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INSTRUCTION MANUAL

OPTIMAX II-S

Xenon Projection Console

Issue 3/96

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PREFACE

THE OPTIMAX II-S XENON PROJECTION CONSOLE is a complete modular theatre system packaged into a unitized cabinet. The basic console is designed to accept most popular 35mm projector/soundhead combinations, which mount directly to the front of the cabinet. Combined with the built-in xenon lamphouse and power supply, the Optimax Console serves as a free-standing projection center.

STANDARD NINETEEN-INCH RACK SPACE is provided for the addition of sound and/or automation equipment. An integral circuit breaker panel with easily accessible terminal blocks minimizes on-site installation wiring.

LIGHT OUTPUT is derived from a xenon bulb mounted vertically inside a metal elliptical main reflector, which gathers the light and directs it upward to a flat "folding" mirror. The "folding" mirror is mounted at a 45° angle to divert the light horizontally through the lamphouse snood to the projector aperture. A first-surface, dichroic ("cold") coating on the "folding" mirror reflects the visible white light to the aperture and filters out most of the invisible infrared heat, thus protecting the film and prolonging print life.

A BUILT-IN BLOWER is wired to the lamphouse control circuit and operates continuously as long as the control circuit is energized. This blower pressurizes a chamber surrounding the xenon bulb and elliptical reflector, and air outlets constantly cool both the bulb and the reflector. This directed, forced-air cooling, plus the vertical position of the xenon bulb, insures maximum bulb life.

OPERATOR CONTROLS include a douser for cutting off light output without extinguishing the xenon bulb, and a manual LAMP switch to override automation control. The analog control panel features an elapsed time meter to record the number of hours the bulb has operated, and a DC ammeter to indicate the bulb's operating current. Pressing the BULB VOLTS switch changes this meter to display the DC voltage at the arc. The optional digital control panel includes a L.C.D. screen which continuously displays current, voltage, wattage, and elapsed time. An arc viewing port on the upper front panel of the console permits observation of the arc.

SERVICE AND MAINTENANCE are facilitated by removable access panels on the rear and both sides of the console. An interlock switch, mounted at the inner lamphouse compartment access door, will open and disable operation of the xenon bulb when the lamphouse compartment is exposed.

THE OPTIMAX CONSOLE is shipped from the factory complete with the lamphouse/power supply combination specified on the Sales Order. Lamphouse Type is determined by use of the standard 14mm Cathode Mount Assembly (Part No. 1249362-1 using Socket 1221802-1) for 1600 to 4200 watt operation, or the 8mm Cathode Mount Assembly (Part No. 1249362-3 using Socket 1221802-3) for 4000 to 7000 watt Type "HS" bulbs. These Cathode Mount Assemblies are interchangeable, which permits changing bulb type and/or wattage subsequent to the initial installation.

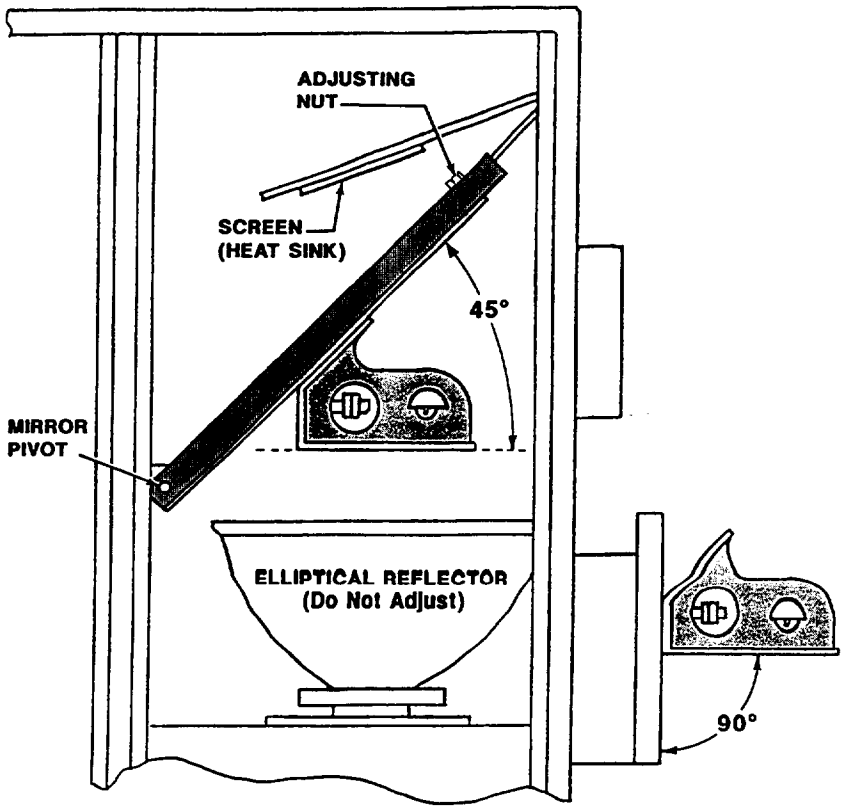
MOST XENON BULBS designated for *vertical* operation mount without use of bulb adapters. Adapters required to mount the 1600 watt VC, and popular models of "HS" bulbs, are included in the Optimax accessory kit as required. See the following Bulb Adapter Chart for parts identification and assembly sequence. All xenon bulbs approved for use in the Optimax Console are available *with anode leads,* and should be ordered as such from bulb suppliers.

INSTALLATION

INSPECT THE SHIPMENT carefully upon delivery and report any damage to the freight carrier **immediately.** It is the responsibility of the *consignee,* not the shipper, to initiate freight damage claims. Strong International will furnish a copy of the Bill of Lading and the Freight Bill upon request.

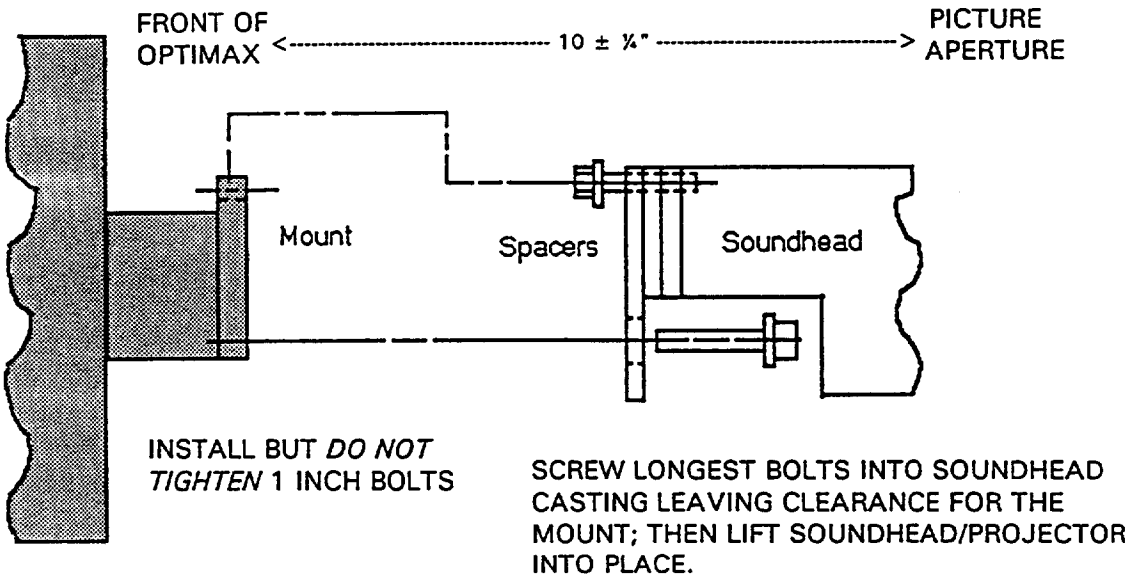
MOVE THE CONSOLE as close as possible to the installation position before removing it from its pallet. Install the (4) leveling feet to the base of the console after discarding the pallet. The leveling feet are adjustable by loosening the locknut and raising or lowering the corner of the console by turning the threaded stud. Level the console base to the booth floor and tighten the (4) locknuts. NOTE: if the booth floor is linoleum or carpeted, it is advisable to insert (4) four inch square steel plates beneath the leveling feet to avoid settling.

AFTER THE CONSOLE BASE has been leveled to the booth floor, and prior to mounting the soundhead and projector, open the lamphouse compartment and check the position of the 45° folding mirror. This mirror is aligned at the factory, but may be jarred out of alignment in shipping. Use a 45/90° carpenter's square (as shown), and take care not to scratch the mirror coating. To adjust, loosen the double-nutted fasteners at the top of the folding mirror bracket. Loosening or tightening the lower pair of nuts will tilt the mirror in its bracket. When adjusted correctly, hold the lower nuts in place with an end wrench, and firmly tighten the lock nut against it. Adjust the folding mirror *only* if the factory setting has been altered.



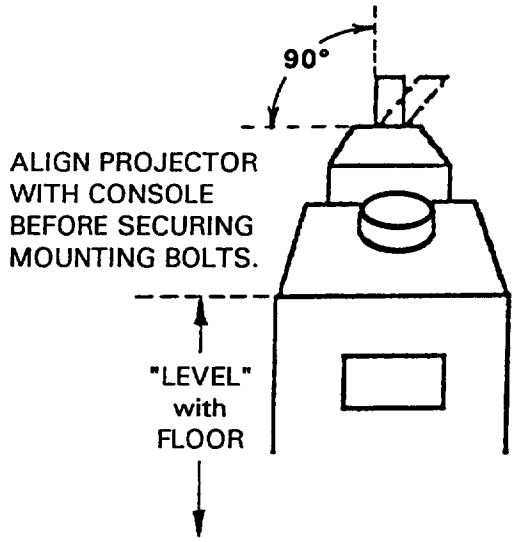
EACH CONSOLE is supplied with a soundhead spacer block to correctly position the projector aperture at the specified working distance (ten inches ± .25" or 25.4cm ± 6mm between the front of the console and the picture aperture). *Two* blocks are required for the Ballantyne Model VII soundhead. The make and model of the soundhead and projector must be specified with the original equipment order to enable Strong International to supply the correct spacer block(s). The correct mounting hardware is supplied with the spacer block.

PROJECTOR - SOUNDHEAD MANUFACTURER	SPACER BLOCK PART NO.
Ballantyne	(2) 1231776-1
Simplex	(1) 1231776-1
Century	(1) 1231776-1
RCA 9030	(1) 1145411-1



USING THE CORRECT SPACER BLOCK(S) and the soundhead mounting bolts provided, mount the soundhead to the projector mounting bracket on the front of the console. The spacer block and adapter plate are first bolted to the soundhead; then mount the projector/soundhead onto the console bracket. Allow the two upper bolts to bear the weight of the soundhead while starting the lower bolts.

ALIGN THE PROJECTOR to the console, and thread the short bolts with lockwashers into the adapter plate and mount. Start the bolts by hand, and avoid crossthreading.



USING THE CARPENTER'S SQUARE, check the relative level between the console and the machined surface on the top of the projector. Check again the correct working distance (10 inches ± .25") between the front of the console and the projector aperture. Secure the mounting bolts.

WHEN ORDERED WITH THE "PREWIRE AND ASSEMBLY" OPTION, the unit is shipped with the soundhead and projector mounted and aligned.

THE CONSOLE can now be positioned in place at the projection port below the exhaust system ductwork. A four inch diameter hole in the center of the base pan is located 13 inches from in the front of the console. This opening may serve as an access for a floor-mounted electrical service box. Electrical service may also be run into the front of the console through the various knockouts provided in the console front panel below the projector bracket.

THE BASIC OPTIMAX CONSOLE has been prewired to minimize installation time. The main AC input terminal block TB1 is located on the base of the console cabinet behind the access panel on the off-operator side. The AC supply line to the Optimax Console must be installed and connected by a qualified electrician in conformance with local codes. Power requirements for each console are stamped on the equipment data plate, and the following wiring diagrams illustrate hook-ups for common 208/230 volt power sources.

DIAGRAM 1: Four-Wire Three Phase (with Neutral)

DIAGRAM 2: Three-Wire Three Phase (less Neutral), plus 115 V.AC

DIAGRAM 3: Three-Wire Single Phase (with Neutral)

DIAGRAM 4: Two-Wire Single Phase (less Neutral), plus 115 V.AC

A COPPER GROUND BLOCK ("Terminal 6") is located adjacent to the five-position AC input terminal block TB1. Because of high voltages impressed during the ignition cycle, and to prevent RF interference with the theater sound system, the console *must* be connected to an adequate earth ground.

