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OVERVIEW

The SearchCam® Recon III strikes a balance between the sophisticated SearchCam® 3000 designed primarily for search operations in structural collapse incidents, and the SearchCam® Mongoose, designed to aid in victim extrication.

The Recon III is small enough to be easily manoeuvrable in the rubble for rescue work, yet will extend long enough to be effective in multi-floor search operations. The range of the camera telescopic tube is 27 inches (69 cm) to 46 inches (117 cm).

This manual provides information for the safe and proper operation and maintenance of the SearchCam® Recon III. Please read the manual completely before using the Recon III.

If there are questions about the operation of the system, or comments on how this product can be improved, please contact Savox at: 1-800-546-3405 (North America Only) or (0) 1-604-244-9323.
## SearchCam® Recon III Kit Contents [6000-11-014]

<table>
<thead>
<tr>
<th>ITEM</th>
<th>DESCRIPTION</th>
<th>PART NUMBER</th>
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<tbody>
<tr>
<td>1</td>
<td>Recon III Camera</td>
<td>6010-00-006</td>
<td>1</td>
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<tr>
<td>2</td>
<td>Recon III Video Display</td>
<td>6010-00-005</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Sun Shield</td>
<td>6010-06-000</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>Lithium Ion Rechargeable Battery Stick</td>
<td>6010-05-005</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Lithium Ion Gang Charger</td>
<td>6010-05-003</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>Battery Charger Power Supply</td>
<td>0103-06-003</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>Power Cord</td>
<td>Varies by Country</td>
<td>1</td>
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<tr>
<td>8</td>
<td>Shoulder Sling</td>
<td>6010-06-003</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>Operation/ Maintenance Manual*</td>
<td>7000-01-014</td>
<td>1</td>
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<td>10</td>
<td>Pelican Case 1750 with foam*</td>
<td>6010-03-005</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>VOID Orientation Guide*</td>
<td>6010-90-002</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>Warranty Card*</td>
<td>6010-90-003</td>
<td>1</td>
</tr>
</tbody>
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*Item not shown

![Diagram of kit contents]
General Precautions

The SearchCam® Recon III is designed to function under the demanding conditions of a disaster scene. However, it is important to remember that the system is a precise instrument and it can be damaged if not cared for properly. The following precautions should be adhered to in order to prevent damage from misuse:

- Avoid exposing the camera head to great deal of leverage which could result in damaging the articulating camera joint.

- Store the Recon III Camera in its original case, laid out as shown on page 5

CAUTION:

Changes or modifications to this equipment, not expressly approved by the manufacturer could void the user’s authority to operate the equipment.

Safety Precautions

Rescue operations can be very hazardous. All safety practices must be understood and adhered to while working at the rescue scene.

- Always wear the level of personal protective equipment appropriate for the conditions at the rescue scene. Do not attempt any rescue operation without the training and experience required to safely perform the rescue, as you could jeopardize your life as well as the victim’s.

- The SearchCam® Recon III camera will conduct electricity. If the camera comes in contact with a live power line, electrocution could occur while touching any part of the camera. Verify that all power sources in the collapse area have been disconnected. Watch for overhead power lines that may be low enough to make contact with the camera when the camera is extended over your head. Do not operate this unit in an electrical storm. Failure to take these precautions could result in death by electrocution.

- The SearchCam® Recon III is not certified for use in hazardous atmospheres. Do not use the system in a flammable atmospheres. Always verify that the atmosphere is clear of flammable gases or liquids before operating the system. Ensure that all potential fuel sources have been disconnected and properly secured. Failure to take these precautions could result in an explosion.

- Operate the SearchCam® Recon III in a safe manner. Adequate training and judgment are required to reduce the inherent risks in the rescue environment. Failure to follow the above safety precautions, and to operate safely at the collapse scene, may jeopardize your life as well as the lives of your team.

- While the Camera Head is capable of vertical immersion into water up to 46 inches (117 cm) deep, the Video Display is splash proof only. Do not immerse Video Display Unit in water, this may result in permanent damage.
Information to User

European Regions Statement

• The Recon III complies with Criteria A of IEC 61000-6-1: 2nd ED 2005 and IEC61000-6-3:2007 Class B - Radiated Emissions.

