

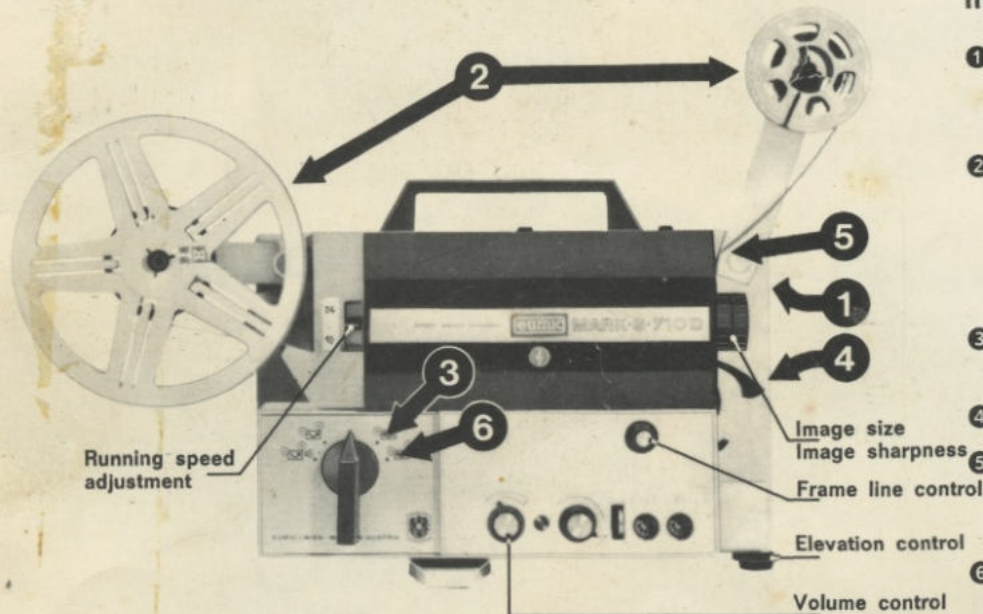


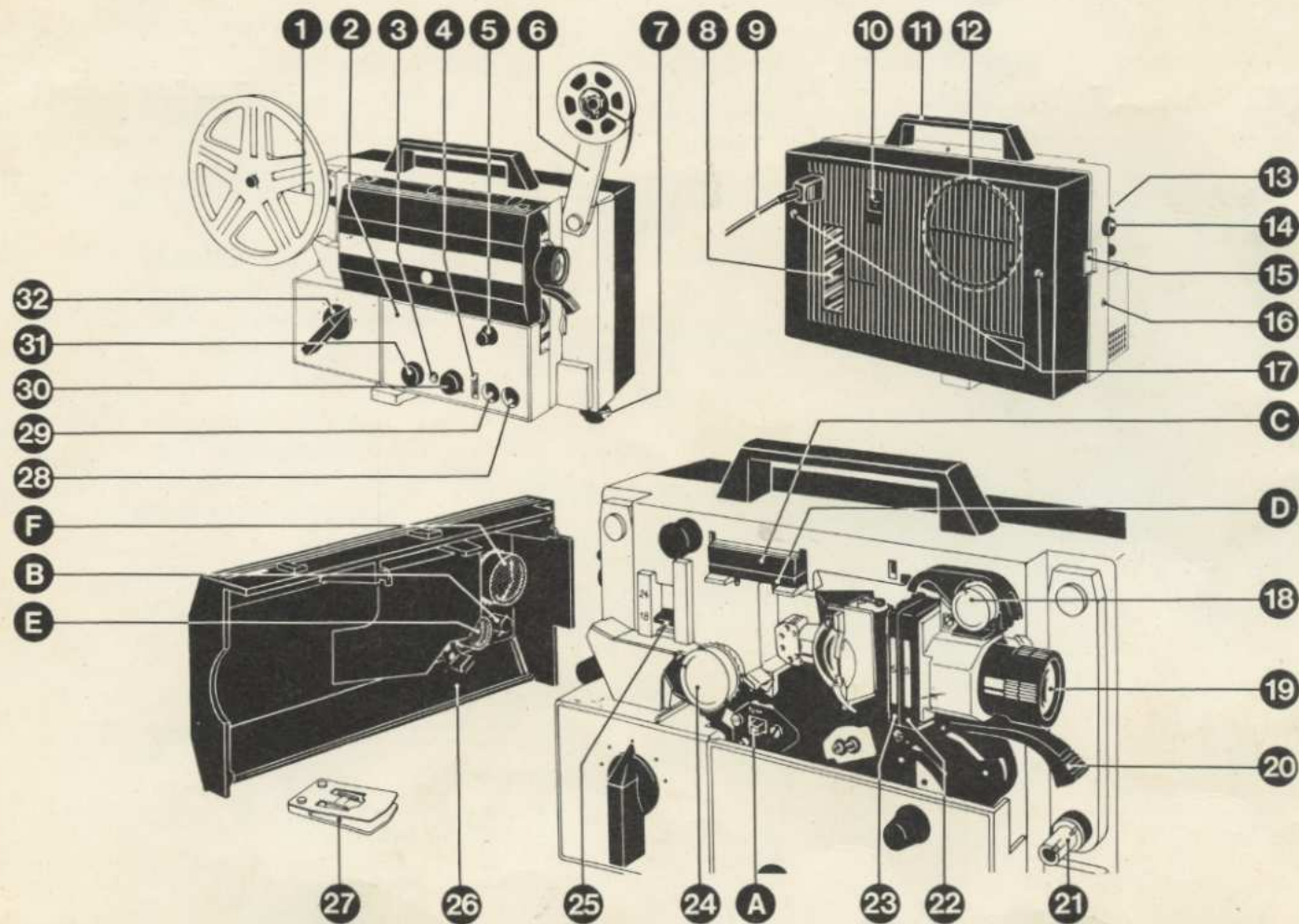
MARK-S-710 D

Sound projector for all 8mm gauges

Instructions in brief

- 1 Connect the projector to the mains supply. Check the supply voltage and frequency.
- 2 Swing up the reel arms. Place the reel with Super-8 or single-8 film on the front arm (see page 3 for standard-8). Place the universal reel on the rear arm.
- 3 Move the main switch to "forward without lamp".
- 4 Press the threading key.
- 5 Feed the film into the sprocket. Release the key only when the film has run on to the take-up reel.
- 6 Switch the main switch to "forward projection with lamp".





