

FILM-TECH

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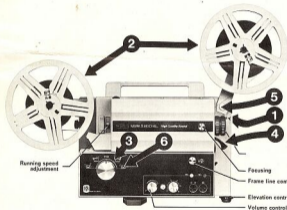
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eumig

MARK S 810 · 810 D · 810 D LUX

Sound Projectors for Super-8 (810) or all 8 mm gauges (810 D, 810 D Lux)



Instructions in brief

- 1 Connect the projector to the mains supply. (First check voltage supply and frequency.)
- 2 Swing up the reel arms. Place the reel with Super-8 or single-8 film (see page 6 for standard-8) on the front arm. Fit the universal reel supplied on the rear arm.
- 3 Move the main switch to the threading position.
- 4 Press the threading key.
- 5 Feed the film into the threading slot. Keep the threading key depressed until the film runs onto the take-up reel.
- 6 Turn the main switch to forward projection.

High Quality Sound

Playback and sound recording at a glance

You will find on page:

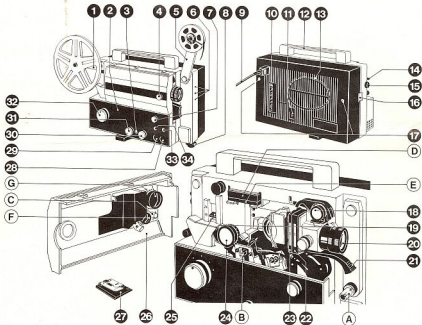
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You have chosen a EUMIG sound movie projector because you are moving with the times and are no longer content with silent films. Your selection of an H.Q.S. unit (High Quality Sound = top performance in magnetic sound films) not only provides the features of simple and straightforward projection and sound recording, but also offers a supreme sound experience.

The Mark S 810 D LUX H.Q.S. is designed for those who require the utmost optical performance and light output in a movie projector.

The high class exceptionally fast $f/1.2$ "Suprogon" zoom lens with its 12.5–25 mm focal length range plus the ideal design of the lighting system yields about 35% more light flux on a 44% larger screen area than H.Q.S. models with the standard 15–30 mm $f/1.3$ lens at the same projection distance.

Carefully read the notes on the following pages: They will help you to get considerable pleasure from adding a further dimension to your films, after all, you have acquired a sound projector because you are no longer prepared to make do with silent movies.



- ① Rear reel arm
- ② Cover of sound unit
- ③ Securing screw of sound unit cover
- ④ Focusing control
- ⑤ Front reel arm
- ⑥ Locating holes for daylight viewer (accessory)
- ⑦ Frame line adjustment
- ⑧ Elevation control
- ⑨ Mains supply lead
- ⑩ Supply voltage selector
- ⑪ External speaker socket
- ⑫ Carrying handle
- ⑬ Loudspeaker
- ⑭ Reel arm catch
- ⑮ Milled inching knob
- ⑯ Sound recording key
- ⑰ Screws of back cover
- ⑱ Small type "S" sprocket
- ⑲ Sprocket guard
- ⑳ Lens
- ㉑ Automatic threading key
- ㉒ Type "S" film pressure pad
- ㉓ Type "S" film guide
- ㉔ Large type "S" sprocket
- ㉕ Running speed adjustment
- ㉖ Lamphouse cover

- ㉗ Film trimmer
 - ㉘ Line output
 - ㉙ Audio, radio and microphone input
 - ㉚ Mixing control
 - ㉛ Volume control
 - ㉜ Main switch
 - ㉝ Red recording signal lamp
 - ㉞ Yellow mixing signal lamp
-

Additional items for the MARK S 810 D H.Q.S. and
MARK S 810 D LUX H.Q.S. models:

- Ⓐ Type "S" sleeve for take-up shaft
- Ⓑ Sound changeover switch for changing gauges
- Ⓒ Peg to hold take-up spindle sleeve

Interchangeable components for changing to standard-8 format are fitted in the lamphouse cover and inside the housing:

- Ⓓ Film pressure pad
- Ⓔ Film guide
- Ⓕ Small sprocket, black
- Ⓖ Large sprocket, black

Accessories supplied with projector

1 Film trimmer	790.0340/0
Strip off the protective foil and attach the trimmer by its self-adhesive base to the projector to have it conveniently at hand. Fit it in such a position that no film trimmings can drop into the projector.	
1 Microphone	908.107/0
1 Fuse	
1 Mains supply lead	
1 Universal AS 18 film reel	596.0250/8
(Can be used as automatic take-up reel or storage reel)	
1 Instruction manual	
1 Guarantee card	
1 Film reel with approx. 20 feet of pre-recorded edge-stripped Super-8 film	790.0360/8

Before connecting to the mains supply . . .

