Film-Tech

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These manuals are designed to facilitate the exchange of information related to cinema projection and film handling, with no warranties nor obligations from the authors, for qualified field service engineers.

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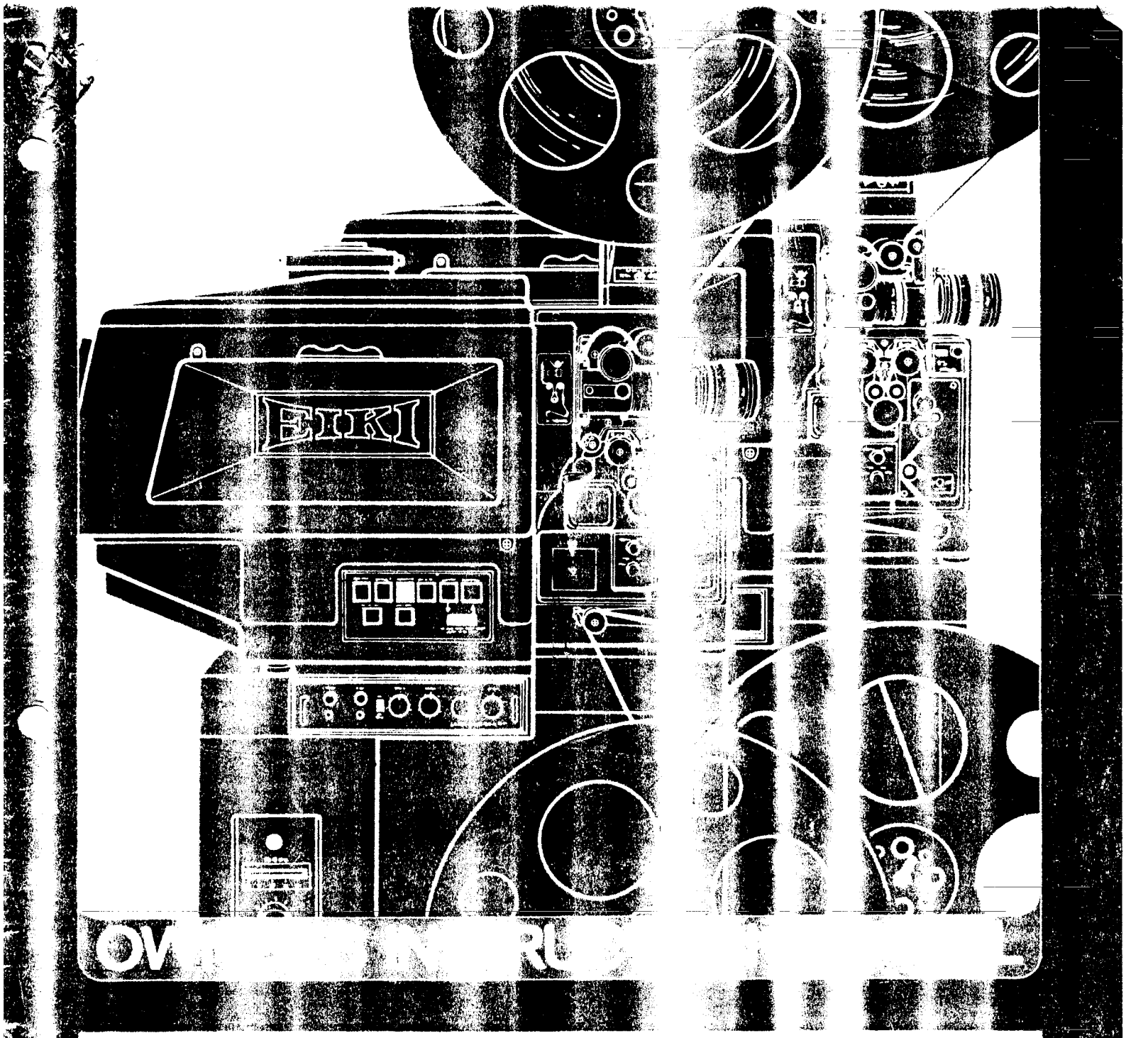
OPERATOR'S MANUAL



OV R

EX-6100(E)
EX-9100(E)

XENON PRO E TOR

IMPORTANT SAFEGUARDS

When using your EIKI 16mm projector, basic safety precautions should always be followed, including the following:

1. Read and understand all instructions.
2. Close supervision is necessary when any equipment is used by or near children. Do not leave projector unattended while in use.
3. Xenon lamps are under extreme pressure. Care must be exercised when installing or removing the lamp. Do not remove while hot. Refer to lamp installation instructions.
4. Do not operate projector with a damaged cord or if the projector has been dropped or damaged — until it has been examined by a qualified service technician.
5. Do not let the cord hang over edge of the table or counter or touch hot surfaces.
6. If an extension cord is necessary, a cord with a suitable current rating should be used. Cords rated for less amperage than the projector may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
7. Always unplug projector from electrical outlet when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.
8. Let projector cool completely before putting away. Return cord to cord storage space provided when storing projector.
9. To protect against electrical shock hazards, do not operate this projector in the rain or when wet.
10. To avoid electric shock hazard, do not disassemble this projector, but refer to a qualified service technician when service or repair work is required. Improper repairs or reassembly can cause electric shock hazard when the projector is used subsequently.
11. Do not remove lamphouse cover when projector motor is running.
12. Do not look directly at an operating lamp with unprotected eyes.

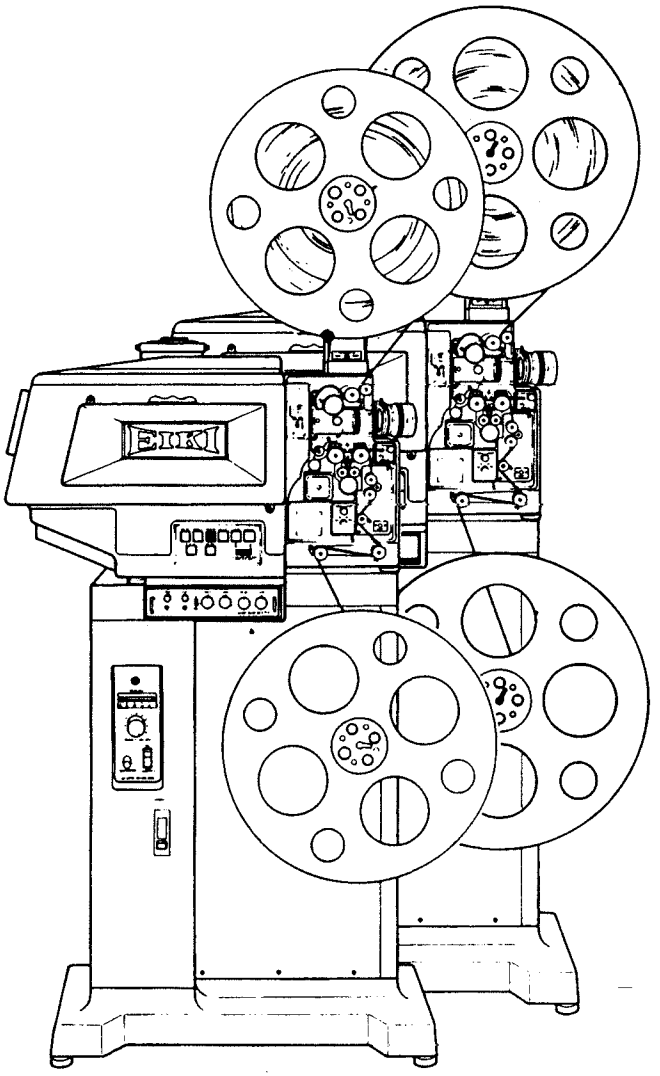
This Operator's Manual is easy to read, informative and helpful. Please read it carefully. Before you try it your way, please try it our way.

– CONTENTS –

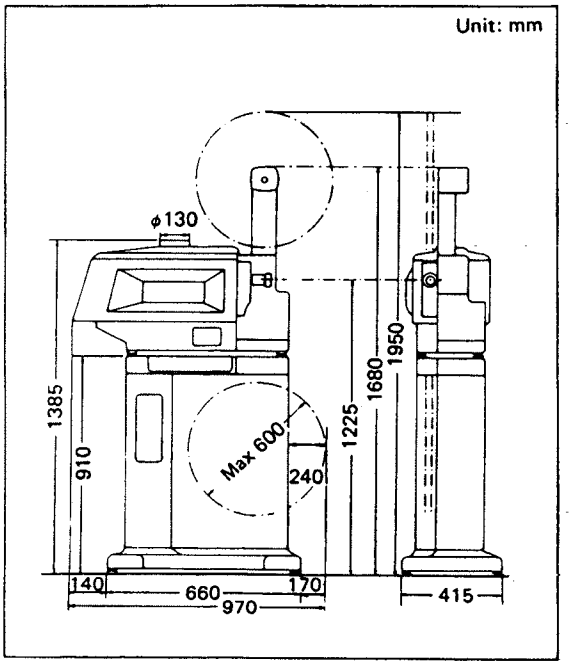
1.0. SPECIFICATIONS

Power Requirements:	
EX-6100:	100, 115, 220 or 240 Volt AC (Universal Voltage)
EX-6120:	Single Phase 50 or 60Hz 100-120V 23 Amps 200-240 Volts 12 Amps
EX-9100:	200V/220V 50/60Hz Single Phase 200-240 Volts 22 Amps
Lamp:	
EX-6100 SERIES	UXL-10SAZ, 1000 Watt Ozone free Xenon Lamp
EX-9100 SERIES	UXL-2000HE, 2000 Watt Ozone free Xenon Lamp
Brightness:	
EX-6100 SERIES:	3500 to 4000 Lumens Typical, EX-6100M (EX-6120) 3000 to 3500 Lumens Typical
EX-9100 SERIES:	4700 to 5200 Lumens Typical, EX-9100M (EX-9120) 4000 Lumens Typical
Exciter Lamp:	4 Volt. 0.75 Amp (Type BRK)
Standard Lens:	50mm (2") fl.2, 6 element coated center resolution in excess of 160 line/mm
Anamorphic Lens Holder:	"D" size ϕ52mm Standard, optional "C" size ϕ43mm
Douser:	Electrically operated
Shutter:	2-Blade standard, or geneva movement. (Maltese Cross)
Main Drive Motor:	Induction type with capacitor, optional synchronous motor
Lamp Cooling Motor:	Induction type, squirrel cage fan motor
Take-up Motor:	Torque motor with magnetic brakes
Rewind & Supply Motor:	High speed torque motor with magnetic brakes
Film Speed:	24FPS sound 50/60Hz, (18FPS optional)
Loop Restorer:	Automatic
Function controls	Momentary push button. Auto, Forward, Lamp, Rewind, Reverse.(Reverse not Available on EX-6100M/9100M (EX-6120/EX-9120))
Threading:	Manual three sprocket drive system
Rewind:	High speed, Approx. 6,000 ft. in 5 min.
Reel Capacity:	60cm (24") maximum
Sound Track:	Optical and magnetic playback
Monitor:	15cm (6") speaker with separate volume control
Amplifier:	Solid state 50 watts RMS plug in type module, with separate volume, bass and treble controls
Audio Inputs:	Miniature jacks for high microphone and phono inputs with separate level controls
Speaker Outputs:	8 ohms 1/4" phone jack
Line Output:	600 ohm balanced, with adjustable level. 1/4" 3 conductor phone jack
Wow & Flutter:	Better than .2% weighted average
Picture Stability:	Less than 0.225% vertical jitter Less than 0.2% horizontal weave
Change-Over system:	Built in, with accessory cable available
Remote Control:	Built in, with accessory control available.

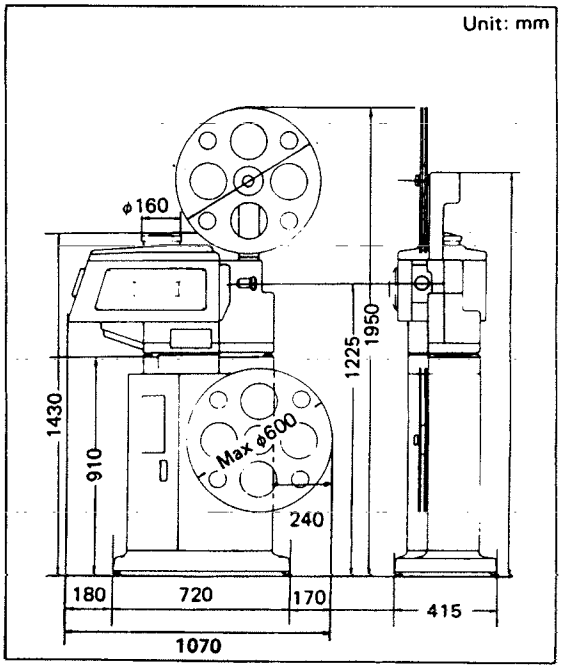
2-O PHYSICAL DIMENSIONS



EX-6100 SERIES



EX-9100 SERIES



3-0 GENERAL DESCRIPTION

The EX-6100 or the EX-9100 professional type 16mm theater and auditorium projector is a complete stand-alone permanent installation unit. Both projectors offer the features of optical framing, magnetic and optical playback, 24° vertical head adjustments. The EX-6100 utilizes a 1000 watt ozone free Xenon lamp rated at 1000 hours, where the EX-9100 uses a 2000 watt ozone free Xenon lamp, also rated at 1000 hours. Each projector is furnished with lamp running time meters and ducting hoods for easy ventilation to the outside, where required by local or state regulations. Additional features include a 50 watt solid state amplifier with individual bass and treble controls. Inputs are provided for both microphone and phono. Outputs are 8 ohm speaker jacks and 600 ohm balanced line connections. Separate monitor speaker and volume control is standard.

APPLICATIONS

The EX-6100 and EX-9100 are intended to be operated as a single unit or in pairs with a change-over system.

It is recommended that the operating instructions be carefully followed. Each application will determine the type of equipment and options required. For example, if the same full length feature film is being shown repeatedly, a single projector with 60cm (24") reels may be very convenient, eliminating the need to change reels or watch for change-over cues. In applications where a multiple reel, full-length film is shown only once or twice, it is more practical to operate two projectors with the change-over system.

