



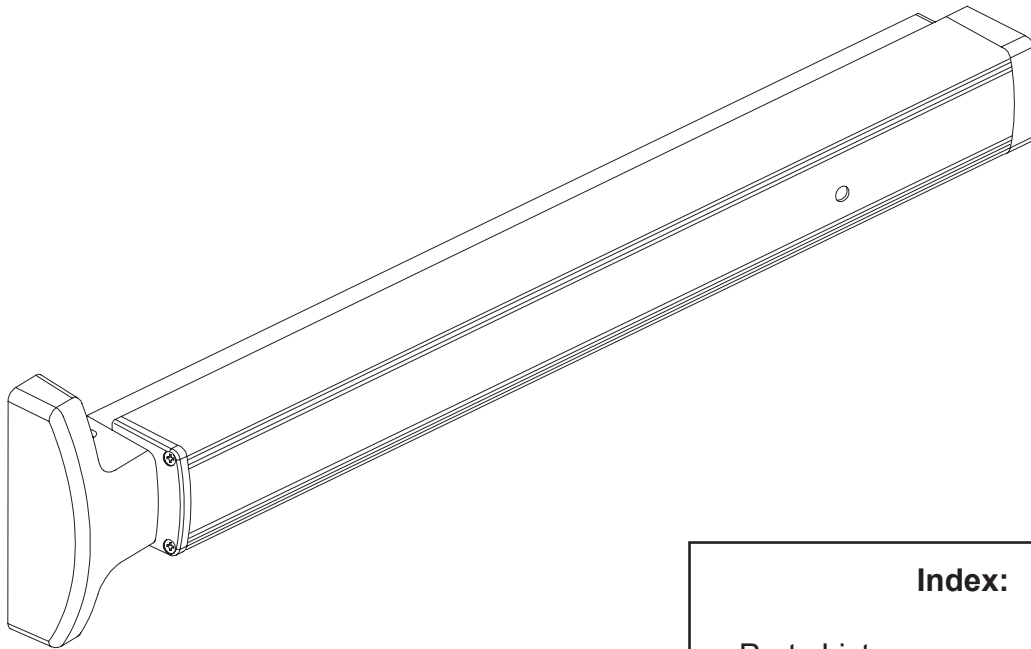
ININST.1002

Concealed Vertical Rod Panic Device

# 1690 / MEL 1690 Touchbar

**FALCON**<sup>®</sup>

Installation Instructions



### Index:

- Parts List ..... 2
- Touchbar Part Numbers ..... 3
- Before Installation ..... 3
- Installation ..... 4
- MEL / RX Wiring ..... 6
- Touchbar Dogging ..... 14
- Setting Rod Lengths ..... 15
- Re-handing Device ..... 15
- Field Sizing Device ..... 16
- 1990 Retrofit Instructions ..... 18
- Template ..... 20

**NOTE:** The door prep for the 1690 Hex Bottom Rod is different than for the RL bottom rod. Please verify rod type in package and prep required (page 20) before prepping the door.

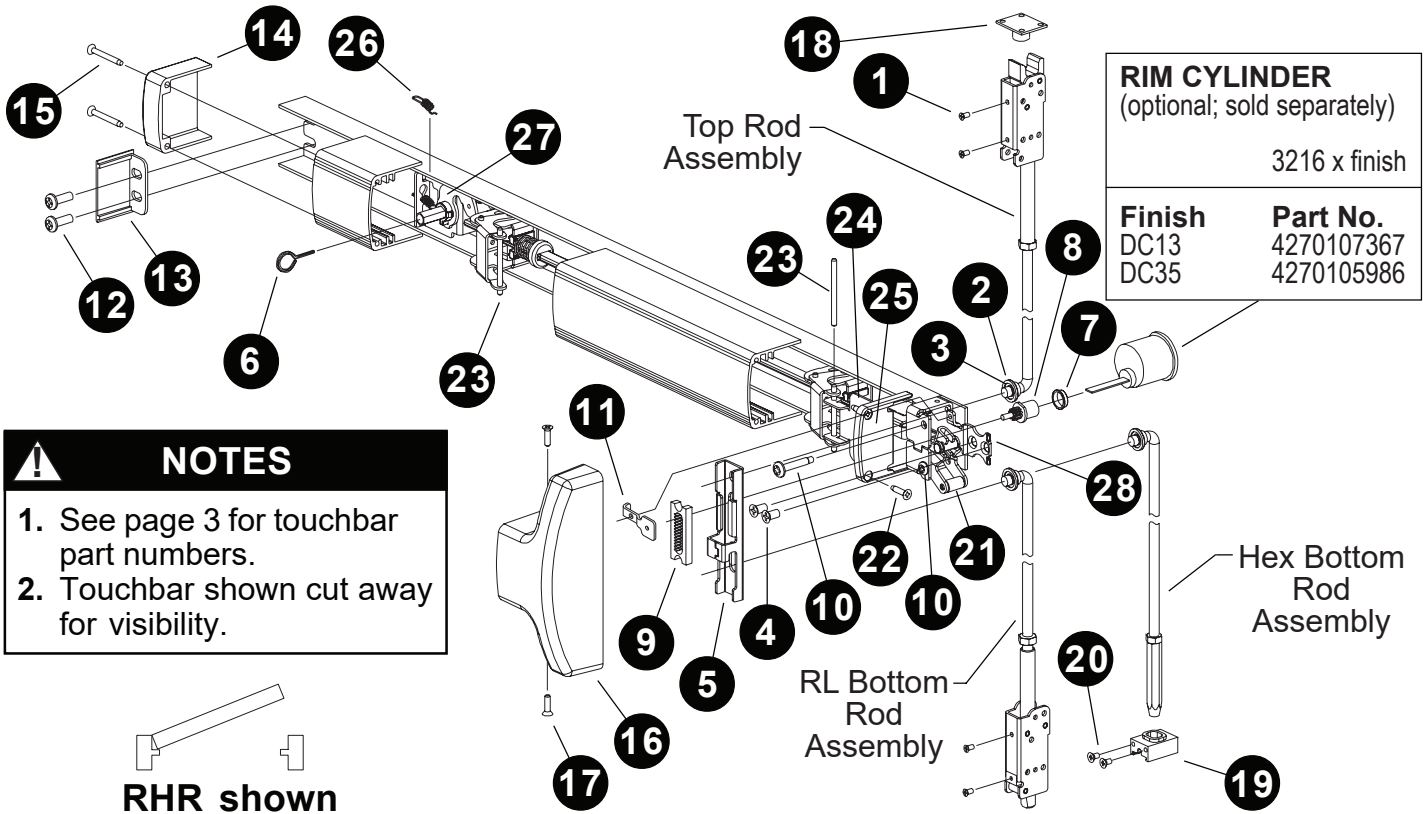


**Customer Service**

1-877-671-7011    [www.allegion.com](http://www.allegion.com)

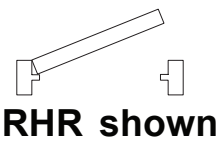
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ININST.1002 Rev. 10/23-n

# PARTS LIST



**NOTES**

1. See page 3 for touchbar part numbers.
2. Touchbar shown cut away for visibility.



**Package No. PKG.150 (US28 finish) or Package No. PKG.151 (DC13/DC35 finish)**

Item	Qty	Description	Part No.
1	4	#10-32 x 1/4" UFPHMS US28 finish (Pkg-10) DC13/DC35 finish (Pkg-10)	SCREW.1028 SCREW.1029
2	2	Rod bearing bushing (Pkg-10)	BUSH.109
3	4	Retaining ring (Pkg-25)	RRING.109
4	2	1/4-20 x 1/2" FPHMS (Pkg-10)	SCREW.1069
5	1	Traveler lift bracket	BRKT.138
6	1	5/32" hex dogging key (Pkg-10)	KEY.10020

**Package No. COVER.113**

Item	Qty	Description	Part No.
16	1	Center case cover	not sold separately
17	2	#8 x 5/8" PPHTC Sems (Pkg-10)	SCREW.1025

**Package No. 169CA**  
**Note:** Optional. Required with rim cylinder only.

Item	Qty	Description	Part No.
7	1	Cylinder bushing (Pkg-10)	BUSH.102
8	1	Pinion cam	4270903177
9	1	Retractor	RETRACT.101
10	1	Retainer screw (Pkg-10)	SCREW.1074
11	1	Pinion support bracket	BRKT.478

**Package No. PB48**  
**Note:** Contains strike, three shims, and four mounting screws.

Item	Qty	Description	Part No.
18	1	Strike US28 finish P13 finish P35 finish	4270108353 4270108354 4270108355

**Package No. 4270902993**  
**Note:** For use with EO and DT devices only.

Item	Qty	Description	Part No.
10	1	Retainer screw (Pkg-10)	SCREW.1074
11	1	Pinion support bracket	BRKT.478

