



A Company With Values

Instructions For MINI-COOL[®], KITS & ACCESSORIES

INTRODUCTION

Congratulations on your purchase of this versatile lighting kit, which 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 in the kit, its name, and proper use before trying to set up the lights to illuminate a subject for permanent record.

PROCEED WITH CAUTION!

The equipment in this kit will not produce good lighting without your participation. Spend the time required to learn a few basic lighting principles and techniques and become familiar with the equipment. Read these instructions very carefully before using the kit. This information will help you select the right equipment for each situation and to use it effectively. You will also avoid possible damage to your equipment 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. You don't want anyone to trip over a cord and bring down a light stand or get hurt. Remain in control. 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 easily can 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 are particularly poorly depicted. Existing light seldom comes from a source facing the subject and thereby produces shadows in the wrong places. And—the major flaw—existing light almost never is the correct color temperature for accurately recording skin tones.

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 (daylight 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 to almost nothing. Objects at one distance only will be sharply focused, and nearer or farther objects will be out-of-focus.

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

All-in-all, pushing any low-lux video camera to its limits results in unappealing images that are invariably soft in focus and "off" color.

But, by merely adding fill light from the camera position, the same subjects are immediately enhanced with more pleasing lighting on faces and far better color in skin tones. Also improved are depth of sharpness, contrast, and three-dimensionality of the subject. THE MERE FACT THAT THE LIGHT IS ON ALSO MAKES SUBJECTS MORE AWARE OF THE CAMERA—THUS 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 (expressed in “Lux”) as a competitive number for advertising and promotion (like the “0 to 60” time was for automobiles). They often claim their cameras can record good images anywhere—without supplemental lighting. This simply is not so!

We have nothing but praise for low-lux cameras. They are a remarkable advance in technology which benefits us all, as do fast lenses and fast films. But good lighting is essential, no matter what advertising for low-lux cameras would have us believe. Visit any motion picture lot or TV studio—the most obvious equipment (and most numerous) will be the lights!

But, as we observed earlier, you already have “seen the light”. Now, with this lighting kit you have the tools you need to produce outstanding images—anyplace.

USING LIGHTING OUTDOORS

Using your lights 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 (LC7000) 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 in fact, the stronger the sunlight the more you need artificial light to eliminate the strong shadows. When the sun is directly overhead, or is behind people in your picture, you will need artificial light to lighten facial shadows.

Enjoy!

COLOR TEMPERATURE

Color temperature, normally stated in degrees Kelvin [°K], defines the spectrum of colors produced by any light source. Noon daylight has an average color temperature of 5600°K and contains approximately equal amounts of blue, green and red wavelengths. Daylight color films [or a daylight setting on a video camera] are formulated to reproduce colors accurately when used with a light source having this color temperature. Tungsten-filament [incandescent] lamps for photography have color temperatures around 2800 to 3400°K and produce proportionately more red wavelengths and fewer blue than daylight. The “standard” color temperature for photographic lamps is 3200°K. All Cool-Lux lamps operate at this temperature if used at their rated voltages. In general, the higher the color temperature of a light source, the greater the proportion of blue light it produces. Conversely, the lower the color temperature, the more red the light reproduces.

GETTING STARTED

Each item in your lighting kit has been included because it meets one or more specific lighting need. Usually several items will be used together. Choosing the best combination of items for a particular job may seem difficult at first, but you soon will learn what each piece can do and will develop techniques that will work for you in your situations. The more you use this kit, the more you'll discover about good lighting—and your pictures will improve continuously.

To help you sort things out, we'll describe on page 6 several typical lighting situations. First we'll consider how to select and arrange the lights you need, then describe the step-by-step procedure for assembling and connecting the equipment.

