

# VON DUPRIN®

## Installation Instructions

### 33/3527A Surface Vertical Rod Exit Device



**Devices covered by these instructions:**  
33/3527A Surface Vertical Rod Exit Device  
33/3527A-F (Fire) Surface Vertical Rod Exit Device  
CD33/3527A Surface Vertical Rod Exit Device  
EL33/3527A Surface Vertical Rod Exit Device  
SS33/3527A Surface Vertical Rod Exit Device

**Special tools needed:**  
  
#10-24 tap  
Drill bits: #25, 1/8", 1/4",  
5/16", 13/32"

**Index:**

- Screw chart ..... 2
- Device installation ..... 3-6
- Cut top rod ..... 7
- Install rod extension ..... 7
- Optional equipment ..... 8-9
- Templates ..... 11-16

This product is covered by the following patent numbers:

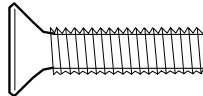
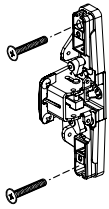
3,767,238	4,427,223
3,854,763	4,466,643
4,167,280	4,741,563

Please give these instructions to building owner after device is installed



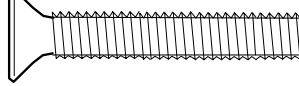
# SCREW CHART

**A**



1/4-20 x 1" \_\_\_\_\_

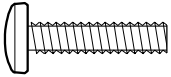
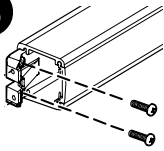
Trim mount or sex bolts:  
(1-3/4" door)



1/4-20 x 1-1/2" \_\_\_\_\_

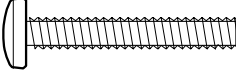
(2-1/4" door)

**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

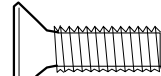
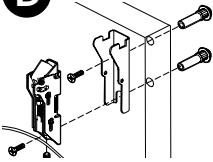
**C**



#10-16 X 3/8" Thread cutting \_\_\_\_\_

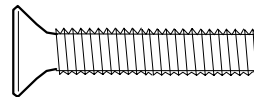
End cap

**D**



1/4-20 X 3/4" \_\_\_\_\_

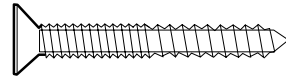
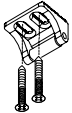
1-3/4" door



1/4-20 X 1-1/4" \_\_\_\_\_

2-1/4" door

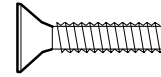
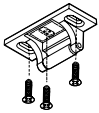
**E**



#10-12 x 10-24 x 1-1/4" combination \_\_\_\_\_

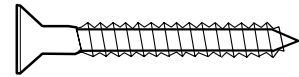
Metal or wood frame

**F**



#10-24 X 3/4" \_\_\_\_\_

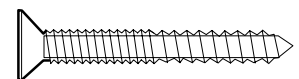
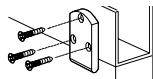
Metal frame



#10-24 X 1-1/4" wood screw \_\_\_\_\_

Wood frame

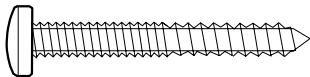
**G**



#10-12 x 10-24 x 1-1/4" combination \_\_\_\_\_

Metal or wood frame

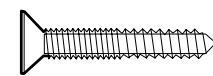
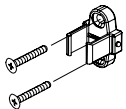
**H**



#10-12 x 10-24 x 1-1/4" combination \_\_\_\_\_

Variable floor surfaces

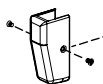
**I**



#8-16 x 8-32 x 1" combination \_\_\_\_\_

Metal or wood door

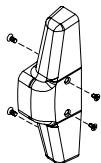
**J**



#8-32 X 1/4" \_\_\_\_\_

Latch covers

**K**

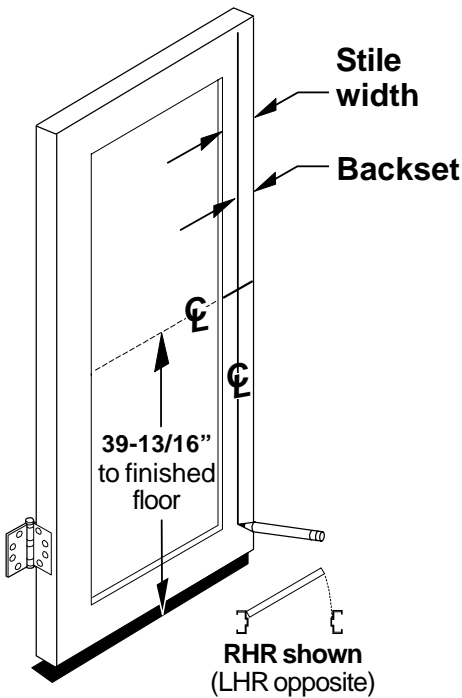


#8-18 x 3/8" thread cutting \_\_\_\_\_

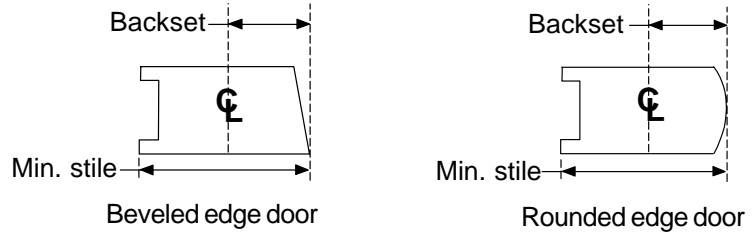
Center case cover

# 1

Figure backset and draw device center lines (☉) on door as shown.



Backset is measured from outer edge of door as shown. Minimum stile is less glass stop (rectangular glass stop is recommended for stiles less than 2-1/8")



Backset	Min. stile	Application
1-3/16"	2" - 2-3/4"	Two vertical rod devices
1-1/2"	2-3/4" - 3-3/4"	
1-7/8"	3-3/4" - 5"	
2-1/2"	5" to flush	
1-11/32"	2" - 2-3/4"	Single door
1-1/2"	2-3/4" - 3-3/4"	
1-7/8"	3-3/4" - 5"	
2-1/2"	5" to flush	
2-7/32"	3" min.	Vertical rod and rim device

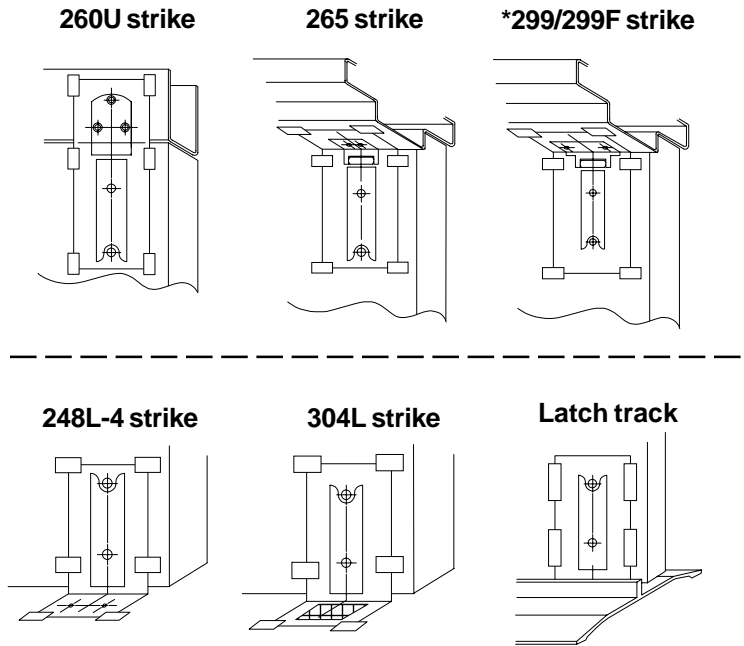
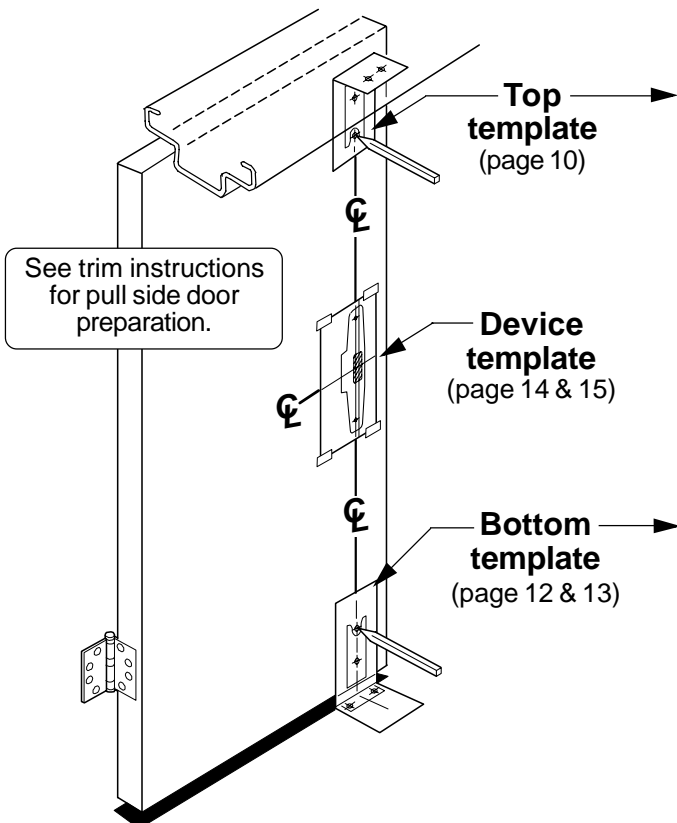
**Note:** For 299/299F top strike use minimum backsets shown below.

