	Cincinnati Fire Department Fire Training Supplement DRILL BOOK	SECTION #1 General Fire Fighting
Date: May 2012	**TOPIC TITLE:**	Total # of Pages: 5
Section #: 1	Bullard T320 Thermal Imager	Topic #: 6

TOPIC #7 Bullard T320 Thermal Imager

This section is designed to give the fire fighter basic information pertaining to the operation and normal maintenance of the Bullard T320 Thermal Imager.

It should be stressed that a thermal imager is a tool, not a replacement for sound tactics and proficient skills. Some of the many uses for the Bullard T320 Thermal Imager include:

- Search and Rescue
- Scene size-up and assessment
- Locating the seat of the fire
- Determining fire extension and overhaul
- Locating hot spots
- Identifying potential flashover situations
- Determining entry, exit and ventilation points
- Hazmat responses

Components:

- Bullard T320 Thermal Imager
- Two rechargeable Nickel Metal Hydride batteries
- Detachable handle
- Combination Strap with two D-rings
- Stand alone charger
- Apparatus mounted charging system
- AA Alkaline Battery Case

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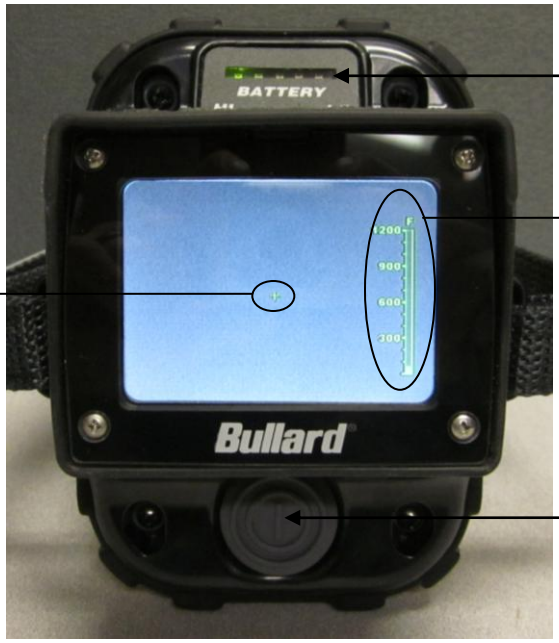


Use and Operation:

Turning the unit on and off:

1. Press and release the large, dark gray power button under the LCD display.
    - The thermal imager will display the Bullard T320 logo and initiate a calibration sequence. After approximately 5 seconds the thermal image will appear and the unit is ready for use.
    - You will periodically observe the image momentarily freeze; this is a function of the self calibration shutter and is normal. Depending on the environment the shutter will activate every 30 seconds to three minutes.
2. Press and release the power button again to turn the unit off.

Relative Heat Indicator™ (RHI):

The Relative Heat Indicator is a bar graph on the right side of the display that will indicate the approximate temperature of the object viewed within the "crosshairs" in the middle of the screen. The accuracy of the indicator is dependent on numerous factors including the distance from the object being viewed.

Super Red Hot™ Feature:

With the Super Red Hot feature, heat levels are identified by various color hues. Starting at 500^{o} F heated objects are tinted yellow and gradually transition to orange and then to solid red as heat levels rise.

Battery Status Indicator:

The battery status is indicated by the row of 5 LEDs: three green, one amber and one red. Only one of the LEDs will be illuminated at a time starting with the green LED on the left indicating fully charged or "HI" progressing to the red LED on the right indicating "LO" status. When the red LED is lit you have approximately 5 – 10 minutes of run time remaining.

Battery Options:

The T320 Thermal Imager operates on one Nickel Metal Hydride battery. One charged battery shall always be installed in the thermal imager. An optional AA Alkaline battery case is also provided to each company. The AA Alkaline battery case requires eight (8) AA Alkaline batteries and can be used as an alternative to the standard NiMH rechargeable batteries. Fully charged AA batteries will typically provide for 2 hours of operation and once the batteries are installed the case loads into the unit in the same manner as the NiMH batteries. When using the AA Alkaline battery case the LED indicators will report battery levels not necessarily indicative of the actual charge remaining. **DO NOT insert the AA Alkaline battery case into the battery charger.**

Loading and Unloading the Battery

- To install, slide the battery into the groove on the bottom of the unit and ensure that the battery is properly seated.
- To remove, depress both battery locking buttons simultaneously and slide the battery out of the unit.
- The battery can only be loaded successfully one way, with the flat extended section inserted first.