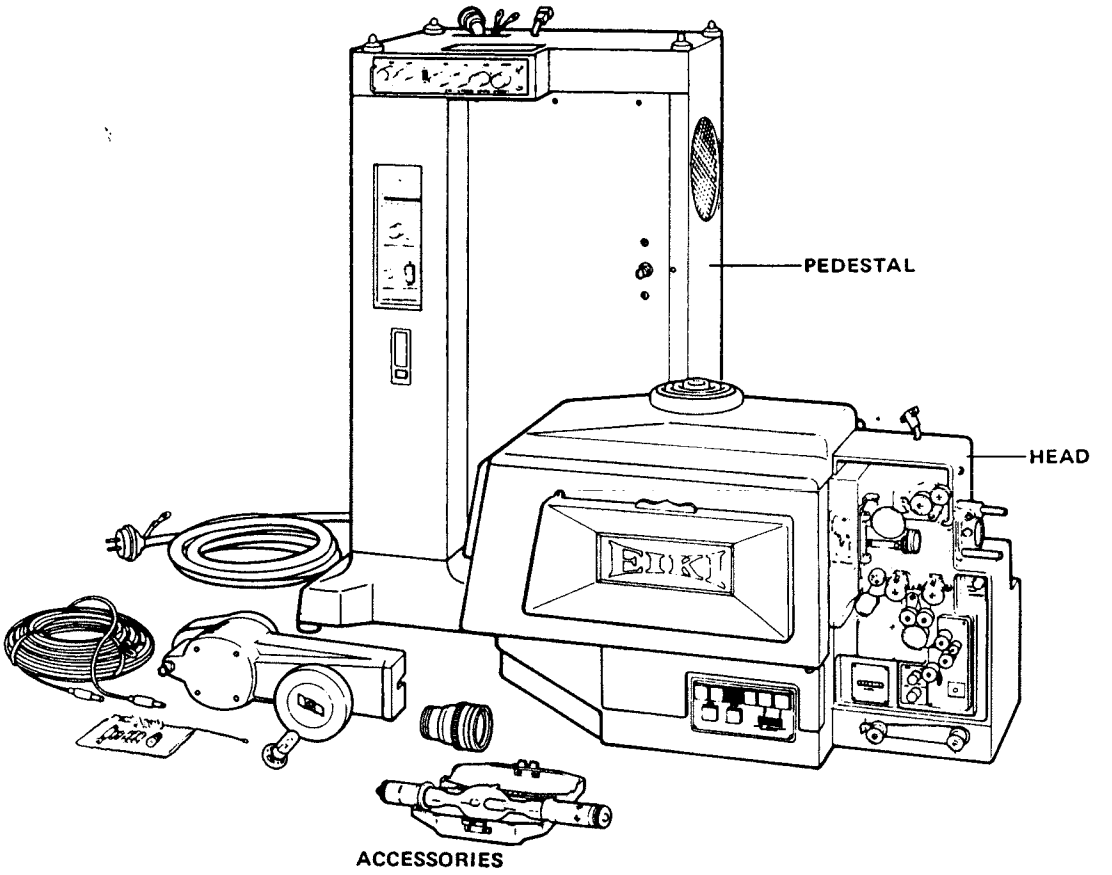
One of the most important considerations is the brightness of the image. The choice of projector and lamp current adjustment effects screen illumination based on the following factors:

1. Size and type of theater or auditorium
2. Screen size and type
3. Ambient light conditions
4. Distance from the audience to the screen

It is a recommended practice that the projector deliver screen lumens sufficient to produce at least 15 to 16 foot lamberts of reflected light to a viewer in the audience within 15° off center and at least 3 times the screen height away. Less illumination will produce marginal results and excessive illumination will produce objectionable flicker.

4-O INSTALLATION

UNPACKING AND SETTING UP



The EX-6100/EX9100 Xenon projector is shipped in two cartons. The largest carton contains the pedestal; the smaller contains the head assembly and accessories.
Two are needed to unpackage and set up the projectors.

4-1 Unpacking the pedestal

1. Carefully turn the larger carton over until the open top is on the floor.
2. Locate the serial number written on the carton. This should now be upside down.
3. The pedestal is now upside down. Remove the tape and staples from the end of the carton facing up.
4. Open the carton and remove the top layer of styrofoam packing. The bottom wheels of the pedestal are now exposed.
5. Drape the power cord outside the carton.
6. Turn the four leveling legs clockwise, permitting the pedestal to rest on the casters when turned right side up.
7. Lay the pedestal carton over on one side keeping the power cord clear and the carton flaps open.
8. Lift the pedestal and carton until the pedestal rests on its casters right side up.
9. Lift the carton up off the pedestal and gather up all the styrofoam packing.
10. Raise the four head elevating legs until they extend about 12cm (5"). The pedestal is now ready for mounting the projection head.

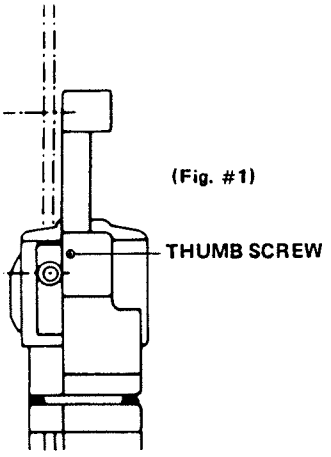
4-2 Unpacking the Projection Head

1. Remove the tape and staples from the top of the smaller carton.
2. Remove the small accessory carton.
3. Remove the top styrofoam blocks to reveal the head.
4. With one person on each end, reach down and lift the head assembly from the carton and place on the floor to remove the plastic bag.
5. Lift the head assembly up and position on the pedestal elevating legs with the function controls on the same side as the access door and lamp current meter on the pedestal.
6. Slide the rear leveling legs into the elongated slot lining up the head assembly with the front leveling legs. This locks the projection head to the pedestal.
7. Unpack the accessory carton containing the following items:
   a. Supply arm assembly
   b. Flywheel (A second smaller flywheel is supplied with EX-6100M/9100M (EX-6120/9120)
   c. Xenon Lamp
   d. 50mm (2") Lens
   e. Spare Exciter Lamp
   f. Lens Cleaning Cloth
   g. Aperture Cleaning Brush
   h. Extension Speaker Cord
   i. Instruction Manual

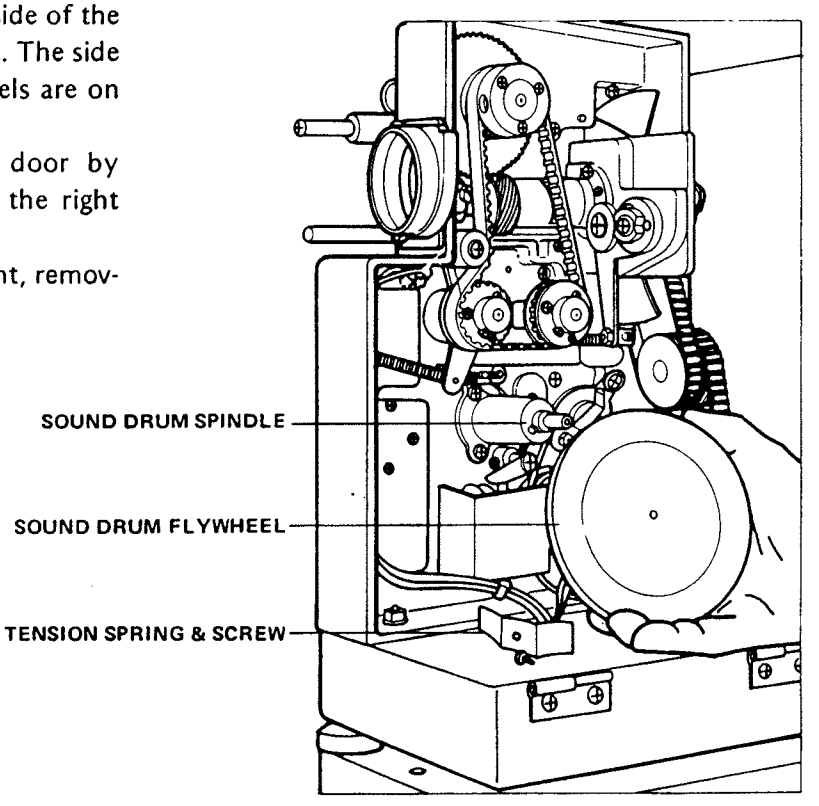
4-3 Assembling The Projector

Throughout the manual all instructions are written from the operator's viewpoint. That is, the side of the projector displaying the controls is the front. The side away from the operator is the rear. The reels are on the right end.

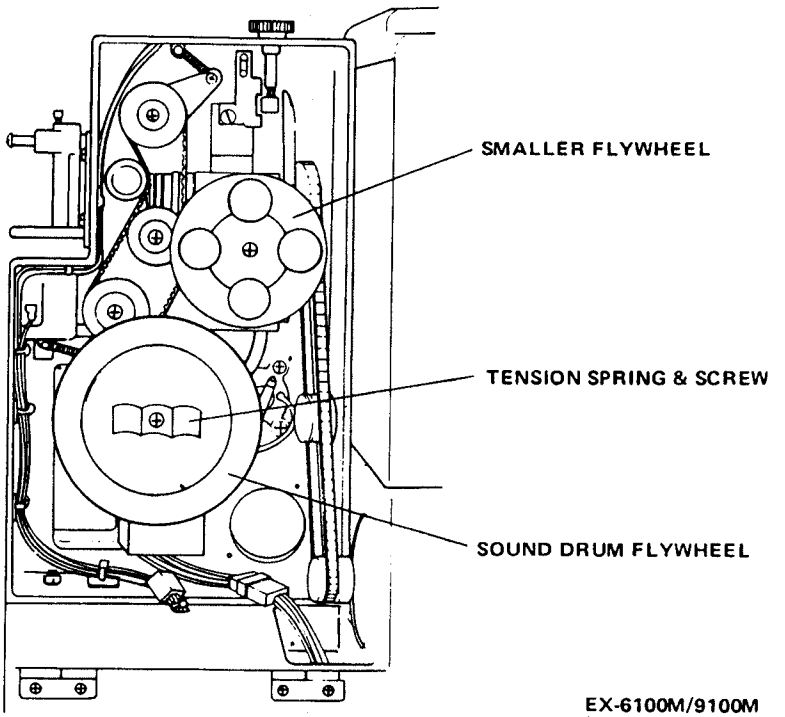
1. Open the transport mechanism access door by removing the knurled thumb screw on the right end of the projector. (See Fig. #1)
   Swing open the door and slide to the right, removing it from the hinges.



(Fig. #1)



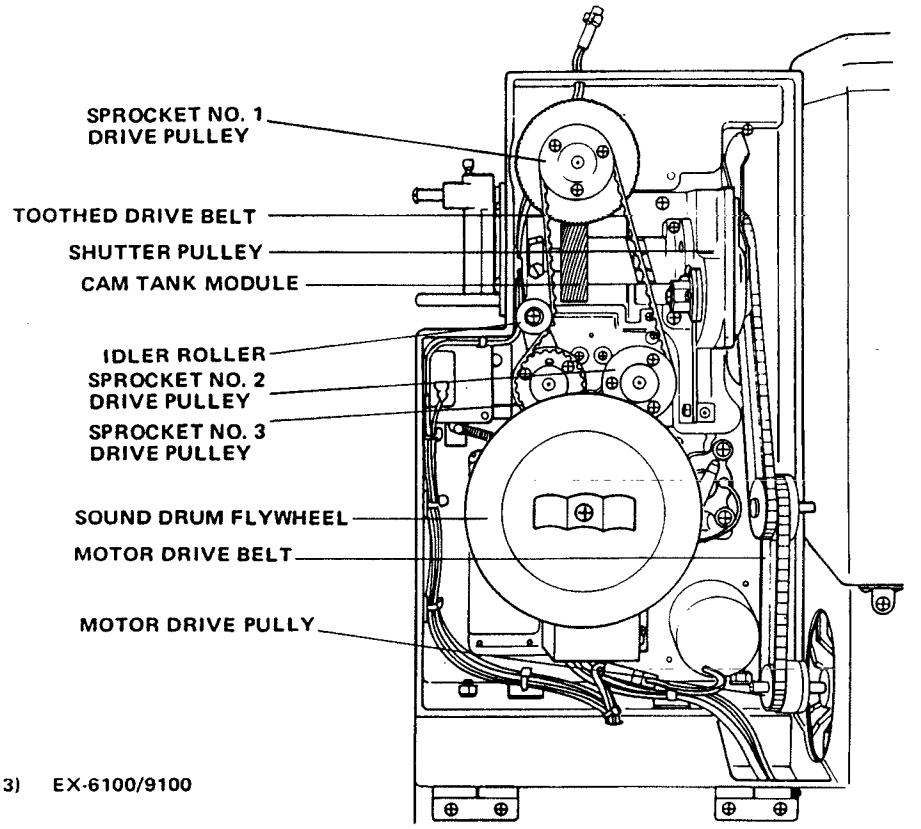
EX-6100/9100



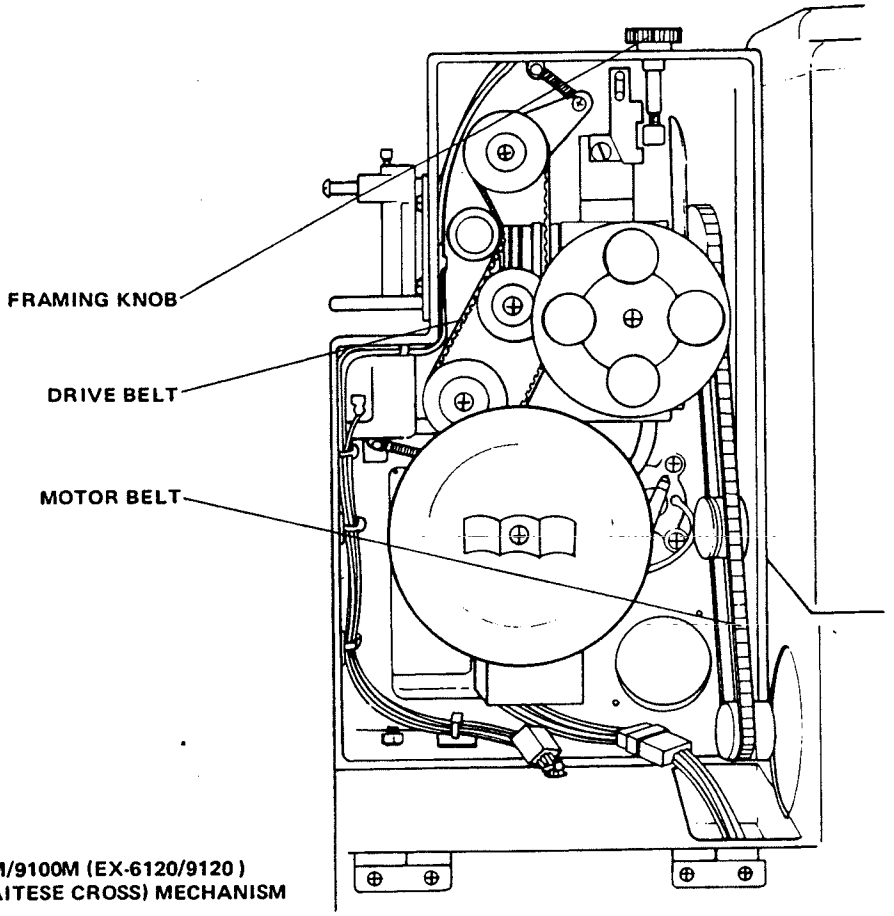
(Fig. #2)

EX-6100M/9100M
(EX-6120/9120)

2. Locate the sound drum shaft and remove the Phillips screw and plate spring from the end of the shaft. Install the flywheel with the flat side out, the plate spring curved towards the flywheel, and Phillips screw tightened securely. (See Fig. #1)
   The flywheel shaft may be prevented from turning by applying a vertical twisting force to the flywheel.
3. On models with the Geneva (maltese cross) mechanism, the smaller flywheel should be mounted as shown in Fig. #2 and secure the set screw.



