Film-Tech

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EIKI

XENON ARC

16m/m SOUND PROJECTOR

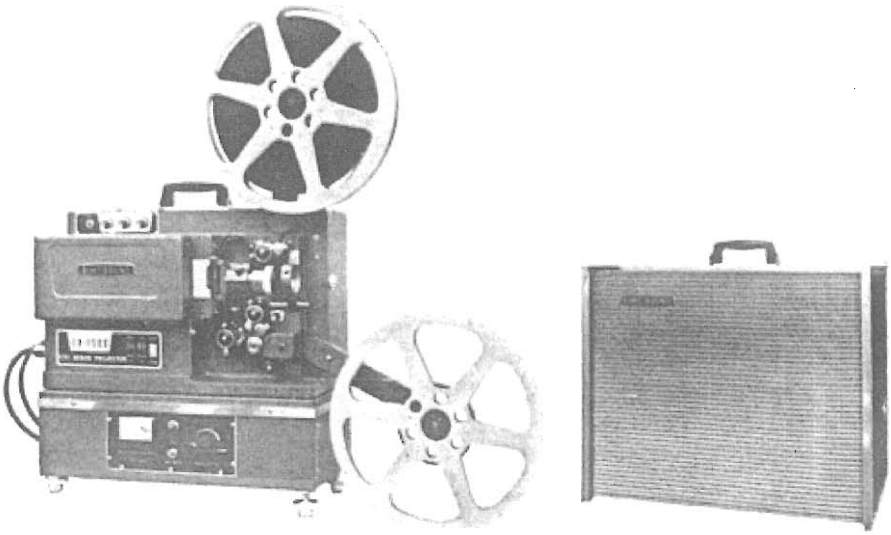
EX-1500 / 1510

INSTRUCTION BOOK

manufactured by

EIKI INDUSTRIAL CO., LTD.

OSAKA, JAPAN.



16mm xenon Arc Sound Projector
Model EX-1500/EX-1510

General

1. Consisting of

Projector, Amplifier, Lamphouse & Starter	1 unit
Rectifier	1 unit
Speaker case	1 unit

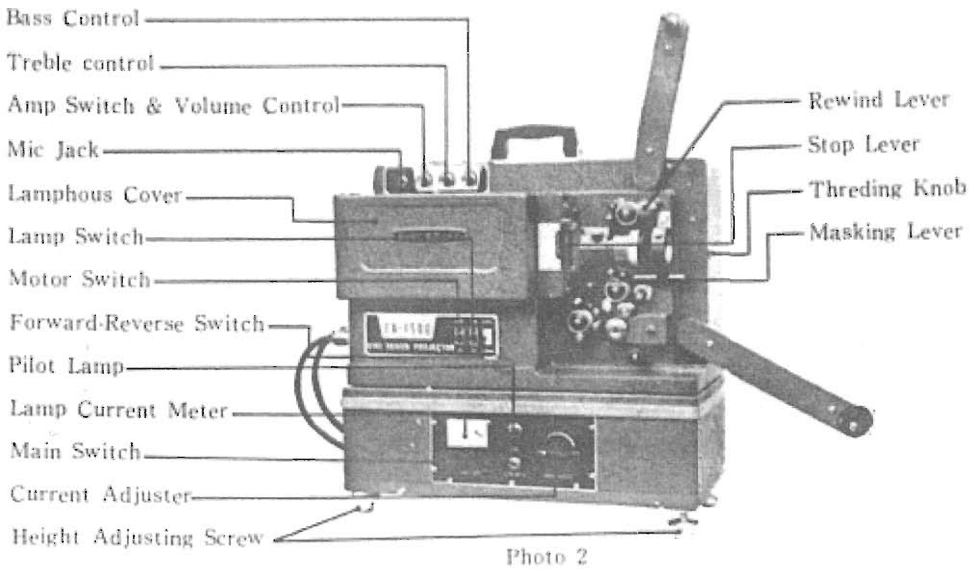
2. Power supply

100-250 volt, 50-60 cycles AC

Power consumption : 13 watts in 100V AC.

3. Specifications :

Lamp	UXL-300 watts Xenon Arc Lamp USHIO
Motor	1 for machine driving motor & lamp cooling, and 1 for rectifier cooling
Lens	f : 1.3 F 50㎜ (Standard)
Amplifier	Silicon transistor × 7 pcs. Silicon diode × 8 pcs.
Film to be used	16mm sound (optical & magnetic) film & silent film
Reel capacity	2000 ft. maximum
Projection speed	24 & 16 frames per second
Rewind	automatic high speed rewind
Speaker	12" bass & 20cm×12cm treble 2 way system speaker (30w 8 ohm)



