
Operator's and Maintainer's Manual
for the

WILCOX[®]
BOSS X_e
Fire Control System™

PN: 64000G10



WARNING



You are required to thoroughly read all instructions and product safety information in the BOSS-Xe Operator's Manual before using this product. FAILURE TO COMPLY WITH PROPER INSTRUCTIONS COULD RESULT IN PROPERTY DAMAGE, INJURY AND/OR DEATH. Wilcox is not responsible for damages resulting from improper use and/or maintenance. Customers may obtain a copy of the Manual by contacting Wilcox Customer Service at 603-431-1331.

This manual and product contain technical data as defined in the International Traffic in Arms Regulations ITAR 22 CFR 120.10. Export of this material is restricted by the Arms Export Control Act 22 U.S.C. 2751 et seq. and may not be exported to foreign persons without prior written approval from the U.S. Department of State.

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PREFACE

1. SCOPE. The purpose of this Operator's Manual is to assist the operator in the operation and maintenance of the *BOSS-Xe*.

The information in this manual should not replace the experience of a trained operator. Keep this manual and all safety instructions for future use. The information must be provided to each product user.

2. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATION. Wilcox requests that all errors, omissions, and discrepancies be forwarded to the Program Management Department, Wilcox Industries, Corp., One Wilcox Way, Newington, NH 03801. To submit feedback by e-mail, visit www.wilcoxind.com.

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**OPERATOR'S MANUAL
TO SOFTWARE VERSION CROSS-REFERENCE**

When utilizing any version of the *BOSS-Xe* software, it is critical to reference the correct version of the Operator's Manual for the software you are using. The following table provides a cross-reference for tracking Operator's Manual release revision numbers to software revision releases.

Manual Rev.

Covers Software Rev.

A-1

02.00

SAFETY SUMMARY

WARNING and CAUTION statements have been strategically placed throughout the text to indicate operating or maintenance procedures, practices, or conditions considered essential to the protection of personnel (WARNING) or equipment and property (CAUTION). NOTES emphasize necessary and important data. CAUTIONS and NOTES appear in the text as applicable. Definitions for WARNINGS, CAUTIONS and NOTES are as follows:

WARNING

Highlights an operation or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.

CAUTION

Highlights an operating or maintenance procedure, practice, condition, statement, etc., which, if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.

NOTE

Highlights an essential operating or maintenance procedure, condition or statement.

WARNING

Laser Safety

- ***The BOSS-Xe features a Class 3B laser product which emits visible and infrared laser radiation from the front end of the device. Both visible and infrared laser light can be dangerous if misused. Laser light reflected or refracted off mirrored surfaces may be equally harmful.***
 - *Never stare into a laser.*
 - *Never point lasers at someone's eyes.*
 - *Do not aim lasers at personnel or mirrored surfaces.*
 - *Do not look at a laser through telescopes, binoculars, scopes, image intensifiers, etc.*
 - *Never point the lasers at other persons as Class 3B lasers may cause skin irritation.*
 - *Direct eye exposure to a laser may cause permanent eye damage, including blindness. Laser protective eyewear with OD 2.0 protection for filtering laser light must be used if protection from laser radiation is required.*
- ***Visible and infrared laser beams are more visible when used in smoke, fog and rain, making them more easily detectable by onlookers or observers. When used in these environments, prolonged activation of the lasers should be avoided.***
- ***Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.***
- ***Operation without the Blue High Power Lock Out Screw allows the RAPTOR-S to function in High Power mode. High Power mode increases laser radiation which can cause injury.***

- ***Ensure that the weapon is CLEAR and on SAFE before installing the BOSS-Xe on a weapon, in accordance with the weapon's Operator's Manual, and that the BOSS-Xe is powered off, lens cap on prior to installation. Failure to so can result in property damage, injury, and/or death.***

WARNING

Usage Safety

- ***Wilcox strongly recommends reviewing the operational and maintenance procedures outlined in this manual prior to operating the device.***
- ***Ensure that the weapon is CLEAR and on SAFE before mounting or dismounting the BOSS-Xe.***
- ***When mounting the BOSS-Xe to a weapon, it is necessary to properly boresight the BOSS-Xe to the weapon to ensure aiming accuracy.***
- ***When handling a primary weapon fitted with a BOSS-Xe, ALWAYS keep the muzzle pointed down range and clear of all personnel.***
- ***In the event of a detected built-in test failure, contact Wilcox Industries at 603-431-1331 and do not use this product.***
- ***Do not fire the weapon if the BOSS-Xe displays a left or right cant indicator, as this is an indication that the BOSS-Xe is canted left or right. Firing the weapon when the BOSS-Xe is severely canted can cause unintended damage to surrounding targets and may result in injury or death.***

- *Failure to maintain the O-Ring may affect product performance.*

Maintenance Safety

- *ALWAYS ensure that primary (CR123) battery is removed prior to mounting the BOSS-Xe to, or dismounting it from the primary weapon or when performing service.*

WARNING

Battery Safety

- *Refer to battery manufacturer's instructions for safety warnings.*
- *If the battery compartment becomes hot to touch and you hear a hissing sound (i.e., battery venting) or smell irritating sulfur dioxide gas, IMMEDIATELY turn off the equipment. Wait until battery has cooled before removing it, then replace with a fresh battery.*

CAUTION

Battery Safety

- *Do not store the BOSS-Xe with primary (CR123) battery installed.*
- *When opening or closing either of the battery compartments, ensure that moisture is not allowed into the compartment.*
- *It is recommended that the batteries be replaced and that activation procedures for the BOSS-Xe be conducted prior to operation to ensure proper operation prior to use (see Section 3.2).*

NOTE

Usage Safety

- *This Operator's and Maintainer's Manual should always accompany the product and be transferred with it upon change of ownership.*
- *Ensure that the Mode Selection Knob is set to the 'OFF' position when not in use to avoid inadvertent battery drain.*
- *Always ensure that the primary battery is removed prior to mounting the BOSS-Xe to, or dismounting it from the primary weapon or when performing service.*
- *The BOSS-Xe features a cant indicator that faces the operator when in a firing position. The position of the cant indicator allows the operator to focus on the intended target downrange during operation. The cant indicator produces measurable increases in hit probability when properly used.*
- *It is recommended that the Visible Laser be used for boresighting the BOSS-Xe to the target.*

