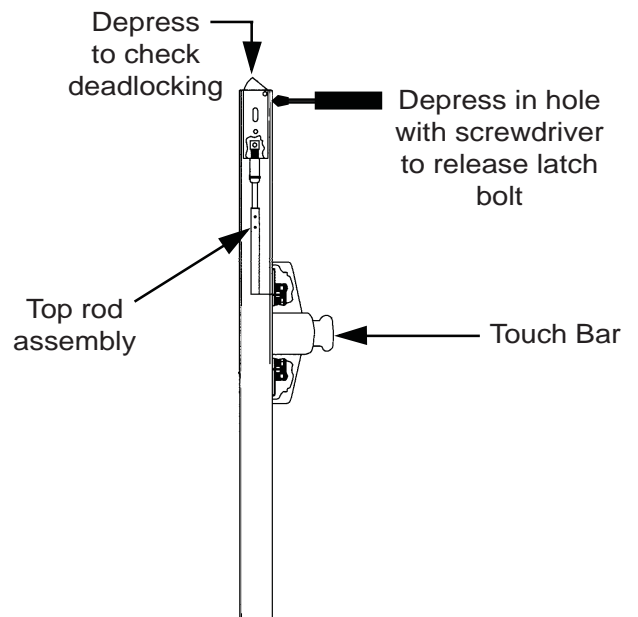
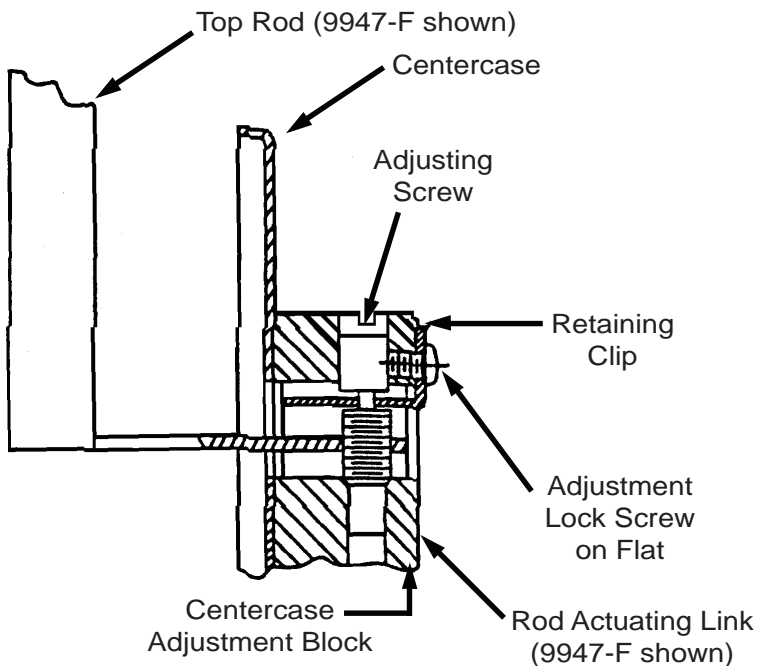


- 4 Check device operation by opening and closing door with outside lever or thumbpiece.

VERTICAL ROD ADJUSTMENT PROCEDURE

33/3547A-F-LBR & 98/9947-F-LBR

- 1** Loosen top adjustment lock screw.
- 2** Rotate adjusting screw clockwise until centercase adjustment block begins to move down and top latch bolt is fully extended (do not remove retaining clip).
- 3** Set adjusting screw as shown. Tighten adjustment lock screw.

