XETRON
XHN SERIES
SUPPORT MANUAL

NOVEMBER 1992

GENERAL DESCRIPTION

The XHN/XCN series of xenon systems, manufactured and designed by Xetron Division, Neumade Products Corp. has been designed to take advantage of the higher efficiency that can be obtained by using a xenon bulb in the horizontal position. In order to make a trouble-free reliable unit, special attention has been paid to the cooling of the bulb and reflector. A circuit board control panel (XCN227) having a combination digital volt/amp meter and digital hour meter is provided for high accurate readings.

The metal reflector is computer designed and optically corrected for this application, and provides a very efficient collection of the energy developed by the Xenon bulb. To facilitate proper cooling, the reflector is coaxially mounted in a metal spinning with air being forced between the outside of the reflector and the inside of the spinning. The 1K, 2K and 3K systems are equipped with either the 10" XH260-20 or 11" XH300-159 Aconic reflector design. The 4K systems are equipped with a 15" reflector design.

All systems must be vented. The XHN lamphouse systems 1-4K are supplied with a 6" vent stack opening. The XCN and XCND consoles systems have a 8" vent stack opening. The systems have direct cooling on both the positive and negative ends of the bulb.

All systems have various failsafe devices to protect both operating personnel and the equipment. The basic unit blower has a air vane switch which will not allow the power supply to turn on unless operational. Each door has a keylock switch to ensure that the doors are closed during operation.

Most xenon bulbs will fit in our various systems. The recommended type of bulb in the various sizes are as follows:

XBO1000HS	XBO1600HS	XBO2000H
XBO3000HS	XBO4000HS	XBO7000HS

RELATIONAL BULB SIZE TO SCREEN SIZE CHART

SCREEN WIDTH	SCREEN HIGHTH	BULB SIZE
TO 30'	TO 15'	2000 WATT
TO 38'	TO 20'	3000 WATT
TO 50'	TO 26'	4000 WATT

The above figures are only rough guides. Many factors should be considered when calculating the correct xenon bulb for a particular auditorium. Besides screen size, the type of projector, lens type, type of port hole glass and projection throw should be considered when specifying a particular system.

VENTILATION REQUIREMENTS AT THE VENT STACK

LAMPHOUSE SIZE	RECOMMENDED CFM
1000-2000W	400
3000W	500
4000W	600
7000W	750

The above figures are minimum requirements. Excessive heat will effect many things. The Xenon bulb life will be cut dramatically without proper cooling. Also the dichroic coating on the reflector will fail if reflector surface temperature exceeds 280 C.

The following page lists various reference temperatures of our various lamphouses operating with the above ventilation specifications.

MAXIMUM OPERATING TEMPERATURES WITH ABOVE COOLING

CURRENT VOLT/AMP	WATTS	REFLECTOR	NOSE CONE PANEL	DOOR HANDLES
XHN2KD				
28.5/62	1767	115 C	32 C	42 C
28.9/75	2167	123 C	34 C	48 C
30.7/85	2609	146 C	47 C	57 C
XHN3KD (SHROUD)				
27.5/85	2337	136 C	33 C	51 C
28.5/95	2707	191 C	34 C	56 C
30.4/110	3344	223 C	37 C	67 C
XHN3KD (NO SHROUD)				
28.8/105	3024	134 C	33 C	56 C
30.4/110	3344	165 C	37 C	67 C

All temperature readings done with the hand dowser closed.

WORKING DISTANCE MEASUREMENTS

		REAR OF REFLECTOR TO PROJ. APERTURE
XH26020 XH26020CD	10" REFLECTOR	19.5"
XH300159 XH300160	11" REFLECTOR	20.5"
XH460RM XH460CD	15" REFLECTOR	31.15"

If the type of projector was stated on the order, the basic unit will be preset for the proper working distance using normal projector mounting practices.

