Film-Tech

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KNEISLEY
ELECTRIC COMPANY

INSTRUCTIONAL MANUAL

THE *XENEX II®* SERIES

XENON CONSOLE

KNEISLEY ELECTRIC COMPANY
P. O. BOX 4692 • TOLEDO, OHIO 43610 • PHONE: (419) 241-1219 • FAX: (419) 241-9920

Your Kneisley Xexex® II Console is designed and built to give you many years of dependable service. To get the most out of your console and for safety, read this instruction manual thoroughly before installing or operating.

Contents

KNEISLEY ELECTRIC COMPANY

P. O. Box 4692 • Toledo, Ohio 43610 • Phone: (419) 241-1219 • Fax: (419) 241-9920

PREFACE

The Kneisley Console is a reflector type, direct current unitized projection system for 35/70 MM film utilizing a horizontal xenon bulb as a light source. It is designed to accept 1000, 1600, 2000, 2500, 3000 and 4000 watt Osram horizontal xenon bulbs, although other manufacturer's bulbs may be used.

The optical system consists of a 12½ inch diameter, dichroic coated (cold) metal reflector. Eighty percent or more of the invisible infra-red (heat) rays are absorbed by the metal reflector. This results in lower film temperatures, lower bulb seal temperatures, and longer bulb life. Since an insertion type heat filter is not required, higher optical efficiency is achieved. The reflector working distance is 30½ inches with an optical speed of *f*2.16, permitting use of lower cost projection lenses.

A single control for bulb adjustment and focusing is located on the rear of the Console. The control permits horizontal and vertical positioning, and focus control of the xenon bulb.

The Console is equipped with a D.C. Ammeter that can be changed to read arc voltage by pressing the push button switch located beneath the meter. Voltage readings are helpful when trouble shooting the equipment, and necessary to compute bulb wattage. An optional digital ammeter and voltmeter can be furnished for additional cost.

The hour meter registers the number of hours the xenon bulb has been used. When a new bulb is installed in the lamphouse, the hours shown on the meter should be recorded so that the bulb rotation, as recommended by the bulb manufacturer, can be accomplished at the appropriate time. Recorded hours of bulb use are also necessary in the event of a possible bulb warranty claim. For your convenience, a *Xenon Bulb Record Chart* is located at the back of this instruction manual.

A push button for manual or emergency operation of the igniter is provided. A circuit breaker is also incorporated to protect the igniter.

A high volume internal blower cools the seals of the xenon bulb, contributing to long bulb life. To dissipate the heat and prevent damage or weakening of the bulb, keep the blowers in the Console and upper stack blower operating for 20 minutes after switching off the bulb.

A safety interlock switch on each lamphouse compartment door will prevent operation or ignition of the xenon bulb should either door be opened. The air flow switch attached to the blower will prevent operation or ignition of the bulb if the blower fails or does not supply enough air flow. The forward operator's door has a viewing port to allow observation of the arc.

A manually operated dowser is provided to prevent light from entering the projector. The bulb should not be operated for extended periods of time with the dowser closed.

A six inch diameter flange at the top of the Console is provided for connection to an external exhaust system.

All doors are equipped with a key lock for safety and to prevent unauthorized entry into the Console. A circuit breaker panel is provided for protection of all electrical systems. A 15 amp convenience outlet is also provided.

The lower portion of the Console contains the D.C. Rectifier/Power Supply and is prewired to lamp compartment.

All standard projectors and soundheads can be mounted to the Kneisley Console.

Provision is made for optional items including Automation, Sound Amplifiers, Processor and Exciter Power Supply (19" standard rack mounting).

If you encounter any difficulty or have any questions regarding our equipment please contact:

THE KNEISLEY ELECTRIC COMPANY
P. O. BOX 4692
TOLEDO, OHIO 43610-0692

(419) 241-1219 **FAX: (419) 241-9920**

*** 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.**

The gloves furnished with this unit are for keeping fingerprints off the reflectors and xenon bulbs. **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, welding jacket, and leather gloves as recommended and approved by the xenon bulb manufacturer.

SAFETY PROCEDURES

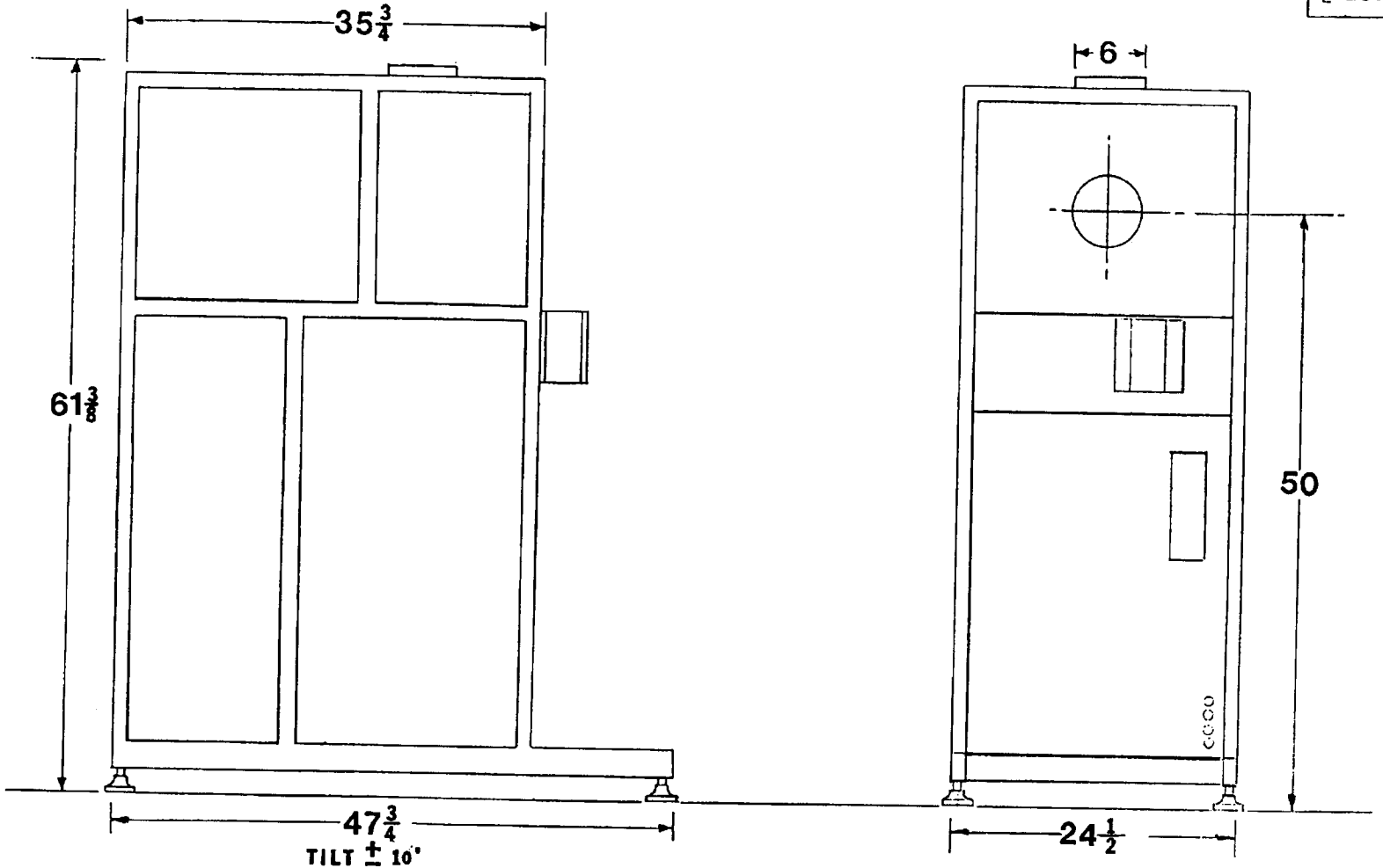
The xenon bulb is under high internal pressure even at room temperature. When ignited, the temperature rapidly rises and the pressure of the bulb increases as much as 20 to 30 times atmospheric pressure.

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, leather gloves, welder's jacket, as recommended by bulb manufacturer.
2. Do not open the lamphouse doors until the bulb has been permitted to cool to room temperature. The lamphouse blower should be operated for at least 20 minutes after the bulb is extinguished before opening door.
3. De-energize the A.C. input to the power supply and the lamphouse before opening the lamphouse doors.
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 an ignited bulb. To do so COULD CAUSE BLINDNESS OR PERMANENT EYE DAMAGE.**
6. Keep hands, clothes, and combustible material away from concentrated light beam and dowser to avoid fire or burn hazard.
7. Finger prints 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 canvass 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.

