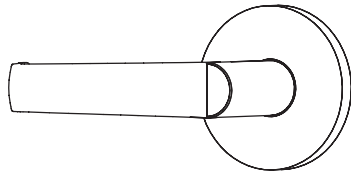
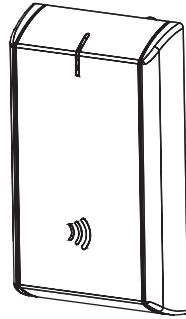


SARGENT

ASSA ABLOY



IN100

with Aperio™ Technology Mortise Lock Installation Instructions

A8190B
07/16

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ASSA ABLOY, the global leader
in door opening solutions

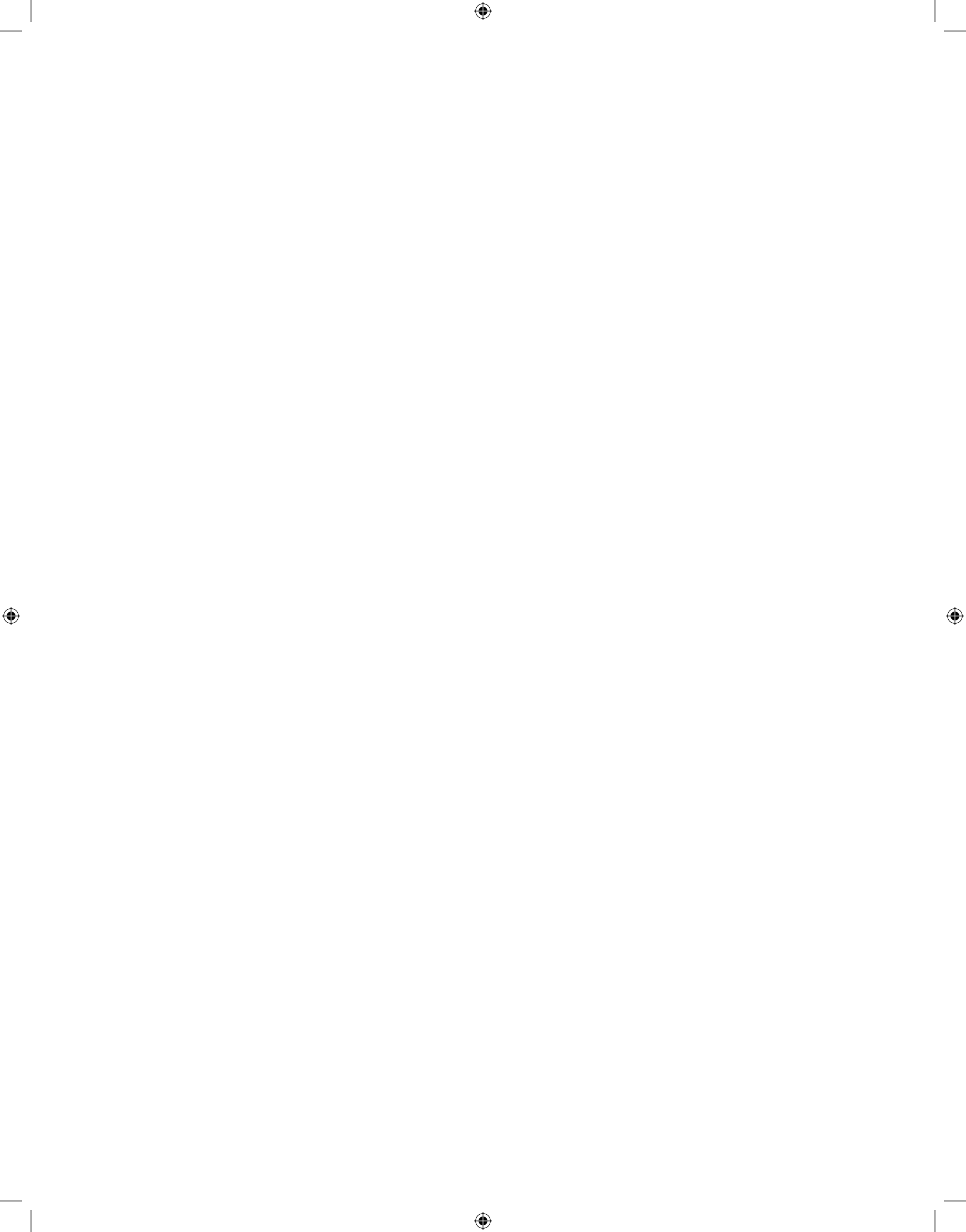


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1 Warning

Changes or modifications to this device not expressly approved by ASSA ABLOY could void the user's authority to operate the equipment.

FCC:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada:

This Class B digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Cet appareillage numérique de la classe B répond à toutes les exigences de l'interférence canadienne causant des règlements d'équipement. L'opération est sujette aux deux conditions suivantes: (1) ce dispositif peut ne pas causer l'interférence nocive, et (2) ce dispositif doit accepter n'importe quelle interférence reçue, y compris l'interférence qui peut causer l'opération peu désirée.

"This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter."

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.



Any retrofit or other field modification to a fire rated opening can potentially impact the fire rating of the opening, and SARGENT Manufacturing makes no representations or warranties concerning what such impact may be in any specific situation. When retrofitting any portion of an existing fire rated opening, or specifying and installing a new fire-rated opening, please consult with a code specialist or local code official (Authority Having Jurisdiction) to ensure compliance with all applicable codes and ratings.



To avoid possible damage from electrostatic discharge (ESD), some basic precautions should be used when handling electronic components:

- Minimize build-up of static by touching and/or maintaining contact with unpainted metal surfaces such as door hinges, latches, and mounting plates especially when mounting electronic components such as readers and controllers onto the door.
- Leave components (reader and controller) protected in their respective anti-static bags until ready for installation
- Do not touch pins, leads or solder connections on the circuit boards

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2 General Description

The SARGENT® IN100 mortise lock with Aperio™ Technology makes it easy and cost-effective to bring access control to more doors. It uses local wireless communication between the lock and an Aperio hub to connect to an access control system, eliminating the greatest cost and inconvenience of traditional access control – the wiring at the door. The IN100 utilizes HID® multiCLASS SE® technology, it supports heightened identity security and multiple credentials, including mobile access.

All technology features are supported by the physical security of SARGENT ANSI/BHMA Grade 1 hardware - quality components that provide high security, performance and durability.

3 Hardware Specifications

- Complete lockset with on-board memory
- ADA compliant
- Easily retrofits existing door preps (mortise)
- Latch - Stainless steel
- Optional deadbolt - Hardened steel
- Guardbolt - Stainless steel, non handed
- Handing (RH/RHR/LH/LHR) must be specified, but is easily field-reversible without opening the lock case
- Case - 12 gauge heavy duty wrought steel
- Cylinder retracts latchbolt (and deadbolt)
- Inside lever retracts latch and deadbolt simultaneously
- Lock furnished for 1-3/4" doors. For other thicknesses, consult factory.
- UL Listed (3 hr.)
- Outside lever controlled by any combination of contactless reader or mechanical cylinder

Note: A weather-protective gasket is required for exterior applications.

4 Electronic Specifications

- Input Power: DC 9V, 1.5A (6 AA alkaline batteries)
- Optional hard-power 12VDC to 24VDC
- HID® multiCLASS SE® technology offers support for the following credentials:
 - High Frequency (13.56 MHz):
 - HID iCLASS®
 - HID iCLASS SE® (SIO-enabled)
 - HID iCLASS® Seos™
 - HID MIFARE® SE
 - HID DESfire® EV1 SE
 - MIFARE Classic
 - DESfire EV1
 - Low Frequency (125 kHz):
 - HID Prox®
 - NFC-enabled Mobile Phones
- Uses low-rate wireless personal area networks (IEEE 802.14.4)
- Multiple time zone and holiday access scheduling
- First-in unlock or automatic unlock configuration, based on specified time schedule
- Uses AES 128-bit wireless encryption*
- Privacy button

*For specific security information, please contact your local ASSA ABLOY Door Security Solutions sales consultant or call 800-810-WIRE.



To comply with "Fire Listed" doors, the batteries must be replaced with alkaline batteries only.

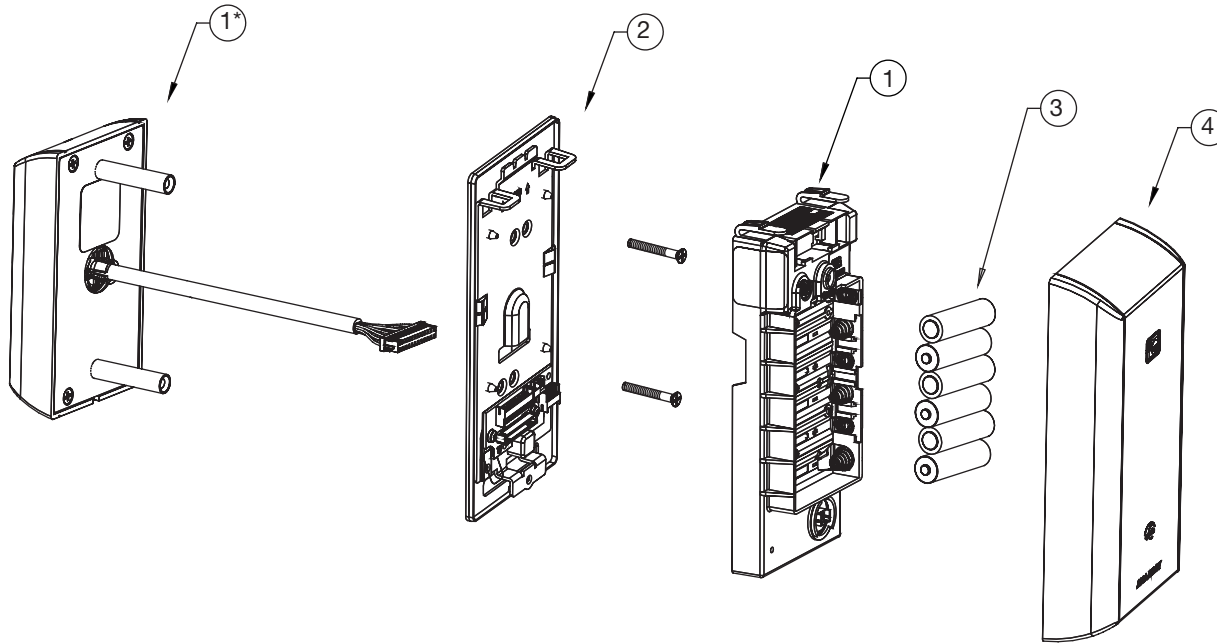
Warning: SARGENT Mfg. Co. IN100 locksets utilizing a door position switch (DPS) are not rated for, or intended for use in life safety applications.

