Film-Tech

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INSTRUCTIONS

for

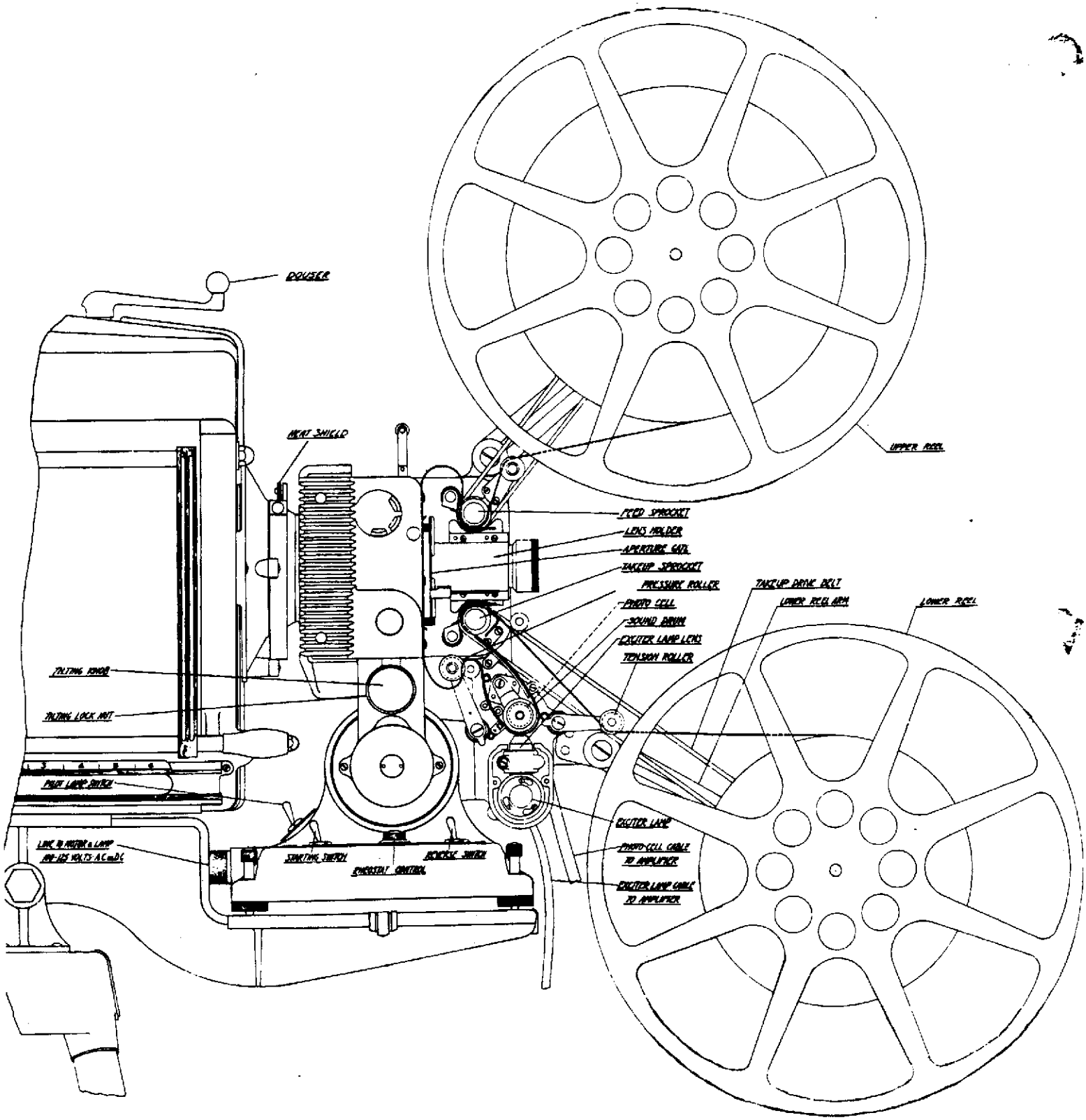
AMPROSOUND PROJECTORS

MODEL AA AMPRO ARC

The AMPRO CORPORATION
2839-51 NORTH WESTERN AVENUE
CHICAGO

1st. EDITION

1500—1-10-46—Greenlee


DOUSER
HEAT SHIELD
UPPER REEL
FEED SPROCKET
LENS HOLDER
APERTURE GATE
TAKEUP SPROCKET
PRESSURE ROLLER
PHOTO CELL
SOUND DRUM
EXCITER LAMP LENS
TENSION ROLLER
TAKE UP DRIVE BELT
LOWER REEL ARM
LOWER REEL
TILTING KNOB
TILTING LOCK NUT
PILOT LAMP SWITCH
EXCITER LAMP
PHOTO CELL CABLE TO AMPLIFIER
EXCITER LAMP CABLE TO AMPLIFIER
LINE TO MOTOR & LAMP
STARTING SWITCH
RHEOSTAT CONTROL

INSTRUCTIONS FOR AMPRO ARC PROJECTOR

Setting Up

1. Remove projector and lamphouse from case and assembly projector and stand on telescoping legs. Install shelf for amplifier and adjust the projector stand legs for proper height. Connect the midget plug on the Y type line cord to the power socket in back of the projector. Connect the power cord to the power supply.

