

# INSTRUCTIONS

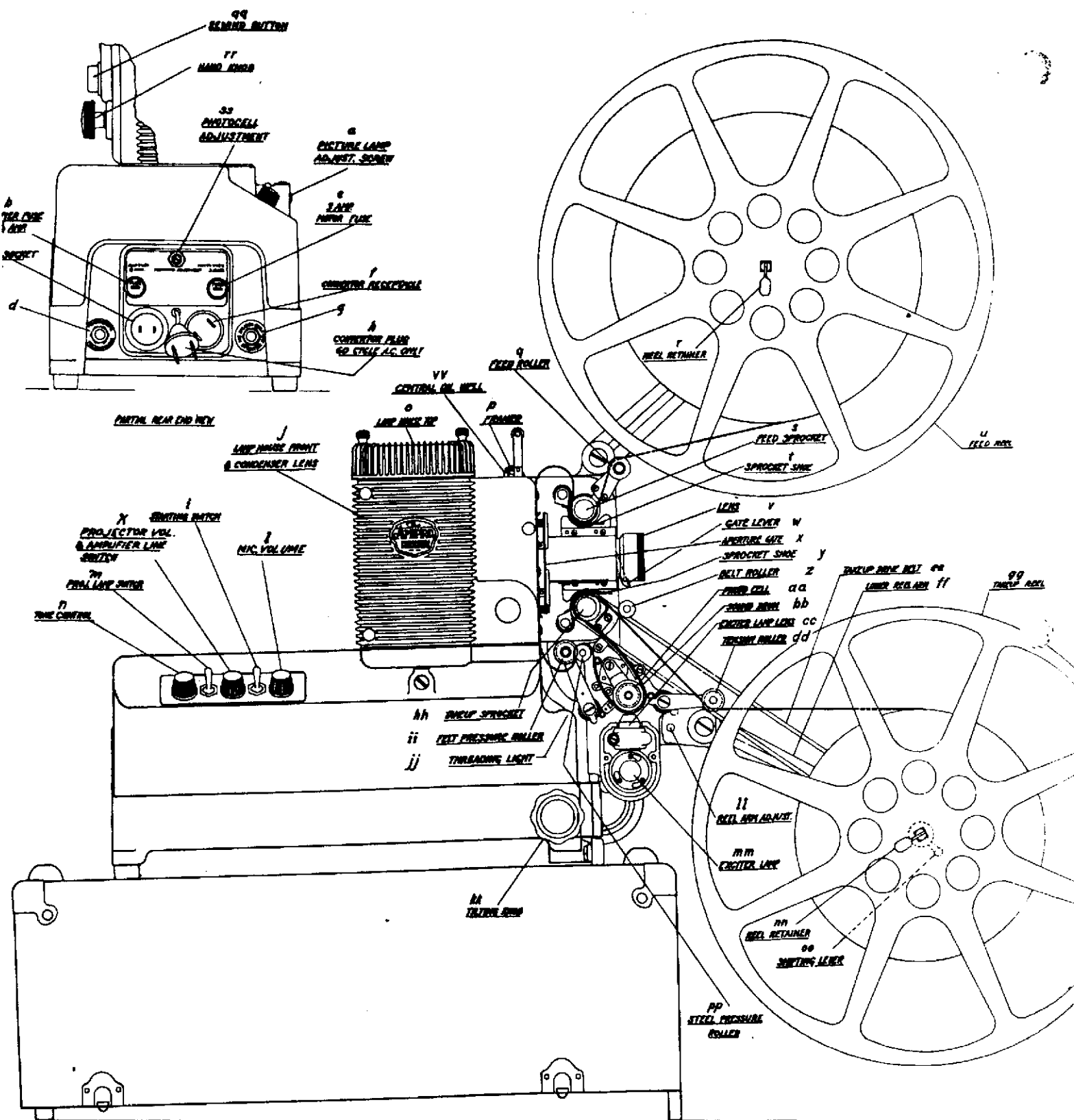
*for*

## AMPROSOUND PROJECTORS

MODEL X A AMPROSOUND



1st. EDITION



# OPERATING INSTRUCTIONS FOR MODEL XA AMPRO SOUND PROJECTORS

## STUDY PROJECTOR

Before operating, refer to picture on opposite page and study features (a) to (uu) listed below. For information on these features refer to the number after each, which indicates the proper paragraph.

