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GEBESCOPE

16mm. Sound and Silent

FILM PROJECTOR

MODEL L.516

INSTRUCTION MANUAL



EQUIPMENTS

ISSUED BY G. B. EQUIPMENTS LTD., WOODGER ROAD, SHEPHERD'S BUSH, W.12

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GeBescope

INSTRUCTION MANUAL

The object of this handbook is to provide the user with a general idea of the operation and maintenance of the G.B.E. Model L.516 equipment, which has been designed with a view to portability and simplicity of operation.

Nevertheless, modern sound-film reproducing equipment is of necessity somewhat complex, demanding a reasonable amount of careful handling and attention if a high standard of efficiency is to be maintained.

The descriptions in this manual have been kept as brief and non-technical as possible, and if the instructions are followed carefully, the equipment will give good results and little trouble.

Should any difficulty arise or the user desire further technical information, please write direct to the address below.

Purchasers of "GeBescope" who experience any difficulty in manipulating their projectors should, in the first instance, refer the matter to the Dealer from whom they were obtained. The Dealer will, if the matter is one that should be handled by our own engineers, at once arrange with us for servicing.

All correspondence concerning the servicing of "GeBescope" should be addressed to:—

16 mm. SERVICE DEPARTMENT

G.-B. EQUIPMENTS LIMITED

WOODGER ROAD, SHEPHERD'S BUSH, LONDON, W.12

IMPORTANT.—In any correspondence, please quote serial number of the unit or component as this will minimise delay.

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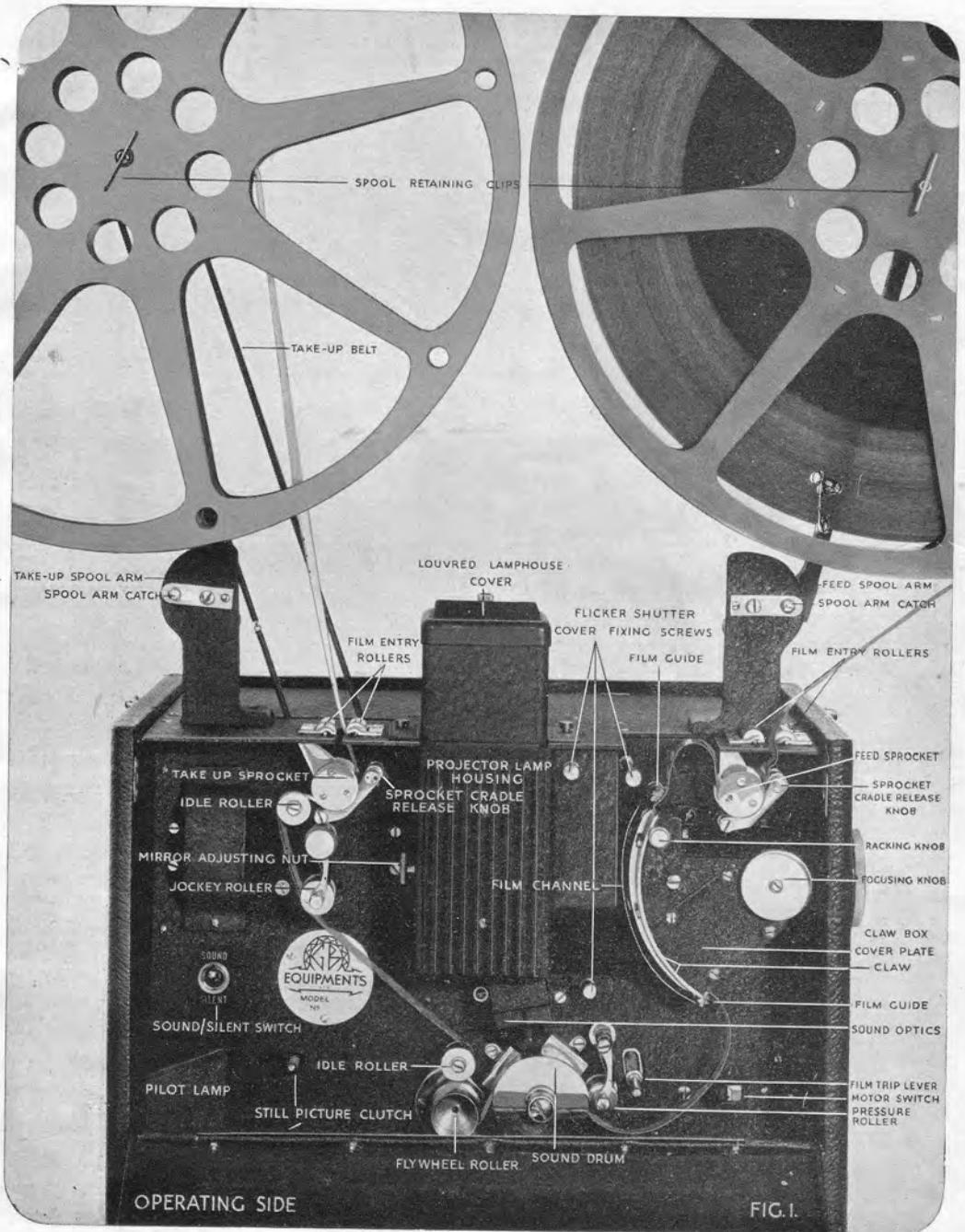
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G. B. EQUIPMENTS LTD. — ONE OF THE GAUMONT BRITISH GROUP

GEBESCOPE <16 mm.> SOUND and SILENT FILM PROJECTOR

MODEL L.516



INSTRUCTIONS FOR ERECTION, OPERATION AND MAINTENANCE

SETTING UP.

Remove the top cover of the projector and raise the spool arms to the running position. Make sure that the spool arm catches engage. (Fig. 1.) Place a spool of the required capacity on the take-up spool arm for taking up the film. Press down the spool retaining clip. (Fig. 1.)

