



911375-00

98/9927

VON DUPRIN®

Surface Vertical Rod Exit Device

Installation Instructions

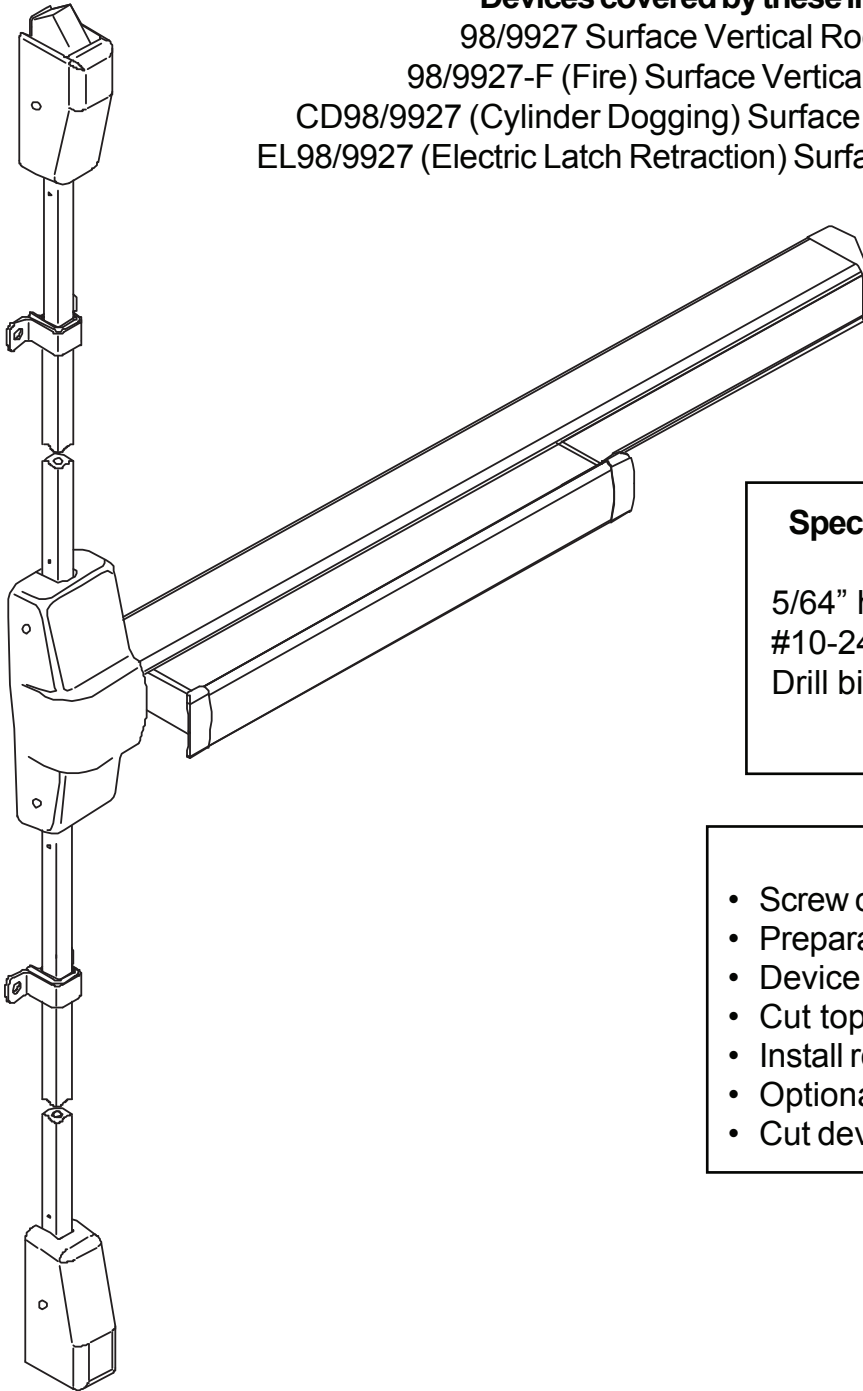
**Devices covered by these instructions:**

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"

**Index:**

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

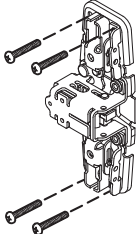
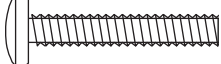
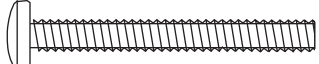
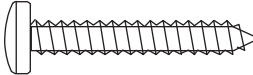
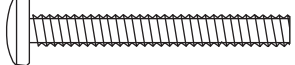
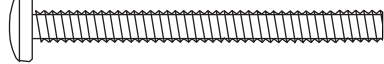
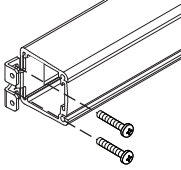
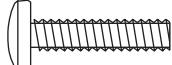
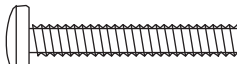
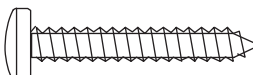


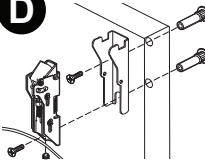
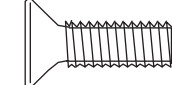
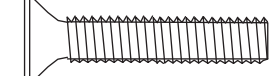
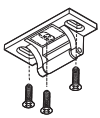
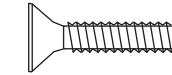
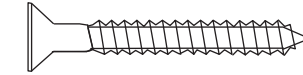
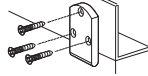
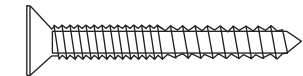

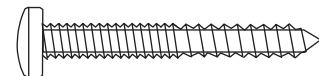



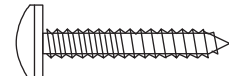

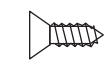


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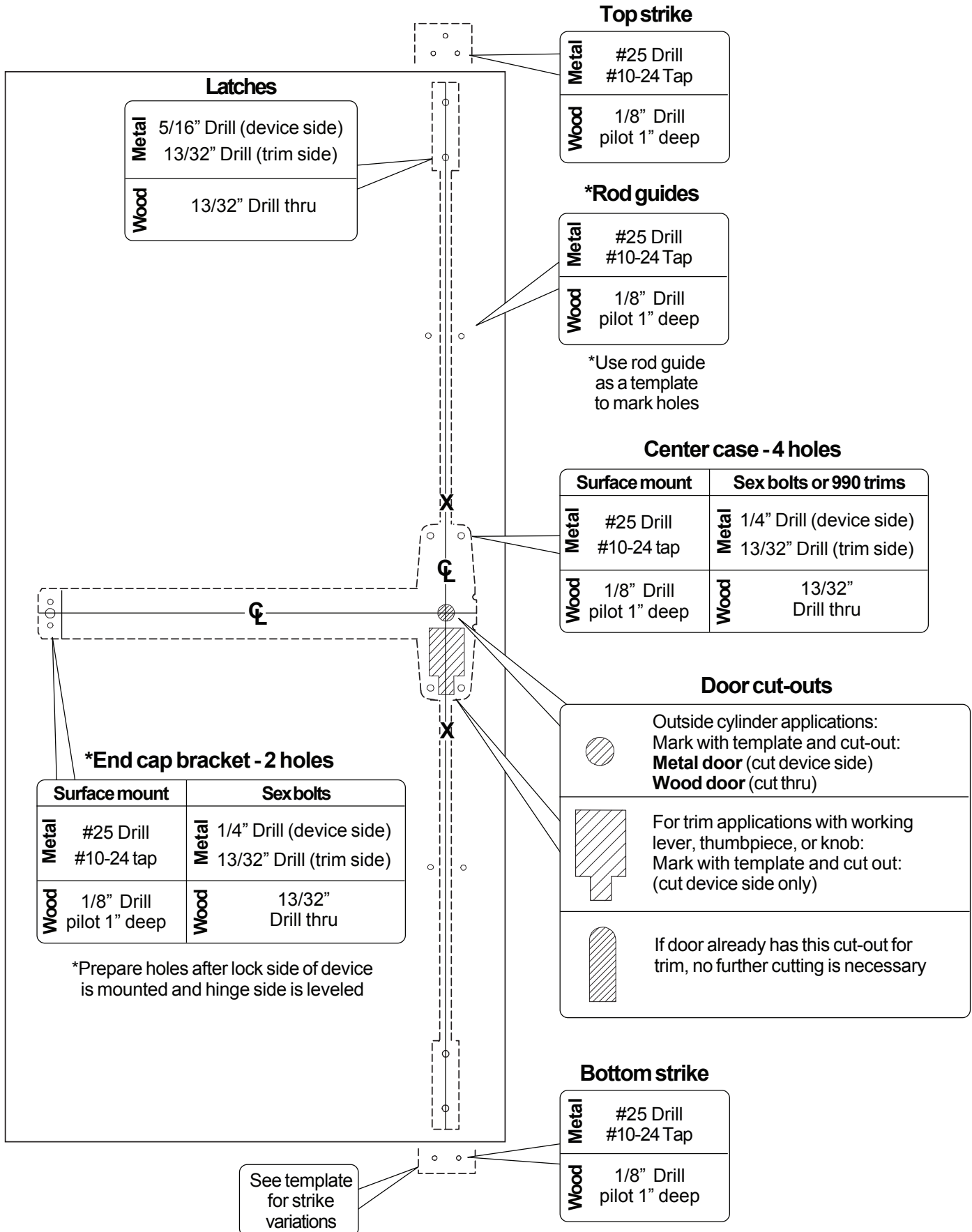
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911375-00 Rev. 12/16-e

# SCREW CHART

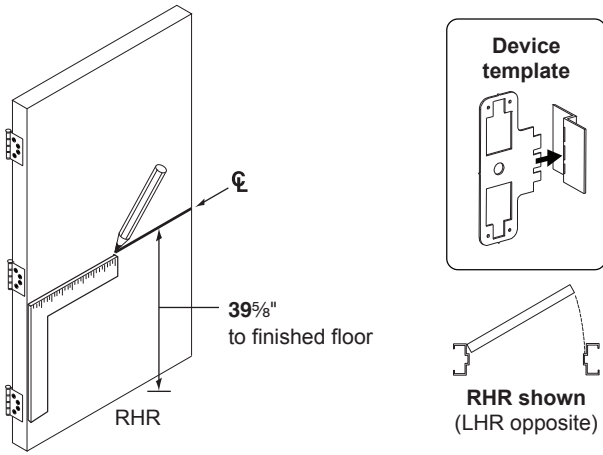
|   |   |   |
|---|---|---|
| <p><b>A</b></p>    |  #10-24 X 1"<br> #10-24 X 1-1/2"<br> #10 x 1-1/4" Wood screw<br>- Packaged with trim -<br> #10-24 X 1-3/8"<br> #10-24 X 1-7/8" | Surface mount or Sex bolts (1-3/4" door)<br>Sex bolts (2-1/4" door)<br>Surface mount (wood)<br>990 trims (1-3/4" door)<br>990 trims (2-1/4" door) |
| <p><b>B</b></p>    |  #10-24 X 3/4"<br> #10-24 X 1-1/8"<br> #10 x 1-1/4" Wood screw   | Surface mount or Sex bolts (1-3/4" door)<br>Sex bolts 2-1/4" door<br>Surface mount (wood)   |
| <p><b>C</b></p>   |  #10-16 x 3/8" Thread cutting   | End cap   |
| <p><b>D</b></p>  |  1/4-20 X 3/4"<br> 1/4-20 X 1-1/4"  | 1-3/4" door<br>2-1/4" door  |
| <p><b>E</b></p>  |  #10-24 X 3/4"<br> #10 x 1-1/2" Wood screw  | Metal frame<br>Wood frame   |
| <p><b>F</b></p>  |  #10-12 x 10-24 x 1-1/4" Combination   | Metal or wood frame   |
| <p><b>G</b></p>  |  #10-12 x 10-24 x 1-1/4" Combination   | Variable floor surfaces   |
| <p><b>H</b></p>  |  #8-32 X 1/4"  | Latch covers  |
| <p><b>I</b></p>  |  #10-12 x 10-24 x 1" Combination   | Metal or wood door  |
| <p><b>J</b></p>  |  #8-18 x 3/8" Thread cutting   | Center case cover   |