2. Fold reel arms into proper position and start the projector to make sure that it is operating properly.

3. Shut off projector and connect up the rectifier in accordance with Section 2.

4. Close the dowser on the lamp house and start the lamp.

5. Start the projector and open the dowser.

6. Adjust the projector for proper height so that the light beam will clear ports when projecting from the booth.

7. Shut off the projector and arc lamp.

   Note: Be sure to close the dowser before stopping the projector.

8. Place the amplifier on the shelf beneath the projector stand.

9. Connect the midget female plug on the Y power cord to the line socket located on the left-hand end of the amplifier, provided the power supply is 60 cycle A. C.

   Note: If the power supply is DC, connect a 200 watt converter between the power source and the line socket at the left hand end of the amplifier.

10. Plug one end of the speaker cord into the speaker jack on the left hand receptacle. Connect the other end of the speaker cord to the speaker. If additional speakers are used, plug one end of short speaker cord into the other jack on the speaker to which the amplifier is connected, and connect the other end of the cord to the additional speaker. Up to eight speakers may be used by connecting additional cords between the speakers.

    Warning: At least two super speakers are required for safety of the speakers. If one speaker is used, the operator must be extremely careful to never allow the volume to exceed 30 on the output meter. Where large volumes of sound are required, it is advisable to add more speakers. The amplifier has the power to saturate more than four super speakers. The speakers should be placed in a cluster and pointing in the various directions. Where it is not advisable to place the

speakers in a cluster, great care must be exercised to avoid trouble from the sound arriving at a certain section of the auditorium at two different periods. In other words, the sound should not arrive first from a speaker close by and later from another speaker at a greater distance.

11. Adjustment of Speaker Matching Plug - On the left hand receptacle you will notice a six prong female receptacle from the center of which protrudes a small jumper wire with pin connector. If one speaker is used, insert the pin connector in the receptacle marked for one speaker, 16 ohms. If two speakers are used, insert the plug in the receptacle marked for two speakers, 8 ohms; if three speakers are used, insert the plug in the receptacle marked for three speakers; 5 ohms; if four speakers are used, insert the plug in the receptacle marked for four speakers, 4 ohms; if eight speakers are used, inset the plug in the receptacle marked for eight speakers, 2 ohms.

    Note: This information is correct when Ampro P. M. speakers are used. If speakers other than Ampro are to be used with the equipment, consult the factory for proper connections.

12. Adjustment of Speaker Matching Plug for Speaker Lines in Excess of 250 ft. or for more than 8 speakers - Insert plug in the hole in the speaker receptacle marked 500 ohms and use suitable matching transformers on speakers. It is suggested that you contact the factory or an authorized service branch for full information regarding this type of speaker arrangement.

13. Monitor Speakers - Connect the monitor speaker, if used, to the jack marked "monitor" on the left hand receptacle.

14. Starting Amplifier - Rotate the line switch from "off" to "Hi" and observe the A. C. voltmeter. Leave switch in this position if the meter reads green. If the meter reads below green, turn the switch to "Normal" (next position). If line voltage is low, the meter will still read below green so turn the switch to "low". Always set the switch so that the meter reads green. Below green is O. K. but above in the red is very dangerous to the tube life.

    Caution: Always set this switch without the projector operating. If the voltage drops when the projector is switched "on", investigate the power supply, rather than step up a notch on the switch. Otherwise the voltage will jump up when you turn "off" the projector, and the meter will read red. Overloaded extension cords are the most common cause of drop in line voltage. #12 wire is required for power cord extensions. If a new wall receptacle is installed, it should be connected with #8 or #10 wire.

15. Connect the exciter lamp cable to the jack on the left of the amplifier.

16. Connect the photocell cable to either of the receptacles marked "photocell" on the right hand end of the amplifier.

OPERATION

1. Starting Amplifier - Turn on the amplifier "off-on" switch located on the left hand receptacle of the amplifier.

2. Photocell adjustment - Adjust the photocell voltage control until a low hiss is heard in the speaker.

   Note: This adjustment should be made with the controls marked "Channel 1" and "Channel 2" turned to mid-position. The photocell control is located on the right hand end of the amplifier.

3. Output Meter - The output meter is connected to the output transformer so that it reads the output correctly when the proper impedance speakers are connected. If the impedance switch is connected wrong, the meter will be in error. The output meter is calibrated arbitrarily in view of the varying situations that exist. The operator should make a test and determine the correct meter setting with the speakers employed, the programs usually offered, and the acoustics of the room. The acoustics will change as the room is filled with people. The output meter reads beyond the undistorted output of the amplifier because often a peak power in the neighborhood of 100 watts is required. With the average type of program, the output meter reads 100 when the amplifier output is 100 watts. Various wave shapes of sound will affect the peak power. The meter reads average power and not peak power. The average power represents watts of power as impressed on your ear. If the desired volume in any particular set-up requires the meter to swing up to 50, it is an indication that more speakers are required. If the meter swings up to 100, at least four speakers are required. If the volume is still not loud enough, add additional speakers or more sensitive speakers. The meter is unusually fast acting and active but of course any operator must have considerable practice in order to "ride" volume. When once the correct volume is established, the meter will be most useful and convenient in maintaining it constant.