NOTE

Maintenance

- *Do not use harsh abrasives or chemicals such as acetone to clean the BOSS-Xe. Any questions about appropriate chemicals should be directed to Wilcox Customer Service.*
- *The BOSS-Xe contains no serviceable internal parts. Adjustments or attempted repairs to the BOSS-Xe other than those expressly described in this Operator's Manual will void the warranty.*

NOTE

- ***Periodically inspect the o-ring on the primary (CR123) Battery Compartment. Inspect the o-ring on the Processor Clock Battery Compartment when the battery requires replacement. If a Battery Compartment Cap o-ring becomes cut, nicked or torn, notify unit armorer.***
- ***The operator should perform regular maintenance as outlined in this manual. Any procedures not specifically outlined in this manual shall be performed only by a Wilcox certified maintenance technician. Performance of procedures outside of those specified in this manual will invalidate the product warranty.***

S1 Laser Radiation Output Parameters

Table S1-1 **BOSS-Xe System Laser Safety Parameters**

BOSS Xe Laser Parameters						
	NIR Aim		NIR Illum		Vis Aim	
	Low	High	Low	Max	Low	Max
Class	1	3B	1	3B	2	3B
Wavelength [nm]	850		840		640	
Laser Power [mW]	<0.7	33	<0.7	33	<0.7	18
NSHD [m]	0		0		0	
NOHD [m]	0	226	1	2	0	145
OD	0	1.7	0	1.7	0	1.3
NOHDe* [m]	0	1332	0	11	0	970
ODE*	0	1.5	0	1.5	0	1.3

BOSS Xe LED Room Illuminator Parameters			
Illuminator	Wavelength (nm)	Divergence (deg)	Diode Power
NIR LED	870 +/- 30 FWHM	26	45 mW



Figure S1-1. Laser Safety Labels

SECTION 1

OVERVIEW

1.1 GENERAL SAFETY WARNINGS

The *BOSS-Xe* should not be used by anyone unfamiliar with its operation.

This manual contains specific operating and maintenance instructions which the operator should become familiar with before actual field usage.

The Safety Warnings in this manual are intended to point out the dangers that are common in handling this type of equipment. **Failure to observe any of these warnings may result in serious physical injury, blindness, or death.** You must familiarize yourself with the entire contents of this Operator's Manual before using the *BOSS-Xe*. All general text, WARNINGS, CAUTIONS and NOTES should be strictly followed.

This manual is intended to provide information relevant to the operation of the *BOSS-Xe* and is not a substitute for the

information contained in the Operator's Manual issued by the manufacturer of the primary weapon to which it is attached. It is the responsibility of the operator to read and thoroughly understand the handling and operating procedures for both the *BOSS-Xe* and the primary weapon to which it is installed.

Laser Radiation Danger

Lasers built into the *BOSS-Xe* emit visible and/or infrared laser radiation from the front end of the device (see Sections S1, "Laser Radiation Output Parameters" and 2.6 "Technical Data" for technical data). Both visible and infrared laser light can be dangerous if misused. **Direct eye exposure may cause permanent eye damage, including blindness.** Laser light reflected or refracted off mirrored surfaces may be equally harmful.

- Never stare into a laser beam
- Never point a laser beam at someone's eyes.
- Do not point a laser beam at mirrored surfaces.
- Do not look at a laser beam through telescopes, binoculars, scopes, etc.

First Aid

Administer first aid in accordance with local procedures.

SECTION 2

INTRODUCTION

2.1 PRODUCT DESCRIPTION

The Wilcox *BOSS-Xe* Fire Control System provides repeatable accuracy that cannot be found with any other fire control system. It features a fully integrated Reflex Sight, Visible Red Laser, IR Laser, IR Laser Illuminator and Fixed IR LED Room Illuminator. It allows the user to interchangeably utilize supersonic or subsonic ammunition by the flip of a single trajectory switch, without having to re-zero the weapon. The Reflex Sight, Lasers and Illuminator are co-aligned on one optical bench, and travel on an adjustable trajectory switch. A single CR123 battery powers the system.

2.2 LIST OF *BOSS-Xe* MAJOR COMPONENTS

1. *BOSS-Xe*
2. Carrying Pouch
3. Remote Trigger
4. *BOSS-Xe* Operator's and Maintainer's Manual
5. *BOSS-Xe* Quick Reference
6. Boresight Chart



Figure 2.2-1 Major Component Identification

2.3 LIST OF *BOSS-Xe* SUBCOMPONENTS AND FEATURES

<u>ITEM</u>	<u>DESCRIPTION</u>
U-1.	Optic Sight
U-2.	Main Battery Compartment
U-3.	Windage Adjustment Knob
U-4.	Thumb Screws (2)

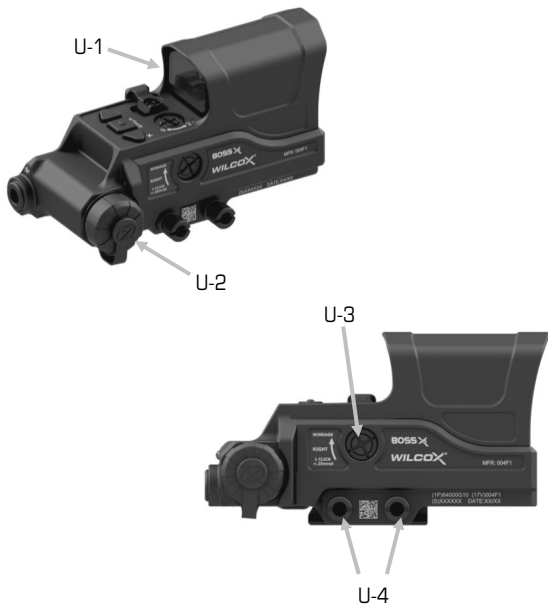


Figure 2.3–1 Subcomponent Identification - *BOSS-Xe* (1 of 4)

ITEM	DESCRIPTION
U-5.	Elevation Adjustment Knob
U-6.	"-" Button
U-7.	Activate Button
U-8.	"+" Button
U-9.	Mode Selection Knob
U-10.	Trajectory Adjustment Knob
U-11.	A1/A2 Switch
U-12.	IR Aiming Laser Port
U-13.	Visible Aiming Laser Port
U-14.	IR Illuminating Laser Port
U-15.	IR LED Room Illuminator
U-16.	Lock-Out Screw
U-17.	Lock-Out Screw Retention Hole
U-18.	Laser Warning Label