Please read this and facing page carefull

L-2892



KNEISLEY CONSOLE

L-2892

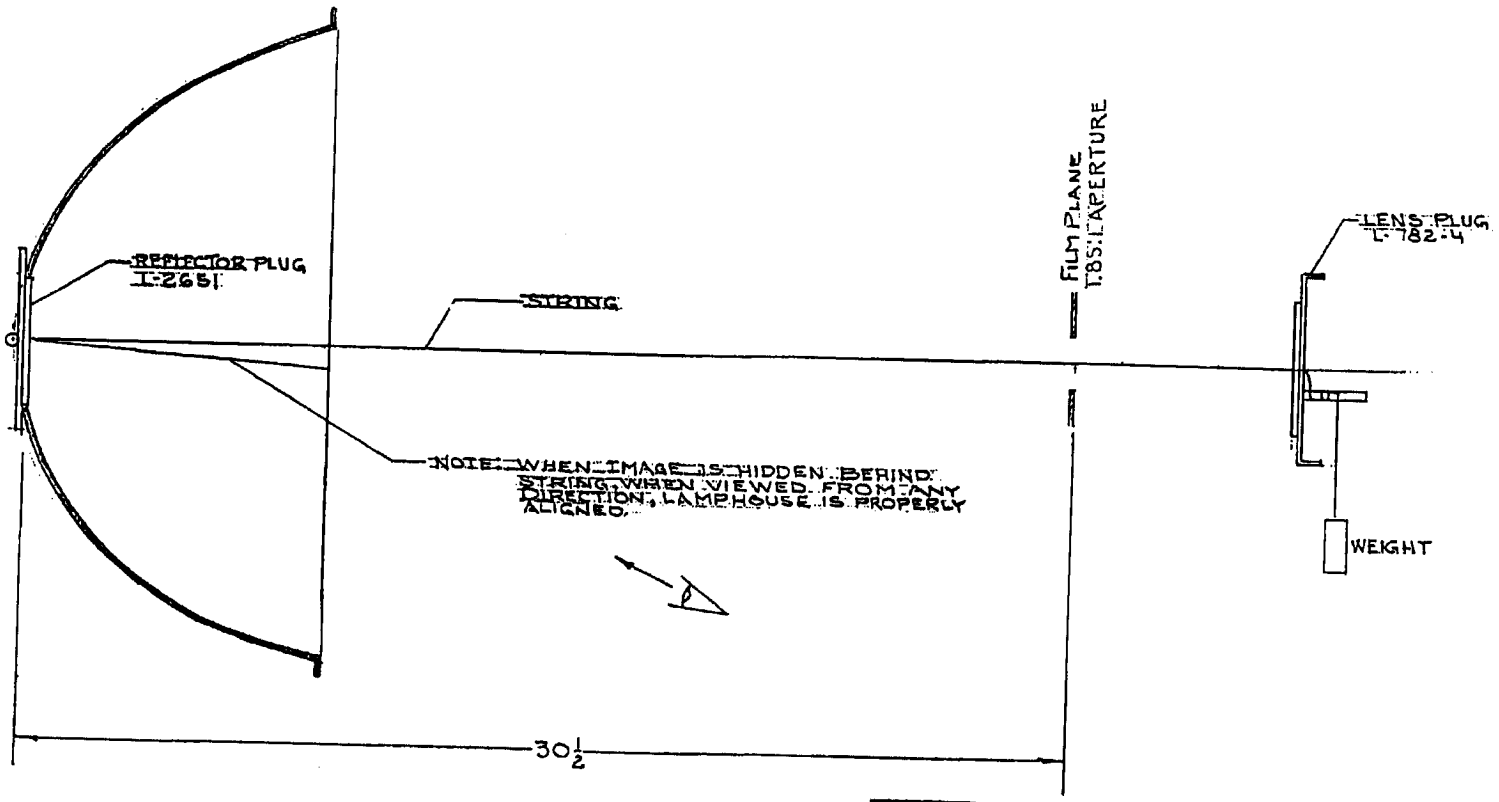
CONSOLE AND PROJECTOR INSTALLATION

Move the Console shipping pallet attached to or near its final location. *Note: if unit is shipped by moving van, it will not be on a pallet)*

1. Install the (4) leveling pads furnished and remove Console from pallet.
2. Console should now be placed in the approximate final position before the port hole.
3. At this point, leveling pads should be adjusted so that the Console is in a level position.
4. Unlock and remove the door on the off operators side exposing wiring terminals. Various size *knockouts* are provided in the base and front panel of the Console. Refer to proper Installation Wiring Diagram on page 10 **or** 11 and wire accordingly, following all local electrical codes.
5. A ground lug is located inside the terminal compartment. Connect to earth ground.
6. The Kneisley Console is supplied with a Soundhead Adapter Arm to correctly position the projector film gate at 30½ inch working distance from the center hole of the reflector. The reflector is optically pre-aligned at the factory. DO NOT ATTEMPT TO CHANGE THE POSITION OF THE REFLECTOR.
7. Before mounting the soundhead to the *soundhead adapter arm*, start (2) 3/8-16 bolts through two washers and into the top two threaded holes in the backside of the soundhead. Turn the bolts just enough so that the soundhead will be supported by the two bolts when lowered into the slotted holes of the *soundhead adapter arm* (see page 30). The two bolts in the adapter arm will bear the weight of the soundhead and the two bottom bolts can then be started.
8. Now turn the (4) soundhead mounting bolts almost tight and check once more to make sure that the Console is level and that the projector mounting surface of the soundhead is level. After establishing that the soundhead and the Console are level, tighten and secure the (4) soundhead attaching bolts.

   In order to assure you of *rock steady* projection, a mechanical jack is supplied with each console. This jack should be used to support the outer end of the sound head.
9. Mount the projector to the soundhead following projector manufacturer's instructions.
10. If sound and automation are used, wire according to the corresponding manuals supplied by the manufacturer.

L-2650



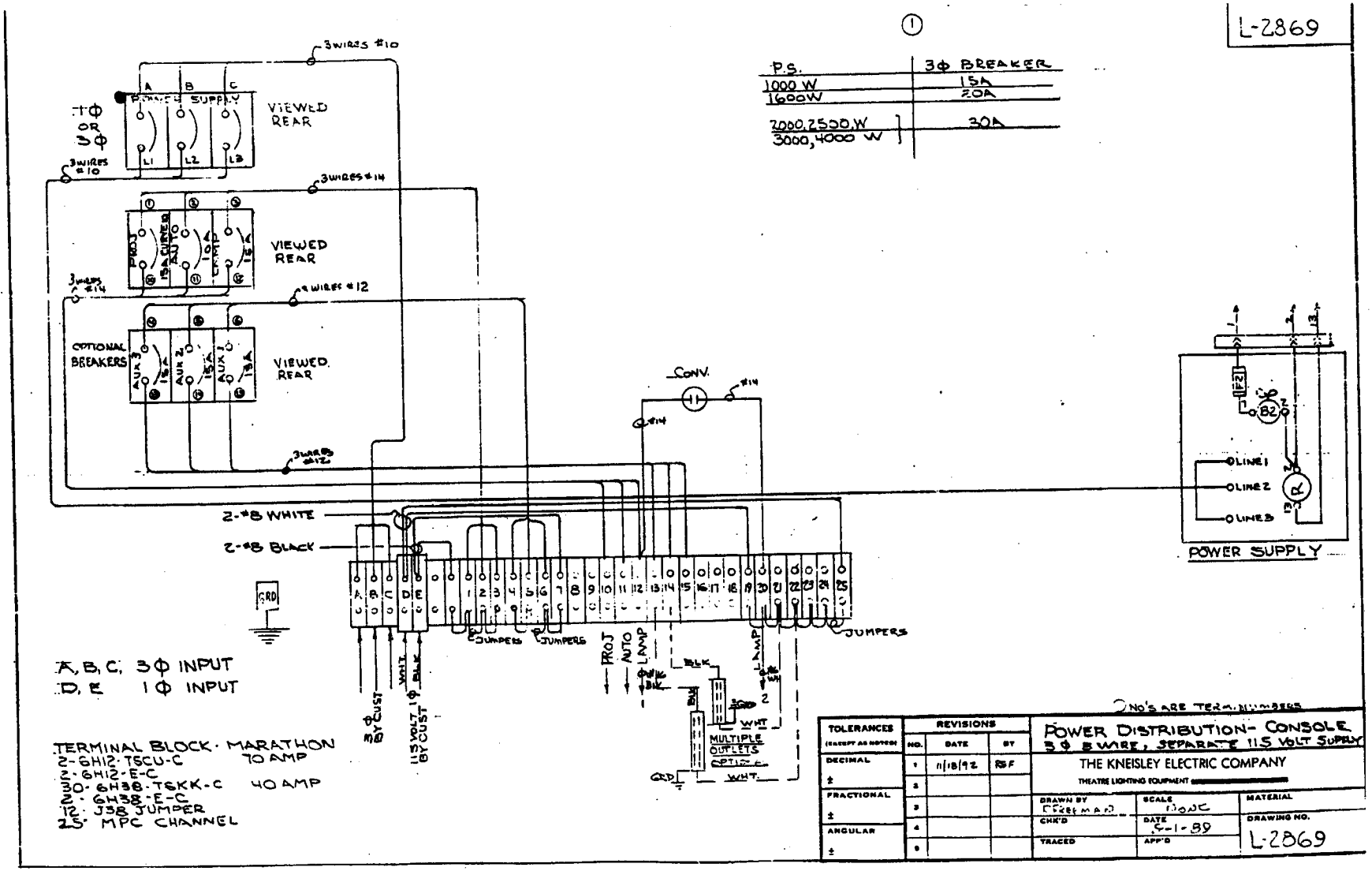
TOLERANCES	REVISIONS			STRING ALIGNMENT		
DECIMAL ±	NO.	DATE	BY	THE KNEISLEY ELECTRIC COMPANY THEATRE LIGHTING EQUIPMENT		
FRACTIONAL ±				DRAWN BY RSF	SCALE NONE	MATERIAL
ANGULAR ±				CHK'D	DATE 12-3-86	DRAWING NO. L-2650
				TRACED	APP'D	

ALIGNMENT INSTRUCTIONS

An alignment kit is furnished with each Console. At initial installation, to secure maximum light output, you must check projector alignment with the kit supplied. Misalignment can easily result in a 30% to 40% light loss.