# PREPARATION CHART

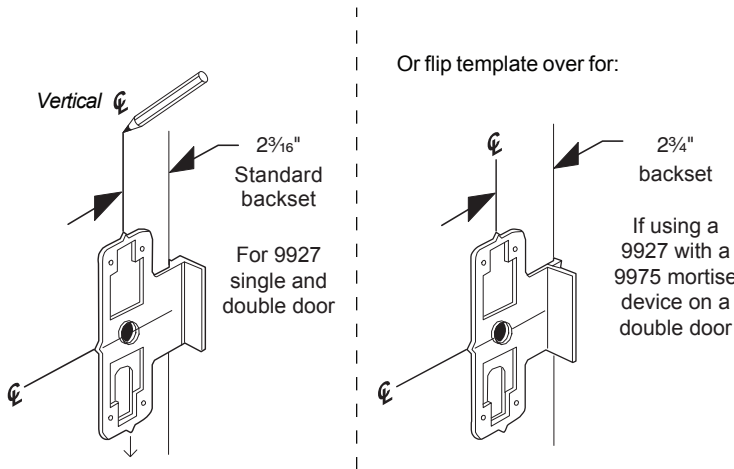
Go to instructions on next page before using Preparation Chart



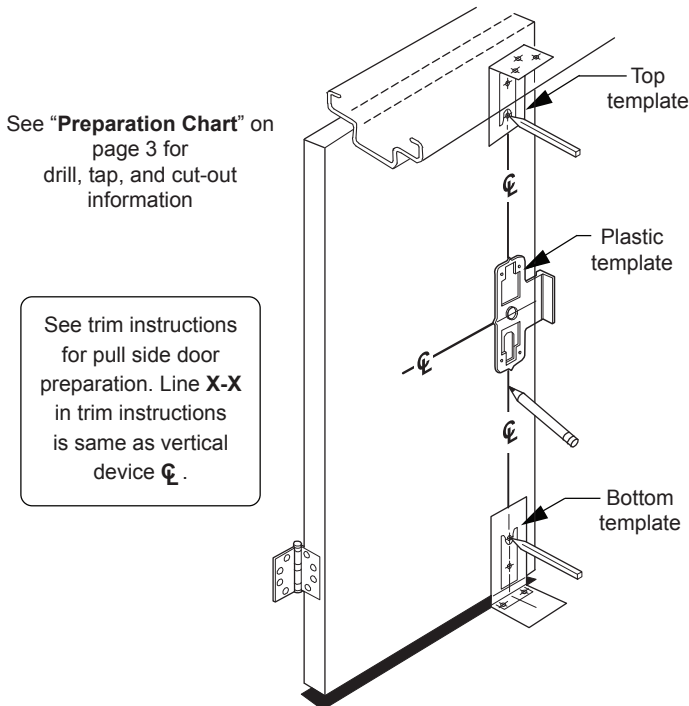
# 1 Draw Horizontal Center Line (☿) and Assemble Device Template



# 2 Position Template as Shown and Mark Vertical ☿

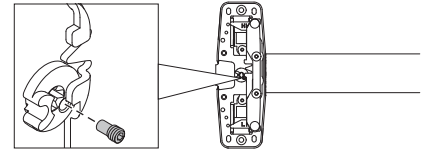


# 3 Align Top and Bottom Templates Along ☿ and Prepare Door



# 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.

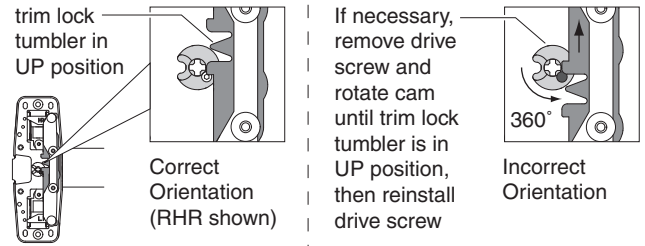
|      |       |       |
|------|-------|-------|
| 996L | 696TP | 990TP |
| 996K | 697TP |       |

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).

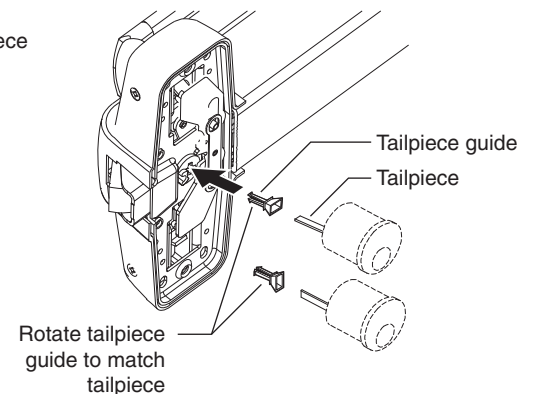
|          |           |           |           |
|----------|-----------|-----------|-----------|
| *996L-BE | *E996L    | *696TP-BE | *990TP-BE |
| *996K-BE | *E996L-BE | *697TP-BE |           |

\* 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.

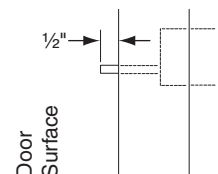


# 5 If Using a Cylinder with a Tailpiece, Prepare Device and Cylinder

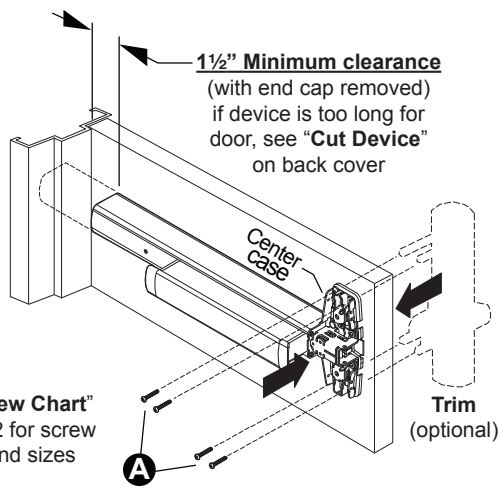
a. Install tailpiece guide.



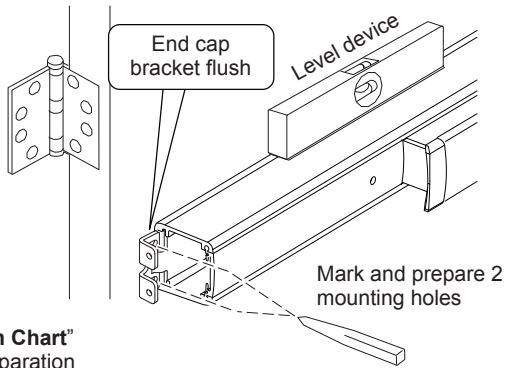
b. Cut tailpiece as needed.



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

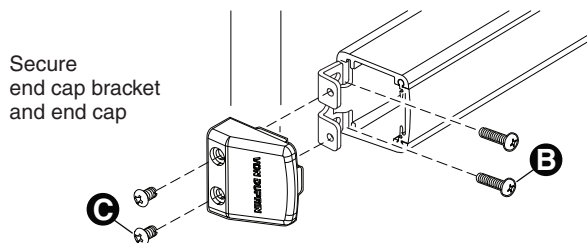


**7** Mark and Prepare 2 Holes for End Cap Bracket

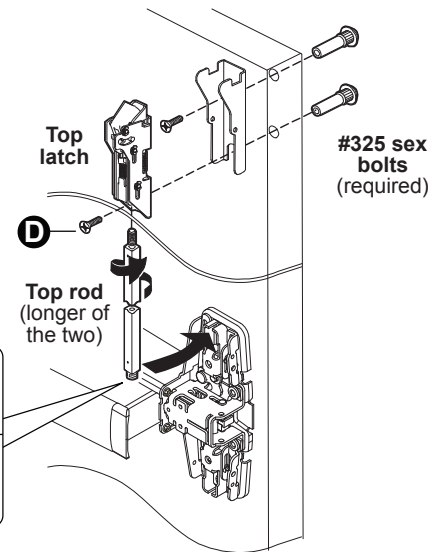


See "Preparation Chart" on page 3 for preparation information

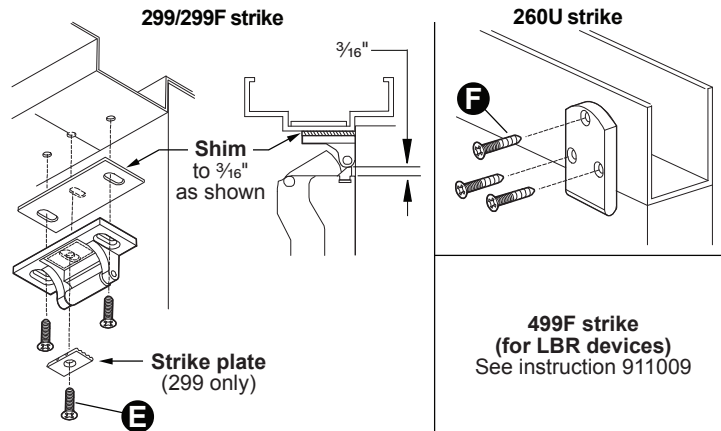
**8** Install End Cap Bracket and End Cap



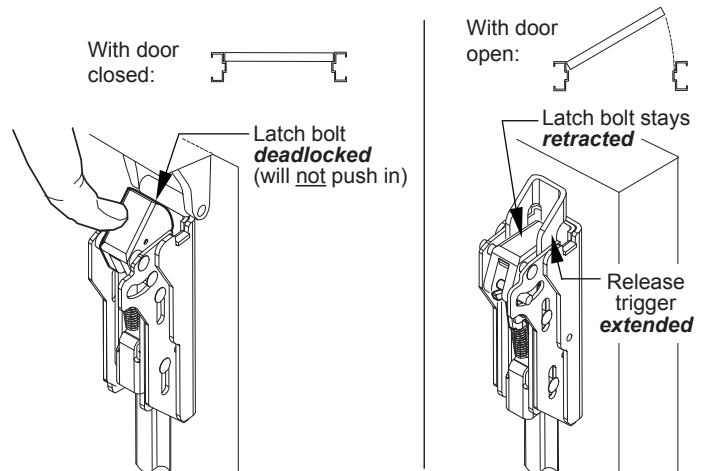
**9** Install Top Latch and Rod



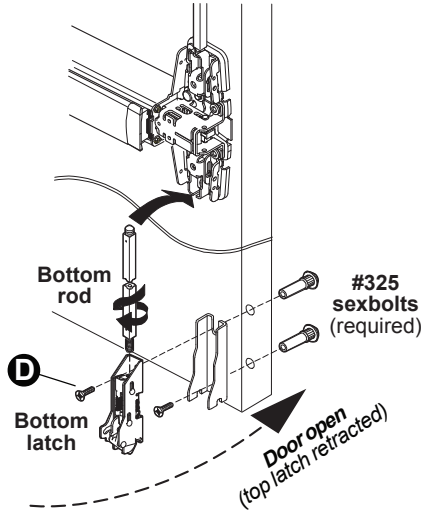
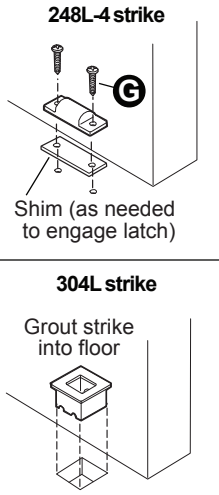
**10** Install Top Strike