The projector is despatched with the valves and lamps in position. The spool arms are released for folding by pressing on the spool arm catches. The take-up arm should be lowered first.

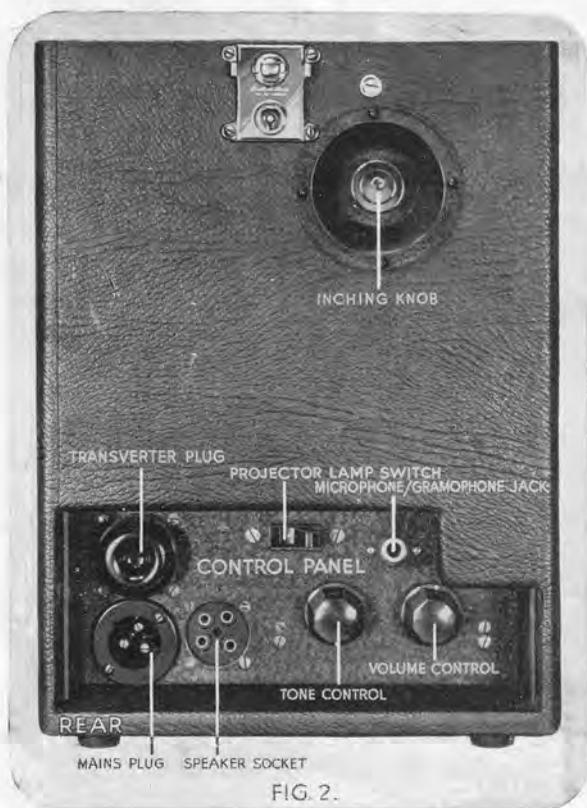
MAIN SUPPLY.

This machine is designed for operation with a lamp resistance from a 200/250 volt A.C. or D.C. supply suitable for a consumption of 1,275 watts. For 100/110 volt operation, a transformer is required for A.C. or a converter for D.C. for the motor and amplifier supply.

PROJECTOR LAMP RESISTANCE. (Fig. 3.)

THE LAMP RESISTANCE HAS A SPECIAL VOLTAGE SELECTOR FOR THE VARIOUS MAINS VOLTAGES, WHICH MUST BE SET BEFORE CONNECTING UP TO THE MAIN SUPPLY. ALWAYS CHECK THE SUPPLY VOLTAGE BEFORE ADJUSTING THE TAPPING PLUG.

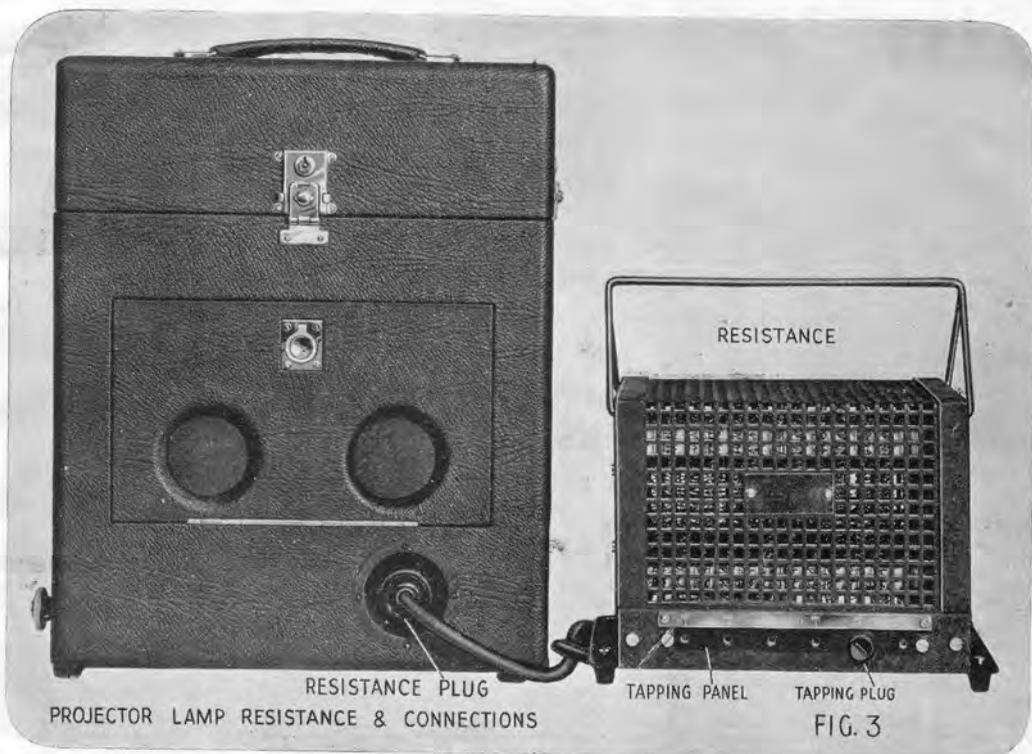
As the lamp is rated at 110 volts a resistance is used to reduce the voltage when using the projector from a 200/250 volt A.C. or D.C. supply. The resistance is connected to the four-pole socket in the back of the projector case. Care must be taken to see that the tapping plug on the resistance panel is screwed **firmly** into the socket marked with the voltage nearest to the main supply. On no account must the resistance be connected to the projector with the tapping plug screwed into the 110 volt socket when using the projector on 200/250 volts A.C. or D.C. If required, a transformer may be used instead of a resistance when operating from 200/250 volts A.C. only, to reduce the consumption from the mains from 1,275 watts to 750 watts.



TRANSVERTER PLUG (Fig. 2.)

This is situated above the mains plug on the control panel and must be kept in position when using the machine on 200/250 volts A.C. or D.C. A transformer or converter must be used for a 100/110 volt A.C. or D.C. supply respectively, and is connected to a four-pole plug which replaces the existing transverter plug.