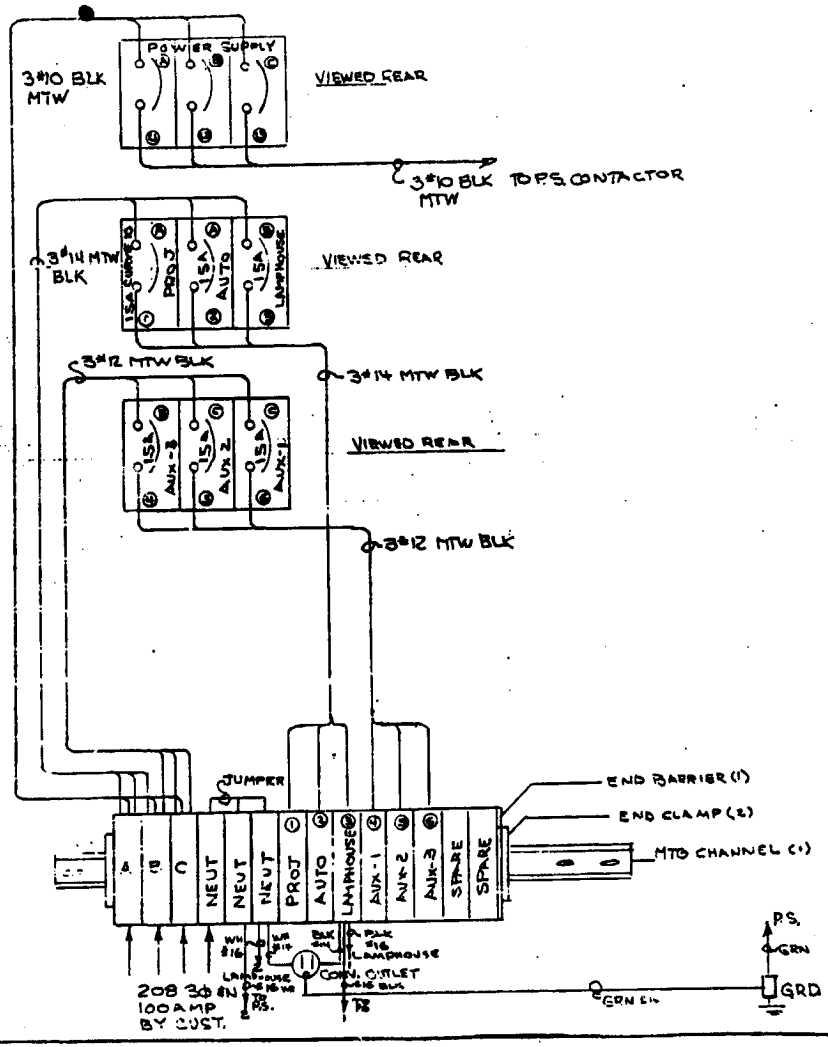
CAUTION: The bulkhead casting (figure 2, page 26) has been factory aligned. Do not attempt to loosen or adjust this casting.

1. Thread the aligning string through the reflector aligning plug and place plug in the small hole of the reflector as shown in the alignment drawing, L-2650, page 8.
2. Prop the projector fire shutter open and rotate shutter to the "open" position.
3. Pass the aligning string through the projector aperture and through the dummy lens in the projector. Weight string so that aligning string is taut.
4. View string in aperture. String should be centered horizontally and vertically. If not, move/adjust the adapter arm by slightly loosening the (4) 3/8-16 nuts securing the adapter arm to the front of the Console. (See drawing L-2564 on page 30). Vertical adjustment is accomplished by turning the set screws (item 2) located in the adjustment plate (item 3). For horizontal movement turn set screws (item 7) located in adapter arm (item 8). When the string is centered in the aperture and image of string in the reflector coincides with the actual string, the projector aperture and the projection lens is properly aligned to the reflector. If you see an image of the string in the reflector in addition to the actual string, the projector is not properly aligned to the reflector. Adjust until image coincides with the string.
5. Tighten the (4) 3/18-16 nuts securing adapter arm (item 8) to front of Console, being careful not to disturb final alignment.
6. Remove all alignment tools and release projector fire shutter.



3 phase — 3 wire — separate 115

L-2915



①

P.S.	3Φ BREAKER
1000W	15A
1600W	20A
2000, 2500W 3000, 4000W	30A

SOLDERLESS BOX LUG	14	S&D CLASS	9080	GC6
END BARRIER	1	"	"	"	GC12
END CLAMP	2	"	"	"	GH10
MTG CHANNEL	12"	"	"	"	GH112
JUMPER	1-3POLE	"	"	"	GH78

NOTE: CIRCLED NOS. ARE TERMINAL NO'S

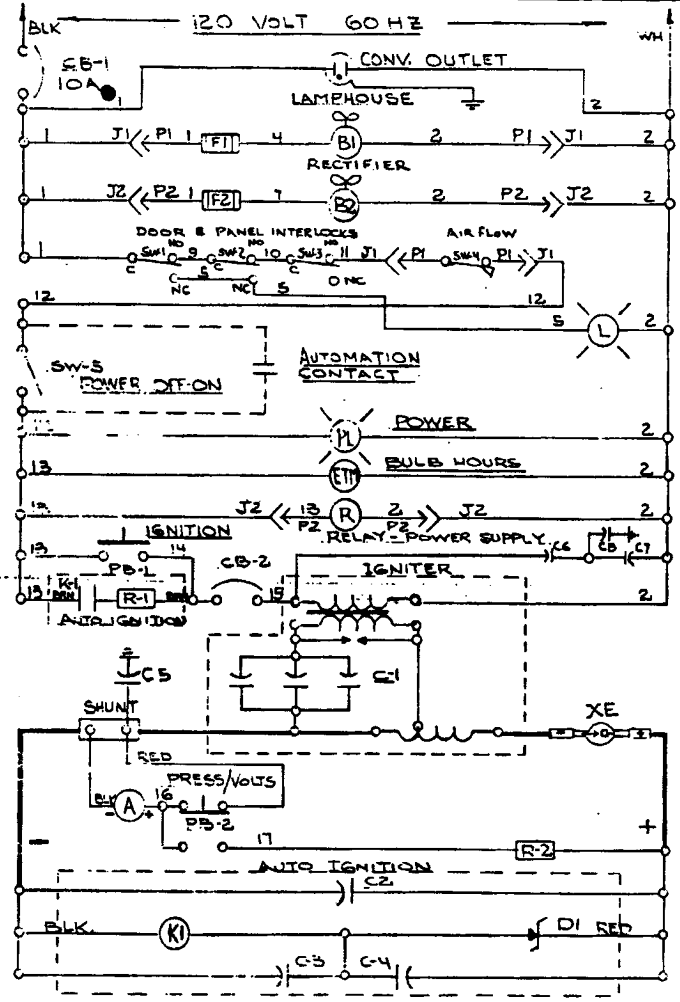
TOLERANCES (EXCEPT AS NOTED)	REVISIONS NO.	DATE	BY
DECIMAL ±	1	11/18/92	R&F
FRACTIONAL ±	2		
ANGULAR ±	3		
	4		
	5		

POWER DISTRIBUTION - CONSOLE
208 3Φ 4 WIRE

THE KNEISLEY ELECTRIC COMPANY
THEATRE LIGHTING EQUIPMENT

DRAWN BY	SCALE	MATERIAL
CHK'D	DATE	DRAWING NO.
TRACED	APP'D	L 2915

3 phase — 4 wire



NOTE: NO'S NOT USED; 6,8

SYMB.	PART NO.	DESCRIPTION
A	L-2588	0-150 AMP D.C. AMMETER ±2%
B1	L-2626	BLOWER 265 CFM 115 VOLT 50/60 HERTZ
B2	R-07003	MOTOR 115 VOLT CW. 1/82 HP
CB-1	L-2871	1 POLE, 250 VOLT AC, 50/60 HZ 10 AMP MED. DELAY
CB-2	L-2424	1 POLE, 250 VOLT AC, 50/60 HZ 1 AMP THERMAL TYPE
C-1	R-1919	CAPACITOR, 500 MMFD., 20 KV
C-2	R-2422-1	DISC CAPACITOR .05 MFD. 600 V
C-3	L-1969	CAPACITOR 100 MFD. 100 VDC
C-4	L-1778	DISC CAPACITOR .02 MFD. 1 KV.
D-1	L-1779-1	ZENER DIODE 68 V. 5W.
ETM	L-2673	ELAPSED TIME METER 60 HZ FARGO UW2
ETM	L-2787	ELAPSED TIME METER 50 HZ FARGO UW2
J-1,2	R-2109	SOCKET BODY, CINCH-JONES, S-304-CCT
K-1	L-1804	RELAY DPDT OCTAL, 10 AMP. 24 VDC COIL
P1,2	L-2067	PLUG, CINCH-JONES, P-304-CCT
PB-1	R0813 L-2928	PUSHBUTTON, MOM. NO. 10 AMP. 125 VAC AH1501IIE CH-8442-K14
PB-2	L-2638	PUSHBUTTON, MOM SPDT G.C. 35416
D1	R-1679	PILOTLIGHT, RED, SOLICO 125V 1/3 W.
R1	L-1568	5 OHM, 5 WATT, WIREWOUND
R-2	L-2637	RESISTOR, 3.6K, 5W. 5%
SW-1,2,3	L-0777	SPDT SWITCH, 15 AMP, 125/250 VAC, CHERRY E13-004
SW-4	L-2631	SPDT SWITCH, 5 AMP, 125/250 VAC, CHERRY E23-85HX
SW-5	R0511 L-2929	SPST SWITCH, 20 AMP, 125 VAC, McGILL 90-0001 / AH2500RIIE
SHUNT	L-2589	150 AMP, 50 MV, SHUNT, RAM #A150A50
F-1,2	L-2307	LITTLEFUSE IN-LINE FUSEHOLDER 150145
F-1,2	L-2640	FUSE, 3AG SLO-BLO 313002.5 2½A, 250V
IGNITER	R-2915	IGNITER (700-2000) WATT
IGNITER	R-2916	IGNITER (2500-4000) WATT
L	L-2884	LAMPHOLDER
XE		XENON LAMP, COMPACT ARC
C5	L-2921	.05×1 KV DISC CAP.
C6, C7, C8	L-2956	FILTER, R.F. IGNITER (C6, C7 .005, C8 .01 UFD)