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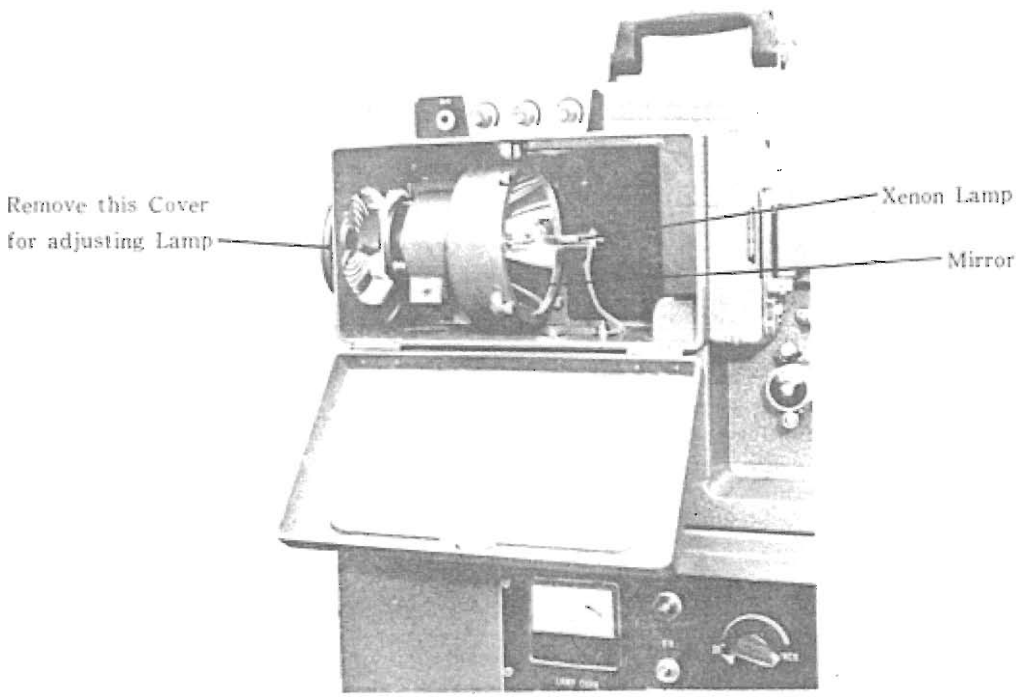

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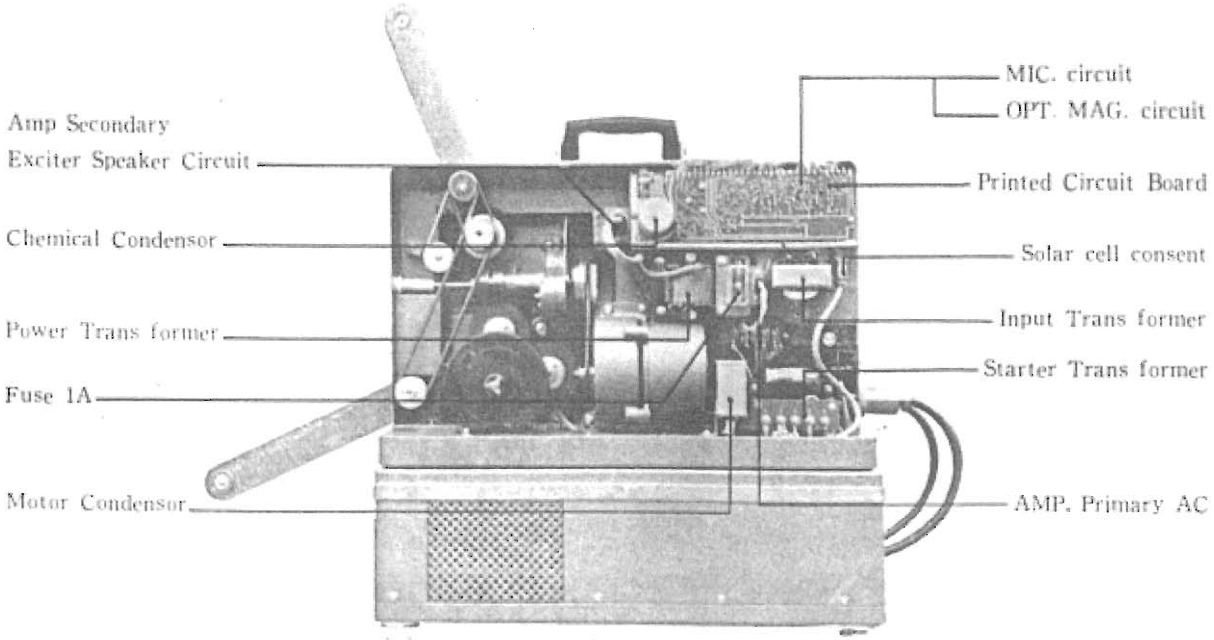