Double doors: 1-3/8" min. backset  
2-3/16" min. stile

Single door: 1-7/8" min. backset  
2-11/16" min. stile

# 2

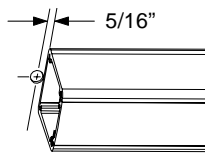
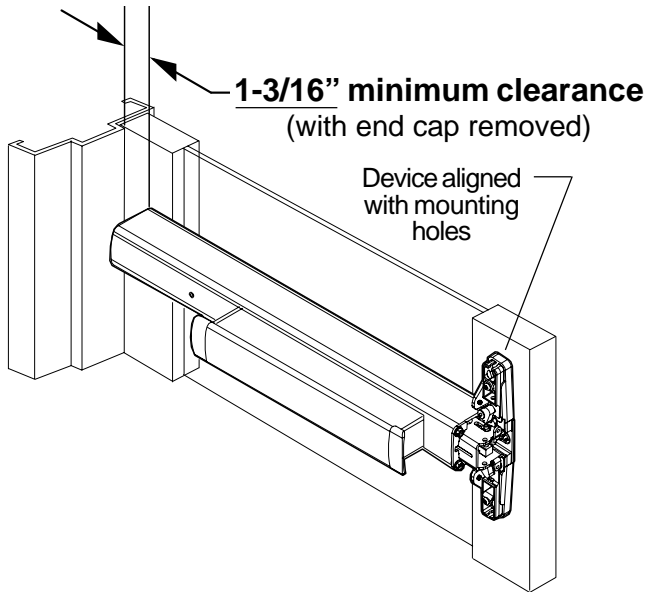
Tape templates to door and prepare door and frame per templates.



\*For 299/299F top strike use minimum backsets shown below.  
Double doors: 1-3/8" min. backset, 2-3/16" min. stile  
Single door: 1-7/8" min. backset, 2-11/16" min. stile

# 3

## Measure to determine length to cut device.



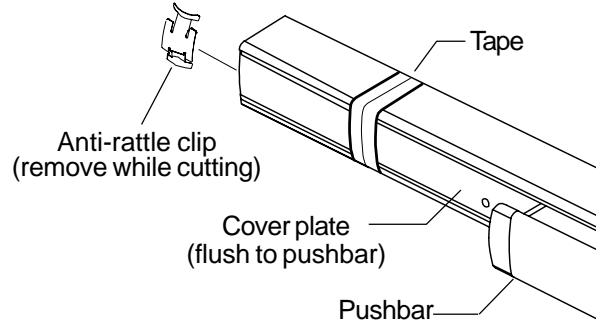
### Note

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

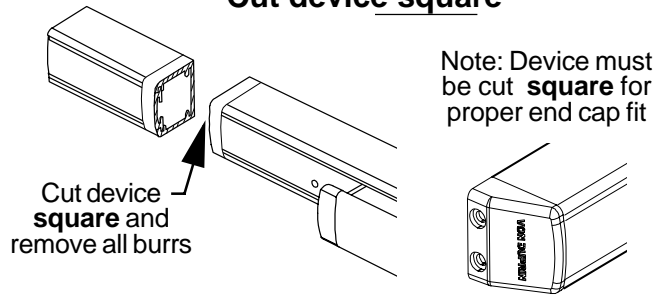
# 4

## Cut device to length.

### Prepare device for cutting

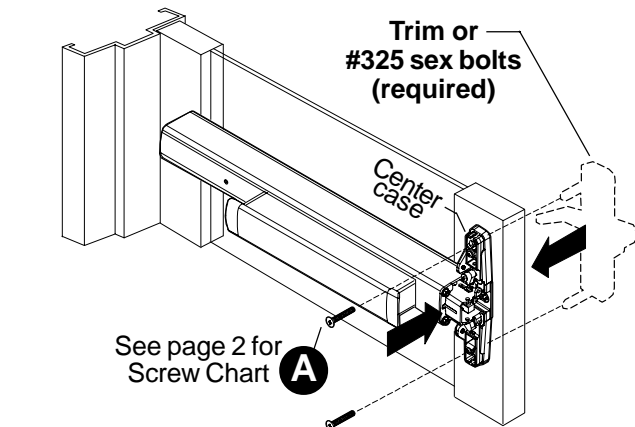
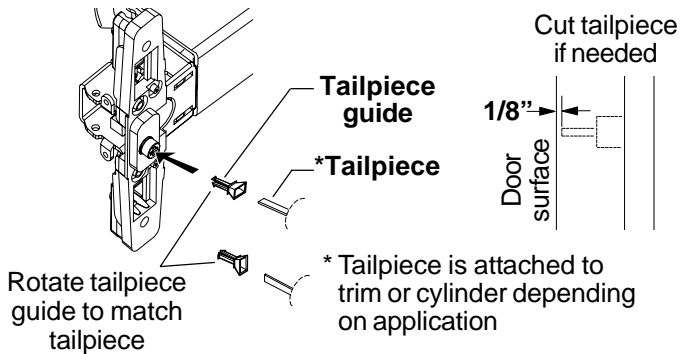


### Cut device square



# 5

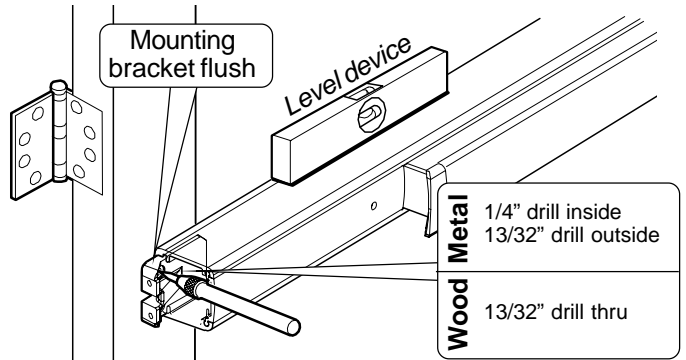
## Install tailpiece guide and trim (or sex bolts) and secure device center case to door.



