

Contents

These installation instructions describe how to install your 45HQ Mortise Lock. Topics covered include:

Preparing the door1
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Patents

Products covered by one or more of the following patents:
6,720,861

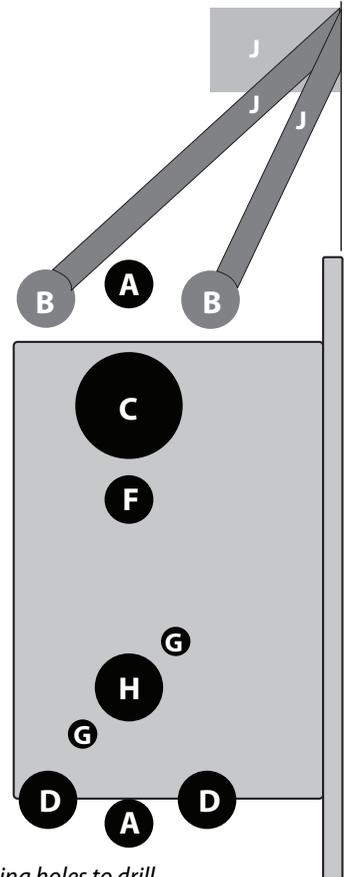
1 Identify holes to drill

- Determine the lock function to be installed.
Caution: Determine the inside and outside, hand, and bevel of the door.
- See the *Holes by Function* table and Figure 1 to determine the holes to be drilled for the lock function.

Holes by Function	Functions			
	DV		TV	
Holes to drill	I/S	O/S	I/S	O/S
A Forged trim (2 holes) [†]	Through door		Through door	
B Harness [†]	Through door		Through door	
C Standard cylinder		■		■
D Sensor & motor wire (2 holes)	■		■	
F Thumb turn			■	
G Trim mounting (2 holes) [‡]	Through door		Through door	
H Lever ^{††}	Through door		Through door	
J Door sensing channel (2 holes)	DO NOT DRILL		See Figure 1	

[†] Determine trim holes based on trim type.

[‡] Because these holes pass through the mortise pocket, it is recommended that each hole be drilled separately rather than straight through.



For hole sizes, see the Q06 Template (T82606).

