Mortise Lockset
IN100 WiFi
Installation Instructions

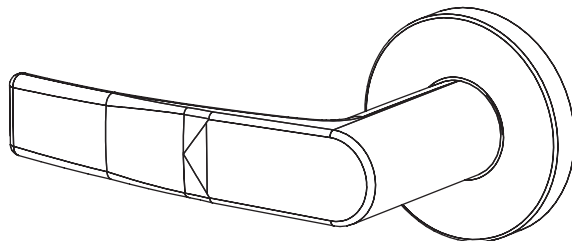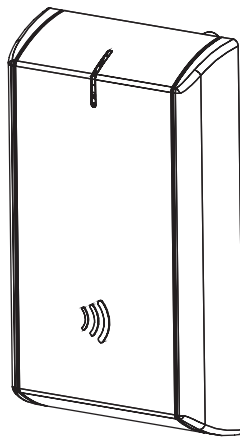**Corbin Russwin** ®

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Attention Installer

Please read these instructions carefully to prevent missing important steps.

Please Note: Improper installations may result in damage to the lock and void the factory warranty.

Important: The accuracy of the door preparation is critical for proper functioning and security of this lock. Misalignment can cause premature wear and a lessening of security.

For Technical Assistance call Corbin Russwin at 1-800-810-WIRE (9473)

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IN100 Mortise Lock

Table of Contents

1) Warning

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. 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.

Note: 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 the 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 technician for help

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met. 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.

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

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 Corbin Russwin® 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® 125 kHz prox or 13.56 MHz iCLASS® smart card technology, and all technology features are supported by the physical security of Corbin Russwin ANSI/BHMA Grade 1 hardware.

This product is operated by six (6) "AA" alkaline batteries. Corbin Russwin mortise locks are designed with quality components to provide high security, performance and durability.

## 3) Specifications / Features

Hardware Specifications

- Latch – Stainless Steel (Easily field reversible without disassembling lock body)
- Deadbolt – Stainless Steel
- Auxiliary Latch – Stainless steel, non-handed
- Door Thickness – 1-3/4" Standard; can be furnished for other door thicknesses upon request. Consult factory.
- Case – 12 gauge heavy duty wrought steel

- Outside lever controlled by reader or key retracts latch
- Inside Lever produces REX (request to exit) signal and retracts latch and deadbolt*
- UL fire listed
- May be used for both indoor and exterior applications
- A weather-protective gasket is required for exterior applications

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.

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IN100 Mortise Lock
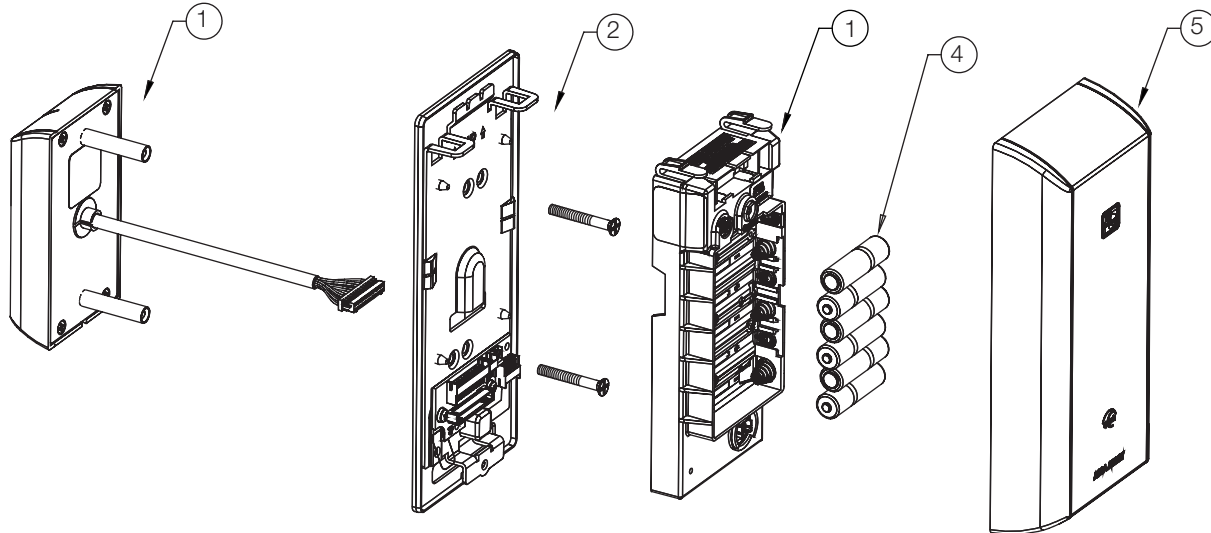
ITEM	PART NUMBER/ORDER STRING	DESCRIPTION	COLOR/TRIM	QTY
1	IN-100-EM01[locktype]*-IP-B	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®, NFC-enabled mobile phones	Black	1
	IN-100-EM01[locktype]*-IP-W	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®, NFC-enabled mobile phones	White	1
	IN-100-EM01[locktype]*-IP-MB-[finish]**	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®, NFC-enabled mobile phones	Black with metal trim	1
	IN-100-EM01[locktype]*-IP-MW-[finish]**	HID iCLASS®, HID iCLASS SE® (SIO-enabled), HID iCLASS® Seos™, HID MIFARE® SE, HID DESfire® EV1 SE, HID Prox®, NFC-enabled mobile phones	White with metal trim	1
	IN-100-EM01[locktype]*-IPS-B	All credentials supported by the IP option plus MIFARE Classic and DESfire EV1	Black	1
	IN-100-EM01[locktype]*-IPS-W	All credentials supported by the IP option plus MIFARE Classic and DESfire EV1	White	1
	IN-100-EM01[locktype]-IPS-MB-[finish]**	All credentials supported by the IP option plus MIFARE Classic and DESfire EV1	Black with metal trim	1
	IN-100-EM01[locktype]-IPS-MW-[finish]**	All credentials supported by the IP option plus MIFARE Classic and DESfire EV1	White with metal trim	1
2	782F718	Inside Mounting Kit (mounting plate & hardware)		1
3	N/A	AA battery		6
4	820F489	Inside Escutcheon	Black	1
	820F499	Inside Escutcheon	White	
	820F525 FIN*	Inside Escutcheon	Black with metal trim	
	820F535 FIN*	Inside Escutcheon	White with metal trim	
5	FM355	Field prep template (not shown)		1
6	T31202	Door manufacturers template (not shown)		1
--	FM403	Instructions (this manual)		1

* ML20133/36 (example: IN-100-**EM01ML20136**-IP-B)

** Specify finish

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IN100 Mortise Lock

Tools Required:

- Phillips Screw Driver #2, #3
- Flat Blade Screw Driver (Standard size)
- 1/8" Security Allen Wrench (supplied
- 7/64" Allen Wrench (supplied)
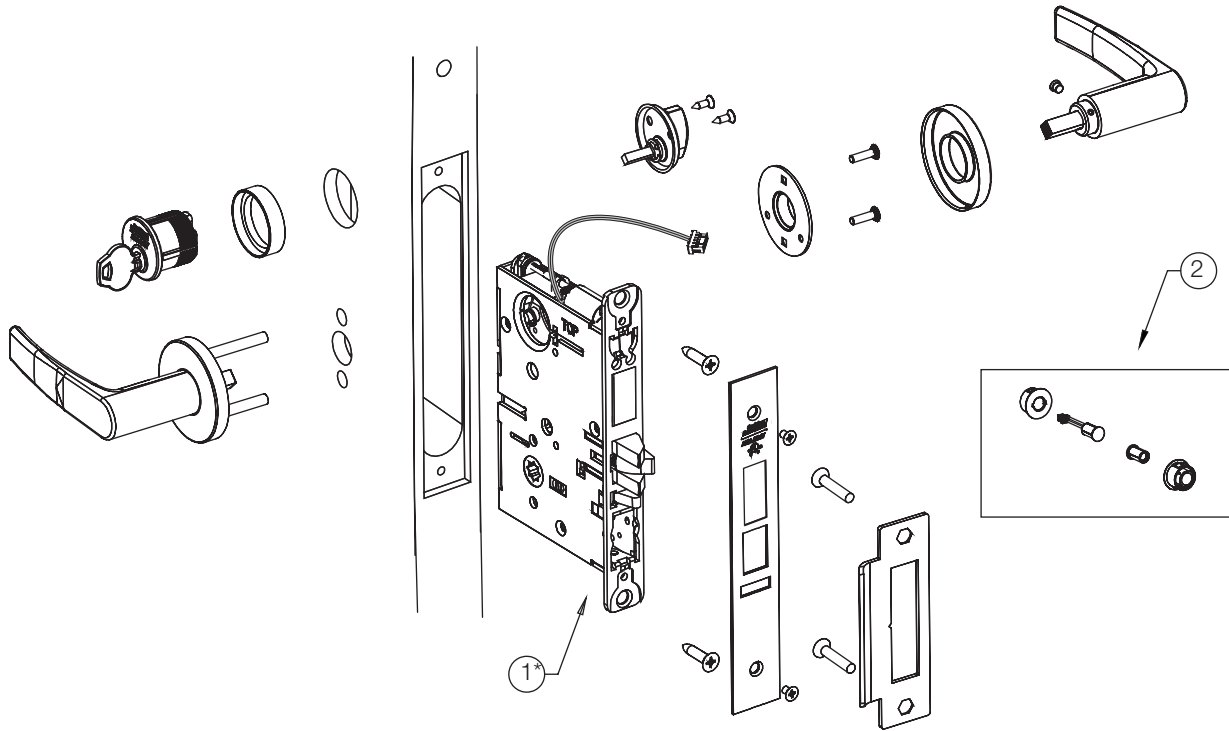
1	784F848[handing]*26D	ML20133/ML20134 Lock Case (No Deadbolt)**	1
	784F858[handing]*26D	ML20135/ML20136 Lock Case (With Deadbolt)**	
2	820F609	DPS (Door Position Switch) Kit	1

*Replace with handing (L, LR, R, RR)
**Escape return functionality is not available with the IN100 ML201xx mortise lock.