**Package No. 4270107176 (US28 finish) or Package No. 4270107178 (DC13/DC35 finish)**

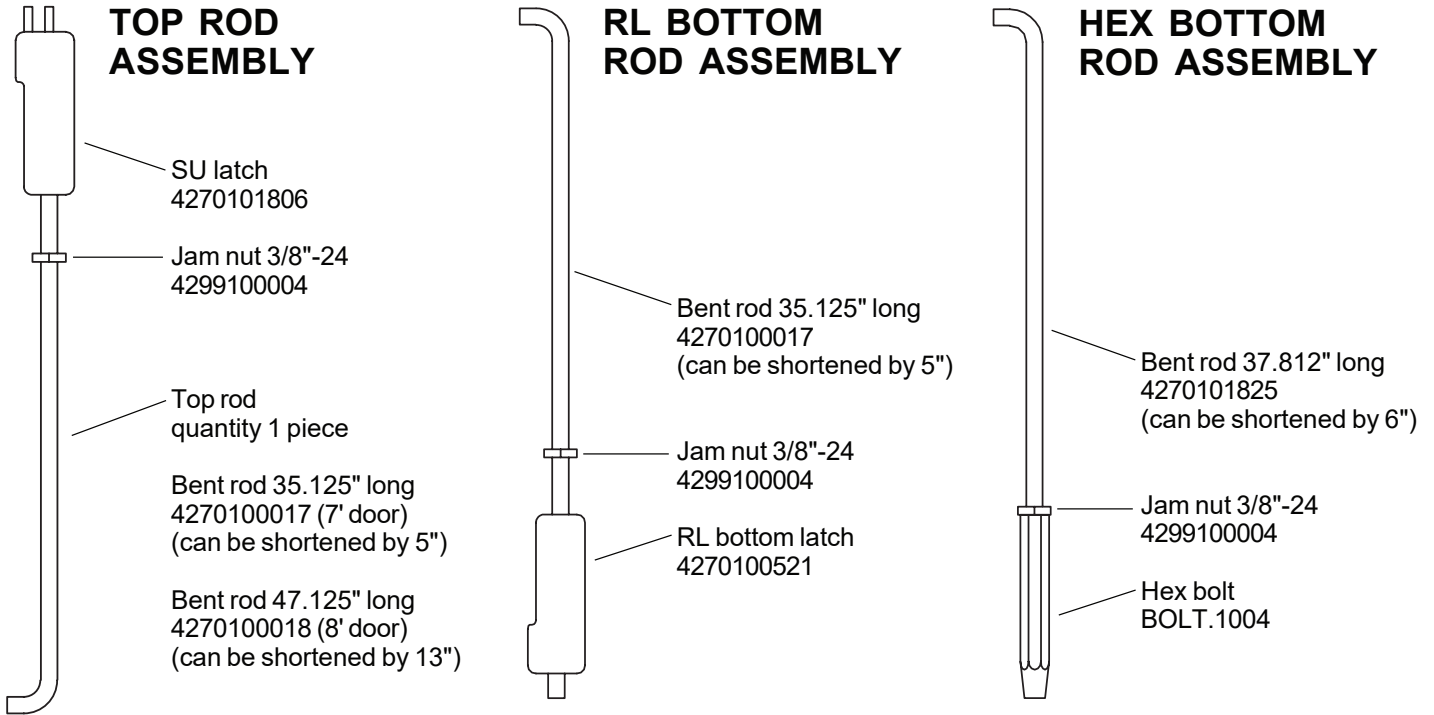
Item	Qty	Description	Part No.
19	1	Hex rod guide	not sold separately
20	2	#10-24 x 3/8" UFPHTC Typ F Stl US28 finish DC13/DC35 finish	not sold separately not sold separately

**Package No. ECAP.130**

Item	Qty	Description	Part No.
12	2	1/4-20 x 1/2" PPHMS (Pkg-10)	SCREW.1070
13	1	Channel end cap	not sold separately
14	1	Hinge stile touchbar end cap	not sold separately
15	2	#8 x 1-1/4" FPHTF (Pkg-10)	SCREW.1072

Item	Qty	Description	Part No.
21	1	Lift arm roller	BRKTASY.107
22	2	#8 x 3/4" FPHTF (Pkg-10)	SCREW.1077
23	2	Touchbar pin (Pkg-10)	PIN.128
24	2	Touchbar anchor	BRKT.128
25	1	Lock stile touchbar end cap	ECAP.129
26	1	Dogging spring	971493-76
27	1	Dogging assembly	KIT.1197
28	1	Center case bracket	BRKT.156

## PARTS LIST (CONTINUED)



## TOUCHBAR PART NUMBERS

Finish	30" Nominal Device Length (24.785" Extrusion Length)		36" Nominal Device Length (30.785" Extrusion Length)		42" Nominal Device Length (36.785" Extrusion Length)		48" Nominal Device Length (42.785" Extrusion Length)	
	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole
DC13	EXT.825	EXT.828	EXT.399	EXT.609	EXT.439	EXT.736	EXT.443	EXT.739
DC35	EXT.826	EXT.829	EXT.400	EXT.631	EXT.441	EXT.737	EXT.444	EXT.740
US3	EXT.2323	EXT.2351	EXT.2324	EXT.2355	EXT.2341	EXT.2359	EXT.2298	EXT.2363
US10	EXT.2333	EXT.2352	EXT.2334	EXT.2356	EXT.2345	EXT.2360	EXT.2303	EXT.2364
US26	EXT.2338	EXT.2353	EXT.2339	EXT.2357	EXT.2349	EXT.2361	EXT.2304	EXT.2365
US26D	EXT.2340	EXT.2354	EXT.2289	EXT.2358	EXT.2350	EXT.2362	EXT.2294	EXT.2366
US28	EXT.830	EXT.827	EXT.398	EXT.608	EXT.438	EXT.646	EXT.442	EXT.738

## BEFORE INSTALLATION

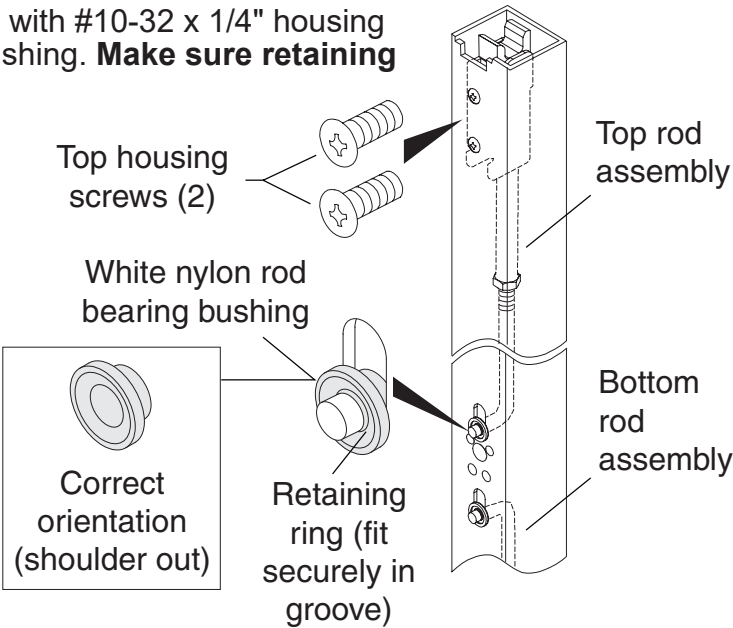
1. Check "Parts List" (see page 2).
2. Prepare door using template on page 20.
3. Set initial rod lengths (see page 15). Rods are factory set for standard 7' door.
4. If door width is non-standard, cut device (see page 16).
5. If necessary, re-hand device (see page 15).

# INSTALLATION

## 1 Install rod assemblies.

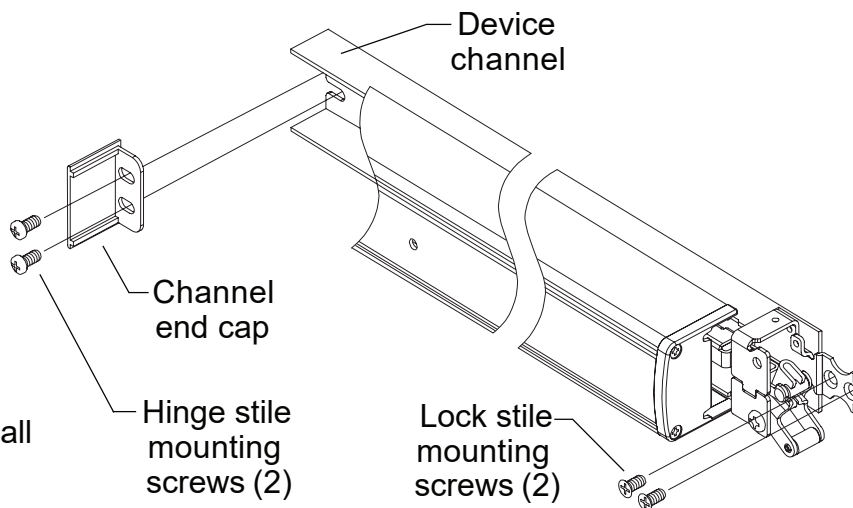
- 1.1. Install top rod assembly into door. Secure with #10-32 x 1/4" housing screws, retaining ring, and rod bearing bushing. **Make sure retaining ring fits securely into groove.**
- 1.2. Install bottom rod assembly into door same as top rod assembly.

**NOTE**  
For hex bottom rod, hex guide mounting holes are horizontal. Use two #10-24 x 3/8" mounting screws provided in hex mounting package to mount hex guide. Discard two extra #10-32 x 1/4" mounting screws in device mounting package.

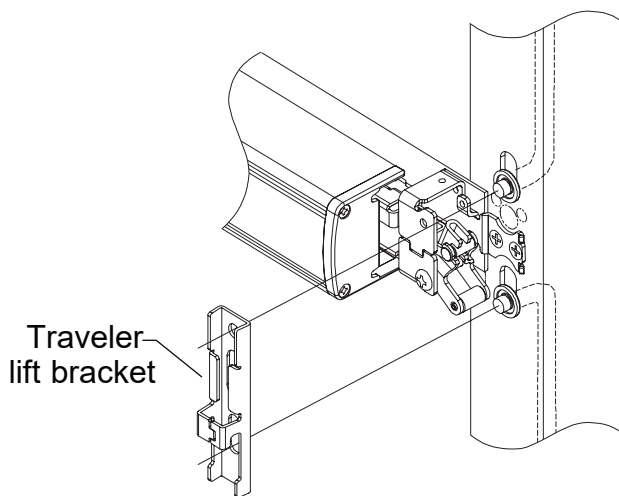


## 2 Mount device.

- 2.1. Start two 1/4-20 x 1/2" pan head hinge stile mounting screws in channel end cap. Leave screws loose.
- 2.2. Slide device channel under channel end cap aligning channel slots.
- 2.3. Attach lock stile of device to door using two 1/4-20 x 1/2" flat head lock stile mounting screws and tighten securely all four mounting screws.