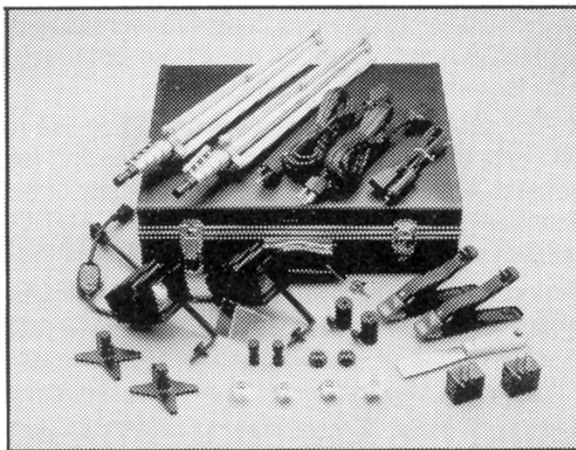
Number	Model	Description	QUANTITY				Starpack
			COOL KIT	I	II	III	
1.	MC2020	Mini-Cool® Light Fixture	1		2	3	4
2.	BC3050	Olympic L-6.5 Battery Pack	1				
3.	MD5000	Camera Adapter	1		2	2	1
4.	LC7050	Diffusion Lens	1		1	1	2
5.	LC7150	Photo Dimmer®					1
6.	MD5500	Collapsible Light Stand			2		2
7.	LC7000	Daylight Filter			1	1	2
8.	FOS-1	120 volt, 250 watt lamp			3	5	6
9.	FOS-11	120 volt, 150 watt lamp	1				
10.	FOS-3	12 volt, 100 watt lamp				1	
11.	FOS-4	12 volt, 50 watt lamp			1		
12.	FOS-9	12 volt, 75 watt lamp	1				1
13.	CC8200	DC Adapter Cord	1		1	1	1
14.	LC7100	Precision Light Framer					2
15.	MD5050	Stand Adapter	1		2	3	4
16.	CC8650	Extension Cord (10')	1		3	3	3
17.	MD5250	Spring Clamp Mount	1		2	3	2
18.	MD5100	Putty Knife Mount			1	1	1
19.	MD5150	Scissor Clip Mount			2	2	2
20.	CC8700	3-Way Cube Tap			2		2
21.	MD5250	Sliding Jaw Clamp					2
22.	CC8250	Battery Clamps to Household					1
23.	XX9999	5/8" Mounting Post			2	3	
24.	BC3350	800MA Battery Charger	1				

ALL OF THE ABOVE ITEMS ARE SUPPLIED WITH A FOAM FITTED CARRYING CASE AS SHOWN BELOW.

