

# MAXA **BEAM**<sup>™</sup>

Hand Held Xenon Searchlight



## Operation Manual



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# Maxa Beam Searchlight System Operation Manual

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## Characteristics

The Maxa Beam 400 series handheld searchlights are lightweight, compact, high intensity illuminators which use a field replaceable 75 Watt Xenon short arc lamp and a precision electroformed reflector to provide the ultimate source for long range and wide angle portable illumination. The features of this system include:

- Color rendition similar to daylight (6,000K)
- All functions controlled with one hand
- Only the lightweight searchlight needs to be hand carried
- Operational characteristics can be field programmed
- Three levels of illumination intensity
- 1° to 40° electronic zoom focus
- Visible (white) and Infrared illumination capability
- 12 Volt DC operation
- Weather resistant
- Snap on rechargeable battery modules
- Rechargeable battery belt
- Up to 2 hours of operation on one battery
- Quick charger recharges batteries in 2 1/2 hours
- Multi Voltage charger operates on 12-36 VDC and 100-240 VAC
- Stationary power supply operates searchlight from 120 or 220 VAC
- Customizable strobe function
- Remote models (MBS-430/450) allow remote control of:
  - Beam intensity
  - Beam Size
  - Flexible mounting options
  - Strobe Function
  - Programmable Function

The 400 series consists of three models of searchlight:

- MBS-410 handheld searchlight
- MBS-430 remote control only searchlight
- MBS-450 handheld searchlight with remote control capability

## Applications

For over 10 years, users world wide, in locations ranging from the Sahara Desert to the AICan Pipeline have come to rely on the Maxa Beam Searchlight system for:

- |                                   |                                      |
|-----------------------------------|--------------------------------------|
| • Force Protection                | • Search and Rescue                  |
| • Perimeter Security              | • Television Lighting                |
| • Infrared Surveillance           | • Maritime Navigation                |
| • Night Vision System Enhancement | • Still & Motion Picture Photography |

## **Theory of Operation**

The Maxa Beam Searchlights produce light by passing an arc of electricity between two electrodes in a quartz tube filled with a pressurized atmosphere of Xenon gas. An extremely precise plasma ball is formed and precisely positioned within an electroformed reflector by an internal microprocessor controlling a servo motor.

When the ignition button is momentarily pressed a high voltage R.F. igniter produces up to 20,000 volts to ionize the Xenon gas within the lamp, allowing the 12.5 to 14 vdc operating voltage to bridge the arc gap and form a steady state. Once the arc is established, gas temperature and pressure start to climb, forcing the Xenon into a plasma state. The light will come on with a constant high beam for approximately 3 seconds to assure reliable ignition of a cold lamp and will then go to the programmed intensity and mode. After ignition of the lamp is completed, the internal microprocessor takes control of the operation of the electronic focus, power settings and the user programmable options.

The searchlight contains no internal, user serviceable parts. The switch mode power supply is factory set and requires no adjustment, even after a lamp change has occurred as the control circuitry is self calibrating. Internal power regulation keeps both the intensity and color of the beam constant as the voltage from the battery drops.

## **Warnings**

**Do not operate this light in an explosive environment.**

**Do not look directly into the light at close distances.**

**Do not immerse the Maxa Beam in water or allow water to enter the case. While the Maxa Beam is weather resistant, submersion in water will cause permanent damage to the light.**

**Do not operate the searchlight if the front lens is damaged or removed.**

**Do not allow the concentrated beam of light to be focused on flammable materials at close distances for prolonged periods of time.**

**Do not touch the Xenon lamp connections during operation or ignition as high voltage is present.**

**Do not touch the clear portion of the Xenon lamp. If the lamp is accidentally touched, clean with the solution supplied in the replacement lamp kit or alcohol.**

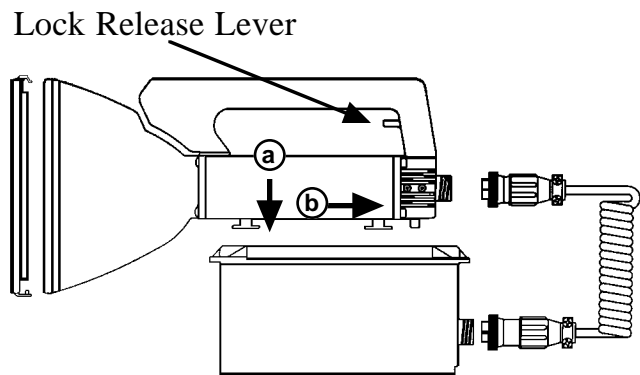
**Always wear protective eye wear if removing the front lens cover. The lamp is under positive pressure and should be handled with care.**

**To prevent accidental activation of the searchlight, always disconnect it from the power cord when it is not in use, placed in storage or being transported.**

# Searchlight Operation

## Setup

- 1) Locate searchlight, battery and power cable.
- 2) Inspect items for physical damage.
- 3) Attach searchlight to battery by lining up round feet of searchlight over round holes on the top of the battery (a). Lower the searchlight into the holes and then (b) slide the searchlight towards connector end of battery . Check for positive lock by sliding searchlight away from connector end of battery. If properly locked it should not slide.
- 4) Attach battery carrying strap to diagonally opposite ears on battery.
- 5) Attach male end of power cable to connector on battery. These are keyed; never force cable connections. To lock rotate only the locking ring clockwise.
- 6) Attach female end of power cable to right hand male connector on searchlight. These are keyed; never force cable connections. To lock, rotate only the locking ring clockwise.

