

ATN OTS-30

ATN OTS-60

THERMAL IMAGING SYSTEM



operator's manual

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**AMERICAN
TECHNOLOGIES
NETWORK
CORP.**

Manual (OTS-30, OTS-60 ver. 2011) Revision 1 - 2011

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SAFETY SUMMARY

STUDY CAREFULLY THIS MANUAL BEFORE TURNING ON AND OPERATING THIS PRODUCT.

CAUTIONS

The ATN OTS-30 and ATN OTS-60 thermal imaging systems are precision optical-electronic instruments and requires careful handling. To provide safe use of the systems the following instructions should be observed:

- Do not dismantle the device.
- Keep the device clean; protect it from moisture, sharp temperature drops and shocks.
- Be careful not to touch the glass surfaces. If you put fingerprints on, or contaminate the glass surfaces, use only clean and soft materials to clean it.
- Do not leave the device in on position during stops in operation.
- Remove the battery from the device for the period of storage.

CAUTION:

**THIS PRODUCT CONTAINS NATURAL RUBBER LATEX WHICH
MAY CAUSE ALLERGIC REACTIONS**

WARNING

Do not permanently attach the camera to dynamic-mount applications that continuously transmit vibration (such as on vehicles or heavy machinery).

WARNING

Do not point the camera directly at any high-intensity objects that you must not view with your eyes (such as the sun or a welding arc). If you do, you will damage the camera.

WARNING

Operating OTS outside of its specified operating temperature range or voltage range can cause permanent damage and will void the warranty.

WARNING

Use the power button to turn the camera off before you remove power (remove batteries).

WARNING

Do not use any battery other than a CR-123A lithium battery. DO NOT use any battery(ies) providing a (combined) voltage greater than 3.0 volts.

WARNING

Do not install batteries of different types (lithium with lithium-ion rechargeable). All batteries must be of the same type.

WARNING

Always replace ALL 2 batteries. If you install new batteries with used batteries, the result may be dangerous.

WARNING

Do not replace batteries in a possibly explosive environment, such as a gas station (or any place where you must turn off your vehicle engine). If you do, sparks can cause an explosion.

WARNING

Remove the batteries before you store the camera for extended periods (2 weeks or more).

WARNING

Do not carry batteries in pockets containing metal objects such as coins, keys, etc. Metal objects can cause the batteries to short circuit and become very hot. In the case of lithium batteries, a short circuit could cause them to explode.

WARNING

Observe battery manufacturer's guidelines for safe handling and proper disposal of batteries.

EQUIPMENT LIMITATIONS

- The OTS detector spectral band (7 to 14 mkm) provides a better penetration through smoke, smog, dust, water vapor etc.
- Infrared radiation does not travel through glass and therefore the scope does not sense objects if they are behind a glass window.

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SECTION I

INTRODUCTION

1.1 GENERAL INFORMATION

1.1.1. SCOPE

This manual contains instructions for use in operating and maintaining the ATN OTS-30 and ATN OTS-60 thermal imaging systems. Throughout this manual, the ATN OTS-30 and ATN OTS-60 will be referred to as the scope or OTS.

1.1.2. REPORTS

Reports from the user on recommendations for improvements are encouraged. Send reports to the address below.

American Technologies Network Corp.
1341 San Mateo Avenue
South San Francisco, CA 94080
(800) 910-2862
(650) 989-5100
(650) 875-0129 fax
info@atncorp.com
www.atncorp.com

1.1.3. STORAGE

Storage of OTS should be done in the factory packing and after a thorough PMCS as outlined in Section 4.1. of this manual. This will ensure the scope remains in mission ready condition during storage. Battery should be stored separately from the scope.

The scope should not be placed on the floor, in any area exposed to high temperatures or direct sunlight. Presence of acid and alkaline vapor, as well as of other aggressive admixtures in the air is unacceptable.