BULB ADAPTER CHART

1-3K LAMPHOUSE WITH 10" REFLECTOR

XENON BULB	POSITIVE ADAPTER	NEGATIVE ADAPTER
XBO1000HS	XH3007527	XH3007521
XBO1000HTP	XH3007526	XH300752
XBO1600HS	XH3007527	XH3007521
XBO2000H		XH3007522
XBO2000HS	XH3007527	XH3007522
XBO2000HTP		XH3007523
XBO2500HS	XH3007528	XH3007524
XBO3000HS	XH3007528	XH3007524
XBO3000HTP		XH3007525

1-3K LAMPHOUSE WITH 11" REFLECTOR

XBO1000HS	XH3007527	XH3007521
XBO1600HS	XH3007527	XH3007521
XBO2000H		XH3007522
XBO2000HS	XH3007527	XH3007521
XBO2500HS	XH3007528	XH3007524
XBO3000HS	XH3007528	XH3007524

4K LAMPHOUSE WITH 15" REFLECTOR

XBO2000H	XH3007547	XH3007548
XBO2500HS	XH3007545	XH300754
XBO3000HS	XH3007545	XH300754
XBO3000HTP	XH3007546	XH3007542
XBO4000HTP	XH3007546	XH3007543
XBO4000HS		XH3007544
XBO7000HS		XH3007544

INSTALLATION INSTRUCTIONS

1. Upon receipt of the product, inspect for damage. If noted, please state on the shipping paperwork and call local dispatcher for instructions.

2. Unpackage the equipment. If XHN system, you will normally have 3 boxes. One box will contain the power supply, one will contain the lamphouse, with the third having the accessories. The XCN & XCND will have 2 boxes.

The accessory box will contain the following: manual, face mask, bulb adjustment allen wrenches.

3. After unpacking product, again inspect for damage. If damage was concealed please contact carrier at once.

Once these steps are taken, installation of the lamphouse may proceed.

4. The lamphouse has parallel rails for easy mounting on the domestic type of pedestal. Once the lamphouse is on the pedestal, attach with a couple of bolts so the unit doesn't fall.

5. After mounting the projector and/or lamphouse, the next step is physical alignment between the lamphouse basic unit and the projector gate. There are many different ways to accomplish the same results from use of a laser to using the naked eye. Whatever the method used, final results are not in until actual light is projected onto a screen.

The goal of the physical alignment is to center the rear aperture of the reflector with the projector aperture. You will not know how accurate you are until light is thrown through the system.

6. Once physical alignment is complete, proceed with the electrical hookup of the lamphouse and power supply.

ELECTRICAL INSTALLATION
LAMPHOUSE /POWER SUPPLY

1. Reference Schematic XH-300-189.

The D.C inputs should be wired with #4 welding cable for 1K-3K Lamphouses. 4K Lamphouses should be wired with #2 welding cable.

The A.C lamphouse/power supply interface should be wired with #18 600V wire. When interfacing automations recommend using a twisted pair of shielded #18 600V cable. This should prevent any RF from the igniter talking to the automation.

2. Once wired, power up unit. You should here the basic unit blower switch on. Before installing the bulb, push the manual strike toggle switch. You should here the igniter strike. Now install the xenon bulb after turning off power.

3. The basic unit is designed with a number of bulb adjustments as well as working distance adjustments. The adjustments are preset at the factory for initial lamphouse alignment (center of their travel). For ease of bulb installation, the basic unit will swing towards the operator.

Insert the negative end (small electrode) of the bulb in the rear ball socket and the positive end will sit in a front Y-post assembly. Once in place, tighten the (2) set screws in the rear ball socket assembly and attach the bulb cable to the block bracket adjoining the positive post.

WHEN INSTALLING THE 3000 OR 4000 WATT BULBS, IT IS MOST IMPORTANT THAT ONE OF THE OPENINGS (PLUS MARKS, ROUND HOLES, ETC.) IN THE METAL NECK OF THE POSITIVE END IS AT THE BOTTOM SO THAT MAXIMUM COOLING IS OBTAINED.

OPERATION

With the bulb installation completed, set the auto/manual switch in the manual position, and turn ON the ON/OFF switch on the lamphouse. This operates the magnetic contactor the power supply. If you do not here the contactor pull in, check the door switches and air vane switches. Check voltmeter for proper polarity. Now push the manual pushbutton for ignition, set amperage at low setting depending on bulb size.

