

THOR III

The Thor III is an Active and Reactive Dismounted Countermeasures System designed to provide Protection against Radio Controlled Improvised Explosive Devices (RCIED).

Understanding the limitations and capabilities of the THOR III is essential to your safety.

The Thor III includes three separate subsystems, each covering three separate bands of frequencies: LOW, MID, and HIGH. Each Unit is identical in appearance, the only difference being the antenna.

Each unit uses a series of notches to identify which antenna is to be used.

When installing the antenna, use the notches as a guide to ensure the correct antenna is mounted on the correct Thor Subsystem.

THOR III PRIMARY UNIT



Band	Unit
LOW	1 Notch
MID	2 Notches
HIGH	3 Notches

Ask student to remove the Thor III from the container and set up device, **One in low band, One in High Band, One in Mid band.**

Ask student to turn on system



TURN ON PROCEDURE

1. Connect fully charged batteries to the unit.
2. Ensure that the GPS antenna is connected (J3).
3. Connect the TX/RX Antenna (J5).
4. Press "POWER" on the Front Panel.
5. The System will default to STBY.
6. Press the "MODE" push button on the RCU.
7. The System is now operating and jamming.
8. Ensure System passes BIT and PMCS has been completed.

Ask students 3 questions each from question bank:

Ask students to switch systems off and pack away

TURN OFF PROCEDURE

Perform the following to turn off the Thor Unit:

1. Press the "MODE" push button once to stop jamming.
2. Press the "POWER" push button on the Front Panel to turn the unit off.

The System does not need power to be zero.

ZERO / ERASE

1. On either the primary unit or the RCU, press and hold the ZEROIZE push button for 2 seconds.
2. Once zeroized, all LEDs with the exception of the OPER and RAD LEDs, will flash in unison.
3. To zeroize without power, depress the ZEROIZE push button on either the main unit or RCU for at least 10 seconds.

RCU Operation and LED Indications



POWER Button (Main Unit)

IN = PWR ON

OUT = PWR OFF

MODE Button –

Push 1 = Operate (Jamming)

Push 2 = Standby (Not Jamming)

STUDENT NAME _____

PUSH	LEDs	VIBRATOR	AUDIBLE ALARM
1	Bright	Enabled	
2	Dim	Enabled	
3	Off	Enabled	
4	Bright	Disabled	
5	Dim	Disabled	
6	Off	Disabled	
Hold 2 Seconds			Enabled
Hold 2 Seconds			Disabled

Ask question to each student:

Q

POWER LED:

LED	BATTERY LIFE
ON	> 30% Life
BLINK 3	10% - 20% Life
BLINK 2	5% - 10% Life
BLINK 1	< 5% Life
Off	Unit Off or LEDs Disabled

RAD LED:

OFF = Standby. System is not radiating or LED is disabled.

ON = Operating. System is radiating (Jamming).

OPER LED:

LED	SYSTEM STATE
OFF	Standby Mode or LED is Disabled
ON	Operate Mode (Active Only)
BLINK	Operate Mode (Active and Reactive)

GPS LED:

LED	GPS STATE	SYNCHRONIZATION STATE
OFF	Locked	GPS Synchronization
ON	Locked	Training
BLINK	Not Locked	Not Synchronized (Stale) or LED Disabled (No Synch/No GPS Lock)

WARNING

Operating the Thor III without GPS Synchronization may cause capability problems with other Thor Units or other systems using a Common Timing Protocol. This may seriously degrade operations and may place personnel at risk.

FAULT LED:

LED	SYSTEM STATE
OFF	BIT Passed or LED Disabled
BLINK	System Over Temp or VSWR Alarm
ON	BIT Failed or HPA Failure

WARNING

Do NOT take the Thor Unit outside the wire with an active fault indicated. Failure to heed this warning may lead to serious injury or death to personnel.