For parts not listed, refer to ML2000 Parts and Service Manual

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5) Installation Instructions

1.   Verify Hand and Bevel of door

Illustrations shown are as viewed from the outside or secure side of opening.

Left Hand
Hinges Left.
Open Inward.
"LH"

Left Hand
Reverse Bevel
Hinges Left.
Open Outward
"LHRB"

Right Hand
Hinges Right.
Open Inward.
"RH"

Right Hand
Reverse Bevel
Hinges Right.
Open Outward
"RHRB"
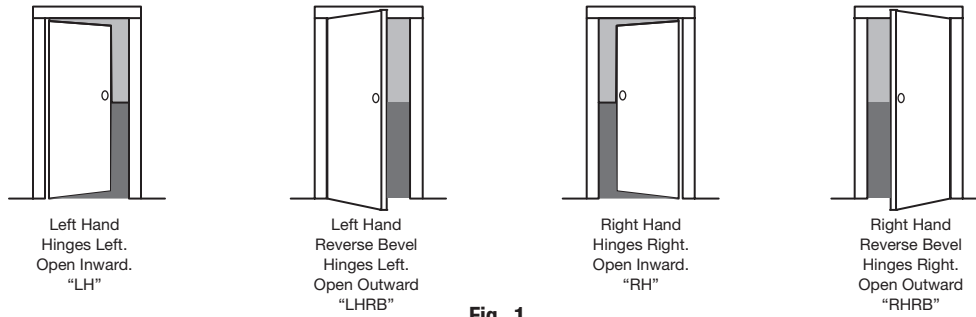
Fig. 1

2.   Door Preparation

Prep door according to supplied door marker (FM355). For door manufacturer templates visit **www.corbinrusswin.com** and reference template # T31202.

Outside Face of Door

Inside Face of Door

Wood Door shown

Raceway for Optional Remote Power

Through-bolt Hole

Outside Cylinder Hole (only with cylinder installation)

Lever Handle Hole

Cable Hole

External DPS Hole

Mortise Pocket

Lever Post Holes

Raceway for Optional Remote Power

Through-bolt Hole

Inside of Lock body Wire Hole

Thumb Turn Lever Hole

Lever Handle Hole

Fig. 2

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IN100 Mortise Lock
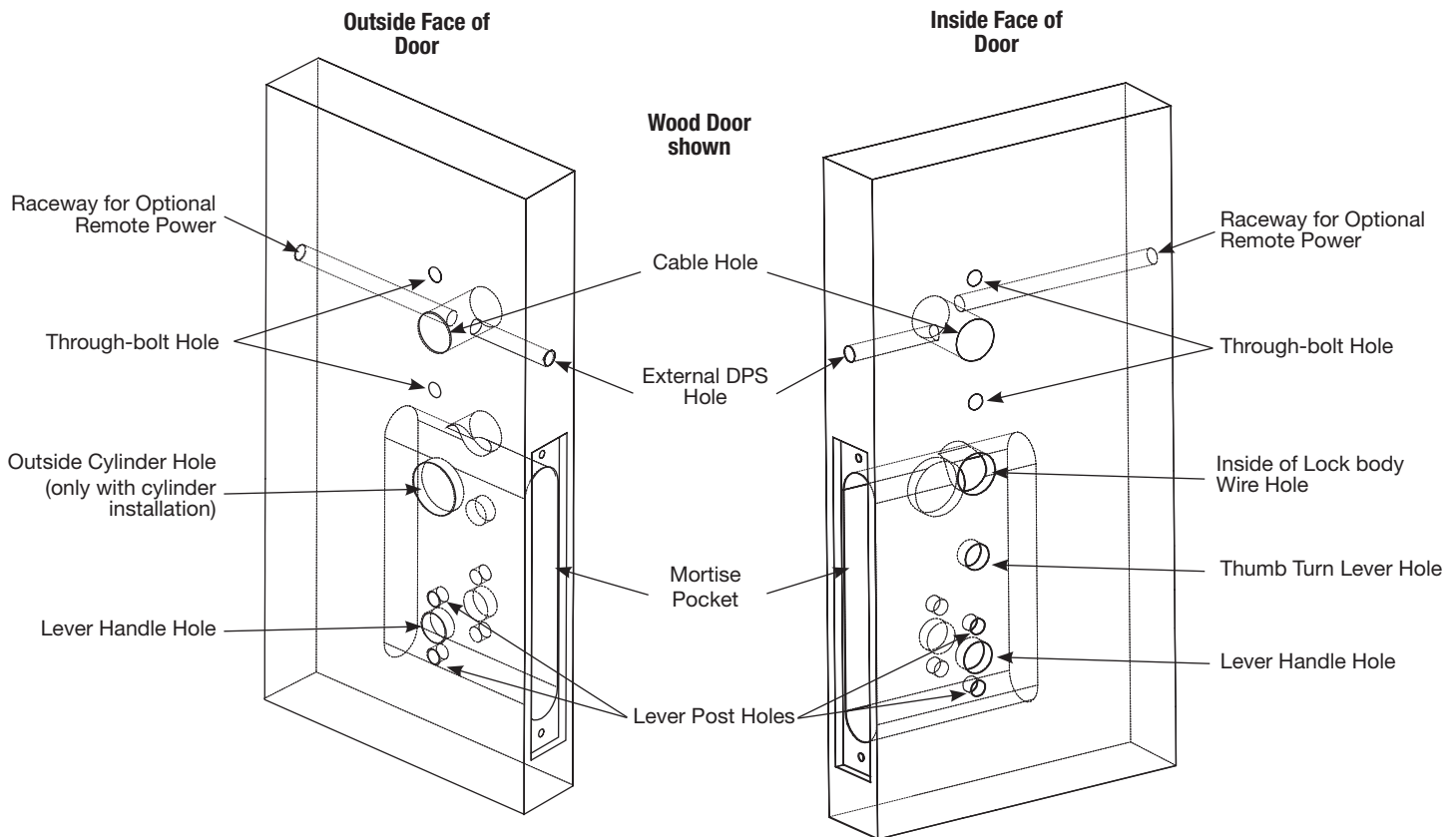
3.   Install Door Position Switch (DPS)

     a. Push wires through raceway toward lock prep.

     b. Push DPS firmly into place by hand.
         Note: **DO NOT TAP SWITCH WITH ANY TOOL.**

     c. Install magnet into door frame. Push firmly into place by hand.
         See instruction **A7983**.