4. Starting Projector and Lamp - Thread sound film in the projector. Then start the projector and lamp as covered by Sections 2 and 3. Open the dowser on the lamp house and focus the picture on the screen. Then adjust the projector volume control which will be either Channel 1 or Channel 2, depending upon which photocell input is used, until the proper volume is obtained. Adjust the tone controls until the proper sound quality is obtained.

OPERATION WITH AUXILIARY EQUIPMENT

1. Mixing of One Microphone and One Projector - Connect the microphone to the microphone jack in the right hand receptacle.

   Note: Channel 1 and Channel 2 each have two jacks connected to the same input. One jack on each channel is for the photocell connection of the arc projector. The other jack is for a microphone plug. When no microphones are connected to either jack, two photocells can be used and likewise when no photocells are connected two microphones can be employed. A photocell can be connected to Channel 1 and a microphone to Channel 2 but a photocell and a microphone cannot be connected to the same channel and operated simultaneously. When a plug

is inserted in Channel 1, it is controlled by volume control Channel 1.

2. Use of Phonograph with Amplifier - Connect the phonograph to the jack marked "phonograph" on the right hand receptacle. Adjust the fader control marked "Channels 3 and 4" until the proper volume is obtained from the phonograph. If two phonographs are used, they may be connected to both jacks marked "phonographs" and fading from one to the other is obtained by rotating control marked "Channels 3 and 4".

3. Mixing of One Microphone and One Phonograph - Connect the microphone to one of the jacks marked "microphone" on the right hand receptacle. Connect the phonograph to one jack marked "phonograph" on the receptacle. Adjust the phonograph volume by means of Channels 3 and 4. Adjust the microphone volume by means of either Channel 1 or Channel 2 control, depending upon which microphone jack is used.

OPERATION OF DUAL PROJECTOR UNIT

1. Setting Up - Set up both projectors as for single unit operation, except connect the exciter lamp cables to the changeover box, located in the rear of the right hand projector stand. Connect the cable from the changeover box to the exciter lamp jack on the left of the amplifier. Also connect the photocell cable from the right hand projector to the photocell receptacle on the right hand receptacle of the amplifier.

   Note: The amplifier should be placed on the right hand projector or on the brackets attached to the front of the booth.

2. Operation - Thread both projectors and start the projector upon which the first reel of film is threaded. Adjust Channel 1 or Channel 2 volume control, depending upon which channel is being used, until the proper sound level is obtained.

3. Changeover - Start the lamp on the second projector with the dowser closed. When the cue mark appears on the screen, start the projector and open the dowser. Close the dowser on the projector on which the reel is completed at the same time that the dowser on the second machine is being opened.

4. Changeover of Sound - Throw the changeover switch to the other position so that sound from the projector on which the reel is finished will be shut off and the other projector will be properly connected. Adjust the volume control until the proper sound level is obtained. Shut off the projector on which the reel is completed. Also shut off the lamp on this projector.

SERVICING

1. No Sound - If pilot lamps do not light, check the fuse located in the left hand receptacle.

   Note: Do not attempt to remove the fuse receptacle with a pair of pliers. Insert a coin or a small screwdriver in the slot in the center section

marked "fuse" and unscrew the end of the fuse mounting. Only the center section of the fuse mounting may be removed.

2. Machine Consistently Burns out Fuses - Check the tubes in the amplifier, particularly the rectifier and power output tubes.

3. Loud Buzzing Noise When Microphone is Plugged into Microphone Jacks Located on the Right Hand Receptacle - This is caused by a broken microphone cable.

TUBES

3 - Part #18107 - 6J7 - Pre-amplifier & Second Stage
1 - Part #18106 - 6N7 - Oscillator & Third Stage
1 - Part #18108 - 6F6 - Fourth Stage (Driver)
2 - Part #18101 - 6L6G- Fifth Stage (Output)
1 - Part #18109 - 5Z3 - Rectifier
2 - Part #18102 - 5V4G- Rectifier
1 - Part #18137 - 6H6 - Output Meter Control

FUSE

1 - Part #17579 - 3 Ampere

TEMPORARY INSTRUCTIONS

26000 STRONG JUNIOR HI RECTIFIER

This rectifier supplies direct current for the 21000 Strong Junior Hi Lamp, and consists of transformer, choke coil, tube sockets, output amperage regulator switch, relay, circuit breaker, outlet receptacles, voltmeter, line voltage terminal strip, and alternating current supply cord.

