Component Maintenance Manual

Wireless Presence Tag

A10WPT-001

Wireless Security Tag

A20WST-001

RECORD OF REVISIONS			
Revision	Revision Description	Approved by	Date
IR	Initial Release	K. Keating	2/15/2021
A	See DC4038 for explanation of changes Added P/N to header Added acronyms to Section 2.2 Removed LED illumination criteria	B. Adie	5/17/2021

TABLE OF CONTENTS

Contents

1 Scope

This Component Maintenance Manual (CMM) applies to the Wireless Presence Tag (WPT) P/N A10WPT(-XXX) and the Wireless Security Tag (WST) P/N A20WST(-XXX). The WPT and WST are manufactured by Turbine Kinetics, Inc., Glastonbury CT, 06033 USA.

2 Units, Abbreviations, and Acronyms

2.1 Units

All weights and measurements are present in English standard units followed by the metric equivalent in parenthesis.

2.2 Abbreviations/Acronyms

CMM – Component Maintenance Manual
CMS – Cabin Management System
ESD – Electrostatic Discharge
IPL – Illistrated Parts List
LOPA – Layout of Passenger Accommodations
PCB – Printed Circuit Board
PED – Portable Electronic Device
P/N – Part Number
TK – Turbine Kinetics, Inc.
WPT – Wireless Presence Tag
WST – Wireless Security Tag

3 Description and Operation

The WPT consists of the following details (refer to Figure 301 and IPL):

- Wireless Presence Tag PCB
- PCB Enclosure Cover
- PCB Enclosure Base
- Damper
- Battery Insulator
- Battery
- Screw
- Cable Seal

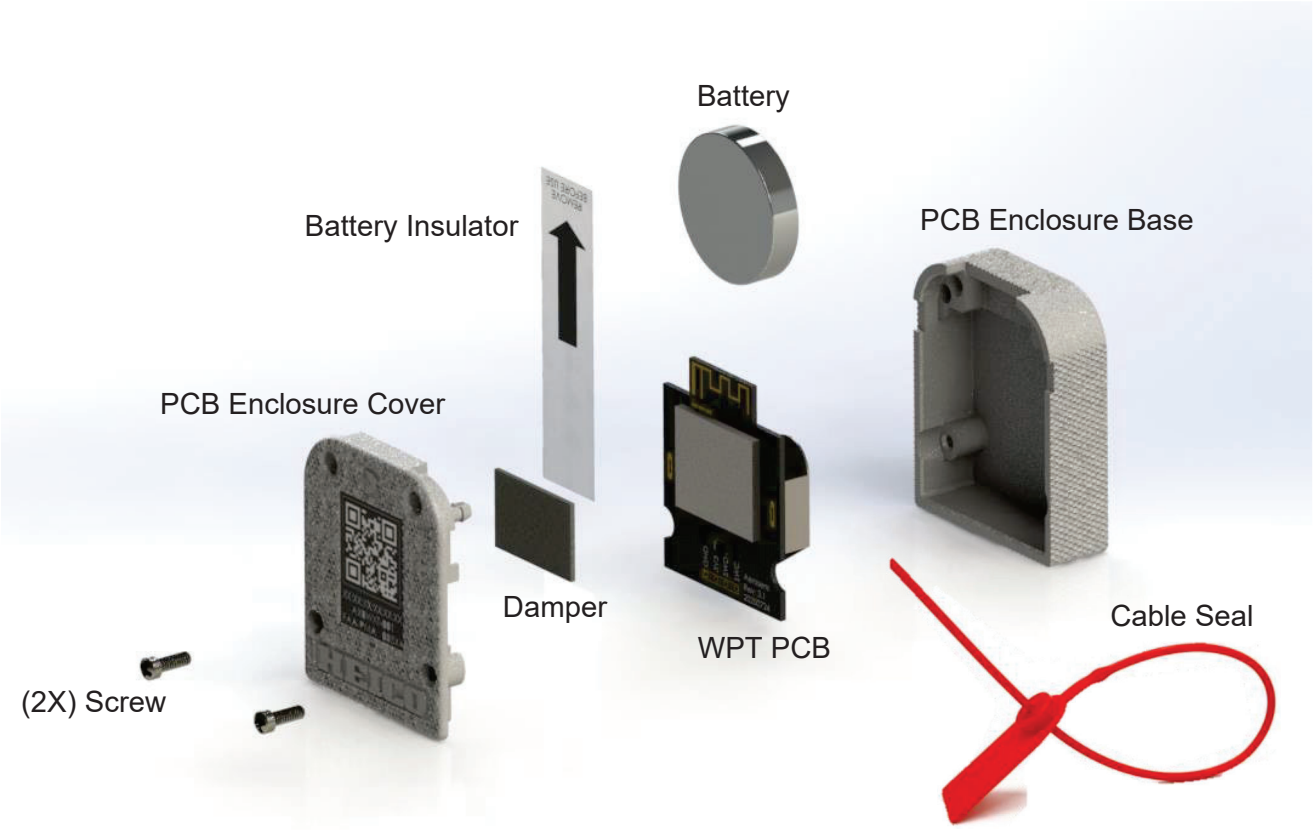


Figure 301 – WPT Exploded View

The WST consists of the following details (refer to Figure 302 and IPL):

- Wireless Security Tag PCB
- PCB Enclosure Cover
- PCB Enclosure Base
- Damper
- Battery Insulator
- Battery
- Screw
- Mounting Tape
- Magnet Mounting Tape
- Magnet Enclosure Cover
- Magnet Enclosure Base
- Magnet Damper
- Magnet

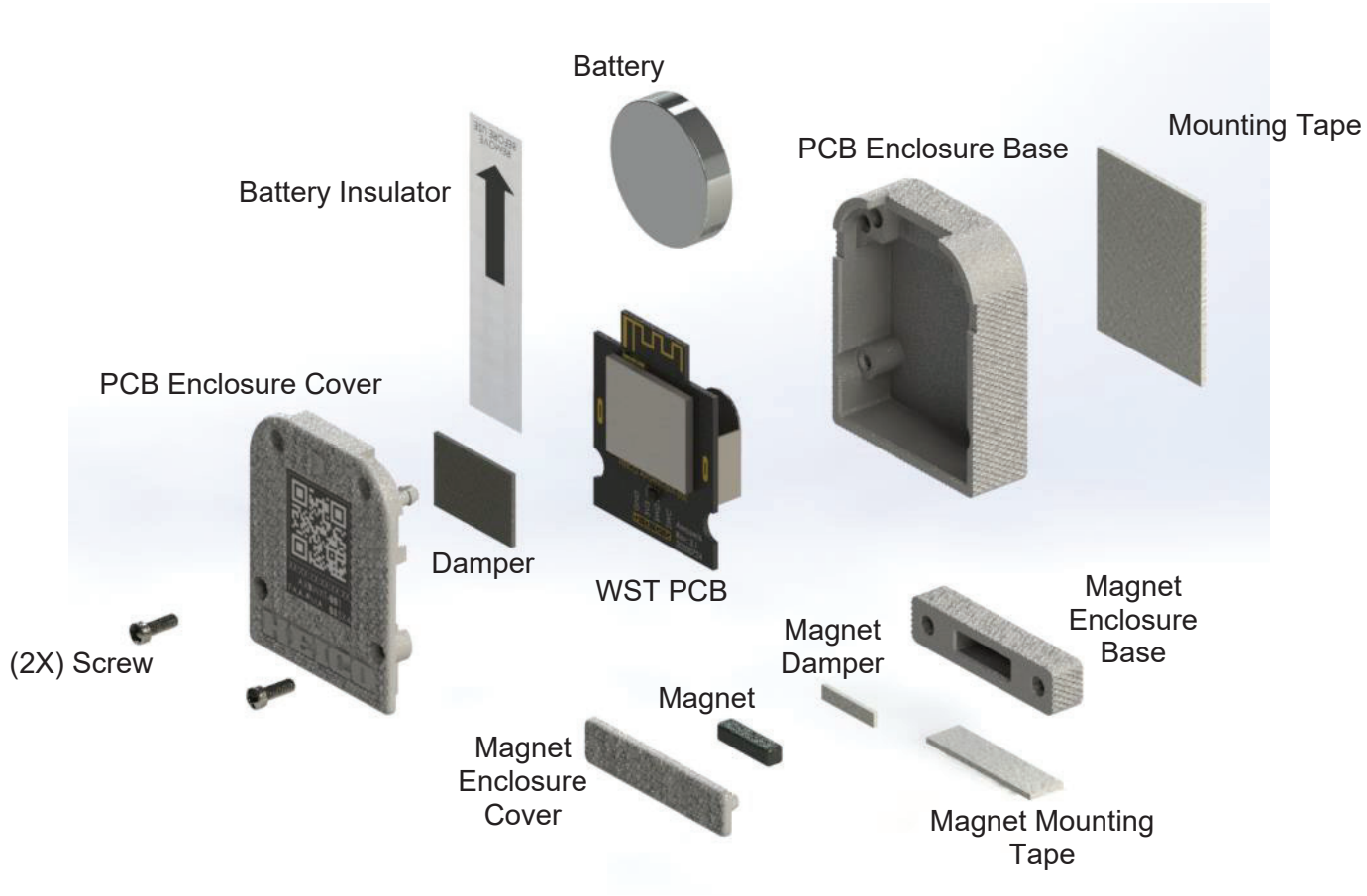


Figure 302 – WST Exploded View

Using Bluetooth Low Energy 5.0 technology, the WPT and WST verify the presence and/or status of parts from a distance, in user friendly format on any PED. The PED can be any smart phone or tablet with an IOS or Android operating system and the CMS application installed.