THREE PHASE, Four-Wire

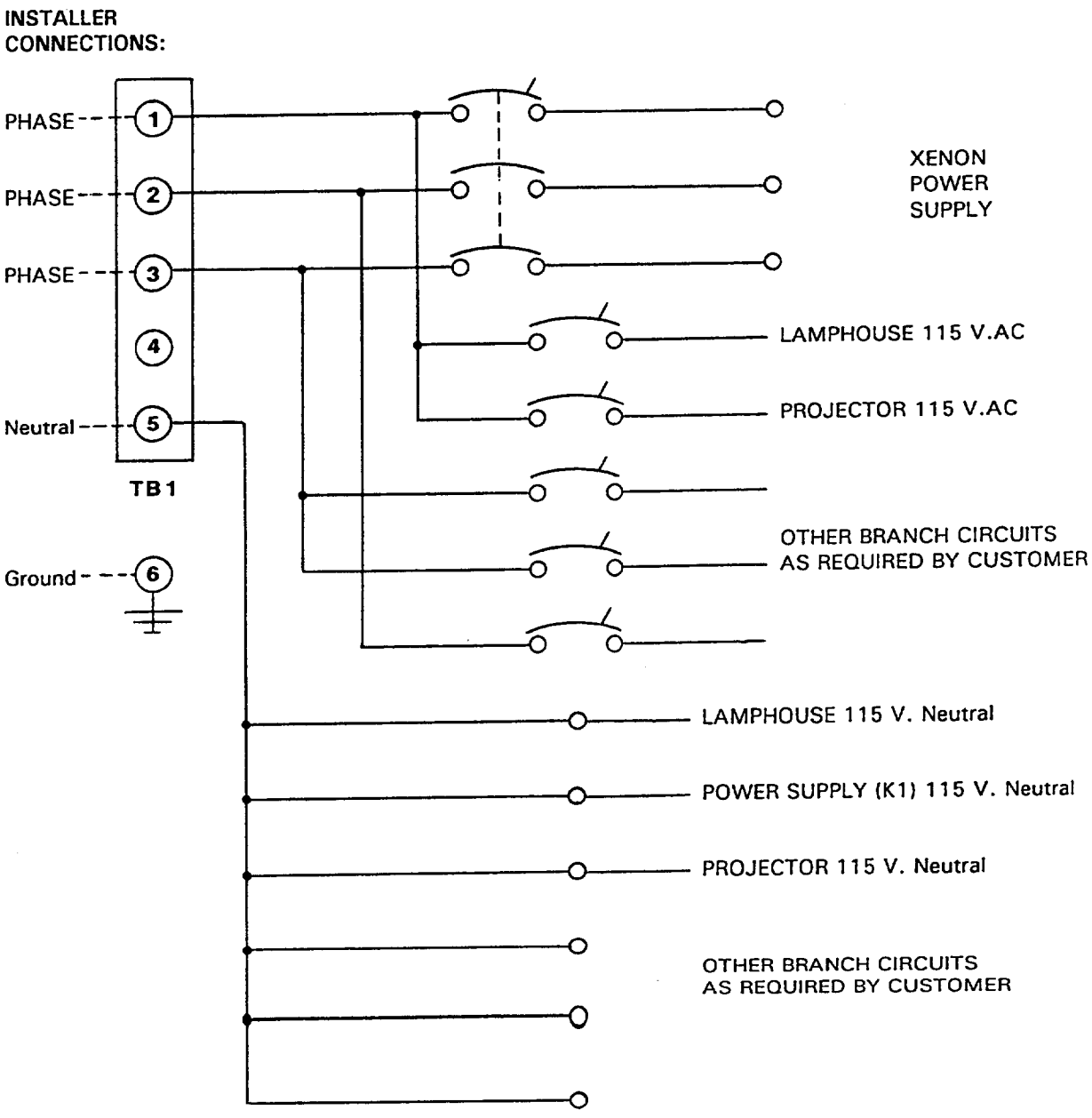


DIAGRAM 1

THREE PHASE, Three-Wire

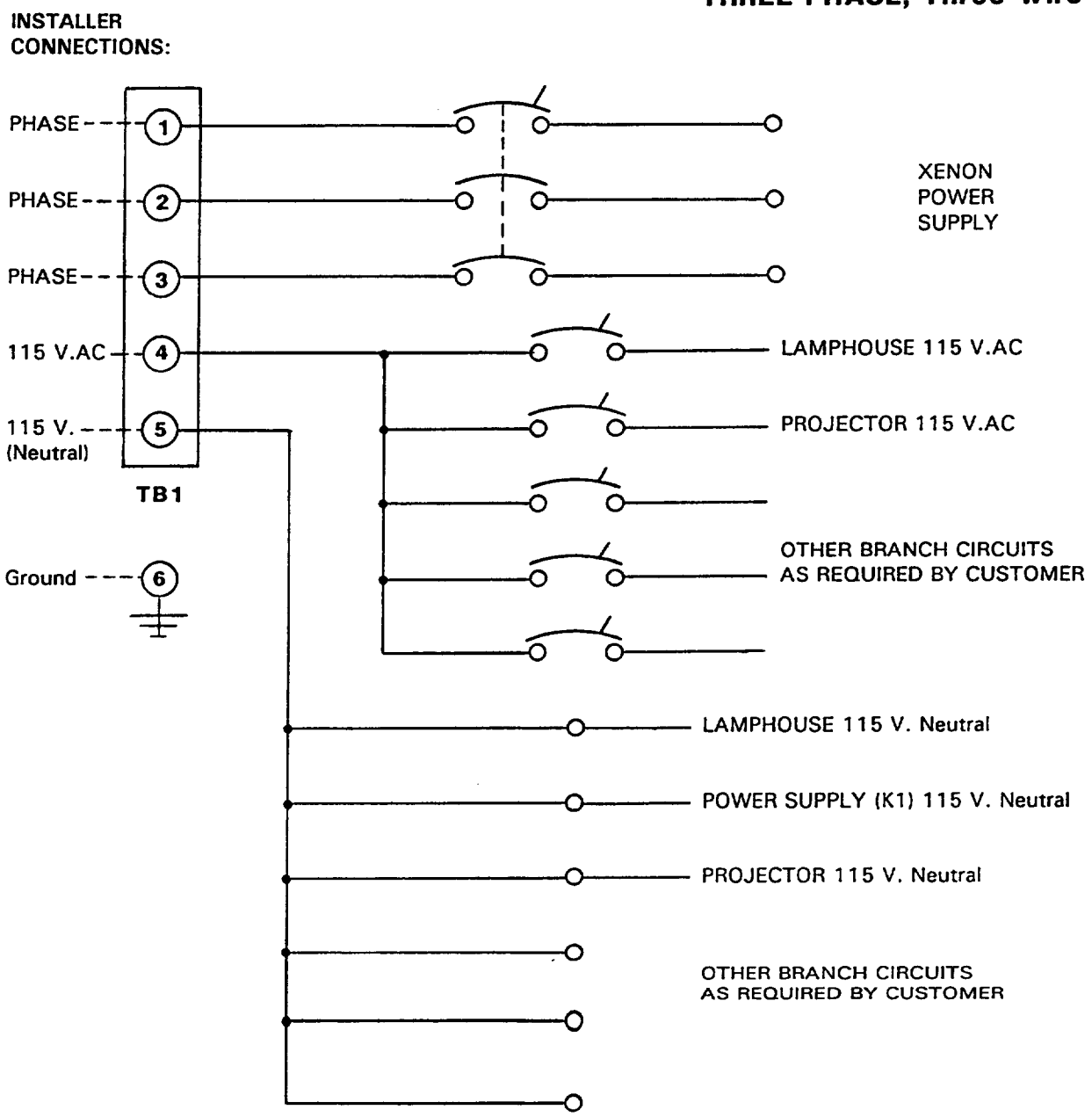


DIAGRAM 2

SINGLE PHASE, Three-Wire

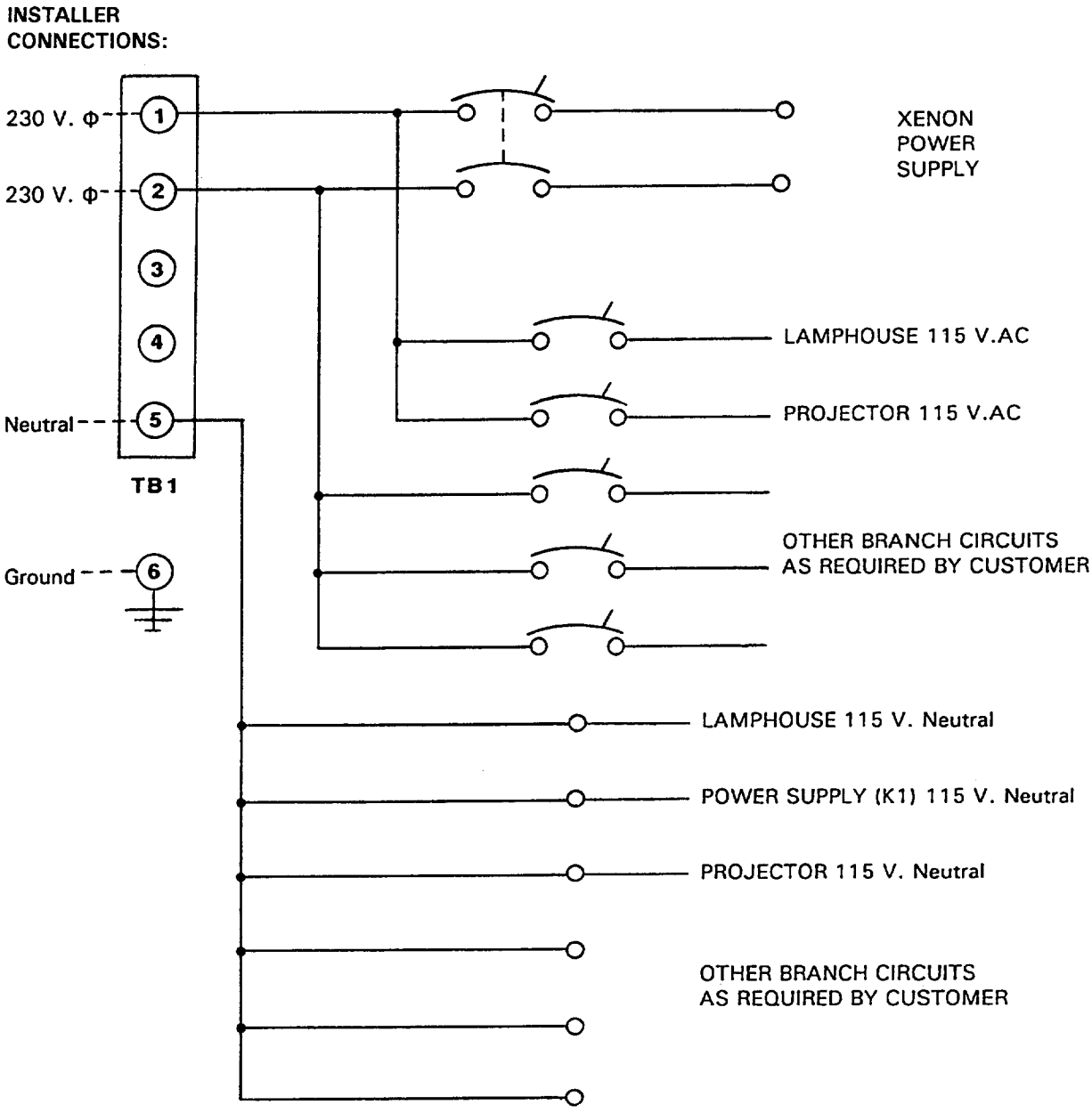


DIAGRAM 3

SINGLE PHASE, Two-Wire

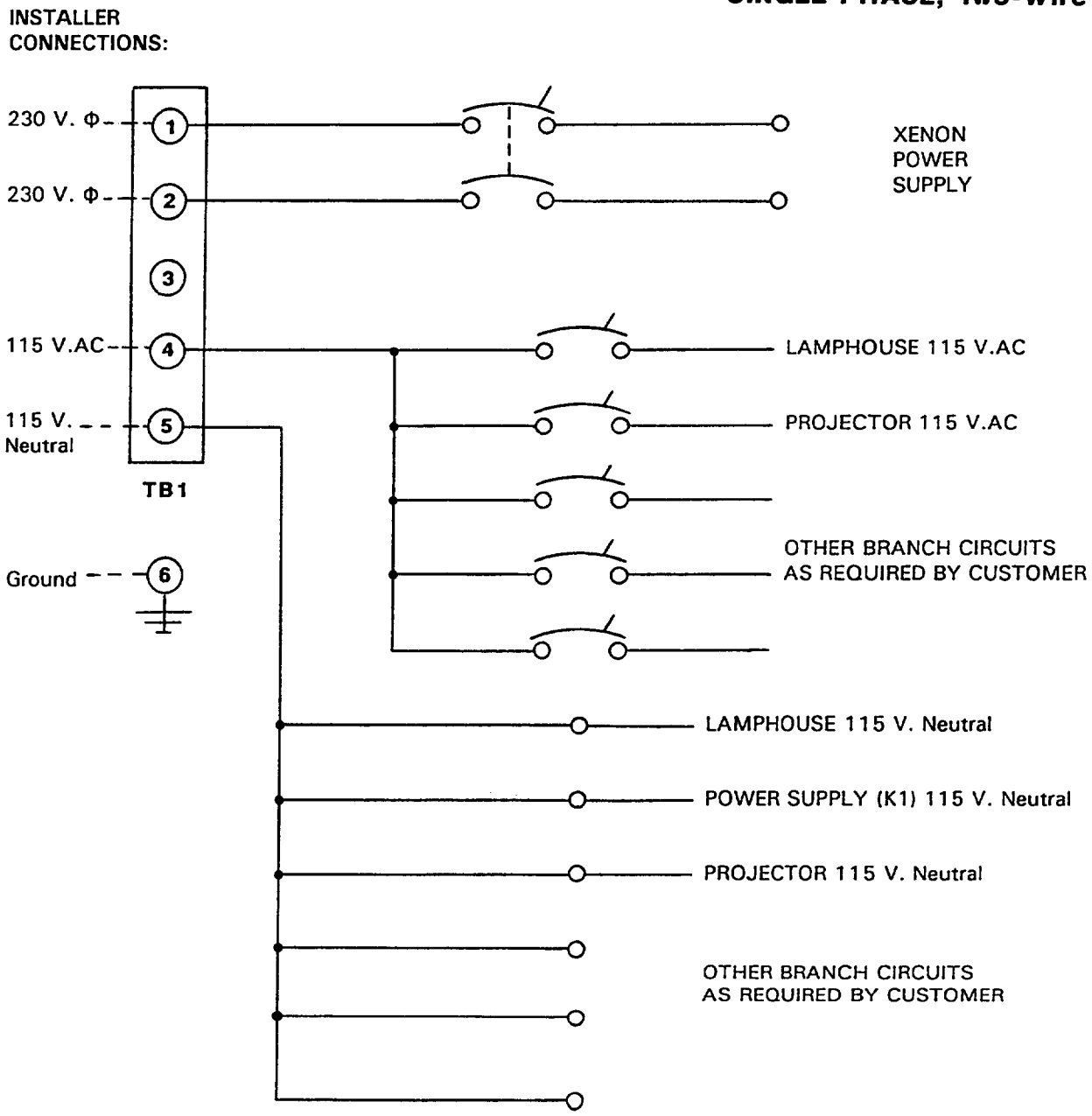


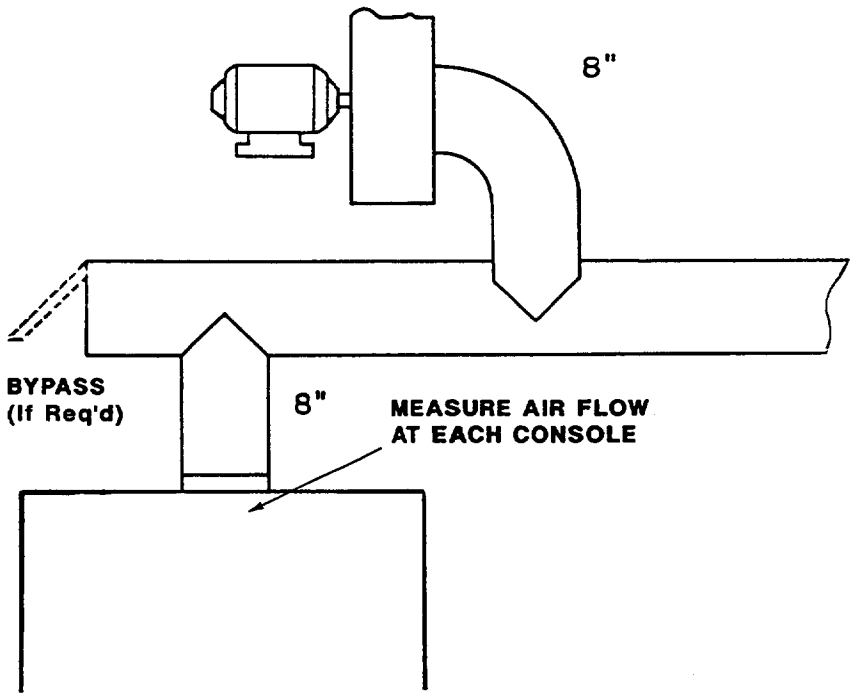
DIAGRAM 4

EXHAUST SYSTEM INSTALLATION

THE EXHAUST STACK of the console lamphouse is designed to fit a eight inch (20.5cm) diameter duct. This size ducting (rigid or flexible) must be used throughout the entire system and installed to eliminate any possibility of downdraft or rain dripping into the lamphouse. The exhaust blower must be capable of removing 300 cubic feet of air per minute (cfm) from lamphouses operating 1000 to 3000 watt bulbs, and 500 cfm from higher wattage lamphouses.

EXHAUST AIR FLOW is to be **measured** at the exhaust stack and *not* determined by the rating of the blower. Static pressure caused by bends and long duct runs reduces actual air flow at the end of the run. If more than one console is installed in a common projection booth, the exhaust air flow must be measured at *each* individual console.

EXCESSIVE EXHAUST DRAFT, such as 600 cfm or more, should be avoided. Excessive air flow alters the overall cooling pattern of the xenon bulb. Should it be necessary to limit the air flow through the exhaust system, install bypasses rather than dampers. See the illustration below.



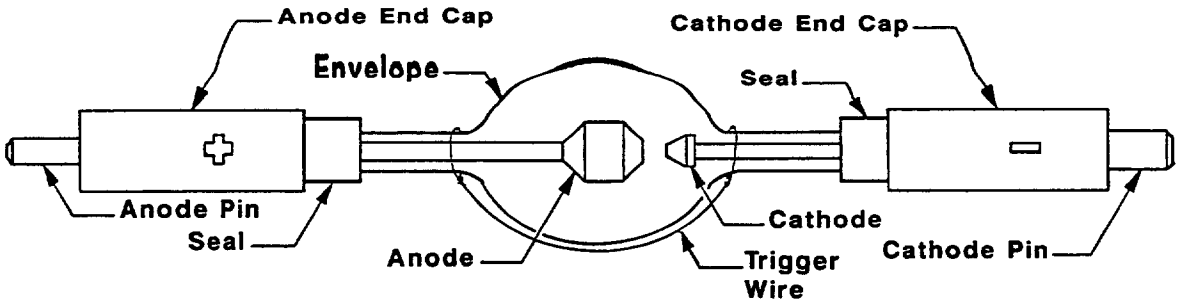
IF THE CONSOLE is replacing a carbon arc lamphouse, make certain that the exhaust system is *thoroughly* cleaned of all carbon ash or residue. Carbon ash, falling on a xenon bulb, will rapidly burn into the quartz bulb envelope and possibly shorten bulb life.

SAFETY PROCEDURES

THE XENON BULB is highly pressurized. When ignited, the normal operating temperature of the bulb increases the pressure to a level at which the bulb may explode if not handled in strict accordance to the manufacturer's operating instructions. The bulb is stable at room temperature, but may still explode if dropped or otherwise mishandled.