	<u>Paragraph No.</u>
(a) PICTURE LAMP ADJUSTMENT SCREW . . . . .	25
(b) AMPLIFIER FUSE (ALWAYS USE $1\frac{1}{2}$ AMP.) . . . . .	26
(c) LINE SOCKET . . . . .	2, 10
(d) MICROPHONE AND PHONOGRAPH JACK. . . . .	19
(e) MOTOR FUSE 3 AMPS. . . . .	26
(f) CONVERTOR RECEPTACLE. . . . .	2, 10
(g) SPEAKER JACK ( DO NOT PLUG IN "MIC"). . . . .	6
(h) CONVERTOR PLUG (60 CYCLE AC ONLY) . . . . .	2, 10
(i) STARTING SWITCH . . . . .	4, 11, 16, 17
(j) LAMP HOUSE FRONT AND CONDENSER LENS . . . . .	22, 31
(k) AMPLIFIER SWITCH & PROJECTOR VOLUME CONTROL . . . . .	8, 14, 16
(l) MICROPHONE VOLUME CONTROL . . . . .	8, 19
(m) PROJECTION LAMP SWITCH. . . . .	7, 9, 16
(n) TONE CONTROL. . . . .	15
(o) LAMP HOUSE TOP. . . . .	25
(p) FRAMER. . . . .	13
(q) FEED ROLLER . . . . .	11
(r) REEL RETAINER . . . . .	5, 11
(s) FEED SPROCKET . . . . .	11
(t) SPROCKET SHOE . . . . .	11
(u) FEED REEL . . . . .	11
(v) LENS. . . . .	7, 13, 22
(w) GATE LEVER. . . . .	11
(x) APERTURE GATE . . . . .	11, 22
(y) SPROCKET SHOE . . . . .	11
(z) BELT ROLLER . . . . .	3
(aa) PHOTOCELL . . . . .	27
(bb) SOUND DRUM. . . . .	11, 20
(cc) EXCITER LAMP LENS . . . . .	22, 23
(dd) TENSION ROLLER. . . . .	11
(ee) TAKEUP DRIVE BELT . . . . .	3
(ff) LOWER REEL ARM. . . . .	5
(gg) TAKEUP REEL . . . . .	11
(hh) TAKEUP SPROCKET . . . . .	11
(ii) FELT PRESSURE ROLLER. . . . .	11
(jj) THREADING LIGHT . . . . .	27
(kk) TILTING KNOB. . . . .	7
(ll) REEL ARM ADJUSTMENT . . . . .	5
(mm) EXCITER LAMP (NOTE 3 PINS). . . . .	24
(nn) REEL RETAINER . . . . .	5
(oo) SHIFTING LEVER. . . . .	3, 17, 18
(pp) STEEL PRESSURE ROLLER . . . . .	11
(qq) REWIND BUTTON . . . . .	17, 18
(rr) HAND KNOB . . . . .	11, 18
(ss) PHOTOCELL ADJUSTMENT. . . . .	8, 14
(vv) CENTRAL OIL WELL - LUBRICATION. . . . .	21

## CURRENT RATING

Projection Lamp: 750-1000 Watt 100-120 Volts AC or DC  
Motor: 150 Watts 100-120 Volts AC 60 Cycle only  
Amplifier: 75 Watts 100-120 Volts 50-60 Cycle AC only

