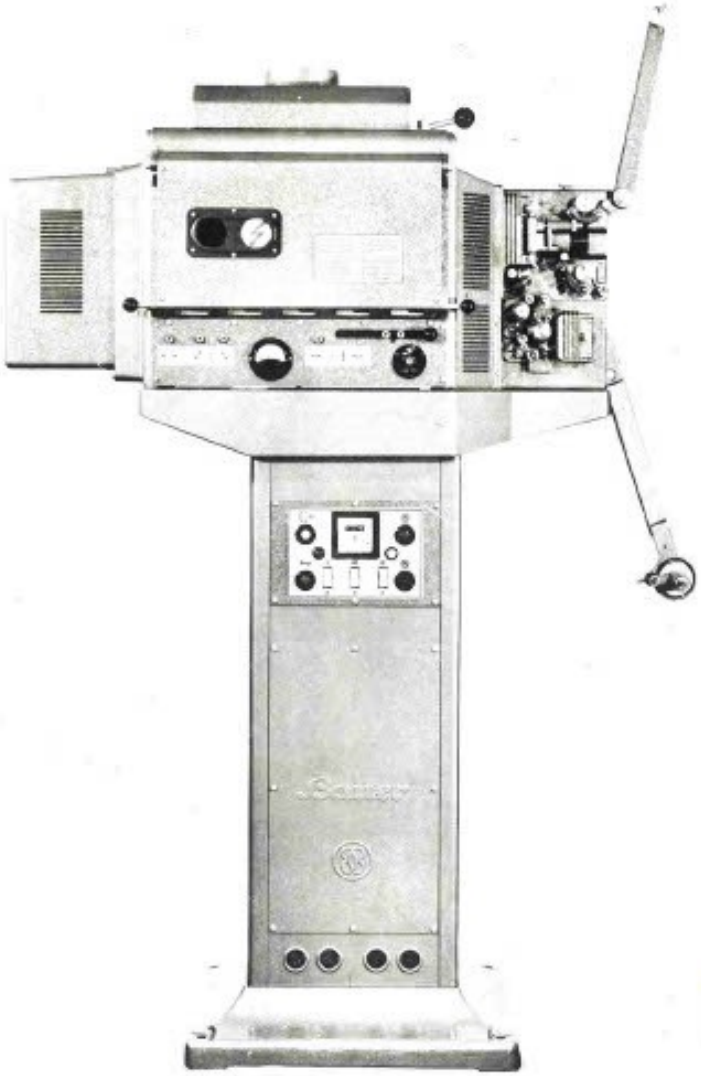
BAUER SELECTON II O

Instruction Manual



Ill. 1 BAUER Selection II 0 complete with xenon lamphouse SL 6 X and 5,000-foot reel arms

General Description

The BAUER Selecton II O is a 16-mm sound projector for installation in movie theaters or wherever top-notch quality in picture and sound is a fundamental requirement.

This projector is fitted with a Maltese-cross intermittent drive and a xenon lamphouse. The choice of the lamphouse depends on the size of screen to be illuminated.

The SL 6 X 1 is intended for a 900-w xenon bulb and for a load of 30—40 amps, the SL 6 X 2 is intended for a 1600-w xenon bulb, load 45—75 amps.

Table of picture widths

Lamp xenon	Standard screen width type of screen		Cinemascope screen width type of screen	
	matte	beaded	matte	beaded
1600-w	21,3 ft	29,5 ft	31,1 ft	42,6 ft
900-w	16,4 ft	22,9 ft	22,9 ft	32,8 ft

The above figures are based on the accepted standards of screen illumination and light intensity. They were obtained with a coated lens of medium focal length.

A considerable amount of ozone is produced within the lamphouse. For this reason, the projector must be set up in a special projection room.

National regulations issued for standard 35 mm projection are mostly not fully applicable in the case of 16 mm projection. The application may, however, be limited by the rating of the xenon bulb.

If the respective projection room does not permit the installation of an air vent, the Selecton II O, if used with a 900 w xenon bulb, may be fitted with an air duct with built-in exhaust motor and special filter which absorbs the ozone.

The BAUER Selecton II O is available in two types:

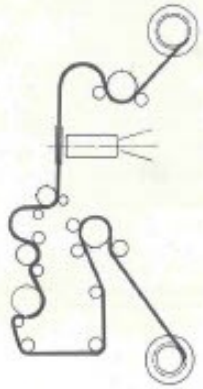
1. For optical sound reproduction
2. For optical and magnetic sound reproduction.

Operation

Before starting operation, make sure that the projector gear housing is filled with oil to the prescribed level (red mark on oil level indicator glass, see ill. 10 no 16).

The Threading

The film must be laced according to the schematic drawing below.



Ill. 2 Film path (schematic drawing)

I. Preparations

1. Thread the film according to the lacing chart. Watch perforations with reference to teeth of rollers. Provide for loops above and below film gate.

Switching to be made on the operating panel on the pedestal

2. Switch on white main switch I ; control signal light turns red.
3. Press black motor push-button switch (M) very shortly (test run)
4. Switch on rectifier (⇧ ⇐ for xenon bulb

Operations on lamphouse bottom right:

5. Press ignition knob for xenon bulb

Operations on the projector gear house case right beside the sound drum

6. Switch sound selector
   White dot: optical sound
   blue dot: magnetic sound

On operating panel in pedestal

7. For optical sound performance also switch on exciter lamp rectifier ⊗ ; control signal light turns white.

Ill. 3 Projector switch panel with operating hours counter

II. The performance

On operating panel in pedestal:

8. Press green motor switch knob (M)

On light exit side of lamphouse:

9a. Open the manually-operated douser.