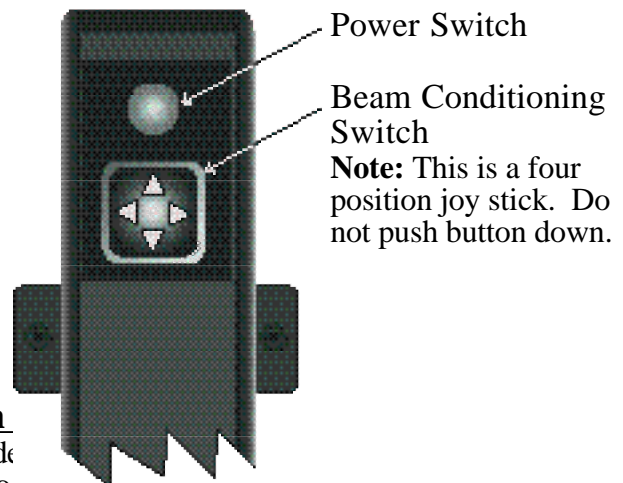


## To release searchlight from battery pack

- 1) Lift lock release lever under searchlight handle, located at the rear of the handle and slide searchlight forward away from connection end of battery.

## To turn searchlight on

- 1) Momentarily press the red power on/off switch located on the handle at front. You should hear a sparking noise and the light will light. If the light does not light in 5 seconds press the red button again to stop the starting process and see the troubleshooting section of this manual.
- 2) The searchlight will light at high beam and hold this setting for about 3 seconds, then the intensity will drop to the programmed power setting.



## To change the size of the searchlight's beam

- 1) Rock the beam conditioning switch to the rear to wide beam. Rock the beam conditioning switch forward to narrow beam. When you obtain the beam width you wish, release switch.

## Set searchlight intensity

- 1) To increase the intensity of the searchlight to high beam, rock the beam conditioning switch once to the right. When you release the beam conditioning switch the intensity will return to normal. (the operation of this function can be modified, see the programming section)
- 2) To decrease the intensity of the searchlight to battery saver mode you must first activate this function as explained in the programming section of this manual. After activation, rock the beam conditioning to the left. This will set the light into battery saver mode. To return to normal intensity rock the beam conditioning switch to the left again.

## Override low voltage protection

- 1) The Maxa Beam searchlights automatically shut down before they discharge a battery enough to damage it. At this point, there are usually several minutes of power left in the battery which can be accessed in an emergency by pushing the power button and holding it down. Please note this procedure may damage the battery to the point that it will not accept a charge.

## **Operation with Maxa Beam Optical Filters**

The Maxa Beam optional filters utilize a quick disconnect snap lock feature for ease and speed of installation or removal. There is a small blue indicator located on the top of the light housing just behind the front lens ring. This indicator is to alert the operator that the light is on when being operated with one of the filters installed.

To attach filters

- 1) Line up tabs on filter with slot on searchlight lens attachment ring.
- 2) Place filter over front of the searchlight.
- 3) Turn filter counter clockwise until it is seated and it locks in place.

## **Remote Operation**

The searchlight models MBS-450 and the MBS-430 have an 8-pin connector installed on the left rear corner of the light next to the power connector. See figure 5 for pin out identification.

The remote control capable searchlights allow the operator to hard wire the searchlight to a MBA-8425 remote control handle or to a auxiliary control panel. This allows remote programming and operation of all standard functions. Remote power and control cables are available in 25' and 50' lengths.

All contact closures (switches) used for remote operation must be momentary, normally open. During operation, the microprocessor is constantly scanning the status of all input lines from the remote control input connector. When the closure of one of the remote switches is detected, the microprocessor executes the appropriate command. Input lines 3,4,5,6 and 7 are active high. These lines have internal pull down resistors.

Line 1 (pin 1) is an output line which provides power for the on/off and other remote functions. Caution: There is power applied to line 1 (pin 1) at any time there is power supplied to the light, even when the light is off. This line is tied directly to the power input connector. When wiring the on/off switch and remote control switches, line 1 (pin 1) must be tied to one side of all switches in parallel. Line 2 (pin 2) is chassis ground and should be wired to the cable shield for long cable runs. Line 3 (pin 3) from the on/off switch is also scanned during the operation. When the on/off switch is closed again after the light has been turned on, the microprocessor disables all normal operational modes and is then in the programming mode. If one of the other remote switches is closed, while the on/off switch is closed one of the user functions will be reprogrammed.

## **Maintenance**

The only maintenance required on the Maxa Beam Searchlight is to periodically clean the body with a damp cloth and to keep the front lens cover clean. Clean the front lens with window cleaner.

## **Lamp Focus**

If the searchlight is dropped or receives any heavy impact from transportation or shipping, it may be necessary to refocus the lamp to insure proper operation and maximum output. Refocusing of the lamp requires centering the lamp within the reflector.

- 1) Using a 1/16" allen driver remove the 2 focus access screws, one on the right front side of the main body and one just left of the front of the handle (see fig. 4).
- 2) Shine the light beam onto a flat surface about 50 feet away.
- 3) Insert the allen driver into one of the focus access holes. A slight rotation and/or side to side movement may be required until the allen drive is properly seated into the adjustment screw.
- 4) After the allen driver has been inserted into the adjustment screw, turn the allen driver to center the

hotspot of the beam.

- 5) Repeat this procedure for the other adjustment screw.
- 6) Replace the focus access screws when focusing is complete. Do not over tighten the screws, snug is good enough.

## **Lamp Replacement**

See instructions provided with MBA-2400 lamp replacement kit.

## **Programming**

The Maxa Beam Searchlights provide you with a great deal of operational flexibility by allowing you to modify the operational characteristics of the searchlight with some simple programming sequences. This capability allows you to customize the light for the mission at hand.

As an example, if you want to use the light for an extended search operation in a wooded area, you could set the light so that when it is turned on it will be in battery saver mode with a wide beam.

Other scenarios might be: a surveillance operation where you would want the light to come on in normal power with a beam the size of the area under surveillance. Or, for a tactical, you could set it so that it would come on in strobe mode with a wide beam.