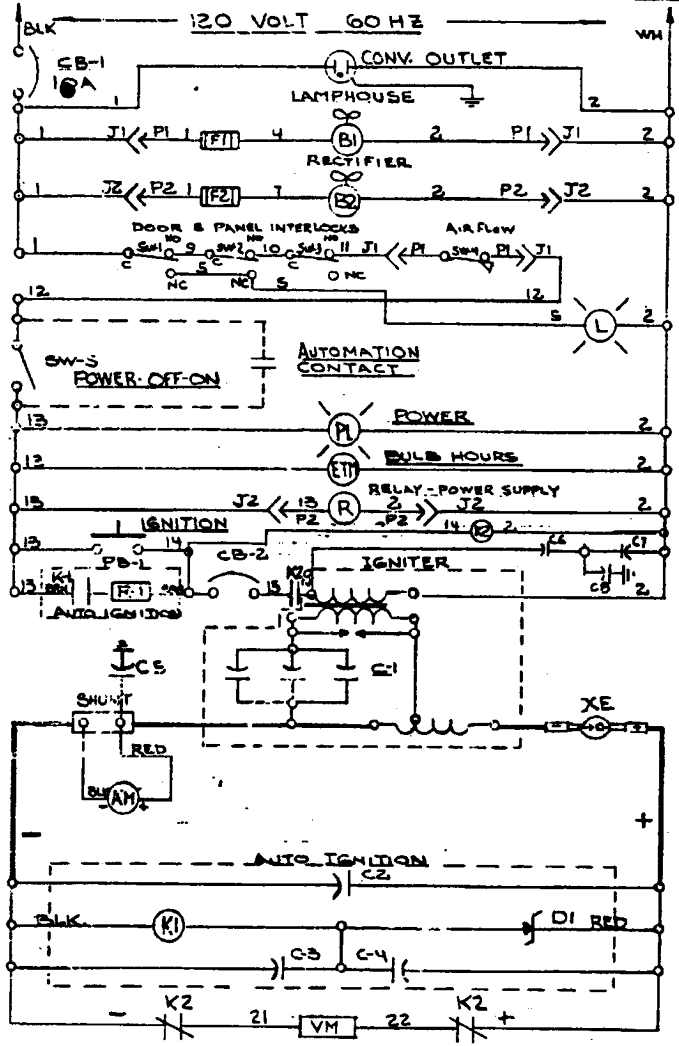
LADDER DIAG. - CONSOLE

THE KNEISLEY ELECTRIC COMPANY

THEATRE LIGHTING EQUIPMENT

TOLERANCES	REVISIONS NO.	DATE	BY
DECIMAL ±	1	[illegible]	LCF
FRACTIONAL ±	2	[illegible]	RSF
ANGULAR ±	3		
	4		
	5		

DRAWN BY: E. PASENAI — SCALE: — — MATERIAL: — CHK'D: — DATE: [illegible]-24-86 — DRAWING NO.: L-2865 — APP'D: — TRACED: —



NOTE: NO'S NOT USED; 3,6,8,16,17,18,19 LAST NO. 22

SYMB.	PART NO.	DESCRIPTION
AM	L-2938	0-200 AMP D.C. AMMETER - DIGITAL
B1	L-2626	BLOWER, 265 CFM 115VOLT 50/60 HERTZ
B2	R-07003	MOTOR, 115 VOLT, C.W., 1/83 HP
CB-1	L-2871	1 POLE, 250 VOLT AC, 50/60 HZ 10 AMP. MED. DELAY
CB-2	L-2424	1 POLE, 250 VOLT AC, 50/60 HZ 1 AMP THERMAL TYPE
C-1	R-1913	CAPACITOR, 500 MMFD., 20 KV
C-2	R-2422-1	DISC CAPACITOR, .05 MFD. 600 V
C-3	L-1969	CAPACITOR, 100 MFD., 100 VDC
C-4	L-1778	DISC CAPACITOR, .02 MFD. 1 KV.
D-1	L-1779-1	ZENER DIODE, 68 V, 5W.
ETM	L-2673	ELAPSED TIME METER 60 HZ, FARGO UW2
ETM	L-2787	ELAPSED TIME METER 50 HZ FARGO UW2
J-1,2	R-2109	SOCKET BODY, CINCH-JONES, S-304-CCT
K-1	L-1804	RELAY, DPDT, OCTAL, 10 AMP, 24 VDC COIL
P1,2	L-2067	PLUG, CINCH-JONES, P-304-CCT
K2	L-2927	SCHRACK (OR EQUIV) 3PDT RELAY, 110VAC COIL 50/60HZ MR306/110
PB-1	L-2928	ROCKER SWITCH, MOM. ON, SPST AR 150111E 15A 125VAC
R-1	L-1568	5 OHM, 5 WATT, WIREWOUND
VM	L-2937	VOLTMETER, 0-200 VDC, DIGITAL
SW-1,2,3	L-0777	SPDT SWITCH, 15 AMP, 125/250 VAC, CHERRY E13-00H
SW-4	L-2631	SPDT SWITCH, 5 AMP, 125/250 VAC, CHERRY E23-85HX
SW-5	L-2929	ROCKER SWITCH, LIGHTED, 2PST, AH 2500R11E 15A 125VAC
SHUNT	L-2589	150 AMP, 50 MV, SHUNT, RAM #A150A50
F-1,2	L-2307	LITTLEFUSE IN-LINE FUSEHOLDER 150145
F-1,2	L-2640	FUSE, 3AG SLO-BLO 31302.5 2½A, 250V
IGNITER	R-2915	IGNITER (700-2000) WATT
IGNITER	R-2916	IGNITER (2500-4000) WATT
L	L-2884	LAMPHOLDER
XE		XENON LAMP, COMPACT ARC
C5	L-2921	.05-1 KV DISC CAP.
C6,C7,C8	L-2956	FILTER, R.F. IGNITER (C6, C7 .005, C8 .01 UFD)

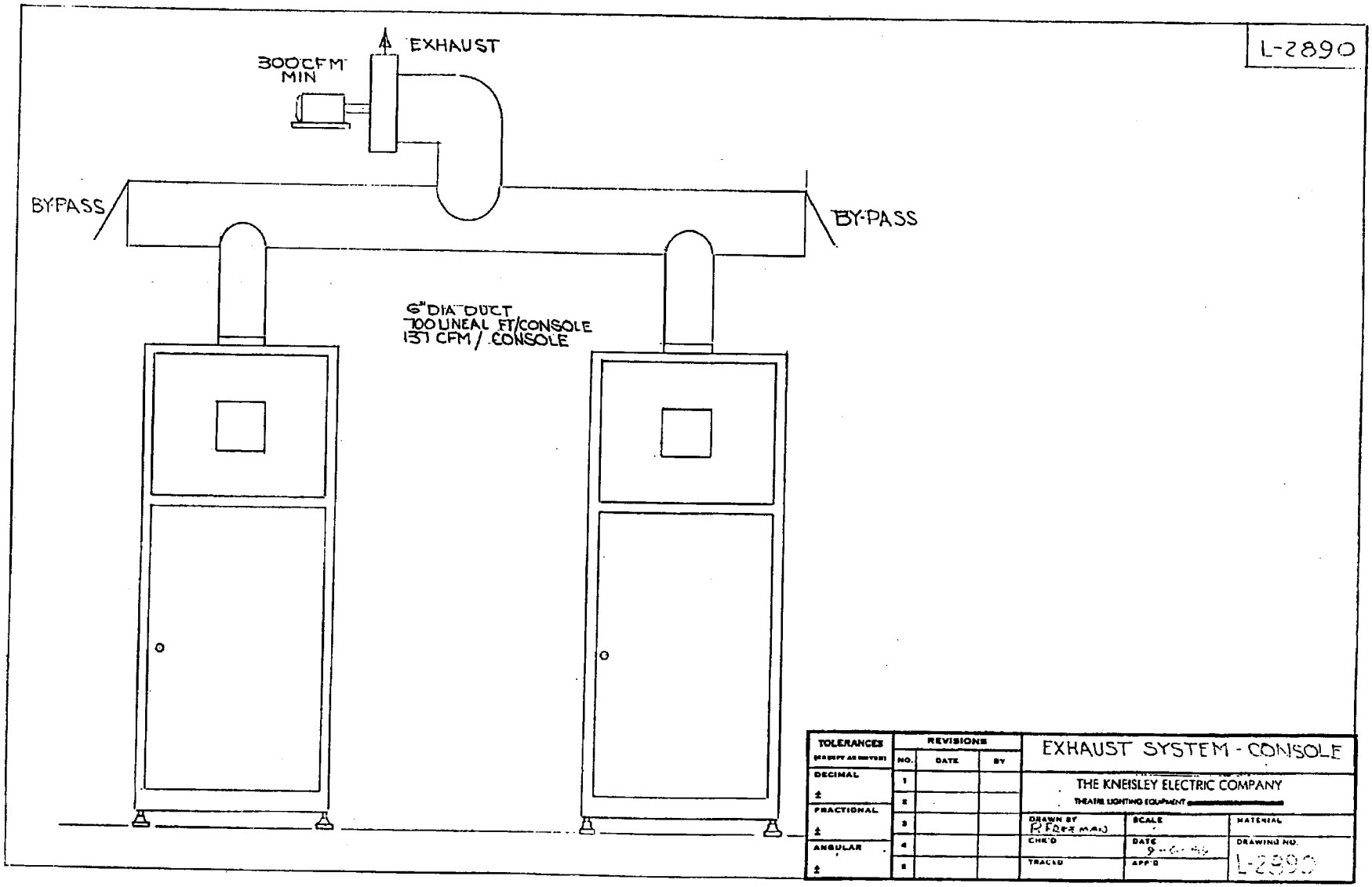
LADDER DIAGRAM - CONSOLE - DIGITAL

THE KNEISLEY ELECTRIC COMPANY

DRAWN BY: FREEMAN

DATE: 10/6/93

DRAWING NO. L-2959


L-2890
EXHAUST
300 CFM MIN
BYPASS
BY-PASS
6" DIA DUCT
100 LINEAL FT/CONSOLE
137 CFM / CONSOLE
TOLERANCES
(UNLESS OTHERWISE)
DECIMAL
±
FRACTIONAL
±
ANGULAR
±
REVISIONS
NO.
DATE
BY
EXHAUST SYSTEM - CONSOLE
THE KNEISLEY ELECTRIC COMPANY
THEATRE LIGHTING EQUIPMENT
DRAWN BY
R FREEMAN
SCALE
MATERIAL
CHK'D
DATE
9-6-96
DRAWING NO.
TRACED
APP'D
L-2890

EXHAUST SYSTEM INSTALLATION

Correct ventilation of Console is extremely important for maximum bulb life. Refer to "Exhaust System" drawing L-2890, page 14.