On operating panel in pedestal:

9b. Switch on pre-amplifier ▷

10. Adjust sharpness, frame line and sound control.

III. After the performance

11a. Close manually-operated douser

11b. Switch off sound by way of pre-amplifier ▷

12. Press red "stop" switch button

Special features

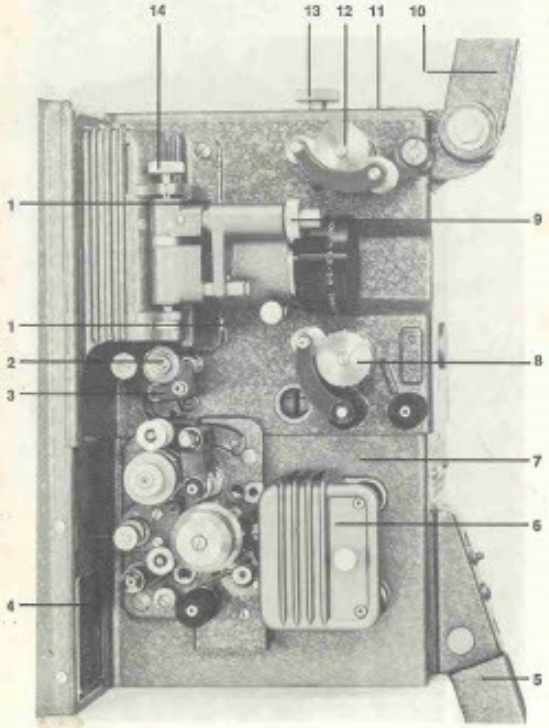
To meet the special and exacting requirements of 16-mm sound projection, the BAUER Selecton II O incorporates all the professional features of a modern standard 35 mm movie theater machine, such as

1. Gear and sound assembly, drive motor and reel arms.
2. Table plate for mounting projector mechanism and lamphouse
3. Pedestal with switches for lamp and motor. The pedestal houses the pre-amplifier for sound reproduction as well as all electrical connections for the projector
4. Lamphouse (see special instructions!)

The projector

The projector mechanism (ill. 4)

comprises all functional elements of the film transport. All gears run in oil. They hardly need maintenance.

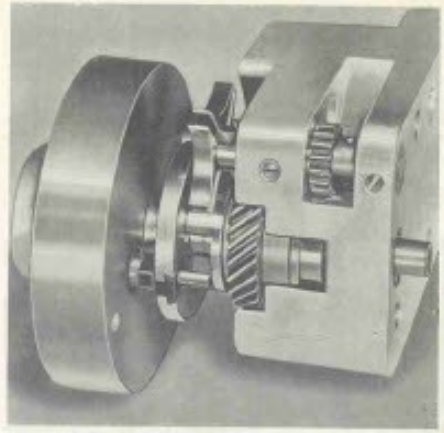


Ill. 4 Projector mechanism of Selecton II O

1 = Knurled nut for adjustment of runner pressure
2 = Intermittent sprocket
3 = Tap-on roller holder for intermittent sprocket
4 = Film lacing chart
5 = Take-up reel arm
6 = Exciter lamphouse
7 = Sound unit (see illustration 10)
8 = Take-up sprocket
9 = Focusing
10 = Feed reel arm
11 = Oil filling screw
12 = Feed sprocket
13 = Inching knob
14 = Frameline adjusment

The Maltese cross intermittent drive (ill. 5)

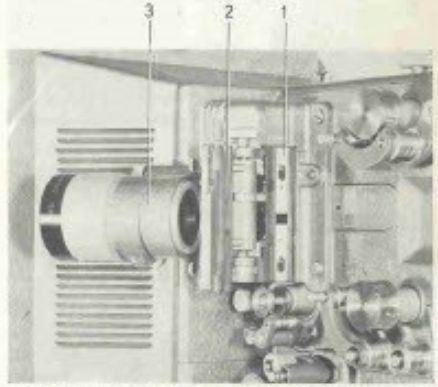
is especially designed to run at a low rate in order to save the film as in the 35 mm field. All rollers can be lifted off wide enough to permit easy access for cleaning and for lacing the film.



Ill. 5 Maltese cross intermittent sprocket

The film gate (ill. 6)

may be swung wide open. The low ratio of the intermittent drive and the long film gate require very little runner pressure.



Ill. 6 Film gate of the BAUER Selecton II O (the lens holder may swung wide open)
1 = Film gate
2 = Steel pressure runners
3 = Lens holder with lens

Cooling of the film (ill. 12)

A blower behind the gear housing ensures quick exhaustion of the hot air and the supply of sufficient cool air for those parts of the projector wihch are warmed up by the projector and are in direct contact with the film.

The racking mechanism (ill. 4)

is so designed that the projected image is shifted only a little.

The automatic douser (ill. 13)

will open the light exit for the xenon light only after the run-up of the machine is completed. It is operated through a centrifugal switch and over an electromagnet which also closes the douser when the projector runs down. This guarantees that the film will not be damaged by heat.

The lens holder (ill. 6)

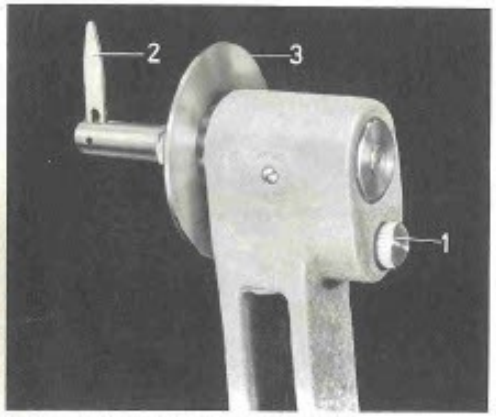
is designed to hold any standard projection lens with a barrel diameter of 42.5 mm.

