City of Winter Park Fire-Rescue
Standard Operating Guideline

230.11

Title: Operational Considerations for MSA 5200 Thermal Imaging Camera

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Purpose: To establish safe and proper operations for the effective use of the MSA 5200 Thermal Imaging System.

Scope: This guideline is to be followed by all personnel. Many of the items outlined in this document are direct manufacturers recommendations. These guidelines are to be followed at all times. Authority to deviate from the operational considerations rest with the Incident Commander. Authority to deviate from the maintenance considerations rest with the Assistant Chief / Operations.

General: Thermal Image Cameras are complex electronic equipment. This equipment can be reliable and can function for many years under normal conditions. However, it is important to remember that a thermal imager is unlike other tools in the fire service. Reasonable care must be taken when using this device. The fire service often evaluates equipment and forms opinions based on how difficult it is to break the equipment. Just for the record, YOU CAN BREAK this piece of equipment.

The MSA 5200 Thermal Imaging System is ruggedized and waterproofed for use in extreme, fire service conditions. However, there are limits. Please use this equipment as it was intended – to be your extra eyes, specially calibrated for the fire ground. To see through smoke, find fire, and save the lives of both firefighters and the public. Care for this equipment as if it were your own eyes.

230.10.01. GENERAL INFORMATION:

Before using the MSA Evolution 5200 Thermal Imaging System-, users must understand the following:

- All users must be thoroughly familiar with the MSA 5200's proper operation and limitations prior to use. Improper use of the equipment in a hazardous atmosphere could result in serious injury or death.

- The MSA 5200 Thermal Imaging System is not life support equipment. It is a navigational tool, and under certain conditions, will provide a special visual image of immediate surroundings in smoke filled, fog covered or completely dark environments.

- The service life of the MSA 5200 Thermal Imaging System depends in part on the environmental conditions in which the equipment is used. Under heavy usage, or under extreme environmental conditions, the service life of the equipment may be reduced.

- The MSA 5200 Thermal Imaging System is complex electronic equipment and just like any other machinery, electronic systems are subject to potential failures. If a failure occurs, the user will no longer have access to the special visual image and will be exposed to the same conditions as personnel operating without the equipment. Therefore, tactical usage of this equipment must not deviate from standard operating guidelines used by personnel who do not have the benefit of this equipment. Failure to follow standard operating guidelines in a hazardous atmosphere may result in disorientation, injury or death should an equipment failure occur.

- The MSA 5200 Thermal Imaging System must be serviced only by authorized personnel. Under no circumstances should any attempt be made to service the equipment by unauthorized personnel. The MSA 5200 operates under high voltage. Unauthorized personnel should never remove the cover or casing of the MSA 5200.

- Only personnel familiar with the usage and limitations of the system may use the MSA 5200 Thermal Imaging System. That includes usage in simulated fire conditions such as controlled live burn situations. Usage of the MSA 5200 Thermal Imaging System by unauthorized, unfamiliar or untrained users may result in injury or death.

- Exposure to high temperature environments for an extended period of time may result in degradation or loss of thermal image. Be sure not to overexpose or heat saturate the equipment. If possible degradation of the thermal image is observed, remove the equipment from the high heat environment and allow for a cool down period until the thermal image is restored to normal. Failure to provide adequate cool-down time may result in system failure, which could result in injury or death.

- Users should be conscious of the battery life. It is advised to only enter a hazardous environment when a full battery charge is indicated on the battery charge indicator. Entering a hazardous environment with inadequate battery charge could result in system failure contributing to injury or death.

- Although the MSA 5200 Thermal Imager is IP67 waterproof, the system will not provide thermal images underwater.

- The MSA 5200 Thermal Imager will not provide images through glass, water, or shiny objects. These surfaces act like mirrors to the system.

- The MSA 5200 Thermal Imaging System does not improve impaired vision. Users with impaired vision should continue to use ophthalmic devices while using the system.

- The MSA 5200 Thermal Imaging System is not rated an "**Intrinsically Safe**". Do not use the system in environments or atmospheres where static or a spark will cause explosion.

- Electromagnetic radiation (radio transmissions) may cause interference to the MSA 5200 Thermal Imaging System.

