Film-Tech

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HORTSON CINE 16

PROFESSIONAL 16MM PROJECTOR

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INSTALLATION and MAINTENANCE MANUAL

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Distributed in the U.S.A. by

CARBONS, INC., XeTRON DIVISION
10 Saddle Road, Cedar Knolls, N.J. 07927

XETRON
A DIVISION OF
CARBONS, INC.
CEDAR KNOLLS, N. J. 07927
201 – 267-8200

TECHNICAL SPECIFICATIONS

- Projection speed : 24 frames per second
- Sound to image distance : 26 frames
- Micrometer type framing and focussing
- Mechanical slit for sound scanning
- 6 volt 5 ampere exciter lamp
- Solar Cell Optical Pick Up
- Xenon lamphouse
- Automatic pump lubrication
- Intermittent type film advance controlled by a maltese cross
- Direct sound scanning
- 5,000 foot capacity reels
- 220 volt 50/60 Hz. motor (50 cycle pulley available on special order
- Adjustable projection angle +5° - 15°
- Current consumption : 5 amperes, projector only
- Xenon Power consumption : See Power Supply data sheet

- PROJECTOR with lamphouse
- Pedestal including motor and 6 volt 5 ampere DC exciter power supply and terminal strip

    - 450, 900/1000 or 1600/2000 watt Xenon Lamphouse
    - Upper arm with 6,000 foot reel capacity
    - Reflector
    - Two 5,000 foot reels (6,000 foot optional)
    - Cine 16 Preamplifier (optional)
    - Cine 16 amplifier (optional)
    - Anamorphic lens (optional)
    - Anamorphic Bracket (optional)
    - Aperture for Cinemascope film (optional)
    - Upper arm with rapid motor rewind (optional)
    - Weight compensated take up

- Read this manual carefully before proceeding.
- Mount projector on top of pedestal with two 8mm. bolts supplied for this purpose.
- Hook up electrically all the wires by matching numbers on the terminal strip and numbers on the wires. See illustrations and the schematics contained in this manual. Mount exciter lamp DC power supply inside the pedestal and make necessary connections. The power supply slides onto two round studs inside the base. On some projectors the DC Exciter supply comes already mounted inside the pedestal.
- By following the illustrations, place all the belts on their respective pulleys: motor projector and projector to take up reel.
- Connect starter DC cables by carefully observing polarity.
- Connect the porjector (Sound output) to the amplifier as well as the output from the amplifier to the speaker.
- DC cables from the power supply are to be connected to the interior terminals on the bottom of the pedestal. Observe Polarity.
- No.B5 and No. B6 terminals on the terminal board inside of the pedestal should be connected to a 220 volt single phase line. Be sure to invorporate a 10 ampere maximum breaker in this circuit. TheXenon power supply should also be connected to the mains and should be protected with a 10 or 20 ampere breaker depending upon the capacity of the power supply. See power supply schematic.

THIS PROJECTOR DOES NOT CONTAIN ANY OIL. DO NOT ATTEMPT TO RUN THE PROJECTOR IN THIS CONDITION. FILL WITH EXXON 40 OIL SUPPLIED WITH PROJECTOR.

- Fill with EXXON No. 40 oil through oil tube at the top rear of projector. Capacity approximately one pint.
- While filling the porjector with oil, please observe in the sight window on the lower rear of the projector (the belt side) the level of the red mark - projector not running.

When projector is running, please observe oil in the upper sight window located on the front of the projector - operating side. Oil must be visible.

The Xenon bulb is a relatively new device and a few words of explanation may be helpful.

The electrodes are tungsten and the envelope is made of quartz. The lower or pointed electrode is the cathode and must always be connected to the negative side of the direct current power supply. If this direct current supply is reversed, the bulb can be ruined in a few seconds.

Xenon gas under a pressure of 8 atmospheres when cold, is increased to approximately 20 at normal operating temperature. Ignition is accomplished by applying the output of the power supply (approx. 80 volts) across the bulb and a momentary discharge of 30,000 volts across the electrodes. This starts the current flow and the power supply voltage drops immediately to its normal value of about 20 to 25 volts.

In addition to the visible light, the Xenon bulb also delivers ultra violet and infra red radiation. Direct observation of the arc should be avoided. Always use proper filter glass if necessary to observe the arc. The action of the ultra violet radiation on the air surrounding the bulb produces ozone in small quantities. An "ozone free" bulb is available and its use is recommended in the equipment in order to reduce the need for ventilating facilities.

IMPORTANT - The lamp should operate as close as possible in a vertical position and the angle should not exceed plus or minus 30°.

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HORTSON CINE 16

NON OPERATING SIDE

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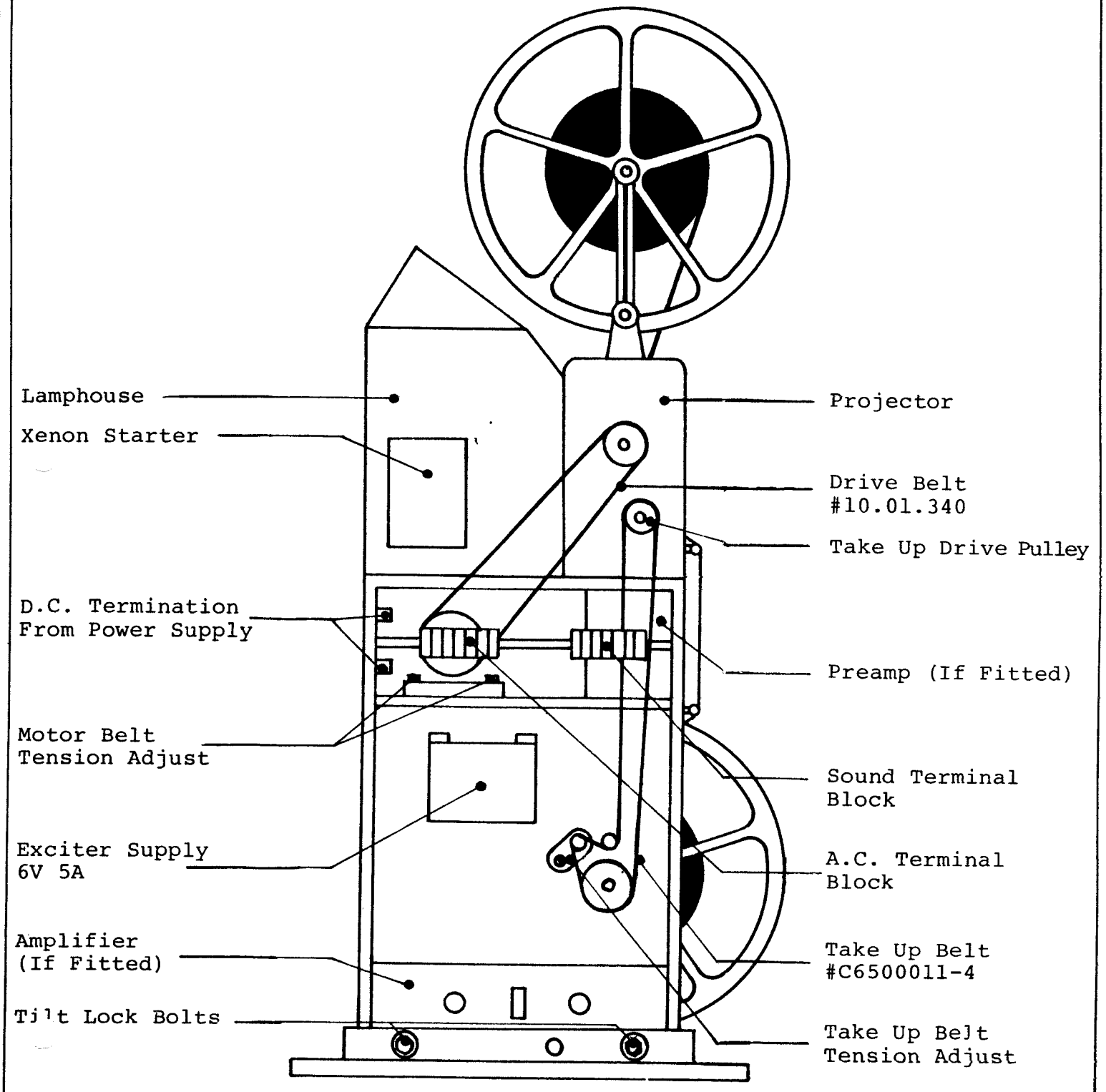
DWG.#16-02