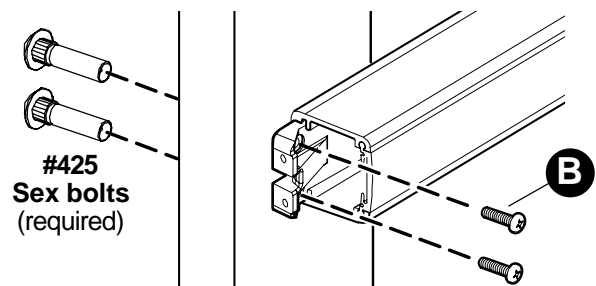
# 6

## Install hinge stile mounting bracket.

### Mark and prepare 2 mounting holes

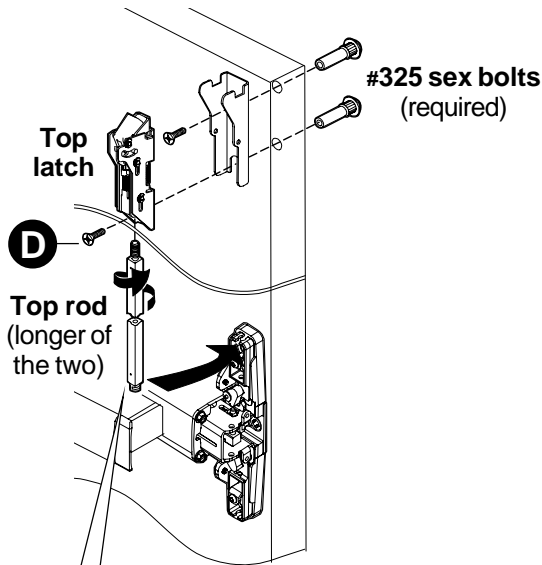


### Secure mounting bracket



# 7

## Install top latch and rod.



If top rod is too long, see "Cut top rod" on page 7

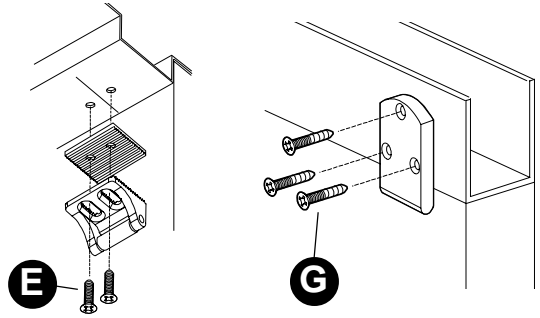
If top rod is too short, see "Install rod extension" on page 7

# 8

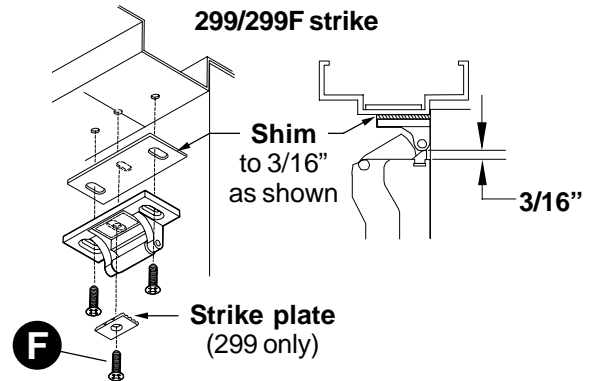
## Install top strike.

**265 strike**  
For panic device application only

**260U strike**  
For panic device application only



**299/299F strike**



# 9

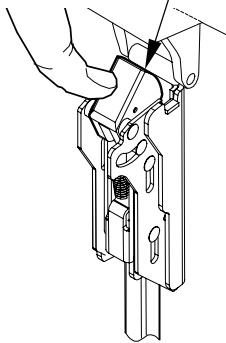
## Adjust top rod until latch bolt acts as shown.

Adjust rod by threading rod into latch clockwise to shorten, or and counterclockwise to lengthen.

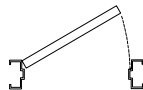
With door closed:



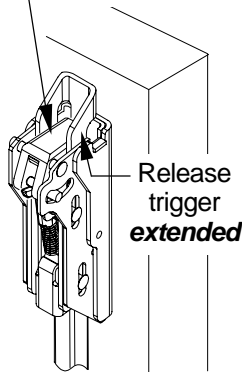
Latch bolt **deadlocked** (will not push in)



With door open:



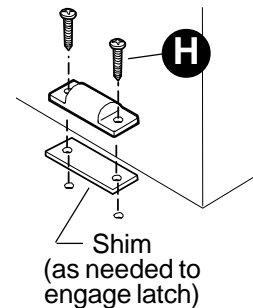
Latch bolt stays **retracted**



# 10

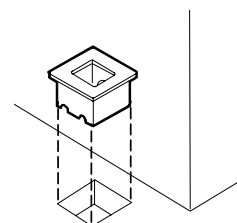
## Install bottom strike, latch, and rod.

