P/N 830-0067-0
OSR 11-S-3713

NIVISYS™ LLC

OPERATOR MANUAL

GCP-2 Series

Ground Commander Pointer

Nivisys, LLC
400 S. Clark Drive
Suite 105
Tempe, AZ 85281 USA

480-970-3222 (tel)
480-970-3555 (fax)
info@nivisys.com
www.nivisys.com

Inside cover intentionally left blank.

OPERATOR
MANUAL
for

GCP-2 Series

Ground Commander Pointer

GCP-2/V1 (50 mW IR laser, MIL-STD-1913 mount)
GCP-2/V2 (50 mW IR laser, V-block mount)
GCP-2A/V1 (100 mW IR laser, MIL-STD-1913 mount)
GCP-2A/V2 (100 mW IR laser, V-block mount)
CP-2B (175 mW IR laser, MIL-STD-1913 & V-block mount)

This page intentionally left blank.

ADVISORY OVERVIEW

The following description categorizes the level of risk associated with each cautionary statement displayed throughout the manual.

WARNING

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN INJURY TO OR DEATH OF PERSONNEL.

CAUTION

HIGHLIGHTS AN OPERATION OR PROCEDURE WHICH, IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO OR DESTRUCTION OF EQUIPMENT OR LOSS OF MISSION EFFECTIVENESS.

NOTE

HIGHLIGHTS AN ESSENTIAL OPERATION, PROCEDURE, CONDITION OR STATEMENT.

This page intentionally left blank.

LASER SAFETY DATA

This electronic product has been exempted from FDA radiation safety performance standards prescribed in the Code of Federal Regulations, Title 21, Chapter I, Subchapter J, pursuant to Exemption No. 76EL-01DOD issued on July 26, 1976.

Laser Safety Data*			
Description	**GCP-2**	**GCP-2A**	**GCP-2B**
Laser Power Output, High	50mW maximum	100mW maximum	175mW maximum
Laser Power Output, Low	0.5mW maximum	0.5mW maximum	0.5mW maximum
Laser Beam Divergence	0.5mR maximum	0.5mR maximum	0.3mR maximum
Laser Safety Class, High	3B	3B	3B
Laser Safety Class, Low	3R	3R	3R
Nominal Ocular Hazard Distance (NOHD) for the unaided eye	384ft (117m)	544 ft (166m)	709 ft (216m)
Laser Wavelength	830-840 (± 20 nm)	830-840 (± 20 nm)	830-840 (± 20 nm)

*The above data is based on Laser Hazard Safety Analysis, Air Force Research Lab Human Effectiveness Directorate Optical Software. Data is based on a <10 second exposure for IR wavelength. All output power readings are maximum values at 73ºF (23ºC).

This page intentionally left blank.

SAFETY INFORMATION

The following section outlines general risks, safety precautions and warnings associated with the safe use of a laser. Read the following before any operation of the GCP-2.

WARNING

THERE ARE EYE AND OTHER HAZARDS ASSOCIATED WITH THE USE OF THE GCP-2 SERIES. SAFE OPERATION OF THIS PRODUCT REQUIRES FOLLOWING WARNINGS, CAUTIONS AND NOTES CONTAINED IN THIS OPERATOR MANUAL.

WARNING

A LASER SAFETY OFFICER (LSO) SHOULD BE ASSIGNED TO SUPPORT OPERATIONAL AND TRAINING ACTIVITIES USING THE GCP-2. THE LSO SHOULD BE ADEQUATELY TRAINED AND PROVIDE TRAINING IAW ANSI Z136.1-2007 (OR LATEST VERSION).

WARNING

ALL PERSONNEL PARTICIPATING IN TRAINING OR OPERATIONS THAT INVOLVE THE USE OF LASERS SHOULD COMPLY WITH COMMAND / ORGANIZATIONAL UNIT AND LSO GUIDANCE.

WARNING

IT IS NECESSARY AND INTENDED THAT LASER EYE PROTECTION (NIGHT VISION DEVICES) BE WORN BY THE OPERATOR WHEN OPERATING, MAINTAINING, SERVICING, OR TESTING THE GCP-2 SERIES.

WARNING

WHEN IN HOSTILE TERRITORY, OPERATE THE GCP-2 WITH CAUTION. ANY PERSON USING NIGHT VISION DEVICES CAN DETECT THE IR SOURCE USED IN THE GCP-2.

WARNING

NEVER VIEW THE BEAM DIRECTLY ON AXIS THROUGH MAGNIFYING OPTICS SUCH AS BINOCULARS OR TELESCOPES WITHOUT APPROPRIATE SAFETY FILTERS AS MAGNIFYING OPTICS HAVE THE ABILITY TO REFOCUS LASER LIGHT AND TO INCREASE THE NOMINAL OCULAR HAZARD DISTANCE (NOHD).

WARNING

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIC HEREIN MAY RESULT IN HAZARDOUS LASER RADIATION EXPOSURE.

TABLE OF CONTENTS

TABLE OF CONTENTS (CONT.)

LIST OF FIGURES

This page intentionally left blank.

LIST OF TABLES

This page intentionally left blank.

CHAPTER 1:
GENERAL INFORMATION

1.1 Introduction:

This manual provides operation and maintenance instructions for the GCP-2. It also provides specifications and data on the performance of the laser. The instructions will cover all variants of the GCP-2. To ensure the safety of the operator and the correct operation of the weapon sight, it is recommended that this manual is read carefully in its entirety before any deployment or field application.

1.2 Equipment Description:

The GCP-2 Series is a weapon mountable Class 3B laser infrared (IR) pointer and illuminator as rated by the FDA. The IR light is invisible to the unaided eye, but fully visible to night vision devices.

The power outputs for the GCP-2 Series products are: 50mW (GCP-2), 100mW GCP-2A, and 175mW (GCP-2B). Each laser's focus may be continually adjusted by the user from a pencil beam (0.5mR) to a floodlight beam (approximately 523mR spread).

The GCP-2 may be used as a handheld pointer to mark and illuminate targets for night operations, or it can be easily mounted on individual or crew-served weapons. The GCP-2B (175 mW) incorporates a circularized laser diode that projects a pinpoint beam brighter and more defined than other lasers of similar power levels.

The pencil beam may be used to mark targets at ranges up to 8,000m (GCP-2), 10,000m (GCP-2A), or 18,000m (GCP-2B).

In the floodlight mode, large areas may be illuminated. As beam size is increased, the area of illumination is broadened and range is shortened.

The GCP-2 is issued in three different models. The difference between models are listed below.

