



RST/RT/RM Series X

16mm Projectors

OPERATOR'S MANUAL

ELF AUDIO VISUAL LIMITED,

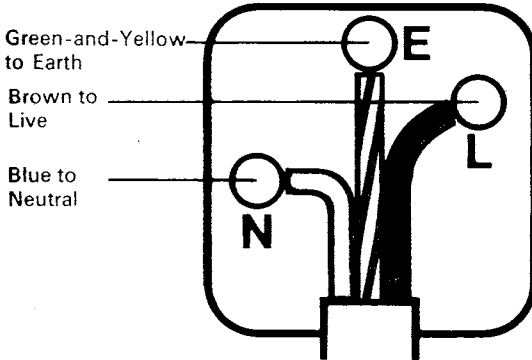
836 Yeovil Road, Trading Estate, Slough, Berks.

CAUTION

These instructions incorporate safety recommendations which should be read before the projector is used, but note especially :—

Connect the projector to AC mains supply using a three-pin plug to ensure that the chassis is properly earthed.

Disconnect plug from mains socket before the rear cover (secured with screws) is removed or the lamps changed.



In due course plugs will be marked only E or the electrical symbol for Earth \perp ; L; and N.

ELF RST / RT / RM Series X

Simple Operation

Easy Maintenance

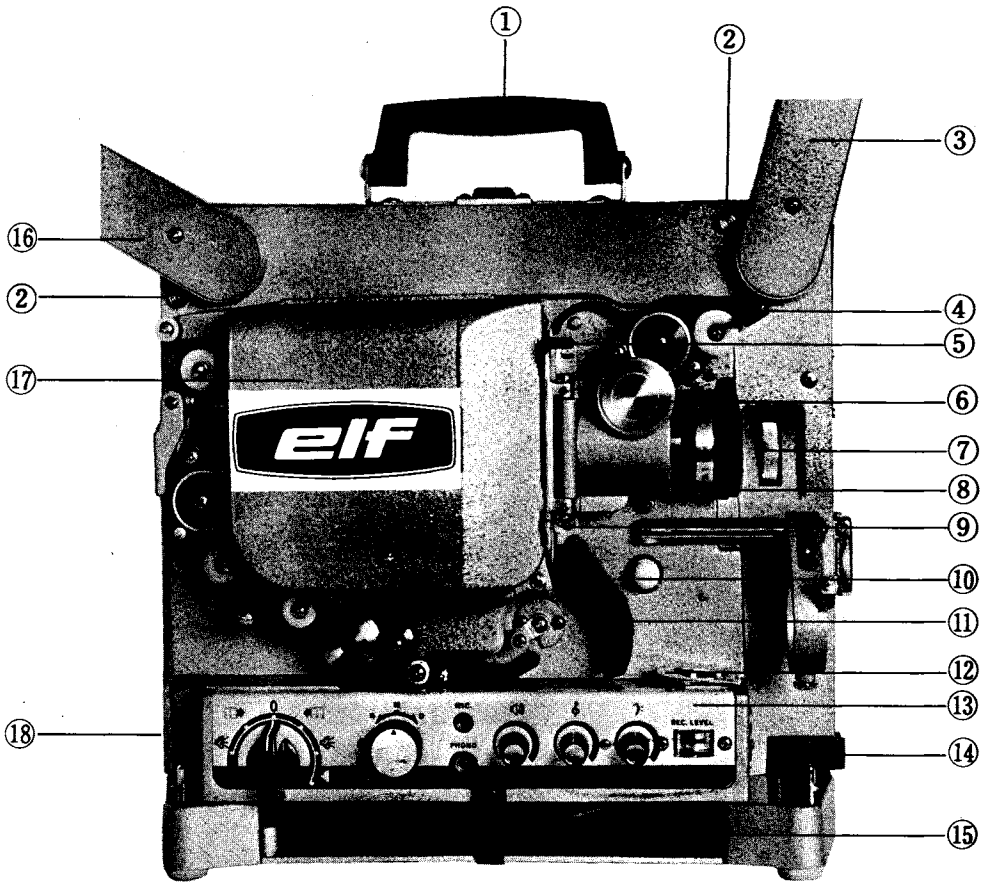
Trouble-free Use

This Operator's Manual is easy-to-read, informative and helpful. Please read carefully before operating projector for the first time.