   *****Only required on the ML201xx lock body (ML202xx has an **integrated** DPS)

Inside of Door

Collar is used only with **metal** doors

Door Status Switch
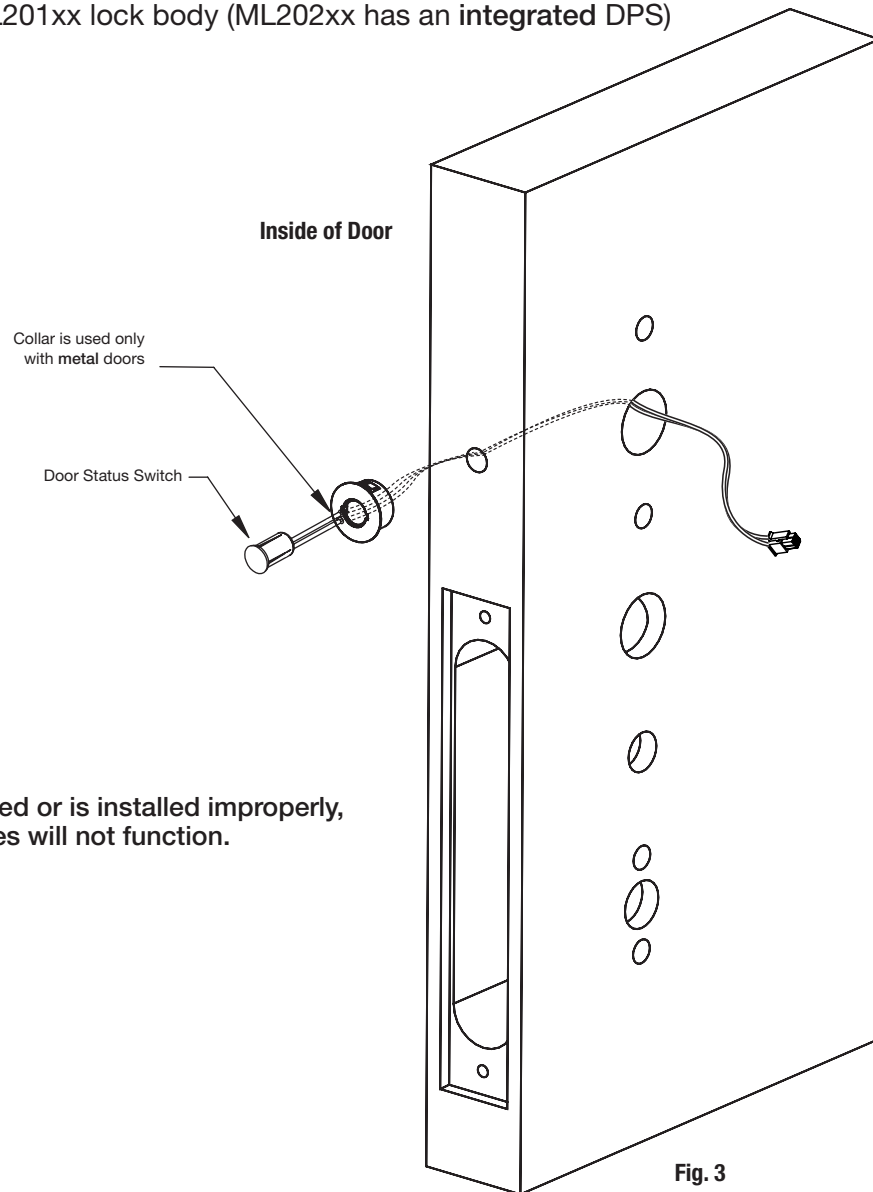
CAUTION: if DPS is not installed or is installed improperly, door status monitoring features will not function.

Fig. 3

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IN100 Mortise Lock

4. Lock Handing Instructions

a. Move the **Red** locking screw to side of lock-body being locked (Fig. 4a)

b. Push in latch then depress catch plate with screw driver (Fig. 4a)

c. Pull latch out of lock-body and turn latch over (Fig. 4b)

Catch Plate

RED Locking Screw

Fig. 4a

Fig. 4b
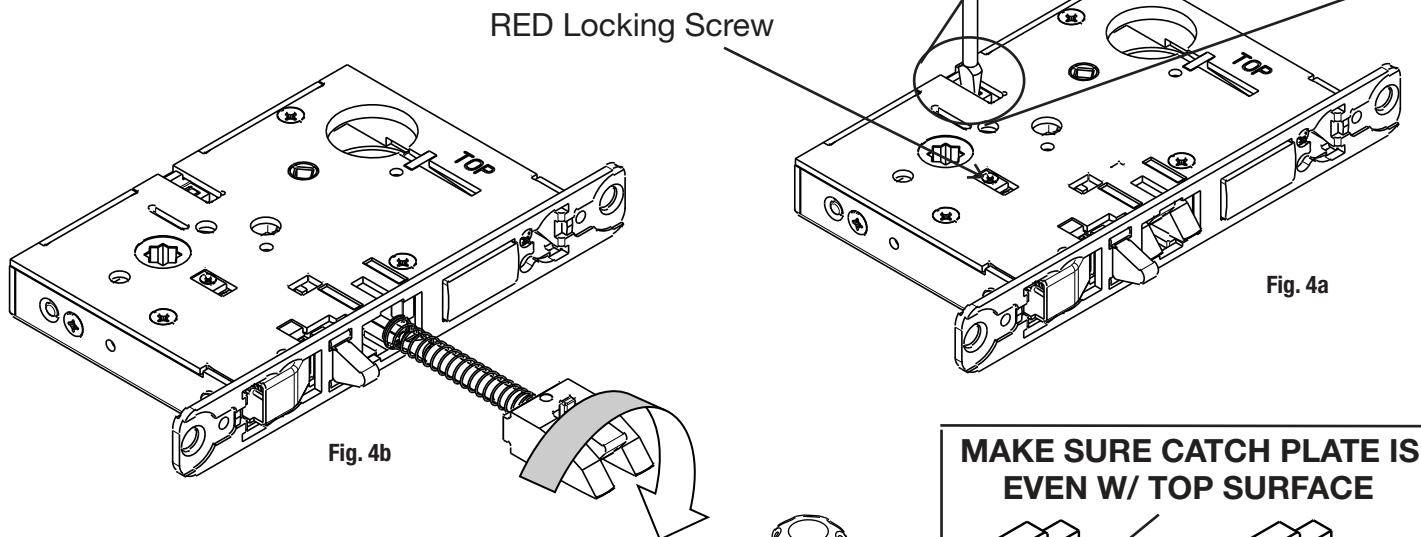
d. Push in latch while holding screw driver behind latch tail (Fig. 3)

Note: Push in latch until catch plate is no longer depressed (Fig. 4)

e. Rotate lock front to match bevel of door as shown (Fig. 5)

MAKE SURE CATCH PLATE IS EVEN W/ TOP SURFACE

Fig. 4d

Fig. 4e

Fig. 4c
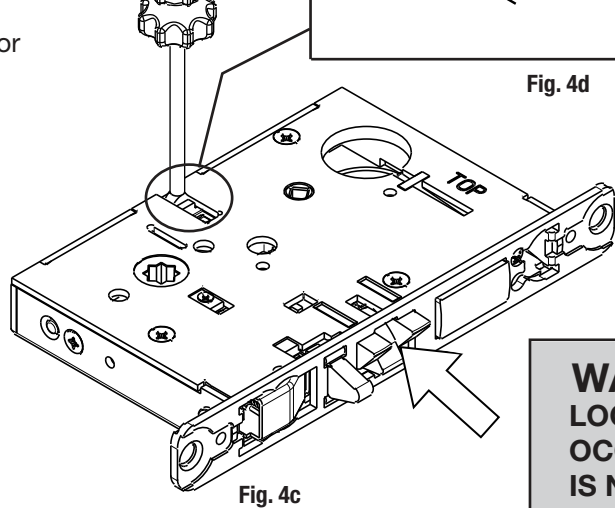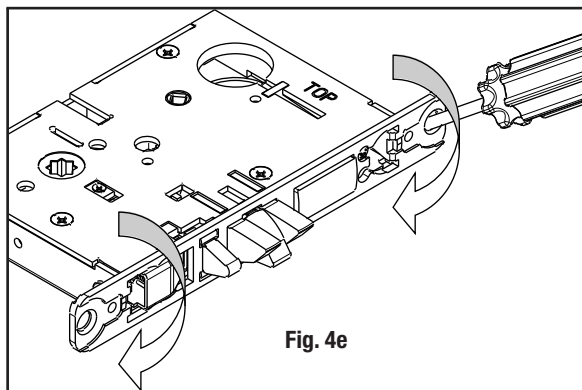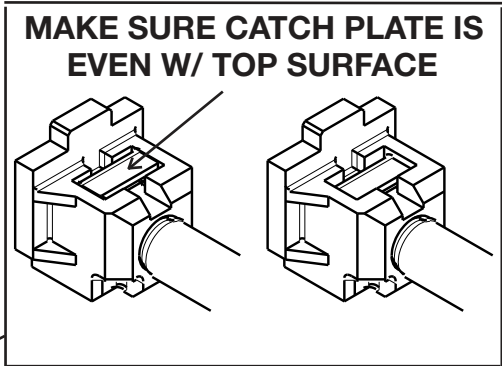
WARNING:
LOCK-IN CAN OCCUR IF LATCH IS NOT PROPERLY INSTALLED

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IN100 Mortise Lock

5. Install Lock Body in Door:

a. Feed wires through 1-5/16" diameter hole on INSIDE of door while installing lock body (Fig. 5a).

b. Pull wires through hole while inserting lock body. DO NOT push wires back into cylinder hole (Fig. 5b).

   Important: Door must remain open during installation. Use door stop.