The exhaust fan must be capable of removing at least 700 lineal feet (137 CFM) of air per minute at each Console regardless of size of bulb. **Not having proper air flow will void the warranties on both the bulb and the reflector.**

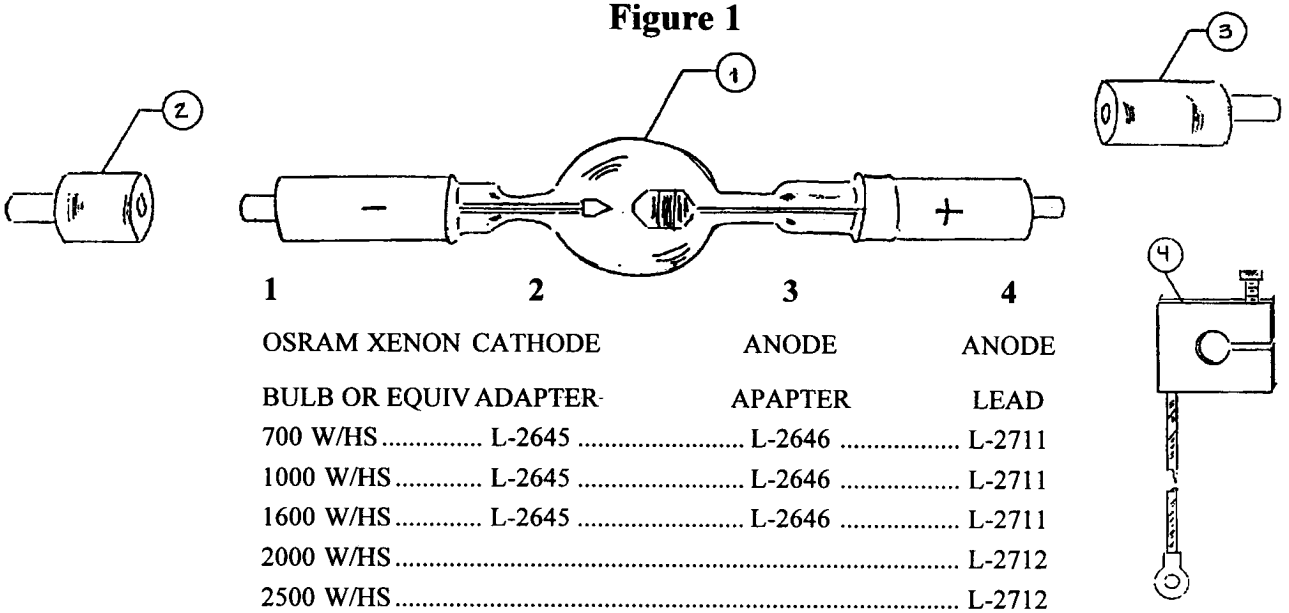
Install 6" flexible exhaust tubing to the Console flue adapter and to the projection room exhaust system. Check ventilation carefully. An aluminum draft gauge (9" X 2-3/8" X .025" thick) is supplied with each Console.

We suggest you remove stack dampers immediately above Console if in existing system and rely on the bypass dampers. Turn on exhaust system. Close bypass dampers at each end of the stack. Place the draft gauge over the exhaust port on inside of Console. Close Console doors.

Bypass dampers should be adjusted until draft gauge is *just held in place* under the vent, with the Console doors closed. Check both Consoles if dual system is used.

XENON BULB ADAPTERS

Figure 1

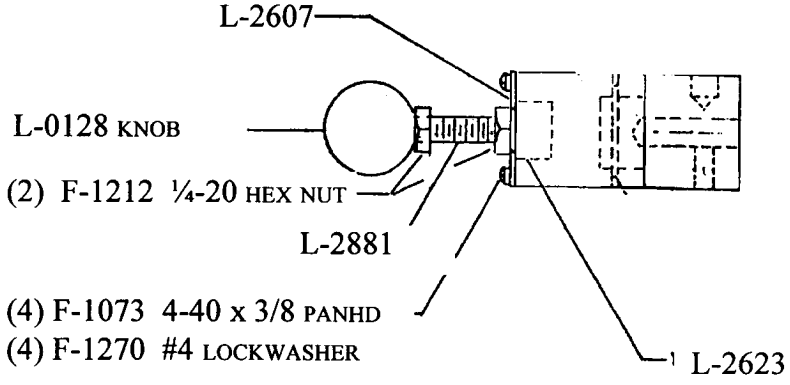


1	2	3	4
OSRAM XENON BULB OR EQUIV	CATHODE ADAPTER	ANODE APAPTER	ANODE LEAD
700 W/HS	L-2645	L-2646	L-2711
1000 W/HS	L-2645	L-2646	L-2711
1600 W/HS	L-2645	L-2646	L-2711
2000 W/HS			L-2712
2500 W/HS			L-2712
3000 W/HS			L-2712
4000 W/HS			L-2712
2000 W/H			L-2711
3000 W/H			L-2713
1000 W/HTP			L-2714
2000 W/HTP			L-2714
3000 W/HTP			L-2714
4000 W/HTP			L-2714

CATHODE BULB SUPPORT ASSEMBLY

CATHODE BULB SUPPORT ASSEMBLY	OSRAM BULB OR EQUIV
L-2701	700 W/HS
L-2701	1000 W/HS
L-2701	1600 W/HS
L-2701	2000 W/HS
L-2701	2500 W/HS
L-2701	3000 W/HS
L-2704	4000 W/HS
L-2702	2000 W/H
L-2703	3000 W/H
L-2706	2000 W/HTP
L-2705	3000 W/HTP
L-2705	4000 W/HTP

Figure 2



BULB INSTALLATION

CAUTION: Refer bulb installation to **QUALIFIED SERVICE PERSONNEL.**

Wear protective clothing i.e., welder's jacket, leather gloves and face shield, as per bulb manufacturer's recommendations. See page 4 and 5 for additional precautions.

1. Open the side doors (operator's side) of the Console. Refer to Bulb Adapter Chart (page16) to make certain you have proper adapters.
2. Attach the appropriate adapters and anode lead to the xenon bulb before removing the bulb protective cover. NOTE: Some bulbs are furnished with an anode lead attached. Do not remove the lead from the bulb. Connect the bulb lead to the terminal block in the Console rather than using the anode lead furnished by Kneisley Electric. We recommend the use of bulbs that have the annode lead attached.
3. Remove the plastic protective cover; grasp the bulb at the anode end and insert cathode end through small hole in reflector, inserting cathode pin into cathode adapter block. Tighten cathode block connection using 5/64" allen wrench furnished.
4. Make certain that the anode end of the xenon bulb is on the optical center line. Using a scale, check distance between surface of the console base pan and the centerline of the anode pin. This should measure 8-9/16". If not, correct by raising or lowering the anode support yoke keeping yoke parallel with face of reflector.
5. Connect the anode lead to the positive terminal block
6. Be sure all wiring connections are tight, to prevent arcing.
7. Close and lock door.

LAMPHOUSE OPERATION

Install xenon bulb according to instructions in "Bulb Installation" section. Doors should be closed, locked and secured to assure door interlock switches are closed. Close lamphouse dowser.

A. Basic Console without Automation

1. Turn on main power to power supply.
2. Energize lamphouse control circuit by closing lamphouse circuit breaker. The lamphouse and rectifier blowers will start and the air flow switch will close.
3. Turn "Power Switch" on. Pilot light will light, contactor in power supply will close, making audible sound. D.C. voltage is applied to the igniter circuit and bulb. When sufficient voltage is obtained to break-down Zenner/relay combination the igniter will fire and ignite the bulb. The Power Supply D.C. voltage will decrease and the igniter will become inoperative.
4. With projection lens removed and a 1.85:1 aperture plate in projector (no film) start the projector and open dowser.
5. Turn the "focus Knob" located on the rear of the Console until smallest black spot is projected on the screen. The black spot need not be in the center of the screen at this time.
6. Loosen the knurled controls located on each side of the focus control and move the bulb horizontally and vertically until the black spot is as round as possible and the projected image of the cathode is hidden behind the anode. Tighten the knurled controls. Once more focus the bulb to obtain a sharp round projected black spot. Adjust the Console so that the projected black spot is now in the center of the screen.
7. Close the dowser and install the projection lens in the projector. Open the dowser and observe the screen. Turn the focus control until an overall even light distribution is projected to the screen. **CAUTION:** When performing this operation, open the dowser for very short periods of time (maximum of 5 seconds) as the expensive projection lens could be damaged.

(Continued next page)

(Continued from previous page)

The Projector and Reflector are now properly aligned and focused and ready for daily operation. The above adjustments may have to be repeated when replacing the xenon bulb.

Turn lamp off by placing the "Power Switch" to the "OFF" position.

A manual "Push Button" ignite switch is provided on the control panel of the Console and should be used only if the igniter fails to fire.