ALARM LED:

LED	SYSTEM STATE
OFF	Alarm or LED Disabled
ON	Alarm or LED Enabled
BLINK	Tamper Detected

NOTES**AUDIBLE ALARM****Continuous:**

1. Battery < 5% battery life remaining.
2. HPA failure detected.
3. Synchronization failure (GPS)

Pulsed:

1. Battery < 5% battery life remaining
2. Over Temperature (> 85 °C)
3. VSWR too high



RCU Front Panel Showing Indicators

VIBRATOR ALARM

Continuous:

1. Battery < 10% battery life remaining
2. HPA failure detected
3. Synchronization failure (GPS)

Pulsed:

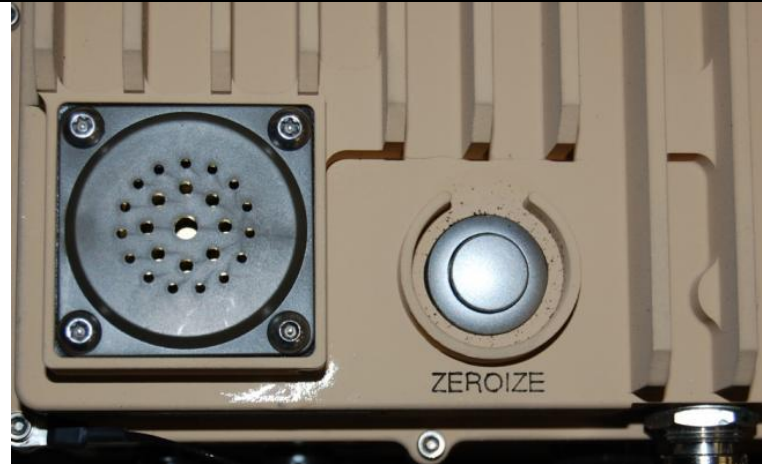
1. Battery < 10% battery life remaining
2. Over Temperature (> 85 °C)
3. VSWR too high



RCU Digital Display Screen

Pulsed:

1. Battery < 10% battery life remaining
2. Over Temperature (> 85 °C)
3. VSWR too high



RCU Side View Showing Alarm Speaker

BATTERY OPERATION

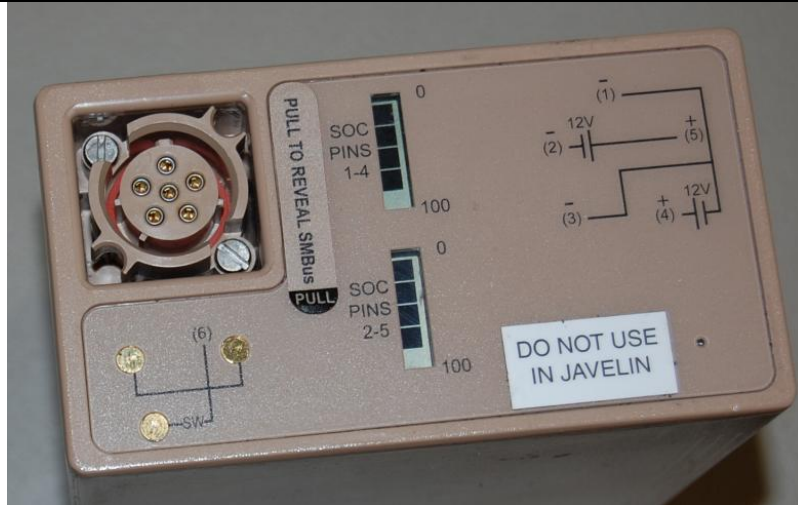
On average, the two Thor Batteries (BB-2590/U) provide approximately three hours of operation. Depending upon the length of your mission, it may become necessary to change batteries during a mission. A procedure called "HOT SWAPPING" is used to change batteries in the field. The user will either need to remove the Thor Unit, or have the assistance of another person to aid in swapping batteries.

The following procedure explains how to "HOT SWAP" batteries while outside the wire:

NOTES

When the Thor III is either in Operate or Standby Modes, the batteries may be removed one at a time (hot-swapping). Since the batteries are in parallel, the Thor will maintain power for a short period of time. It is important that the process of "hot swapping" is accomplished expeditiously to avoid total power loss and consequently, total loss of system capability.