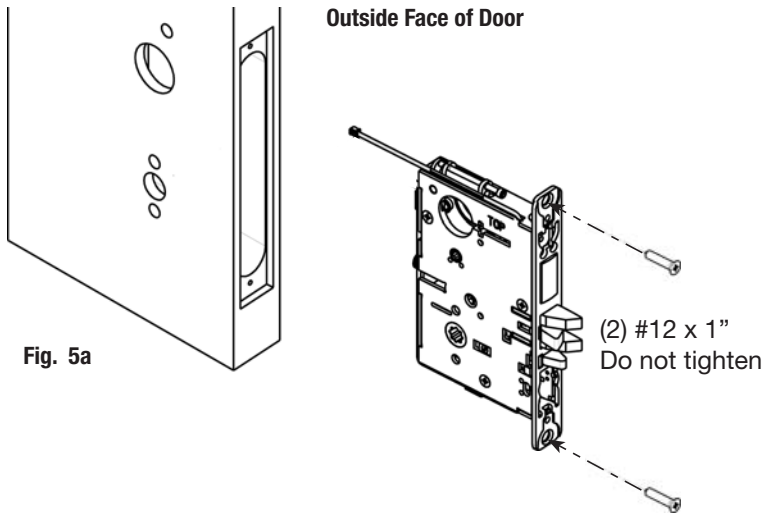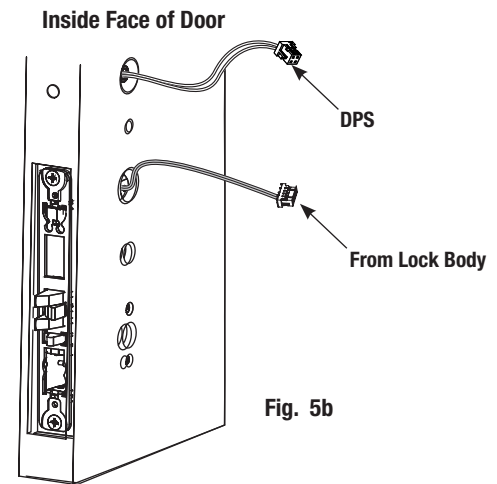c. Install, but do not tighten two #12 x 1" combination screws through lock body (Fig. 5a).

Outside Face of Door

Fig. 5a

(2) #12 x 1"
Do not tighten

Inside Face of Door

DPS

From Lock Body

Fig. 5b

6. Install Cylinder:

a. Slide cylinder through collar. Thread cylinder into lock body (Fig. 6a).

   Note: Make sure cylinder is oriented correctly (Fig. 6a1).

b. Tighten cylinder clamp using 7/64" allen wrench (Fig. 6b).

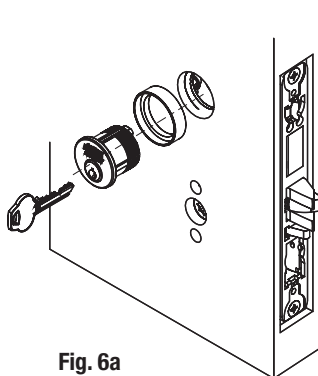c. Turn the key to make sure that lock functions correctly (latch, deadbolt, and key).

Fig. 6a

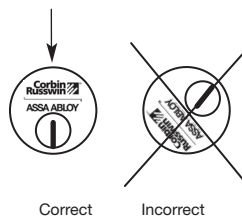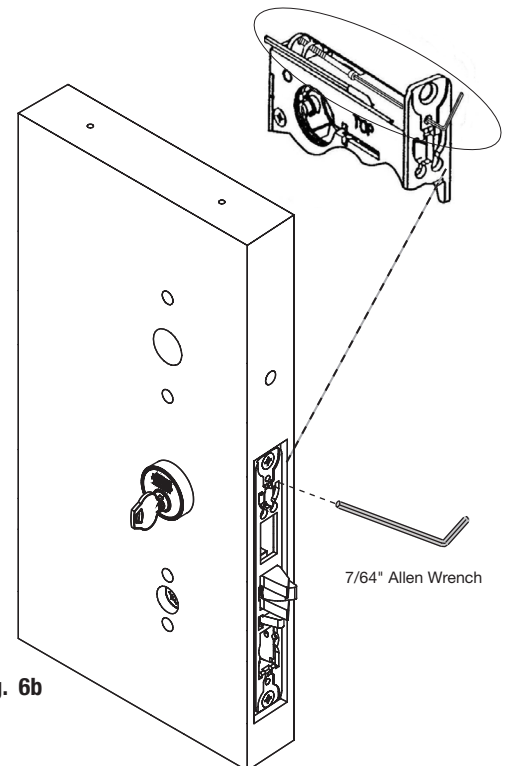Position cylinder so that the logo is right-side up.

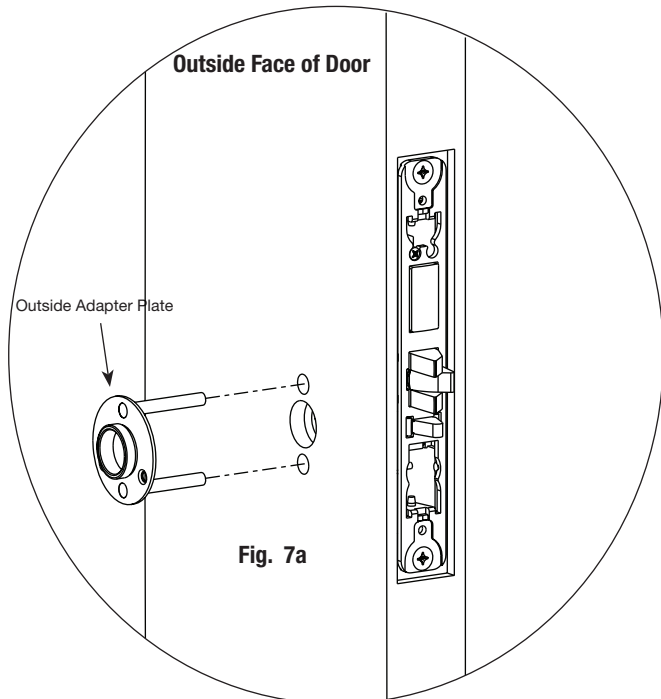Correct   Incorrect

Fig. 6a1

7/64" Allen Wrench

Fig. 6b

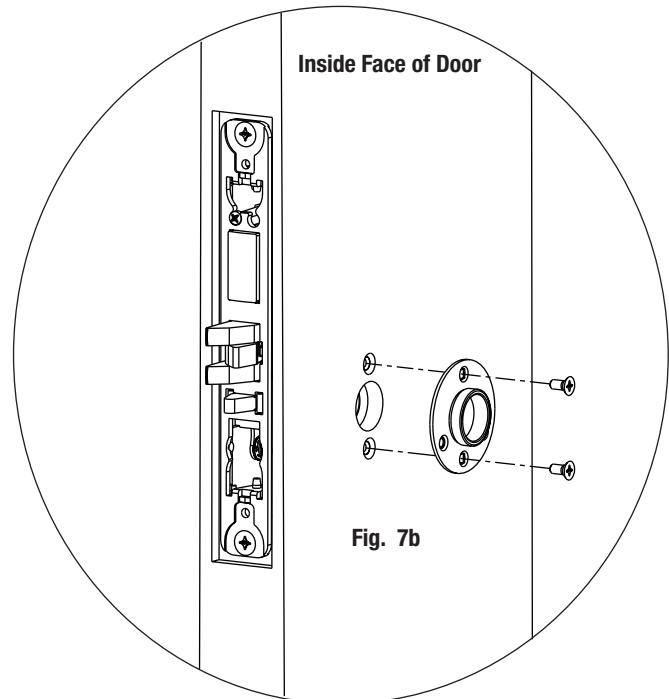ASSA ABLOY, the global leader in door opening solutions

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7A.   Install Standard Lever Trim:

(Refer to Step 7b on following pages for Museo® Trim):

Step 1a

Outside Face of Door

Outside Adapter Plate

Fig. 7a

Step 1b

Inside Face of Door

Fig. 7b

Step 2

Inside Face of Door

Fig. 7c

Step 3

Outside Face of Door

Fig. 7d

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Step 4

Inside Face of Door

Fig. 8a

Use Correct Spindle Orientation

Good   Bad

Lever   Fig. 8b
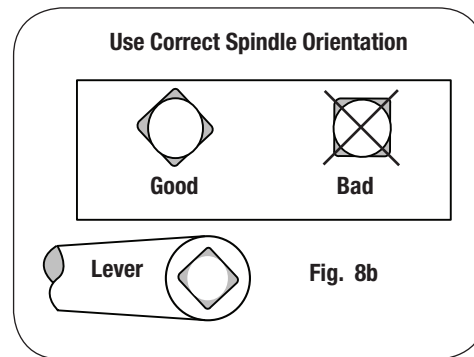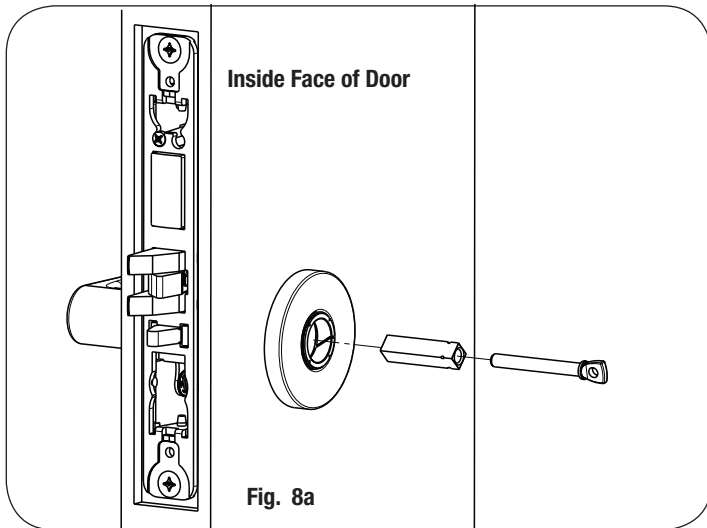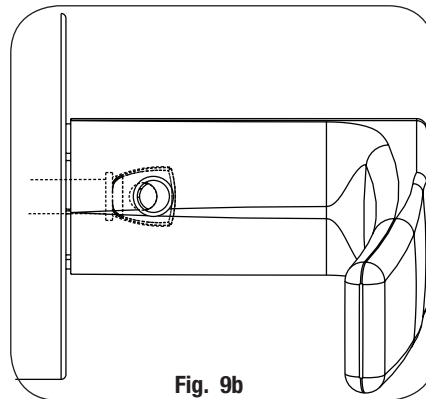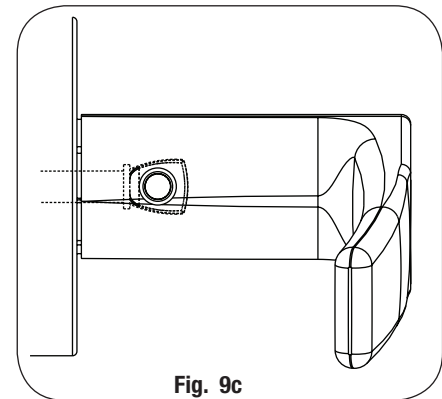
Step 5   Align adjustment bolt with threaded hole in lever