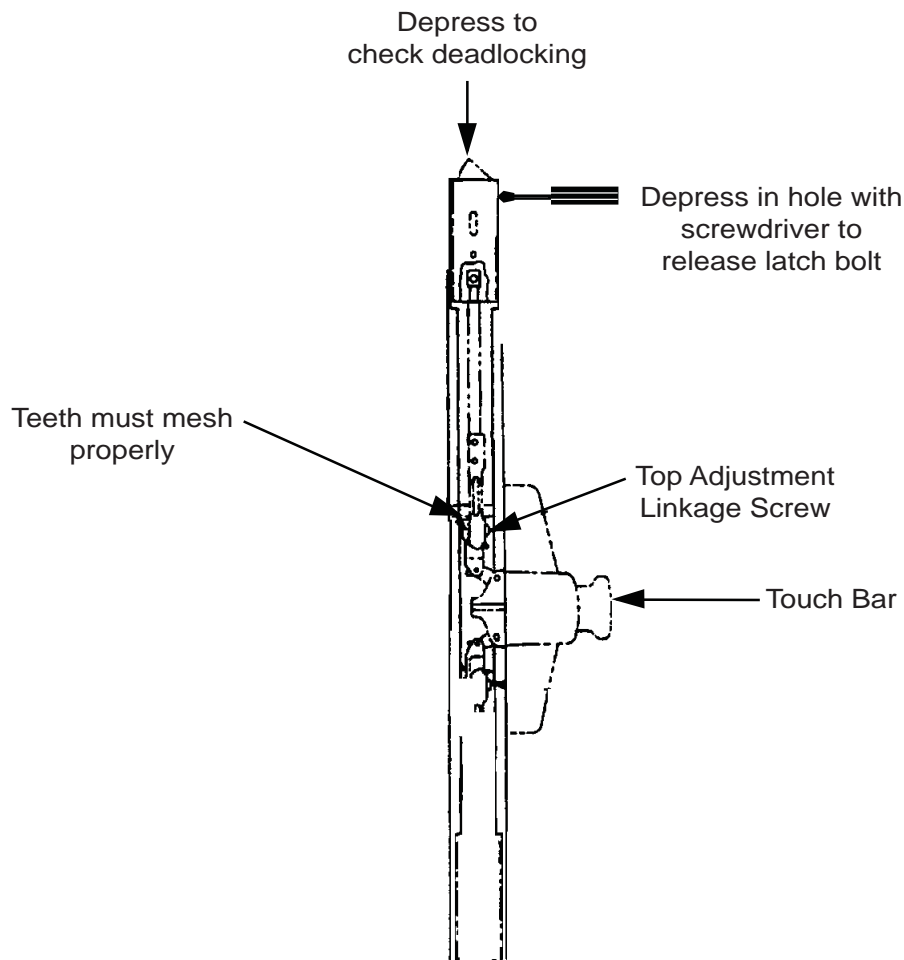


- 4** Check device operation by opening and closing door with outside lever or thumbpiece.

VERTICAL ROD ADJUSTMENT PROCEDURE

3347F-LBR

- 1** Loosen top adjustment linkage screw on top connector as shown in the diagram.
- 2** Fully extend latch bolt. Retighten top adjustment linkage screw.
- 3** Open door and release pushbar. Top latch bolt should be held retracted.
- 4** Release latch bolt as shown.
- 5** Check deadlocking.



- 6** Check device operation by opening and closing door with outside lever or thumbpiece.

Customer Service

1-877-671-7011 www.allegion.com/us



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911010-00 Rev. 06/15-e



24908386

QEL 33A/35A, 98/99 Series

VON DUPRIN®

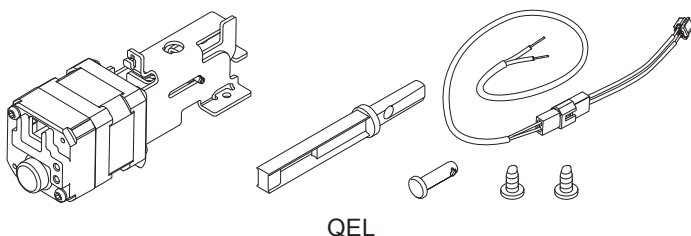
Conversion Kit

Installation Instructions

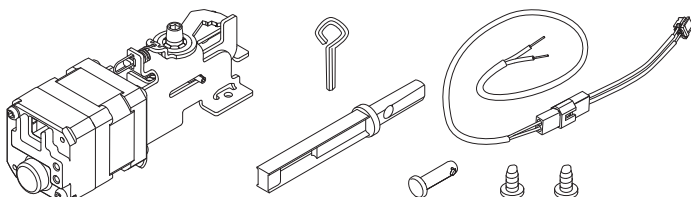


1. This kit converts all 33/35A and 98/99 series mechanical exit devices to quiet electric latch (QEL) retraction devices.
2. This kit can also be used for motor replacement on existing QEL devices.
3. Install according to instructions or device will not function and panic or fire label will be void.
4. The QEL wiring must be attached to the fire alarm system if installed on fire exit hardware.
5. If existing device is fire rated or less dogging a QEL baseplate conversion kit is required.

Parts



QEL



HD-QEL (Hex Dogging QEL)



WARNING

If existing exit device is fire rated, do not install HD-QEL (hex dogging) type motor. Doing so will void fire rating.

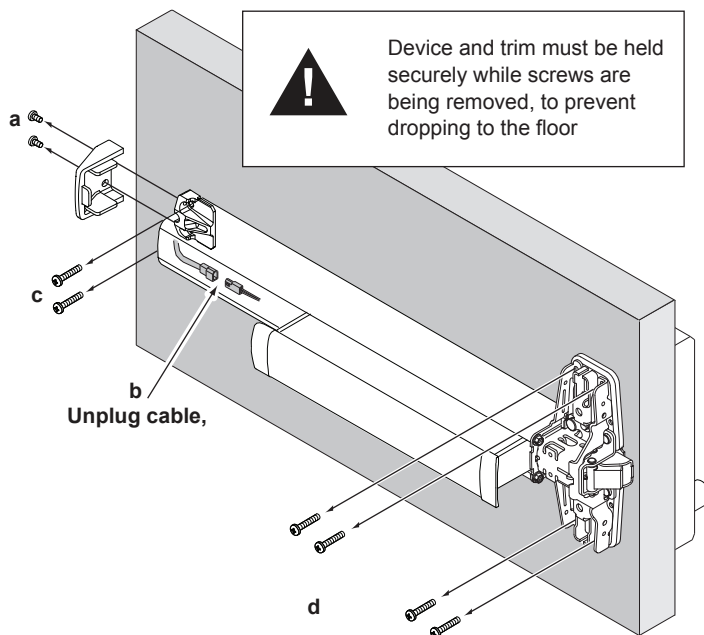
1 Disconnect Power

To avoid risk of shock, disconnect AC power from power supply before proceeding with this conversion. If using 900-BB Battery Backup option, unplug all four wires from battery terminals.