SPECIFICATIONS FOR POWER SUPPLY AND TUBES

Power Supply - The line voltage and frequency of the alternating current line outlet shall be the same as that stamped on the name plate of the rectifier. The line should be fused for at least the line amperage indicated on the name plate of the rectifier, provided the rectifier is the only load on the fuse.

Tubes - Two General Electric 15 ampere Tungar Tubes, catalog number 217283 are required.

DESCRIPTION OF VARIOUS PARTS AND THEIR USE

The TUBE SOCKETS are located on the top of the transformer and choke coil assembly. The Tungar Tubes are screwed firmly into these sockets and the Fahnestock CONNECTION CLIP is pressed into the wire prongs on the tube tops, thus connecting the tubes together. Care must be taken in the clipping on of this connector, that the wire prongs are not strained and caused to break the glass.

The OUTPUT AMPERAGE REGULATOR is an eight position tap changing switch with the dial located on the front of the rectifier case. The dial positions are numbered from 1 to 8. Position No. 1 gives the lowest amperage and position No. 8 gives the highest amperage.

The RELAY is located in the rear of the rectifier, inside the case, and back of the transformer and choke coil. It energizes the rectifier when the control circuit between the lamphouse and rectifier is properly connected and the lamphouse door is closed.

The CIRCUIT BREAKER is both a switch for turning off the rectifier and a protective device. It has an "off" and "on" position similar to the usual type of toggle switch. If the rectifier is operated at a greater load than specified on the nameplate, the circuit breaker will "kick out" and turn the rectifier off. To reset the circuit breaker, snap the toggle to the "off" position and then the "on" position. The cause of the overload should then be corrected.

The OUTLET RECEPTACLES are located in the rear of the rectifier case. The receptacle with the black stripe above it received the lamp cord with the black stripe. The receptacle with the red stripe above it receives the lamp

cord with the red stripe. Both plugs are inserted into their receptacles and are then turned to the right which locks them into position.

The VOLTMETER is mounted on the front of the rectifier case and reads the line voltage of the alternating current supply line.

The LINE VOLTAGE TERMINAL STRIP is located inside the case just below the top of the solid side wall portion of the left hand side of the rectifier. It has three terminals marked 1, 2, and 3 for various line voltages. The voltmeter should be read when the arc is burning and the connector wire on the line voltage terminal strip adjusted for that voltage, according to the following tables:

120-130 volts use terminal number 3

110-120 volts use terminal number 2

95-110 volts use terminal number 1

OPERATION

Insert the tubes in the sockets and connect Fahenstock connector, as explained under "TUBE SOCKETS". Connect Alternating Current supply cord to proper voltage and frequency outlet. Connect both lamp cords to rectifier outlet receptacles. Flip circuit breaker to "on" position and the rectifier is under the control of the lamphouse door switch control, the operation of which is explained in the lamp instructions.

To INCREASE OR DECREASE THE OUTPUT AMPERAGE of the rectifier, turn the output amperage regulator switch to a higher or lower dial number respectively, as the case may be.

IF THE REQUIRED AMPERAGE falls outside of the output amperage regulator range, the line voltage terminal strip tap should be changed to a new position, as explained under "LINE VOLTAGE TERMINAL STRIP" heading.

TEMPORARY INSTRUCTIONS

21000 STRONG JUNIOR HI LAMP

The STRONG 21000 JUNIOR HI LAMP is a light supply source for use with 16 mm. projection and consists of positive and negative jaws, positive and negative steadyrests, independent manual feed controls, carbon feed motor with speed control rheostat, arc shifter, arc current ammeter, arc imager, adjustable reflector frame, light dowser, pilot light, door operated control switch, and removable ash pan.

SPECIFICATIONS OF EQUIPMENT TO BE USED IN CONJUNCTION WITH LAMPS

CARBONS - 5-1/2 millimeter diameter, 6 inches long Perlex negative; 6 millimeter diameter, 8 inches long Perlex positive.

POWER SUPPLY - A direct current input of 28 volts and 30 amperes is required for the arc. A 110 volt 60 cycle control and pilot light supply are needed. Both of the foregoing are supplied by the Strong Rectifier or Rheostat.

OPTICS - For 16 mm. projection, a Strong Specification #107 reflector is used. The projector aperature is placed 18-19 inches from the reflector resulting in an optical speed of F 1.6.

DESCRIPTION OF VARIOUS PARTS AND THEIR USE

The POSITIVE JAW is located at the nose or front end of the lamp and clamps the carbon marked "positive".

The NEGATIVE JAW is located in the rear of the lamp and clamps the carbon marked "negative".

The Positive STEADYREST is an upright SUPPORT WITH A "V" notch in which the positive carbon lies.

The NEGATIVE STEADYREST extends out through the center of the reflector and supports the negative carbon. It has two adjustment knobs located just behind the reflector frame for aligning the negative carbon with the positive. One knob adjusts the carbon vertically and the other knob adjusts the carbon horizontally.