IN100 Mortise Lock

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5 Parts Breakdown



ITEM	PART NUMBER/ORDER STRING	DESCRIPTION	COLOR/TRIM	QTY
1	IN-100-EM01[locktype]*-IP-B	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®	Black	1
	IN-100-EM01[locktype]*-IP-W	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®	White	1
	IN-100-EM01[locktype]*-IP-MB-[xxx]*	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®	Black with metal trim	1
	IN-100-EM01[locktype]*-IP-MW-[xxx]*	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®	White with metal trim	1
	IN-100-EM01[locktype]*-IPS-B	All credentials supported by IP option plus MIFARE Classic and DESfire EV1	Black	1
	IN-100-EM01[locktype]*-IPS-W	All credentials supported by IP option plus MIFARE Classic and DESfire EV1	White	1
	IN-100-EM01[locktype]*-IPS-MB-[xxx]*	All credentials supported by IP option plus MIFARE Classic and DESfire EV1	Black with metal trim	1
	IN-100-EM01[locktype]*-IPS-MW-[xxx]*	All credentials supported by IP option plus MIFARE Classic and DESfire EV1	White with metal trim	1
2	IN-EM04	Mounting plate assembly		1
3	N/A	AA battery		6
4	IN-100-EM02-B	Inside Escutcheon Assembly with Privacy Button - Black Plastic	Black	1
	IN-100-EM02-W	Inside Escutcheon Assembly with Privacy Button - White Plastic	White	
	IN-100-EM02-MB-xxx**	Inside Escutcheon Assembly with Privacy Button - Black Plastic & Metal Trim	Black with metal trim	
	IN-100-EM02-MW-xxx**	Inside Escutcheon Assembly with Privacy Button - White Plastic & Metal Trim	White with metal trim	

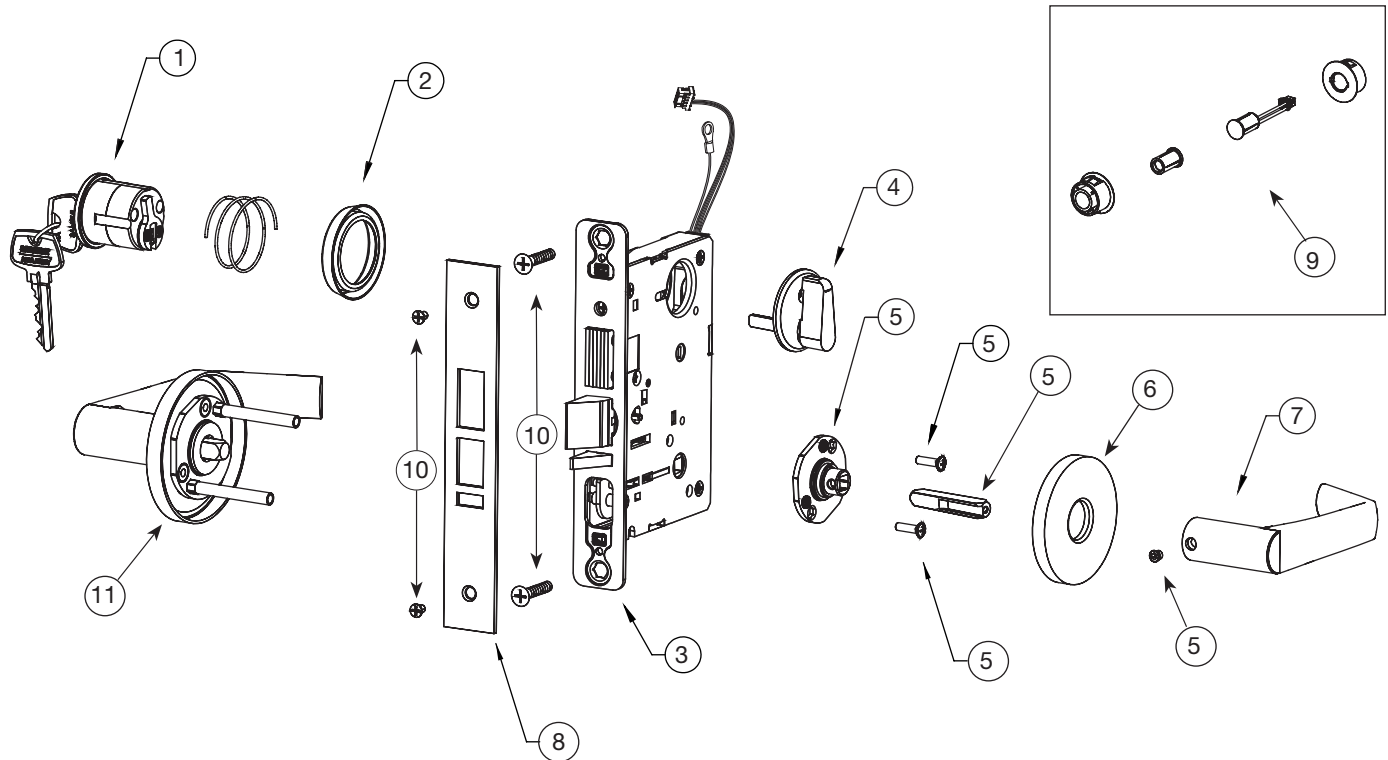
*7976 / 7977 / 7978 / 7979 (example: IN-100-EM017976-IP-B)

** Specify finish

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5 Parts Breakdown (Continued)



ITEM	PART NO/ORDER STRING	DESCRIPTION	QTY
1	Consult Factory	#41 Mortise cylinder	1
2	13-2131	97 Ring	1
3*	IN-100-7976-hand-finish	Lock body with deadbolt with cylinder	1
	IN-100-7977-hand-finish	Lock body with deadbolt without cylinder	
	IN-100-7978-hand-finish	Lock body without deadbolt with cylinder	
	IN-100-7979-hand-finish	Lock body without deadbolt without cylinder	
4	77-4081	130W Turn lever	1
5	79-2162	Trim pack	1
6	Consult Factory	Rose	
7	Consult Factory	Inside lever	1
8	79-0035	Without deadbolt	1
	79-0036	With deadbolt (shown)	
9	52-5374	Door Position Switch (DPS) kit	1
10	77-4236	Mortise screw pack: wood and metal lock body screws, faceplate screws, and strike screws - specify finish	1
11	Consult Factory	Outside trim	1
12	A8150	Field prep template (not shown)	1
13	4713	Door manufacturers template (not shown)	1
14	A8190	Instructions (this manual)	1

*Escape return functionality is not available with the IN100 7900 mortise lock

Tools Required:

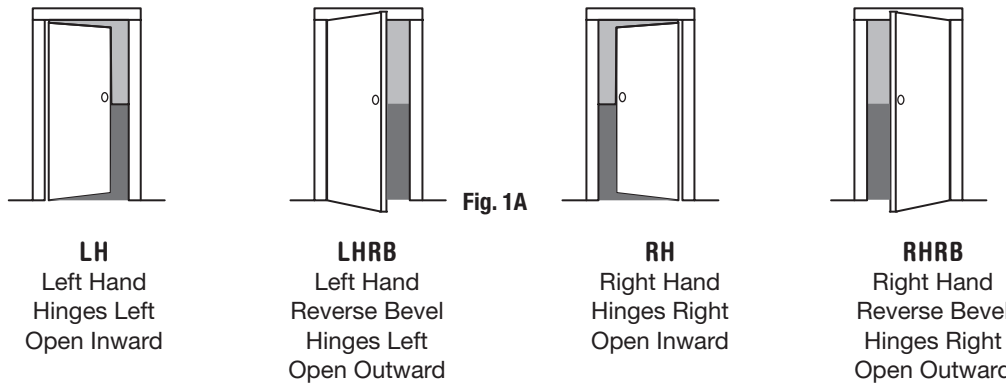
- #2 Phillips screwdriver
- Flat head
- T20 Torx® driver
- Security allen wrench

6 Lock Installation

1 Prepare Door

A. Verify Hand and Bevel of Door

Stand on outside of locked door when determining door hand.

