



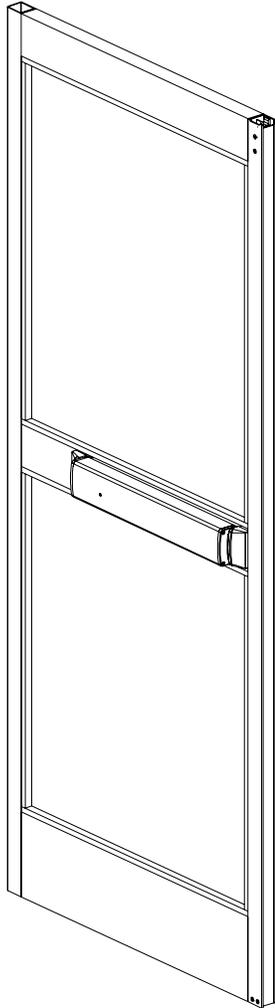
2390 Touchbar

FALCON®

ININST.1039

Concealed Vertical Rod Panic Device

Installation Instructions



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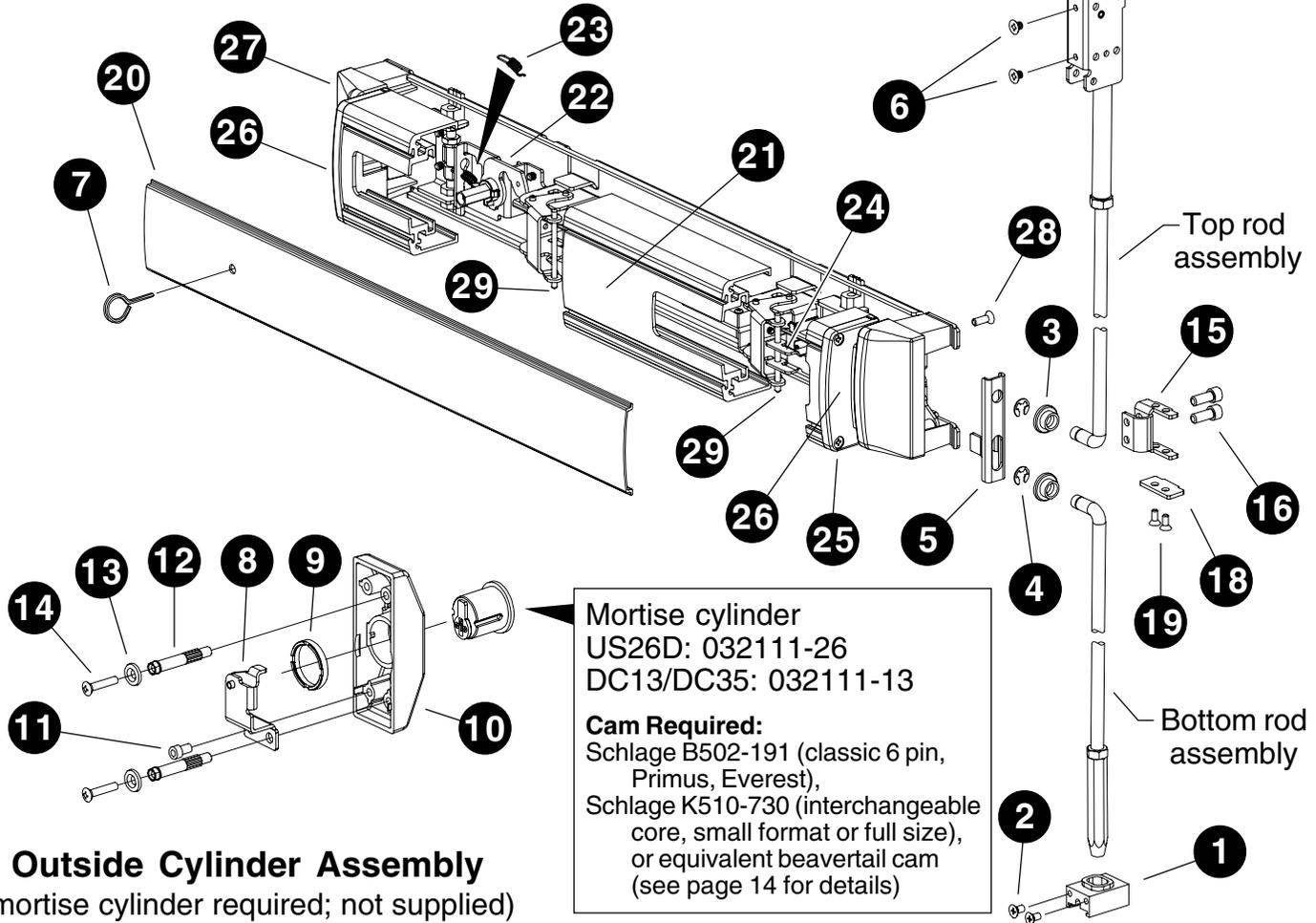
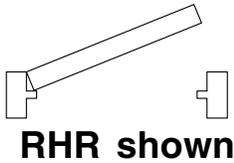
Customer Service

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

PARTS LIST

NOTES

1. Device shown un-dogged. Device is shipped dogged. **Do not un-dog until installed on door.**
2. Touchbar shown cut away for visibility.



Mortise cylinder
 US26D: 032111-26
 DC13/DC35: 032111-13

Cam Required:
 Schlage B502-191 (classic 6 pin, Primus, Everest),
 Schlage K510-730 (interchangeable core, small format or full size),
 or equivalent beavertail cam (see page 14 for details)

Outside Cylinder Assembly
 (mortise cylinder required; not supplied)

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

Item	Quantity	Description	Part No.
1	1	Hex rod guide	4270101829
2	2	#10-24 x 3/8" UFPHTC Typ F Stl	
		US28 finish	4299100746
		DC13/DC35 finish	4299101027

Package No. CYLAS.Y.1047 (P13 finish) or Package No. CYLAS.Y.1046 (P28 finish) or Package No. CYLAS.Y.1053 (P35 finish)

Item	Quantity	Description	Part No.
8	1	2390 NL/HB bracket assy.	BRKTASY.118
9	1	Mortise locking collar	971851-00
10	1	2390 cylinder housing	
		P13 finish	HOUSING.124
		P28 finish	HOUSING.123
		P35 finish	HOUSING.125
11	1	1/4-20 x 3/8" SHCS	820975-00
12	2	Mounting stud	971585-89
13	2	#10 countersink washer	
		DC13/DC35 finish	WASHER.117
		US32D finish	964016-00
14	2	#10-24 x 1" OPHMS	
		DC13/DC35 finish	SCREW.1014
		US32D finish	963120-00
15	1	2390 cylinder lift bracket	BRKT.152
16	2	1/4-28 x 3/4" SHCS	SCREW.1034

Package No. PKG. 134 (US28 finish) or Package No. PKG. 135 (DC13/DC35 finish)

Item	Quantity	Description	Part No.
3	2	Rod bearing bushing	BUSH.108
4	2	Reinforced retaining ring	RRING.108
5	1	2390 lift bracket	BRKT.143
6	2	#10-32 x 1/4" UFPHMS	
		US28 finish	963125-00
		DC13/DC35	4270902255
7	1	5/32" hex dogging key	4270106944

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

Item	Quantity	Description	Part No.
17	1	Strike	
		P13 finish	4270108354
		P35 finish	4270108355
		US28 finish	4270108353

Package No. BRKTASY.155 (for 2" thick doors only)

Item	Quantity	Description	Part No.
18	1	2390 lift bracket 2" door	BRKT.154
19	2	#8-18 x 5/16" UFPHMS	964327-89

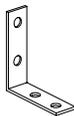
Item	Quantity	Description	Part No.
20	1	Cover plate	See table
21	1	Touchbar	See table
22	1	Dogging assembly	
		DC13/DC35 finish	KIT.1022
		US28 finish	KIT.1021
23	1	Dogging spring	971493-89
24	1	2390 touchbar anchor bracket	BRKT.137
25	4	#8 x 3/4" FPHTF	4270109556
26	2	2390 mounting end cap P35	ECAP.143
27	2	2390 fixed cover P35	COVER.127
28	4	#12-14 x 1/2" UFPH Typ 23	SCREW.1007
29	2	Touchbar pin	PIN.125

Cover Plate Part Numbers (Item 20 in "Parts List")

Finish	21" Touchbar Length		24" Touchbar Length	
	Without Dogging Hole	With Dogging Hole	Without Dogging Hole	With Dogging Hole
Champagne	EXT.2462	EXT.3011	EXT.2466	EXT.3015
DC13	EXT.2460	EXT.3009	EXT.2464	EXT.3013
DC35	EXT.2461	EXT.3010	EXT.2465	EXT.3014
US28	EXT.2459	EXT.3008	EXT.2463	EXT.3012

Touchbar Part Numbers (Item 21 in "Parts List")

Finish	21" Touchbar Length	24" Touchbar Length
Champagne	EXT.3003	EXT.3007
DC13	EXT.3001	EXT.3005
DC35	EXT.3002	EXT.3006
US28	EXT.3000	EXT.3004

**2390 Channel Package No. 4270108768
(used for mounting muntin to vertical door stiles)**

2390 angle bracket
Part No. 4204100819
Quantity: 4 pieces



#8-32 x 3/8" FPHTC
Part No. 4299100726
Quantity: 8 pieces



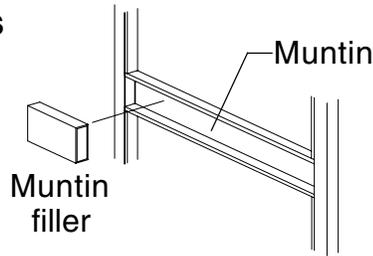
#8-32 x 1/2" FPHTC
Part No. 4299100741
Quantity: 8 pieces

"Parts List" continued next page

PARTS LIST (continued)