North American Regions Statement

• This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

• This Class B digital apparatus complies with Canadian ICES-003; (Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.)
GETTING STARTED

Connecting the Video Display to Recon III Camera

Step 1.
Pull down the locking collar.

Step 2.
Slide in the plunger located on the Video display into the locking socket.
It may be required to twist the display left or right in order to align the internal keyway of the locking mechanism.

Step 3.
Release the locking collar.
Make sure that the Video Display is properly seated in the locking collar mechanism.
Step 4.

Connect the Video Display cable to the Recon III camera. The connector has a push-pull design.

Align the guide pin of the connector with the guide slot on the socket and push it in to connect.

Pull the connector out while holding it by the collar to disconnect.
POWERING UP THE RECON III CAMERA

Powering Up

Make sure that the Video display is properly attached to the Recon III camera. (See page 8)

Step 1.
Remove the battery cap from the battery holder and slide in one of the provided batteries sticks into it.
Hand screw the battery cap back onto the battery holder.
Make sure the battery is charged. (See page 18)

Step 2.
Press the Red Power Button located on the back of the Recon III camera for 1 sec or until the image appears on the Video Display.
The same button controls camera illumination. (see page 15)
Shutting down

Step 1
Press and hold the Red Power Button located on the back of the Recon III camera for 3 sec or until the image disappears from the Video Display.

Step 2.
Remove the battery stick from the battery holder before storing the camera.
SearchCam® Recon III Controls & Operation

Extending the Telescopic Tube of the Camera

To extend the camera length, loosen the tube collar and pull the telescopic section of the tube out to the desired length.

Hand tighten the tube collar.

Note:

A. Extension and retraction of the telescopic tube is easier if the camera is held in a vertical position.

B. If the camera head has been used under water, drain the telescopic tube first before collapsing it. (see page 15)

Articulating the Camera

The camera head articulates 240 degrees from full left to full right.
**Drive Collar**

The drive collar controls camera head articulation. Turn the collar to the right to move the camera head to the right. Turn the collar to the left to move the camera head to the left.

The drive collar has built in detents feedback. Each detent represents 15 degrees of camera head movement. The arrow located on the drive collar points to a camera head angle position as indicated on the angle indicating label. This angle readout can be used in locating the victim as described in the Void Orientation Guide.

![Drive Collar Image]

Note: The drive collar will indicate an incorrect angle readout if the safety clutch is disengaged.

**Safety Clutch**

Camera head is equipped with a safety clutch. This clutch is designed to prevent any damage to the drive components and it will disengage if the camera if forced against an obstacle during articulation. A symptom of a disengaged clutch is a still image on the display while the drive collar is being turned in same direction the camera head was being moved before encountering the obstacle.

To reset the clutch to zero position turn the drive collar all the way in the opposite direction, the clutch will then reset.

To confirm that the safety clutch in correctly engaged twist the drive collar fully left or right then turn it fully the opposite direction. Observe the screen while doing so, if the image moves during the entire 240 degree articulation of the camera head the clutch is correctly engaged. This can be done at any time during the search.
Inserting the Camera into the Cavities Under Search

The camera head requires a minimum 2” (51mm) diameter access hole. The operator should observe the video display while inserting the camera head into the cavity under search to avoid striking any obstacles that might block the way.

If debris is encountered that impedes passage, the camera should be removed and the path cleared with a breaker bar or suitable tool. Never intentionally push an object with the camera head.

Extracting the Camera from the Cavities Under Search

Extracting the camera from the void under search is generally just a matter of returning the camera head to center position and carefully pulling it out of the void.
Using the Camera Underwater

The camera head is water proof and can be used underwater up to 46 inches (117 cm) deep.

While under water the telescopic tube will fill with water. Drain the water out of the tube before collapsing it or before storing the camera in the case. The drain hole is located in front of the control housing.

Camera Head Illumination

Illumination is controlled by the same red button that controls the power.

Once the system is powered ON, momentarily pressing this button toggles the camera head illumination from HIGH to LOW to OFF setting.

In the top left corner of the display two light bulbs icons are displayed for illumination HIGH setting and one light bulbs icons is displayed for illumination low setting. As the rest of the camera screen displayed information both icons stay on for only few seconds.
Video Display Brightness and Contrast

Video display brightness and contrast controls are located on the top of the video display housing.