GCP-2 Model Variations					
Varying Specification	**GCP-2**		**GCP-2A**		**GCP-2B**
	V1	**V2**	**V1**	**V2**	
Laser Power Output	50mW maximum		100mW maximum		175mW maximum
Laser Beam Divergence	0.5mR maximum		0.5mR maximum		0.3mR maximum
Nominal Ocular Hazard Distance (NOHD) for the unaided eye	384ft (117m)		544 ft (166m)		709 ft (216m)
Target Marking	8,000m		10,000m		18,000m
Provided Batteries	Alkaline		Alkaline		Lithium
MIL-STD-1913 Mount	✓		✓		✓
V-block Mount		✓		✓	✓

Table 1-1 GCP-2 Model Variations

1.3 Standard Kit Parts List:

The standard GCP-2 kit comes with the items listed in the following table.

Item	Part No.	Description	Qty.
1	GCP2/V1 GCP2/V2 GCP2A/V1 GCP2A/V2 GCP2B	50mW IR Laser with MIL-STD-1913 Mount 50mW IR Laser with V-block Mount 100mW IR Laser with MIL-STD-1913 Mount 100mW IR Laser with V-block Mount 175mW IR Laser with MIL-STD-1913 and V-block Mounts	1
2	NV-NLPP	Soft Carrying Case	1
3	580-0001-0 580-0006-0	Battery, AA Alkaline (GCP-2, -2A) Battery, AA Lithium (GCP-2B)	2
4	830-0067-0	Operation Manual, GCP-2	1
5	830-0068-0	Quick Reference Guide, GCP-2	1
6	SWCH509	Remote Control Switch, 15in	1
7	MISC009	1/8” Hex Key (GCP-2B only)	1
8	TARGCP10	150m Laser Boresight Target	1
9	TARGCP25	25m Live Fire Target	1
10	170-10	Lens Tissue Paper	1

Table 1-2 Standard Kit Parts List

1.4 Standard Kit Parts Illustration:

The illustration below is provided for quick identification of the standard parts of the GCP-2 kit.

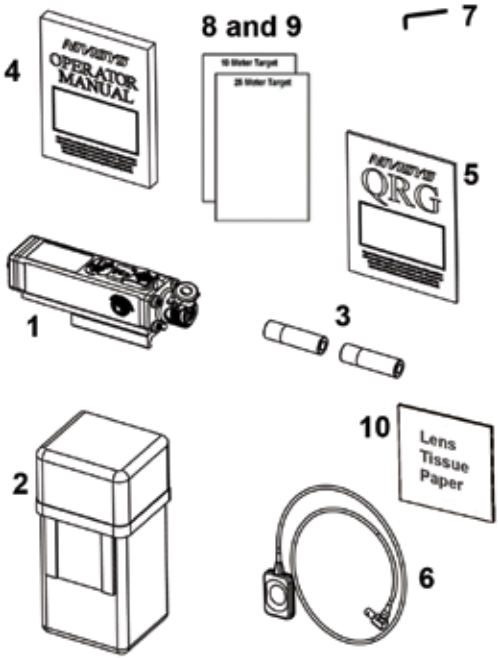

Figure 1-1 Standard Kit Parts Illustration

1.5 Optional Items List:

The GCP-2 is compatible with the following optional items and accessories listed in the following table.

Item	Part No.	Description
1	LSRU516	Canopy Reflection Shield
2	A3144306	Neck Cord
3	SWCH525	Remote Control Cable Switch (6ft, 2m)
4	ARMS#17	Single Throw Lever MIL-STD-1913 Mount
5	MNT003	V-block Mount

Table 1-3 Optional Items List

1.6 Optional Items Illustration:

The illustration is provided as a visual key to optional items that can be used with the standard GCP-2.

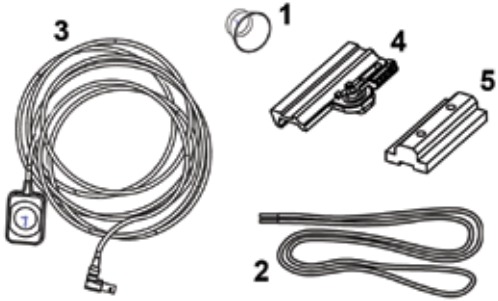

Figure 1-2 Optional Parts Illustration

1.7 System Performance and Data:

The table below lists the technical specifications and data of the GCP-2 system. The data contained herein is subject to change without notice.

ITEM	LIMITS
Electrical	
Power Source	3 VDC Maximum
Battery Type GCP-2 and GCP-2A	Alkaline 1.5 V AA (2 ea)
Battery Type GCP-2B	Lithium 1.5 V AA (2 ea)
Battery Life AA 1.5 V Alkaline @ 73ºF (23ºC)	+6 hrs – 50 mW GCP-2 +5 hrs – 100 mW GCP-2A
Battery Life AA 1.5 V Lithium @ 73ºF (23ºC)	+10 hrs – 175 mW GCP-2B
Physical	
Overall Dimensions V1 (L x H x W) Overall Dimensions V2 (L x H x W)	16.6cm x 5.6cm x 5.6cm (6.5in x 2.2in x 2.2in) 16.6cm x 6.5cm x 4.5cm (6.5in x 1.8in x 2.6in)
Weight (w/ batteries) V1 Weight (w/ batteries) V2	334g (11.8oz) 340g (12.0.z)

Table 1-4 System Performance and Data

Environmental	
Operation Temperature	-26ºF to +124ºF (-32ºC to +51ºC)
Storage	-71ºF to +160ºF (-57ºC to +71ºC)
ITEM	**LIMITS**
Laser	
Wavelength	830 ± 20 nm
Beam Shape	Oval, Circular for GCB-2B
Beam Focus	Spot to 500+ mR flood
Power Output, High GCP-2 GCP-2A GCP-2B	Maximum 50 mW Continuous Wave 100 mW Continuous Wave 175 mW Continuous Wave
Power Output, Low GCP-2 (all models)	Maximum 0.5 mW Continuous Wave
Current Draw	110-225 mA
Laser /Diode Life (typical)	20,000 hrs

Table 1-4 System Performance and Data, (cont.)

1.8 Nominal Ocular Hazard Distance (NOHD)

The distance at which beam irradiance or radiant exposure becomes equal to the maximum allowable exposure on the cornea. Care must be taken against laser exposure within this distance. However, it does not mean that continuously looking at the laser beam at a distance longer than NOHD is safe or has no hazardous influence.

	NOHD Summary for the GCP-2 Series	
	Type of Viewing	NOHD
GCP-2	Unaided	384ft (117m)
	5 cm optics (7x50 binoculars)	2,205ft (672m)
	8 cm optics (Tanks)	3,445ft (1,050m)
	12 cm optics (Big Eyes)	4,987ft (1,520m)
	Type of Viewing	NOHD
GCP-2A	Unaided	544ft (166m)
	5 cm optics (7x50 binoculars)	3,068ft (935m)
	8 cm optics (Tanks)	4,757ft (1,450m)
	12 cm optics (Big Eyes)	6,824ft (2,080m)
	Type of Viewing	NOHD
GCP-2B	Unaided	709 ft (216m)
	5 cm optics (7x50 binoculars)	4,003 ft (1,220m)
	8 cm optics (Tanks)	6,102 ft (1,860m)
	12 cm optics (Big Eyes)	8,661 ft (2,640m)

Table 1-5 NOHD Summary

CHAPTER 2:
PREPARATION FOR USE

2.1 Introduction:

This section contains instructions for installing and attaching various components and accessories to the GCP-2 for operation under normal conditions.