## 3 Install traveler lift bracket and retractor over rod ends as shown.

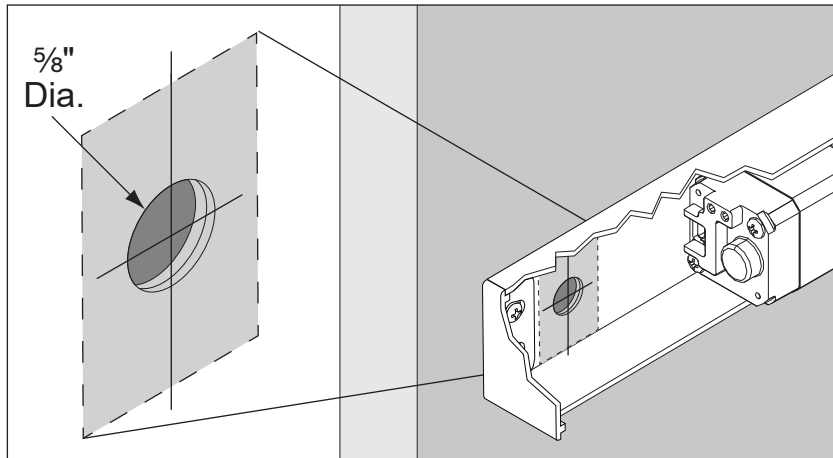


## 4 Prepare hole and wire MEL/RX device. (If device is not MEL/RX, go to Step 5.)

4.1. Drill wire access hole in device channel and door.

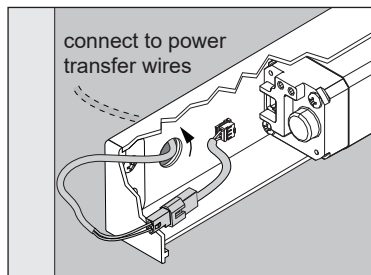
### NOTE

Hole must be free of burrs.

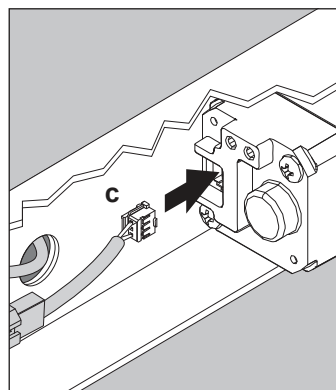


4.2. Route MEL cable thru device.

Route furnished 6' MEL two-piece cable thru device end mounting bracket to connect MEL device to power transfer wires.



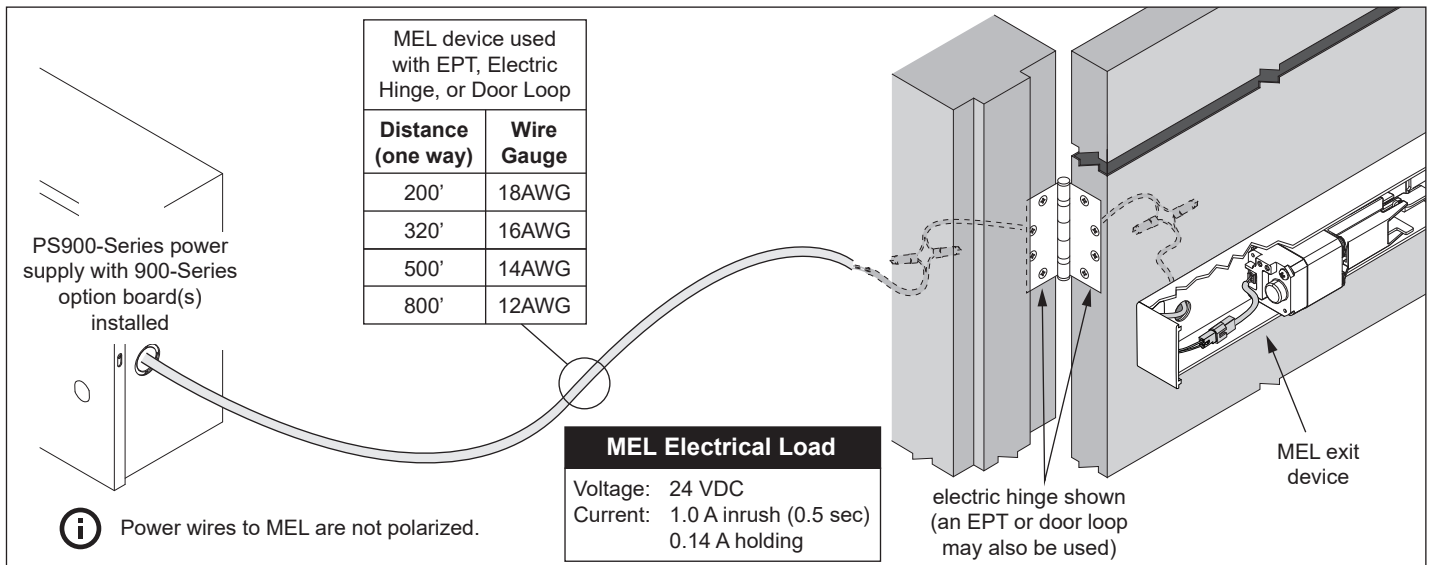
4.3. Plug cable connector into MEL motor.



### WARNING

To avoid risk of electric shock, turn off AC power to power supply before installing or wiring option board.

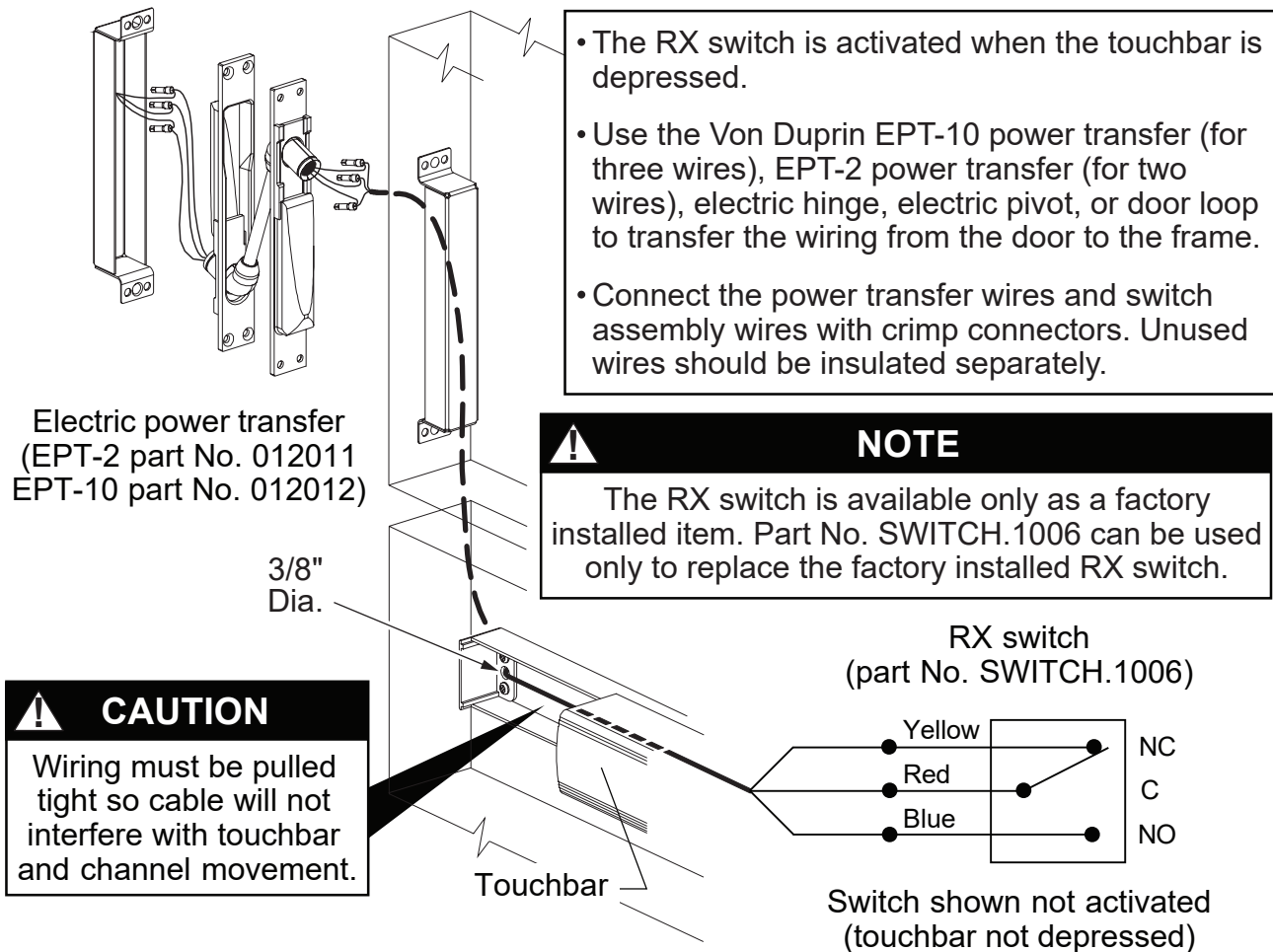
#### 4.4. Complete Wiring



#### 4.5. Confirm equipment compatibility

MEL 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

#### 4.6. Wire RX switch as shown below.



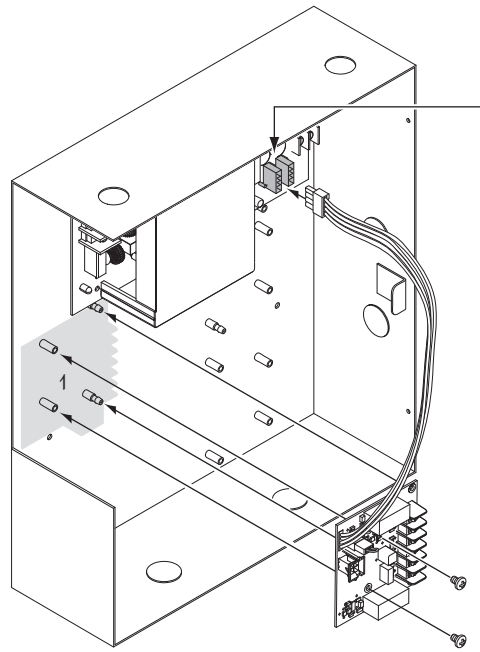
## 4.7. Install 900-2RS, 4R, or 4RL option board(s) into power supply

