

Owner's Manual & Lighting Guide for Mini-Cool®

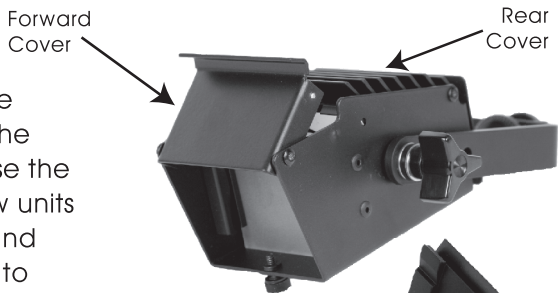
12 Volt DC/120 Volt AC
and 230 Volt Lights



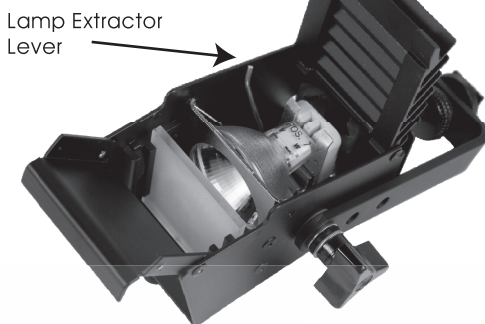
COOL-LUX
PRO TOOLS FOR THE TRADE

12 Volt DC and 100 Volt AC Lamp Replacement Instructions

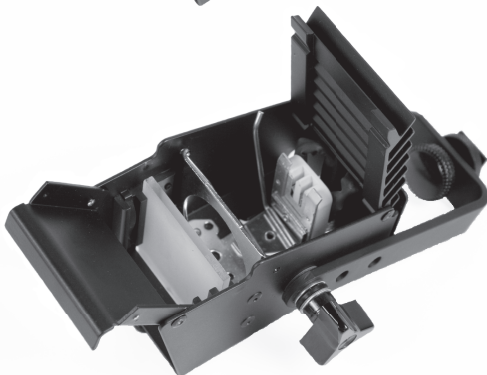
- 1. Open...** To open the Mini-Cool, simply lift the FORWARD COVER of the lamp housing, and raise the rear cover. (Brand new units tend to be very tight and may need extra force to open the cover.)



- 2. Push...** the LAMP EXTRACTOR LEVER to the rear of the housing to re-lamp. This raises the lamp.



- 3. Grasp...** the top edge of the reflector and lift the lamp straight up and out of the housing.



220 Volt Ac Lamp Replacement Instructions

1. Open the front and rear covers as shown above.
2. With the front of the light facing you, twist the G10U lamp to the left to remove. Insert a new lamp into the socket and twist to the right to install.

Note: The lamps used in this fixture produce a cool light beam by not reflecting infrared or ultraviolet radiation. The infrared and ultraviolet rays are transmitted through the back of the reflector to housing. As a result, the heat is absorbed by the housing. HIGH WATTAGE LAMPS (150 Watts or more) WILL CAUSE THE HOUSING TO GET HOT. Extreme caution is needed when using or re-lamping this fixture. The Mini-Cool is engineered to cause an air draft (depending on wattage) of 4 to 10 miles per hour. The air draft is located directly under the socket keeping it cooler, and prolonging lamp life.

Introduction

Congratulations on your purchase of this Mini-Cool lighting system. The kit contains everything needed to create professional videotapes, movies, or still photographs with adequate illumination, good contrast and correct color balance.

Please read through these instructions to acquaint yourself with each component, its name, and proper use before setting up the lights and illuminating a subject.

Proceed with Caution!

Before using the kit, read the instructions carefully, and spend the time required to become familiar with the equipment. This information will help you use the light properly and avoid possible damage through misuse.

Pay particular attention to the safety precautions listed below. If you eliminate potentially dangerous situations in advance, you will use your equipment with confidence and can concentrate on filming or videotaping the subject. Know the potential problems and set up the equipment so as to avoid them. Stay alert! Some subjects, especially children, are impulsive. Responsibility for safety is yours. Establish a routine for setting up and using the equipment which will minimize chance of injury or damage.