- ① Rear reel arm
- ② Cover of sound unit
- ③ Retaining screw for cover of sound unit
- ④ Recording level control
- ⑤ Frame line adjustment
- ⑥ Front reel arm
- ⑦ Elevation control
- ⑧ Mains voltage selector
- ⑨ Outlet for supply lead
- ⑩ Outlet for external speaker
- ⑪ Carrying handle
- ⑫ Loudspeaker
- ⑬ Reel arm catch
- ⑭ Milled inching knob
- ⑮ Sound recording key
- ⑯ Earthing socket (provided to meet safety regulations of certain countries)
- ⑰ Retaining screws for back cover
- ⑱ Small type S sprocket
- ⑲ Zoom lens
- ⑳ Automatic threading key
- ㉑ Sleeve for take-up shaft S
- ㉒ Type S film pressure pad
- ㉓ Type S film gate
- ㉔ Large type S sprocket
- ㉕ Running speed adjustment
- ㉖ Lamphouse cover
- ㉗ Film trimmer
- ㉘ Line output
- ㉙ Phono/radio and microphone input
- ㉚ Mixing control
- ㉛ Volume control
- ㉜ Main switch

- Ⓐ Film gauge changeover switch of sound unit.
- Ⓑ Peg to hold sleeve for take-up shaft (item 21)

Interchangeable parts mounted in the lamphouse cover and housing for standard-8 projection:

- Ⓒ Film pressure pad
- Ⓓ Film gate
- Ⓔ Small sprocket, dark grey
- Ⓕ Large film sprocket, dark grey

Accessories supplied with the projector:

- | | |
|--|----------|
| 1 Film trimmer | 790.1122 |
| which is always at hand if you glue it with its selfadhesive bottom side in such a way on the projector that film rests cannot get into the mechanism. | |
| 1 microphone | 908.102 |
| 3 fuses | 860.1043 |
| 1 mains lead | |
| 1 universal type AS 18 reel
(usable as storage and automatic
take-up reel) | 596.0250 |
| 1 instruction book | |
| 1 guarantee card | |
| 1 film reel with about 20 feet of
recorded edge striped Super-8 film | 718.1600 |

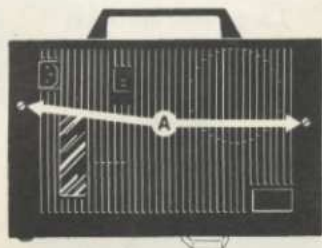
Contents

Description of the projector	1
Connecting to the mains supply	3
Changing the film gauge	4
Automatic threading	5
Silent projection	5
Adjusting the running speed	6
Adding sound	7—14
The re-recording lead	15
Replacing the fuse	16
Changing the projection lamp	16
Care of the projector	17
Technical data	18
Wiring diagram	19
Accessories	20
Brief instructions for adding sound	22

Before connecting to the mains supply

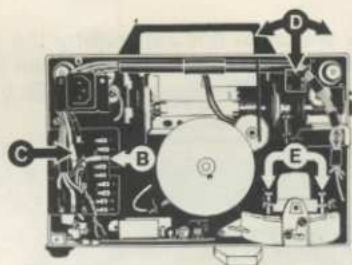
Special note: When shipped from the factory, the motor is rigidly secured by two retaining screws E. Before connecting the projector to the mains for the first time, take off the back cover and remove these two screws — unless your photo dealer has already done this for you.

Check that the type, voltage and frequency of your mains supply correspond to the settings on your projector.



If the voltage needs adjustment, proceed as follows:

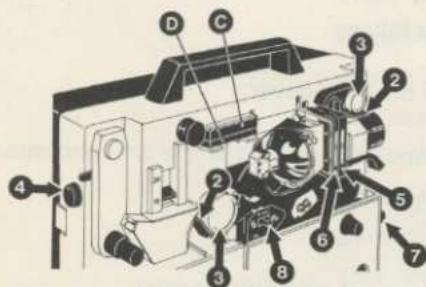
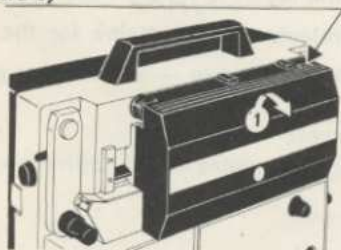
1. Remove the fixing screws A and take off the back cover.
2. Unplug the red plug B from the transformer by pulling to the left, and attach to the appropriate terminal.



To change the frequency (only possible on special projector models):

1. Pull off the plug C and attach to the appropriate terminal.
2. Adjust the lever D at the top right so that the required frequency figure is horizontal.
3. Replace the back cover.