The INDEPENDENT MANUAL FEED CONTROLS for the positive and negative carbons are located on the lower right, or operator's side, of the lamp. The scales on the side of the groove, in which the controls move, are

calibrated in inches of trim of carbon which remain to be burned.

The ARC SHIFTER CONTROL is located in the rear lower left hand side of the lamphouse and is used to shift the arc forward or backward in relation to the reflector in order to concentrate the light at the aperature.

The CARBON FEED MOTOR is positively geared to the jaws and its speed and consequently the burning rate of the carbons is governed by the motor speed rheostat.

The MOTOR SPEED RHEOSTAT CONTROL is located in a recess in the rear lower right side of the lamphouse. It has a pointer and a dial calibrated in units from one to ten. The correct setting of the pointer to burn 30 amperes will usually be between positions 6 and 7. To increase amperage, turn pointer to a higher number; to decrease amperage turn pointer to a lower number. The correct amperage to burn the carbons at is 30 amperes, as indicated on the ammeter located on the top rear of the lamphouse.

The ARC IMAGER consists of a pinhole, mirror and screen with which an image of the arc is projected on the screen located below the chimney on the right hand side of the lamp. The length and position of the arc gap are established by reference to the imager screen.

The REFLECTOR ADJUSTMENT CONTROLS are used to tilt the reflector about its central axis for the purpose of locating the light spot on the aperture, vertically and horizontally. They consist of two black knobs located on the outside rear of the lamp.

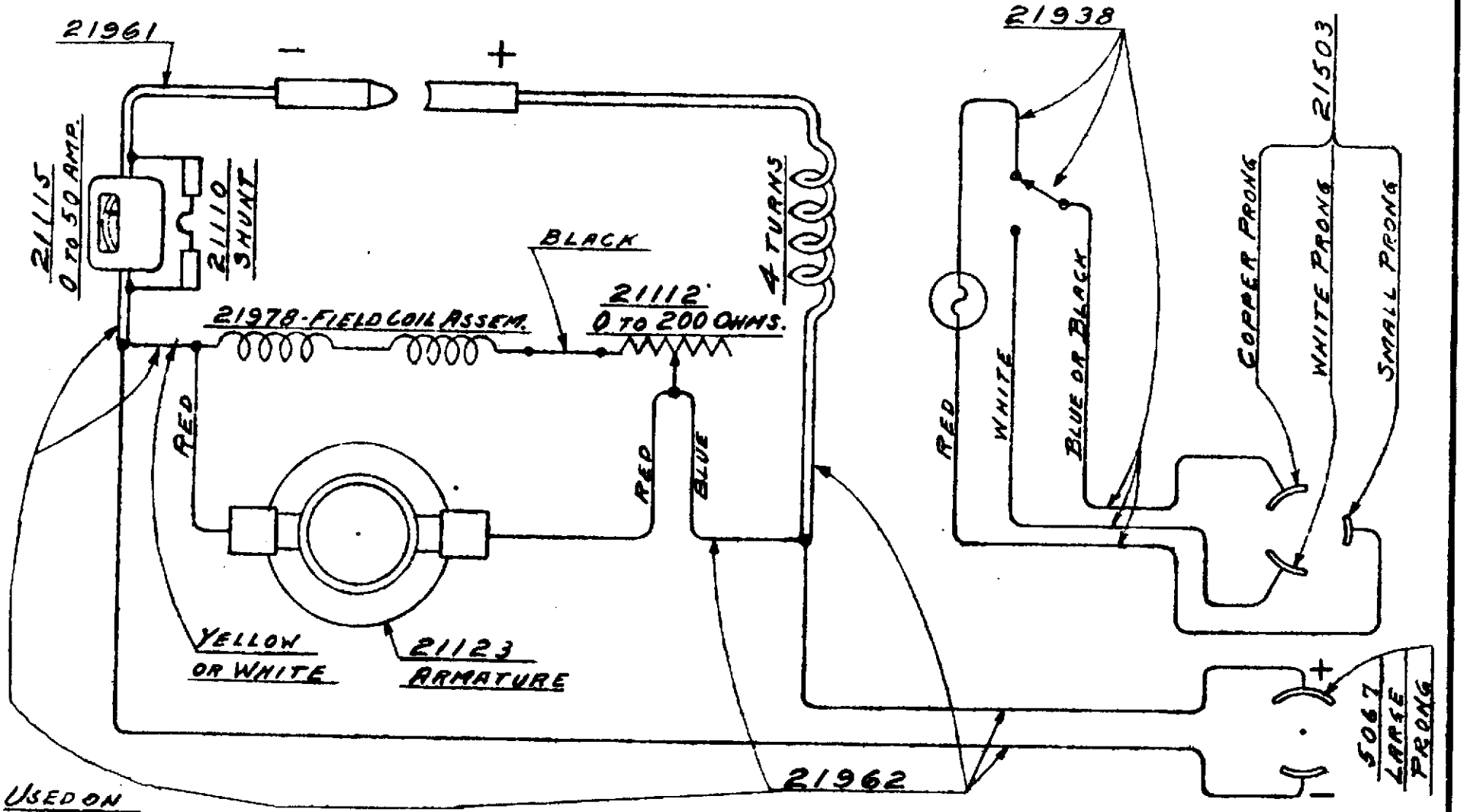
The DOWSER is a swinging light and heat shield located in the front or nose end of the lamp and is closed while the lamp is being trimmed and the crater of the carbon burned in.