The WPT may be secured to parts, including but not limited to emergency medical kits, first aid kits, fire extinguishers, and oxygen bottles. The WPT continuously transmits via Bluetooth Low Energy 5.0 wireless communication in advertisement mode. The PED held by a member of the aircraft cabin crew with the CMS application installed and activated is able to verify the presence of the part in real time by reading the Bluetooth Low Energy 5.0 transmissions from the WPT. The WST functions in the same manner as the WPT, except it includes the ability to detect if a part has been tampered with in real time, such as a life vest compartment having been opened.

Figure 303 depicts a block diagram of the system with the statuses of various items being monitored by the CMS application on a PED. The CMS application graphically depicts the aircraft interior as configured. This graphical representation is generated using the customer supplied LOPA. Each part being tracked is associated to a location within the aircraft (e.g. specific seat). The following are examples of alerts the aircraft cabin crew may receive:

- If a fire extinguisher equipped with a WPT was not installed back on the aircraft after a routine maintenance check, the aircraft cabin crew will be alerted by the CMS application using a visual indicator on the PED at the affected location.
- If a life vest enclosure that is equipped with a WST is opened, the aircraft cabin crew will be alerted by the CMS application using a visual indicator on the PED at the affected location.
- If a part that is equipped with either a WPT or WST is approaching expiration or has expired, the aircraft cabin crew will be alerted by the CMS application using a visual indicator on the PED at the affected location.

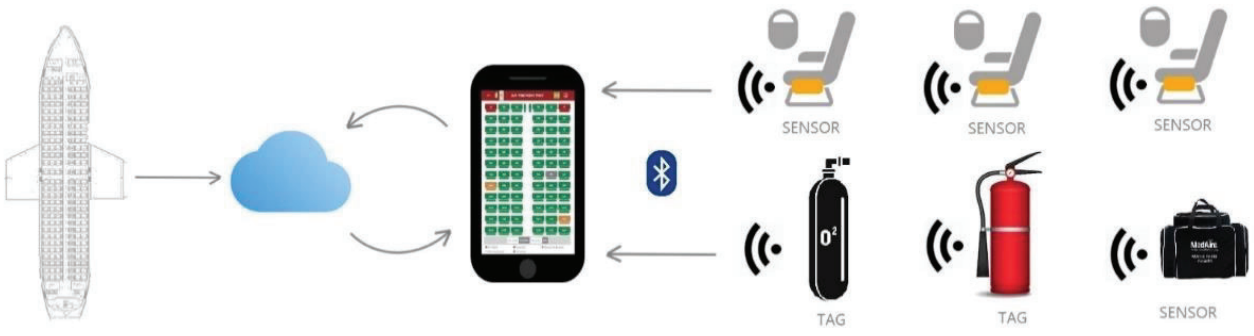


Figure 303 – System Diagram

4 Check

4.1 General

A. This section provides the procedures to check that a WPT or WST is in good condition and is operating as intended. Refer to Table 402 for the list of check procedures.
B. Refer to Section 5 - Testing and Fault Isolation - to functionally test the unit when directed by a check procedure.
C. Refer to Section 8 - Repair - to correct any problems detected by a testing and fault isolation procedure.
D. Repeat the check procedures after a WPT or WST has been repaired to confirm the repair was successful.
E. Refer to Section 11 - IPL - for subcomponent identification.

4.2 Materials

Refer to Table 401 for the material necessary to perform this section's procedures.

Table 401: Check Material

*Part or Specification Number	Nomenclature
Commercially Available	PED with Android or IOS operating system and CMS application installed
*Unless otherwise specified, equivalent alternatives may be used for given items.	

4.3 Procedures

Visual and functional check procedures are given in Table 402.

Table 402: Check Procedures

C.P.	Component	Inspection Method	Check For	Corrective Action
#1	A10WPT-001 (1-1) A20WST-001 (2-1)	Visual Check	Debris buildup on external surfaces	Clean per Section 7 or replace
#2	A10WPT-001 (1-1) A20WST-001 (2-1)	Visual Check	MAC address and QR code missing or illegible	Replace
#3	PCB Enclosure Cover (1-10) PCB Enclosure Base (1-15) Magnet Enclosure Cover (2-50) Magnet Enclosure Base (2-55)	Visual Check	Cracks, voids, separation of cover and base, loose or missing hardware	Replace
#4	Cable Seal (1-40) Mounting Tape (2-40) Magnet Mounting Tape (2-45)	Visual Check	Separation from adhered surface, tears, cuts, distortion or other damage	Replace
#5	WPT PCB (1-5) WST PCB (2-5) Battery (1-30)	Functional Check	Before installing a WPT or WST, remove the Battery Insulator (1-25) The device LED must illuminate briefly	Test per Section 5 or replace
#6	WPT PCB (1-5) WST PCB (2-5) Battery (1-30)	Functional Check	Use PED with CMS application installed to scan the cabin and wirelessly detect any WPT or WST devices that transmit a status of missing, despite being present	Test per Section 5 or replace
#7	WST PCB (2-5) Magnet (2-65)	Functional Check	Use PED with CMS application installed to scan the cabin and wirelessly detect any WST devices that transmit a status of open, despite the monitored compartment being closed	Test per Section 5 or replace

*Numbers in parenthesis refer to IPL Figure item numbers.

5 Testing and Fault Isolation

5.1 General

A. This section provides the procedures for testing and fault isolation of the WPT and WST. Refer to Table 502 for the list of test procedures.
B. Use this section's testing and fault isolation procedures after detecting a problem per Section 4 - Check.
F. Refer to Section 8 - Repair - to correct any problems detected by a testing and fault isolation procedure.
G. Repeat the check procedures after a WPT or WST has been repaired to confirm the repair was successful.
H. Refer to Section 11 - IPL - for subcomponent identification.

5.2 Materials

Refer to Table 501 for the material necessary to perform this section's procedures.

Table 501: Testing and Fault Isolation Material

Part or Specification Number	Nomenclature
Commercially Available Test Battery	CR2450 battery with >2.5 VDC remaining charge capacity *P/N A10WPT-001-007 (1-30) meets this requirement
Commercially Available Test Magnet	WST magnet or equivalent with 1.0 lbf [4.5 N] minimum pull force *P/N A20WST-001-006 (2-65) meets this requirement
* Numbers in parenthesis refer to IPL Figure item numbers.	

5.3 Procedures

Testing and fault isolation procedures are given in Table 502.

Table 502: Testing and Fault Isolation Procedures

T.F.I.P.	Trouble	Test Procedure	Test Result / Probable Cause	Corrective Action
#1	A WPT or WST device LED did not illuminate after removal of the Battery Insulator (1-25) Reference check procedure #5	1. Disassemble the WPT or WST per Section 6 2. Remove P/N A10WPT-001-007 battery (1-30) 3. Insert the test battery from Table 501. 4. The device LED must illuminate for briefly	*Yes, the device LED illuminated briefly:* Battery (1-30) has reached end of service life	Repair per Section 8 or replace
			No, the device LED did not illuminate briefly: Damaged WPT PCB (1-5) or WST PCB (2-5)	Replace
#2	A WPT or WST is present but the CMS application report indicates it is missing Reference check procedure #6	1. Disassemble the WPT or WST per Section 6 2. Remove P/N A10WPT-001-007 battery (1-30) 3. Insert the test battery from Table 501. 4. The device LED must illuminate briefly	*Yes, the device LED illuminated briefly:* Battery (1-30) has reached end of service life	Repair per Section 8 or replace
			No, the device LED did not illuminate briefly: Damaged WPT PCB (1-5) or WST PCB (2-5)	Replace
#3	A WST-monitored compartment is closed but the CMS application report indicates it is open Reference check procedure #7	1. Open the WST-monitored compartment 2. Hold the test magnet from Table 501 so that it touches the PCB enclosure in the switch-activation zone per Section 12 - Installation Figure 1203 3. Without moving the magnet, repeat the applicable check procedure, using the PED with CMS application to confirm whether the WST transmits WST status closed	*Yes, the CMS report indicated the WST-monitored compartment status is closed:* Magnet position requires adjustment	Adjust WST installation to meet the requirements of Section 12 or replace
			No, the CMS report indicated the WST-monitored compartment status is open: Damaged WST PCB (2-5)	Replace

*Numbers in parenthesis refer to IPL Figure item numbers.

