1. Measure amount to cut off device.

2. Tape and mark area being cut.

3. Cut device square.

4. Slide anti-rattle clip into device.

**Doggling procedure**

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

Depress pushbar

**CUT DEVICE**

**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.

**Figure 6**

**Figure 7**

**Index:**

- Screw chart ........................ 2
- Door preparation chart .......... 3
- Device installation ................ 4-5
- Adjust rods .......................... 6
- Frame preparation chart ......... 6
- Optional equipment ............... 7-8
- Cut device ........................... 8

**Please give these instructions to building owner after device is installed**

**Devices covered by these instructions:**

- 98/9947 Concealed Vertical Rod Exit Device
- 98/9947-F (Fire) Concealed Vertical Rod Exit Device
- CD98/9947 (Cylinder Dogging) Concealed Vertical Rod Exit Device
- EL98/9948-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"

**Note:**

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

**Cut device square.**

**NOTE:** Device must be cut square for proper end cap fit.
### 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 6 Figures 1 & 3).
3. Electrically energize solenoid and hold.
4. Check latch bolt(s) for full retraction (must clear strike) (see page 6 Figures 1 & 3).
5. Release solenoid and check latch bolt extension (see page 6 Figures 1 & 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 5):
1. Remove end cap  and dogging cover  .
2. Loosen cap screw  .
3. Hold plunger depressed in solenoid housing .
   **Note:** Push hard against plunger to overcome an internal spring in solenoid housing .
4. Turn threaded bushing  in to shorten dogging rod so latch bolt fully retracts.
5. Tighten cap screw  .
   **Note:** Cap screw  must be tightened against flat on threaded bushing . Apply a few drops of Loc-Tite 222 to threads of cap screw  .
6. Replace dogging cover  and end cap  .
7. Return to Section A to check for proper function.

**D.** Solenoid adjustment if dogging rod adjustment is too short (see Figure 5):
1. Remove end cap  and dogging cover  .
2. Loosen cap screw  .
3. Hold plunger depressed in solenoid housing .
4. Turn threaded bushing  out to lengthen dogging rod so plunger just bottoms in solenoid housing and latch bolt is fully retracted.
   **Note:** Push hard against plunger to overcome an internal spring in solenoid housing.
5. Tighten cap screw  .
   **Note:** Cap screw  must be tightened against flat on threaded bushing . Apply a few drops of Loc-Tite 222 to threads of cap screw  .
6. Replace dogging cover  and end cap  .
7. Return to Section A to check for proper function.

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**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. Also check adjustment of vertical rods.

---

**OPTIONAL EQUIPMENT - CONTINUED**

**EL WIRING**

- **EL Solenoid**
  - Potted circuit board
  - Black
  - Black

**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.**

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

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**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. Also check adjustment of vertical rods.

---

**SCREW CHART**

- **A**
  - Surface mount or Sex bolts (1-3/4" door)
  - Sex bolts (2-1/4" door)
  - #10-24 x 1/2"
  - #10-24 x 1-3/8"
  - #10-24 x 1-7/8"
  - #10-24 x 3/4"

- **B**
  - #10-24 x 3/4"
  - #10-24 x 1-1/8"
  - Sex bolts (1-3/4" door)
  - Sex bolts 2-1/4" door

- **C**
  - #10-16 x 3/8" Thread cutting
  - End cap

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

- **J**
  - #8-18 x 3/8" Thread cutting
  - Center case cover

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**EL WIRING**

- **Solenoid**
  - Potted circuit board
  - Black
  - Black

**ELECTRICAL SPECIFICATIONS**

- Voltage: 24 VDC
- Current: 16 A inrush (0.3 sec.), 0.25 A holding

**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. Also check adjustment of vertical rods.

---

**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. Also check adjustment of vertical rods.

---

**SCREW CHART**

- **A**
  - Surface mount or Sex bolts (1-3/4" door)
  - Sex bolts (2-1/4" door)
  - #10-24 x 1/2"
  - #10-24 x 1-3/8"
  - #10-24 x 1-7/8"
  - #10-24 x 3/4"

- **B**
  - #10-24 x 3/4"
  - #10-24 x 1-1/8"
  - Sex bolts (1-3/4" door)
  - Sex bolts 2-1/4" door

- **C**
  - #10-16 x 3/8" Thread cutting
  - End cap

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

- **J**
  - #8-18 x 3/8" Thread cutting
  - Center case cover
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

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

Go to instructions on next page before using preparation chart

**End cap bracket - 2 holes**

**Center case - 4 holes**

**Ratchet Release Hole**

**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)

**Latch Cases**

(Drill top and bottom of door)

- Fire Device
  - (Drill & tap #10-24)
  - Latch & (inside face of door)
  - 1/4" dia. x 3/8" dia. in frame
  - 1/4" dia. x 3/8" dia. in frame

- Panic device
  - (Drill & tap #10-24)
  - Latch case
  - (inside face of door)
  - 1/4" dia. x 3/8" dia. in frame

- Surface mount Sex bolts or 990 trims
  - #25 Drill
  - #10-24 tap
  - 1/4" dia. x 3/8" dia. in frame

- Surface mount Sex bolts or 990 trims
  - #25 Drill
  - #10-24 tap
  - 1/4" dia. x 3/8" dia. in frame

- Surface mount Sex bolts or 990 trims
  - #25 Drill
  - #10-24 tap
  - 1/4" dia. x 3/8" dia. in frame
1. Draw horizontal device center line (C). 

2. Determine correct backset, then mark 4 holes for device center case using template.

3. Prepare door per preparation chart on page 3.

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

5. Assemble rods and latches and adjust length for proper door height.

6. Install rods and latches as shown.

7. Secure device to door as shown, then hang door on frame.

8. Install top strike and ratchet release.

9. Install bottom strike or prepare threshold.

10. Adjust rods and install center case cover.