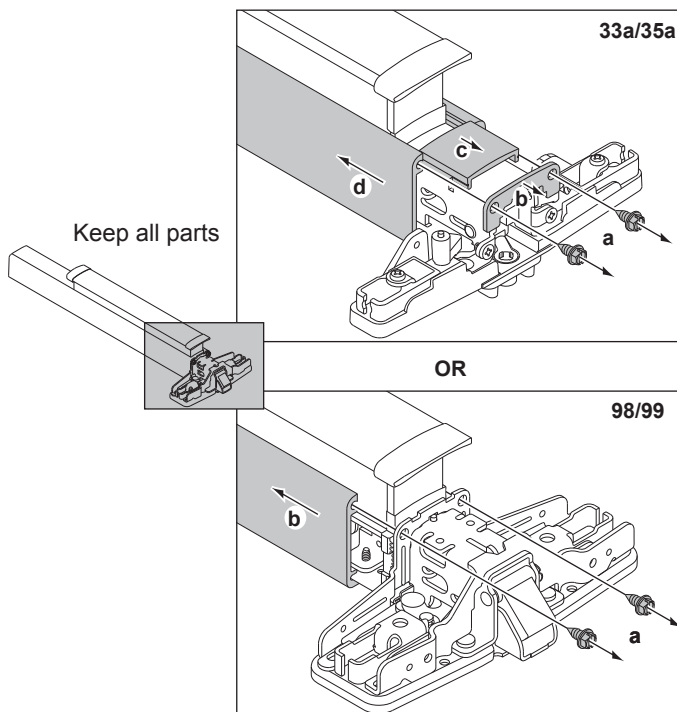
2 Detach Vertical Rods if present

Refer to device instructions as needed.

3 Remove Exit Device from Door



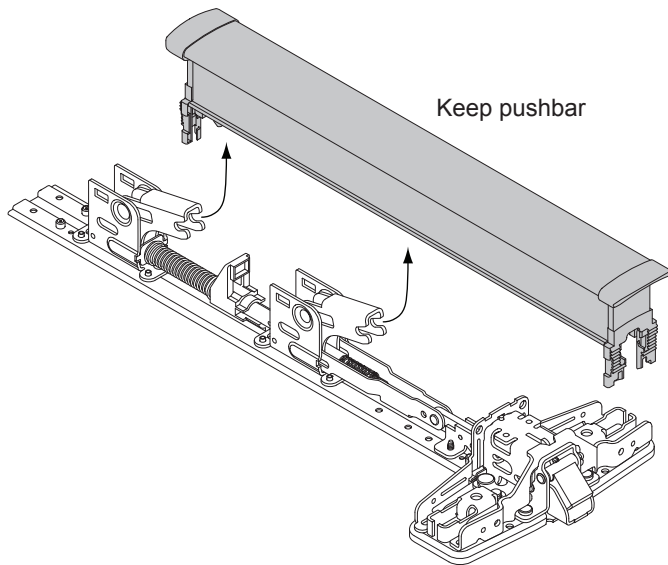
4 Remove Mechanism Case



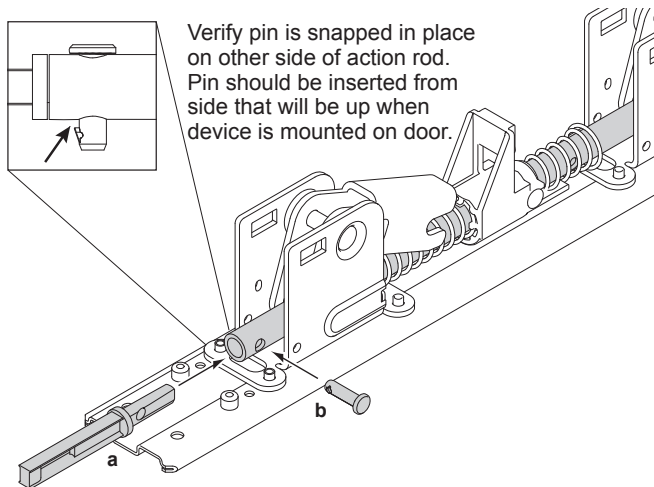
FIRE OR LESS DOGGING DEVICE

(Applies to exit devices built after October 2014.
Baseplate conversion kit required for earlier devices.)