**248L-4 strike**



Use 248L-4 strike for panic device application only.  
Use 304L for fire doors

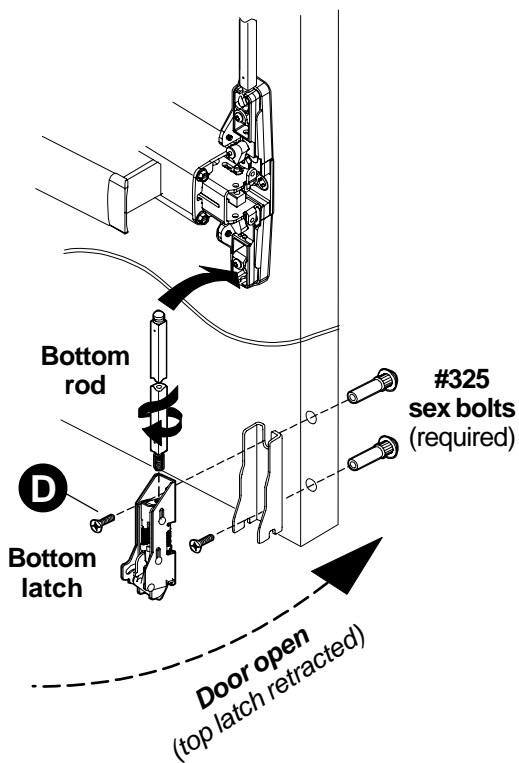
**304L strike**



Grout strike into floor

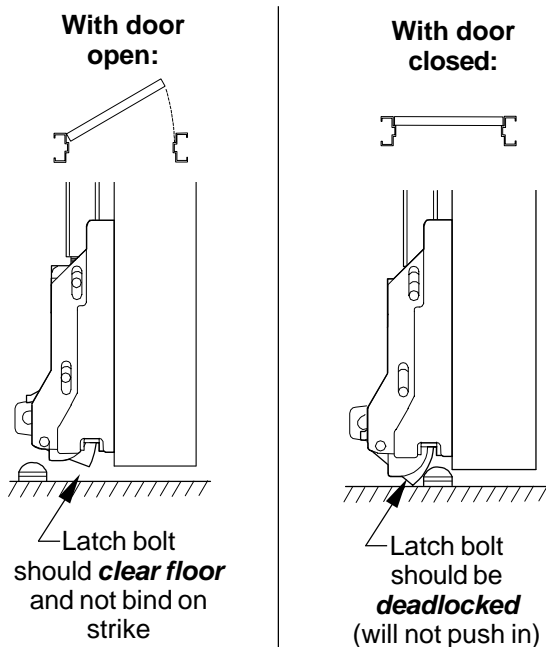
# 11

## Install bottom rod.



# 12

## Adjust bottom rod with door open (top latch retracted).

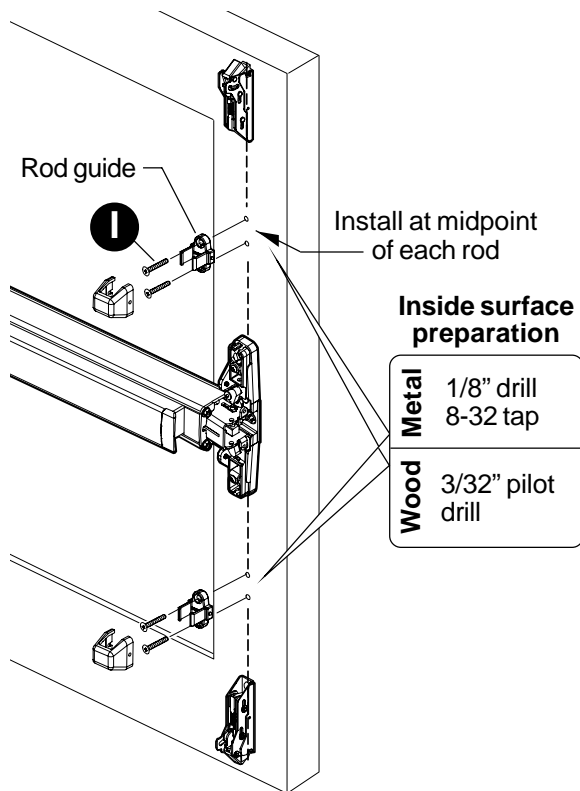


Open and close door a few times and check for deadlocking when door is closed

Readjust rods if needed

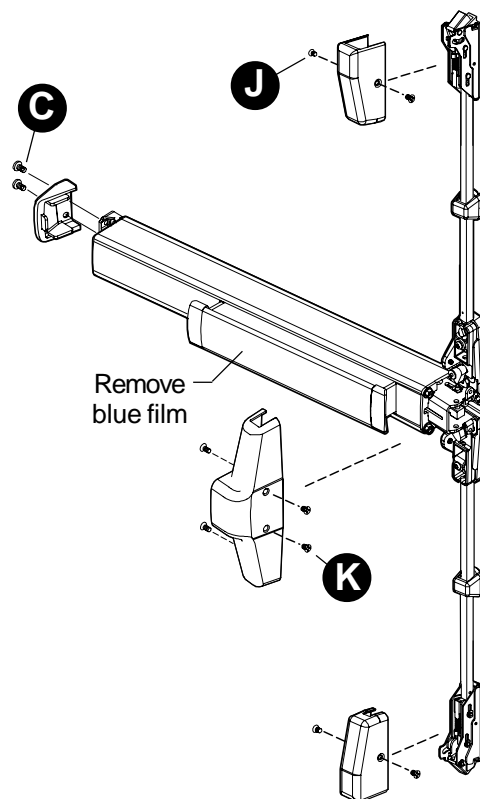
# 13

## Install rod guides.



# 14

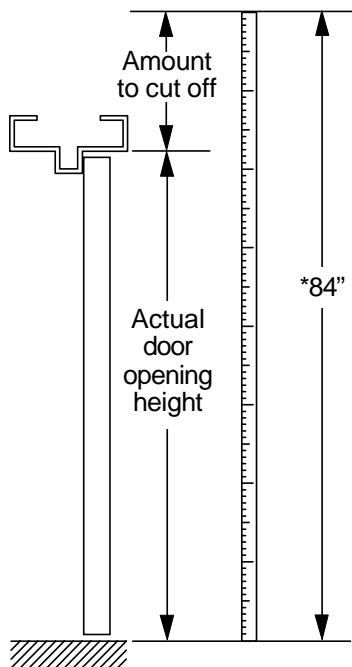
## Install covers and end cap.



# CUT TOP ROD

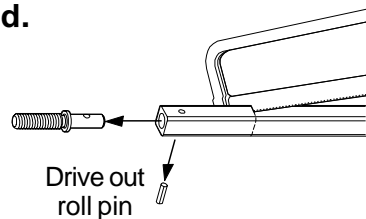
## 1. Measure amount to cut off rod as shown below.

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

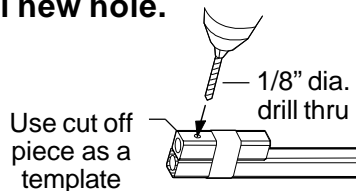


\*Rods are factory sized for 7' (84") door. Measure actual door height and subtract that number from 84" to get amount to cut off top rod.

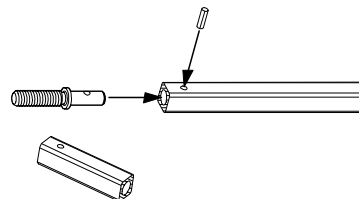
## 2. Cut rod.



## 3. Drill new hole.

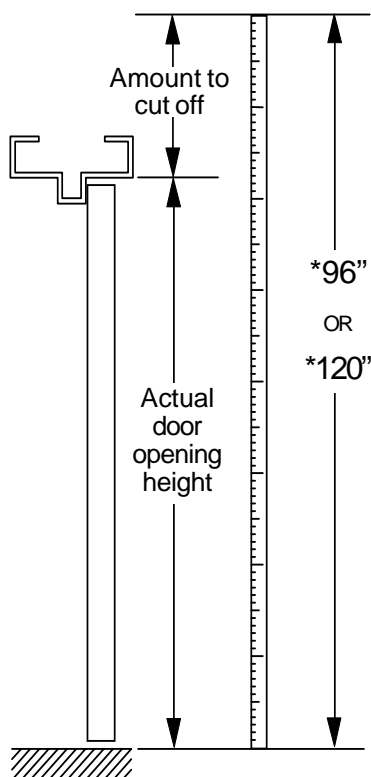


## 4. Reinstall rod end and roll pin.



# INSTALL ROD EXTENSION

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

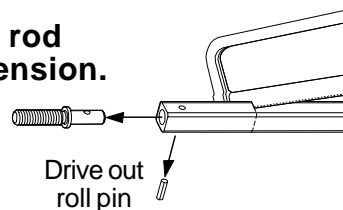


### \*Standard door heights:

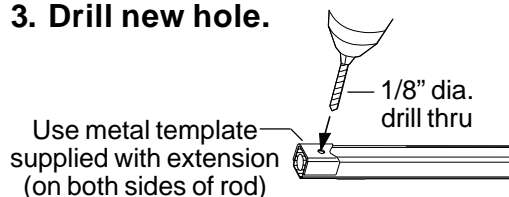
With no extension	7' (84")
With 1' extension	8' (96")
With 3' extension	10' (120")

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

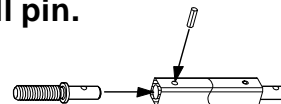
## 2. Cut rod extension.



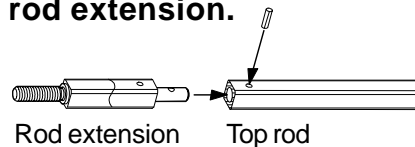
## 3. Drill new hole.



## 4. Reinstall rod end and roll pin.



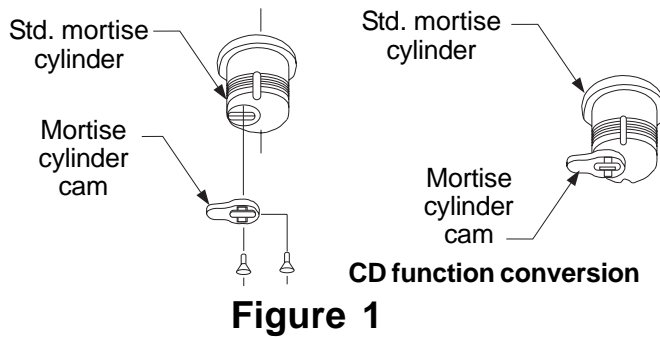
## 5. Connect top rod and rod extension.