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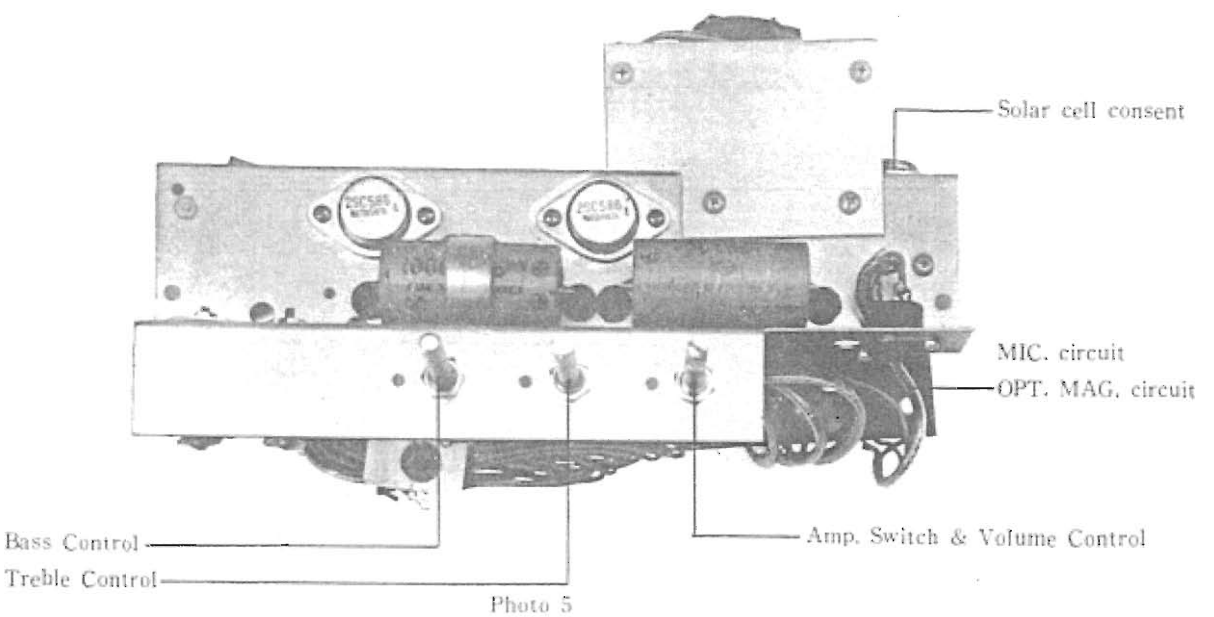

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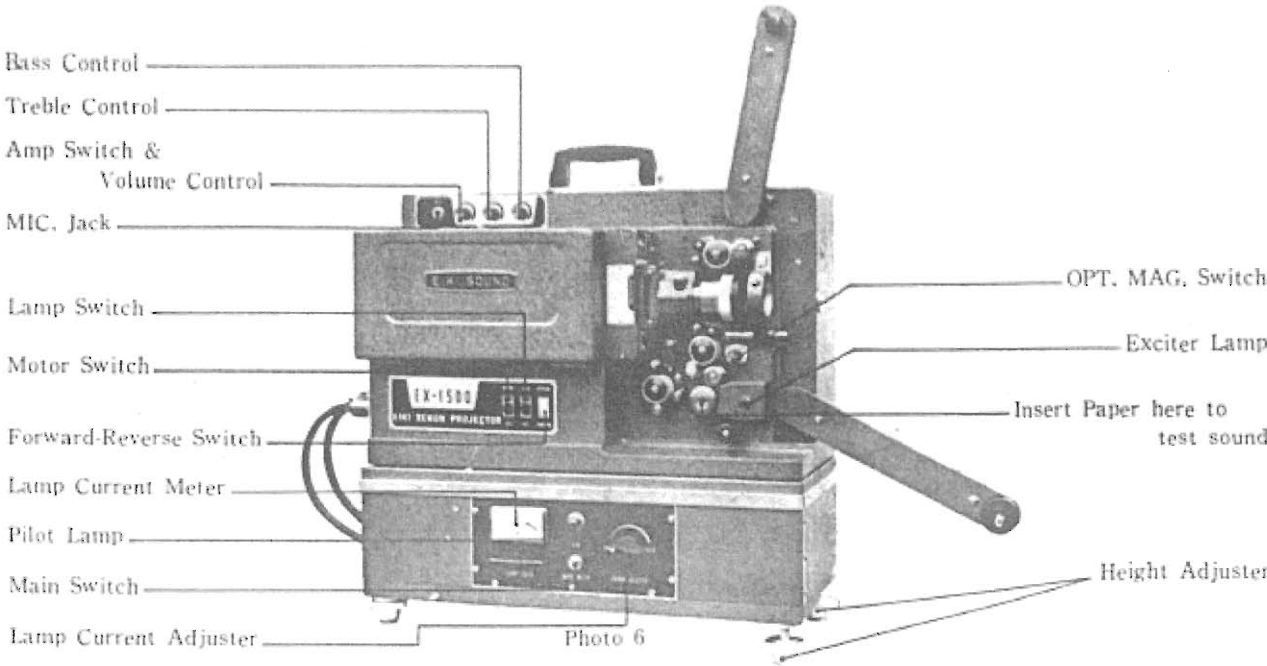

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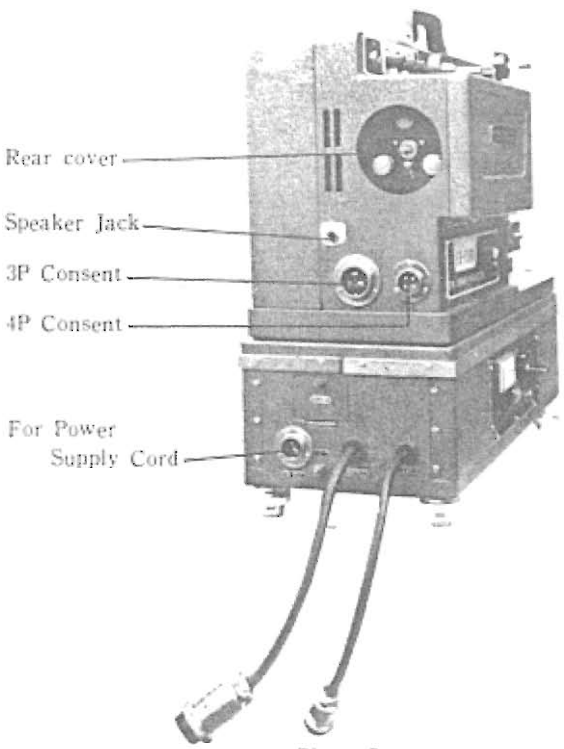


Photo 7

Preparation for Projection

1. Setting up
   - A. Place the rectifier on projection stand or a sturdy table. Now place the projector on the rectifier.
   - B. Lift up the feed arm and the take-up arm.
   - C. Set the speaker beside the screen at the optimum height above approximately 2 feet above the heads of the audience.