Fig. 9a
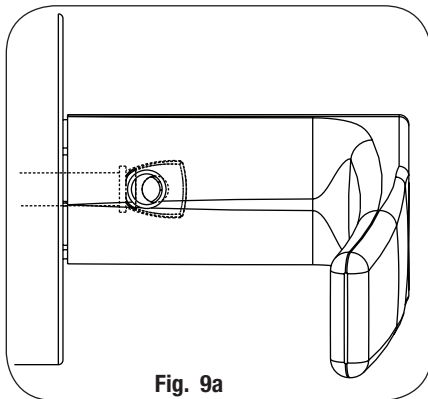
Adjustment bolt needs
to be threaded in farther.

Fig. 9b

Adjustment bolt needs
to be unthreaded.

Fig. 9c
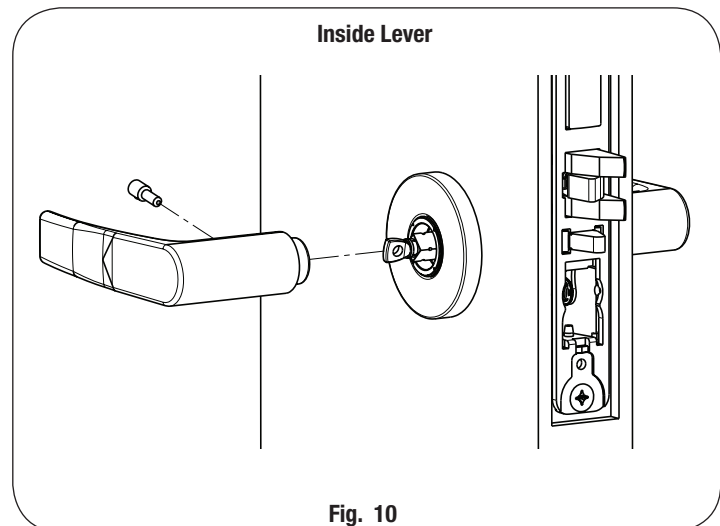
Adjustment bolt fully aligned.

Step 6   Install I/S lever with set screw:

Notes:

• Unthread adjustment bolt approximately four turns
  for a good starting point (after being fully tightened).
• Make sure O/S lever is fully inserted into adapter
  plate before aligning adjustment bolt.

Inside Lever

Fig. 10

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7B.   Install Museo® Trim:

Step 1 Thread adapter plate hub into lever and fully tighten

NOTE: Spindle can be used to help thread hub into lever
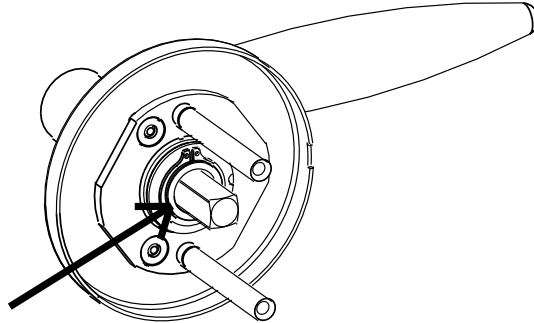
Adapter Plate Hub

Fig. 11a

Step 2 Align adapter plate hub with square hole in lever; keeping hub as tight as possible
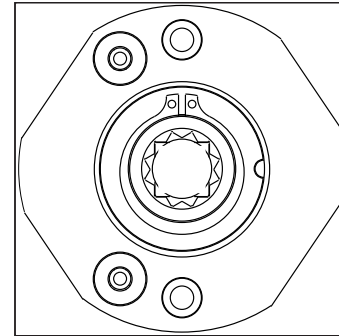
Fig. 11b

Step 3 Install O/S trim assembly and inside adapter plate

Outside Face of Door

Inside Face of Door
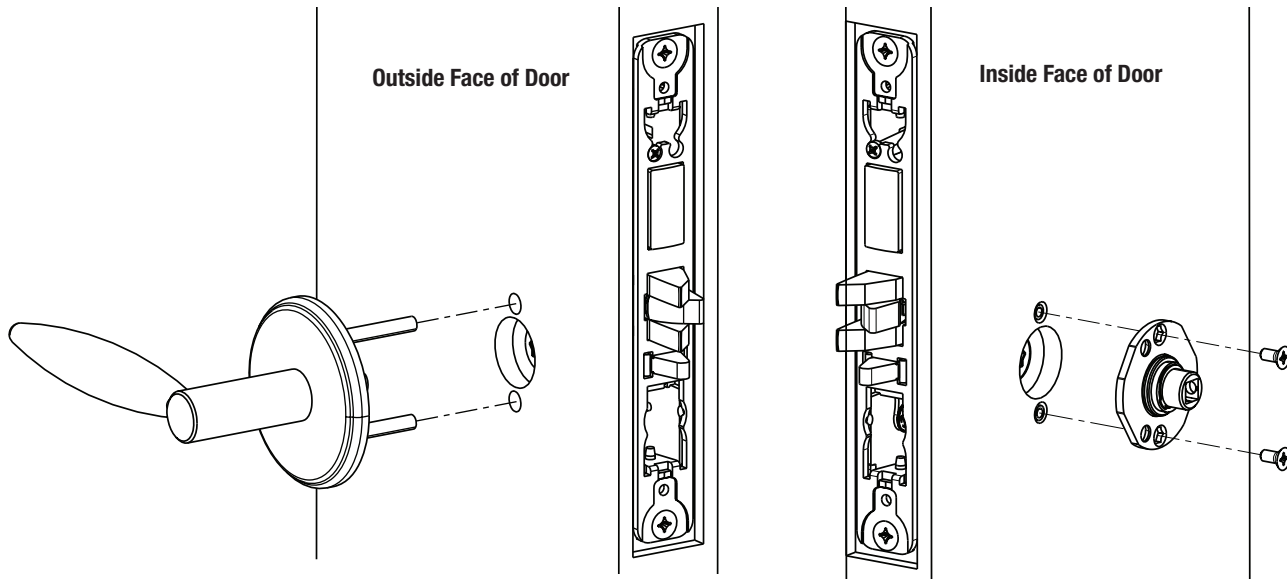
Fig. 12

Use Correct Spindle Orientation

BAD   GOOD

Lever

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Step 4 Install Spindle and Rose:

a. Align studs on rose with bushings in adapter plate.
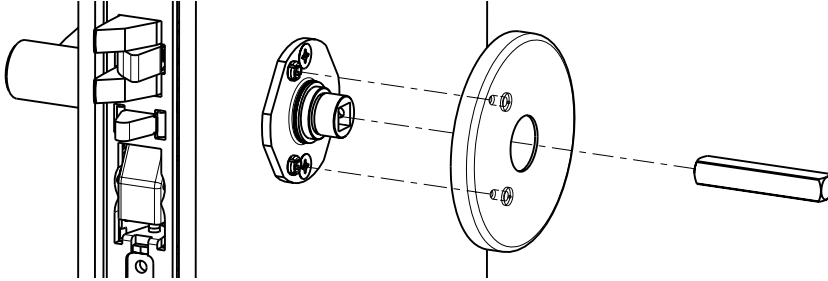
Fig. 13a

Step 5 Install I/S lever with set screw:
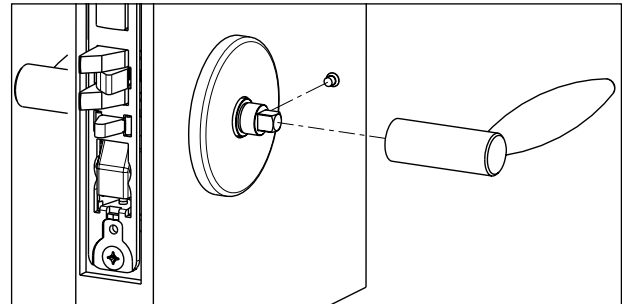
Fig. 13b

Step 6   Install Armored Front:

a. Tighten (2) screws through lock body.

b. Attach armored front with two #8 x ¼" screws (Fig. 13c).