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

PS902

PS904  
PS914

PS906



**b** Plug Option Board Cable into any Available Option Connector

Option 1

Option 1

Option 2

Option 1

Option 2

Option 3

PS902  
1 Board

PS904, 914  
2 Boards

PS906  
3 Boards

**c** Secure Board(s) with Screws

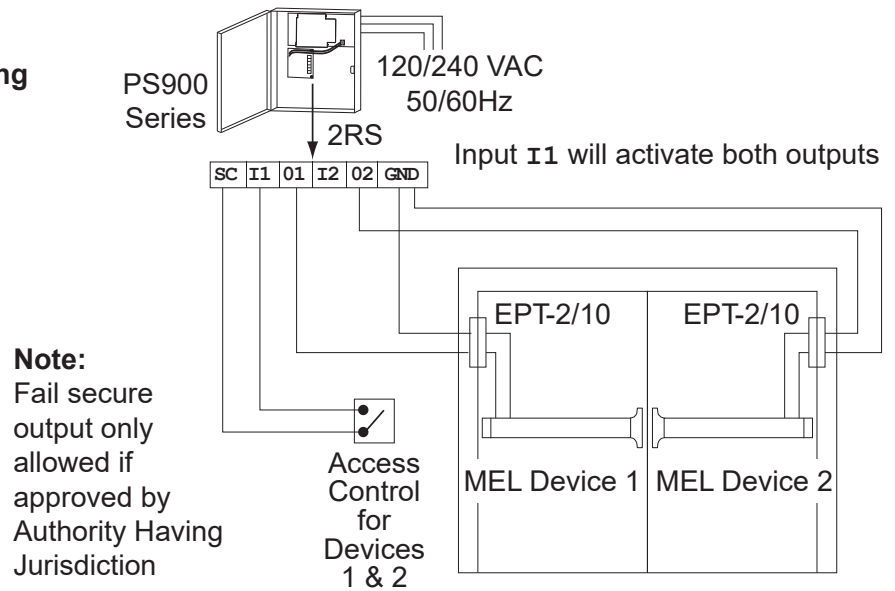
**WARNING**  
Fire alarm (FA) option board required if MEL is installed in fire exit hardware.

- Notes:**
1. 24 VDC output setting required when MEL device connected.
  2. If installing board in location 2 or 3, rotate board 180°.
  3. Latchbolt retraction of (2) sequenced MEL devices requires more than 1 second to complete.
  4. When powering multiple components, verify that the amperage requirements of all components combined does not exceed the power supply output rating.

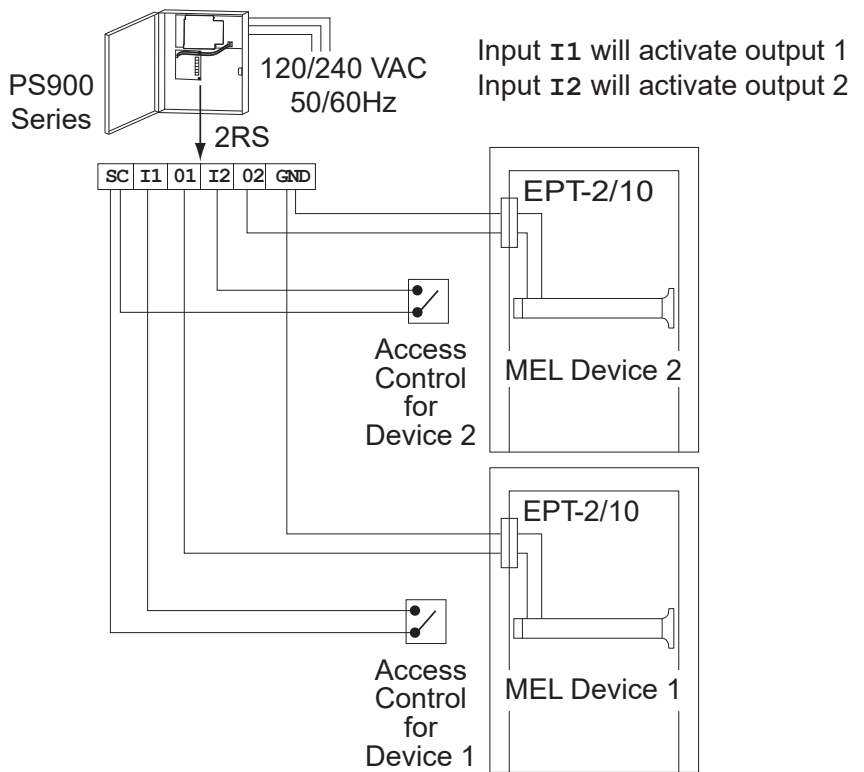


**4.8. Connect input and output wires to option board (2RS shown)**

**Sequential Mode - Typical Wiring**



**Individual Mode - Typical Wiring**



**4.9. Check operation**

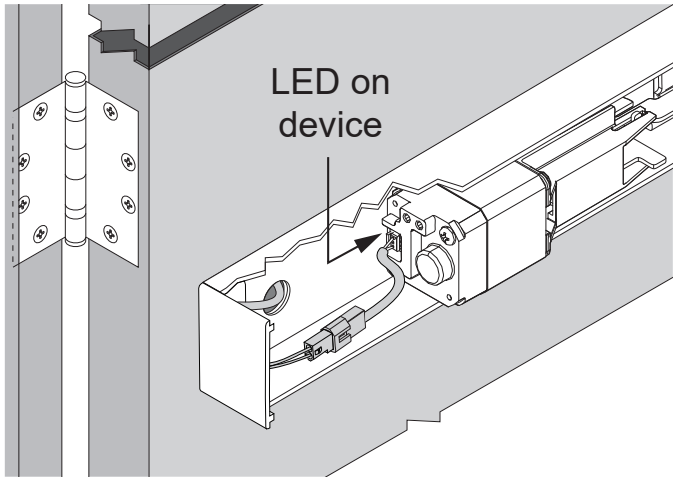
- a. Activate each input and verify all MEL devices operate properly.
- b. If any device does not operate properly, see next page for troubleshooting.

### 4.10. MEL Troubleshooting

If necessary, troubleshoot operation (LED is only visible with the mechanism case removed)

Power at the MEL	MEL Response	Condition/Solution
24 VDC	LED - solid green Latchbolt - retracted	<b>Operation normal, latch retracted immediately</b>
	LED - solid red after latchbolt attempts to retract multiple times	<b>Latchbolt cannot fully retract mechanically</b> Remove power. Depress pushbar and make sure latchbolt retracts and extends fully. If necessary, disconnect any vertical rods or mortise lock from device center case, and reapply power. If motor holds, mechanical adjustments may be required per the device instructions.*
	LED - flashing green/red Latchbolt - not retracted	<b>Excessive tamper (while power applied, the pushpad was pulled out at least 3 times)</b> Wait 15 seconds and latchbolt will retract again OR remove and reapply power to clear condition.
24 VDC low	LED - flashing green Latchbolt - retracted	<b>Voltage low during latchbolt retraction (latchbolt retracts at reduced force)</b> Wire length is too long, wire gauge is too small, or power supply has poor regulation.
29 VDC or greater	LED - flashing red Latchbolt - will not retract	<b>Input voltage is too high for proper operation</b> Wrong power supply, power supply defective.
13 VDC or lower		<b>Input voltage is too low for proper operation</b> 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 24 VDC, then reapply AC power and verify proper operation.
0 VDC	LED - off Latchbolt - not retracted	<b>No input voltage</b> Problem with the power supply, control switch, or wiring.

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



## 5 Adjust rods.

### Top Rod Adjustment

- 5.1. Dog the device. If it dogs and undogs freely, go to Step 5.2. If it does not, the top rod is too long. To determine how much to shorten the top rod:
- Undog the device.
  - Hold the top rod all the way up and push the lift arm to the bottom of its travel with the touchbar completely out.
  - Measure the distance between the bottom of the traveler projection and the top of the lift arm roller (see Figure 5-1).
  - Subtract the distance from 1/2".
  - Using the difference from Step D, find the number of turns to shorten the top rod from the "Rod Adjustment Table" below.
  - Remove the top rod and shorten it by the required number of turns. Reinstall the top rod.
- 5.2. Dog the device and push the traveler against the lift arm while maintaining pressure on the traveler. Attempt to pivot the top latch bolt (See Figure 5-2). If the top latch bolt pivots freely, go to Step 5.3. If the top latch bolt drags or lifts the top rod, the top rod is too short. To determine how much to lengthen the top rod:
- Push the traveler all the way down then slowly lift it away from the lift arm until the top latch bolt moves freely.
  - Measure the distance between the bottom of the traveler projection and the top of the lift arm roller (see Figure 5-1).
  - Using the measured distance, find the number of turns to lengthen the top rod from the "Rod Adjustment Table" below.
  - Remove the top rod and lengthen it by the required number of turns. Reinstall the top rod.