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MAIN PARTS OF YOUR PROJECTOR

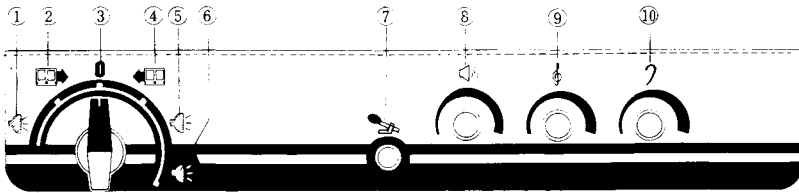


[Model RST-3]

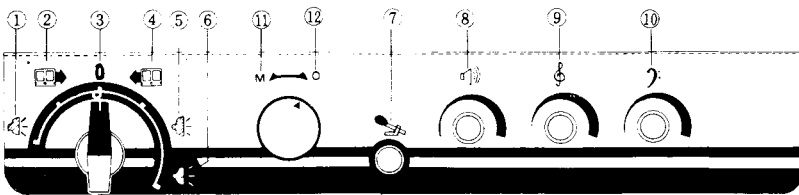
- | | |
|--------------------------------|--|
| 1. Handle | 10. Pilot Lamp |
| 2. Arm Lock | 11. Automatic Threading Control Lever (RST/RT) |
| 3. Supply Arm | 12. Film Trimmer (RST/RT) |
| 4. Film Channel & Rewind Lever | 13. Switch Plate |
| 5. Still Picture Lever | 14. Elevator Knob |
| 6. Focus Knob | 15. Power Cord |
| 7. Inching Knob | 16. Take-up Arm |
| 8. Lens | 17. Lamp House |
| 9. Framing Lever | 18. Auto Take-up Guide (RST) |

EXPLANATION OF SWITCH PLATE

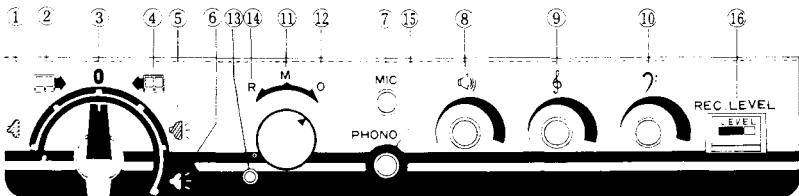
Model RST/RT/RM-0, 1



Model RST/RT/RM-2



Model RST/RT/RM-3



All Models

1. Lamp Low (Reverse)
2. Reverse
3. Off
4. Forward
5. Lamp Low (Forward)
6. Lamp High (" ")
7. MIC Input
8. Volume & Amp Switch
9. Treble Control
10. Bass Control



Additional on RST/RT/RM-2

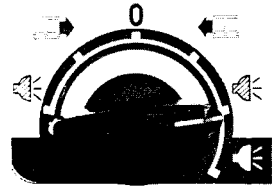
11. Magnetic Playback
12. Optical Playback

Additional on RST/RT/RM-3

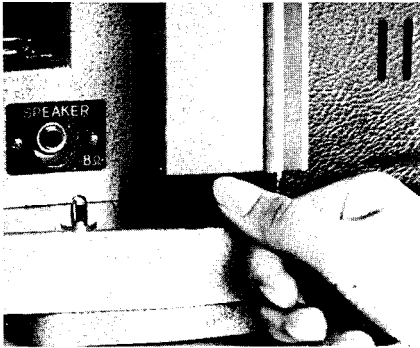
13. Recording Lock Button
14. Recording
15. PHONO Input
16. Level Indicator

FOCUSING

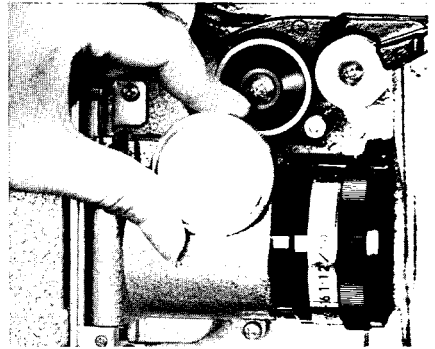
Turn ROTARY SWITCH to FORWARD position () and LAMP position. ()



A



B



Raise projector if required by turning black elevator knob (photo A) on front of projector.

When screen is illuminated and is of the correct size, focus (photo B) so edge of light is sharp.