Figure 1 Identifying holes to drill

Preparing the door

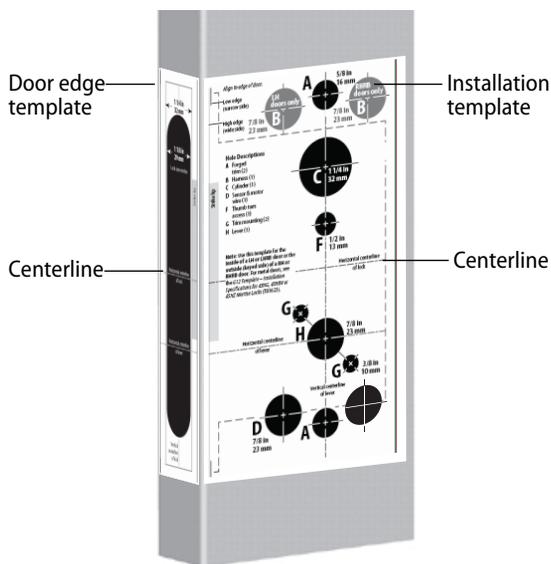


Figure 2 Aligning the templates

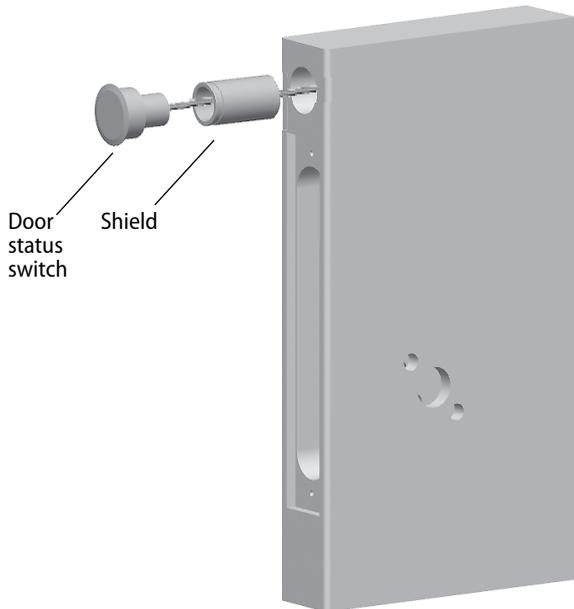


Figure 3 Installing the door status switch

2 Align templates

Note: If the door is a fabricated hollow metal door, determine whether it is properly reinforced to support the lock. If door reinforcement is not adequate, consult the door manufacturer for information on proper reinforcement. For dimensions for preparing metal doors, see the Q03 Template—Installation Specifications for 45HQ Mortise Locks (T82603).

- 1 Separate the four templates provided on the Q06 Template—Installation Template for 45HQ Mortise Locks (T82606).
- 2 Position one of the door edge templates on the door, making sure that the lock case mortise shown on the template aligns with the mortise pocket prepared in the door.
- 3 Using the centerlines on the door edge template as a guide, position the appropriate door template on each side of the door. You need to take the bevel into account. Tape the templates to the door.

3 Center punch and drill holes

- 1 Center punch the necessary drill points. See the instructions on the template.
- 2 Drill the holes.

Note 1: To locate the center of a hole on the opposite side of the door, drill a pilot hole completely through the door.

Note 2: For holes through the door, it is best to drill half-way from each side of the door to prevent the door from splintering.

4 Install door status switch (optional for deadbolt TV function locks only)

- 1 Position the shield on the door status switch with the notch facing downwards (towards the mortise pocket).

Caution: Make sure the wires are not routed across any sharp edges or over any surface that could damage its sleeving.

Configuring & installing the mortise case

- 2 Feed the wires for the door status switch into the door status switch hole and through the channel into the mortise cavity and out through one of the sensor and motor wire holes.
- 3 Press fit the door status switch assembly into the door status switch hole.

5 Rotate latchbolt (if necessary)

Note: If a function specific mortise case was ordered, some steps for configuring the case have already been performed at the factory.

- 1 Determine whether you need to rotate the latchbolt to match the handing of the door.

Note: The angled surface of the latchbolt must contact the strike when the door closes.

- 2 If you need to rotate the latchbolt, insert a flat blade screwdriver into the latch access point approximately 1/2" into the case and press to extend the latch out of the case. See Figure 4.
- 3 Rotate the latchbolt 190 degrees (slightly past 180 degrees) and allow it to retract into the case.

6 Position hub toggles (if necessary)

- 1 Check whether the hub toggles are in the proper position for the lock. See the table below and Figure 5.

Figure 6 Hub toggle positions

Function	Hub toggle positions
DV, TV	Inside down (always unlocked) & outside up (lockable)

Note 1: For LH & LHRB doors, the inside is the back side of the case and the outside is the cover side of the case. For RH & RHRB doors, the inside is the cover side of the case and the outside is the back side of the case. The cover is mounted to the case with four screws.

Note 2: Two RQE status switches are installed in the mortise case. However, only the switch for the inside of