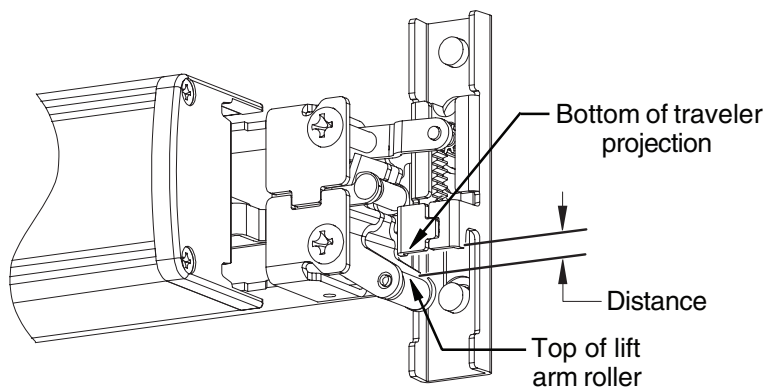


Figure 5-1

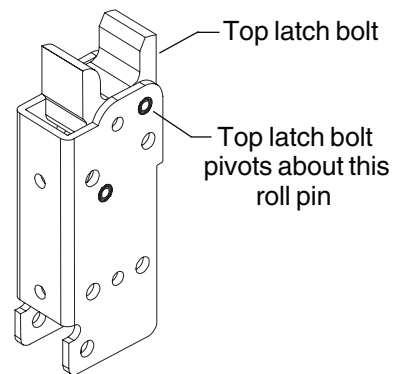


Figure 5-2

Rod Adjustment Table

Distance	1/32"	1/16"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	9/32"	5/16"	11/32"	3/8"	13/32"	7/16"	15/32"	1/2"
No. of Turns	1	2	3	3	4	5	6	6	7	8	9	9	10	11	12	12

### Bottom Rod Adjustment

- 5.3. Undog the device and push down firmly on the lift arm and on the end of the bottom rod (be sure the touchbar is all the way out). Find the distance of the bottom rod from the bottom of the door. Make sure you measure from the bottom of the door, **not** from the latch housing. If the bottom rod is flush with the door or sticks out from the door no more than 1/32" go to **Step 7**
- 5.4. If the bottom rod sticks out more than 1/32" the bottom rod is too long. To determine how much to shorten the bottom rod:
- Measure the distance that the bottom rod sticks out of the door and look up the number of turns required to shorten the bottom rod in the "Rod Adjustment Table."
  - Remove the bottom rod, shorten it by the required number of turns, and reinstall the bottom rod.
- 5.5. If the bottom rod is recessed into the door by more than 1/16" the bottom rod is too short. To determine how much to lengthen the bottom rod:
- Measure the distance that the bottom rod is recessed into the door and look up the number of turns required to lengthen the bottom rod in the "Rod Adjustment Table."
  - Remove the bottom rod, lengthen it by the required number of turns, and reinstall bottom rod.

## 6 Install outside cylinder. (If no outside cylinder, go to Step 8.)

- 6.1. Remove traveler lift bracket and axle (Figure 6-1).
- 6.2. Cut cylinder tailpiece to correct length (Figure 6-2).
- 6.3. Install 1-1/4" Rim cylinder into door and secure with two mounting screws. **Tailpiece should be horizontal as shown.**

**NOTE**  
The lift arm should remain attached to the device. Removing the axle simplifies Step 6.2.

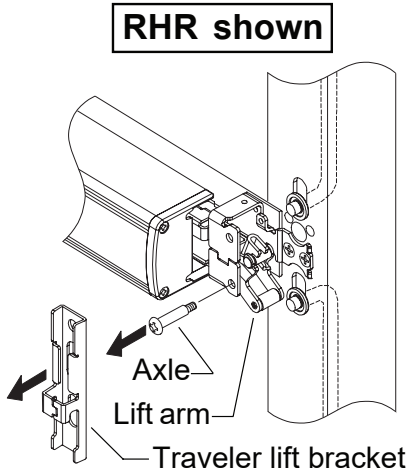


Figure 6-1

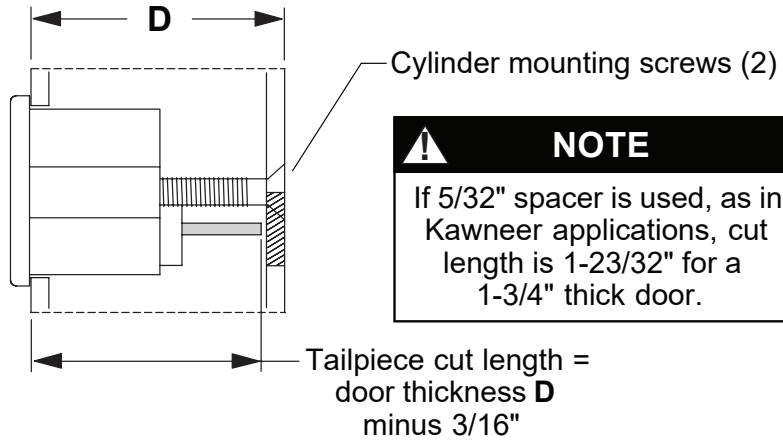
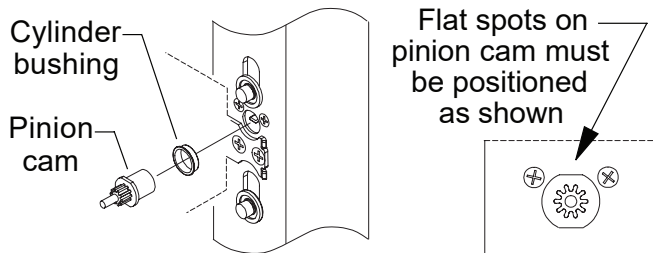


Figure 6-2

## 7 Install pinion cam, retractor, and traveler lift bracket (for outside cylinder only).

- 7.1. With cylinder in locked position and key removed, install cylinder bushing and pinion cam into hole (Figure 7-1). Orient pinion cam as shown.
- 7.2. Install retractor into traveler under tabs and place over rods (Figure 7-2). **Position retractor as shown for NL or HB function (Figure 7-3).**



**NOTE**  
Apply a light coating of Duralub or equivalent lubricant to prolong life of pinion cam.

Figure 7-1

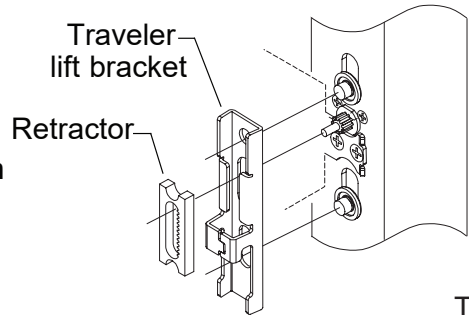
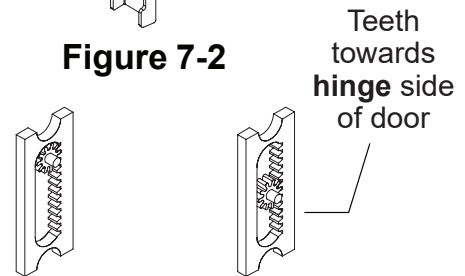


Figure 7-2



Hold back (HB) Night latch (NL)

Install retractor with teeth to right as shown for both RHR and LHR doors; this makes all keys function in the same direction

Figure 7-3

## 8 Install pinion support bracket, retainer screw, and axle.

- 8.1. Install pinion support bracket, retainer screw, and axle. (Retainer screw and axle are interchangeable.)
- 8.2. Test NL or HB function.

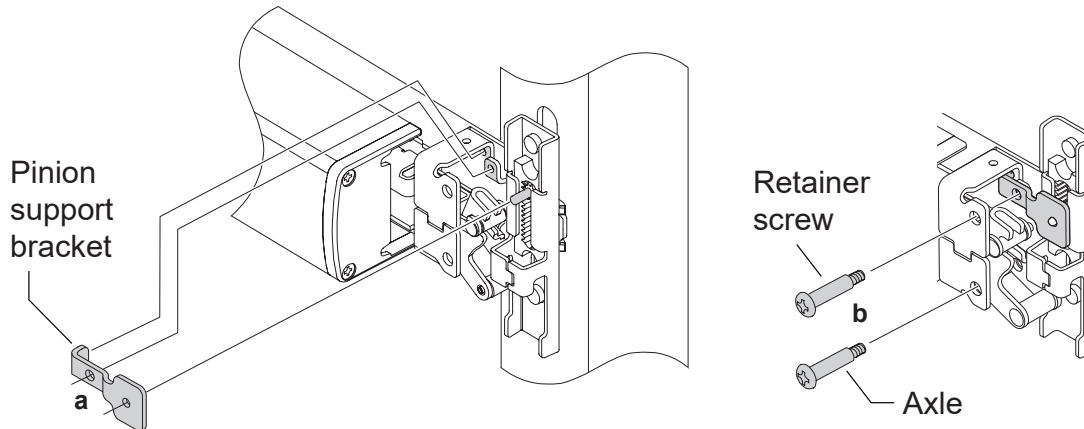
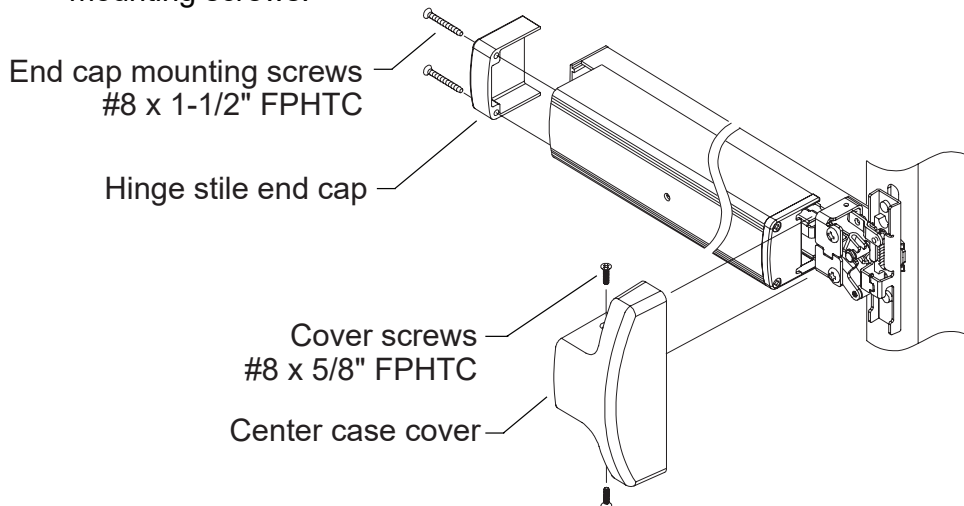


Figure 8-1

## 9 Install covers.

- 9.1. Install center case cover over center case and tighten securely with two (#8 x 5/8" FPHTC) cover screws.
- 9.2. Place hinge stile end cap over pushbar and secure with two (#8 x 1-1/2" FPHTC) end cap mounting screws.



### NOTE

Device must be undogged to install center case cover.

## 10 Perform functional check.

- 10.1. Press touchbar and release so top latch locks forward. Bottom latch bolt should be flush to within 1/32" to bottom of door.
- 10.2. Dog device. Top latch should pivot freely.

# TOUCHBAR DOGGING



## NOTE

These instructions are for touchbar dogging of **new style** DOM 1690 devices. **New style** devices have two cover screws installed vertically into the center case cover. (Old style devices have four cover screws installed horizontally into the center case cover.)