Switch OFF. (**O**)

SCREEN SIZE CHARTS IN INCHES

Distance															
Lens		8"	10"	12"	15"	20"	25"	30"	35"	40"	45"	50"	60"	75"	100"
1"	H	22"	29"	34"	42"	57"	611"	84"	99"						
	W	211"	38"	45"	57"	75"	94"	113"	131"						
1.5"	H	15"	110"	22"	29"	38"	47"	57"	66"	75"	84"	94"			
	W	111"	25"	211"	38"	411"	62"	76"	89"	100"	113"	125"			
2.0"	H		14"	18"	21"	29"	35"	42"	410"	57"	63"	71"	81"	91"	101"
	W		110"	22"	29"	38"	48"	57"	66"	75"	85"	94"	104"	114"	124"
3.0"	H						23"	29"	33"	38"	44"	50"	56"	62"	68"
	W						31"	38"	44"	51"	57"	64"	71"	78"	85"
4.0"	H						18"	21"	25"	29"	33"	38"	42"	47"	51"
	W						23"	29"	33"	38"	42"	47"	51"	56"	61"

SCREEN SIZE CHARTS IN METERS

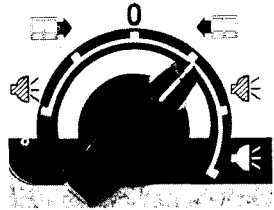
Distance									
Lens		3m	5	10	15	20	25	30	40
38mm	H	0.56	0.94	1.89	2.84	3.79	4.74	5.69	7.58
	W	0.76	1.28	2.53	3.80	5.07	6.34	7.61	10.15
50	H	0.43	0.72	1.44	2.16	2.88	3.60	4.32	5.76
	W	0.57	0.96	1.93	2.89	3.86	4.82	5.79	7.72
65	H	0.33	0.55	1.10	1.66	2.21	2.77	3.32	4.43
	W	0.44	0.74	1.48	2.22	2.96	3.71	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

THREADING/FULLY AUTOMATIC THREADING (REEL-TO-REEL) MODELS RST-0, 1, 2, 3

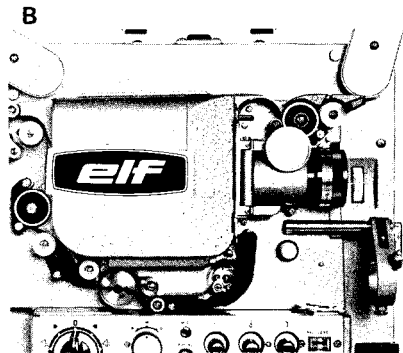
1. Place **ELF AUTO REEL** on take-up arm.
Insert film in trimmer and cut with raised end.
(Photo A)



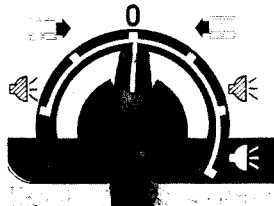
2. Turn **ROTARY SWITCH** to **FORWARD** position ().




3. Push automatic threading control lever to **SELF-THREAD** position.
(Photo B).



4. Insert film leader into film channel. (Photo B)
Film threads.... **ELF AUTO REEL** takes up film
and the automatic threading guides release automatically.



5. Switch OFF. ()

THREADING / SELF THREADING MODELS RT-0, 1, 2, 3

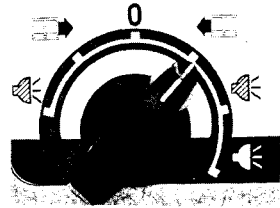
1. Insert film in trimmer and cut with raised end.

(Photo A)

A

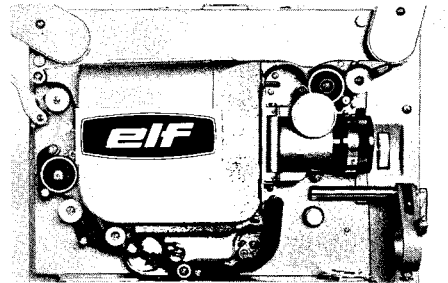


2. Turn ROTARY SWITCH to FORWARD position ().



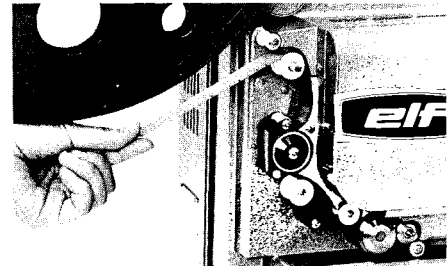
3. Push automatic threading control lever to "SELF-THREAD" position. (Photo B).


