VON DUPRIN®

Installation Instructions

98/99 Series Rim Exit Device

Devices covered by these instructions:
98/99 Rim Exit Device
98/99-F (Fire) Rim Exit Device
CD98/CD99 (Cylinder Dogging) Rim Exit Device
98-2/99-2 (Double Cylinder) Rim Exit Device
EL98/EL99 (Electric Latch Retraction) Rim Exit Device

Special tools needed:
5/64” hex wrench
#10-24 tap
5/8” spade drill (99-F wood door)
Drill bits: #25, 1/8”, 1/4”,
5/16”, 3/8”, 13/32”

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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
## SCREW CHART

### A

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10-24 x 3/4&quot;</td>
<td>Metal frame</td>
</tr>
<tr>
<td>#10 x 1-1/2&quot; Wood screw</td>
<td>Wood frame</td>
</tr>
</tbody>
</table>

### B

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10-24 x 1&quot;</td>
<td>Surface mount or Sex bolts (1-3/4&quot; door)</td>
</tr>
<tr>
<td>#10-24 x 1-1/2&quot;</td>
<td>Sex bolts (2-1/4&quot; door)</td>
</tr>
<tr>
<td>#10 x 1-1/4&quot; Wood screw</td>
<td>Surface mount (wood)</td>
</tr>
</tbody>
</table>

- Packaged with trim -

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10-24 x 1-3/8&quot;</td>
<td>990 Trims (1-3/4&quot; door)</td>
</tr>
<tr>
<td>#10-24 x 1-7/8&quot;</td>
<td>990 Trims (2-1/4&quot; door)</td>
</tr>
</tbody>
</table>

### C

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
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<td>#10-24 x 3/4&quot;</td>
<td>Surface mount or Sex bolts (1-3/4&quot; door)</td>
</tr>
<tr>
<td>#10-24 x 1-1/8&quot;</td>
<td>Sex bolts (2-1/4&quot; door)</td>
</tr>
<tr>
<td>#10 x 1-1/4&quot; Wood screw</td>
<td>Surface mount (wood)</td>
</tr>
</tbody>
</table>

### D

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10-16 x 3/8&quot; Thread cutting</td>
<td>End cap screw</td>
</tr>
</tbody>
</table>

### E

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#10-24 x 1&quot;</td>
<td>Surface mount or Sex bolts (1-3/4&quot; door)</td>
</tr>
<tr>
<td>#10-24 x 1-1/2&quot;</td>
<td>Sex bolts (2-1/4&quot; door)</td>
</tr>
<tr>
<td>#10 x 1-1/4&quot; Wood screw</td>
<td>Surface mount (wood)</td>
</tr>
</tbody>
</table>

### F

<table>
<thead>
<tr>
<th>Screw Type</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>#8-18 x 3/8&quot; Thread cutting</td>
<td>Cover screw</td>
</tr>
</tbody>
</table>
**PREPARATION CHART**

Go to instructions on next page before using preparation chart

### *End cap bracket - 2 holes*

<table>
<thead>
<tr>
<th>Surface mount</th>
<th>Sex bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>#25 Drill</td>
</tr>
<tr>
<td></td>
<td>1/4” Drill (device side)</td>
</tr>
<tr>
<td>#10-24 tap</td>
<td>13/32” Drill (trim side)</td>
</tr>
<tr>
<td>Wood</td>
<td>1/8” Drill pilot 1” deep</td>
</tr>
<tr>
<td></td>
<td>13/32” Drill thru</td>
</tr>
</tbody>
</table>

*Prepare holes after lock side of device is mounted and hinge side is leveled*

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### Center case - 4 holes

<table>
<thead>
<tr>
<th>Surface mount</th>
<th>Sex bolts or 990 trims</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>#25 Drill</td>
</tr>
<tr>
<td>#10-24 tap</td>
<td>1/4” Drill (device side)</td>
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<td>13/32” Drill (trim side)</td>
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<td>1/8” Drill pilot 1” deep</td>
</tr>
<tr>
<td></td>
<td>13/32” Drill thru</td>
</tr>
</tbody>
</table>

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### Center case - 2 support holes

<table>
<thead>
<tr>
<th>Surface mount</th>
<th>#425 sex bolts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metal</td>
<td>#25 Drill</td>
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<td>#10-24 tap</td>
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<tr>
<td></td>
<td>13/32” Drill thru</td>
</tr>
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</table>

For 98-F/99-F (fire) wood door

#825 Sex bolts (2) required

- 3/8” Drill thru
- 5/8” Spade drill
- 1/16” Deep outside

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### Door cut-outs

Outside cylinder applications:
- Mark with template and cut-out:
  - **Metal door** (cut device side)
  - **Wood door** (cut thru)

For trim applications with working lever, thumbpiece, or knob:
- Mark with template and cut out:
  - (cut device side only)

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### CUT-OUT FOR 99-2 “DOUBLE CYLINDER” OPTION

Device and strike
1. Draw horizontal device and strike center line (C). 