The reel arms (Ill. 4)

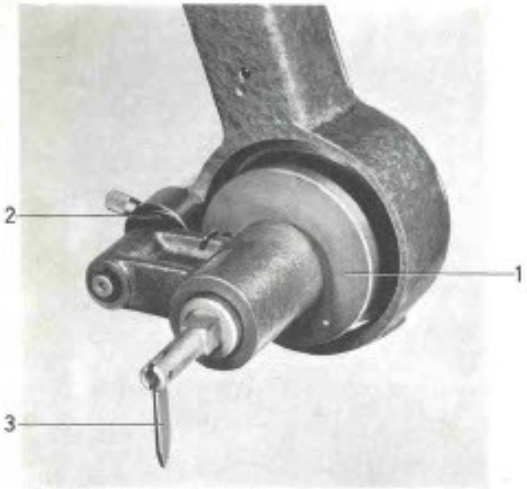
have a maximum capacity of 5.000 feet, equivalent to a projection time of 135 minutes.

The feed reel arm

is mounted to the top end of gear housing. It is fitted with adjustable brakes which will prevent the supply reel from running too fast and from feeding too much film which may drop in front of the lens in a loop.



Ill. 7 Braking device of upper reel arm (feed reel arm)
1 = Screw for adjustment of braking effect
2 = Reel-locking
3 = Braking disc



Ill. 8 Load-dependent take-up friction
1 = Friction disc
2 = Tensioning spring for increasing the friction
3 = Reel-locking

The take-up reel arm

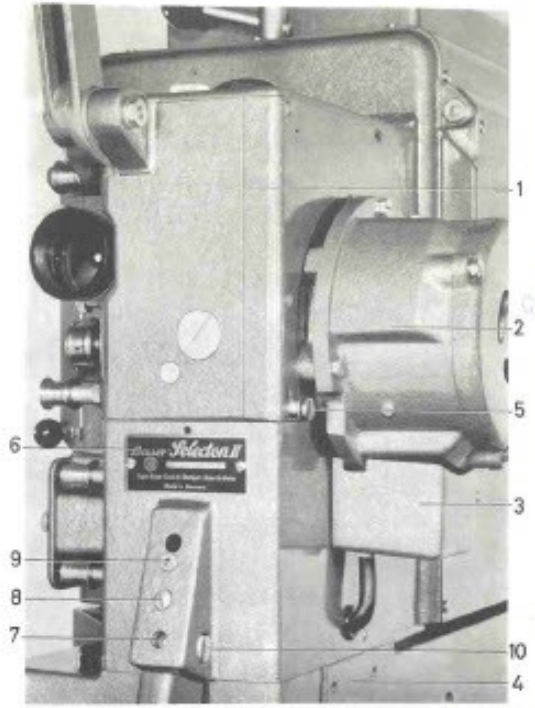
is fitted with a load-controlled friction which adapts the take-up torque to the number of windings on the reel. This friction drive is accomplished over a rigid shaft.

The drive motor (Ill. 9)

is flange-mounted to the projector gear housing and is elastically coupled to the gear mechanism.

Motor equipment for 50 c-mains:

1. Asynchronous motor 3x380 v for 24 im/sec.
2. Synchronous motor 3x220 v for 25 im/sec.
3. Asynchronous motor 3x380 v for 16 and 24 im/sec.



Ill. 9 The drive motor is flange-mounted to the projector mechanism of the Selecton II 0

1 = Housing of projector mechanism
2 = Motor
3 = Protective cap for motor connection
4 = Table plate
5 = Oil draining screw
6 = Nameplate; after removal of this plate there is access to the coupling for the drive shaft of the take-up friction
7 = Retaining screw; reel arm retaining-bolt
8 = Screw for mounting reel arm to mechanism housing
9 = Screw-and-nut arrangement for fixing the inclination of the reel arm
10 = Retaining bolt for reel arm

Motor equipment for 60 c-mains:

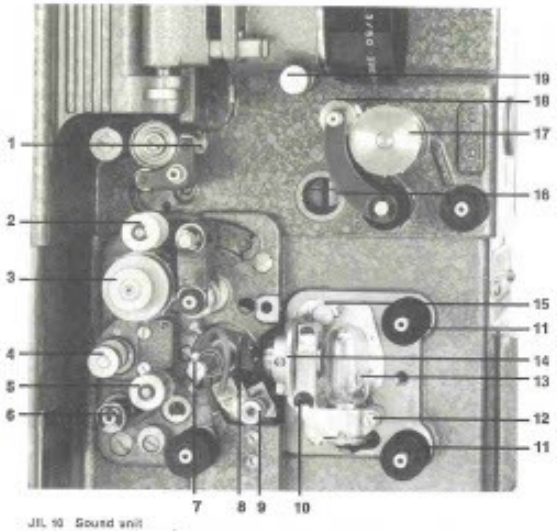
1. Single phase A.C.-motor 115 v with gearing for 24 im/sec.
2. Synchronous motor 3x208 v with gearing for 24 im/sec.

Table plate and pedestal

The table plate may be tilted 5 degrees upward and 10 degrees downward and may be locked at any tilting angle. The table plate has holes for passing the necessary leads and cables. The pedestal is the stand for the plate. On the operator side, the pedestal is fitted with a switch plate for operating the projector. Inside, the pedestal houses the pre-amplifier as well as all electrical connections for the lamp, the projector mechanism and the sound assembly. There is easy access to all terminals once the cover plates on the operator side have been removed.

Switch plate

Page 2 contains instructions and illustrations about the functions of the switches, controls and indicators as well as the operations to be made during a performance.