6 Disassembly

6.1 General

A. This section provides the procedures for disassembly of the WPT and WST.
B. Do not disassemble a WPT or WST unless prompted by Section 5 - Testing and Fault Isolation.
C. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address. DO NOT SEPARATE.
D. CAUTION - Observe ESD standards when handling internal subcomponents. The WPT PCB (1-5) and WST PCB (2-5) are Electrostatic Sensitive Devices.
E. Protect internal subcomponents from moisture, debris and other contaminants during disassembly.
F. Refer to Section 11 - IPL - for subcomponent identification.

6.2 Materials

Refer to Table 601 for the material necessary to perform this section's procedures.

Table 601: Disassembly Material

*Part or Specification Number	Nomenclature
Commercially Available	Screwdriver or driver bit No. 0 Phillips drive (.098 or 2.5mm)
Commercially Available	Screwdriver or pry tool Flat head (3/16" or 4.5 mm)
Commercially Available	Cutting pliers
*Unless otherwise specified, equivalent alternatives may be used for given items.	

6.3 Procedures

Disassembly procedures are given in Table 602.

Table 602: Disassembly Procedures

Component	Disassembly Procedure
A10WPT-001 (1-1)	1. Use cutting pliers to cut and remove Cable Seal (1-40) from equipment being monitored 2. Using Phillips head screwdriver or driver bit, remove the two Screws (1-35) from the PCB Enclosure Cover (1-10) 3. Position flat head screwdriver or pry bar into the pry slots on either side of the PCB Enclosure Base (1-15) 4. Gently pry the PCB Enclosure Cover (1-10) from the PCB Enclosure Base (1-15), using both pry slots a. The WPT PCB (1-5) will remain secured to the PCB Enclosure Cover (1-10) after removal from the PCB Enclosure Base (1-15) b. The Battery (1-30) is accessible for replacement without separating the WPT PCB (1-5) from the PCB Enclosure Cover (1-10) c. The WPT PCB (1-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE
A20WST-001 (2-1)	1. Use Phillips head screwdriver or driver bit to remove the two Screws (1-35) from the PCB Enclosure Cover (1-10) 2. Position flat head screwdriver or pry bar into the pry slots on either side of the PCB Enclosure Base (1-15) 3. Gently pry the PCB Enclosure Cover (1-10) from the PCB Enclosure Base (1-15), using both pry slots a. The WST PCB (2-5) will remain secured to the PCB Enclosure Cover (1-10) after removal from the PCB Enclosure Base (1-15) b. The Battery (1-30) is accessible for replacement without separating the WST PCB (2-5) from the PCB Enclosure Cover (1-10) c. The WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE 4. The Magnet Enclosure Cover (2-50) should not be disassembled from the Magnet Enclosure Base (2-55)
*Numbers in parenthesis refer to IPL Figure item numbers.	

7 Cleaning

7.1 General

A. This section provides the procedures for cleaning the WPT and WST.
B. Use this section's cleaning procedures when prompted by Section 4 - Check.
C. The WPT and WST do not require regular cleaning and should be cleaned only as required to maintain normal cabin sanitation.
D. CAUTION - Do not spray or otherwise apply liquid cleaning agents directly to a WPT or WST.
E. Do not disassemble a WPT or WST for cleaning unless prompted by Section 5 - Testing and Fault Isolation.
F. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address. DO NOT SEPARATE.
G. CAUTION - Observe ESD standards when handling internal subcomponents. The WPT PCB (1-5) and WST PCB (2-5) are Electrostatic Sensitive Devices.
H. Protect internal subcomponents from moisture, debris and other contaminants during cleaning.
I. Refer to Section 11 - IPL - for subcomponent identification.

7.2 Materials

Refer to table 701 for the material necessary to perform this section's procedures.

Table 701: Cleaning Material

*Part or Specification Number	Nomenclature
Commercially Available	Brush, Soft Bristle (Nonmetallic)
Commercially Available	Cloth, Lint-Free
Commercially Available	Goggles, Safety
Commercially Available	Compressed Air, 20 psig (138 kPag)
*Unless otherwise specified, equivalent alternatives may be used for given items.	

7.3 Procedures

Cleaning procedures are given in Table 702.

WARNING: WEAR SAFETY GOGGLES OR OTHER EYE PROTECTION WHEN USING COMPRESSED AIR. DIRECT THE AIR STREAM AWAY FROM OTHER PEOPLE.

Table 702: Cleaning Procedures

Component	Cleaning Procedure
WPT PCB (1-5) WST PCB (2-5)	Apply clean, dry, compressed air with a maximum nozzle pressure of 20 psig (138 kPag) to remove debris
All other components	Wipe with clean, lint-free cloth or soft bristle brush or apply clean, dry, compressed air with a maximum nozzle pressure of 20 psig (138 kPag) to remove debris
*Numbers in parenthesis refer to IPL Figure item numbers.	

8 Repair

8.1 General

A. This section provides the procedures for repair of the WPT and WST.
B. Use this section's repair procedures after identifying a repairable condition per Section 5 - Testing and Fault Isolation.
C. Refer to Section 6 - Disassembly - to disassemble a WPT or WST for repair.
D. Do not disassemble a WPT or WST for repair unless prompted by Section 5 - Testing and Fault Isolation.
E. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address. DO NOT SEPARATE.
F. CAUTION - Observe ESD standards when handling internal subcomponents. The WPT PCB (1-5) and WST PCB (2-5) are Electrostatic Sensitive Devices.
G. Protect internal subcomponents from moisture, debris and other contaminants during repair.
H. Repeat the check procedures per Section 4 - Check - after a WPT or WST has been repaired to confirm the repair was successful.
I. Refer to Section 11 - IPL - for subcomponent identification.

8.2 Materials

Refer to Table 801 and Table 802 for the material and components necessary to perform this section's procedures.

Table 801: Repair Material

*Part or Specification Number	Nomenclature
Commercially Available	Screwdriver or driver bit No. 0 Phillips drive (.098 or 2.5mm)
Commercially Available	Screwdriver or pry tool Flat head (recommend 3/16" or 4.5 mm)
*Unless otherwise specified, equivalent alternatives may be used for given items.	

Table 802: Repair Components

*Part or Specification Number	Nomenclature
A10WPT-001-007 (1-30)	Battery
A10WPT-001-006 (1-25) *Applicable only when a WPT or WST will be stored per Section 10 - Storage - after repair	Battery Insulator
*Numbers in parenthesis refer to IPL Figure item numbers.	

8.3 Procedures

Repair procedures are given in Table 803.

Table 803: Repair Procedures

Component	Repair Procedure
Battery (1-30)	1. After identifying a repairable condition per Section 5 - Testing and Fault Isolation - disassemble the WPT or WST per Section 6 - Disassembly a. The WPT PCB (1-5) or WST PCB (2-5) will remain secured to the PCB Enclosure Cover (1-10) during disassembly b. The Battery (1-30) is accessible for replacement without separating the WPT PCB (1-5) or WST PCB (2-5) from the PCB Enclosure Cover (1-10) c. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE 2. Use a flat head screwdriver to gently push the Battery (1-30) free from the WPT PCB (1-5) or WST PCB (2-5) battery retainer a. CAUTION - Do not damage the WPT PCB (1-5) or WST PCB (2-5) while removing the Battery (1-30) 3. Insert a new replacement Battery (1-30) into the WPT PCB (1-5) or WST PCB (2-5) battery retainer with the positive terminal facing away from the WPT PCB (1-5) or WST PCB (2-5) a. The device LED must illuminate briefly when the replacement Battery (1-30) is installed b. If the device LED does not illuminate after the replacement Battery (1-30) is installed, refer to Section 5 - Testing and Fault Isolation - procedure #1 4. If the WPT or WST will be stored after repair, insert Battery Insulator (1-25) between Battery (1-30) and negative terminal of WPT PCB (1-5) or WST PCB (2-5) as depicted in Figure 1001 a. Refer to Section 10 - Storage 5. Assemble the WPT or WST per Section 9 - Assembly 6. Repeat the check procedures to confirm the repair was successful
*Numbers in parenthesis refer to IPL Figure item numbers.	