The motor and amplifier can only work from 200/250 volts A.C. or D.C., hence the necessity for a step-up device as mentioned above.



MAINS CONNECTIONS.

MAKE CERTAIN BEFORE CONNECTING TO THE MAINS THAT THE LAMP RESISTANCE TAPPING PLUG OR TRANSFORMER IS ADJUSTED FOR THE VOLTAGE OF THE SUPPLY AND THAT ALL SWITCHES ARE IN THE "OFF" POSITION.

Connect the socket on the mains lead to the three-pole plug on the control panel (Fig. 2); this should be made before connecting to the mains. As the pins are staggered, the mains socket can only be inserted one way. Connect the other end of the lead to a convenient power plug. When using the projector on D.C. mains ensure that the mains plug is connected the right way round, otherwise no sound will be obtained from the amplifier, in which case reverse the power plug or connections.

The mains lead is provided with an earthing wire, which is connected to the three-pole socket so that the machine may be earthed. Where a power point is fitted with a three-pole plug, connect the wires, red and black to the mains, and white to the earthing pin.

The pilot lamp lights as soon as the main supply is connected to the machine.

200/250 VOLT A.C. OPERATION.

Connect the projector direct to the mains, as above, and the lamp resistance or transformer to the socket in the back of the projector case (Fig. 3). Make sure that the resistance or transformer is connected to suit the supply voltage.

100/110 VOLT A.C. OPERATION.

Connect the projector direct to the mains, remove the transverter plug and connect an L.516 100/110 volt transformer.

The lamp resistance or transformer must be connected according to the supply voltage.

CAUTION.—THE LAMP RESISTANCE OR TRANSFORMER TAPPING PLUG MUST NOT BE CONNECTED TO THE 110 VOLT SOCKET WHEN USING THE PROJECTOR FROM 200/250 VOLTS A.C. OR D.C.

200/250 VOLT D.C. OPERATION.

Connect as for 200/250 volt A.C. supply, using a lamp resistance.

100/110 VOLT D.C. OPERATION.

Connect the projector direct to the mains, remove the transverter plug and connect an L.516 100/110 volt D.C. converter. The lamp resistance tapping plug must be connected to the 110 volt socket.

CAUTION.—THE LAMP RESISTANCE TAPPING PLUG MUST NOT BE CONNECTED TO THE 110 VOLT SOCKET WHEN USING THE PROJECTOR FROM 200/250 VOLTS A.C. OR D.C.

CONTROLS

MOTOR SWITCH. (Fig. 1.)

This is located on the front panel and is mechanically linked with the film trip lever which switches off the mechanism. The mechanism can only be started by the motor switch.

FILM TRIP LEVER. (Fig. 1)

This is a safety device which switches off the mechanism and projector lamp if the loop beneath the gate tightens up, due to incorrect lacing or damaged film. The film must not be in contact with this lever, otherwise it will trip as soon as the machine is started. Reset the trip and restart the mechanism by moving the motor switch to the "on" position.

NOTE.—The mechanism is **started** by the motor switch and **stopped** by lifting the film trip lever. The mechanism cannot **be started** by the film trip or **stopped** by the motor switch.

STILL PICTURE CLUTCH (Fig. 1)

Still pictures may be projected by moving the clutch lever from right to left. This disengages the motor from the mechanism, and drops a heat-proof filter in front of the picture gate to prevent blistering the film. If the picture is obscured, rotate the Inching Knob. (Fig. 2.)

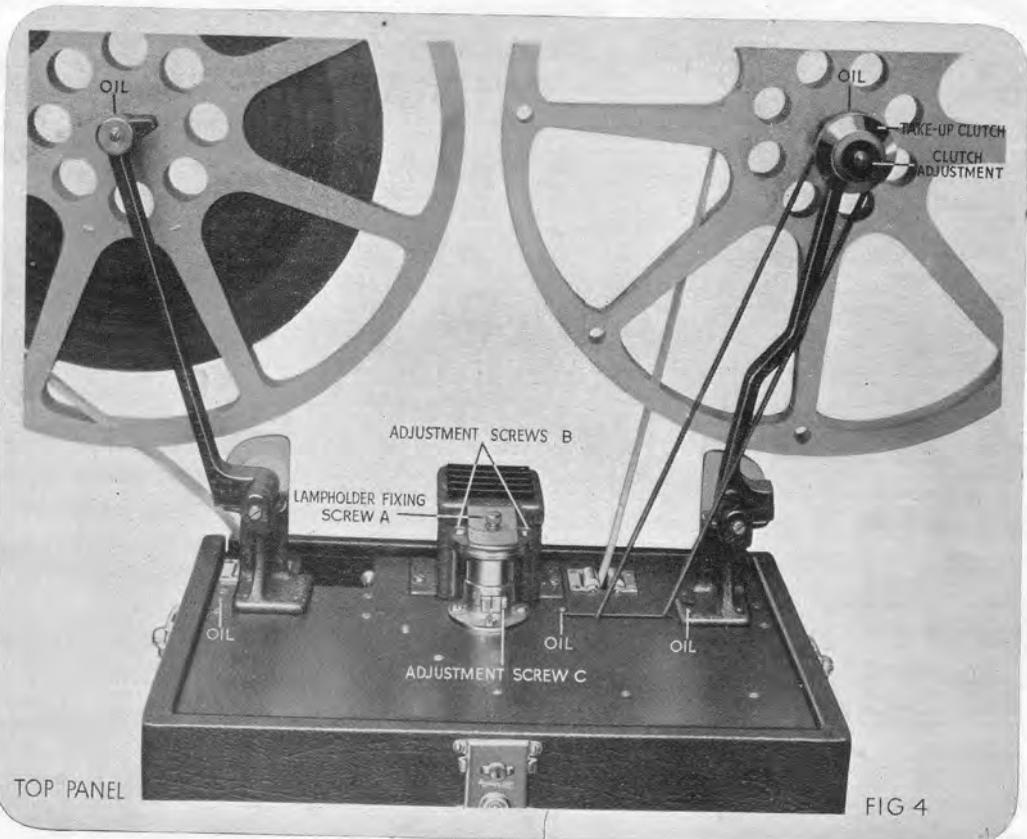
To change from still to moving pictures, depress the small lever beneath the clutch lever and move to the right.