B

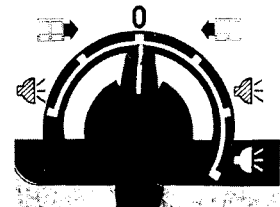


4. Insert film leader into Film channel. Film threads automatically. When a gentle tug is applied to film coming off last roller, the automatic threading guides will release. (Photo C)

C



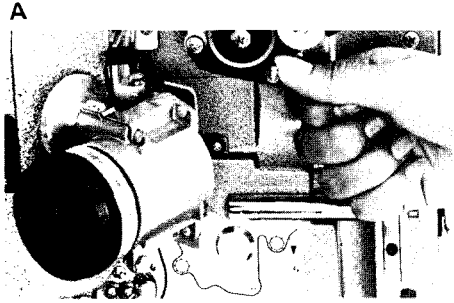
5. When sufficient film has passed through projector to reach take-up reel, SWITCH OFF ().



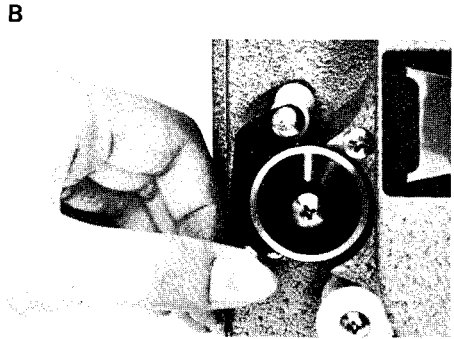
6. Attach leading edge of film on to take-up reel.

THREADING / MANUAL THREADING MODELS RM-0, 1, 2, 3

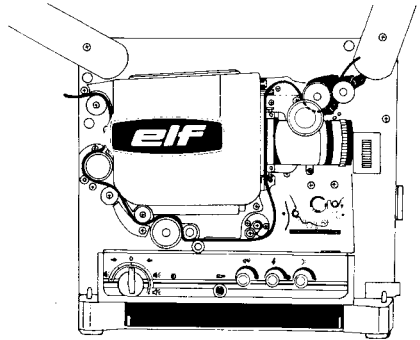
1. Swing lens away from projector by pulling on lens holder. (Photo A)



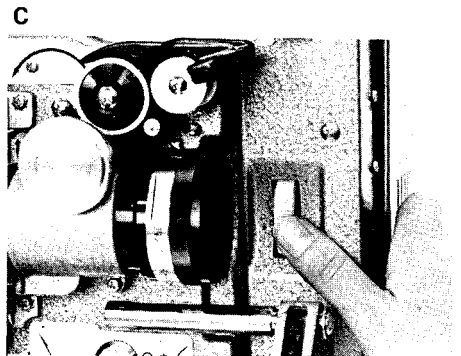
2. Open both sprocket shoes and rubber roller. (Photo A, B)



3. Thread film following THREADING DIAGRAM. Raise rubber guide roller as necessary.
4. Close both sprocket shoes and lens holder.
5. Be sure film is seated properly in gate.



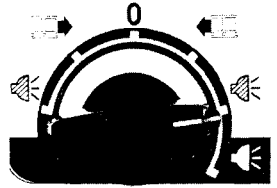
6. Check threading by turning inching knob. When knob is turned by pushing UP, film should move forward intermittently in film gate and both upper and lower loops will be maintained. (Photo C)