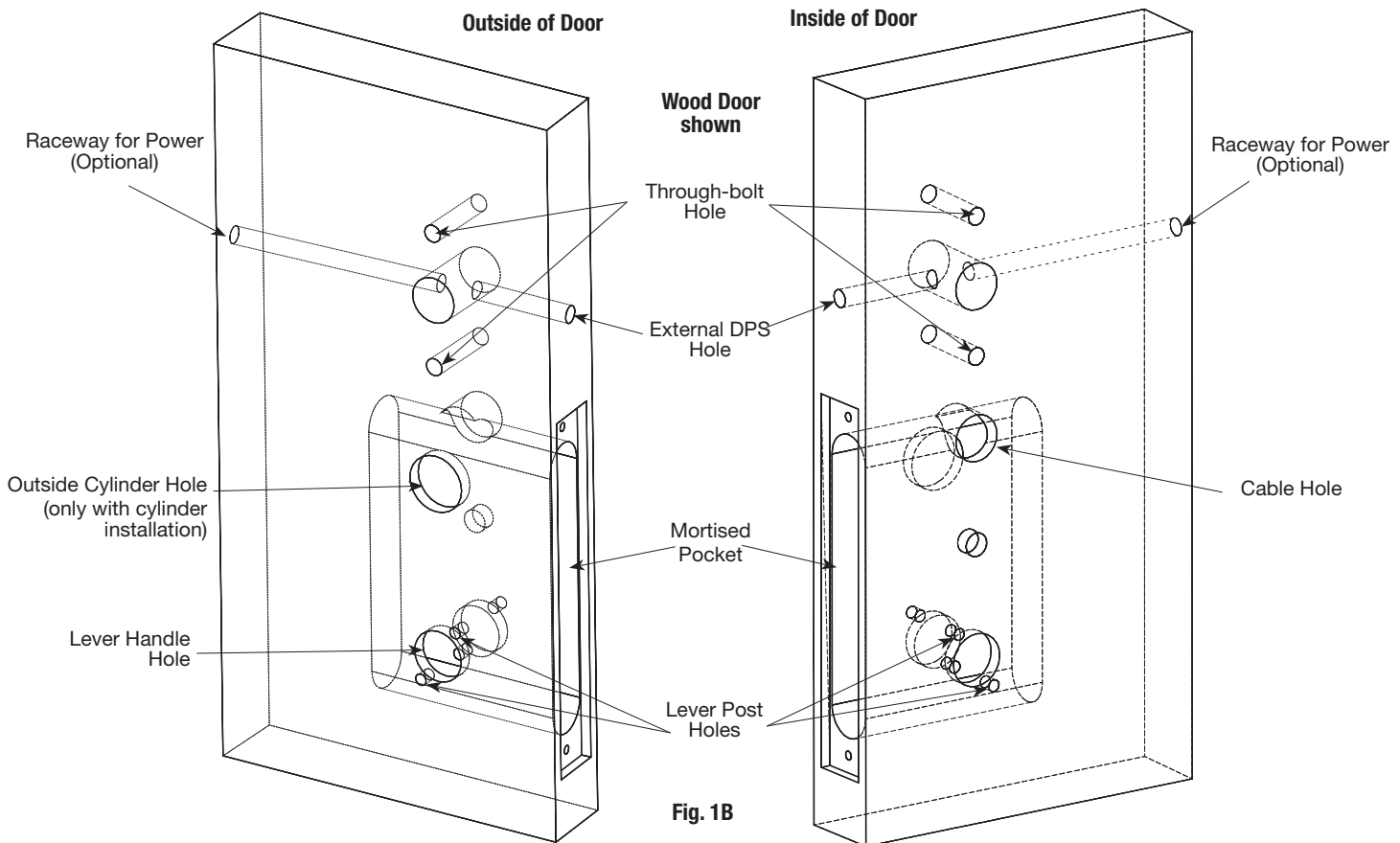


B. Door Preparation

Prior to installation, all holes must be free of burrs, debris and sharp edges.

Prepare door according to appropriate template (see website www.intelligentopenings.com).

- Field Template: A8150 (ships with product)
- Door Manufacturer's Template: 4713



2 How to Change Hand of Lock body

A. Reverse Lock Hand

1. Position lock body so the red surface of the locking piece is visible.
2. Insert blade type screwdriver into locking piece slot to rotate locking piece.
3. Push locking piece toward the back of the lock body and rotate the locking piece 180°.

Note: Red indicates locked (outside) side.

B. Reverse Latch Hand

1. Rotate the latchbolt 180°.
2. Flip deadlatch by hand to match bevel of latchbolt.

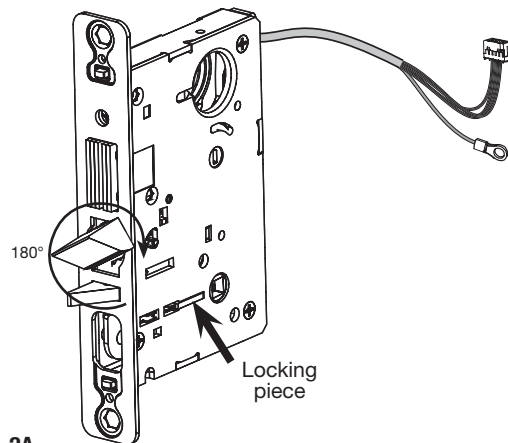


Fig. 2A

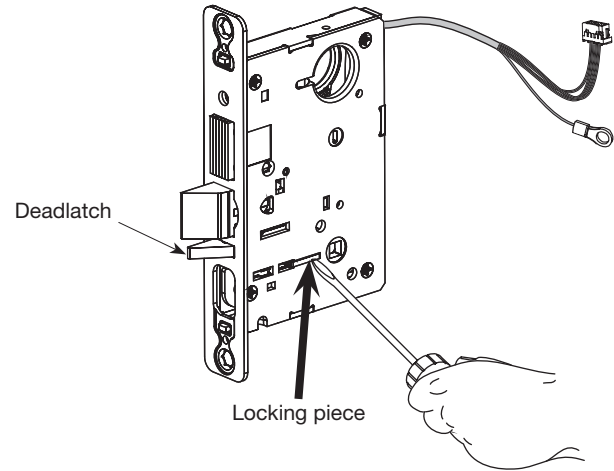


Fig. 2B

3 Configure the DIP Switch Settings

IMPORTANT: The DIP-switch settings located at the bottom of the mortise lock body* must be set prior to lock installation.

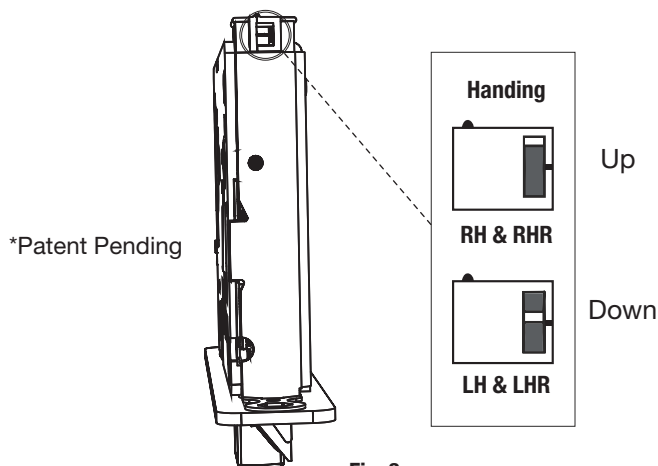


Fig. 3

4 Install Door Position Switch (DPS)

1. Insert DPS into the raceway on the latch edge of the door.
2. Push wires through raceway toward lock prep.
3. Push DPS firmly into place by hand.
Note: DO NOT TAP SWITCH WITH ANY TOOL.
4. Install magnet into door frame. Push firmly into place by hand.
See A7983.
5. To connect DPS to lock controller per diagram, refer to the wiring in Step #10.

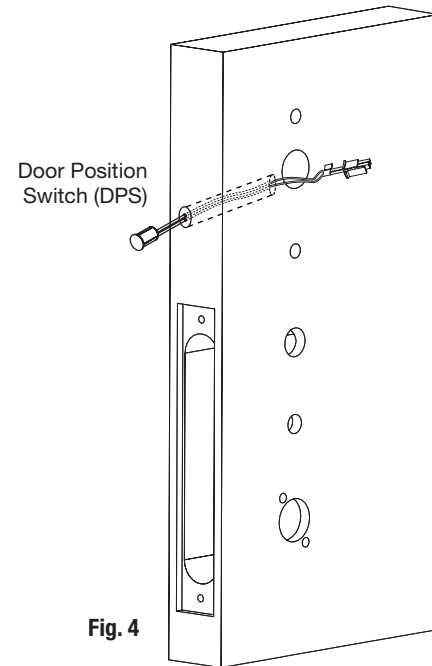


Fig. 4

5 Install Lock body

1. Feed the wire harness through the mortise pocket and inside preparation hole as shown in Fig. 5.
2. Carefully push the lock body into the pocket while lightly applying tension to the wire harness.
Note: Do not pull the lock into the pocket with the harness alone. Ensure that the wire harness is not pinched between the lock and the mortise pocket.
3. Insert (2) #12-24 screws into the lock body and partially tighten with a screw driver.

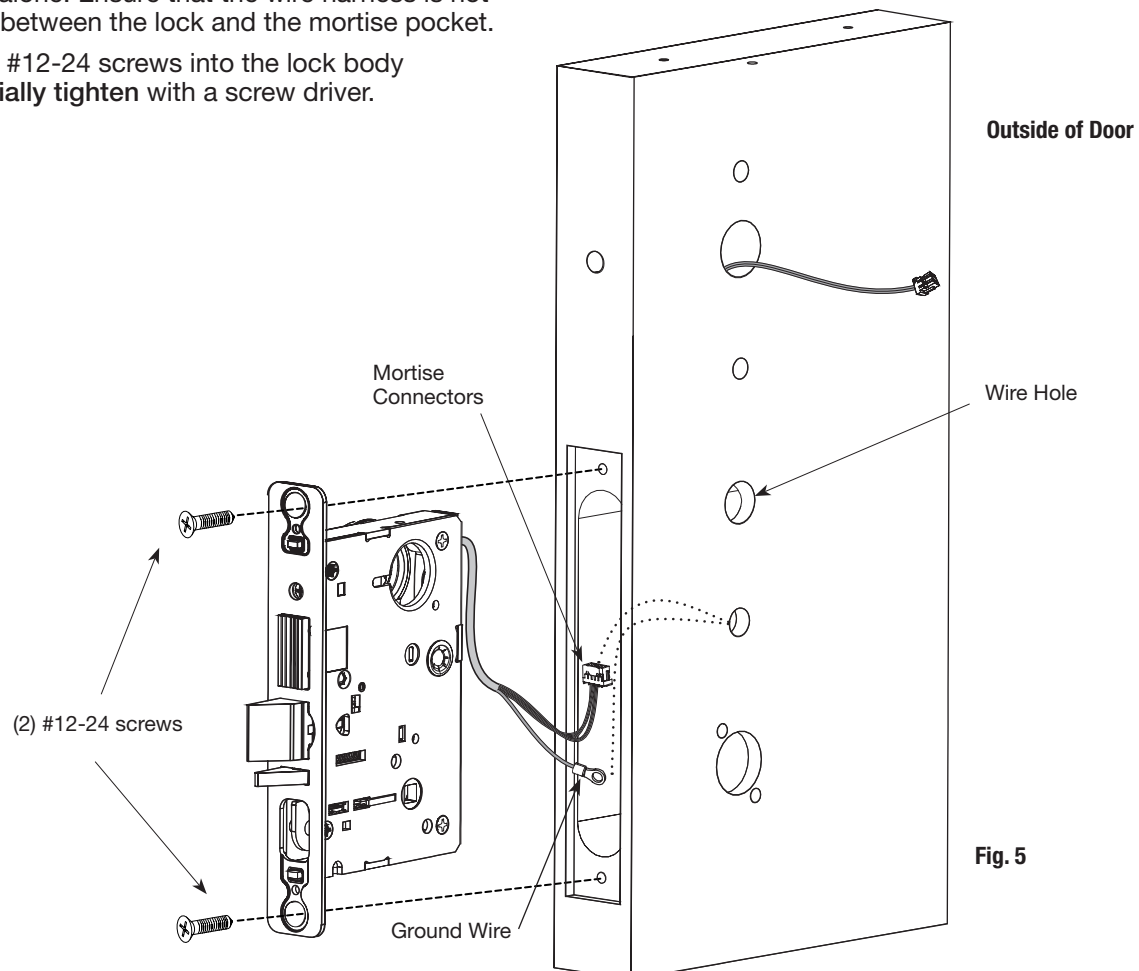


Fig. 5

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6 Outside Cylinder Installation

1. Slide the spring and the rosette onto the cylinder.
2. Rotate the cylinder into cylinder hole with fingers.
3. Insert key 75% of the way and utilize the key to rotate the cylinder into the rest of the cylinder hole.
Note: Do not attempt to tighten all the way.
4. Verify that orientation of cylinder has the SARGENT logo as shown in Fig. 6A.
5. Hand tighten the cylinder clamp screw with Phillips screwdriver to prevent unscrewing of the cylinder (Fig 6C).
6. Test cylinder function:
 - Key retracts latchbolt and deadbolt (7976 function).
 - Key retracts latchbolt (7978 function).
 - Cylinder not present for 7977 and 7979 functions.