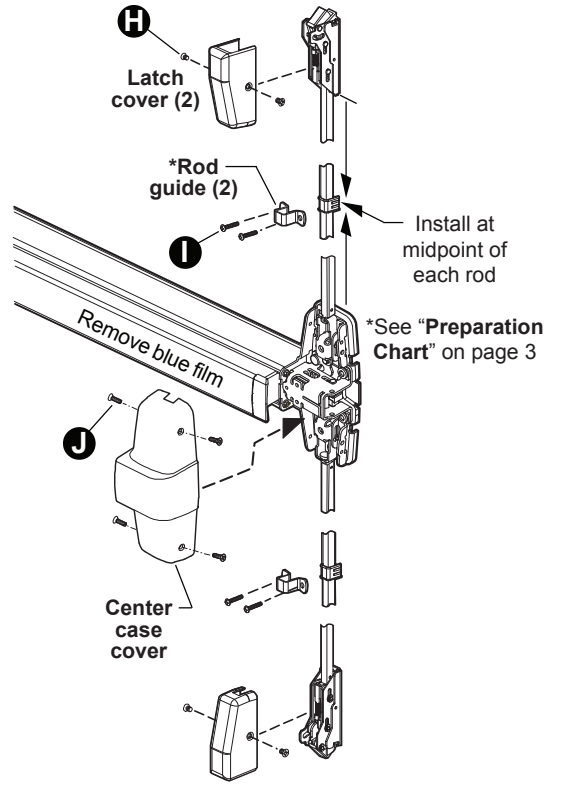
**11** Adjust Top Rod (Screw Rod Into or Out of Latch) Until Adjusted as Shown



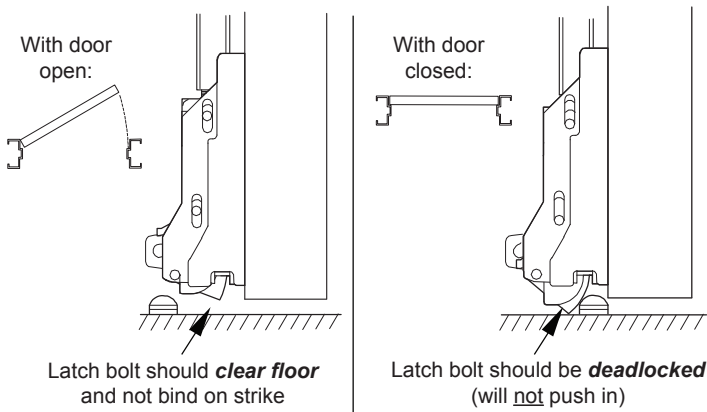
## 12 Install Bottom Strike, Latch, and Rod



## 14 Install Rod Guides and Covers



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

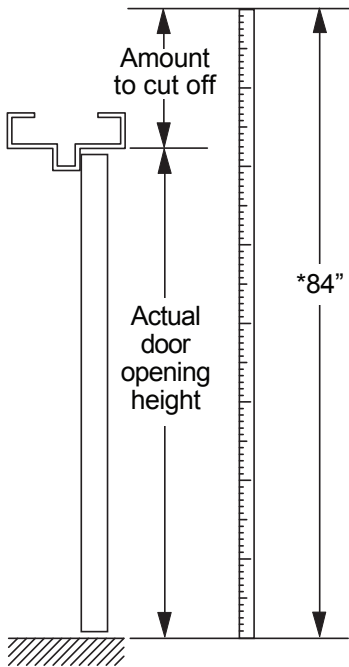


Open and close door a few times and check for deadlatching when door is closed. Readjust rods if needed.

# CUT TOP ROD

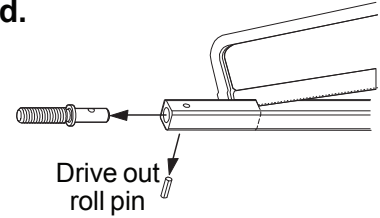
## 1. Measure amount to cut off rod as shown below.

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

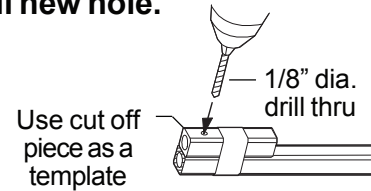


\*Rods are factory sized for 7' (84") door. Measure actual door opening height and subtract that number from 84" to get amount to cut off top rod.

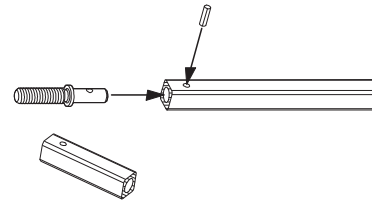
## 2. Cut rod.



## 3. Drill new hole.

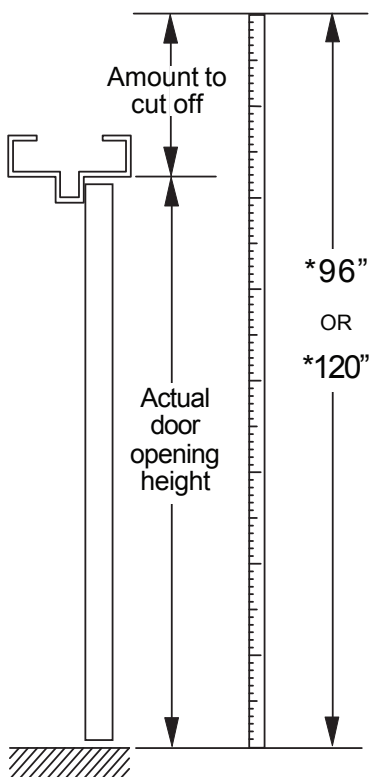


## 4. Reinstall rod end and roll pin.



# INSTALL ROD EXTENSION

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

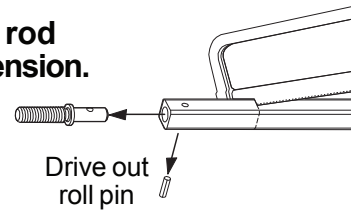


### \*Standard door heights:

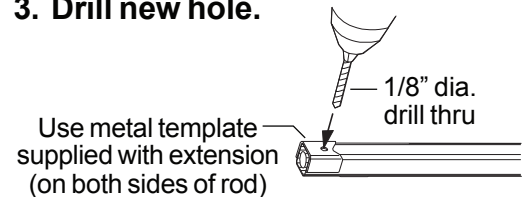
|                   |            |
|-------------------|------------|
| With no extension | 7' (84")   |
| With 1' extension | 8' (96")   |
| With 3' extension | 10' (120") |

\*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.

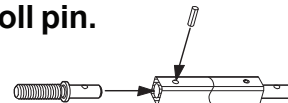
## 2. Cut rod extension.



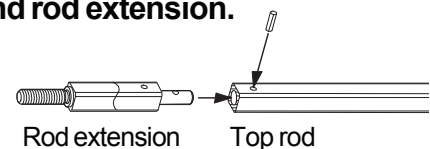
## 3. Drill new hole.



## 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.

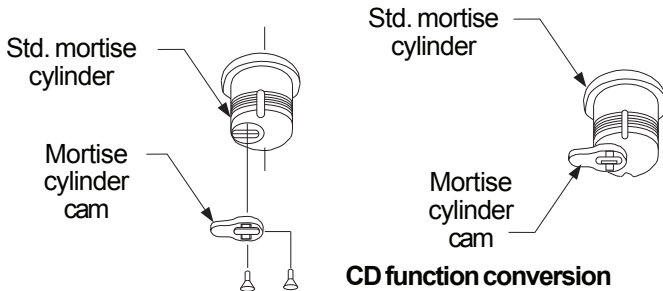


Figure 1

### Dogging procedure

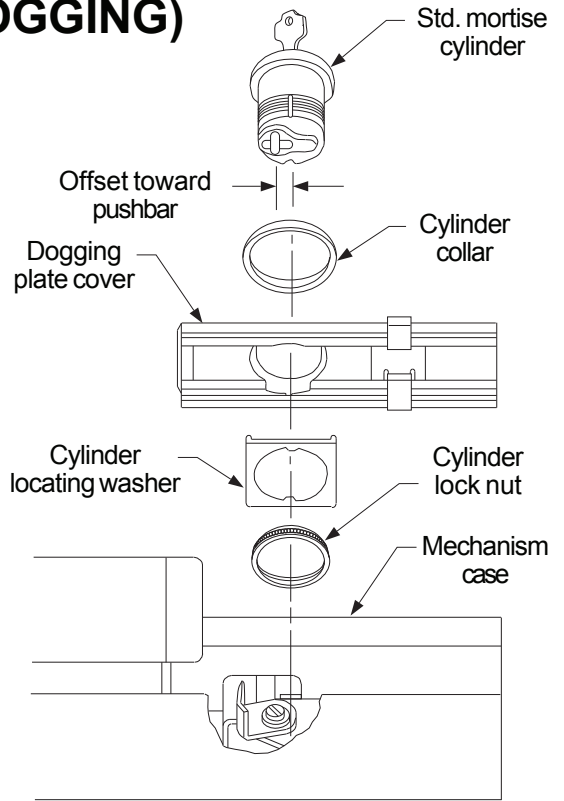
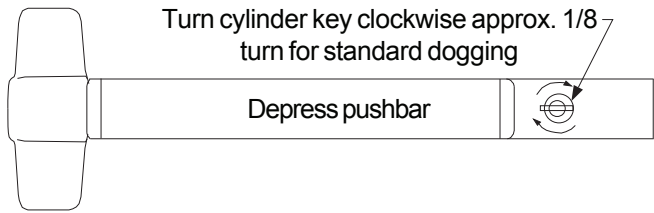
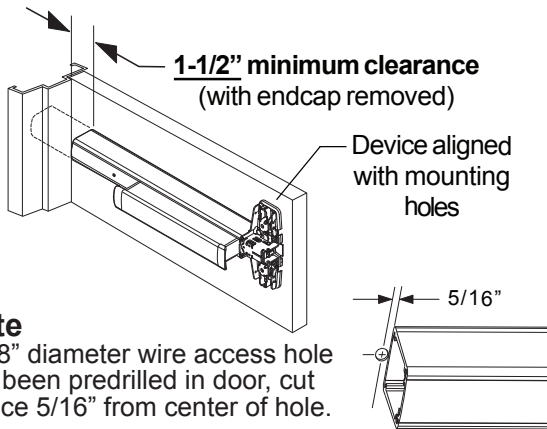


Figure 2

## CUT DEVICE

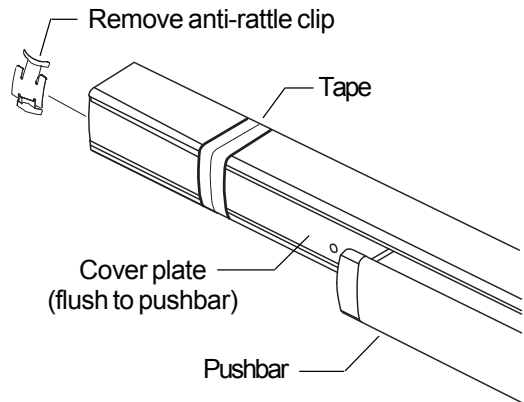
### 1 Measure amount to cut off device.