Muntin Filler Part Numbers

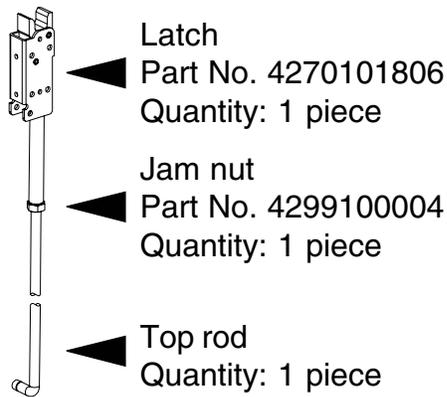
Finish	Muntin Filler Part Number
DC13	4270107327
DC35	4270107328
US28	4270107325



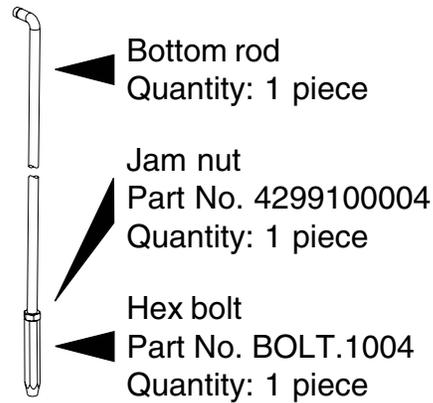
Muntin Part Numbers

Finish	Muntin Part Number
DC13	4270102811
DC35	4270102812
US28	4270102809

Top Rod Assembly



Bottom Rod Assembly



Standard 7' Door Top Rod Assemblies (dimensions in inches)

Description	Part No.	Muntin Center Line	Door Height	By Cutting Top Rod, Assembly Can Be Shortened Up To
2390 Top Rod RHR AL = 40.176	RODASY.10001	42.5	83.188	4"
2390 Top Rod RHR AL = 41.426	RODASY.10002	41.25	83.188	6"
2390 Top Rod RHR AL = 44.801	RODASY.10003	37.875	83.188	9"
2390 Top Rod RHR AL = 42.676	RODASY.10004	40	83.188	5"
2390 Top Rod RHR AL = 41.489	RODASY.10005	41.25	83.25	6"
2390 Top Rod LHR AL = 40.176	RODASY.10006	42.5	83.188	4"
2390 Top Rod LHR AL = 41.426	RODASY.10007	41.25	83.188	6"
2390 Top Rod LHR AL = 44.801	RODASY.10008	37.875	83.188	9"
2390 Top Rod LHR AL = 42.676	RODASY.10009	40	83.188	5"
2390 Top Rod LHR AL = 41.489	RODASY.10010	41.25	83.25	6"

Standard 7' Door Bottom Rod Assemblies (dimensions in inches)

Description	Part No.	Muntin Center Line	Door Height
2390 Btm Rod = 41.877	RODASY.10011	42.5	83.188
2390 Btm Rod = 40.627	RODASY.10012	41.25	83.188
2390 Btm Rod = 37.252	RODASY.10013	37.875	83.188
2390 Btm Rod = 39.377	RODASY.10014	40	83.188

PARTS LIST (continued)

2390 Extension Rod Kit (Part No. EXTROD.1001)

Description	Part No.	Quantity
3/8-24 jam nut	4299100004	1
Upper extension rod 7.5"	ROD.1049	1
Lower extension rod 6.5"	ROD.1048	1
Extension tube 70"	TUBE.300	1
1/8" x 5/8" roll pin	4299100060	2

BEFORE INSTALLATION

1. Check "Parts List" (page 2 and page 3).
2. Prepare door using template on page 18.
3. Set initial rod lengths (see page 16). Rods lengths are factory set as specified on customer order.
4. If necessary, re-hand device (see page 17) and top rod (see Figure 1-1, page 4).

INSTALLATION

1 Install rod assemblies.

- 1.1. If using outside cylinder, install cylinder lift bracket on top rod (Figure 1-1). Do not tighten completely (final position will be determined in door). For 2" thick doors **only**, also install lift bracket 2" thick door and screws (#8-18 x 5/16" UFPHSMS) from package No. BRKTASY.155.

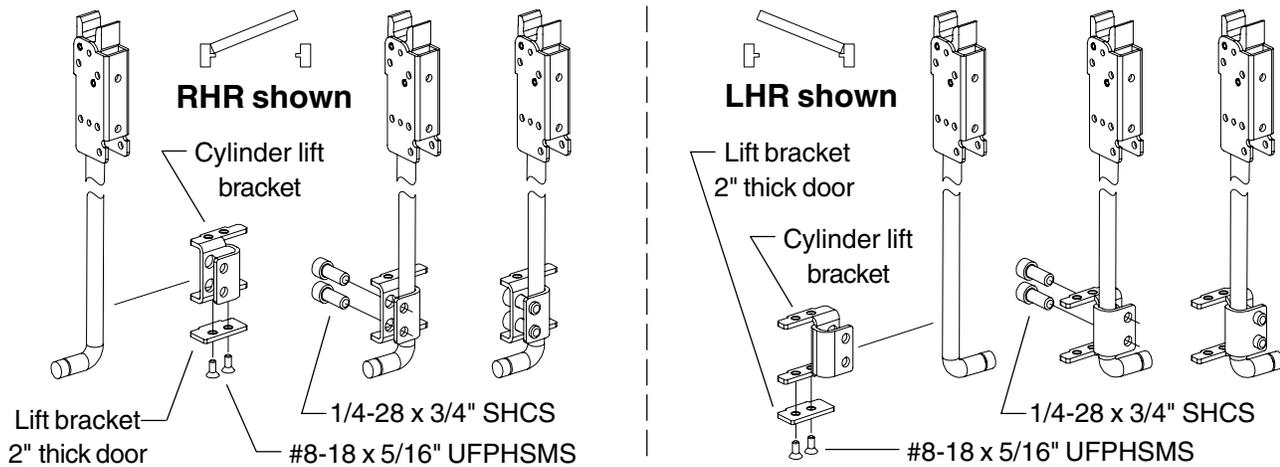
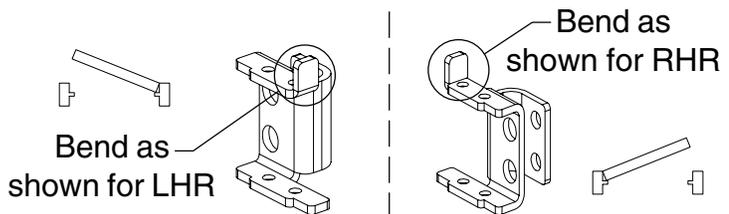


Figure 1-1

⚠ NOTE

If using on narrow architectural stile with adjustable astragal, **bend one ear only** of cylinder lift bracket as shown at right before installing.



1 Install rod assemblies (continued).

1.2. Fit top rod assembly into door.

NOTE
To simplify fitting rod and lift bracket through stile, remove lift bracket and reinstall after top rod is in door (prior to Step 11.5).

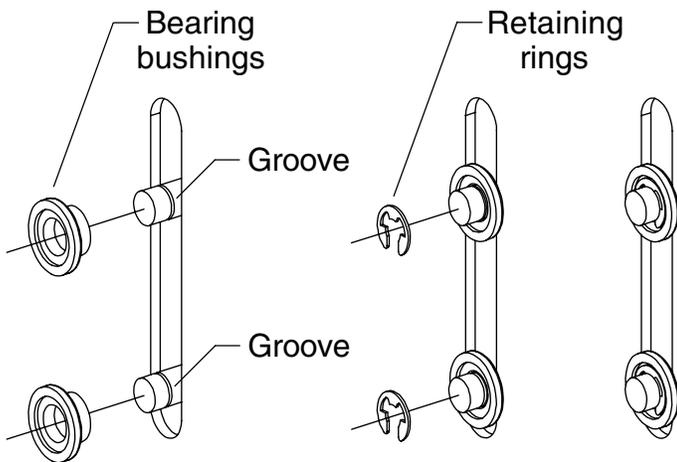
1.3. Secure top rod assembly with two #10-32 x 1/4" UFPH machine screws.

1.4. Install top rod bearing bushing and retaining ring.
Be sure retaining ring seats securely in groove on rod.

1.5. Fit bottom rod assembly into door. Install bottom rod with jam nut moved up approximately 1" from bottom latch bolt. This will simplify final adjustment later.

1.6. Install bottom rod bearing bushing and retaining ring.
Be sure retaining ring seats securely in groove on rod.

1.7. Install bottom hex rod guide into bottom of door over bottom latch bolt. Secure with two #10-32 x 3/8" UFPH thread cutting screws.



IMPORTANT
Be sure retaining rings seat securely in grooves on rods.