# OPTIONAL EQUIPMENT

## 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.



### Dogging procedure

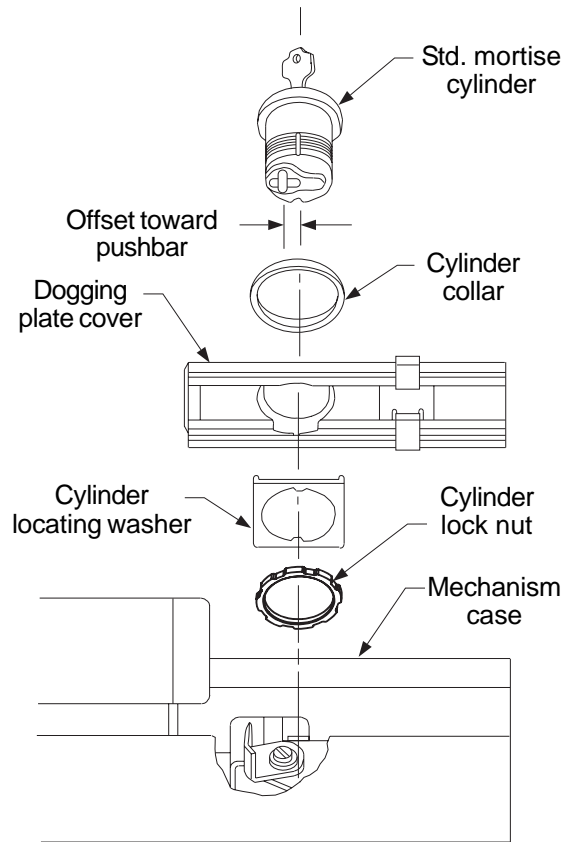
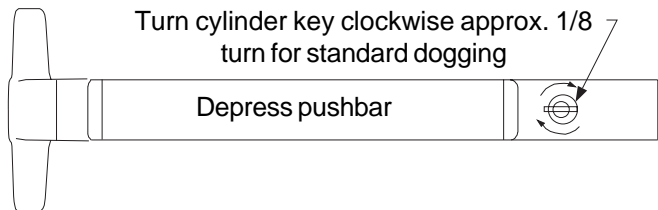
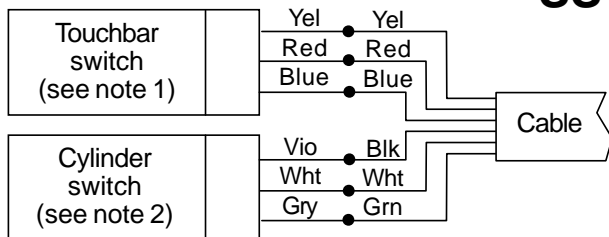
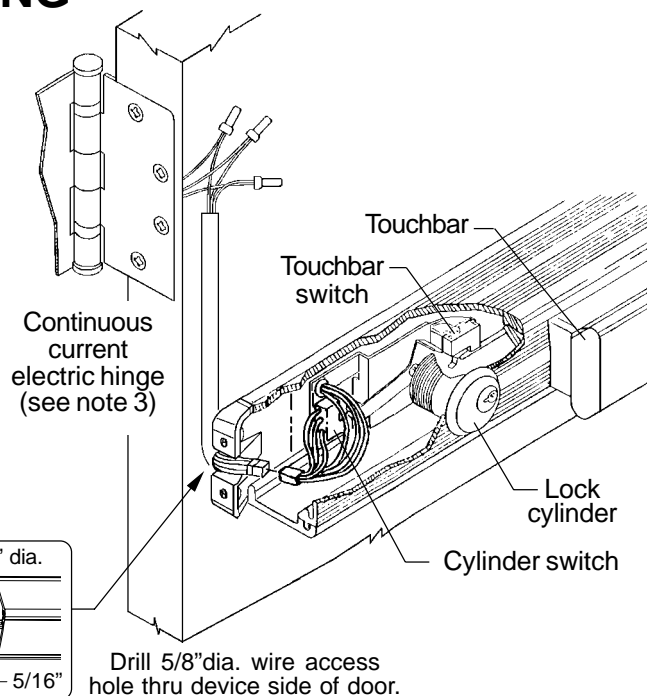


Figure 2

## SS WIRING



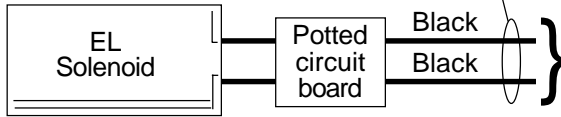
- NOTES:**
1. The touchbar switch is actuated whenever the touchbar is depressed or the device latch bolt is retracted. This switch may be used for initiating an alarm.
  2. The cylinder switch is actuated when the key is inserted into the lock cylinder and turned clockwise. This switch may be used for shunting or resetting an alarm.
  3. A continuous current electric hinge or equivalent is required to transfer the wiring from the door to the frame.
  4. Splice electric hinge wires and cable wires together with wire nuts. Unused wires should be cut off or insulated.
  5. Cut device to proper length before connecting cable and switch wires.





# OPTIONAL EQUIPMENT - CONTINUED

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

## EL WIRING

**Solenoid draws 16 A inrush current from PS873. Solenoid must be wired to a PS873 logic board:**

If 871-2 logic board, refer to Von Duprin instructions 941352.

If other 873 logic board, refer to Von Duprin instructions 941356.

**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.

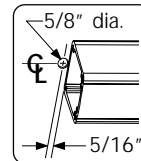
Do not cut device with potted circuit board installed

Solenoid

Potted Circuit Board

Install after device has been mounted on door

Electric power transfer



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

## EL ADJUSTMENT PROCEDURE

### A. Check for proper function:

1. Make sure device is not dogged.
2. Depress pushbar and make sure latch bolts retract and extends fully (see page 5, step 9, and page 6 step 12).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike (see page 5, step 9, and page 6, step 12).
5. Release solenoid and check latch bolt extension (see page 5, step 9, and page 6, step 12).
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 3):

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. Turned 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.

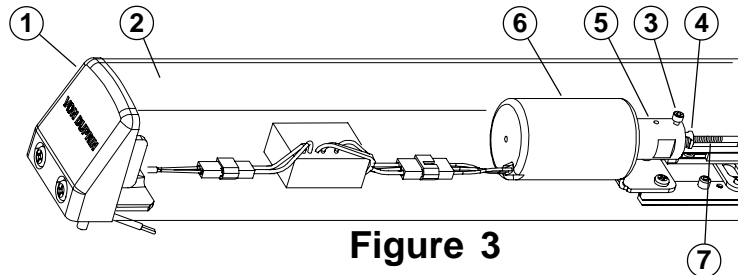


Figure 3

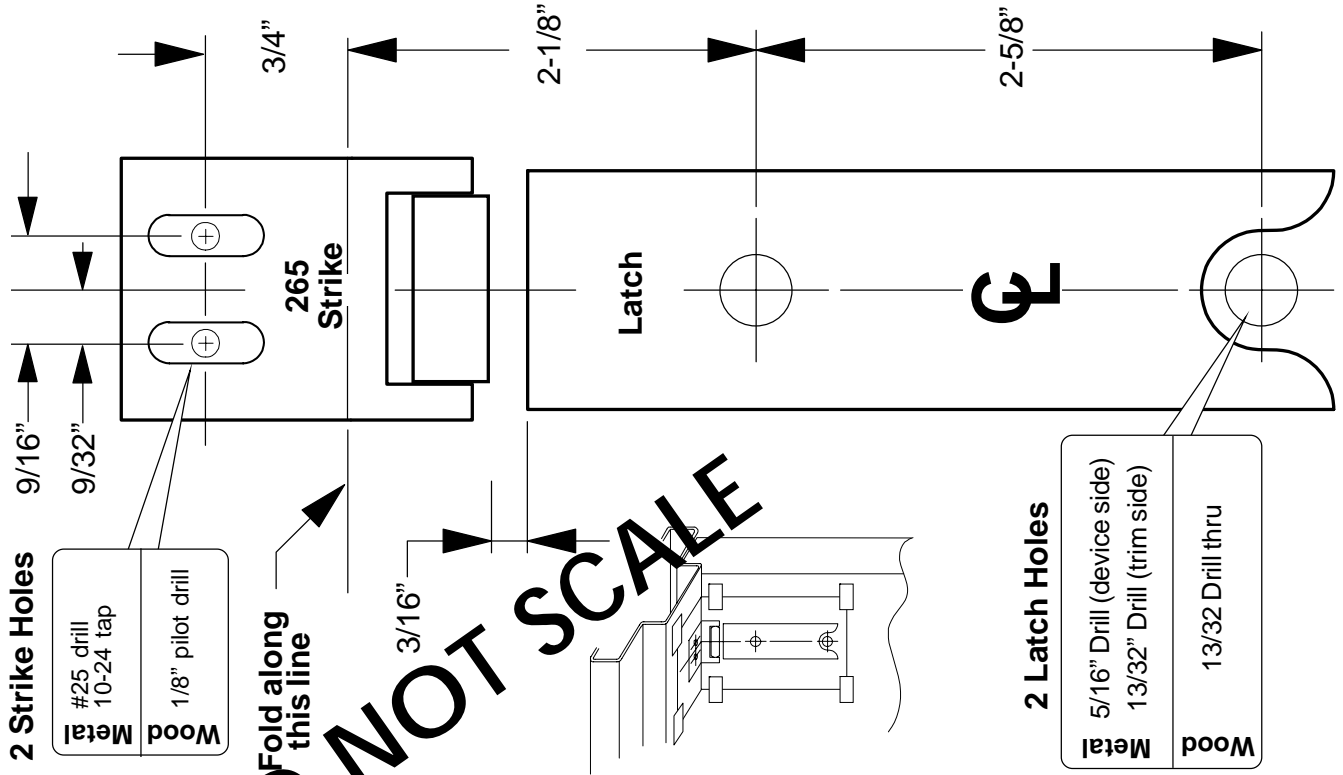
### D. Solenoid adjustment if dogging rod adjustment is too **short** (see Figure 3):

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.