When you receive your searchlight from the factory it will operate as follows:

It will come on in normal power mode.

Rocking the conditioning switch forward will narrow the focus of the beam.

Rocking the conditioning switch back will widen the focus of the beam.

Rocking the conditioning switch to the left will place it in battery saver (low power) mode.

Rocking the conditioning switch to the right will momentarily activate high beam.

To modify these characteristics follow the instructions shown on the following pages.

## **Explanation of symbols**



= While the searchlight is running hold the red power switch down.



= Rock the beam conditioning switch in the direction show by arrow, then release.



= Release power switch, light will go out. New setting is saved

### **(A) Changing High Beam from momentary to timed mode**

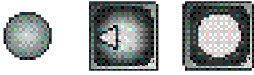
Factory default activates high beam while the conditioning switch is held to the right. To change function to timed high beam mode follow below sequence which will activate high beam for 16 seconds.



Repeating it again will return you to the momentary mode.

**(B) Changing from battery saver mode to momentary and continuous strobe mode**

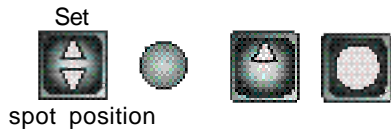
Factory default activates battery saver mode. Follow below sequence to change function to momentary strobe mode.



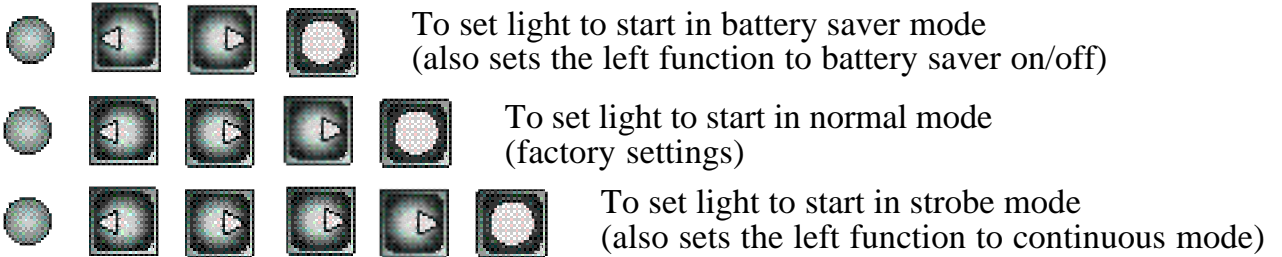
To change to continuous strobe mode, repeat the above. Repeating it again will return you to battery saver mode.

Note: You may activate either the strobe modes or the battery saver mode but not both at the same time. Changing this function also resets the start up power setting to normal.

**(C) Setting how wide the beam will be upon power up**



**(D) Setting the power level the searchlight will start up in (after 3-5 second warm up)**



**(E) Setting the smallest spot of the searchlight**



Note: If you notice a delay before the lamp starts moving when moving out of the full spot position, then the spot position was set beyond the point at which the lamp is physically able to move. If this occurs, the spot position should be reset to a point at or within the physical limits of the lamp's travel.

**(F) Setting the widest flood of the searchlight**



Note: If you notice a delay before the lamp starts moving when moving out of the full flood position, then the flood position was set beyond the point at which the lamp is physically able to move. If this occurs, the flood position should be reset to a point at or within the physical limits of the lamp's travel.



### (G) Changing strobe rate or duty cycle\*

To follow this procedure the searchlight must be set in the continuous strobe mode. If not, first follow the procedure shown in section (B) above to activate this mode.



\* Duty cycle is the percentage of time the light is bright

### (H) To lock out programming function

To prevent modifications to be made to a set of functions after it has been preset, follow below sequence.



To unlock you must use the procedure shown below to restore the factory settings. Note, this will restore all functions to their factory defaults.

### (I) Restore Factory Settings

This procedure restores all of the programmable functions to their factory defaults. It is very useful to set the searchlight back to a known state for troubleshooting purposes.



## Chargers

### MBP-3100 Drop In Charger

This device is designed to charge the Maxa Beam MBP-1207 NiCad battery modules only. Do not use this charger to charge any other Maxa Beam batteries or any other device. This model charger may be adjusted for use with either a 110 vac or 220 vac power input supply.

The MBP-3100 is a single rate constant current trickle charger which will charge the MBP-1207 battery overnight.

#### Charging

- 1) Set input supply voltage switch to the desired voltage.
- 2) Plug the wall adapter into the wall outlet and connect its output connector to the drop-in charger.
- 3) Place the battery (with or without a searchlight attached) into the charger. The battery will be charged through the contacts on the bottom of the battery.
- 4) The battery and searchlight should not be left on the MBP-3100 charger for more than 48 hours.

### Model MBP-5200 Multivoltage Conditioning Charger

This device is designed to charge the Maxa Beam MBP-1200 series batteries only. Do not use this charger to charge other Maxa Beam batteries or any other device. Only use this device with Maxa Beam power cables/adapters. For mobile and vertically mounted applications, always use the safety strap to secure battery or battery and searchlight to charger.

This model charger can be powered from any DC supply voltage in the range of 11-36 volts DC. With one of its optional, plug in power supplies, it can also be powered from 120 volts, Hz or 100-240 volts 50/60 Hz.

Batteries can be charged at either a trickle charge rate by placing them on top of the charger or a quick charge rate of 2.5 hours through the charger's pigtail output connector. An optional conditioning cycle discharges the battery before quick charging it. In all cases, when the battery is fully charged a maintenance cycle maintains a full charge without damaging the battery.