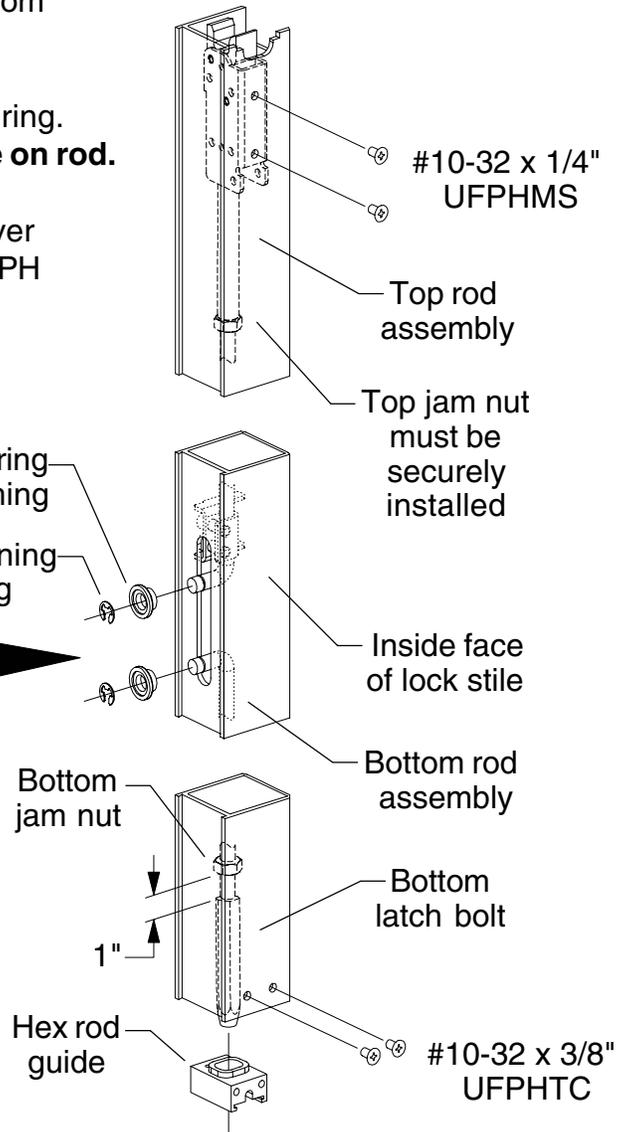


Figure 1-2

2 Cut muntin filler to length. (Muntin filler required; not supplied.)

2.1. Measure muntin length (Figure 2-1) and stile offset (Figure 2-2).

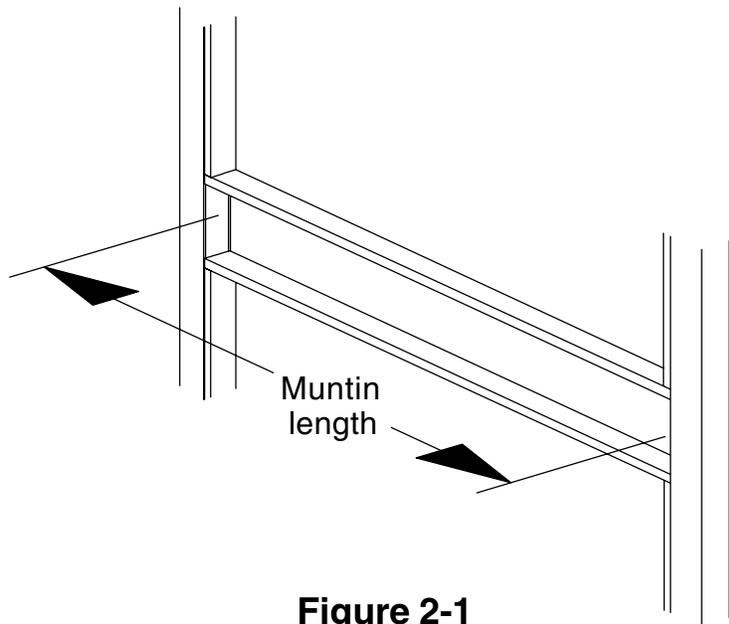


Figure 2-1

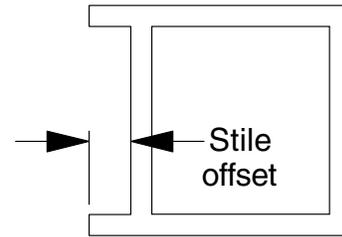


Figure 2-2

2.2. If measured muntin length (width between stiles) is less than the minimum listed in Minimum Muntin Length table, the device is too long for the application.

Minimum Muntin Length

Long Device (24" touchbar)	
Stile Offset	Minimum Muntin Length (width between stiles)
0.115"	27.505"
0.125"	27.495"
0.142"	27.478"
0.156"	27.464"
0.187"	27.433"

Short Device (21" touchbar)	
Stile Offset	Minimum Muntin Length (width between stiles)
0.115"	24.505"
0.125"	24.495"
0.142"	24.478"
0.156"	24.464"
0.187"	24.433"

2.3. Calculate muntin filler length (Figure 2-3) using formula from Muntin Filler Length table and cut muntin filler to length.

Muntin Filler Length

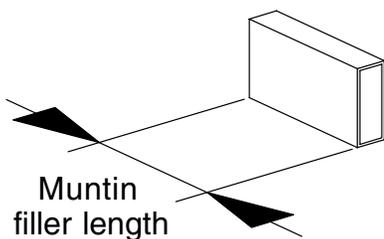


Figure 2-3

Long Device (24" touchbar)	
Stile Offset	Muntin Filler Length
0.115"	= muntin length - 27.505"
0.125"	= muntin length - 27.495"
0.142"	= muntin length - 27.478"
0.156"	= muntin length - 27.464"
0.187"	= muntin length - 27.433"

Short Device (21" touchbar)	
Stile Offset	Muntin Filler Length
0.115"	= muntin length - 24.505"
0.125"	= muntin length - 24.495"
0.142"	= muntin length - 24.478"
0.156"	= muntin length - 24.464"
0.187"	= muntin length - 24.433"

3 Install traveler.

3.1. Position traveler as shown (Figure 3-1) and place over rod ends.

3.2. Push top rod up until rods are held retracted, traveler is held up (Figure 3-2), and top latch bolt is locked forward (Figure 3-3).

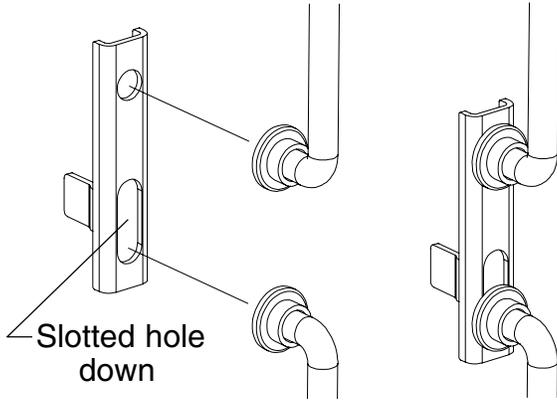


Figure 3-1

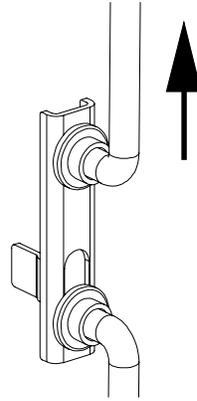


Figure 3-2

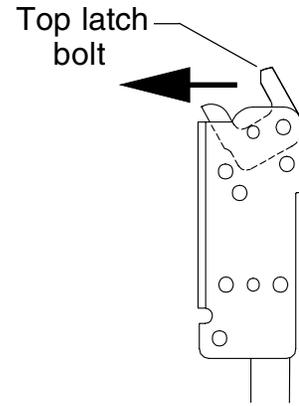


Figure 3-3

4 Adjust top rod.

4.1. With top rod retracted (see Step 3), press down on traveler end as shown (Figure 4-1). Make sure traveler is held over rod ends and against rod bushings.

4.2. Measure the gap between the bottom of the traveler end and the lower wall of the muntin (Figure 4-1 and Figure 4-2). Adjust top rod per directions in table below.

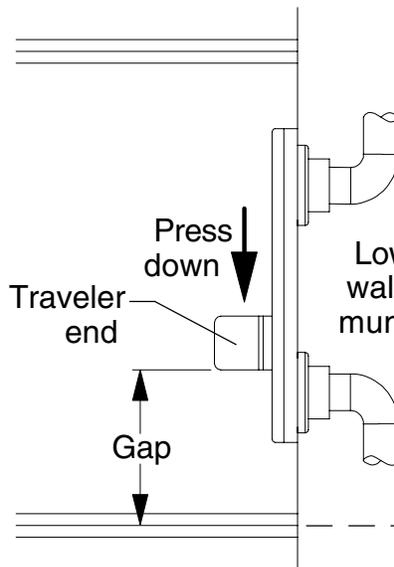


Figure 4-1

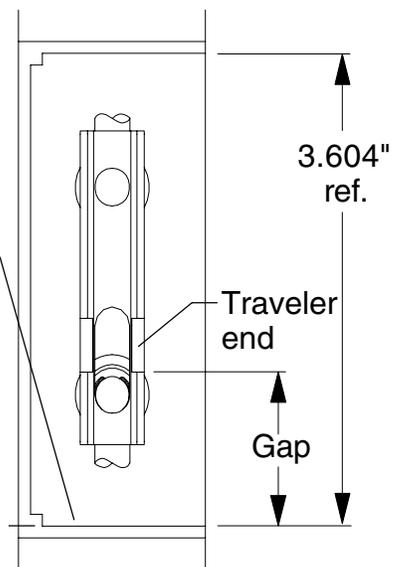
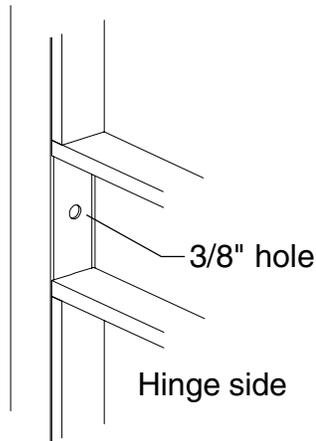


Figure 4-2

Gap	Directions
1.193"	Rod adjustment is correct. Go to Step 5.
1.151"	Shorten rod one (1) turn and repeat Step 4.
1.110"	Shorten rod two (2) turns and repeat Step 4.
1.068"	Shorten rod three (3) turns and repeat Step 4.
1.235"	Lengthen rod one (1) turn and repeat Step 4.
1.276"	Lengthen rod two (2) turns and repeat Step 4.
1.318"	Lengthen rod three (3) turns and repeat Step 4.