The "Low-Lux" Myth

When you begin making video movies, you soon realize that with today's fast lenses and sensitive cameras, you can easily record images of most indoor subjects using only prevailing ("existing") light. But, you also will notice that these pictures are lacking in quality. Human subjects and skin tones are poorly depicted. Existing light seldom comes from a source facing the subject and can produce shadows in the wrong places. Existing light almost never is the correct color temperature for accurately recording skin tones.

The low-light sensitivity of a video camera is determined by lens speed and the sensitivity of the tube or CCD that captures the image behind the lens. Current practice is to rate cameras in terms of the lowest light level (measured in "Lux") in which the camera can record images. Today's most sensitive video cameras can record with light-levels of 7 to 10 Lux, using lenses with f/1.4 or faster apertures. Video cameras must be adjusted for the color temperature of the light source (day light or tungsten) and for "white balance". Some cameras automatically make one or both of these adjustments, others must be adjusted manually.

To record images at low-light levels, "low-Lux" cameras operate with the lens' automatic diaphragm wide open, which reduces depth-of-field. Objects at one distance only will be sharply focused, while nearer or farther objects will be out-of-focus.

There will be very little contrast, and the white balance adjustments on the camera may not be able to provide a true white balance. The camera's electronic circuitry will not be operating in the most efficient part of its range.

Pushing any low-lux video camera to its limits results in unappealing images that are invariably soft in focus and "off" color. By adding fill light from the camera position, the same objects are immediately enhanced with more pleasing lighting on faces and far better color in skin tones. Depth of sharpness, contrast, and three-dimensionality of the subject are also improved. The fact that the light is on, also makes subjects more aware of the camera, more active and more attentive to the directions of the camera operator.

Professional videographers and photographers know the value of adequate light for top-quality images, so they use supplementary lighting for every situation. It is no secret that adequate light produces far better pictures, but video camera manufacturers have adopted light sensitivity as a competitive number for advertising and promotion. They often claim their cameras can record good images anywhere - without supplemental lighting. This is frequently not true.

Disadvantages of Shooting Without A Light

(even with 1 Lux cameras)

1. Poor skin tones. In low light it is difficult to "white balance" the camera and this lack of balance degrades skin tones (causing greenish or bluish faces).
2. Reduced Depth-Of-Field. To compensate for low light, the camera's diaphragm must be opened wider (done automatically in many cases) which greatly reduces depth-of-field in the picture.
3. Reduced Image Contrast. Video images suffer greatly from reduced contrast in low light level.
4. Grainy Images. Shooting in low light requires turning up the gain control (done automatically in most consumer cameras, manually on industrial models) which substantially increases the noise level and causes grainier images.

Using Lighting Outdoors

Using your light outdoors at night requires no special considerations. But, if used outdoors in daylight, you will need to match the color output of your light to daylight color balance. You can adjust a video camera for either tungsten illumination or for daylight, but not for both at once. A Daylight Conversion Filter is available for the Mini-Cool®. With this filter installed, the light output from the tungsten Mini-Cool® will be the same color as daylight, allowing you to use the Mini-Cool® as a fill-light for daytime outdoor shooting.

Using artificial light outdoors in bright sunlight may seem strange, but the stronger the sunlight, the more you need artificial light to reduce strong shadows. When the sun is directly overhead, or is behind the people in your picture, you will need artificial light to lighten facial shadows.

Using the Mini-Cool®

Lamps Available for the Mini-Cool 120 Volt Light

These quartz halogen lamps are exclusively made to meet Cool-Lux specifications. You have a choice of AC or battery power with the Mini-Cool®, depending upon which of the interchangeable lamps is installed. Mini-Cool® lights in kits are shipped with FOS-011 (120-volt, 150-watt) lamps installed, ready for use with household AC.

Lamps Available

942421	FOS-003	12V	100W	Wide Beam
942450	FOS-004	12V	50W	Wide Beam
942479	FOS-005	12V	25W	Narrow Beam
942508	FOS-006	12V	50W	Narrow Beam
942566	FOS-008	12V	75W	Narrow Beam
942595	FOS-009	12V	75W	Wide Beam
942682	FOS-035	120V	35W	Wide Beam
942711	FOS-050	120V	50W	Wide Beam
942740	FOS-075	120V	75W	Wide Beam
942624	FOS-011	120V	150W	Wide Beam
942755	FOS-275	240V	75W	Wide Beam

To be independent of wall outlets and eliminate the training cord, exchange the FOS-011 lamp in your Mini-Cool® for the FOS-009 (or any Cool-Lux 12 volt lamp). Powered from your Cool-Lux Powerbelt or Pack, the 75-watt FOS-009 is bright enough for the most indoor shooting.