7. Attach leading edge of film on to take-up reel

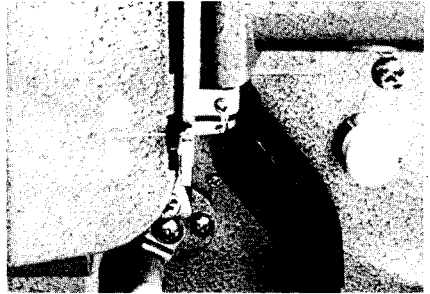
PROJECTION

1. Turn ROTARY SWITCH to FORWARD position (◀) and LAMP position (🔊, 🔌).



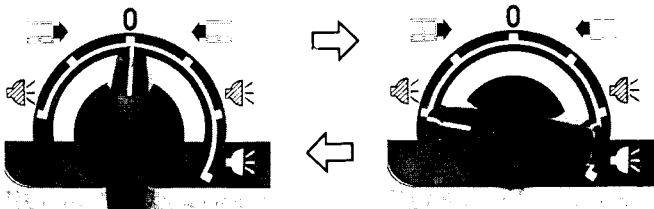
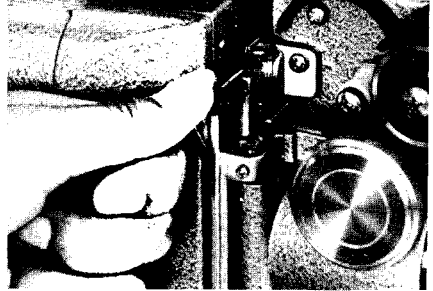
2. Focus picture, and frame film by adjusting the framing lever (photo A).
3. Volume switch on and adjust tone.

A



4. For STILL PICTURE, depress STILL PICTURE LEVER (photo B). (Focus adjustment may be necessary.) If shutter has stopped in front of picture, it may be moved by turning inching knob either direction until picture shows on screen.
5. For REVERSE PROJECTION, turn ROTARY SWITCH from OFF position (0) to REVERSE (▶) and LAMP (🔊).

B

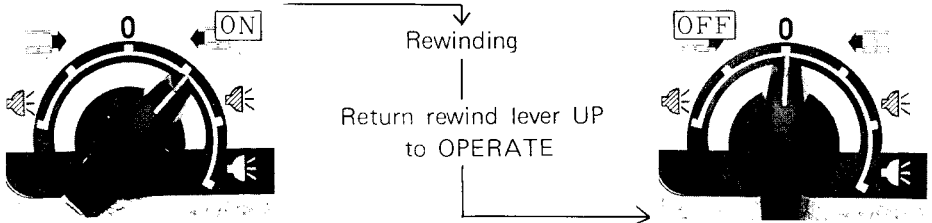
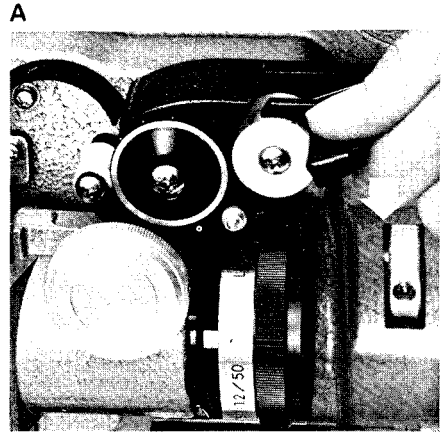


6. When film is completed, turn ROTARY SWITCH to FORWARD position (◀) and let motor run until all film is on the take-up reel.

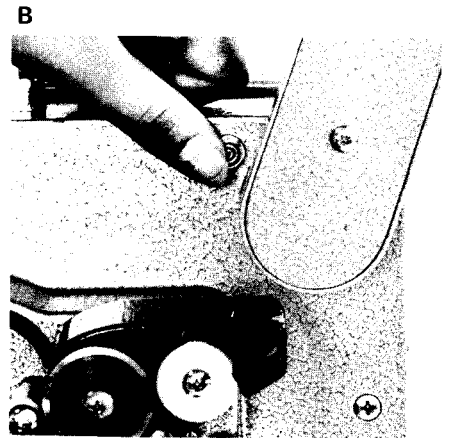
REWINDING

1. Attach tail end of film to supply reel.
2. Move rewind lever DOWN to REWIND position (photo A) and turn ROTARY SWITCH to FORWARD position (◀▶).

After rewinding, FIRST return rewind lever UP to OPERATE position and turn ROTARY SWITCH to OFF position (○).



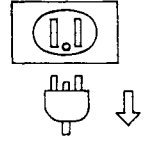
3. After removing reels from arms, depress arm locking buttons (photo B) and lower arms



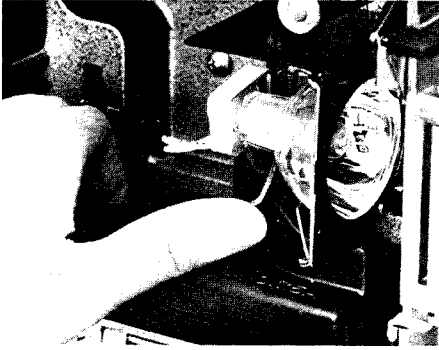
4. Replace projector cover to carry. The flexible plastic cover should be used to protect projector and to carry take-up reel, spare lamp, speaker cord, etc.