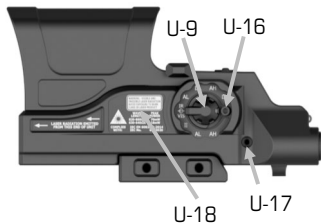
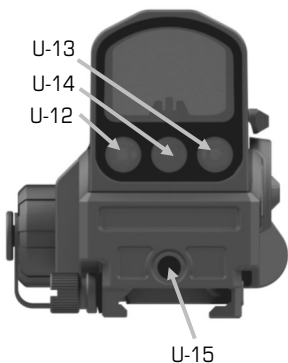


Figure 2.3-2 Subcomponent Identification - BOSS-Xe (2 of 4)

ITEM	DESCRIPTION
U-19.	Iron Sights
U-20.	LED Indicator
U-21.	Red Dot Sight
U-22.	Cent Indicators (Not Shown)
U-23.	Processor Clock Battery Compartment
U-24.	Remote Interface Port

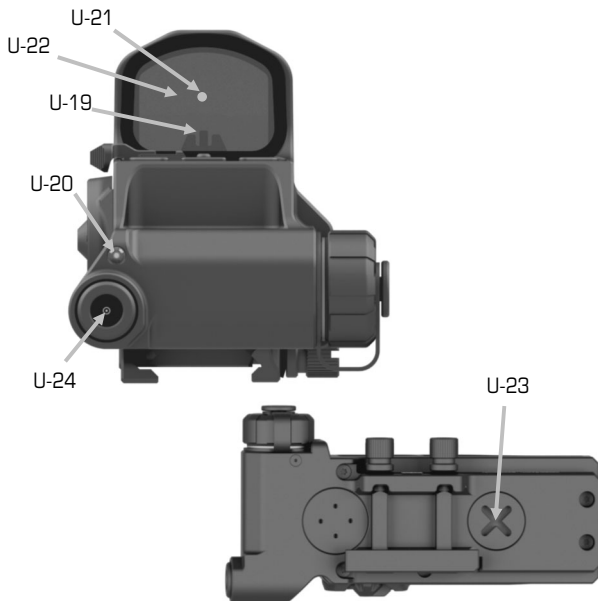


Figure 2.3-3 Subcomponent Identification - BOSS-Xe (3 of 4)

ITEM	DESCRIPTION
CK-1.	Cleaning Brush
CK-2.	Cleaning Cloth
AK-1.	Lens Cover
AK-2.	Battery Cap Assembly

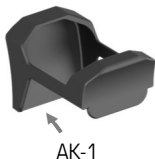


Figure 2.3-4 Subcomponent Identification - BOSS-Xe (4 of 4)

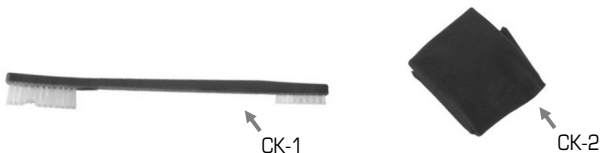


Figure 2.3-5 Cleaning Kit Identification - BOSS-Xe

2.4 DESCRIPTION OF *BOSS-Xe* MAJOR COMPONENTS

1. **BOSS-Xe.** The *BOSS-Xe* features a fully integrated optic Sight, Visible Red Laser, IR Laser, IR Laser Illuminator and Fixed IR LED Room Illuminator. It allows the user to interchangeably utilize supersonic and subsonic ammunition by the flip of a single trajectory switch. The Reflex Sight, Lasers and Illuminator are co-aligned on one optical bench. One (1) commercial CR123 lithium battery (sold separately) powers the *BOSS-Xe* (Surefire™ brand recommended).

2. **Carrying Pouch.** A Carrying Pouch is provided for stowing the *BOSS-Xe* when not in use.

3. **Remote Trigger.** A two-button Remote Trigger is provided which allows for operation of the *BOSS-Xe* and an optional SureFire flashlight (flashlight purchased separately).

4. **BOSS-Xe Operator's and Maintainer's Manual.** A printed copy of the *BOSS-Xe* Operator's and Maintainer's Manual outlines the use and maintenance of the *BOSS-Xe*.

5. **BOSS-Xe Quick Reference.** The *BOSS-Xe* Quick Reference summarizes *BOSS-Xe* operation and is designed to be taken out into the field for quick reference. It is printed on water resistant paper to resist environmental degradation. The Quick Reference shall not be considered a replacement to the safety information in this Operator's Manual.

6. **Boresight Chart.** A Boresight Chart is provided for performing Boresight of the *BOSS-Xe* according to the procedures outlined in this manual.

2.5 DESCRIPTION OF *BOSS-Xe* SUB-COMPONENTS

U-1. Optic Sight. The integrated Optic Sight is a red dot sight that provides the sighting and targeting capability for the *BOSS-Xe*. It features an IR Aiming Laser, IR Illuminator Laser and Visible Aiming Laser that provide invisible targeting, day and night. The Red Dot Sight allows for daytime target acquisition. A control pad located on the optic sight allow for control of the laser.

U-2. Main Battery Compartment. The Main Battery Compartment houses one (1) CR123 battery to operate the device. A threaded Battery Compartment Cap features an o-ring to prevent debris and moisture entry. Refer to Section 4.2 "Battery Replacement" for battery installation instructions.

U-3. Windage Adjustment Knob. A Windage Adjustment Knob allows for easy windage adjustment when boresighting or Zeroing the *BOSS-Xe* to the weapon and maintains its setting until reset by the operator. All Lasers and the Red Dot Sight move together when adjusting Windage. For information on adjusting Windage, refer to the Boresighting Procedure in Section 3.4 "Boresighting Procedure".

U-4. Thumb Screws. When the Rail Mount Assembly is attached to the *BOSS-Xe*, Thumb Screws allow for hand adjustment of the rail mount to eliminate the use of tools while mounting.

U-5. Elevation Adjustment Knob. An Elevation Adjustment Knob allows for easy elevation adjustment when the Trajectory Switch is in the "A2" position. It aids boresighting or Zeroing the *BOSS-Xe* to the weapon and maintains its setting until reset by the operator. All Lasers and the Red Dot Sight move together when adjusting elevation. For information on adjusting Elevation, refer to the Boresighting Procedure in Section 3.4 "Boresighting Procedure".

U-6 - U-8. + / Activate / - Buttons. The "+", Activate and "-" Buttons on the Control Pad are multipurpose buttons that operate differently depending on the selected mode of operation. See Table 2.5-1 and Figure 2.5-1 for individual mode operation and Figure 2.5-2 for Mode Options.