. . . there are a few points which are vitally important for correct operation of the projector:



The voltage and frequency of your projector must match those indicated on your mains supply meter.

a) Voltage

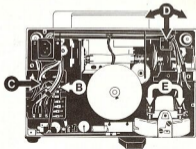
If the mains voltage does not match, unscrew the fixing screws A, remove the back, pull off the red plug B towards the left and attach it to the correct terminal.

Some supply systems are liable to carry temporary overvoltages which can lead to premature projection lamp failure. Where this arises, it is best to adjust the projector to the next higher voltage setting (for instance 230 volts instead of 220 volts). This also extends the burning life of the lamp while slightly reducing the light output.

b) Frequency

The frequency setting can be changed only on special version of the projector. To do this, pull off the blue plug C and attach it to the correct terminal. Move the lever D so that the appropriate frequency indication appears horizontal.

The Transport Lock. For safety in transport, the motor is secured in its central position by two retaining screws E. Before you first connect the projector to the mains supply, these screws must be removed (unless your photo dealer has already done this for you).



Changing the film gauge with the Mark S 810 D H.Q.S. and Mark S 810 D LUX H.Q.S.

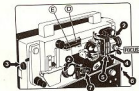
Normally EUMIG multi-gauge projectors are supplied ready for showing Super-8 film. They are however easily converted to projecting standard-8 film. Proceed as follows:



- 1 Remove the lamphouse cover.
- 2 Open the sprocket guards, pull off the film sprockets and replace by the alternative sprockets fitted inside the lamphouse cover. Push on to engage, turning the sprocket if necessary. Then close both sprocket guards.
- 3 Turn the milled knob at the back of the projector to bring the red dot to the top. (This retracts the claw to prevent damage.)
- 4 Fully move the lens forward with the focusing knob, push the film pressure pad towards the lens and pull out.
- 5 Push the film guide towards the lens, carefully withdraw and replace by the alternative guide E held inside the housing. Push the guide in fully, then press to the left to engage the guide pins. Replace the film pressure pad 4 by the alternative pad D.
- 6 Fit the light grey adapter sleeve over the reel spindle for Super-8 and single-8 projection.
- 7 Switch over the sound changeover switch when changing gauges.




Small film sprocket



Large film sprocket

N ↔ S = Standard-8


N ↔ S = Super-8 and Single-8


Replace the lamphouse cover

Alternative parts for standard-8 projection (black)

Large film sprocket	718.1173/4
Small film sprocket	717.1170/7
Consisting of:	
Film pressure pad	718.1131/0
Film guide	718.1139/4

Alternative parts for Super-8 and Single-8 projection

Large type "S" film sprocket, light front face	718.1171/0
Small type "S" film sprocket, light front face	703.1511/5
Consisting of:	
Type "S" film pressure pad	718.1132/1
Type "S" film guide	718.1140/0
Light grey type "S" sleeve for reel shaft	718.3414/0



Type "S" sleeve for reel spindle

Automatic threading




The film automatically threads itself through to the take-up reel core. An ingenious system automatically sets the correct picture/sound separation (18 frames with Super-8 and Single-8, 56 frames with standard-8).

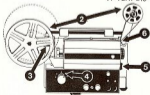
A few points are however important for perfect operation of the automatic threading system: The sprocket guards must be closed, all splices must be perfect and the film should have a leader about 20 inches (50 cm) long. The end of this leader should be slightly curved inwards (clockwise as seen from the reel side of the projector), clearly trimmed and – especially important – free from creases. Use the film trimmer supplied. Fully depress the threading key; insert the film only with the main switch set to "threading".



Silent and sound projection



- 1 Connecting the projector to the mains supply. This immediately starts pre-heating the lamp to ensure maximum operating life.
 - 2 Erect the reel arms and mount the reels. The full reel goes on the front arm, the empty one on the rear arm. When you look towards the screen from behind the projector, the film perforations must be on the right – i.e. towards you as you thread the film from the side.
 - 3 When using a 600 foot (180 metre) reel – for instance the EUMIG universal AS 21 reel – raise the catch and swing the reel arm fully upwards.
 - 4 Move the main switch to "threading" . Do not thread with the switch set to "forward projection" .
 - 5 Press the threading key, which closes the film channel.
 - 6 Then guide the film leader into the threading slot.
- Important:** Keep the threading key depressed until the film runs onto the take-up reel.
7. Turn the main switch to "forward projection" .