At the end of work day (or end of the show) allow the Console blower and upper stack blower to operate 20 minutes after extinguishing the bulb. The blowers will dissipate accumulated heat to help prevent damage or weakening of the xenon bulb.

B. Console with Automation

1. When Console is supplied with Automation, place Automation system in Manual Mode and accomplish steps 1 thru 7 under "A above. Refer to Automation manual.

2. When the console is to be operated in an automated mode, the *Power Switch* should be set to the *OFF* position. When the automation system calls for the lamphouse to turn on, the contact across terminal 12 and 13 (power switch) will close. This completes the circuit around the *Power Switch* and energizes the relay in the power supply. Automatic ignition will ignite bulb.

3. A manual "Push Button" ignite switch is provided on the control panel of the Console and should be used only if the igniter fails to fire.

4. **At the end of work day (or end of the show) allow the Console blower and upper stack blower to operate 20 minutes after extinguishing the bulb.** The blower will dissipate accumulated heat to help prevent damage or weakening of the xenon bulb.

MAINTENANCE

CAUTION: Always put on the safety face shield, leather gloves and welder's jacket, as recommended by bulb manufacturer, before opening the lamphouse compartment doors, when handling the xenon bulb, or when working in an area close to the exposed xenon bulb.

Clean the interior of the lamphouse compartment at regular intervals to remove dust and accumulation of dirt.

The reflector and xenon bulb should be cleaned occasionally with a clean, soft, lint-free cloth. Fingerprints and residue should be removed by using alcohol, distilled water, and cotton. Observe all safety precautions as outlined by the bulb manufacturer when working near the xenon bulb.

Periodically check all electrical connections in the lamphouse compartment and the power supply to insure tight and secure fittings. Clean or replace fittings if corroded.

Once every four to six months lubricate the Console exhaust blowers with two or three drops of projector oil. Check to see that vanes in blower wheel/fan blade are clean.

Do not operate the xenon bulb beyond its normal rated life. Quartz devitrifies with age. Continued use, after normal rated life, may result in explosion of the bulb envelope and damage to the expensive optics.

Rotate the xenon bulb periodically as recommended by the bulb manufacturer.

Allow the Console blowers and the upper stack blower to operate 20 minutes after extinguishing the bulb. The blowers will dissipate accumulated heat and prevent damage and weakening of the xenon bulb.

Discard a used or unwanted xenon bulb, following the bulb manufacturer's instructions, by wrapping it several times in layers of heavy canvas or other heavy material. Smash the wrapped bulb by standing on a wooden board before placing it in a trash container.

Do not discard the bulb without smashing it first. <u>It would be hazardous!</u> <u>It could explode!</u>

TROUBLE CHART

CAUTION: Dangerous voltages are involved in the following procedures and trouble shooting should only be attempted by **QUALIFIED SERVICE PERSONNEL.**
Automation System in "Manual Mode"

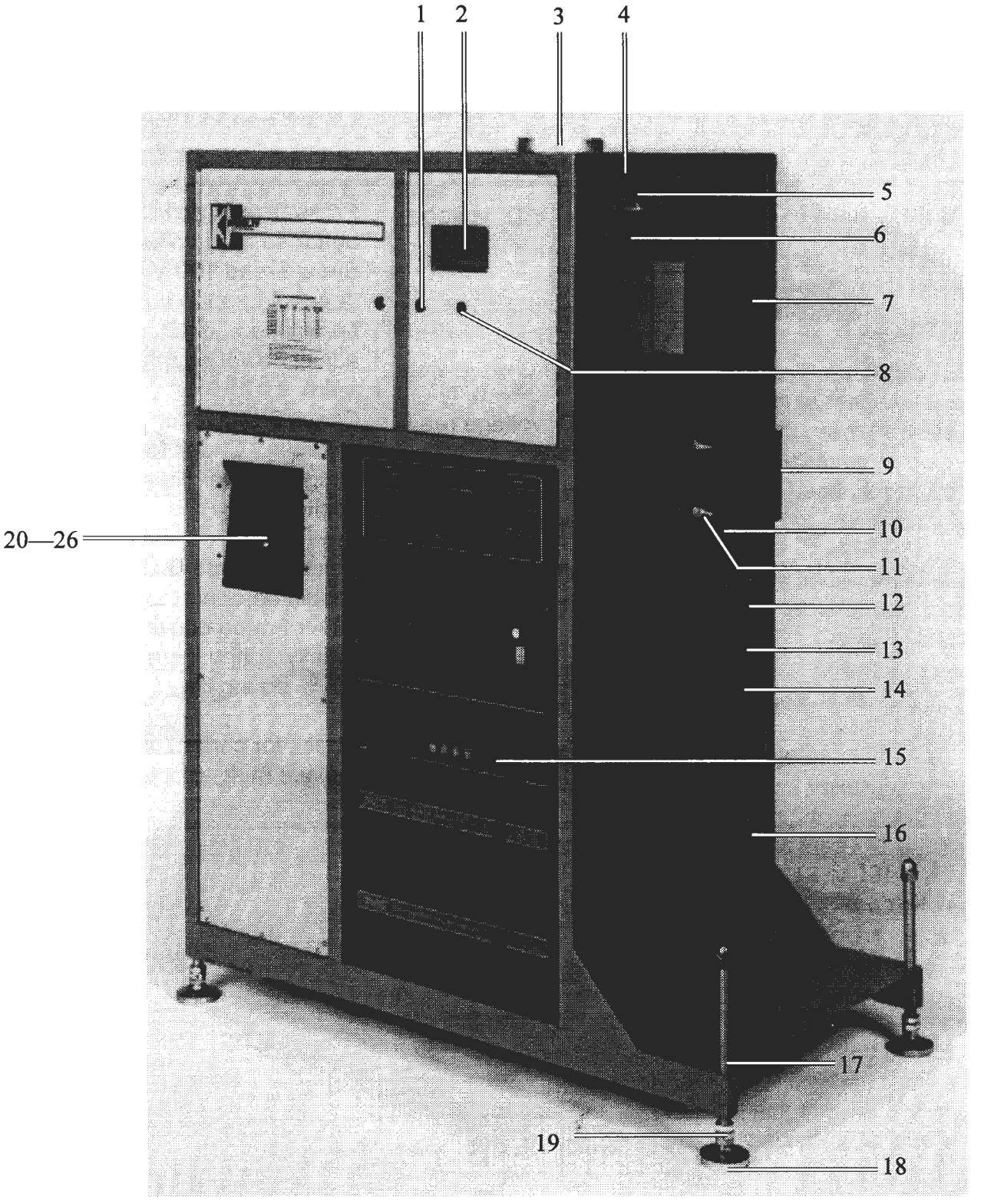
TROUBLE	POSSIBLE CAUSE	REMEDY
1. Bulb fails to ignite "Power" switch is "ON". Pilot light not lit	A. C. power not on	Make sure circuit breaker for lamphouse is in "ON" position
	Lamphouse blower not working	Check blower fuse (F-1 on wiring diagram - page 12 or 13) Replace with 3 AG 2.5 amp fuse.
	Air flow switch not closing or faulty door interlocks	Check for voltage at 9 and 2, 10 and 2, 11 and 2, 12 and 2. Note: Door interlocks must be closed and blower is operating If no voltage at any of above, replace faulty switch.
	Faulty power switch	Check for voltage at 13 and 2. With switch in ON position. If no voltage replace Power Switch.
2. Bulb fails to ignite. "Power" Switch is "ON" Pilot light is lit. Power Supply Fan is operating.	Faulty relay in power supply.	Listen or observe for operation of relay when power switch is turned ON. Replace if defective.
	No. A. C. power to power supply	Turn "Power Supply" breaker "ON". Check for voltage.

Continued next page)

TROUBLE	POSSIBLE CAUSE	REMEDY
(continued from last page) **2. Bulb fails to ignite. "Power" Switch is "ON" Pilot light is lit. Power Supply Fan is operating.**	Defective ignition switch (manual operation)	If defective, replace.
	Circuit Breaker (1 Amp) is open	Reset.
	Defective igniter	Press ignition switch. If bulb doesn't arc, replace switch/igniter
	Low or no D.C. voltage	Press "Press/Volts" push button to read voltage. Should read100 volts D.C. depending upon bulb being used. If not, re-adjust power supply taps. Faulty bridge rectifier or main transformer in power supply. Consult factory.
3. Bulb goes out during operation	Defective xenon bulb	Replace bulb.
	Loss of control voltage	Check for 115 V.A.C. Control volts.
	Lamphouse Blower failure	Check fuse F-1 to blower (page 12 or 13). Check air flow switch and door interlocks as de-scribed in (1).
	No D.C. voltage	Check for A.C. voltage input to power supply.
	Loose connection	Check all connections, especially D.C. circuit.
	Faulty bulb	Replace.

TROUBLE	POSSIBLE CAUSE	REMEDY
4. Intermittent operation of xenon bulb	Air flow switch not closing or faulty door interlocks	Check for proper closure of doors and operation of air flow switch. See (1)
	Loose connection	Check all connections.
5. Bulb is hard to ignite	Low "NO LOAD" voltage	Press "Press/Volts" push button to read voltage. Should read 100 V.D.C. depending upon bulb being used. If not, re-adjust power supply taps.
	"NO LOAD" voltage reads 40 to 50 volts	Check 3-phase for proper voltages. Check for faulty bridge rectifier filter/capacitor
	Operating bulb below recommended current	Adjust current. Bulb should be operated at 85% of rated current initially ... and increased to 100% during life.
	Incorrect or faulty zenner diode in Auto Ignition Circuit	Check for correct value or replace faulty diode.

