

Sonic Equipment Company
(800) 365-5701

SLS500 SHADOWGRAPH LIGHTING SYSTEM MANUAL

R-2120-3 POWER SUPPLY:

The power supply consists of a main transformer, two chokes, one 15,000 MFD, 100 Volt electrolytic capacitor, two silicon stacks, a built-in ignition device and blower. Located on the front panel are: a 30 ampere fuse, a pilot light, a 0-50 D.C. ampere meter, and an eight position rotary tap switch, a non-resettable elapsed time meter, a momentary contact switch, and an "ON/OFF" switch. The pilot light glows when the power supply is energized.

INPUT CONNECTIONS:

A grounded Hubbell A.C. receptacle is affixed to the power supply rear panel, and mating cord cap is supplied, for connection to any 25 ampere, 115 Volt A.C. power supply outlet. The A.C. lead is not furnished, as each installation would vary. We suggest that you use 10/3 rubber cover conductor.

D.C. CONNECTIONS:

Polarized jack pins, for D.C. lead connections, are visible through openings in the rear panel of the power supply. Silicon rubber covered leads, for quick connection of the power supply to the lamphouse, are equipped with jacks at one end and lugs on the other. The jacks are polarized and marked, so that damaging reverse currents are impossible. Instant removal of the leads simplifies portability.

VOLTAGE AND CURRENT ADJUSTMENT:

The R-2120-3 Silicon Power Supply furnishes an output of 25/29.5 amperes at 17/20 volts from a line voltage of 105-125 volts. The rotary tap switch provides this adjustment. To increase the output current, rotate the switch clockwise; counterclockwise to reduce current; however, **settings over 29.5 amps can cause early bulb failure.** Current adjustment varies light intensity, no color.

Special order 2120-3 Power Supplies can be ordered for outputs of 40/45.5 amperes at 17/20 volts for 1000W bulb use. Allow 4-6 weeks for delivery.

IGNITION DEVICE:

The manual ignition is actuated by depressing the momentary contact switch located on the front panel of the power supply, directly above the pilot lamps. **Depress the switch button only enough to establish lamp ignition.** Once ignition takes place, release the button instantly. Repeated unnecessary ignition shortens lamp and ignition device life.

The ignition device contains an epoxy encapsulated first stage transformer and tesla coil for good dielectric strength. Tungsten spark gap contacts assure long life. There are no moving parts and maintenance should be at a minimum.

IMPORTANT: Do not operate with lamp load. If D.C leads are not connected at time of attempted ignition, arcing will occur between jack pins and housing, which can prove damaging to the power supply.

R-2485A SILICON STACKS:

Each silicon stack is mounted on a bracket, easily accessible from the top of the power supply. To remove a stack: turn the knurled buttons to unlock the perforated top, and lift it off. Loosen the hex nuts securing the A.C. supply lead(s), ammeter lead connection(s) and the stack paralleling lead. Loosen the hex nut(s) securing the stack(s) to the bracket(s) and remove the stack(s). Installation of new stacks is obvious.

ACCESS TO OTHER COMPONENTS IN POWER SUPPLY:

If necessary to replace the igniter, remove the perforated top and the left side panel. Disconnect the four terminals at the igniter. Remove the two nuts which secure the igniter. Lift it up over the threaded posts. The igniter panel (at rear) slips into a slot in the mount, so it must be pulled toward you, slightly, after lifting the fore part over the posts. Replace the igniter in reverse manner.

The 15,000 MFD capacitor is exposed by removing the right side panel. **To avoid shock carefully discharge this capacitor with a bleeder resistor.** Disconnect terminals. Remove the 10-24 hex nuts which secure the capacitor clamps. Lift out capacitor and clamps. Replace in reverse manner.

A 50 MFD capacitor is connected across output on top of terminal board, inside of cabinet, to facilitate ignition.

The design is such that failure of the main transformer or chokes would be a rarity. These components are accessible by removing all panels.

Replacement can be made in the field, if necessary. **Take special notice of lead positioning when removing components,** so that they are correctly re-connected.

ROTARY TOP SWITCHES:

The switch knob is secured to the shaft with a 10-32 slotted head set screw. To remove the knob, loosen the set screw and pull the knob forward off the shaft. Be certain the leads still bear markers for correct connection to new switch. Disconnect all leads from the switch. Remove the two ¼-20 round head machine screw which secure the switch to the front panel freeing it entirely from the panel.

Install new switch in reverse manner. **IMPORTANT:** carefully check each lead number when re-connecting the switch. Do not inter-change them. Be certain leads do not interfere with vertical movement of contacts. Otherwise, they will not seat properly on the common contact carrier.