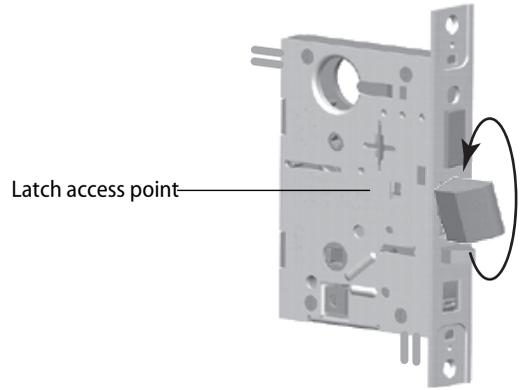


Figure 4 Rotating the latchbolt

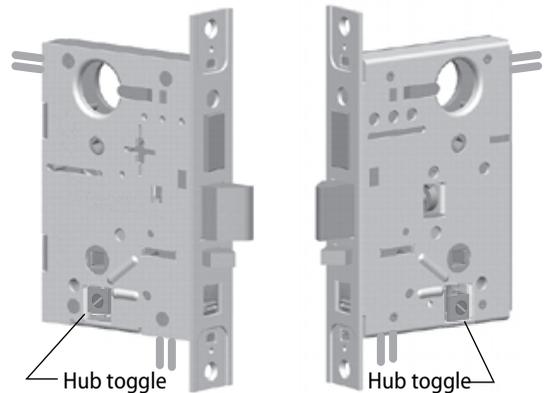


Figure 5 Positioning hub toggles

Installing the trim

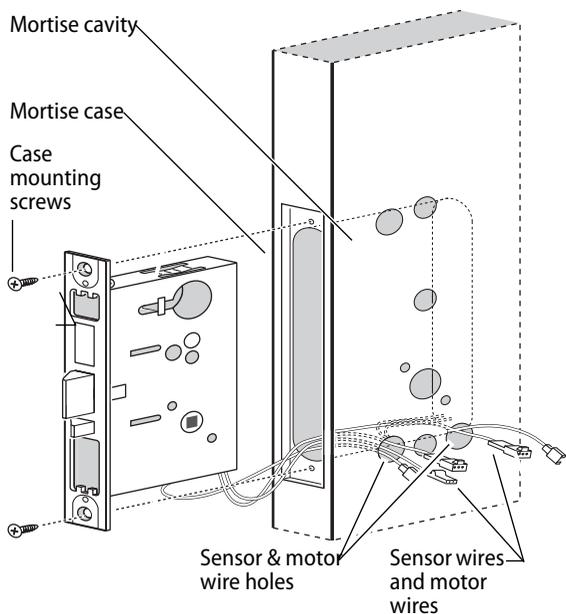


Figure 7 Installing the mortise case (inside of door)

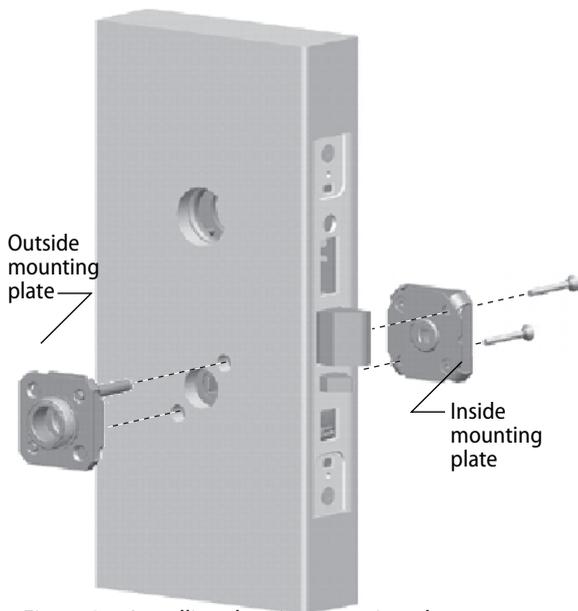


Figure 8 Installing the trim mounting plates

the lock needs to be connected. Before you install the mortise case in the door, determine whether you need to connect the 'Case Side' pair of RQE wires or the 'Cover Side' pair of RQE wires, based on the handing of the door.

- 2 To change the position of a hub toggle, remove the toggle screw, move the toggle into the desired position, and re-tighten the screw.

7 Install mortise case

- 1 Drill the holes for the case mounting screws.
- 2 Insert the mortise case into the mortise cavity, while feeding the sensor and motor wires into the mortise cavity and out the two sensor & motor wire holes to the inside of the door as shown in Figure 7.

Note: The armored front of the mortise case self-adjusts to the door bevel.

- 3 Secure the mortise case with the case mounting screws.

8 Install trim mounting plates

- 1 Insert the outside trim mounting plate through the door and mortise case.
- 2 Position the inside trim mounting plate opposite the outside trim mounting plate and screw them securely in place.

Caution: Do not overtighten the trim mounting plate screws. Overtightening may damage the locking mechanism.

- 3 By temporarily installing a lever, test the lock to make sure that it doesn't bind.