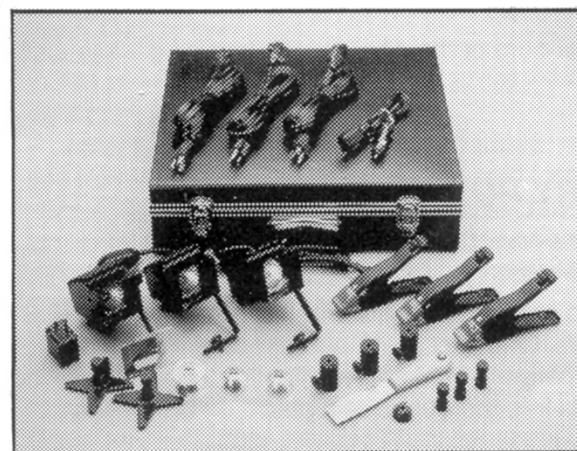
LK2200 COOL KIT I



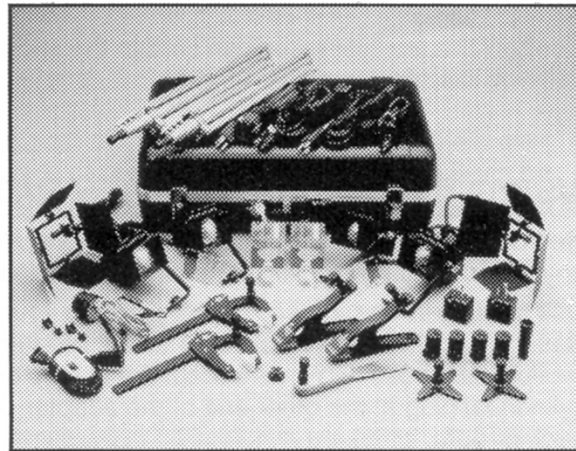
LK2250 COOL KIT II



LK2300 COOL KIT III

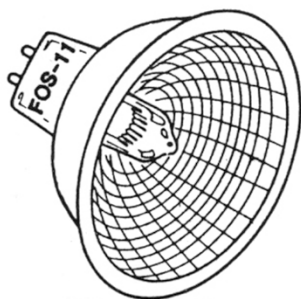


LK2350 STARPack



USING THE MINI-COOL®

When you need a powerful on-camera light, mount one of the Mini-Cools® from the kit on your camera. You have a choice of AC or battery power with the Mini-Cool®, depending upon which of the interchangeable lamps is installed. (Eleven different lamps are available. (See below.) Mini-Cool® lights in the kit are shipped with FOS-11 (120-volt, 150-watt) lamps installed, ready for use with household AC.



MR-16

FOS001	120V	250W	Wide Beam
FOS011	120V	150W	Wide Beam
FOS002	30V	200W	Wide Beam
FOS003	12V	100W	Wide Beam
FOS004	12V	50W	Wide Beam
FOS005	12V	25W	Wide Beam
FOS006	12V	50W	Narrow Beam
FOS007	12V	25W	Narrow Beam
FOS008	12V	75W	Narrow Beam
FOS009	12V	75W	Wide Beam
FOS010	14.4V	95W	Wide Beam

To be independent of wall outlets and eliminate the trailing cord, exchange the FOS-11 lamp in your Mini-Cool® for the FOS-9 (or any COOL-LUX 12 volt lamp). Powered from the Olympic L-6.5 Battery Pack, the FOS-9 lamp is bright enough for most indoor shooting and your L-6.5 Battery will run it for about forty-five minutes.

If you use the FOS-11 lamp in your Mini-Cool®, you may find it 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.

If you need to reduce the light from the FOS-11 still further, the optional Cool-Lux Photo Dimmer® (LC7150) 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.

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 off a colored ceiling or your subject will be rendered the same color as the ceiling.)

To increase the light intensity remove the FOS-11 lamp and install an optional FOS-1. This lamp also operates on 120-volt AC, at 250 watts output.

USING THE MINI-COOL® WITH AC POWER (HOUSEHOLD WALL PLUG)

Make certain the lamp installed in the Mini-Cool® is an FOS-11 (or an optional FOS-1). CAUTION: If the FOS-9 lamp (or any of the other optional low-voltage lamps) has been installed, its filament will be destroyed immediately when connected to household AC power.

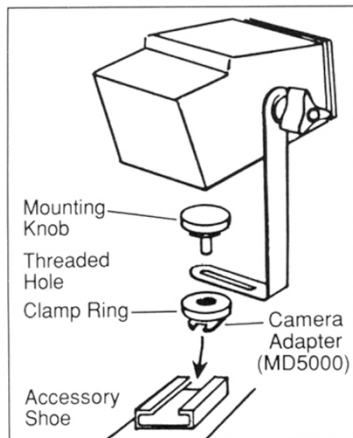
Connect the ten-foot extension cord to the short power cord of the Mini-Cool®, then plug it into any 120-volt electrical outlet.