1. Remove pushpad from baseplate.

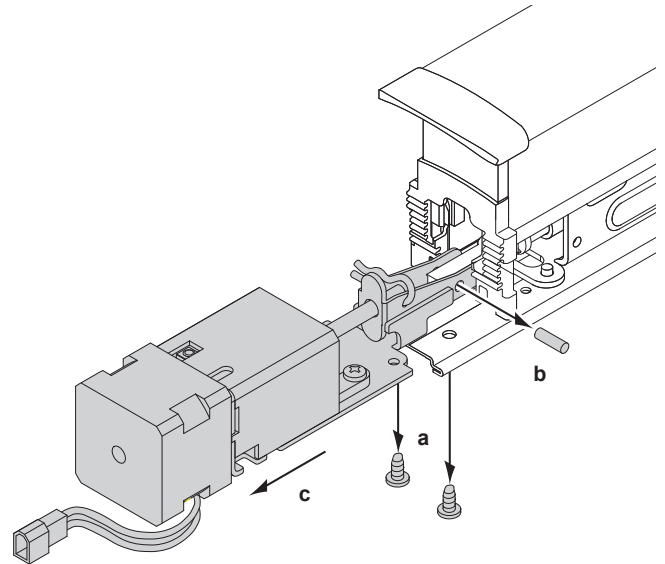


2. Install connector and pin.

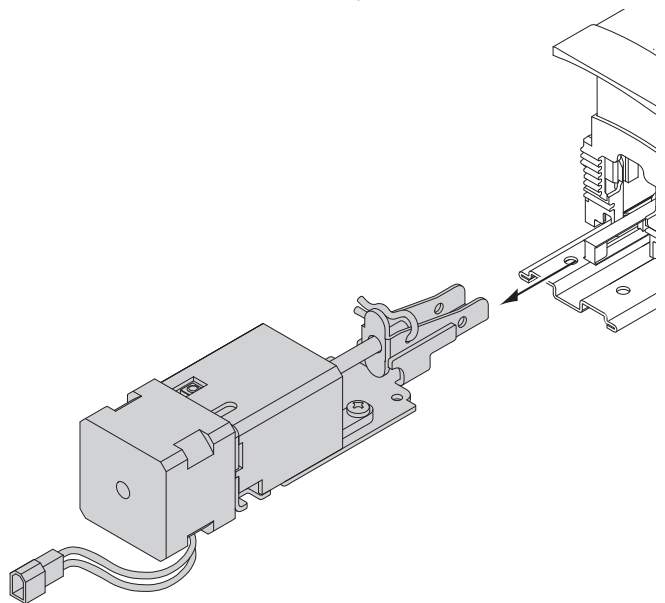


QEL DEVICE (built prior to December 2014)

1. Remove existing QEL motor

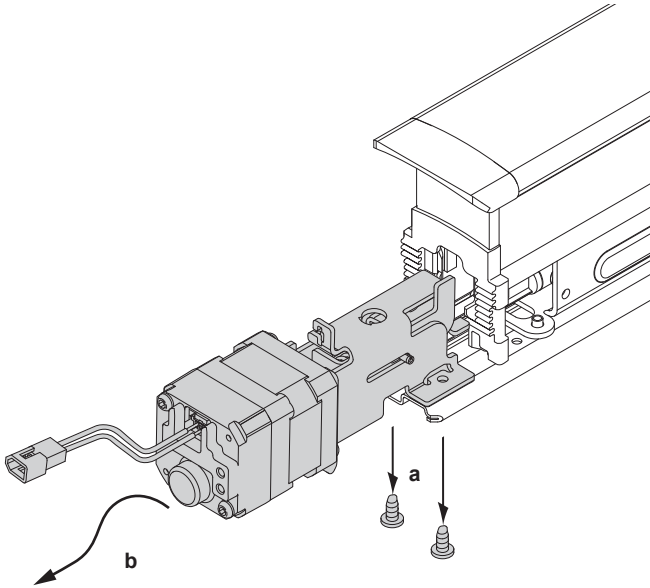


2. Discard old QEL motor assembly.

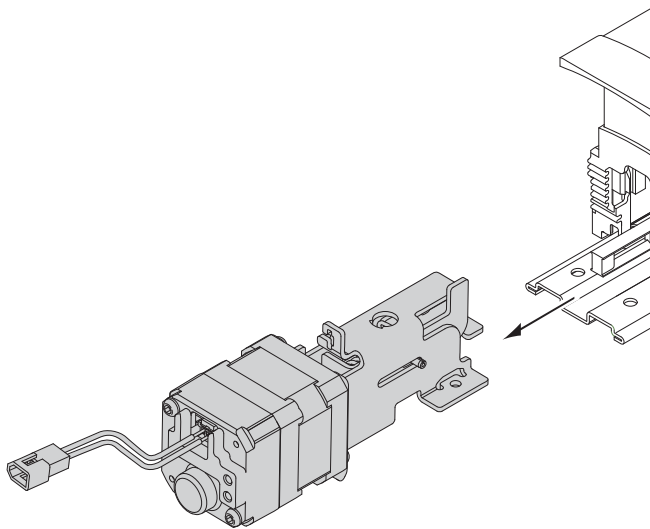


QEL DEVICE (built after December 2014)