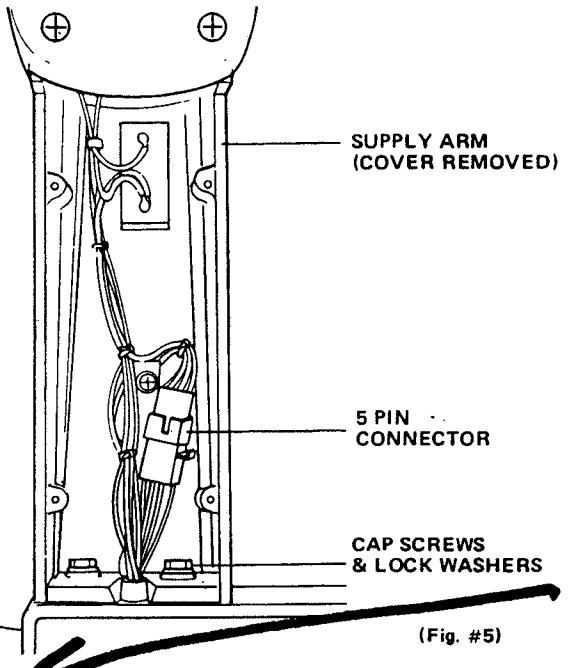
(Fig. #3) EX-6100/9100



(Fig. #4) EX-6100M/9100M (EX-6120/9120)
GENEVA (MAITESE CROSS) MECHANISM

4. To install the supply arm, first remove the rectangular arm cover plate by removing the four small Phillips screws. (See Fig. #1)

#1 PHILLIPS



(Fig. #5)

USE 11
5/16
COMBINATION
WRENCH

Locate and remove the two 8mm hex cap screws from the top of the projection head. With the open part of the supply arm facing the back of the projector, position the supply arm assembly where it lines up with the two screw holes. Install the two 8mm screws from inside the arm to the main head assembly. Secure the 8mm screws. Connect the 5 pin nylon electrical plug and re-install the rectangular arm cover.

5. Electrical connections between the pedestal and head are made in the following manner:
   a. Locate the three audio cables from the film transport mechanism; 8 pin nylon connector, 4 pin connector and 2 pin connector. Route the cable down through the rectangular hole in the base of the projection head.
   b. Replace the film transport access door on the hinge pins and secure the knurled thumb screw removed in step one.
   c. Plug in the three audio cables in their respective sockets as shown. (See Fig. #7)
   d. Remove the two small Phillips screws securing the connector access cover. (See Fig. #6)

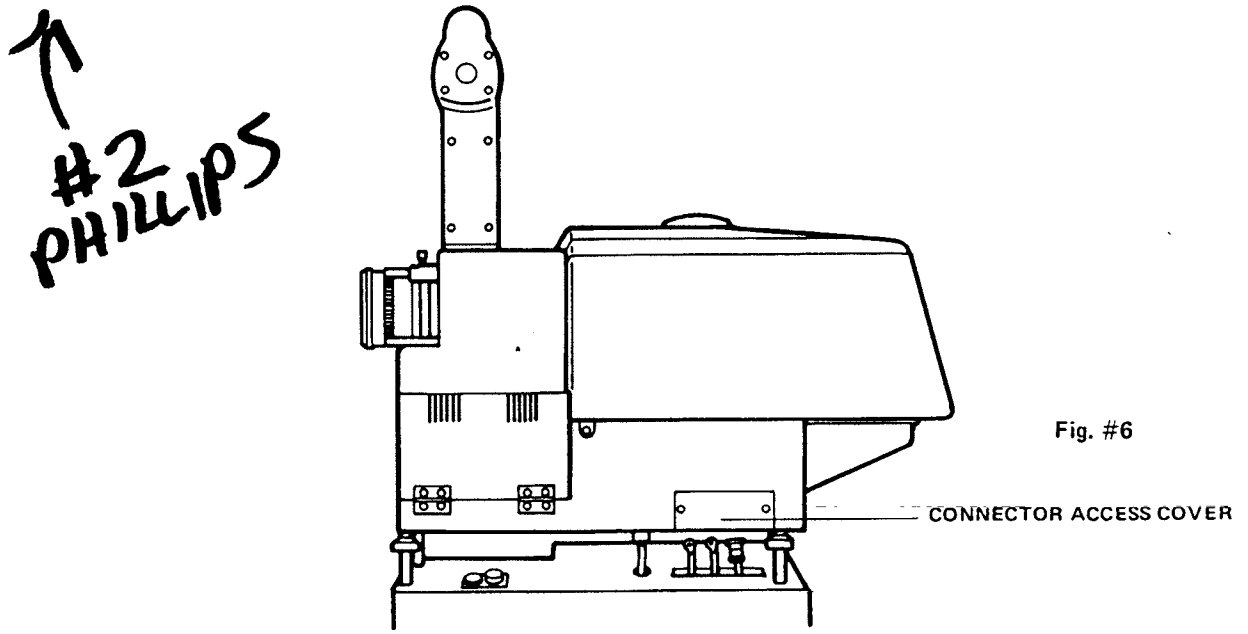
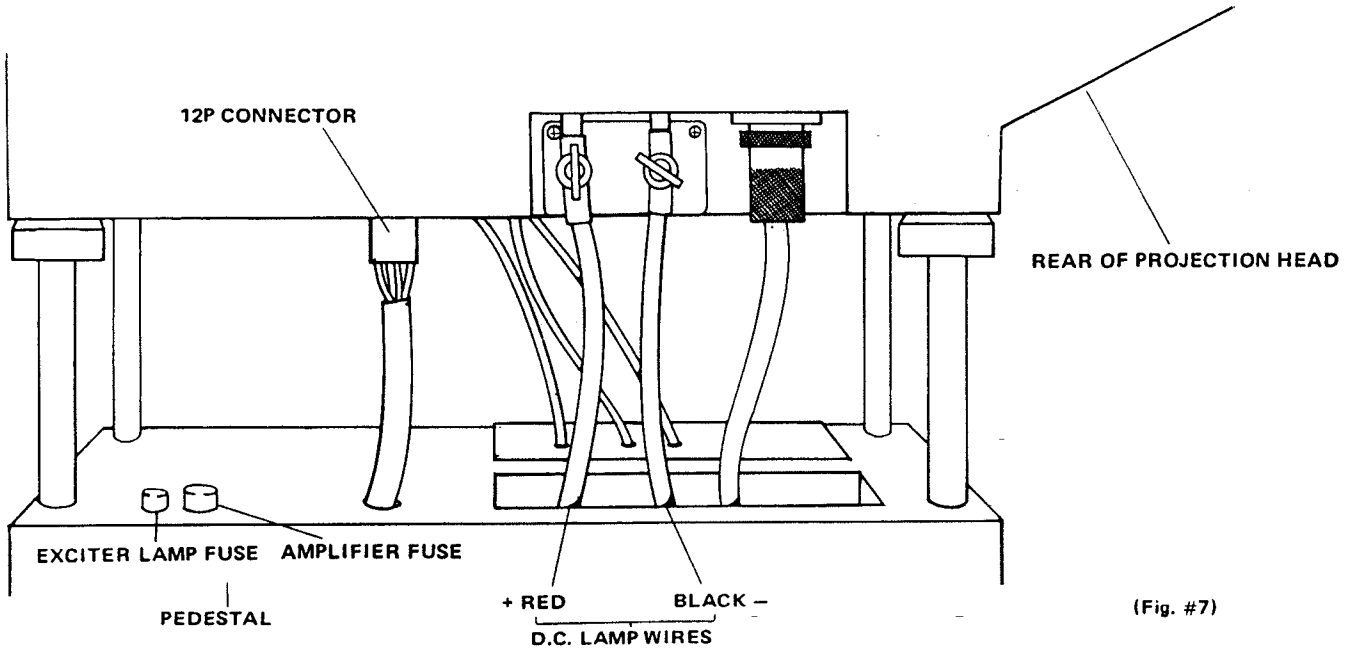


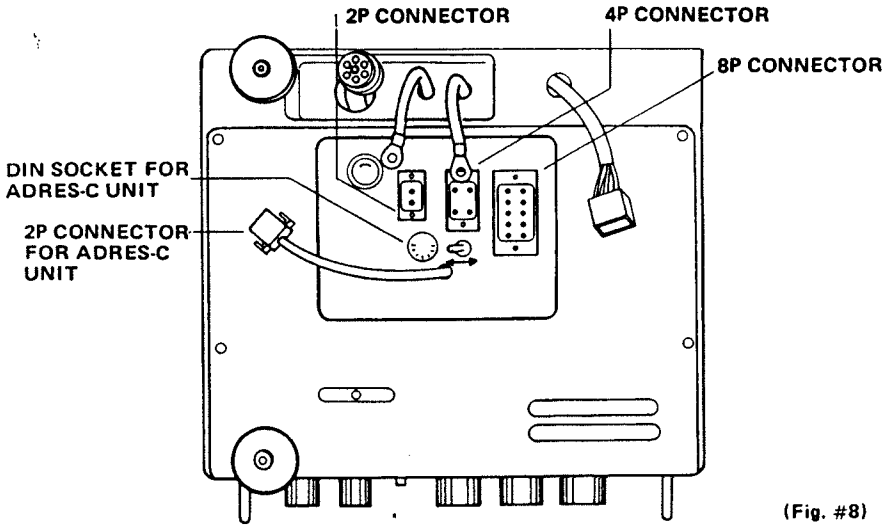
Fig. #6

   e. Remove the two wing nuts and connect the red (+) and black (–) D.C. lamp wires to their respective terminals and tighten the wing nuts. (See Fig. #7)
      NOTE: It is important that the wing nuts are tight, forming a good electrical connection.
   f. Pull the two cable connectors from the pedestal and insert in the head socket. Tighten the lock ring and re-install the access cover.



(Fig. #7)

6. Amplifiers may be fitted with an additional connector and switch for the optional feature of the noise reduction system Adres-C (See Fig. #8)



(Fig. #8)

With the switch in the right position the Adres-C Unit must be connected for the amplifier to function. When the switch is in the left position the amplifier functions as normal.

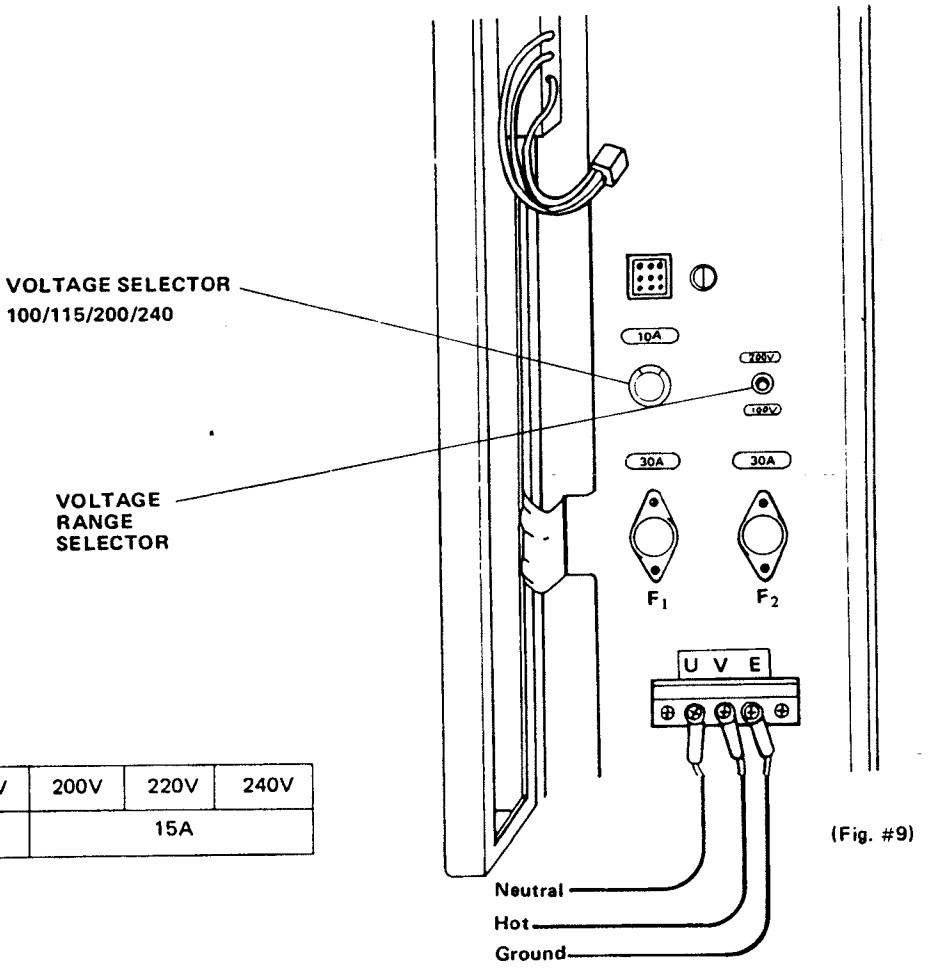
7. Optional models may also be fitted with stereo amplifiers.

4-4 ELECTRICAL POWER CONNECTIONS.

The EX-6100/6120 is designed to accept voltages from 100 to 240VAC single phase.

IMPORTANT

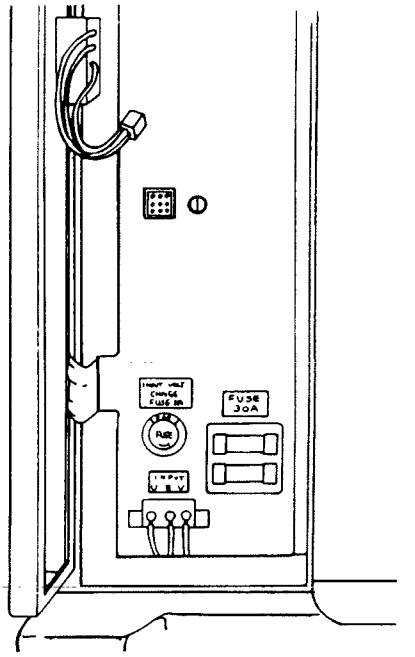
Check the voltage selection panel inside the left hand pedestal door before connecting the projector to the main power. (See Fig. #9)



(Fig. #9)

Input V.	100V	115V	200V	220V	240V
Main Fuse F1 & F2	30A		15A		

Select the proper voltage range (200/100V) with the toggle switch. Unscrew the fuse holder and unplug the voltage selector plug. Reposition the selector plug until the voltage nearest the supply appears in the notch. Re-install the fuse and secure the cap.