Installing the trim

9 Install concealed cylinder & core

- 1 Use a cylinder wrench to thread the cylinder into the mortise case so that the groove around the cylinder is even with the door surface as shown in Figure 8.

Caution: A malfunction can occur if the cylinder is threaded in too far.

- 2 Secure the cylinder in the mortise case with the cylinder retainer screw.
- 3 Insert the control key into the core and rotate the key 15 degrees to the right.
- 4 With the control key in the core, insert the core into the cylinder.
- 5 Rotate the control key 15 degrees to the left and withdraw the key.

Caution: The control key can be used to remove cores and to access doors. Provide adequate security for the control key.

10 Install trim hole insert and bushing

- 1 Insert the trim hole insert into the upper trim hole on the outside of the door, as shown in Figure 9.
- 2 Insert the bushing into the harness hole on the outside of the door, as shown in Figure 9.

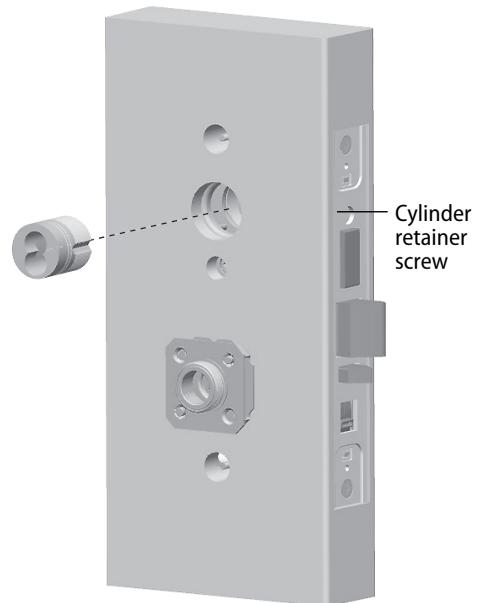


Figure 8 Installing the concealed cylinder

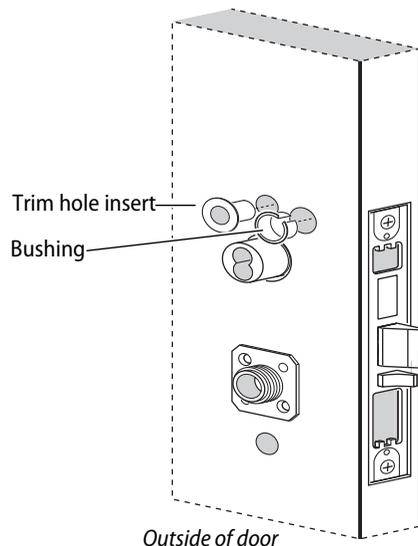


Figure 9 Installing the trim hole insert and bushing

Installing the trim

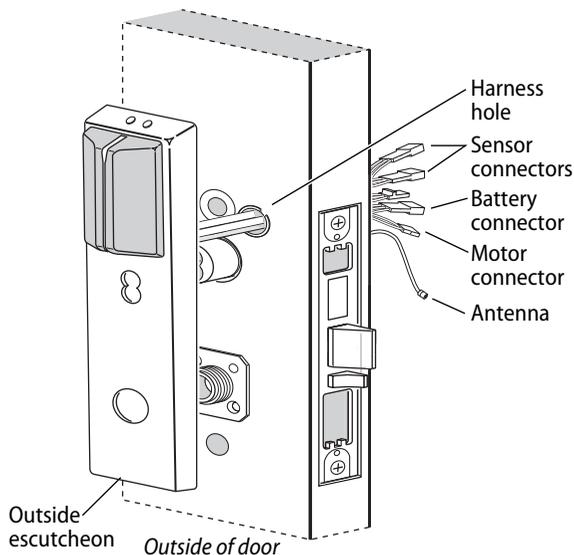


Figure 10 Feeding the wire harness connectors through the harness hole

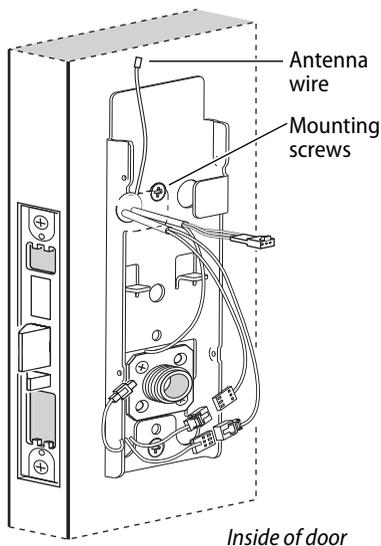


Figure 11 Installing the fire plate

11 Route wire harnesses and position outside escutcheon

- 1 From the outside of the door, feed the motor connector, battery connector, and sensor connectors through the harness hole.

Caution: When routing the connectors, make sure the harnesses are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