Ill. 10 Sound unit

1 = Lay-on roller of intermittent sprocket
2 = Lay-on roller of braking roller
3 = Braking roller
4 = Optical/magnetic sound selector switch knob
5 = Compensating roller
6 = Retaining bolt for compensating roller lever
7 = Axle of rotating sound drum
8 = Photosensitive element
9 = Retaining bolt for magnetic reproduction head
10 = Screw for lateral adjustment of slit image
11 = Reversing guide rollers
12 = Tightening screw for exciter bulb
13 = Exciter bulb
14 = Sound optics
15 = Screw for axial adjustment of the slit image
16 = Oil level indicator glass
17 = Take-up sprocket
18 = Lay-on roller
19 = Tightening screw for projection lens

The sound assembly

A. Optical sound

The sound assembly of the BAUER Selecton II 0 is an integral part of the projector. The rotating sound drum is fitted with a flywheel which guarantees a smooth and even run of the film at the point where the sound is scanned. An additional brake roller and a compliance lever assist the flywheel in absorbing the slightest irregularities in the film run.

The exciter bulb is operated on 6 v, 5 amps. It is supplied from the built-in pre-amplifier. It is operated below rated voltage. This in turn guarantees a long bulb service.

The sound optics

are adjusted with special tools to ensure maximum sound quality. The respective retaining screws are sealed. Their position must by no means be changed.

The narrow light beam produced by sound optics and exciter bulb scans the sound track and passes directly to the photo-sensitive element which is fitted into the interior of sound drum.

B. Magnetic sound reproduction

For the showing of film with a magnetic sound track, the projector is fitted with a magnetic sound head behind the rotating sound drum.

With a selector knob it is possible to switch from optical to magnetic sound reproduction. This knob also switches the amplifier from magnetic to optical sound or vice versa.

The connections to the amplifier are in the lower part of the magnetic sound assembly plate.

The pre-amplifier

is built into the pedestal or column of the projector right below the operating switch panel. It is of course designed for optical and magnetic sound reproduction. The pre-amplifier is switched to optical or magnetic sound by swinging the magnetic sound head in or out.

Ill. 11 Pedestal-and-column arrangement with lower cover removed. The upper frame contains the pre-amplifier, the lower one houses electrical connections; the middle frame contains the A.C. connections; left edge: D.C. connections for xenon lamp.

Optical sound reproduction by silicon photo-electric element

Frequency response	± 3 dB
Volume control	+ 4 dB — 6 dB
Treble and bass control	± 3 dB

Magnetic sound reproduction (distortion within the limits set by DIN standards)

Freuency response	± 3 dB
Volume control	+ 2 dB — 6 dB
Treble and bass control at 12 kHz	± 3 dB

The outlet to the main-amplifier is not grounded.

Output level, optional 0.2 v / 0.5 v / or 1.5 v } on 3 k/ohms

Output at auditorium remote control: 3 k/ohms (unless auditorium remote control is connected to main amplifier).

Assembly

The arrangement of the projection window and the setting up of the machine itself is explained on page 8-9.

In order to ensure a solid stand and an absolutely steady support for the unit, it is recommendable to mount the base plate of the pedestal to the floor of the projection room. Wherever there is any danger of running noise penetrating to the auditorium, it is expedient to use shock-absorbing and sound-dampening cork or rubber supports.

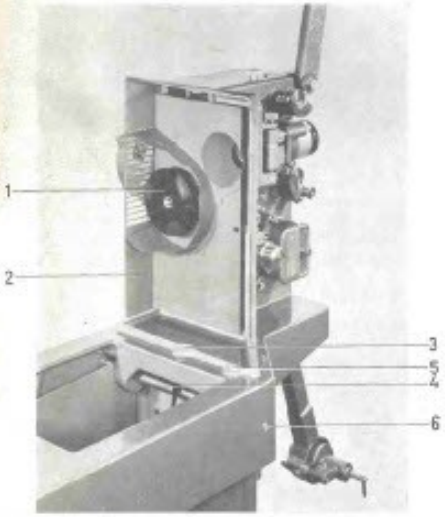
In order to determine the ideal position of the equipment, it is recommendable to assemble the whole machine and to align the projector to the screen. This in turn determines the proper position of the pedestal foot on the projection room floor. Changes after the installation would be very cumbersome and difficult.

Assembly of table plate and pedestal

Pedestal and table plate come in separate cases. For mounting the table plate onto the column of the pedestal use the axle which is slid into the boreholes of the table plate for the transit. This axle is retained through a set screw.

After removing this screw it is possible to take the axle out of the table plate. Then turn the set screw on the operating side of the table plate until the table plate fits snugly over the column of the pedestal.

After putting the table plate on the pedestal insert the axle from the rearside into the holes of the table plate. Now tighten the set screw on the side and after that tighten the screw on the operator side of the table plate. This latter set screw, which is parallel to the axle, is to prevent any sideplay of the table plate on the column. After adjusting the axle and after tightening the two screws the table plate may be lifted and tilted at the rearside. The tightening screw will fix the table in any tilted position. For shipping this tilting device is attached to the rear inside of the column. The tilting device is fixed to the underside of the table with two screws.