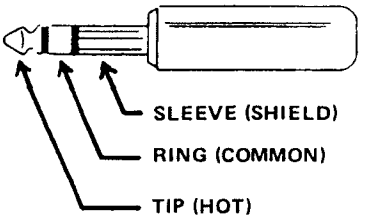
(Fig. #10)

4-5 ELECTRICAL POWER CONNECTIONS

EX-9100/9120 models are designed to accept voltages from 220VAC to 240VAC single phase. Select the nearest voltage by repositioning the selector plug. (See Fig. #10)

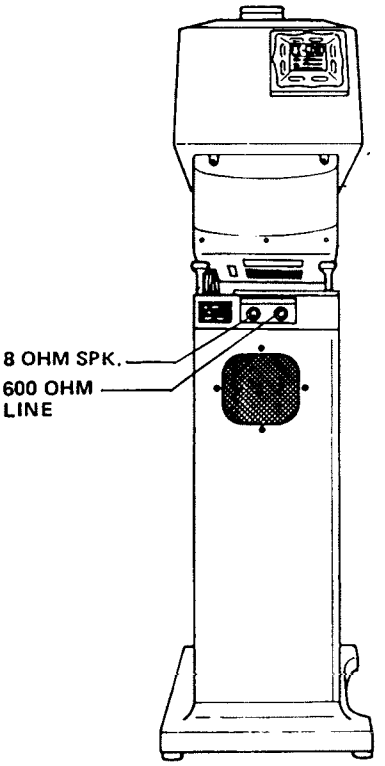
4-6 AUDIO CONNECTIONS

The EX-6100 and EX-9100 are provided with both an 8 ohm speaker output from a 6.4mm (1/4") two conductor phone jack or 600 ohm balanced line level from a 6.4mm (1/4") three conductor phone jack (See Fig. #11) To avoid possible ground loop conditions, the 8 ohm speaker line must be maintained above electrical or chassis ground.

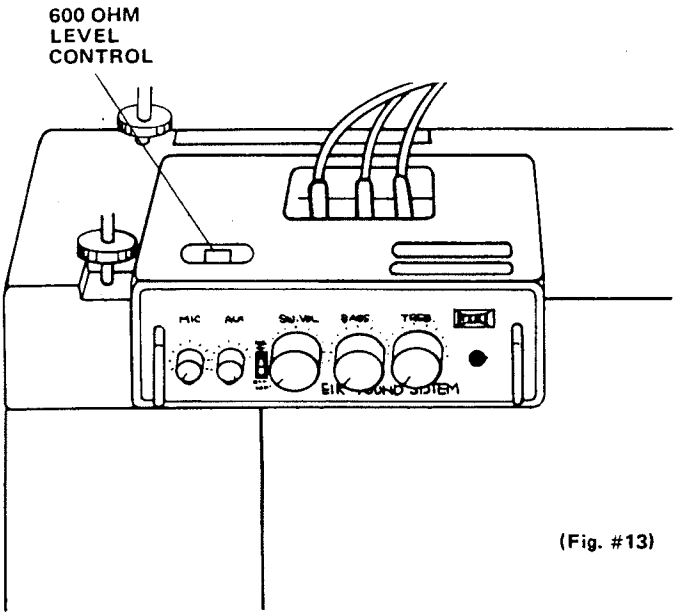


(Fig. #11)

The 600 ohm output signal level is adjustable from the screw driver control located on top of the amplifier chassis. (Fig. #13) When making connections to a balanced input of the house or auditorium amplifier system, a two conductor shielded cable is required.
The projectors connection are as shown in (Fig. #12) using a 6.4mm (1/4") 3 conductor phone plug.
When the input to the house amplifier is unbalanced, use the tip and ring connections only.



(Fig. #12)



(Fig. #13)

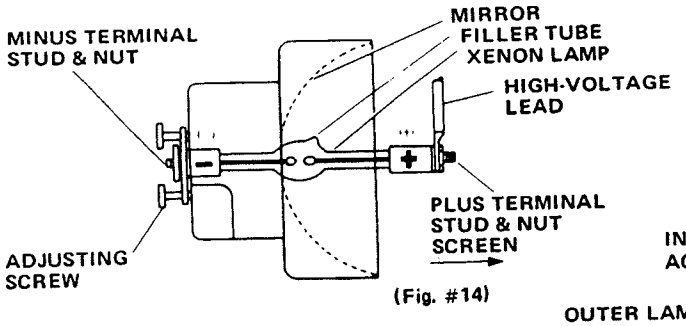
4-7 XENON LAMP INSTALLATION

WARNING

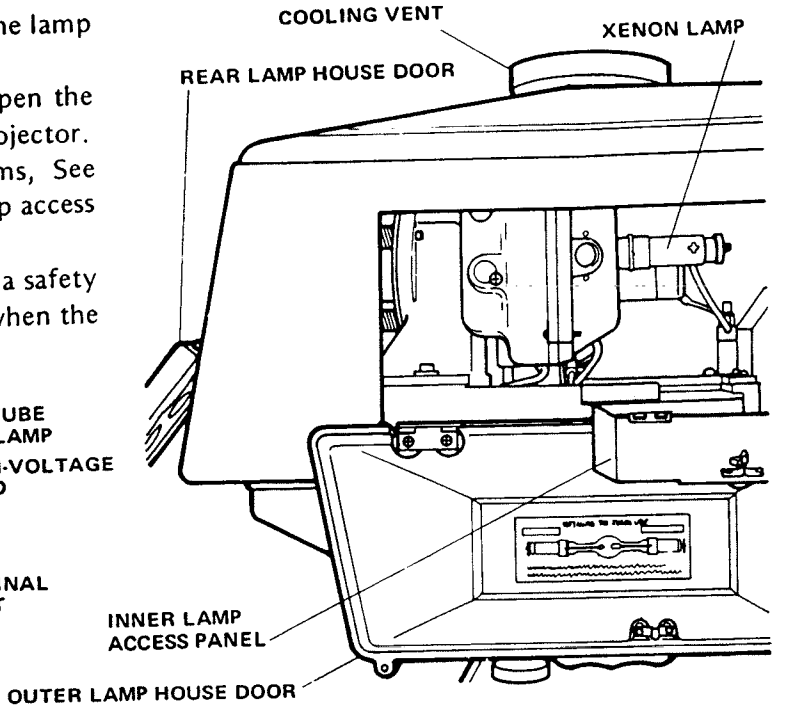
XENON LAMPS ARE UNDER EXTREME PRESSURE AND WILL EXPLODE IF HANDLED CARELESSLY. FINGER PRINTS ON THE GLASS MAY LEAD TO EARLY LAMP AND/OR PICTURE DEGRADATION. THEREFORE, LAMP INSTALLATION OR REPLACEMENT SHOULD ONLY BE PERFORMED BY A QUALIFIED SERVICE TECHNICIAN WEARING PROTECTIVE CLOTHING AND FACE SHIELD.

BE SURE THE MAIN POWER SWITCH IS "OFF" WHILE CHANGING LAMPS.

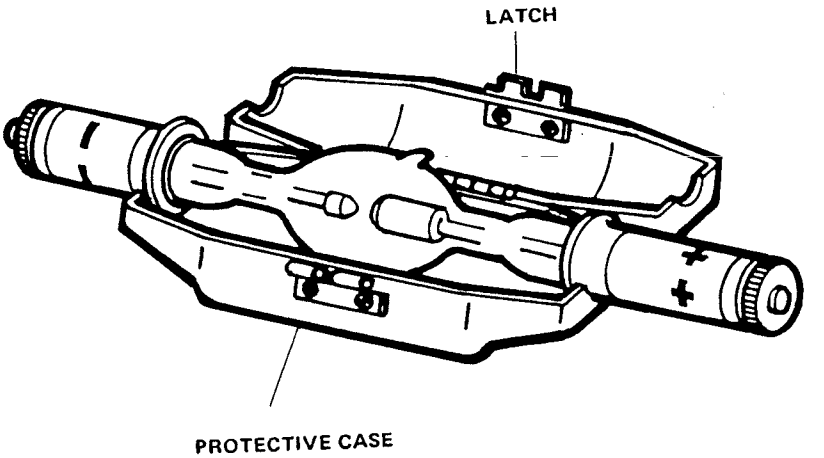
1. Facing the projector, locate and remove the lamp door locking screw.
2. Lower the outer lamphouse door and open the adjustment door at the left end of the projector.
3. Examine the lamp installation diagrams, See Fig. #14 then swing open the inner lamp access door.
4. The inner lamp access door is fitted with a safety switch, turning "off" the lamp circuit when the door is opened.



(Fig. #14)

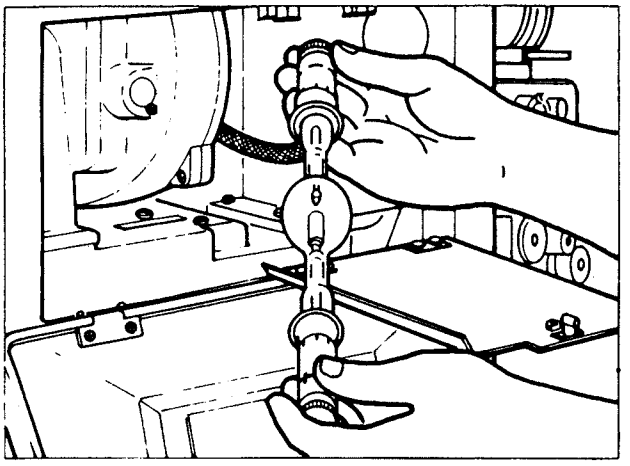


5. Carefully remove the Xenon Lamp from the carton by lifting the lamp and the cardboard shipping protectors as a unit. The lamp is shipped with a latched plastic protective case. (Fig. #15)

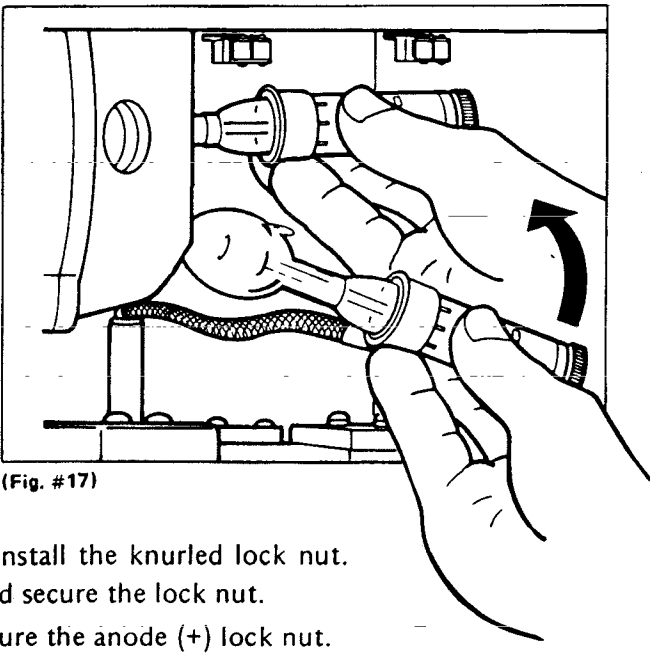


(Fig. #15)

6. Identify the anode end (+) and the cathode end (–), remove the knurled lock nut from the cathode end (–) by holding the (–) metal end while unscrewing the lock nut.
7. In the same manner carefully remove the anode (+) lock nut.
   NOTE: The two lock nuts are not the same.
8. Carefully open the protective case and insert the cathode (–) end of the lamp into the reflector.
   CAUTION: Do not subject the glass to a lateral force when handling the lamp.



(Fig. #16)



(Fig. #17)

9. Guide the cathode (–) end through the socket and install the knurled lock nut. Rotate the lamp to where the filler tube points up and secure the lock nut.
10. Attach the braided cable to the anode (+) end and secure the anode (+) lock nut.
11. If the lamp should be touched accidentally, clean the touched area by wiping it with a soft cloth moistened with Isopropyl alcohol. Close and secure the inner and outer lamp access doors.

4-8 EXTERNAL VENTING

The projector may be vented to the outside where it is required, to reduce projection room heat or to comply with local regulations. Simply remove the lamp house grate and install appropriate ducting.

4-9 POSITIONING AND LEVELING

1. With the lamp installed, switch the projector "ON" (See operator instructions) and move the projector into position until the screen is symetrical, without any keystone from left to right.
2. Lower the four pedestal legs until the weight of the projector is transferred from the casters to the legs.
3. Adjust the four head elevating legs until the top of the image is level and the projection angle is so that there is no vertical keystone. (Maximum Recommended Angle of 20°)
4. Select appropriate lens (see Fig. #18) and focus.

SCREEN SIZE CHARTS IN METERS

Distance / Lens		3m	5	10	15	20	25	30	40
12.5mm	H	1.92	3.19	6.38	9.58				
	W	2.32	3.86	7.75	11.58				
25	H	1.96	1.60	3.19	4.79	6.38	7.98		
	W	1.16	1.93	3.86	5.79	7.72	9.65		
38	H	0.56	0.94	1.89	2.84	3.79	4.74	5.69	7.58
	W	0.76	1.26	2.53	3.80	5.07	6.34	7.61	10.15
50	H	0.43	0.72	1.44	2.16	2.88	3.60	4.32	5.76
	W	0.57	0.96	1.93	2.89	3.86	4.82	5.79	7.72
65	H	0.33	0.55	1.10	1.66	2.21	2.77	3.32	4.43
	W	0.44	0.74	1.48	2.22	2.96	3.71	4.45	5.93
76	H	0.28	0.47	0.94	1.42	1.89	2.37	2.84	3.79
	W	0.38	0.63	1.26	1.90	2.53	3.17	3.80	5.07
100	H	0.21	0.36	0.72	1.08	1.44	1.80	2.16	2.88
	W	0.28	0.48	0.96	1.44	1.93	2.41	2.89	3.86

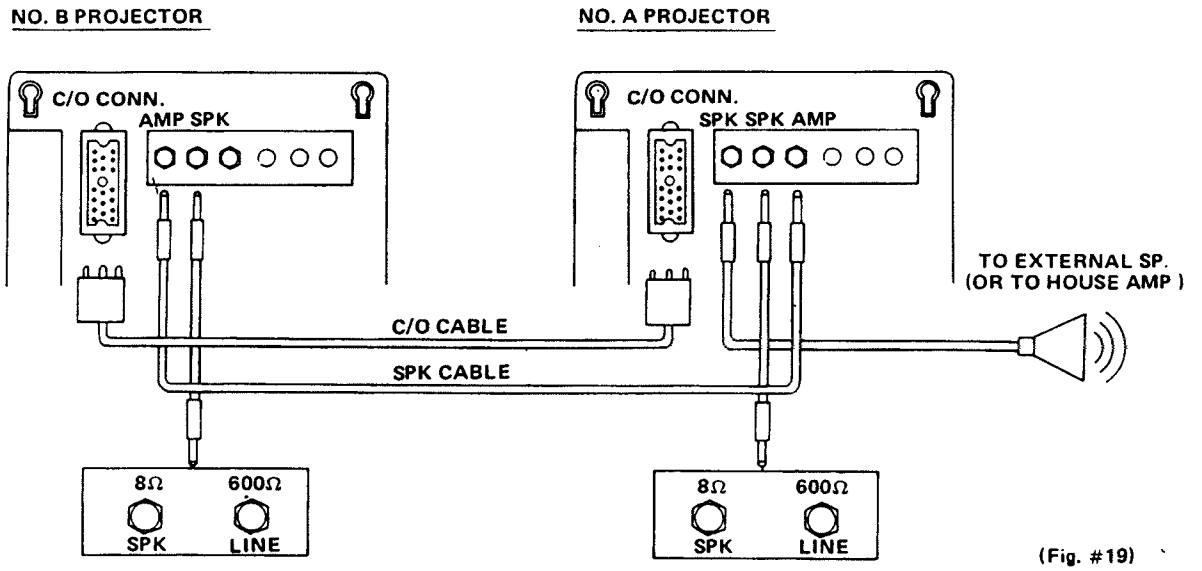
(Fig. #18)