# TOP TEMPLATE

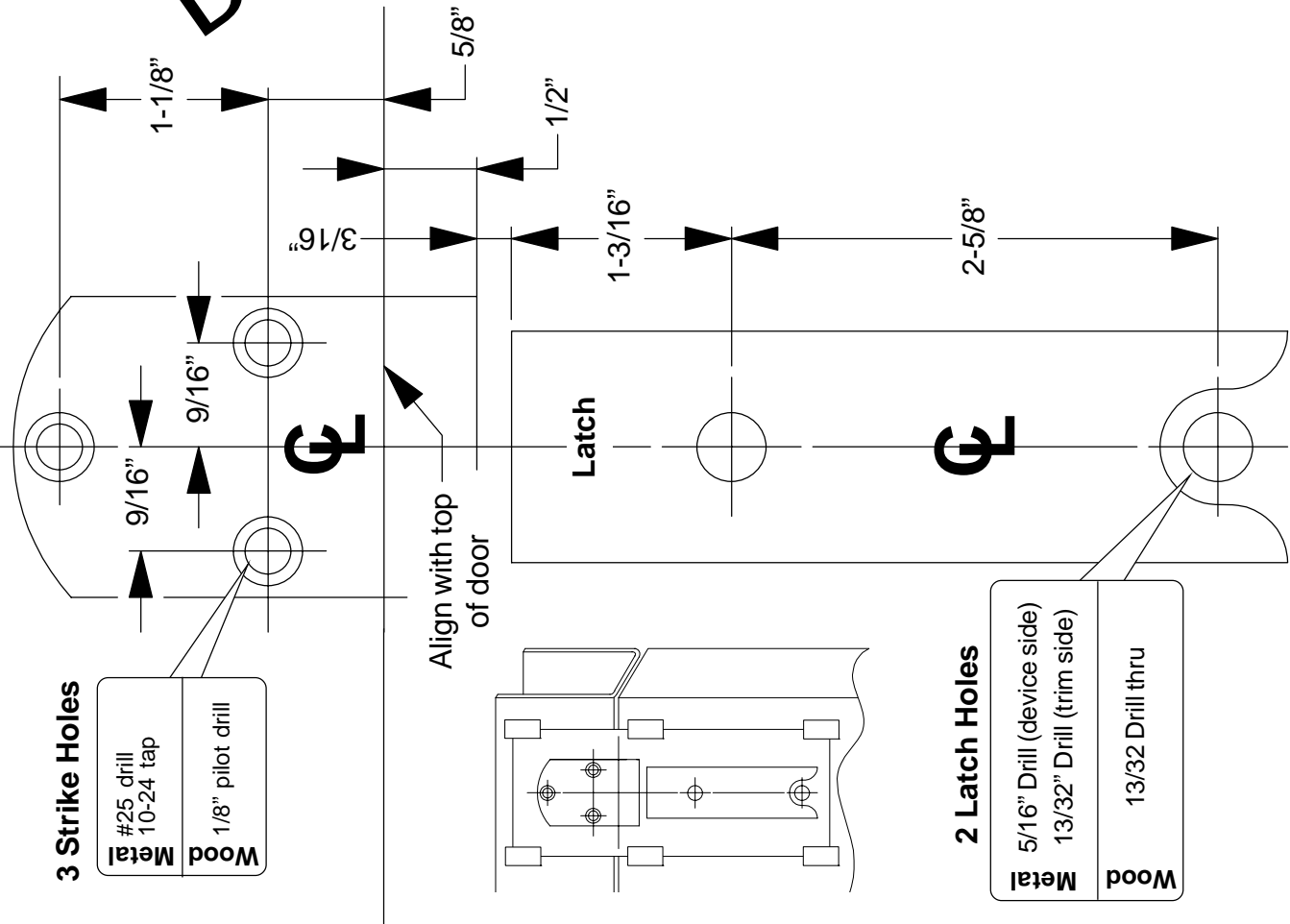
## TOP LATCH & 265 STRIKE

For panic device application only



## TOP LATCH AND 260U STRIKE

For panic device application only



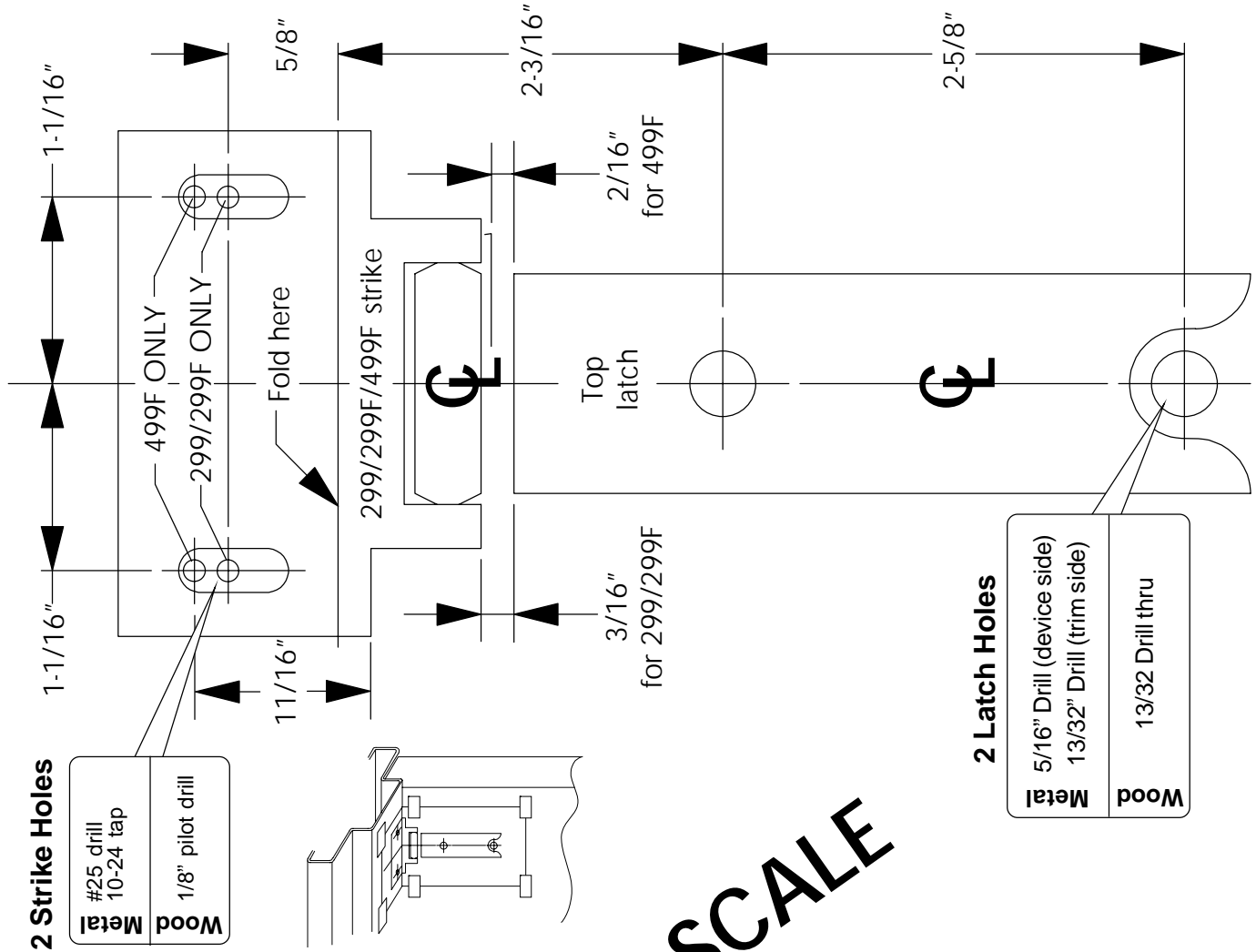
# TOP TEMPLATE - CONTINUED

**Note:** For 299/299F top strike use minimum backsets shown below.

Double doors: 1-3/8" min. backset, 2-3/16" min. stile

Single door: 1-7/8" min. backset, 2-11/16" min. stile