Ill. 12 Table plate and projector mechanism without lamphouse

1 = Blower for ventilation of projector mechanism and film gate; located behind the blower is the centrifugal switch for the automatic douser.
2 = Cover for light exit
3 = Borehole for mounting lamphouse to table plate
4 = Axle for pivoting table plate
5 = Set screw for retaining the axle
6 = Set screw for limiting sideward play of axle

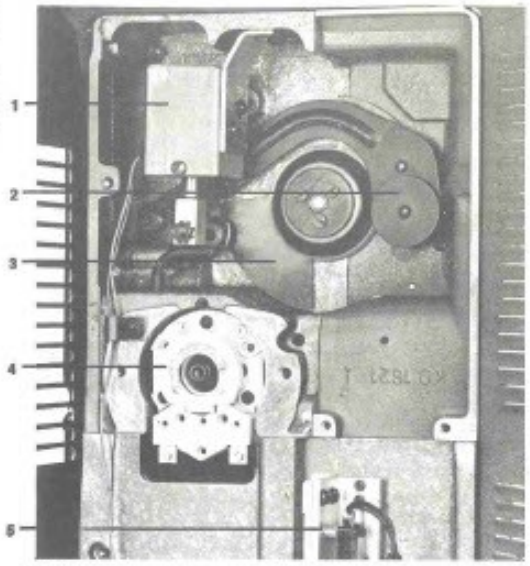
Projector mechanism

Now mount the projector mechanism onto the table plate with three screws. Cables stick out of the bottom of the projector mechanism. Lead these through the holes in the table plate before mounting the mechanism.

There is a row of terminals at the upper edge of the column. For access to these terminals remove the cover. The cables leading to motor and exciter lamp must be connected to this terminal. Matching cable ends and terminals are clearly coded.

Power supply cords leading to the projector should be permanently installed; preferably use steel tubes which go right into the pedestal.

The leads must be connected to the terminals in the bottom of the pedestal. The ignition device for the xenon lamp must be supplied with single-phase A.C. 220 v. The lamp itself must be powered with D.C. current. The respective lamp terminals are situated to the left of the D.C. terminals.



Ill. 13 Projector mechanism, seen from lamphouse side

1 = Magnetic switch for douser
2 = Douser
3 = Rotating shutter
4 = Centrifugal switch for douser
5 = Amplifier switch

Connections for magnetic sound reproduction

As already mentioned, the terminals for connection of the magnetic sound reproduction system are located at the bottom of the magnetic sound base plate. Screened cables lead from here to the amplifier.

The xenon lamphouse

Before mounting the lamphouse it is expedient to run the projector mechanism in order to find out in which direction the motor drives. First of all, however, fill the gear house with projector oil (see page 7). When the motor is switched on, the motor must rotate in the proper direction, that is to say, the feed shaft and the take-up shaft must turn clockwise. If this should not be the case, two phase connections of the D.C. supply must be reversed.

Then mount the lamphouse. Remove the cover plate from the rearside of the lamphouse before putting the lamphouse onto the table plate. This cover is retained by two screws.

When putting the lamphouse onto the table plate, insert the lamp cable through the respective hole in the lamphouse bottom, right under the row of terminals. Connect the cable ends according to their respective polarity. Watch carefully for the pole marks on the cable ends. The lamphouse is mounted to the table plate with three screws which are inserted from the bottom of the table plate. For detailed information, see our pamphlet on the "Xenon Lamp SL 6 X".

5,000-foot feed reel arm

The feed reel arm is dismantled for shipping. This arm is mounted with a hexagon screw plus bushing and washer. The position of the arm is determined by a clamping pin.

The knurled screw at the rearside of the feed reel arm is an adjustment screw for the built-in brake. The feed reel shaft must be braked so that the film will not fall off the feed reel.

5,000-foot take-up reel arm

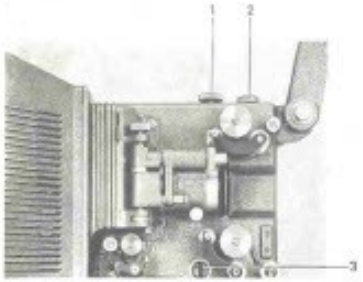
This arm is also removed for shipping. The drive shaft sticking out of the top of the reel arm is fitted with a coupling piece.

For mounting the take-up reel arm, remove the two socket head cap screws and take out the slit bearing bolt. **Attention!** There is a pressure spring in the take-up reel arm assembly between drive shaft and take-up friction and right under the catch. Watch this spring carefully when you loosen the retaining screws. This spring is necessary to ensure a silent run of the take-up reel arm (ill. 9). Now insert the reel arm from below into the recess in the cast-iron housing. Turn the knurled knob on top of the gear housing until it is possible to insert the coupling piece. Now insert the slit bearing bolt from the operator side, slit first, right into the bearing of the take-up reel arm until this is perfectly seated. Then fix the slit bearing bolt to the take-up reel arm with the aid of the small socket head cap screw. Insert the big screw into the threaded hole.

This screw is to retain and firmly mount the reel arm. Do not turn the sealed hexagon screw at the bevelled edge; this screw retains the arm in its proper position.

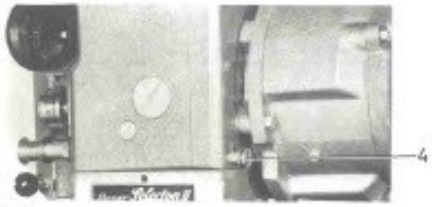
How to put in the lens

At a medium position of the focusing screw, lenses are inserted into the lens holder in such a manner that the edges of the aperture are sharply outlined on the screen. Then tighten the clamping screw. The lenses must be so inserted that the front ring with the BAUER engraving and the lens data face the screen.



Ill. 14

1 = Inching knob
2 = Oil filling screw
3 = Oil level indicator



Ill. 15

4 = Oil draining screw

How to lubricate the projector

When the projector is assembled and connected, it is imperative to put projector oil into the gear housing. The oil filling screw is on the top of the gear housing right behind the feed reel arm. The motor must not be switched on before the necessary amount of oil has been filled into the gear housing. It may not even be advanced manually without that. The proper oil level is clearly indicated at the oil level indicator glass when the projector mechanism does not run.

Lubrication

Type of oil

For lubricating the projector we highly recommend to use BAUER projector oil. This will not thicken or produce resinous substances provided the oil is changed regularly. This in turn means long life for the gears. The viscosity and composition of this oil is such that it is equally suitable for summer and winter operation.