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HORTSON CINE 16

LAMPHOUSES

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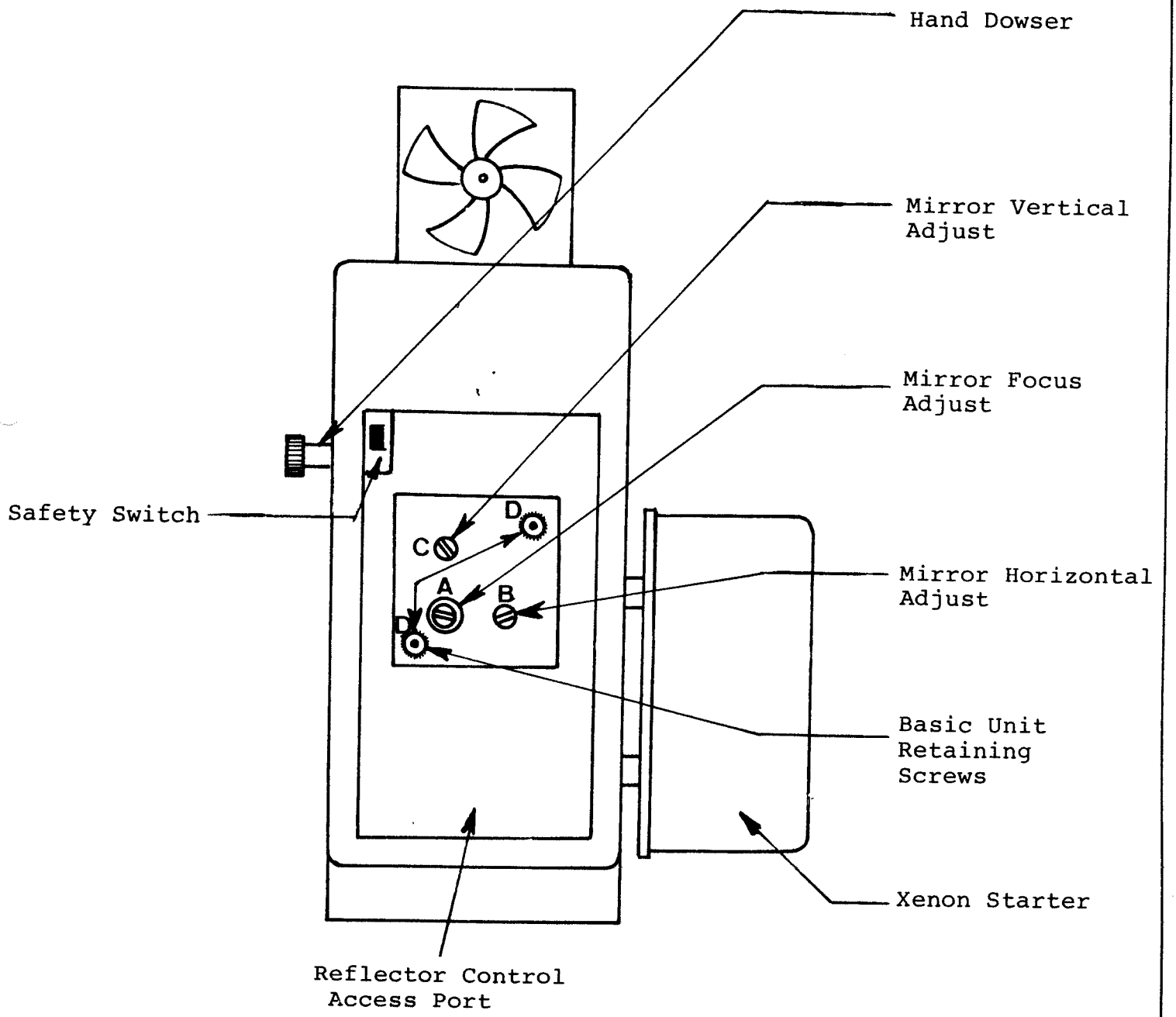

- Make sure the current is shut off.
- Remove lamphouse door by opening up the screw situated near the top of the lamphouse.
- Place reflector in such a position that the cut-outs are located on top and bottom.
- Next, place the asbestos washer provided and tighten the nut carefully by hand - do not overtighten.
- Place the bulb in the mounting brackets. Be sure to place the spacer type washer over the positive (top) bulb terminal before putting on the contact clamp. (This spacer is packed inside of the lamphouse.)

  It is recommended when installing the bulb to wear a protective mask as well as use gloves in order to avoid touching the quartz with one's fingers.

- Tighten securely the two lead contacts supplying current to the bulb.
- Make sure that the bulb has a small amount of vertical play to its mounting.
- CLOSE THE LAMPHOUSE DOOR.

WARRANTY OF XENON BULBS

- As a safety measure it is recommended to replace Xenon bulbs when they have exceeded by 25% the recommended average life.
- The warranteed life of 450, 900 and 1600 watt bulbs is 1500 hours.
- Average life 2000 hours.
- The warrenteed life of 1000 and 2000 watt bulbs is 2000 hours
- Average life is 2500 hours.
- Defective bulbs under warranty must be returned to Carbons, Inc. together with a description of the nature of failure as well as the amount of hours the bulb operated. A RMA form must be obtained before returning merchandise
- All claims are subject to evaluation by the bulb manufacturer.

LIGHTING OF XENON BULB

- Turn on the Xenon power supply and with a DC voltmeter check the polarity before attempting to strike the bulb. Positive reading must be at the upper bulb terminal.
- Close the lamphouse door. (Never operate the bulb with lamphouse door open).
- Turn on "power" switch on projector control panel.
- Be sure projector dowser is closed.
- Push briefly starter push button.
- By observing the ammeter adjust the output current* to the proper nominal level for the particular bulb used (see page 9). If bulb fails to ignite check all circuits before attempting to strike again. (For projectors equipped with automatic ignition - see autostrike instruction page).