1.1.4. WARRANTY INFORMATION

ONE YEAR PRODUCT WARRANTY

This product is guaranteed to be free from manufacturing defects in material and workmanship under normal use for a period of 1 (one) years from the date of purchase. In the event a defect that is covered by the foregoing warranty occurs during the applicable period stated above, ATN, at its option, will either repair or replace the product, and such action on the part of ATN shall be the full extent of ATN's liability, and the Customer's sole and exclusive remedy. This warranty does not cover a product (a) used in other than its normal and customary manner; (b) subjected to misuse; (c) subjected to alterations, modifications or repairs by the Customer or by any party other than ATN without prior written consent of ATN; (d) special order or "close-out" merchandise or merchandise sold "as-is" by either ATN or the ATN dealer; or (e) merchandise that has been discontinued by the manufacturer and either parts or replacement units are not available due to reasons beyond the control of ATN. ATN shall not be responsible for any defects or damage that in ATN's opinion is a result from the mishandling, abuse, misuse, improper storage or improper operation, including use in conjunction with equipment which is electrically or mechanically incompatible with or of inferior quality to the product, as well as failure to maintain the environmental conditions specified by the manufacturer. This warranty is extended only to the original purchaser. Any breach of this warranty shall be waived unless the customer notifies ATN at the address noted below within the applicable warranty period.

The customer understands and agrees that except for the foregoing warranty, no other warranties written or oral, statutory, expressed or implied, including any implied warranty of merchantability or fitness for a particular purpose, shall apply to the product. All such implied warranties are hereby and expressly disclaimed.

LIMITATION OF LIABILITY

ATN will not be liable for any claims, actions, suits, proceedings, costs, expenses, damages or liabilities arising out of the use of this product. Operation and use of the product are the sole responsibility of the Customer. ATN's sole undertaking is limited to providing the products and services outlined herein in accordance with the terms and conditions of this Agreement. The provision of products sold and services performed by ATN to the Customer shall not be interpreted, construed, or regarded, either expressly or implied, as being for the benefit of or creating any obligation toward any third party of legal entity outside ATN and the Customer; ATN's obligations under this Agreement extend solely to the Customer. **ATN's liability hereunder for damages, regardless of the form or action, shall not exceed**

the fees or other charges paid to ATN by the customer or customer's dealer. ATN shall not, in any event, be liable for special, indirect, incidental, or consequential damages, including, but not limited to, lost income, lost revenue, or lost profit, whether such damages were foreseeable or not at the time of purchase, and whether or not such damages arise out of a breach of warranty, a breach of agreement, negligence, strict liability or any other theory of liability.

PRODUCT WARRANTY REGISTRATION

In order to validate the warranty on your product, ATN must receive a completed Product Warranty Registration Card for each unit or complete warranty registration on our website at www.atncorp.com. Please complete the included form and immediately mail it to our Service Center: ATN Corporation, 1341 San Mateo Avenue, South San Francisco, CA 94080.

OBTAINING WARRANTY SERVICE

To obtain warranty service on your unit, End-user must notify ATN service department by calling **800-910-2862** or **650-989-5100** or via e-mail service@atncorp.com to receive a Return Merchandise Authorization number (RMA). When returning please take or send the product, postage paid, with a copy of your sales receipt to our service center, ATN Corporation at the address noted above. All merchandise must be fully insured with the correct postage; ATN will not be responsible for improper postage or, missing or damaged merchandise during shipment. When sending product back, please clearly mark the RMA# on the outside of the shipping box. Please include a letter that indicates your RMA#, Name, Return Address, reason for service return, Contact information such as valid telephone numbers and/or e-mail address and proof of purchases that will help us to establish the valid start date of the warranty. **Product merchandise returns that do not have an RMA listed may be refused or a significant delay in processing may occur.** Estimated Warranty service time is 10-20 business days. End-user/customer is responsible for postage to ATN for warranty service. ATN will cover return postage/shipping after warranty repair to end-user/customer only if product is covered by aforementioned warranty. ATN will return product after warranty service by domestic UPS ground and/or domestic mail. Any other requested, required or international shipping method the postage/shipping fee will be the responsibility of the end-user/customer

1.2. DESCRIPTION AND DATA

1.2.1. DESCRIPTION

A. PURPOSE

The OTS-30 and OTS-60 have raised the standard for affordable, small, lightweight thermal imaging viewers. They're pocket-sized, rugged and durable. These units are built around state-of-the-art uncooled thermal imaging technology. They offer superior performance, compact size, comfort of wear, and cost efficiency, making them the perfect choice for most any thermal imaging application. The ATN OTS-30 and OTS-60 are ideal for home security, public safety, first responder and security operations.