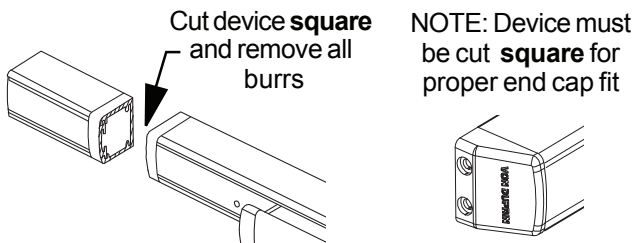
**Note**

If 5/8" diameter wire access hole has been predrilled in door, cut device 5/16" from center of hole.

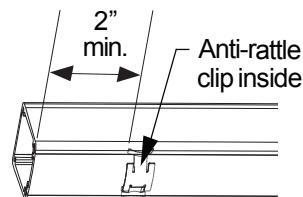
### 2 Tape and mark area being cut.



### 3 Cut device square.



### 4 Slide anti-rattle clip into device.







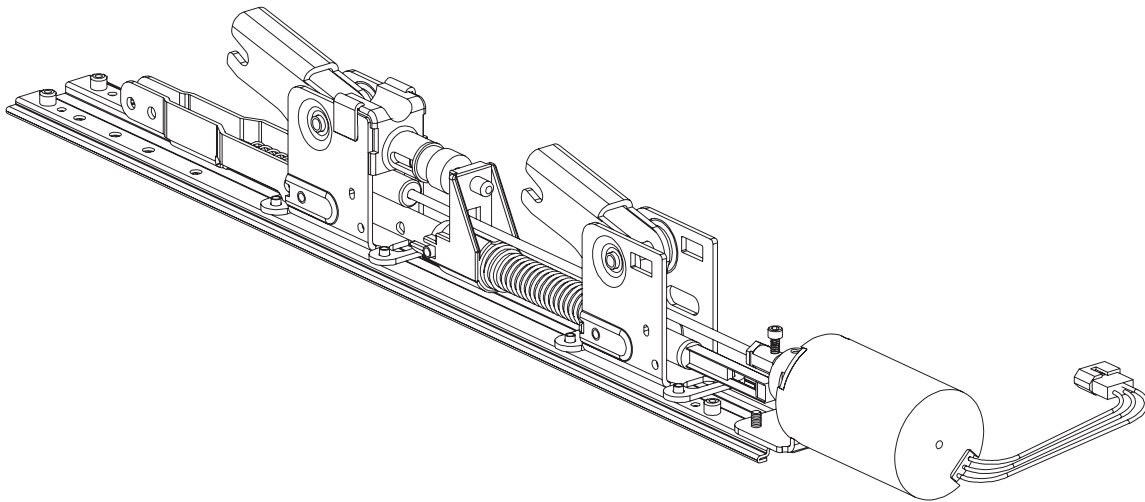
941255-00

EL/HD-EL

VON DUPRIN®

Conversion Kit

Installation Instructions



Read All Warnings  
Before Starting Installation!

Index

- General Information ..... 2
- Specifications ..... 2
- Parts List ..... 2
- Warnings ..... 2
- Tools Needed ..... 2
- Installation ..... 3
- EL Wiring and Adjustment ..... 12

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## GENERAL INFORMATION

This kit converts 33/35, 33A/35A, and 98/99 series devices to electric latch (EL) retraction devices. Before beginning installation, review “Specifications,” “Parts List,” “Warnings,” and “Tools Needed.”

## SPECIFICATIONS

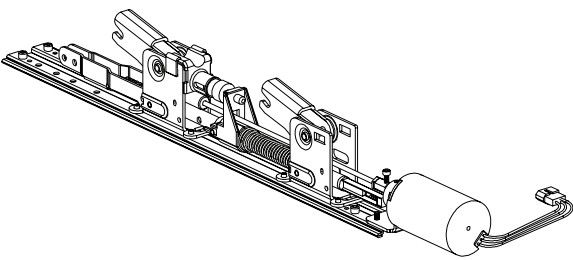
### Solenoid:

Continuous duty: 24 VDC

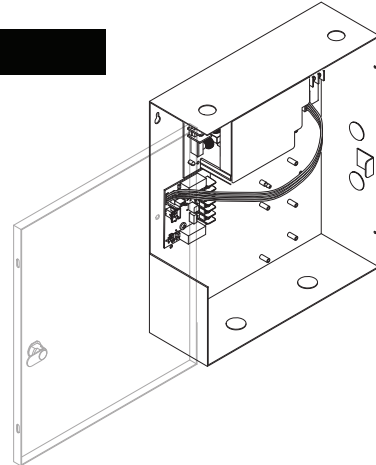
Current inrush: 16 A

Current holding: 0.3 A

## PARTS LIST



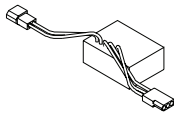
Baseplate with solenoid



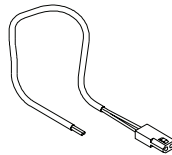
PS914 power supply with 900-2RS logic board  
\*not in kit



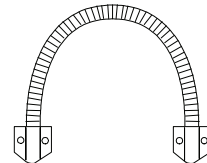
Pin and retaining clip



Circuit breaker



Cable



DL-12 door loop  
\*not in kit

\* This part is required for installation but not included in this kit. Contact factory to order.

## WARNINGS

1. This kit cannot be used to convert 33/35 Rim devices. Consult factory.
2. Install according to instructions or device will not function and panic or fire label will be void.
3. The solenoid wiring must be attached to the fire alarm system if installed on fire exit hardware.
4. PS914 power supply with 900-2RS logic board must be used for EL device to operate properly.
5. Field wiring between the power supply and the door must be 12 AWG.

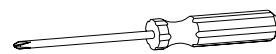
## TOOLS NEEDED



5/8" dia. drill bit



Flat blade screwdriver



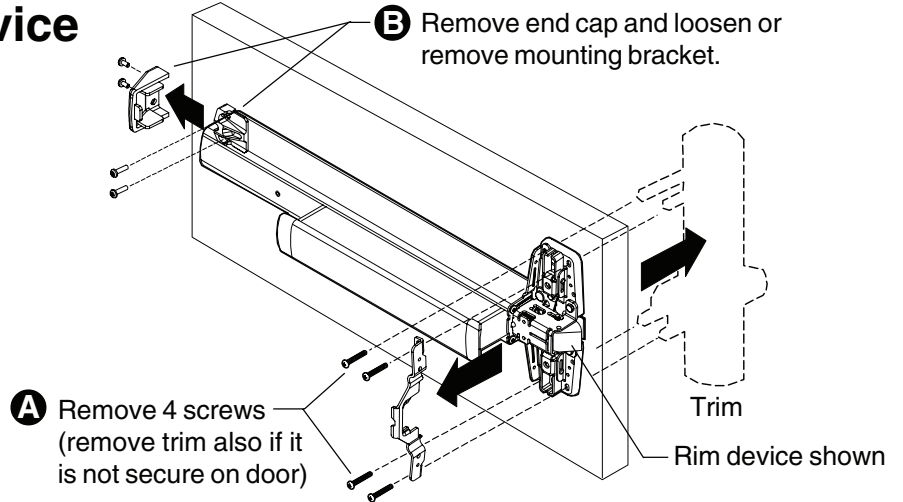
Phillips screwdriver

**1** Remove device from door if installed (find correct device on page 3 or 4).

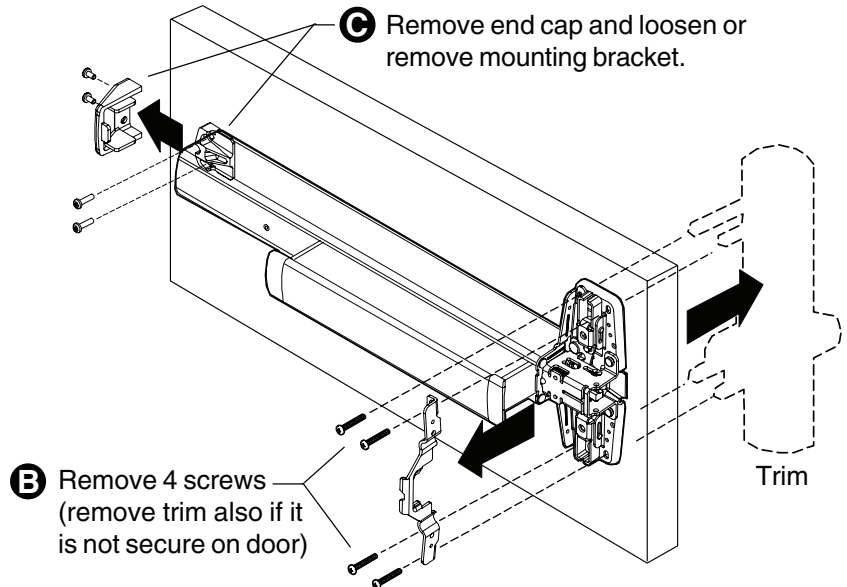
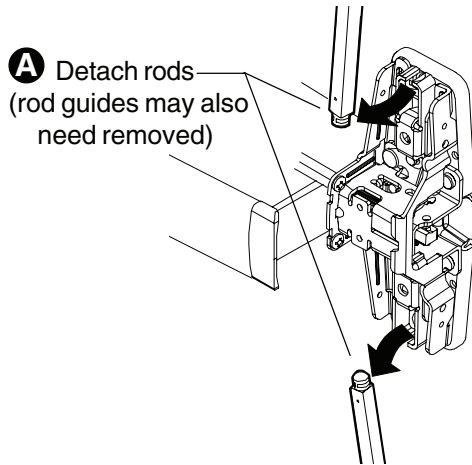
**⚠ WARNING**

Device and trim must be held securely while removing mounting screws to prevent device and trim from dropping to the floor.

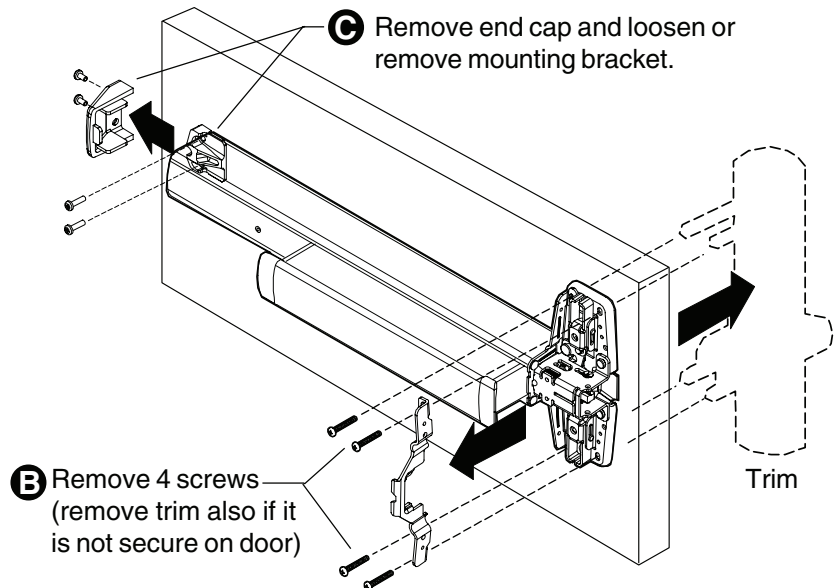
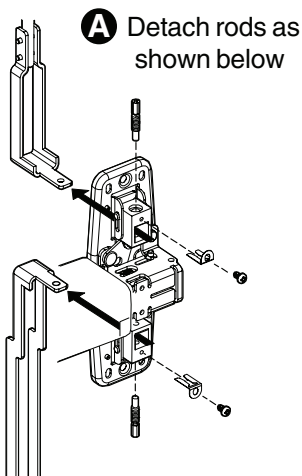
### 98/99 Rim/Mortise Device