2. Connection for the cord.
   - A. Speaker cord. Insert the plugs at each end of the speaker cord in jack onto the projector and speaker.
   - B. Power supply cord. Make sure all switches are in "off" position. Then, connect the four prong plug with the cord of rectifier to the projector. Connect the three prong plug with the cord of rectifier to the projector. Connect the power supply cord for line.

3. For adjustment & checking the operation of the projector.

A. Switch on Main Power Switch on the rectifier. The Pilot lamp should light.

B. Turn on Motor Switch. This will start mechanism and also the cooling fan.

C. Turn on Lamp Switch. The xenon lamp should light, and cooling fan in the rectifier should start running.

D. The four legs on the rectifier base are adjustable to adjust the projection angle.

E. For primary focusing, turn the lens left or right to provide a sharp image on the screen. It may be necessary to refocus slightly after the film is threaded.

F. Lamp current. The lamp current adjustment control controls the DC current to the Xenon lamp. Adjust current so that meter reads approximately 16 amperes. This is the maximum current that the lamp should be operated at. Operating the lamp at a higher current with the needle in the read will shorten the lamp life.
After operating the lamp for 2 or 3 minutes notice the current indication readjust for 15 amperes if necessary, so that when the lamp is switched off and on again it will start immediately. The lamp should always ignite the very first time it is switched on.

G. Testing amplifier. Turn the volume control to the right. The amplifier is now switched on. Turn the treble control approximately midway. The bass control approximately midway And this should be on normal setting for the projection. Volume and Tone should be adjusted to meet the requirements of the audience.
Now also exciter lamp should be on. The little green light will show on the exciter lamp cover. To check the optical sound system insert a small piece of paper between the sound drum and optical lens. This will provide a cracking noise in speaker.

4. Threading Film.

A. Be careful to thread the film carefully, so that it does not scratch on the sprocket. After threading the film over the sprocket, close the shoe so that the film will not slip. Provide the normal sufficient loop at the top of the film gate, threading through film gate, and at the bottom around the lower side of the automatic loop setter.
This loop setter automatically maintains correct lower loop.
Threading the film between the second sprocket around the sound drum and over the third sprocket. Be careful to see that the film is very snug on the sound drum. This is neccessary for proper sound reproduction.
After the film is threaded, and put on the take-up reel, turn the hand knob clockwise three or four turns to make sure that all sprockets are moving the film and the claw is moving the film through the gate.

B. For magnetic film. See that Opt.-Mag. switch is in the magnetic position. For optical film, move the switch to the optical position.

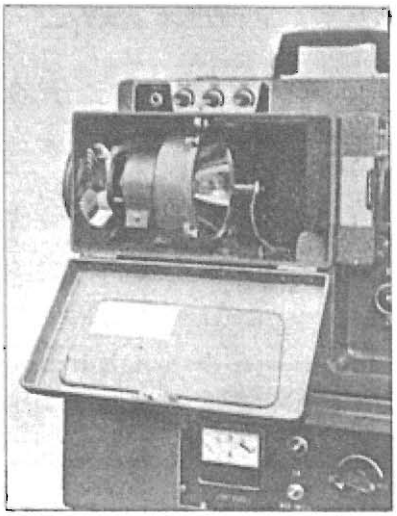
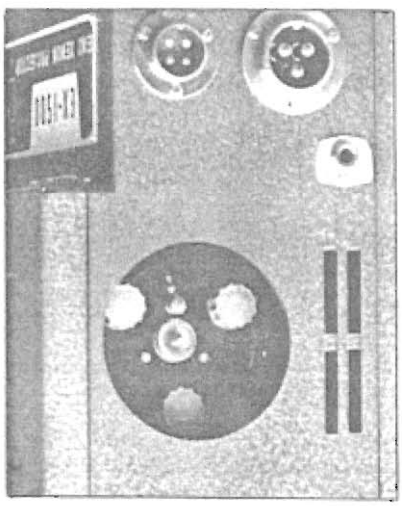


Photo 8



Lamp Adjustment Screw ⑬

Photo 9

PICTURE UPSIDE DOWN

5. Projection.

A. Turn motor switch on, and then lamp, making sure that Reverse-Forward switch in the forward position.

B. Focus again if necessary. After focusing tighten lens screw to maintain constant focus.

C. Check framing. If more than one frame is visible at the top or bottom of the picture, adjust the framing lever.

D. Make sure that tne Volume and Tone control are adjusted properly for the auditorium.

E. A good projectinist will start the volume very low and turning it up slowly to get to the desired level. This much more comforting to the audience.