5 Prepare hole for EL/RX device. (If device is not EL/RX, go to Step 6.)

5.1. Drill 3/8" diameter hole for EL/RX wiring through inside face of door, hinge side.

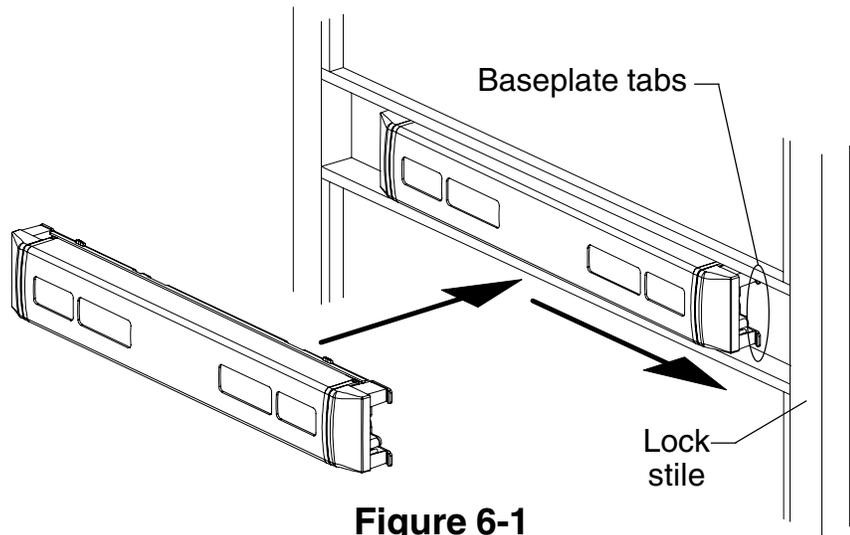


NOTE
Hole must be free of burrs.

Figure 5-1

6 Install device.

6.1. Place **dogged device** in door and slide toward lock stile (Figure 6-1) so roller fits under traveler end (Figure 6-2) and baseplate tabs touch lock stile wall (Figure 6-3).



NOTE
Make sure that back of device baseplate seats firmly against muntin wall and that baseplate tabs touch lock stile wall.

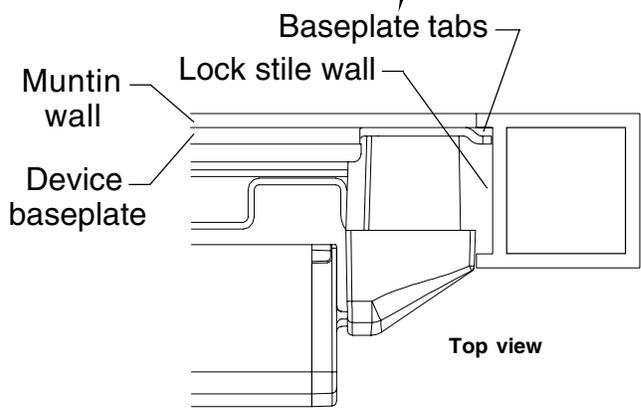
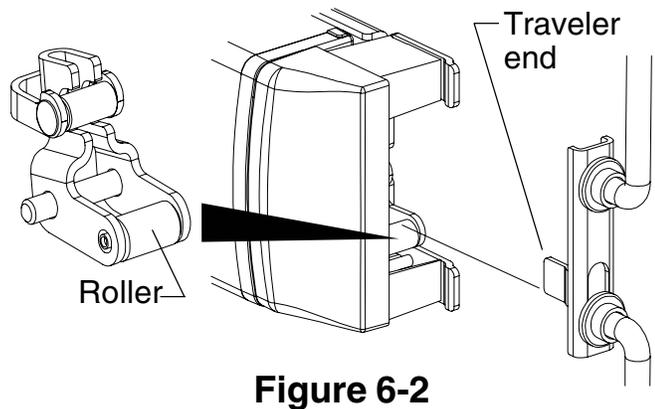


Figure 6-1

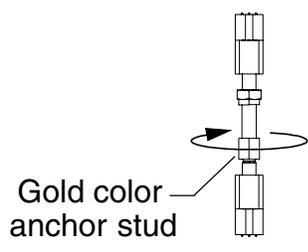
Figure 6-2

Figure 6-3

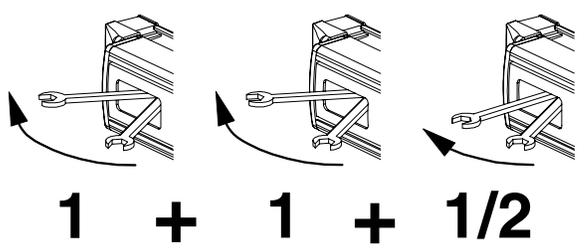
7A Secure RHR device. (See next page for LHR device.)



7A.1. With device seated against bottom of muntin, use a 3/8" open end wrench to tighten two gold color anchor studs to extend anchor pins. **Tighten only until resistance is felt.**

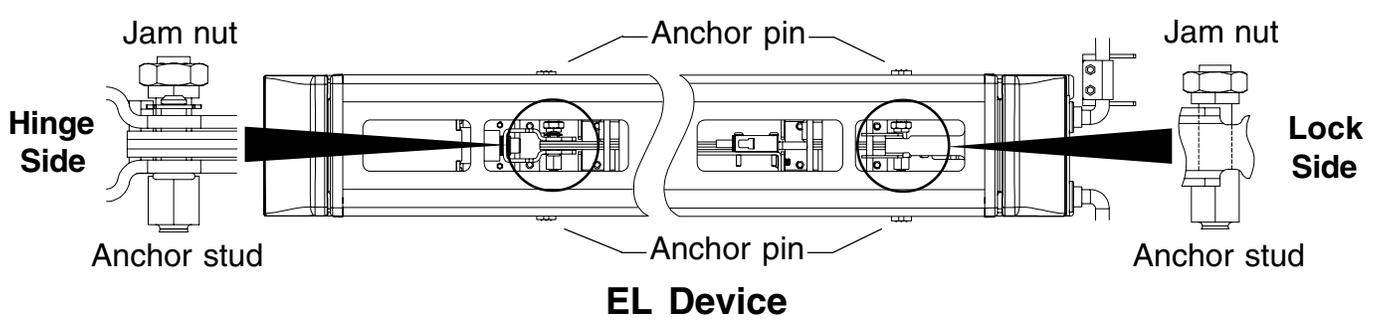
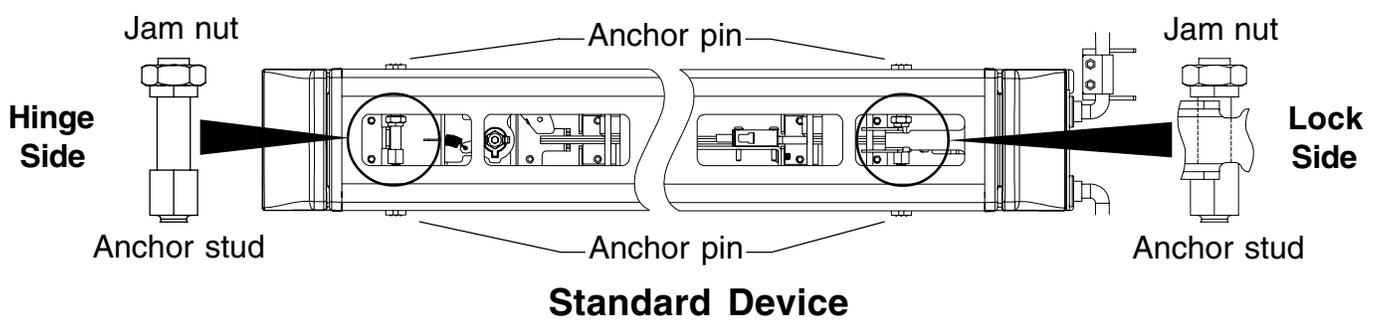
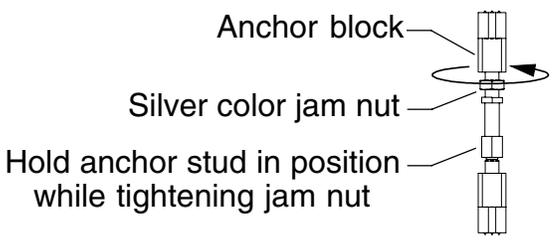


7A.2. After resistance is felt, tighten two gold color anchor studs 2-1/2 more movements of the wrench through the touchbar openings.



CAUTION
Do not overtighten or damage to device may occur.

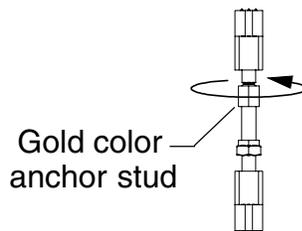
7A.3. Using a 7/16" open end wrench, tighten two silver jam nuts against anchor blocks. Use a 3/8" open end wrench to hold anchor studs in position while tightening jam nuts.



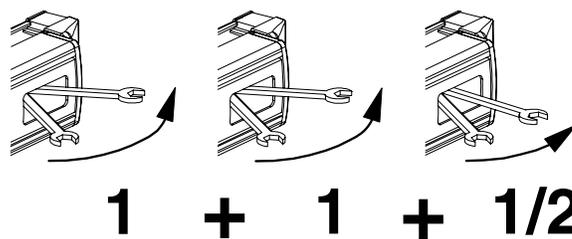
7B Secure LHR device. (See previous page for RHR device.)