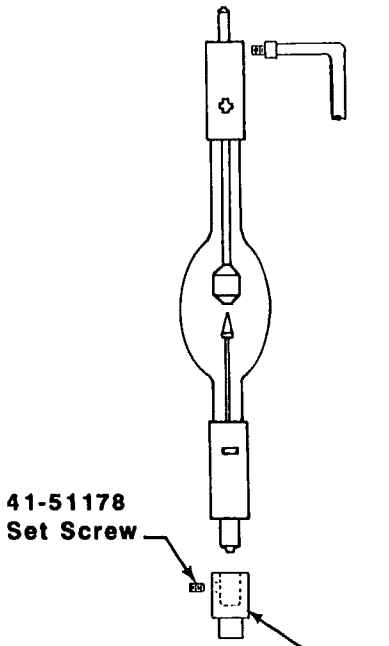
REFER all xenon bulb replacement and service to QUALIFIED PERSONNEL with adequate protective clothing (face shield, clean cotton gloves, welder's jacket). For routine lamphouse service, observe the following rules:

1. Allow the bulb to cool to room temperature before opening the lamphouse. Put on protective clothing described above.
2. De-energize the xenon power supply at the AC source before opening the lamphouse compartment.
3. When possible, encase the bulb in its protective cover when cleaning or servicing the lamphouse interior. The bulb, when outside the lamphouse, must be encased in the cover.
4. Clean the bulb after it has cooled to room temperature. Do not touch the clear quartz envelope of the bulb; fingerprints will burn in and create hot spots which may shorten bulb life. If fingermarks are made, they should be carefully removed with methyl alcohol and cotton prior to bulb operation.
5. Never view an ignited xenon bulb directly. *BLINDNESS OR PERMANENT EYE DAMAGE MAY BE INCURRED.*
6. Use only xenon bulbs designated as OZONE FREE. When possible, vent the lamphouse exhaust to outside atmosphere.
7. Maintain the lamphouse blower in good operating condition. Keep the blower inlet clean for unrestricted air flow.
8. To insure maximum bulb life, operate the lamphouse blower and the exhaust system for **at least** ten minutes after extinguishing the bulb.
9. If returning a bulb for warranty adjustment, pack it in its original shipping container. Complete and return all required warranty information.
10. Dispose of expired bulbs that are beyond warranty in the following manner: Wrap the bulb tightly in several layers of canvas or heavy cloth. Place it on a hard surface and shatter the envelope with a sharp hammer blow. *DO NOT* place an unshattered bulb in an ordinary refuse container.
11. DO NOT PERMIT UNAUTHORIZED PERSONNEL TO PERFORM OR ATTEMPT ANY PHASE OF XENON BULB HANDLING OR SERVICE.



OPTIMAX BULB ADAPTER CHART

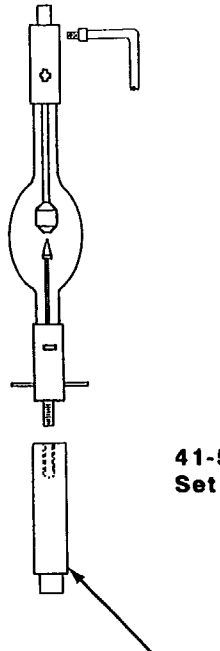
OMX/011



1221770-1

CATHODE ADAPTER
(12mm to 14mm)
Required for:

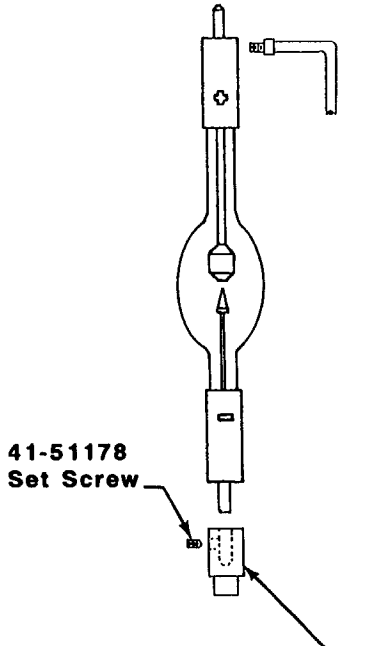
HANOVIA XH1600VW
OSRAM XBO1600W/CA OFR
OSRAM XBO2000W/OFR
ORC XM1600H/VC
ORC XM2000H/VC



1221770-5

CATHODE ADAPTER
(5/16-18 to 14mm)
Required for:

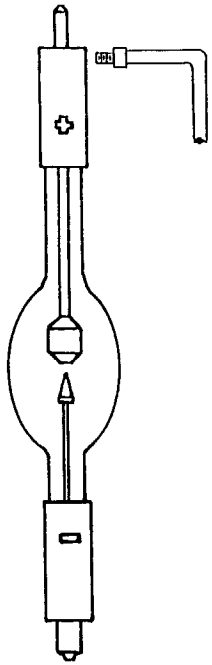
HANOVIA XH1600HW
OSRAM XBO1600W/HSC
OSRAM XBO2000W/SHSC
ORC XM1600HS



1221770-7

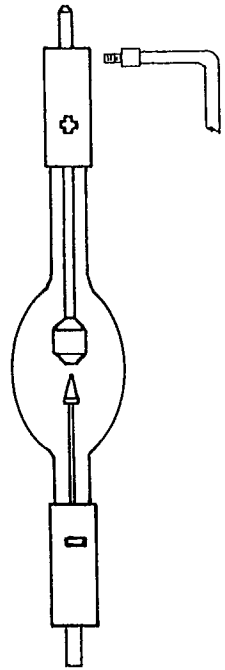
CATHODE ADAPTER
(8mm to 14mm)
Required for:

HANOVIA XH2000HS
HANOVIA XH2500HS
OSRAM XBO2000W/HS
OSRAM XBO2500W/HS
OSRAM XBO3000W/HS
ORC XM2000HS
ORC XM2500HS
ORC XM3000HS



NO ADAPTER REQUIRED
(14mm Socket)

HANOVIA XH2500VW
HANOVIA XH3000HW
OSRAM XBO2500W/OFR
OSRAM XBO3000W/H OFR
ORC XM2500H/VC
ORC XM3000H/VC
ORC XM4200H/VC

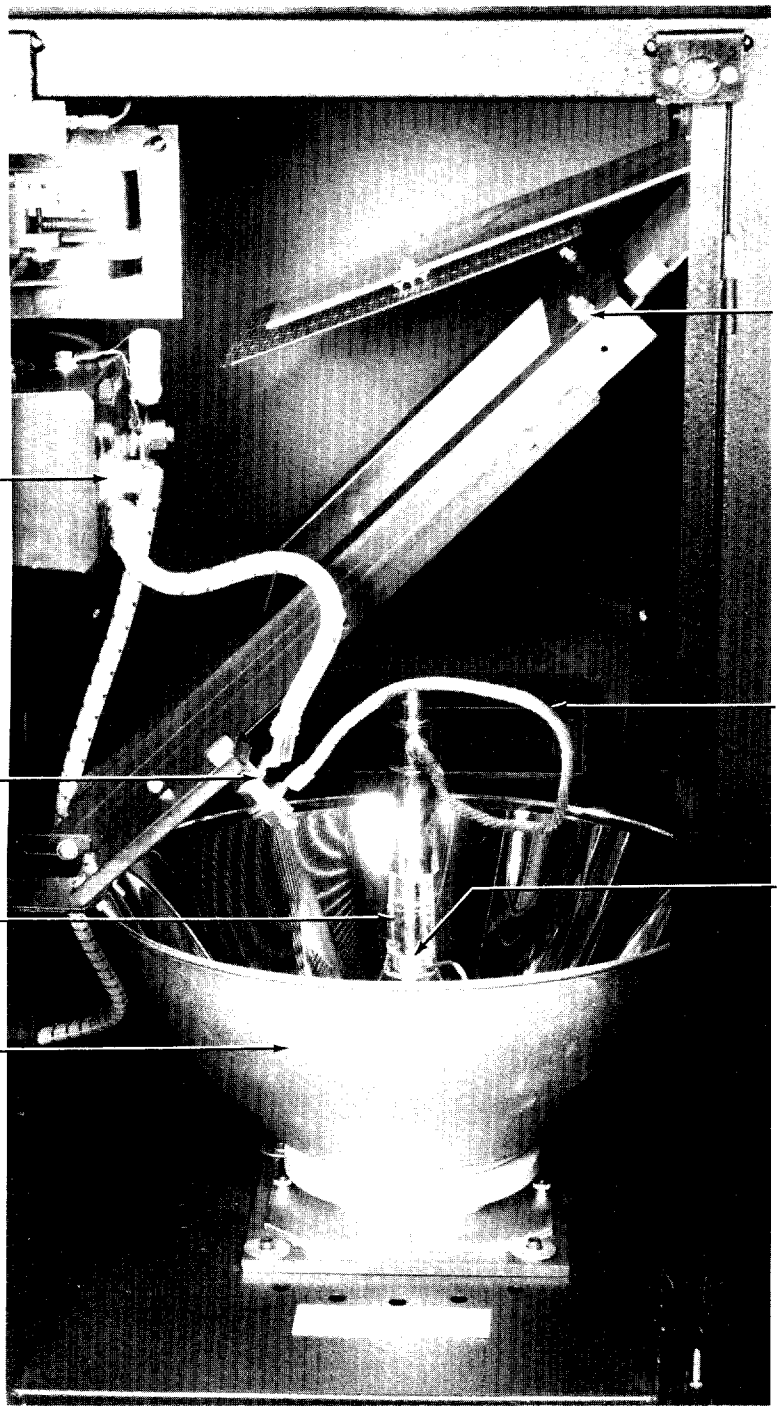


NO ADAPTER REQUIRED
(8mm Socket)

HANOVIA XH4200HS
HANOVIA XH7000HS
OSRAM XBO4000W/HS OFR
OSRAM XBO7000W/HS OFR
ORC XM4500HS
ORC XM7000HS

CATHODE MOUNT
1221802-1

CATHODE MOUNT
1221802-3



Install Xenon Bulb with Anode (large electrode) *above* Cathode (small electrode). Dress Anode Lead *away* from Grounded Lamphouse Components.

XENON BULB INSTALLATION

OBSERVE ALL SAFETY PROCEDURES whenever handling the xenon bulb. Do not permit unauthorized personnel to handle xenon bulbs. Leave the bulb in its protective covering when possible. Turn the power to the lamphouse OFF and open the lamphouse compartment access door.

RECORD THE BULB TYPE AND SERIAL NUMBER on the "Xenon Lamp Record" card located on the rear access door. Enter the DATE installed, and the HOURS as indicated on the lamphouse elapsed time meter. This information will be required if making a warranty claim on the xenon bulb.

ADAPTERS ARE REQUIRED to position some models of xenon bulbs in the main reflector, and are detailed on the OPTIMAX BULB ADAPTERS chart. Mount the adapter to the cathode (-) pin of the bulb prior to inserting the bulb into the lamphouse. Install the anode lead (if not factory mounted) to the anode (+) end cap. Wear the gloves provided and handle the xenon bulb by the metal end caps **only**; do not touch the quartz envelope. Do not apply any stress or torque to the envelope.

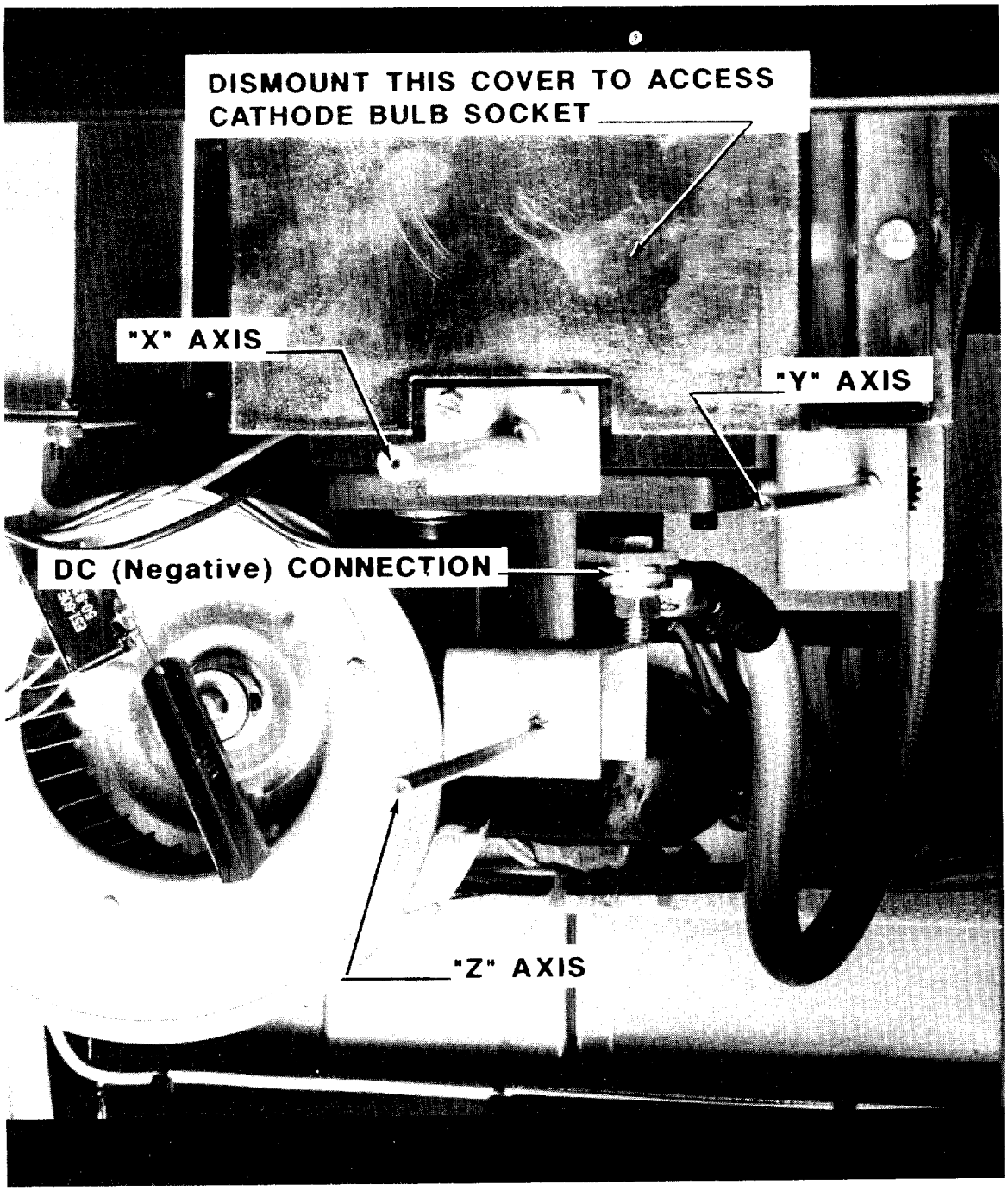
AFTER MOUNTING the adapter to the bulb (if required), remove the cover panel from the bulb positioning mechanism below the main reflector. Make certain the (2) 10-32 socket-drive, headless set screws (Part No. 41-51178) are present in the brass bulb socket. Insert the cathode (-) end of the bulb into the main reflector. Pass the cathode end cap through the center opening of the reflector and seat the cathode pin (or adapter pin) fully into the bulb socket. Using the 3/32 inch allen wrench provided, tighten the (2) set screws firmly.

CONNECT THE LEAD from the anode (+) end cap of the bulb to the output lead of the igniter. A binding post screw is located on the insulator block inside the lamphouse access door for this connection. Dress the anode lead at least one inch away from all grounded metal lamphouse components.

REMOVE THE PLASTIC PROTECTIVE COVER from the bulb, taking care not to apply stress to the quartz envelope. Check the bulb DC connections for tightness; loose connections will overheat and damage the xenon bulb. Replace the cover plate over the bulb positioning mechanism. Close and secure the lamphouse access door. Store the bulb's shipping container and protective cover in a secure location; in the event of a warranty return, most bulb manufacturers require that items be returned in their original packaging.

MECHANICAL ELEMENTS of the optical system (bulb socket, main reflector, folding mirror) are factory aligned prior to shipment. Minor dislocations in shipping, and the manufacturing tolerances allowed between individual xenon bulbs, will necessitate a slight degree of re-adjustment at the installation site. This procedure is detailed in the OPERATION section immediately following.