*Black handwheel on power supply, adjusts output current.

REFLECTOR CONTROLS (see lamphouse drawing)

- A-Focus Control - rotation of this control brings the reflector closer or further away from the bulb.
- B-Horizontal control - according to rotation the reflector moves horizontally from left to right.
- C-Vertical control - according to rotation the reflector moves up and down.

REFLECTOR ADJUSTMENT PROCEDURE

- Turn on Xenon Lamp.
- Remove projection lens from projector
- Start projector (no film)
- Open dowser
- While observing the light on the screen turn reflector controls slowly until the best possible outline of the reflector is obtained. When properly adjusted a bright disc of light with the bulb shadow in the center is obtained. The bulb will be shown as a dark pattern in the center of the screen.

REFLECTOR ADJUSTMENT PROCEDURE

- Place lens in the projector and readjust slightly the reflector controls for best overall light on the screen. To center the projected light vertically on the screen adjust the tilting mechanism.

THREADING THE PROJECTOR

- Be sure that the film is facing the right way "heads down", and the perforations or sprocket holes are on the same side as the sprocket teeth. The emulsion side is facing the lens of the projector.
- Place the feed reel on the upper arm in conventional manner.
- Tighten the retaining nut or close the knee action retainer which ever applies to your projector.
- Open the projector door by pressing the release button in the front of the projector.
- Open the four film pad rollers.
- Open the lens supporting assembly by pulling it towards you.
- Thread the projector as illustrated on Dwg.#16-04. Close the pressure assembly and lens supporting assembly.
- Place the take-up reel on the lower take-up spindle and tighten the retaining nut or close the knee action retainer. Catch the beginning of the film in the reel and rotate it clockwise.
- Before starting the projector, make sure that all the sprocket holes are properly engaged and try to run the projector by using the threading control button as the final test.

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PROJECTOR HEAD

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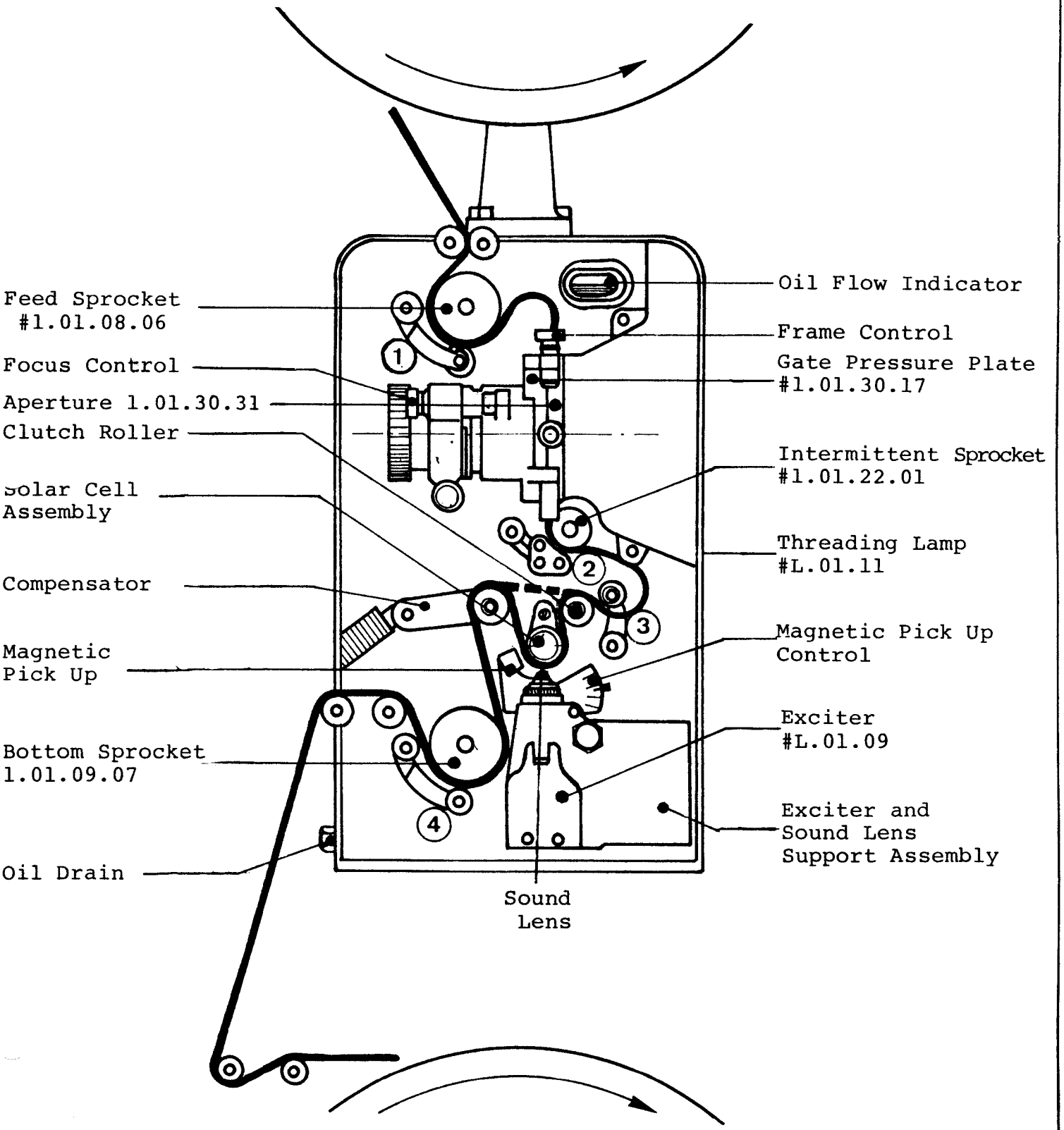
DWG. #16-04



XENON LAMP

Be sure that the projector dowser is closed.

- Turn on "power"switch on projector control panel.
- Turn on "rectifier"switch on projector control panel.
- Press starting push button located on the back of the lamphouse.

PROJECTOR

Be sure the "Power" switch on the control panel is in the "ON" position.

- Turn on the motor switch.
- Turn on the "Sound" switch on the control panel, this turns on the exciter lamp.
- Open dowser control, by turning the knurled knob located on the lamphouse.

Depending on the size of the screen or picture to be projected, adjust the brightness of the bulb as follows:

- 17 to 32 amperes for 450 watt bulb
- 30 to 53 amperes for a 900/1000 watt bulb
- 45 to 75 amperes for a 1600/2000 watt bulb

The nominal operating current for the 450 watt bulb is 25 amperes and the 900/1000 is 45 amperes. The 1600/2000 is 65 amperes.

The difference between nominal and maximum current is reserved for use in compensating for an aging bulb as it becomes darker and its light output is reduced.

FOCUSSING CONTROLS

- There is a lower nut to be loosened for rough adjustment and a micrometer type adjustment is located above the lens.
- The latter being a micrometer type of adjustment for very fine focus adjustment.

FRAMING CONTROL

- To adjust the frame, turn the knurled framing button which is located above the lens assembly.

TILTING CONTROL

- To vertically center the image on the screen adjust the tilting mechanism. Please note that the image also moves up and down when the framing control is adjusted.