## SETTING UP

### Proceed in the following order

1. POSITION Set projector on bottom half of carrying case, or if convenient, set on front edge of table and allow the reel to overhang.
2. POWER CORD If the power supply is 100-120 volts, 60 cycles AC, connect line cord from the power outlet to the LINE SOCKET (c). The CONVERTOR PLUG (h) should be plugged into CONVERTOR RECEPTACLE (f). If the power supply is 100-125 volts DC, see paragraph 10.
3. REEL ARMS Unfold both reel arms. Be sure the belts are on the pulleys. The TAKEUP BELT (ee) must go under BELT ROLLER (z). Be sure that SHIFTING LEVER (oo) is turned all the way to the right viewed from the operator's position.
4. MOTOR Throw STARTING SWITCH (i) to start and allow motor to warm up. It may need to be warmed up for a minute or so, especially if it has been exposed to cold weather.
5. REELS Be sure that REEL RETAINERS (r and nn) are in locked position after placing reels on spindles. The LOWER REEL ARM (ff) has two operating positions. The upper position is for use with 400' reels. The lower position is for use with larger reels.
6. SPEAKER Connect one end of speaker cord to the speaker located near the screen. The other end of the speaker cord is connected to SPEAKER JACK (g) on amplifier. Remove loose accessories from speaker case as they might vibrate and impair the sound. Provision has been made for dual speaker operation by means of adapter cords.
7. LIGHT ON SCREEN Turn on LAMP SWITCH (m). Clean LENS (v) and focus image of aperture plate on screen. Turn TILTING KNOB (kk) to obtain correct position of picture on screen. If dirt appears on edges of screen, clean the aperture plate with the cleaning brush supplied with the machine. If picture is not the correct size, move projector closer to or farther from screen, or change lenses.
8. PHOTOCELL CONTROL The correct setting is important. When once set it should be left in that position unless the photocell is changed or if there is an emergency condition, such as low line voltage. To set the PHOTOCELL CONTROL (tt) turn the PROJECTOR VOLUME (k) and the MICROPHONE VOLUME (l) to normal and advance PHOTOCELL CONTROL (tt) until a definite increase in hiss comes from the speaker. Retard PHOTOCELL CONTROL (tt) to make the hiss just inaudible. If there is a very loud hiss or "motor boating" when PROJECTOR VOLUME (k) is turned to the desired volume level, it may be necessary to retard the PHOTOCELL CONTROL (tt) still further.

Likewise, if there is insufficient volume, it may be necessary to advance the control, especially if the line voltage drops when the projector is started.

9. LAMP SWITCH Stop the machine and thread film through projector as directed below. When stopping, it is best to shut off LAMP SWITCH (m) first as this permits the lamp to cool for a few seconds before the fan is stopped.

10. DC OPERATION The amplifier and motor must be supplied with 60 cycles AC from a convertor. The convertor must have 300 watt capacity, and a constant speed governor. If a larger convertor is used, be sure that it does not deliver more than 125 volts, or the wrong frequency. To connect the amplifier and motor to the convertor, pull the CONVERTOR PLUG (h) from the CONVERTOR RECEPTACLE (f). The projector lamp operates on DC by connecting the LINE SOCKET (c) to DC outlet. Connect the FEMALE CORD from the convertor to CONVERTOR PLUG (h). The male cord end from the convertor can be connected either to the DC supply 100-125 volts or to the CONVERTOR RECEPTACLE (f).