Figure 1-1. ATN OTS Thermal Imaging System

B. FEATURES

The ATN OTS has the following important features:

- Compact & lightweight design
- Digital imaging
- Standard Imaging (9hz), Fast Imaging (30hz) or Enhanced Imaging (60hz)
- Vanadium oxide (VOx) Microbolometer Uncooled
- 800 x 600 OLED color display
- Rugged design with mil. spec optics

- Menu functions include reticle type & color selection; windage & elevation adjustment
- Polarity single button modes: black on white, white on black, 5 different color settings
- Digital brightness control
- E-zoom
- Video output with RCA cable
- Operational range: -30°C to +60°C (-40°C to +80°C storage temp)
- Diopter range: +2 to -6
- Eye relief: 28mm
- Extended battery life using two (2) CR123 lithium batteries (4-plus hours)
- One-year warranty
- Made in USA

C. FRAME RATE

One of the most important specifications of any thermal imaging device is frame rate. This refers to the number of frames per second that can be viewed by the device. The lower the frame rate, the choppy the motion. Conversely, the higher the frame rate, the more precise the motion. This is especially critical in weapon scope applications that require precise and quick acquisition.

Standard professional thermal systems come in 30hz (Fast Imaging or FI) while many commercial viewers run at 9hz (Standard Imaging or SI). In 2012, ATN is proud to offer 60hz (Enhanced Imaging or EI) options for most of its thermal systems. With Enhanced Imaging you will never have to worry about hitting behind the moving target because your skill outpaces the technology in your scope.

1.2.2. OTS STANDARD COMPONENTS

The OTS standard components are shown in Figure 1-2 and presented in Table 1-1.



Figure 1-2. OTS Standard Components

Table 1-1. OTS Standard Components

ITEM	DESCRIPTION	QTY
1	Scope	1
2	Soft Carrying Case	1
3	Lens Tissue	1
4	Lithium Battery CR123A	2
5	Operator's Manual	1
6	Wrist Strap	1

- 1) **Scope**
The monocular thermal imaging device.
- 2) **Soft Carrying Case**
A protective bag used for storing of OTS and accessories.
- 3) **Lens Tissue**
Uses for cleaning of lenses surface.
- 4) **Lithium Battery CR123A**
Two CR123A lithium batteries used to power the unit.
- 5) **Operators Manual**
Provides equipment description, use of operator controls and preventative maintenance checks and service.
- 6) **Wrist Strap**
Used to prevent damage due to dropping the scope.

1.2.3. OTS OPTIONAL COMPONENTS

The OTS optional components are shown in Figure 1-3 and presented in Table 1-2.



Figure 1-3. OTS Optional Components

Table 1-2. OTS Optional Components

ITEM	DESCRIPTION	ITEM #
1	2X Afocal Lens	ACTILENSOT2X
2	RCA Video Cable	ACTICARCA
3	Hard Storage Case	ACCSHS1610

1) 2X Afocal Lens

Attaches to the OTS for enhanced range performance.

2) RCA Video Cable

RCA Video Cable used for video transmission.

3) Hard Storage Case

A protective case used for shipping/storing OTS and accessories.

1.2.4. SPECIFICATIONS

The following tables provide information pertaining to the operational, electrical, mechanical, optical and environmental characteristics for the sights.