TO TERMINATE PROJECTION

a) If a short interruption only (one minute or less) :

- Close the dowser
- Turn off the "SOUND" which will shut off the exciter lamp.
- Shut off the motor

b) After finishing a show:

- close the dowser
- turn off the exciter lamp by pressing the button market "sound" on the control panel.
- Turn off the motor by operating the motor switch

TO TERMINATE PROJECTION

b) After finishing a show:

- Turn off the power by pressing the power switch
- Turn off the power supply,(Rectifier switch on the panel.)

CAUTION: USE MOTOR SWITCH ONLY FOR TURNING PROJECTOR ON AND OFF.

CINEMASCOPE PROJECTION

- Replace regular aperture plate with the aperture plate provided for Cinemascope projection (if desired).
- After threading the film focus the film with the back up lens only. Next place into position the anamorphic lens and focus it with the front drag ring.
- Place the anamorphic lens as close as possible to the back-up lens.
- Adjust bracket in proper position.
- Next turn the anamorphic lens until proper horizontal projection is obtained.
- Tighten the clamp screw.
- Readjust for fine adjustment the back-up lens for sharpest focus.
- When Cinemascope projection is terminated, if you wish to continue with regular projection simply pull forward the anamorphic lens with its mounting and swing it over the rest against its bracket.
- Do not forget to replace cinemascope aperture with the regular aperture plate.

WARNING: THIS IS A HIGH POWERED LAMPHOUSE. WHEN USING BLACK AND WHITE FILM, CAUTION SHOULD BE OBSERVED IN REGARDS TO USING MAXIMUM POWER AS IT MAY BE POSSIBLE TO DAMAGE THE FILM.

CLEANING OF PROJECTOR

It is essential to maintain a clean projector. Expecially, all the parts that come in direct contact with the film. Therefore, after each performance, the following is recommended:

- Clean all sprockets by using a small hard brush, something like a tooth brush.
- Clean pressure aperture plate assembly, Be sure that no particles of dirt accumulate anywhere on these parts. If any particles of dirt have to be removed, try to remove them with an object made of leather, bone, plastic, or wood and try to clean it with an up and down motion.
- To remove the aperture assembly, open up the lens retaining assembly by holding the aperture assembly between the index and thumb of the right hand and helping along with the index finger of the left hand, push in an upward direction to disengage the assembly.
- To remove the pressure assembly, hold it with the index and thumb of the left hand and by raising it upwards and forward to disengage.
- To re-assemble the pressure assembly, take it between the thumb and index of the left hand, engage it by pressing it inwards and downward until it snaps into its place.
- Be sure to also clean all the rollers and make sure that they are free to rotate.

PULLEYS

It is essential to make sure that all the pulleys are in good condition and that they are all fastened tightly on their shafts.

OPTICS

Be sure to check from time to time and make sure that the optics are in good condition. This applies to the projection lenses and mirror or reflector.

To clean the above mentioned, a soft cheesecloth should be used or dry camel hair brush. On the Xenon lamphouses, it is necessary to turn off the bulb at least ten minutes before opening the lamphouse.

To clean the reflector use XeKLEEN Reflector cleaner.

Also make sure that there is no dust or traces of oil deposited on the sound optics as this will affect the reproduction of sound.

CABLES AND CONNECTORS

From time to time, make sure that all the contacts are tight and maintained and cleaned as to make a good electrical contact.

LUBRICATION

After the first four or six weeks of operation of the projector, to assure proper operation of the mechanism, it is necessary to change the oil, (drain the oil and replenish with new oil). After this is done, it is recommended to change the oil every six months to assure good daily service. USE S.A.E. 40 Non-Detergent Oil.

ROLLERS

It is necessary that all the rollers along the film path receive a drop of XeKOTE from time to time.

MOTOR AND VENTILATING FAN

Are mounted on ball bearings, and do not require any oiling.

REPLACEMENT OF BULB

Wait at least ten minutes from the minute you cut off the power to open up the lamphouse.

Proceed in reverse order as outlined in the paragraph "Assembly".

REPLACEMENT OF THE EXCITER LAMP

Open up the exciter housing, remove the old bulb and replace it with a new one. Once the bulb engages properly, no focussing is necessary as it is a pre-focus base. Be sure that the key on the bulb engages properly.

REPLACEMENT OF PILOT LIGHT AND MONITOR BULBS

Simply remove covers and replace bulbs.

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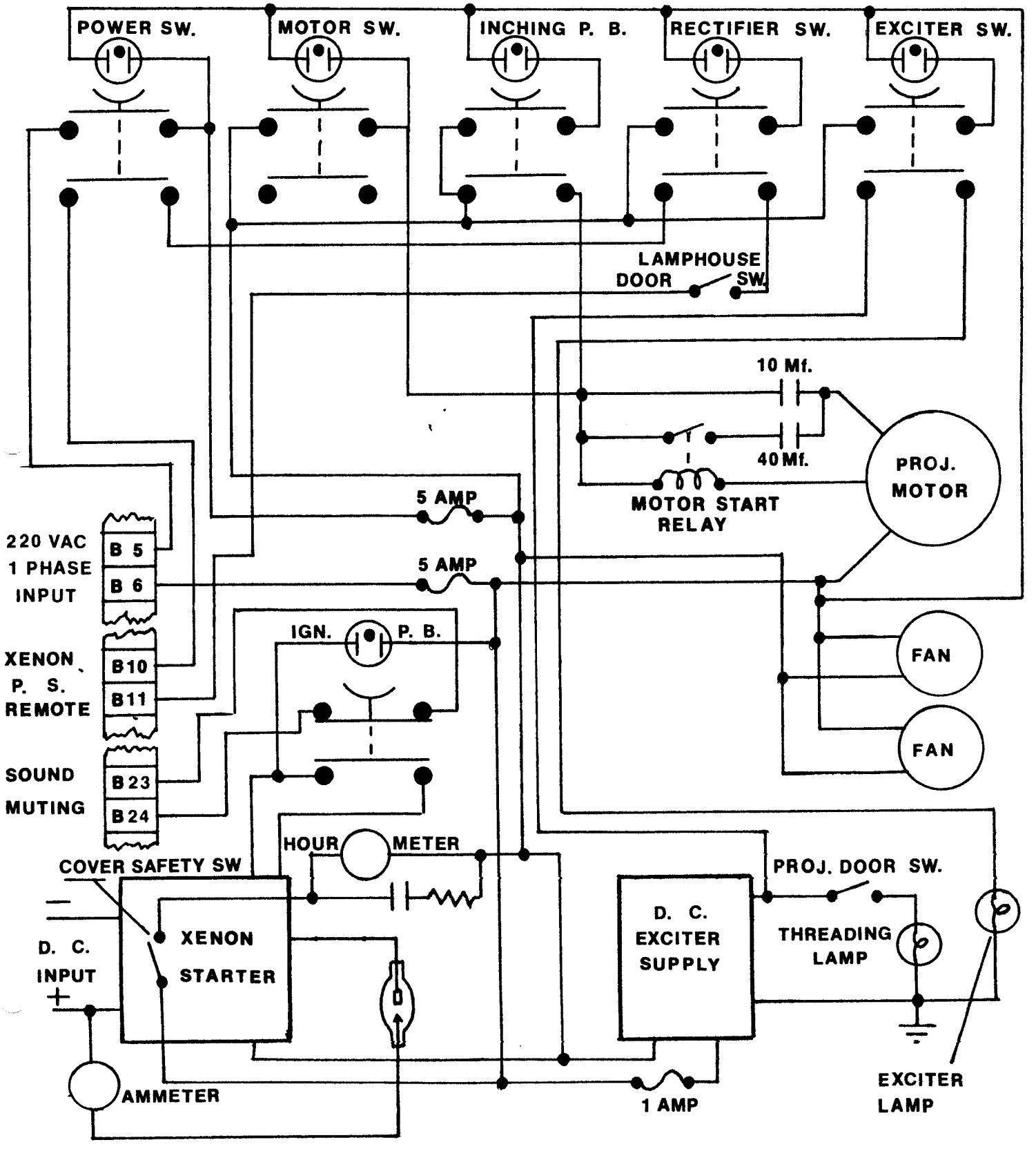
HORTSON
CINE 16
SCHEMATIC