BECAUSE OF THE VERTICAL CONFIGURATION of the xenon bulb, there is no requirement to rotate or otherwise reposition the bulb once it is installed. Likewise, no arc stabilization magnet is required for correct positioning of the xenon arc. Operator maintenance of the xenon lamphouse is limited to periodic cleaning of the reflector, folding mirror, and bulb envelope. Cleaning intervals will be dictated by dirt and dust conditions at the installation site. Allow the lamphouse to cool to room temperature before cleaning. See the following MAINTENANCE section for details.



XENON BULB POSITIONING CONTROLS

"X" Axis: Left to Right

"Y" Axis: Front to Back

"Z" Axis: Up & Down (Focus)

Use 3/32" Allen Key to Operate

BULB ADJUSTMENT AND LAMPHOUSE OPERATION

MECHANICAL ADJUSTMENT of the xenon bulb is required only upon system start-up and after installing a replacement xenon bulb. Daily operation of the Optimax Console requires no operator adjustments of the xenon bulb or any lamphouse optics.

THE BULB ADJUSTMENT PROCEDURE requires operator access to the xenon power supply and the bulb positioning controls. The rear and off-operator side covers are to be left in place and secured with the two (2) quarter-turn fasteners at the top of each cover. The lamphouse compartment outer cover is to be removed, while the hinged inner access door to the lamphouse compartment may be closed and secured with the three (3) screws to actuate the interlock switch and isolate the bulb from the operator.

INITIAL OPERATION

1. Make certain the xenon bulb is correctly installed in accordance with the preceding BULB INSTALLATION section. Verify that the plastic protective cover has been removed. Check both positive and negative bulb electrical terminations for secure connections.
2. Close the inner lamphouse access door; use all three screws to secure. Turn on the lamphouse exhaust system. Close the lamphouse douser.
3. Energize the main AC input line to the console. The POWER light on the left side of the analog instrument panel will glow.
4. Turn on the RECTIFIER, LAMPHOUSE and PROJECTOR circuit breakers. The lamphouse cooling blower motor will start. The backlight behind the L.C.D. screen on the digital control panel will glow.
5. Remove the projection lens from the projector. Install the CinemaScope (anamorphic) aperture plate. With no film threaded, start the projector motor.
6. Turn on the LAMP switch below the ammeter (or L.C.D. screen) to ignite the xenon bulb. This switch bypasses any automation circuitry, and serves as a manual override. On the *analog* control panel, the LAMP ON light will glow, and the elapsed time meter will start. The L.C.D. screen of the *digital* control panel will display current, voltage, and wattage, and elapsed hours will begin counting up.
7. If the bulb fails to ignite, momentarily press the MANUAL START switch (labeled IGNITE on the Digital control panel). **Do not hold longer than one (1) second.** Use of the MANUAL START switch is an emergency measure, and indicates an abnormal condition. See the TROUBLESHOOTING section following.
8. Check the DC current displayed on the control panel. Adjust the xenon power supply as instructed in the power supply manual for the correct DC output specified by the xenon bulb manufacturer. To compute lamp wattage (analog control), press the LAMP VOLTS switch to display the arc voltage (Volts x Amps = Watts). **NOTE:** Many xenon power supplies have the capability of overdriving certain wattages of xenon bulbs. *Do not exceed the maximum current limit set by the bulb manufacturer.* Replace the xenon power supply access cover panel and secure in place with the (2) quarter-turn fasteners.
9. Open the lamphouse and changeover dousers and observe the image on the screen. If the illuminated area is "egg-shaped" rather than round, adjust the 45° folding mirror as described in the preceding INSTALLATION section until a round image is projected.
10. The xenon bulb positioning controls are located below the lamphouse compartment. The three (3) rods control the motion of the bulb inside the main reflector. The uppermost rod moves the bulb left and right in the reflector ("Y" axis). The front rod moves the bulb forward and back ("X" axis), and the lower rod moves the bulb up and down ("Z" axis) for focus. The rods are designed to be rotated with a 3/32 inch allen wrench.

11. The dark spot in the center of the image (Figure A) is the projected shadow of the anode (the large electrode in the bulb). The lighter area surrounding the anode shadow is a projection of the center hole in the elliptical main reflector.
12. Move the bulb up and down using the "Z" adjust rod to define the dark spot as shown on Figure B.
13. Rotate the "X" and "Y" rods as required to center the spot as shown on Figure C.

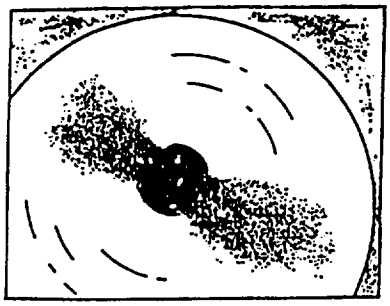


Figure A

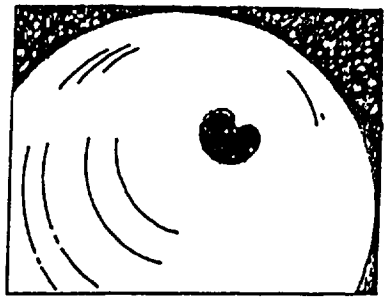


Figure B

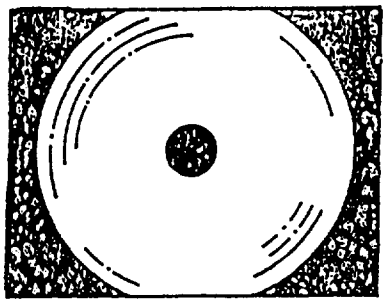


Figure C

14. Leave the projector motor running. Close the lamphouse douser and install the projection lens. Open the lamphouse douser and observe the projected image.

CAUTION: When projecting light to the screen **without film**, it is **mandatory** to frequently *close the lamphouse douser* and permit the lens to cool. DO NOT allow the light to strike the projection lens for more than a few **seconds** at a time. Prolonged light exposure on the lens without film running through the projector can damage or destroy the projection lens.

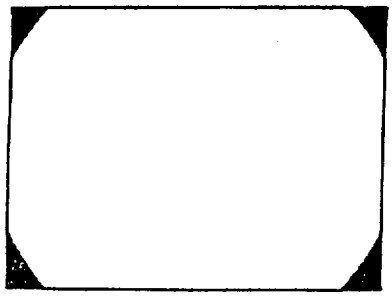


Figure D

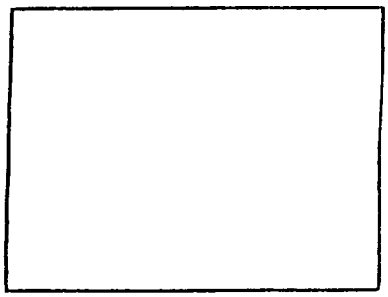


Figure E

15. Rotate the "Z" (focus) control clockwise until all but the four corners are filled with light, as illustrated on Figure D. In this defocused condition, there will be a visibly brighter area ("hot" spot) on part the screen.
16. Adjust the "X" and "Y" controls to position the "hot" spot as close to the center of the screen as possible.
17. Continue the clockwise rotation of the "Z" (focus) control until the screen is evenly illuminated with no dark corners (see Figure E).
18. Replace the outer lamphouse access cover and secure the two (2) quarter-turn fasteners. Extinguish the xenon bulb by placing the LAMP switch in the OFF position; allow the blower and the exhaust system to operate for at least (15) minutes to cool the bulb.

NOTE: An optional Beam Expander Lens Kit is available for use with 70mm projection. When running 70mm film, insert the beam expander lens with the flat surface toward the screen. A slight change in the FOCUS adjustment ("Z" axis) may be required for 70mm operation. DO NOT use the beam expander lens for 35mm operation.

XENON BULBS for OPTIMAX II-S CONSOLE

1600 Watt	Adapter	Nominal Current	DO NOT EXCEED
HANOVIA XH1600VW	1221770-1	65 A.	70 A.
HANOVIA XH1600HW	1221770-5	65 A.	70 A.
OSRAM XBO1600W/CA OFR	1221770-1	65 A.	70 A.
OSRAM XBO1600W/HSC OFR	1221770-5	65 A.	70 A.
ORC XM1600H/VC	1221770-1	65 A.	70 A.
ORC XM1600HS	1221770-5	65 A.	70 A.
2000 Watt			
HANOVIA XH2000HS	1221770-7	75 A.	90 A.
OSRAM XBO2000W/OFR	1221770-1	75 A.	90 A.
OSRAM XBO2000W/HS OFR	1221770-7	75 A.	90 A.
OSRAM XBO2000W/SHSC OFR	1001770-5	75 A.	90 A.
ORC XM2000H/VC	1221770-1	75 A.	90 A.
ORC XM2000HS	1221770-7	75 A.	90 A.
2500 Watt			
HANOVIA XH2500VW	not req'd.	90 A.	100 A.
HANOVIA XH2500HS	1221770-7	90 A.	100 A.
OSRAM XBO2500W/OFR	not req'd.	90 A.	100 A.
OSRAM XBO2500W/HS OFR	1221770-7	90 A.	100 A.
ORC XM2500H/VC	not req'd.	90 A.	100 A.
ORC XM2500HS	1221770-7	90 A.	100 A.
3000 Watt			
HANOVIA XH3000HW	not req'd.	95 A.	100 A.
OSRAM XBO3000W/H OFR	not req'd.	95 A.	100 A.
OSRAM XBO3000W/HS OFR	1221770-7	95 A.	100 A.
ORC XM3000H/VC	not req'd.	95 A.	100 A.
ORC XM3000HS	1221770-7	95 A.	100 A.
4000 - 4500 Watt			
OSRAM XBO4000W/HS OFR	not req'd.	130 A.	150 A.
HANOVIA XH4200HS	not req'd.	135 A.	150 A.
ORC XM4200H/VC	not req'd.	135 A.	150 A.
ORC XM4500HS	not req'd.	140 A.	150 A.
7000 Watt (Minimum Film Aperture: 70mm)			
HANOVIA XH7000HS	not req'd.	150 A.	160 A.
OSRAM XBO7000W/HS OFR	not req'd.	150 A.	160 A.
ORC XM7000HS	not req'd.	150 A.	160 A.

Bulbs sold by manufacturers not listed above must be certified by their supplier as being 100% interchangeable.

DAILY OPERATION

1. Turn on the exhaust system. Turn all circuit breakers ON; close the lamphouse douser. Place the LAMP switch in the ON position to ignite the xenon bulb. Open the lamphouse douser **only** after the projector is running. DO NOT operate the xenon bulb for over twenty (20) minutes with the lamphouse douser closed.
2. If using a booth automation system, leave the lamphouse douser OPEN. The automation controller will switch the xenon bulb ON after starting the projector motor. At the *shut-down* cue, or in the event of a film break or other automation failsafe fault, the xenon bulb will extinguish. All blowers will continue to operate and cool the bulb and power supply. The automation controller will re-ignite the bulb upon the next *show start* cue, or after restoration of the fault.

CAUTION: If operating the lamphouse in the manual mode (by use of the LAMP switch), as an override to a faulty lamphouse ignition circuit in an automation controller, DO NOT leave the console unattended. In the event of a film break, platter head wrap, or other automation fault, the bulb will **not** extinguish, resulting in possible print and/or projector damage.

3. At the close of the day, allow the console and exhaust blowers to operate for at least fifteen (15) minutes after extinguishing the xenon bulb. This measure assures proper bulb cool-down, and is required by most bulb manufacturers to comply with warranty requirements.

A NEW BULB is normally operated at or slightly below the "nominal" current level. As the bulb ages, the quartz envelope will darken and the light output will decrease. To restore the light output, the operating current can be gradually increased to, but not exceeding, the maximum current level. Because of manufacturing tolerances on xenon bulbs, one lamp in a two-machine booth may be operated at a slightly higher or lower current setting than the other to balance the light on the screen.

WHILE A VERTICAL XENON BULB will generally perform well beyond its stated warranty life, the bulb manufacturer will allow *no credit* for explosion-damaged reflectors or mirrors if the subject xenon bulb has been operated beyond its warranty period. This should be considered when determining the interval of bulb replacement.

BULB WARRANTY RETURNS

RETURN BULBS upon which a warranty claim is being made to the theatre equipment dealer through whom the bulb was purchased. Pack the bulb in its original shipping carton with the protective cover over the bulb. Complete and enclose all warranty forms supplied by the bulb manufacturer.

WARRANTY CREDIT will **not** be allowed if the bulb failure is related to mishandling, incorrect installation, faulty supporting equipment, or abuse.

REFLECTORS AND MIRRORS damaged by a bulb explosion should be forwarded to the **bulb** manufacturer for warranty adjustment. Include an invoice copy authenticating the cost of the replacement parts.

DIGITAL DISPLAY

UPON ENERGIZING the LAMP circuit, the backlighting will illuminate the LCD screen. When all blowers are operating and the lamphouse door is closed and correctly secured, the display will appear as shown:

000V 000A 0000W
1234BLB 12345HR *

FOR PURPOSES OF ILLUSTRATION, the above display indicates a non-operating bulb with 1,234 hours of use installed into a console with 12,345 hours of operation. The asterisk (*) at the end of the second line, when flashing, indicates that the display is active and awaiting input. Upon bulb ignition, the upper line will display the arc voltage (V), the DC current (A), and the operating wattage (W) of the bulb. These figures will shift for the first few moments of bulb operation, but will stabilize after the bulb reaches normal operating temperature and pressure.

IN THE EVENT of an open interlock switch, the lower line of the screen will display the appropriate diagnostic measure, i.e. CHECK FRONT DOOR or CHECK EXHAUST.

CHECK FRONT DOOR:	Make certain the inner, hinged operator's lamphouse access door is closed and has been secured with all three screws.
CHECK EXHAUST:	Make certain the exhaust blower has been switched ON and is operating without obstruction.
CHECK BLOWER:	Make certain the squirrelcage blower below the reflector is energized and operating, and that the air vane switch is actuating.

WHEN THE INTERLOCK CIRCUIT is complete, the closure of the LAMP switch, or the automation closure, will energize the contactor of the xenon power supply. The high open circuit ("no load") DC voltage will be displayed. When the open circuit voltage reaches 110 V.DC, a relay closure applies 115 V.AC to the igniter. The igniter will then generate a RF pulse to bridge the gap between the bulb electrodes. This pulse, coupled with the high open circuit DC voltage, will ignite the bulb. The voltage reading will then fall to the bulb's sustaining level. The igniter relay will fall out and de-energize the igniter when the DC voltage drops below 110 volts. The DC amperes (A), arc voltage (V), and wattage (W) will then be displayed continuously until the xenon bulb is extinguished.

ELAPSED HOURS will begin counting upon bulb ignition. Bulb hours (BLB) are limited to four digits, and are re-set when the xenon bulb is replaced. To re-set bulb hours, press the RESET button accessible through marked hole below the LCD screen. A 5/64" allen wrench is the correct diameter to clear the hole.

> **NOTE:** when recording start-up and removal hours on the Xenon Bulb Record, use the **total elapsed hours** (HR) figures. The (BLB) figure, re-set upon installation of the bulb, is a convenience feature ONLY. Basing records of the lamp system on the total hours (HR) figures creates an accurate and ongoing history of bulb usage.

DIGITAL DISPLAY (continued)

IF THE XENON BULB fails to ignite, elapsed hours will *not* count; rather, additional diagnostic messages will display on the lower line of the LCD screen:

CHECK PWR SUPPLY: If no DC current is sensed, or if voltage does not exceed 100 V.DC, check the xenon power supply. Repair or replace as required.

CHECK IGNITER: If the DC open circuit voltage reaches and exceeds 110 V.DC and the igniter fails to pulse, check for 115 V.AC on the LAMP control circuit. Make certain the LAMP circuit breaker is ON. Repair or replace the igniter or igniter relay as required.

DIAGNOSTIC MESSAGES serve as prompts and suggestions but do not replace traditional troubleshooting procedures. If the lamphouse access door is closed and secured but transmits an error message, check the subject door interlock switch with an ohmmeter and replace if defective. Dirt or dust fouling an air vane switch will cause a "blower" or "exhaust" error message. A "power supply" or "igniter" error message might be caused by a loose or oxidized connection.