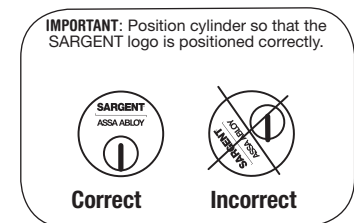
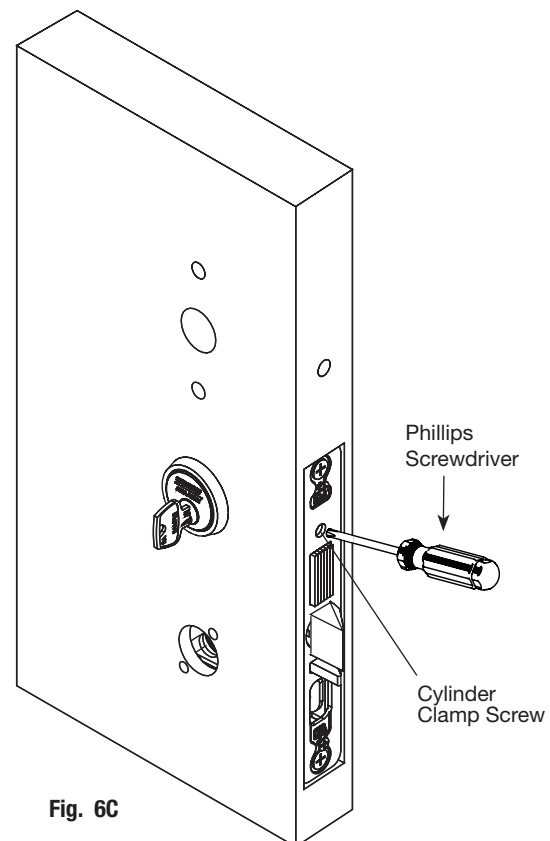
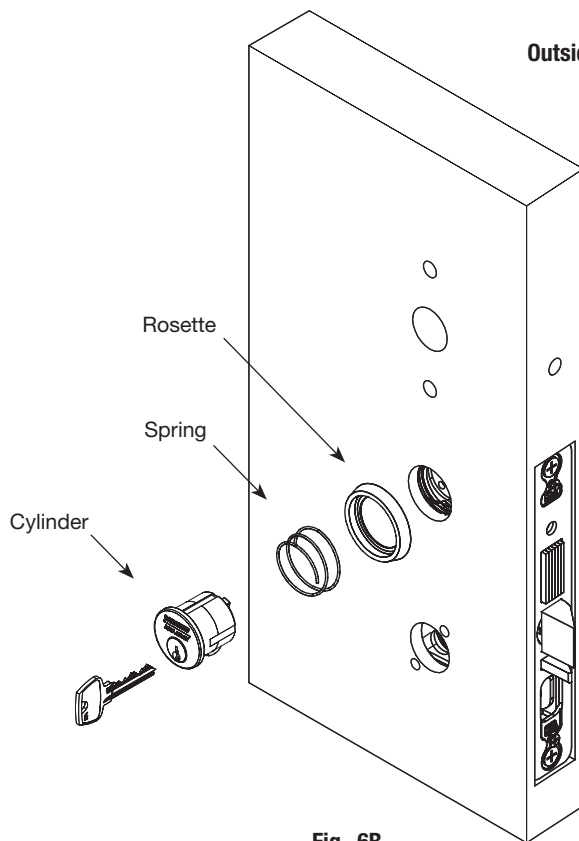


Fig. 6A



7 Assemble Outside Trim

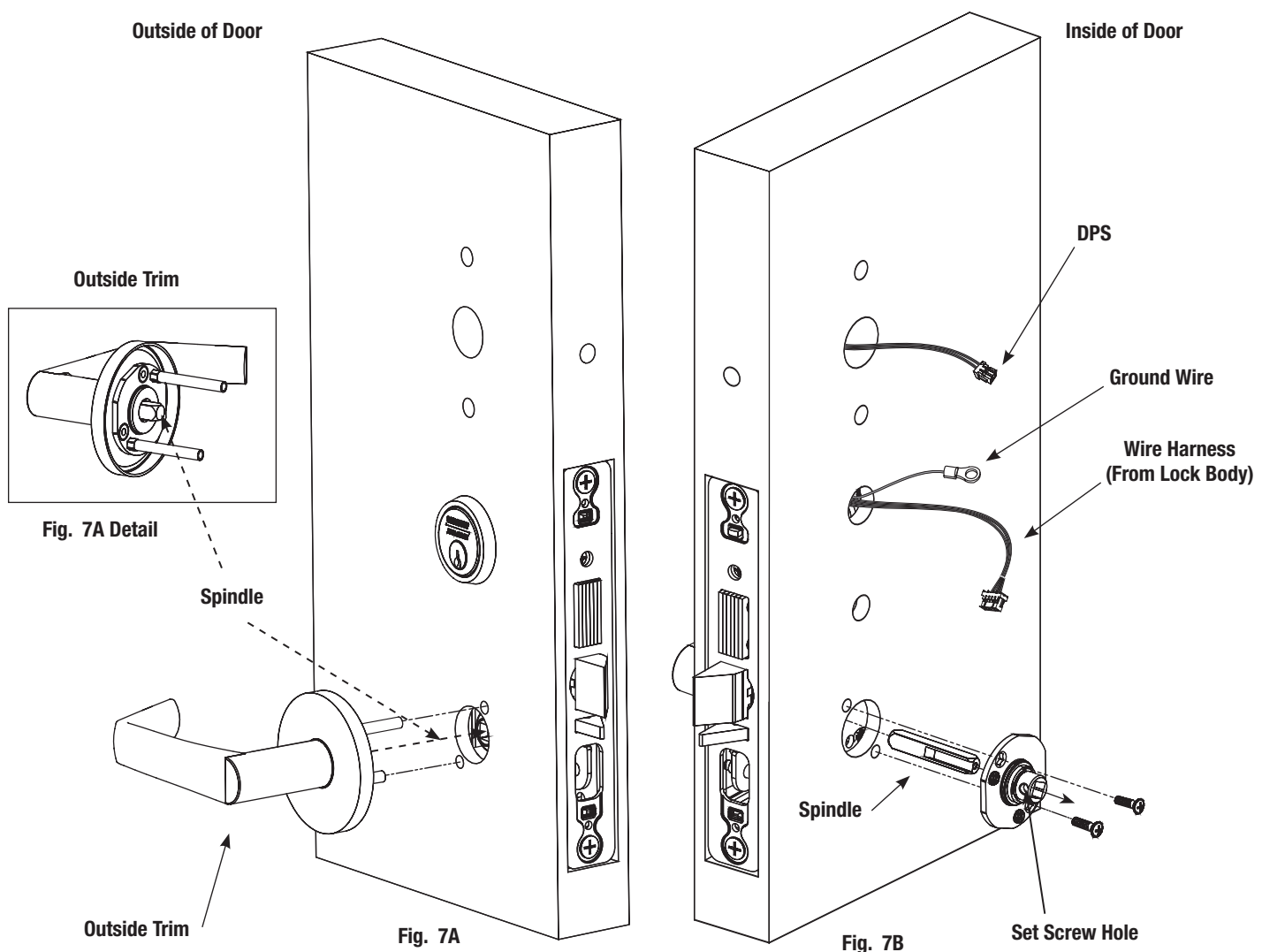
1. With outside lever horizontal (and handle pointing toward door hinge), insert the mounting posts through outside of door and lock body.

Make certain the lever spindle is properly engaged inside the lock body (Fig 7A).

2. On the inside of the door, insert spindle into square hole of mortise lock, with spindle slot directed away from the mortise lock body, and aligned with the set screw hole in the Inside adapter (Fig 7B).

3. Slide inside adapter and plate assembly over spindle and secure with (2) 8-32 X 5/8" Phillips oval head and lock washer machine screws.

Note: Ensure that position of set screw hole on inside adapter is oriented to match location of hole in inside lever handle.