Table 2.5-1. Button Operations (by Mode)

	Down (-) Button	Activate Button	Up (+) Button
	BOSS-Xe Only	BOSS-Xe & Remote	BOSS-Xe Only
Laser Modes: IR DH IR AH VIS AH IR DL IR AL VIS AL	Lasers Active: Decreases aiming laser power when laser is active. Lasers Inactive: Decreases reticle brightness. ***	Turns Operational Mode Laser On/Off. Aiming Lasers are activated in the last selected power level for the power mode position. *. **	Lasers Active: increases aiming laser power when laser is active. Lasers Inactive: Increases reticle brightness. ***
Reticle Shape Menu: =	Single Press: Scroll down through available options.	Single Press: Turn Reticle On/Off.	Single Press: Scroll up through available options.

* Single Press temporarily activates until the button is released, while rapid double press activates until pressed once again to turn off.

** Active lasers will time out after 5 minutes of continuous use.

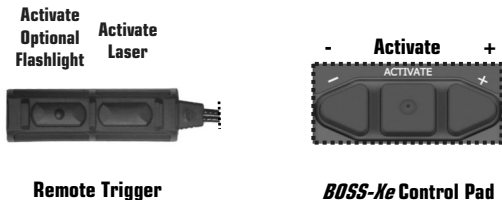


Figure 2.5-1 Control Pad Functionality



Table 2.5-2. Mode Options Tree

Knob Position	Mode / Function Description
IR DH*	Dual IR Aiming Laser and Long Range IR Illuminator-High Power (Can Be Locked Out with Lockout Screw)
IR AH*	IR Aiming Laser - High Power (Can Be Locked Out with Lockout Screw)
IR DL	Dual IR Aiming Laser and IR LED Room Illuminator LED - Low Power
IR AL	IR Aiming Laser - Low Power
OFF	Mechanical Power Off
==	Reticle Shape Selection **
VIS AL	Visible Aiming Laser - Low Power
VIS AH*	Visible Aiming Laser - High Power (Can Be Locked Out with Lockout Screw)

* High power switch positions are locked out to the user when Mode Selection Switch is placed in a non-high power position and the lock-out screw is in place (see description of lockout screw, later in this section).

** Selection persists after power cycling.

Table 2.5-3. Reticle Shape Selection Switch Position Options

Switch Position	Description	Values	Default
==	Reticle Shape Selection	Dot & Circle, Dot & Sides, Dot only, Circle only 	Dot & Circle 

U-9. Mode Selection Knob. A Mode Selection Knob allows the Operator to select from available functional modes (see Figure 2.5-2). In the event that the Mode Selection Knob position is changed when a laser mode is active, lasers turn off. When the Mode Selection Knob is in a new laser position, the operator will need to activate the newly selected lasers.

U-10. Trajectory Adjustment Knob. The Trajectory Adjustment Knob allows the operator to adjust as what distance the laser intersects the bullets trajectory, when in the A1 position.

U-11. A1 / A2 Switch. The A1 / A2 Switch mechanically changes the trajectory of the *BOSS-Xe* Optic Sight, including all co-aligned lasers and the red dot, between two pre-set points of aim (e.g., short trajectory vs long trajectory) by simply switching from one to the other. This allows the operator to change operational modes. Boresight of the two trajectories is performed simultaneously when boresighting the system as described in Section 3.4 "Boresighting Procedure".

U-12. IR Aiming Laser Port. The *BOSS-Xe* Optic Sight features a 850nm Infrared Aiming Laser that can be used as a covert target designator for Operators while wearing NVGs. Refer to Sections S1. "Laser Radiation Output Parameters" and 2.6 "Technical Data" for laser specifications.

Cant is indicated when the IR Aiming Laser blinks. When the aiming laser displays solid, the system is ready to fire.

U-13. Visible Aiming Laser Port. The *BOSS-Xe* Optic Sight features a 640nm Visible Red Aiming Laser that is used as a boresighting aid. Refer to Sections S1, "Laser Radiation Output Parameters" and 2.6 "Technical Data" for laser specifications.

U-14. IR Illuminating Laser Port. The *BOSS-Xe* Optic Sight features a 840nm Infrared Fixed Flood Laser that can be used as a long range covert target illuminator for operators while wearing NVGs. Refer to Sections S1, "Laser Radiation Output Parameters" and 2.6 "Technical Data" for laser specifications.

U-15. IR LED Room Illuminator Port. The *BOSS-Xe* Optic Sight features a 870nm Infrared Fixed Flood LED that can be used as a room flood illuminator for operators while wearing NVGs. Refer to Sections S1, "Laser Radiation Output Parameters" and 2.6 "Technical Data" for laser specifications.

U-16. Lock-Out Screw. A removable Lock-Out Screw prevents the Mode Selection Knob from rotating to the High Power Laser modes when it is desired to prevent high power mode access. When the screw is not in use, it can be stored in the Lock-Out Screw Retention Hole to prevent loss of the screw.

U-17. Lock-Out Screw Retention Hole. A threaded hole is located on the left-hand side of the *BOSS-Xe* for storing the Lock-Out Screw. This prevents loss of the screw when not in use.

U-18. Laser Warning Label. A warning label identifies the laser specifications and precautions for using the *BOSS-Xe*.

U-19. Iron Sights. The iron sights provide the operator with a backup aiming option.

U-20. LED Indicator. The Battery Indicator displays approximate battery life.

Operational State	LED State
Any Laser Active	On Green
Low Battery	On Red
Both Low Battery and Any Laser Active	Blink Red and Green

U-21. Red Dot Sight. The *BOSS-Xe* features a Red Dot Sight with an expanded reticle design which simplifies finding the reticle and can be used for scaling objects to approximate target distances. The outer ring of the reticle is 34 MOA, which when filled corresponds to a man at 200 meters. The sight features sixteen (16) available brightness settings that can be manually adjusted by pressing the “-” or “+” Buttons when the laser is powered off. Reticle operation is independent of lasers and will be on whether lasers are activated or deactivated.

U-22. Cant Indicators. Cant indication is provided to warn the operator that the *BOSS-Xe* is canted left or right and should be brought back to level to avoid hitting off-target. When the weapon is canted, cant indication is provided on the reticle by blinking one of the side arcs. The blinking arc indicates the low side. Additionally, when the IR Aiming Laser is active, it will blink to indicate cant. The slower blink rate indicates cant to the left. The faster blink rate indicates cant to the right. For more information refer to Section 3.5, "Operating the *BOSS-Xe*".