MAINTENANCE

THE STRONG OPTIMAX II-S CONSOLE requires very little maintenance to keep it in good working order. Cleaning operations should be performed at least once bi-weekly. Switch off all power and allow the lamphouse and bulb to cool to room temperature before servicing the unit.

THE MAIN REFLECTOR and the folding mirror should be cleaned with a soft, clean, dry cotton cloth every two weeks. If excessively soiled, a solution of 10% alcohol to 90% clear water may be used. **Use no abrasives or commercial glass cleaners**. Exercise extreme care not to scratch or fingermark the coated surface.

UNDER EXTREMELY DUSTY CONDITIONS, such as a non-climate controlled or drive-in booth, it may be advisable to wash the main reflector once or twice a year. Observing all safety precautions, remove the xenon bulb and store it in its protective cover. Dampen cotton or a soft cloth in a soap and water solution, and gently wipe the surface of the reflector. Rinse well, using clear water and a fresh cloth or cotton swab. Replace the xenon bulb and repeat the bulb alignment procedure.

THE BULB should be checked regularly for presence of dirt or foreign material on the envelope. Dirt or foreign material must be removed from the bulb immediately, or they will burn into the quartz envelope and shorten bulb life. Use *only* isopropyl alcohol and a clean cloth on the quartz bulb envelope. NOTE: **Observe all safety procedures when working around the bulb.**

CHECK ALL ELECTRICAL CONNECTIONS periodically for tightness. Particular attention should be paid to the DC connections at the cathode bulb socket, the shunt, and the positive binding post.

THE INSIDE of the lamphouse compartment and the blower intakes should be cleaned whenever possible, depending on the dust conditions at each installation. Keep all air inlet grilles clean and free from obstructions. Vacuum the power supply heat sinks.

THE LAMPHOUSE BLOWER requires periodic lubrication. The blower motor is thermally protected, and may shut off if unlubricated bearings cause the motor to overheat. Interruption of the air flow will open the interlock switch and extinguish the xenon bulb. Apply a few drops of light, non-detergent motor oil to the motor bearings every four to six months. The motor bearings are easily accessible through the vent holes in the motor housing. Use of a squeeze-type, plastic injection oiler is recommended.

TROUBLESHOOTING

NORMAL OPERATION

The 115 V.AC control circuit is protected by the LAMP circuit breaker on the distribution panel. Placing this circuit breaker in the ON position will power the lamphouse cooling blower. The blower will operate continuously until the LAMP breaker is opened. With the blower in operation, the air flow switch will close; with the inner lamphouse access door closed and engaging the door interlock switch, the interlock circuit will be complete.

A separate RECTIFIER circuit breaker on the distribution panel must be closed in order to energize the xenon power supply and provide DC current to the bulb. The exhaust system must be operating, and creating an adequate exhaust draft.

Bulb ignition is brought about by (a) a closure from an automation controller or (b) manual operation of the LAMP switch on the instrument panel. Manual closure of the LAMP switch will override automation control and ignite the bulb whenever the interlock switches are closed. When the lamp ignition circuit is complete, the LAMP ON light will glow, the elapsed time meter will run, and the coil of the xenon power supply contactor K1 will be energized. The high DC open circuit voltage from the xenon power supply will close the relay in the lamphouse autostrike circuit, which in turn will apply 115 V.AC to the igniter.

The xenon bulb should ignite within three (3) seconds after completion of the ignition circuit. A warm or aged bulb may require two or more ignition pulses before sustaining ignition. A short delay between ignition pulses is normal, as capacitors in the xenon power supply must re-charge. Allow a minute for the bulb current to stabilize, and check the DC current displayed on the ammeter. Adjust the xenon power supply as required to operate the bulb within the current range specified by the bulb manufacturer.

DO NOT ignite the bulb unless (a) the lamphouse douser is closed or (b) the projector is running. DO NOT operate the lamphouse for over twenty (20) minutes with the douser closed.

If the xenon bulb fails to ignite under the above conditions, momentarily press the the MANUAL START switch (labeled IGNITE on the Digital control panel) on the instrument panel. **Do not hold this switch for longer than one (1) second.** Prolonged closure of this switch may damage both the bulb electrodes and the high voltage igniter transformer. Use of this switch is an *emergency* measure and indicates a faulty igniter relay or a malfunction in either the igniter autostrike circuit or the xenon power supply.

Upon bulb ignition, the elapsed time meter will start and record the hours of bulb use. A defective elapsed time meter will *not* prevent bulb ignition.

The xenon bulb will extinguish when (a) the automation closure opens, or (b) the manual LAMP switch is placed in the OFF position. Allow the lamphouse blower and the exhaust system to operate for **at least** fifteen (15) minutes after extinguishing the bulb to allow forced-air cooling of the bulb. This measure greatly increases bulb life, and is required by most bulb manufacturers for bulb warranty compliance.

Exercise all due caution when taking voltage measurements in a power ON condition. Note that capacitors may store an electrical charge for prolonged periods *after* AC power has been disconnected.

No POWER Indicator Light

1. Check AC supply at source (booth fuses, distribution panel, etc.). Measure three phase console input voltage at TB1 leg-to-leg to detect phase loss.
2. MASTER circuit breaker (Optional; if supplied) open or defective.
3. Exhaust blower off or exhaust system obstructed.
4. Lamphouse compartment access door open or loose. Close and secure.
5. Lamphouse blower not operating, or not moving adequate air. Check for 115 V.AC at blower motor input; replace if defective. Check air inlet and outlet for obstructions; clean and/or lubricate as required.
6. Defective door, blower, or exhaust air vane interlock switch. Check with ohmmeter.

POWER and LAMP ON Indicator Lights ON; Bulb Fails to Strike

1. Defective automation contact. If bulb ignites normally by closing LAMP switch, check automation controller "lamp" contacts.
2. Faulty LAMP switch. Check contacts with ohmmeter; replace if defective.
3. Igniter circuit breaker tripped. Press to reset.
4. Low DC open circuit voltage from xenon power supply. Check for minimum 110 V.DC from power supply; repair or replace power supply as required.
5. Defective autostrike circuit. If bulb ignites by pressing MANUAL START switch, check autostrike circuit.
   a) If DC voltage at igniter relay coil terminals reaches 48 V.DC, and relay fails to close, replace relay.
   b) If DC open circuit voltage is normal (Step 4) and relay coil terminals fail to energize, replace zener diode.
6. Defective igniter. Repair or replace as required.

POWER and LAMP ON Indicator Lights ON; Bulb Flashes, but Fails to Ignite

1. No DC current to bulb. Turn on RECTIFIER circuit breaker.
2. Xenon power supply DC output set too low. Increase output as instructed in Power Supply Manual.
3. Low open circuit voltage from xenon power supply. See Power Supply Manual.
4. Defective or expired xenon bulb. Replace as required.

Igniter Continues to Strike After Bulb Ignition

1. Inspect igniter relay for welded contacts. Replace if defective.

Bulb Unstable or Goes Out During Operation

1. Check exhaust system for obstructions or backdraft.
2. Check lamphouse blower for obstructions. Blower motor is thermally protected and will shut off if overheated. Clean or lubricate as required.
3. Check xenon power supply for free air flow. Thermal switches on the power supply heat sinks will interrupt operation if components overheat.
4. Check AC supply line for voltage drop or phase loss.
5. Inspect xenon bulb. Deformed electrodes indicate excessive ripple; check xenon power supply. High current and low voltage indicate seal leakage; replace as required.

Bulb End Caps Discolored

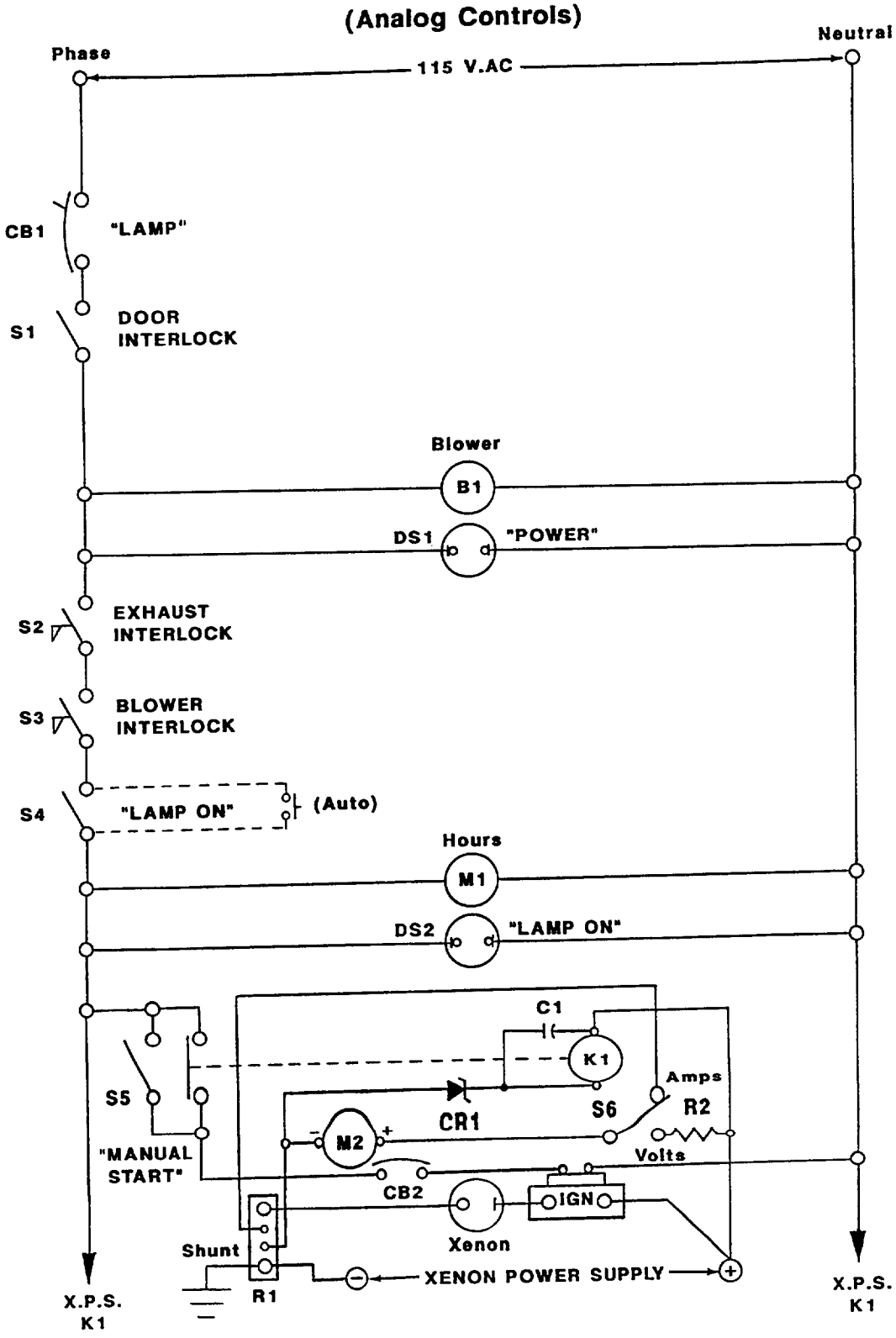
1. Loose DC connection to bulb, bulb adapter, or bulb lead. Clean or replace oxidized contacts and tighten properly.
2. Lamphouse blower obstructed or too slow. Clean, lubricate, or replace as required.
3. Inadequate heat dispersion. Check exhaust system for free air flow and/or increase exhaust draft.

Bulb Envelope Discolored

1. Lamphouse blower obstructed or too slow. Clean, lubricate, or replace as required.
2. Inadequate heat dispersion. Check exhaust system for free air flow and/or increase exhaust draft.
3. Xenon bulb contaminated or leaking. Replace as required.

Xenon Power Supplies, Lamphouse Igniters, and other components shipped to the factory for credit, repair or repair/exchange *must* be returned through an authorized Strong International Equipment Dealer. Contact your Strong International Dealer for a **Return Authorization** and instructions prior to shipping any goods to Strong.

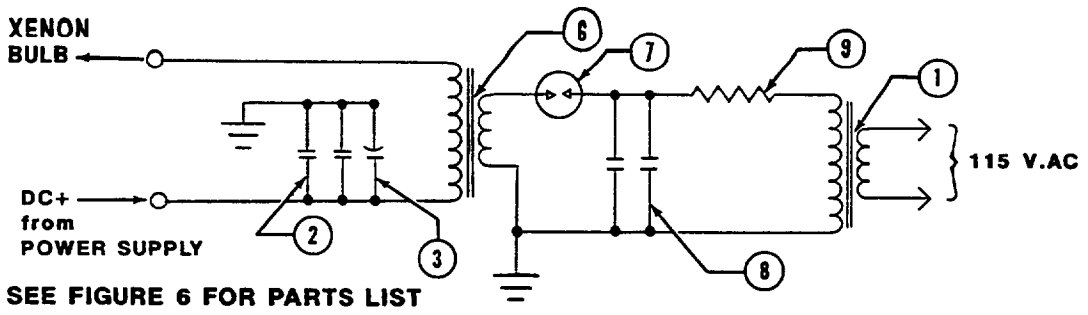
OPTIMAX LAMPHOUSE
(Analog Controls)



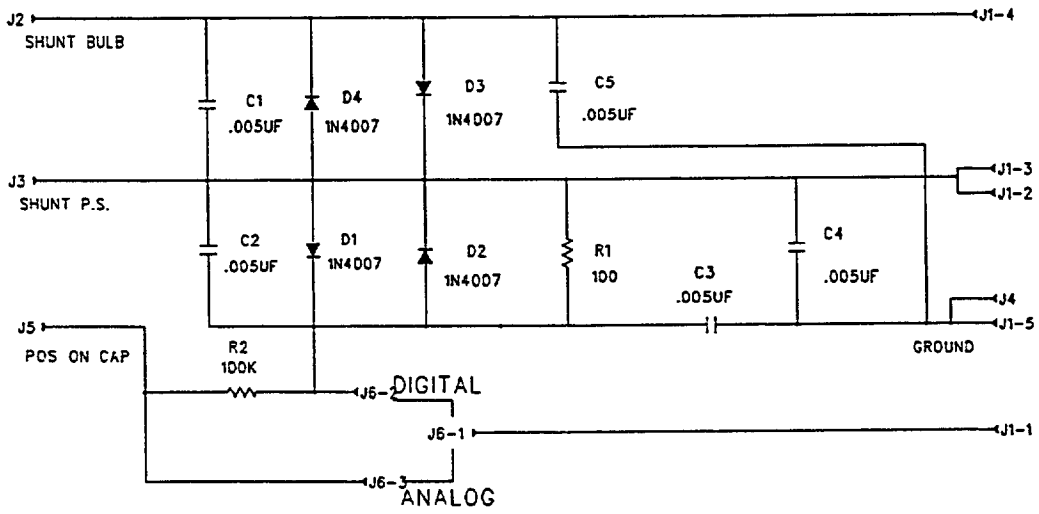
PARTS LIST
Wiring Diagram

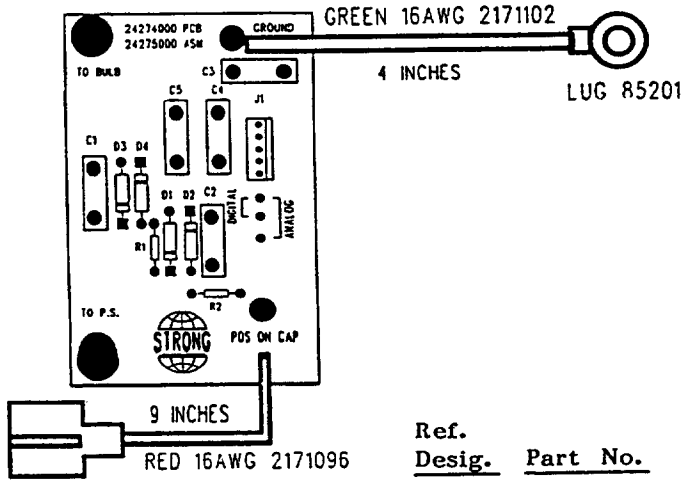
Ref. Desig.	Part No.	Description
B1	4036-0009	Bulb Seal Blower, 115 V.AC, 50/60 Hz.
C1	2065-0155	Capacitor, 50 μf, 150 V.DC
CB1	2155-0004	Circuit Breaker, 5 Ampere (see Figure 3, Item 4)
CB2	2151-1005	Circuit Breaker, ½ Ampere (see Figure 3, Item 20)
CR1	2736-7510	Zener Diode, 75 Volt
DS1	2450-5850	Indicator Light (see Figure 3, Item 12)
DS2	2450-5850	Indicator Light (see Figure 3, Item 7)
IGN	1140887-1	Igniter Assembly, 1600 Watt and below (see Figure 6)
IGN	1145169-1	Igniter Assembly, 2000 Watt and higher (see Figure 6)
K1	2501-3150	Igniter Relay, DPDT, DC Coil (see Figure 3, Item 1)
--	2275-3120	Relay Socket (see Figure 3, Item 17)
--	2275-3199	Spring Clip, Relay
M1	2479-1216	Elapsed Hour Meter, 120 V.AC, 60 Hz. (see Figure 3, Item 18)
M1	2479-1215	Elapsed Hour Meter, 120 V.AC, 50 Hz.
M2	1144728-13	Volt/Ammeter; 0-60 V. 0-160 Amperes (see Figure 3, Item 11)
R1	2509-0001	Shunt, 120 Amperes, 50 mV.
R2	2529-0003	Resistor, 60.4k Ohm, ¼ Watt 1% or
--	2525-8211	Resistor, 82.5k Ohm, ¼ Watt, 1%
S1	2952-1211	Door Interlock Switch (see Figure 4, Item 15)
S2	21-61005	Air Flow Switch, Exhaust Stack
--	40206	Mounting Bracket, Exhaust Switch
S3	85109	Air Flow Switch, Blower Intake
--	8284	Mounting Bracket, Blower Switch
S4	2966-0056	Rocker Switch, LAMP (see Figure 3, Item 8)
S5	2966-0060	Rocker Switch, Momentary; MANUAL START (see Figure 3, Item 10)
S6	2966-0060	Rocker Switch, Momentary; VOLTS (see Figure 3, Item 9)