FOCUSING KNOB. (Fig. 1)

The knob for focusing the picture sharply on the screen is situated on the lens mount. When setting up the machine it is necessary to approximately focus the picture on the screen by pushing the lens to and fro with the fingers with the focusing knob in the centre position, so that a final adjustment can be carried out by rotating the focusing knob to the right or left.

TAKE-UP CLUTCH. (Fig. 4)

The take-up clutch is fitted to the spool shaft on the rear arm. By rotating the knurled ring the tension on the film from the take-up sprocket may be varied according to the size of the spool and hub. Normally the maximum tension should be used for a 1,600 foot spool by screwing up the ring in a clockwise direction. Less tension should be applied for 800 and 400 foot spools. If necessary, the tension may be altered whilst the machine is running. Too much tension may cause film damage.



TAKE-UP BELT. (Fig. 1)

This may be replaced by disconnecting it at the joint and pushing the new belt through the right end of the slot in the panel, until it appears through the opposite end. The belt may then be joined by engaging the hook and loop.

RACKING KNOB. (Fig. 1)

This control is placed at the top of the film channel. If there is a black division or framing line across the top or bottom of the picture, rotate the racking knob until the picture is correctly framed.

VOLUME CONTROL. (Fig. 2)

The volume is controlled by the right hand knob mounted on the control panel. To obtain best results do not increase the volume of sound beyond that necessary for comfort. A clockwise rotation increases volume and vice versa. This control is not operative when using either a microphone or gramophone attachment, but should be kept at zero to prevent the reproduction of the perforations when projecting silent films.

STONE CONTROL. (Fig. 2)

The pitch of the sound may be varied according to requirements or acoustic properties of the auditorium, by rotating the knob next to the volume control. A clockwise rotation will increase brilliance and vice versa. A great deal depends on the setting of the tone and volume controls, so that a certain amount of experiment is advisable to get the best possible reproduction from the sound track.

SPEAKER SOCKET. (Fig. 2)

This is the four-pole socket on the control panel. It will be noted that the sockets are staggered so that care should be taken when inserting speaker plug to locate the pins correctly. The mains should be disconnected before inserting or withdrawing the speaker plug.

PROJECTOR LAMP SWITCH. (Fig. 2)

This is situated on the control panel and is used for switching the lamp on or off whilst the mechanism is running. The lamp cannot light whilst the motor is stationary, unless there is a fault in the transformer, converter or transverter plug when using 100/110 volt mains. If the lamp lights when the motor is stationary, switch off immediately to prevent blistering the film or lamp.

GRAMOPHONE JACK. (Fig. 2)

A gramophone or microphone attachment of the correct type may be plugged into the jack on the control panel. Both attachments must be fitted with a volume control.

INCHING KNOB. (Fig. 2)

The inching knob recessed in the rear of the projector case should be rotated clockwise to move the film gradually through the projector to make sure that the claw engages with the perforations when lacing film in the machine. This control is also used for showing still pictures, one at a time.

SOUND OR SILENT FILMS.

On the front panel there is a small switch marked "Sound" and "Silent" (Fig. 1). By placing the switch in the appropriate position, either type of film may be projected at the required speed. When using silent films, it is advisable to change the flicker shutter. Normally a two-bladed shutter is used for Sound film projection, but when the speed of the motor is reduced for showing Silent films, the flicker will be increased, due to the slower speed of the motor. By replacing the original shutter with one having three blades the flicker will be reduced and therefore become unnoticeable. To change the shutter it is necessary to remove the three flicker shutter cover fixing screws—(Fig. 1)—so that the cover may be removed. A "C" spanner is supplied to fit into the holes round the edge of the shutter clamping ring so that it may be unscrewed to permit the two-bladed shutter to be removed. The shutter blade should be held firmly so that the clamping ring may be unscrewed by turning it in a counter-clockwise direction, as viewed from the rear of the case. When the clamping ring is unscrewed sufficiently, the shutter may be withdrawn. Before placing the three-bladed shutter in position note carefully that on one side there is a flange which must fit into the rebated half of the shutter boss on the side nearest the picture lens. The shutter should be pushed into position and the clamping ring tightened up until the shutter is held firmly and squarely in position. If the replacement is carried out correctly, the clamping ring and boss should be separated by only the thickness of the flicker shutter blades. On no account must the screws holding the flicker shutter boss on to the main horizontal shaft be loosened, otherwise the assembly may be thrown out of synchronization and cause a "ghost." After changing the shutter, turn the mechanism by the inching knob to see that the blades do not foul the main frame.

LOUD SPEAKER.

The speaker lead is contained in the back of the speaker case and should be connected to the speaker socket on the control panel (Fig. 2). When showing sound film, the back of the speaker should be removed to obtain best reproduction.

OPERATION.

The equipment, having been connected up, is now ready for operation. Before lacing film into the machine, switch on the motor and lamp for a preliminary test. Turn up the volume control and if a slight hiss is heard, it may be assumed that the amplifier is working. Centre the light on the screen and if necessary tilt the projector by loosening the locking knob so that the elevating feet slide out (Fig 5). Tighten the knobs when sufficient tilt is obtained.