9 Assembly

9.1 General

A. This section provides the procedures for assembly of the WPT and WST.
B. Do not disassemble a WPT or WST unless prompted by Section 5 - Testing and Fault Isolation or Section 8 - Repair
C. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address. DO NOT SEPARATE.
D. CAUTION - Observe ESD standards when handling internal subcomponents. The WPT PCB (1-5) and WST PCB (2-5) are Electrostatic Sensitive Devices.
E. Protect internal subcomponents from moisture, debris and other contaminants during assembly.
F. Refer to Section 10 - Storage - if the WPT or WST will be stored after assembly.
G. Refer to Section 11 - IPL - for subcomponent identification.

9.2 Materials

Refer to Table 901 for the material necessary to perform this section's procedures. The parts given in Table 902 are recommended for replacement per Section 8 - Repair - when a WPT or WST requires assembly.

Table 901: Assembly Material

*Part or Specification Number	Nomenclature
Commercially Available	Screwdriver or driver bit No. 0 Phillips drive (.098 or 2.5mm)
*Unless otherwise specified, equivalent alternatives may be used for given items.	

Table 902: Recommended Replacement Parts

*Part or Specification Number	Nomenclature
A10WPT-001-007 (1-30)	Battery
A10WPT-001-006 (1-25) *Applicable only when a WPT or WST will be stored per Section 10 - Storage - after repair	Battery Insulator
A10WPT-001-009 (1-40)	Cable Seal
A20WST-001-007 (2-40)	Mounting Tape
A20WST-001-003 (2-45)	Magnet Mounting Tape
*Numbers in parenthesis refer to IPL Figure item numbers.	

9.3 Procedures

Assembly procedures are given in Table 903.

Table 903: Assembly Procedures

Component	Assembly Procedure
A10WPT-001 (1-1)	1. The WPT PCB (1-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE 2. Place PCB Enclosure Cover (1-10) on a flat surface with the QR code facing down and the WPT PCB (1-5) facing up 3. If the WPT will be stored after assembly, insert Battery Insulator (1-25) between Battery (1-30) and negative terminal of WPT PCB (1-5) as depicted in Figure 1001 a. Refer to Section 10 - Storage 4. Insert a new Battery (1-30) into the WPT PCB (1-5) battery retainer with the positive terminal facing away from the WPT PCB (1-5) a. If no Battery Insulator (1-25) was installed, the device LED must illuminate briefly when the new Battery (1-30) is installed b. If no Battery Insulator (1-25) was installed and the device LED does not illuminate after the new Battery (1-30) is installed, refer to Section 5 - Testing and Fault Isolation - procedure #1 5. Align the PCB Enclosure Base (1-15) with the PCB Enclosure Cover (1-10) a. CAUTION - Ensure the PCB Enclosure Cover (1-10) locking tabs are aligned with the corresponding holes in the PCB Enclosure Base (1-15) 6. Gently push the PCB Enclosure Base (1-15) into the PCB Enclosure Cover (1-10) until the locking tabs engage and the two components are securely joined 7. Flip the WPT so the PCB Enclosure Cover (1-10) and QR code are face up 8. Insert two Screws (1-35) in the corresponding holes in the PCB Enclosure Cover (1-10) 9. Use Phillips head screwdriver or driver bit to tighten both Screws (1-35) until fully seated a. Approximate Screw (1-35) installation torque: 2.5 lb-in [0.28 N-m] b. CAUTION - Do not over torque Screw (1-35) 10. Store the WPT per Section 10 - Storage - or install it per Section 12 - Installation

Component	Assembly Procedure
A20WST-001 (2-1)	1. The WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE 2. Place PCB Enclosure Cover (1-10) on a flat surface with the QR code facing down and the WST PCB (2-5) facing up 3. If the WST will be stored after assembly, insert Battery Insulator (1-25) between Battery (1-30) and negative terminal of WST PCB (2-5) as depicted in Figure 1001 a. Refer to Section 10 - Storage 4. Insert a new Battery (1-30) into the WST PCB (2-5) battery retainer with the positive terminal facing away from the WST PCB (1-5) a. If no Battery Insulator (1-25) was installed, the device LED must illuminate briefly when the Battery (1-30) is installed b. If no Battery Insulator (1-25) was installed and the device LED does not illuminate after the new Battery (1-30) is installed, refer to Section 5 - Testing and Fault Isolation - procedure #1 5. Align the PCB Enclosure Base (1-15) with the PCB Enclosure Cover (1-10) a. CAUTION - Ensure the PCB Enclosure Cover (1-10) locking tabs are aligned with the corresponding holes in the PCB Enclosure Base (1-15) 6. Gently push the PCB Enclosure Base (1-15) into the PCB Enclosure Cover (1-10) until the locking tabs engage and the two components are securely joined 7. Apply the Mounting Tape (2-40), centered on the smooth surface of the PCB Enclosure Base (1-15) a. CAUTION - Do not remove the acrylic backing of the PCB Mounting Tape (2-40) before installing the WST per Section 12 - Installation 8. Flip the WST so the PCB Enclosure Cover (1-10) and QR code are face up 9. Insert two Screws (1-35) in the corresponding holes in the PCB Enclosure Cover (1-10) 10. Use Phillips head screwdriver or driver bit to tighten both Screws (1-35) until fully seated a. Approximate Screw (1-35) installation torque: 2.5 lb-in [0.28 N-m]

Component	Assembly Procedure
A20WST-001 (2-1) [continued]	b. CAUTION - Do not over torque Screw (1-35) 11. Orient the Magnet Enclosure Base (2-55) with the smooth surface face up 12. Apply the Magnet Mounting Tape (2-45), centered on the smooth surface of the Magnet Enclosure Base (2-55) a. CAUTION - Do not remove the acrylic backing of the Magnet Mounting Tape (2-40) until ready to install the WST per Section 12 - Installation 13. Store the WST per Section 10 - Storage - or install it per Section 12 - Installation
*Numbers in parenthesis refer to IPL Figure item numbers.	

10 Storage

10.1 General

A. This section provides the procedures for storage of the WPT and WST.
B. Use this section's storage procedures after assembling a WPT or WST per Section 9 - Assembly.
C. Perform the check procedures per Section 4 - Check - before installing a WPT or WST that has been removed from storage.
D. CAUTION - The Battery (1-30) must be removed or a Battery Insulator (1-25) must be installed before storing a WPT or WST
E. The Battery (1-30) shelf life is 10 years.

10.2 Materials

Refer to Table 1001 for the material necessary to perform this section's procedures

Table 1001: Storage Material

*Part or Specification Number	Nomenclature
Commercially Available	Bag, Polyethylene
MIL-PRF-81705	Bag, Static Shielding (ESD)
Commercially Available	Box, Corrugated Paper
Commercially Available	Identification Tag
A10WPT-001-006 (25)	Battery Insulator
*Unless otherwise specified, equivalent alternatives may be used for given items.	

10.3 Procedures

Repair procedures are given in Table 1002.

Table 1002: Storage Procedures

Component	Storage Procedure
A10WPT-001 (1-1) A20WST-001 (2-1)	1. If debris buildup is noted on external surfaces of the WPT or WST, clean per Section 7 - Cleaning 2. If the WPT or WST Battery Insulator (1-25) is not installed, disassemble the device per Section 6 - Disassembly a. The WPT PCB (1-5) or WST PCB (2-5) will remain secured to the PCB Enclosure Cover (1-10) during disassembly b. The WPT PCB (1-5) or WST PCB (2-5) and PCB Enclosure Cover (1-10) are a matched set with the same MAC address - DO NOT SEPARATE 3. Insert a Battery Insulator (1-25) between the Battery (1-30) and negative terminal of the WPT PCB (1-5) or WST PCB (2-5) as depicted in Figure 1001 -OR- remove the Battery (1-30) per Section 6 - Disassembly - and dispose of it a. CAUTION - Do not damage the WPT PCB (1-5) or WST PCB (2-5) while removing the Battery (1-30) 4. Assemble the WPT or WST per Section 9 - Assembly a. Ensure the Battery Insulator (1-25) remains in place during assembly b. If the device LED illuminates at any time during assembly, the Battery Insulator (1-25) must be reinstalled 5. Write the assembly part number, maintenance information and date on an identification tag and attached it to the WPT or WST 6. Package the WPT or WST and the identification tag in a polyethylene bag a. The use of desiccant is recommended b. If a WPT PCB (1-5) or WST PCB (2-5) must be stored apart from its enclosure, package individually in a static shielding ESD bag 7. Place the bagged WPT or WST in a corrugated paper box or other impact resistant packaging a. Multiple bagged WPT or WST devices may be stored in a single box 8. Store the packaged WPT or WST in an area suitable for electronic equipment. The storage area must have adequate ventilation with low humidity, dust and protection from direct sunlight and high heat.

*Numbers in parenthesis refer to IPL Figure item numbers.

