



SSX-300ST

SolarMaxx 300 Illuminator

Service Manual



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INTRODUCTION

This manual has been prepared to aid in the repair and maintenance of the SolarMaxx 300 illuminators.

The procedures and instructions contained in this document are to be used by qualified technical personnel only. Some procedures may have live exposed circuitry and wiring which could be hazardous if contacted with. Use extreme caution when working on equipment that has power applied to it.

TECHNICAL SUPPORT SERVICES

In the event that you experience difficulty or need technical assistance, please contact our technical support staff at (800) 684-6404 or by fax at (904) 733-0012.

Please have the following information ready when you call:

- MODEL NUMBER
- SERIAL NUMBER
- DETAILED DESCRIPTION OF THE PROBLEM

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GENERAL THEORY OF OPERATION

The SolarMaxx 300 Illuminator general operation is as follows. Please consult Fig. 1 for wiring information.

A.C. POWER DISTRIBUTION

The SolarMaxx 300 Illuminators are based around a universal input power supply. Input line voltages of 100-120V ~ and 220-240V ~ at 50/60 Hz are applied at the Power Input Model via a Hospital grade power cord. The input power is then filtered by a low leakage current EMI Filter. Over-current protection is provided by two 7.5 amp circuit breakers. A double-pole interlock switch provides operator safety, which is located on the back left side of the lamp heat shield.

DC POWER DISTRIBUTION

DC power for the other system components is generated by the lamp power supply. In addition to the 15 volts DC lamp power, it generates +12 VDC. The 12 VDC is used to power cooling fan and the elapsed lamp hour meter.

INTENSITY CONTROL

A rotating stainless steel disc that is placed in front of the lamp controls intensity. The disc contains holes in varying sizes and patterns. Manual lamp intensity control is made via a front panel mounted knob.

LAMP POWER AND IGNITION SYSTEM

The lamp used in the SolarMaxx 300 illuminators is a 300 watt ceramic arc lamp. For ignition of the lamp to occur, it takes a high voltage pulse of approximately 20 KV. The power supply generates a pulse of approximately 400-600 volts, which is then stepped up to the 20 KV pulse by the igniter module circuitry. Connection to the lamp is made via two jumbo banana jacks.

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The lamp power and ignition system consists of the lamp power supply, lamp base assembly, and the lamp cartridge assembly. In the event you have a power supply failure, it is recommended that the power supply be returned to **SUNOPTIC TECHNOLOGIES®** for servicing. When power supply is switched on, the DC supplies come up to voltage immediately. The lamp power supply has a built in delay of 1 to 2 seconds before it will attempt to start the lamp. If the lamp is unsuccessful at igniting, the power supply will try 6 to 10 times in rapid succession before ceasing. After successful ignition, the supply switches to a 15 VDC output at approximately 20 amps of current.

COOLING SYSTEM

Cooling is provided by a 100 CFM, 12 VDC fan. Air is drawn through the sides of the unit, across the power supply and lamp, and exhausted through the rear mounted exhaust louver. An infrared filter which is located between the lamp lens and the lamp housing provides additional cooling of the light. This filter blocks the infra-red "heat" from the output turret while passing the visible light, thus lowering the temperature of the instruments and cables. Caution should still be used as there are still potentially hazardous temperatures at the turret.

PARTS REPLACEMENT PROCEDURES

The following procedures are meant to aid the technician/engineer in replacing defective or damaged components. These procedures are meant to be used by qualified personnel only. Extreme caution should be used and all necessary safety precautions taken when working on this equipment.

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CIRCUIT BREAKER REPLACEMENT

1. Disconnect the illuminator from the power source.
2. Remove the 8 cover screws on the sides of the unit.
3. Open lamp access door and lift the top cover straight up and off the unit. Set aside.
4. Using an ohmmeter, verify which circuit breaker is defective.
5. Remove the defective circuit breaker and replace with the new one.
6. Replace the top cover making sure the lamp access door is over the lamp cartridge.
7. Replace the 8 cover screws and secure.

SHUTTER REPLACEMENT

1. Disconnect the illuminator from the power source.
2. Remove the 8 cover screws in the sides of the unit.
3. Open lamp access door and lift the top cover straight up and off the unit. Set aside.
4. Remove the 3 screws on the bottom of the unit with hold the front panel to the bottom housing. Remove the 2 screws on the side of the front panel.
5. Remove the screw holding the shutter to the front panel.
6. Pull off the shutter assembly.
7. Replace the shutter assembly with the new one.
8. With the control turned fully clockwise, align the shutter in such a way that it does not cover the hole in the front panel. Replace the screw and tighten the screw until it holds the shutter in place and still allows for free movement of the shutter. **Do not over tighten the screw.**
9. Replace the front panel and secure to the bottom housing with the 5 screws.
10. Replace the top cover making sure the lamp access door is over the lamp cartridge.
11. Replace the 8 cover screws and secure.

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I.R. FILTER ASSEMBLY REPLACEMENT

CAUTION: Before performing this procedure, be sure the unit has cooled to room temperature. The lamp cartridge and IR filters operate at very high temperatures.