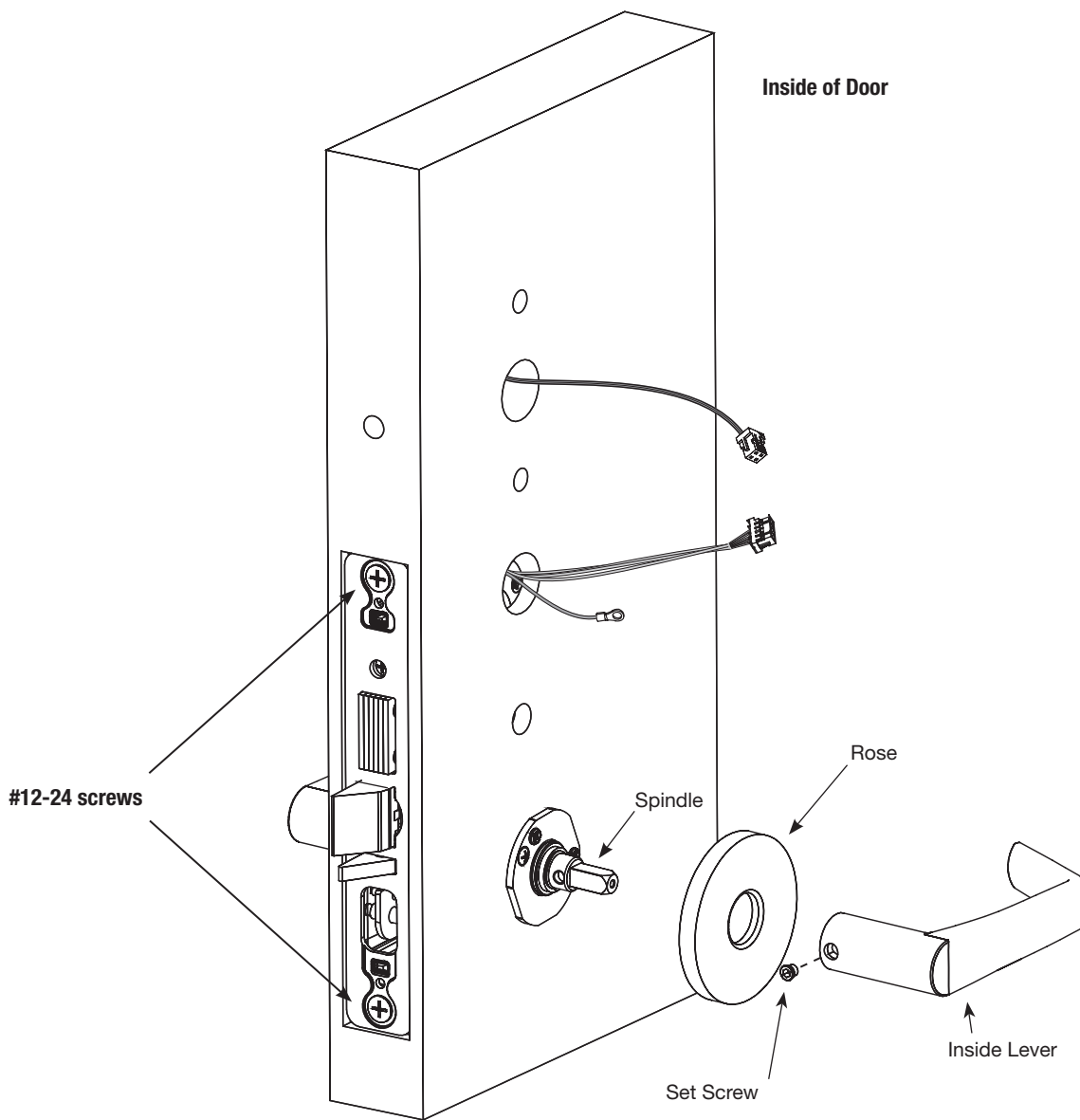


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8 Install Inside Rose and Inside Lever Assembly

1. Place inside rose flush against door surface and rotate first counter-clockwise to seat the threads, then clockwise to securely tighten.
2. Slide lever onto spindle until fully seated. Be sure handle is horizontal and facing the hinge side of the door. Push lever onto spindle so minimum gap is visible.
3. Tighten the set screw securely with a T20 Torx® driver.
4. Finish securely tightening (2) #12-24 lock body screws.
5. Before closing the door, test that the lever is functional and ensure smooth operation of the latchbolt.

**Fig. 8**

9 Install Thumb Turn

1. Insert thumb turn into preparation hole and engage slot in lock body.
2. Orient mounting plate so screw hole is vertical (aligned with preparation holes).
3. Secure plate with Phillips screw provided.
4. Test thumb turn for function by retracting and projecting the deadbolt (7976 and 7977 functions only).

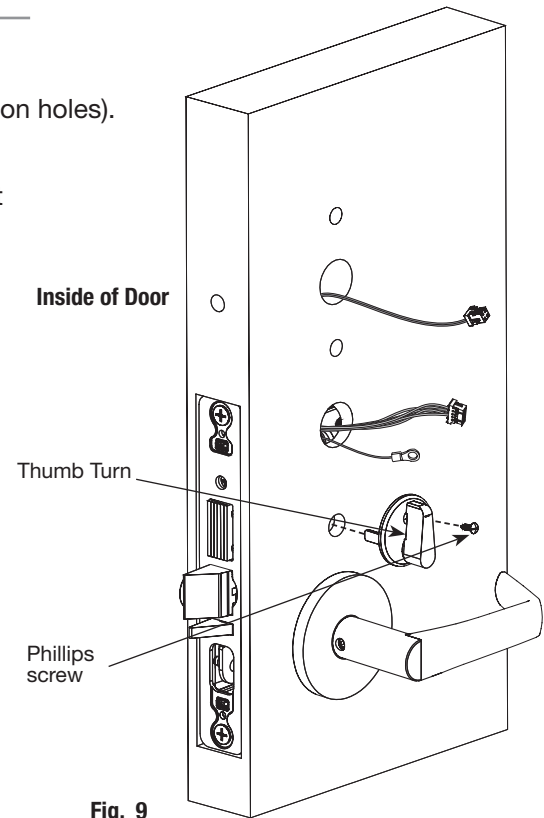


Fig. 9

10 Attach Front Plate

Attach front plate with (2) Phillips head screws.

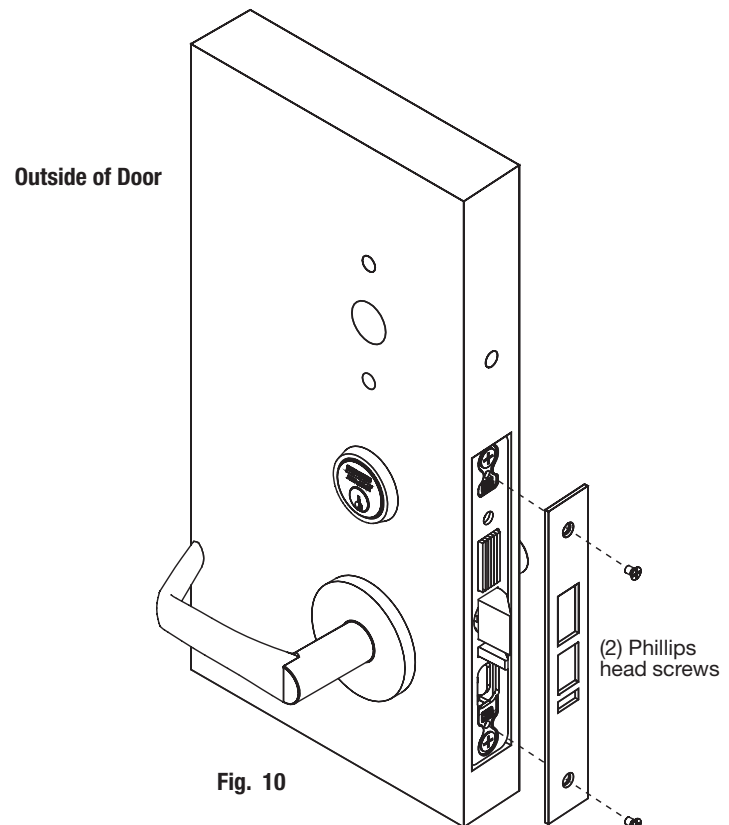
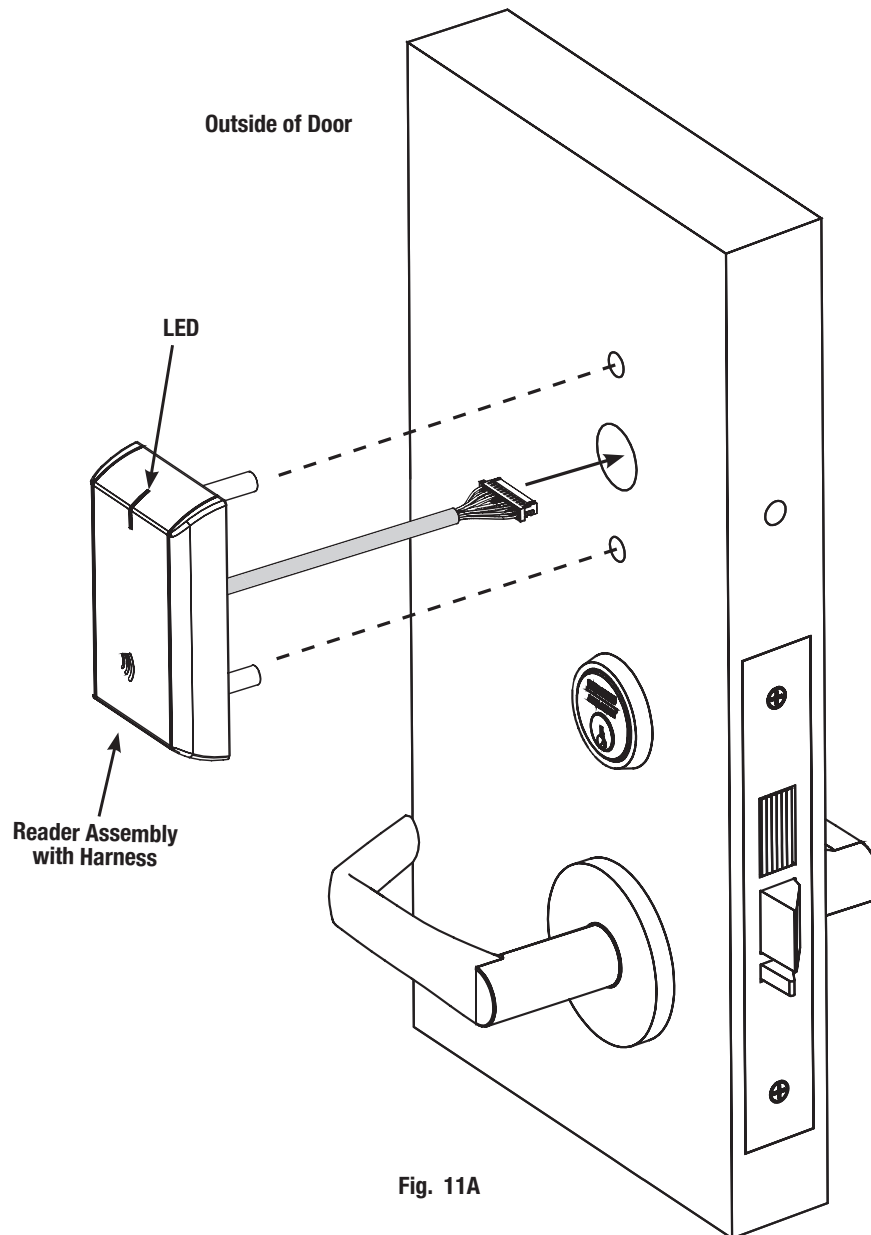


Fig. 10

11 Outside Reader Installation

1. Orient the reader so the LED lens is at the top.
2. Feed the cable/connector through the door (from outside to inside).
3. Install the reader to the outside of door by aligning the mounting posts with the door preparation holes. Hold the reader flush against door while ensuring proper alignment.