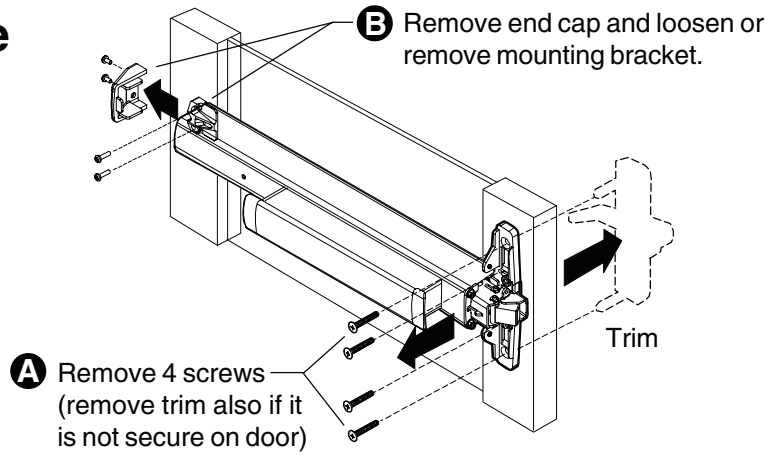
### 9827/9927 Device



### 9847/9947 Device

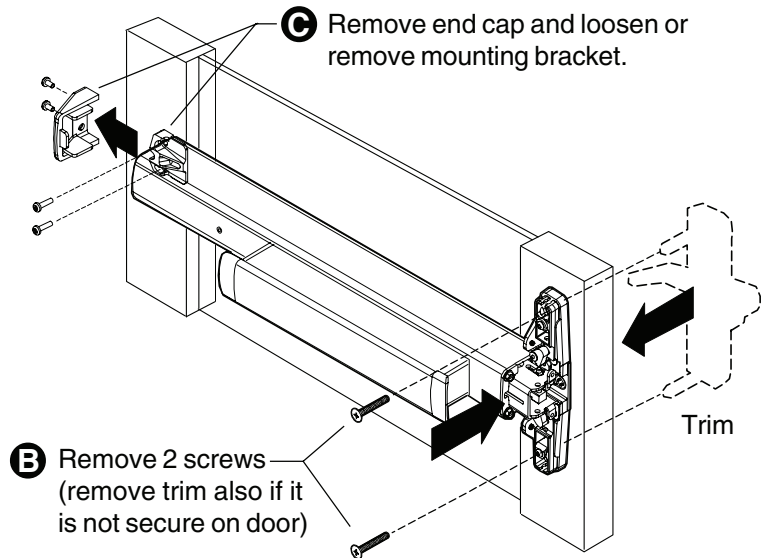
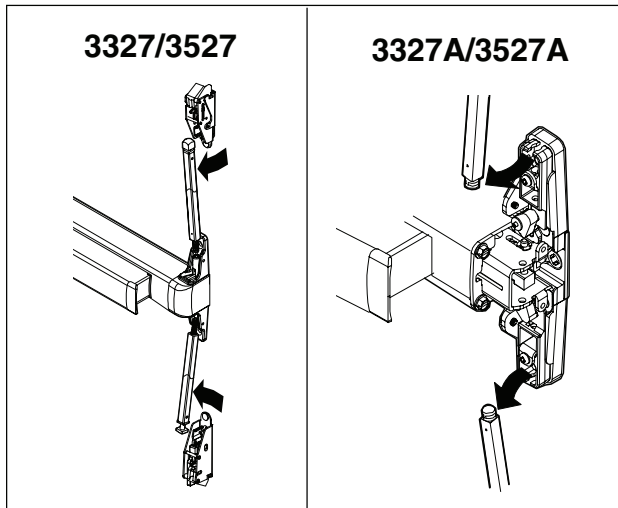


### 33A/35A Rim Device



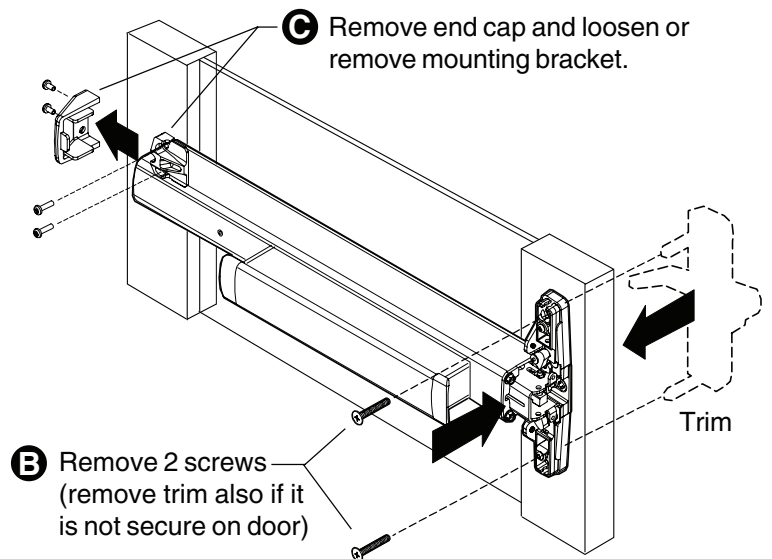
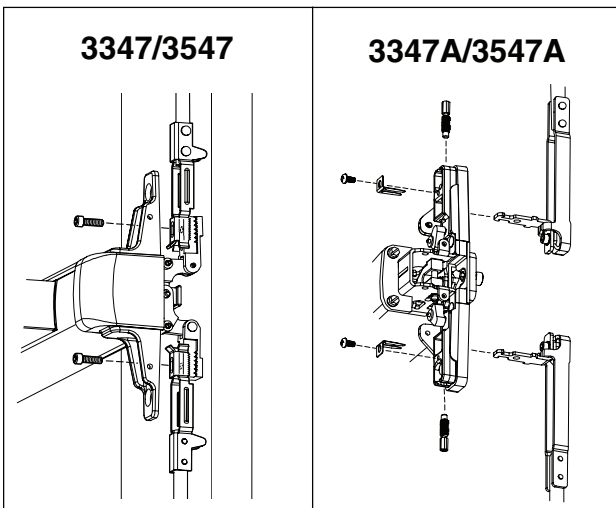
### 3327/3527 & 3327A/3527A Device