7B.1. With device seated against bottom of muntin, use a 3/8" open end wrench to tighten two gold color anchor studs to extend anchor pins. **Tighten only until resistance is felt.**

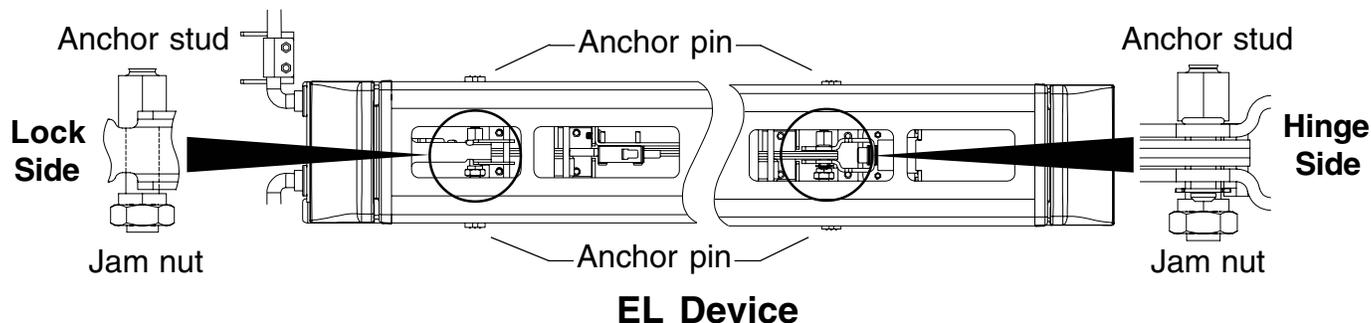
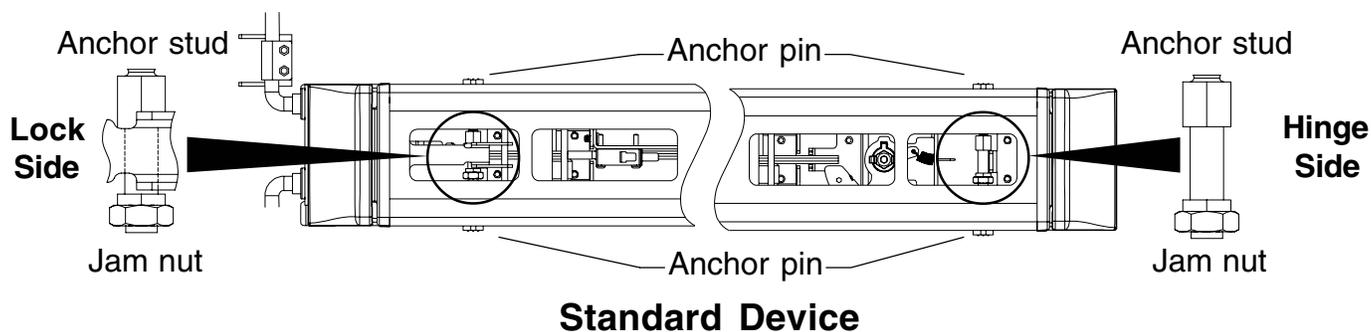
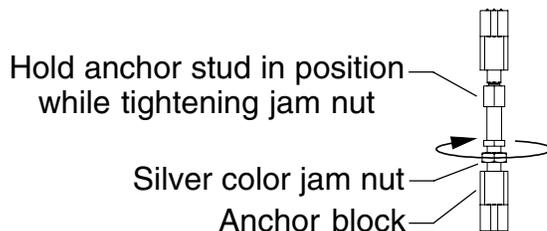


7B.2. After resistance is felt, tighten two gold color anchor studs 2-1/2 more movements of the wrench through the touchbar openings.



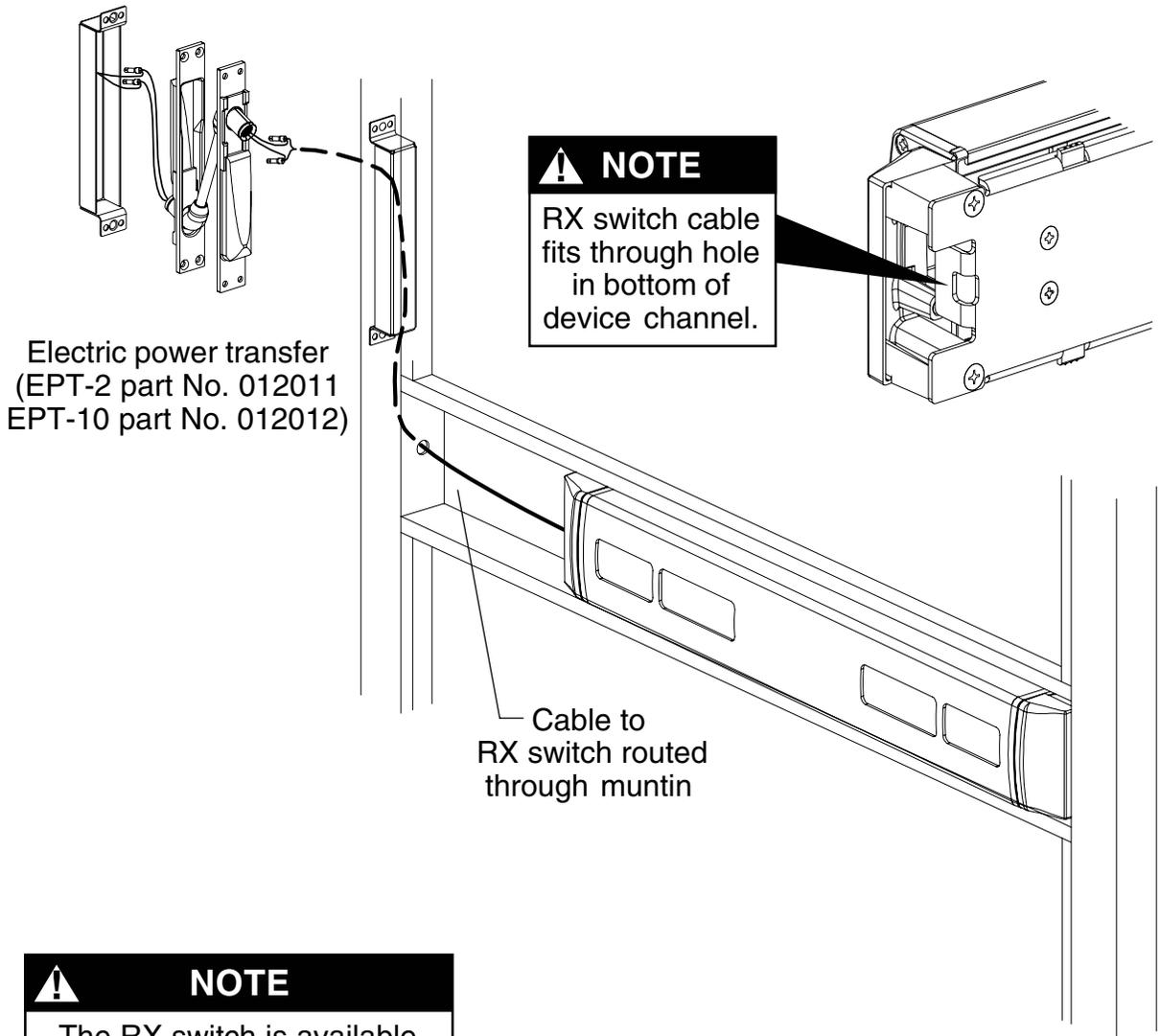
CAUTION
Do not overtighten or damage to device may occur.

7B.3. Using a 7/16" open end wrench, tighten two silver jam nuts against anchor blocks. Use a 3/8" open end wrench to hold anchor studs in position while tightening jam nuts.

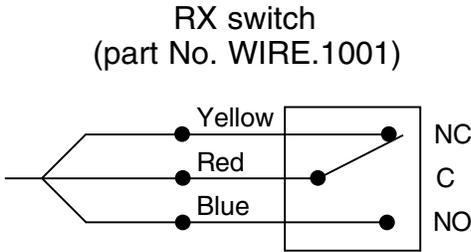


8 Wire EL or RX device. (If device is not EL or RX, go to Step 9.)

RX Device Wiring



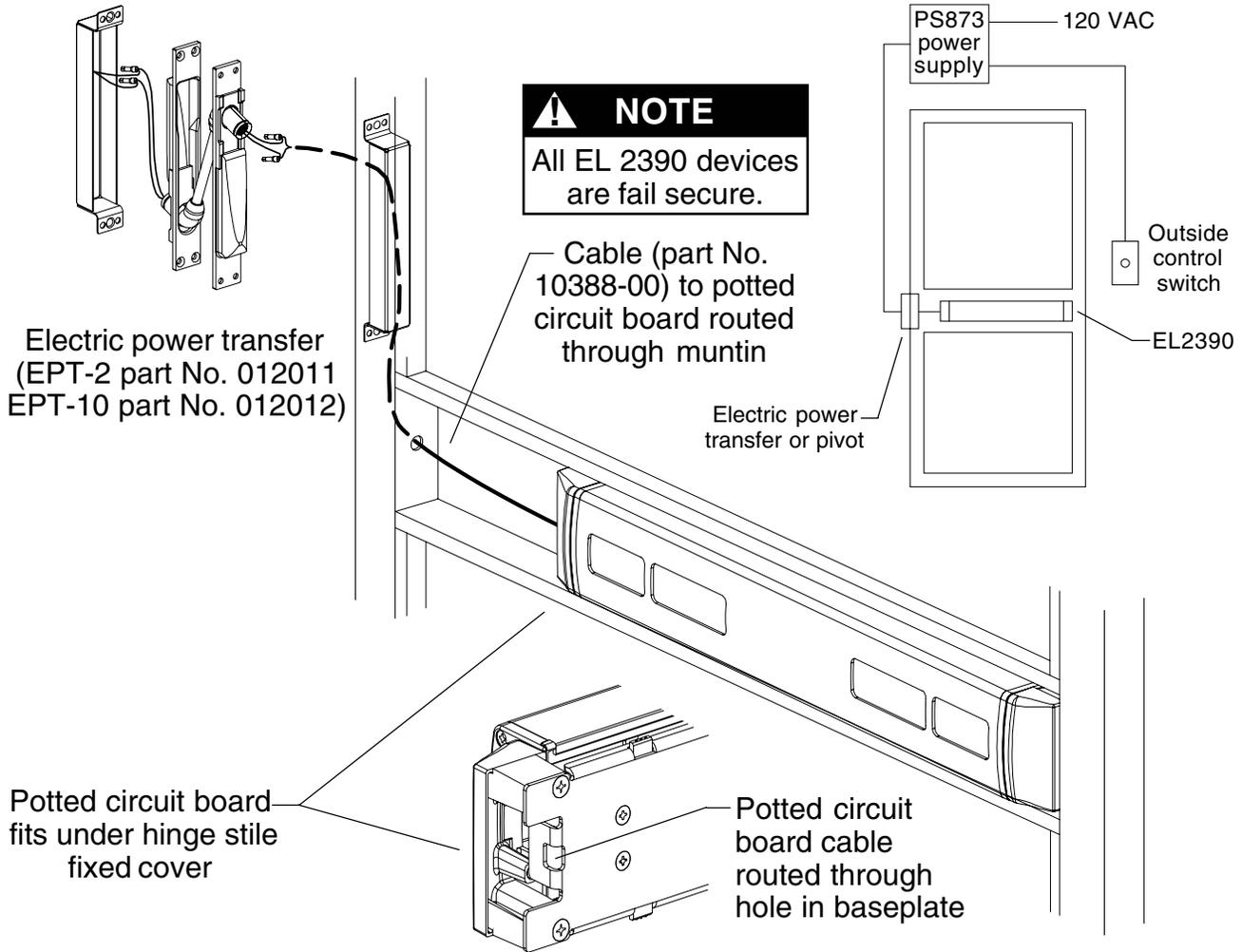
NOTE
The RX switch is available only as a factory installed item. Part No. WIRE.1001 can be used only to replace the factory installed RX switch.