FINAL OPTICAL ALIGNMENT

With the projector running and no lense, you should now be viewing a white light with a series of concentric circles and a black center. If the round black pattern in the center of the screen seems to be symmetrical, but not centered, then the lamphouse/projector alignment is out. Once centered, concentrate on the round black pattern in the center of the screen. If the pattern is egg shaped, move the horizontal and vertical controls until a concentric black center appears. Please take note if the controls end up at an extreme position. If so check your alignment. Also if you notice light distortion in a particular quadrant, that indicates misalignment.

To confirm alignment, insert the lens, and projecting 10 seconds on and 10 seconds OFF without projector running, look at the picture. You should have a bright center with 4 dark corners. To flatten field, move the focus control adjustment until the 4 dark corners disappear. Raise the current level of the power supply an operating level of 14 to 18 footlamberts.

Once this has been accomplished, your lamphouse is now operational.

TROUBLE SHOOTING GUIDE

1. Xenon Bulb will not ignite.

   A. Turn Power Switch Off & On, does power supply make clicking noise. If so, the power supply is on. If not, check power feed breakers, the door switches and basic unit blower air vane switch. Try again.

   B. Power Supply is on. Push manual ignition button. Does the bulb try and light. If not, push the volt/amp button to the volt position. What does it read. If it reads below 85 Volts, most likely the problem lies either at the power supply or at the DC termination. Please consult the power supply section for further information. If it reads voltage, check the igniter circuit for bad connection or defective igniter.

   C.If the bulb trys to ignite. Turn up the amperage on the power supply and try again. If not, replace the bulb. Before re-igniting, turn the power supply down to the low current range of the xenon bulb.

2. The following items are all fused. If one fails to operate, please check the fuse first.
   - Blower
   - Igniter
   - Pilot lamp

3. Hour Meter is not functioning properly.

   A. If the meter is dim or out, change the battery.
   B. If that doesn't correct problem, change meter.

4. Xenon bulb flicker.
   A. Change bulb
   B. Check power supply for single phase condition, bad diode or high in rush current.
   C. Check magnetic stabilization on the reflector

5. OverHeating Projection Gate
   A. Defocus lamp
   B. Check reflector type and xenon bulb operating current
   C. Check projector cooling method (air &/or water)
   D. Check Xenon bulb alignment

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SPECIAL FEATURES OF NEW DESIGN 4000 TO 7000W LAMPHOUSE

This new lamphouse is the evolution of several years of engineering refinement of our standard lamphouse series. This new series is designed specifically for use of higher wattage lamps and large film applications. Special attention has been directed towards the cooling system, inside heat shielding, and operating ease.

COOLING SYSTEM

The cooling system represents a total redesign in an effort to provide as much air as possible over the entire bulb and cool all the reflector surfaces. A new larger capacity basic unit blower, with an outside air intake, and stronger lamphouse exhaust fan insure a fresh, cool supply of moving air at all times. Additionally, the noise level has also been reduced by a considerable margin. New inner heat-shields protect the outer surfaces from any heat build-up, and the bottom of the lamphouse has additional openings for additional air movement. It is most critical that all cooling openings be clean and unhindered at ALL times, to prevent air restriction, and lamphouse overheating which can result in damage to inside components. The new exhaust stack diameter is 10" and should be connected to an evacuation system via 10" ducting. It is most important to have no restrictions in the exhaust system.

OTHER SPECIAL FEATURES

The BASIC UNIT has also been redesigned. The lamp adjustment plate has been moved to the top of the central tower, while maintaining the original lamp position. Three axis lamp adjustments are still provided, and can be ordered with external adjustment capability via cables or motorized control. There is also a replaceable plate for positioning the positive lamp mount depending on the bulb to be used for an application. Listed below are the available plates and their applications:

4000W	XCN - 375
5-6000W	XCN - 397
7000	XCN - 376

(please check with XETRON for specific lamp, plate, and reflector applications)

A new DOWSER BLADE MATERIAL allows for long periods of operation with the dowser closed, with no damage to the dowser. A motor drive can be ordered.