### OPERATING

11. THREADING Projector should be set up as previously described. To thread, consult diagram and proceed as follows:

- (1) Place REEL (u) on upper reel spindle and close REEL RETAINER (r).
- (2) Open SPROCKET SHOES (t and y) and also APERTURE GATE (x) by pulling up GATE LEVER (w). Unwind about 3 feet of film and thread over FEED ROLLER (q) and under FEED SPROCKET (s). Close SPROCKET SHOE (t).
- (3) Thread film through APERTURE GATE (x) allowing loose end to lie close to amplifier casting. Close APERTURE GATE (x) by pushing down GATE LEVER (w). Be sure film is all the way down in the groove of APERTURE GATE (x) so that the gate closes completely. The upper film loop between FEED SPROCKET (s) and APERTURE GATE (x) should be large enough to insert two fingers.
- (4) Move FELT PRESSURE ROLLER (ii) to the left, leaving the film between it and the amplifier housing.
- (5) Thread film over STEEL PRESSURE ROLLER (pp), under SOUND DRUM (bb) and back around SPROCKET (hh). Close SPROCKET SHOE (y).
- (6) Move FELT PRESSURE ROLLER (ii) to the right, thus forming the correct lower loop.
- (7) Thread film on TAKEUP REEL (gg) first passing it under TENSION ROLLER (dd). This roller serves as a shock absorber to avoid strain on film when starting.

- (8) Checking: It is suggested that after threading the projector as above, the HAND KNOB (rr) on the rear of the machine be rotated by hand to be sure that the film is correctly threaded before turning on STARTING SWITCH (i). Double check by turning on STARTING SWITCH (i) for an instant.

13. FOCUS PICTURE Rotate LENS (v) until sharp picture is obtained on screen. Be sure that projection lens is clean. Use linen or cleaning tissue for cleaning lenses. If picture is out of frame, adjust FRAMER (p).

14. SET VOLUME Set VOLUME CONTROL (k) until desired volume is obtained. If there are noises from speaker, consider resetting PHOTOCELL VOLTAGE CONTROL (tt). (See paragraph 8). Likewise, if there is insufficient volume, try raising the PHOTOCELL VOLTAGE CONTROL (tt). Also check the line voltage.

15. SET TONE Balance the "high" and "low" notes with TONE CONTROL (n). Music generally sounds best with maximum bass. Speech will generally be more distinct at some half-way position of TONE CONTROL (n).

16. AT FINISH OF REEL First turn LAMP SWITCH (m) "off" to cut out the picture and cool lamp while the trailer is running through. (See paragraph 11). Then turn off STARTING SWITCH (i). Leave the AMPLIFIER SWITCH (k) on until the end of the show.

17. REWINDING Film can be rewound without shifting reels. Pass end of film from lower reel to empty upper reel without threading through the projector. Turn on STARTING SWITCH (i) and push REWIND BUTTON (qq) on rear of projector. Hold this button until film gets started. The button will "pop" out if film is slack, and at the end of rewind. After rewinding is started, turn SHIFTING LEVER (oo) counter-clockwise so that reel will unwind more rapidly.

18. AFTER REWINDING Before the next showing, return SHIFTING LEVER (oo) to the right, pointing towards the screen. If REWIND BUTTON (qq) has not "popped" out, turn the HAND KNOB (rr) several times counter-clockwise when viewed from the rear of the projector.

19. MICROPHONE AND PHONOGRAPH CAUTION! Do not accidentally plug MICROPHONE or PHONOGRAPH into SPEAKER JACK (g). The Microphone Plug has a special contact so that it will not make contact if accidentally plugged in the speaker jack, but care should be taken to avoid this error. An old style microphone will not have this protection. Either a microphone or phonograph can be plugged into MICROPHONE AND PHONOGRAPH JACK (d). Both can be used simultaneously with a mixer box. The new Ampro microphones are recommended because they have been especially designed for this type of amplifier. Most 2 meg. microphones will work, but not as satisfactorily. The MICROPHONE VOLUME CONTROL (l) controls the volume and allows mixing with sound from film. The switch on this control should be off except when using the Microphone. It operates in parallel with the projector switch to cut off the B supply to the amplifier when the projector is stopped.

20. STILL BUTTON The STILL BUTTON (uu) (not on Model YA) should be turned to the maximum position counter-clockwise for moving pictures and the maximum position clockwise for still pictures. Never operate this button in a half-way position. It will generally be necessary to re-focus when showing still pictures because the film "buckles" slightly when stopped.