SCREEN SIZE CHARTS IN INCHES

Distance / Lens		8'	10'	12'	15'	20'	25'	30'	35'	40'	45'	50'	60'	75'	100'
.5"	H	4'0"	5'1"	6'1"	7'7"	10'2"									
	W	6'0"	7'7"	9'1"	11'4"	15'2"									
1"	H	2'2"	2'9"	3'4"	4'2"	5'7"	6'11"	8'4"	9'9"						
	W	2'11"	3'8"	4'5"	5'7"	7'5"	9'4"	11'3"	13'1"						
1.5"	H	1'5"	1'10"	2'2"	2'9"	3'8"	4'7"	5'7"	6'6"	7'5"	8'4"	9'4"			
	W	1'11"	2'5"	2'11"	3'8"	4'11"	6'2"	7'6"	8'9"	10'0"	11'3"	12'5"			
2.0"	H		1'4"	1'8"	2'1"	2'9"	3'5"	4'2"	4'10"	5'7"	6'3"	6'11"	8'4"	10'5"	13'11"
	W		1'10"	2'2"	2'9"	3'8"	4'8"	5'7"	6'6"	7'5"	8'5"	9'4"	11'3"	14'0"	18'9"
2.5"	H		1'0"	1'1"	1'6"	2'0"	2'6"	3'0"	3'6"	4'0"	4'6"	5'11"	6'1"	7'7"	10'2"
	W		1'6"	1'8"	2'3"	3'0"	4'6"	4'6"	5'3"	6'0"	6'10"	7'7"	9'1"	11'4"	15'2"
3.0"	H						2'3"	2'9"	3'3"	3'8"	4'2"	4'7"	5'7"	6'11"	9'3"
	W						3'1"	3'8"	4'4"	4'11"	5'7"	6'2"	7'5"	9'4"	12'6"
4.0"	H						1'8"	2'1"	2'5"	2'9"	3'1"	3'5"	4'2"	5'2"	6'11"
	W						2'3"	2'9"	3'3"	3'8"	4'2"	4'8"	5'7"	7'0"	9'4"

4-10 CHANGE-OVER CONNECTIONS

1. The EX-6100/9100 series projectors is complete with built-in Change-Over circuits.
2. With the addition of P/N6520 Change-Over Cable Accessory Kit and a matching projector change-over operation is possible.
3. P/N6520 Change-Over Cable Accessory Kit contains the following cables.
   (a) Change-over Control Cable (5m long) . . . . 1pc.
   (b) Amplifier Interconnect Cable (5m long) . . . . 1pc.
   (c) Audio Jumper Cable 8 ohm (600 ohm) (50 cm long) . . . . 2pcs.
4. Connect the cables as illustrated in Fig. # 19
   Note that the Audio Jumper Cables may be connected to either 600 ohm or 8 ohm speaker jacks depending on the application. It is important that all connections are consistant either 600 ohm or 8 ohm.



(Fig. #19)

Note: When using the house amplifier system, use 600 ohm Line Out.

Note: A speaker cord to the external speaker (or to the house amplifier) system is not provided with the kit.

4-11 REMOTE CONTROL CONNECTIONS

1. The EX-6100/9100 Series Projector is complete with built in remote circuits.
2. With the addition of P/N5811 Remote Control Accessory for the EX-6100/9100, or P/N5812 Remote Control Accessory for models EX-6100M/9100M (EX-6120/9120) (Geneva or Maltese Cross Drive) consist of an extension cable and a control box.
3. The Remote Control is connected to the multi-pin change-over or Remote Connector. (See Fig. #20)

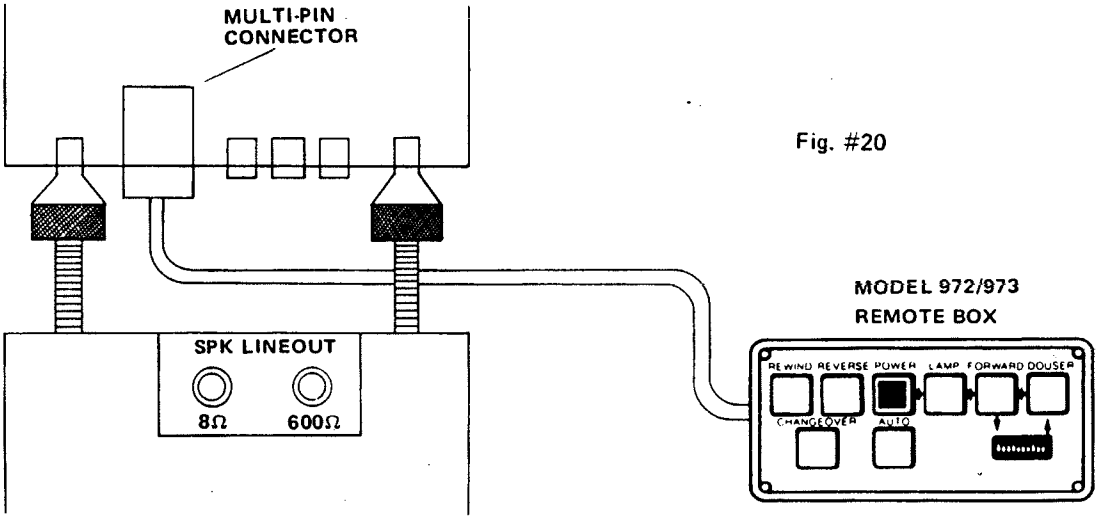
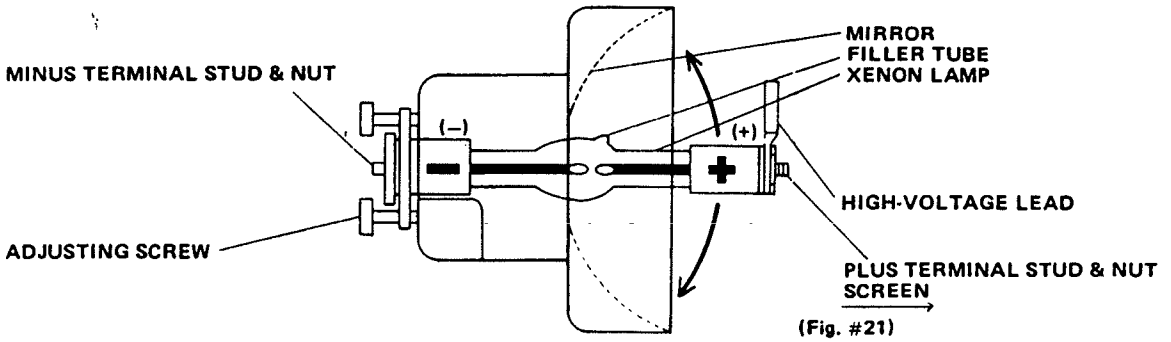


Fig. #20

4-12 LAMP ADJUSTMENTS

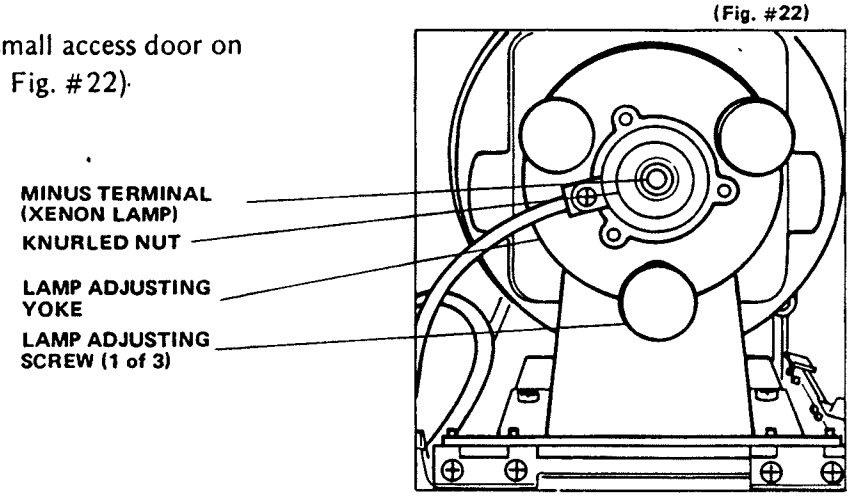
1. The position of the lamp in the mirror is critical for maximum screen illumination. The three adjusting screws behind the lamp allow the lamp to be positioned up and down and in and out from the mirror.



(Fig. #21)

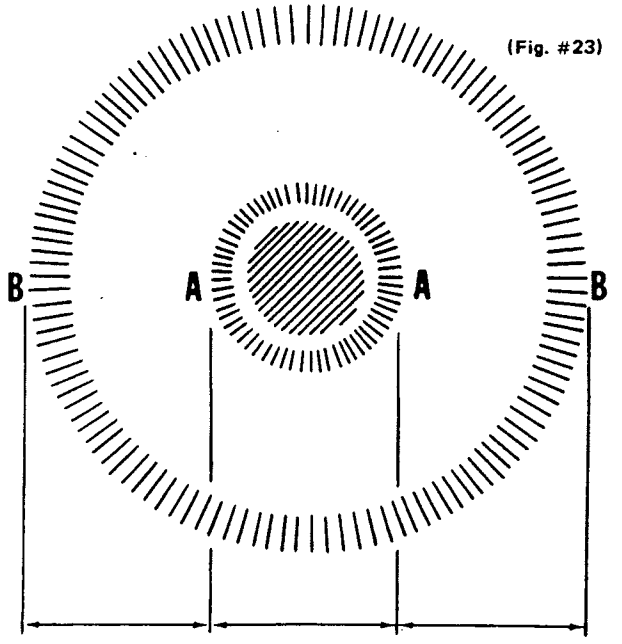
2. To make the adjustment, open the small access door on the left end of the lamp house. (See Fig. #22)

(Fig. #22)



3. The adjustment is made by the three adjusting screws.
   (A) Open the film gate by swinging the lens out of the way.
   (B) Set the front panel lamp current control to about 3 o'clock.
   (C) Switch on the projector and lamp.
   (D) Adjust the current control until the meter reads 45 amps. (80 Amps EX-9100) (Fig. #24)
   (E) Observe the dark center on the screen. Adjust the three lamp adjusting screws until the "boiling" appearance surrounding the dark center is in best focus and evenly distributed around the center. The dark spot should be in the center and distance A-A is approximately equal to distance A-B. (Fig. #23)

(Fig. #23)



(F) Close the film gate, swinging the lens and gate back into position. Examine the screen for severe hot spots. A severe hot spot indicates improper lamp adjustment. Open the lens and gate quickly — a severe hot spot can damage the lens — and re-check the adjustment.

(G) If the illumination on the screen is brighter in some areas, it is necessary to make minor touch-up adjustments to the lamp screws until even illumination is obtained. The center should not be more than 50% brighter than the darkest corner for proper screen illumination.

(H) The lamp current control may be reduced, if maximum brightness is not required, thus increasing the life of the xenon lamp.