1. Remove existing QEL motor.

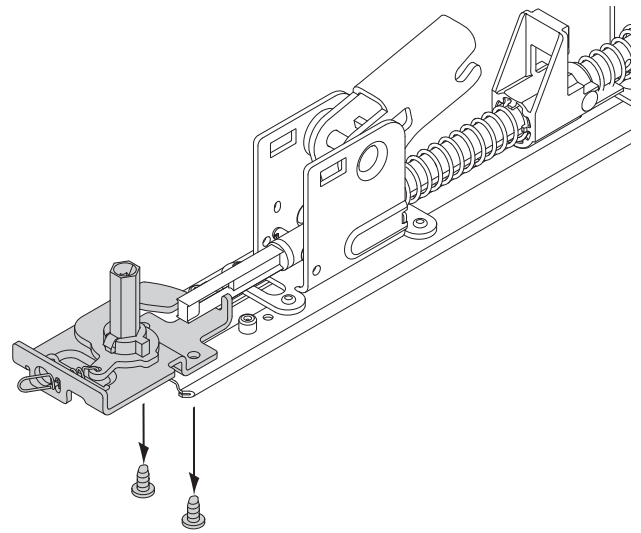


2. Discard old QEL motor assembly.

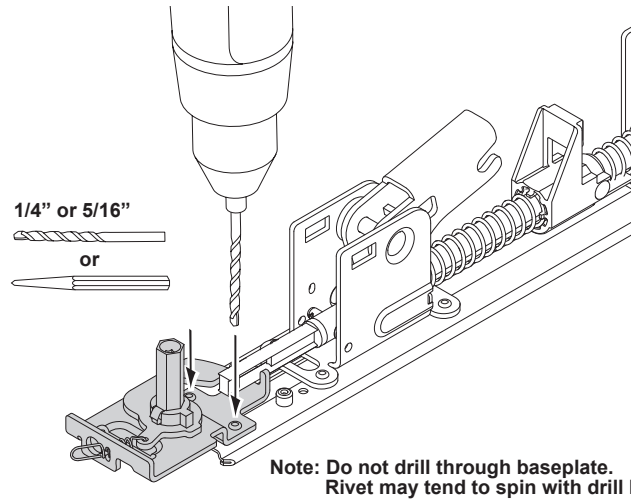


PANIC DEVICE (with dogging assembly)

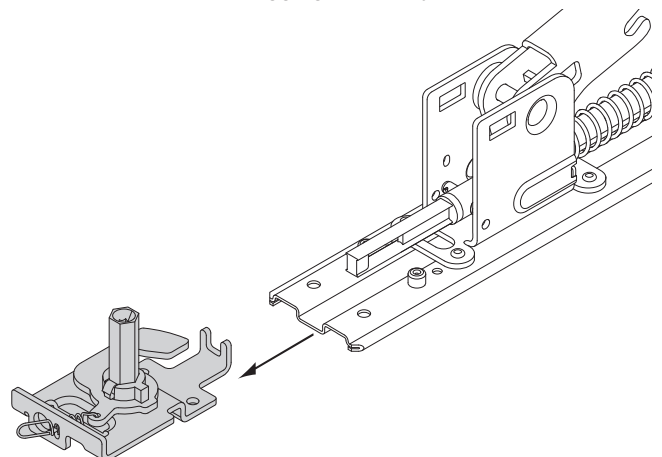
1. Remove two screws from dogging assembly. If riveted see below.



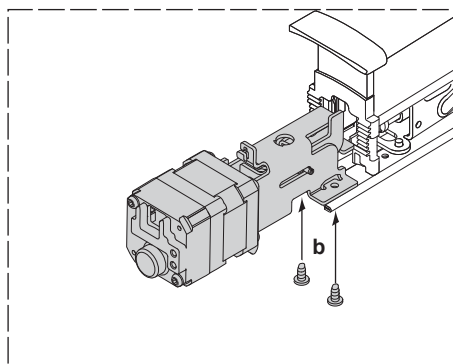
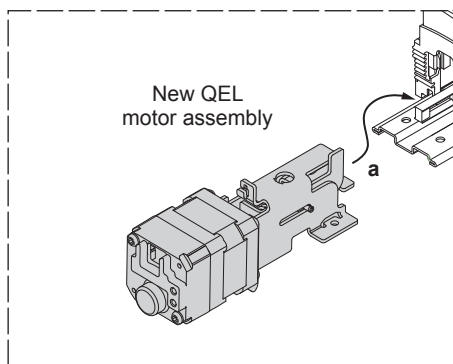
2. Drill or use center punch on two rivet heads until rivets can be removed from baseplate.



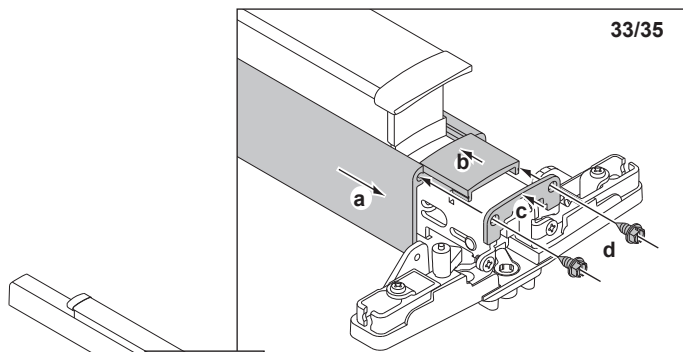
3. Remove and discard dogging assembly.