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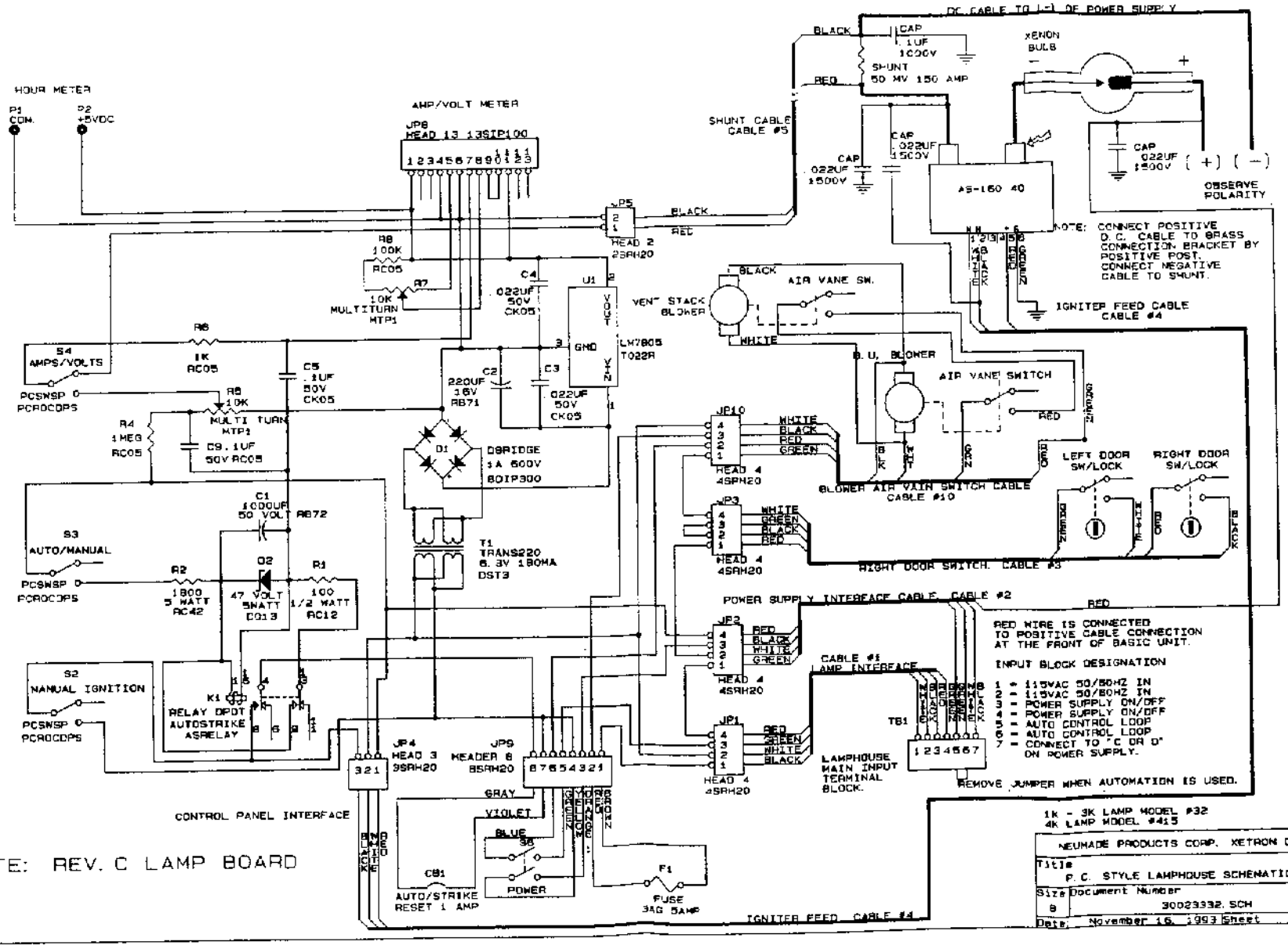
SPECIAL FEATURES (cont.)

Both cooling fans are protected by air vane switches, which constantly monitor their performance. A failure of either fan will result in an immediate shut-down of the bulb and power supply. An un-detected fan failure will result in catastrophic interior damage.