The MBP-5200 charger is available in several different models depending on your requirements. They are:

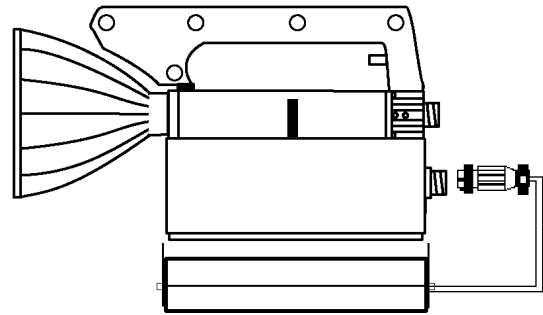
**MBP-5200-D** Basic DC model furnished with a fused cigarette lighter adapter, safety strap and surface mounting brackets.

**MBP-5200-M** Multivoltage model furnished with a 100-240 volt 50/60 Hz auto sensing AC adapter, fused cigarette lighter adapter, safety strap and surface mounting brackets.

**MBP-5200** 100-240 volt 50/60 Hz AC table top model furnished with a 100-240 volt 50/60 Hz AC auto sensing AC adapter.

### Charging

- 1) Make certain that the proper external power cable/adapter is used to match local voltage.
- 2) Only use this charger to charge MBA-1200 series rechargeable batteries.
- 3) Plug the charger into external power, the indicator lights will turn red.
- 4) For a slow charge, which takes 14 hours, place the battery, with or without searchlight attached, on top of the charger by lowering it straight down. Do not slide in horizontally. The indicator lights will flash amber, turning green when the battery is charged. For standby use, the battery may be left on the charger.
- 5) For a 2.5 hour quick charge, connect the male end of the pigtail output connector to the battery. The indicator lights will light amber and turn green when the battery is charged. For standby use, leave the battery on on the charger with or without the pigtail output connector attached.
- 6) For a conditioning charge, connect the pigtail output connector to the battery and press the green recessed button on the charger. The indicator lights will flash green until the battery is discharged, then turn solid amber while the battery is quick charged and turn solid green when the battery is charged. The charger will become very warm during this cycle, which may take up to 24 hours.
- 7) If the red indicator light is on when a battery is connected to or on top of the charger, the searchlight power cord or the battery is open. Flashing red lights signify a fault in the charger. Discontinue use and contact the factory.



Lower Battery or Battery and Searchlight onto Charger

### Model MBA-5600 Multivoltage Conditioning Charger/Power Supply

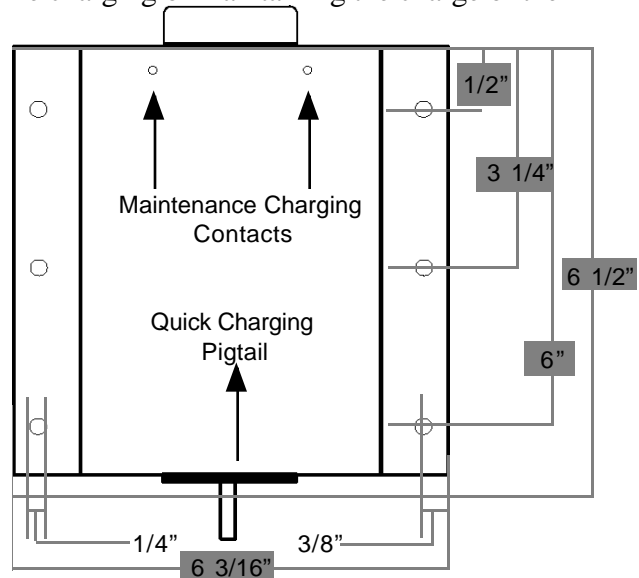
The MBA-5600 includes all of the charging features of the MBP-5200 and also can power the searchlight from AC or DC power. The MBA-5600, like the MBA-5200, is also available in DC only (MBA-5600-D) and mobile models (MBA-5600-M) as well as a table top model (MBA-5600).

## Vertical Mounting Kit (MBP-5200-V or MBP-5600-V)

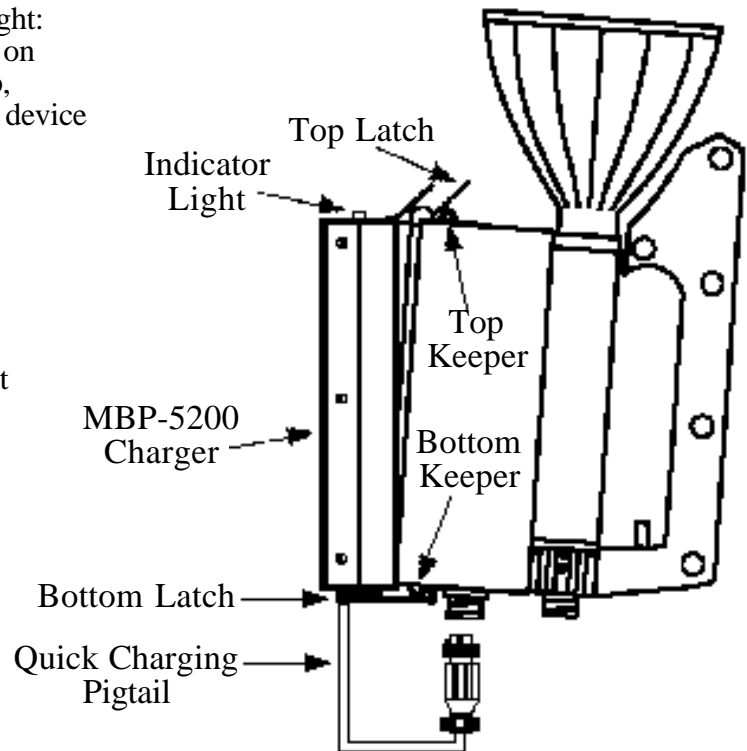
This kit allows the MBP-5200 to be mounted to a wall or a bulkhead and to safely hold a battery module or battery module and an attached searchlight vertically while charging or maintaining the charge of the battery. Always use the safety strap to secure battery or battery and searchlight to charger.