To change display brightness, press the Brightness control button. If the button is held down, the display brightness “cycles” from brighter to darker continuously until the button is released.

If the button is pressed then released, and then pressed again after a delay of two seconds, the brightness “cycle” is reversed. This reverse function allows the display brightness to be adjusted incrementally, increasing or decreasing the brightness of the display with one button.

Contrast adjustments are made in the same manner as brightness adjustments.

The display will have the best picture quality when viewed perpendicular to the display face. The quick release allows the display can be adjusted to many different angles.

Shoulder Sling

A shoulder sling is provided with the Recon III to allow for the camera to be slung from the shoulder during carrying between search areas. The strap attaches to the shoulder strap attachment points.
Sun Shield

When using the Camera in a sunny condition install the Sun Shield onto the VDU as shown. This allows the operator to see a clear image even in very bright surroundings.

Batteries

Fully charged battery will typically last for about 120 minutes (2 hours).

Battery Level Indicator

The battery level icon is located in the upper right corner of the display screen. This icon is momentarily displayed when the red power button is pressed. The battery icon will flash when the battery need to be replaced. The camera automatically shuts down when battery voltage reaches critical level. The camera always draws a small amount of current when connected to a battery, even if the system is turned off. When storing the Recon III, remove the battery from the camera.
Charging the Batteries
Charge the batteries using the provided Gang Charger only. Insert the batteries into the charger and screw the caps on. Red LED light above each battery indicates charging.

Green LED means the batteries are fully charged. If necessary the batteries can be used before they are fully charged. Charge at ambient temperature between 32°F [0°C] and 104°F [40°C]

Storage
Batteries should ideally be stored at a 30% - 50% state of charge. Any less than 30% state of charge is not recommended since this could potentially drain the battery to 0% charge if stored for extended periods of time. If the batteries are stored at temperatures higher than 20 degrees Celsius they will lose their charge faster and the life of the batteries will be reduced.

Warnings
Do not open or disassemble, do not short out its terminals, do not expose to high temperature above 100°C [212°F] or incinerate or expose to direct sun light and high humidity. Do not crush, deform or puncture. Do not submerge in water.

Improperly charging may cause the battery to explode. Use only Gang Charger (Part No. 6010-05-003) supplied with the equipment to charge the batteries.
MAINTENANCE

General Maintenance & Cleaning

Clean all the parts of the system before storing it. Pay attention to the cable connector, socket, display quick connect and the tube collar. Keeping dirt from the tube collar threads is critical for smooth operation.

Wipe the display screen using only a small amount of pressure. Whenever possible, blow the screen off with compressed air to remove any abrasive dust before cleaning the screen with glass cleaner. Never spray glass cleaner directly on the display face.

Apply cleaner to a soft cloth and wipe gently.

Clean the telescopic tube and the control housing with compressed air first to remove most of the dirt then wipe it down with a damp cloth.

Cleaning wipes or a water with detergent can be used to make the cleaning more effective.

Environmental Considerations

Collapse and rescue missions occur during all weather conditions. The Recon III is designed to function under most of these conditions.

The following are guidelines for operating under the more extreme environmental conditions. It is imperative that these recommendations be followed in order to prevent damage to the system.

Cold Temperature Conditions

The system is designed to function at temperatures as low as 14° F (-10° C). However, at temperatures below 32° F (0° C), changes in system operation may occur.

Temperature Guidelines

Recommended system storage temperature
Between 40° F (5° C) and 80° F (26° C)

Absolute Minimum Storage Temperature
-10° F (-23° C)

Absolute Maximum Storage Temperature
140° F (60° C)
High Temperature Conditions
The maximum recommended continuous ambient operating temperature for the SearchCam® Recon III is 110°F (43°C). The system is designed to operate at this temperature indefinitely.

The system can be operated at higher temperatures for shorter periods of time when necessary.

Avoid leaving the system in direct sunlight when not in use.

High Moisture Conditions
The entire SearchCam® Recon III system is designed to be water-resistant. The Camera Head is waterproof and can be submerged in water up to 46” (117cm) deep. (see page 15)

The VDU and Power Module are splash proof only, DO NOT submerge these modules in water.

Post Incident Inspection
After the SearchCam® Recon III system is cleaned, it is recommended that it is inspected and tested before storage. Once the system has been tested, it should be visually inspected for mechanical damage.