6. End of the projection.

A. Turn Volume control down and switch amplifier off if this is the last film.

B. Turn Lamp switch off and after film is completely gone through the machine, Turn the Drive switch off.

7. Rewinding film.

Thread supply reel with tail of the film, Move Rewind-operate lever up to rewind. Switch on Motor switch. After rewinding is completed, make sure to put operate rewind lever back down to operate.

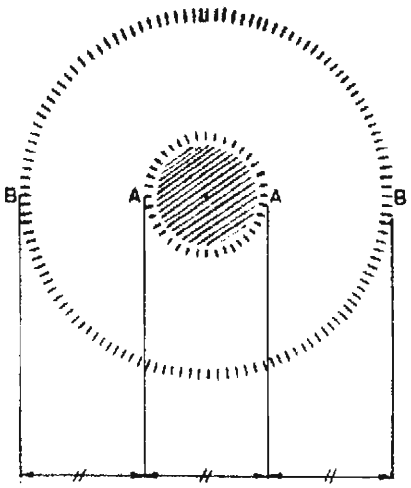
Never should film be running forward in the projector with swicth in rewinding position.

8. For running film reverse.

Simply put Reverse Forward switch into reverse position. This will change the directon of the film. Instant stop iever should be used before changing directon. Heat of lamp may scorch film if not shielded in the short interval of change.

9. For stopping the film during projection.

Push Stop lever all the way down quickly. This will put a light shield in front of the film to safe film and stop the projection until such a time as you want to continue.



Sketch 1

10. Lamp adjustment necessary.

A. The focus of the xenon lamp is quite critcial and should be adjusted carefully for proper illumination of the picture on the screen to adjust, remove rear cover directly behind the lamp-house.

B. Close main door.

C. Swing lens out.

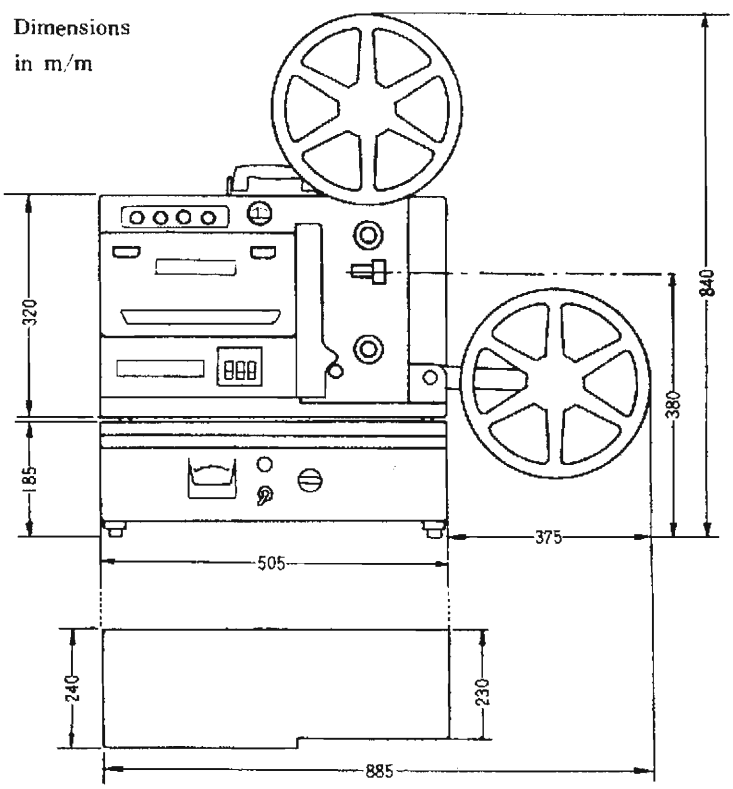
D. Lower anamorphic lens adaptor.

E. Switch on motor and lamp switch to ignite the xenon lamp.
Project light against wall or screen approximately four or five feet away.
This will provide a large doughnut shaped circle.

Move the three adjusting screws at the rear of the mirror assembly.
One at a time, a little bit each time. By gradually adjusting you will find that the center dark spot can be made quite small. Turn adjusting screws for minimum size of the center dark spot. Make sure after adjusting that no bright light shines from any of the edges of this center dark spot.

F. After having adjusted lamp this way install lens and focus against screen.
Illumination should be uniform. If not, a slight adjustment of the screws may be necessary.