Use of the vertical Mounting Kit requires modified battery modules model MBP-1207-V. Existing batteries can be modified at the factory. Please inquire at the factory for details.

- 1) Install the charger at a height where the pilot lights can be observed and where both the top and bottom of the charger can be easily reached.
- 2) The mounting hardware used and the surface you are mounting to must be sufficiently strong to withstand not only the weight of the charger with battery and searchlight but also the force of the devices being removed.
- 3) In case of accidental searchlight activation while it is in the charger, provide sufficient space between the searchlight lens and flammable surfaces.
- 4) To mount battery or battery with searchlight into charger first insert connector end of battery into charger so that bottom keeper is in the bottom latch. Push searchlight towards charger until top latch completely closes over top keeper.
- 5) Install safety strap.
- 6) To remove battery or battery and searchlight: hold device, remove safety strap, push up on top latch to free top keeper. Lift device up, slightly, to disengage bottom keeper. Pull device away from charger.



**MBP-5200-V Top View**



**MBP-5200-V Side View with Battery Partially Latched**

## Batteries

Maxa Beam 12 Volt batteries are designed for use with Maxa Beam searchlights only. Do not use these batteries with any other device.

Do not attempt to use a battery that has a damaged case. Contact the factory about our re-casing service.

These batteries must be charged only with Maxa Beam NiCad chargers. Do not charge these batteries with a Maxa Beam Gel Cell charger or with any device by another manufacturer.

Always disconnect the battery from the light when not in use, placed in storage, or when transporting it. At close range the light beam can ignite flammable

objects if accidentally turned on.

Maxa Beam 12 Volt batteries consist of 10 NiCad F cells sealed into a weather tight enclosure. As with all NiCad batteries, these batteries should not be stored in a discharged condition and may be permanently damaged if excessively discharged. The Maxa Beam searchlights have protective circuitry incorporated within their design to prevent excessively discharging these batteries. This protective circuitry allows the operator to override it should the situation warrant risking damage to the batteries.

There are no user serviceable components within the batteries. Maxa Beam NiCad batteries incorporate an internal self-resetting thermal breaker which will disconnect the searchlight from the battery to prevent damage due to excessive charge or discharge rates or severe environmental heat. When the internal battery temperature returns to normal the breaker will automatically reset.

Proper precautions should be taken when batteries are discarded.

### **MBP-1207 NiCad Battery Pack**

This battery pack incorporates a unique top design which snaps onto the bottom of the Maxa Beam searchlights. It also features built in charging contacts on its bottom for use in Maxa Beam drop-in chargers. These contacts are protected to prevent the battery from being discharged through them.

### **MBP-1217 NiCad Battery Belt**

This battery belt is furnished with a clip which allows the searchlight to be carried from the belt allowing for hands free transportation. The safety strap with hook and loop fastener should always be used when the searchlight is clipped to the battery belt. To change from left handed to right handed operation just reverse the orientation of the output connector from the top to the bottom.

## **Optical Filters**

Several customized selective band-pass filters are available for the Maxa Beam Searchlight. Maxa Beam filters use the latest in vacuum deposited dichroic coating technology to provide precise, durable filtration devices. Each filter is securely mounted in a copolymer ring that attaches over the front window assembly. The ring is held in place by a positive locking technique that requires no tools and is easy to install or remove in seconds. The filters should be handled with care and cleaned with a soft lint free cloth and room temperature water.

### **MBA-1500 Amber Filter**

This filter has been optimized to produce an intense amber beam for maximum penetration in fog, haze and smoke. The performance of this filter varies depending on the density of the fog, haze or smoke. It is recommended that the user test the filter for suitability in his application.

### **MBA-1715 Semi-Covert Infrared Filter**

This filter has a sharp cut on at 715nm and passes the most IR energy of all of our filters. The glow from this filter is visible to the naked eye. It is useful for nature studies, extreme long range surveillance and search applications where total covertness is not required. Compatible with both Gen 2 & 3 night vision equipment and IR sensitive cameras. It is visible to the naked eye with a range up to 2,500 meters\* with various night vision systems

### **MBA-1850 Covert Infrared Filter**

Has a sharp cut-on at 850nm and better than 90% pass efficiency above 850 nanometers. If you are bore sighted with the searchlight and observing against a dark background you can see a red glow at close range. Useful for surveillance and search applications where background lights will mask its glow, such as in urban areas. Compatible with Gen 2 & 3 night vision equipment and IR sensitive cameras with a range up to 1200 meters.\*

### **MBA-1900 Super-Covert Infrared Filter**

Has a sharp cut-on at 890 nm and is undetectable by the naked eye. Compatible with IR sensitive cameras.

### **MBA-1950 Ultra-Covert Infrared Filter**

Has a sharp cut-on at 945 nm and has a range up to 250 meters.\* Virtually undetectable with either the naked eye or most night vision equipment. Useful for covert surveillance applications. Compatible with IR sensitive cameras.

### **MBA-3000 Full Diffusion Filter**

Provides a wide evenly lit field of light when the searchlight is in the flood position and a narrower, brighter, evenly lit field of light in the spot position. Useful for temporary site lighting and short range search applications. This filter can also be furnished on any of our covert IR filters for evenly lit short range surveillance applications. (See Figure 1 near back of manual)

### **MBA-3010 Partial Diffusion Filter**

Provides a wide evenly lit field of light when the searchlight is in the flood position but allows a sharp collimated beam at its spot setting. This filter can also be furnished on any of our covert IR filters. See the MBA-3075 Stacking Adapter for use with IR filters.

### **MBA-3020 Peripheral Vision Filter**

Provides a hot center beam with a wide band of light extending to either side. Useful for wide area search applications. Cuts down on the amount of light which is reflected back at the operator due to atmospheric conditions. This filter can also be furnished on any of our covert IR filters for surveillance applications (see figure 1).