LACING FILM THROUGH THE PROJECTOR. (Fig. 1)

Place the spool of film to be projected on the feed spool arm with the perforations nearest the operator. Press down the spool retaining clip and unwind 4 feet of film. Open the sprocket cradles by pressing gently on the release knobs and moving down. Lace the film between the film entry rollers and carefully round the feed sprocket, making sure the perforations engage with the sprocket teeth. Close the sprocket cradle, leave a small loop and lace the film through the channel is to lay it along the top of the side runners and pass runner, furthest from the operator, is sprung and therefore has to be pushed aside to allow the film to enter the channel. The best method of lacing the film through the channel is to lay it along the top of the side runners and pass



it to the right of the bottom film guide. The film should then be held at the top of the channel and gently pulled into the channel from the bottom. The tension thus placed on the film will move the sprung side runner aside so that the film will be held in the channel under side pressure. From the bottom film guide leave a loop and pass the film under the trip lever, over the sound drum, under the flywheel roller, and from the right hand side of the idle roller above the flywheel to the left of the jockey roller, over the roller by the take-up sprocket and round the underside of the sprocket. After making sure that the perforations and sprocket teeth coincide, close the sprocket cradle and pass the film between the film entry rollers to the take-up spool. All slack film between

the take-up sprocket and spool must be taken up by a downward movement of the take-up belt before starting the motor, to prevent a sudden jerk on starting. Note that the spool revolves in a counter clockwise direction. Small loops should be left between the film channel and sound drum, and flywheel and take-up sprocket. The film loops should be adjusted, exactly as those shown on the lacing chart.

When first lacing film through the projector, refer frequently to the lacing chart (Fig. 8). The inching knob should then be revolved to ensure that the claw engages the perforations and the film moves through the projector satisfactorily without loss of the loops.

Before starting the machine make sure all cradles are closed, put the projector lamp switch in the "off" position and turn the volume control to zero. Start the motor and run through a foot or so of film to make sure that the projector is correctly laced. When satisfied on this point, restart the motor and when the titling is running through, switch on the projector lamp and turn the volume control to the volume required. Focus the picture on the screen if necessary whilst the titling is running through.

At the end of the picture reduce the volume to zero and switch off the lamp to prevent showing a white screen.