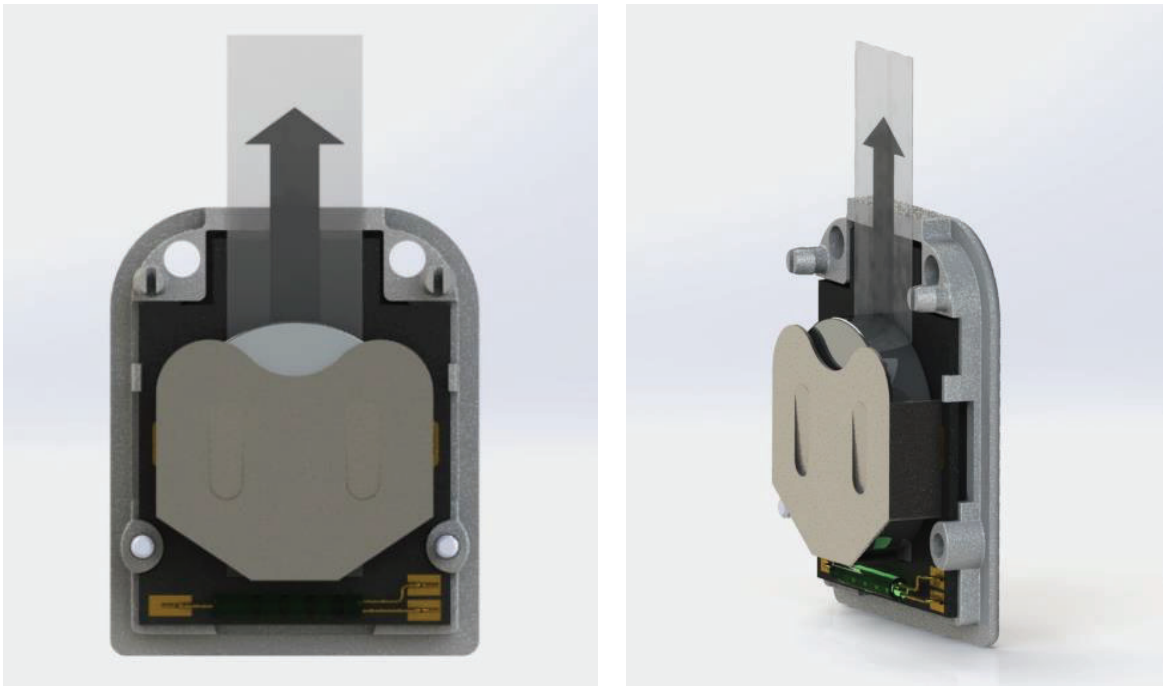


Figure 1001 – Battery Insulator Installation

11 IPL

11.1 Introduction

This Illustrated Parts List (IPL) specifies authorized replacement parts for the WPT and WST. It includes a numerical index and a detail parts list, referenced to component illustrations.

11.2 Detail Parts List

The Detail Parts List is arranged in the general sequence of disassembly. The parts are illustrated in an exploded-view IPL illustration and listed in the related Detail Parts list. The Detail Parts List is divided into 6 columns. The information supplied in each column is given below;

A. FIG. ITEM Column

1. The first number at the top of each FIG. ITEM column is the figure number of the related exploded-view IPL illustration. The number given opposite each part number is the item number given to the part in the illustration.
2. A dash (-) is put in front of an item number when the part is not illustrated.
3. Alpha-variants A through Z (except for I and O) are given to item numbers when necessary to identify added parts, alternative parts and parts added, deleted, modified or superseded by a service bulletin or letter.

B. PART NUMBER Column

1. This column contains the manufacturer’s parts number for each part.

C. AIRLINE STOCK NUMBER Column

1. This column is left empty for the user to put reference part numbers or other necessary information.

D. NOMENCLATURE Column

1. This column contains descriptive nomenclature for each component. It also gives details of the relationship of the assemblies, subassemblies and detail parts and any applicable history information.
2. The indenture system used in the NOMENCLATURE column shows how one part is related to one more as follows:

1 2 3 4 5 6 7

End Item or Major Assembly

* ATTACHING PARTS *

Attaching Parts for End Item or Major Assembly

* * * * * * * * * * * * * * * *

Sub-Assembly of End Item or Major Assembly

* ATTACHING PARTS *

Attaching Parts for Sub-Assembly of End Item or Major Assembly

* * * * * * * * * * * * * * * *

Detail Parts of Sub-Assembly

* ATTACHING PARTS *

Attaching Parts for Detail Parts of Sub-Assembly

* * * * * * * * * * * * * * * *

3. Attaching Parts are listed immediately following the item which they attach. They are preceded by the phrase " * ATTACHING PARTS * " and are followed by the symbol " * * * * * * * * * * * * * * * * "

4. Assemblies, subassemblies and detail parts applicable to modifications, deletions, additions or replacement by an issued service bulletin or service letter are given to show both pre- and post-service bulletin / letter (SB / SL) configuration.
   a. The term (PRE-SB / SL) in the NOMENCLATURE column gives the first configuration
   b. The term (POST SB/ SL) identifies assemblies and parts after the modification has been completed.

5. The interchangeability relationship between parts is identified in the NOMENCLATURE column of the Detail Parts List. A list of the terms used to show interchangeability and their definitions are given in Table 1101.

Table 1101: Interchangeability Terms

Term	Abbreviation	Definition
Alternate	ALT TO	This part is alternate to and interchangeable with other parts in the same item number variant group or other item number as designated.
Optional	OPT TO	This part is optional to and interchangeable with other parts in the same item number variant group or other item number as designated.
Obsolete	OBSOLETE	The part in the part number column is replaced or superseded by the part number shown in the notation. The part in the part number column is not available for new order.
Replaced By	REPLD BY	The part in the part number column is replaced or superseded by the part number shown in the notation. The part in the part number column is not available for new order.
Replaces	REPLS	The part in the part number column replaces and is two-way interchangeable with the part number shown in the notation. The part number shown in the part number column is the preferred replacement part.
Superseded By	SUPSD BY	The part in the part number column is superseded by the part number shown in the notation. The part in the part number column is one-way interchangeable with the part number shown in the notation. The part in the part number column is obsolete.
Supersedes	SUPSDS	The part in the part number column supersedes and is not interchangeable with the item number shown in the notation.

6. If applicable, the Source is given in this column.
7. The manufacturer's CAGE Code may be given if the part is not manufactured by Turbine Kinetics, Inc. or is not a standard (AN, MS or NAS Specification) part.

E. EFF Code Column

1. This column contains the Effectivity Codes (A, B, etc.) to show the alternative models or configurations of the end item to which the parts apply. The Effectivity Codes are applicable only in each individual IPL Figure.

2. This column is left empty when the parts apply to all models or configurations included in the Detail Parts List.

3. The abbreviation N P (Not Procurable) is given when the End Item or Major Assembly is Not Procurable, but is shown for reference and part history only. If the N P notation is given, the component parts for that End Item or Major Assembly are not shown in the Detail Parts List.

F. UNITS PER ASSY Column

1. The quantity given in this column shows the units required for one NHA or, when you refer to the attaching parts, the quantity to attach one such item.

2. The abbreviation RF (reference) shows the end item or assembly is shown completely assembled in the figure given in the NOMENCLATURE column.

11.3 Numerical Index

A. The numerical index (Table 1102) is included in the IPL to help find the parts given in the Detail Parts List by part number. The IPL illustration figure number, the item number and the total quantity are given for each entry.