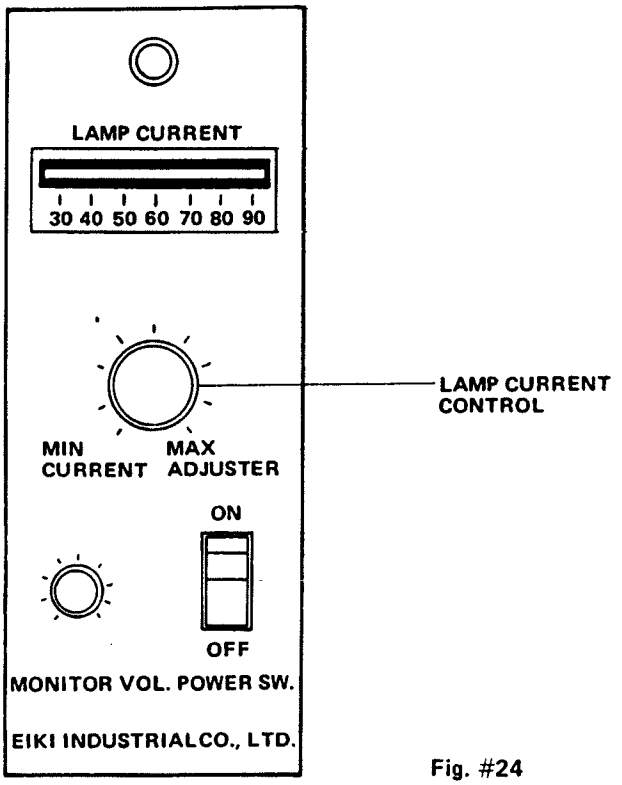


Fig. #24

5-0 OPERATING INSTRUCTIONS

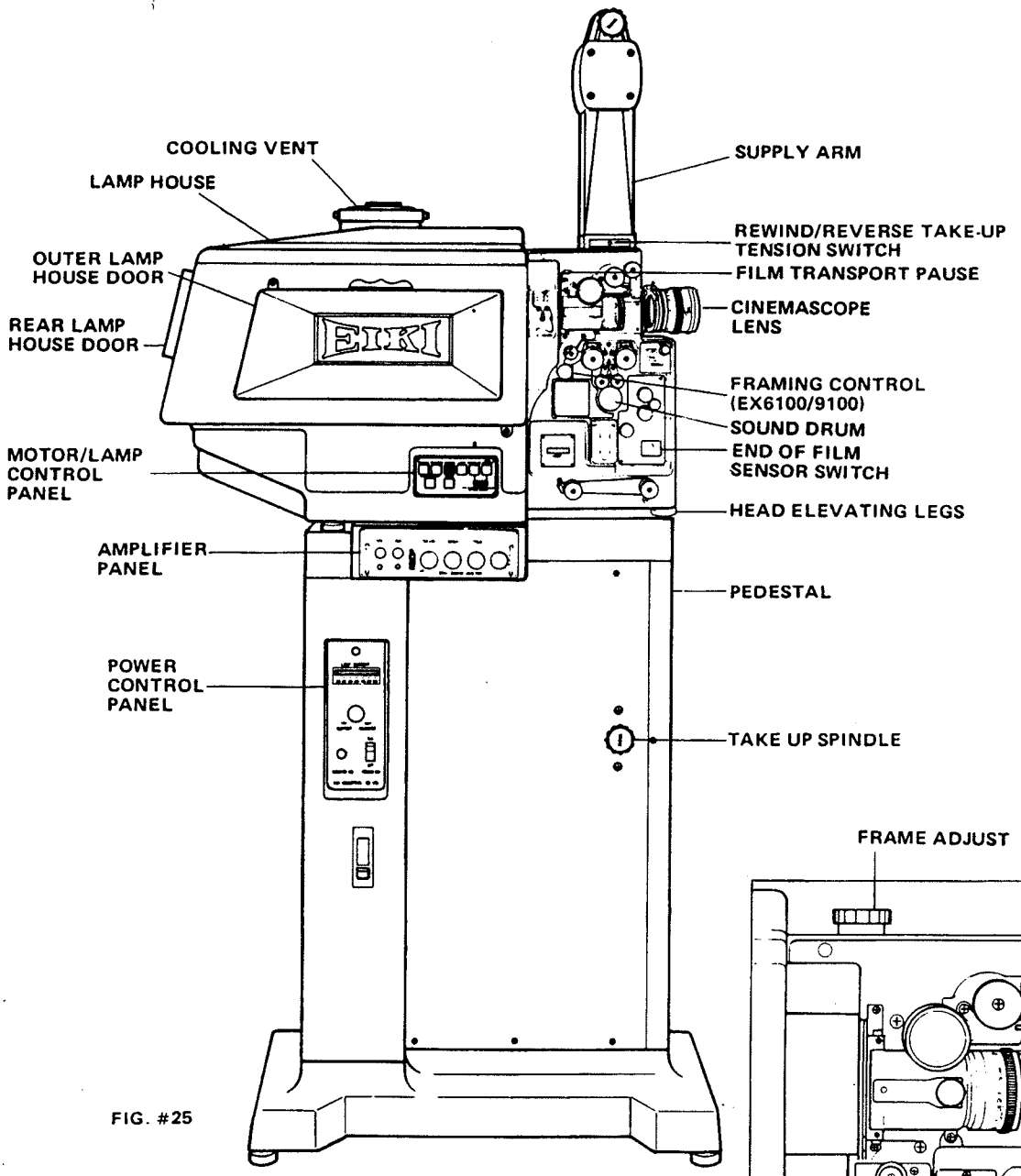
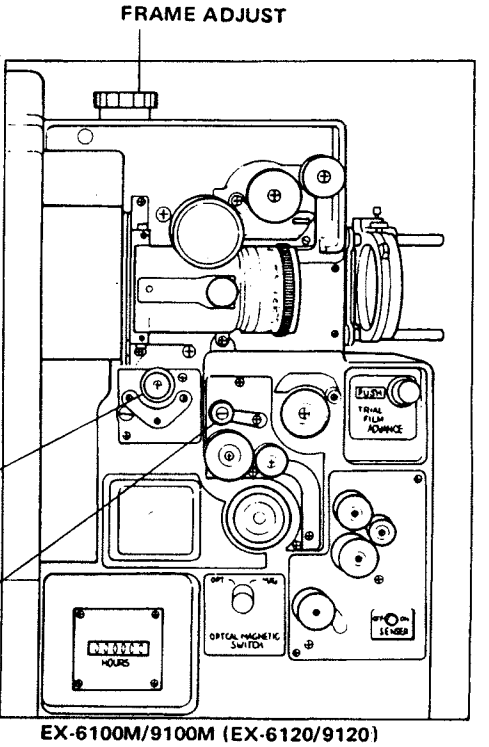


FIG. #25



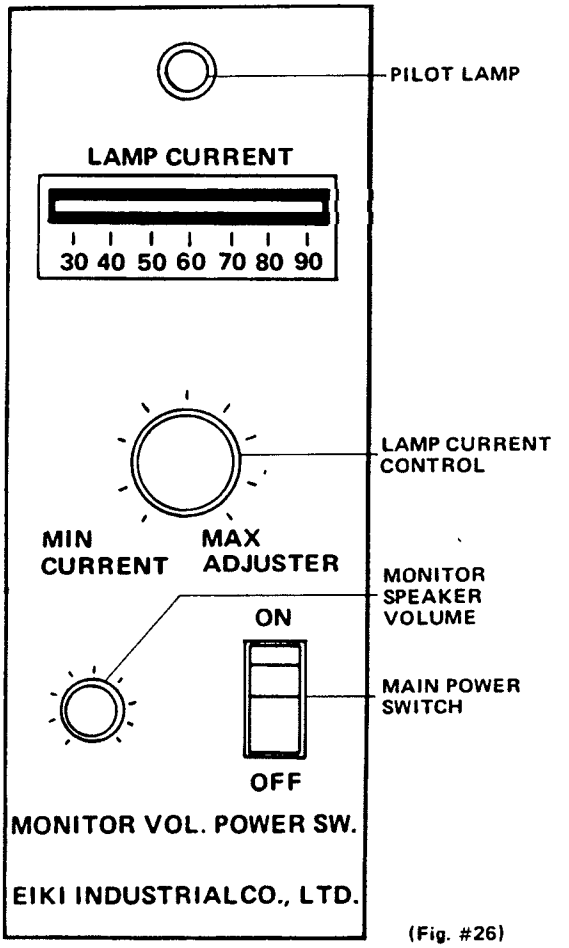
EX-6100M/9100M (EX-6120/9120)

WARNING: DO NOT ATTEMPT TO STRIKE THE LAMP UNLESS IT HAS BEEN PROPERLY INSTALLED.

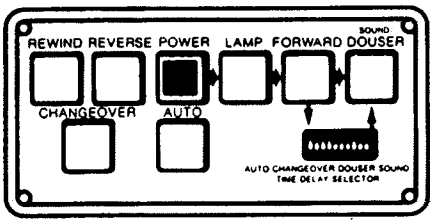
5-1 OPERATOR CONTROLS

1. MAIN POWER SWITCH. (Fig. #26)
   "OFF" all projector functions are switched "OFF"
   "ON" pilot lamp is on, lamp power supply and cooling fans are activated.

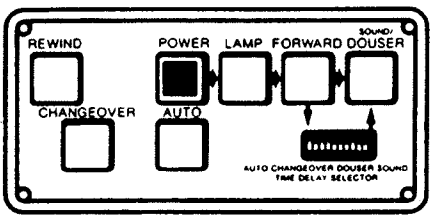
2. CONTROL PANEL (Manual-operation) push. (Fig. #27)
   Power Green button lights and power panel is activated.
   Lamp Button lights and xenon lamp is struck.
   Forward Button lights and film transport is activated and the film advances.
   Douser Button lights and the douser opens projecting the image and connects the sound.
   Reverse Button lights, lamp, forward and douser buttons are "OFF" Projector operates in reverse with lamp "OFF" Models EX-6100M/9100M (EX-6120/9120) do not have reverse function.



(Fig. #26)



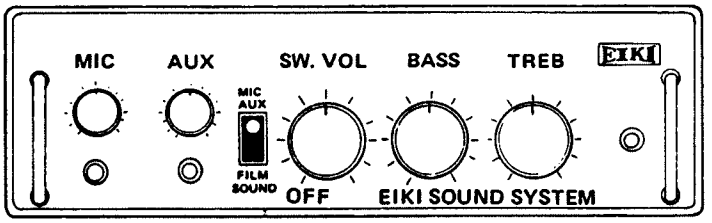
EX-6100/9100 (Fig. #27)



EX-6100M/9100M (EX-6120/9120)

OPERATOR CONTROLS CONTINUED

Rewind	Button lights, all other functions are "Off". Film may now be spooled high speed directly from the take-up to the supply reel.
Change-over	With two projectors operation. This button transfers functions from A to B projector. (See change-over section.)
Auto	Pressing power and auto will allow the projector to automatically sequence through lamp, forward and douser.
Time Delay Selector	Allows the selection of auto delay from forward to douser. From 1 to 10 seconds when operating in the auto mode.



3. Sound Controls

MIC:	High impedance (50K ohms) input with individual level control.
PHONO:	High impedance (10K ohms) input with individual level control.
SW. VOL:	Master amplifier power switch and main volume control. This control also determines the audio level of the 600 ohm balanced line output.
TREB:	Boosts high frequencies as the control is turned clockwise. Flat response is near 12 o'clock.
Bass:	Boosts Bass Frequencies as the control is turned clockwise. Flat response is near 12 o'clock.

MONITOR VOLUME: Independently controls the monitor speaker located in the pedestal. The monitor speaker is also muted when the douser is closed.

TRIAL ADVANCE: The trial advance button activates the projectors transport for threading and cueing the film. The switch is only active when the green power button is "On."

OPT/MAG: (See Fig. #28) Selects optical or magnetic sound track option.

GREEN WINDOW: Exciter lamp "ON" indicator.

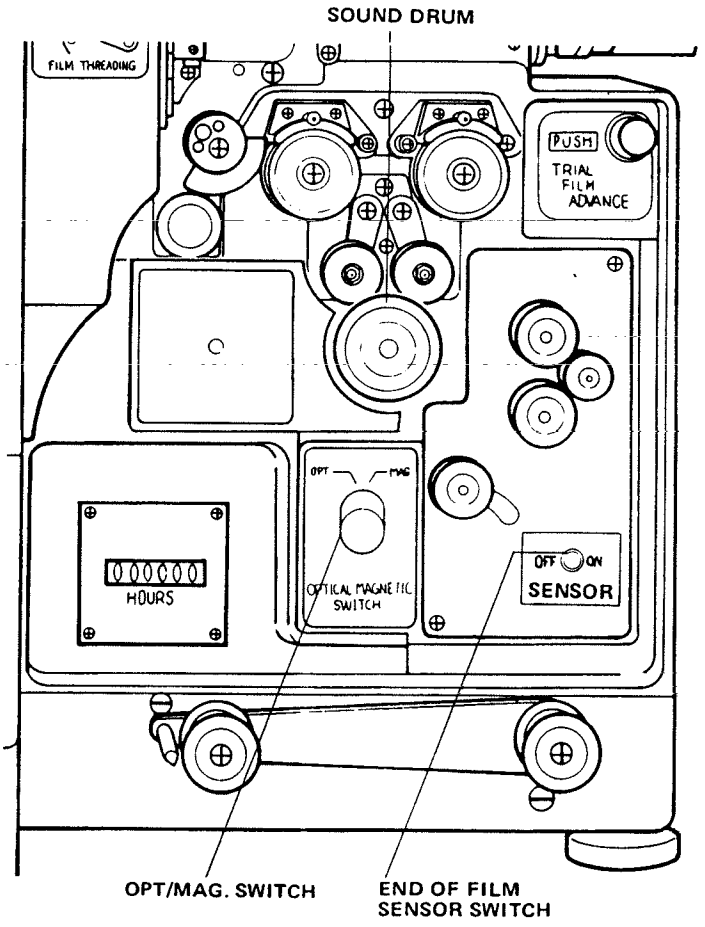
COUNTER: Running hour meter logs the hours the lamp has been on.

FILM TRANSPORT PAUSE: Normal operation is in the up position. Pressing the lever down will stop the mechanism and block the aperture. (See Fig. #25)

FRAME CONTROL: Rotate to change film position within the projected frame. (See Fig. #25)

END OF FILM SENSOR: With the switch in the "On" position, the projector will automatically stop, close the douser and turn "Off" the lamp should the film break or end.

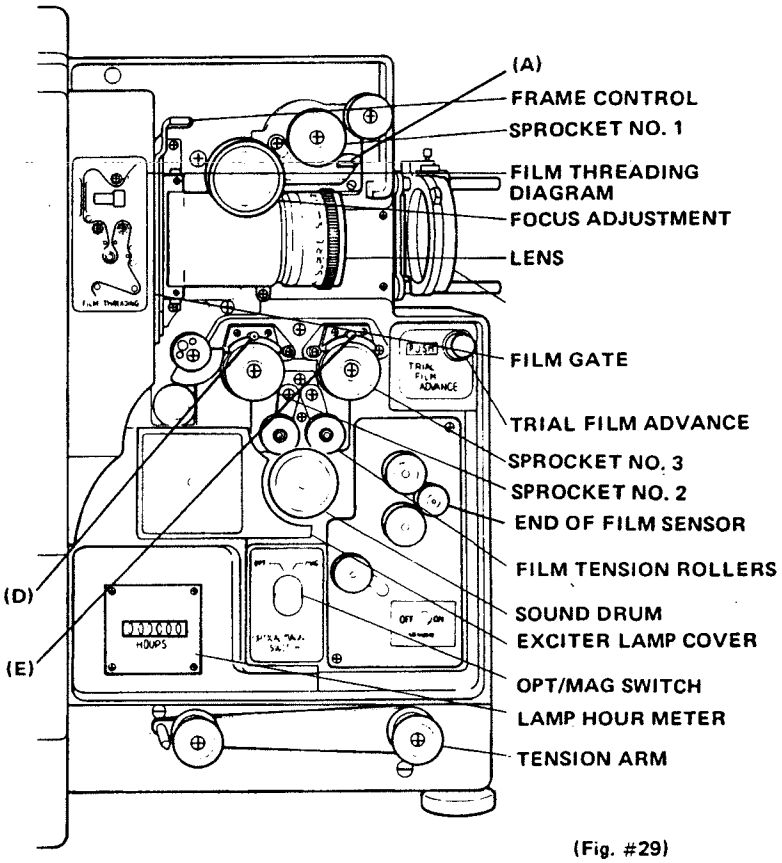
Fig. #28



5-2 THREADING: EX-6100/9100

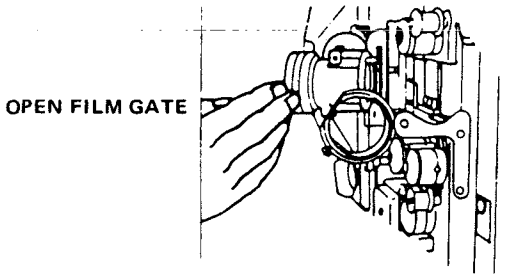
The film may be threaded with the main power switch "ON" or "OFF". To operate the trial advance switch the main power switch must be "ON".

1. Attach the supply reel to the supply arm and secure the spindle cap. Unspool enough film to reach the floor.
2. Push down at point (A) to open the #1 sprocket shoe. Lift up on (D) and (E) to open #2 and #3
3. Swing open the film gate by pulling the lens holder towards you. (Fig. #30)



(Fig. #29)

4. Begin threading at the #1 sprocket. When the film has been seated in the sprockets, close the film shoe.
5. Form the upper loop and insert the film in the gate. With the film in the gate, swing the lens holder closed until it snaps in place. (Fig. #31)



(Fig. #30)

6. Form the lower loop and seat the film in the sprockets closing the #2 film shoe.
7. Wrap the film around the sound drum on the inside of the two tension rollers. (See Fig. #31)
8. Pull film with enough tension around the sound drum to cause the tension rollers to spread about 7mm to 9mm. Wrap the film around sprocket #3 and close the film shoe.