U-23. Processor Clock Battery Compartment. The Processor Clock Battery Compartment is located on the bottom of the *BOSS-Xe* and houses one CR1220 coin battery for powering the main system clock when the *BOSS-Xe* is turned off. The estimated life of this battery is 3-5 years following replacement. A threaded Battery Compartment Cap features an o-ring to prevent debris and moisture entry. Refer to Section 4.2 "Battery Replacement" for battery installation instructions.

U-24. Remote Trigger Interface Port. The Remote Trigger Interface Port allows the operator to connect the *BOSS-Xe* Remote Trigger to the *BOSS-Xe*.

CK-1. Cleaning Brush. A cleaning brush is provided for removing loose dirt and debris from the mechanical components of the *BOSS-Xe*. DO NOT use the brush for cleaning the lenses as this may scratch the lens surface. For cleaning instructions, refer to Section 4.1, "Care of the *BOSS-Xe*".

CK-2. Cleaning Cloth. A cleaning cloth is provided for removing any remaining residue from the lenses after they have been blown clean of dirt and dust. For cleaning instructions, refer to Section 4.1, "Care of the *BOSS-Xe*".

AK-1. Lens Cover. One Lens Cover is included with the *BOSS-Xe*, which covers the device to prevent emission of laser output should the lasers on the device be left on. The cover is completely removeable. Prior to removing the cover, always check to ensure that the device is turned off in the event that lasers have been accidentally left on. *BOSS-Xe* lasers will power off automatically after 5 minutes to prevent accidental battery drain.

AK-2. Battery Cap Assembly. One additional battery cap serves as a spare in the event that it is needed. The assembly includes an o-ring and tether.

2.6 TECHNICAL DATA

Table 2.6-1. BOSS-Xe Technical Data

ADDITIONAL SPECIFICATIONS	
Power Source	Lasers powered with One (1) CR123 Battery. Additionally, one (1) CR1220 coin cell maintains the processor clock when the system is powered off. The estimated life of this battery is 3-5 years.
Color	Black
Water Resistance	Waterproof to 1 Meter for 30 Minutes

WEIGHT AND DIMENSIONS	
Operational Weight:	Less than 0.55 Lb (Less than 250 G)
Operational Dimensions:	2.40" W x 4.78" D x 2.67" H (6.09 cm W x 12.14 cm D x 6.78 cm H)
LASER SPECIFICATIONS	
VIS Aim LO (VIS AL Mode)	Class 2 Visible Red Laser, <0.7 mW Max Output 630-650nm Collimated to 0.4 +/- 0.2 mrad
VIS Aim HI (VIS AH Mode)	Class 3B Visible Red Laser, 18 mW Max Output 630-650nm Collimated to 0.4 +/- 0.2 mrad
IR Aim LO (IR AL Mode)	Class 1 Infrared Laser, <0.7 mW Max Output 850 nm Collimated to 0.4 +/- 0.2 mrad
IR Aim HI (IR AH Mode)	Class 3B Infrared Lasers, 30 +/- 3 mW Max Output 850 nm Collimated to 0.4 +/- 0.2 mrad
IR Illuminator LO (IR DL Mode)	LED NIR Source, 45mW Diode 870 nm, 26 deg divergence
IR Room Illum LED HI (IR DH Mode)	Class 3B Infrared Lasers, 30 +/- 3 mW Max Output 840 nm Collimated to 30 +/- 6 mrad

SECTION 3

OPERATION

3.1 MOUNTING AND DISMOUNTING THE *BOSS-Xe*

The *BOSS-Xe* features top and bottom rail assemblies that affix to the primary weapon by means of a thumb rail, a sliding interlock and two screws to prevent disassembly of the lower rail.

It is advisable to first check the position of the Control Pad and reposition, if desired, before mounting the assembly to the weapon. This will prevent the need for disassembly to perform this operation at a later time.

WARNING

Ensure that the weapon is CLEAR and on SAFE before installing the BOSS-Xe on a weapon, in accordance with the weapon's Operator's Manual, and that the BOSS-Xe is powered off, lens cap on prior to installation. Failure to so can result in property damage, injury, and/or death.

To Mount the BOSS-Xe to the Primary Weapon:

LOOSEN BOTH RAIL GRABBERS BY TURNING THE THUMB NUTS CCW.

POSITION THE MOUNT ON THE RAIL, ENSURING THAT THE RAIL GRABBERS ENGAGE.



SECURE THE THUMB NUTS BY TURNING CW AND TORQUING TO 30 IN/LBS.

GENTLY PULL ON THE MOUNT TO ENSURE THAT IT IS SECURE.



To Dismount the BOSS-Xe from the Primary Weapon:

Follow mounting steps in reverse.

3.2 BORESIGHT PROCEDURE (ESTABLISHING THEORETICAL ZERO WITH A LASER BORESIGHT KIT)

The *BOSS-Xe* allows for up to two possible trajectories. Therefore, a laser boresight procedure is required for the shorter of the two distances, using a weapon borelight to determine the theoretical centerline of the primary weapon bore. The lasers and the Red Dot Sight are co-aligned at the factory and are all adjusted simultaneously. Whenever possible, follow with live fire to verify aiming accuracy.

To align the lasers to target at greater distances, a Zeroing procedure consisting of live fire is used.

WARNING

When mounting the BOSS-Xe to a weapon, or to a new rail position, it is necessary to properly boresight the BOSS-Xe to the weapon to ensure aiming accuracy.

CAUTION

The illuminating beam of the laser emitting from the BOSS-Xe indicates the area of round impact, provided the boresighting procedures have been properly followed. Be aware of the direction in which the primary weapon is pointed, as well as the direction of the intended target, prior to firing a round.

NOTE

It is recommended that the Visible Laser be used for boresighting the BOSS-Xe to the target.