OPTIMAX IGNITER



SEE FIGURE 6 FOR PARTS LIST

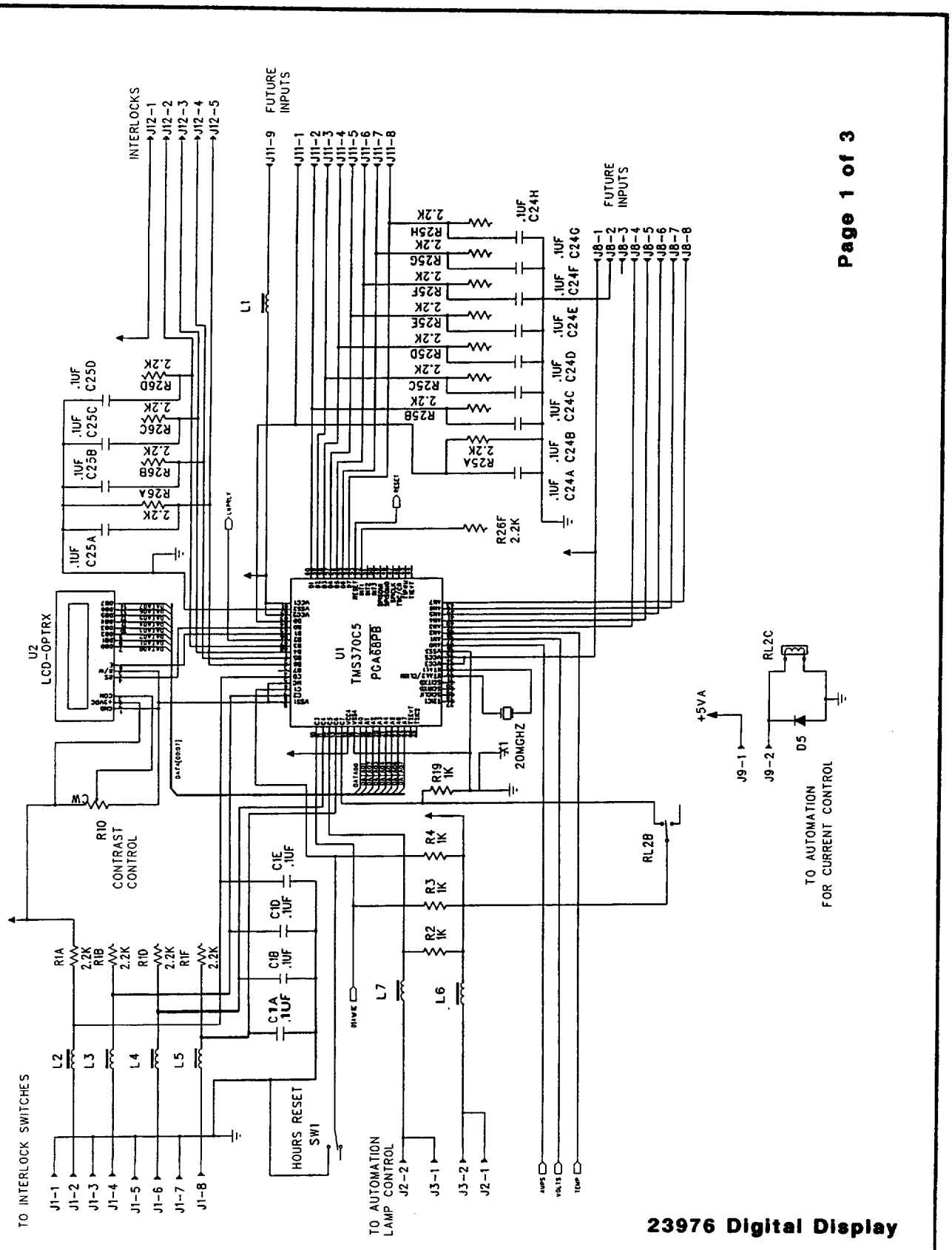




VOLTAGE DIVIDER PCB

Assembly No. 24275
(Mounts to R1 Shunt)

Ref. Desig.	Part No.	Description
C1-5	61-08025	Capacitor, .005 uf, 3 kV.
D1-4	51-17001	Diode, 1N4007
PCB	24274	Printed Circuit Board (less Components)
R1	61-46002	Resistor, 100 Ohm, 1/4 W. 5%
R2	61-46043	Resistor, 100k Ohm, 1/4 W. 5%
J1	21-37051	Connector, (5) Position


Page 1 of 3
INTERLOCKS
J12-1
J12-2
J12-3
J12-4
J12-5
FUTURE INPUTS
J11-9
J11-1
J11-2
J11-3
J11-4
J11-5
J11-6
J11-7
J11-8
FUTURE INPUTS
J8-1
J8-2
J8-3
J8-4
J8-5
J8-6
J8-7
J8-8
L1
U1
TMS370C5
PGA68PB
U2
LCD-OPTRX
R10
CONTRAST CONTROL
HOURS RESET SW1
X1
20MGHZ
R19 1K
R4 1K
R3 1K
R2 1K
RL2B
RL2C
D5
+5VA
J9-1
J9-2
TO AUTOMATION FOR CURRENT CONTROL
TO INTERLOCK SWITCHES
J1-1
J1-2
J1-3
J1-4
J1-5
J1-6
J1-7
J1-8
TO AUTOMATION LAMP CONTROL
J2-2
J3-1
J3-2
J2-1
L2
L3
L4
L5
L6
L7
R1A 2.2K
R1B 2.2K
R10 2.2K
R1F 2.2K
C1A .1UF
C1B .1UF
C1D .1UF
C1E .1UF
C25A .1UF
C25B .1UF
C25C .1UF
C25D .1UF
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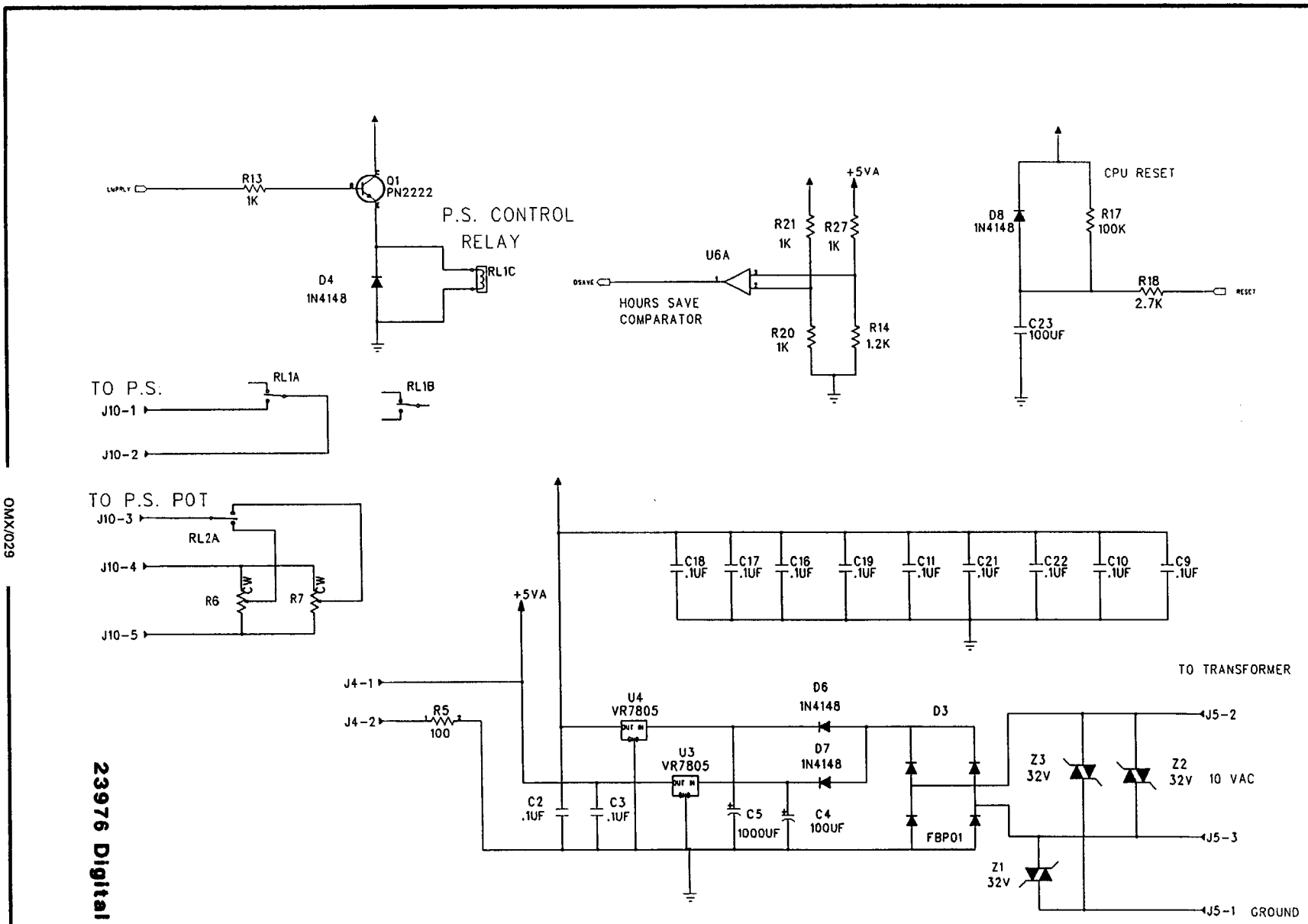
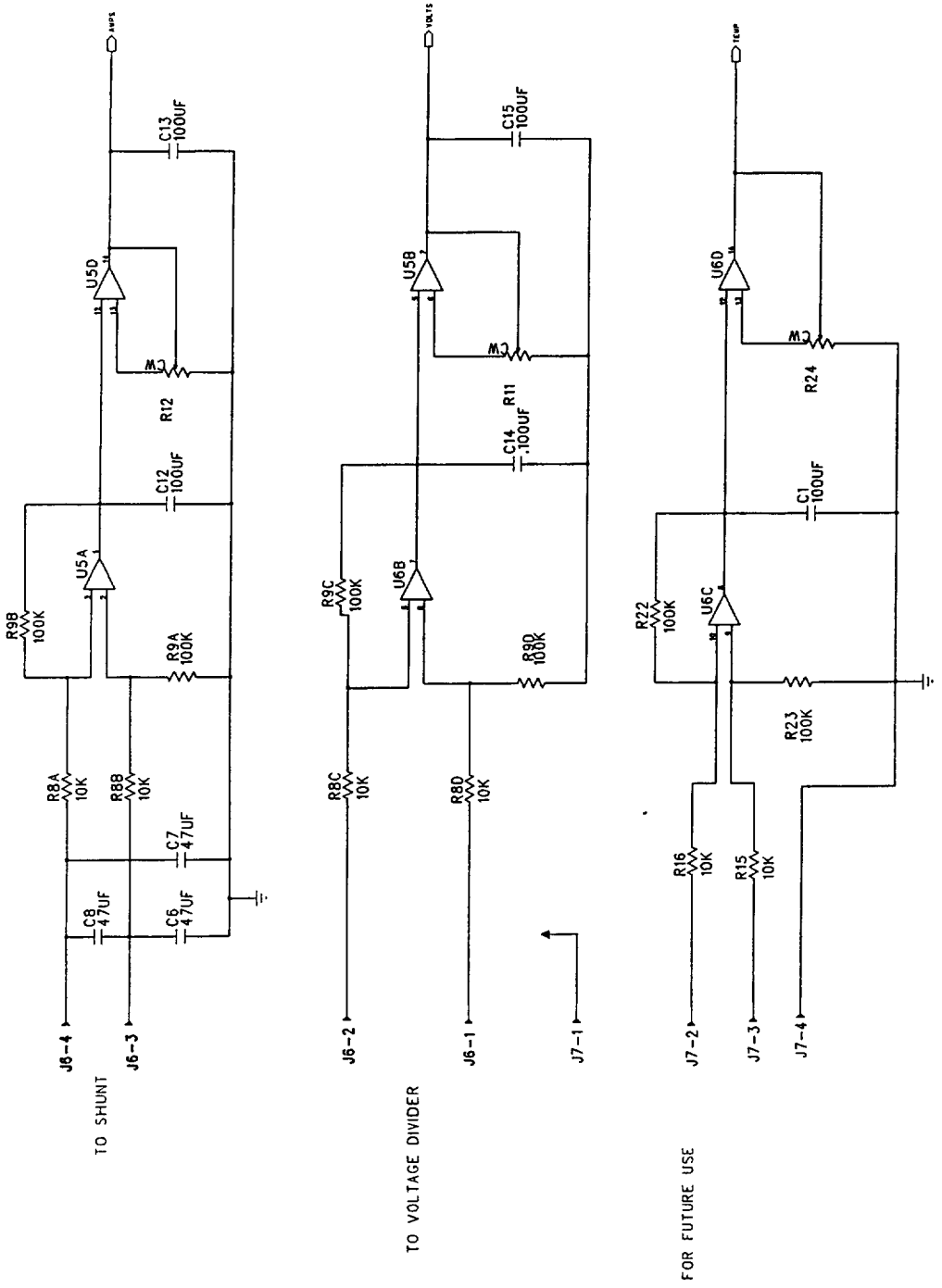
R26B 2.2K
R26C 2.2K
R26D 2.2K
R25A 2.2K
R25B 2.2K
R25C 2.2K
R25D 2.2K
R25E 2.2K
R25F 2.2K
R25G 2.2K
R25H 2.2K
R26F 2.2K
C24A .1UF
C24B .1UF
C24C .1UF
C24D .1UF
C24E .1UF
C24F .1UF
C24G .1UF
C24H .1UF
RESET
23976 Digital Display