Important: When operating the projector, do not obstruct the air stream emerging from the ventilation slots.

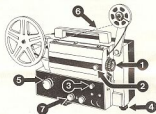
If due to perforation damage or other causes the image appears unsteady on the screen or the projector rattles during running (or both), briefly depress the threading key during projection. If this does not help, briefly switch from forward to reverse projection (or vice versa).

Films can vary appreciably in their handling characteristics, especially with thin film bases. If such films should fail to engage in the take-up reel, guide the film leader into the reel core by hand.

Once the film is threaded and the projector running:


- 1 Adjust the projected image size by turning the zooming ring.
- 2 Focus the image sharply by turning the fine focusing control.
- 3 Adjust the frame line control if parts of two frames appear on the screen with a frame line between them.
- 4 Adjust the elevation control.
- 5 For reverse projection, turn the main central switch to "reverse projection"  – the film now runs backwards. When you change the running direction the frame line may need adjustment.
- 6 Rapid rewind: After the film has run through, attach the end directly to the front reel over the projector and turn the main switch to "reverse" .
- 7 When projecting sound films, adjust to the required playback volume by turning the volume control to the right.

At the end of every show always turn the main switch back to "stop" .



Changing the running speed



Important: Before changing the running speed, always turn the main switch to "stop" , and connect the projector to the mains supply. After switching from 24 to 18 fps, wait for a couple of minutes before projection to allow the flywheel speed to stabilise.

SOUND RECORDING

Easy recording with striped film and automatic controls

Sound recording is supremely easy with EUMIG projectors, because they are designed for magnetic sound films. Once your film has been striped (your photo dealer can get that done for you), you use your EUMIG sound projector virtually like a tape recorder.

The fully transistorised sound section with integrated circuits and automatic recording level control works largely on its own, so that you can devote your full attention to the film.

Before you start

The EUMIG universal re-recording lead

The EUMIG universal re-recording lead, available as an accessory from photo dealer (Order No. 790.0260/2) is a valuable aid to sound recording, as it links most audio units to your projector. Further details on page 16.

Sound recording procedure

Ⓐ Recording through the microphone

This is the simplest and most straightforward way of recording sound.

Ⓑ Recording music

Here music is re-recorded directly from a cassette recorder, record player etc. You can cut in the music abruptly or dissolve gradually.

Ⓒ Sound mixing

Here you mix speech or commentary into an already recorded music background while running the film through the projector a second time. The music background is at the same time suitably attenuated.

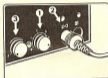
Sound recording procedure

(A) Recording through the microphone

The amplifier incorporates a novel AGFC recording control system (automatic gain and frequency response control) so that the recording always conveys the correct oral impression whether the microphone is close to, or further away from, the sound source.

Connect the projector to the mains supply and insert a striped film.



- 1 Turn the mixing control fully to the right to engage.
- 2 Connect the microphone to the socket marked MG .
- 3 To avoid acoustic feedback (whistling), turn the volume control fully to the left.
- 4 Press the red recording key.
- 5 Switch the projector to "forward projection".

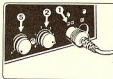


(B) Recording music

Useful aids available for this from EUMIG are the re-recording lead already mentioned and a music and sound effects record or compact cassette (also available from photo dealers) with a wide selection of music passages and general sound effects (see page 25).

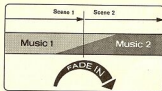
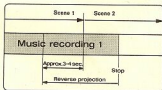
The procedure is simple:

- 1 Connect the tape recorder, record player etc. to the socket marked .
- 2 Turn the mixing control fully to the right to engage .
- 3 Press the red recording key.
- 4 Turn the main switch all the way to "forward projection".
- 5 The sound being recorded can be monitored via the built-in speaker. Use the volume control to adjust the sound volume as required.



Music dissolves

A soft dissolve from one piece of music to another is suitable for cuts between similar shots.



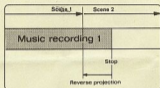
1. Record the music for scene No. 1. Stop the projector just after scene No. 2 appears on the screen. (The recording key automatically jumps out.) Switch the main switch to "reverse projection" and run the film back about 3 or 4 seconds beyond the cut.