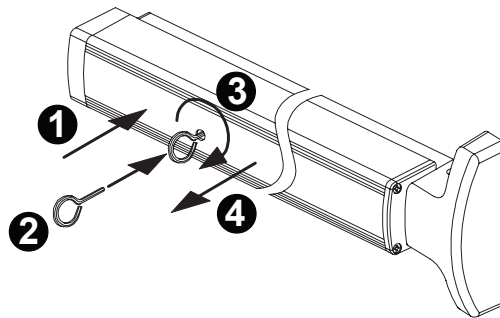


## NOTE

MEL (electric latch retraction) devices cannot be mechanically dogged using the touchbar. If mechanical hold back is required in addition to electric latch hold back, use the pull side HB key cylinder option.

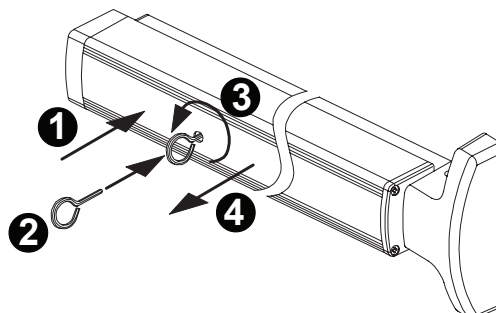
### To Dog Device (hold latch retracted)

1. Depress touchbar with hand and maintain pressure on touchbar.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn clockwise.
4. Release pressure on touchbar (touchbar will remain depressed to door).



### To Undog Device (panic latch locks upon closing)

1. Depress touchbar with hand and maintain pressure on touchbar.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn counterclockwise.
4. Release pressure on touchbar (touchbar will extend from door).



# SETTING ROD LENGTHS

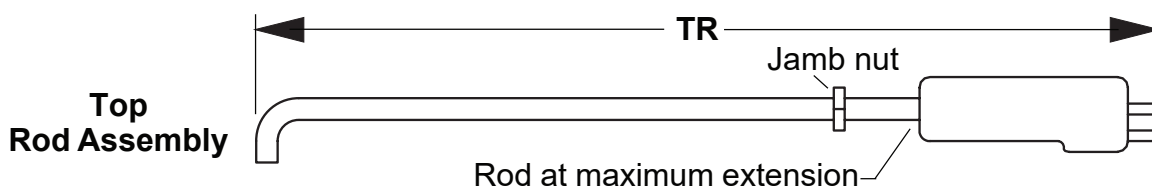
**NOTE**

**Rods should be in locked position.**

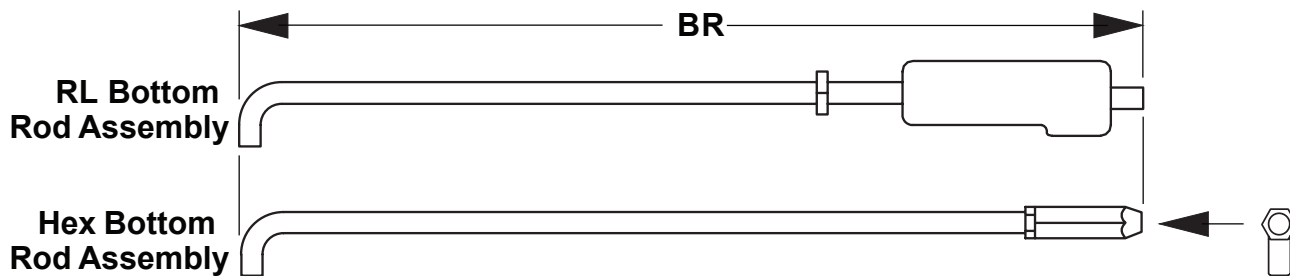
Factory length settings are for standard 7' door (door height = 83.187") with **C** dimension = 41.313":  
**TR** = 41-7/32" (41.219") and **BR** = 39-25/32" (39.781")

1. Determine top rod set length TR: **TR = door height – C – 0.655"**

where **C** = distance from center line of pinion to bottom of door (template standard is 41-5/16").



2. Set top rod to nearest 1/32" as determined in Step 1. With jamb nut secured, overall length should be within 1/32" of Step 1 with latch in locked position.
3. Determine overall bottom rod length BR: **BR = C – 1.532"**

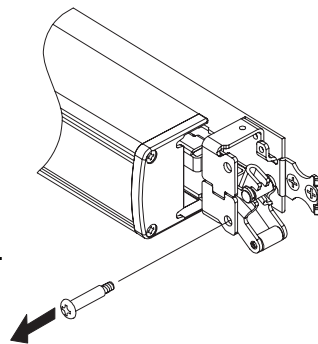


4. Set bottom rod to nearest 1/32" as determined in Step 3. For RL bottom rod assembly, jamb nut must be tightened so bent end of rod is parallel to sides of latch housing. For hex bottom rod assembly, jamb nut must be tightened so bent end of rod is perpendicular to flat on hex bolt (see end view).

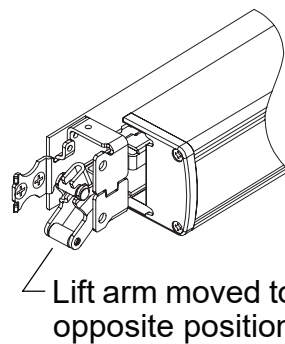
**End View**  
 Rod end must be parallel to flat on hex bolt

# RE-HANDING DEVICE

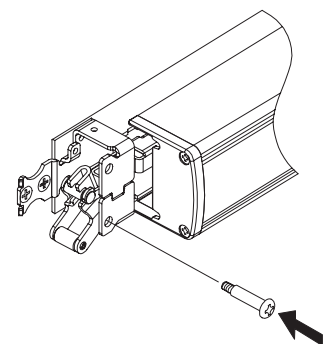
1. Remove axle (Figure 1).
2. Remove lift arm and reinstall on opposite side (Figure 2).
3. Reinstall axle and tighten securely (Figure 3).
4. Verify that lift arm moves smoothly when touchbar is depressed.



**Figure 1**



**Figure 2**



**Figure 3**

# FIELD SIZING DEVICE

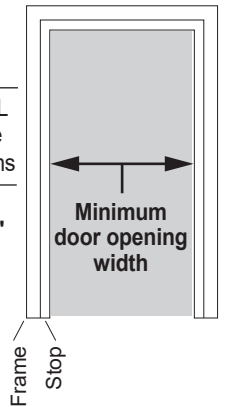
**Note:** These instructions assume a 1/2" blade stop on the door frame.

1. Determine door clear opening. This is the distance inside the frame.
2. Determine channel cut length **A**: **A = door opening – 2-27/32"**
3. Verify that **A** determined in Step 2 is not less than minimum **A** dimension listed in table.  
Standard 1690 devices can be shortened by up to 6". MEL devices can be shortened by up to 1.5".

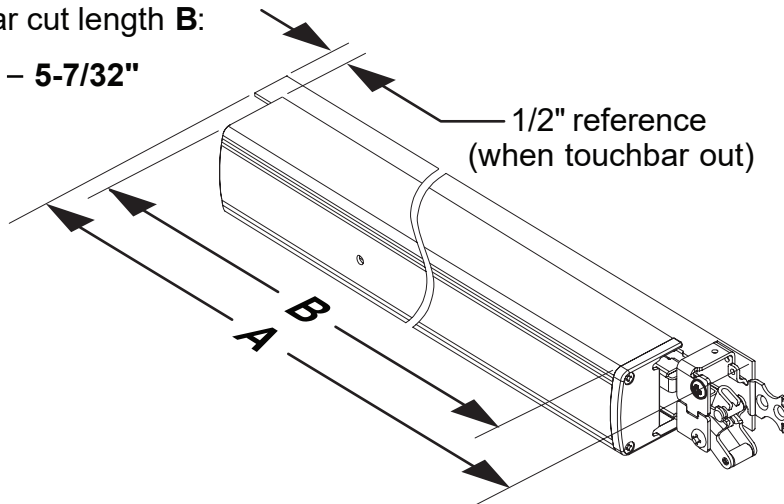
Standard Device Size	Factory Dimension A	Standard Device Minimum Dimension A	EL Device Minimum Dimension A
2' 6"	27.138"	21.138"	25.638"
3' 0"	33.138"	27.138"	31.638"
3' 6"	39.138"	33.138"	37.638"
4' 0"	45.138"	39.138"	43.638"

### Minimum door opening widths

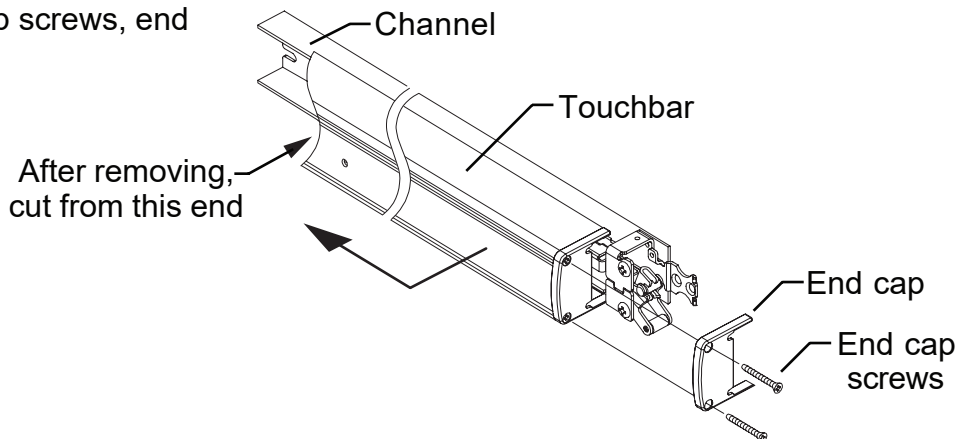
Case 1:- 2'6"			Case 2:- 3'0"			Case 3:- 3'6"			Case 4:- 4'0"		
Factory dims	Standard Device min dims	EL/MEL Device min dims	Factory dims	Standard Device min dims	EL/MEL Device min dims	Factory dims	Standard Device min dims	EL/MEL Device min dims	Factory dims	Standard Device min dims	EL/MEL Device min dims
Min door opening width			Min door opening width								
32.00"	26.00"	30.50"	38.00"	32.00"	36.50"	44.00"	38.00"	42.50"	50.00"	44.00"	48.50"



4. Determine touchbar cut length **B**:  
**B = door opening – 5-7/32"**



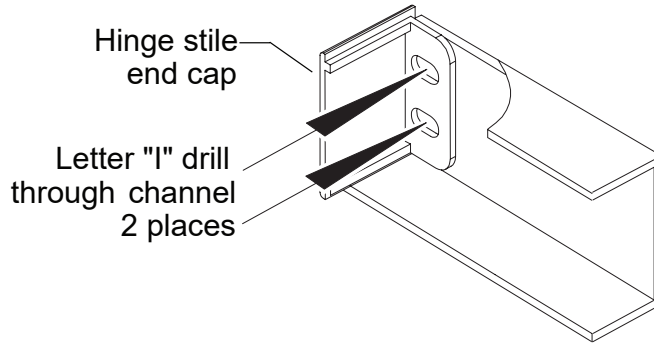
5. Remove two end cap screws, end cap, and touchbar.