24 JANUARY 1974

Dwg. #16-01

POWER, MOTOR, RECTIFIER AND EXCITER SWITCHES ARE ALTERNATE ACTION TYPE PUSH BUTTONS.



- Place the intermittent sprocket in the position where it is free. This means that when the pulley is rotated slightly, the sprocket will not move. Loosen the screw retaining the sprocket only in this position and under no circumstances in any other position.

- Place the new sprocket and line it up directly with the red mark visible behind the sprocket and to the right. If this will not line up perfectly, try several other possibilities to line up different sprocket teeth with that until the best position is achieved.

- To check this alignment, we suggest that you take a test film or any film which should be of good quality. When best alignment is obtained, finish by adjusting the framing. To obtain this, place the framing knob in a position in the middle of its travel so that it will permit equal adjustment, from top to bottom. If this is not possible to accomplish, then the intermittent sprocket may have to be moved one way or the other. When the proper alignment is achieved, it should be tightened and then tested again on the screen. One should be able to produce the frame line on top and bottom of the screen.

  NOTE: When ordering any replacement parts, be sure to specify the type of projector and its serial number, and the serial number of the amplifier as well.

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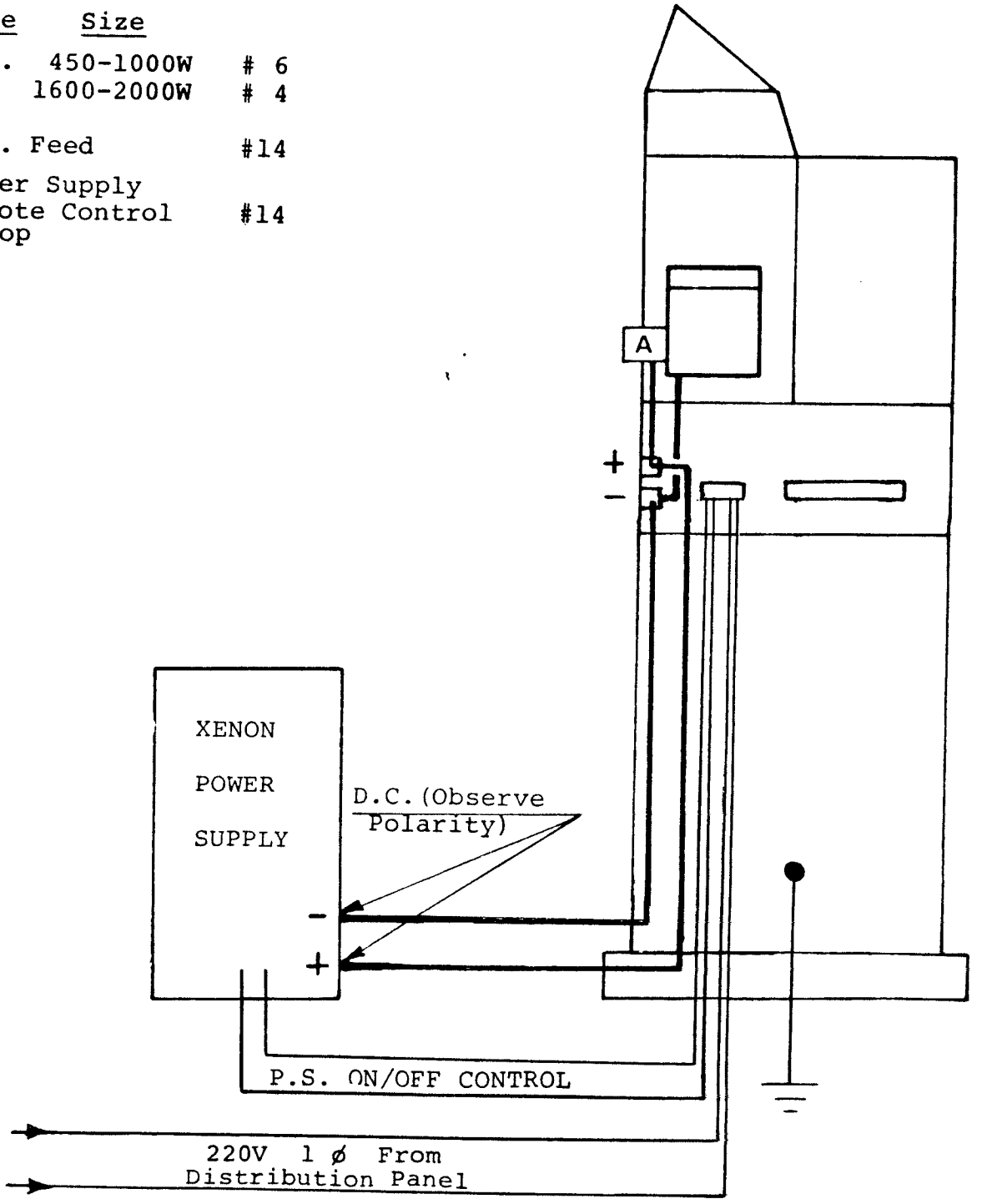
WIRING

9 APRIL 1974

DWG. #16-05

Wire	Size
D.C. 450-1000W	# 6
1600-2000W	# 4
A.C. Feed	#14
Power Supply Remote Control Loop	#14