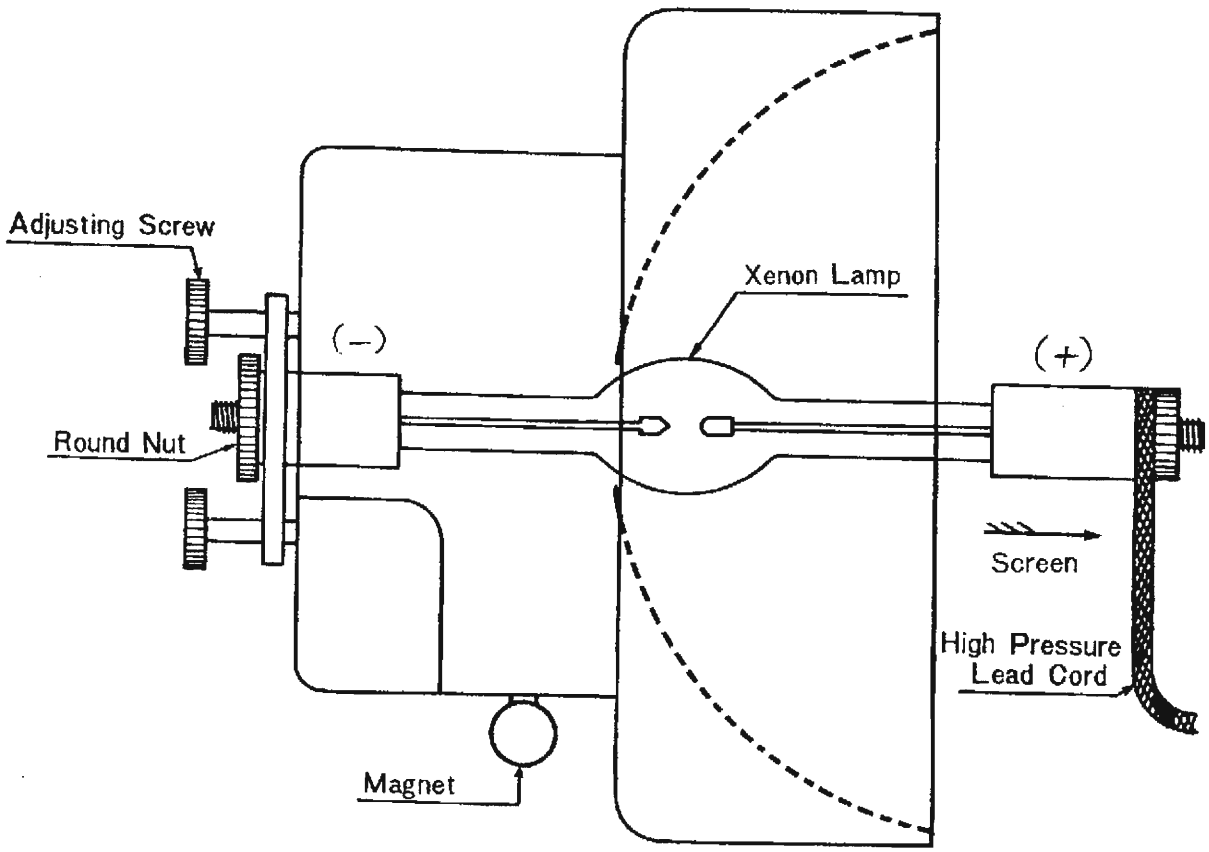
Dimensions
in m/m



Weight	
Projector	20.5 kgs. (45 lbs.)
Rectifier	22.3 kgs. (49 lbs.)
Speaker	11.7 kgs. (26 lbs.)
Total	54.5 kgs (120 lbs.)

NOTE

Xenon lamp should always be installed in the following manner.
First tne flexible cable should be attached to the plus positive end of the lamp.
Then the lamp is inserted into the socket in a mirror.
Making sure that the plus sign is facing up, then tighten the negative end of the lamp in lamp socket. Be careful not to put any side pressure on the lamp.

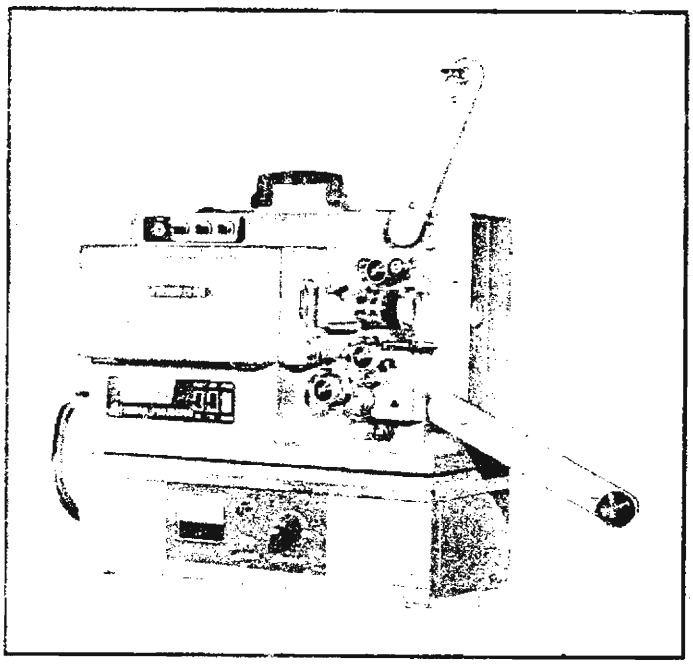


✵ **Model Name EX-1510 is USed in U.S.A. & Canada.**

Portable Xenon Arc Lamp 16mm Projector

haracteristics of the 300 watt Ozone Free enon Lamp used in this projector:

- Approximately four times as much light on the screen as a 1000 watt incandescent.
- Long life — guaranteed 1000 hours. (Actual life experience in many cases is about 2000 hours).
- Low operating cost — about $ .20 per hour on the guaranteed basis.
- Constant light output for 95% of lamp life.
- Color temperature of 6000°K does not change with voltage or hours of use.
- Instant lamp start. May be switched off and on any time.



e above facts, together with the many other features of this projector, make it the world's finest. It nds out as a leader in superb engineering and design.

- ★ Solid State amplifier
- ★ Modular construction
- ★ Optical and magnetic playback
- ★ Automatic loop restorer
- ★ No reel change for rewind
- ★ Diecast construction
- ★ 23 watt output
- ★ Fewer moving parts
- ★ Cool and quiet in operation
- ★ Three 12-tooth sprockets
- ★ Cinemascope lens adapter
- ★ Four level-adjusting legs

This model also available with built-in change-over.