2.2 Safety Slide:

The safety slide is designed to reveal one of two features of the laser device. In the SAFE position, the HI/LOW power selector is revealed and the laser can only be fired using the remote switch. In the ARMED position, the fire button is revealed and the laser is ARMED.

WARNING

ANY TIME THE LASER DEVICE IS NOT BEING FIRED, THE SAFETY SLIDE SHOULD BE IN THE SAFE POSITION.

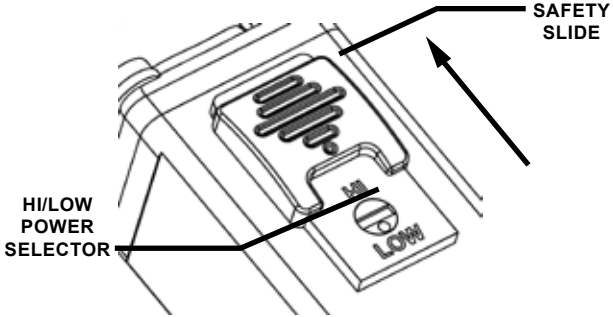

Figure 2-1 Safety Slide shown in SAFE Position

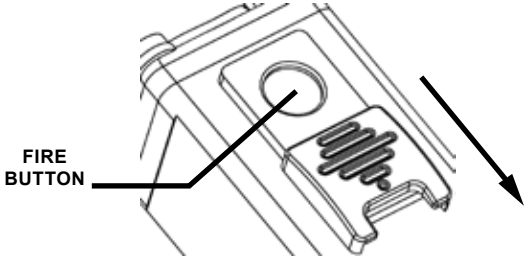

Figure 2-2 Safety Slide shown in ARMED Position

2.3 Hi/Low Power Selector:

The Hi/Low power selector permits reduction of the laser output to eye-safe levels for training and force-on-force maneuvers. To select Hi or Low power perform the following procedure.

1. Rotate the Hi/Low power selector 180º clockwise or counter-clockwise with a small slot screwdriver (not provided).

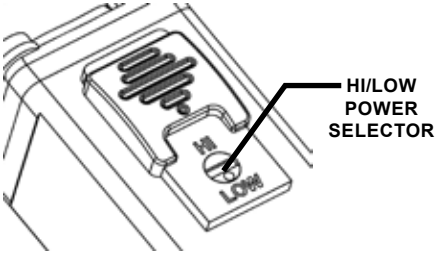

Figure 2-3 Hi/Low Power Selector

2.4 Battery Precautions:

WARNING

DO NOT MIX ALKALINE AND LITHIUM BATTERIES. DO NOT MIX OLD AND NEW BATTERIES. DO NOT MIX BRANDS OF BATTERIES. DO NOT MIX DISPOSABLE AND RECHARGEABLE BATTERIES. FAILURE TO FOLLOW THESE INSTRUCTIONS COULD RESULT IN DEATH, INJURY OR IMPOSITION OF LONG-TERM HEALTH HAZARDS.

WARNING

INSPECT BATTERIES FOR BULGING PRIOR TO USE. IF THE BATTERY SHOWS SIGNS OF BULGING, DO NOT USE.

WARNING

DO NOT HEAT, PUNCTURE, DISASSEMBLE, SHORT CIRCUIT, INCINERATE, ATTEMPT TO RECHARGE OR OTHERWISE TAMPER WITH THE BATTERIES. TURN OFF THE GCP-2 IF THE BATTERY COMPARTMENT BECOMES UNDULY HOT. IF POSSIBLE, WAIT UNTIL THE BATTERIES HAVE COOLED BEFORE REMOVING THEM.

CAUTION

OBEY THE BATTERY MANUFACTURER'S DIRECTIONS FOR BATTERY DISPOSAL.

2.5 Battery Installation:

The electronic circuit is powered by two (2) AA battery cells. Install the batteries as follows.

WARNING

THE SAFETY SLIDE SHOULD BE IN THE SAFE POSITION AND THE REMOTE SWITCH DETACHED BEFORE BEGINNING THE BATTERY CHANGE PROCEDURE TO PREVENT ACCIDENTAL DEPRESSION OF THE FIRING SWITCH AND INVISIBLE LASER BEAM EMISSIONS.

1. Remove the battery cap by turning the retaining knob counter-clockwise.
2. Pull and turn the battery cap away from the body of the GCP-2 until a stop occurs.
3. Ensure that the battery compartment is free from contaminants and moisture.

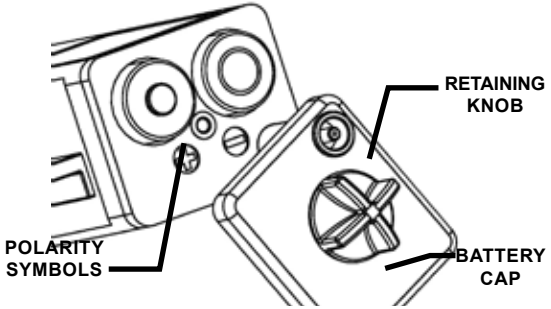

Figure 2-4 Battery Installation

4. Insert the batteries into the battery compartment according to the printed polarity symbols.
5. Replace battery cap and turn the retaining knob clockwise until it the battery cap is tightly secured.

2.6 Remove the Exit Port Cap:

Perform the following procedure to remove the exit port cap from the GCP-2.

WARNING

LASER EYE PROTECTION MUST BE WORN WHEN SERVICING, TESTING OR OPERATING THE GCP-2 SERIES.

1. Using the finger tabs, firmly hold the exit port cap.
2. Pull the exit port cap away from the GCP-2 and place it on lens shroud closest to the safety slide.

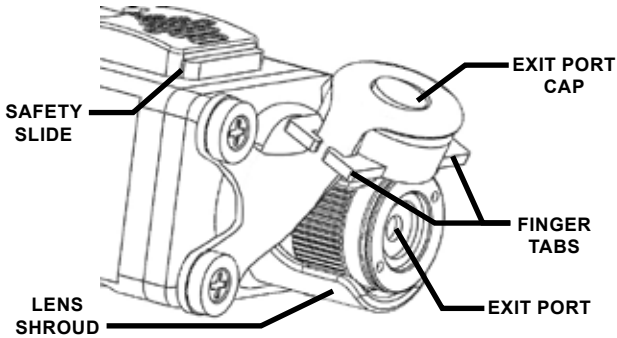

Figure 2-5 Exit Port Cap Removal

2.7 Remote Switch Installation:

The GCP-2 kit comes with a remote switch and allows for an additional method of firing the laser. This is especially useful when the GCP-2 is mounted on a weapon. Install the remote switch as follows.