### **MBA-3075 Filter Stacking Adapter**

MBA-3075 Filter Stacking Adapter allows any filter to be stacked on a MBA-3075 adapted filter except for the MBA-2143 / MBA-2150 Cut-Off Filters.

### **MBA-2143 22.5 Degree Sharp Cut-Off Filter**

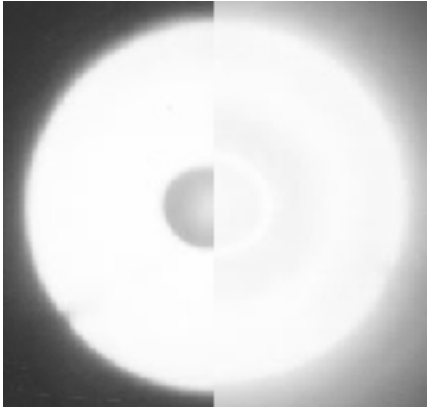
Blocks the view and retroreflections of the searchlight's lens from an observer who is viewing at an off-axis angle greater than 22.5°. Its application is to shield the position of the searchlight from a subject's view until they have entered the illuminated area.

### **MBA-2150 45 Degree Sharp Cut-Off Filter**

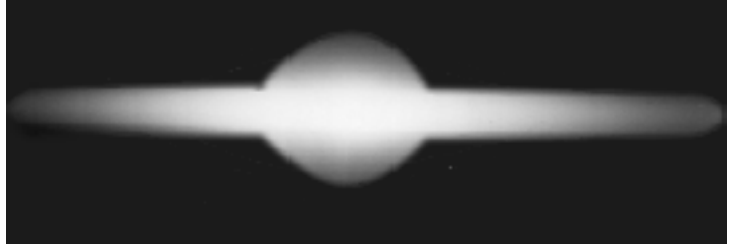
Blocks the view and retroreflections of the searchlight's lens from an observer who is viewing at an off-axis angle greater than 45°. Its application is to shield the position of the searchlight from a subject's view until they have entered the illuminated area.

\* Range Calculations are based on imaging produced using a Watec 902-K camera with various 2.2 speed Rainbow Zoom Lenses with 1  $\mu$ watt of IR energy reaching the target. These tests were conducted on a clear moonless night with the Maxa Beam in a 1° spot on its high beam setting.