Laser Boresight Procedure:

Boresighting the First (Shorter) Trajectory (A1) with a Laser Boresight Kit:

- Step 1.)** Ensure that the weapon is clear and SAFE.
- Step 2.)** Place the A1/A2 Switch in the "A1" position.
- Step 3.)** Ensure the weapon is stable and square to the ground. If possible, use a steady rest.
- Step 4.)** Set the boresight chart level with the weapon, 10 meters from the *BOSS-Xe* front end.
- Step 5.)** Install the Laser Boresight Kit for the primary weapon as instructed in its operational instructions.
- Step 6.)** Select the VIS-AL laser mode (visible aiming laser) on the *BOSS-Xe*.
- Step 7.)** Zero the weapon borelight in accordance with the instruction manual for the device.
- Step 8.)** Place the weapon borelight laser on the Bore Centerline of the chart.
- Step 9.)** Activate the laser on the *BOSS-Xe* by pressing the Center Button.

Step 10.) Adjust the *BOSS-Xe* to the corresponding labeled position on the chart by rotating the Windage and Elevation Control Knobs. Use the cant indicators while boresighting to ensure that the *BOSS-Xe* is level.

Zeroing the Second (Longer Range or Greater Drop) Trajectory (A2) with Live Fire:

Step 11.) Ensure that the weapon is clear and SAFE.

Step 12.) Place the A1/A2 Switch in the "A2" position.

Step 13.) Ensure the weapon is stable and square to the ground. If possible, use a steady rest.

Step 14.) Activate the VIS-AL laser, placing the aiming laser on the target at the desired distance.

Step 15.) Fire a 3-round shot group and note the center of the grouping relative to the strike point.

Step 16.) If necessary, adjust only the Elevation of the *BOSS-Xe* to align the laser to the strike point.

Step 17.) Repeat steps 13 and 14 until the shot grouping falls within the strike zone.

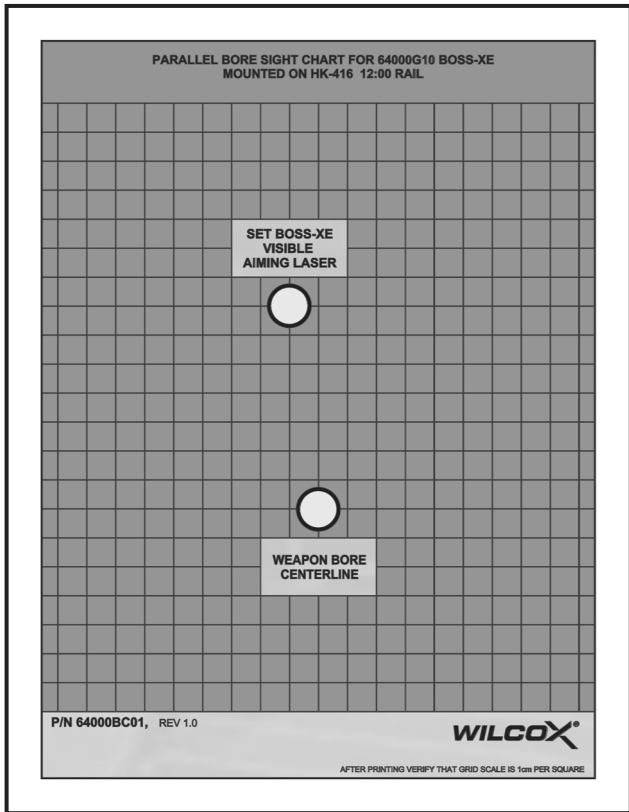


Figure 3.2-1 BOSS-Xe (64000G10) Boresight Chart

3.3 OPERATING THE *BOSS-Xe*

To quickly fire the weapon, align to the target using the *BOSS-Xe* laser or the Red Dot Sight, verify that no cant indicators are displayed, and fire.

WARNING

*Do not fire the weapon if the *BOSS-Xe* displays a left or right cant indicator. Firing the weapon when the *BOSS-Xe* is canted can cause unintended damage to surrounding targets and may result in injury or death.*

CAUTION

*It is recommended that the battery be replaced and that activation procedures for the *BOSS-Xe* be conducted prior to operation to ensure proper operation prior to going on patrol (see Section 4.2).*

3.3.1 Performing Daytime Engagement with the *BOSS-Xe*

To Perform Daytime Engagement with the *BOSS-Xe*

- Step 1.)** Remove the Lens Cover.
- Step 2.)** Rotate the Mode Selection Knob to a daytime operational position (refer to Table 2.5-2, "Mode Options Tree").
- Step 3.)** Acquire the target using the Sight.
- Step 4.)** Verify that the weapon is level to the horizon (not canted) by checking for cant indication. If the *BOSS-Xe* is not level, cant indication is provided on the reticle by blinking one of the side arcs. The blinking arc indicates the low side. Tilt the weapon in the direction opposite of the cant to adjust.

To minimize time to acquire the reticle, align the iron sights as described in the following section: "To Perform Engagements with the *BOSS-Xe* Powered Off", and the reticle will come into view.

- Step 5.)** Fire the weapon.

3.3.2 Performing Nighttime Engagement with the *BOSS-Xe*

To Perform Nighttime Engagement with the *BOSS-Xe*

- Step 1.)** Remove the Lens Cover.
- Step 2.)** Rotate the Mode Selection Knob to the appropriate nighttime operational mode position.
- Step 3.)** Press the Center Button to activate the selected laser(s).

WARNING

When adjusting *BOSS-Xe* trajectory, use caution to ensure that lasers are not fired in an unsafe manner.

- Step 4.)** Verify that the weapon is level to the horizon (not canted) by checking for cant indication. If the *BOSS-Xe* is not level, cant indication is provided via blinking of the IR Aiming Laser in all nighttime operational modes so the operator can engage without taking their eyes off of the target. The aiming laser will blink slowly when canted too far to the left and will blink fast when canted too far to the right. A clever way to remember this is "**Slow/Left, Tight/Right**". Tilt the weapon in the direction opposite of the cant to adjust.

Table 3.5-1 IR Aiming Laser Cant Indication

CANT INDICATION	CAUSE
Slow Blink Rate	Unit Canted Left - Do not Fire
Fast Blink Rate	Unit Canted Right - Do not Fire

Step 5.) Fire the weapon.

3.3.3 Performing Engagements with the *BOSS-Xe* Powered Off

To Perform Engagements with the *BOSS-Xe* Powered Off:

The *BOSS-Xe* can still be used to accurately engage targets without being powered on through the use of the iron sights.

- Step 1.)** Remove the Lens Cover.
- Step 2.)** Look through the window and align the iron sights so that the front pin located on the optic window is centered between the two rear pins. Align all pins so that their heights match.
- Step 3.)** While maintaining the alignment of the Iron Sights, as described above, aim so that the top of the center pin is aimed at the target (see Figure 3.5-1).
- Step 4.)** Ensure that the weapon is as level to the horizon as you can estimate.
- Step 5.)** Fire the weapon.