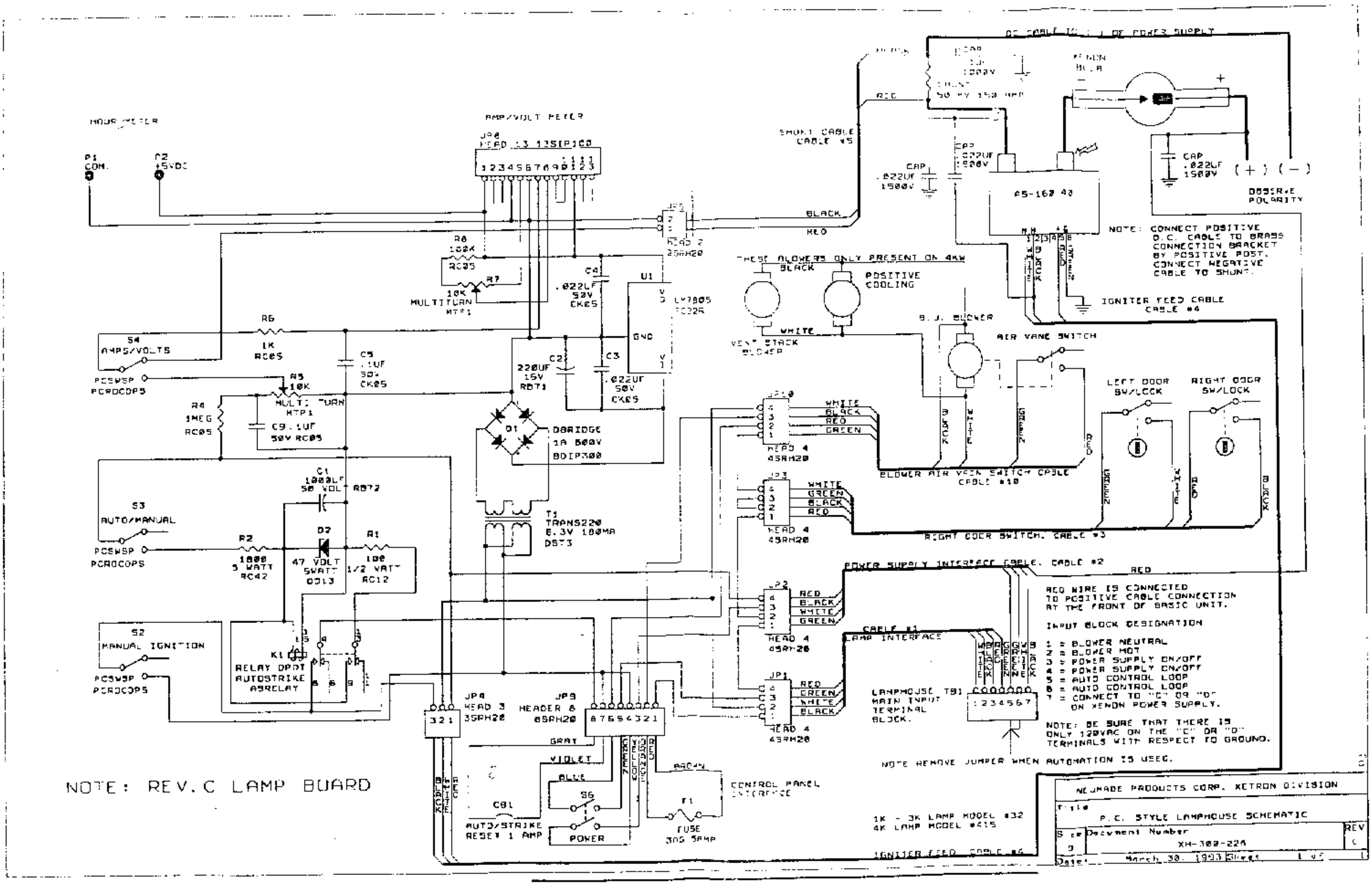
The open-frame REFLECTOR MOUNT allows for improved cooling on all surfaces of the reflector, and allows for easier reflector replacement.