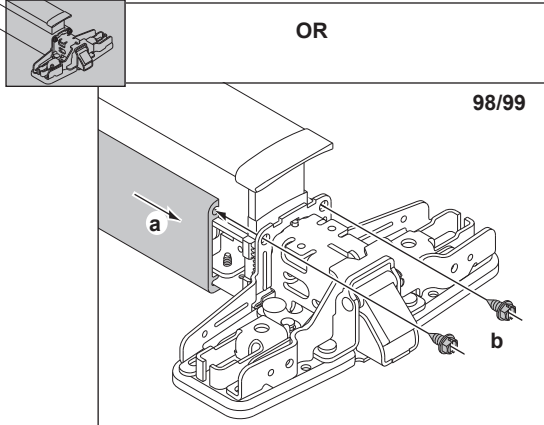
6 Install New QEL Motor Assembly



7 Install Mechanism Case

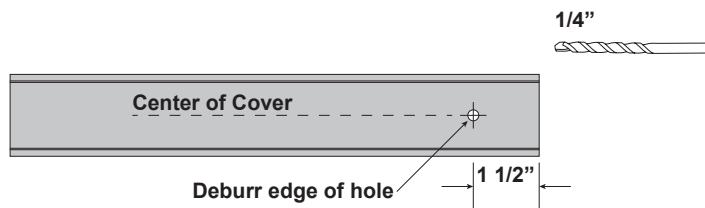


OR

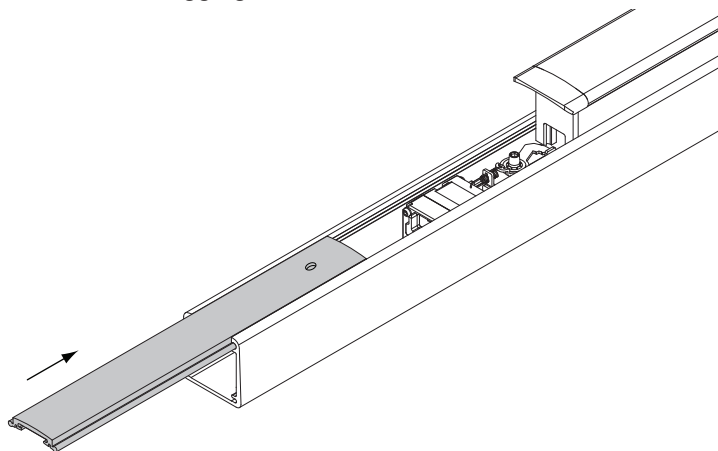


8 Prepare dogging cover for HD dogging key (if applicable and only on panic devices).

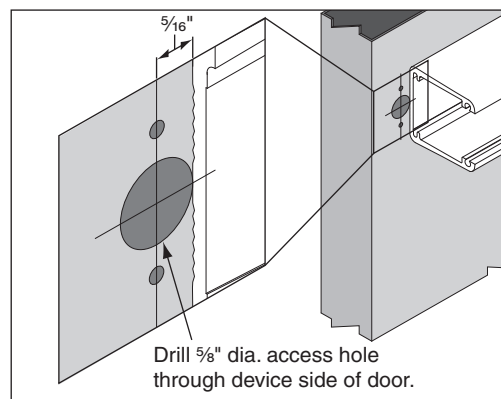
8a Locate and drill hole



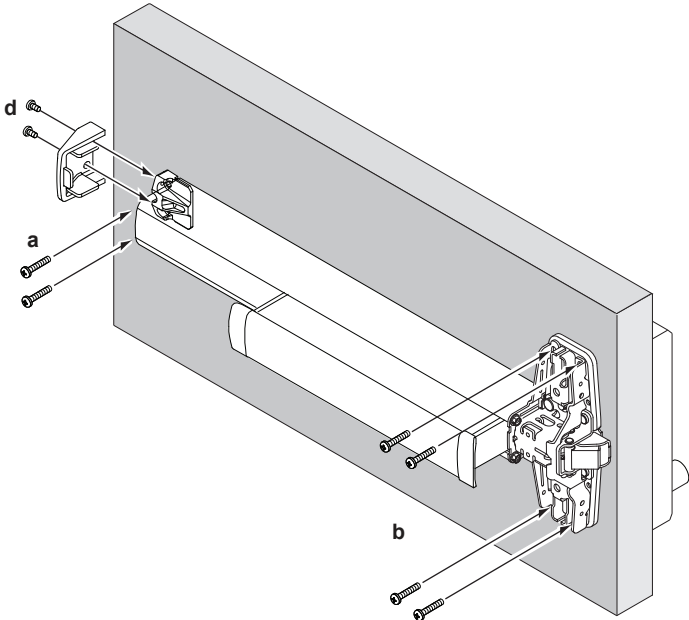
8b Install dogging cover



9 Drill Wire Access Hole (if required)



10 Attach Exit Device to Door



For more detailed installation instructions for specific Exit Devices, visit the Support area of the Allegion website at www.allegion.com/us

11 Confirm Equipment Compatibility

The QEL is compatible with the following equipment (refer to individual instructions as needed):

- PS900-SERIES Power Supplies - PS902, PS904, PS906, PS914
- 900-SERIES Option Boards - 900-2RS, 900-4R, 900-4RL, 900-2Q
- PS873 Power Supply Plus 871-2, 871-2Q, 873-4TD/AO Option Boards

12 Route Two Wires from QEL Exit Device to Power Supply

QEL Electrical Load

Voltage: 24 VDC
Current: 1.0 A inrush (0.5 sec)
0.14 A holding

PS900-Series power supply with 900-Series option board(s) installed

QEL device used with EPT, Door Loop, or Electric Hinge/Pivot

Distance (one way)	Wire Gauge
200'	18AWG
320'	16AWG
500'	14AWG
800'	12AWG

EPT shown. A door loop or electric hinge/pivot may also be used.