# Maxa Beam Patterns With Diffusion Filters



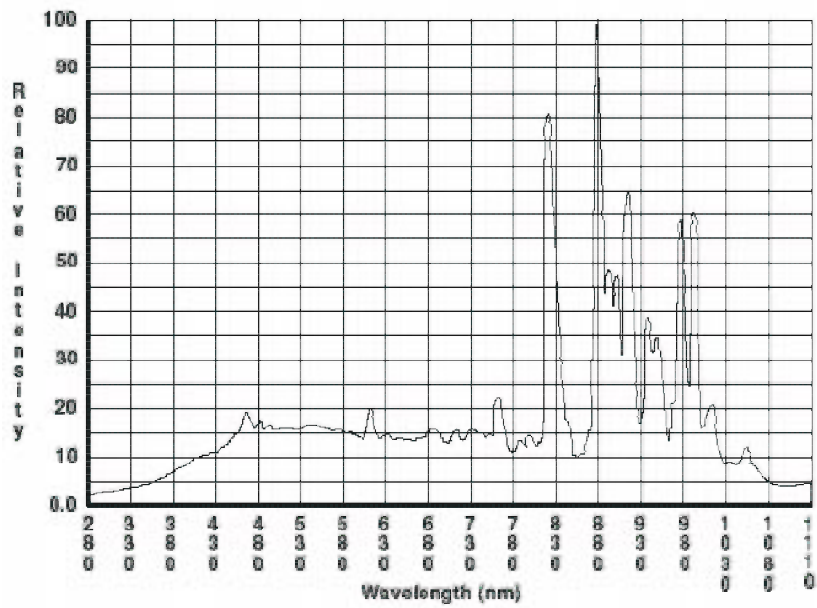
MBA-3020  
Peripheral Vision Filter



Wide Flood With and Without  
MBA-3000

**Figure 1**

## Relative Spectral Radiation (Xenon Lamp)



**Figure 2**

# Internal Transmittance of IR Filters

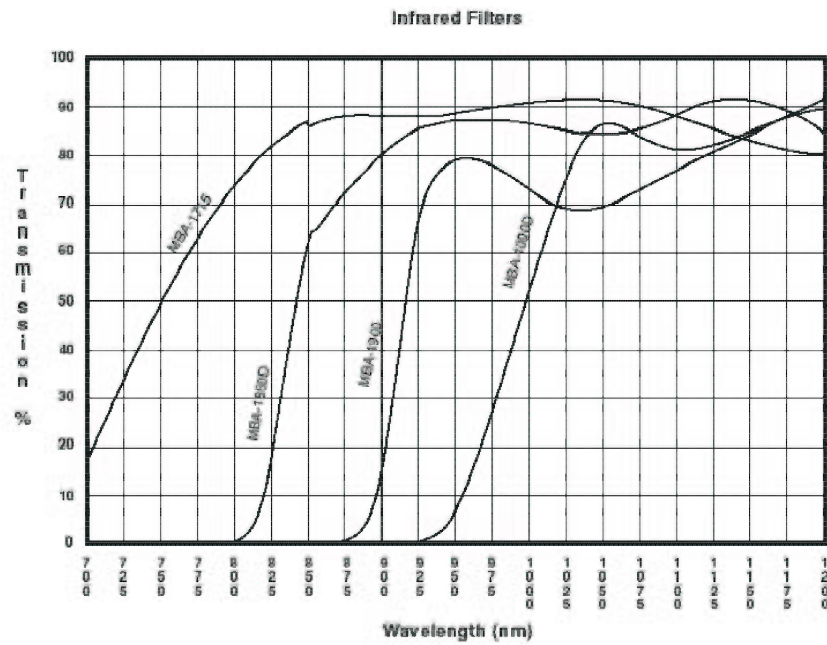


Figure 3

## Lamp Focus Access Points

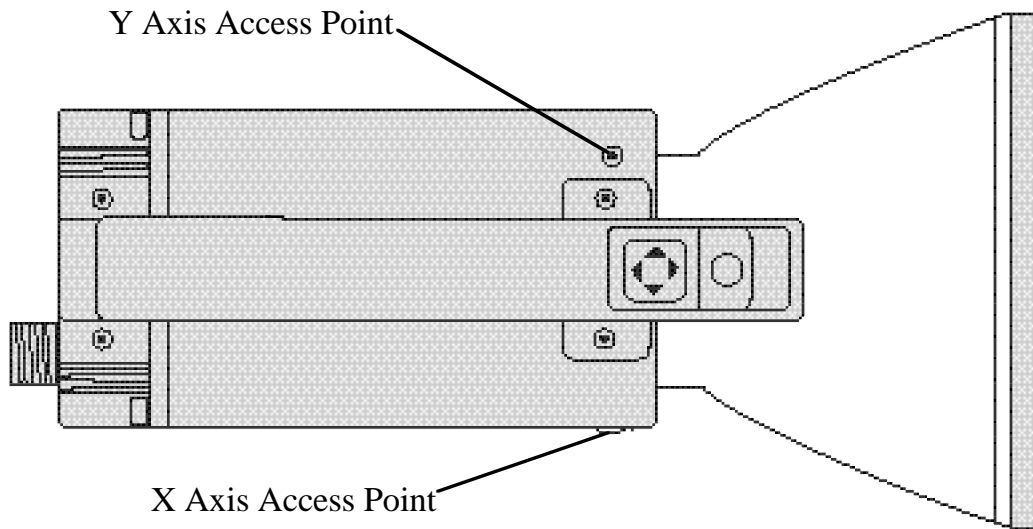
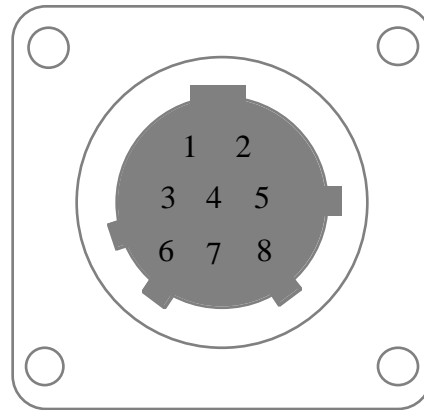


Figure 4

## Remote Control Pin Layout

<u>Pin #</u>	<u>Function</u>
1	12 VDC
2	Ground
3	On/Off
4	Hi/Low Beam
5	Focus Narrow
6	Focus Wide
7	Strobe/Battery Saver Mode
8	Servo Input



Pins 3, 4, 5, 6, & 7 require a momentary 12 volt input to activate their related function. Consult the factory for utilization of pin 8.

**Figure 5**

### Troubleshooting

<b>Symptom</b>	<b>Probable Cause</b>	<b>Remedy</b>
<i>400 Series Searchlight</i>		
Searchlight lights but goes out after a second or two	Low Battery	Charge Battery
Light ignites but goes out when switched to high output	Low Battery	Charge Battery
Lamp strikes but does not ignite	Bad Lamp	Change Lamp
Lamp does not strike but relay can be heard to work	Defective Igniter or Defective Regulator	Return Light for Repair
Nothing happens when power button is pressed	No Power	Check Power Source and Power Cord
Light comes on but focus will not work	Limits Not Set Correctly or Defective Servo or Controller	Restore Factory Settings or Return Light For Repair
Light comes on but hi-low beam and focus do not work	Defective Controller	Return Light For Repair
Light beam will not focus to the full flood position	Lamp is Not Seated in Socket Completely or Limits Not Set Correctly	Call Factory for Instructions on Reseating Lamp or Call Factory for Instructions
Light comes on but will not change power level	Supply Voltage Too High	Reduce Supply Voltage



## Troubleshooting (continued)

<b>Symptom</b>	<b>Probable Cause</b>	<b>Remedy</b>
<i>MBP-5200/MBP-5600 Chargers</i>		
Indicator does not light	No Power or Reversed Polarity	Check Power Source or Fuse in Vehicle Power Adapter
Indicator flashes red with no battery connected	Incorrect Voltage	Make Sure That Voltage is Between 11 and 36 Volts DC
Indicator flashes red when a battery is connected	Battery is Shorted or has Bad Cells	Try Another Battery
Indicator alternates between red and amber when battery is connected	Insufficient Power	Check Line Voltage if Using AC Adapter. Try Different AC Adapter. If Using Vehicle Adapter, Make Sure that the Socket is Clean
Indicator stays red when a battery is connected or set on top	Battery is Bad or has Overheated	If Battery is Warm, Allow it to Cool and Try Again
Indicator stays red when set on top but turns amber when the tail is connected	Dirty Trickle Charge Contacts or Battery is the Wrong Way	Clean Contacts or Turn Battery Around
Indicator turns solid amber instead of flashing amber when battery is set on top without its tail connected	Defective Charger	Call Factory for an RMA
Charger gets hot during recondition cycle	Normal	
The flashing green indication light stays on for more than 16 hours during the recondition cycle	Defective Charger	Call Factory for an RMA
The fast charge cycle ends before battery is fully charged	Battery is Out of Balance or Over Discharged	Allow Battery to Slow Charge for One Cycle by Placing Battery on Top without Connecting and Waiting for Flashing Amber Indicator to Turn Solid Green. This Takes 14 Hours
<i>MBP-5600 Chargers Only</i>		
The indicator flashes red when powered up with something connected to the searchlight power jack	Something Other Than a Searchlight is Connected or The Red Button is Depressed on the Searchlight or Shorted Searchlight or Coil Cord	The MBP-5600 is Designed to Only Power Maxa Beam Searchlights Allow the MBP-5600 to Power Up Before Depressing the Red Button on the Searchlight Try Another Light and/or Cord
The searchlight occasionally strobos or blinks once when starting if it is cold	Normal	Contact Factory if this Happens Consistently or If This is a Problem for your Application
The searchlight jack is out-putting 20 volts	Normal	Output will Instantly Drop to 13 Volts when the Searchlight is Turned On