Switch shown not activated
(touchbar not depressed)

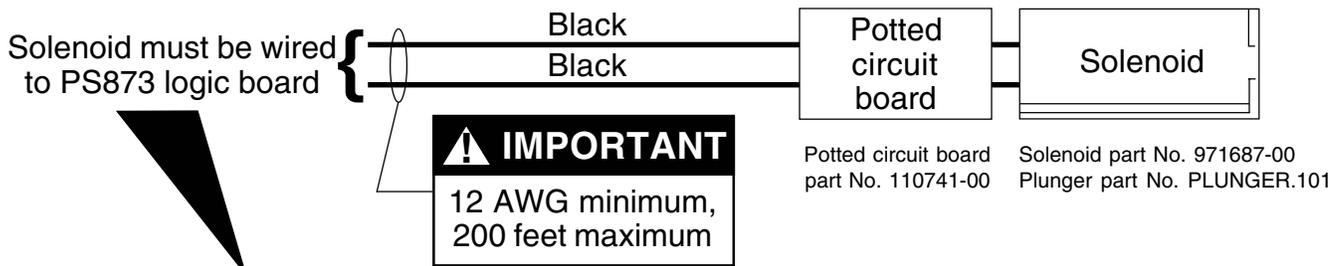
- The RX switch is activated when the touchbar is depressed.
- Use the Von Duprin EPT-10 power transfer (for three wires), EPT-2 power transfer (for two wires), electric hinge, electric pivot, or door loop to transfer the wiring from the door to the frame.
- Connect the power transfer wires and switch assembly wires with crimp connectors. Unused wires should be insulated separately.

EL Device Wiring

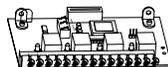


NOTE
The potted circuit board is a protection circuit. It disconnects power from the solenoid if the plunger does not seat within a specified time. To reset the protection circuitry, remove power from the solenoid and reapply.

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

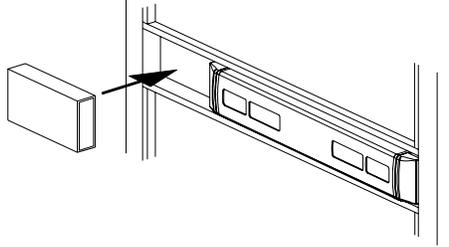


If 871-2 logic board, refer to Von Duprin instructions 941352.
Any reference to Von Duprin EL devices also applies to EL2390.



If other 873 logic board, refer to Von Duprin instructions 941353.
Any reference to Von Duprin EL devices also applies to EL2390.

9 Install muntin filler.



10 Adjust bottom rod.

- 10.1. Undog the device(see page 17) and release the top latch bolt so it faces up (Figure 10-1).
- 10.2. Pull bottom rod out as far as it will extend from door. **Do not depress touchbar during this step.**
- 10.3. Measure the bottom bolt extension from the door (Figure 10-2):
 - If extension **equals 7/16"** rod is set correctly. Go to Step 11.
 - If extension is **more than 7/16"** shorten rod per Table 10-1.
 - If extension is **less than 7/16"** lengthen rod per Table 10-2.

**Table 10-2
Extension Less than 7/16"**

Extension	Lengthen Rod
13/32"	1 turn
3/8"	2 turns
11/32"	2 turns
5/16"	3 turns
9/32"	4 turns
1/4"	5 turns
7/32"	5 turns
3/16"	6 turns
5/32"	7 turns
1/8"	8 turns
3/32"	8 turns
1/16"	9 turns
1/32"	10 turns
0"	11 turns

**Table 10-1
Extension More than 7/16"**

Extension	Shorten Rod
15/32"	1 turn
1/2"	2 turns
17/32"	3 turns
9/16"	3 turns
19/32"	4 turns
5/8"	5 turns
21/32"	6 turns
11/16"	6 turns
23/32"	7 turns

NOTE
To change rod length, remove two guide mounting screws, remove guide, rotate bolt, re-install guide.

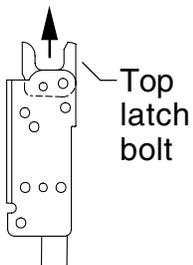


Figure 10-1

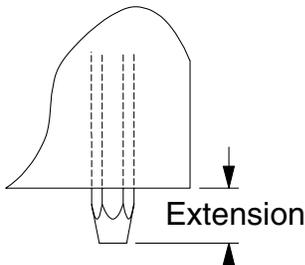
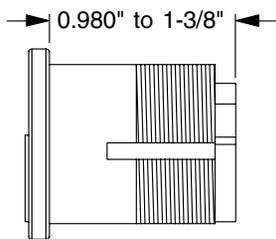


Figure 10-2

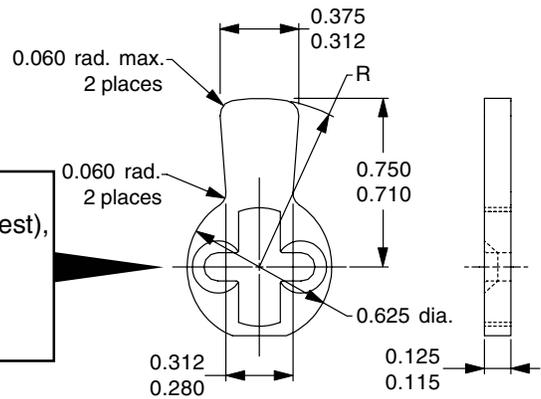
11 Install outside cylinder. (If no outside cylinder, go to Step 12.)

11.1. Check cylinder and cam geometry.



NOTE
Cylinders longer than 1-3/8" require use of a cylinder collar.

Schlage B502-191 (classic 6 pin, Primus, Everest), Schlage K510-730 (interchangeable core, small format or full size), or equivalent beavertail cam



Dimensions in inches

11 Install outside cylinder (continued).

11.2. Make sure cylinder cam is in position for desired function **with key removed** (Figure 11-1). If not, remove cam and re-install in proper position.

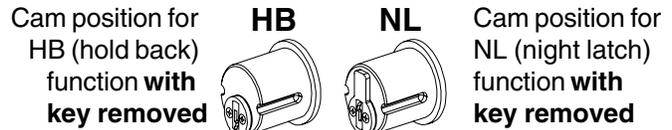


Figure 11-1

11.3. Install cylinder into cylinder housing (Figure 11-2). **Tighten cylinder retaining nut securely.** Make sure end of cylinder housing marked "TOP" is up.

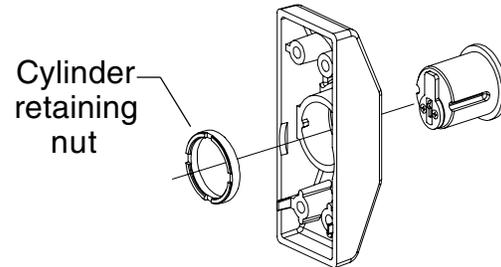


Figure 11-2

11.4. Install cylinder bracket (Figure 11-3). Install studs and screw where shown for RHR or LHR door. Make sure end of cylinder housing marked "TOP" is up.

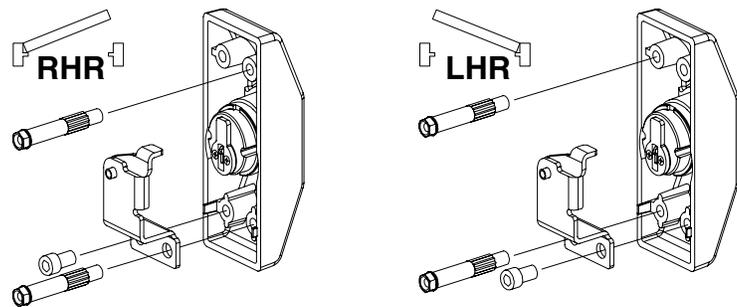


Figure 11-3

11.5. With top latch bolt released and facing up (Figure 11-4), position bottom of cylinder lift bracket 5/8" down from step in cutout (Figure 11-5). Maintain 5/8" location and tighten cylinder lift bracket mounting screws securely.

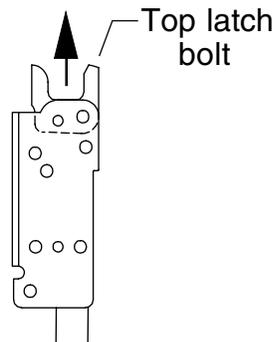


Figure 11-4

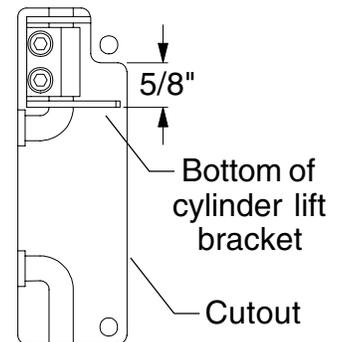


Figure 11-5

11.6. With **key removed**, install cylinder housing assembly on door (Figure 11-6). Secure with two #10 countersink washers and two #10-24 x 1" OPH machine screws.