B. The part numbers are put in sequence one character at a time, from left to right. The correct sequence is:

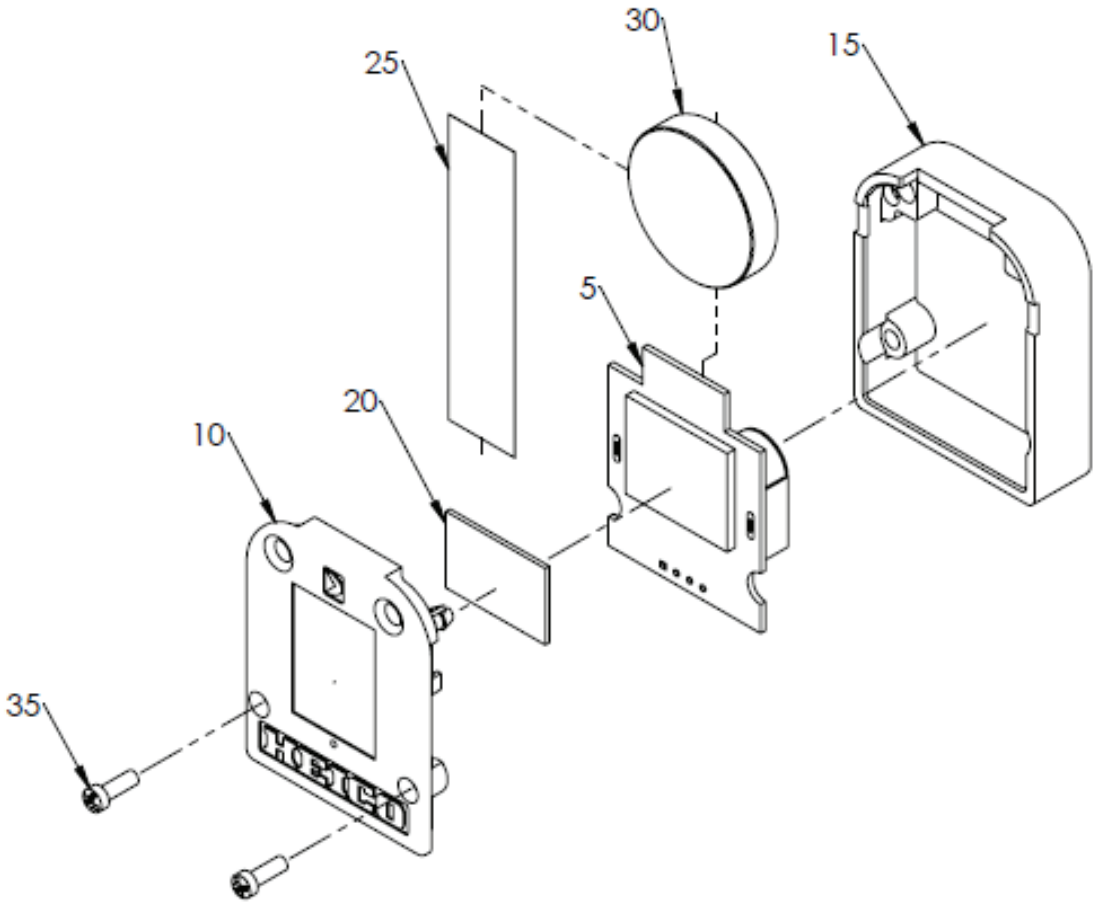
1. Dash (-)

2. Letters A though Z (except for I, O, and Q)

3. Numerals 0 through 9

Table 1102: Numerical Index

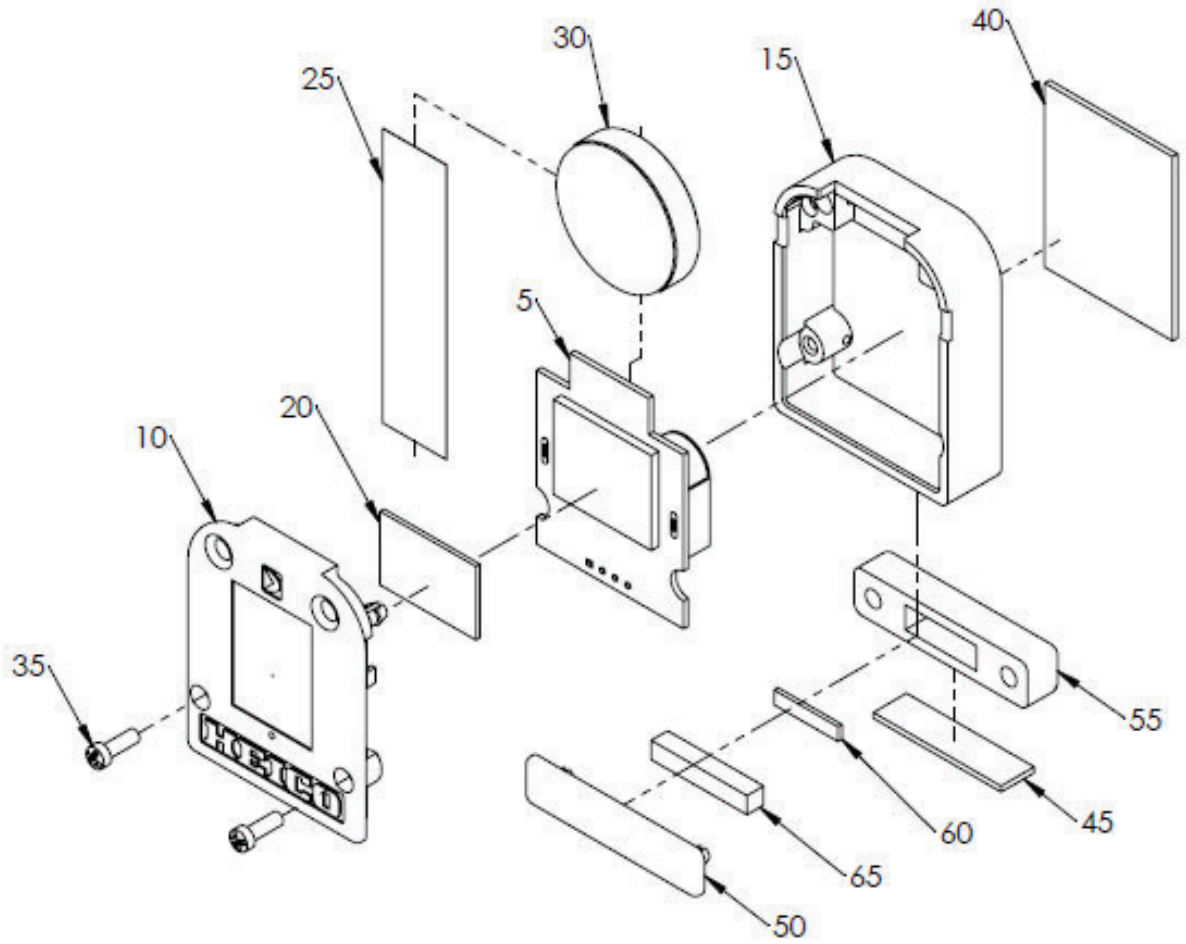
Part Number	Airline Stock No.	Figure	Item	Total Required
A10WPT-001		IPL 1	-1	1
A10WPT-001-001		IPL 1	5	1
A10WPT-001-002		IPL 1 / IPL 2	10	1
A10WPT-001-003		IPL 1 / IPL 2	15	1
A10WPT-001-004		IPL 1 / IPL 2	20	1
A10WPT-001-006		IPL 1 / IPL 2	25	1
A10WPT-001-007		IPL 1 / IPL 2	30	1
A10WPT-001-008		IPL 1 / IPL 2	35	2
A10WPT-001-009		IPL 1	40	1
A20WST-001		IPL 2	-1	1
A20WST-001-001		IPL 2	50	1
A20WST-001-002		IPL 2	55	1
A20WST-001-003		IPL 2	45	1
A20WST-001-004		IPL 2	60	1
A20WST-001-005		IPL 2	5	1
A20WST-001-006		IPL 2	65	1
A20WST-001-007		IPL 2	40	1



IPL Figure 1: Wireless Presence Tag Config 001

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF CODE	UNITS PER ASSY
IPL 1			1 2 3 4 5 6		
- 1 A	A10WPT-001		WIRELESS PRESENCE TAG CONFIG 001	A	RF
5	A10WPT-001-001		WIRELESS PRESENCE TAG PCB	NP	1
10	A10WPT-001-002		PCB ENCLOSURE COVER	NP	1
15	A10WPT-001-003		PCB ENCLOSURE BASE	NP	1
20	A10WPT-001-004		DAMPER	NP	1
25	A10WPT-001-006		BATTERY INSULATOR		1
30	A10WPT-001-007		BATTERY		1
			* ATTACHING PART *		
35	A10WPT-001-008		SCREW	NP	2
-40	A10WPT-001-009		CABLE SEAL		1

-ITEM NOT ILLUSTRATED



IPL Figure 2: Wireless Security Tag Config 001

FIG. ITEM	PART NUMBER	AIRLINE STOCK NO.	NOMENCLATURE	EFF CODE	UNITS PER ASSY
IPL 2			1 2 3 4 5 6		
- 1 A	A20WST-001		WIRELESS SECURITY TAG CONFIG 001	A	RF
5	A20WST-001-005		WIRELESS SECURITY TAG PCB	NP	1
10	A10WPT-001-002		PCB ENCLOSURE COVER	NP	1
15	A10WPT-001-003		PCB ENCLOSURE BASE	NP	1
20	A10WPT-001-004		DAMPER	NP	1
25	A10WPT-001-006		BATTERY INSULATOR		1
30	A10WPT-001-007		BATTERY		1
			* ATTACHING PART *		
35	A10WPT-001-008		SCREW	NP	2
40	A20WST-001-007		MOUNTING TAPE		1
			* * * * * * * * * * * * * * * *		
50	A20WST-001-001		MAGNET ENCLOSURE COVER	NP	1
55	A20WST-001-002		MAGNET ENCLOSURE BASE	NP	1
60	A20WST-001-004		MAGNET DAMPER	NP	1
65	A20WST-001-006		MAGNET	NP	1
			* ATTACHING PART *		
45	A20WST-001-003		MAGNET MOUNTING TAPE		1

-ITEM NOT ILLUSTRATED

12 Installation

CAUTION: Do not install on aircraft models which have not demonstrated Portable Electronic Device (PED) tolerance in accordance with AC 20-164A or equivalent.