1. Locate the remote switch port on the battery cap.
2. Fully insert the remote switch connector into the port until a stop occurs.

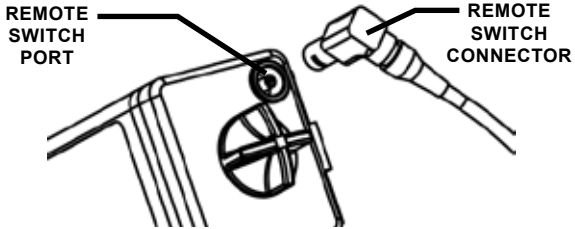

Figure 2-6 Remote Switch Installation

2.8 Installing a Weapon Mount to the GCP-2:

The GCP-2 is attached to a weapon using one of two weapon mounts, an integral throw lever mount or a V-block mount. To attach the weapon mount to the GCP-2 perform the following.

1. Place the mount on the mount interface plate, located on the bottom of the GCP-2.
2. Align the two countersunk holes of the weapon mount to two of the threaded holes on the mount interface plate.

NOTE

THERE ARE FOUR THREADED HOLES IN THE MOUNT INTERFACE PLATE THAT ALLOWS FORWARD OR AFT MOUNTING.

3. Fasten the weapon mount to the mount interface plate using the provided 10-32 flat head screws (2ea.)
4. Tighten with the appropriate hex key.

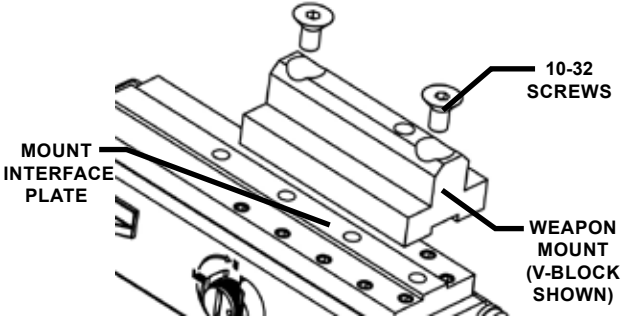

Figure 2-7 GCP-2 Mount Interface Plate

2.9 Throw lever Mount Weapon Attachment:

The single throw lever mount is designed to connect to MIL-STD-1913 rails that are common to many weapons. Perform the following procedure to install the GCP-2 using the throw lever mount.

WARNING

MAKE SURE THE WEAPON IS CLEAR AND ON SAFE BEFORE PROCEEDING.

1. Move the lever outward to the open position.
2. Place the GCP-2 on the rail system of the weapon so that nothing is obstructing the exit port.
3. Ensure that the mount is seated squarely on the rail.
4. Move the lever inward to the closed position.

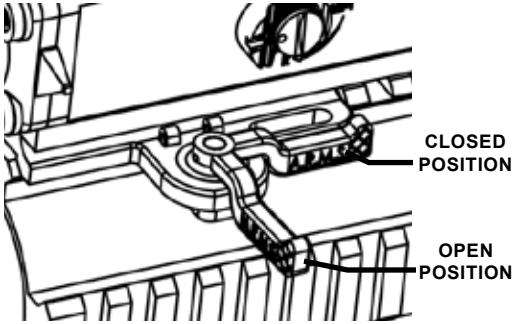

Figure 2-8 Throw Lever Mount

2.10 V-block Mount Weapon Attachment:

The V-block mount is designed for installation on a M16 or a M4 carrying handle. Perform the following procedure to install the GCP-2 using the V-block Mount:

WARNING

MAKE SURE THE WEAPON IS CLEAR AND ON SAFE BEFORE PROCEEDING.

1. Place the GCP-2 V-block mount in the carrying handle of the weapon with the exit port facing the barrel.
2. Line up the threaded hole of the V-block mount with the hole in the carrying handle.
3. Place the provided 1/4-20 screw under the handle and in line with the threaded hole of the V-block mount.
4. Turn the screw clockwise until a stop occurs.
5. Tighten with an appropriate hex key (not provided).

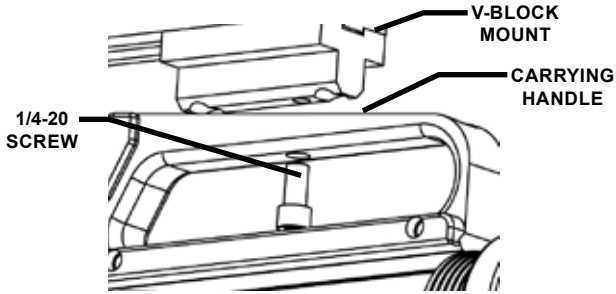

Figure 2-9 V-Block Mount

2.11 Canopy Reflection Shield Installation (Optional):
The canopy reflection shield is fitted to the front of the GCP-2, then pressed against the window to eliminate unnecessary emission reflection in an aircraft cockpit or vehicle. Perform the following procedures to install the Canopy Reflection Shield.

WARNING
LASER SAFETY OFFICER INSTRUCTIONS REGARDING THE SAFE USE OF THE GCP-2 MUST BE FOLLOWED TO AVOID INADVERTENT REFLECTION OF LASER EMISSIONS INSIDE THE COCKPIT OR VEHICLE.

1. Remove the exit port cap from the lens housing.
2. Place the canopy reflection shield over the red lens housing.
3. Squarely push the shield onto the lens housing until it catches.

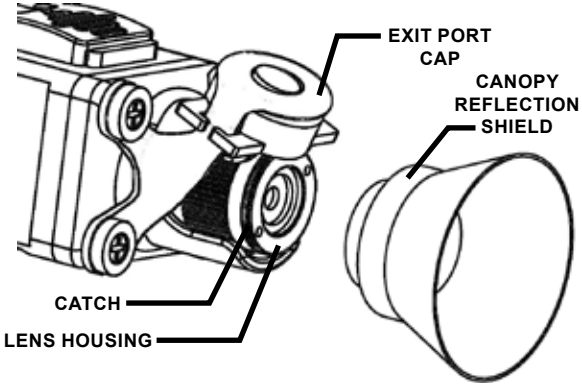

Figure 2-10 Canopy Reflection Shield Installation

2.12 Neck Cord Installation (Optional):

A neck cord is an optional piece of equipment that may be installed when the GCP-2 is being operated as a hand held device. Install the neck cord as follows.

1. Locate the neck cord eyelet on the side of the GCP-2.
2. Thread one end of the neck cord through the neck cord eyelet.
3. Tie a knot in the two ends of the neck cord.