Signal window for film gauge setting (light grey for Super-8 and single-8, dark grey for standard-8)



Large film sprockets



Small film sprockets



Type S sleeve for reel shaft

Changing the film gauge

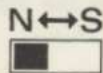
Interchangeable parts for Super-8 and single-8 (light grey and marked "S")

Large type S film sprocket	718.1170
Small type S film sprocket	718.1176
Type S film pressure pad	718.1132
Type S film gate	718.1140
Type S sleeve for reel shaft	718.3414

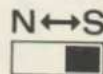
Interchangeable parts for standard-8 (dark grey)

Large film sprocket	718.1172
Small film sprocket	718.1178
Film pressure pad	718.1130
Film gate	718.1138

- 1 Remove the lamphouse cover.
- 2 Open the sprocket guards.
- 3 Pull off the film sprockets, replace by the alternative sprockets from inside the lamphouse cover. Push on and turn if necessary to make the sprockets engage. Close both sprocket guards 2.
- 4 Turn the inching knob to bring the red dot to the top. (This retracts the claw to prevent damage.)
- 5 Push the film pressure pad towards the lens and pull out. Slightly pull out the lens first.
- 6 Push the film gate towards the lens, carefully withdraw and replace by the alternative gate D in the housing. (First push this in as far as it will go, then press to the left until the guide pins engage.) Replace the film pressure pad 5 by the alternative pad C.
- 7 Fit the light grey adapter sleeve on the reel shaft for Super-8 and single-8 projection.
- 8 Switch over the sound changeover switch.

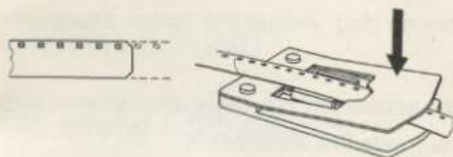


= standard-8



= Super-8 and single-8

Replace the lamphouse cover.

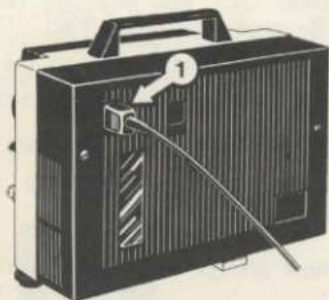


To ensure perfect automatic threading:

The splices must be perfect and contained within the film thickness. Check all splices when you get the film back from processing, and renew if necessary.

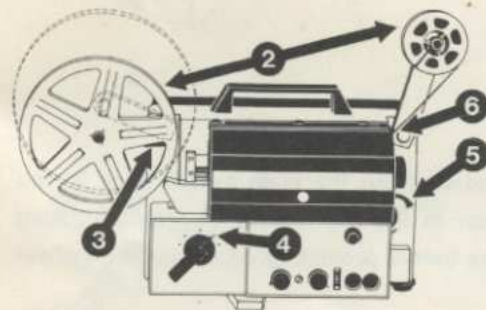
The film needs a 20 inch leader whose leading edge must be curved in, free from creases and cleanly trimmed. Use the film trimmer.

Film materials of various manufacture have different characteristics. This is especially apparent with thin based film. Should any difficulties be experienced when using such film, it may be necessary to attach the leader of the film to the core of the Universal spool by hand.

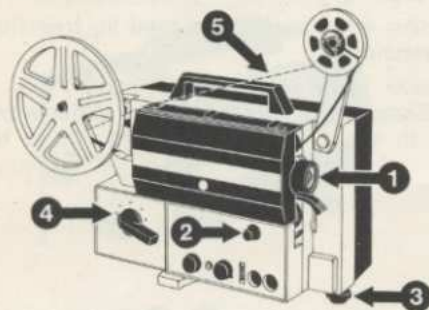


Silent projection

- 1 Connect the projector to the mains supply. This preheats the projection lamp. Let the projector warm up for a few minutes.
- 2 Erect the reel arms and attach the reels. The full reel goes on the front and the empty reel on the rear arm. (The film perforations should be on your right when you stand behind the projector, facing the screen.)
- 3 When using a 600 foot (180 metre) reel — for instance the universal type AS 21 reel (see accessories, page 20) — raise the catch and swing the reel arm up as far as it will go.
- 4 Switch the projector to "Forward **without** lamp"
- 5 Depress the threading key to close the film track, then feed the film leader into the sprocket. 6 Release the key only when the film has run on to the universal take-up reel.
7. Switch to "Forward **with** lamp"



If the image is jittery or the projector begins to rattle during running (e.g. due to damaged perforations) briefly depress the key 5. If this does not bring success the procedure can be repeated after a short switch to reverse and depressing of the key 5. At the end of the show turn the main switch back to the "0" position



- ① Adjust the image size by rotating the zooming ring. Adjust the image sharpness by rotating the whole lens.
- ② Frame line adjustment: If two part pictures appear on the projection screen with a line between them, turn the knob until this frame line disappears.
- ③ Height adjustment. Adjust the level of the projected image with the elevation control.
- ④ Reverse projection. Turn the main switch to "Reverse **with** lamp" . The film now runs backwards. When changing the running direction, readjust the frame line. If the sound effects are disturbing, turn down the volume control to the left.
- ⑤ Rewinding. Take the end of the projected film from the rear reel direct to the front reel, attach it there and turn the main switch to "Reverse **without** lamp" .

Important note: At the end of the show always move the main switch back to the "0" position .



Adjusting the running speed

Important: Before changing the running speed, bring the main switch back to the "0" position  and connect the projector to the mains supply. After switching from 24 to 18 f. p. s. wait for about 2 minutes before projecting, to allow the flywheel speed to stabilise.

ADDING SOUND

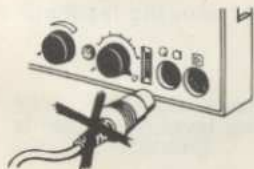
The sound controls

Once your edited film has been striped (photo dealers or EUMIG agents will be pleased to provide information on striping services) you can use your EUMIG sound projector just like a tape recorder. Well-ried automatic amplifier features (automatic recording level control, automatic noise suppression etc.) allow the sound unit to operate largely on its own, so that you can devote your full attention to the film.