Table 1-3. Specifications

ITEM	OTS-30	OTS-60
Resolution	320 x 240	640 x 480
Frame Rate	9 Hz (TIMPOTIS30HZ9) 30 Hz (TIMPOTIS30C) 60 Hz (TIMPOTIS30D)	9 Hz (TIMPOTIS60HZ9) 30 Hz (TIMPOTIS60B) 60 Hz (TIMPOTIS60A)

ITEM	OTS-30	OTS-60
Pixel Size	25 μ m	25 μ m (TIMPOTIS30HZ9) 17 μ m (TIMPOTIS30C , TIMPOTIS30D)
Detector Type	Uncooled Microbolometer	
Spectral Response	7-14 μ m	
Angular Resolution	1.2 mrad	
Magnification	1X (2X, 4X digital)	
Objective Focal Length	19 mm	
FOV	11° x 8°	
Focus Range	3m to infinity	
Focus Adjustment	Fixed	
Exit Pupil	14mm	
Eye Relief	25mm	
Thermal Sensitivity	< 0,1°C	
Range to Detect a Human	475 m	
Output Format	Analog PAL / NTSC	
Display	Color OLED matrix	
Display Format	800 x 600 pxl	
Brightness Adjustment	Manual	
Contrast Adjustment	Automatic	
Power Supply	2 x 3V, 123A type	
Start-Up Time	< 5 sec	
Operating Time w/one battery pack	4 hrs	
Weatherproof	Yes	
Dimensions	118 x 81 x 52 mm	
Weight (w/batteries)	0.34 kg	

* ATN reserves the right to change the above specifications at any time without notice

1.2.5. MECHANICAL FUNCTION

The mechanical adjustments of the OTS sights allow for physical differences between individual operators using the system. The scope functions include the switchboard, recalibrate switch, universal connector, eyepiece diopter adjustment ring, battery compartment cover, mounting rail. The mechanical controls are identified in Figure 1-4.

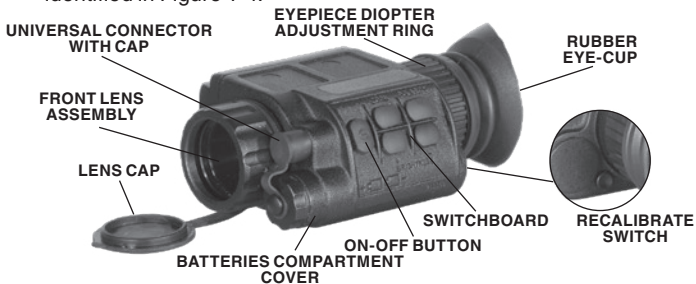


Figure 1-4. OTS Mechanical Controls

1.2.6. OPTICAL FUNCTION

The optical functions include an objective lens, thermal imaging detector and eyepiece. Infrared energy is emitted proportionally to the temperature of an object. The warmer the object, the more energy it emits. The infrared energy from the objects is focused by the optics, onto an infrared detector. The information from infrared detector is passed to electronics for image processing. The signal processing circuitry translates the infrared detector data into an image that can be viewed on the built-in OLED display. The image is observed through an eyepiece by operator.

1.2.7. ELECTRICAL FUNCTION

The electronic circuit is powered by replaceable batteries - either two 3.0 Volt lithium battery (CR123A).

Power from the batteries is supplied to the components through the OFF-ON switch button.

SECTION II

ASSEMBLY AND PREPARATION

2.1. PREPARATION

2.1.1. PREPARATION FOR USE

This chapter contains the information necessary to prepare the scope for operation. This includes unpacking, examination for damage, and battery installation.

A. UNPACKING

The following steps must be accomplished prior to each mission where the sight is used.

1. Open carrying case, remove the scope and check contents for completeness.
2. Inspect the scope for obvious evidence of damage to optical surfaces, body, eyecups, operation buttons, etc. Ensure that all optical surfaces are clean and ready for use. Clean with lens paper.

B. ATTACHMENT OF WRIST STRAP

To prevent damage due to dropping the scope, use the wrist strap included with your equipment.

C. INSTALLATION OF BATTERY

WARNING

The lithium battery contains sulfur dioxide gas under pressure.

Do not heat, puncture, disassemble, short circuit, attempt to recharge or otherwise tamper with the batteries.

Turn off equipment if battery compartment becomes unduly hot. If possible, wait until the batteries have cooled before removing them.

If you inhale sulfur dioxide, seek medical attention.

The OTS will operate with two CR123A Lithium battery type.

CAUTION

Make certain the operation switch is in the OFF position before installing batteries.

Install CR123A Lithium batteries as follows.