USING THE MINI-COOL® WITH BATTERY POWER

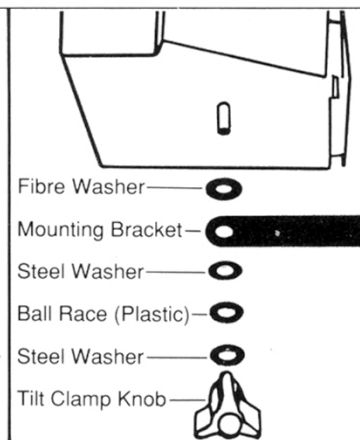
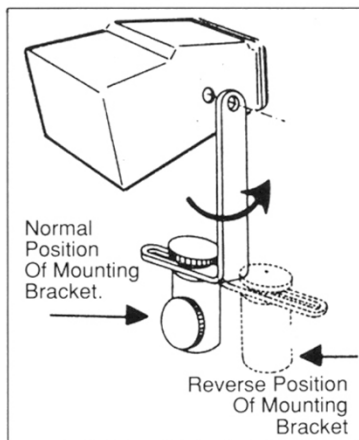
Remove the FOS-11 (or optional FOS-1) lamp from the Mini-Cool® and install the FOS-9 lamp (or any of the six other 12-volt lamps available for the Mini-Cool®).

Use the Cigarette-Lighter Adapter Cord (in your kit) to connect the Mini-Cool® to the Olympic L-6.5 Battery Pack or the Olympic L-13 or L-20 Battery Belts. One end of the adapter cord has a receptacle whose two slots accept the blades on the plug of the Mini-Cool®'s short power cord. The cylindrical plug at the other end of the adapter cord fits into the output receptacle on the battery pack or belt.

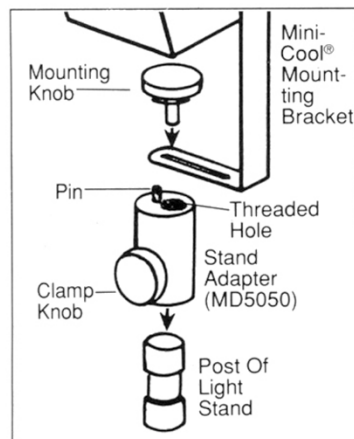
MOUNTING THE MINI-COOL®



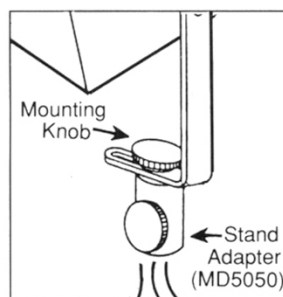
▲ MOUNTING TO A CAMERA
Slide the base of the CAMERA ADAPTER into the accessory shoe of the camera, and turn down the CLAMP RING to secure it. Then screw the MOUNTING KNOB of the Mini-Cool® mounting bracket into the threaded hole on the camera adapter.



▲ REVERSING THE MOUNTING BRACKET On some cameras, it is necessary or convenient 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.

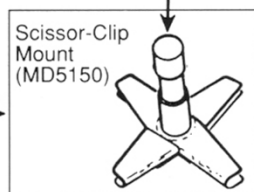


▲ MOUNTING TO A LIGHT STAND To attach the Mini-Cool® to a light stand, use the Cool-Lux STAND ADAPTER. First screw the MOUNTING KNOB of the Mini-Cool® into the 1/4"-20 threaded hole on top of the Stand Adapter (passing the pin on the Stand Adapter through the slot in the Mini-Cool® Mounting Bracket). Then fit the hole in the underside of the Stand Adapter over the post of the light stand, and turn down the CLAMP KNOB on the Stand Adapter to secure it in place.

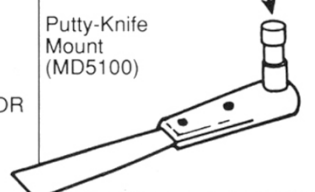


▲ MOUNTING TO THE SPRING CLAMP, PUTTY KNIFE OR SCISSOR CLIP To attach the Mini-Cool® to any of these special mounting devices, first attach it to the Stand Adapter as already described. Then fit the Stand Adapter over the 5/8" diameter post on the mounting device, and turn down the Clamp Knob to secure it.