**A** Detach rods (rod guides may also need removed)

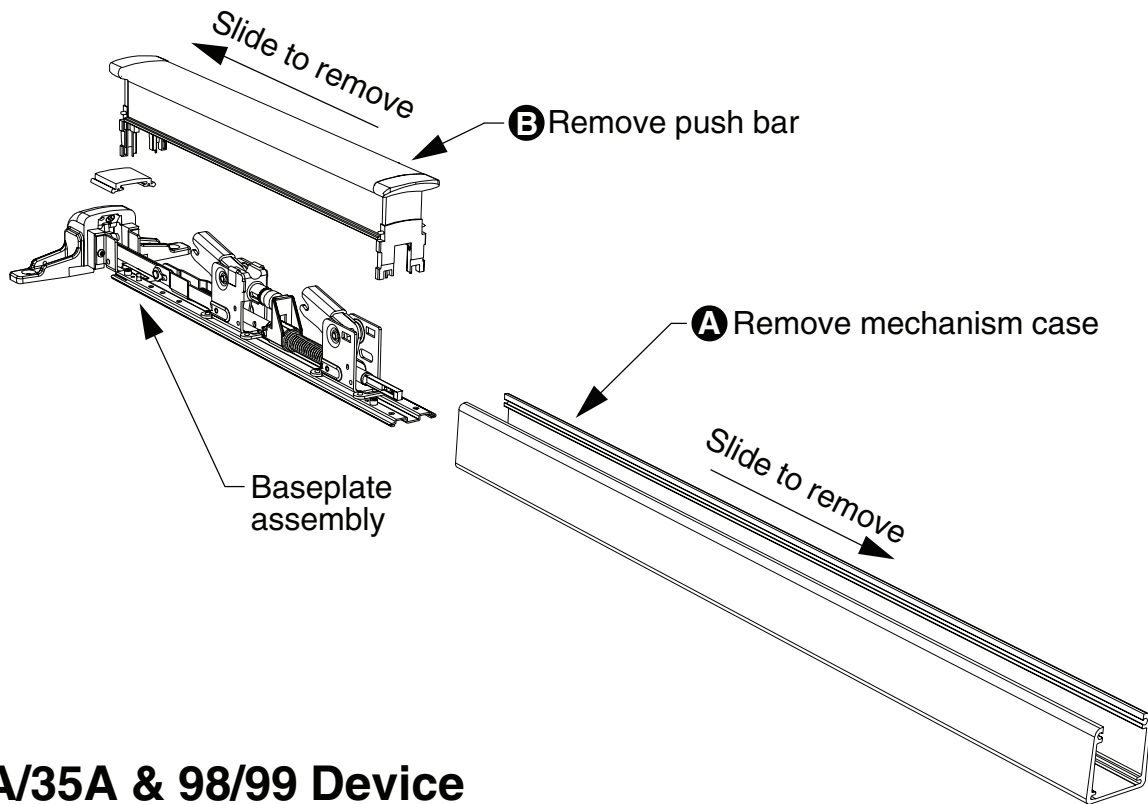


### 3347/3547 & 3347A/3547A Device

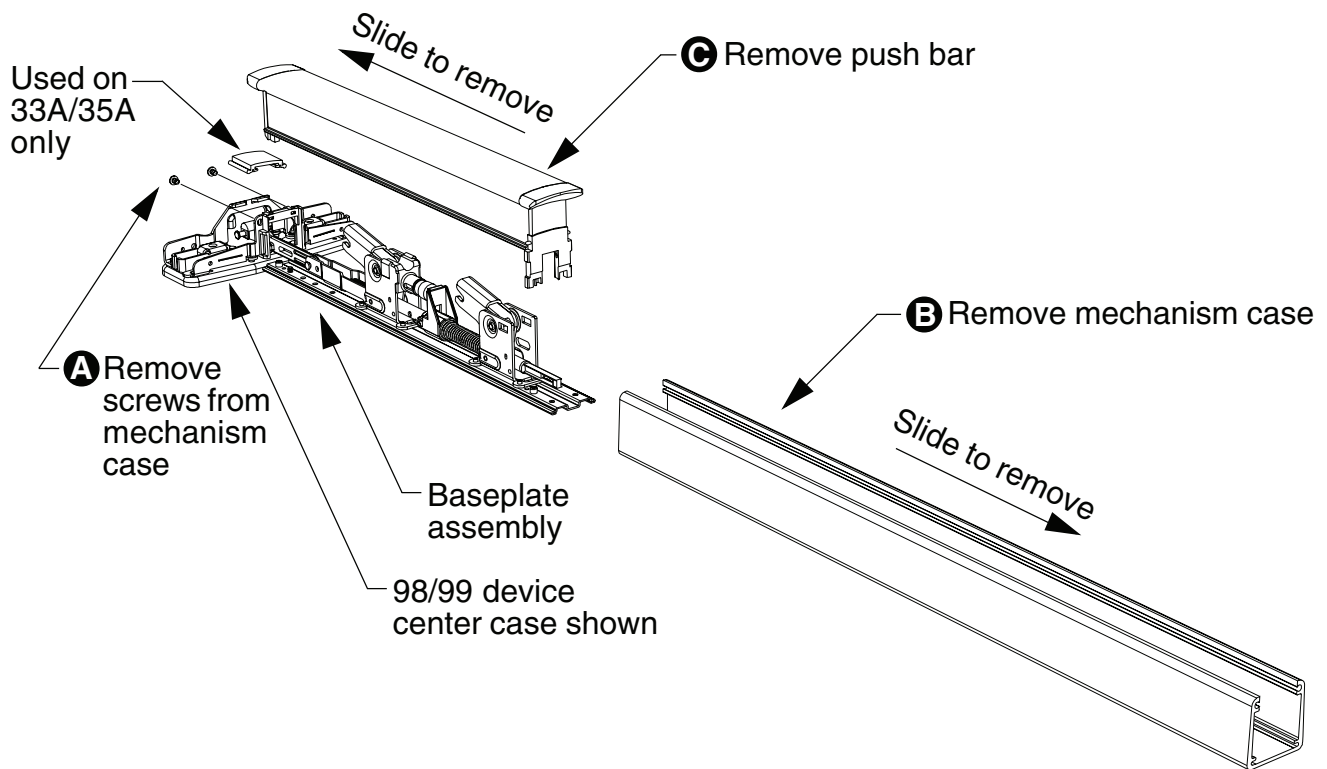
**A** Detach rods as shown below



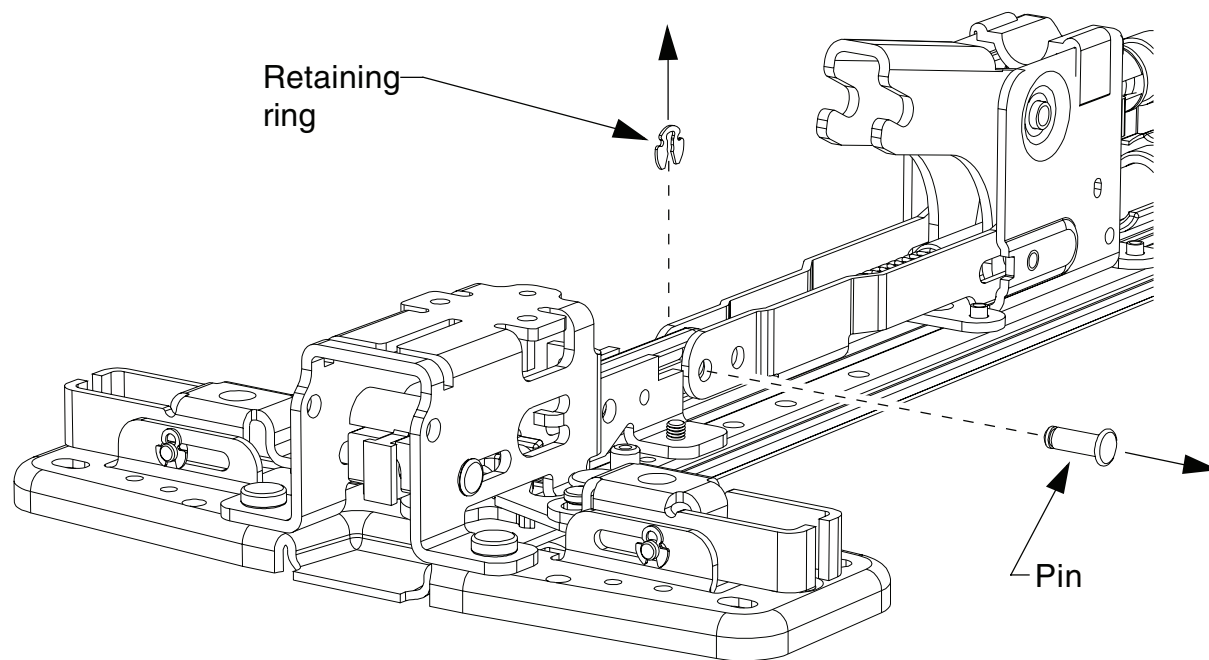
### 33/35 Device



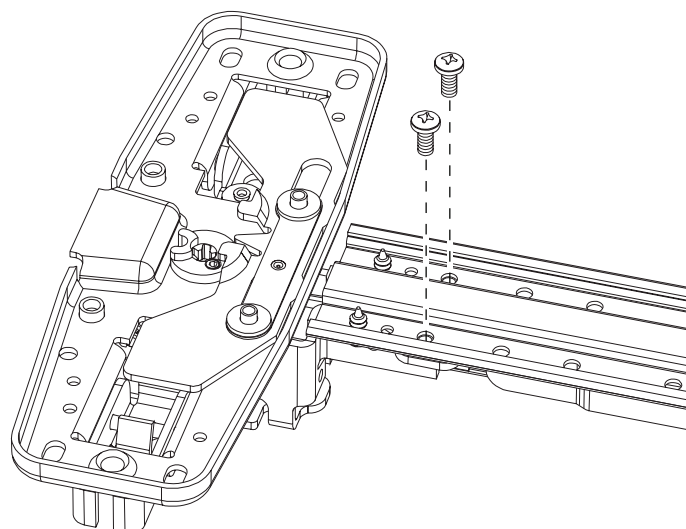
### 33A/35A & 98/99 Device



**3** Remove main link retaining ring and pin.

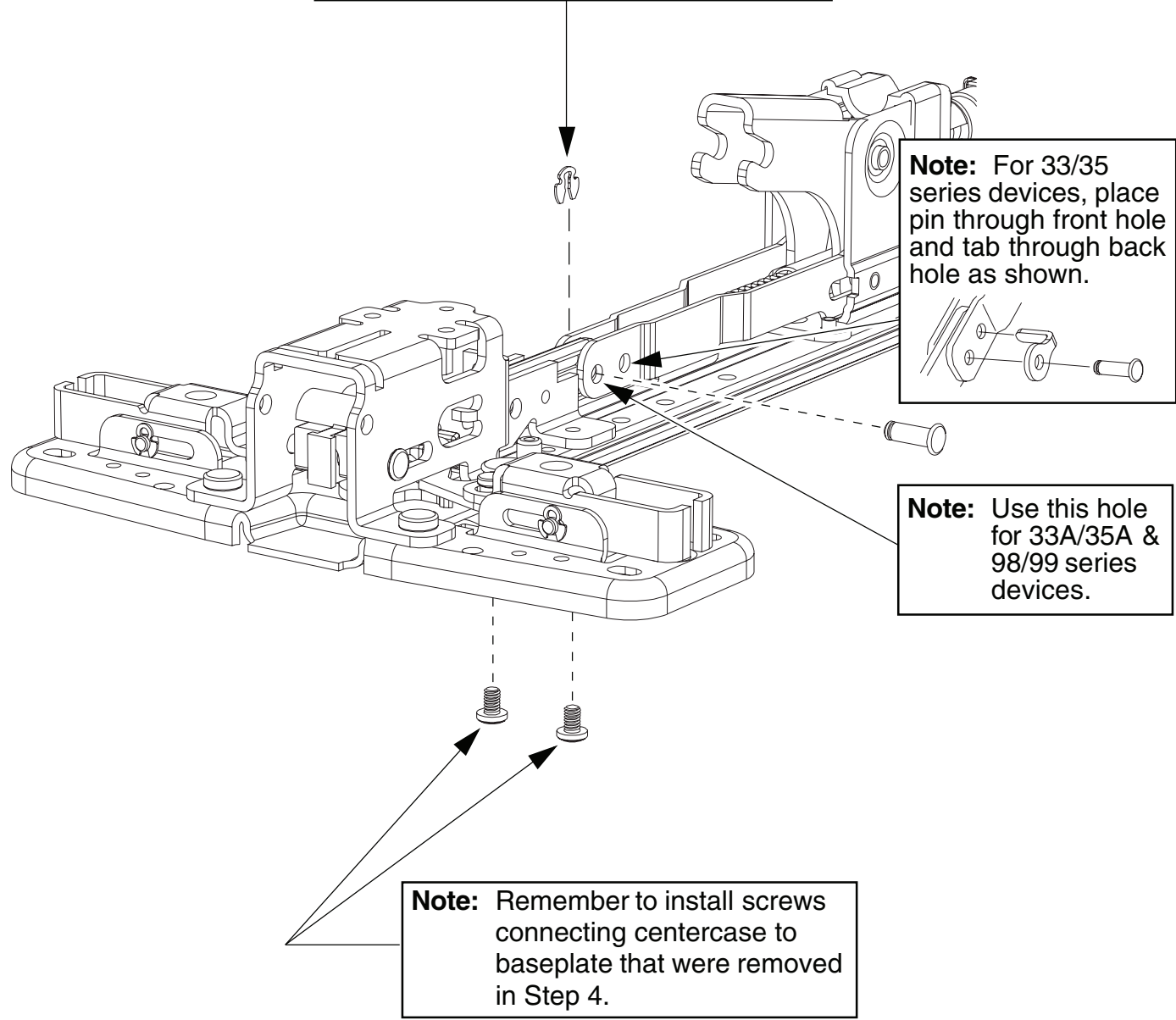


**4** Remove screws connecting center case to baseplate.



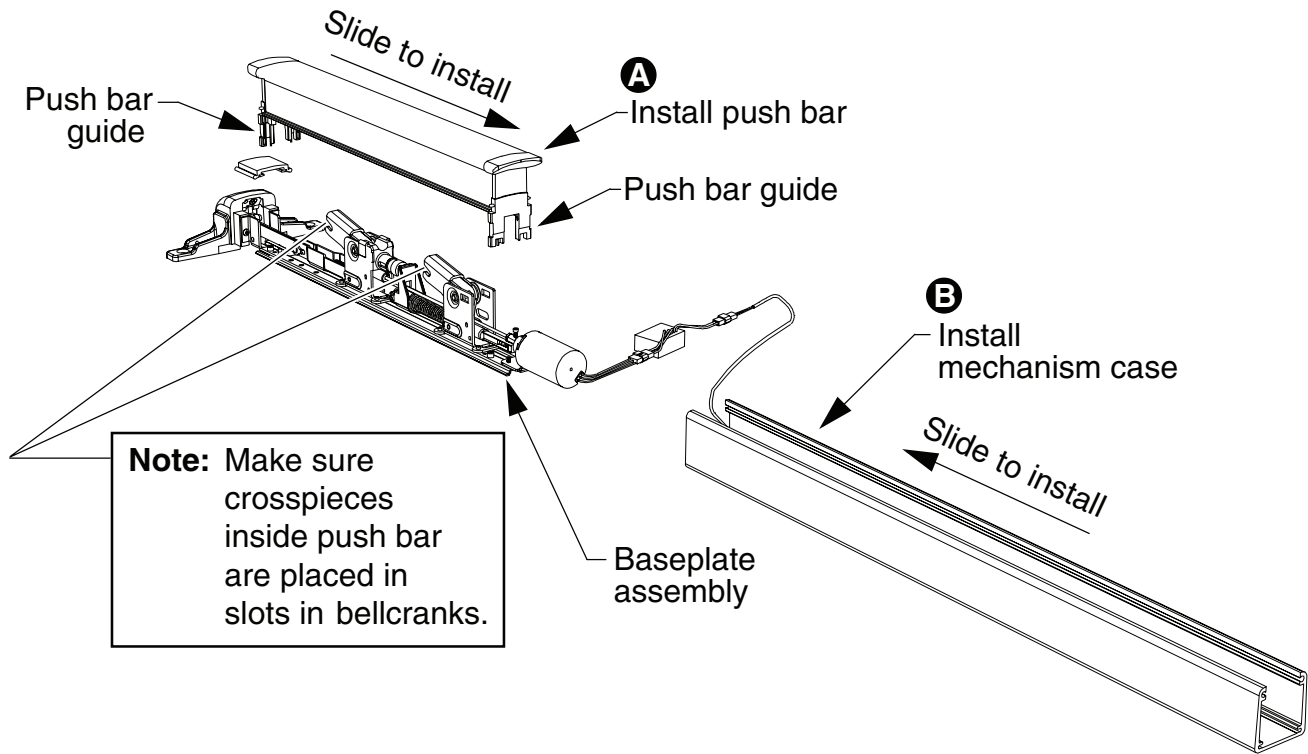
**5** Install center case to new EL baseplate.