12.1 General

A. This section provides the procedures for installation of the WPT and WST.
B. The WPT is secured to parts, such as emergency medical kits, first aid kits, fire extinguishers, and oxygen bottles using a Cable Seal (1-40).
C. CAUTION - Do not secure a WPT in any way that obstructs access to or operation of the monitored part.
D. The WST is secured to permanent or portable compartments, such as life vest stowage compartments, galley stowage compartments and emergency medical kits using the Mounting Tape (2-40) and Magnet Mounting Tape (2-45).
E. CAUTION - Do not secure a WST in any way that obstructs access to or operation of the monitored compartment or its contents.
F. Refer to Section 4 - Check - to check that a WPT or WST is in good condition and is operating as intended.
G. Refer to Section 5 - Testing and Fault Isolation - to functionally test the unit when directed by a check procedure.

12.2 Materials

Refer to Table 1201 for the material necessary to perform this section's procedures.

Table 1201: Installation Material

*Part or Specification Number	Nomenclature
Commercially Available	Alcohol, Isopropyl
Commercially Available	Cloth, Lint-Free
Commercially Available	Cutting pliers
Commercially Available	Goggles, Safety
*Unless otherwise specified, equivalent alternatives may be used for given items.	

12.3 Procedures

Installation procedures are given in Table 1202.

WARNING: CLEANING SOLVENTS ARE COMBUSTIBLE AND THE VAPOR IS TOXIC. USE THE SOLVENTS ONLY IN WELL VENTILATED AREAS AND AWAY FROM OPEN FLAMES.

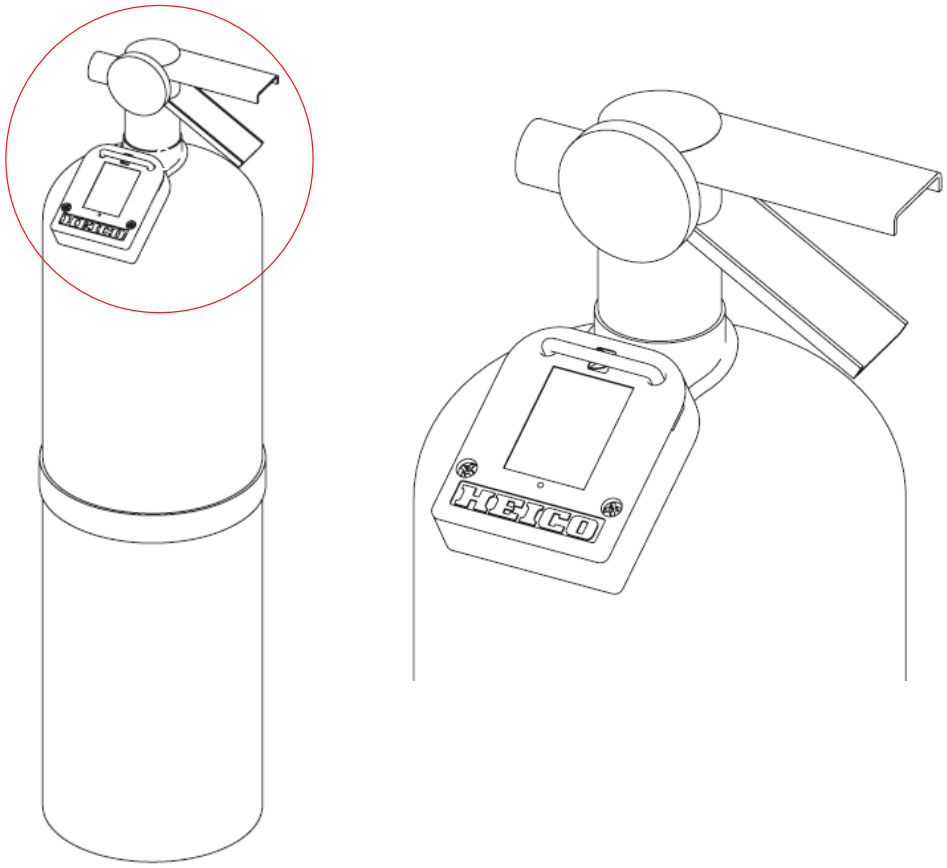
CAUTION: Cleaning solvents are toxic to skin, eyes and respiratory tract. Avoid prolonged breathing of the vapor or prolonged, repeated contact with your skin.

Avoid contact with your eyes. If the eyes become irritated, immediately flush with water.

Skin and eye protection is required. Ensure ventilation is adequate and use approved safety equipment.

Table 1202: Installation Procedures

Component	Installation Procedure
A10WPT-001 (1-1)	1. If the WPT is disassembled, reassemble per Section 9 - Assembly 2. Before installing a WPT, remove the Battery Insulator (1-25) a. The device LED must illuminate briefly when the Battery Insulator (1-25) is removed b. If the device LED does not illuminate after the Battery Insulator (1-25) is removed, refer to Section 5 - Testing and Fault Isolation - procedure #1 3. Use a PED with the CMS application installed to assign a WPT to the part that will be monitored 4. Insert the Cable Seal (1-40) through the WPT's mounting holes and secure it to the part that will be monitored a. CAUTION - Do not secure a WPT in any way that obstructs access to or operation of the monitored part b. Refer to Figure 1201 for installation recommendations specific to parts such as fire extinguishers and oxygen bottles c. Refer to Figure 1202 for installation recommendations specific to parts such as emergency medical kits and first aid kits

Component	Installation Procedure
A10WPT-001 (1-1) [continued]	5. Verify that the WPT and Cable Seal (1-40) are not obstructing access to or operation of the monitored part 6. Use cutting pliers to trim excess Cable Seal (1-45) as required 7. Perform the check procedures per Section 4 - Check - to ensure the WPT is in good condition and is operating as intended  Figure 1201 - WPT Secured to Fire Extinguisher