### CARE AND MAINTENANCE

21. LUBRICATION Proper oiling is very important. Care should be taken to oil the machine regularly and yet not excessively. If used for one show a day, oil once a week. If used more, oil daily. To oil place the end of the Ampro oil can in the hole on CENTRAL OIL WELL (vv) and give one squeeze only. Never give more than one squeeze unless oiling has been neglected. Occasionally oil the rear bearing for HAND KNOB (rr) and the reel spindles. Use only Amproil. Other oils may gum up and do damage to the equipment.

22. CLEANING In addition to the cleaning mentioned in paragraph 7, give the machine a thorough cleaning occasionally. The APERTURE GATE (x), the SOUND DRUM (bb), the PICTURE LENS (v), the EXCITER LAMP LENS (cc), the CONDENSER LENSES and the REFLECTOR (j), the ROLLERS and the SPROCKETS should be kept clean. When cleaning the lens, use a soft material such as lens tissue or clean linen to avoid scratching the glass surfaces. The condenser lenses and reflector can be cleaned without the use of tools by removing the LAMP HOUSE FRONT (j). Do not remove this cover when machine is running.

23. EXCITER LAMP LENS (cc) Do not adjust this lens at any time. It never requires adjusting unless tampered with. Clean this lens if dusty with cleaning brush, if oily with cotton on the end of a toothpick. The cotton can be soaked in carbon tetrachloride used very sparingly.

24. EXCITER LAMP REPLACEMENT Unscrew the knurled thumb screws and remove EXCITER LAMP COVER, turn EXCITER LAMP (mm) to the left and remove. A new lamp is then inserted. Be sure that the lamp is clean before using and that it is turned all the way to the right and that the three pins in the socket are properly seated in the prefocused ring of the exciter lamp. Be sure that the exciter lamp is 6 volts 1.0 ampere.

25. PROJECTOR LAMP REPLACEMENT The projection lamps used in Amprosound Projectors are of a standard prefocused type and can be obtained from any dealer handling projection lamps. To remove the lamp, first take off the LAMP HOUSE TOP (o). Then remove the metal cap which fits over the bulb. To remove the bulb, press down and turn to the left as far as it will go, which releases the bayonet socket so that the bulb can be pulled out. It will be noted that the base of the bulb has two flanges, one of which is longer than the other. When a new bulb is inserted be sure that the flanges fit down into the slots of the socket. Press the bulb down and turn it to the right as far as it will go. Be sure there is clearance between the lamp and the metal housing around it to insure proper ventilation. The entire socket can be adjusted laterally by means of the SCREW (a). The screw is slotted so that it can be rotated with a small coin. Adjust PICTURE LAMP ADJUSTING SCREW (a) for best light on screen.

26. FUSES The FUSE (b) on left is  $1\frac{1}{2}$  Amp. for amplifier. The FUSE (e) on right is .3 amp. for motor. Under no condition use anything but the rated size. Use a small coin or screw driver to unscrew the red center for replacement. The old fuse can be pulled from the end of red cap.

27. TUBES AND LAMPS The following metal tubes are used in the amplifier (Hygrade Sylvania or National Union tubes are recommended):

5Z4 Rectifier tube  
6V6 Power Output tubes (2 required)  
6N7 Driver & Oscillator tube  
6J7 Voltage Amplifier tube

The exciter lamp is specified as follows:

6 volt 1.0 amp. with prefocused collar.

The photocell as used is known as CE No. 20. It is easily replaceable by unscrewing the knurled collar at its socket. Photocells have a very long life and rarely require replacement unless cracked or broken.

In case of sound trouble, check the tubes and connections carefully. Be sure that all tubes are pushed into the sockets properly. Since the tubes look alike they may accidentally be placed in the wrong sockets. Please notice that the tubes are inserted in sockets with numbers corresponding with the number on the tubes. Do not tamper with the amplifier in any way until you are absolutely sure that the tubes are all right. Do not rely upon tube checkers, or upon the fact that the tubes are new. Do not attempt to use the cheaper brand of tubes.