OMX/029

23976 Digital Display



23976 Digital Display

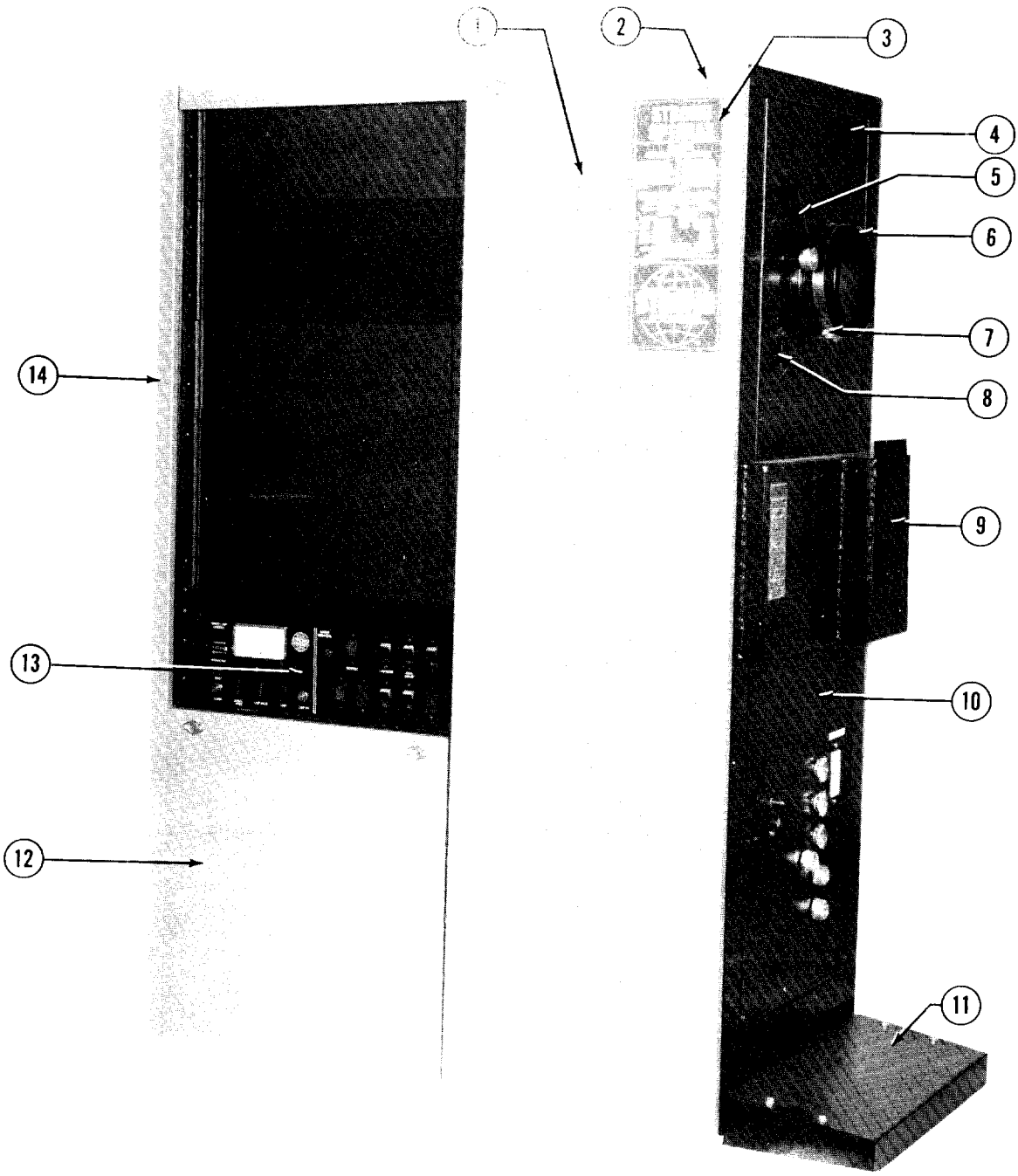


FIGURE 1

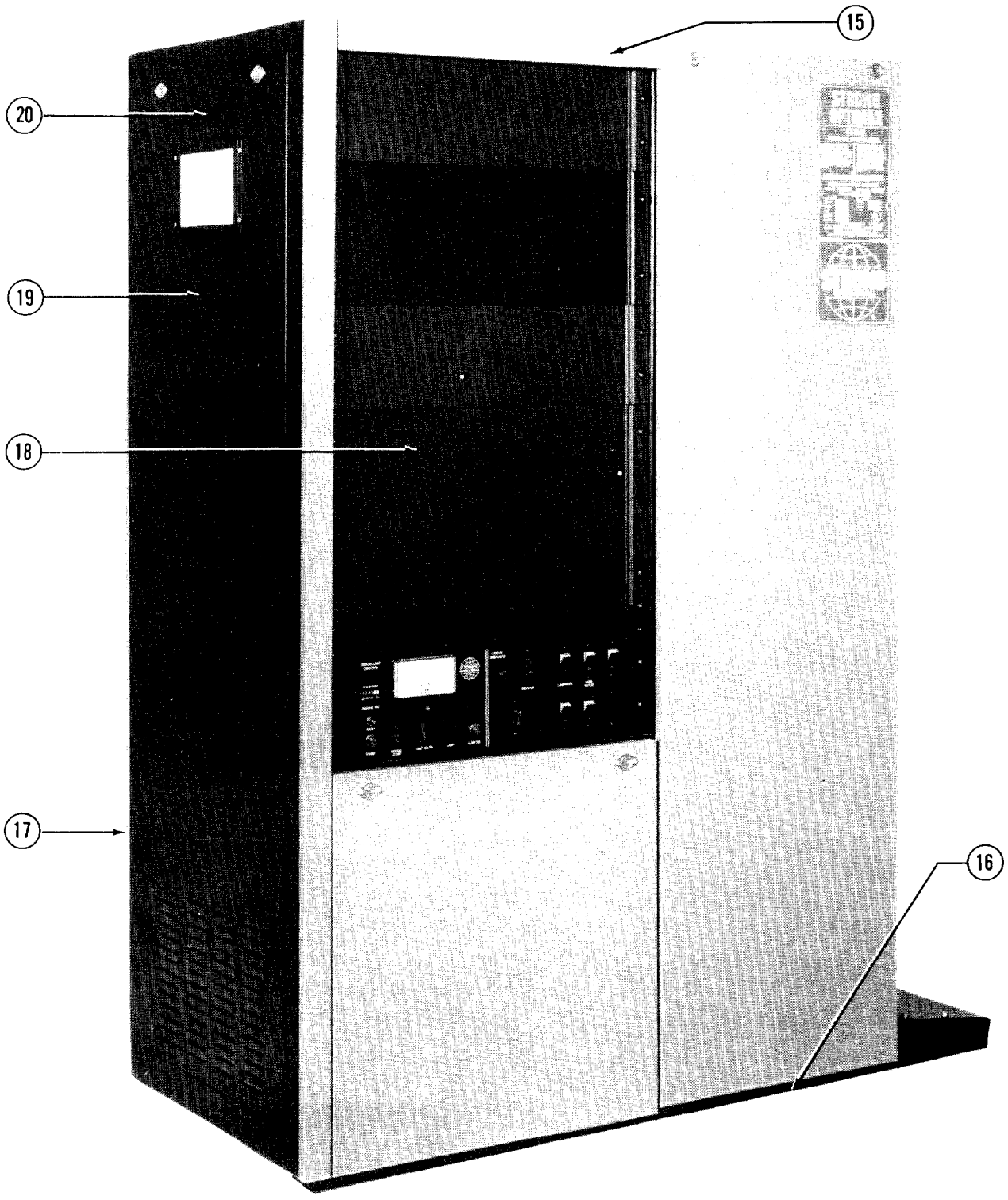


FIGURE 2

PARTS LIST

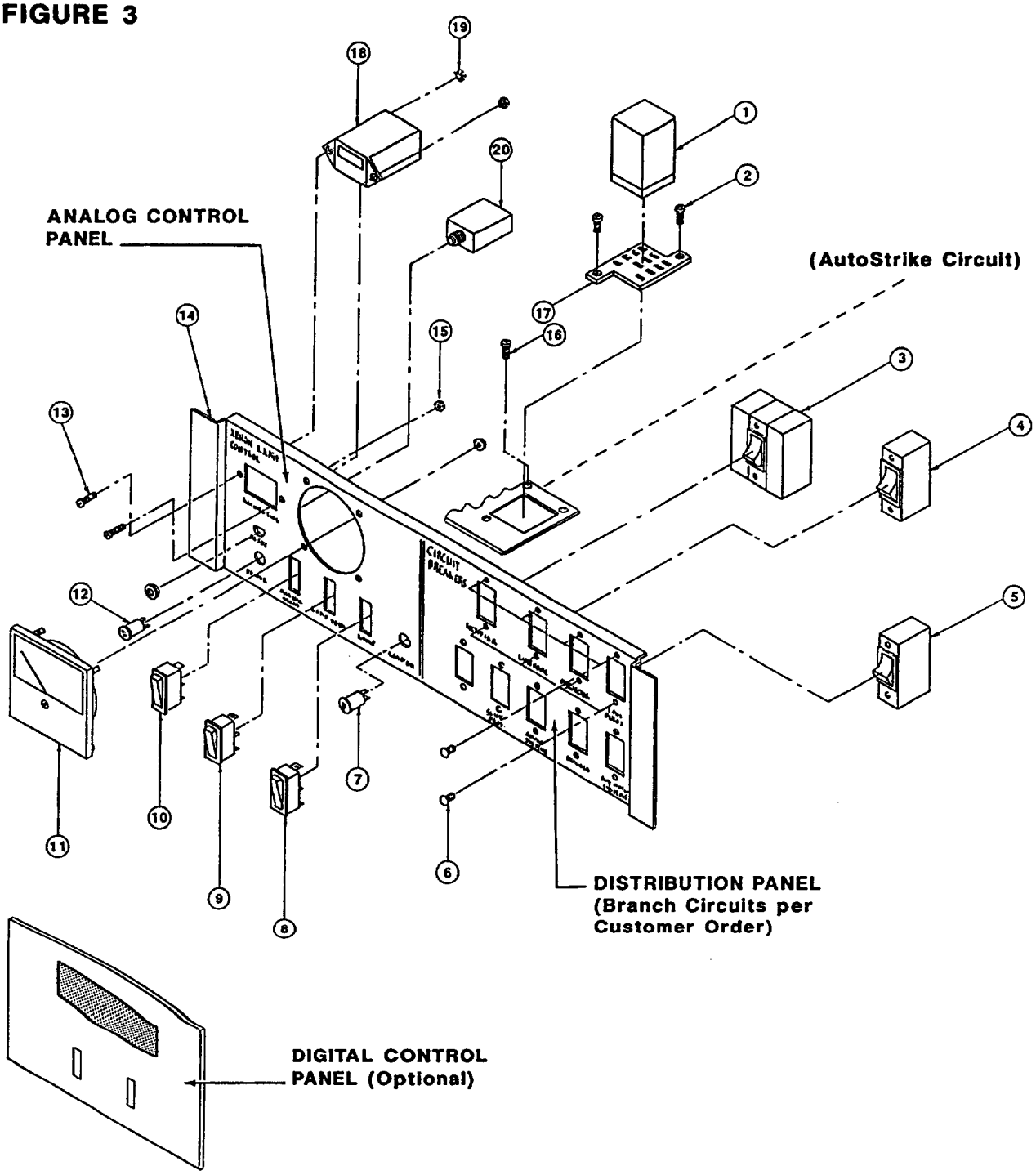
Figure 1

Item	Part No.	Description
1	9683	Outer Door Assembly, Lamphouse Compartment
2	3506-0022	Quarter-Turn Fastener
3	81-34001	Name & Data Plate, OPTIMAX
4	8976	Front Cover Assembly, Lamphouse
-	41-51202	Mounting Screw, 8-32 x 7/8" Socket Head
5	81-28001	Douser Handle, Black Plastic
-	1218081-1	Shaft, Douser Handle
-	1238083-1	Douser Plate, Welded Assembly
-	1121917-1	Screen, Douser Heat Sink
6	1234121-7	Lamphouse Snood
-	1234402-7	Light Shield, Adjustable
-	00237000	Mounting Screw, 8-32 x 3/8" Flat Head
7	4956-0015	Ring Clamp
8	1119123-1	Tinted Glass, Arc Viewing Window
-	1228564-1	Support Bracket, Glass (2 req'd.)
-	01311000	Mounting Screw, 8-32 x 3/8" Pan Head
-	41-35008	Hex Nut, 8-32
9	8906	Console Frame, Welded Assembly
10	1249054-5	Lower Front Cover Assembly
--	41-51202	Mounting Screw, 8-32 x 7/8" Socket Head
--	21-40240	Duplex Receptacle, Convenience Outlet
11	8924	Cover, Base Legs (see Figure 2, Item 16 for Base)
--	41-51102	Mounting Screw, 10-32 x 1/2" Pan Head
12	8932	Cover Assembly, Xenon Power Supply
--	3506-0022	Quarter-Turn Fastener
13	1249114-11	Control Panel (as shown; see Figure 3 for Digital)
--	41-51110	Mounting Screw, 10-32 x 1/2" Truss Head, Black Oxide
14	8934	Dress Panel, Rear

Figure 2

Item	Part No.	Description
15	8933	Dress Panel, Top
16	8964	Console Base, Welded Assembly
17	8938	Cover Panel Assembly, Off-Operator Side
18	1239266-1	Filler Panel, 19" Centers x 10.5"
--	1239199-1	Filler Panel, 19" Centers x 7.0"
--	1239057-1	Filler Panel, 19" Centers x 5.25"
--	1239056-1	Filler Panel, 19" Centers x 1.75"
--	41-51110	Mounting Screw, 10-32 x 1/2" Truss Head, Black Oxide
19	9825	Rear Door Assembly
--	71609	Bulb Record Card
20	5326-0003	Knob, Rear Cover Assembly

FIGURE 3


ANALOG CONTROL PANEL
(AutoStrike Circuit)
DISTRIBUTION PANEL (Branch Circuits per Customer Order)
DIGITAL CONTROL PANEL (Optional)

PARTS LIST
Figure 3

Item	Part No.	Description
1	2501-3150	Igniter Relay, DPDT, 48 V.DC Coil (K1)
-	2275-3199	Spring Clip, Relay Retainer (not shown)
2	41-51045	Screw, 6-32 x 1/2" Pan Head
3	2155-0007	Circuit Breaker, RECTIFIER; 20 Ampere, 2 Pole
3	2155-0008	Circuit Breaker, RECTIFIER; 20 Ampere, 3 Pole
3	2155-0009	Circuit Breaker, RECTIFIER; 30 Ampere, 3 Pole
4	2155-0004	Circuit Breaker, Rocker Type; 5 Ampere (CB1)
5	2155-0006	Circuit Breaker, Rocker Type; 15 Ampere
-	2155-0003	Circuit Breaker, Rocker Type; 1 Ampere (as req'd.)
-	2155-0005	Circuit Breaker, Rocker Type; 10 Ampere (as req'd.)
6	SC-0123	Screw, 6-32 x 1/4" Pan Head, Black Oxide
7	2450-5850	Indicator Light (DS2)
8	2966-0056	Rocker Switch, LAMP (S4)
9	2966-0060	Rocker Switch, Momentary; VOLTS (S6)
10	2966-0060	Rocker Switch, Momentary; MANUAL START (S5)
11	1144728-13	Volt/Ammeter; 0-60 V. 0-160 Amperes (M2)
11	1144728-11	Volt/Ammeter, 7 kW Units; 0-80 V. 0-200 Amperes (M2)
12	2450-5850	Indicator Light (DS1)
13	41-51422	Screw, 4-40 x 1/2" Black Oxide
14	1248999	Control Panel (less Components)
15	41-35072	Hex Nut, 4-40 Esna
16	41-51045	Screw, 6-32 x 1/2" Pan Head
17	2275-3120	Relay Socket
--	3046-0410	Solder Strip, (4) Terminal
--	2065-0155	Capacitor, 50 μf, 150 V.DC (C1)
--	2736-7510	Zener Diode, 75 Volt (CR1)
--	2529-0003	Resistor, 60.4k Ohm, ¼ Watt 1% or
--	2525-8211	Resistor, 82.5k Ohm, ¼ Watt, 1% (R2)
18	2479-1216	Elapsed Hour Meter, 120 V.AC, 60 Hz. (M1)
--	2479-1215	Elapsed Hour Meter, Export Units; 120 V.AC, 50 Hz. (M1)
19	41-35072	Hex Nut, 4-40 Esna
20	2151-1005	Circuit Breaker, Igniter; ½ Ampere (CB2) *Alternate Location:* next to Item 17

DIGITAL CONTROL PANEL
Assembly No. 82-70060

Part No.	Description	Part No.	Description
9745	Front Panel (less Components)	24087	LCD Display, Wired Assembly
9746	Rocker Switch, LAMP	24254	Window, LCD Display Screen
23976	Printed Circuit Board Assembly	2966-0060	Rocker Switch, IGNITE