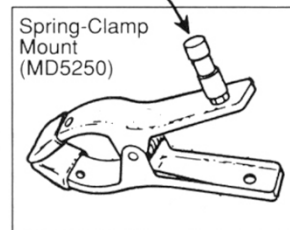
MOUNTING DEVICES ▶



OR



OR



PROFESSIONAL LIGHTING ARRANGEMENTS

In many situations, it is not possible to prearrange your lighting set-up. For instance, when following fast moving action over a range of distances, when the camera must be moved quickly from place to place, it is convenient to use a single Mini-Cool® attached directly to the camera.

In many indoor shooting situations, shadows can be minimized by "bouncing" the light from your camera-mounted Mini-Cool® onto the subject. This is advisable only when a light colored (preferably white) ceiling or wall is available and is situated close to your light.

Where it is possible to use a fixed lighting set-up, you can obtain better results using the two-light or three-light set-ups described on the following page.

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, page 6.

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 to the line from the subject to camera. This arrangement will provide even illumination across the subject area, and the shadows from either light will be partially illuminated by the other light.

Also, each light should be well elevated from the floor, so that shadows are cast onto the floor instead of the background.

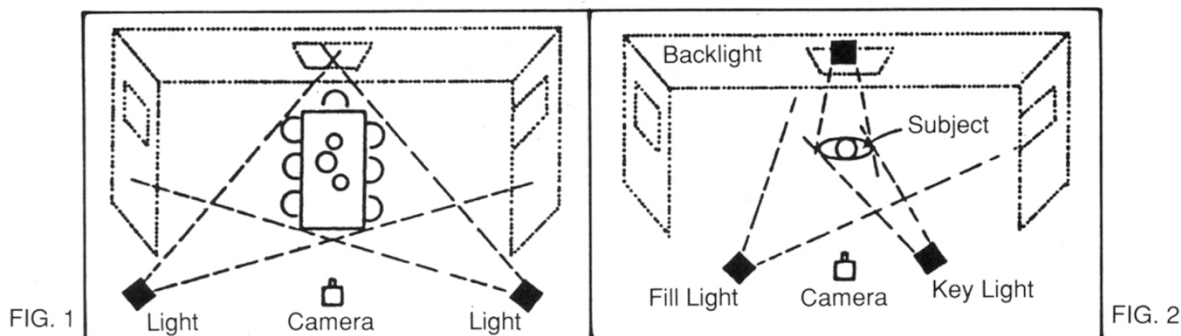
Now check your subject illumination with an exposure meter. If more illumination is required, move both lights closer to the subject, maintaining the 45-degree angles. If less illumination is required, move both lights farther away.

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."

As far as the film or video tape is concerned the Key Light is replacing the sun. The Key Light is the main source of illumination in your picture and so 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 the Key Light closer to the subject, as described below.



Place the Key Light at the desired angle to the subject, and 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 settings 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 and Fill Lights are thus 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 its name implies, the Back Light is situated behind the subject. Its purpose is to create a rim of light around the subject, thus separating the subject from the background. Locate the Back Light on a line with the subject and camera, or as nearly so as possible. Adjust distance from Back Light to 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 spacing 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 achieve the desired balance of light and shadow.

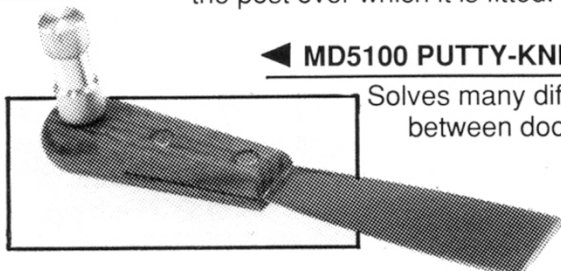
Set the camera's lens to the F/stop you determined correct for the Key Light, and you are ready to begin shooting.

ACCESSORIES DESCRIPTION



◀ MD5050 STAND ADAPTER

This adapter is required for attaching the Mini-Cool® to any of the four next-listed items, all of which have 5/8" diameter posts. Upper surface of adapter has a threaded hole (1/4"-20) to receive the mounting knob of the Mini-Cool® mounting bracket. Under surface has a 5/8" hole to fit over a light stand or other 5/8" diameter post. A clamp screw in the side of the adapter serves to clamp it to the post over which it is fitted.