1. Remove the battery cap by turning it counterclockwise.
2. Check to ensure the o-ring is present. If not, replace it.
3. Observe polarity, as indicated on the outside of the battery compartment, and insert two 3.0 Volt CR123A Lithium battery into the battery compartment, minus (-) end first (Figure 2-1).
4. Replace battery cap by pushing and turning it clockwise. Tighten it firmly to ensure a watertight seal.



Figure 2-1. Install batteries

2.1.2. POWERING ON AND THERMAL CALIBRATION

Once batteries are installed to turn your unit on follow these steps:

1. Push ON-OFF button on the scope.
2. Make sure the unit is producing an image when viewing through the eyepiece.
3. **IMPORTANT:** Perform initial calibration of unit. Cover front lens with cap or hand and push Calibration button to calibrate image. Failure to do this step may result in degradation of the image. Degradation may consist of unusual blurriness or ghost like spots in the image. During use if you see any degradation of image please recalibrate the scope.

Perform a calibration upon every substantial environmental temperature change.

4. Observe the scene, and adjust the diopter for optimal image clarity.

2.2. ASSEMBLY

2.2.1. VIDEO OUTPUT

The OTS incorporates a sealed Connector used for video transmission. Video Cable attaches the scope to the video facilities for video recording or video transmission.

Connect the monocular to an external video display/recorder as follows:

1. Remove the protective cap from the connector socket.
2. Attach the video cable to the OTS output connector socket.
3. Attach the RCA plug of the video cable to a compatible jack on an external video display/recorder, or extension cable.



Figure 2-2. Attaching Video Cable

2.2.2. 2X AFOCAL LENS

2X afocal lens is optical doubler specifically designed for thermal imaging systems. Using interchangeable connectors the lens can connect to the OTS. Focal length of the system simply increases by a factor of 2. To install 2X afocal lens screw it into the objective lens of scope. OTS 2X afocal lens is shock and vibration tested.



Figure 2-3. OTS with 2X Afocal Lens

SECTION III

OPERATION

3.1. GENERAL INFORMATION

3.1.1. GENERAL

This section contains instructions for operation of OTS. The function of controls and indicators is explained.

3.1.2. CONTROLS

The OTS scope is designed to adjust for different users and corrects for most differences. The controls for the scope are shown or described in Figure 3-1 and Tables 3-1.

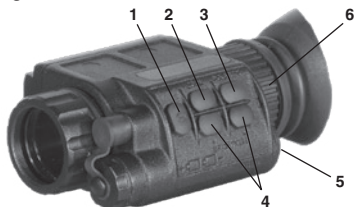


Figure 3-1. Controls

Table 3-1. Controls and Indication

ITEMS	CONTROLS AND INDICATORS	FUNCTIONS
1	ON-OFF Button	Controls scope power. To turn the unit on and off press the button .
2	ZOOM Button	Activates digital 2x/4x magnification.
3	POLARITY AND COLOR MOD Button	Push quickly to switch to between white hot and black hot. Hold down to turn on and cycle through color modes
4	BRIGHTNESS Buttons	Adjustment of the image brightness.
5	RECALIBRATE SWITCH Button	Cover front lens with cap or hand and push button to recalibrate image.
6	Diopter Adjustment	Focuses eyepiece lens without the need for glasses. Adjusts for sharper image of intensifier screen.

3.2. OPERATING PROCEDURE

3.2.1. TURNING ON

Open the objective lens cover. The objective lens cover protects the scope from inadvertent exposure to extremely high levels of radiant flux. Never leave the scope with the objective lens cover off.

To turn the unit on press the button labeled ON/OFF.

After warm up time of approximately 5 seconds, video of the thermal scene appears.

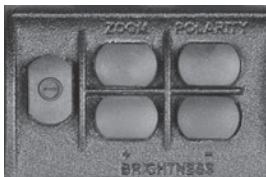


Figure 3-2. Switchboard of OTS

3.2.2. FOCUSING

To focus the scope you need to adjust the diopter. The scope has an adjustable eyepiece with a range of +2 to -6 diopter. Simply turn the diopter clockwise until it stops. Then concentrate on any object and slowly turn the diopter back counter clockwise until the grain in the image is sharp. Then rotate the eyecup to accommodate use over the left or right eye.