If such BAUER projector oil should not be available once, it is possible to use a good automobile winter oil.

Filling in the oil

The oil must be poured in through an oil funnel which is fitted with a fine strainer. The oil level should be at the red mark in the oil level indicator glass when the projector does not run and when it is either in a horizontal position or tilted slightly downward. Make sure not to pour in too much oil, otherwise oil may leak out through the bearings of the axles.

Oil change

The oil must be changed the first time after 50 operating hours. The second oil change is necessary after another 100 operating hours and from then on after every 200 hours. It is higly important to drain the oil right after a showing as long as it is warm and thin. Remove the oil draining screw and tilt the projector forward. It is recommendable to rinse the gears with some fresh oil before refilling completely. For this purpose put in the draining screw and switch on the motor just for a few seconds. Never add fresh oil to old oil.

Lubricating points

Before the first performance — and also regularly later on — oil or lubricate the red-marked lubricating points and the feed and take-up reel arms.

Lubricating schedule

In general, it is advisable to lubricate at regular intervals. Lubricate frequently but do not apply large quantities of oil, otherwise the projector may soon be very dirty. Wipe off any excess lubricant, because this will attract a lot of dust which will form a layer or crust which makes the film dirty.

When several performances are made with a projector in one day, it is recommendable to apply a drop of oil daily to all bearings of the feed and take-up reel arms.

To be lubricated once a week:

All rollers of the projector mechanism and optical sound device must be oiled weekly. For this purpose remove the rollers, clean all bore holes and axles with a little bit of acid-free oil such as normally applied to sewing machines.

To be lubricated once a month:

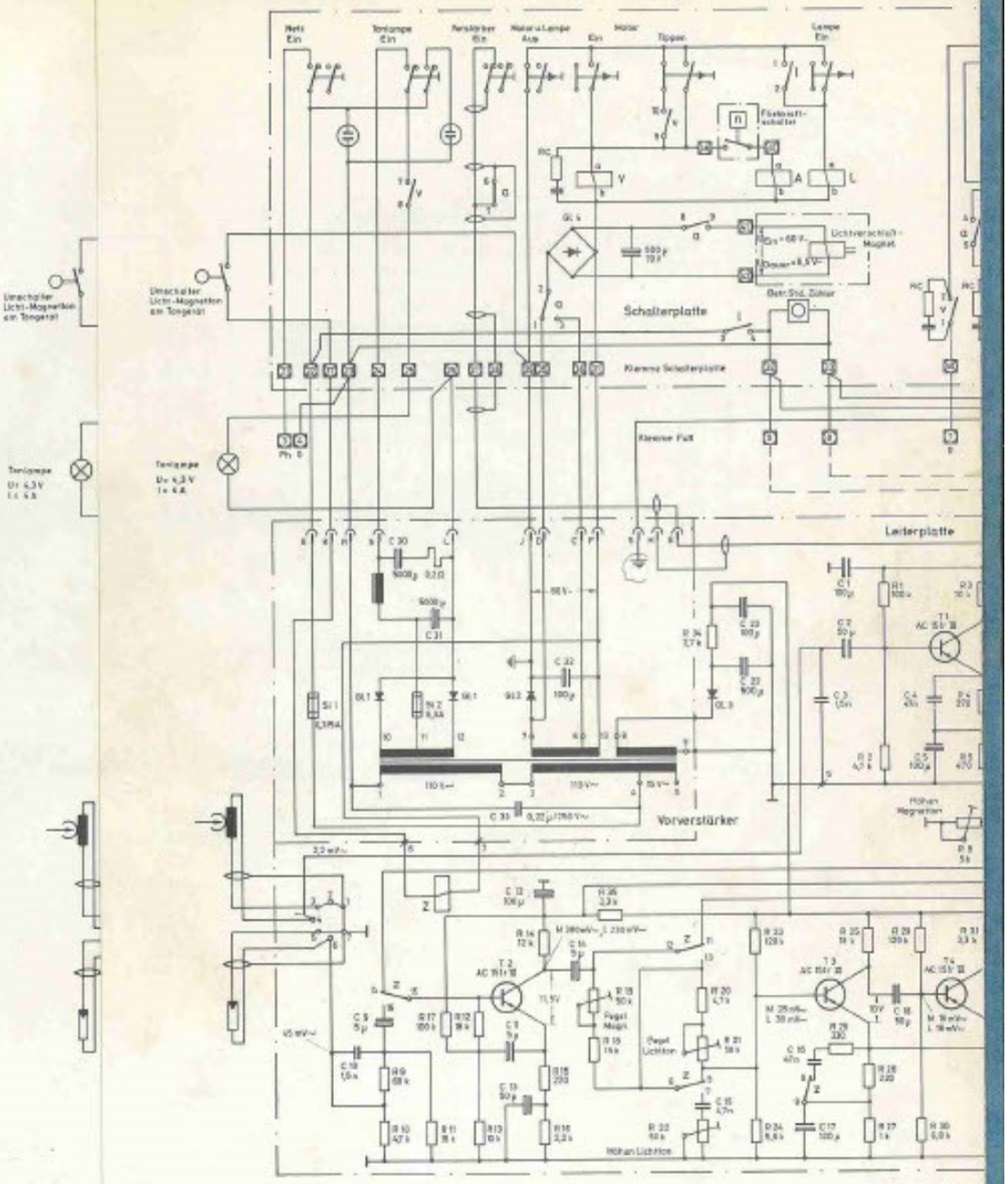
The guide and the threaded spindle of the focusing adjustment, the vertical rod along which the lens holder slides when focusing must be oiled monthly.