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DIMENSIONS

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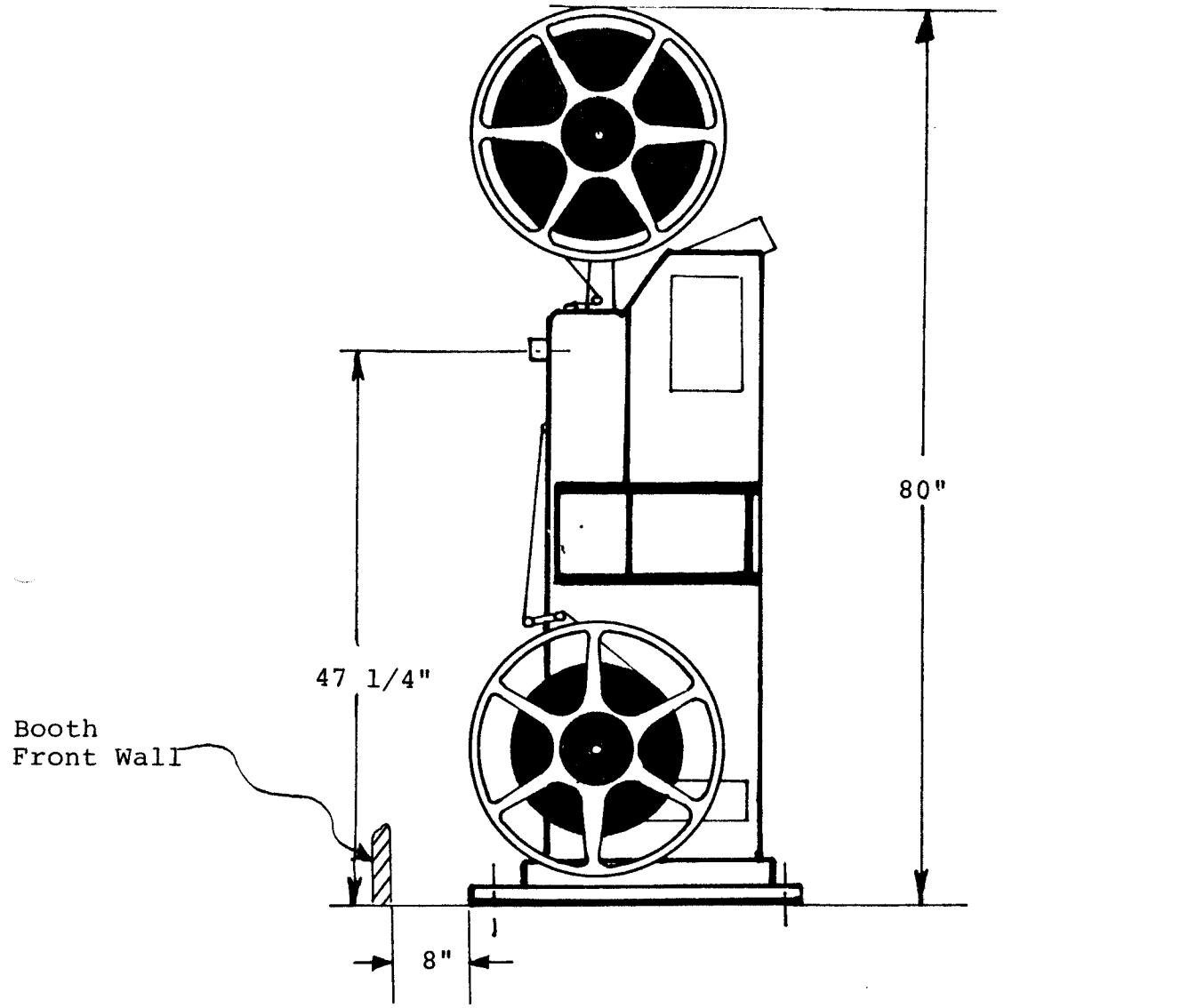
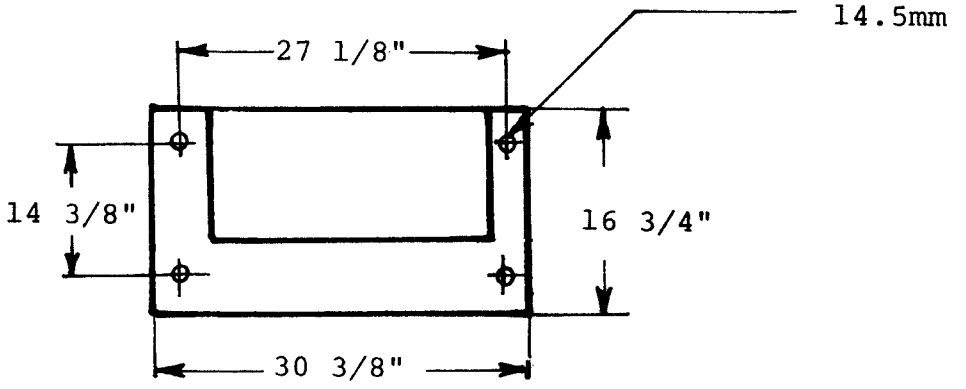
DWG.#16-06





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16mm. FILM
LENS/SCREEN CALCULATIONS

1/10/69

LENS FOCAL LENGTH	PROJECTION DISTANCE	SCREEN WIDTH												
		30"	40"	50"	60"	70"	84"	8'	9'	10'	12'	14'	16'	18'
1"		7'	9'	11'	13'	15'	18'	21'	24'	26'	32'	37'	42	47'
1½"		10'	13'	17'	20'	23'	28'	32'	36'	40'	48'	56'	64	72'
2"		13'	18'	22'	26'	31'	37'	42'	47'	53'	63½	74'	84'	95'
2½"		16'	22'	27'	33'	38'	46	53'	59'	66'	79'	92'	105'	119'
3"		20'	26'	33'	40'	46'	55'	63'	71'	79'	95'	110'	126'	142'
3½"		23'	31'	38'	46'	54'	64'	74'	83'	92'	110'	128'	147'	165'
4"		26'	35'	44'	53'	61'	73'	84'	95'	105'	122	147'	169'	190'

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Part #	Description
B.01.10	Input Shaft Seal 10 X 9 X 7
C.04.02	Photo Cell For 40 Series
C.04.04	Photo Cell For Forward/Reverse
C.07.01	Circlips
C.10.114	Shutter Shaft Assembly
C.15.15	Running Capacitor 10MF
C.15.21	Start Capacitor 40MF
C.16.01	Sleeves For Upper Arm Bracket
C.20.08	Belt
C.20.09	Take-Up Belt For DM-11
C.20.14	Round Fan Belt--46 .10/47 .10 Only
C.20.16	"V" Belt Drive Belt 46.10/47.10/48.10
C.34.06	Belt--Take-Up Normandie
C.34.08	Belt--Drive Belt Normandie
C.34.09	Belt--Take-Up Belt Series 40
C.60.109	Complete Solar Cell Assembly For 60 Series
C.65000-11-14	Take-Up Belt
C.810	Take-Up Belt--60 Series
JSO-16645471-03-4	Shaft
K.L1.11	Dichroic Heat Filter 2 3/4" Diameter
K.L1.36	Heat Filter 4" Diameter
L.05.01	Lens--(Sound Lens)
M.06.04	175MM Reflector
P.10.03	3 Pin Male Plug
P.10.04	3 Pin Female Plug
R.06.06	Intermittent Bearing
R.06.09	Ball Bearing For Fan Series 40
1.01.00.02	Spring Pressure Sprocket
1.01.00.03	Spring Pressure Intermittent
1.01.00.09	Back Cover Gasket
1.01.00.16	Stripper
1.01.04.01	Blower Shaft Series 40
1.01.04.11	Door Glass
1.01.05.02	Oil Level Glass
1.01.05.04	Gasket
1.01.05.05	Plug
1.01.05.10A	Gasket
1.01.06	Oil Circulating Assembly
1.01.07	Vertical Shaft
1.01.07.05	Drive Gear
1.01.07.06	Fiber Gear
1.01.08	Sprocket Assembly Complete
1.01.08.01	Upper Sprocket Shaft
1.01.08.06	Upper Sprocket
1.01.09	Lower Sprocket Assembly
1.01.09.07	Lower Sprocket
1.01.09.08	Gaskets
1.01.10	Shutter & Shaft Assembly