The DOOR OPERATED CONTROL SWITCH is located so as to be operated by opening or closing the right hand or operator's door. When the lamp door is opened, the switch shuts off the arc current supply and switches on the PILOT LIGHT located above and to the rear of the mirror. When the door is closed, the switch turns off the pilot light and switches on the arc supply current. The lamp cannot be operated with the door open.

OPERATING INSTRUCTIONS

To CONNECT THE LAMP insert direct current supply plug (with black marker stripe) into rectifier or rheostat outlet, and three prong control circuit cord (with red stripe) into rectifier or rheostat outlet, it being assumed that the rectifier or rheostat is being operated in accordance with the instructions pertaining to it.

The POSITIVE CARBON IS INSERTED by turning the positive carbon manual feed control until the positive jaw is as near the nose of the lamp as possible Then insert a carbon marked "positive" into the jaw in such a way that the tip that is not copper coated faces toward the rear of the lamp and lies in the "V" shaped groove of the positive steadyrest. The end of the carbon in the jaw should lie flush with the clamping lever when the lever is in an upright position. Then lower the lever and clamp the carbon just tight enough to



USED ON

TYPE	SPEC. NO.
21000	[redacted]
21000	[redacted]
21000	[redacted]
21000	[redacted]
21000	[redacted]

WIRING DIAGRAM

MATERIAL	DWG.	DATE
———	ALS	5-1-39

The Strong Electric Corp.
Toledo, Ohio

21000

Upper Dimension is Height of Picture

Lower Dimension is Width of Picture

Proj. Lens Focal Length	Distance From Screen in Feet																				
	2'	3'	4'	5'	6'	6'	8'	10'	12'	15'	20'	25'	30'	35'	40'	45'	50'	60'	75'	100'	125'	150'
3/4"	0'9"	1'2"	1'6"	1'10"	2'3"	2'8"	3'0"	3'9"	4'6"	5'7"	7'6"	9'4"										
	1'0"	1'6"	2'0"	2'6"	3'0"	3'6"	4'0"	5'0"	6'0"	7'6"	10'0"	12'6"										
1"	0'7"	0'10"	1'1"	1'5"	1'8"	2'0"	2'3"	2'10"	3'4"	4'3"	5'7"	7'0"	8'6"	9'9"								
	0'9"	1'2"	1'6"	1'11"	2'3"	2'8"	3'0"	3'9"	4'6"	5'8"	7'6"	9'4"	11'4"	13'1"								
1½"		0'7"	0'9"	0'11"	1'1"	1'4"	1'6"	1'10"	2'3"	2'10"	3'9"	4'8"	5'7"	6'7"	7'6"	8'4"	9'4"					
		0'9"	1'0"	1'3"	1'6"	1'9"	2'0"	2'6"	3'0"	3'9"	5'0"	6'3"	7'6"	8'9"	10'0"	11'2"	12'6"					
2"								1'4"	1'8"	2'1"	2'10"	3'6"	4'1"	4'10"	5'6"	6'3"	7'0"	8'4"	10'5"	14'0"	17'10"	21'0"
								1'10"	2'3"	2'10"	3'9"	4'8"	5'6"	6'6"	7'5"	8'5"	9'4"	11'2"	14'0"	18'9"	23'5"	28'1"
2½"								1'2"	1'4"	1'7"	2'3"	2'10"	3'4"	3'11"	4'6"	5'1"	5'7"	6'9"	8'5"	11'2"	14'8"	16'9"
								1'6"	1'9"	2'1"	3'0"	3'9"	4'6"	5'3"	6'0"	6'9"	7'6"	9'0"	11'3"	15'0"	19'8"	22'5"
3"												2'4"	2'10"	3'3"	3'9"	4'3"	4'8"	5'7"	7'0"	9'4"	11'7"	13'11"
												3'1"	3'9"	4'4"	5'0"	5'8"	6'3"	7'6"	9'4"	12'6"	15'7"	18'8"
3½"												2'0"	2'4"	2'10"	3'2"	3'6"	4'0"	4'8"	6'0"	7'11"	9'11"	11'11"
												2'8"	3'2"	3'9"	4'3"	4'10"	5'4"	6'3"	8'0"	10'8"	13'4"	16'0"
4"												1'9"	2'1"	2'2"	2'10"	3'2"	3'6"	4'1"	5'3"	7'0"	8'8"	10'5"
												2'4"	2'10"	3'3"	3'9"	4'3"	4'8"	5'6"	7'0"	9'4"	11'8"	14'0"

PROJECTION LENSES

Two types of projection lenses are furnished with AMPRO Precision Projectors, standard lenses and super-lenses. The standard projection lenses are 1" in diameter. The super-lenses are 1 3/16" in diameter and transmit more light on the screen because they are larger and faster.