Maintenance of the BAUER Selecton II 0

Projector, amplifier and loudspeaker are precision instruments. All mechanical optical and electrical components equally contribute to a good picture and sound quality. They all need a certain care and maintenance. The following remarks may be useful for a maximum equipment service.

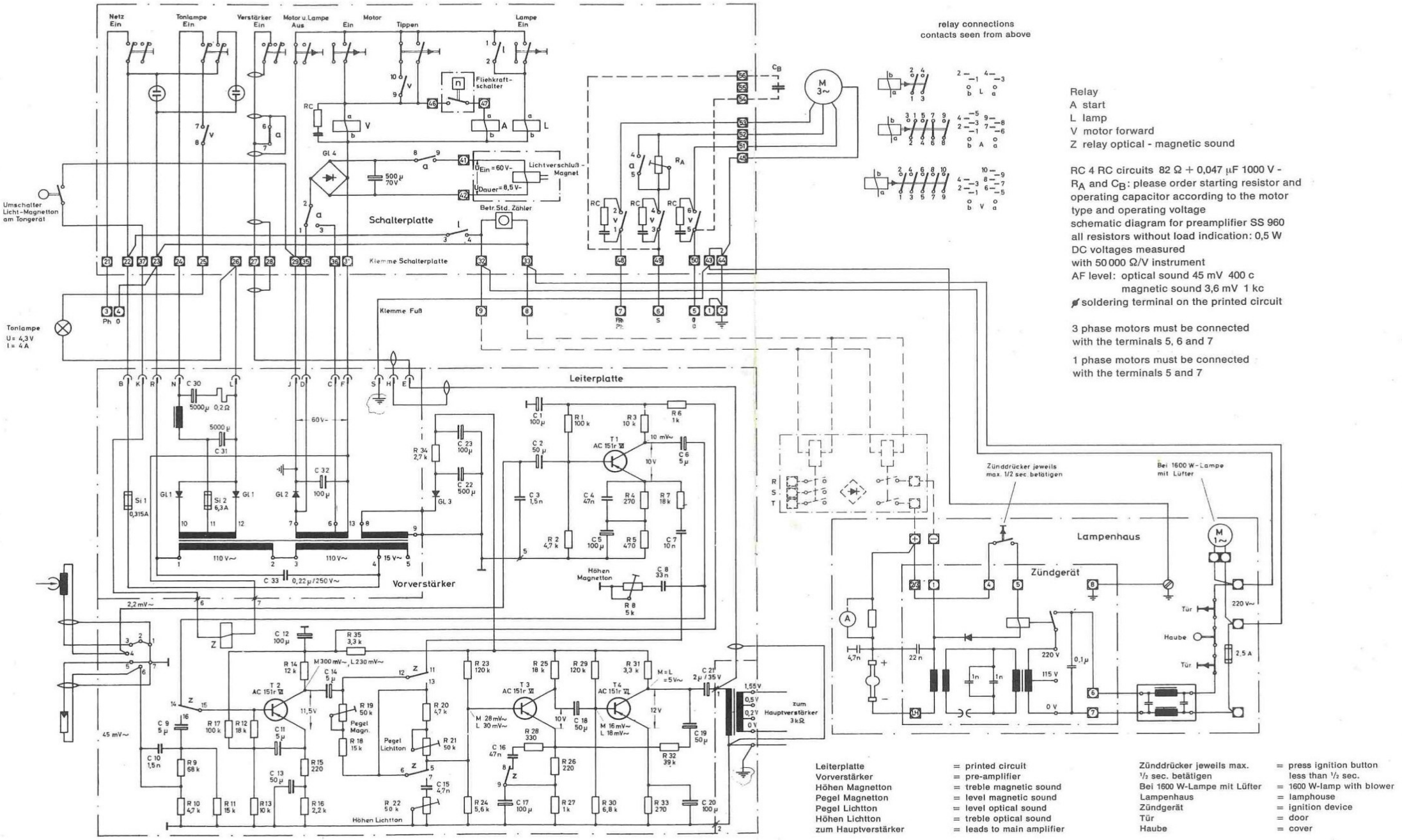
Cleaning of the projector

All film guiding elements may become dirty especially through emulsion deposits. Special care must be taken to keeping the film gate and the big brake roller very clean. Emulsion deposits must be removed with an aluminium runner cleaner. It is not necessary to wet the deposits; on the contrary, such wetting would only be detrimental because it may produce rust on the machine.



Netz ein	= mains on
Tonlampe Ein	= exciter lamp on
Verstärker Ein	= amplifier on
Motor und Lampe Aus	= motor and lamp off
Tippen	= tip
Lampe Ein	= lamp on
Fliehkraftschalter	= centrifugal switch
Umschalter Licht-, Magnetton am Tongerät	= selector switch optical - magnetic sound on the sound unit

Dauer	= permanent
Lichtverschlußmagnet	= dosser magnet
Betriebsstundenzähler	= elapsed time co
Schalterplatte	= switch plate
Klemme Schalterplatte	= terminal switch p
Tonlampe	= exciter lamp
Klemme Fuß	= terminal pedesta