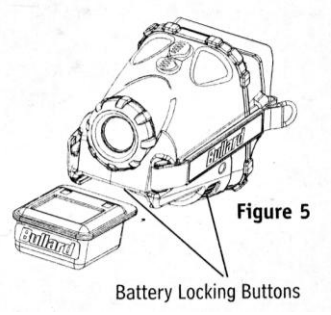
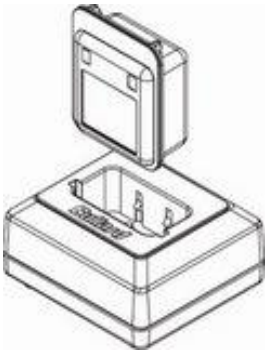


Figure 5

Using the Battery Charger

To charge a battery, insert it into the charger so that the metal contacts on the battery are aligned with the metal contacts in the charger. A red light will illuminate on the charger to indicate the battery is charging. The light will turn green when the battery is fully charged. You may leave the battery in the charger indefinitely as the battery will not overcharge. The NiMH batteries have a rated service life of approximately 1000 charging cycles. Any instance when a battery is placed in the charger and begins to charge counts toward that batteries charging cycle limit, regardless of whether or not a full charged was obtained. A fully charged battery provides a run time of approximately 2 – 2 ½ hours.



Using the Apparatus Mounted Charging Station

The Bullard Powerhouse charging station is designed to store and secure the thermal imager, spare battery and AA battery pack. The charging station will also recharge and maintain a full charge in both the battery in the imager and the spare battery.

Inserting the Imager into the Powerhouse charging station:

1. Depress the black retaining latch at the upper left corner of the charging station.
2. Set the imager into the recess with the lens facing down and the top of the imager facing to the right.
3. Release the latch when the imager is fully seated into the unit.
   Battery charge condition is indicated by a two-color LED on top of the unit:
   A RED LED indicates the battery is being charged
   A GREEN LED indicates the battery is fully charged

Removing the Imager from the Powerhouse charging station:

1. Depress the black retaining latch at the upper left corner of the charging station.
2. Pull the imager upward and away from the charging station.

Inserting the spare rechargeable battery into the Powerhouse charging station:

1. Hold the battery by the broad flange with the label on top.
2. Insert the battery into the opening at the lower left side of the charging station.
3. Once fully inserted, the battery will snap firmly in place.
   Battery charge condition is indicated by a two-color LED to the left of the opening:
   A RED LED indicates the battery is being charged
   A GREEN LED indicates the battery is fully charged

Removing the spare rechargeable battery from the Powerhouse charging station:

1. Grasp the flange of the battery, lift up and pull the battery out of the opening.

The black sliding door at the lower right corner of the charging station conceals a storage area designed to store the AA battery pack.

Combination Strap
The combination strap can be used as a wrist strap or a gear strap. The strap can be easily attached to either D-ring located on the thermal imager. A quick release buckle serves as a safety release mechanism in case the thermal imager becomes lodged inhibiting movement.

Detachable handle
The detachable handle attaches to the thermal imager with thumbscrew. Use of this handle is at the operator's discretion.

Care and Maintenance:
After each use perform the following:

- Inspect the thermal imager for structural, thermal, or chemical damage.
- Clean the outside of the unit with mild soap or detergent.
- Wipe the lens with a soft cloth.
- Clean the display with a soft cloth.
- **Never uses solvents or paint thinners to clean the thermal imager.**
- **Do not intentionally submerge the unit underwater or subject the unit to high pressure water.**

WARNINGS:

1. Never point the thermal imager at the sun or any other source of extreme radiant light, as this could severely damage the thermal imager.
2. Do not attempt to disassemble the thermal imager, if it is not functioning properly return to Central Stores with the appropriate paperwork.
3. The thermal imager is not certified as intrinsically safe. Do not use in environments where static and/or sparks may cause an explosion.
4. Thermal imagers are not designed to replace current tactics, it is a tool. Standard search patterns and techniques for maintaining orientation should still be performed.
5. Thermal imagers will not provide images through glass, water or shiny objects. These surfaces act like mirrors and will often reflect the image of the thermal imager operator.