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Part #	Description
1.01.11	Lamps
1.01.11.01	Sound Shaft
1.01.11.07	Flywheel
1.01.12.01	Springs
1.01.12.21	Gate Tension Spring
1.01.13	Intermittent Sprocket Assembly
1.01.13.01	Intermittent Sprocket Bracket
1.01.13.02	Shaft
1.01.13.03	Washer Spacer
1.01.13.04	Spring
1.01.13.05	Collar
1.01.13.06	Shaft Blower
1.01.13.07	Intermittent Shoe - Innter
1.01.13.08	Intermittent Pad Rollers
1.01.13.09	Washer
1.01.13.10	Washer Circlip
1.01.13.15	Intermittent Shoe - Ounter
1.01.14	Photo Cell Supply Assembly
1.01.14.11	Photo Cell Socket
1.01.14.17	Screw
1.01.15.05	Spring
1.01.15.07	Spring
1.01.15.13	Knurled Ring
1.01.15.22	Exciter Lamps
1.01.16	Sub Assembly Roller For Cove Shaft
1.01.16.04	Roller
1.01.16.05	Pin
1.01.17.02	Feed Out Roller
1.01.18.01	Upper Arm Roller Sprocket
1.01.18.03	Roller
1.01.18.04	Knob & Shaft Roller
1.01.18.05	Shaft
1.01.19.01	Arms
1.01.19.02	Shaft
1.01.20	Motor Switch
1.01.20.02	Flange
1.01.20.03	Washer
1.01.22.01	Intermittent Sprocket
1.01.22.24	Gaskets--Covered
1.01.22.33	Screw
1.01.24.02	Spring
1.01.25.01	Rubber Roller
1.01.26.02	Spring
1.01.26.03	Flange
1.01.27	Compensator Roller Arm
1.01.27.02	Collar
1.01.27.06	Spring
1.01.28	Framing Lamp

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Part #	Description
1.01.28.01	Shaft
1.01.29	Ignition P.B.
1.01.30	Lens Mount Assembly
1.01.30.2/2	Pressure Plate Assembly
1.01.30.3/3	Pressure Plate
1.01.30.06	Spring
1.01.30.13	Aperture Key With Screen
1.01.30.17	Pressure Pad Film
1.01.30.25	Aperture Ball
1.01.30.28	Spring
1.01.30.31	Aperture Plate Blank
1.01.30.40	Knob
1.01.31	Switch Assembly
1.02.00.16	Rubber Grommets
1.02.04.01	Shaft For Blower
1.02.04.02	Fan Blade
1.02.04.03	Fan Blade
1.02.04.07	Pulley--Blower
1.02.06.01	Blower Shaft--47.10
1.02.10	Motor Switch
1.05	Upper Spindle Complete
1.05.00.02	Upper Reel Shaft
1.05.00.03	Knurled Knobs
1.05.00.06	Hub Reel Shaft Plates
1.05.00.08	Felt Disc
1.05.00.09	Spring
1.05.00.12	Screws
1.05.00.13	Screws
1.06	Lower Spindle Complete
1.06.00.02	Lower Reel Shaft
2.01.04.02	Oil Pump Housing
2.01.09.01	Compensator Roller
2.01.13.01	Intermittent Securing Collar
2.01.13.05/16	8 Point Fiber Star
2.01.13.07	Shafts For Star
2.01.13.11	Intermittent Cam
2.01.13.12	Gear
2.01.13.13	Intermittent Complete Less Sprocket
2.01.13.16	Roller Pin For Intermittent
2.01.13.29	Intermittent Fiber Gear
2.01.13.32	Nut
2.01.14.01	Bushing
2.01.14.02	Guide
2.01.14.03	Shutter Blade
2.01.14.05	Interior Shutter Blade
2.01.17.01	Braking Roller
2.01.25.17	Spring
2.01.25.27	Metal Spring

XETRON CORPORATION, Ten Saddle Rd., Cedar Knolls, NJ 07927 U.S.A. Telephone (201) 267-8200

Part #	Description
2.01.25.28	Metal Belt
6.05.72	Photo Cell Cable Assembly
11.09.62	Pulley
11.27.18	Terminal Bushing
11.62.10	Upper Support Bracket
11.94.02	Pulley
12.01.01.08	Hinge
12.01.01.09	Hinge Pin
12.01.02	Lower Sprocket Assembly
12.01.02.01	Take-Up Pulley
12.01.02.02	Take-Up Rubber Pulley Bushing
12.01.02.03	Take-Up Pulley Flange
12.01.05.01	Intermittent Pulley
12.01.05.02	Intermittent Flywheel
12.02.01	Blower Assembly
12.02.01.01	Pulley
12.02.02.02	Bracket
12.02.02.08	Contact
12.02.02.17	Spring
12.02.02.20	Reflectors
12.02.03.03	Dowser Blade Bushing
12.03.00.06	Mounting Plates
12.03.00.10	Bushings
12.03.00.11	Pulley
12.03.00.12	Pulley
12.05.01	Lower Arm Compensator
12.06.00	Lower Arm Assembly
12.06.00.05	Belt Guide Roller
12.06.03	Take-Up Pulley
12.06.05	Lower Sprocket Bracket
12.06.07	Shaft
12.07.00	Upper Arm Assembly
12.10	Complete DC Exciter Lamp Power Supply
12.50.57	Flexible Shaft Coupler
26.01.02.04	Shaft
26.01.03.02	Roller
26.01.11.10	Exciter Lamps--Forward/Reverse
28.01.00.17	Dashpots For 60 Series
52.01.05.03	Spindle

TROUBLE SHOOTING

SYMPTOMS	PROBABLE CAUSES	REMEDIES
Poor detail on the entire screen.	Projection lens or condenser dirty, oily, or has finger prints.	Clean the surfaces with fine cloth or camel hair brush.
Poor image on one side of the screen only either permanent or intermittent.	Uneven pressure on the film.	Clean pressure plate, position properly in its mounting.
	Aperture plate not fitting properly.	
Projection out of frame.	Aperture plate not properly framed in regard to the image.	Adjust frame.
Unsteady picture	Broken perforations or sprocket holes.	Replace defective part of film.
	Foreign matter deposits on the intermittent sprocket.	Determine whether defect lies with the film by trying a test film.
	Worn out intermittent sprocket.	Replace sprocket. Clean all associated parts.
	Excessive pressure on the intermittent sprocket.	Adjust pressure by loosening the screw that retains the pressure spring. Turn the button to the left to increase pressure, to the right to decrease pressure. Tighten locking screw.