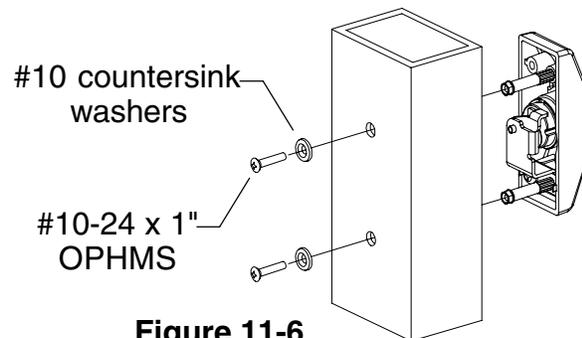


Figure 11-6

12 Perform functional check.

- 12.1. Dog device (see page 17). Top latch bolt should pivot freely.
- 12.2. Undog device (see page 17) and trip top latch bolt so it faces up. Top latch bolt should not pivot.
- 12.3. If cylinder housing is installed, insert key and rotate 180° for NL or 360° for HB. Top latch bolt should pivot freely. For HB, key should come out of cylinder after clockwise rotation. For both NL and HB, rotate key back counterclockwise to starting position and remove key.
- 12.4. With device undogged (touchbar and key cylinder), press touchbar and release so top latch bolt locks forward and rods are held up. Bottom latch bolt should be flush to within 1/32" to bottom of door.

13 Install cover plate.

- 13.1. Undog device and remove lock side end cap screws (Figure 13-1).

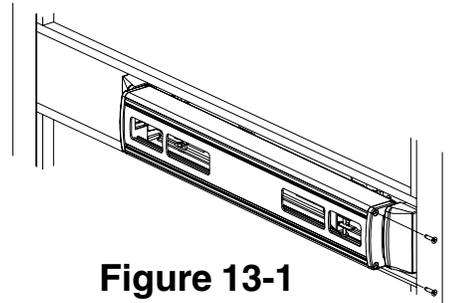


Figure 13-1

- 13.2. Slide end cap into device (Figure 13-2).

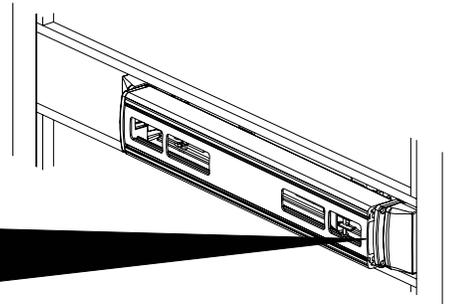
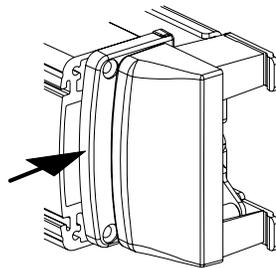


Figure 13-2

- 13.3. Slide cover plate into touchbar with dogging hole towards hinge side of device (Figure 13-3).

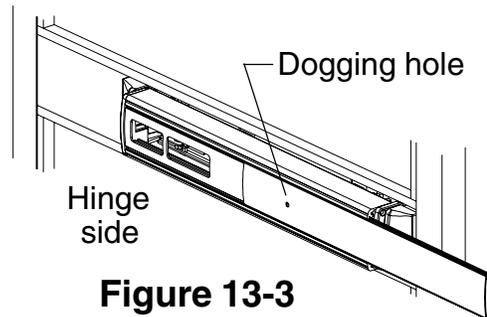


Figure 13-3

- 13.4. Raise end cap so screw holes align with holes in touchbar and re-install screws (Figure 13-4).

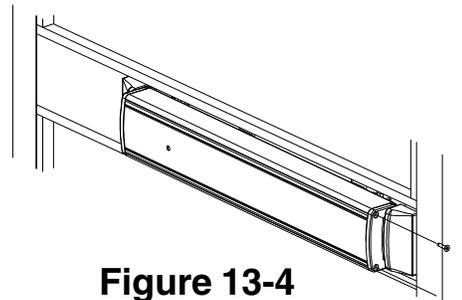


Figure 13-4

TOUCHBAR DOGGING

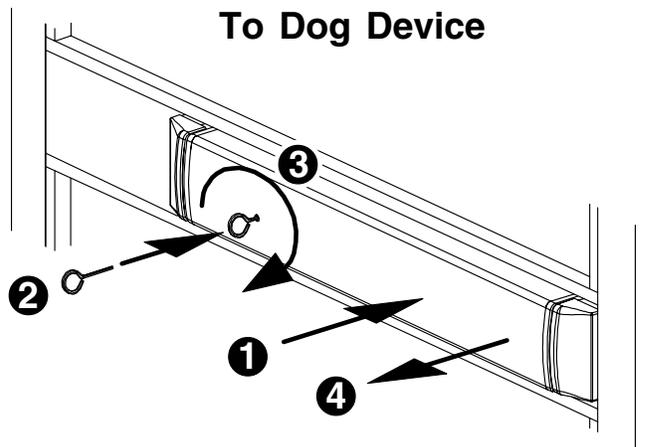


NOTE

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

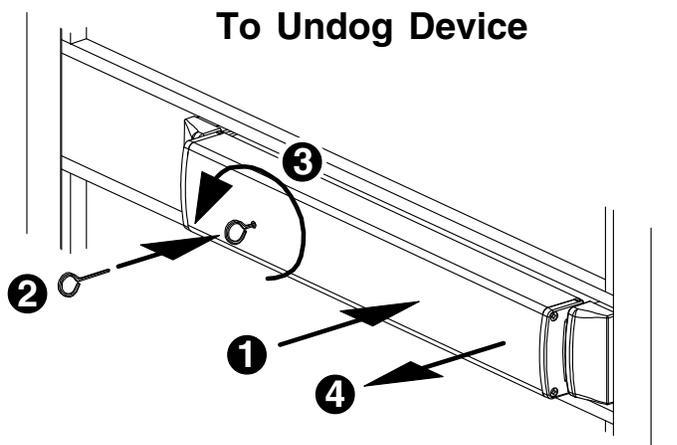
To Dog Device (latch stays retracted)

1. Depress touchbar with hand and hold in.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn clockwise.
4. Release touchbar. Touchbar will remain depressed.



To Undog Device (latch locks when door closes)

1. Depress touchbar with hand and hold in.
2. Insert dogging key into hole on touchbar.
3. Rotate key approximately 1/8 turn counterclockwise.
4. Release touchbar. Touchbar will extend from door.

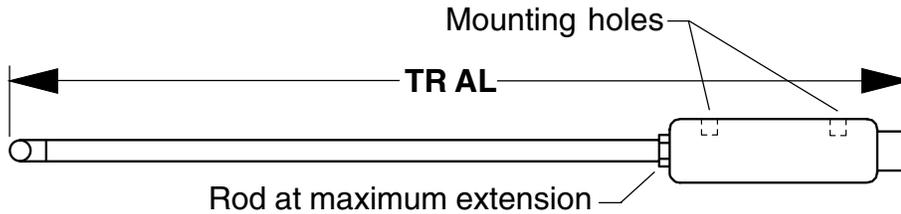


SETTING ROD LENGTHS

Rod lengths are factory set as specified on customer order. For configuring door for door height down to approximately 5.5 feet and up to approximately 10.5 feet, see 2390 Extension Rod Kit (part No. EXTROD.1001) or order rods from factory pre-set.

1. Determine top rod assembled length TR AL: **TR AL = door height — C — 0.516"**

where **C** = distance from center line of muntin to bottom of door.



2. Set top rod to nearest 1/32" as determined in Step 1. Jam nut must be tightened so bent end of rod is perpendicular to sides of latch housing. See Figure 1 for handling. See table below for common rod lengths.

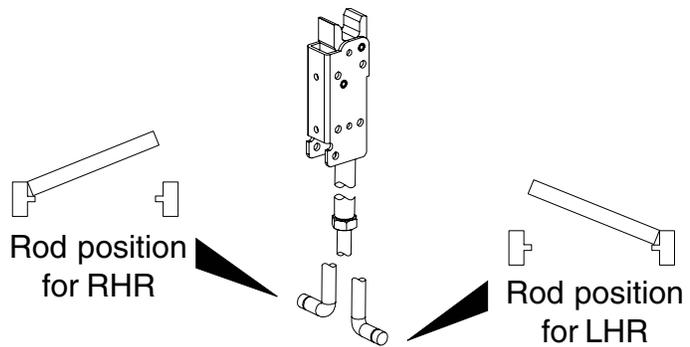
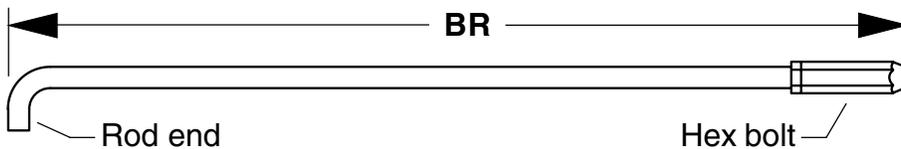


Figure 1

3. Determine overall bottom rod length BR: **BR = C — 0.632"**

where **C** = distance from center line of muntin to bottom of door.



Rod end must be parallel to flat on hex bolt (bottom view)

Figure 2

4. Set bottom rod to nearest 1/32" as determined in Step 3. Jam nut not required to be tight. End of rod must be oriented as shown in Figure 2 relative to flats on hex bolt.

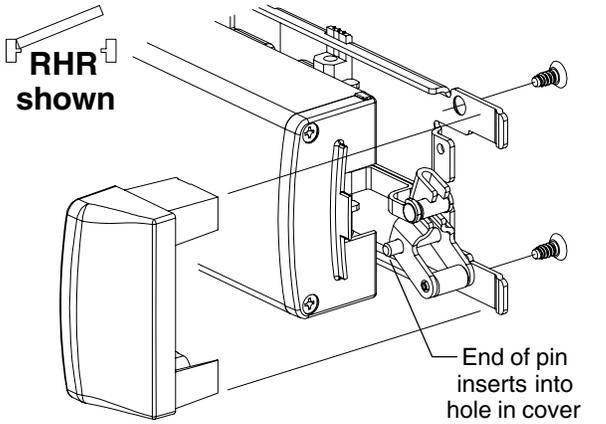
For common rod lengths, see table below (all dimensions in inches).