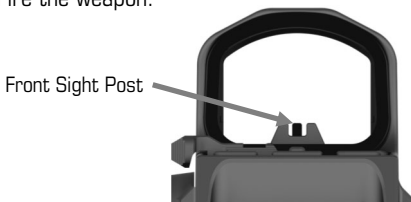


Figure 3.5-1 Iron Sights (Rear View)

3.3.4 Activating the Panic Alert

To Activate the Panic Alert:

A panic alert functionality is available for the *BOSS-Xe* System when Bluetooth is turned on and the system is connected to a device supporting the *BOSS-Xe* protocols.

To Activate the Panic Alert:

- Step 1.) Simultaneously press the Up and Down Buttons and hold for roughly three (3) seconds.
- ◆ If a Bluetooth device is connected, a Panic Alert message will be sent to it.
 - ◆ To repeat the message at roughly two-second intervals, continue to hold the button.

SECTION 4

MAINTENANCE

4.1 CARE OF THE *BOSS-Xe*

WARNING

ALWAYS ensure that primary (CR123) battery is removed prior to mounting the BOSS-Xe to, or dismantling it from the primary weapon or when performing service.

NOTE

Do not use harsh abrasives or chemicals such as acetone to clean the BOSS-Xe. Any questions about appropriate chemicals should be directed to Wilcox Customer Service

Periodically inspect the o-ring on the primary (CR123) Battery Compartment. Inspect the oring on the Processor Clock Battery Compartment when the battery requires replacement. If a Battery Compartment Cap o-ring becomes cut, nicked or torn, notify unit armorer.

The operator should perform regular maintenance as outlined in this manual. Any procedures not specifically outlined in this manual shall be performed only by a Wilcox certified maintenance technician. Performance of procedures outside of those specified in this manual will invalidate the product warranty.

Ensure that the primary (CR123) battery is removed and that the lasers are off, then dismount the *BOSS-Xe* from the primary weapon and inspect the unit for dirt, rust, and corrosion. If the display or lenses are broken or cloudy, notify unit armorer.

Ensure that the Battery Compartment Cap and o-ring are tightly sealed and that the area is free of sand and dirt particles. If a Battery Compartment Cap o-ring becomes cut, nicked or torn, notify unit armorer.

Dirt and other residue, like exposure to salt water, may impede the mechanical operation of the *BOSS-Xe*. Lightly flush with water to remove any debris. Blow any residual dirt or dust free from the lenses, then wipe with a clean Lens Cloth, provided. Do not use the brush provided for cleaning optic glass and laser port lenses. Using the brush, remove dirt and debris from the mounting rails and controls. This should be done on a regular basis.

4.2 BATTERY REPLACEMENT

The LED Indicator displays a solid red when the CR123 battery becomes low, and alternates red and green when the CR123 battery is low and any laser is active. When this occurs, performance of the *BOSS-Xe* will be degraded and the battery should be replaced immediately.

Replace the CR123 battery when the Battery Indicator displays (see Figure 4.2-1). For best performance, always use Lithium batteries.

A CR1220 battery maintains the clock for the *BOSS-Xe*, which is located on the bottom of the device (see Figure 4.2-2). Replace this battery every 3-5 years to ensure continuous clock operation.

To Replace the Battery in the *BOSS-Xe*:



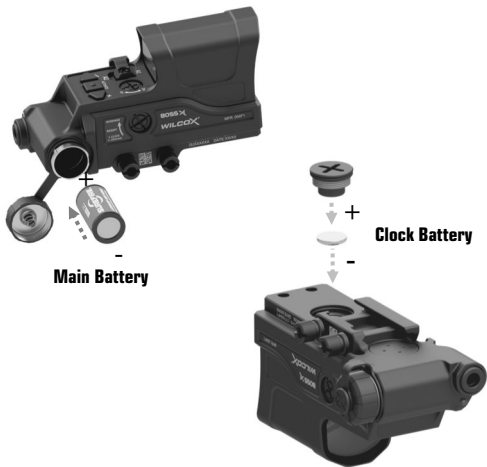
Remove old CR123 battery then inspect battery compartment and cover o-ring for residue or moisture. Replace O-Ring if necessary.

Install a fresh battery, ensuring that the “+” side is inserted first.

Ensure that the LED Illuminator is not indicating a low battery condition.

Figure 4.2-1 Replacing the Battery in the *BOSS-Xe*

To Replace the Processor Clock Battery in the *BOSS-Xe*:



- ◆ Remove the main battery, then inspect battery compartment and cover o-ring for residue or moisture. Replace O-Ring if necessary.
- ◆ Remove the old CR1220 coin cell battery, then inspect battery compartment and cover o-ring for residue or moisture. Replace O-Ring if necessary.
- ◆ Install a fresh battery, ensuring that the "+" side faces outward.
- ◆ Reinstall the main battery, then check, both battery compartment caps to ensure they are secure to prevent water intrusion.

Figure 4.2-2 Replacing the Clock Battery in the *BOSS-Xe*

4.3 INSPECTING AND REPLACING O-RINGS

CAUTION

Failure to maintain the O-Ring may affect product performance.

The primary and clock Battery Compartment Caps of the *BOSS-Xe* each contain one (1) Buna O-Ring that prevents dirt and water intrusion to the Main Battery Compartment.

Age and temperature can wear Buna rubber, so O-Rings should be inspected periodically to maintain proper operation of the system. O-Rings are highly pliable and stretchable, and can be overstretched in the process of inspection. For this reason, it is strongly advised that they be replaced whenever they are removed, to ensure proper sealing of the compartment.

O-Ring replacements are available through Wilcox and should be purchased in advance of need to ensure continued service.

- Step 1.)** Gently brush any debris away from the o-rings with the cleaning brush provided.

- Step 2.)** Inspect the O-Rings for cracks, pinches, hardness, dryness, or tackiness of feel. If an O-Ring exhibits any of these characteristics, replace it.

- Step 3a.)** If the O-Ring does not need replacement, but requires lubrication, lubricate the exterior surface of the O-Ring without removing it with a small amount of Silicone Grease.

Step 3b.) If replacement is required, gently remove the O-Ring using a pick tool. Gently lubricate the O-Ring on both sides, with the thumb and index finger, using Silicone Grease. Using the pick tool, gently replace the lubricated O-Ring, using caution not to overstretch or damage.