- Never Point the MSA 5200 directly to the sun. Damage to the detector may occur.

230.10.02. OPERATION:

- **System Status Indicator:** Is located in the lower middle of the screen. A single green light shows system is on. A blinking green light shows system is in Standby mode.

- **To activate the TIC:** Press and hold the green POWER button located below the screen center for approximately one second. You will have an instant screen.

- **Standby Mode**: Push the green button for one (1) second with the image on the screen and you will see the image gone and a blinking green light in the center of the screen . To reactivate the image, push the green button for approximately one (1) second again and the image will appear.

230.10.03. Using the Camera in a Firefighting Mode:

- The MSA 5200 uses a microbolometer thermal detector to provide the clearest high definitions available in fire and non fire environments.

- The camera is IP67 waterproof and will withstand short-term immersion in water to a depth of 3 feet.

- Durable to withstand a 4.5' drop onto a concrete surface.

Exposure to high temperature environments for extended period of time may cause degradation of thermal image. If degradation is observed , move the equipment out of high temperature environment.

- The MSA 5200 is equipped with the Heat Seeker Indicator System which identifies the hottest point of the fire with red highlights on an otherwise black and white image.

230.10.04. Cleaning and Maintenance

External surfaces of the case, base, visor lens, viewing window, and straps should be cleaned by wiping with a weak solution of mild detergent and warm water. Dry and polish with a soft, lint-free cloth, taking care to avoid scratching the optical surfaces.

- Always be sure that the lenses, as well as the viewfinder, are always coated with an anti-fog material.
- Inspect the MSA 4000 Thermal Imaging System for structural, heat, and/or chemical damage.
- Inspect the mechanical hardware to make sure no screws have loosened and no o-rings or gaskets have come loose or have been misplaced.
- Inspect all lenses for heat or chemical damage, cracks and breaks.
- Check that all warning labels are intact.
- Inspect all battery contacts for damage.
- Inspect all batteries and battery adapters for damage or leakage.
- Inspect battery charger.
- Check all switches including the battery charger for proper indication that systems are running correctly.
- Inspect battery charger contact points for corrosion or damage.

- Make sure battery charger is charging by placing a battery into the charger and making sure the LCD display on the battery charger reacts according. See the instructions for the battery charger details.

230.10.05. Batteries and Charging

Rechargeable NiMH Batteries

The MSA 4000 comes equipped with (two Nickel Metal Hydride (6 v, 3.6AH or greater) batteries, or equivalent. These batteries are recommended.

MSA 4000 units are fitted with a battery protection circuit, which prevents excessive discharge of rechargeable battery packs. Its function is to interrupt power to the camera when the battery voltage falls below a predetermined voltage. The circuit resets automatically on replacement of the battery pack.

Placing Battery into the VISION3 Camera

- Place the unit on a clean non-abrasive surface.
- Unhook the battery latch and open the battery compartment.
- Place the battery inside the battery cover with the battery logo and arrow facing upward and the contacts facing in toward the camera.
- Close and latch the battery compartment.

Battery Indicator

- Two green LED'S below the display represent the two battery slots. Each LED is fully lit when a sufficiently charged battery is installed in the corresponding slot.
- Each LED is lit at half the intensity when the corresponding battery does not have enough charge to power the camera. (considered dead)
- The LED is OFF if a battery is not present in the corresponding slot.

Low Battery Indicator

- Total battery capacity is indicated with a single on screen bar gauge.
- The battery has five segments.
- The gauge resolution varies , depending on whether one or two batteries are installed.. When one battery is installed : the gauge is full if the battery is completely charged. When two batteries are installed: the gauge is full if both batteries are completely charged.

Low Battery Warning

An on screen low battery warning (a battery with a triangle system) flashes for nominally 15 minutes of remaining battery life.

230.10.06. Battery Charger

The charger is powered with a 110 VAC main power supply.

Charging the Battery

- To charge the batteries, drop the battery into either pocket and lightly press down to seat the contacts.
- The charger has four indicator lights on it.
- Yellow – Orange indicate that the charge mode is pending.
- Red indicates the battery is charging.
- Green indicates the charged is finished.
- Blinking Red indicates an error.