Door Height	C (distance from center line of muntin to bottom of door)	TR AL	BR
83.188 (83-3/16)	42.5 (42-1/2)	40.176 (40-11/64)	41.877 (41-7/8)
83.188 (83-3/16)	41.25 (42-1/4)	41.426 (41-27/64)	40.627 (40-5/8)
83.188 (83-3/16)	37.875 (37-7/8)	44.801 (44-51/64)	37.252 (37-1/4)
83.188 (83-3/16)	40 (40)	42.676 (42-43/64)	39.377 (39-3/8)
83.250 (83-1/4)	41.25 (41-1/4)	41.489 (41-31/64)	40.627 (40-5/8)

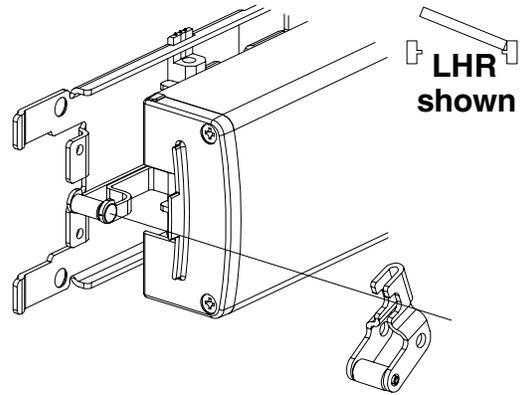
RE-HANDING DEVICE

NOTE

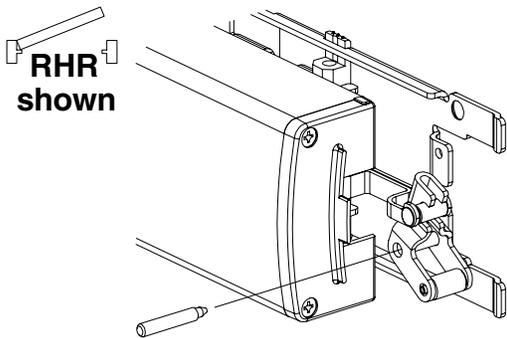
RHR to LHR conversion shown.
To convert LHR device to RHR device,
follow figures in reverse order,
removing parts in Figures 6 through 4 and
re-installing parts in Figures 3 through 1.



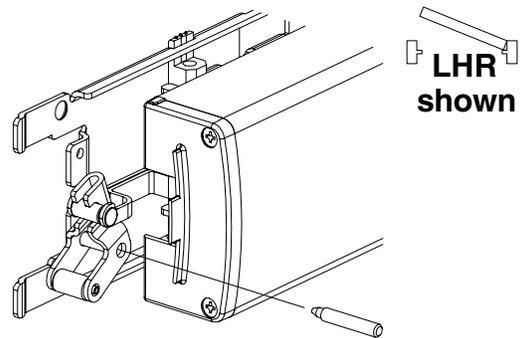
1. Remove lock side center case cover.



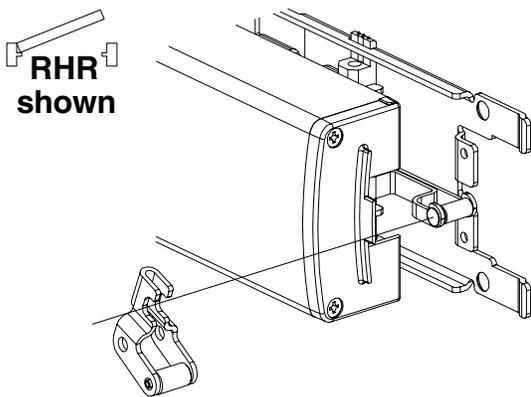
4. Flip device over and re-install lift arm.



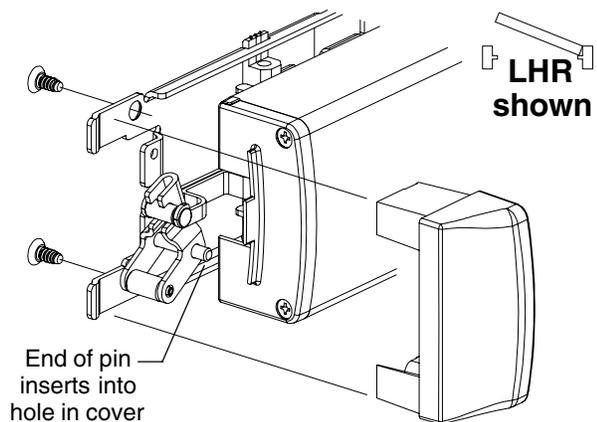
2. Remove pin.



5. Re-install pin.



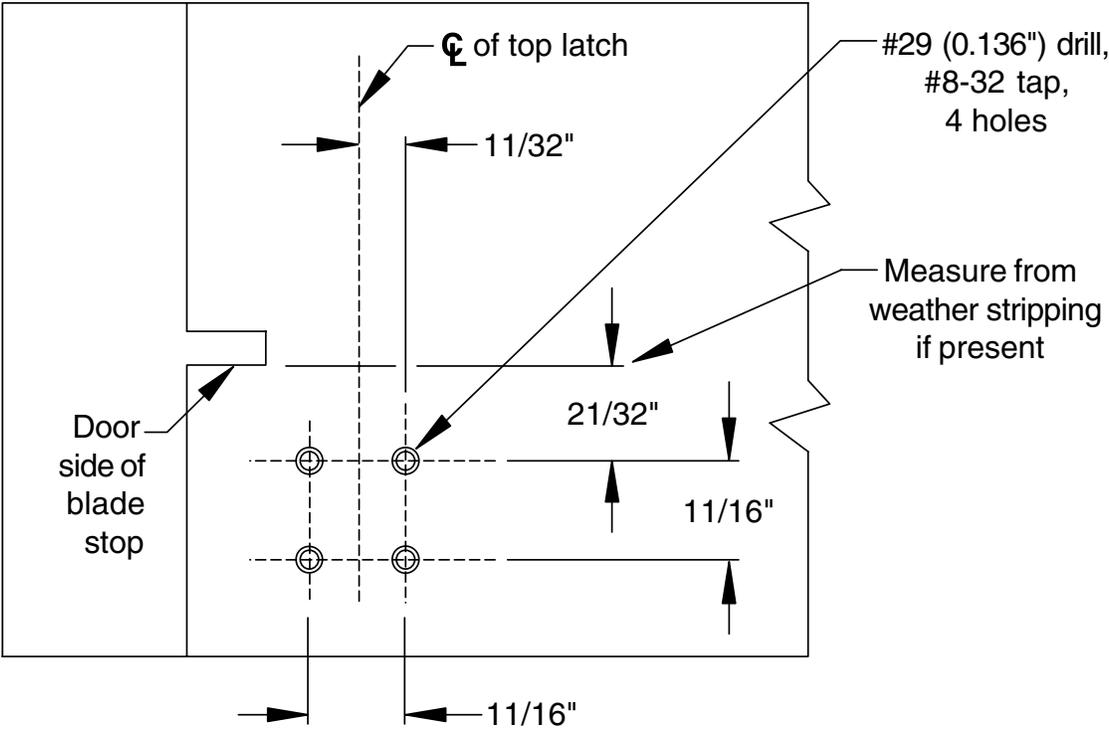
3. Remove lift arm.



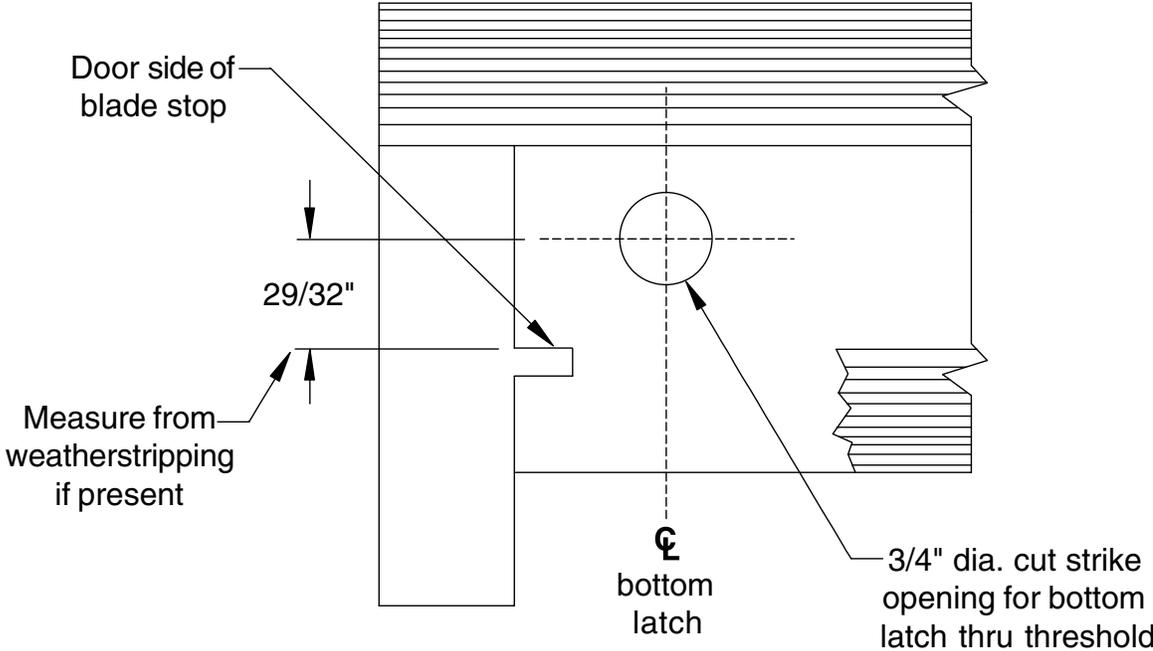
6. Re-install center case cover.

TEMPLATE

Consult Falcon or door manufacturer for door-specific template information.



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



**Top Plan View, Threshold (looking down)
Showing Strike Cutout in Threshold for Latch**