FIGURE 1



PARTS LIST -- FIGURE 1

ITEM	PART NUMBER	DESCRIPTION
1	R-2894	Door lock
2	L-2547	"Danger" Plate
3	L-0849	Vent Stack
4	L-0128	Knob - Black, Plastic Ball
5	L-0127	Dowser Handle
	L-0889-1	Dowser Plate
	L-0891	Dowser Arm Cover
	L-0892	Dowser Arm
	L-0893	Dowser Arm Spring
	L-0894	Dowser Arm Spring Support
	L-0897	Dowser Stop Pin, C.R. Steel
	L-0898	Dowser Stop Pin Bumper
	L-0900	Dowser Detent
6	L-2546	Hazardous Light Warning Plate
7	L-0845	Nosecone
	L-2677	Nosecone Extension
8	L-0888	Glass - Arc Port
9	L-2564	Soundhead Adapter Arm
10	L-2590	Adjustment Plate, Projector
	F-2037	5/16 x 24 x 1 SASS
11	F-1229	3/8 - 16 Nut
	F-8032	3/8 x 1-1/2 Fender Washer
12	See Below	Circuit Breakers (See Below)
13	See Below	Circuit Breakers (See Below)
14	See Below	Circuit Breakers (See Below)
15	——	Optional Sound,Exciter, & Processor
16	L-2399	Duplex Receptical
17	L-2959	Rod - Threaded 3/4 - 10 x 12
18	L-2801	Pad - Leveler
19	L-2802	Nut - Hex Jam, 3/4 - 10
20	L-2424	Circuit Breaker 1 amp
21	L-2928	Rocker Switch Mom. on
22	L-2929	Rocker Switch On-Off Lighted
23	L-2638	SPDT-Push Button, Red (Voltage/Amps) ***Not used on digita***
24	L-2673	Elapsed Time Meter
25	L-2588 *(or L-2931)*	D.C. Ammeter 0-150 Amps +/- 2% *(Digital is L-2931)*
26	L-2930	Digital Voltmeter *(for digital only)*

ITEM 12 Power Supply Circuit Breakers

3 Pole Circuit Breaker 250 Volt, 50/60 Hz

L-2875 15 Amp
L-2876 25 Amp
L-2877 30 Amp

1 Pole Circuit Breaker 250 Volt, 50/60 Hz

L-2873 20 Amp
L-2874 25 Amp

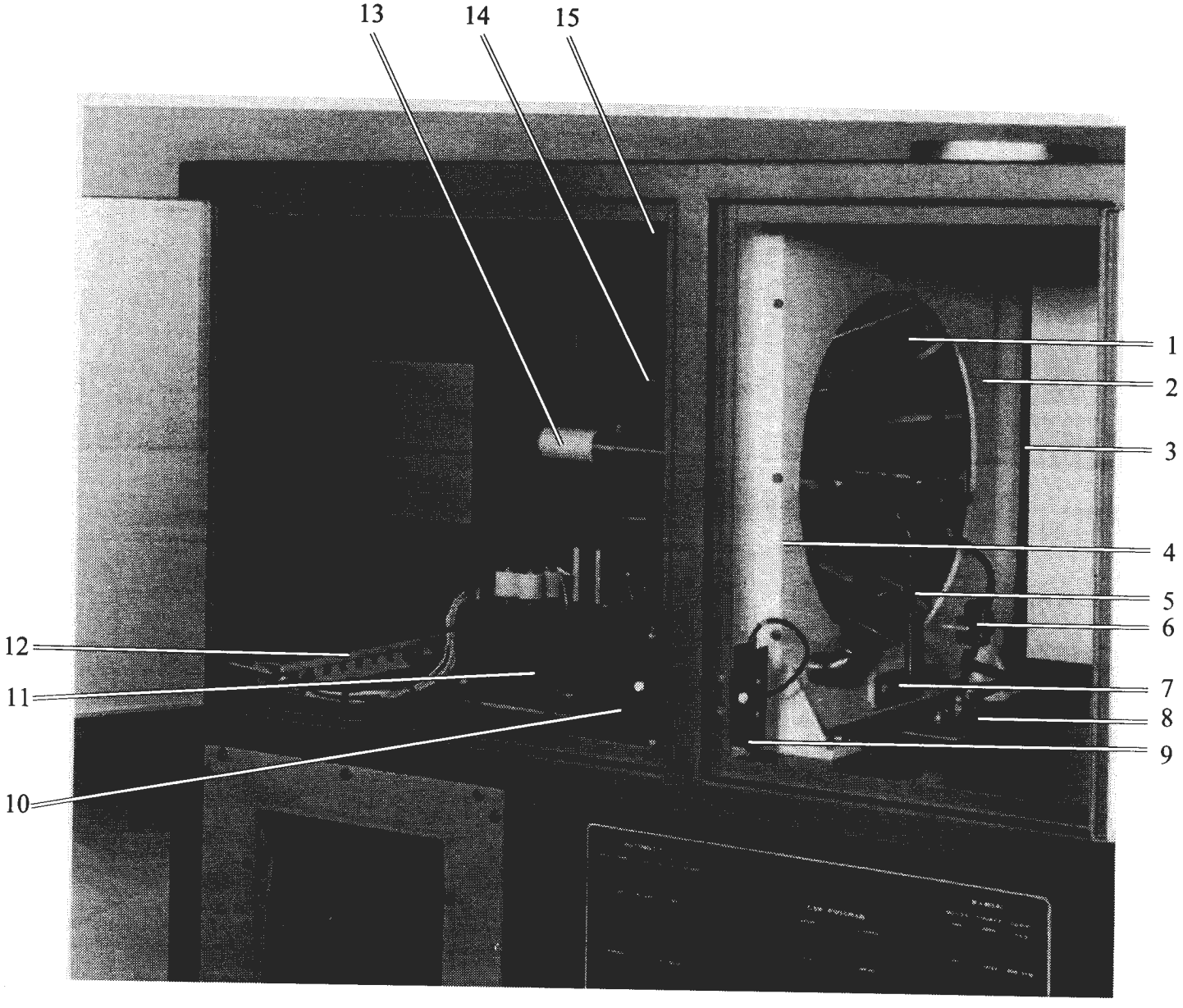
ITEM 13 Projector, Automation, Lamphouse 1 Pole Circuit Breaker 250 Volt, 50/60 Hz

L-2872 15 Amp
L-2871 10 Amp

ITEM 14 Aux Circuit Breakers 250 Volt, 50/60 Hz

L-2872 15 Amp
L-2871 10 Amp
L-2870 5 Amp

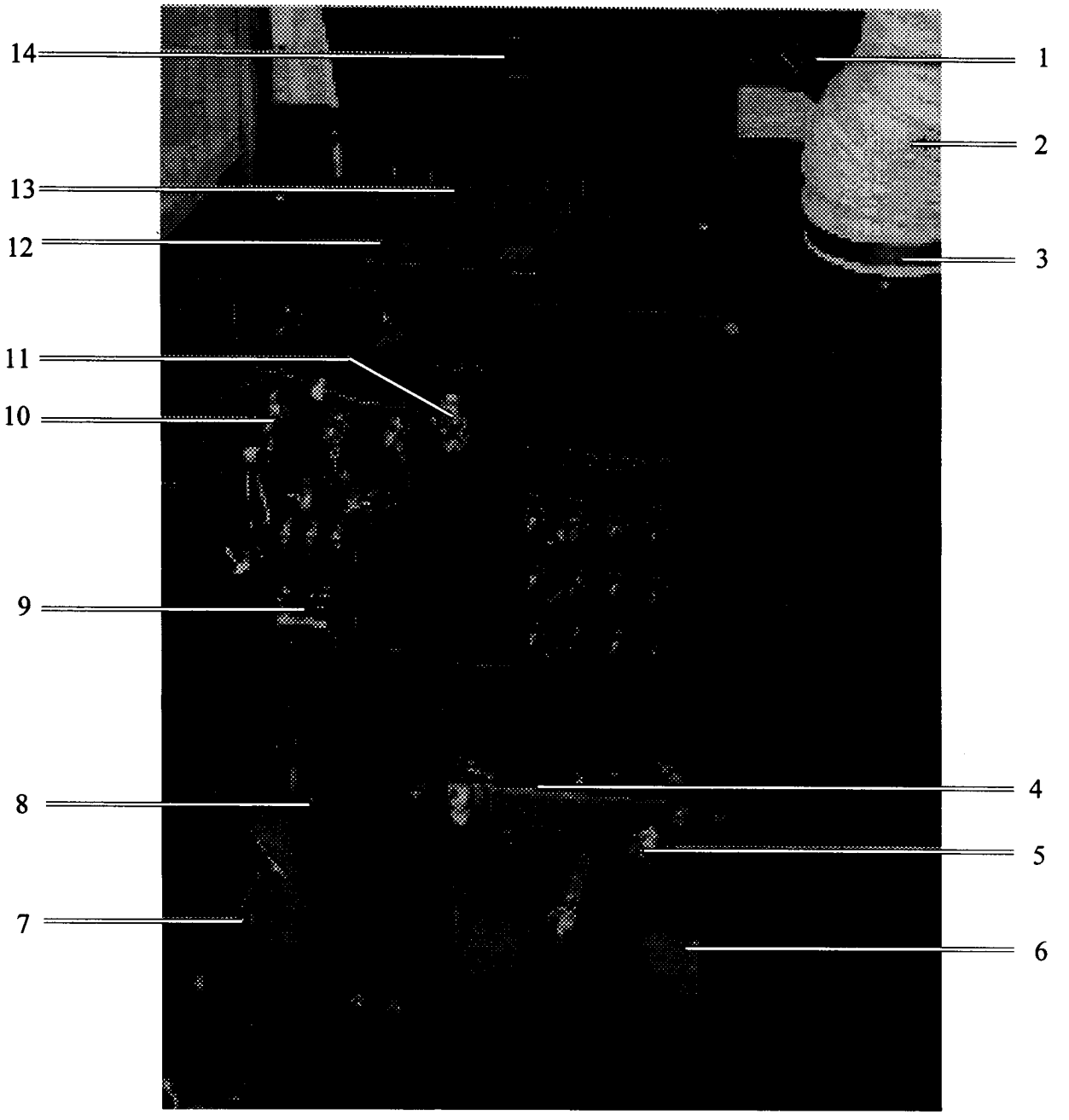
FIGURE 2



PARTS LIST -- FIGURE 2

ITEM	PART NUMBER	DESCRIPTION
1	L-2600	Reflector, Electroform/metal,cold-coated
2	L-2601	Bulkhead casting
3	L-2867	Air baffle, left
4	L-2866	Air baffle, right
5	L-2617	Anode support post
	L-2616	Anode support yoke assembly
6	L-2625	Anode air duct
7	L-2611	Anode support bracket
8	L-2628	Terminal block
	L-2627	Insulator - Terminal block
9	L-0777	Door interlock switch
10	L-1745-3	Automatic ignition kit, 3 phase, 220 volt,
		L-1777-A zenner diode assembly for above
	L-1804	Relay assembly for igniter kit
11	R-2915	Igniter assembly (700 to 2000 W.)
	R-2916	Igniter assembly (2500 to 4000 W.)
12	L-2879	Wiring duct
	L-2880	Cover - wiring duct
13	L-2701 — L-2706	Cathode bulb support assembly (See page 16)
14	L-2613	Air vane switch assembly
15	L-2626	Blower