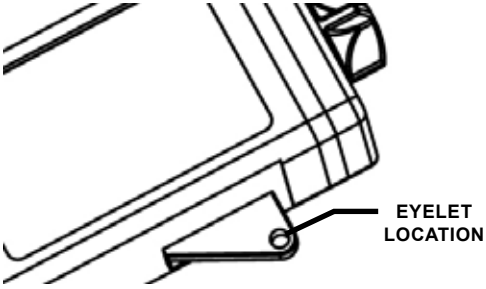

Figure 2-11 Neck Cord Eyelet Location

This page intentionally left blank.

CHAPTER 3:
OPERATING INSTRUCTIONS

3.1 Introduction:

This chapter contains instructions for the safe operation of the GCP-2 under normal circumstances and environments. The GCP-2is designed to be used in conjunction with a night vision device.

3.2 Operating Precautions:

WARNING

THERE ARE EYE AND OTHER HAZARDS ASSOCIATED WITH THE USE OF THE GCP-2 SERIES. SAFE OPERATION OF THIS PRODUCT REQUIRES FOLLOWING WARNINGS, CAUTIONS AND NOTES CONTAINED IN THIS OPERATOR MANUAL.

WARNING

A LASER SAFETY OFFICER (LSO) SHOULD BE ASSIGNED TO SUPPORT OPERATIONAL AND TRAINING ACTIVITIES USING THE GCP-2. THE LSO SHOULD BE ADEQUATELY TRAINED AND PROVIDE TRAINING IAW ANSI Z136.1-2007 (OR LATEST VERSION).

WARNING

ALL PERSONNEL PARTICIPATING IN TRAINING OR OPERATIONS THAT INVOLVE THE USE OF LASERS SHOULD COMPLY WITH COMMAND / ORGANIZATIONAL UNIT AND LSO GUIDANCE.

WARNING

IT IS NECESSARY AND INTENDED THAT LASER EYE PROTECTION OR NIGHT VISION DEVICES BE WORN BY THE OPERATOR WHEN MAINTAINING, SERVICING, OR TESTING THE GCP-2 SERIES.

WARNING

WHEN IN HOSTILE TERRITORY, OPERATE THE GCP-2 WITH CAUTION. ANY PERSON USING NIGHT VISION DEVICES CAN DETECT THE IR SOURCE USED IN THE GCP-2.

WARNING

NEVER VIEW THE BEAM DIRECTLY ON AXIS THROUGH MAGNIFYING OPTICS SUCH AS BINOCULARS OR TELESCOPES WITHOUT APPROPRIATE SAFETY FILTERS AS MAGNIFYING OPTICS HAVE THE ABILITY TO REFOCUS LASER LIGHT AND TO INCREASE THE NOMINAL OCULAR HAZARD DISTANCE (NOHD).

WARNING

USE OF CONTROLS, ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIC HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

3.3 Controls and Indicators:

The controls and indicators for the GCP-2 are shown in Figure 3-1 and are described in Table 3-1.

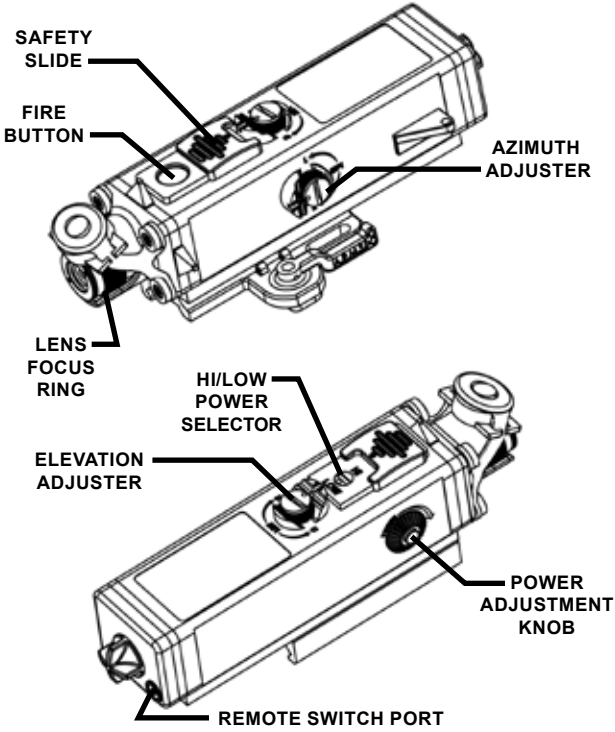

Figure 3-1 Controls and Indicators

Control and Indicators	Functions
Safety Slide	The safety slide is designed to reveal one of two features of the laser device. In the SAFE position, the HI/LOW power selector is revealed and the laser is activated through the remote switch. In the ARMED position, the fire button is revealed and the laser is ARMED.
Hi/Low Power Selector	The Hi/Low power selector permits reduction of the laser output to eye-safe levels for training and force-on-force maneuvers or boresighting.
Lens Focus Ring	The focus ring continuously adjustable by the user. Turning the lens of the pointer makes the beam smaller or wider for pointing or area illumination.
Fire Button	Activates the IR laser when the button is pressed.
Remote Switch Port	This port is used to attach the optional remote switch.
Weapon Mount	The weapon mount is used to attach the GCP-2 to a weapon. The GCP-2 is supplied with either a throw lever mount or a v-block mount or both.
Power Adjustment Knob	The power adjustment knob is used to select the best beam intensity level for the ambient lighting condition.
Elevation Adjuster	An elevation adjustment knob on top of the unit is used to adjust the strike of the bullet up and down, during the zeroing process, at a rate of 0.4 mR per click, 4.0 cm at 100 m.

Table 3-1 Controls and Indicators

Control and Indicators	Functions
Azimuth Adjuster	An azimuth adjustment knob on the left side of the unit is used to adjust the strike of the bullet left and right, during the zeroing process, at a rate of 0.4 mR per click, 4.0 cm at 100 m.

Table 3-1 Controls and Indicators, cont.

3.4 Safe Operation:

Once the batteries are installed, do not point the laser toward any person within the NOHD. Night vision goggles (NVG) will provide protection by blocking the laser beam from directly entering the eye but the goggles themselves may be damaged. Other than the intended target, do not intentionally illuminate with or without NVG within the NOHD, whether during operations or training. Refer to the table 1-5 in section 1.8 for NOHD distances.

WARNING

NEVER VIEW THE BEAM DIRECTLY THROUGH MAGNIFYING OPTICS SUCH AS BINOCULARS WITHOUT APPROPRIATE SAFETY FILTERS AS MAGNIFYING OPTICS HAVE THE ABILITY TO REFOCUS LASER LIGHT, INCREASING THE DISTANCE FROM THE LASER WHERE HAZARDS MAY OCCUR (NOMINAL OCULAR HAZARD DISTANCE – NOHD). THE NOHD FOR THE GCP-2 SERIES IS LISTED IN TABLE 1-5 IN SECTION 1.8.

WARNING

DO NOT POINT THE LASER AT SPECULAR (MIRROR-LIKE) SURFACES.