*For double doors with a mullion and strike already installed, use existing strike center line.

2. Align strike on C and mark the two slotted holes.

For 499F strike, see page 9 of this instruction.

3. Prepare 2 holes and install a screw thru each slot.

4. Position template against strike and on C and mark door.
5 Prepare lock side of door for device and trim.

See “Preparation Chart” on page 3 for drill, tap, and cut-out information.

See trim instructions for pull side door preparation. Line XX in trim instructions is same as vertical device Q.

6 If using an outside cylinder, check NL drive screw and install tailpiece guide.

NL drive screw
When installing trim that has a functional lever, knob, or thumb piece AND an outside cylinder to lock and unlock the trim, remove NL drive screw from back of device.

Note: When the NL drive screw is left in back of device, the outside cylinder will function only as a Night Latch.

DO NOT remove NL drive screw for the following application:

With “BE” trim, device may need rehanded. Look for instructions on back of trim.

7 Install trim (if using) and secure device center case to door.

1-1/2” Minimum clearance (with end cap removed) if device is too long for door, see “Cut Device” on page 9.

8 Install mounting bracket and end cap.

Mark and prepare 2 mounting holes.

See “Preparation Chart” on page 3 for preparation.

Secure mounting bracket and end cap.
9 Install 2 support screws, and center case cover.

Remove protective film from pushbar

Support screws (2)

For 98F/99F (fire rated) devices on wood or composite door:

#825 sex bolts required for 2 support screws

10 Adjust and secure strike.

299/299F Strike

Shim for 3/16” if shimming is necessary

Strike plate (299 only)

#25 Drill
#10-24 tap

1/8” Drill pilot 1” deep

Wood Metal
1. Remove mortise cylinder cam and reinstall in reverse (Figure 1).

2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 2).

3. Remove key to slide cover plate in position in the mechanism case.

**Figure 1**

**Dogging procedure**

Turn cylinder key clockwise approx. 1/8 turn for standard dogging

Depress pushbar

**Figure 2**

99-2 (DOUBLE CYLINDER)

1. Remove center case cover.

2. Mount rim cylinder to cylinder bracket as shown.

3. Mount cylinder and bracket assembly to center case with two #8-32 screws as shown.

Cylinder Bracket

#8-32 X 5/16" PPHMS

Cylinder Spacer

Rim Cylinder Assembly

#8-32 x 5/16” PPHMS

Cylinder Mounting Screws (do not over-tighten)
**OPTIONAL EQUIPMENT**

**EL WIRING**

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 941353.

**WARNING**

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.

**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 extend fully (see Figure 3).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike (see Figure 3).
5. Release solenoid and check latch bolt extension (see Figure 3).
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 4):
1. Remove end cap ① and dogging cover ②.
2. Loosen cap screw ③.
3. Hold plunger ⑤ depressed in solenoid housing ⑥.
   **Note:** Push hard against plunger ⑤ to overcome an internal spring in solenoid housing ⑥.
4. Turn threaded bushing ② in to shorten dogging rod ② so latch bolt fully retracts.
5. Tighten cap screw ③.
   **Note:** Cap screw ③ must be tightened against flat on threaded bushing ②. 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.

**D.** Solenoid adjustment if dogging rod adjustment is too short (see Figure 4):
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 ② out to lengthen dogging rod ② 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 ②. 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.
CUT DEVICE

1 Measure amount to cut off device.

- 1-1/2” minimum clearance
  (with endcap removed)

- Device aligned with mounting holes

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

2 Tape and mark area being cut.

- Remove anti-rattle clip

- Tape

- Cover plate (flush to pushbar)

- Pushbar

3 Cut device square.

- Cut device square and remove all burrs

NOTE: Device must be cut square for proper end cap fit

4 Slide anti-rattle clip into device.

- 2” Minimum

- Anti-rattle clip

499F STRIKE INSTALLATION

1 Prepare and install screws through 2 strike slots.

- #25 Drill
  #10-24 tap
  2 places

- 1/16”

- If using a mullion, holes may be predrilled

2 Install strike hook and additional strike screws.

- Strike hook

- #25 Drill
  #10-24 tap
  2 places

- Template aligns as shown.

3 Template aligns as shown.

- Template
  (align on C and against strike)