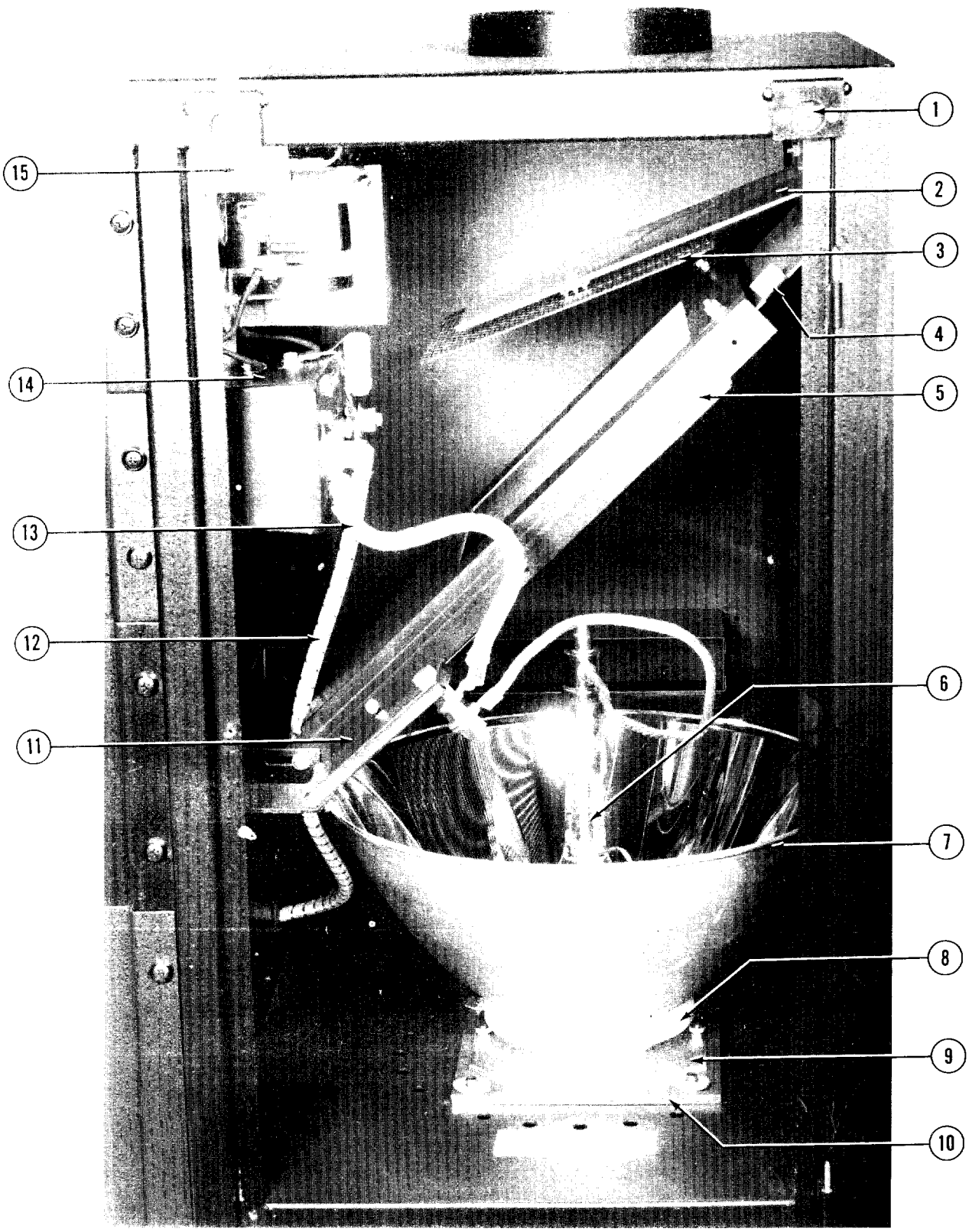


FIGURE 4

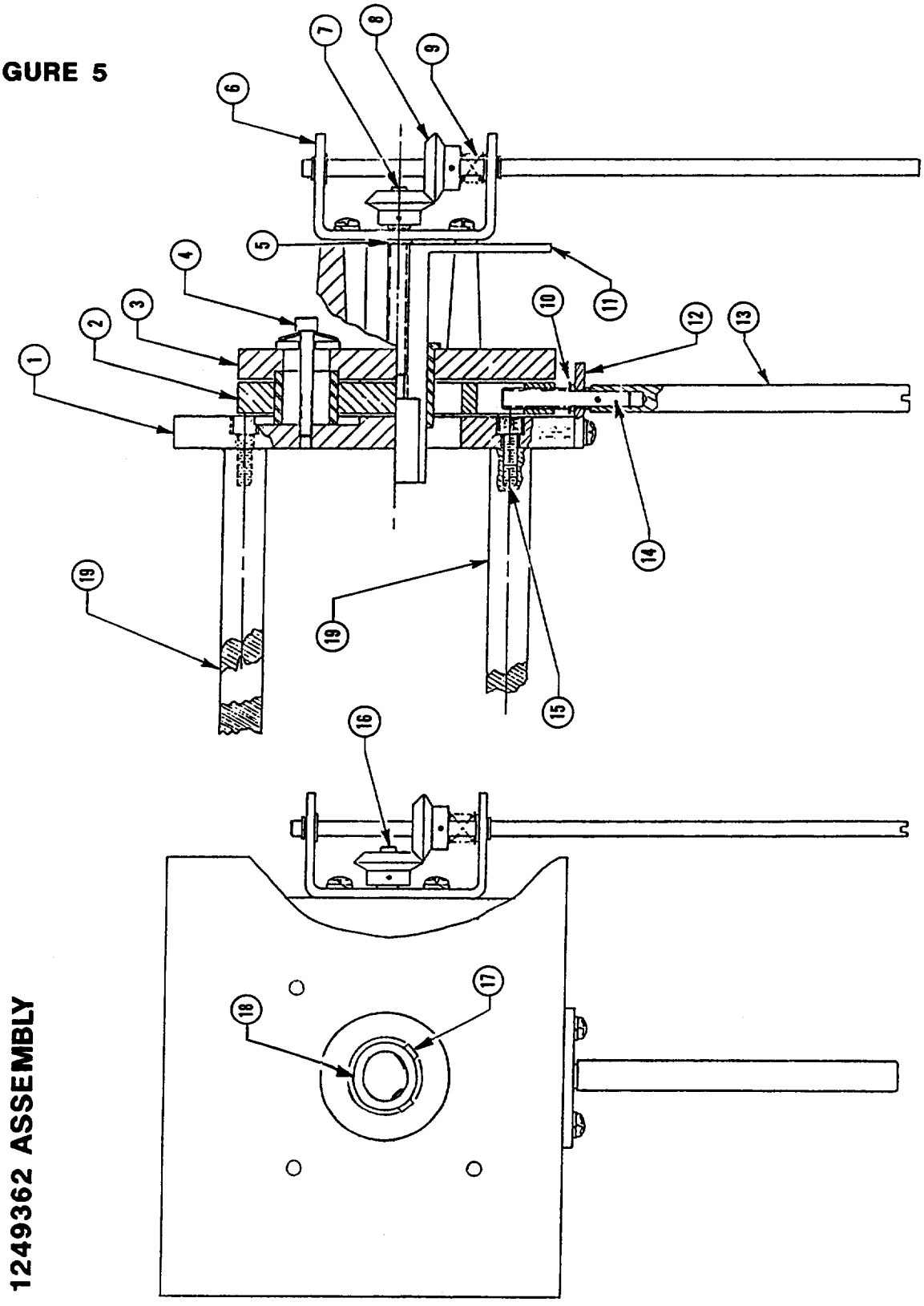
PARTS LIST
Figure 4

Item	Part No.	Description
1	5856-0020	Retaining Spring, Quarter-Turn Fastener
2	1239038-1	Mounting Bracket, Heat Sink Screen
-	01311000	Mounting Screw, 8-32 x 3/8" Pan Head
3	1121917-1	Screen, Heat Sink
-	41-51041	Mounting Screw, 6-32 x 3/8" Pan Head
-	41-35005	Hex Nut, 6-32
4	1239002-1	Upper Retaining Bracket, Folding Mirror
-	01311000	Mounting Screw, 8-32 x 3/8" Pan Head
5	1249095-1	Folding Mirror & Holder Assembly
-	1331118-1	Mirror, Dichroic Coated (2 req'd.) *Replace with Matched Pair*
6	---	Xenon Bulb, with Anode Lead (supplied by Customer)
7	1249411-5	Main Reflector, Elliptical
8	1239318-1	Reflector Support Ring
9	1239039-1	Mounting Plate, Reflector Ring
-	5416-0079	Thumb Nut, Brass (2 req'd.)
-	NU-0079	Adjusting Screw (3 req'd.)
10	1239349-1	Base Plate, Main Reflector
--	41-51213	Mounting Screw, 10-32 x 1" Socket Head
11	1135945-3	Insulator Plate, Positive Binding Post
--	41-51104	Mounting Screw, 10-32 x 3/4" Fillister Head
--	41-31013	Hex Nut, 10-32
--	41-51150	Binding Post Screw, 3/6-16 x 1-3/4" Hex Head
--	41-35020	Hex Nut, 3/8-16
12	1231400-16	Lead Assembly, DC Positive to Igniter
13	1231400-10	Lead Assembly, Igniter to Binding Post
14	1140887-1	Igniter Assembly, 1600 Watt and below
14	1145816-1	Igniter Assembly, 2000 Watt and higher
		See Figure 6 for Component Parts
15	2952-1211	Door Interlock Switch

NOT SHOWN

8979	Lamphouse Access Door, Inner
41-51084	Retaining Screw, Access Door; 8-32 x 1-1/2" Round Head
41-70020	Flat Washer, #8
1249362-1	Bulb Positioning Mechanism, 14mm (see Figure 5)
1249362-3	Bulb Positioning Mechanism, 8mm (see Figure 5)
1239356-1 & 3	Cover Plenum, Cathode Socket (two-part; mounts to 1249362)
2509-0001	Shunt (mounts below Lamphouse on Off-Operator side)
24275	Voltage Divider PC Board Assembly (mounts to Shunt)
4036-0009	Bulb Seal Blower, 115 V.AC, 50/60 Hz.

FIGURE 5

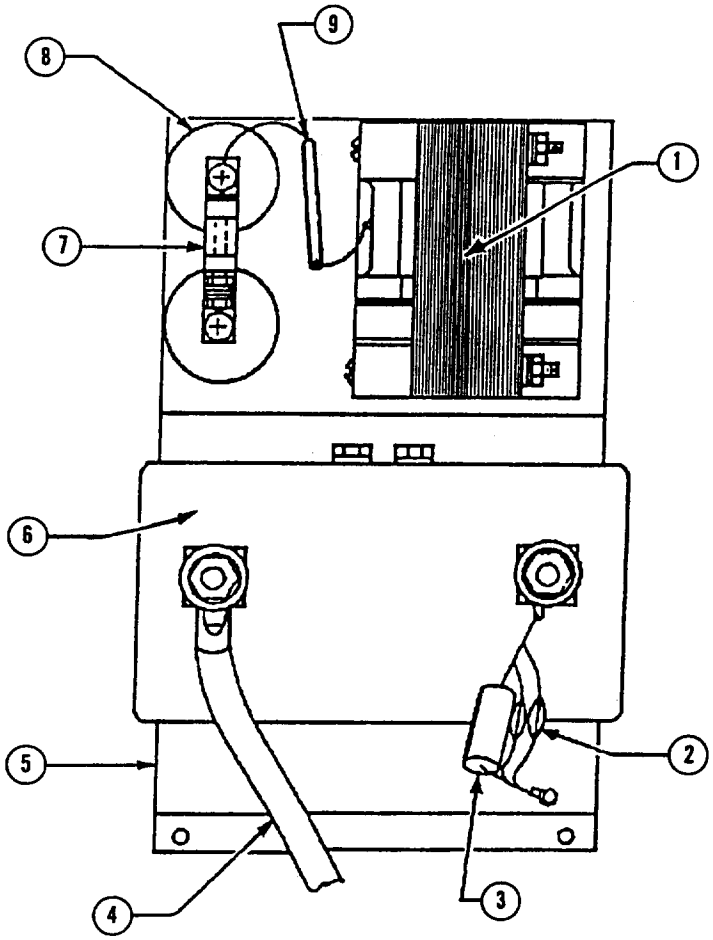


1249362 ASSEMBLY

PARTS LIST
Figure 5

Item	Part No.	Description
1	1239350-1	Bottom Plate
2	1137338-1	Center Plate
-	4562-0560	Bushing, Center Plate (3 req'd.)
3	1238838-1	Top Plate & Bushing Assembly
4	41-51272	Cap Screw, 8-32 x 1-1/4" Socket Head
-	6006-0180	Flat Washer
-	6008-8180	Washer
5	6004-0252	Nylon Washer, 1/4" I.D.
6	1221792-1	Miter Gear Bracket
-	4573-0180	Bushing (2 req'd.)
-	41-51041	Screw, 6-32 x 3/8" Pan Head
-	41-70027	Split Lockwasher, #6
7	1221793-1	Adjusting Screw, "Z" Axis (Focus)
-	1228537-1	Miter Gear, Brass
-	6007-0181	Flat Washer, Stainless Steel
-	21-37004	Roll Pin, 1/8 x 1/2"
8	1228537-1	Miter Gear, Brass
-	1221790-1	Adjusting Rod, "X" & "Y" Axes
-	21-37004	Roll Pin, 1/8 x 1/2"
9	5851-0530	Compression Spring
-	6007-0181	Flat Washer, Stainless Steel
10	6004-0252	Nylon Washer, 1/4" I.D. (2 req'd.)
11	1221802-1	Cathode Socket, 14mm (Ref. Item 18)
11	1221802-3	Cathode Socket, 8mm (Ref. Item 18)
12	1221791-1	Bracket, "Y" Axis
--	4573-0180	Bushing
--	41-51041	Screw, 6-32 x 3/8" Pan Head
--	41-70027	Split Lockwasher, #6
13	1221789-1	Adjusting Rod, "Y" Axis
--	21-37004	Roll Pin, 1/8 x 1/2"
14	1221794-1	Adjusting Screw, "Y" Axis
15	41-51134	Cap Screw, 10-32 x 5/8" Socket Head
16	1221794-1	Adjusting Screw, "X" Axis
--	1228537-1	Miter Gear, Brass
--	6007-0181	Flat Washer, Stainless Steel
--	21-37004	Roll Pin, 1/8 x 1/2"
17	41-51178	Set Screw, 10-32 x 3/16" (2 req'd.)
18	1221802-1	Cathode Socket, 14mm (Ref. Item 11)
18	1221802-3	Cathode Socket, 8mm (Ref. Item 11)
19	1119249-5	Stand-Off Plate (3 req'd.)
--	41-51134	Cap Screw, 10-32 x 5/8" Socket Head

FIGURE 6



IGNITER ASSEMBLY

Assembly No. **1140887-1** for 1600 Watt and below
Assembly No. **1145169-1** for 2000 Watt and higher

Item	1140887-1 Part No.	1145169-1 Part No.	Description
1	1141813-1	1141816-1	High Voltage Transformer
2	2025-0C01	2025-0C01	Capacitor, .005 μf, 3 kV. (2 req'd.)
3	*not req'd.*	2043-3402	Capacitor, .33 μf, 400 Volt
4	1231400-10	1231400-10	Positive Lead Assembly
5	1100177-1	1142830-1	Igniter Base Plate
6	1140452-1	1145042-1	RF Coil, Potted Assembly
7	1222792-1	1222792-1	Spark Gap Assembly
8	72129000	72129000	Capacitor, 1300 μf, 20 kV. (2 req'd.)
9	25B5-3035	25B5-3035	Wire Resistor, 30k Ohm, 10/11 Watt, 5%

XENON BULB RECORD

LAMPHOUSE TYPE ______________________________ MACHINE NO. __________

WATTAGE __________ NOM. CURRENT _____ AMPS. MAX. CURRENT ____ AMPS.

BULB		DATE LAMPHOUSE HOURS		
MFGR.	SERIAL NO.	INSTALLED	ROTATED*	REPLACED

STRONG ELECTRIC CORPORATION

*IF REQ'D BY BULB MFGR.