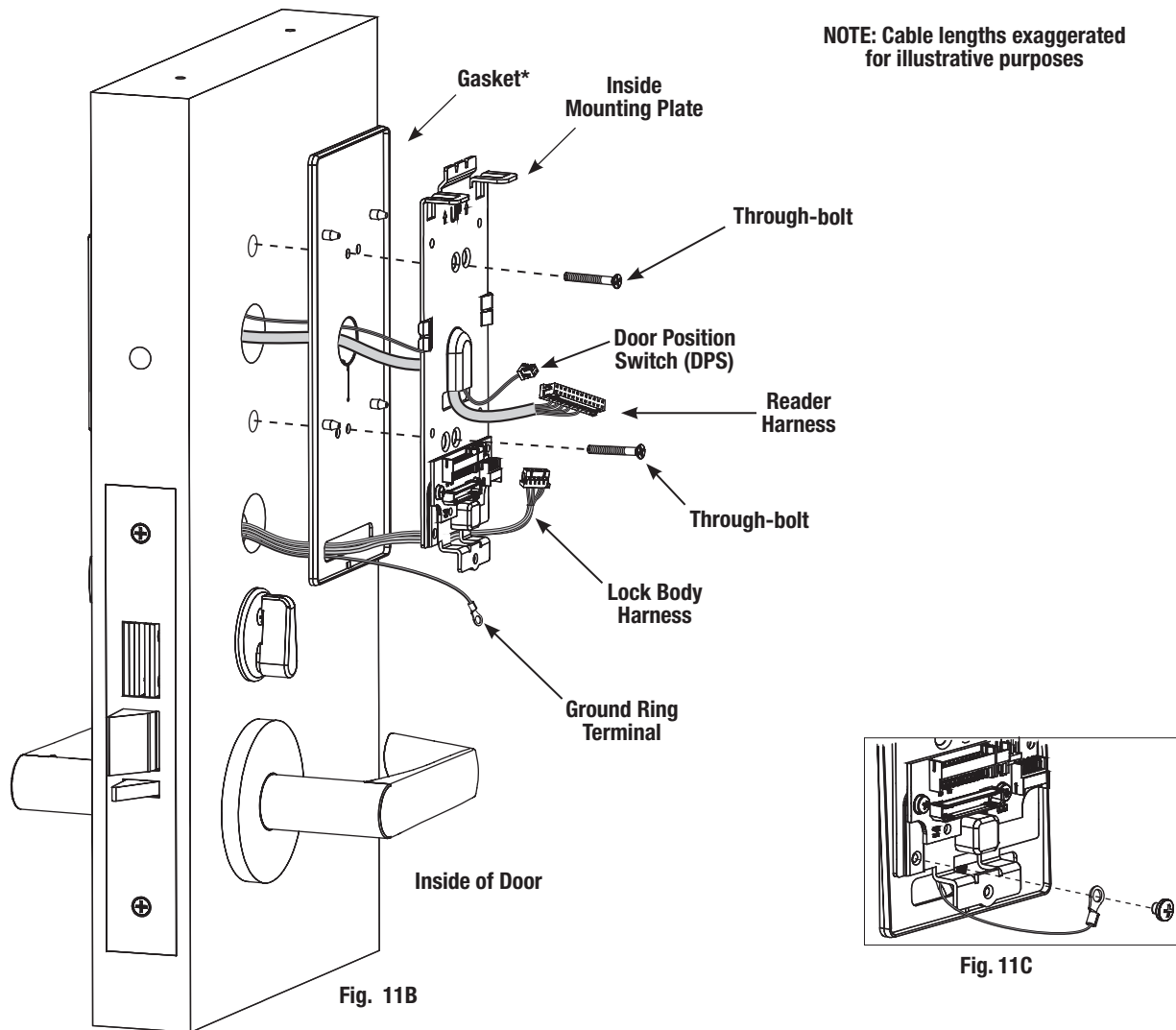


11 Outside Reader Installation (Continued)

4. Feed the reader harness and DPS connectors through the inside mounting assembly (and gasket if required*). See Figure 11B.

IMPORTANT: Do not run wires through bottom flange hole in plate (Fig. 11B, C) - it will damage wires and the controller connector. Route wires around flange, do not route wires through the flange hole (Fig. 11C).

5. Tuck excess cable into wire hole on inside of door.
6. Begin to secure the mounting assembly by partially tightening the (2) through-bolts on the inside of the door while ensuring proper alignment as you secure the reader (Fig. 11B).



7. Secure ground lug with #6-32 machine screw (Fig.11C).

*Gasket is required for outdoor installations. Do not use gasket for fire-rated openings.

If installing with gasket; separate gasket from mounting plate to feed cables/connectors through holes as indicated (Fig. 11B).

Once cables/connectors are fed through, reattach gasket to mounting plate.

11 Outside Reader Installation (Continued)

Installation of Connectors

CAUTION - Do not touch or allow debris to enter connector contacts.

Secure the following connectors to their respective terminals (Fig. 11D):

- A. Secure the 4-pin DPS connector.
- B. Secure the 10-pin lock body assembly connector.

*NOTE: Optional 2-pin external 9-24VDC power connector.

IMPORTANT: Do not run wires through bottom hole in plate - it will damage wires and the controller connector. Route wires around flange, do not route wires through the flange hole (Fig. 11D, F).

- C. When all connections have been made, tuck excess cable into wire hole on inside of door.

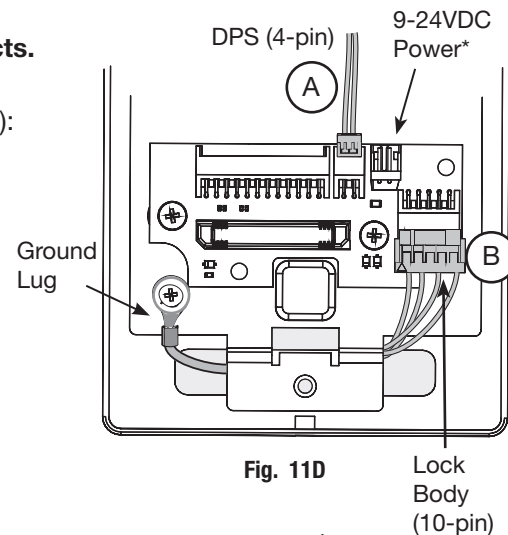


Fig. 11D

Lock Body (10-pin)

Secure Mounting Plate

- D. Secure the mounting assembly while ensuring proper alignment of outside reader and tighten the (2) through-bolts on the inside of the door to secure the reader (Fig. 11E).

- E. Secure the 24-pin card reader connector (Fig. 11F).

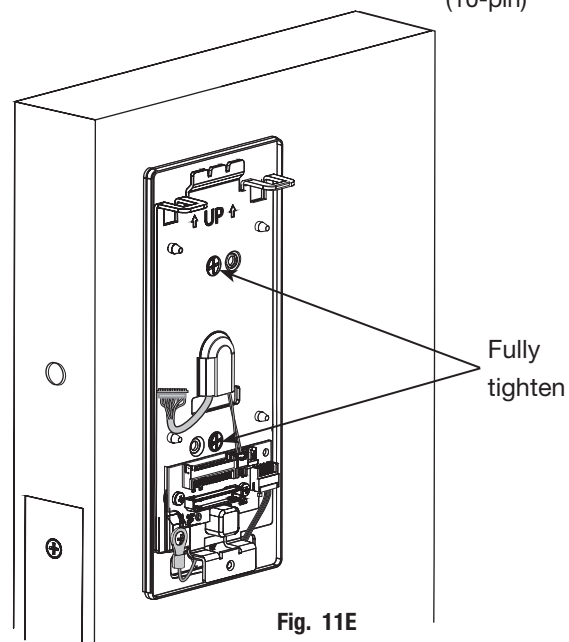


Fig. 11E

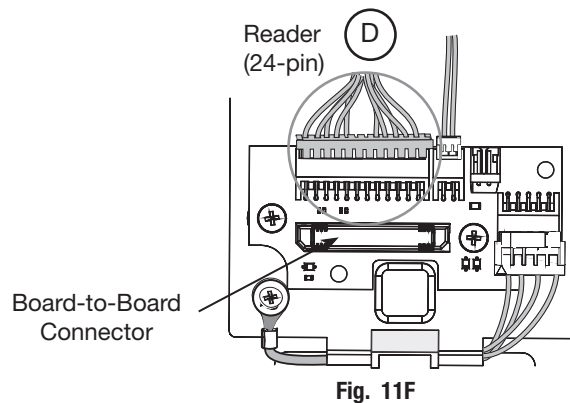


Fig. 11F

12 Installation of Inside Component Assembly

1. Insert top tabs of controller into slots on mounting plate (Fig. 12).
2. Ensure proper alignment of board-to-board connectors while pivoting bottom of controller toward door until tab on bottom snaps securely into place on mounting plate.

CAUTION: To avoid possible damage to board-to-board connectors, care should be taken when securing controller to mounting plate. If there is resistance when securing, detach controller to determine cause before re-attaching controller.