System Packing and Storing
Clean all the parts of the system before storing it. Store the Recon III Camera in its original case, laid out as shown on page 5.

If possible Charge the batteries before storage. This a good practice and will allow the system to be used when needed.
# SPECIFICATIONS

<table>
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<th>Specification</th>
<th>Details</th>
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<tr>
<td>Absolute Minimum Storage Temp.</td>
<td>-4°F (-20°C)</td>
</tr>
<tr>
<td>Absolute Maximum Storage Temp.</td>
<td>122°F (50°C)</td>
</tr>
<tr>
<td>Power</td>
<td>Li Ion Battery Stick</td>
</tr>
<tr>
<td>Battery Type</td>
<td>Rechargeable Li Ion Battery Stick, Rating 7.4V, 2300 mAh, 0.24lb (0.108kg)</td>
</tr>
<tr>
<td>Operating Time</td>
<td>2h Nominal at 60°F (20°C)</td>
</tr>
<tr>
<td>Recon III Camera Length</td>
<td>43” – 56.5” (109.25 - 143.5cm)</td>
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<td>Recon III Extended Camera Length (excluding control housing)</td>
<td>32.5” – 46” (82.5 - 117cm)</td>
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<tr>
<td>EMC Tests</td>
<td>Complies with FCC CFR 47, Part 15 Subpart B, Class B; ICES-003 Issue 2, Rev 1, Class B; EN61000-6-1:2005; EN61000-6-3:2007</td>
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<td>Recon III Camera Weight without display</td>
<td>8 lbs (3.63 kg)</td>
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<td>Recon III Kit Weight w/ Case</td>
<td>5.6 lbs (2.54 kg)</td>
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<td>Recon III Kit Case Dimensions</td>
<td>53” x 16” x 6” (135 x 41 x 15cm)</td>
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**CAMERA HEAD**

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<tr>
<td>Color Camera Resolution</td>
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<td>Focal Length</td>
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<td>LED Illumination Intensity @ MAX</td>
<td>32 lux @ 39” (100cm)</td>
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<td>Illumination Angle</td>
<td>32°</td>
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<tr>
<td>Diameter</td>
<td>1.85” (4.7cm)</td>
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<td>Articulation Angle</td>
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<td>Camera Tilt Radius</td>
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**VIDEO DISPLAY**

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<td>Screen Size</td>
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<tr>
<td>Display Format</td>
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<td>Weight</td>
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<td>Display Extended Coil Cord Length</td>
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<td>Camera Head</td>
<td>IP68</td>
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<tr>
<td>Control Housing</td>
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<td>Display Unit</td>
<td>IP64</td>
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<td>Gang Charger</td>
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If your system should require service or if you have a question regarding the SearchCam® Recon III, contact Savox at 604-244-9323 (1-800-546-3405) for assistance. Always contact Savox before returning a system for service. For service outside North America, contact service by phone at 604-244-9323, by fax at 604-270-2138 or www.savox.com.

Before you return the SearchCam® Recon III for repairs or upgrades:

1. Contact Savox for a Return Merchandise Authorization (RMA) number.
2. Insure the system for the purchase price of the system.
3. Place the address label on the outside and the inside of the shipping container. *Shipping labels can be downloaded at www.savox.com.
4. Include contact information, return address, and a description of the reason for the return.
5. Customers are required to pay shipping to and from Savox.

For international shipments, mark the shipping document as follows:

“Goods of US origin being returned for repair”

Service Centre

US Repairs
Savox
2025 South West 5th Street
Lincoln, Nebraska 68522, USA

According to most export laws, the customs value stated on the return shipment will be either the repair price in the case of billable repairs or the cost of repair to the manufacturer in the case of warranty repairs. The recipient is responsible for payment of all customs charges such as duty upon re-entry to their country. Documents showing proof of original export for repair may be required to minimize these charges. Return documents will state an Insurance Value for the equipment in case of loss. This value is usually much higher than the Customs Value. An Ex-Works return shipment can be requested if the customer chooses not to insure the return shipment.

User comments and suggestions are always appreciated. We continually strive to improve our products and this can only be done with your help. Let us know what you like and what changes would help make the system better to suit your needs.