Standard projection lenses of various focal lengths are interchangeable with each other, but are not interchangeable with super-lenses because of the difference in diameters. This is also true of super-lenses, which are interchangeable with each other, but not with standard lenses.

It is recommended that lenses be kept clean, particularly the glass lens which is nearest to the film. This lens will materially reduce illumination if it is cloudy.

TABLE OF LENSES

SUPER LENSES

¾"	E.F.	$12.00 Ea.
1"	E.F.	12.00 Ea.
1½"	E.F.	12.00 Ea.
2"	E.F.	12.00 Ea.
2½"	E.F.	16.00 Ea.
3"	E.F.	16.00 Ea.
3½"	E.F.	16.00 Ea.
4"	E.F.	16.00 Ea.

The AMPRO CORPORATION
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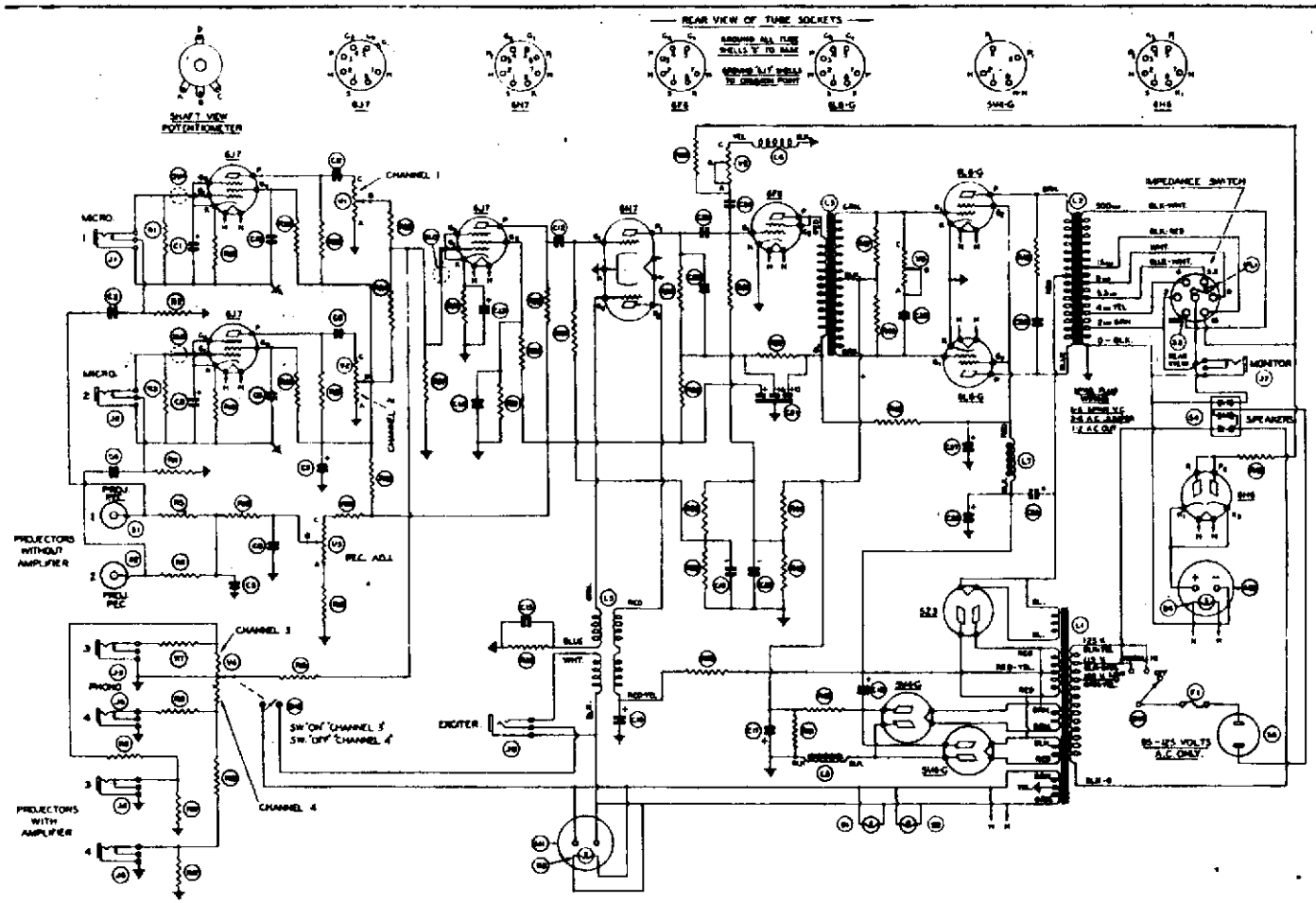