## TOP LATCH & 299/299F/499F STRIKE

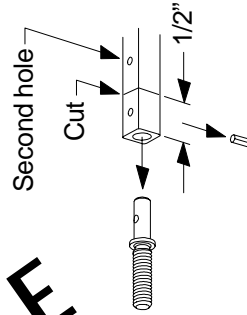
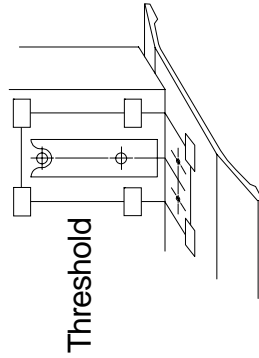
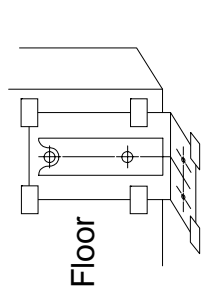
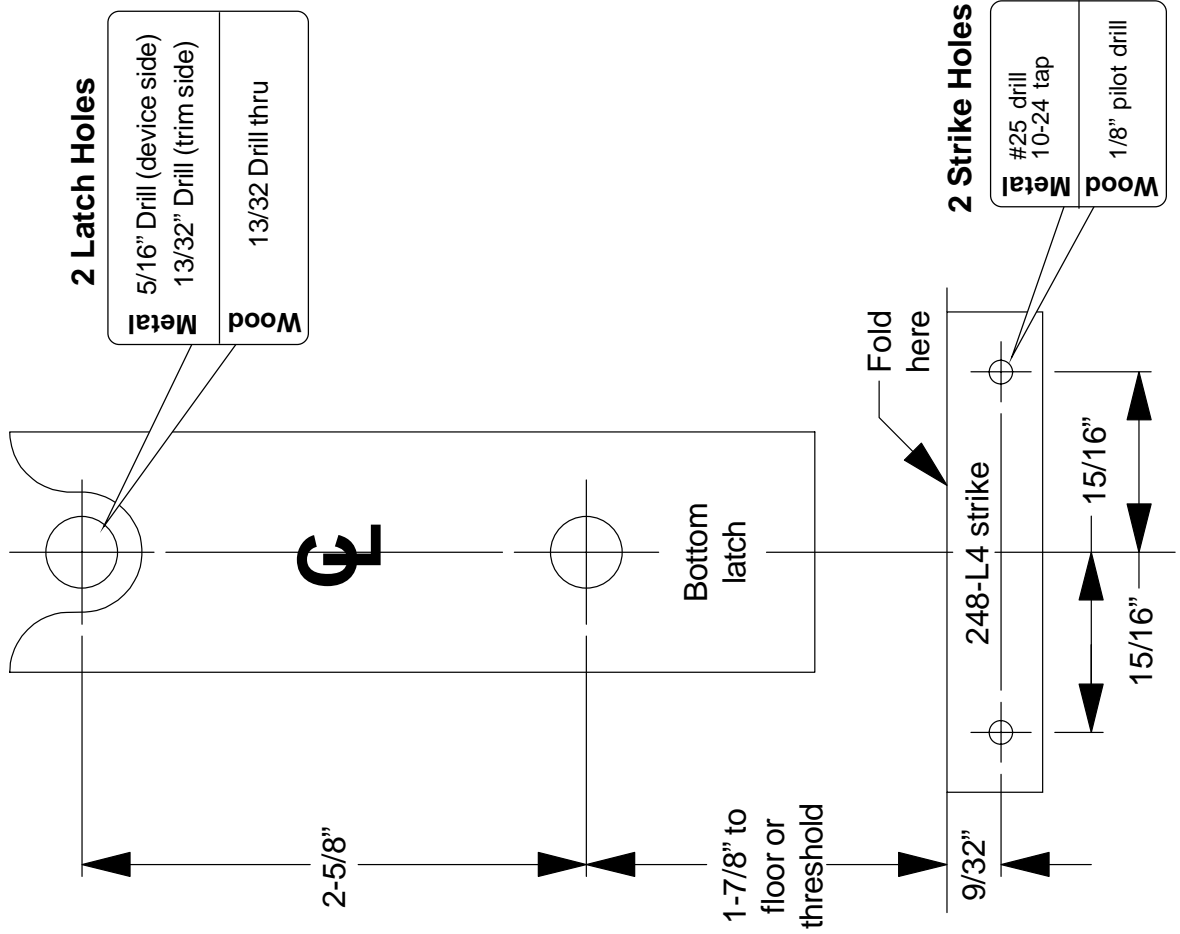


**DO NOT SCALE**

# BOTTOM LATCH AND 248-L4 STRIKE

## BOTTOM TEMPLATE

For panic device application only

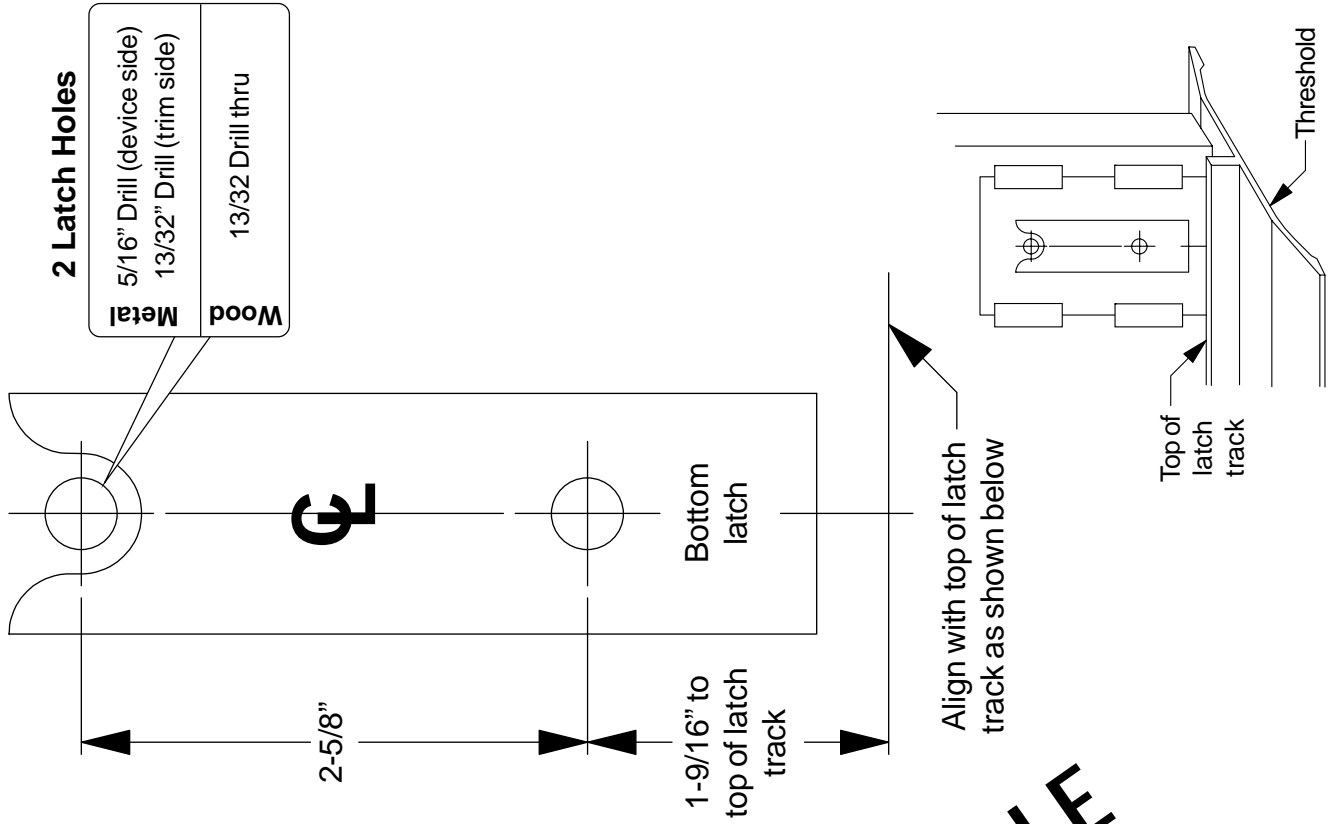


For threshold application, remove roll pin and fitting, cut bottom rod, reinstall fitting and roll pin in second hole