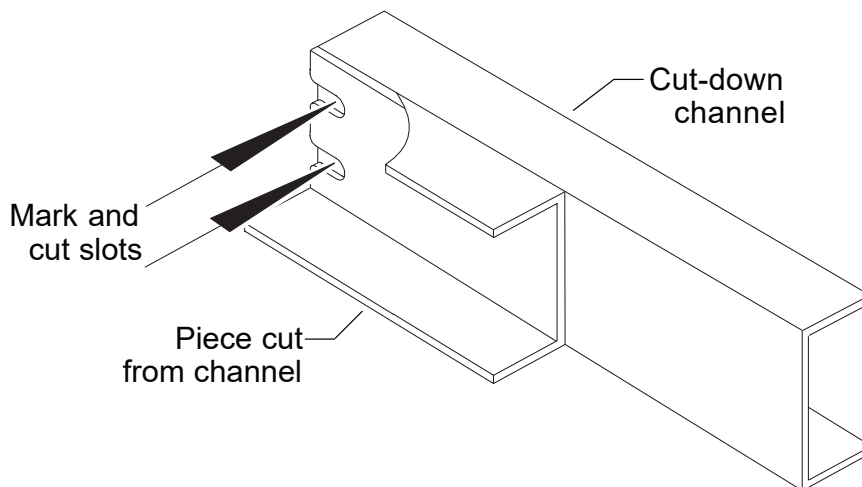
6. Cut **hinge side** of touchbar to dimension **B** from Step 4 on previous page.
7. **Cover device mechanism to keep chips out** and cut channel to dimension **A** from Step 2.
8. If hinge stile has not been prepared for channel hinge stile 1/4-20 mounting screws:

Place hinge stile end cap into hinge end of channel. Drill through the center of end cap slots using a letter "I" drill. These two holes will be used to transfer location of mounting screw holes to hinge stile when device is applied to door.

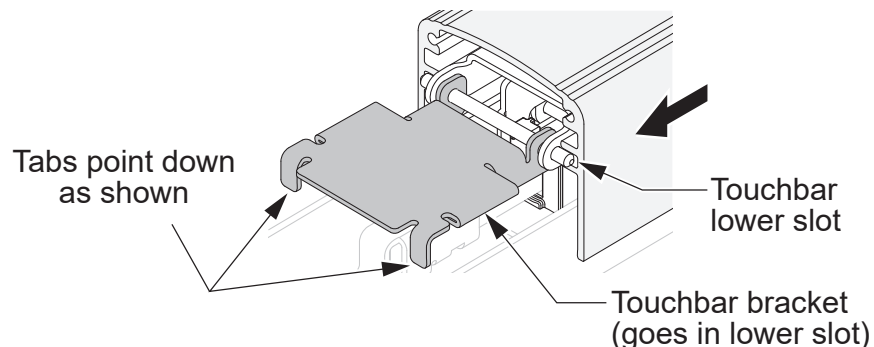


If hinge stile has been prepared for channel hinge stile 1/4-20 mounting screws:

Using end cut from channel in Step 3 as a template, place backs of channel sections against each other and align ends. Mark slot pattern on the cut-down channel. Following all safety precautions, use a drill and aluminum saw to cut slots in cut-down channel section.



9. Clean debris from touchbar and channel.
10. Slide pushbar over touchbar pins. Make sure to install both pins in lower slot in pushbar. If touchbar bracket is removed, it should be reinstalled with stop tabs pointed down towards channel.

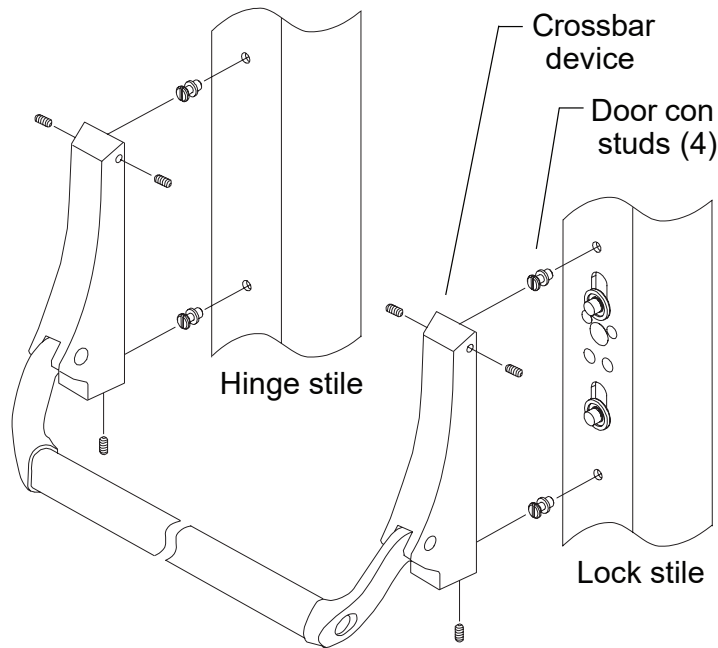


11. Reinstall end cap and screws.

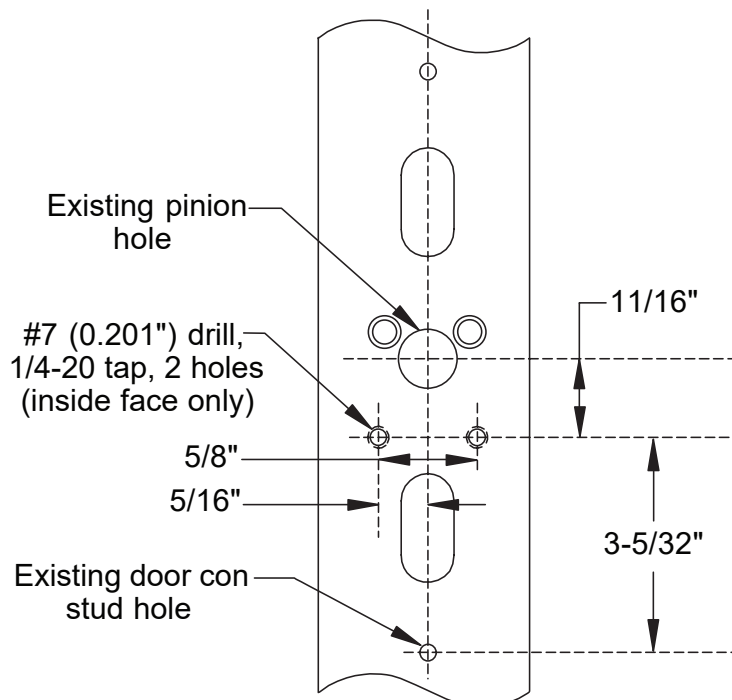
# 1990 TO 1690 RETROFIT INSTRUCTIONS

1. Remove crossbar device, door con studs, traveler, retractor, pinion, pinion bushing, rod bushings and rings from door.

**Note:** Pinion, pinion bushing, and retractor present on NL/HB devices only.

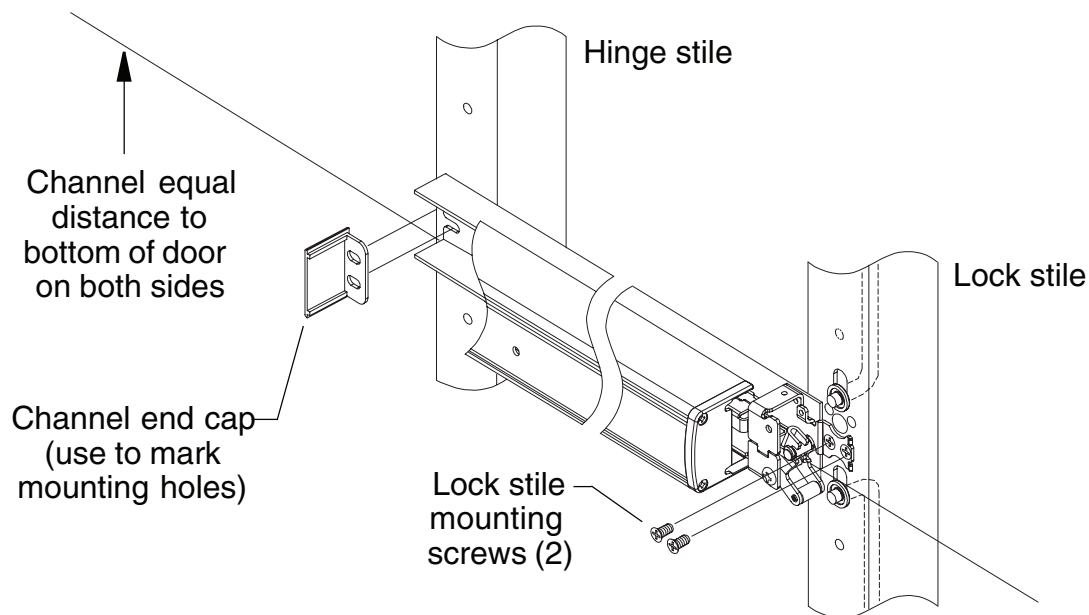


2. If non-standard door width, follow field sizing directions on page 16 to size device to appropriate length.
3. Using existing pinion or door con stud holes as a reference, locate the two 1/4-20 mounting holes on the lock stile. Drill and tap 1/4-20, inside face only.