CHANGING LAMPS

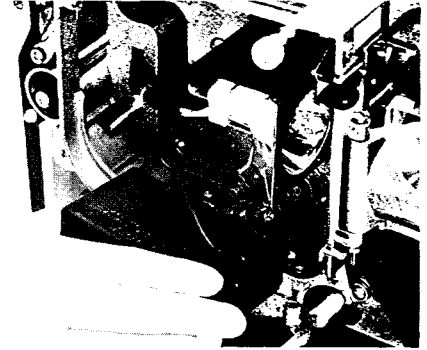
DISCONNECT POWER SUPPLY CORD



A



B



Remove lamp-house lock screw near the top of aperture plate.
Pull out on top edge of lamp-house.

PROJECTION LAMP



(ELC/24V 250W)

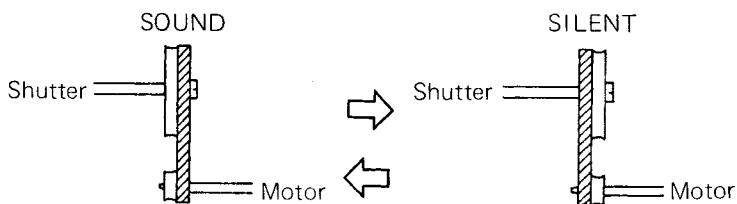
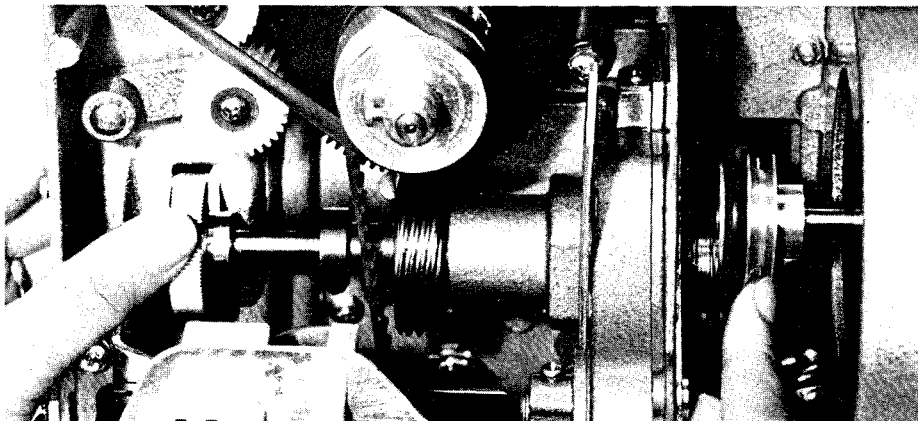
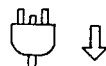
Push (to left) ejection lever immediately below lamp and lamp will come out (photo A). Be sure replacement lamp snaps into place. Proper seating of lamp is essential.

EXCITER LAMP



(BRK/4V 0.75A)

Pull out on black exciter lamp cover (photo B).
Push in on lamp and turn counter-clockwise to remove.
Insert new lamp with notch on base flange in upper right position,
turn clockwise, clean fingerprints from lamp, and replace cover.
Close lamp-house door and replace lock-in screw.

SILENT FILM SPEED*DISCONNECT POWER SUPPLY CORD*

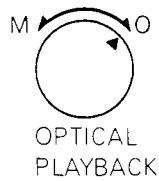
This is changed by slipping the motor drive belt to the alternate set of pulleys

Open rear cover. Turn inching knob at the same time guiding the belt first to the smaller motor pulley then to the larger shutter pulley. Change back to sound speed by reversing the above procedure.

(Note. No silent speed on 50/60 Hz models.)

MAG-OPT PROJECTION

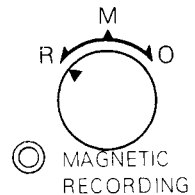
On the RST-2, 3, RT-2, 3, RM-2, 3 Models, either magnetic or optical sound tracks may be played back.