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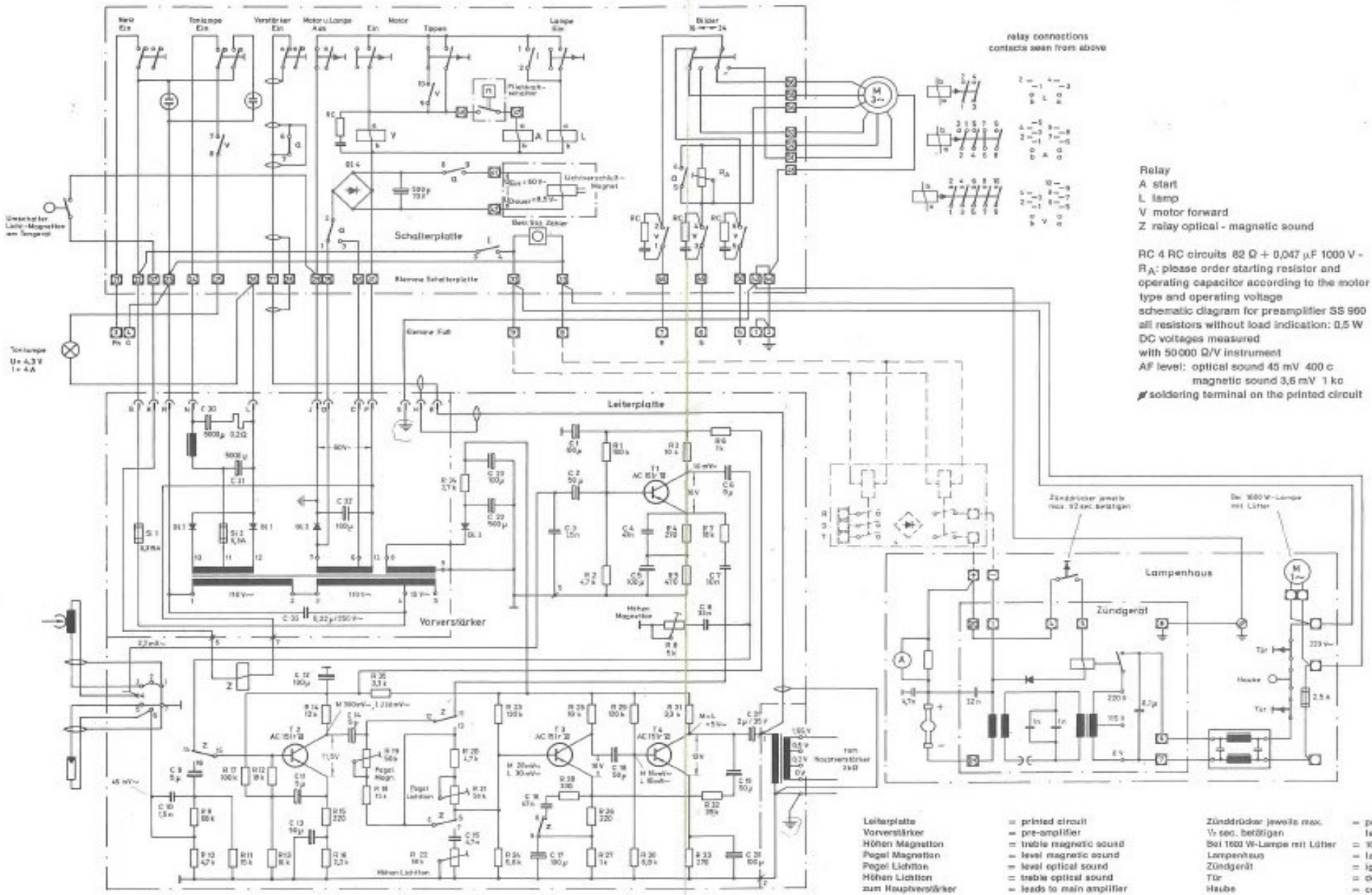
Betriebsstundenzähler	= elapsed time counter
Schalterplatte	= switch plate
Klemme Schalterplatte	= terminal switch plate
Tonlampe	= exciter lamp
Klemme Fuß	= terminal pedestal

Leiterplatte	= printed circuit
Vorverstärker	= pre-amplifier
Höhen Magnetton	= treble magnetic sound
Pegel Magnetton	= level magnetic sound
Pegel Lichtton	= level optical sound
Höhen Lichtton	= treble optical sound
zum Hauptverstärker	= leads to main amplifier
Zünddrücker jeweils max. 1/2 sec. betätigen	= press ignition button less than 1/2 sec.
Bei 1600 W-Lampe mit Lüfter	= 1600 W-lamp with blower
Lampenhaus	= lamphouse
Zündgerät	= ignition device
Tür	= door
Haube	= cover

Jll. 18 (SS 952) Schematic diagram for BAUER Selecton II 0 with pre-amplifier for single-phase and three-phase A.C. operation 50 c.



Netz ein	= mains on	Dauer	= permanent
Tonlampe Ein	= exciter lamp on	Lichtverschlußmagnet	= douser magnet
Verstärker Ein	= amplifier on	Betriebsstundenzähler	= elapsed time counter
Motor und Lampe Aus	= motor and lamp off	Schalterplatte	= switch plate
Tippen	= tip	Klemme Schalterplatte	= terminal switch plate
Lampe Ein	= lamp on	Tonlampe	= exciter lamp
Fliehkraftschalter	= centrifugal switch	Klemme Fuß	= terminal pedestal
Umschalter Licht-, Magnetton am Tongerät	= selector switch optical - magnetic sound on the sound unit		

Leiterplatte	= printed circuit	Zünddrücker jeweils max.	= press ignition button less than ½ sec.
Vorverstärker	= pre-amplifier	½ sec. betätigen	
Höhen Magnetton	= treble magnetic sound	Bei 1600 W-Lampe mit Lüfter	= 1600 W-lamp with blower
Pegel Magnetton	= level magnetic sound	Lampenhaus	= lamphouse
Pegel Lichtton	= level optical sound	Zündgerät	= ignition device
Höhen Lichtton	= treble optical sound	Tür	= door
zum Hauptverstärker	= leads to main amplifier	Haube	= cover

JIL 19 (SS 953) Schematic diagram for BAUER Selecton II 0 with pre-amplifier and pole-changing motor for A.C. operation 50 c (running speeds 18 and 24 frames per second).

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