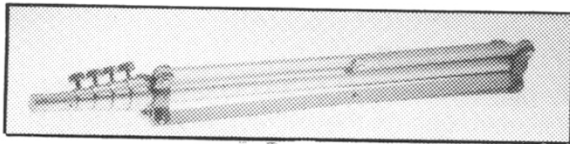
◀ MD5100 PUTTY-KNIFE MOUNT

Solves many different mounting problems. Blade will fit into cracks between door and frame, between window and frame, between books or beneath any heavy object. Or blade may be taped to a wall or other surface with duct tape. Has 5/8" post for Stand Adapter.



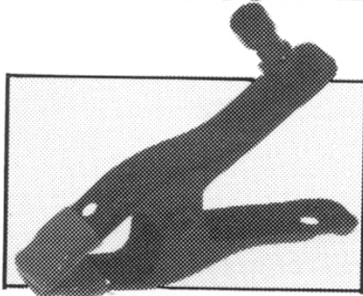
◀ MD5150 SCISSOR-CLIP MOUNT

Designed specifically for clamping the "T" bar of a suspended ceiling, so that the Mini-Cool® may be suspended. 5/8" mounting post accepts Mini-Cool® Stand Adapter.



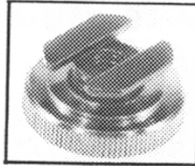
◀ MD5500 COLLAPSIBLE LIGHT STAND

Durably constructed of aluminum. Weighs only 1 lb. 13 oz. Collapsed length is 19", extended height is 7'. Has 5/8" diameter mounting post (which accepts Mini-Cool® Stand Adapter).



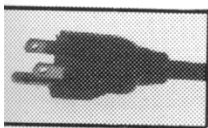
◀ MD5250 SPRING-CLAMP MOUNT

For attaching the Mini-Cool® to pipes, shelves, doors, etc. Clamps objects up to 2" thick. Soft vinyl tips protect surface being clamped. Has 5/8" post, which mates with Stand Adapter listed above.

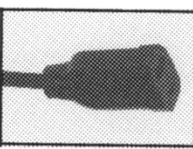


◀ MD5000 CAMERA ADAPTER

(Supplied with each Mini-Cool®.) Used to mount the Mini-Cool® directly to any camera having a standard accessory shoe. (See illustration and explanation on page 5.)

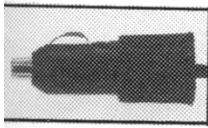


10 FT.



◀ CC8650 EXTENSION CORD

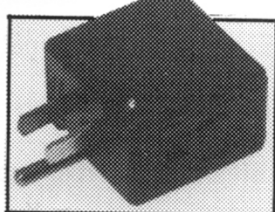
For connecting Mini-Cool® to wall outlets or transformers. may use as a general-purpose extension cord.



4 FT.

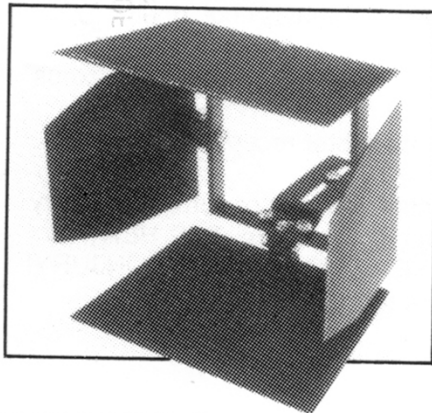
◀ CC8200 CIGARETTE-LIGHTER 12-VOLT ADAPTER CORD

Connects Mini-Cool® to cigarette-lighter type receptacles on battery packs and belts (or on vehicles).