2. Turn the mixing control fully to the left, press the recording key and turn the main switch all the way to "forward projection". Then gradually turn the mixing control to the right until it engages. At the same time run the record or tape to record the music for scene No. 2.

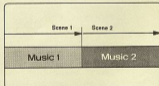
Abrupt music cuts

For transitions between greatly differing shots an abrupt music cut is more appropriate. Here the mixing control always remains fully turned to the right and engaged.

1. Terminate the first recording and wind the film back exactly to the point of the cut. As the projection lamp glows weakly (pre-heating) even with the main switch set to "stop", a faint projected image is visible and you can accurately locate this point by turning the inching knob which is next to the recording key.



2. Press the recording key, turn the main switch all the way to "forward projection" and record the music for scene No. 2.



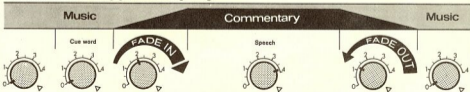
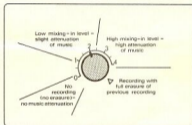
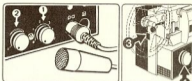
© Sound mixing

Often background music is all you need. But sometimes you may want to add a spoken commentary or special sound effects. This is easy with the mixing control.

Once the music is recorded, re-thread the film and insert the microphone into the socket **QC**. Then:

- 1 Turn the mixing control fully to the left.
 - 2 Turn the volume control also fully to the left.
 - 3 Switch to sound recording: press the recording key.
 - 4 Turn the main switch all the way to "forward projection".
5. Before speaking into the microphone turn the mixing control to the right; this attenuates the background music and records the spoken commentary. You can control the degree of music attenuation and the recording level of the mixed-in commentary as required by adjusting the mixing control. If you speak a brief cue word – for instance "attention, recording" into the microphone immediately before operating the mixing control, the automatic recording level control suppresses unwanted room noise during mixing.
6. When you have finished speaking, turn the mixing control back to the left. This ends the mixing sequence and the music regains its original level. This sequence of fading in and out is carried out for every speech passage.

As with microphone recording (described already), turning the main switch back to "stop" disengages the recording setting.



Operating controls

1. **Switching to recording.** First press the red recording key (which causes the red signal lamp to light up) and then quickly turn the main switch past the "threading" position to "forward projection" ☀. **You can only record sound with the main switch in this position and the recording key depressed.** On turning the switch back to "threading" ☉ or "stop" ☁ the projector automatically returns to the playback mode to prevent inadvertent erasure.




2. **The mixing control,** as we have seen, permits soft music dissolves and over recording of commentary or sound effects while attenuating an already recorded music background. In this sound recording mode the yellow mixing signal lamp lights up. As marked on the scale, you can also have intermediate positions. With the knob turned fully to the left, the sound unit does not record; in the left hand half of the scale you have a low level of mixed-in recording and low attenuation of music. In the right hand scale range you have a high level of mixed-in recording and considerable music attenuation. The extreme right hand position provides full recording and complete erasure of previous recordings.

3. **The volume control** adjusts the playback volume, and the monitoring volume during re-recording from audio units connected to the projector. As the recording level is controlled automatically, the position of this control during recording has no effect on the recording level. But to avoid acoustic feedback (whistling) while recording through the microphone, keep the volume control fully turn to the left.

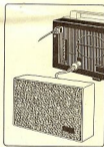



4. **Erasure** of a previous sound recording takes place automatically during every new recording. The only exception is during mixing (page 12). But you can also erase a track without recording a new one, by switching the main switch to "forward projection" without a microphone or other sound source connected.

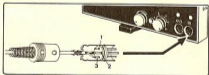


5. **Connecting supplementary units.** You can also connect an external speaker to set up near the screen by connecting it to the socket . This switches off the built-in speaker. For optimum playback quality and a full frequency range we recommend the LS 800 extension speaker which is matched to your projector (Order No. 790.0350/3).

When connecting several speakers check that the total impedance is at least 4 ohms. Two 4 ohm speakers wired in parallel only have an impedance of 2 ohms.



You can also feed the projector output into an external amplifier. Plug this into the line output . Check that the connecting lead is correctly wired.