FIGURE 3



PARTS LIST -- FIGURE 3

ITEM	PART NUMBER	DESCRIPTION
1		Relay Panel, Automation Equipment (optional)
2	L-2636	Flexible hose 4" diameter
3	L-2635	Hose clamp, 4"
4	R-1903-1	.01 mfd, 2KV, disc capacitor
5	R-2437	Diode, 500 v., 150 amp.
6	R-2415	Silicon stack for 3 phase
	R-2480	Silicon stack for 1 phase
7	R-2453	Fan blade
8	R-0700-3	Fan motor, 115 v., 50/60 Hz.
9	R-0715-2	Contactor
	L-2067	Plug, C.J. P-304-CCT
10	R-2109	Socket, C.J. S-304-CCT
11	R-0677	Ring terminal, 1/4" stud, 10-12 wire
12	R-2845	Ground lug, T&B 354, 2/8
13	R-0707	Data plate
14	R-2406	Wye bar
15	R-0614	Cane locking shoulder screw
--	R-0615	Cane locking shoulder arm

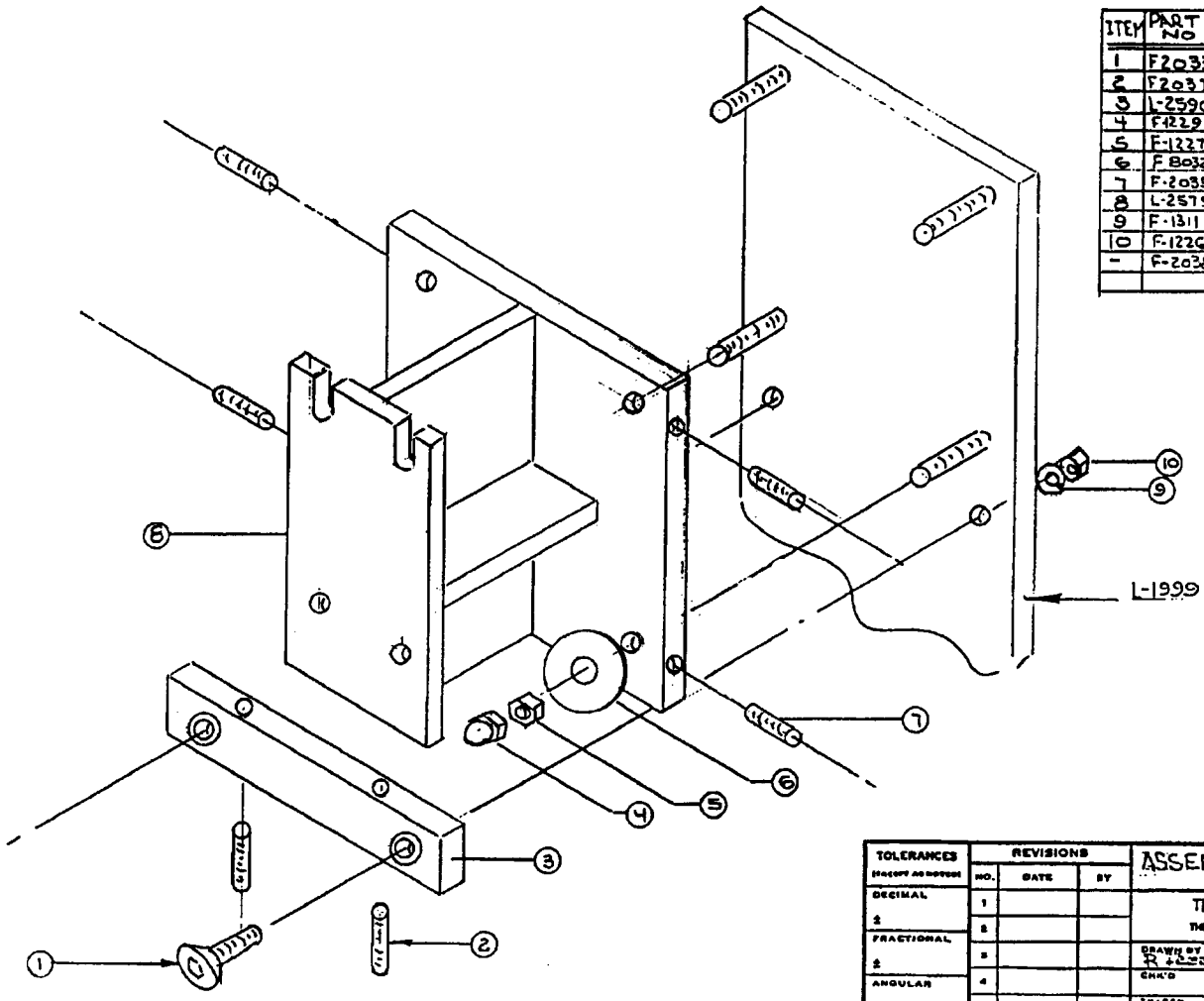
NOT SHOWN:

Transformers ... Contact the Factory

R-2907 — .05mf, 1KV disc capacitor

L-2564

ITEM	PART NO	QUAN.	DESCRIPTION
1	F2033	2	3/8-16 x 1¼ FHSCAP SCREW
2	F2037	2	5/16-24NF1 SHSS
3	L-2590	1	ADJ. PLATE, PROJECTOR
4	F1229	4	3/8-16 ACORN NUT
5	F-1227	4	3/8-16 HEX JAM NUT
6	F8032	8	3/8 x 1½ FENDER WASHER
7	F-2035	4	5/16-18 x 1 SH SS
8	L-2575	1	ADAPTER, WELDED ASS'Y.
9	F-1311	2	3/8 HED. SPRING WASHER
10	F-1226	2	3/16-16 HEX FULL NUT
-	F-2038	1	5/32 ALLEN WRENCH



TOLERANCES (Unless otherwise noted)	REVISIONS NO.	DATE	BY
DECIMAL ±	1		
FRACTIONAL ±	2		
ANGULAR ±	3		
	4		
	5		

ASSEMBLY, CENTURY OR SIMPLEX ADAPTER

THE KNEISLEY ELECTRIC COMPANY

THEATRE LIGHTING EQUIPMENT

DRAWN BY	SCALE	MATERIAL
R. [illegible]	NONE	—
CHK'D	DATE 6-24-68	DRAWING NO. L-2564
TRACED	APP'D	

WARRANTY

To the purchasers of Kneisley equipment during the period of warranty coverage stated below, The Kneisley Electric Company warrants the equipment to be free of defects in materials and workmanship as stated below:

SCOPE OF COVERAGE	PERIOD OF COVERAGE	TYPE OF FAILURE COVERED
RECTIFIER STACKS and SIL-TUBES	THREE YEARS, PRORATED, FROM DATE OF FACTORY SHIPMENT	DEFECTIVE MATERIALS OR WORKMANSHIP
ALL OTHER PARTS OF KNEISLEY MANUFACTURE	ONE YEAR FROM DATE OF FACTORY SHIPMENT	DEFECTIVE MATERIALS OR WORKMANSHIP

Kneisley's obligation hereunder is limited to repair and replacement of parts which it determines to have defects in materials and/or workmanship. All warranty service and/or replacement of parts must be performed for you by The Kneisley Electric Company. Costs of shipping Equipment to and from Kneisley for such repair and/or replacement shall be paid by you. Any such warranty replacement or repair shall be subject to the terms and conditions of this warranty for the remainder of the original period of coverage.

This warranty does *not* cover items or parts not of Kneisley's manufacture, such as reflectors, projectors and xenon lamps *which are covered by warranties issued by their manufacturers*. This warranty does not cover any failures or operating difficulties due to accident, abuse, misuse, alteration, misapplication, improper installation or improper maintenance or service.

THE FOREGOING WARRANTIES ARE EXPRESSLY MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, KNEISLEY HEREBY DISCLAIMS AND EXCLUDES ANY WARRANTIES, EXCEPT THOSE MADE HEREIN.

UNDER NO CIRCUMSTANCES WILL KNEISLEY BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Kneisley does not authorize any person or company to assume for it any other obligation or liability in connection with the sale, application engineering, installation, use, removal or replacement of its equipment, and no such representations are binding on The Kneisley Electric Company.

KNEISLEY ELECTRIC COMPANY
P. O. Box 4692 • Toledo, Ohio 43610 • Phone: (419) 241-1219 • Fax: (419) 241-9920

Xenon BULB RECORD

Bulb Manufacturer	Serial Number	Installed		Rotated	
		Date	Hour Meter Reading	Date	Hour Meter Reading