Switching to recording Press the red recording key. The recording key only engages when the main switch is set to "Forward without lamp"  or "Forward with lamp" . Any slight click on switching on can be avoided by pressing the recording key and briefly holding it down in this position before turning the main switch.

On stopping the projector (main switch set to "0" ) the projector automatically returns to the playback mode to prevent accidental erasing.



Erasing

Any previous recording is automatically erased when a new recording is made (Exception: Sound mixing, page 14).

To erase without making a new recording, switch to recording but do not connect any sound source to any of the input sockets.

The mixing control

When the red recording key is depressed, this control allows you to fade in music (page 12) or a commentary and sound effects while simultaneously attenuating the music background. (Second run through of prerecorded music, page 13).



Control turned fully to the left

= No recording, no attenuation of previously recorded music (no erasure)

Left-hand half of scale

= Weak recording, weak attenuation of music

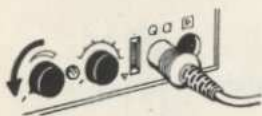
Right-hand range of scale

= Strong recording, strong attenuation of music

Control turned fully to the right to engage = Recording at full level, full erasure of previous recording

The volume control

adjusts the playback sound volume or the monitoring volume during recording.

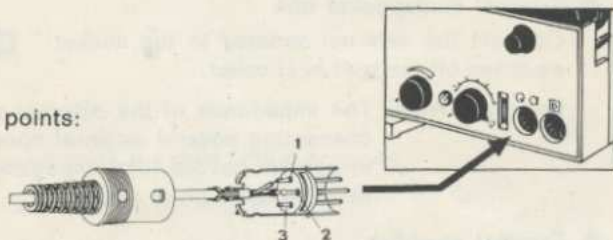


When recording via a microphone, turn the volume control fully to the left to avoid acoustic feedback (whistling).

The position of the volume control during recording does not affect the recording level (the latter is governed by the automatic recording level control).

Important precautions

During direct re-recording (Music, page 12) note the following important points:



- **Use the correct re-recording lead.**

For straightforward connection of various sound sources we recommend the Eumig universal re-recording lead (order No. 790.0260, page 15). This is available from movie and audio dealers.

- **The input level control** permits optimum matching of the built-in automatic recording level control to the sound input (cassette tape recorder, record player, radio, etc.). If a trial recording shows that the recording level is too low, slightly turn the control upwards.

If the reproduction is distorted, turn the recording level control down.

The scale permits easy resetting to an established optimum position for any given sound source.



Note: The input level control is set to a mid-position at our works; in most cases this provides perfect recording.

Connecting external units

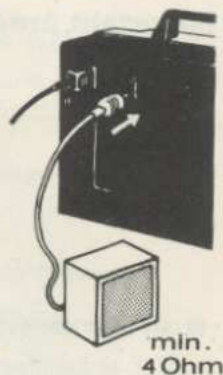
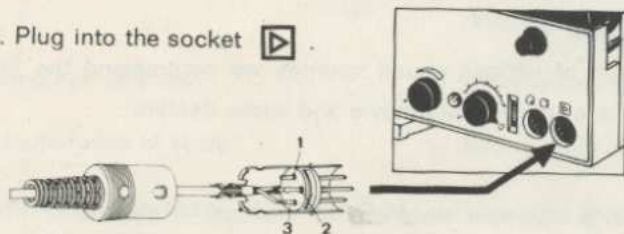
● External loudspeaker unit

Connect the external speaker to the socket "  " in the back of the projector. This automatically switches off the built-in speaker.

Important Note: The impedance of the external speaker must be at least 4 ohms or more. When connecting several external speakers, note that two speakers of 4 ohms each wired in parallel have a total impedance of only 2 ohms. (An impedance below 4 ohms can damage the built-in amplifier.)

● External amplifier

Check the correct wiring of the lead. Plug into the socket .



Recording possibilities with your sound projector

A Microphone recording with acoustic mixing

This is the simplest and most straightforward way of mixing several sounds. Thanks to the automatic recording level control and automatic noise suppression circuit it yields surprisingly good results.

B Recording music via the input socket

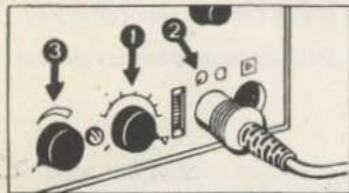
Permits direct re-recording from a cassette tape recorder, record player etc. and completely eliminates all external noise. Permits abrupt cuts or gradual dissolves of music.

C Sound mixing

During a second run through speech is mixed into a recording made during the first run through.

A Microphone recording with acoustic mixing

Connect the projector to the mains supply and thread in a striped film.



- 1 Turn the mixing control to the right until it engages.
- 2 Connect the microphone (to the socket )
- 3 Turn the volume control fully to the left to avoid acoustic feedback (whistling). 
- 4 Switch the projector to "Forward"  and press the red recording key.



Now you can either speak into the microphone ...

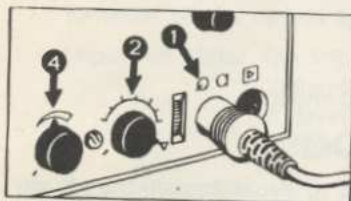


... or hold this near a loudspeaker
(of a record player, tape recorder etc.)

The correct volume balance between the voice and the loudspeaker is established by trial and error. When speaking into the microphone, hold the latter about 4 inches to one side of the mouth. The microphone should be as far away from the projector as possible.