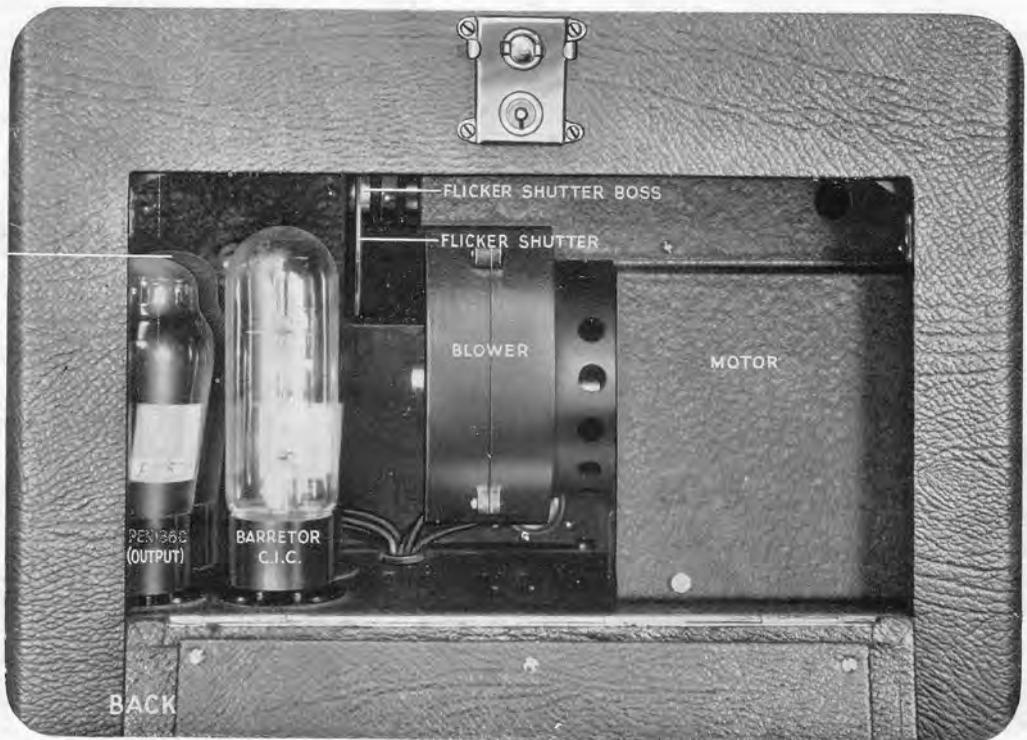


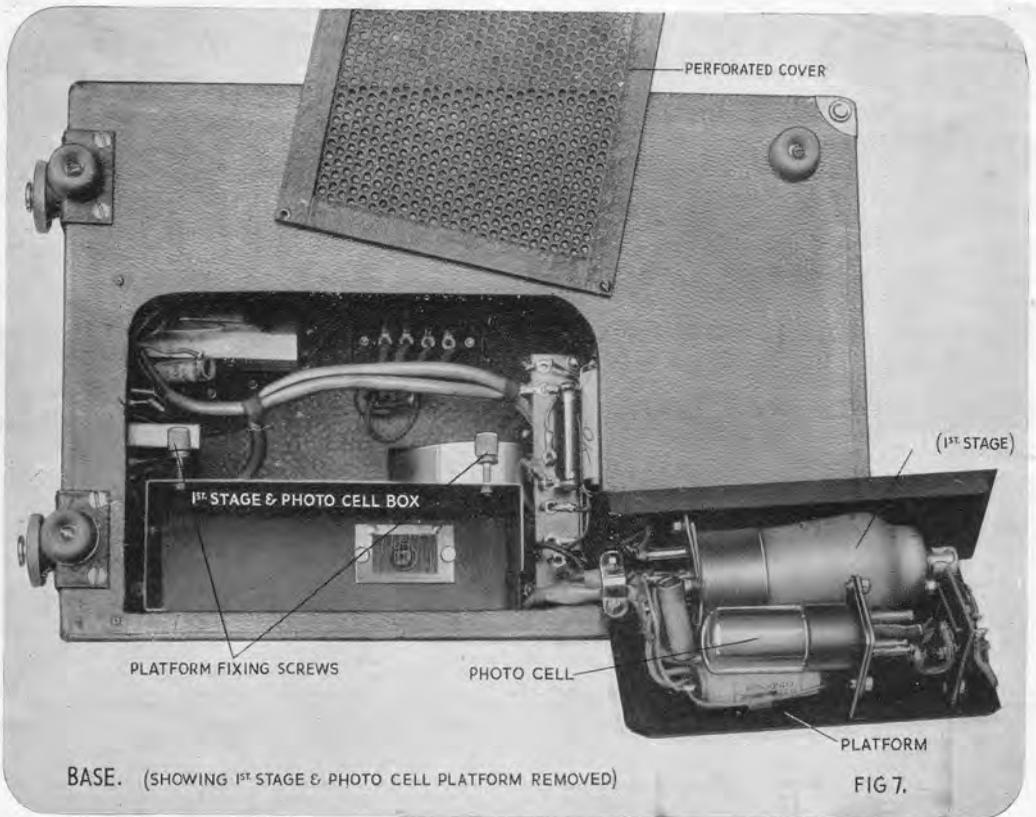
Fig 6.

PROJECTOR LAMP.

The lamp in this model is rated at 110 volts, 500 watts with biplane filaments and is fitted with a prefocussed cap, which fits into a bayonet holder so designed that the lamp can only be placed in the correct position. To replace the lamp, remove the louvred lamphouse cover and the lamp-holder fixing screw A (Fig. 4). The lamp and base may then be removed by pulling upwards on the composition platform through which screw A passes. The old lamp may be removed from the holder by pressing down on the lamp, turning to the left and sliding it out of the holder. A new lamp may be inserted by reversing this procedure. **To prevent premature failure of the lamp it is essential that the voltage on the lamp contacts does not exceed 110 volts as measured by a suitable meter. The resistance or transformer tapping plug should be adjusted accordingly.**

FOCUSING THE PROJECTOR LAMP.

If brown streaks appear on the screen the lamp probably needs focusing. To simplify this adjustment and to give it a greater degree of accuracy, it is best to use a magnifying or reading lens. Switch on the lamp, and focus the gate aperture on the screen. If the reading lens is placed at a distance of approximately one foot in front of the projection lens, the image of the filaments will be seen on the screen. It is necessary first to adjust the lamp so that the filament images are in the centre of the projected circle of light. In the event of the lamp requiring adjustment in the vertical plane, the fixing screw C—(Fig. 4)—should be loosened and the lamp-holder assembly moved up or down until the filaments are centred. Fixing screws B—(Fig. 4)—should be loosened to permit lamp to be moved and centred in the horizontal plane. Make certain that all the screws are tightened up after adjustment.



Secondary filament images from the mirror will also be visible. For maximum light distribution it is essential to get the reflected images between the actual images. The mirror adjusting nut—(Fig. 1)—should be loosened and mirror moved until the reflected or secondary filament images show between the actual filament images. Tighten the nut when the best position is obtained. **It is important that a space of at least an eighth of an inch be left between the envelope of the lamp and the back of the condenser lens, otherwise the glass will blister and crack the lens.**

PILOT LAMP. (Fig. 1)

This is a 16 volt, 3 watt miniature lamp, which provides illumination for the control panel and operating side of the mechanism for lacing. It also indicates that the main supply is connected to the projector.

LUBRICATION.

Three small oil holes in the top panel of the machine and one in each spool arm shaft bearing—(Fig. 4)—and one in the sound drum collar, supply all the necessary parts of the mechanism requiring oil.

IMPORTANT.—ONLY ONE DROP OF GEBESCOPE SPECIAL GRADE Z OIL MUST BE USED EVERY FOUR OR FIVE RUNNING HOURS OR EVERY MONTH IF THE MACHINE IS NOT IN USE.

The claw mechanism—(Fig. 1)—need only be packed with lubricant every 60 to 80 running hours. Special Tegraphine lubricant may be applied by removing the four corner screws in the front cover plate and carefully withdrawing it away from the claw box. Sufficient Tegraphine should be added to half fill the spaces above and below the claw arm when in the centre position. A small quantity of the lubricant should be applied to the cam and pivot movement.

Do not over lubricate the machine or allow oil or grease to come into contact with any parts of the mechanism not indicated above.

Some motors are fitted with oilite bearings and these can be identified by a label affixed to the motor cover. These bearings only require lubrication every 100 **running** hours.

The procedure for lubricating the motor bearings is as follows:—

- (a) Open the back flap.
- (b) Remove the screw located at the bottom left-hand corner of the motor cover plate and also the two screws holding the top of this plate.
- (c) Withdraw the motor plate, taking care not to lose the spacing sleeve located behind the bottom screw.
- (d) Two oilways are indicated by a red dot on top of the motor casting: apply **one** drop of oil to each.
- (e) Wipe off any surplus oil.
- (f) Replace the cover plate, screws and distance sleeve, starting with the bottom fixing screw and sleeve.

It is essential to see that the motor is not over-lubricated, otherwise oil will penetrate the motor windings, brushes and governor assemblies, and cause a premature failure of these components.

SERVICE GUIDE

MOTOR FAILS TO RUN. Section 1.

- (a) Mains plug or socket not making contact. Check both ends and internal connections to plug and socket.
- (b) House fuse blown.
- (c) Transverter plug not making contact. Check contacts and internal connections. If using 100/110 volt mains the plug may not be making contact as above, or connections to transformer or converter may be at fault. In this case, the motor will not run, but the projector lamp will light when lamp and motor switch is in the "on" position. If this happens, switch off immediately to prevent blistering the lamp or film.