The lamphouse body itself incorporates new construction techniques that result in fewer pieces, less weight and complexity, and better appearances.

Many of the features incorporated in this lamphouse will also be eventually added to our standard 1000 to 3000W lamphouses.



NOTE: REV. C LAMP BOARD


HOUR METER
P1 COM.
P2 +5VDC
AMP/VOLT METER
JP8 HEAD 13 13SIP100
R8 100K RC05
R7 10K MULTITURN MTP1
C4 .022UF 50V CK05
U1 LM7805 TO220
R6 1K RC05
S4 AMPS/VOLTS
PCSWSP
PCROCOPS
C5 .1UF 50V CK05
R5 10K MULTI TURN MTP1
R4 1MEG RC05
C9 .1UF 50V RC05
C2 220UF 16V RBT1
C3 .022UF 50V CK05
GND
D1 DBRIDGE 1A 600V BDIP300
C1 1000UF 50 VOLT RB72
S3 AUTO/MANUAL
R2 1000 5 WATT RC42
D2 47 VOLT 5WATT DO13
R1 100 1/2 WATT RC12
T1 TRANS220 6.3V 100MA DST3
S2 MANUAL IGNITION
K1 RELAY DPDT AUTOSTRIKE ASRELAY
JP4 HEAD 3 3SRH20
JP9 HEADER 8 8SRH20
GRAY
VIOLET
BLUE
BROWN
S6
POWER
CB1 AUTO/STRIKE RESET 1 AMP
F1 FUSE 3OG 5AMP
CONTROL PANEL INTERFACE
NOTE: REV.C LAMP BOARD
DC CABLE TO (-) OF POWER SUPPLY
BLACK
RED
SHUNT CABLE CABLE #5
CAP .1UF 1000V
SHUNT 50 MV 150 AMP
XENON BULB
CAP .022UF 500V
CAP .022UF 1500V
CAP .022UF 1500V
AS-160 40
(+) (-)
OBSERVE POLARITY
NOTE: CONNECT POSITIVE D.C. CABLE TO BRASS CONNECTION BRACKET BY POSITIVE POST. CONNECT NEGATIVE CABLE TO SHUNT.
JP5 HEAD 2 2SRH20
THESE BLOWERS ONLY PRESENT ON 4KW
POSITIVE COOLING
VENT STACK BLOWER
WHITE
B.J. BLOWER
AIR VANE SWITCH
IGNITER FEED CABLE CABLE #4
JP10 HEAD 4 4SRH20
WHITE BLACK RED GREEN
BLOWER AIR VAIN SWITCH CABLE CABLE #10
LEFT DOOR SW/LOCK
RIGHT DOOR SW/LOCK
JP3 HEAD 4 4SRH20
RIGHT DOOR SWITCH, CABLE #3
POWER SUPPLY INTERFACE CABLE, CABLE #2
JP2 HEAD 4 4SRH20
RED WIRE IS CONNECTED TO POSITIVE CABLE CONNECTION AT THE FRONT OF BASIC UNIT.
INPUT BLOCK DESIGNATION
1 = BLOWER NEUTRAL
2 = BLOWER HOT
3 = POWER SUPPLY ON/OFF
4 = POWER SUPPLY ON/OFF
5 = AUTO CONTROL LOOP
6 = AUTO CONTROL LOOP
7 = CONNECT TO "C" OR "D" ON XENON POWER SUPPLY.
CABLE #1 LAMP INTERFACE
JP1 HEAD 4 4SRH20
LAMPHOUSE TB1 MAIN INPUT TERMINAL BLOCK
NOTE: BE SURE THAT THERE IS ONLY 120VAC ON THE "C" OR "D" TERMINALS WITH RESPECT TO GROUND.
NOTE REMOVE JUMPER WHEN AUTOMATION IS USED.
1K - 3K LAMP MODEL #32
4K LAMP MODEL #415
IGNITER FEED CABLE #4
NEUMADE PRODUCTS CORP. XETRON DIVISION
Title P.C. STYLE LAMPHOUSE SCHEMATIC
Document Number XH-300-226
REV C
Date: March 30, 1993 Sheet 1 of 1