Devices covered by these instructions:
98/9947/48 Concealed Vertical Rod Exit Device
98/9947-F/48-F (Fire) Concealed Vertical Rod Exit Device
CD98/9947/48 (Cylinder Dogging) Concealed Vertical Rod Exit Device
EL98/9947/48/-F (Electric Latch Retraction) Concealed Vertical Rod Exit Device

Special tools needed:
5/64" hex wrench
#10-24 tap
Drill bits: #25, 1/8", 1/4", 5/16", 13/32"

Index:
- Screw chart ......................... 2
- Door preparation chart ........... 3
- Device installation ............... 4-6
- Adjust rods ............................ 7
- Frame preparation chart .......... 7
- Optional equipment ................ 8
- Cut device ............................ 8

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## SCREW CHART

### A

- **Surface mount or Sex bolts (1-3/4” door)**
  - #10-24 x 1”
  - #10-24 x 1-1/2”

- **Sex bolts (2-1/4” door)**
  - #10-24 x 1-1/2”

- **- Packaged with trim -**
  - #10-24 x 1-3/8”
  - #10-24 x 1-7/8”

- **990 trims (1-3/4” door)**
- **990 trims (2-1/4” door)**

### B

- **Surface mount or Sex bolts (1-3/4” door)**
  - #10-24 x 3/4”
  - #10-24 x 1-1/8”

- **Sex bolts (2-1/4” door)**
  - #10-24 x 1-1/8”

### C

- **End cap**
  - #10-16 X 3/8” Thread cutting

### D

- **Bracket to latch**
  - #10-32 X 1/4”

### E

- **Bracket to door**
  - #10-24 X 1/2”

### F

- **Rod adjusting screw**
- **Retaining clip**

### G

- **Retaining clip**
  - #8-32 X 5/16”

### H

- **338 strike**
  - #10-24 X 1/2”

### I

- **Ratchet release**
  - #10-24 X 1-1/2”

### J

- **Center case cover**
  - #8-18 x 3/8” Thread cutting
**Latch Cases**

*(Drill top and bottom of door)*

- **Fire Device**
  - Latch case and device
  - Inside face of door: 7/8" x 7/16"
  - Drill & tap #10-24

- **Panic device**
  - Latch case and device
  - Inside face of door: 7/8" x 7/16"
  - Drill & tap #10-24

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**Ratchet Release Hole**

- 11/16" 1/2" Stop height
- 13/16" 5/8" Stop height
- 15/16" 3/4" Stop height

*Prepare holes after lock side of device is mounted and hinge side is equal distance to bottom of door*

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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 all 98/9947 and 98/9947-F devices:
- Trace cut-outs from plastic template (cut device side only)

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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>#25 Drill</td>
<td>1/4&quot; Drill (device side)</td>
</tr>
<tr>
<td>#10-24 tap</td>
<td>13/32&quot; Drill (trim side)</td>
</tr>
</tbody>
</table>

---

**End cap bracket - 2 holes**

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</tr>
</tbody>
</table>

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**DOOR PREPARATION CHART**

Go to instructions on next page before using preparation chart
1. Draw Horizontal Device Center Line (C)

RHR shown (LHR opposite)

2. Determine Correct Backset, then Mark 4 Holes for Device Center Case Using Template

98/9947 (non-fire rated device) single or double door

98/9947-F (fire rated device) or 98/9947 double door with 98/9975 (mortise device) on opposite door

2-3/16” backset

Mark 4 holes

3. Prepare Door per Preparation Chart on Page 3

See trim instructions for pull side door preparation. Line X-X in trim instructions is same as device C.
4 If Necessary, Remove NL Drive Screw

**NL drive screw**
Factory installed on back of center case

With the NL drive screw removed, key locks and unlocks lever, knob, or thumb piece. For the trims listed below, **REMOVE** NL drive screw.

<table>
<thead>
<tr>
<th>Trim</th>
<th>996L</th>
<th>696TP</th>
<th>990TP</th>
</tr>
</thead>
<tbody>
<tr>
<td>996K</td>
<td></td>
<td>697TP</td>
<td></td>
</tr>
</tbody>
</table>

With the NL drive screw installed, key retracts latch bolt. **DO NOT** remove NL drive screw for the following applications:

NL, EO, DT trims and 98/99-2 double cylinder devices (i.e. TP-2, L-2, and K-2).

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

If the trim being installed is "BE" (i.e. 996L-BE), the trim lock tumbler on the back of the device must be in the **UP** position before device is installed. This allows the trim to be unlocked at all times.