PROJECTOR LAMP WILL NOT LIGHT. Section 2.

- (a) Lamp switch not on.
- (b) Lamp burnt out.
- (c) Check (a) and (b) Section 1.
- (d) Loose connection in the connectors, or tapping plug not screwed firmly into position.
- (e) Lamp contact springs not making positive contact.

PILOT LAMP WILL NOT LIGHT. Section 3.

- (a) Lamp burnt out.
- (b) Valve or barretter burnt out. Change each in turn.
- (c) Check all points under Section 1.

NO SOUND. Section 4.

- (a) Volume control not turned up.
- (b) Projector lamp burnt out.
- (c) Faulty valve or barretter. Change each in turn.
- (d) Speaker plug making bad contact or plug connections faulty.
- (e) Light from projector lamp to sound track obscured.
- (f) Check all points under Section 1.
- (g) If on D.C. mains, reverse mains plug or connections.
- (h) Check (c) Section 1.

LOW VOLUME. Section 5.

- (a) Faulty valve or photo electric cell. Change each in turn.
- (b) Low recording level of film.
- (c) Foreign matter on sound optical lens in the bottom of the projector lamphouse. This may be cleaned with lens tissue if necessary.
- (d) Projector lamp out of adjustment or filaments badly distorted.

UNSATISFACTORY SOUND QUALITY. Section 6.

- (a) Motor speed switch in "Silent" position.
- (b) Flywheel not revolving. Remove bottom cover and make sure that nothing is fouling the flywheel.
- (c) Faulty valve. Change each in turn.
- (d) Variation in film recording.
- (e) Rollers not revolving freely. Remove and clean, lubricate and replace.
- (f) Sound drum not revolving. Note that the drum retaining screw has a **left hand** thread. Remove and clean. Make sure the lugs on the flat pressure spring locate in top and bottom grooves. Lubricate the sound drum bearing shaft.
- (g) Speaker cone out of centre.
- (h) Poor acoustic properties of auditorium.

POOR PICTURE BRILLIANCE. Section 7.

- (a) Projector lamp discoloured or out of focus.
- (b) Mirror out of adjustment.
- (c) Lamp resistance or transformer tapping in wrong position.
- (d) Low mains voltage when working on 100/110 volt supply.
- (e) Film printing.
- (f) Reflective properties of screen poor or impaired.
- (g) Condensation on projector lens. Remove and clean with lens tissue.

FILM TRIP LEVER STOPPING PROJECTOR. Section 8.

- (a) Film incorrectly laced.
- (b) Broken or split perforations, in which case the film should be examined and, if possible, repaired.
- (c) Film in brand new or "green" condition. This may occur if the film has not hardened off, in which case it should be left exposed to a warm atmosphere for twenty-four hours.

DARK or 'FUZZY' EDGES ON PICTURE. Section 9.

- (a) Fluff or other foreign matter on the picture gate aperture. Remove the picture lens and insert a camel hair brush down the lens tube to clean the aperture.

REPLACING VALVE, BARRETTOR OR PHOTO CELL. (Figs. 6 & 7)

The valves used are first stage, EF36; output 2; CL 33's; Rectifier CY31; Barretter, CIC. If it is necessary to replace or remove valves, photo cell or barretter, always withdraw by grasping the cap and not the glass envelope.

The first stage valve and photo cell are contained in the metal box in the base of the machine—(Fig. 7)—access to which is obtained by removing the perforated metal cover and then the two knurled knobs on the box. The base of the box should then be carefully withdrawn to expose the valve and photo cell.

CARE OF FILMS

Cinematograph films are costly to produce and difficult to replace. Every possible precaution should, therefore, be taken to prevent film damage. Furthermore, your GeBescope can operate only as well as the condition of your films permit. If the following advice is observed, film troubles will be reduced to a minimum.

Before beginning your film programme:—

1. Allow your Projector to run for several minutes before inserting the film, to secure smooth running at constant speed.
2. Examine all moving parts to ensure that they are running freely. Lubricate the Projector, according to the directions given in the Instruction Manual.
3. Make sure that all surfaces coming in contact with the films are clean, and free from deposits of emulsion. A deposit of hard emulsion in the picture gate might ruin many reels of films, involving several pounds worth of damage. A metal instrument must never be used for removing emulsion from any part of the machine. A bone or hardwood scraper will clean without scratching the polished surfaces.
4. Examine, and if necessary, clean the picture gate of your Projector after running through every two or three reels.
5. When removing the film from the container, make sure that the spool has not been bent in transit. Perforations can be torn and films scratched by a bent spool. It is essential to remove the damaged sections of the film, and make a join. Broken perforations invariably lead to further damage.

CHECK BACK OVER LACING TO MAKE SURE THAT THE LOOPS ARE CORRECT, AND THAT ALL SPROCKET TEETH ARE ENGAGED IN FILM PERFORATIONS. THIS APPLIES PARTICULARLY TO THE TAKE-UP SPROCKET, AND IS VITALLY IMPORTANT IN ENSURING FREEDOM FROM FILM DAMAGE. Care must also be taken to see that the perforations are securely located on to the sprocket teeth before closing the cradles which keep the film on the sprocket. Inattention to these instructions may cause the film to be "trapped" on to the teeth, which may tear or punch holes into the film base. Set the take-up clutch to suit the capacity of the spool and size of hub.

Having laced the Projector, turn the inching knob four or five times and watch the film to see that it passes correctly through the mechanism.

While projecting your programme:—

Check film perforations at frequent intervals by allowing the film to run lightly between the forefinger and thumb at the point at which it leaves the projector and before it reaches the take-up spool. If the perforations are damaged, stop the projector and investigate the cause.