- 2 Perform these steps:
 - a Firmly press the outside escutcheon in position on the door. The core should be flush with the outer surface of the escutcheon.
 - b If necessary, adjust the cylinder depth plus or minus one turn so that the core is flush with the outer surface of the escutcheon.
 - c Secure the cylinder in the mortise case with the cylinder clamp screw.
- 4 Rest the outside escutcheon on the door by inserting the trim studs into the trim holes.

12 Install fire plate

- 1 From the inside of the door, feed the wiring through the fire plate harness hole.
- 2 Position the fire plate on the door so that the inside mounting plate fits through the square opening in the fire plate.
- 3 Insert the two counter sunk mounting screws into the holes at the top and bottom of the fire plate.
- 4 Tighten the mounting screws until the fire plate is securely mounted to the door.

Installing the trim

13 Connect wire harnesses

- From the inside of the door, make the following connections:

Wire connection	Colors	No. of wires	No. of pins
Motor	Yellow-gray	2	2
Key override sensor	Gray	2	3
Deadbolt sensor	Blue	2	3
RQE	Orange-brown	2	3
Door sensing	White	2	2
Latchbolt sensing	Purple	2	2

- Insert the plastic wire tie through the mounting clip and secure the wires as shown in Figure 12.

Note: It is physically possible to connect the key override sensor connector from the mortise case to the battery connector from the wire harness. To avoid this mistake, connect only the connectors with matching wire colors.

Caution: When making the motor connection and sensor connections, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors
- ◆ the connectors are firmly mated