RECORDING ON MAGNETIC STRIPED FILM

RST/RT/RM-3 Models

1. Put OPT-MAG knob to the Optical position and thread film in the projector in the normal manner, then set the knob to Recording position.



2. Connect the supplied microphone (or any 50k Ohm impedance microphone) to the "MIC" input on the Amplifier Control panel. A record player or tape recorder may be plugged into the "PHONO" input.
3. Depress the small silver "Safety Recording Lock Button" below the function switch and turn the three-position function switch to record (R).
4. Adjust the Volume Control to obtain the proper recording level as indicated on the record level indicator. The best recording level is obtained when the needle just touches the red line. If the needle is allowed to swing into the red area, the recorded sound may be distorted.
5. Run the film, watch the screen, record your voice or music on the film.
6. Playback – rewind film, turn function switch to the magnetic playback position (M), disconnect microphone or tape recorder – run film and check the quality of the sound just recorded.
7. A magnetic sound track may be erased by running the film through the projector with the function switch in (R) and the Volume Control in the minimum position and the MIC disconnected.

RECOMMENDED SPARE PARTS & ACCESSORIES

PROJECTION LAMP – ELC/24V, 250W

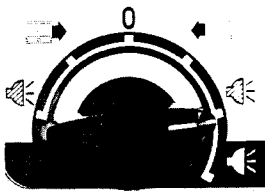
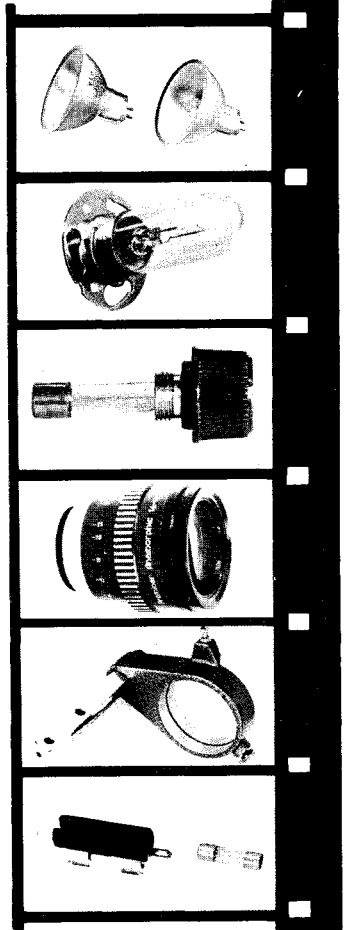
EXCITER LAMP – BRK/4V, 0.75A

FUSE/2A with holder
(large)

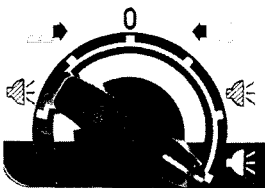
ANAMORPHIC LENS

ANAMORPHIC LENS HOLDER

FUSE/2A with holder
(small)



LOW



HIGH

LAMP HI-LOW SWITCH (for maximum life)

By switching to LOW position (☞) your lamp will last 3 times longer and even in this LOW position the lamp output will be minimum 550 lumens.

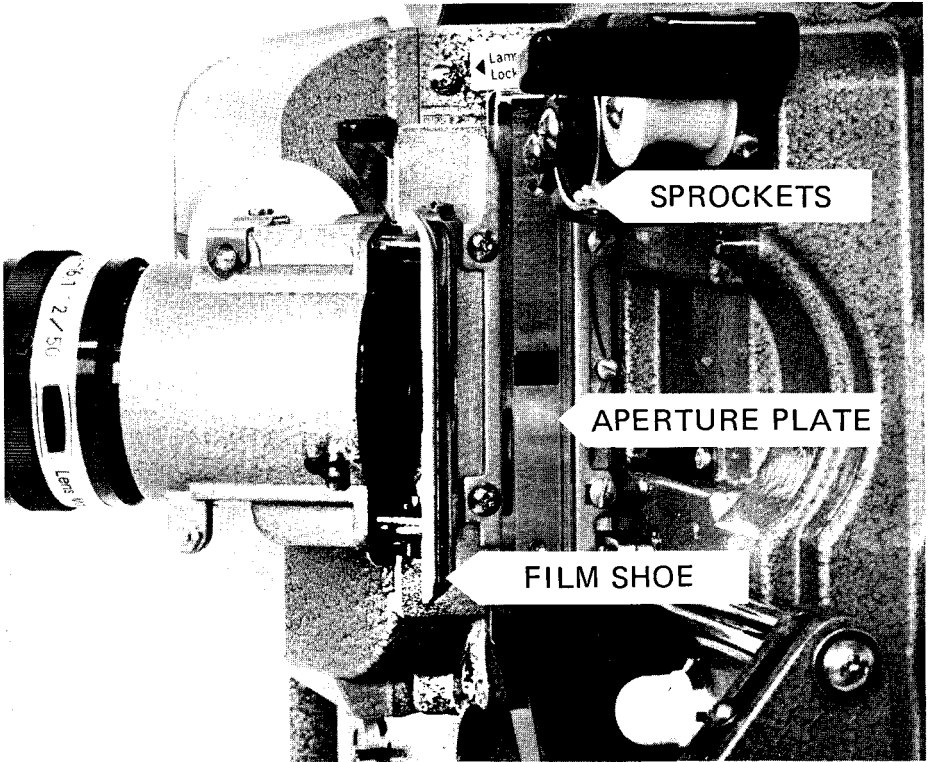
The HIGH position (☜) should be used for larger audiences, or when room light is too bright.