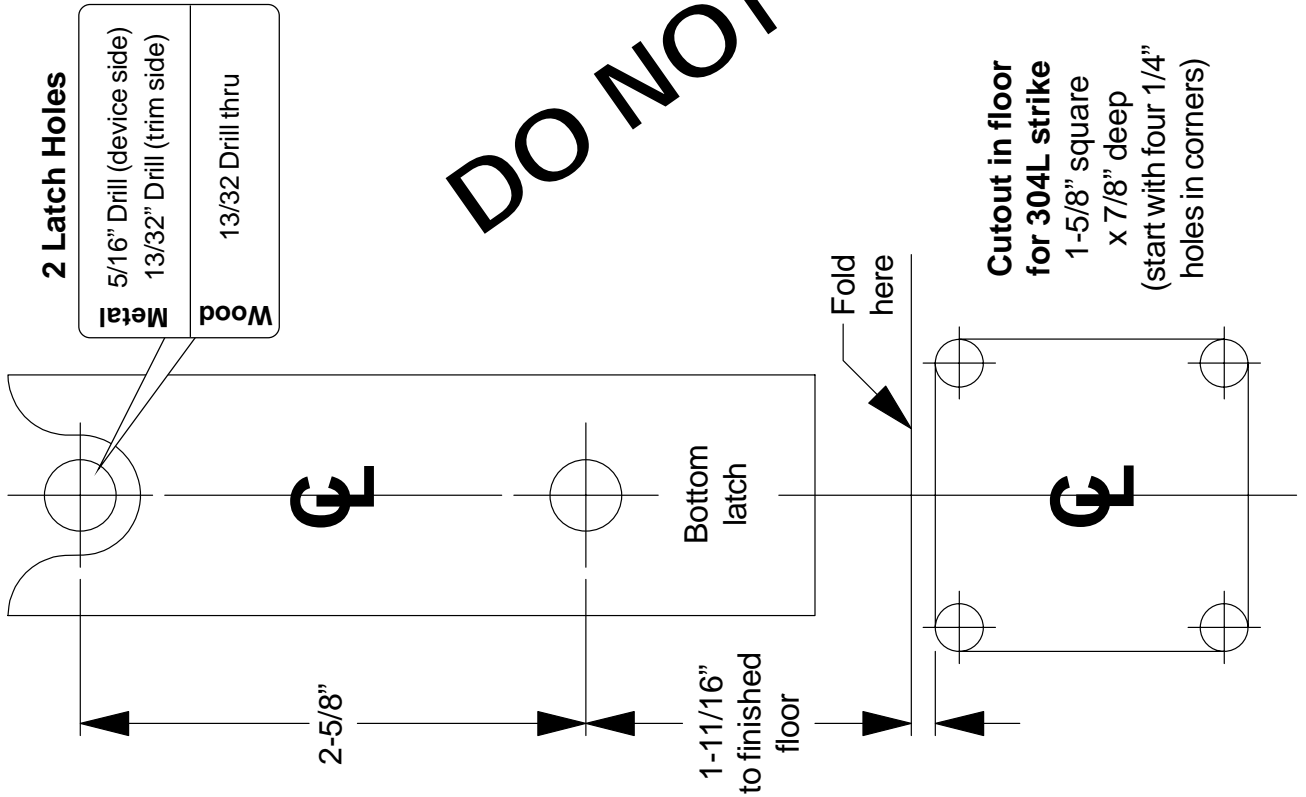
**DO NOT SCALE**

# BOTTOM TEMPLATE - CONTINUED

## BOTTOM LATCH AND LATCH TRACK

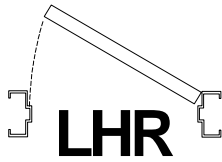


## BOTTOM LATCH AND 304L STRIKE



**DO NOT SCALE**

# 33/3527A Device Template



X

☉ of device

Cut-out device side only  
5/8" deep for wood door

**DO NOT SCALE**

1/4" Radius

7/8"

19/32"

3-1/8"

7/8"

7/8"

☉ of device

3-1/8"

1/4"

Line X-X is a reference line for trim and exit device alignment. Line X-X shown here should correspond to line X-X in the trim installation instructions

### Holes - 2 places

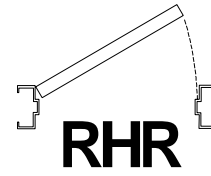
**Metal**

5/16" Drill inside  
13/32" drill outside (sex bolts)  
1/2" drill outside (trim)

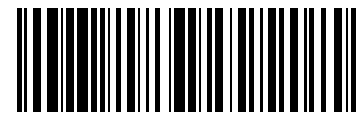
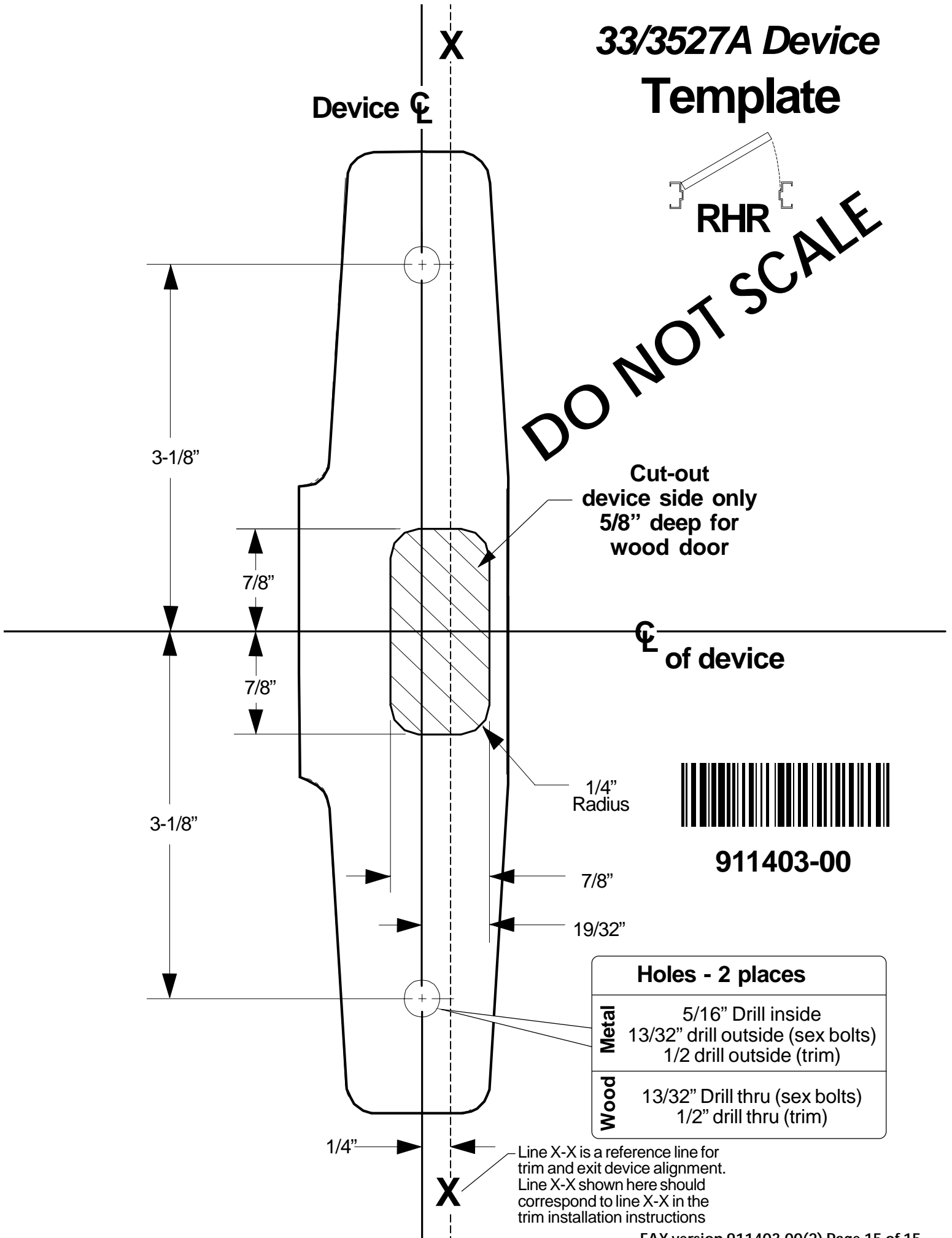
**Wood**

13/32" Drill thru (sex bolts)  
1/2" drill thru (trim)

# 33/3527A Device Template



**DO NOT SCALE**



**911403-00**

Holes - 2 places	
<b>Metal</b>	5/16" Drill inside
	13/32" drill outside (sex bolts)
	1/2" drill outside (trim)
<b>Wood</b>	13/32" Drill thru (sex bolts)
	1/2" drill thru (trim)

Line X-X is a reference line for trim and exit device alignment. Line X-X shown here should correspond to line X-X in the trim installation instructions