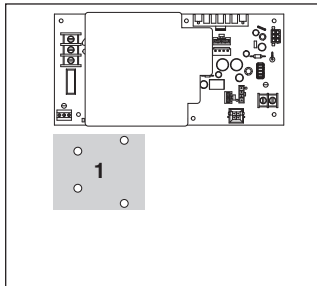
QEL Exit Device

Note: Power wires to QEL are not polarized.

13 Install 900-2Rs, 4RI, or 4R Option Board(s) into Power Supply

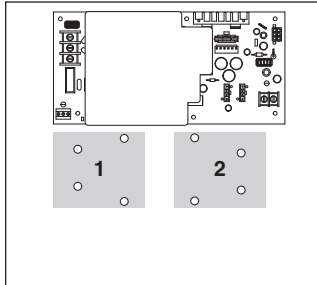
a Review Available 900 series Option Board Mounting Locations (Gray)

PS902

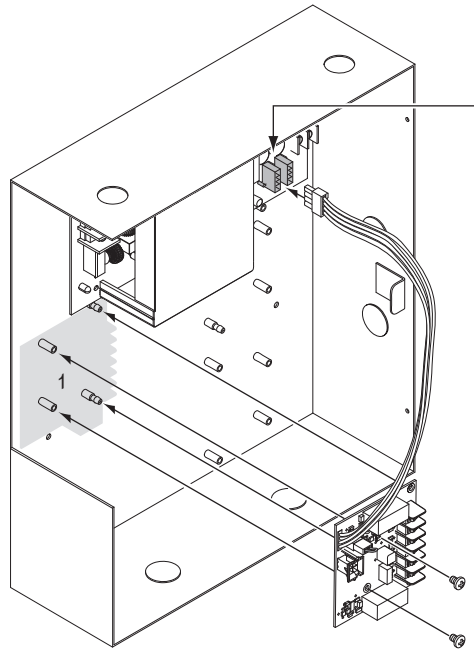
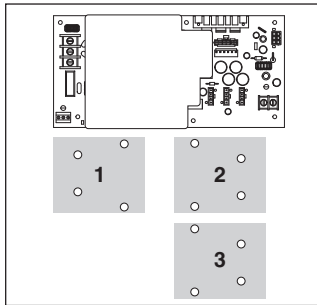


PS904

PS914



PS906



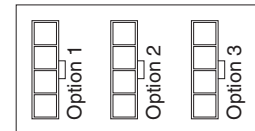
b Plug Option Board Cable into any Available Option Connector



PS902
1 Board



PS904, 914
2 Boards



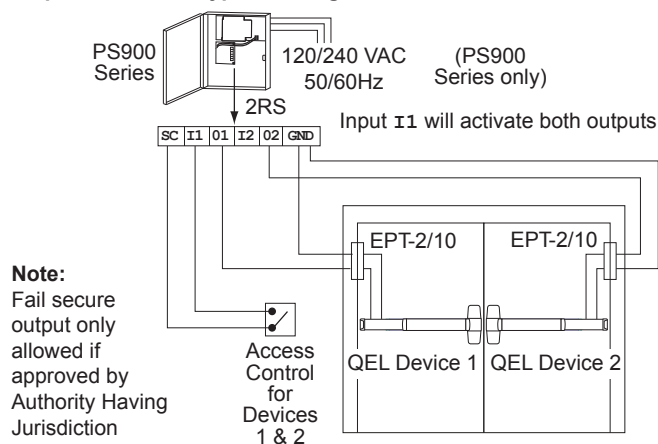
PS906
3 Boards

c Secure Board(s) with Screws

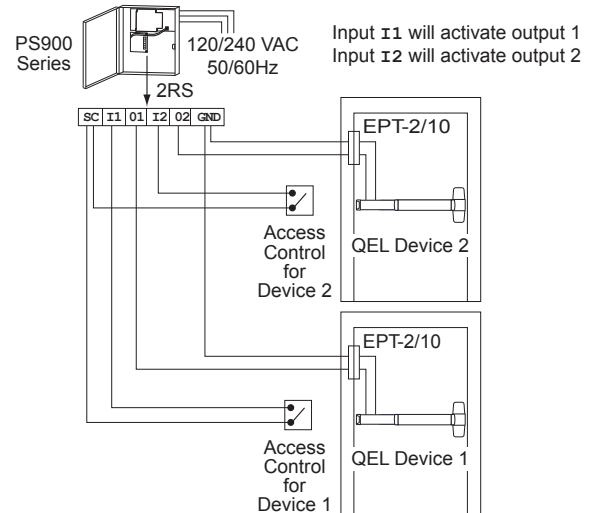
- Notes:**
1. 24VDC output setting required when QEL device connected
 2. If installing board in location 2 or 3, rotate board 180°
 3. The QEL is compatible with an existing 900-2Q board if currently installed.
 4. Latchbolt retraction of (2) sequenced QEL's requires more than 1 second to complete.
 5. When powering multiple components, verify that the amperage requirements of all components combined does not exceed the power supply output rating.