3.5 Firing the Laser:

The GCP-2 fire button is a momentary switch. It will only fire as long as it is pressed. When the fire button is not pressed, the laser is not activated. To fire the GCP-2 perform the following procedure:

1. Move the safety slide to the ARMED position revealing the red fire button.
2. Press the red fire button.

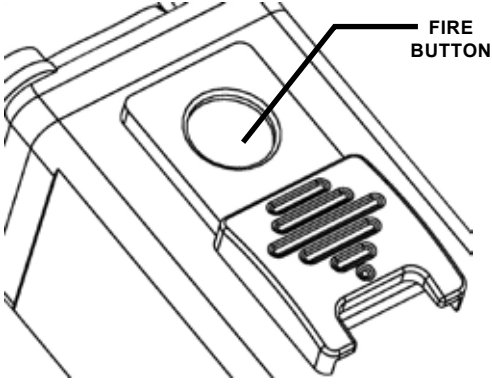

Figure 3-2 Fire Button on GCP-2

3.6 Firing the Laser with the Remote Switch:

The GCP-2 can also be fired using the remote switch. The remote switch fire button is also a momentary switch. It will

only fire as long as it is pressed. When the fire button is not pressed, the laser is not activated. To fire the GCP-2 with the remote switch perform the following procedure:

WARNING

THE REMOTE SWITCH FIRES THE LASER INDEPENDENT OF THE SAFETY SLIDE POSITION.

WARNING

THE FIRE BUTTON ON TOP OF THE GCP-2 CAN BE ACTIVATED WHILE THE REMOTE SWITCH IS INSTALLED.

1. Install the remote switch into the GCP-2.
2. Press the fire button on the remote switch.

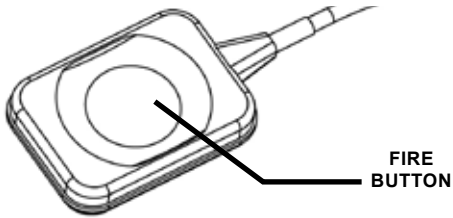

Figure 3-3 Fire Button on Remote Switch

3.7 Focusing the Beam for the GCP-2, -2A:

The focus ring can be adjusted to change the size of the beam. The beam shape is oval with a width to height ratio of approximately 4:1. To adjust the beam size perform the following procedure.

1. Turn the focus ring clockwise to make the beam smaller and increases range.
2. Turn the focus ring counter-clockwise to makes the beam wider.

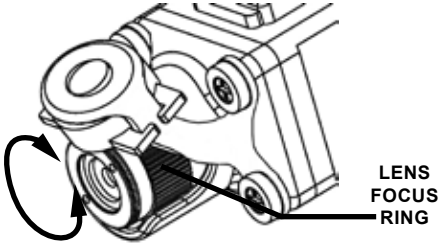

Figure 3-4 Lens Focus Ring

3.8 Focusing the Beam for the GCP-2B:

The lens focus ring can be adjusted to change the size of the beam. The beam shape is circular. To adjust the beam size perform the following procedure.

1. Turn the lens counter-clockwise to make the beam smaller and increases range.
2. Turn the lens clockwise to makes the beam wider.

3.9 Power Adjustment Knob:

The power adjustment knob is used to regulate output power of the aimer beam. Lowering the power can lessen washout, halo effect or excessive reflective luminance from close proximity to a target. The power adjustment knob is used in the following manner.

1. Turn the knob counter-clockwise to decrease power and decrease the brightness of the laser beam.
2. Turn the knob clockwise to increase power and brighten the laser beam.

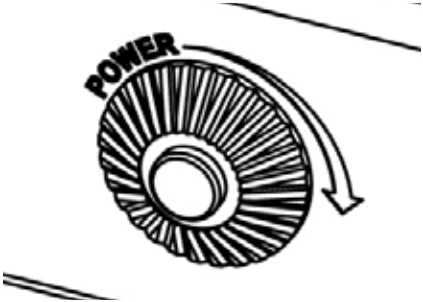

Figure 3-5 Power Adjustment Knob

3.10 Preparing the GCP-2 for Zeroing:

This manual contains a comprehensive zero procedure to align the beam of the GCP-2 to the point of impact of the bullet. The initial zeroing procedure of the GCP-2 will align the laser to bullet impact at 150m To zero the GCP-2 to the weapon perform the following.

1. Install the GCP-2 with the remote switch onto the weapon rail.

NOTE

WHEN REINSTALLING THE GCP-2 TO THE WEAPON, BE SURE TO RETURN IT TO THE EXACT RAIL LOCATION FOR AN ACCURATE ZERO TO WEAPON.

2. Set the power adjustment knob to its lowest setting by rotating it in a counter-clockwise direction.
3. Achieve a neutral adjustment setting by turning each adjuster clockwise until a stop occurs. Return the adjuster knobs approximately five rotations counter-clockwise until the white dot on the adjuster knob is closest to the notch sight after the five turns.

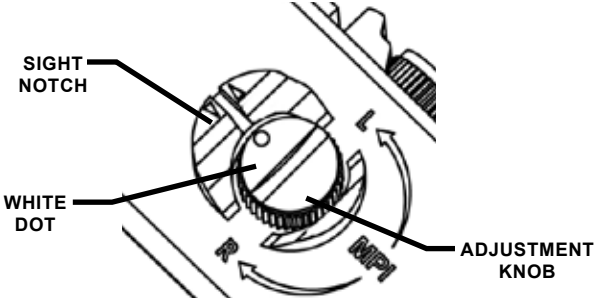

Figure 3-6 Neutral Adjustment Setting

CAUTION

TO PREVENT JAMMING THE ADJUSTMENT KNOBS, DO NOT FORCE THE ADJUSTERS TO ROTATE PAST THEIR END OF TRAVEL.

CAUTION

DO NOT USE TOOLS TO TURN ADJUSTER KNOB.

3.11 Zeroing the GCP-2 to a Weapon, Non-Fire Method:

The equipment listed below is required to perform the following procedure.

- Weapon
- GCP-2 with appropriate mounting hardware for weapon
- Stand or flat area to secure target (wall, clipboard, etc.)
- Laser Boresight with proper size bore mandrel
- Weapons vise, sand bags or clamp
- Night vision system with day light cover
- 10m boresight target (TARGCP10)
- 33ft (10m) space away from personnel.

NOTE

USE THE FULL SIZE TARGET SUPPLIED WITH THE GCP-2 KIT WHEN PERFORMING THE FOLLOWING ZEROING PROCEDURE.