**Warning:** Make sure retaining ring is secure in the pin groove. If retaining ring is not secure it could result in an exit device that will not allow exit. This is a serious safety issue.

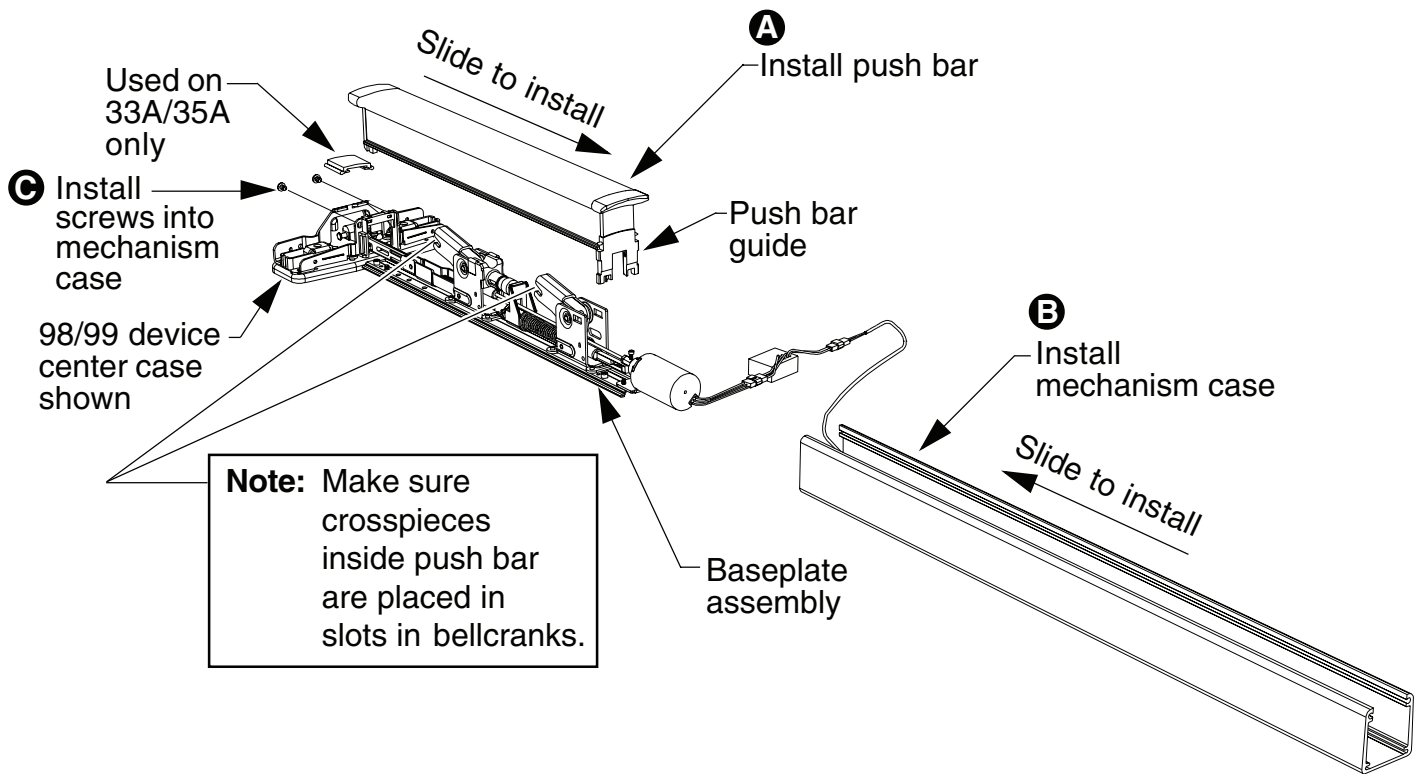


**6** Reassemble device.

### 33/35 Device



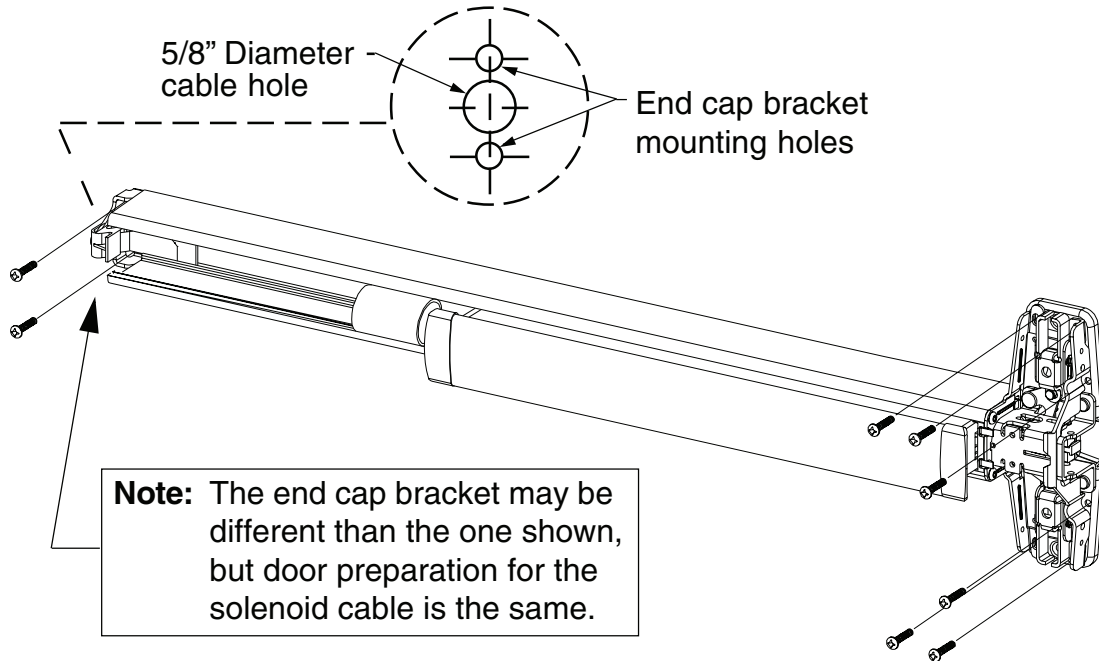
### 33A/35A & 98/99 Device



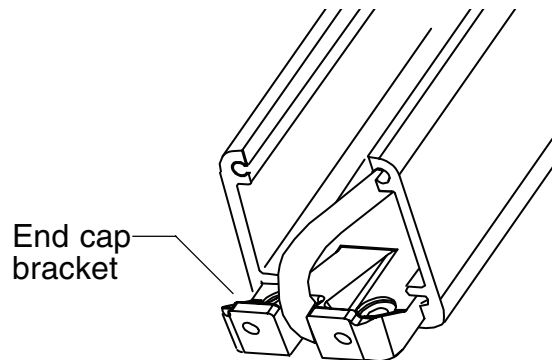


**7** Drill solenoid cable hole and install device to door.

- A. Drill 5/8" diameter hole in door centered between end cap bracket mounting holes.
- B. Deburr hole.
- C. Reattach device and trim to door.

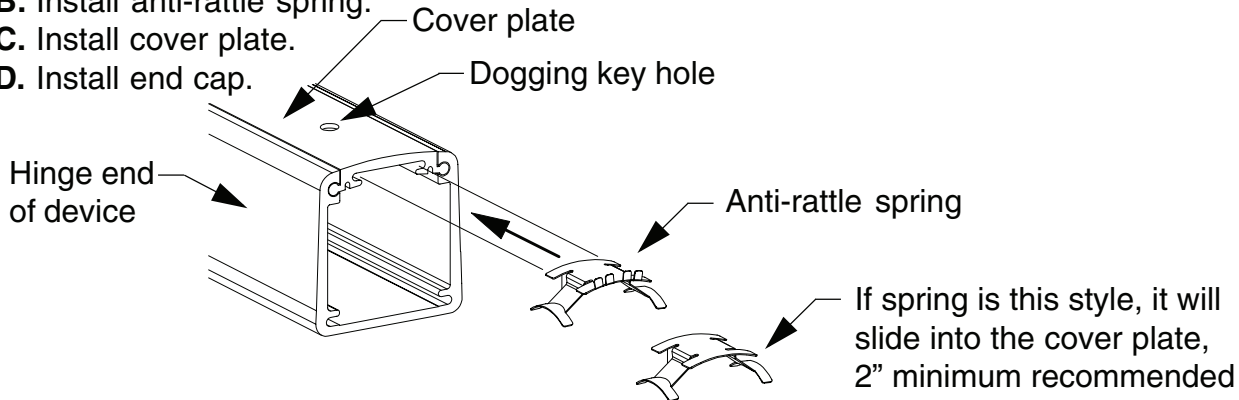


**8** Route cable through hole in door.



## 9 Install cover plate and end cap.

- A. If cover plate has a dogging key hole, rotate cover plate so hole is near end cap for standard EL device and near pushbar for HD-EL device.
- B. Install anti-rattle spring.
- C. Install cover plate.
- D. Install end cap.



## 10 For vertical devices, reattach rods.

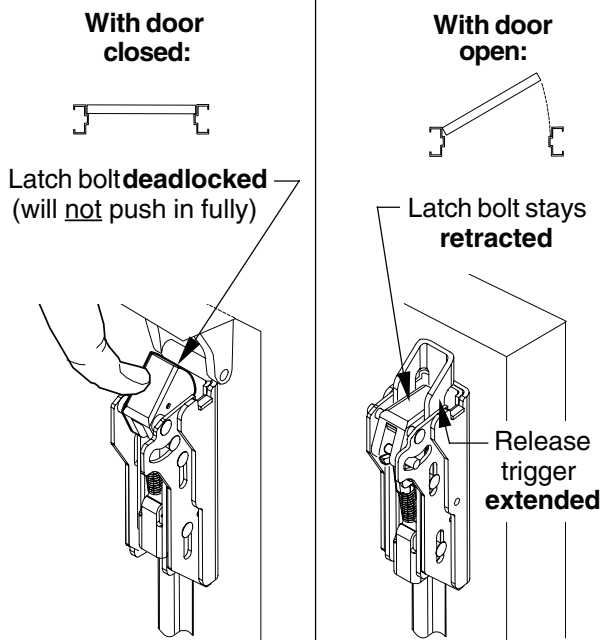
Reattach rods in reverse of when they were detached on pages 3 and 4.

## 11 Adjust rods as needed on vertical devices (find correct device on page 10 or 11).

### 9827/9927 Device or 3327A/3527A Device

Adjust top and bottom rod (screw rod into or out of latch) until adjusted as shown.