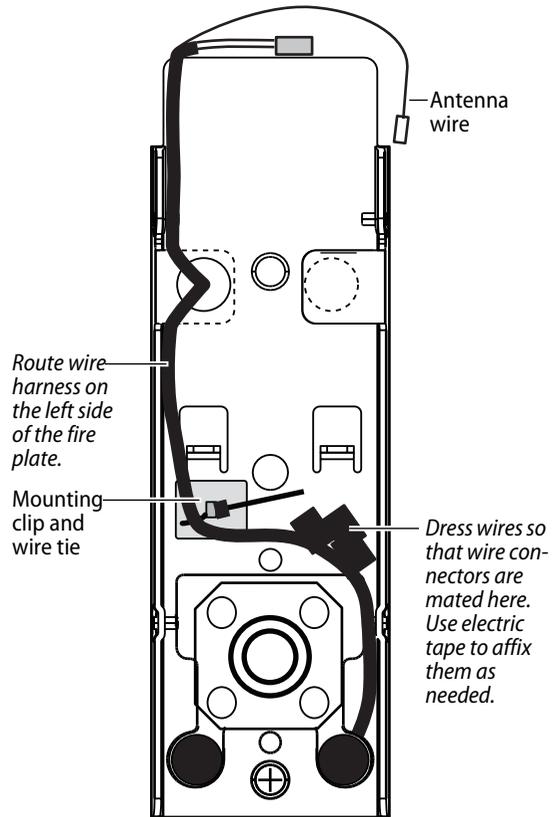


Figure 12 Routing the wires

Installing the trim

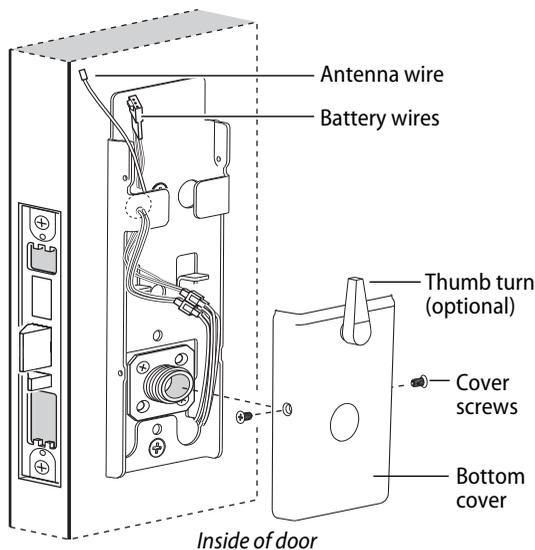


Figure 13 Installing the bottom cover

14 Install bottom cover (inside escutcheon)

- 1 Position the battery wires above the side tabs and against the side of the fire plate, as shown in Figure 13.
- 2 **Optional for Thumb Turn option only:** Make sure that the Thumb Turn is in the upright position, as shown in Figure 13.
- 3 **Making sure that the cover does not pinch the wires,** guide the bottom cover over the chassis onto the fire plate.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

Completing the installation

15 Install battery holder

- 1 Position the battery wires against the fire plate side wall, as shown in Figure 14.
- 2 Slide the battery holder behind the fire plate side tabs until it rests on the bent battery holding tabs.

Caution: When routing the battery wires, make sure the wires are not routed across any sharp edges or over any surface that could damage their sleeving or wire insulation.

- 3 Connect the battery pack to the battery connector on the wire harness.

Caution: When connecting the battery pack, make sure:

- ◆ there are no loose wire connections where the wires are inserted into the connectors.
- ◆ the connectors are firmly mated.

16 Install inside and outside levers

- 1 Unscrew the inside spindle one full turn to allow the spindles to turn freely.
- 2 With the handle pointing toward the door hinges, insert the outside lever and spindles assembly into the lock from the outside of the door.
- 3 Slide the inside lever onto the inside spindle and secure it with the set screw.
- 4 Making sure that the core is positioned properly in the outside escutcheon (DV and TV function Locks only) and the escutcheons are aligned properly on the door, tighten the escutcheon mounting screws.

Note: If a core is not available, you can use the cylinder wrench to help you align the core opening in the escutcheon.

- 5 Turn the levers to check that they operate smoothly.