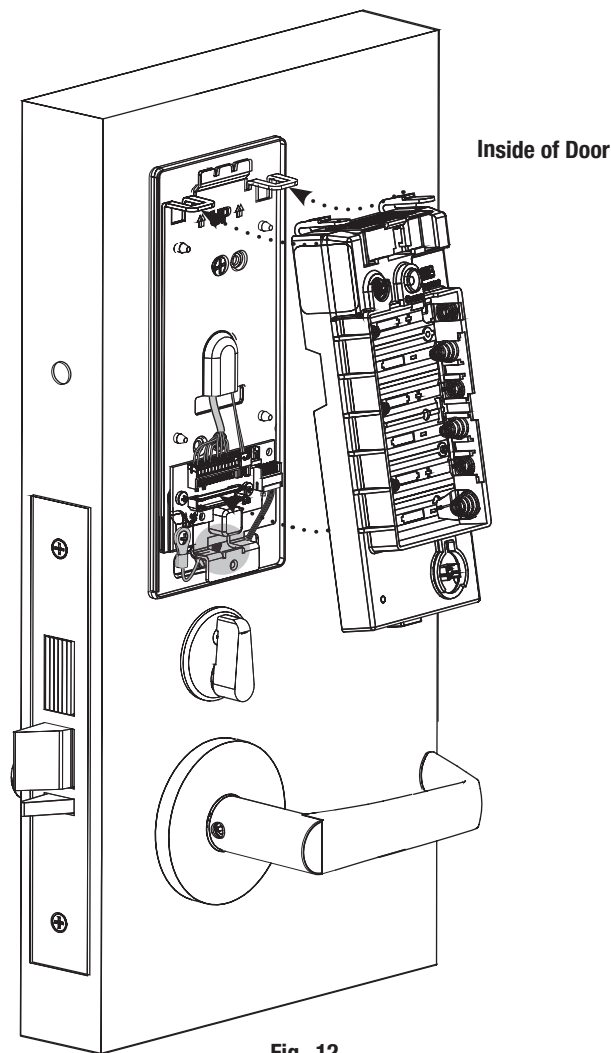


Fig. 12

13 Battery Installation

1. Place (6) "AA" alkaline batteries in the compartment, being careful to align polarity properly (Fig. 13).
2. After batteries are installed, there is a slight delay; then red and green flash, audible "beep" and lock motor will cycle.

*See Section 8 - LED Indications for more information

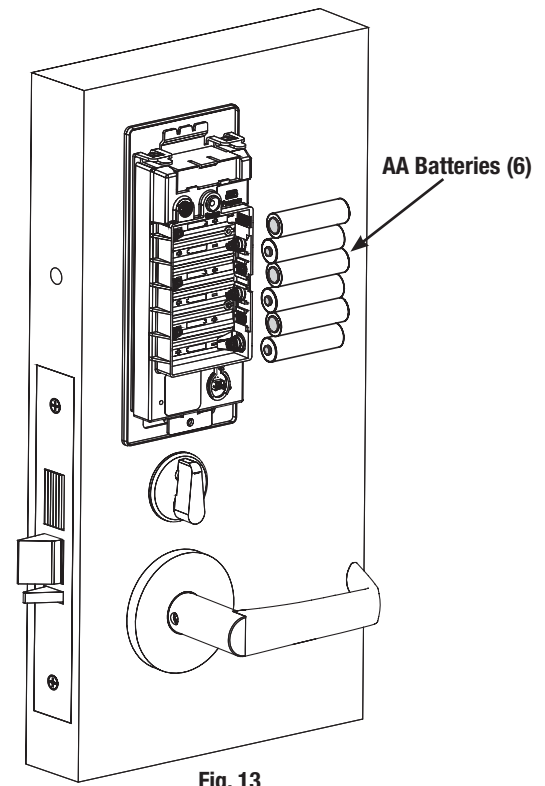


Fig. 13

14 Inside Cover Installation

1. Assemble cover by hooking top edge on inside mounting plate.
2. Carefully press bottom of cover toward door without pinching or damaging wires.
3. Secure cover utilizing security allen wrench.

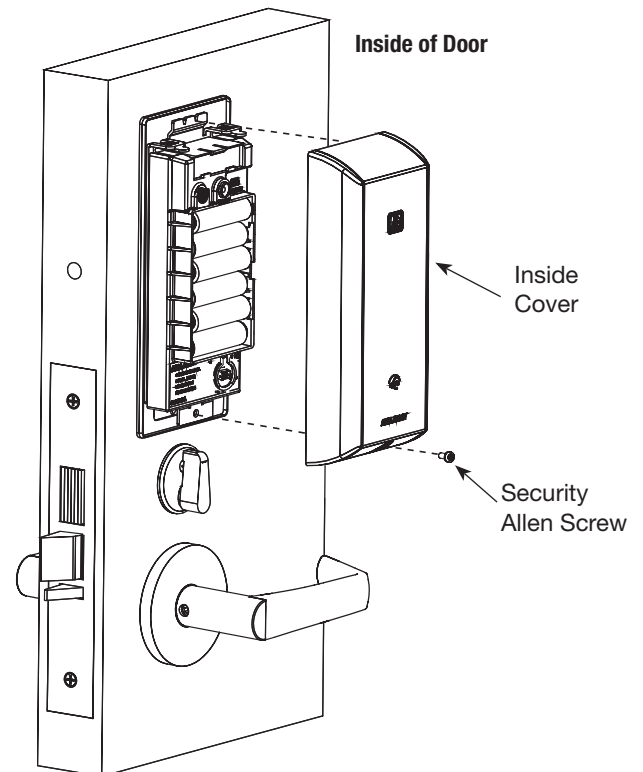


Fig. 14

7 Operational Check

For 7976- and 7978-function mortise locks with cylinders:

1. Insert key into cylinder and rotate.
There should be no friction against lock case, wire harness or any other obstructions.
2. Check that the key retracts the latch:
the key should rotate freely.
3. Throw the deadbolt (if present): Check that the key retracts both the deadbolt and the latch.
4. Try the inside lever:
Ensure it retracts latch and deadbolt (if provided).
5. Present a valid credential* to unlock outside lever; turn lever to ensure latch retracts.

*Depending upon availability of access control system, either a (denied) red flash or a green and lock motor cycle (access granted).