1. Disconnect the illuminator from the power source.
2. Open the lamp access door and remove the lamp, gently rocking from front to back. Set lamp aside.
3. Place unit on its right side. Reach in the lamp access door and hold onto the IR filter assembly while removing the 2 mounting screws from the bottom.
4. Remove the assembly through the lamp access door.
5. Replace the new assembly into the unit through the lamp access door. Note that the IR filter is facing toward the back of the unit.
6. Secure with the 2 mounting screws from the bottom.
7. Place the unit back on its feet. Install the lamp, being sure it has totally seated, and close the access door.

POWER SUPPLY REPLACEMENT

1. Disconnect the illuminator from the power source.
2. Remove the 8 cover screws in the sides of the unit.
3. Open lamp access door and lift the top cover straight up and off the unit. Set aside.
4. Disconnect the fan lead connector, the AC power input connectors, and the lamp output power wires from the power supply.
5. Set the unit on its side.
6. While holding the power supply with one hand, remove the 4 mounting screws from the bottom of the unit.
7. Place the new power supply in the unit so all 4 holes line up with the power supply standoffs. Secure with the 4 mounting screws from the bottom.
8. Place the unit back on its feet.
9. Reconnect the fan lead connector, the AC power input connectors, and the lamp output power wires to the power supply.
10. Replace the top cover making sure the lamp access door is over the lamp cartridge.
11. Replace the 8 cover screws and secure.

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COOLING FAN REPLACEMENT

1. Disconnect the illuminator from the power source.
2. Remove the 8 cover screws in the sides of the unit.
3. Open lamp access door and lift the top cover straight up and off the unit. Set aside.
4. Disconnect the fan lead connector and the hour meter wiring harness connector from the power supply.
5. Remove the 3 screws holding the back panel to the bottom housing and lay down the panel.
6. Remove the fan mounting screws and nuts. This will free the fan louver also.
7. Replace the fan assembly with the airflow blowing out the back of the unit. The fan leads should be coming out of the fan at the tip and against the back panel.
8. Secure the fan mounting screws with the nuts.
9. Slide the back panel into the mounting slots.
10. Reconnect the fan lead connector and the hour meter wiring harness connector to the power supply.
11. Replace the top cover making sure the lamp access door is over the lamp cartridge.
12. Replace the 8 cover screws and secure.

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REPLACEMENT PARTS

DESCRIPTION

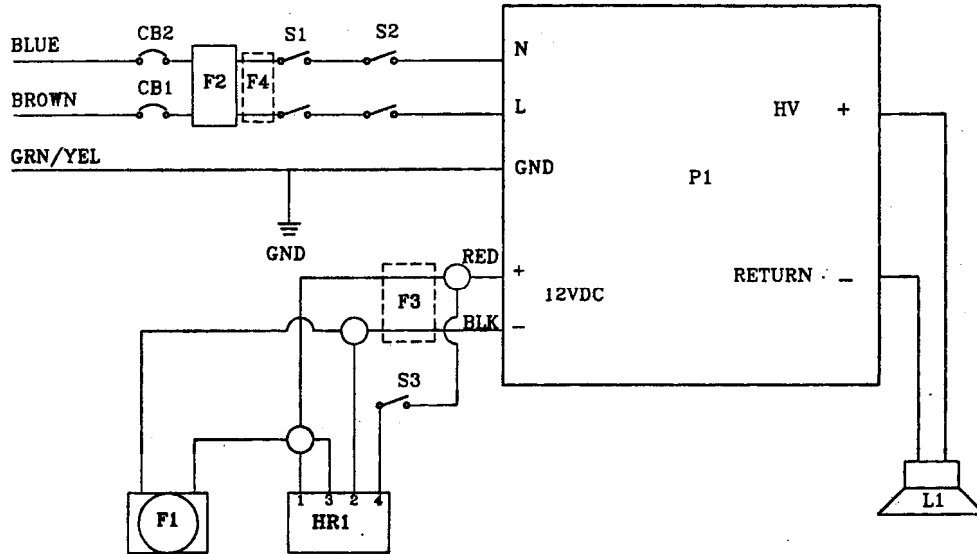
PART NUMBER

Replacement Lamp Cartridge	SYC0052
300-Watt Xenon Power Supply	I3000097
Hour meter	I2000012
Fuse Holder	I3000107
IR Filter	I3000052
Power Input Module	I3000108
Shutter Assembly	I2000062
Cooling Fan	I3000084
Reset Switch Assembly	I2000041

For parts not listed here, call our Technical Service Department listed at the front of the manual.

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FIGURE 1



CODE	INV#	DESCRIPTION	QTY
CB1/CB2	I3000044	7.5 AMP CIRCUIT BREAKER	2
SI	I1226000	LIMIT SWT	1
S2	I1245500	ON/OFF SWT	1
P1	I3000006	300 watt PWR SUP	1
F1	I2000014	12VDC FAN	1
HR1	I2000012	12VDC HR METER	1
L1	I3000007	XENON 300W LAMP	1
F2	I1180006	CORCOM 6EH1 FILTER	1
F3/F4	I1180008	INTERNAL FERRITE	2
S3	I2000037	HOURLY METER RESET SWITCH	1