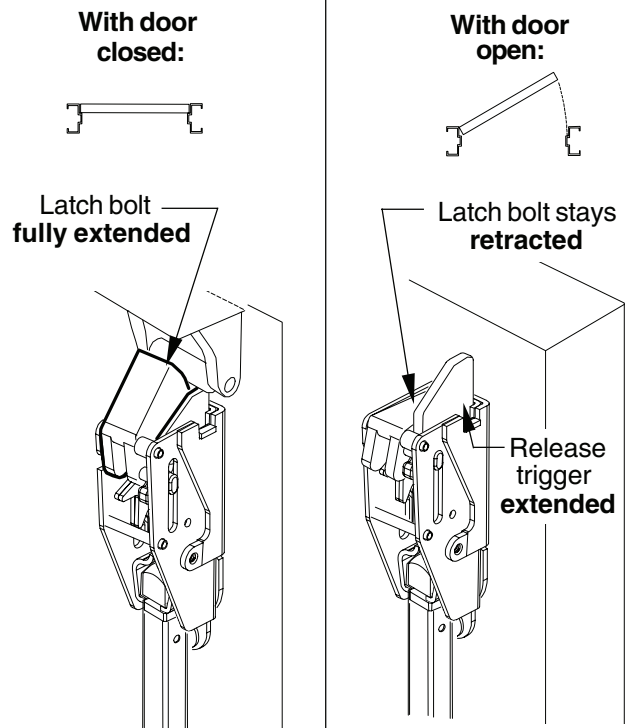
**Note:** On bottom latch, make sure latch bolt clears floor when door is swung open.



### 3327/3527 Device

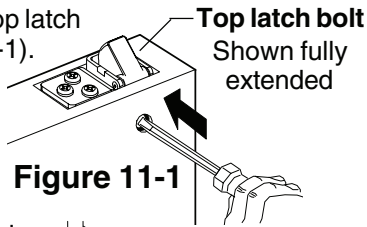
Adjust top and bottom rod (screw rod into or out of center case rod connector) until adjusted as shown.

**Note:** On bottom latch, make sure latch bolt clears floor when door is swung open.



## 9847/9947 Device or 3347A/3547A Device

- A. Open door and release top latch bolt as shown (Figure 11-1).



- B. Loosen bottom locking screw (Figure 11-2).

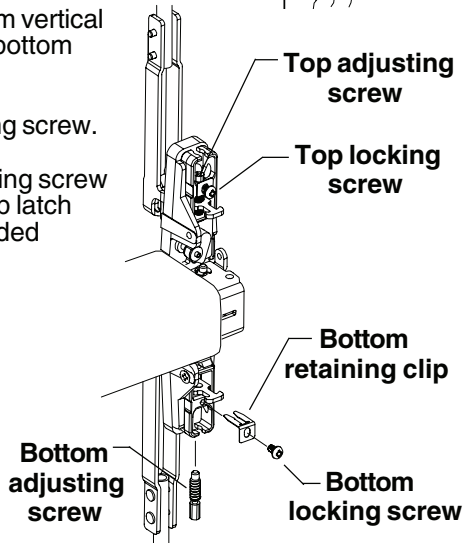
- C. Disconnect bottom vertical rod by removing bottom adjusting screw.

- D. Loosen top locking screw.

- E. Rotate top adjusting screw clockwise until top latch bolt is fully extended (Figure 11-1).

- F. Check top latch bolt for deadlocking (latch bolt should not push in fully).

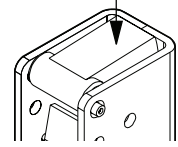
- G. Turn top locking screw in. Do not over-tighten



**Figure 11-2**

- H. Depress pushbar and release. (flush with latch case)

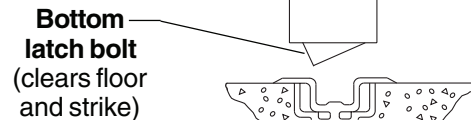
- I. Make sure top latch bolt stays retracted as shown.



**Figure 11-3**

- J. Install bottom adjusting screw, retaining clip, and locking screw (Figure 11-2).

- K. With top latch bolt still retracted, adjust bottom rod so latch bolt clears floor and bottom strike.



**Figure 11-4**

- L. Turn bottom locking screw in. Do not over-tighten.

- M. Close door and push up on bottom latch bolt to verify it is deadlocked (will not push in fully).

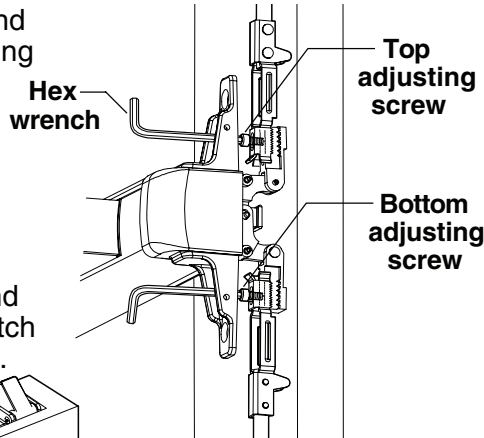
- N. Check device operation by opening and closing door several times from the outside.

**Redo adjustment procedure if :**

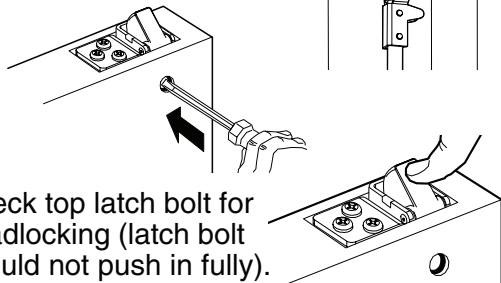
- Top latch bolt is not held retracted
- Bottom latch bolt does not clear floor and bottom strike

## 3347/3547 Device

- A. Loosen top and bottom adjusting screws.



- B. Open door and release top latch bolt as shown.

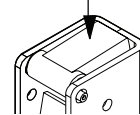


- C. Check top latch bolt for deadlocking (latch bolt should not push in fully).

- D. With top latch bolt still fully extended and pushbar in full up position (not depressed), tighten top adjusting screw.

- E. Depress pushbar and release.

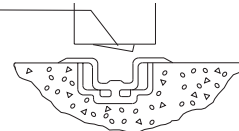
**Latch bolt retracted**  
(flush with latch case)



- F. Make sure top latch bolt stays retracted as shown.

- G. With top latch bolt still retracted, push bottom latch bolt up until it clears floor and bottom strike and hold it there.

**Bottom latch bolt**  
(clears floor and strike)



- H. Tighten bottom adjusting screw.

- I. Close door and push up on bottom latch bolt to verify it is deadlocked (will not push in fully).

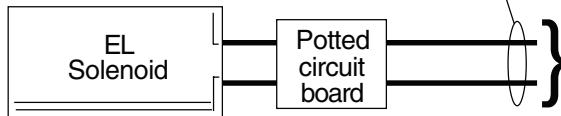
- J. Check device operation by opening and closing door several times from the outside.

**Redo adjustment procedure if :**

- Top latch bolt is not held retracted
- Bottom latch bolt does not clear floor and bottom strike

## 12 Complete wiring.

12 AWG required for distances up to 200'  
14 AWG permitted for distances 0-100'



### ELECTRICAL SPECIFICATIONS

Voltage: 24 VDC  
Current: 16 A inrush (0.3 sec.)  
0.25 A holding

### NOTE

When power is applied to the **potted circuit board**, the solenoid receives a momentary signal to retract and a separate signal to hold as long as power is applied. When attempting to retract solenoid again, power must be removed from the circuit and reapplied.

### Troubleshooting solenoid operation

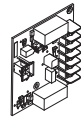
If the solenoid fails to retract the latch bolt when power is applied, recheck wiring for proper connections.

If solenoid retracts latch bolt momentarily but will not remain in energized position:

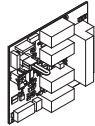
1. Check wiring for proper connections, gauge, and distances.
2. Check for latch bolt binding caused by improper strike installation, warped door, etc. Also check adjustment of vertical rods.

## EL WIRING

**Solenoid draws 16 A inrush current from PS914. Solenoid must be wired to a 900-2RS logic board:**



If 900-2RS logic board, refer to instructions 44487056.

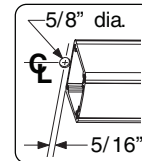
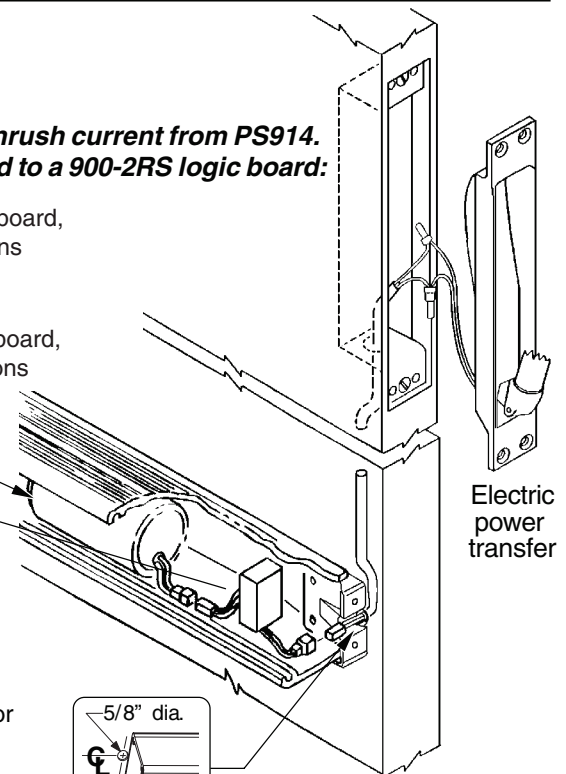


If 900-4RL logic board, refer to instructions 44487080.

Solenoid

Potted Circuit Board  
Install after device has been mounted on door

Do not cut device with potted circuit board installed



Drill 5/8" dia. wire access hole thru device side of door.

## 13 Adjust EL device for proper function.

### A. Check for proper function:

1. Make sure device is not dogged.
2. Depress pushbar and make sure latch bolt(s) retracts and extends fully (see Figure 13-1).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike, see Figure 13-1).
5. Release solenoid and check latch bolt extension (see Figure 13-1).
6. Continue to Section B if device does not function electrically.

### B. Determine if dogging rod adjustment is too long or short:

1. The dogging rod adjustment is too **long** if latch bolt does not retract and clear strike (see Section C for adjustment).
2. The dogging rod adjustment is too **short** if latch bolt does not fully extend **or** latch bolt fully retracts but solenoid releases while energized (see Section D for adjustment).

### C. Adjust solenoid if dogging rod is too **long** (see Figure 13-2):

1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.  
**Note:** Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
4. Turn threaded bushing ④ in to shorten dogging rod ⑦ so latch bolt fully retracts.
5. Tighten cap screw ③.  
**Note:** Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.

**Note:** Rim device shown, see pages 10 and 11 for verticals

Latch bolt extended 3/4"  
Latch bolt retracted Flush within 1/16"



Figure 13-1

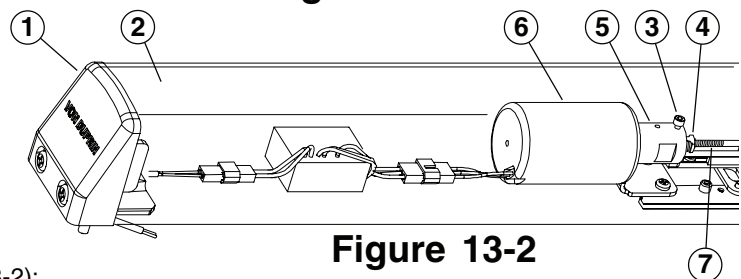


Figure 13-2

### D. Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 13-2):

1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
4. Turn threaded bushing ④ out to lengthen dogging rod ⑦ so plunger ⑤ just bottoms in solenoid housing ⑥ and latch bolt is fully retracted.  
**Note:** Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
5. Tighten cap screw ③.  
**Note:** Cap screw ③ must be tightened against flat on threaded bushing ④. Apply a few drops of Loc-Tite 222 to threads of cap screw ③.
6. Replace dogging cover ② and end cap ①.
7. Return to Section A to check for proper function.