Perforations can be damaged by:—

- (a) Incorrect threading (perforations not registered with the sprocket teeth).
- (b) Damaged sprocket teeth.
- (c) Cradle rollers out of alignment with sprockets.
- (d) Fierce take-up.

Examine the emulsion on the film regularly in the light of a torch shone obliquely across the surface. If scratches appear either on picture or sound track, stop the projector at once, unlace from the take-up sprocket, and from there trace back until the cause of the damage is found.

Scored emulsion is generally caused by:—

- (a) Dirty picture gate.
- (b) Dirty rollers (causing intermittent scratch).
- (c) Sound drum scored or not revolving.
- (d) Too large or too small a loop (causing film to drag on another part of the machine).

Be sparing in oiling your GeBescope. A little oil frequently, with all surplus wiped off wherever it may appear on the machine, should be the rule.

HINTS ON JOINING

Lap only one perforation, not two or three, and never cut through a perforation when joining.

See that the emulsion is scraped from one side of the film to be joined and that the celluloid is perfectly clean, otherwise the join will not hold.

When joined, the film should be in line and the perforations register, otherwise the film will jamb at the join when projected.

Make your join as clean and as neat as possible.

Remember that everything mechanical needs some care and attention.

Pay attention to the foregoing details and film damage will be reduced to a minimum. Your equipment will then give the best possible results. The Library will also be able to give you a service free from the loss of time and money required by constant repairs.

SUGGESTIONS ON THE CHOICE OF ACCESSORIES

Choose a screen giving a picture which will be in proportion to the size of room or hall in which the equipment will be used. Roughly, the picture width should be not less than one-ninth of the distance from screen to farthest seats. The front seats should not be nearer to the screen than two and a half times its width.

The choice of screen surface depends to a large extent on the shape of the auditorium and position of the seating relative to the screen.

A white opaque screen is desirable where the viewing angle is very wide, as its brilliancy does not fall off rapidly when viewed from the sides. When viewed from directly in front, however, a white opaque screen does not give as brilliant a picture as a silver screen.

Where the angle of viewing does not exceed about 25 degrees a silver surface will give a much more brilliant picture than a white opaque screen, but is considerably less efficient when viewed from a wider angle.

A glass beaded screen gives a very brilliant picture when viewed directly from the front, but has the disadvantage of brilliancy falling off very rapidly as soon as the angle of vision is increased.

The height of the screen should be such that the angle of vision from the top of the picture to the front seats does not exceed 35 degrees.

A firm stand for the projector is essential. The GeBescope Projector stand is not only light, but can be folded up for transport.

Extra lenses are desirable, particularly where the equipment is used for different lengths of throw. The 50 mm. lens supplied with the projector will give a picture 8 feet 6 inches wide at 42 feet, or 4 feet 3 inches wide at 21 feet, and so on proportionately. GeBescope lenses having a focal length of 35 mm., 65 mm., 75 mm. and 101 mm., giving a picture of 8 feet 6 inches wide at 30 feet, 55 feet, 64 feet and 85 feet respectively, can be purchased if required. Reference to the chart—(Fig. 9)—will indicate the lens required for a given throw and vice versa.

A film splicer is essential for repairing films and joining sequences from private shots, etc. High quality splicers to take 8 mm., 9.5 mm. and 16 mm. films can be purchased.

Although it is possible to rewind film on all GeBescope projectors, the professional method is to use a hand rewinder, so that the film may be examined, cleaned and, if necessary repaired, whilst rewinding. Broken or split perforations can easily be detected by running the film between the thumb and forefinger. The GeBescope rewinder comprises one fixed and one winding head mounted on a firm base and accommodates spools up to 1,600 feet capacity.

A GeBescope gramophone attachment is ideal for supplying music, etc., for all purposes. The motor is universal for A.C./D.C. 100/250. An inject is fitted so that a microphone may be used at the same time. A separate volume control is fitted as standard.

For public address or supplying commentary for silent films a GeBescope microphone and head amplifier is invaluable. The unit comprises a self contained head amplifier with a separate volume control and microphone of the crystal type, mounted on top of a panel.

Every projectionist should be sure that he has an adequate supply of spares to hand against emergency. The following may be regarded as a representative selection in case of need:—

- 1 110 volt, 500 watt projector lamp.
- 1 16 volt, 3 watt pilot lamp.
- 1 EF36 valve.
- 1 CL33 valve.
- 1 CY31 valve.
- 1 CIC barretter.
- 1 Take-up belt.

HINTS ON THE PRESENTATION OF AN EFFECTIVE SHOW

Always, as far as possible, instal the projector at the back of the auditorium and avoid seating any of the audience behind the machine.

The auditorium should be darkened as much as possible and in particular stray light masked from the screen surface.

Before the audience is assembled, focus the picture on to the screen and allow an overlap of roughly half an inch all round the black masking. Nothing is more distracting than having a picture smaller than the screen, with a consequent bright frame round the picture.

The speaker should be placed beneath the screen, with its back removed. It is important to see that the front of the speaker case is not covered, otherwise reproduction will suffer accordingly. The best position for the speaker is slightly above the heads of the audience, so that the sound will not be impeded.

Clean the aperture plate if necessary and make sure the projector has been lubricated. Test for sound and picture before the audience assembles.

When everything is in readiness, start the motor and switch on the projector lamp at the beginning of the titling. Turn up the volume control until sufficient volume is obtained. Never increase the volume above the point necessary for comfort. Adjust the tone control to the point of maximum intelligibility. It may

be advisable to alter the volume occasionally, but as far as possible keep the sound at a constant level.

Towards the end of a reel switch off the projector lamp just before the blank trailer, to prevent showing a white screen.

A gramophone attachment will pleasantly fill the interval whilst the next spool is being laced through the projector.

A projectionist should always stand by his machine during a show, and occasionally check focus, volume, etc. In the interest of the show the machine should never be left to carry on without supervision.



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