28. THREADING LAMP REPLACEMENT Remove the bottom cover to replace the THREADING LAMP (jj). Remove the screw that holds the socket and replace with 6.3 volt dial lamp with bayonet base.

29. REPLACING DIAL LAMP The dial lamp is the same as the threading lamp and can be replaced by removing the metal name plate containing the serial number of the projector.

30. REPLACING REEL BELTS A spare belt should be carried. When fastening together new belts, untwist the end several times so that when they go together they will screw together tightly.

31. REPLACING MOTOR BELTS To change, remove the FRONT COVER (j) and the bottom of amplifier. Also loosen the governor brush holder assembly by removing the two studs which hold this assembly to the motor. Push the new belt down from the top and on the motor pulley. The idler wheel must be on the outside of the belt. Finally, pull it onto the upper pulley by revolving the pulley a partial turn. CAUTION! Be sure the idler wheel is on the outside of the belt and not on the inside. Note! Model YSA is equipped with V type belt, no idler roller is used.



# SCREEN TABLE

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'
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"						
1 1/2"		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"
								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"
2 1/2"								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"
								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"
3"												2'4"	2'10"	3'3"	3'9"	4'3"	4'8"	5'7"	7'0"	9'4"
												3'1"	3'9"	4'4"	5'0"	5'8"	6'3"	7'6"	9'4"	12'6"
3 1/2"												2'0"	2'4"	2'10"	3'2"	3'6"	4'0"	4'8"	6'0"	7'11"
												2'8"	3'2"	3'9"	4'3"	4'10"	5'4"	6'3"	8'0"	10'8"
4"												1'9"	2'1"	2'2"	2'10"	3'2"	3'6"	4'1"	5'3"	7'0"
												2'4"	2'10"	3'3"	3'9"	4'3"	4'8"	5'6"	7'0"	9'4"

## 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

STANDARD LENSES		
1"	E.F. ....	\$ 8.50 Ea.
1 1/2"	E.F. ....	8.50 Ea.
2"	E.F. ....	8.50 Ea.
2 1/2"	E.F. ....	12.50 Ea.
3"	E.F. ....	12.50 Ea.
3 1/2"	E.F. ....	12.50 Ea.
4"	E.F. ....	12.50 Ea.

SUPER LENSES		
3/4"	E.F. ....	\$12.00 Ea.
1"	E.F. ....	12.00 Ea.
1 1/4"	E.F. ....	12.00 Ea.
2"	E.F. ....	12.00 Ea.
2 1/2"	E.F. ....	16.00 Ea.
3"	E.F. ....	16.00 Ea.
3 1/2"	E.F. ....	16.00 Ea.
4"	E.F. ....	16.00 Ea.

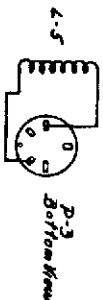
## PROJECTION LAMPS

Any AMPRO Precision Projector can use any lamp not exceeding in wattage the highest wattage lamp for which it is designed, without any adjustment in the projector whatsoever. Thus, the 1000 watt AMPRO Precision Projector can use the 750 watt or the 500 watt lamps as desired.

When purchasing lamps best results are obtained when using lamps having the same voltage as the current in the line. Since most outlets have 115 volt current, a 115 volt lamp is commonly used. However, all projection lamps can be obtained in 105, 110 and 120 volt types also. If a lamp is burned at a voltage higher than rated, more illumination will be obtained, but the life of the lamp will be shortened. On the other hand, if the lamp is used on a lower voltage than rated, less illumination will be obtained, but longer life will be gained. All projector lamps are rated at 25 hours active life.

Projection Lamps used in Ampro Projectors are of the standard pre-focused, medium base, type obtainable.

The  
**AMPRO**  
CORPORATION  
2839-51 NORTH WESTERN AVENUE  
CHICAGO



NAME	DESCRIPTION	DATE
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title : SCHEMATIC DIAGRAM

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