1. Remove one of the batteries from the battery module.
2. Replace the removed battery with a fully charged battery.
3. Once the battery is replaced, repeat the process by replacing the other battery using the same procedure.



BB-2590/U Battery

NOTES

New batteries may exhibit low voltage when first used. When installing new, fully-charged Batteries, allow 5 to 10 minutes of actual run time. The new batteries should come up to rated voltage value. If the batteries fail to come up to rated value, replace with another set of batteries and repeat the process.

PMCS

1. PMCS takes approximately five minutes to complete.
2. It is imperative that PMCS is performed before use and after operations.
3. PMCS actions are listed in the table shown below.
4. Report all discrepancies to the EWO immediately.

INTERVAL	LOCATION	PROCEDURE
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STUDENT NAME _____

Before Use, After Operation	Chassis	Visually and physically inspect for the following: Unit and all controls and indicators are free from obvious damage Unit is clear of dust, dirt, mud; clean with water or compressed air as necessary and available.
Before Use, After Operation	External Cables	Visually and physically inspect for the following: Cables are clean; wipe with a damp or dry rag, as necessary. Cables are attached securely to connectors and free from obvious damage. Cables are routed and fastened in such a manner as not to interfere with operator's movement.
INTERVAL	LOCATION	PROCEDURE
Before Use, After Operation	Chassis Front Panel Connectors	Visually and physically inspect for the following: Connector exterior surfaces are clean; wipe with a damp or dry rag, as necessary. Connector interior surfaces are clean; wipe with cotton swab dipped in alcohol, if available.



Antenna Cable Connection

EXTERNAL CABLES

Perform the following:

1. Inspect external cables and verify that they are clean, undamaged, and seated properly.
2. Clean the external portions of the external cables as necessary.

CONNECTORS

Perform the following:

1. Inspect connections and verify that they are clean, free of corrosion, and undamaged.
2. Clean with compressed air or alcohol-based solvent.



High Band Antenna

ANTENNA

Perform the following:

1. Inspect the antenna and verify that the antenna is clean, free of corrosion, and undamaged.
2. Ensure the antenna is vertically oriented.
3. Ensure that the antenna cable is securely mounted to the antenna.
4. Wipe the antenna down with a damp cloth.
5. Ensure that the plunger on the pivoting antenna mount is securely locked in the desired position.

NOTE

Personnel at the Organizational Level are NOT to open or attempt repair of any Thor III Line Repairable Units. (LRU). Unauthorized opening the Thor Unit will cause the system to automatically zeroize (erase all programming). Operator level maintenance is limited to the items specified above.

STUDENT NAME _____

QUESTION BANK

Q: How many subsystems does the THOR III consist of?

A: Three (3)

Q: Are the THOR III systems active or reactive?

A: Both, Active and Reactive

Q: What component is used to keep the THOR III compatible with other CREW systems?

A: GPS antenna

Q: On what screen do you find the battery life information?

A: System Status (press the SELECT for the MENU and scroll to System Status)

Q: What button takes the THOR III system from Standby to Operate (Jamming)?

A: The MODE button

Q: How do you disable the audible alarm?

A: Press and hold the BRIGHT button for 2 seconds

Q: How many ways can the THOR III be powered on?

A: One, through the primary unit

Q: As the Operator, how many ways can you Zeroize the THOR III system?

A: Two, through the Primary Unit and the RCU

Q: How does the THOR III display a Zeroized state?

A: All LEDs except OPER and RAD blink on and off

Q: What does a blinking FAULT LED indicate?

A: VSWR (Voltage Standing Wave Ratio) or Over Temp

Q: What does a solid FAULT LED indicate?

A: High Power Amplifier Fault (critical)

Q: What should your first check be if, when you power on the system, the LEDs on the primary unit do not light up?

A: Press the BRIGHT button