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

a. Install tailpiece guide.

b. Cut tailpiece as needed.

6 Assemble Rods and Latches and Adjust Length for Proper Door Height

Follow red and blue instruction cards on rods to set initial rod length

Fine tune the overall length by threading latch in or out of rod

7 Install Rods and Latches as Shown

Note: Fire devices use brackets on both sides of latches

Correct Orientation (RHR shown)
Incorrect Orientation

With the NL drive screw removed, key locks and unlocks lever, knob, or thumb piece. For the trims listed below, **REMOVE** NL drive screw.

996L  696TP  990TP
996K  697TP

With the NL drive screw installed, key retracts latch bolt. **DO NOT** remove NL drive screw for the following applications:

NL, EO, DT trims and 98/99-2 double cylinder devices (i.e. TP-2, L-2, and K-2).

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

If the trim being installed is "BE" (i.e. 996L-BE), the trim lock tumbler on the back of the device must be in the **UP** position before device is installed. This allows the trim to be unlocked at all times.

* If the trim being installed is "BE" (i.e. 996L-BE), the trim lock tumbler on the back of the device must be in the **UP** position before device is installed. This allows the trim to be unlocked at all times.

If necessary, remove drive screw and rotate cam until trim lock tumbler is in **UP** position, then reinstall drive screw.

360˚

Note: Fire devices use brackets on both sides of latches
8 Secure Device to Door as Shown, then Hang Door on Frame

See “Screw Chart” on page 2 for screw types and sizes

2" Minimum clearance (with end cap removed)
If device is too long for door, see “Cut Device” on back cover

Mark and prepare 2 mounting holes and secure screws (see page 3)

Device equal height to bottom of door on each end

Mounting bracket flush

9 Install Top Strike and Ratchet Release

338 Top strike

Beveled side

Strike

See “Frame Preparation” on page 7 for cut-out and holes

338 Strike

Beveled side

Away from door stop

Ratchet release

Shim (if needed)

See “Frame Preparation” on page 7 for holes

10 Install Bottom Strike or Prepare Threshold

385-A bottom strike

1/4" undercut for 98/9947A

3/4" max undercut for 98/9948A

Threshold application

1-1/8" Latch case

3/32" R max.

Stop

1/8"

3/8" 9/16"

1-1/8"

Flat threshold application

Remove material as necessary to accommodate 5/8" latch bolt throw

11 Adjust Rods and Install Center Case Cover

See “Adjust Rods” on page 7 for adjustment procedure

Remove protective film from pushbar

Center case cover

See “Frame Preparation” on page 7 for holes
**ADJUST RODS**

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

2. Loosen bottom locking screw (Figure 2).

3. Disconnect bottom vertical rod by removing bottom adjusting screw.

4. Loosen top locking screw.

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

6. Check top latch bolt for deadlocking (latch bolt should not push in).

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

8. Depress pushbar and release.

9. Make sure top latch bolt stays retracted as shown.

10. Install bottom adjusting screw through bottom rod (Figure 2).

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

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

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

Redo adjustment procedure if:
- Top latch bolt is not held retracted
- Bottom latch bolt does not clear floor and bottom strike

**FRAME PREPARATION**

**TOP STRIKE**

- Latch bolt
- RHR door
- LHR door
- Edge of stop
- Double door application
- 6” min.
- 1” min.
- 1/8”
- 13/16”
- 1-5/8”
- 1-5/16”
- 21/32”
- 15/16”
- 13/32”
- 1/4” dia.
- 82° csk. x 3/8” dia. in frame
- Inside beveled edge
- Inside beveled edge

**RATCHET RELEASE**

- Latch case
- #25 drill
- #10-24 tap, 2 places
- DO NOT USE SLOTS FOR POSITIONING. DRILL HOLES AS INDICATED HERE.

- Reinforcing required
- Plunger must go thru hole in door. Adjust so plunger releases latch bolt when door is closed.
**OPTIONAL EQUIPMENT - CONTINUED**

**CD (CYLINDER DOGGING)**

1. Remove mortise cylinder cam and reinstall in reverse (Figure 6).
2. Insert key and rotate cam to install the cylinder to the cover plate (Figure 7).
3. Remove key to slide cover plate in position in the mechanism case.

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**Figure 6**

*CD function conversion*

**Doggling procedure**

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

**Figure 7**

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**CUT DEVICE**

1. Measure amount to cut off device.

   - Device aligned with mounting holes
   - 2” Minimum clearance (with endcap removed)

   **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.