Outside Face of Door

Fig. 13c

13   ASSA ABLOY, the global leader in door opening solutions
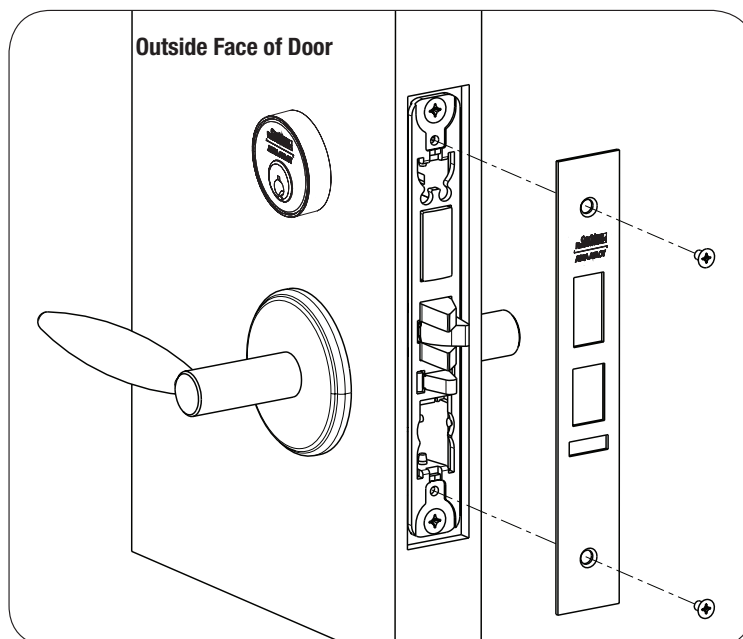
5) Installation Instructions (Continued)

8.   Install Turn Piece:

Step 1
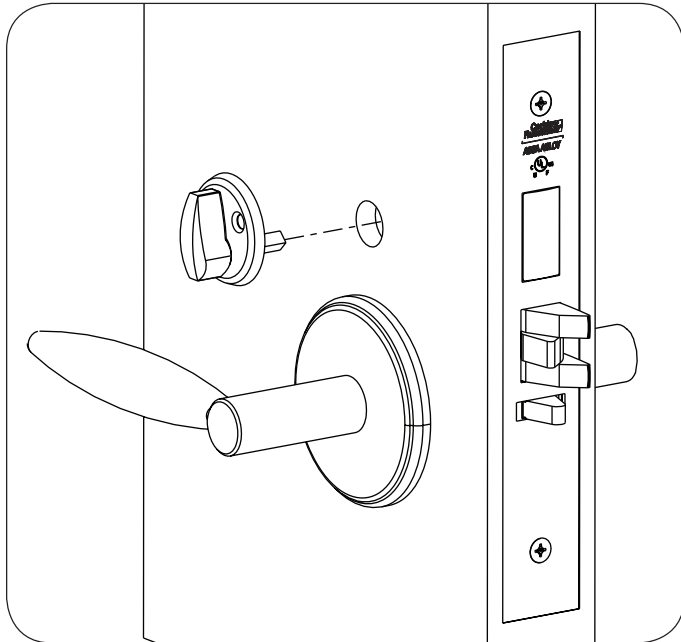
Fig. 13d

Step 2

Fig. 13e

Step 3

Fig. 13f

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9.   Install Outside Reader and Inside Mounting Plate:

a. Orient the reader so the LED lens is at the top.

b. Feed the reader harness through the door (from outside to inside).

c. 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.

Outside Face of Door

LED

Reader Assembly with Harness

Fig. 14a

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IN100 Mortise Lock

d. 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).

e. Tuck excess cable into wire hole on inside of door.

f. 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).

NOTE: Cable lengths exaggerated for illustrative purposes.

Gasket*

Inside Mounting Plate

Through-bolt

Door Position Switch

Reader Harness

Through-bolt

Lock Body Harness

Ground Ring Terminal

Inside Face of Door

Fig. 14b

Inside Face of Door

Fig. 14c
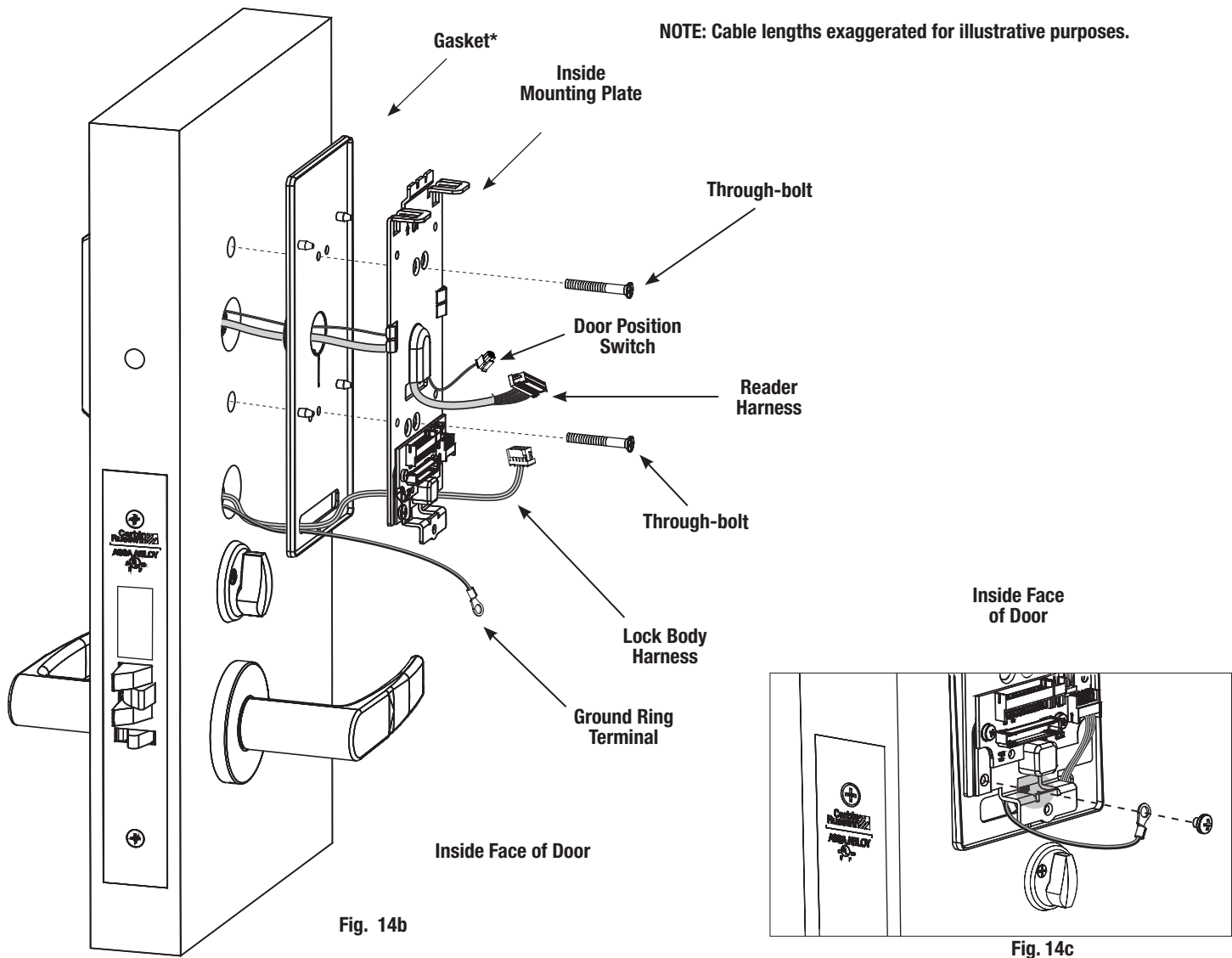
g. Secure ground lug with #6-32 machine screw (Fig.10C).

   *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. 14c).

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

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IN100 Mortise Lock

10.   Installation of Connectors

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

Secure the following connectors to their respective terminals (Fig. 10D):

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. 10B, D).

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

DPS (4-pin)   9-24VDC Power*

A

Ground Lug   B

Fig. 10D   Lock Body (10-pin)
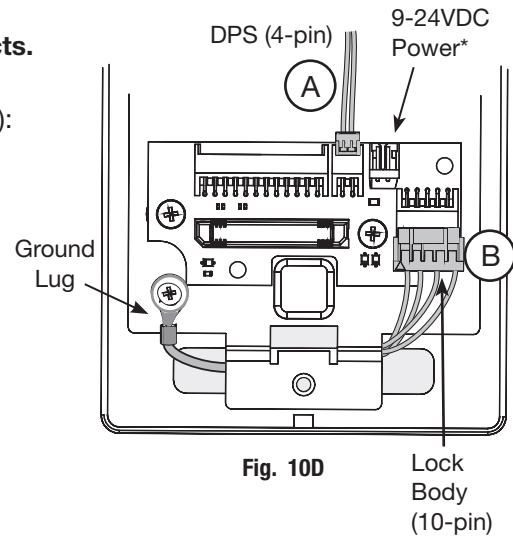
Secure Mounting Plate

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. 10E).

