



Division 06 Fire and Rescue Operations

Chapter 26 – Thermal Imaging Cameras

February 2009

POLICY

This General Order shall establish a procedure to facilitate the most efficient use of the Bullard T3 Max Thermal Imaging Camera, issued by the Prince George's County Fire/Emergency Medical Services (EMS) Department.

DEFINITIONS

N/A

PROCEDURES

1. General Information

Use of a Thermal Imaging Camera during emergency operations will provide the means for locating victims and fire in a more expeditious manner. This will greatly enhance the safety of personnel by limiting time spent in the hazardous area searching for victims and the seat of the fire.

It must be remembered that a Thermal Imaging Camera is a tool to be utilized by firefighters, and will be used to augment sound strategy, tactics, and time tested interior structural firefighting and rescue procedures.

A training CD is included with each Thermal Imaging Camera. All personnel who are expected to use the camera should view the training CD, in conjunction with training conducted within the station.

2. Thermal Imaging Camera

Usages

Uses for the Thermal Imaging Camera are as follows:

- Provide safer navigation in a space where there is diminished visibility due to smoke.
- Allow personnel to “see” in a diminished visibility environment, which is a very useful addition to traditional search and rescue techniques. Utilizing a Thermal Imaging Camera can substantially reduce the time necessary for completing a primary search.
- Enable suppression crews to execute a more effective interior attack. The shortest route to the fire, holes in the floor and obstacles in the structure can be determined and located more efficiently.
- Reduce fatigue of interior crews because efficiency in performing searches and suppression is increased.
- Allow Rapid Intervention Teams to quickly and efficiently locate downed firefighters.
- May be used to determine fluid level within a container, which may be useful during an incident involving a hazardous material.
- May be used as a search tool to locate lost persons in the wilderness areas.
- There may be other potential uses for the Thermal Imaging Camera to augment normal fire and rescue operations such as:
 - Haz Mat Operations
 - Surface/Shallow Water Rescue
 - Collapse Rescue
 - Confined Space Rescue



- Wilderness Search and Rescue
- Vehicle Accidents and Possible Ejection
- Any other incident deemed essential by the OIC

Limitations

- The Thermal Imaging Camera allows a two dimensional view of a smoke filled environment; depth perception is very limited.
- Thermal energy does not travel directly through walls; therefore, a Thermal Imaging Camera will not enable personnel to “see” through a wall.
- Firefighters and occupants that are wet from hose line operations could be masked from the camera’s view during a search because there is a momentary balance of thermal signatures.
- Water, plastic, and glass are all effective barriers for the Thermal Imaging Camera and may cause a reflective image.
- The Thermal Imaging Camera must be used with the understanding that it is only a mechanical device and it can fail.
- The image displayed by the Thermal Imaging Camera may decrease in quality as soot builds up on the lens, screen, and the firefighter’s facepiece while operating on the fireground.
- The charged battery may only provide one (1) hour of operation.
- “White Out” is a condition caused by aiming the unit at a very hot object or flame which causes the camera’s sensor to become overloaded and the display to show all white, rendering the Thermal Imaging Camera useless. To correct the problem, aim the camera away from the extreme heat

source and the display should return to normal within a few seconds.

- The Thermal Imaging Camera is not an intrinsically safe device. This device is not to be used in a potentially explosive atmosphere.

Operations

The Thermal Imaging Camera is to be stored in the onboard charger, if available.

In order to deploy the camera, remove it from the onboard charger (or normal location), and firmly grasp the side strap. This is done to lessen the chance of the unit being dropped. To turn the unit on, push the large gray button in the rear center of the unit. It will take approximately eight (8) seconds to become operational.

Once the camera is active, an image will be visible on the screen. The cool areas will appear dark, while the sources of heat appear white.

Just above the display screen in the center, there are five (5) LED lights that allow the operator to see the amount of energy reserve that remains in the unit’s battery pack.

If the battery power LED lights indicate that the battery has less than $\frac{1}{4}$ of its energy capacity remaining, or the yellow LED light is illuminated, it should be replaced with a fully charged battery.

Special Features

- Electronic Integration (EI) Mode – The Bullard T3 Max model thermal imaging camera has two (2) modes of operation. When first activated, the camera is in the normal mode. If at any time a heat source is detected within the field of view of the lens



above 200 degrees Fahrenheit, the camera will automatically switch to EI mode. The letters EI will accompany this on the viewing screen.

- Relative Heat Indicator – The Bullard T3 Max model thermal imaging camera is equipped with temperature measurement capability. The right side of the display will show a vertical bar graph that will indicate the approximate temperature of the object centered on the “cross-hairs” shown in the middle of the screen. The accuracy of this feature is dependent upon several factors; please refer to the operating manual.
- Red Hot Feature – The Bullard T3 Max model thermal imaging camera is equipped with a high heat colorization feature. When viewing an object of intense heat in excess of 1100 degrees Fahrenheit, the object will be colored red or magenta on the display.

Inspection and Maintenance

The Thermal Imaging Camera should be inspected daily for cleanliness. If any part of the camera is dirty, a clean rag dampened with mild soapy water should be used to clean the camera. No harsh detergents or solvents should be used.

The camera should be checked as part of the daily equipment check of the apparatus to which it is assigned.

The camera and its straps must be thoroughly dry before being returned to its onboard charger.

The camera should be turned on, checked for proper operation and battery charge, and turned off.

The camera and the spare battery should be returned to the onboard charger, if available and secured when not in use.

Problems with the unit should be reported to the Company Officer and a shop ticket completed.

Batteries should be rotated weekly in the camera and one battery completely discharged (by leaving the camera on until the battery is dead). This will keep the batteries performing at their optimum.

Screws on the camera should be checked during the weekly maintenance.

REFERENCES

http://www.bullard.com/V3/resources/downloads/confirm.php?get=6050047282_T3MAX_T3XT_T320_1207.pdf&pname=T3%20Series%20User%20Manual

FORMS/ATTACHMENTS

N/A