Figure 4.3-1 Inspecting and Replacing O-Rings

4.4 STORAGE

Ensure that cleaning instructions in Section 4.1 have been followed. When the *BOSS-X_e* is dismantled for storage, place the Mode Selection Knob in the 'OFF' position. Reattach the laser cover to the *BOSS-X_e* to prevent dust and dirt entry. Remove battery from the *BOSS-X_e* and retain.

CAUTION

Do not store the BOSS-X_e with the primary (CR123) battery installed.

4.5 SHIPPING

Prior to shipping the *BOSS-X_e*, follow cleaning and storage instructions as described in Sections 4.1 and 4.4. Package all components securely in a suitable shipping container, maintaining adequate separation between components.

APPENDIX A

WARRANTY STATEMENT

A.1 STANDARD LIMITED WARRANTY

Wilcox Industries Corp. ("WX") offers a limited warranty ("Limited Warranty") that its products will be free from defects in material and workmanship under proper usage for one (1) year from the date of original shipment by WX if purchased through an authorized sale. To make a warranty claim, the product and purchasing documents must be returned to WX (at user's expense) and WX will have the option (in its sole discretion) to exchange or recondition the product, that after examination by WX is determined to be defective, and return the product via preapproved carrier at user's expense. This Limited Warranty is void if the date of manufacture which is laser engraved on the product is defaced, modified or altered. This Limited Warranty is only for products purchased directly from WX or an authorized reseller. Items purchased via ecommerce such as Ebay, Craigslist, Amazon or any other online marketplaces are not eligible for the Limited Warranty.

The Limited Warranty does not include damages arising from improper use, maintenance, repairs, installation or storage, abuse, misapplication, vandalism, negligence, neglect, normal wear and tear or any other circumstances over which WX has no control.

WX MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. WX SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE WARRANTIES OF MERCHANTABILITY AND/OR FITNESS FOR A PARTICULAR PURPOSE.

This Limited Warranty is purchaser's sole and exclusive remedy for warranty coverage, WX conduct, or for any other claim or cause of action against WX. WX shall not be responsible for any incidental or consequential damages, including without limitation, personal injury, property damages or other costs resulting from labor charges, repairing surrounding products, replacements, or any delays.

IN ADDITION, TO THE FULLEST EXTENT PERMISSIBLE BY LAW, WX SHALL NOT BE LIABLE FOR ANY INJURY OR DAMAGE TO PERSONS OR PROPERTY. IN NO EVENT SHALL WX BE LIABLE FOR SPECIAL, INDIRECT, PUNITIVE, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, FUTURE REVENUE, DATA, OR ANY OTHER LOSS, REGARDLESS OF WHETHER A CLAIM OR ACTION IS ASSERTED IN CONTRACT OR TORT, WHETHER OR NOT THE POSSIBILITY OF SUCH DAMAGES HAS BEEN DISCLOSED IN ADVANCE, OR COULD HAVE BEEN REASONABLY FORESEEN. IN THE EVENT THIS LIMITATION OF DAMAGES IS HELD UNENFORCEABLE, THEN THE PARTIES AGREE THAT BY REASON OF THE DIFFICULTY IN FORESEEING POSSIBLE DAMAGES, ALL LIABILITY WITH RESPECT TO A CLAIM AGAINST WX IN CONNECTION WITH OR RELATED TO ANY PRODUCT PROVIDED HEREUNDER SHALL BE LIMITED SOLELY TO DIRECT DAMAGES, AND MAY BE SATISFIED BY REPAIR OR REPLACEMENT OF NONCONFORMING PRODUCT DURING THE WARRANTY PERIOD (AS DETERMINED BY WX IN ITS SOLE AND ABSOLUTE DISCRETION), AND IN NO EVENT SHALL EXCEED THE PURCHASE PRICE OF THE PRODUCT.

A.2 WARRANTY CLAIM AND SERVICE INFORMATION

WX must be contacted in the United States at (603) 431-1331 to assign a **Return Merchandise Authorization (RMA) / Service Call Number (SC)** prior to return shipment.

After an RMA/SC number is provided, WX will accept a package at the address below, clearly marked with the number assigned as follows:

Wilcox Industries Corp.
RMA # _____
25 Piscataqua Drive
Newington, NH 03801

The *BOSS-Xe* must be securely packaged, accompanied by purchasing information, a letter including sender's name, address, daytime phone number, date of manufacture, lot number and a description of the problem or work to be performed.

APPENDIX B

ABBREVIATIONS

B.1 ABBREVIATIONS

CCW	Counter-Clockwise
CU IN	Cubic Inches
CW	Clockwise
FWHM	Full Width of Half Maximum
In/lb	Inch Pound
ITAR	International Trafficking in Arms Regulations
lb	Pound
mm	Millimeter
mrad	Milliradian
nm	Nanometer
NVD	Night Vision Device
NVG	Night Vision Goggle
oz	Ounce

APPENDIX C

SPARE PARTS

C.1 SPARE PARTS LIST

To order replacement parts, contact the Wilcox marketing department at 603-431-1331. Please specify your product color when ordering.

#	PART NO	DESCRIPTION	REPAIR TYPE	REFERENCE
C.1.1	65301P14	STRAP - CR123 BATTERY TUBE	FIELD	Page 8
C.1.2	65312G17	ASSY - BATTERY CAP - QUICK TURN	FIELD	Page 8
C.1.3	F2656	PRESSURE REMOTE DUAL SURFIRE SR09-D-IT	FIELD	Page 4
C.1.4	F1424	BRUSH, ALL PURPOSE	FIELD	Page 8
C.1.5	F1510	KEY - 1/16 HEX X 1-13/16 L BLACK OXIDE	FIELD	Reference
C.1.6	F1968	CLOTH OPTICAL MICROFIBER	FIELD	Page 8
C.1.7	F2147	NYLON CAMO POUCH 7X5X2.25	FIELD	Page 4
C.1.8	F2481	SCREW - SHC 2-56 UNC-3A X 1/8 ALUM BLUE ANODIZED	FIELD	Page 6

Manufactured by:

WILCOX[®]

**Wilcox Industries, Corp.
One Wilcox Way
Newington, NH 03801-7816**

**Phone: 888-8WILCOX
603-431-1331
Fax: 603-431-1221**



WWW.WILCOXIND.COM

**For troubleshooting service questions,
contact Wilcox between 8am and 5pm EST.**