14 Connect Input and Output Wires to Option Board (2RS Shown)

Sequential Mode - Typical Wiring



Individual Mode - Typical Wiring



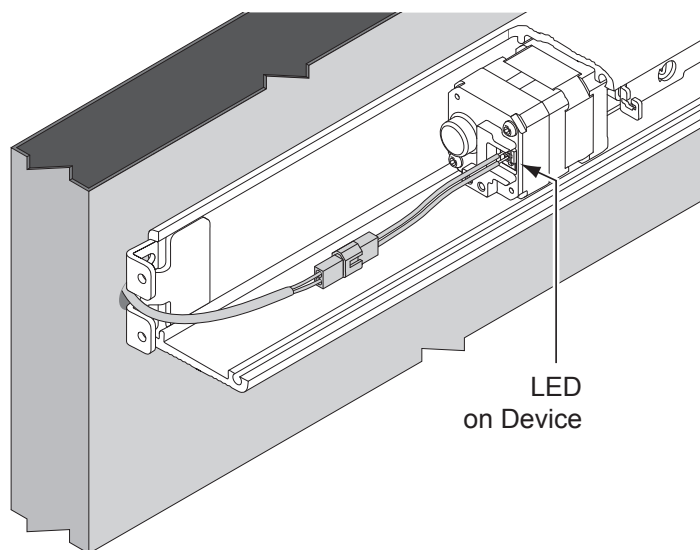
15 Check Operation

- A. Activate each input and verify all QEL devices operate properly.
- B. If any device does not operate properly, see step 16 for troubleshooting.

16 If Necessary, Troubleshoot Operation (LED is only visible with the mechanism cover removed)

Power at the QEL	QEL Response	Condition/Solution
24VDC	LED - Solid green Latchbolt - retracted	Operation normal, latch retracted immediately
	LED - Solid red after latchbolt attempts to retract multiple times	Latchbolt cannot fully retract mechanically Verify mechanical adjustment (on vertical rod or mortise lock devices if used). Remove and reapply input voltage to reset this condition.* See <i>Check Mechanical Operation</i> on page 8 as needed.**
	LED - Flashing green/red Latchbolt - not retracted	Excessive tamper (while power applied, the pushpad was pulled out at least 3 time) Wait 15 seconds and latchbolt will retract again OR remove and reapply power to clear condition
24VDC low	LED - Flashing green Latchbolt - retracted	Voltage low during latchbolt retraction (latchbolt retracts at reduced force) Wire length is too long, wire gauge is too small or power supply has poor regulation
29VDC or greater	LED- Flashing red Latchbolt - will not retract	Input voltage is too high for proper operation Wrong power supply, power supply defective.
13VDC or lower		Input voltage is too low for proper operation Wrong power supply, power supply defective or not set to the proper output voltage. To set, remove AC power from power supply, change power supply setting from 12 to 24VDC, then reapply AC power and verify proper operation.
0VDC	LED - off Latchbolt - not retracted	No input voltage Problem with the power supply, control switch or wiring
0VDC	LED - off Latchbolt - retracted	No input voltage Mechanical dogging is engaged

*For information about adjusting exit devices, you can find their installation instructions in the support area at www.allegion.com/us or call Technical Services at 1-877-671-7011



17 Check Mechanical Operation

33A/3527A	98/9927	98/9947WDC
33A/3547A	98/9947	98/9957
		98/9975

33/3549A	98/9949
33/3550A-WDC	98/9949WDC
	98/9950WDC

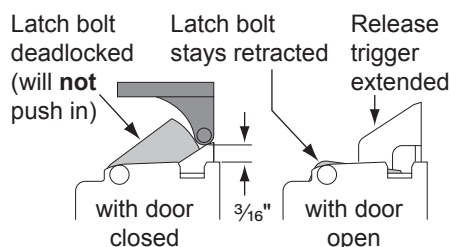
1. Make sure device is not dogged for SD-QEL / HD-QEL.
2. Depress pushbar and make sure latch bolt retracts and extends fully (see Figure 1).
3. If latch bolt does not retract or extend fully, adjustments may be required per the device installation instructions.

1. Make sure device is not dogged for SD-QEL/HD-QEL.
2. Depress pushbar. Door should begin to open with pushbar depressed halfway.
3. Close door. Top latch should be secure. If two point latch, bottom latch should be secure as well.
4. If device does not function as described in steps 2 and 3, adjustments may be required per the device installation instructions.

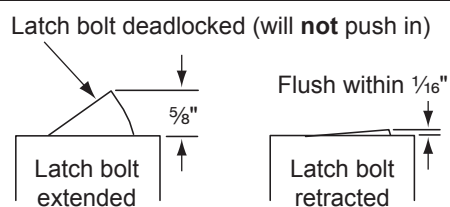
Any HD Device

1. Fully depress pushbar.
2. Insert hex dogging key and turn clockwise.
3. Release pushbar and verify latchbolt remains retracted.
4. Fully depress pushbar.
5. Insert hex dogging key and turn counter clockwise.
6. Release pushbar and verify latchbolt extends fully.

33A/3527A, 98/9927, 98/9957



33A/3547A, 98/9947, 98/9947WDC



98/9975

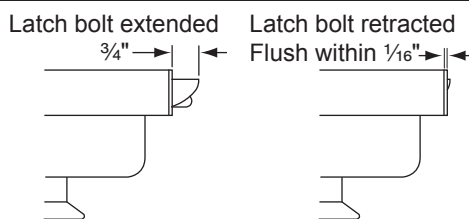


Figure 1

Customer Service

1-877-671-7011 www.allegion.com/us



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