DESIGNATIONS	DESCRIPTION	PART NO.
R1, R8	Resistor - 5 Megohm 1/2 Watt Insulated	17500
R2, R4, R16	Resistor - 500,000 Ohm 1/2 Watt Insulated	17510
R3, R9, R10	Resistor - 0.5/2 Megohm 1/2 Watt Insulated	17507
R5, R6	Resistor - 250,000 Ohm 1/2 Watt Insulated	17505
R11, R12	Resistor - 10 ohm 10 Watt	16504
R13, R14	Resistor - 1,000 Ohm 1/2 Watt	17501
R15, R24, R28	Resistor - 1 Megohm 1/2 Watt Insulated	17508
R17,R21,R30,R31,R32,R36	Resistor - 100,000 Ohm 1 Watt Insulated	17502
R18, R33	Resistor - 50,000 Ohm 1/2 Watt Insulated	17506
R19	Resistor - 20,000 Ohm 1 Watt Insulated	16179
R20, R25	Resistor - 750,000 Ohm 1/2 Watt Insulated	16500
R22, R35	Resistor - 1,500 Ohm 1/2 Watt Insulated	17511
R23	Resistor - 150,000 Ohm 1 Watt Insulated	16507
R26	Resistor - 250,000 Ohm 1/2 Watt Insulated	17507
R27	Resistor - 500,000 Ohm 1/2 Watt Insulated	17509
R29, R34, R37	Resistor - 10,000 Ohm 1 Watt Insulated	16503
R38	Resistor - 15,000 Ohm 1 Watt Insulated	16505
R39	Resistor - 2,000 Ohm 1 Watt Insulated	16180
R40	Resistor - 75,000 Ohm 1 Watt Insulated	16511
R41	Resistor - 300 Ohm 10 Watt	16512
R42	Resistor - 400 Ohm 2 Watt	16513
R43	Resistor - 500 Ohm 2 Watt	16514
R44	Resistor - 7,000 Ohm 1 Watt	16515
R45	Resistor - 1,200 Ohm 1 Watt	16516
R46	Resistor - 1,000 Ohm 1 Watt	16517
R47	Resistor - 10,000 Ohm 10 Watt	16518
R48	Resistor - 15,000 Ohm 1 Watt Insulated	16519
VR1, VR2, VR3	Grid Suppressor Assembly - 75,000 ohm 1/2 Watt	16520
R7, R9	Volume Control - 500,000 Ohm	16501
R8	P.B.C. Control - 500,000 Ohm	16502
R9	Tone Control - 500,000 Ohm each side	16503
R5, R6	Tone Control - 100,000 Ohm	16504
T1	Power Transformer	16550
T2	Output Transformer	16560
T3	Driver Transformer	16570
T4	Room Indicator Coil	16580
T5	Oscillator Coil	17701
T6	Interstage Inverter	16590
T7	Choke	16600
C1, C2, C13, C16, C20	Condenser - 50 Mfd. 50 Volt	16551
C3, C4	Condenser - .002 Mfd. Mica	16552
C5,C6,C9,C10,C12,C14,C15,C18,C22	Condenser - .1 Mfd. 600 Volt	16553
C7, C8	Condenser - 8 Mfd. 450 Volt	16554
C11, C21	Condenser - .01 Mfd. 400 Volt	16555
C17	Condenser - .005 Mfd. 600 Volt	16556
C19, C23, C27, C28, C29	Condenser - 40 Mfd. 450 Volt	16557
C24	Condenser - 500 Mfd. 100 Volt	16558
C25	Condenser - Consisting of: 8 Mfd. 350 Volt) Δ 10 Mfd. 350 Volt) ○ 30 Mfd. 450 Volt)	16559
C26	Condenser - .0005 Mfd. Mica	17704
C31	Condenser - .1 Mfd.	16560
C32	Condenser - .005 Mfd. 600 Volt	16561
J1, J2, J3, J4, J5, J6, J7	Jacks	16601
J8	Monitor Jack	16602
M1, M2	P.B.C. Receptacle Impedance Switch Receptacle Speaker Receptacle A.C. Receptacle	16560 16561 16562 17503
S1	Tube Socket - 6J7*	17705
S2	Tube Socket - 6H7*	17706
S3	Tube Socket - 6F8*	16563
S4	Tube Socket - 6L6-G*	17707
S5	Tube Socket - 5Y4-G*	16564
S6	Tube Socket - 6H8*	16565
S7	Tube Socket - 6H6*	16566
S8	Tube Socket - 6Y5-G*	16567
S11	Impedance Switch Ring	16568
S12	A.C. Line Selector Switch	16569
S13	Switch on 16503 Potentiometer	
B1, B2, B3, B4	Pilot Lamp - Bayonet #51	See 3
M1	A.C. Line Meter	16570
M2	Output Meter	16571
F1	Fuse - 3 Ampere	17570

AMPRO CORPORATION 2839-51 N. WESTERN AVE CHICAGO, ILLINOIS	CIRCUIT DIAGRAM MODEL PA-3 AMPLIFIER	8-13-47 AAP D-10523