Figure 3-3. Focus Adjustment

3.2.3. POLARITY AND COLOR MODES

Push quickly POLARITY button to switch to between white hot and black hot. Hold down to turn on and cycle through color modes.

3.2.4. BRIGHTNESS

Press «BRIGHTNESS +» and «BRIGHTNESS -» buttons for brightness adjustment. Each short push of the buttons «BRIGHTNESS +» or «BRIGHTNESS -» raises or lowers the display brightness, correspondingly, in stepwise way.

3.2.5. E-ZOOM

Push ZOOM button to activate a digital zoom function. When button is pushed first time, the scope will display a scene magnified 2X. After second pushing the magnification will changed to 4X. Next pushing will reset the magnification to 1X.

3.2.6. RECALIBRATE SWITCH

Cover front lens with cap or hand and push button to recalibrate image.



RECALIBRATE SWITCH

Figure 3-4. Recalibrate Switch

3.2.7. SHUT DOWN OPERATIONS

To finish the work, perform the following:

1. Use the ON-OFF button to turn the scope off.
2. Replace the protective cover on the objective lens.
3. Replace the protective cap on the output connector socket.
4. Return the scope to the case.

SECTION IV

MAINTENANCE INSTRUCTIONS

4.1. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4.1.1. PURPOSE OF PMCS

PMCS is performed daily when in use to be sure that the sight is ready at all times. Procedures listed in Table 4-1 are a systematic inspection of OTS that will enable you to discover defects that might cause the sight to fail on a mission.

4.1.2. FREQUENCY OF PERFORMING PMCS

The frequency of performing PMCS is as follows:

- A. Daily when the sight is in use.
- B. When it is removed from the case for any reason.

Table 4-1. Preventive Maintenance Checks and Services

SEQ. NO.	ITEM TO CHECK	CHECKING PROCEDURE	NOT FULLY MISSION CAPABLE IF:
1	Completeness	Inventory items by means of comparing with the data specified in this manual.	Items missing.
2	Sight Body	Inspect for missing screws or connector cap.	Screws or connector cap missing.
3	Front Lens Cap	Inspect for cuts, tears and dirt. Clean as required.	Cap torn or cut.
4	Battery Compartment	Check for corrosion, springs tension, cap damaged or retainer broken. Check O-ring for cuts or damage.	Springs corroded or damaged. Retainer broken. Cap or O-ring damaged or missing.
5	Lenses	Inspect for cleanliness, scratches, chips or cracks. Clean as required.	Chipped, cracked or if scratches hinder vision through the sight.

SEQ. NO.	ITEM TO CHECK	CHECKING PROCEDURE	NOT FULLY MISSION CAPABLE IF:
6	Objective Lens	Check to ensure the objective lens is not loose.	Objective lens loose.
7	Diopter Adjustment Ring	Check to ensure: - the ring cannot be moved along the sight body; - there is free rotation of the ring.	Diopter Adjustment ring able to move along sight body. Diopter Adjustment ring cannot be rotate.
8	Rubber Eye-cup	Inspect for cuts or tears.	Rubber Eye-cup torn or cut.
AFTER CHECKING PROCEDURES			
9		Replace protective covers on the lenses. Remove the battery. Return the scope and all accessories to the storage case.	

4.2. TROUBLESHOOTING

4.2.1. GENERAL

This section contains information for locating and removal most of the OTS operating troubles which may occur. Each malfunction for an individual component or assembly is followed by a list of tests or inspections that will help determine probable causes and corrective action to take. Perform the tests/inspections and corrective actions in the order listed.

This manual cannot list all possible malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed (except when malfunction and cause are obvious), or is not corrected by listed corrective actions, contact to the service center.

4.2.2. TROUBLESHOOTING PROCEDURES

Troubleshooting procedures are listed in Table 4-2.

Table 4-2. Troubleshooting Procedures

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
Image is absent	Battery is missing or improperly installed.	Insert battery or install correctly.
	Battery is dead.	Replace battery.
	Battery contact surfaces or contact springs dirty or corroded.	Clean the contact surfaces with a pencil eraser and/or alcohol and cotton swabs.
Cannot achieve the sharp image of the object.	Objective and output lenses dirty.	Clean thoroughly the lenses surfaces.
	Damaged optical components.	Send the sight to the service center.