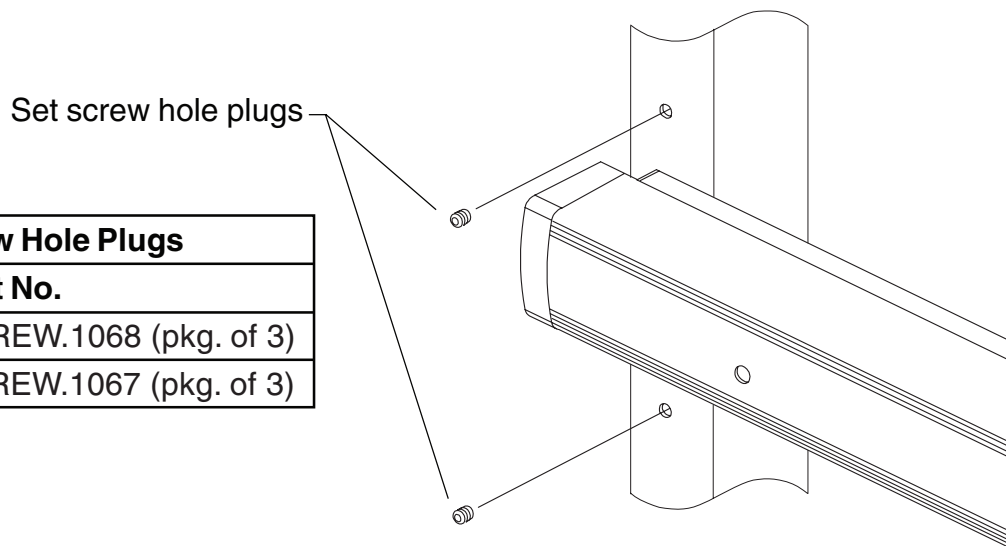
**Continued on next page**

4. Install new rod bushings and retaining rings (refer to Step 1 on page 4 of instructions).
5. Mount the device to the lock stile using the supplied 1/4-20 undercut flat head screws.
6. Position the device horizontally on the door (same distance from bottom of door to bottom of channel on both stiles).
7. Position channel end cap in end of channel and use to mark locations for hinge mounting holes.



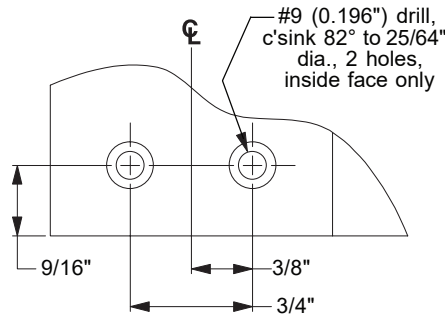
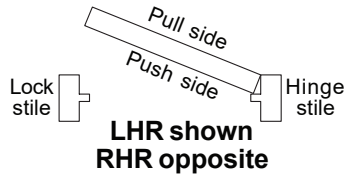
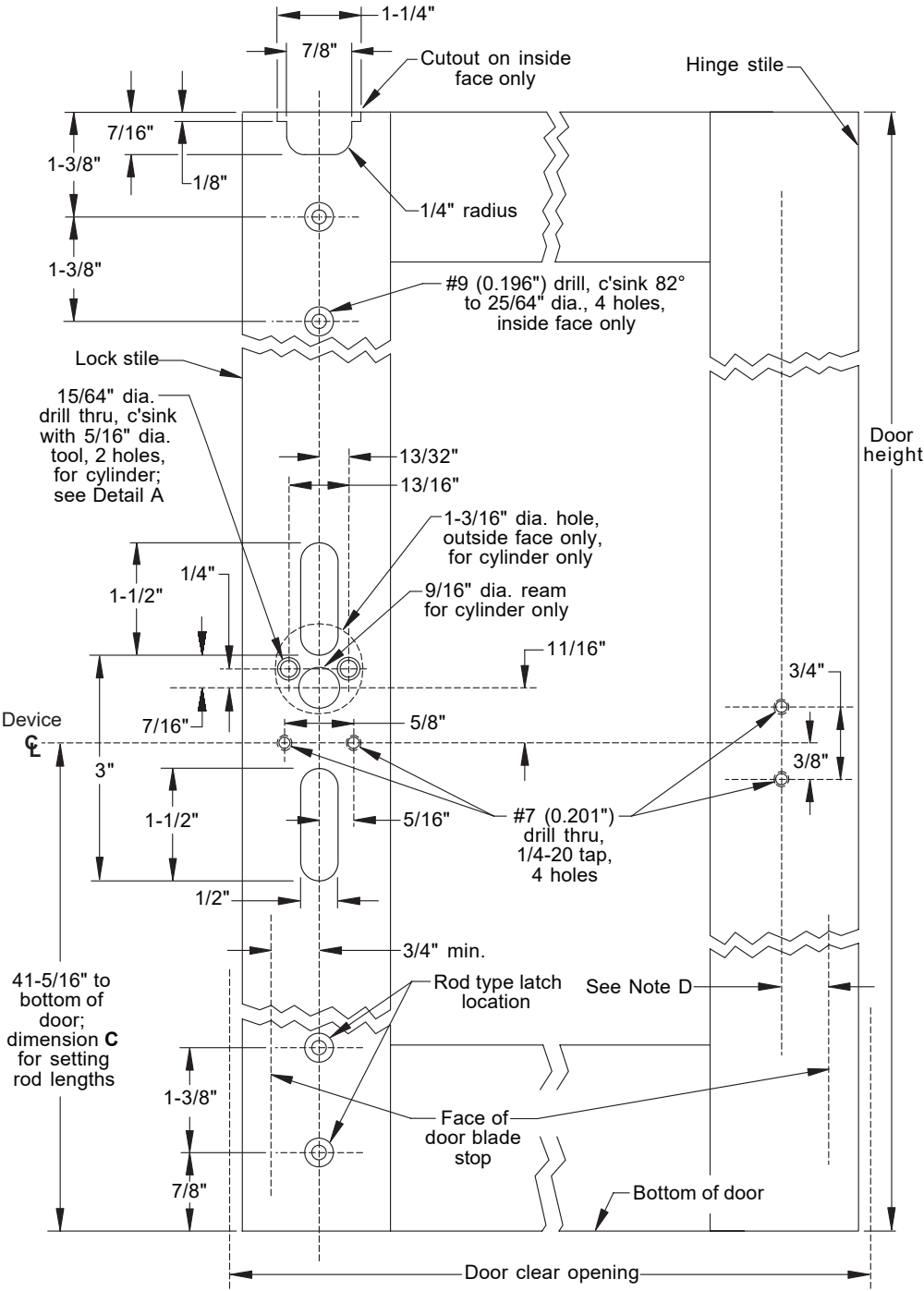
8. Remove the device from the door.
9. Drill and tap through two 1/4-20 mounting holes on hinge stile, inside face only.
10. Continue on with 1690 installation instructions.
11. When installation is complete, remove the 1/4-20 set screws from the old 1990 end cases and install them in the exposed 1990 door con stud holes on the hinge stile. The lock stile holes do not need to be filled. If the set screws in the 1990 end cases are unavailable or unusable, new set screws can be ordered as listed in the table below. New set screw hole plugs are factory supplied if retrofit is specified on the device order.

Set Screw Hole Plugs	
Finish	Part No.
US28	SCREW.1068 (pkg. of 3)
DC13/DC35	SCREW.1067 (pkg. of 3)



# With Standard Rods and Latches

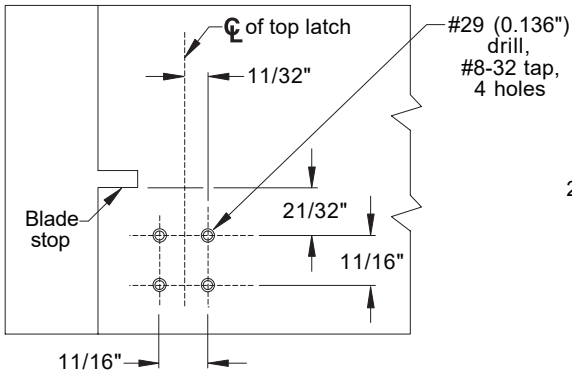
## 1690 Touchbar Concealed Vertical Rod Panic Device Door Preparation Template



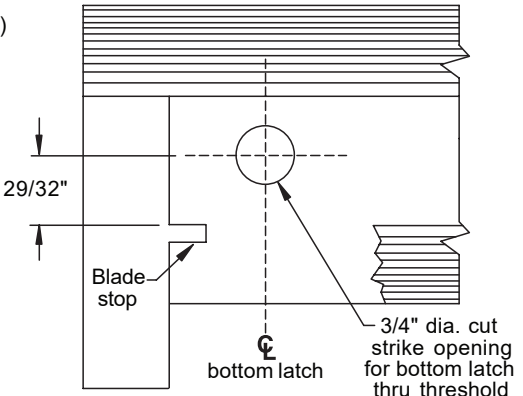
Hex Bottom Bolt Mounting Location

- NOTES**
1. All holes inside face only except as noted.
  2. All dimensions for 1-3/4" thick, 1/8" wall doors. Consult factory for others.

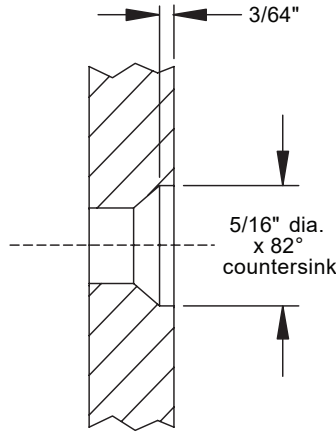
- NOTE D**
- Dimensions from face of door blade stop to mounting hole center lines 3/4" minimum.



Bottom Plan View, Head Jamb (looking up) Showing Upper Strike Mounting Holes



Top Plan View, Rod Latch Showing Strike Cutout in Threshold for Round Latch



Detail A (for cylinder) 20