## Troubleshooting (continued)

Symptom	Probable Cause	Remedy
The searchlight continuously strobes and the indicator does not go out when attempting to turn on the searchlight	Defective MBP-5600	Call Factory for an RMA; Do Not Attempt to Use with a Searchlight until the MBP-5600 is Repaired
<i>Series 1200 Batteries</i>		
Battery hot and will not run searchlight	Internal Thermal Circuit Breaker in Battery Tripped	Disconnect Battery from Searchlight; Allow to Cool until Breaker Auto Resets
Battery runs light for shorter and shorter duration	Battery has Developed Memory	Discharge Battery until Light Turns Off and then Recharge; Repeat Cycle until No Improvement in Run Time is Observed or Return Battery to Factory for Computerized Evaluation
<i>MBA-7100 Vehicle Power Adaptor</i>		
Will not run light	No Power or Fuse in Adapter Blown	Check Power Source  Replace Fuse Located in Plug with 3AG 15

## Returns To The Factory

All factory returns must have a Return Materials Authorization Number (RMA). We can take no responsibility for items returned without an authorization number. Please contact us as shown below to receive a RMA form. Have the following information available when you call.

- Serial numbers of units to be returned
- If known, date of purchase and place where purchased
- Reason for return
- For service returns, a description of the problem
- Method of payment for non-warranty service and freight

Peak Beam Systems, Inc.  
3938 Miller Road  
Edgemont, PA 19028  
(610) 353-8505 (phone)  
(610) 353-8411 (fax)

Products returned must be sent freight prepaid along with return shipping instructions and a brief description of the problem.

Warranty repairs will be returned freight prepaid (domestic returns only) by regular UPS unless requested otherwise. Any additional freight costs for special handling or export freight charges will be charged to the customer. All other repairs will be sent freight and repair costs COD unless other arrangements are made.

## Equipment and Accessories

### **Searchlights**

MBS-410	Handheld Searchlight with 5' coiled power cord
MBS-430	Searchlight without handle, with remote port and 5' coiled power cord
MBS-450	Handheld Searchlight with remote port and 5' coiled power cord

### **Batteries**

MBP-1107	Gel-Cell Battery Module
MBP-1207	NiCad Battery Module
MBP-1207-V	NiCad Battery Module for use with MBP-5200-V vertical mounting option
MBP-1217	NiCad Battery Belt

### **Chargers**

MBP-3050	Gel-Cell 120/220 VAC Drop-In Trickle Charger
MBP-3100	NiCad 120/220 VAC Drop-In Trickle Charger
MBP-4110	Gel-Cell 120 VAC Quick Charger/Power Supply
MBP-4120	Gel-Cell 220 VAC Quick Charger/Power Supply
MBP-5200-D	NiCad Multivoltage Conditioning Charger basic version 12-32 VDC
MBP-5200-M	NiCad Multivoltage Conditioning Charger 12-32 VDC and 100-240 VAC 50/60hz with surface mounting brackets
MBP-5200	Desktop Version 100-240 VAC 50/60 Hz
MBP-5200-V	5200 Vertical Mounting Option
MBP-5600-D	NiCad Multivoltage Conditioning Charger/Power Supply basic version 12-32 VDC
MBP-5600-M	NiCad Multivoltage Conditioning Charger/Power Supply 12-32 VDC and 100-240 VAC 50/60hz with surface mounting brackets
MBP-5600	Desktop Version 100-240 VAC 50/60 Hz
MBP-5600-V	5600 Vertical Mounting Option

### **Filters**

MBA-1500	Amber Fog/Smoke	MBA-3010	Partial Diffusion
MBA-1715	Semi-Covert Infrared	MBA-3020	Peripheral Vision
MBA-1850	Covert Infrared	MBA-3075	Filter Stacking Adapter
MBA-1900	Super-Covert Infrared	MBA-6100	Filter Pouch
MBA-1950	Ultra-Covert Infrared	MBA-2143	22.5 Deg. Sharp Cut-Off Filter
MBA-3000	Full Diffusion	MBA-2150	45 Deg. Sharp Cut-Off Filter

### **Accessories**

MBA-2005	Sacrificial Lens		
MBA-2400	Replacement Lamp Kit		
MBA-2400N	Replacement Lamp, Front Lens & Power Connector Kit		
MBA-2410	Power Connector Replacement Kit		
MBA-2420	Front Lens Replacement Kit		
MBA-3600	Searchlight Tripod Mount		
MBA-3605	Searchlight Fixed Mount		
MBA-3610	Battery Top Light Positioner		
MBA-3620	Uni-Clamp Positioning Head		
MBA-3650	Searchlight Camera Mount		
MBA-7100	Vehicle Power Adapter		
MBA-7200	12V Fem. Power Connector	MBA-8110	10' Power Coil Cord
MBA-6200	Small Transport Case	MBA-8225	25' Straight Power Cord
MBA-6250	Medium Transport Case	MBA-8250	50' Straight Power Cord
MBA-6300	Large Transport Case	MBA-8325	25' Straight Control Cable
MBA-6400	Large Wheeled Case	MBA-8350	50' Straight Control Cable
MBA-8105	5' Power Coil Cord	MBA-8425	Wired Remote Control with 25' cable

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