B Recording music via the □□ input socket

Connect the projector to the mains supply and thread in a striped film. Check the use of the correct re-recording lead (page 15) and of the input level control (page 9).

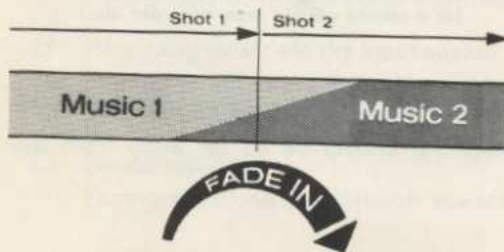
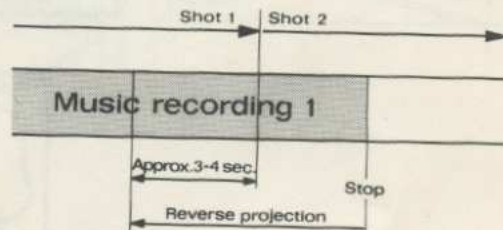


- 1 Connect the tape recorder, record player etc. to the socket □□.
- 2 Turn the mixing control fully to the right until it engages ▽.
- 3 Switch the projector to "Forward" , and press the red recording key.
- 4 The recording can be monitored over the built-in loudspeaker; adjust its volume with the volume control.

Musical dissolves

These are recommended when cutting between shots of similar subject content — e. g. from a first shot of children on the lawn to a second shot of children in the playground.

1. Record the first music passage for the first shot (see Music recording). Stop the projector as soon as the second shot appears on the screen by turning the main switch to "0"  (the red recording key automatically springs out). Switch the projector to "Reverse"  and let it run back 3 or 4 seconds beyond the cut between the shots.



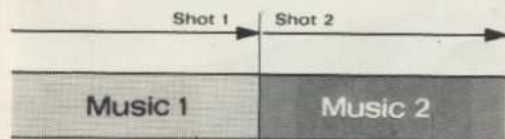
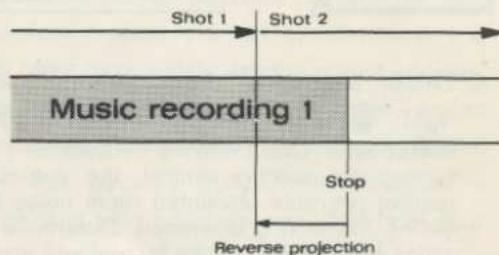
2. Turn the mixing control fully to the left . Switch the projector to "Forward" , press the red recording key and slowly turn the mixing control to the right until it engages. Now record the second music passage for the second shot.

Abrupt music cuts

Suitable for cuts between completely different shots – e.g. from a title to the action of the film (like a railway journey).

Important note: For this type of recording always keep the mixing control turned fully to the right and engaged .

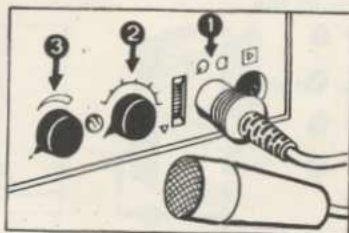
1. Stop the music recording of the first passage , and let the projector run back exactly to the cut between the shots. As the projection lamp glows weakly due to the preheating system even with the main switch on "0" , the exact point of the cut can be located manually with the inching knob (next to the red recording key).



2. Press the red recording key, briefly keep it pressed down and at the same time switch the projector to "Forward" . Now record the second music passage to match the second shot.

C Sound mixing

After recording the music as in section B, completely rewind the film  and rethread.

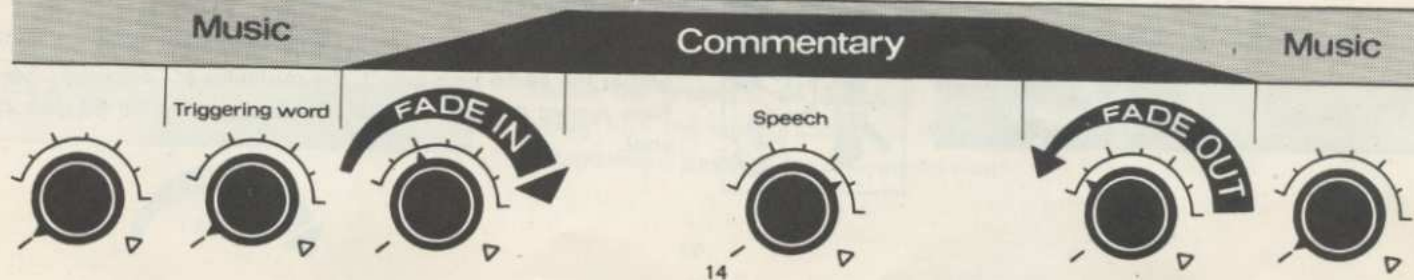
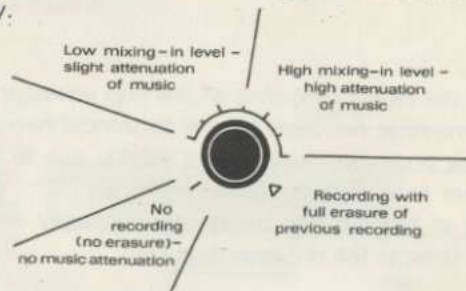


- 1 Connect the microphone (socket .
- 2 Turn the mixing control fully to the left.
- 3 Turn the volume control fully to the left to avoid acoustic feedback (whistling).
- 4 Switch the projector to "Forward"  and press the red recording key.

5. Before starting to speak turn the mixing control to the right . By speaking a brief triggering word into the microphone (for instance "Attention") immediately before turning the mixing control, the automatic recording level control prevents unwanted room noise from being recorded during the mixing operation. Determine the desired volume ratio of speech to music by trial and error.