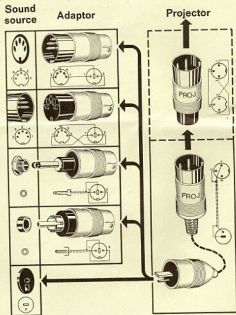


The EUMIG Universal Re-recording Lead

Order No. 790.0260/2

Unfortunately, audio units do not have standardised output sockets, nor are connecting leads always wired the same way. EUMIG has therefore produced a universal re-recording lead to connect practically any audio source to your sound movie projector. With the adaptors provided you can plug the lead into almost any audio unit on the market. The lead is easy to handle:

1. Select the appropriate adaptor and plug it into the audio unit to be used.
2. Connect the lead to the projector **OG**.
3. Plug the other end of the lead into the adaptor.
4. If the projector does not record properly (too low a sound level or distorted sound) due to a mismatch with the circuit of the audio unit, try plugging the lead into the adaptor with reversed polarity.
5. If the recording level is still too low you should the reverse polarity plug between the projector and recording lead.



Changing the lamp (disconnect the mains lead first)

Required lamp type: 12 volt/100 watt tungsten-halogen lamp with dichroic reflector, Order No. 931.004/6.

Not even the best lamp lasts for ever. If it fails you can easily change it yourself.

1. Remove the lamphouse cover.
2. Pull off the lamp plug from the rear.
3. Push down the lamp retaining spring and disengage by swinging to the left, then remove the lamp. With multi-gauge projectors take care not to move the coils on the sound change-over switch for film gauge switching.
4. Fitting the new lamp: Never touch the bulb or inside of the reflector with bare fingers. If you touch them accidentally, clean with alcohol or methylated spirit. Lift the lamp retaining spring and push the lamp, in contact with the lamp fitting, into the bottom centering guide. The centering lug of the lamp reflector must engage the cut-out provided for it.
5. Push down the lamp retaining spring and engage by moving to the right. The lamp unit needs no subsequent centering.
6. Re-attach the lamp plug and replace the lamphouse cover.



Replacing the fuse (disconnect the mains lead first)

The fuse rarely needs changing, but here is how you do it: The fuse protects the amplifier against overloads, but does not protect the projector against damage through connection to the incorrect mains voltage. Remove the back cover; the fuse is then visible at the left of the amplifier circuit board.



Cartridge fuse 5 x 20 mm; 2 amps, surge-resisting. Order No. 906.721/8.
For USA: Cartridge fuse 2.5 amps, Order No. 906.702/4.

Care of the projector and general hints

EUMIG sound projectors generally need no maintenance, as all moving parts are permanently lubricated. The only sensitive points are the film track and gate which may collect dust and film debris. Remove this with a soft rag or a sable brush, or by scraping with a wooden stick if necessary. The film gate elements are easily removed for cleaning.



Turn the milled knob (15) — see page 2 — to bring the red dot to the top. This withdraws the claw to protect it against damage.

- 1 Move the lens fully forward by turning the focusing knob.
- 2 Push the film pressure pad towards the lens and withdraw.
- 3 Push the film guide towards the lens and carefully withdraw.

Important note: The lens is fully removable on slightly pulling out the focusing knob and withdrawing the lens from the carrier tube. The lens can now also be cleaned. Before replacing check that the engagement groove of the lens faces you (see illustration). Now push the lens into the carrier until it engages audibly.



Film care

Various film preservatives are available from photo dealers; use them for periodic treatment of your films. The best way is to run the film through a soft cloth soaked with the cleaning agent. Films to be striped should only be cleaned with a soft and fluffless linen cloth dampened with surgical spirit.

Important notes for good sound quality with striped film:

As with any high quality sound recording and reproducing system, sound quality depends on the specifications of your recording unit and the condition of the striped film.

At 18 fps your EUMIG High Quality Sound projector reproduces a frequency range from 75 to 10,000 Hz with a running speed constant within $\pm 0.4\%$ (measured according to German Standard DIN 45 507).

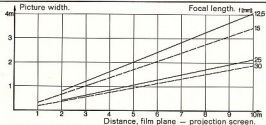
The newly developed pressure pad reduces level fluctuations below 3 dB at 5 kHz — half the level of existing standards.

1. Check that splices are neat and preferably within the film thickness.
2. To avoid noise interference at splices edge stripe the film only after editing. Use a high quality stripe, for instance Agfa F5.
3. Do not use any antistatic agent before striping, as this can impair adhesion of the stripe.
4. Store films protected against dust, preferably in film cans with humidifier added.
5. In order to take maximum advantage of the possibilities of the projector you should use only high quality audio sources.
6. For playback connect an external speaker (Eumig LS 800, Order No. 790.0350/3).