DO NOT ROTATE THE TAP SWITCH WHILE THE POWER SUPPLY IS UNDER LOAD!!!

VENTILATION IN POWER SUPPLY:

The blower fan is located directly beneath the silicon stacks. Clean air is drawn through the perforated top, over the stacks and transformers exhausting out the bottom, cooling all components. The fan motor bracket is secured to the fan mounting panel by four screws. Removal and replacement are simple.

NOTE: Blow out dust and dirt from power supply and lamphouse periodically to keep components clean and ventilation effective. **OBSERVE SAFETY PRECAUTIONS WHEN WORKING AROUND OR NEAR XENON LAMP**

***** IMPORTANT NOTICE *****

The face shield supplied with this unit is designed to be used **with impact resistant safety goggles or glasses.** The face shield alone is NOT adequate protection against a xenon lamp explosion, **nor does the face shield offer protection against ultraviolet (UV) exposure.**

The gloves furnished with this unit are for keeping fingerprints off the bulb. These gloves offer no protection from lamp explosions when handling xenon bulbs.

Bulb installation, replacement, and service should only be done by **Qualified Service Personnel**, using the proper safety clothing and equipment i.e., face shield and goggles, welding jacket, and leather gloves as recommended and approved by the xenon bulb manufacturer.

SAFETY PROCEDURES

The Xenon bulb is under high internal pressure even at room temperature. When ignited, the temperature rapidly rises and the internal pressure of the bulb increases as much as 20 to 30 times atmospheric pressure.

The following precautions should be followed when handling xenon bulbs:

1. Refer bulb replacement and service to **QUALIFIED SERVICE PERSONNEL wearing protective clothing, i.e., face shield and goggles, leather gloves, and welder's jacket as recommended by bulb manufacturer.**
2. Do not open the lamphouse until the bulb has been permitted to cool to room temperature.
3. De-energize the A.C. input to the power supply and the lamphouse before opening the lamphouse.
4. Enclose the bulb in its protective cover if possible while servicing the interior of the lamphouse. When outside the lamphouse, enclose the bulb in its protective cover.
5. Do not look directly at the ignited bulb. To do so **COULD CAUSE BLINDNESS OR PERMANENT DAMAGE.** The glass being inspected should be tilted so that the light from the xenon bulb is not reflected into the eyes of the inspector, or the inspector should be positioned to avoid this reflection. **ALL PERSONELL WORKING WITH OR NEAR THE SHADOWGRAPH SHOULD WEAR EYE PROTECTION TO REDUCE ULTRAVILET (UV) EXPOSURE.** Suggested eyewear is Wilson Spectra Clear Polycarbonate # 11130031 which reduces UV by 95% or amber # 11130072 which reduces UV by 100% or equivalent. Wilson eyewear is available through W.W. Grainger, part no. 4T390 or 4T841 respectively. **Use of these glasses does not permit user to look directly at bulb or bulb outline on glass.**
6. Keep hands, clothes, and combustible material away from light beam to avoid burn hazard.
7. Fingerprints inadvertently left on the quartz envelope should be removed by using alcohol, distilled water, and cotton. (Wear protective clothing).
8. To discard a used or unwanted xenon bulb, put on protective clothing and wrap the bulb several times in layers of heavy canvas or some other heavy material. Smash the bulb by placing a heavy board over the wrapped bulb and stand on it. Do not discard the bulb without first smashing it.

R-2120-3 SILICON POWER SUPPLY PARTS LIST

| PART NUMBER | DESCRIPTION |
|--------------------|--|
| L-771-1 | ELAPSED TIME METER |
| | 25 AMP CIRCUIT BREAKER |
| R-700-3 | FAN MOTOR |
| R-812 | MOMENTARY CONTACT SWITCH |
| R-1679 | PILOT LAMP |
| R-1812-1 | AMMETER, 0-10 D.C. |
| R-2157-A | SWITCH, 8 POSITION |
| R-2171 | SWITCH, SPST, 15 AMP |
| R-2186-2 | TWIST LOCK THREE WIRE BASE RECEPTACLE |
| R-2187-2 | TWIST LOCK THREE WIRE CONNECTOR |
| R-2240-A | IGNITER |
| R-2248 | TERMINAL BOARD - INPUT |
| R-2259 | TERMINAL BOARD-OUTPUT |
| R-2427 | CAPACITOR, 50 MFD, 150VDC |
| S-2920 | CAPACITOR, 15,000 MFD |
| R-2453 | FAN BLADE |
| R-2485-A | SILICON STACK |
| R-1943-A | MAIN TRANSFORMER AND CHOKE ASSEMBLY |
| R-2228-A | TESLA COIL |
| R-2352 | DIODE |