6. When you have finished speaking, turn the mixing control fully to the left.  This procedure of mixing in and out has to be carried out at every speech section.

Important note: Turning the main switch to "0"  disengages the recording setting.

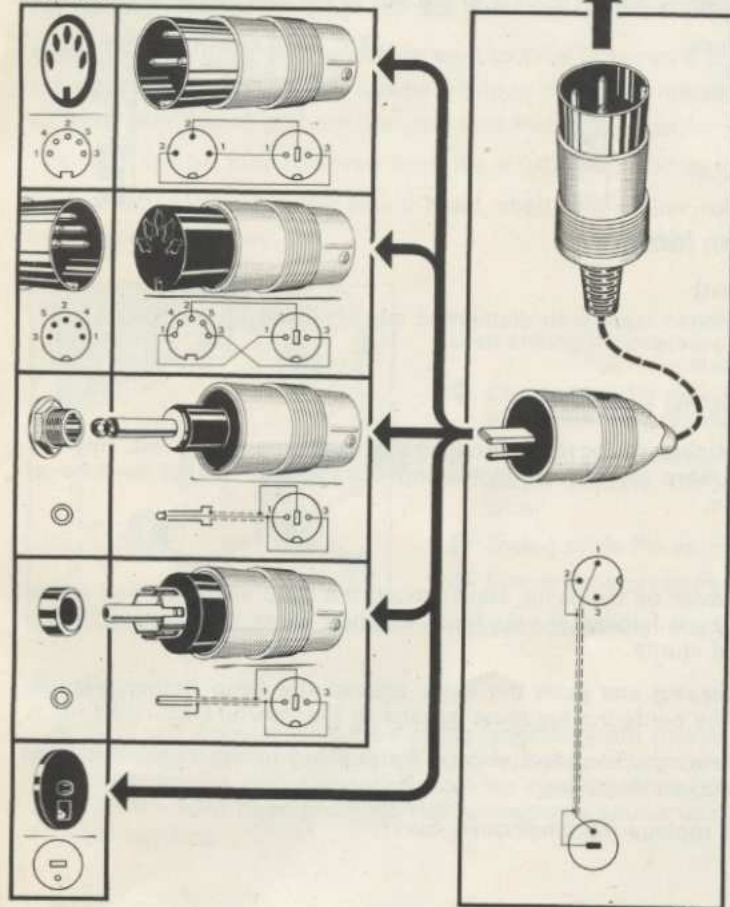


The EUMIG universal re-recording lead (Order No. 790.0260)

Sound
source

Adapter

Projector



As owner of a EUMIG sound movie projector you will obviously want to record sound on your films simply, reliably and with good quality.

For this your sound projector has to be linked to a sound source such as a record player, cassette recorder or tape recorder. Unfortunately outputs are not standardised, i. e. the sound sources often have widely varying output sockets. It is our aim to enable you to connect your EUMIG sound projector to any available sound source without complicated modifications. For this purpose EUMIG has designed a special lead with various plug adapters, available from your photo dealer.

- 1 Connect the lead to the projector (socket ).
- 2 Plug the appropriate adapter into the outlet of the sound source.
- 3 Plug the lead into the adapter.
- 4 If the projector does not record (due to reversed polarity of the sound source) reverse the connections between the adapter and lead (i. e. terminals 1 and 3).

Replacing the fuse (Always disconnect the mains plug first)

The thermal fuse protects the transformer against overheating, but not the projector against damage through connection to the incorrect mains voltage. On removing the back cover, the thermal fuse is visible at the left of the voltage selector panel.

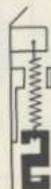
1. Remove the molten fuse parts.



2. Hook the new fuse into the contact spring ...



3. ... and attach it at the bottom.



Changing the projection lamp

(Disconnect the mains plug first)

(12 volt 100 watt tungsten-halogen lamp with diathermic mirror; Eumig order No. 907.202)

1. Remove the lamphouse cover.
- 2 Pull off the lamp plug from the rear.
- 3 Press down the lamp retaining spring and disengage by swinging to the left. Remove the lamp. Be sure not to move the two compensating coils of the sound switchover for changing the film gauge.

Inserting a new lamp

Remove the protective cover of the lamp. Never touch the lamp envelope and inside of the reflector with the bare fingers. If you have touched them accidentally, clean with alcohol or methylated spirits.

4. Raise the lamp retaining spring and push the lamp against the lamp holder into the bottom centering guide. The centering lug must engage in the aperture provided for it.
5. Press down the lamp retaining spring and engage by pushing to the right. The lamp unit does not need subsequent centering.
6. Attach the lamp plug and replace the lamphouse cover.

Care of the projector

All moving parts of the projector are permanently lubricated and require no maintenance.

Clean the film track and gate from time to time to remove dust or adhering film particles. Use a soft rag or a sable brush for the purpose. Persistent dirt can be scraped off with a wooden stick. To clean the film gate opening (with a camel hair brush or small stiff brush) pull out the gate unit from the projector (page 4).

The lens can be fully removed from the lens holder and is then accessible for cleaning with a soft rag or brush.

Periodically also clean the sound head, shaft and rubber roller with a cloth moistened with methylated spirits. Never scrape with any metal object.



Dismantling the pressure pad unit for cleaning the sound head

- 1 Disconnect the mains plug, remove the lamphouse cover and place the projector on its back.
- 2 Pull off the mixing and volume knobs. Unscrew the screw holding the sound unit cover and remove the latter.
- 3 Swing aside the spring.
- 4 Remove the pressure pad guide.

Reassemble in the reverse sequence.