Diffusion

If you use the FOS-011 lamp in your Mini-Cool®, you may find it's too bright for some subjects. You can reduce this brightness by about 10% by installing one of the diffusion lenses from your kit. This lens goes into the empty slot just in front of the safety glass in the Mini-Cool®. The diffusion lens enlarges the beam angle about 10 degrees and provides very even illumination. With it installed, nearby people can more easily face the light without squinting.

Dimmer

If you need to reduce the light further, the optional Cool-Lux AC Photo Dimmer allows you to vary the brightness of the lamp continuously from off to fully bright. As you decrease brightness, lamp life increases dramatically and color temperature decreases slightly. A handy scale on the Photo Dimmer® shows the variations in lamp life and color temperature for different brightness settings.

Bounce Lighting

If your subject is located in a small office-like room with a white ceiling, you can reduce the light intensity by bouncing the light off the ceiling (at about a 45 degree angle) and down onto the subject. Not only will this reduce intensity of the light on the subject, but also will provide diffused illumination with almost no shadows. (CAUTION: Do not bounce light of a colored ceiling or your subject will be rendered the same color as that ceiling.)

AC Power for the Mini-Cool 120 Volt Light

Make certain the lamp installed in the Mini-Cool® is an FOS-011 (or optional FOS-001 or FOS-013). CAUTION: If the FOS-009 lamp (or any of the other optional low-voltage lamps) has been installed, it's filament will be destroyed immediately when connected to household AC power.

Battery Power for the Mini-Cool 120 Volt Light

Remove the FOS-011 or other AC lamp from the Mini-Cool® and install the FOS-009 lamp or any of the 7 other 12-volt lamps available for the Mini-Cool®.

Use the Cigarette-Lighter Adapter Cord to connect the Mini-Cool® to the Battery Pack or Powerbelt. One end of the adapter cord has a receptacle whose two-slots accept the blades on the plug of the Mini-Cool®'s power cord. The cylindrical plug at the other end of the adapter cord fits into the output receptacle on the battery pack or belt.

NOTE: Battery Power for the 220 Volt Mini-Cool

12 volt battery packs, MaxPower® Belts and SmartPower Belts can only be used with 220 volt Mini-Cool when a GU10 12 volt lamp and appropriate battery power cord are installed.

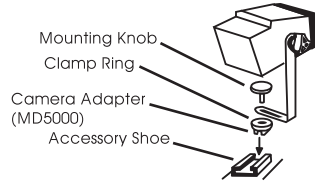
Mini-Cool Data

- Housing made of .062 high density, hardened aluminum.
- Heat dissipator scientifically designed to create a convection driven air draft to rapidly dissipate heat from socket and lamp. The results are a 100% increase in lamp/socket life.
- Lamp/socket assembly mechanism allows the installation or removal of the lamp.
- Safety shield to protect subjects from lamp.
- Dual filter slots for daylight, diffusion, or other optical accessories.
- Mounting bracket made of 1/8" thick, hardened aluminum for strength and stability.
- Vertical height field adjustments can be made in seconds.
- Positive locking, ball bearing tilt assembly, allows 360° of movement, but prevents slippage.
- Light modifiers (barn doors and soft box) are accurately designed to control intensity define the illuminated area.
- Air draft slots under the lamp and socket continuously supply fresh air to both.
- The Mini-Cool® is hand-made and factory tested in the U.S.A.

Mounting the Mini-Cool®

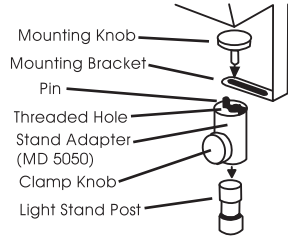
Mounting to a Camera

Slide the base of the CAMERA ADAPTER into the ACCESSORY SHOE on the camera, and tighten the CLAMP RING to secure it. Next screw the MOUNTING KNOB of the Mini-Cool® mounting bracket into the threaded hole on the camera adapter.