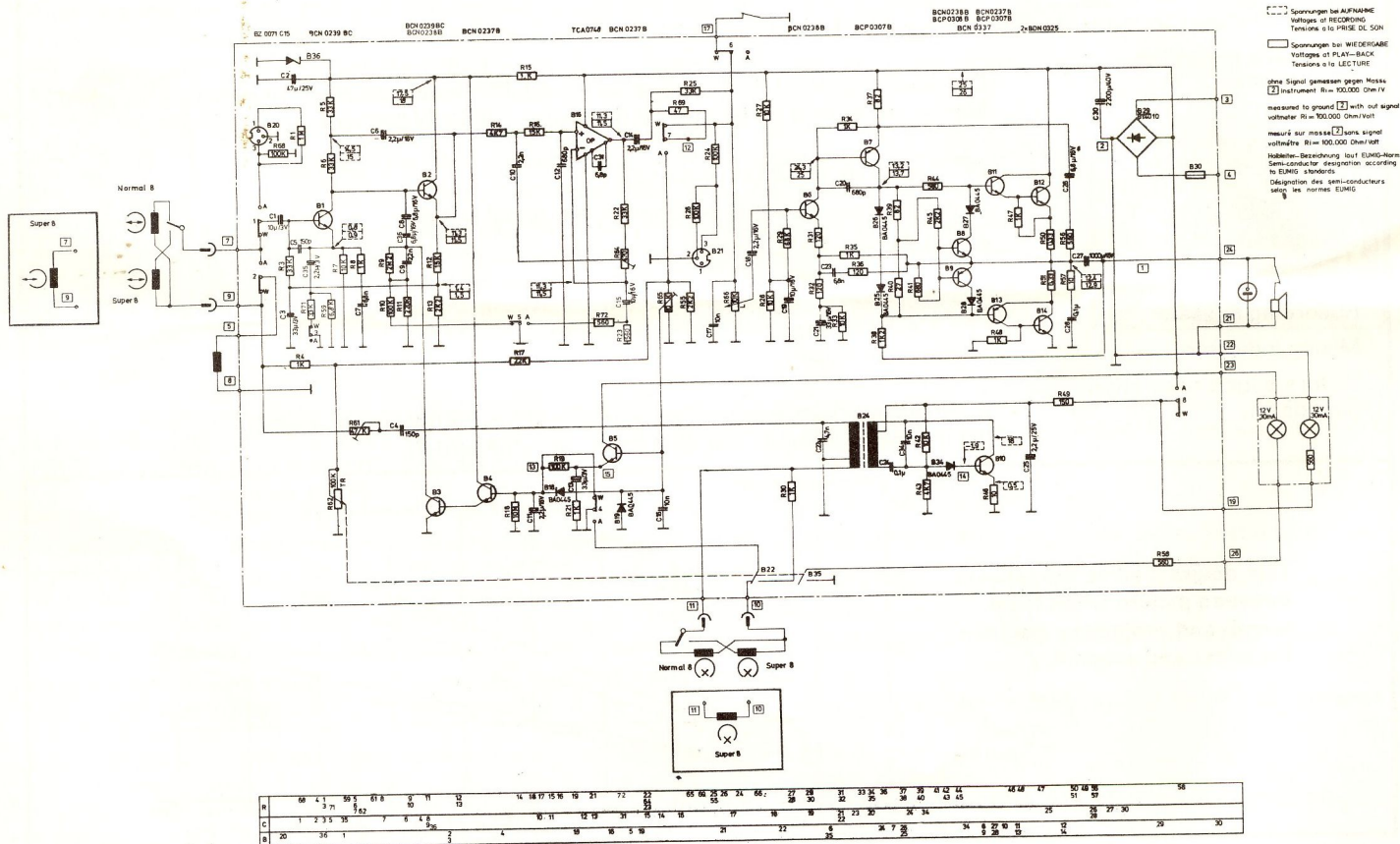
Technical Data

Low ohm input (microphone):	0.3 – 150 mV, 22 kOhm
High ohm input (phono):	50 mV – 3 V, 1 MOhm
Automatic recording level control:	Compensates level fluctuations up to 50 dB. Response time 10 milliseconds, hold time — depending on input level duration — up to 60 seconds.
Frequency range with edge stripe:	75 – 10,000 Hz at 18 fps (Super-8)
Amplifier output:	15 watts music, 10 watts continuous sinusoidal output
Line output:	0.5 – 1.5 volts, 50 kOhms
Speaker:	4 – 8 Ohms, 10 W
Recording indicator:	Red signal lamp
Mixing indicator:	Yellow signal lamp
Picture/sound separation (standard):	Automatically switches over to appropriate picture/sound separation (18 frames with Super-8 or 56 frames with standard-8)

This diagram gives the relation between picture width focal length and projection distance for super and single 8.