PROBLEM	PROBABLE CAUSE	CORRECTIVE ACTION
The brightness of the image on the screen is low.	The batteries has a low voltage.	Replace the batteries.
	Factory alignment broken.	Send the scope to the service center.

4.3. MAINTENANCE PROCEDURES

4.3.1. SCOPE MAINTENANCE

The OTS maintenance consists of external inspection of its components for serviceability, cleaning and installation of the standard and optional accessories. Maintenance instructions covered elsewhere in this manual (PMCS, troubleshooting, etc.) are not repeated in this section.

CAUTION

The OTS is a precision electron-optical instrument and must be handled carefully at all times to prevent damage.

4.3.2. CLEANING PROCEDURES

A. CLEANING THE SCOPE

1. Gently brush off any dirt from the sight body using only a clean soft cloth.
2. Moisten the cloth with fresh water and gently wipe the external surfaces (except lenses).
3. Dry any wet surfaces (except lenses) with another dry and clean soft cloth.
4. Using lens brush, carefully remove all loose dirt from the lenses.
5. Slightly dampen a cotton swab with ethanol and lightly and slowly wipe the lenses. Clean the glass surfaces by circular movements from the centre to the edge, not touching the lens holder and changing cotton swab after each circular stroke. Repeat this step until the glass surfaces are clean.

B. CLEANING OF ACCESSORIES

Clean accessories with a soft brush (cloth) and soap and water as required.

CAUTION

Dry thoroughly each item before replacing into the storage case.

4.3.3. PREPARING FOR EXTENDED STORAGE

To prepare the OTS for extended storage, perform the following:

1. Check the scope for serviceability as outlined in item 4.1 of this manual.
2. Remove the batteries.
3. Clean the scope and accessories.
4. Replace all items in the case.

APPENDIX A

SPARE PARTS LIST

The Spare Parts List is an illustrated catalog of main parts and assemblies completing the OTS system.

Therefore, in case of failure of any part or assembly User could replace it by ordering the corresponding part/assembly from the Spare Parts List. The amount and assortment of the spare parts needed should be arranged with each contract individually.

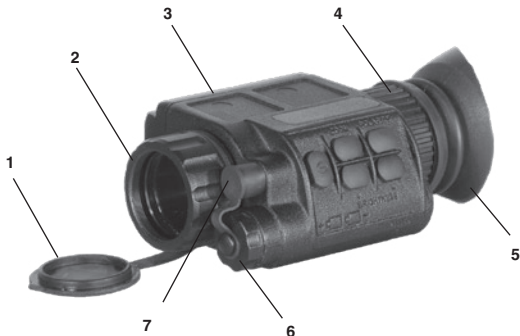


Figure A-1. OTS Scope

Table A-1. OTS spare parts list

PART NO.	DESCRIPTION	FIG	ITEM	QTY
AT 88841.000	Scope	A1		
AT 88831.001	Lens Cap	A1	1	1
AT 88831.002	Front Lens Assembly	A1	2	1
AT 88841.001	Housing	A1	3	1

PART NO.	DESCRIPTION	FIG	ITEM	QTY
AT 88831.006	Eye Piece	A1	4	1
AT 88831.007	Rubber Eye-cup	A1	5	1
AT 88831.008	Battery Cap	A1	6	1
AT 88831.009	Connector Cap	A1	7	1
AT 88831.010	CR123A type battery	A1		1



Figure A-2. OTS Accessories

Table A-2. OTS Accessories parts list

PART NO.	DESCRIPTION	FIG	ITEM	QTY
AT 88832.000	Soft Case	A2	1	1
AT 88833.000	RCA Video Cable	A2	2	1
AT 88834.000	Hard Storage Case	A2	3	1
AT 88836.000	Wrist Strap	A2	4	1
AT 88837.000	Operator's Manual	A2	5	1
AT 88838.000	Lens Tissue	A2	6	1
AT 88843.000	Afocal 2X Lens	A2	7	1



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