◀ CC8700 THREE-WAY CUBE TAP

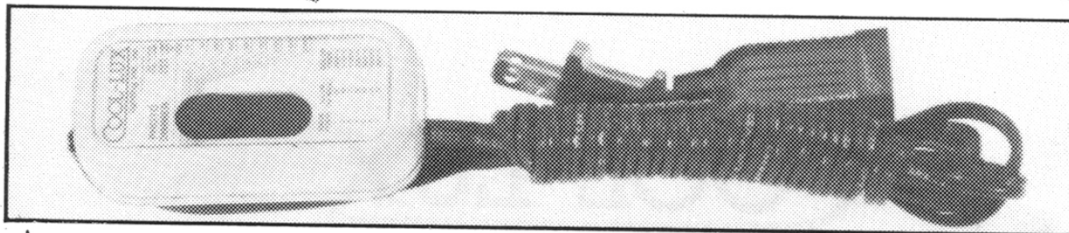
For operating several Mini-Cools® (or other devices) from a single power source.



◀ LC7100 PRECISION LIGHT FRAMER

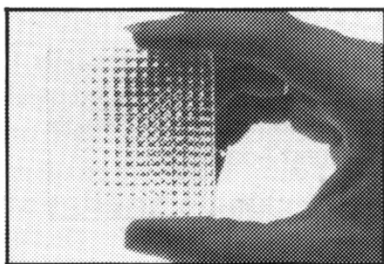
These "Barn Doors" (as Hollywood refers to them) are mounted to the floor plate of the Mini-Cool®, with a single screw. This invaluable accessory provides unlimited scope for creative artistic expression. Use it to precisely define the area illuminated by the Mini-Cool® or to create shadows for artistic purposes. The upper and lower doors are a very convenient place to mount gels or diffusion materials, attaching them with ordinary "bulldog" clips.

All four doors swing 180 degrees, from flat closed to flat outward-projecting.



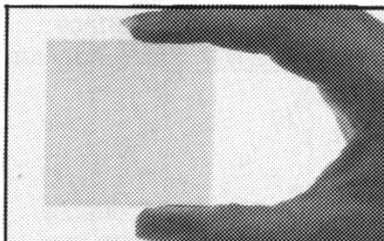
▲ LC7150 PHOTO DIMMER®

Provides complete brightness control for the Mini-Cool® with 120 volt lamps. (The Dimmer operates only on AC, and therefore can be used only with the FOS-1, 11.) With the PHOTO DIMMER®, brightness can be decreased to any desired level. Operating the lamp at decreased brightness also greatly extends its life. For example, when illumination is reduced to 32 percent of maximum, color temperature is still a usable 2800° Kelvin and lamp life increases to 750 hours!



◀ **LC 7050 DIFFUSION LENS**

Used to diffuse the Mini-Cool®'s light beam, to provide a very soft and very even illumination on the subject. Also increases the beam angle (enlarges the illuminated area).



◀ **LC7000 DAYLIGHT FILTER**

Whenever the Mini-Cool® is to be used outdoors, to supplement daylight, this filter should be installed. It selectively absorbs red light but freely passes light at the blue end of the spectrum, so that light provided by the Mini-Cool® is color matched to that of the sun.

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 (18-gauge, three-wire). 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 the lights. Always remove cords by grasping the plug—not the cord.
- Lights become hot in use. Do not touch them until they have been 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.
- Lights should be completely cool prior to putting them back in the case. Don't bend the cords sharply when coiling them for storage.
- Never insert any object except the proper plug into the cigarette lighter receptacle of the battery pack.
- Although fuse-protected, the battery can deliver very substantial amounts of current in a very short time if short-circuited—enough to cause internal damage or start a fire. **THE HEAT GENERATED BY A SHORT CIRCUIT ALSO CAN CAUSE SERIOUS PERSONAL INJURY!**
- Do not connect any device to the battery which will draw more than 10 Amperes.
- Never puncture or incinerate the battery.

COOL-LUX®
lighting ind. inc.

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