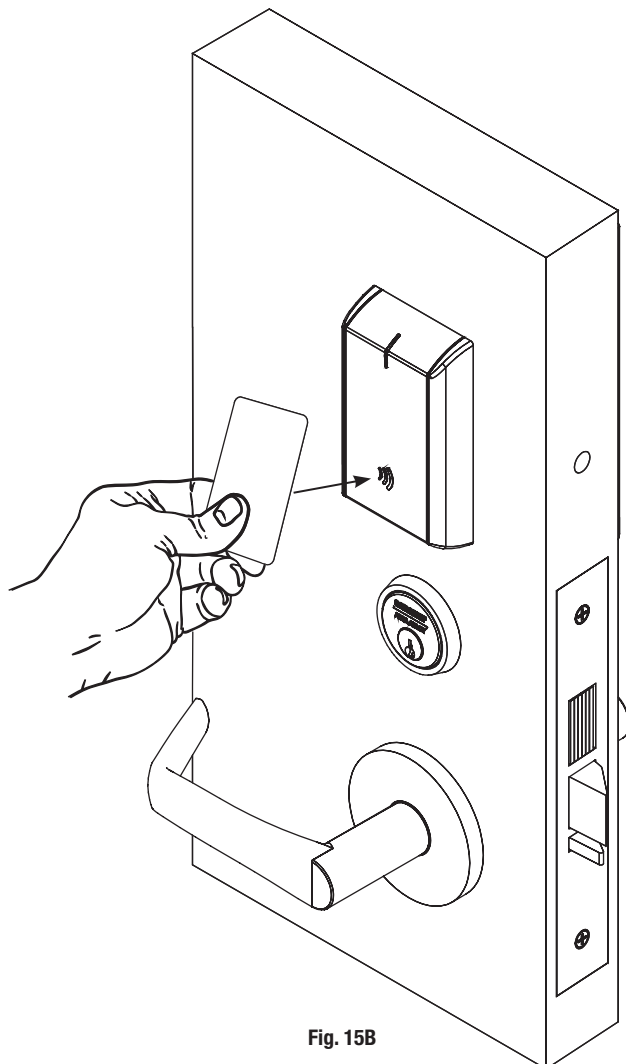


Fig. 15B

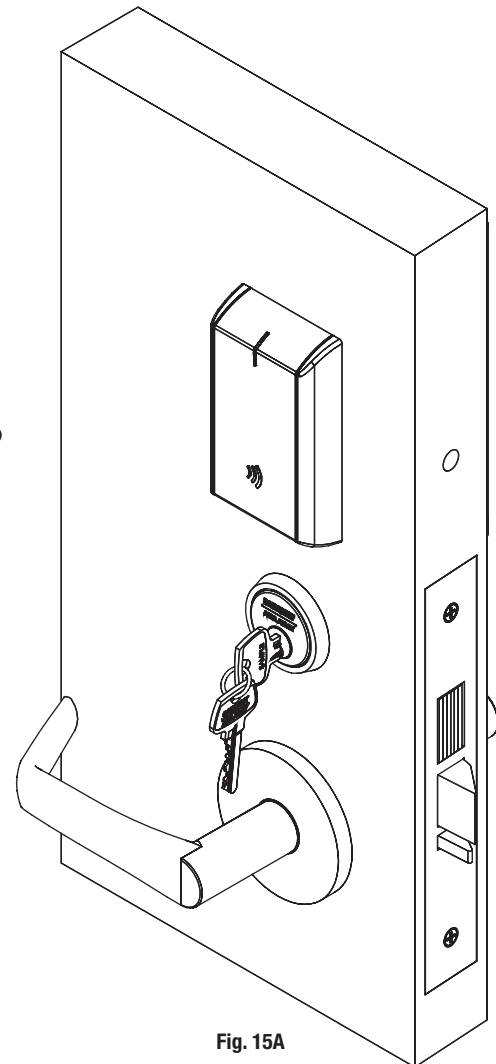


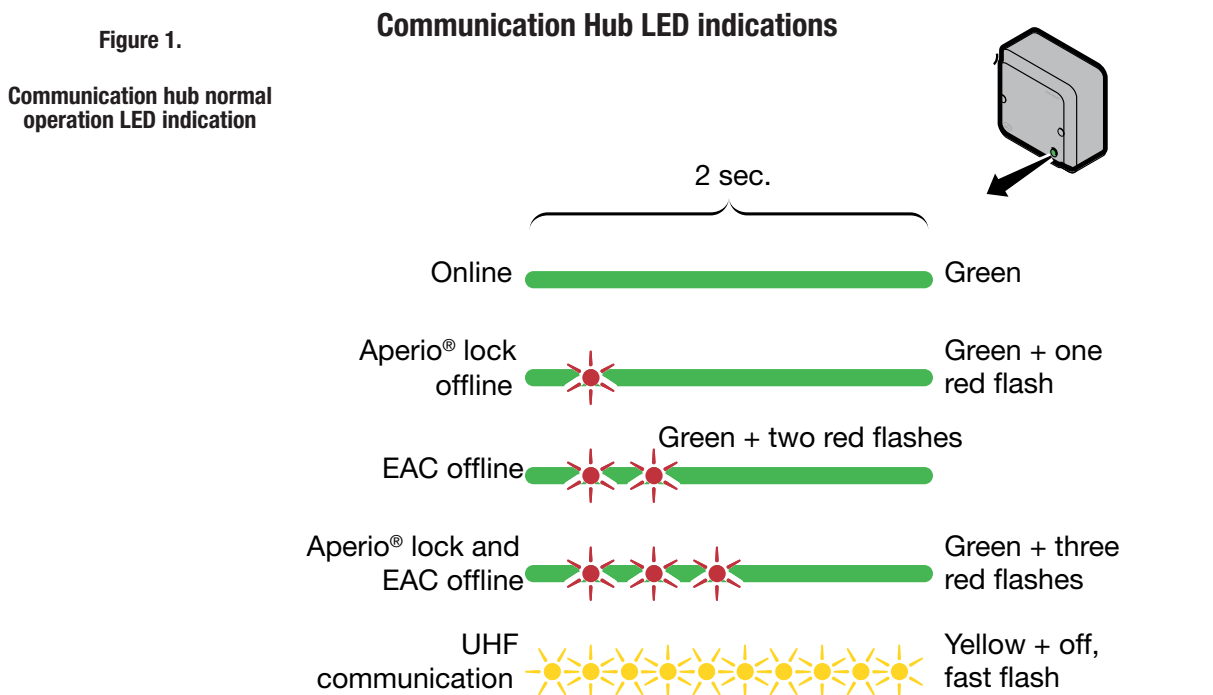
Fig. 15A

Note: The credential should approach the inscription on the reader as indicated (Fig. 14B) to ensure that the credential is read properly.

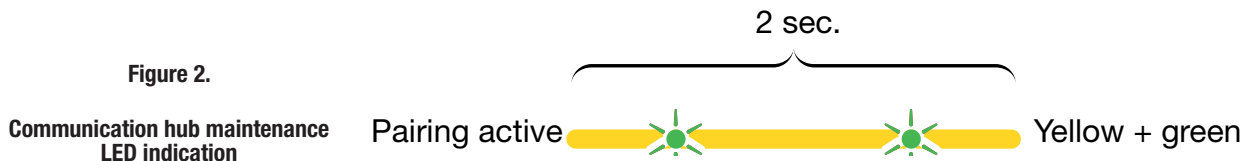
Do not wave credential.

8 LED Indications

The communication hub has a single LED. It supports an optical scheme with red, green and yellow. The indication scheme is described by the figures below:

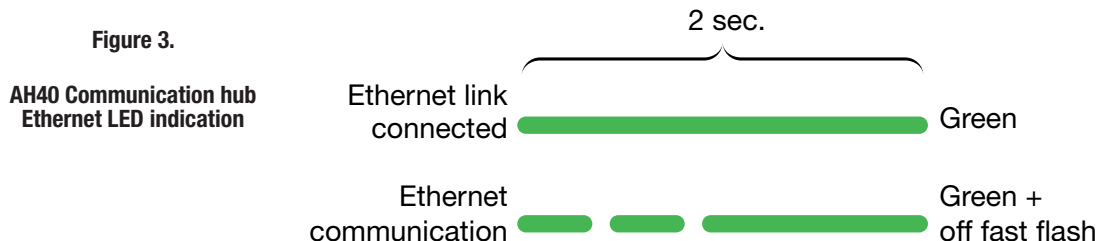


Some special LED indication schemes* are used during lock maintenance actions:



Ethernet LED indication

The LED on the AH40 communication hub* indicates both the status of the Ethernet link level and ethernet communication:



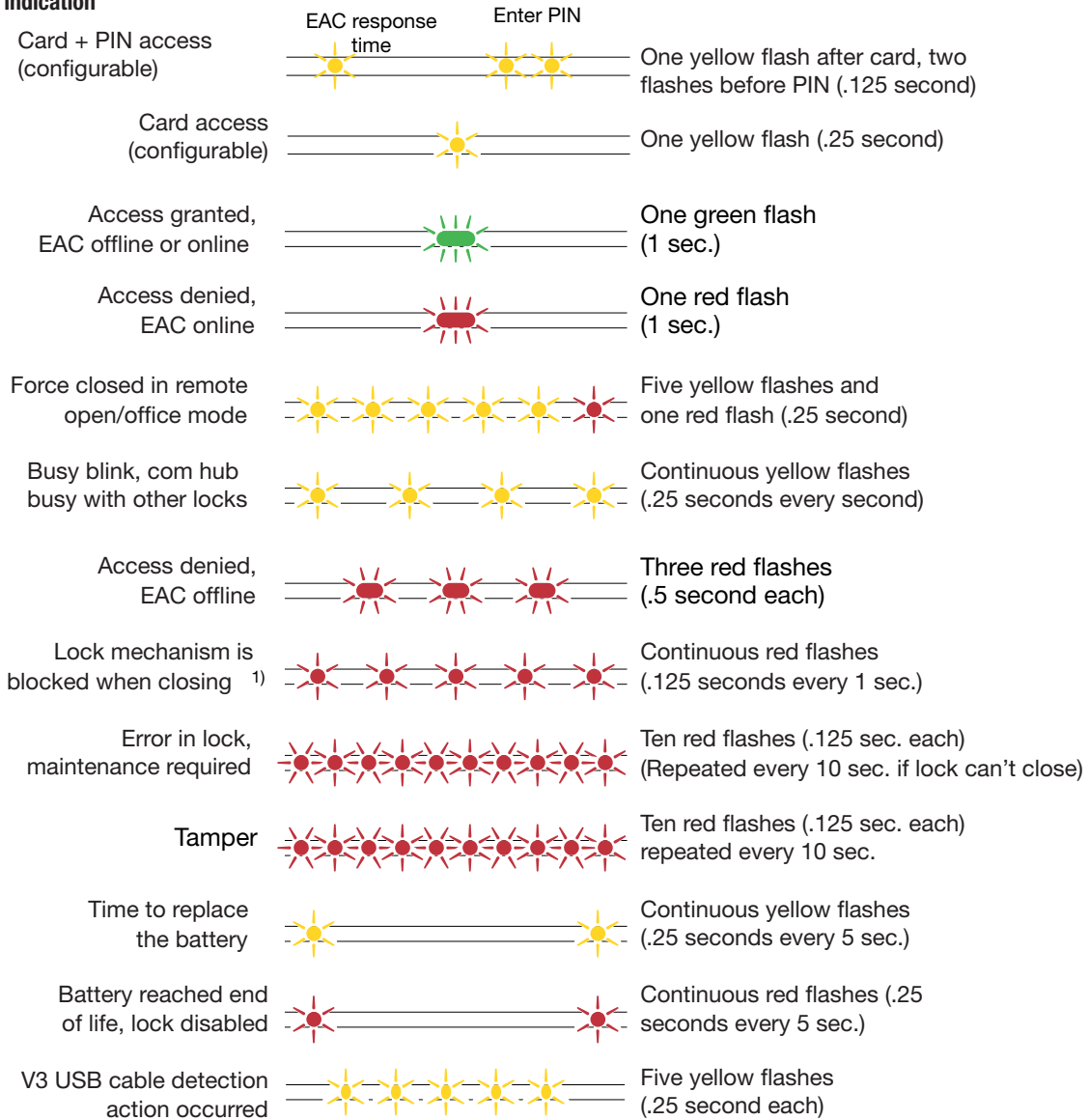
*For more information, refer to Aperio Online Quick Installation Guide (Document No: ST-001322-PF Date: 2015-12-23)

Lock LED indications

The lock has three LEDs. They support an optical scheme of red, yellow and green.

The indication scheme is described by the figures below:

Figure 4. Lock normal operation LED indication



1) When the lock mechanism is blocked (lock jammed) the lever must be turned to release the lock mechanism.

Some special LED indication schemes are used during lock maintenance actions:

Figure 5. Lock hub normal operation LED indication



Lock Self-Test LED indication

After replacing batteries, a Power on Self Test (POST) is performed. The result is indicated using a series of red and green LED flashes as described by the figures below.

LED indication after power up/replacement of the battery

8.3.1 Battery not fully charged

Error in lock is an indication -10 quick (125ms) red blinks, that either new batteries are not at the right voltage or a backward battery has been installed; battery not fully charged; energy counter not reset or no Power on self-test done.

Error in lock, maintenance required  Ten red flashes (.125 sec. each) (Repeated every 10 sec. if lock can't close)

8.3.2 Test pass

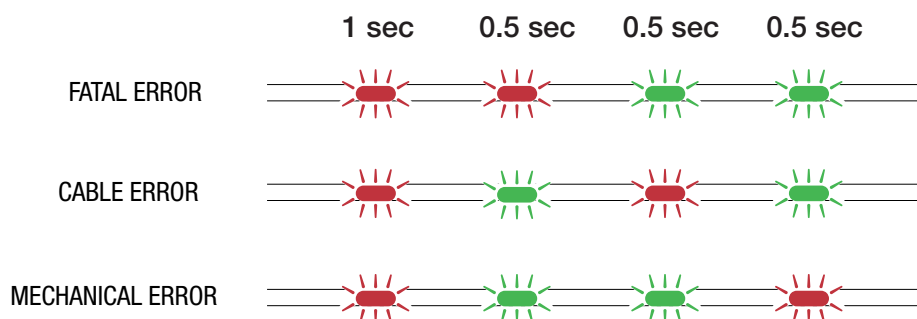
1 red (1s) + 1 green (1s), Power on self-test passed, see table below.

Figure 6. Lock POST LED indication POST Successful  One red, one green flash (1 second)

8.3.3 Test fail

1 red (1s) + 3 blinks (500ms, green or red), at least one test failed (red), see table below.

If a fatal error is detected the lock will enter an Error state and continuously indicating fatal error and will not read cards nor unlock.



FATAL ERROR	Tests core functionality - MCUs, memory and internal communication, etc.
CABLE ERROR	Tests communication between the different parts in the system, i.e. different boards connected with a wire.
MECHANICAL ERROR	Test related to moving parts of the lock.



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