Film care

The films you receive your developing laboratory are mostly pretreated with a film preserving lubricant and so an immaculate film transport is guaranteed. Some manufacturers of commercial movies renounce of this effective measure. We recommend to treat such movies with a so-called cloth for cleaning films (Photo trade). You can treat your recorded films with the same cloth. Films which have been provided with a magnetic sound track later, kindly clean with a linen duster slightly soaked in alcohol and not raveling.

Important notes for good sound quality with striped films

1. Check that the splices are neat, clean and preferably within the film thickness.
2. Have the film edge-striped after editing. (This avoids sound breaks and noises at the splices.)
3. Keep the films clean. (Use an antistatic cloth or film cleaner — available from your dealer.)
4. Do not clean the film or treat it with antistatic medium before striping. Otherwise the stripe may not adhere well.
5. Store the films protected against dust in suitable reel cans.
6. Protect the films against excessive drying out, using tightly closing cans. Add a film humidifier — or even a piece of moist blotting paper.
7. Clean the sound unit from time to time (see also "Care of the projector", page 17).

Technical data

Microphone input:	0.3 to 10 millivolts, impedance 4 Kilo-ohms
Audio input:	0.3 millivolts to 2 volts, 4 Kilo-ohms to 1 Megohm
Automatic recording level control:	Compensates level fluctuations up to 30 db. Response time 150 milliseconds; hold time — depending on input level duration — up to 50 seconds
Frequency range with edge stripe:	18 frames per second: 80 — 8,000 cycles 24 frames per second: 75 — 10,000 cycles
Line output:	Nominal 100 Kilo-ohms impedance, 450 millivolts
Loudspeaker:	4 — 8 ohms, 2 — 6 watts
Picture/sound separation (Standard separation):	18 frames for Super-8 and single-8 56 frames for standard-8

Reel capacities	Universal reel (usable also as automatic take-up and storage reel)	Capacity with acetate base film
	AS 18	400 feet (120 metres) silent film 350 feet (105 metres) sound film
	AS 21 (see Accessories, page 21)	600 feet (180 metres) silent film 500 feet (150 metres) sound film

a a

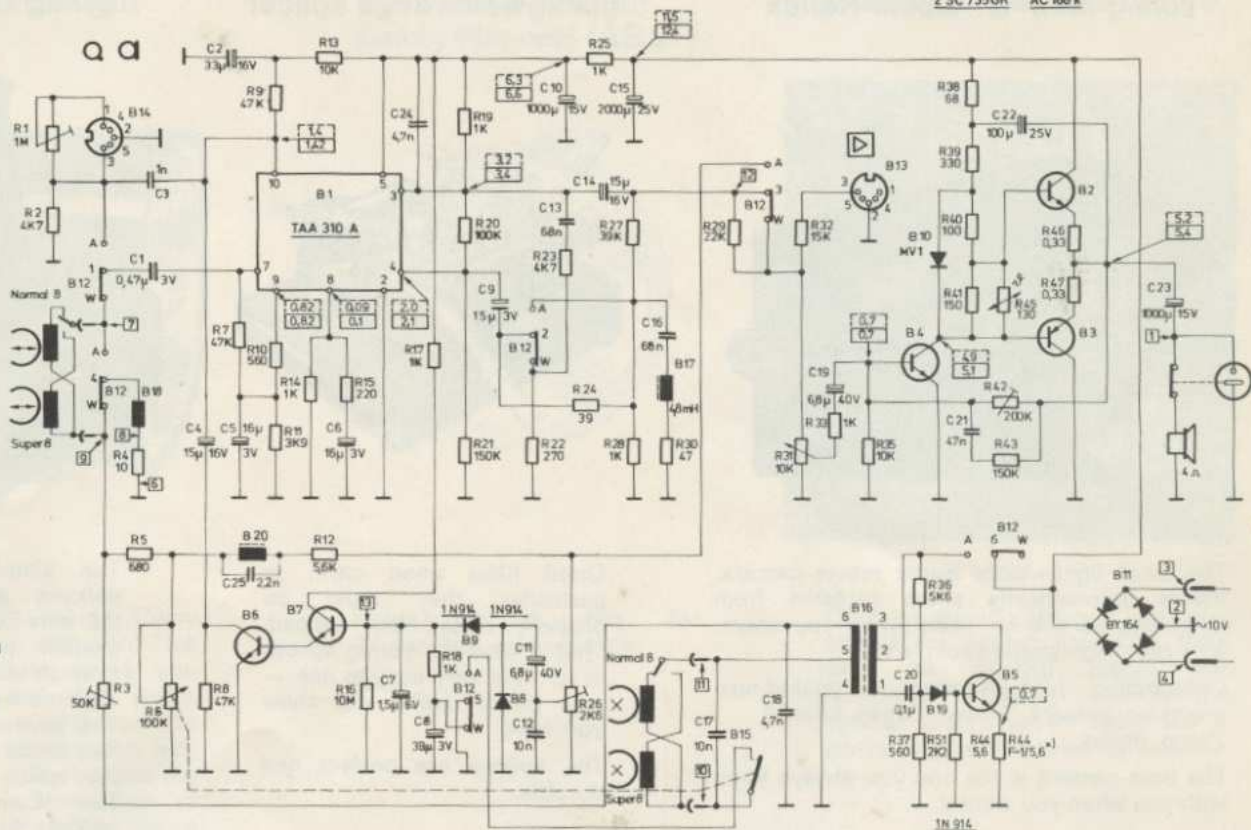
Spannungen bei AUFNAHME
Voltages at RECORDING
Tensions a la PRISE DE SON