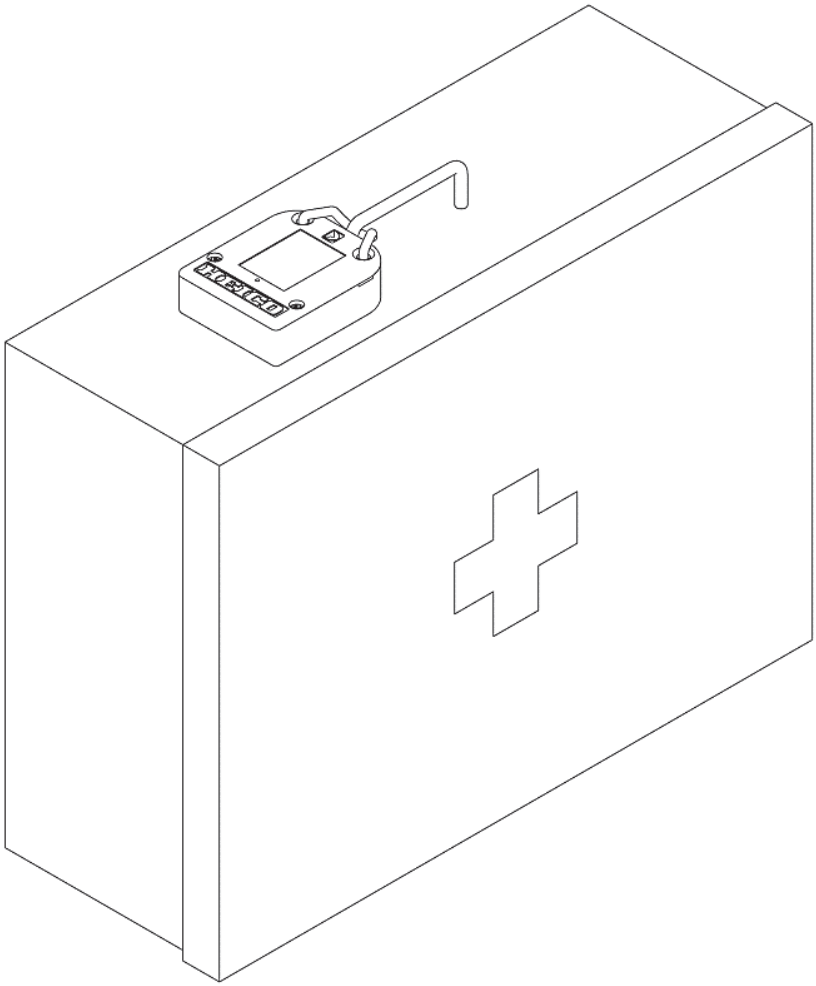
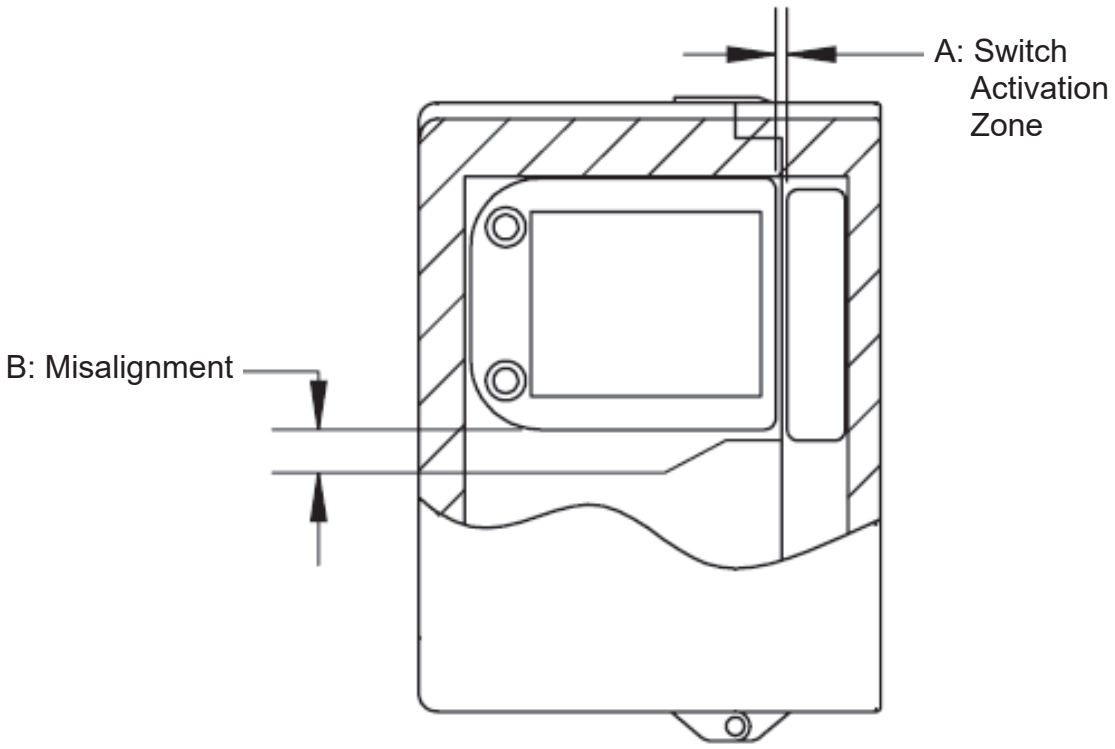
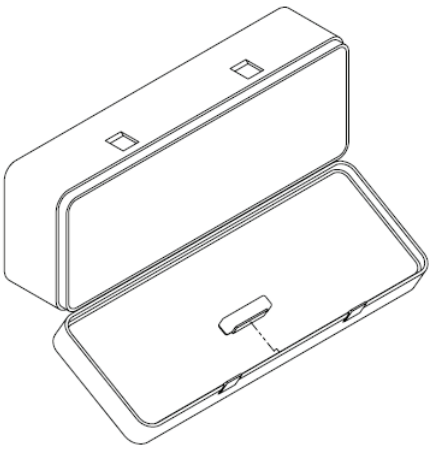
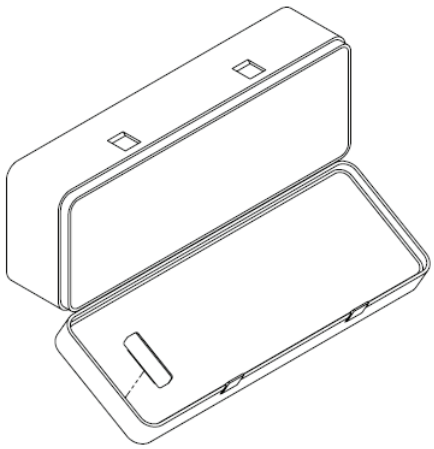
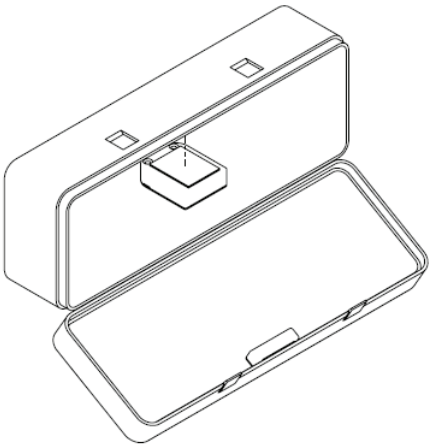
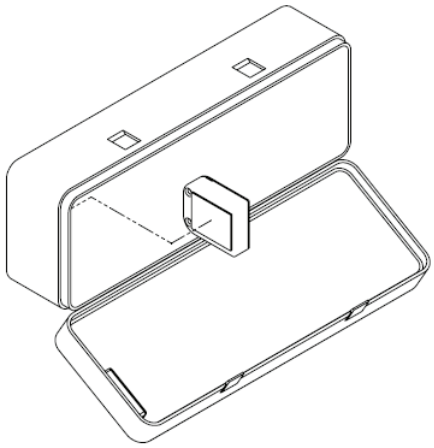
Component	Installation Procedure
A10WPT-001 (1-1) [continued]	

Figure 1202 - WPT Secured to Emergency Medical Kit

Component	Installation Procedure
A20WST-001 (2-1)	1. If the WST is disassembled, reassemble per Section 9 - Assembly 2. Before installing a WST, remove the Battery Insulator (1-25) a. The device LED must illuminate briefly when the Battery Insulator (1-25) is removed b. If the device LED does not illuminate after the Battery Insulator (1-25) is removed, refer to Section 5 - Testing and Fault Isolation - procedure #1 3. Use a PED with the CMS application installed to assign a WST to the compartment that will be monitored 4. Determine the installation location of the PCB Enclosure and Magnet Enclosure a. The PCB Enclosure is adhered to a surface of the monitored compartment and the Magnet Enclosure is adhered to an adjacent surface of the compartment access door b. It is recommended to locate the WST inside of the monitored compartment and as far as possible from the hinge of the compartment access door c. Refer to Figure 1203 and Figure 1204 5. Prepare the installation surfaces for application of the Mounting Tape (2-40) and Magnet Mounting Tape (2-45) by thoroughly cleaning them with isopropyl alcohol and a lint-free cloth 6. After the installation surface has dried, remove the acrylic backing from the Mounting Tape (2-40) and adhere the PCB Enclosure to the compartment surface as depicted in Figure 1203 a. CAUTION - Do not secure a WST in any way that obstructs access to or operation of the monitored compartment b. The PCB Enclosure must be oriented with the switch activation zone facing out of the compartment and parallel to the compartment access door when it is closed as depicted in Figure 1203 c. After installation, the maximum acceptable distance between the PCB Enclosure and Magnet Enclosure is 0.06 in [1.5 mm] when the compartment access door is closed i. Refer to Figure 1203, dimension A d. Apply pressure to the PCB Enclosure for a minimum of 10 seconds to ensure good adhesion

Component	Installation Procedure
A20WST-001 (2-1) [continued]	7. After the installation surface has dried, remove the acrylic backing from the Magnet Mounting Tape (2-45) and adhere the Magnet Enclosure to the surface of the compartment access door as depicted in Figure 1204 a. CAUTION - Do not secure a WST in any way that obstructs access to or operation of the monitored compartment b. After installation, the maximum acceptable distance between the PCB Enclosure and Magnet Enclosure is 0.06 in [1.5 mm] when the compartment access door is closed i. Refer to Figure 1203, dimension A c. After installation, the maximum acceptable misalignment between the PCB Enclosure and Magnet Enclosure is 0.20 in [5.0 mm] when the compartment access door is closed i. Refer to Figure 1203, dimension B d. Apply pressure to the Magnet Enclosure for a minimum of 10 seconds to ensure good adhesion 8. Verify that the WST is not obstructing access to or operation of the monitored compartment 9. Perform the check procedures per Section 4 - Check - to ensure the WST is in good condition and is operating as intended

Component	Installation Procedure
A20WST-001 (2-1) [continued]	 Figure 1203 - WST Installation Requirements

Component	Installation Procedure
A20WST-001 (2-1) [continued]	 Magnet Enclosure Example 1  Magnet Enclosure Example 2 **OR**  PCB Enclosure Example 1  PCB Enclosure Example 2 Figure 1204 - WST Installation Examples

*Numbers in parenthesis refer to IPL Figure item numbers.