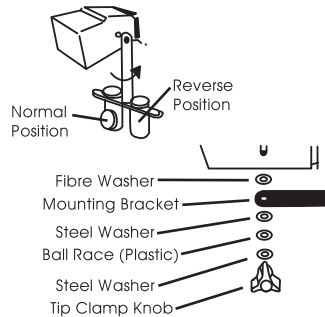
Mounting to a Light Stand

Requires stand adapter. Screw the Mini-Cool mounting knob through the mounting bracket slot, and into the threaded hole on the top of the stand adapter. Loosen the clamp knob, and place the stand adapter on top of the light stand post. Tighten the clamp knob securely.



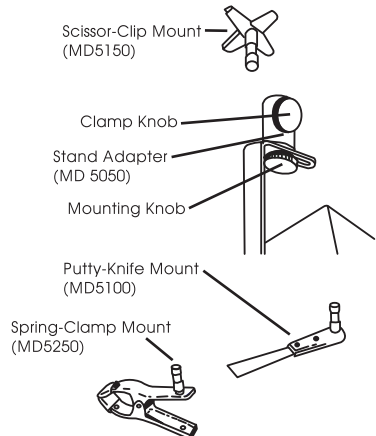
Reversing the Mounting Bracket

On some cameras, it is necessary or to reverse the mounting bracket of the Mini-Cool® to clear a viewfinder or for other reasons. This is easily done: Unscrew the TILT CLAMP KNOB and remove the ball bearing assembly. Then remove and reverse the MOUNTING BRACKET, and replace the bearing parts and TILT CLAMP KNOB.



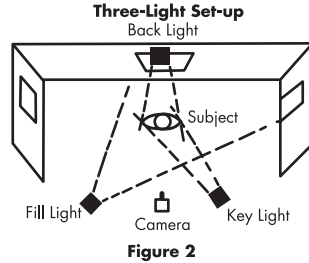
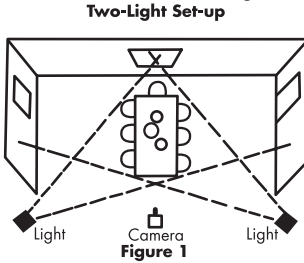
Mounting to the Spring Clamp, Putty Knife or Scissor Clip

To attach the Mini-Cool® to any of these special mounting devices, first attach it to the STAND ADAPTER as described above. Place the Stand Adapter over the 5/8" diameter post on the mounting device, and tighten the MOUNTING KNOB to secure it.



Two-Light Set-Ups

When photographing large subject areas (such as parties), it is convenient to use two Mini-Cools® as shown in Figure 1.



Place one light on each side of the camera and aim both lights at the center of the subject area. A line from either light to the subject should form an angle of about 45 degrees. This arrangement will provide illumination across the subject area. The shadows from either light will be reduced by the other light.

Each light should be well elevated so that shadows are cast onto the floor instead of the background.

Check your subject illumination with an exposure meter. If more illumination is required, move both lights closer to the subject, maintaining the 45 degree angles. If less illumination is required move both lights farther away.

Floor lamps or other existing room lights should normally be left on, as this will make your scene appear more natural.

Three-Light Set-Ups

For shooting portraits, or in any situation where lighting must be carefully controlled, it is convenient to use three Mini-Cools® as shown in Figure 2. In this arrangement the lights are referred to as the "Key Light", "Fill Light" and "Back Light".

The Key Light is the main source of illumination in your picture and should provide most of the illumination on the subject (about twice as much as either of the other two lights). This is accomplished by placing a Key Light closer to the subject as described below.

Place the Key Light at the desired angle to the subject, then adjust its distance to obtain the correct illumination (measured with the meter) for the F/stop you have chosen to use. Most lenses produce their sharpest pictures using the middle setting from the available range of F/stops. And in most cases, these middle settings will provide sufficient depth of field.

When the Key Light has been correctly positioned, turn it off and place the Fill Light. The purpose of the Fill Light is to partially illuminate ("soften") the shadows produced by the Key Light. The Key Light and Fill Lights are situated on

opposite sides of the camera, as in the two-light set-up already described. Adjust the distance from Fill Light to subject until you reach the required exposure.