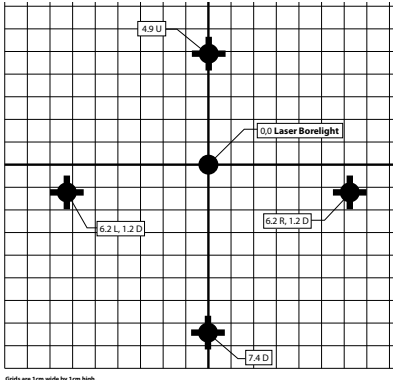

Figure 3-7 Example Target for Zeroing, Non-Fire Method

1. Mount the GCP-2 on the weapon.
2. Place the target on flat area at 33ft (10m) from the weapon position. Target area should be out of direct bright light, an indoor location is best.
3. Lock the weapon in a weapon vise, clamp or stabilize it with sand bags pointing in the direction of the target (CRITICAL).
4. With the proper size mandrel, insert a laser boresight in the barrel in accordance with laser boresight instructions.
5. Adjust the weapon and/or target position to project the laser boresight beam to the laser boresight position on the target.
6. Station a night vision equipped assistant near the target, WITH BACK TOWARDS IR LASER APERTURE.

CAUTION

KEEP DAYLIGHT COVER ON TO AVOID DAMAGE TO NIGHT VISION DEVICE.

7. Fire the GCP-2 and have a night vision equipped assistant provide directions to person at the weapon to adjust GCP-2 beam (elevation and azimuth).

CAUTION

NIGHT VISION DEVICE SHOULD ONLY BE TURNED ON LONG ENOUGH TO MARK THE PAPER.

8. GCP-2 is boresight zeroed when IR laser is in the circle of the GCP-2 laser box crosshair on the target.

WARNING

LIVE FIRE ZEROING IS RECOMMENDED TO DETERMINE EXACT PLACEMENT AT KNOWN DISTANCES.

NOTE

THE GCP-2 WILL RETAIN ZERO AFTER IT HAS BEEN REMOVED AND REPLACED ON THE SAME WEAPON IN THE SAME SLOT ON THE NVEC#16.

WARNING

THE GCP-2 IT MUST BE RE-ZEROED WHENEVER THE MOUNTING (BASE) BRACKET IS REMOVED FROM THE GCP-2 AND REPLACED.

3.12 Zeroing the GCP-2 to a Weapon:

After performing the non-firing method of zeroing the GCP-2 to the weapon, it is recommended to conduct a live fire zeroing at the 150m designated zero range. The procedure is as follows:

1. Arrange a target at 150m range downrange.
2. Adopt a secure and stable firing position.
3. Don night vision goggles and switch ON.
4. Activate the GCP-2 laser and bring the laser dot onto target center.
5. Fire a group of 5 rounds, single shot, maintaining a steady aim on the target center
6. Clear weapon and switch to SAFETY.
7. Check impact position of 5 rounds on the target, determine the center of the shot group, or mean point of impact (MPI).
8. If any adjustments are necessary, use the following table for MPI adjustments at 150m range:

	Azimuth	Elevation
Direction to move adjuster	Clockwise moves MPI **down**	Clockwise moves MPI **right**
Movement per click	6cm (2.4in) at 150m	

Table 3-2 Live Fire Adjustments at 150m

9. Repeat steps 2 through 8 until the center of the shot group is located at or near the target center.

If a full 150m range is not available, a 25m live fire boresighting may be performed, using the supplied target 25m boresight target for 150m zero (TARVIT25).

1. Arrange the TARVIT25 at 25m range downrange.
2. Adopt a secure and stable firing position.
3. Don night vision goggles and switch ON.
4. Activate the GCP-2 laser and bring the laser dot onto designated rectangle aiming area.
5. Fire a group of 5 rounds, single shot, maintaining a steady aim on the target aiming area.
6. Clear weapon and switch to SAFETY.
7. Check impact position of 5 rounds on the target, determine the center of the shot group, or mean point of impact (MPI).
8. If any adjustments are necessary, use the following table for MPI adjustments at 150m range:

	Azimuth	Elevation
Direction to move adjuster	Clockwise moves MPI **down**	Clockwise moves MPI **right**
Movement per click	1cm (0.4in) at 25m	

Table 3-3 Live Fire Adjustments at 25m

9. Repeat steps 2 through 8 until the center of the shot group is located at or near the target center.

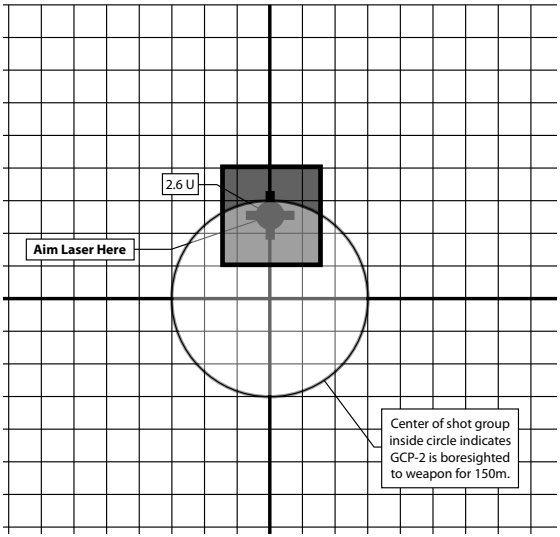

Figure 3-9 Example Target for Zeroing Any Weapon

NOTE

THE GCP-2 WILL RETAIN ZERO AFTER IT HAS BEEN REMOVED AND REPLACED ON THE SAME WEAPON IN THE SAME SLOT ON THE RAIL.

WARNING

THE GCP-2 IT MUST BE RE-ZEROED WHENEVER THE MOUNT IS REMOVED FROM THE GCP-2 AND REPLACED.

3.13 Preparation for Storage:

WARNING

WHEN NOT IN USE, STORE THE GCP-2 SERIES IN A SECURED AREA. DO NOT TURN THE GCP-2 ON UNTIL IT IS NECESSARY TO OPERATE.

1. Remove batteries from the laser device.
2. Inspect the battery compartment for corrosion or moisture.
3. Clean and dry if necessary.
4. Replace the battery cap.
5. Ensure that the exit port cap is installed.
6. Ensure that the safety slide is in the SAFE position.

NOTE

PRIOR TO PLACING GCP-2 INTO CARRYING CASE, ENSURE THE GCP-2 AND CASE ARE FREE OF DIRT, DUST, AND MOISTURE.

7. Place the laser device and all accessories in the soft carrying case. It is best to place the items in their original locations to prevent any possible damage to the unit and/or accessories.
8. Return to secure storage area.

This page intentionally left blank.

CHAPTER 4:
MAINTENANCE INSTRUCTIONS

4.1 Introduction:

The GCP-2 is designed to be used in diverse environments and rugged conditions. It is recommended that regular and simple maintenance is performed for optimal system performance.

CAUTION

THE LASER DEVICE IS A PRECISION ELECTRO-OPTICALINSTRUMENTANDMUST BE HANDLED CAREFULLY.

DO NOT SCRATCH THE EXTERNAL LENS SURFACES OR TOUCH THEM WITH YOUR FINGERS.