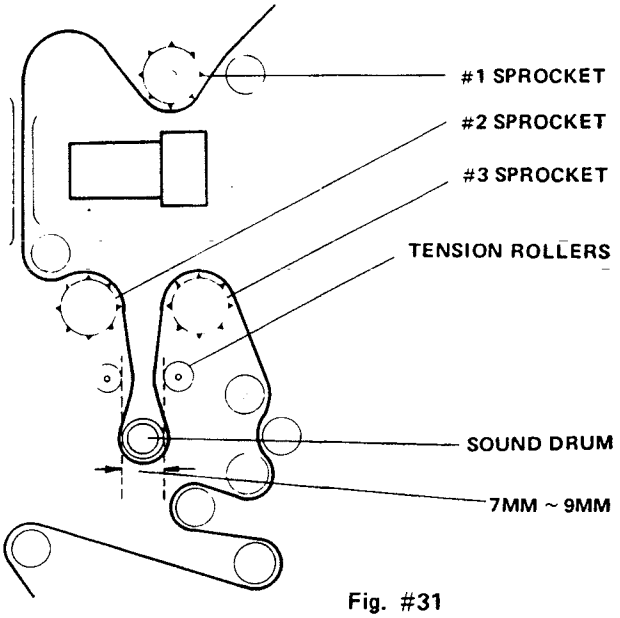


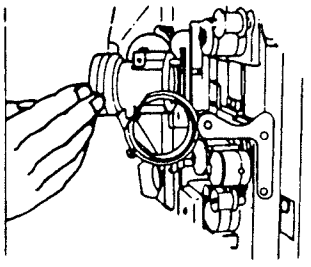
Fig. #31

9. The remainder of the film can now follow the guide rollers as shown in the diagram, attaching the film to the take-up reel in a clockwise direction.
10. To advance the film and release the reel brakes while threading the projector, push the trial advance button.

5-3 THREADING: (EX-6100M/9100M / EX-6120/9120) (Fig. #32)

The film may be threaded with the main power switch "ON" or "OFF". To operate the trial advance switch the main power switch must be "ON".

1. Attach the supply reel to the supply arm and secure the spindle cap. Unspool enough film to reach the floor.
2. Swing open the film gate by pulling the lens holder towards you. (See Fig. #30)
3. Begin threading at the #1 sprocket. When the film has been seated in the sprockets, close the #1 film shoe.
4. Form the upper loop and insert the film in the gate. With the film in the gate, swing the lens holder closed until it snaps in place.



OPEN FILM GATE

Fig. #30

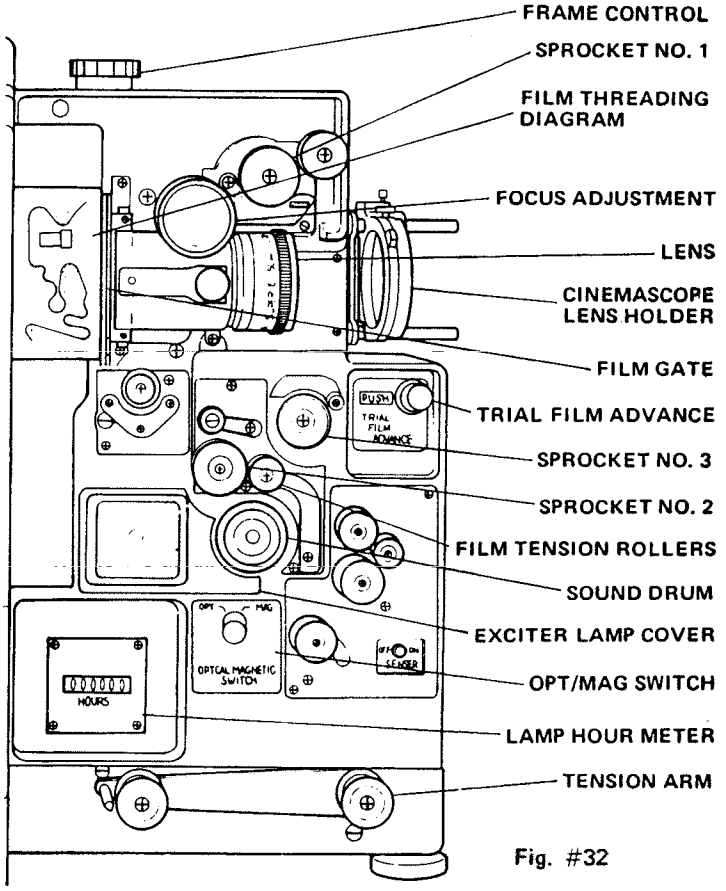


Fig. #32

5. Form the lower loop around the intermittent sprocket, allowing a small loop to form as the film is wrapped over the large roller.
6. The Rubber Pinch Roller is lowered to secure the film around the large roller.

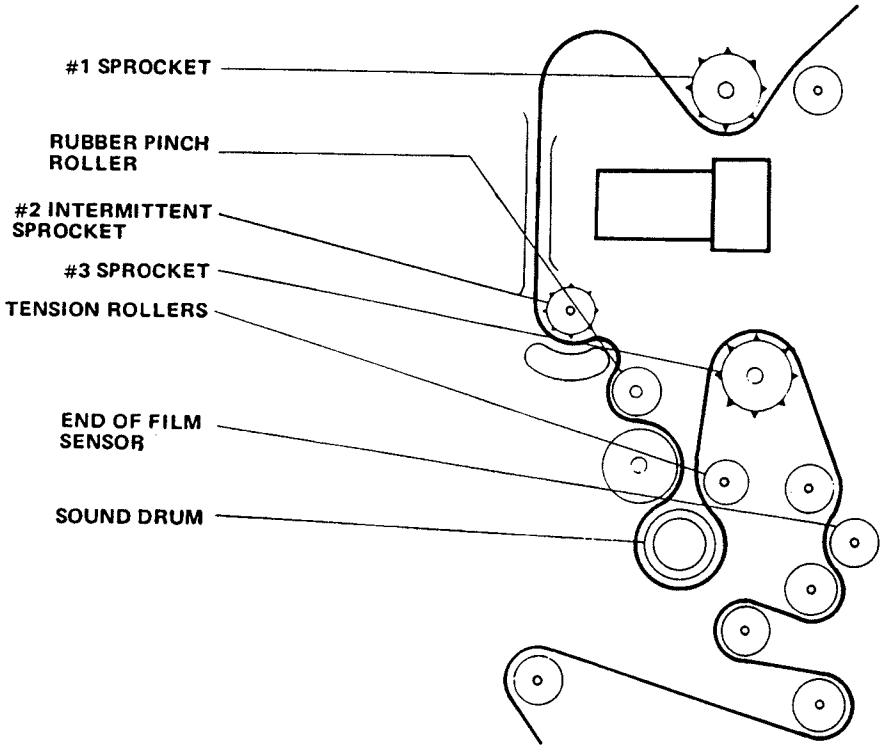


Fig. #33

7. Wrap the film around the sound drum on the inside of the two tension roller. (See Fig. #33).
8. Pull film with enough tension around the sound drum to cause the tension rellers to spread about 7mm to 9mm. Wrap the film around sprocket #3 and close the film shoe.
9. Route the film between the two stationary rollers and the end of film sensor roller.
10. The remainder of the film can now follow the guide rollers as shown in the diagram, attaching the film to the take-up reel in a clockwise direction.
11. To advance the film and release the reel brakes while threading the projector, push the trial advance button.
12. Switch the sensor switch to "On" activating the automatic end of film shut "off."

5-4 PROJECTING: (MANUAL)

With the douser closed, audio will be muted until the douser is open.

1. Switch "On" the main power switch.
2. Set lamp current control to 3 o'clock.
3. Push green power on switch.
4. Push lamp, forward and douser.
5. Focus and frame the image.
6. Adjust lamp current for appropriate brightness. (Lower lamp current will improve lamp life).

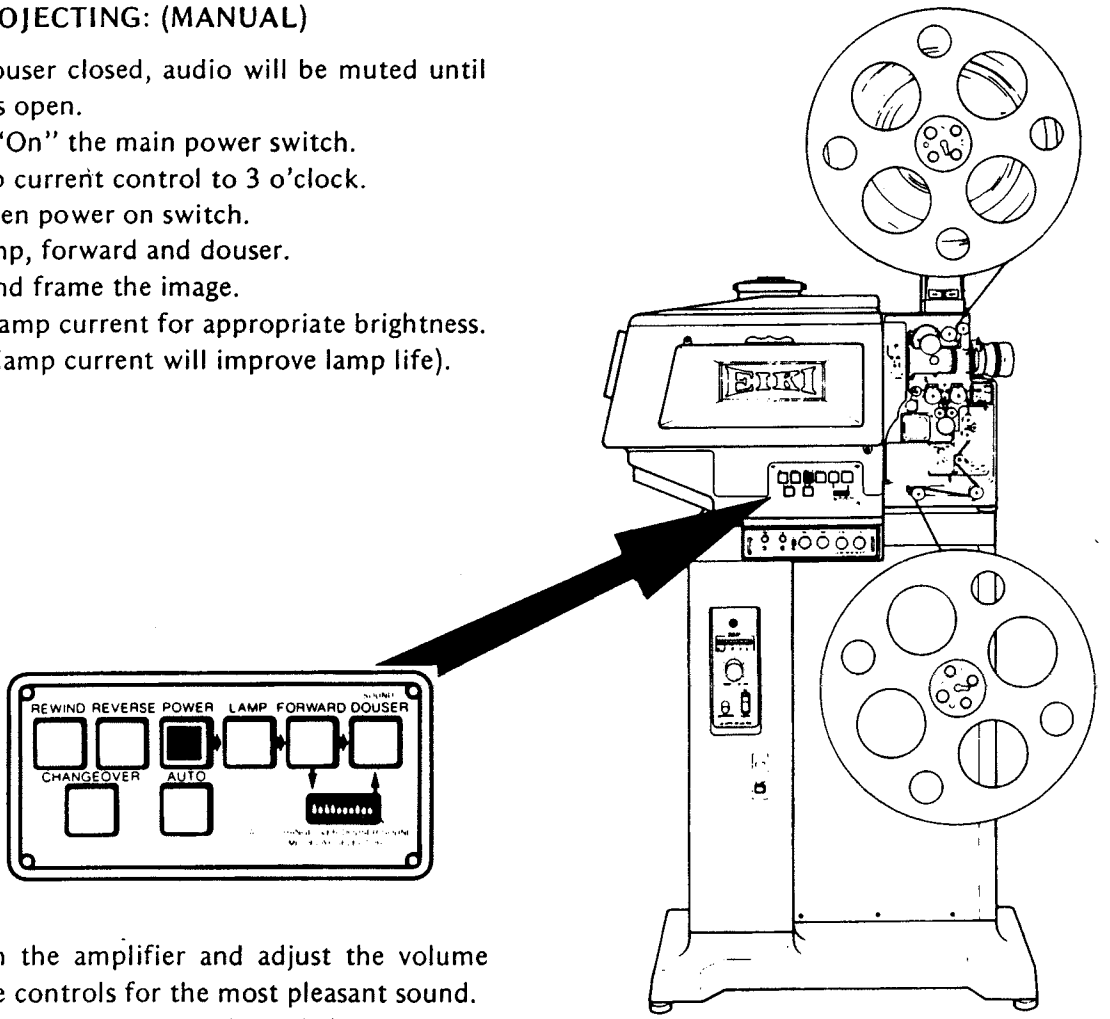


Fig. #34

7. Turn on the amplifier and adjust the volume and tone controls for the most pleasant sound.
8. To stop the projector, push the lighted buttons in sequence beginning with douser, forward, lamp and power.
9. Pushing lighted buttons out of sequence will automatically switch "Off" the preceeding functions.
10. To reverse the projector, push reverse, the lamp automatically goes "Off," and the projector reverses the film direction.
    No lamp or projection functions are available in the reverse mode.
    Reverse take-up tension is controlled by a selector switch on the supply arm.
    (Models EX-6100M/9100M (EX-6120/9120) don't have reverse functions.)

5-5 PROJECTING: (AUTOMATIC)

With the douser closed, audio will be muted until the douser is open.

1. Switch "On" the main power switch.
2. Set lamp current control to 3 o'clock.
3. Push green power on switch.
4. Select time delay, from 1 to 10 seconds from forward until the douser opens and sound is switched on.
5. Push "AUTO", the projector automatically switches on the lamp, forward and douser/sound, with the selected delay.
6. Focus and frame the image.
7. Adjust lamp current for appropriate brightness (Lower lamp current will improve lamp life.)
8. Turn on the amplifier and adjust the volume and tone controls for the most pleasant sound.
9. To stop the projector, push the lighted "Auto" button, and the projector will automatically cycle off in sequence beginning with douser, forward, and lamp.
10. Any lighted button may be pushed out of sequence, and preceeding functions will automatically switch "Off."
11. To reverse the projector, push reverse, the lamp automatically shuts "Off" and the projector reverses the film direction.
    No lamp or projection functions are availabe in the reverse mode.
    Reverse take-up tension is controlled by a selector switch on the supply arm.
    (Models EX-6100M/9100M (EX-6120/9120) don't have reverse functions.)

5-6 REWINDING:

1. At the end of the film, close the douser and allow the film to run off the supply reel, and through the film path.
2. Attach the end of the film from the take-up reel to the supply reel directly, or through the "End of Film" sensor rollers for auto-matic shut "off". (Fig. #35)
3. Switch the 550M/600M selector switch to 600M. (Fig. #36)
4. Push the "GREEN" power on switch, then the rewind button.
5. At the end of the rewind operation push the "GREEN" power switch "OFF".