Spannungen bei WIEDERGABE
Voltages at PLAY-BACK
Tensions a la LECTURE

ohne Signal gemessen gegen Masse
[2], Instrument Ri = 100.000 Ohm/V

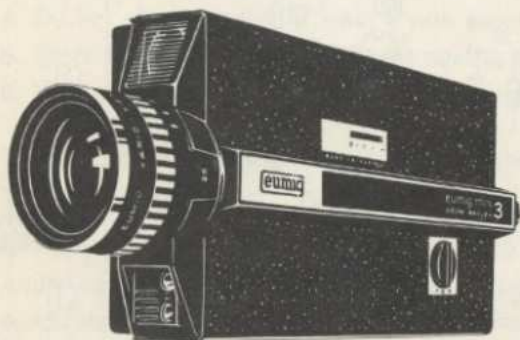
measured to ground [2] without signal
voltmeter Ri = 100.000 Ohm/Volt

mesuré sur masse [2] sans signal
voltmètre Ri = 100 000 Ohm/Volt



1	4	7	9	10	14	13	17	19	20	23	25	27	30	29	32	36	38	39	45	46	47	R			
2	3	5	6	8	11	12	15	16	21	22	26	24	28	31	33	35	37	40	41	42	44		43		
	13		2	25			6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	C

eumig-mini 3 Zoom-Reflex

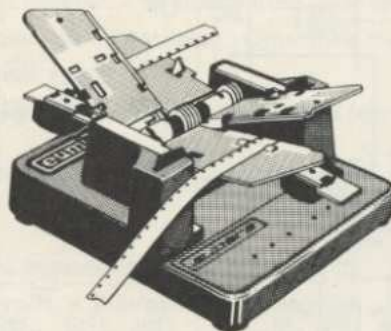


The small light-weight Super movie camera. Yields automatically sharp pictures from beginning to end — even when you zoom. 3 : 1 ratio high-speed zoom lens.

Outstanding high-performance pocket-size precision camera — the Eumig Mini 3 Zoom Reflex.

The best camera is the one you always have with you when you want it.

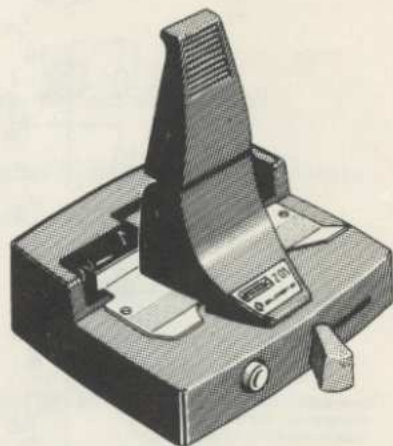
Eumig bevel edge splicer



Good films need care; in particular they must be properly edited and spliced. That is what the Eumig splicer is for. It is very easy to use — your photo dealer will show you how.

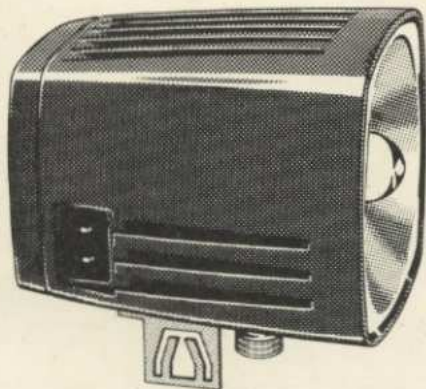
The splices are perfect and durable.

Eumig Chemo-splicer

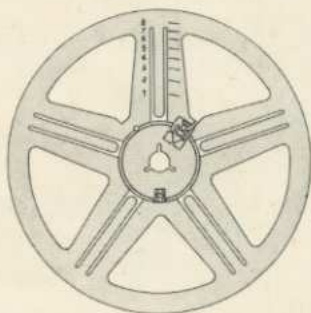


The simplest way of film splicing ever known! With the new Eumig Chemo-splicer system the film ends are intercut with a serrated edge. That means no more scraping. The joint edge is longer, the film ends mate exactly and the splice gains in strength. The Eumig Chemo-splicer makes film splicing easier than ever. (Use the special Eumig binding agent with the Chemo-splicer.)

The Eumig movie light



The special 600 foot Eumig film reel (AS 21)



The Eumig effects record



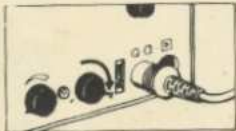
Be independent of sunshine: Carry your own movie sun with you. This 650 watt movie light gives you marvellous indoor and night shots. It is simple to use and easy to mount on all Super-8 cameras with lamp slot. But you can also use the Eumig movie light independently of the camera, for instance on a tripod.

Holds enough film for 42 minutes running time.

Contains music passages and noise effects for adding sound to films. With its musical pieces and numerous everyday sounds this special record is an ideal aid in converting your movies to sound.

Perfect sound recording in brief

Check the film gauge setting (Super-8 or standard-8) — Connect the projector to the mains supply — Thread a striped film.

Music recording	Mixing in speech
1 Connect the music source (cassette recorder, record player etc.) 	4 Plug in the microphone and fully turn the mixing control to the left. 
2 Turn the mixing control fully to the right to engage. 	5 Press the red recording key and at the same time switch to "Forward". 
3 Press the red recording key and at the same time switch to "Forward". 	6 Before starting to speak turn the mixing control to the right. (Turned fully to the left no speech is recorded, nor music attenuated.) Left-hand scale range = slight attenuation of music Right-hand scale range = strong attenuation of music 
At the end of the music recording turn the main switch to "0" . After rewinding, the film is ready for mixing in the speech or for immediate projection with a music background. 	7 At the end of the commentary turn the mixing control back to the left.  This fading in and out procedure is required at every point where speech is recorded.