In HIGH position the projector light will be about 750 lumens on the screen.

TROUBLE SHOOTING

Here is a non-Professional's guide for locating minor problems. In nearly every case, a simple adjustment is all that is necessary to restore peak efficiency.

NO POWER TO MOTOR OR LAMP	<ol style="list-style-type: none"> 1. Make sure power cord is connected to wall outlet and that outlet has power. 2. Check power cord and repair if necessary.
MOTOR RUNS, BUT PROJECTION LAMP DOES NOT LIGHT	<ol style="list-style-type: none"> 1. Check position of rotary switch. 2. Replace projection lamp.
FILM DOES NOT RUN, BUT MOTOR AND LAMP BOTH OPERATE	<ol style="list-style-type: none"> 1. Raise STILL PICTURE LEVER to operate. 2. Check Motor Belt.
NO SOUND	<ol style="list-style-type: none"> 1. Turn amplifier switch on and increase volume. 2. Plug in speaker. (On models with removable speaker.) 3. On models with magnetic reproduction be sure "M-O" switch is in proper position. 4. Replace exciter lamp if lamp does not light. 5. Check 2A fuse & replace if necessary.
POOR SOUND	<ol style="list-style-type: none"> 1. Check position of volume control. 2. Rethread film. 3. Clean exciter lamp. 4. Film may be defective, use new film if necessary.
POOR PICTURE	<ol style="list-style-type: none"> 1. Check threading, rethread if necessary. 2. Clean projection lens with soft tissue, both front and rear. 3. Refocus lens. 4. Clean gate with soft bristle brush. 5. Film may be defective, use new film if necessary.

OPERATOR CLEANING AND MAINTENANCE

The following parts are to be cleaned with a soft brush after each showing :

APERTURE PLATE
FILM SHOE
SPROCKETS

*Do not use oil or other lubricant on any part of the projector.
Leave this to the service engineer.*

GENERAL SPECIFICATIONS

RST Models. Reel-to-Reel Automatic Threading

RT Models. Self Threading

RM Models. Manual Threading

POWER AC. 50 or 60 Hz., 430 – 450W

LENS super 50mm (2") f1.2 (standard)

PROJECTION LAMP ELC Halogen lamp, 24V – 250W
(200W lamp also usable)

EXCITER LAMP. BRK, 4V–0.75A

AMPLIFIER solid state, 25W RMS output
separate treble and bass controls
independent use for public address

MOTOR induction motor, plug-in type

FRAMES PER SECOND. 24 and 18 (sound and silent)

SPEAKER 13cm x 20cm (5" x 8")
RST, RT, RM-0
16cm round (6.5")
RST, RT, RM-1, 2, 3

REVERSE PROJECTION. yes

STILL PICTURE. yes

LOOP RESTORER. automatic

REWIND. high speed, without reel change

REEL CAPACITY. 600m (2,000 ft)

MODULAR UNITS. amplifier, cam tank, motor,
lens holder, transformer

WEIGHT 17 Kgs. (37.4 lbs.)

DIMENSIONS. 29cmx35cmx35cm (11.4"x13.8"x13.8")
(with front cover)

ELF AUDIO VISUAL LIMITED,

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