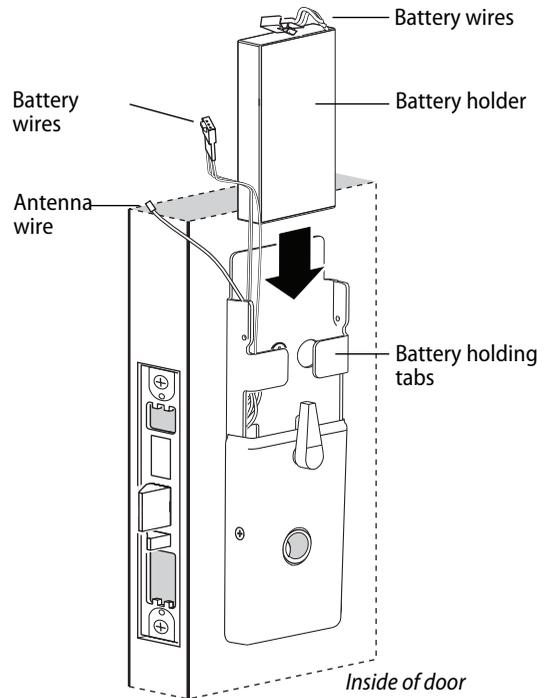


Figure 14 Installing the battery holder

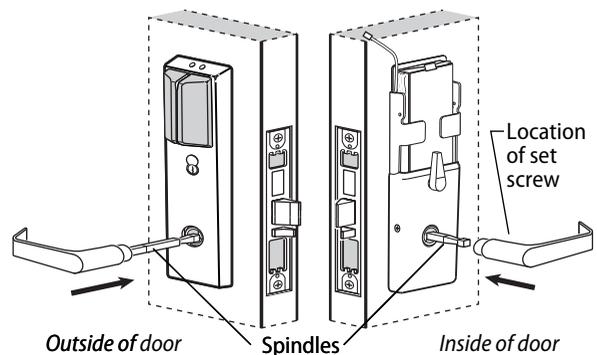


Figure 15 Installing the levers

Completing the installation

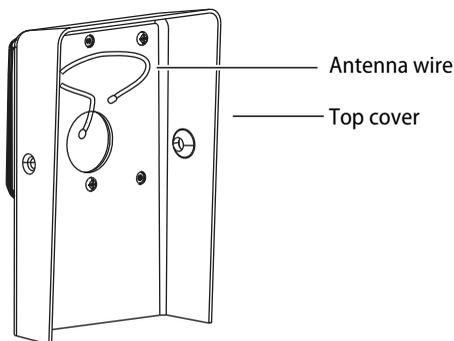


Figure 16 Inside view of top cover

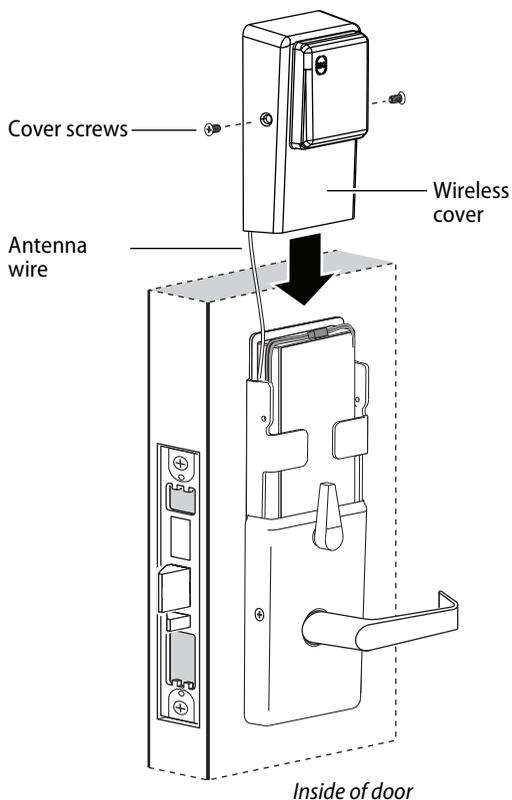


Figure 17 Installing the top cover

17 Install top cover (inside escutcheon)

- 1 Connect the antenna to its mating connector.
- 2 Place the top cover against the door and above the fire plate. Slide the top cover down toward the bottom cover as shown in Figure 17.

Caution: As you slide the top cover onto the fire plate, feed the antenna wire down into the bottom cover. Be sure not to pinch the antenna wire on the bottom cover as you slide the top cover into place.

- 3 Use two cover screws to secure the cover to the side of the fire plate, as shown in Figure 17.

Note: Phillips Type 2 and T20 Torx options are available for the cover mounting screws.

18 Install mortise case faceplate

- 1 Secure the mortise case faceplate to the mortise case with the faceplate mounting screws.
- 2 Check the lock for proper operation.

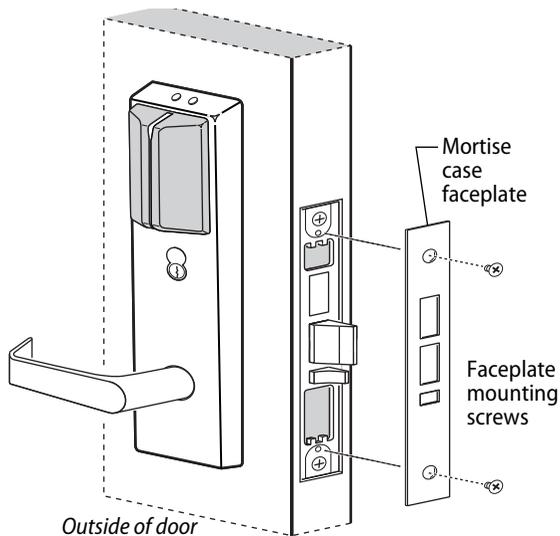


Figure 18 Installing the mortise case faceplate

Completing the installation

19 Install strike box and strike plate

- 1 Insert the strike box into the mortise in the door jamb. Place the strike plate over the strike box and secure the strike with the screws provided.
- 2 Check the position of the auxiliary bolt against the strike plate.