E. Secure the 24-pin card reader connector (Fig. 10F).

UP

Fully tighten

Fig. 10E

Reader (24-pin)   D

Board-to-Board Connector

Fig. 10F

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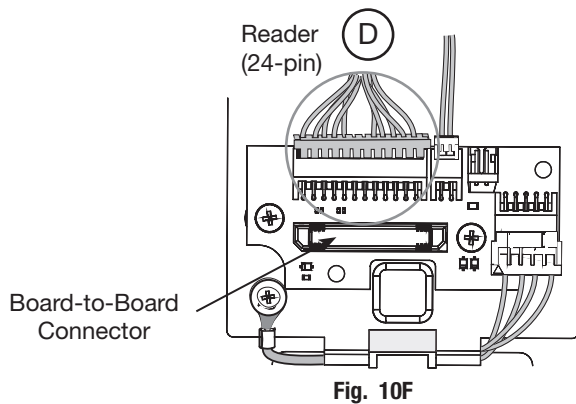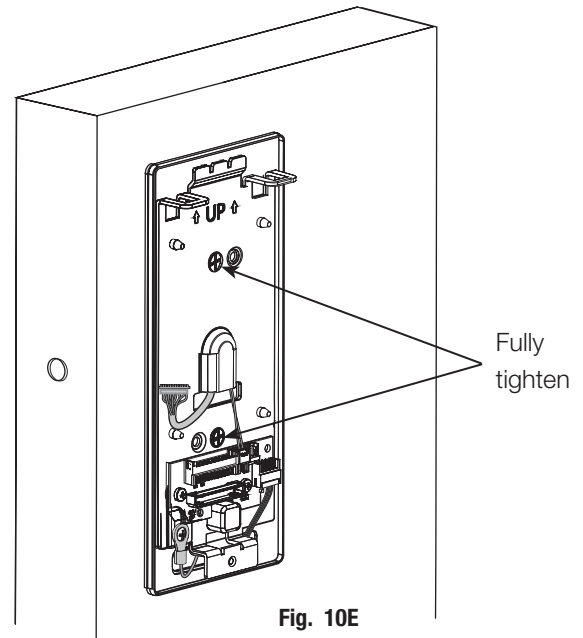
11.   Installation of Inside Module Component Assembly

   a. Insert top tabs of controller into slots on mounting plate (Fig. 17).

   b. 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.

Inside Face of Door

Fig. 17

ASSA ABLOY, the global leader in door opening solutions

IN100 Mortise Lock
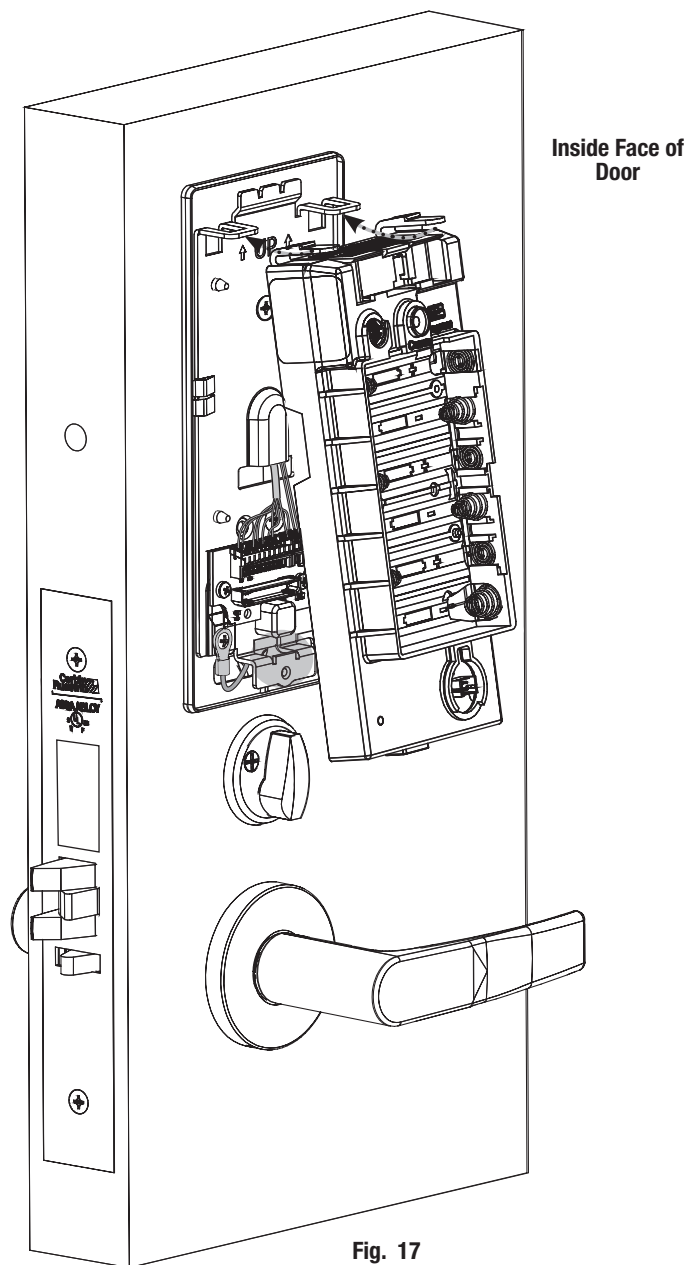
12.   Installing Batteries

a. Place (6) "AA" alkaline batteries in the compartment, being careful to align polarity properly (Fig. 18).

b. After batteries are installed, there is a slight delay; then red and green flash, audible "beep" and lock motor will cycle.
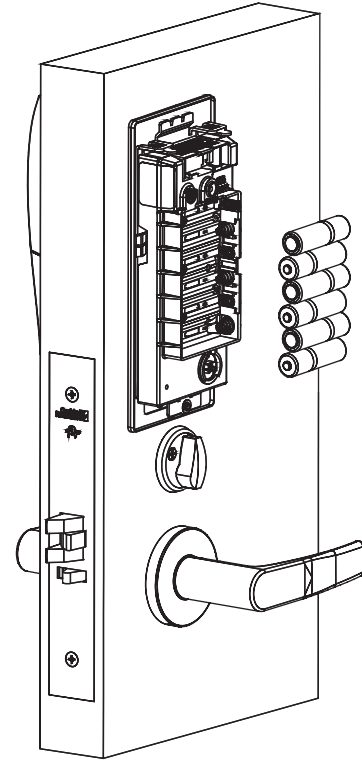
Fig. 18

13.   Inside Cover Installation

a. Assemble cover by hooking top edge on inside mounting plate.

b. Carefully press bottom of cover toward door with out pinching or damaging any wires.

c. Fully secure cover by tightening the security screw at bottom of cover (Fig.19), utilizing a security allen wrench.

Fig. 19

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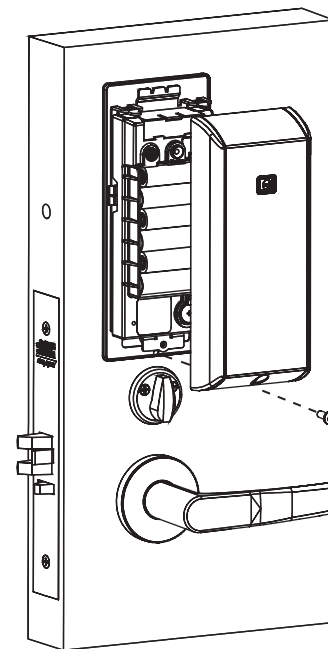
6) Operational Check

When lock is fully installed, perform the following steps:

a. Insert key into cylinder and rotate (Fig. 20a).

b. There should be no friction against lock case, wire harness or any other obstructions.

c. Check that the key retracts the latch.

d. The key should rotate freely.

e. Try the inside lever; ensure it retracts latch.

f. Present a valid credential* (Fig. 20b) to unlock outside lever; turn lever handle to ensure latch retracts.
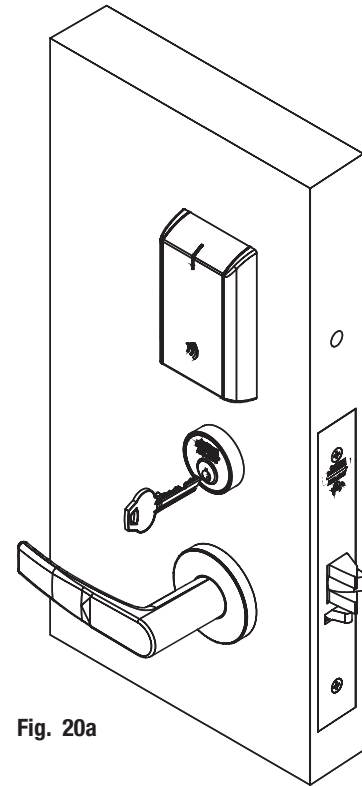
Fig. 20a
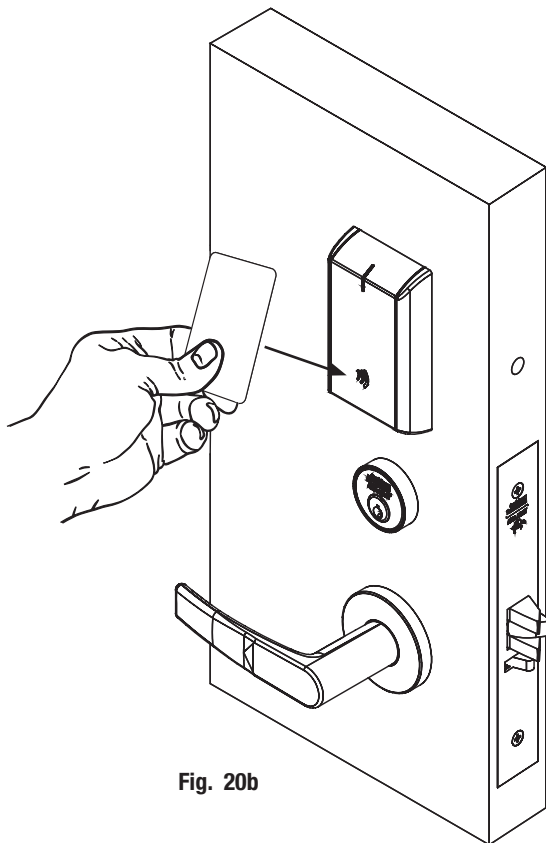
Fig. 20b