Mark S 810 D H.Q.S. Mark S 810 D LUX H.Q.S. Mark S 810 H.Q.S.



Daylight Viewer (Eumig Ordering No. 790.0390/4)

The Daylight Viewer displays even in broad daylight - a bright, high-contrast picture on a small ground-glass screen.

Just snap it on for a preview of your film or a screening under daylight conditions before a small audience.

You will find it extremely helpful in film editing and sound-track building, too.



Pleasure in filming: With the eumig mini 3 servofocus

Attractively and elegantly styled — easy to use. No other movie camera is so simple to operate. The Servofocus system ensures perfect results from the beginning.



Also available in a presentation pack with soft pouch case, hand-grip and sling.

eumig mini 3
servofocus

Perfection and versatile features with miniaturised technology: Eumig Mini 5

With the macrozoom you explore a fascinating microcosm.

Also available in a presentation pack with soft pouch case, hand-grip, sling and lens hood.



eumig mini 5
makro zoom



The Eumig LS 800 speaker cabinet

This 4 ohm/10-watt speaker has been specially developed for the H.Q.S projectors and presents **HIGH QUALITY SOUND** in its full dynamic range and richness.
(Order No. 790.0350/3)



Eumig splicers Chemo splicer

The simplest yet most advanced splicing system ever, the Eumig Chemo splicer intercuts the film ends with a serrated edge.

Bevel edge splicer

Simple bevel edge splicer for traditional splices. It is supremely easy to use.



Eumig universal re-recording lead

(Order No. 790.0260)

This is Eumig's aid to link your Eumig sound projector simply and easily to almost any audio unit. For this purpose Eumig has developed a universal lead with various special adapters. Available from your photo dealer.

See also page 16.



Eumig film reels

A selection from the wide range of EUMIG reels:

Universal take-up and library reels:
AS 18 for 400 feet (120 metres);
AS 21 for 600 feet (180 metres),
for both Super-8 and standard-8 films,
in carton.
EUMIG take-up reel in library case,
300 and 400 feet (90 and 120 metres)
for both Super-8 and standard-8 films.
EUMIG EUROPA universal reel
in library case, for 300, 400 and
600 feet (90, 120 and 180 metres) of
Super-8 and standard-8 film.

Eumig music and effects record

Order No. 930.077/8

Eumig music and effects cassette

Order No. 930.078/8

Film music and effects for
adding sound to home movies.
A wide selection of music
passages and background sound
effects. The ideal aid for sound
recording on your films.



Dust cover for Eumig projectors



These durable covers
not only protect your
projector against dust
during storage, but also
hold various accessories
such as the main lead,
spare reels etc.

When ordering please
quote the projector mod-
el.

Two booklets of movie hints available from photo dealers.

Movie making without tears

Max Abegg, internationally famous
expert author in the movie field,
draws on his many years of
experience to give valuable hints
for all movie makers.



Eumig makes sound movies easy

The author shows how easy adding
sound is with a Eumig sound
movie projector, and how to
combine and organise fully
professional sound effects.
Contains a wealth of practical hints.



Perfect sound recording in brief

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

Music Recording

- 1** Connect the music playback unit (cassette recorder, record player etc.)



- 2** Turn the mixing control fully to the right to engage.



- 3** Press the red recording key and turn the main switch all the way to "forward projection".



At the end of the music recording turn the main switch to "stop".
After rewinding, the film is ready for mixing in the speech or for immediate screening with a music background.



Mixing in speech

- 4** Plug in the microphone and turn the mixing control fully to the left.



- 5** Press the red recording key and turn the main switch all the way to "forward projection".



- 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 music attenuation
Right hand scale range = strong music attenuation



- 7** At the end of the commentary turn the mixing control back fully to the left.



Repeat this fading in and fading out sequence at every point where speech is to be recorded.