4.2 Preparing for Maintenance:

Before performing any maintenance or cleaning of the system, remove all batteries from the GCP-2.

4.3 Cleaning the GCP-2:

When necessary, use a water moistened clean cloth to wipe the outside of the unit. Be sure to wipe away excess dirt and dust that may restrict the performance or damage moving and mating parts. If needed, the use of a very diluted detergent solution is permissible. Dry with a soft clean cloth, or allow unit to air-dry before storing it.

4.4 Cleaning the Optical Surfaces:

To clean the lens, wipe using a cotton tipped applicator with clean water, alcohol, or general purpose glass cleaner. Clean only the external surface of the lens.

4.5 Checking for Damage and Corrosion:

As a general guideline, conduct an inspection of the GCP-2, accessories, and the case after every use. Look for heavy wear and cracks in rubber or plastic. Inspect for moisture or corrosion in the battery compartment. Check for scratches, condensation and foreign matter on optical surfaces. Report missing or damaged items, for replacement.

4.6 Preventive Maintenance Checks and Services (PMCS):

Action		Time to Check			Not Usable If
		Before	During	After	
1	Inspect kit and components for presence and serviceability	X		X	Key components are missing
2	Lenses are clean and free of large scratches that affect performance	X		X	Scratches affect the pointer performance
3	Check activation switches and power controls for proper function	X	X		Controls do not work properly
4	Focus mechanism opens and closes beam size		X		Pointer focus is inoperative
5	Check housing for signs of damage	X		X	Housing is cracked

Table 4-1 Preventative Maintenance Checks and Services

Action					Not Usable If
		Before	During	After	
5	Check mount for loose or damaged components	X		X	GCP-2 does not hold boresight
6	Check battery compartment/ cap for damage or missing o-ring	X		X	Moisture is found in battery compartment

Table 4-1 Preventative Maintenance Checks and Services, (cont.)

This page intentionally left blank.

CHAPTER 5:
TROUBLESHOOTING

5.1 Troubleshooting Procedures:

Table 5-1 lists common malfunctions that may occur with the GCP-2. Perform the tests, inspections and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify your maintainer.

Malfunction	Test for Inspection	Corrective Action
Pointer fails to operate	Dirty battery compartment contacts	Clean battery cap and contacts
	Reversed batteries	Reinstall batteries with correct polarity observed
	Dead batteries	Replace batteries
	Bad switch	Turn in for replacement
	Exit Port Cap Installed	Remove Exit Port Cap
Intermittent operation of pointer	Dirty battery cap or battery compartment	Clean contacts with alcohol and cotton swab or pencil eraser

Table 5-1 Troubleshooting

Pointer beam is not sharply defined	Dirty lens Scratched lens	Clean lens Turn in for replacement
Unit will not hold zero	Lens is not focused to spot Mount is loose or defective	Turn to stop for smallest beam. Check all mount interfaces. Replace as required

Table 5-1 Troubleshooting, (cont.)

APPENDIX A:
SPARE AND REPAIR PARTS LIST

A.1 Introduction:

This section provides information needed to identify, contact and order spare and/or repair parts for the GCP-2.

A.2 Contact Information:

To order spare or repair parts for the GCP-2 or any night vision products contact:

Nivisys, LLC
400 S. Clark Drive, Suite #105
Tempe, Arizona 85281 USA

Phone: 1-480-970-3222
Fax: 1-480-970-3555

A.3 Spare Part List:

The following is a list of parts that may be ordered for spare parts for the GCP-2.

Part No.	Description	Qty.
NV-NLPP	Soft Carrying Case	1
580-0001-0	Battery, AA Alkaline (GCP-2, -2A)	1
580-0006-0	Battery, AA Lithium (GCP-2B)	1
830-0067-0	Operation Manual, GCP-2	1

Table A-1 Spare and Repair Parts List

830-0068-0	Quick Reference Guide, GCP-2	1
LSRU516	Canopy Reflection Shield	1
SWCH509	Remote Switch (15in)	1
A3144306	Neck Cord	1
SWCH525	Remote Switch (6ft)	1
CAPS503	Laser Dust Cap Assembly	1
MNT003	V-Block Mount Assembly	1
ARMS #17	Throw Lever Mount Assembly	1
713-0102-0	Mount Screws	2
MISC009	1/8” Hex Key (GCP-2B only)	1
711-0128-0	1/4-20 V-Block Mounting Screw	1
TARGCP10	150m Laser Boresight Target	1
TARGCP25	25m Live Fire Target	1

Table A-1 Spare and Repair Parts List, (cont.)

APPENDIX B:
WARRANTY INFORMATION

Equipment Warranties And Remedy:
Seller warrants that each newly manufactured item sold hereunder and such portion of a repaired/refurbished item as has been repaired or replaced by Seller under this warranty, shall be free from defects in material or workmanship at the time of shipment and shall perform during the warranty period in accordance with the specifications incorporated herein. Should any failure to conform to these warranties be discovered and brought to Seller's attention during the warranty period and be substantiated by examination at Seller's factory or by authorized field personnel, then at its own cost, Seller shall correct such failure by, at Seller's option, repair or replacement of the non-conforming item or portion thereof, or return the unit purchase price of the non-conforming item or component. Buyer agrees that this remedy shall be its sole and exclusive remedy against Seller and that no other remedy shall be available or pursued by Buyer against Seller. In no event shall the Seller be liable for any cost or expense in excess of those described in this paragraph and expressly excluding any liability or damages for special, incidental or consequential damages.

The warranty period for newly-manufactured items shall extend 12 months from the date of shipment by Seller unless a different warranty period is agreed in writing to by Seller. The warranty period for repaired/refurbished electronic components shall extend for the unexpired warranty period or 90 days, whichever is longer, of the item repaired or replaced.

This warranty shall not extend to any item that upon examination by Seller is found to have been subject to:

A. Mishandling, misuse, negligence or accident.

B. Installation, operation or maintenance that either was not in accordance with Seller's specifications and instructions, or otherwise improper.

C. Tampering, as evidenced, for example, by broken seals, damaged packaging containers, etc.

D. Repair or alteration by anyone other than Seller without Seller's express advance written approval.

Failure to promptly notify Seller in writing upon discovery of any non-conforming item during the warranty period shall void the warranty as to such item. Buyer shall describe any such non-conformity in detail, expressing its position as to return of any article under the remedy provided herein. No returns shall be accepted without prior approval by Seller.

Return Material Authorization Number (RMA#):
Warranty and non-warranty items returned to Nivisys for repair or replacement require a RMA#. Email support@nivisys.com, call 1-480-970-3222 or fax 1-480-970-3555 with a serial number and detailed information to obtain a RMA#.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Inside cover intentionally left blank.

Nivisys, LLC
400 S. Clark Drive, Suite 105
Tempe, Arizona 85281
USA

nivisys.com