PROJECTOR

Weight	45 lbs
	Length 20"
	Width 9"
	Height 12"

RECTIFIER

Weight	49 lbs
	Length 20"
	Width 9"
	Height 7"

SPEAKER CASE

Weight	26 lbs
	Length 20"
	Width 12"
	Height 18"

SPECIFICATIONS

Power Source	115v 60 cycle 7 amps (British version will be different)
Amplifier	Solid state
	7 silicon transistors
	8 diodes
	Microphone input
Power Output	23 watts
Frequency Response	Optical 40 - 7000 +/- 3db
	Magnetic 40 - 10000 +/- 4db
	Excitor lamp 4v 0.75A DC
Sound Pick Up	Optical Solar cell
	Magnetic Full Track Head
Standard Lens	F50mm (2") f1.3
Film Speed	24 & 16 fps
Xenon Lamp	300 watt UXL Ushio DE-0

Please note that the above may not be accurate as I had to make this copy from a very badly faded and damaged page

TROUBLE SHOOTING CHART FOR INTERNATIONAL EX-1520 PROJECTORS

The following information will help the service technician to analyze the problem and determine the actual SOURCE. It is important that the effect be eliminated by curing the actual CAUSE of the problem.

1. MISCELLANEOUS TROUBLES

SYMPTOM	PROBABLE CAUSE	REMEDY
1. No power for motor or lamp.	1. No power at wall outlet. 2. Defective power cord. 3. Defective motor switch	1. Check fuse or multi-breaker of power circuit. 2. Repair or replace 3. Replace
2. Lamp will not light--motor runs.	1. Lamp burned out 2. Lamp switch defective 3. Open micro switches in lamphouse. 4. Rectifier Defective	1. Replace 2. Replace 3. See S.15.1, S.15.2, S.15.3. 4. a. Check open circuit voltage: Should be approx. 75 - 85 V.D.C. b. Check diode bridge for short or open diodes.
3. Film sprockets not turning - motor runs, lamp lights.	1. Stop lever depressed. 2. Motor belt broken. 3. Plate washer ST-11351 loose.	1. Raise lever. 2. Replace 3. Remove camtank as per S.1.6 and tighten screw.
4. Take-up poor or not at all in FORWARD.	1. Broken or stretched take-up arm belt. 2. Take-up arm belt oily. 3. Improper friction at slip clutch. 4. Clutch cam not engaging.	1. Replace 2. Clean 3. See S.2.3 for remedy. 4. Remove pulley X1-14401 and remedy.
5. Rewind poor or not at all	1. Broken rewind belt. 2. Broken or stretched supply arm belt. 3. Supply arm belt oily. 4. Shutter pulley clutch slipping. 5. Motor belt slipping.	1. Replace. 2. Replace. 3. Clean. 4. Clean. See S.1.7, p,q,r. 5. Clean or replace.
6. Film spills from supply reel in FORWARD.	1. Clutch collar XS-15501 binding.	1. Remove, clean and lubricate.

SYMPTOM	PROBABLE CAUSE	REMEDY
7. Loop setter rotates continually or erratically.	1. Damaged film. 2. Insufficient spring tension. 3. Loop setter roller defective or too close to gear. 4. Sensing roller in wrong position. 5. Film touching sensing roller because lower loop is too small. 6. Claw protrusion incorrect. 7. Green film. 8. Worm gear on shutter shaft mounted incorrectly, causing variation in claw protrusion. 9. Claw broken. 10. Insufficient lower film shoe pin spring tension.	1. Repair or replace. 2. Stretch or replace spring, See S.8. 3. Repair or replace as per S.8. 4. Readjust as per S.8. 5. See S.8 to adjust. 6. Adjust as per S.1.5. 7. Treat with film conditioner/lubricant. 8. See S.1.3. 9. Replace. 10. Stretch or replace.
8. Excessive noise in film gate in FORWARD(with good, clean, undamaged film).	1. Upper loop too small. 2. Film touching loop setter. 3. Emulsion build-up on film shoe or gate. 4. Claw loose. 5. Inner guide rail binding. 6. Film shoe binding. 7. Inner guide pressure spring weak. 8. Film shoe bent. 9. Defective claw. 10. Claw position incorrect. 11. Claw protrusion incorrect. 12. Curved spring ST-11161 in camtank broken or weak. 13. Claw stroke incorrect. 14. Outer guide rail not positioned properly. 15. Film shoe lock loose or open.	1. Increase to proper size. 2. Adjust as per S.3.2. 3. Clean and buff. 4. Tighten. 5. Clean and adjust. See S.9.2. 6. Adjust. See S.9.3. 7. Bend or replace. See S.9.2. 8. Straighten or replace. 9. Replace. See. S.1.1. 10. Adjust as per S.1.4. 11. Adjust as per S.1.5. 12. Replace. See S.1.6 and S.1.7. 13. Replace fibre cam ST-11131. See S.1.6, S.1.7. 14. See S.9.1. 15. Bend lock slightly to increase holding tension.
9. Unsteady picture.	1. See previous section dealing with noise in film gate.	
10. Travel ghost	1. Shutter blade misaligned.	1. Adjust as per S.1.7.m.