Note: The credential should approach the inscription on the reader as indicated (Fig. 20b) to ensure that the credential is read properly.

Do not wave credential.

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IN100 Mortise Lock

7) LED Indications

The communication hub has a single LED. It supports an optical scheme of red, green and yellow.

The indication scheme is described by the figures below:
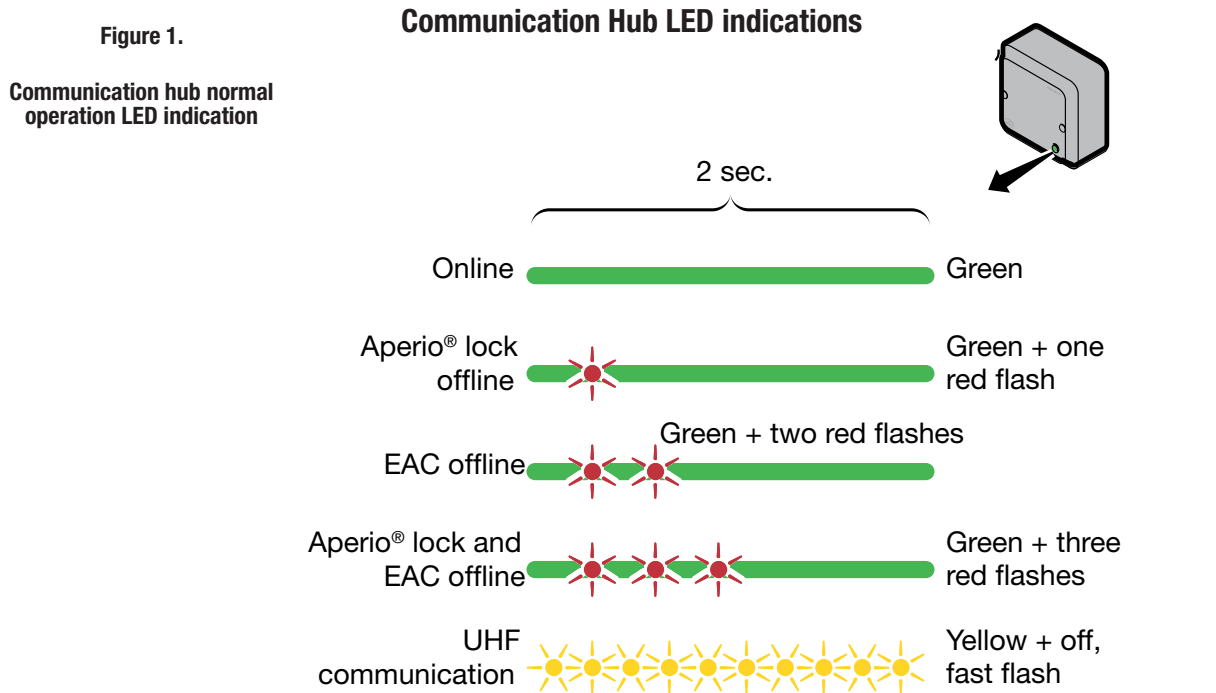
Communication Hub LED indications

Figure 1.

Communication hub normal operation LED indication

2 sec.

Online — Green

Aperio® lock offline — Green + one red flash

EAC offline — Green + two red flashes

Aperio® lock and EAC offline — Green + three red flashes

UHF communication — Yellow + off, fast flash

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

2 sec.

Figure 2.

Communication hub maintenance LED indication

Pairing active — Yellow + green
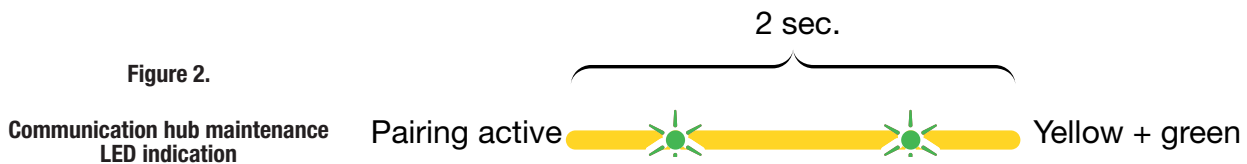
Ethernet LED indication

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

2 sec.

Figure 3.

AH40 Communication hub Ethernet LED indication

Ethernet link connected — Green

Ethernet communication — Green + off fast flash
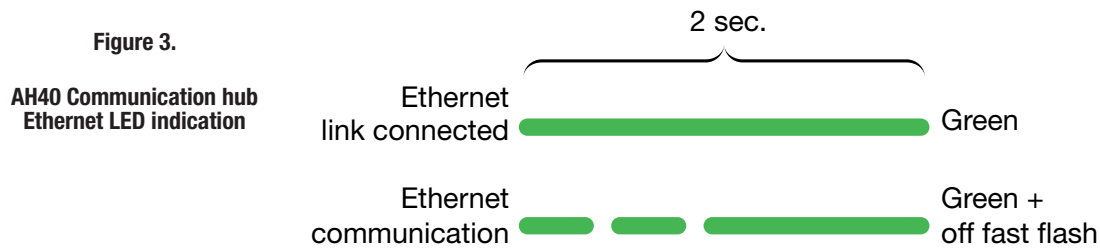
*For more information, refer to Aperio Online Quick Installation Guide (Document No: ST-001322-PF Date: 2015-12-23)

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Lock LED indications

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

The indication scheme is described by the figures below:

Figure 4. Lock normal operation LED indication

	EAC response time	Enter PIN	
Card + PIN access (configurable)			One yellow flash after card, two flashes before PIN (.125 second)
Card access (configurable)			One yellow flash (.25 second)
Access granted, EAC offline or online			**One green flash (1 sec.)**
Access denied, EAC online			**One red flash (1 sec.)**
Force closed in remote open/office mode			Five yellow flashes and one red flash (.25 second)
Busy blink, com hub busy with other locks			Continuous yellow flashes (.25 seconds every second)
Access denied, EAC offline			**Three red flashes (.5 second each)**
Lock mechanism is blocked when closing 1)			Continuous red flashes (.125 seconds every 1 sec.)
Error in lock, maintenance required			Ten red flashes (.125 sec. each) (Repeated every 10 sec. if lock can't close)
Tamper			Ten red flashes (.125 sec. each) repeated every 10 sec.
Time to replace the battery			Continuous yellow flashes (.25 seconds every 5 sec.)
Battery reached end of life, lock disabled			Continuous red flashes (.25 seconds every 5 sec.)
V3 USB cable detection action occurred			Five yellow flashes (.25 second each)

ⓘ 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

Enter configuration mode		Five yellow flashes (.125 second each)

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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.
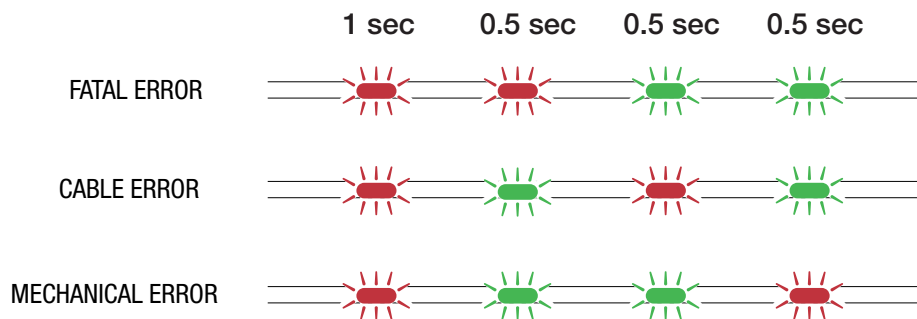
Figure 6. Lock POST LED indication

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.

	1 sec	0.5 sec	0.5 sec	0.5 sec
FATAL ERROR	red	red	green	green
CABLE ERROR	red	green	red	green
MECHANICAL ERROR	red	green	green	red

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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Corbin Russwin

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