Caution: The auxiliary bolt must make contact with the strike plate. The auxiliary bolt deadlocks the latchbolt and prevents someone from forcing the latch open when the door is closed. If the incorrect strike is installed, a lock-in can occur.

Note: The recommended gap between the door and jamb is 1/8".

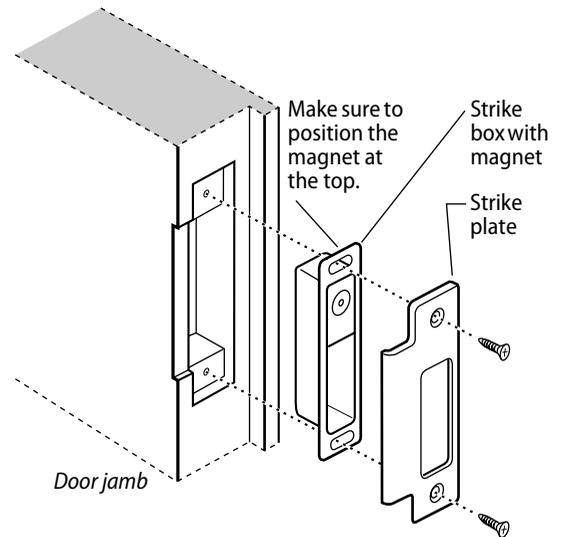


Figure 19a Installing the strike box and strike plate

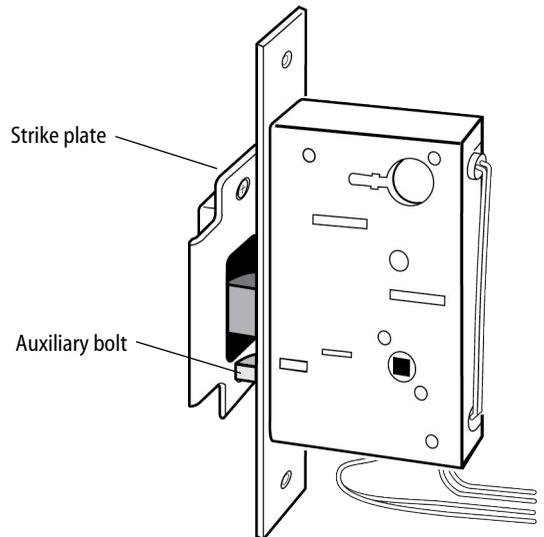


Figure 19b Positioning the strike

Testing the lock

20 Test lock

For 45HQ Locks with keypad

To test the lock for proper operation before the lock is programmed, follow these instructions:

- 1 Press **1234**.
- 2 Press #.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever and open the door.

For all other locks:

To test the lock for proper operation before the lock is programmed, use the temporary operator card that came with the lock. This card is for temporary use only. After permanent cards have been programmed for the lock, the temporary card should be deleted.

- 1 Use the temporary operator card to activate the lock.
Note: *If the lock has a proximity card reader, it may have already been activated by the presence of an object near the card reader.*
- 2 Use the temporary operator card to access the lock.
The green light flashes and the locking mechanism unlocks.
- 3 Turn the lever and open the door.

If the mechanism doesn't unlock, refer to the following table. For additional troubleshooting instructions, see the Service Manual.

LEDs	Sounder	You should
Single red flash	—	Use the card at a moderate speed.
Red flashes	3 short tones	Use the temporary operator card provided with the lock.
Green flashes	—	Check the motor connection.
—	—	Check the battery connection.

For all locks

- 1 Insert and turn the key to unlatch the door.

For all TV function locks

- 2 From the inside of the door, turn the turn knob and make sure that the deadbolt operates properly.