SYMPTOM	PROBABLE CAUSE	REMEDY
11. Insufficient framing.	1. Claw position incorrect. 2. Framing lever bent or travel restricted. 3. Gate assembly position not correct. 4. Film shoe mislocated vertically.	1. Adjust as per S.1.4 2. Straighten lever or remove restriction. 3. Entire assembly may be moved up or down. Loosen mounting screws and reposition. 4. See S.9.3
12. Excessive noise when STOP lever depressed.	1. Shutter pulley binding on shaft.	1. Remove camtank assembly and remove pulley. Clean and lubricate. See S.1.6 and S.1.7.
13. Film transport does not stop when STOP lever depressed.	1. Shutter pulley seized. 2. Stop lever shoulder screws ST-11271 loose.	1. Remove camtank, clean and lubricate as per S.1.6 and S.1.7. 2. Remove camtnak assembly and tighten. See S.1.6 and S.1.7.
14. Film burns when STOP lever depressed.	1. STOP lever not fully depressed.	1. Depress FULLY.
15. Uneven screen illumination.	1. Lamp not aligned properly. 2. Foreign object in light path. 3. Defective lamp. 4. Mirror dirty.	1. Correct. See S.15.13. 2. Remove 3. Replace. 4. Clean See S.15.5
16. Improper focusing.	1. Dirty gate. 2. Film shoe binding. 3. Inner guide rail binding. 4. Lens holder misaligned. 5. Defective lens. 6. Focus knob plastic sleeve defective. 7. Lens binding in lens holder. 8. Film shoe bent.	1. Clean 2. Adjust. See S.9.3. 3. Clean and adjust. S.9.2. 4. Adjust. See S.9.4. 5. Replace 6. Replace 7. a)Interchange lens from another projector. b)Repair or replace lens holder. 8. Straighten or replace.
17. Light reflections outside of picture area.	1. Film shoe misaligned. 2. Edge of film shoe aperture reflections.	1. Realign shoe as per S.9.3 2. Touch up with matte black paint.

4

SYMPTOM	PROBABLE CAUSE	REMEDY
18. Sprocket picking at film.	1. Burr on sprocket teeth.	1. a)Remove and replace sprocket plate in opposite direction. b)Replace sprocket plate.
II. SOUND TROUBLES		
19. No sound	1. Amplifier not switched on. 2. Exciter lamp defective. 3. Fuse blown. 4. Speaker not plugged in. 5. Cable connections in amplifier loose. 6. Speaker defective. 7. Speaker cable defective. 8. On-off switch defective. 9. Amplifier defective. 10. Solar cell defective. 11. Foreign object in optical scanning beam. 12. Magnetic head defective.	1. Switch on. 2. Replace. 3. Replace, if it blows again, check speaker load, must be 8 ohms or more on external speakers. Check output transistors. 4. Plug it in. 5. Plug in or tighten. 6. Replace 7. Repair or replace. 8. Replace 9. Repair or replace. 10. Replace 11. Remove. 12. Replace
20. Low volume.	1. Defective exciter lamp. 2. Dirty optic lens or foreign objectsin light beam. 3. Low voltage to exciter lamp. 4. Optic lens misaligned. 5. Amplifier defective. 6. Magnetic head dirty. 7. Magnetic head defective. 8. Insufficient tension of magnetic head on film. 9. Defective optic lens. 10. Wrong exciter lamp.	1. Replace 2. Clean 3. 3. Repair amplifier 4. Adjust as per S.10 5. Repair or replace. 6. Clean 7. Replace. 8. Adjust. 9. Replace. See S.10 10. Use BRK with short envelop
21. Loud hum.	1. Exciter lamp cover off or not installed correctly. Light from projection lamp reaches solar cell. 2. Input cable shields loose. 3. Amplifier defective.	1. Install on pins correctly. 2. Repair 3. Repair or replace.
22. Distorted sound.	1. Defective exciter lamp.	1. Replace

cont. on page 5

SYMPTOM	PROBABLE CAUSE	REMEDY
continued---		
22. Distorted sound	2. Speaker defective	2. Replace
	3. Lateral guide roller seized or binding.	3. Clean, lubricate and adjust. S.10.3.
	4. Sound drum bearings defective.	4. Replace. See S.11.
	5. Flywheel off.	5. Install.
	6. Flywheel too loose.	6. Tighten
	7. Magnetic sound over-recorded.	7. Re-record.
	8. Defective amplifier.	8. Repair or replace.
	9. Optic lens misaligned.	9. Adjust as per S.10.
	10. Film touching loopsetter.	10. Adjust as per S.3.2.
	11. Dirt on sound drum.	11. Clean.
	12. Sound drum end-play.	12. See S.11.
	13. Defective optic lens.	13. Replace.
	14. Magnetic head spring tension improper.	14. Adjust.
	15. Wrong exciter lamp.	15. Use BRK with short envelope.
23. Wow and flutter.	1. Lateral guide roller binding.	1. Clean and lubricate.
	2. Sound drum bearings defective.	2. Replace. S.11.
	3. Motor drive belts not running true.	3. Replace belt, clean pulleys and be sure belt fits into pulleys properly.
	4. Lateral guide roller dirty or eccentric.	4. Clean or replace.
	5. Dirt on No. 2 sprocket drum.	5. Clean
	6. Flywheel loose.	6. Tighten.