SYMPTOMS	PROBABLE CAUSES	REMEDIES
Visible scratches on the screen.	Poor maintenance of rollers and sound drum.	Check condition of these parts and clear them. Make sure that all the rollers turn freely.
Scratches between picture and sound track.	Poor condition of pressure rollers. Also feed in and feed out rollers from the projector. Rollers turn unevenly.	Check condition of these parts. Remove rollers, clean them and apply vaseline to the shafts.
Poor performance of the take-up reel.	Stretched take-up belt or poor adjustment of take-up tension. Take-up reel in poor condition.	Adjust properly take-up belt tension or change the belt. Use a take-up reel in good condition.
Deterioration of sprocket holes of the film.	Too much friction on the upper feed reel.	Adjust tension or replace felt pads.
	Deposits of foreign matter on pressure plate or aperture assembly.	Clean and get rid of any foreign deposits.
	Worn out teeth on the intermittent sprocket.	Replace defective components.
	Worn out pressure plate and aperture assembly.	Replace defective components.
		Replace defective reel.
Poor unwinding of film:		
a)loss of upper loop.	Feed reel friction adjusted too tight.	Correct adjustment of friction.
	Unadjusted pressure roller on the 16 tooth sprocket.	Readjust pressure equal to two thicknesses of film.

SYMPTOMS	PROBABLE CAUSES	REMEDIES
Poor unwinding of film:		
b) loss of lower loop.	Poorly adjusted take-up tension.	Adjust properly.
	Pressure roller misadjusted on the lower sprocket.	Adjust pressure by using two thicknesses of film.
	Pressure of the intermittent sprocket misadjusted.	Adjust properly.
c) loss of lower loop. while the upper loop becomes larger.	Too much pressure on the pressure plate or deposits inside the film path or aperture plate.	Clean out all film, pad and pressure rollers associated with the intermittent.
	Film in poor condition.	Replace defective part of film.
Unusual projector noises.	Poor lubrication or use of improper lubricant.	Refer to paragraph on lubrication.
	Insufficient oil.	Check oil level in sight window located on the pulley side of the projector.
	Loose pulleys.	Tighten same.
	Bolts in poor condition.	Change same.
	Ventilating pulley loose	Tighten same.
	Worn out sprockets producing a clicking film noise.	Replace worn parts.
Bulb does not light:		
a) ignition spark is heard but bulb fails to ignite.	AC power fails to arrive to power supply or starter.	Check contacts and fuses.
	DC voltage at the bulb terminals less than 70 volts.	Check power supply.
	Poor ignition spark between cathode and anode of the bulb or spark jumps between cable and ground.	Check cable leading from power supply to cathode. Keep cables away from the ground.

SYMPTOMS	PROBABLE CAUSES	REMEDIES
Bulb does not light:		
b) spark is not heard when starting button is pressed.	Starter does not function.	Check spark gap in the starter or perhaps starter itself.
c) a good spark is produced between the electrodes of the bulb and power supply is in good condition. Bulb does not light.	The bulb may be defective.	Change the bulb.

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In order to further our technical developments we reserve the rights to modify our projectors which may result in a difference between this manual and the actual equipment.

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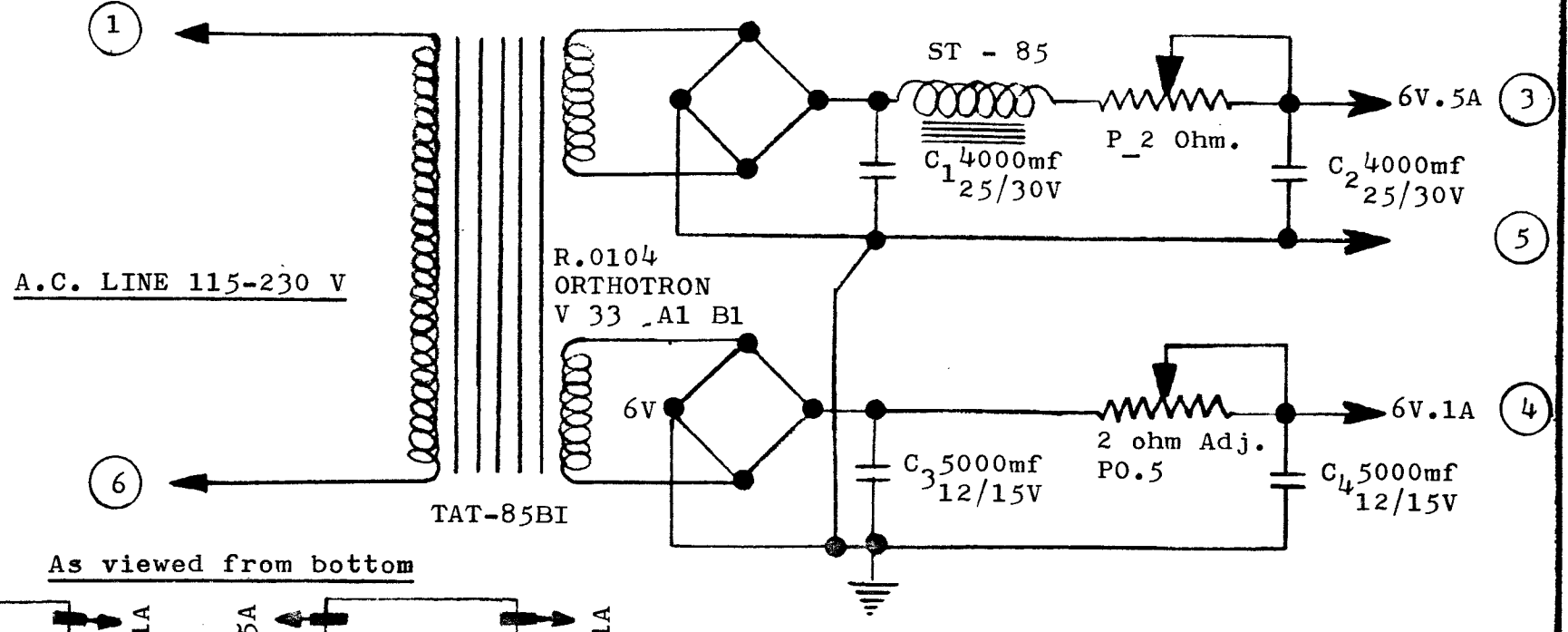
Wire No.

RF 6V 5A S

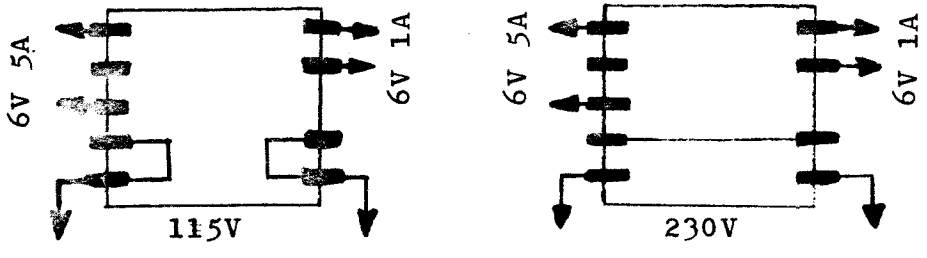
XeTRON
A DIVISION OF
CARBONS, INC.
CEDAR KNOLLS, N. J. 07927

R.01 01

LMT 75 B1 A1



As viewed from bottom



FILTERED D.C. EXCITER LIGHT POWER SUPPLY 6V 5 AMP.

Drawing No. 1481