Now turn off both the Key and Fill Lights, and place the Back light. As the name implies, the Back Light is situated behind the subject. It's purpose is to create a rim of light around the subject, seperating the subject from the back-ground. Locate the Back Light on a line with the subject and camera, or as nearly so as possible. Adjust distance from Back Light to the subject so that the required exposure (reading illumination on the back side of the subject with your meter) is one F/stop more than that required by the Key Light (same procedure as used for facing the Fill Light).

Now turn on all three lights and check the appearance of the subject. Does it look "natural"? If not, reposition any or all of the lights to acheive the desired balance of light and shadow.

Set the camera lens to the F/stop you determined for the Key Light, and you are ready to begin shooting.

Accessories

LC7101 (942943) Rotating Barn Doors

"Barn Doors" are mounted to the floor plate of the Mini-Cool®. This invaluable accessory provides greater control for tighter lighting patterns. Use barndoors to precisely define the area illuminated by the Mini-Cool or to create shadows for artistic purposes.



MD5500 (944249) Collapsible Light Stand

Durably constructed of aluminum. Weighs only 2 lbs., 8 oz. Collapsed length is 26.5", extended height is 8'. Has 5/8" diameter mounting post (which accepts Mini-Cool® Stand Adapter).



LC7171 (943001) Soft Box

Mounts in front of Mini-Cool® to convert the light to a soft and gentle diffused light source.

LC7150 (942972) AC Photo Dimmer

Provides complete brightness control for the Mini-Cool® with 120 volt lamps. With the Photo Dimmer® brightness can be decreased to any desired level. Operating the lamp at decreased brightness also greatly extends lamp life. For example, when brightness is dimmed by about 60%, color temperature is still a usable 2800° Kelvin and lamp life increases to 750 hours!



Battery Belts & Packs

MaxPower® Belts



NC1284
941251



NC1384
941226



NC1484
945158

NOTE: Battery Power for the 220 Volt Mini-Cool

12 volt battery packs, MaxPower® Belts and SmartPower Belts can only be used with 220 volt Mini-Cool when a GU10 12 volt lamp and appropriate battery power cord are installed.

SmartPower® Belts



BC4224
941220



BC4112
941210



BC4014
945154



BC3050
941087



BC3054
941116

Model No.	Volt	Amp Hrs	Run-Time @ 75 Watts	Weight lbs
BC4224	12	24	165 min.	18.5 lbs
BC4112	12	12	90 min.	9 lbs
BC4014	12	14	65 min.	11 lbs
BC3050	12	7	35 min.	5.5 lbs
BC3054	12	7	35 min.	5.5 lbs

Model No.	Volt	Amp Hrs	Run-Time @ 75 Watts	Weight lbs
NC1284	12.0	7	60 min.	4.9 lbs
NC1384	13.2	7	60 min.	6.6 lbs
NC1484	14.4	7	60 min.	7.1 lbs

Safety Precautions

- **Read and understand** all instructions before using any item in the kit.
- **Do not let children play** with the lights or battery.
- **Never leave lights ON** unattended.
- **Never** operate the lights or battery charger with a frayed power cord.
- **Use only heavy-duty** extension cords similar to those supplied (16 gauge).
- **Smaller-gauge cords** could overheat (and also waste more power).
- **When using** the lights on household AC current, position the connecting extension cords so the lights or stands will not be pulled over.
- **Do not place** lights near any flammable materials (such as curtains), or close to any material likely to be damaged by heat.
- **Always unplug cords** from the electrical outlets and allow lights to cool prior to cleaning or servicing lights. Always remove cords by grasping the plug - not the cord.
- **Lights become hot in use.** Do not touch them until they have been turned off and allowed to cool for several minutes.
- **If any liquids are spilled** on a light, first unplug the power. When the light is cool, dry the wet areas with an absorbent cloth.

Limited Warranty

This Cool-Lux product is warranted to the original purchaser to be free of defects in workmanship and material. Cool-Lux will repair or replace any defective part, which may develop under normal and proper use within a period of one year from date of original purchase, without charge for parts or labor. This warranty is not subject to misuse, abuse, assignment or transfer. Any product modifications will render this warranty void. The exclusive remedy under any and all warrants and guarantees expressed or implied is limited to repair and/or replacement as provided herein. Cool-Lux shall not be liable for damages from loss of equipment use consequential or incidental.

COOL-LUX

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