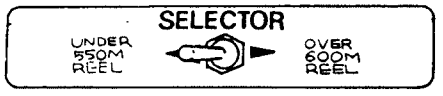


Fig. #36

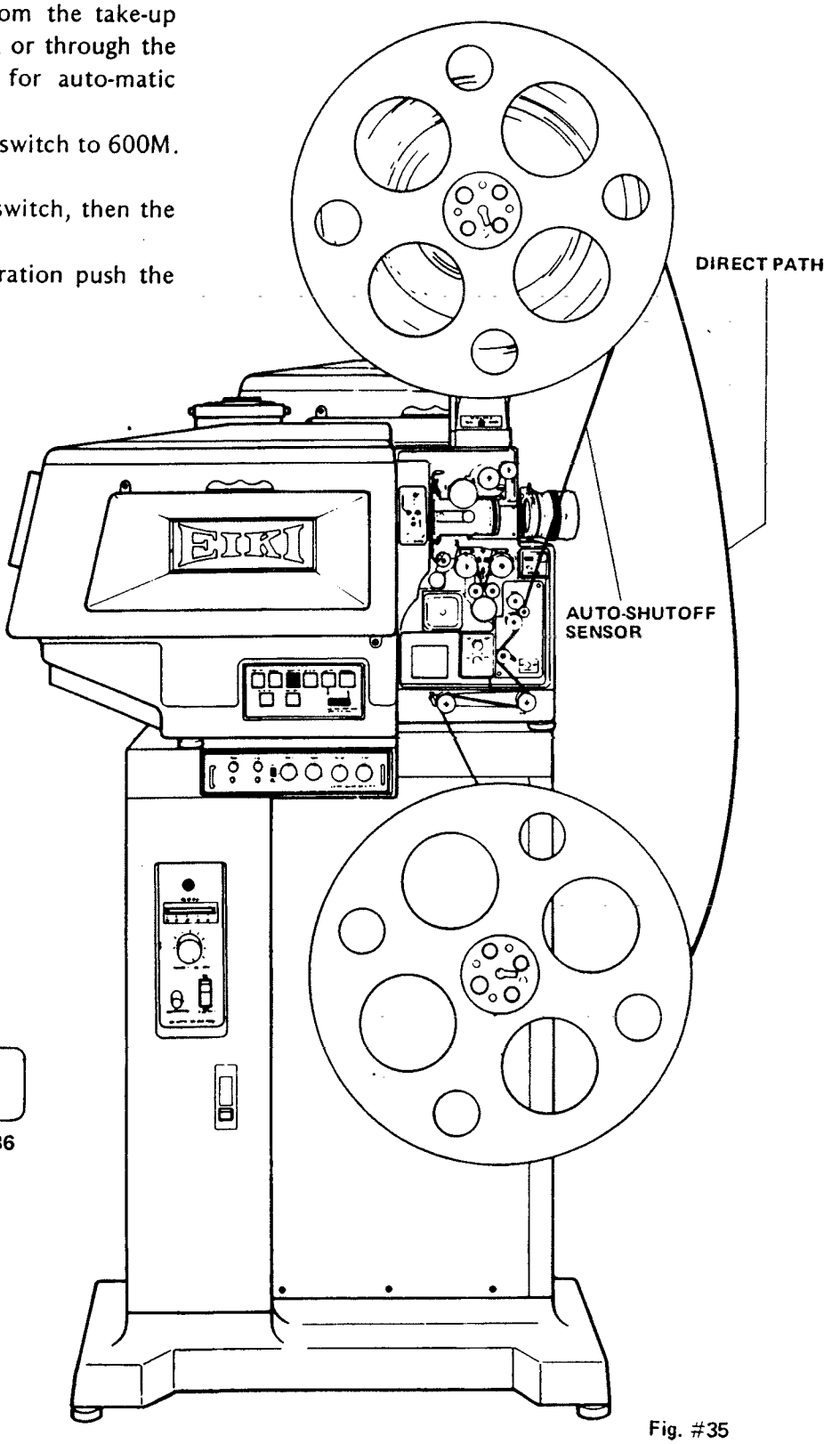


Fig. #35

5-7 CHANGE-OVER SYSTEM OPERATION

The EX-6100 and EX-9100 projectors may be operated as dual projectors with an automatic change-over system. (See change-over-connections section, Fig. #19 for set up.)

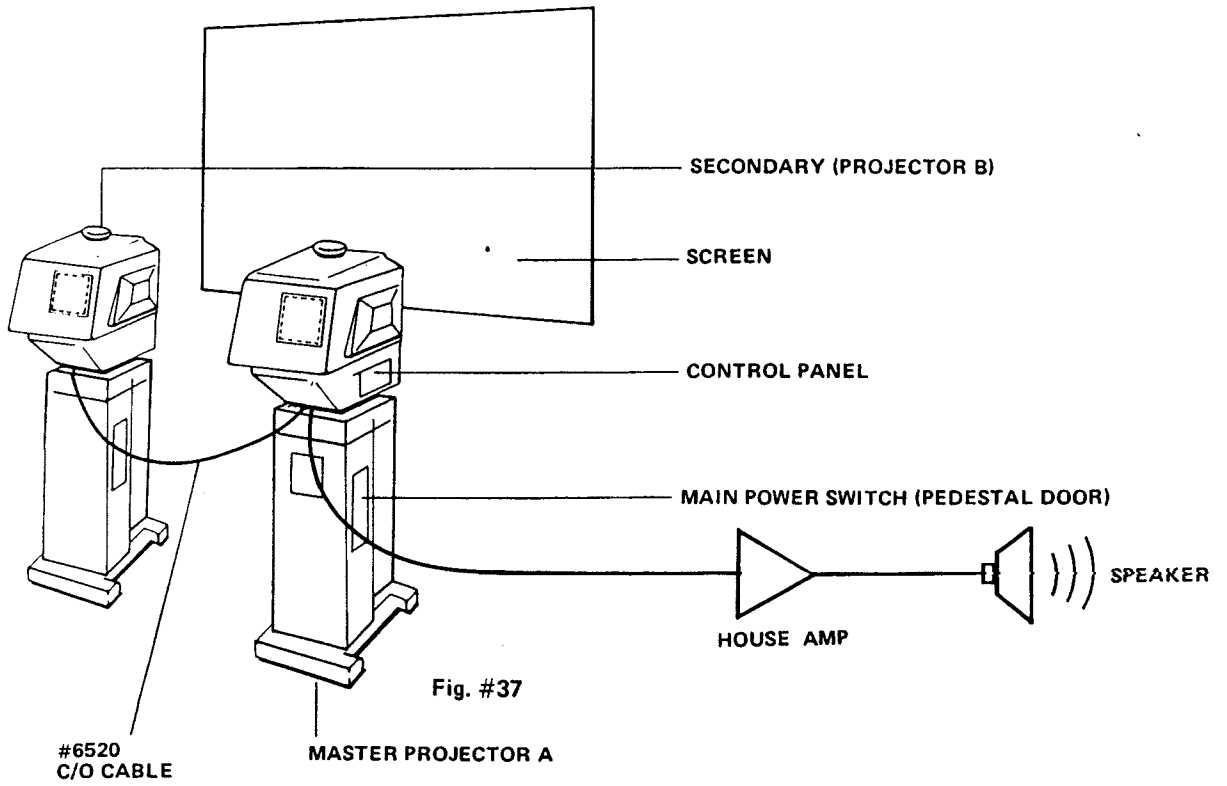


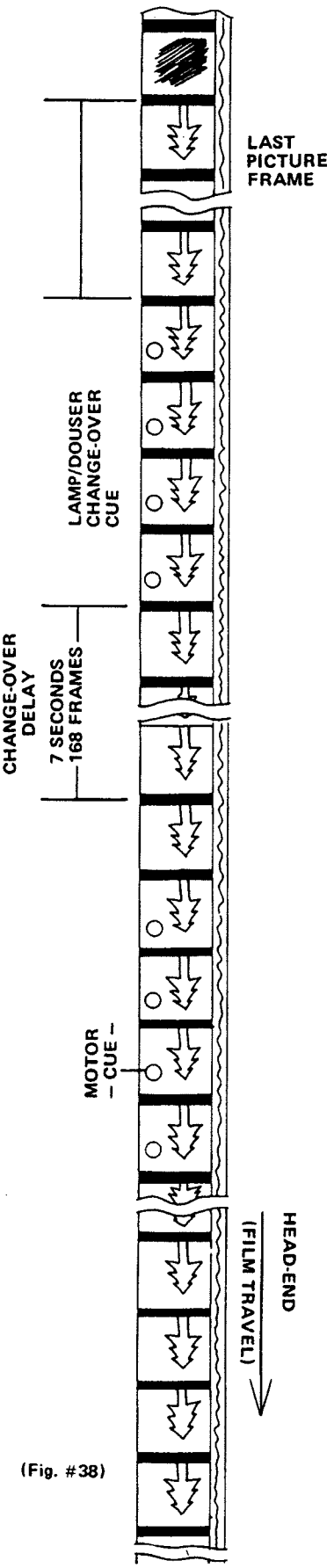
Fig. #37

Either projector may be designated A or B. To set up for change-over operation follow the steps below.

1. The operator should preview the reels, 1, 2 and 3 to determine the location of the c/o cue marks and the approximate time between the first and second cue-marks.
   Films with-out cue-marks can be changed-over when the scenes at the end of the first reel make a transition appropriate to the starting scene of the second reel.
2. Change-over cue marks are spaced approximately 7 seconds or 168 frames. The first cue is the motor, the second is the lamp or douser. (See Fig. #38)
3. Select the appropriate change-over time, delay from the motor and lamp cue. (Fig. #34)
4. Adjust the volume and tone controls such that the sound is about the same on each projector.
5. When the projectors are properly cued, and both green power "ON" buttons are illuminated, the change-over is ready to be activated.
6. The projector with reel #1 will be designated as projector "A" and reel #2 will be on projector "B".

7. To start the show, push the change-over button on projector "A". The lamps will strike to full brightness. After a 2 second delay the lamps will be reduced to halt-bright standby position. One second later projector "A" will start the motor and film rolling. Depending on the time delay selected, (usually 5 seconds) the douser will open and at the same time connect the sound.
8. When projector "A" approaches the end of the reel, and the operator observes the first "motor" cue marks, push the change-over button on "B" projector, one second later "B" projector will start rolling and "B" lamp comes to full brightness. Depending on the time delay selected, (usually 5 seconds) the douser will open and the sound will connect. At the same time projector "A" douser closes and the sound mutes. The film on projector "A" will continue to roll until the "End-of-Film" sensor turns off. or the control buttons are manually actuated.
9. "A" projector film may now be rewound and the next reel cued.
10. The above procedure may be repeated for additional reels.

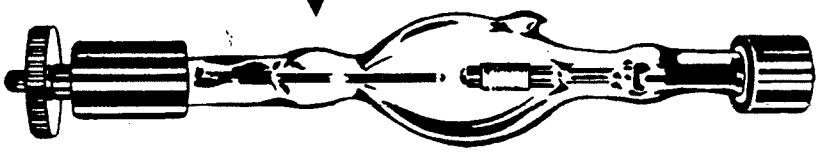
EXAMPLE OF S.M.P.T.E CHANGE-OVER CUES



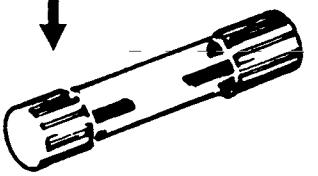
(Fig. #38)

6-0 RECOMMENDED SPARE PARTS AND ACCESSORIES

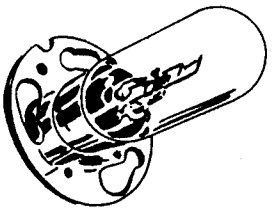
Spare Xenon Lamps
UXL 10 SAZ P/N 5113

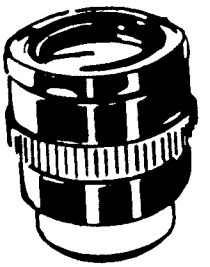


Power Supply Fuse
10A (220/240V) P/N F10-6030
15A (220/240V) P/N 261-63061
30A (110/120V) P/N 261-63071



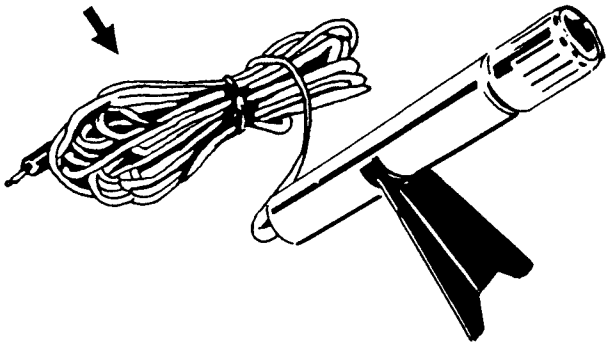
P/N #5104
Exciter Lamps
BRK/4V 0.75 amp

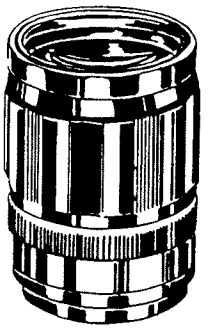




P/N 5031
Anamorphic
Lens

P/N #5460
Microphone

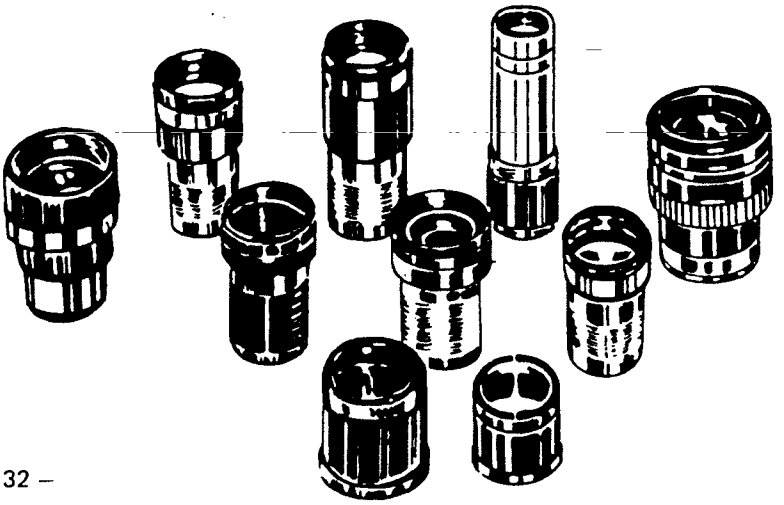




P/N 5024

Zoom Lens Attachment
(Continuously variable from 38mm (1-½") to 65mm (2-½") with standard prime lens)

ORDER#	ADDITIONAL LENSES AVAILABLE	
5059	12.5mm (½")	F1.4
5060	25.0mm (1")	F1.5
5061	38.0mm (1½")	F1.5
5019	50.0mm (2")	F1.2
5062	65.0mm (2.5")	F1.5
5063	75.0mm (3")	F1.8
5064	75.0mm (3")	F1.8 Tele-cine Lens
5066	100. mm (4")	F2.2
5024	Zoom Conversion Lens (.75 to 1.25 x Prime Lenses from 38mm to 75mm)	
5067	Zoom lens (.75 to 1.3 x Prime Lenses from 25mm to 75mm)	
5026	Wide-angle or Telephoto Conversion (.8 or 1.25 x Prime Lenses from 38mm to 75mm)	



7-0 OPERATOR TROUBLESHOOTING GUIDE

SYMPTON	PROBABLE CAUSE
MOTOR WILL NOT RUN	1. Main pedestal power switch not on. 2. Projector (green) power button not on. 3. Motor fuse F-3 blown.
MOTOR RUNS BUT FILM DOESN'T ADVANCE	1. Film transport pause lever depressed. 2. Main motor belt off or broken.
XENON LAMP WILL NOT FIRE, BUT MOTOR RUNS	1. Lamp current control set too low. 2. Lamp fuses blown F1 & F2. 3. Lamp terminals loose. 4. Defective lamp. 5. Lamp house door open.
NO SOUND (EXCITER LAMP ON)	1. Amplifier volume control set too low. 2. Mag/opt switch in the wrong position. 3. Speaker not plugged in. 4. Amplifier fuse blown. 5. Amplifier plugs not plugged in. 6. Defective Amplifier.
NO SOUND (EXCITER LAMP NOT ON)	1. Amplifier volume control switched "off" 2. Defective Exciter lamp. 3. Amplifier Exciter lamp, plug not plugged in.

POOR SOUND	1. Check volume control position. 2. Check tone control position. 3. Check for correct Exciter lamp (BRK type). 4. Dirty Exciter lamp. 5. Dirt in the sound lens or the solar cell. 6. Poor quality film. 7. On magnetic films, check and clean magnetic head. 8. Improper hook-up to house sound system.
POOR ILLUMINATION	1. Lamp incorrectly aligned. 2. Defective lamp.

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