# Film-Tech

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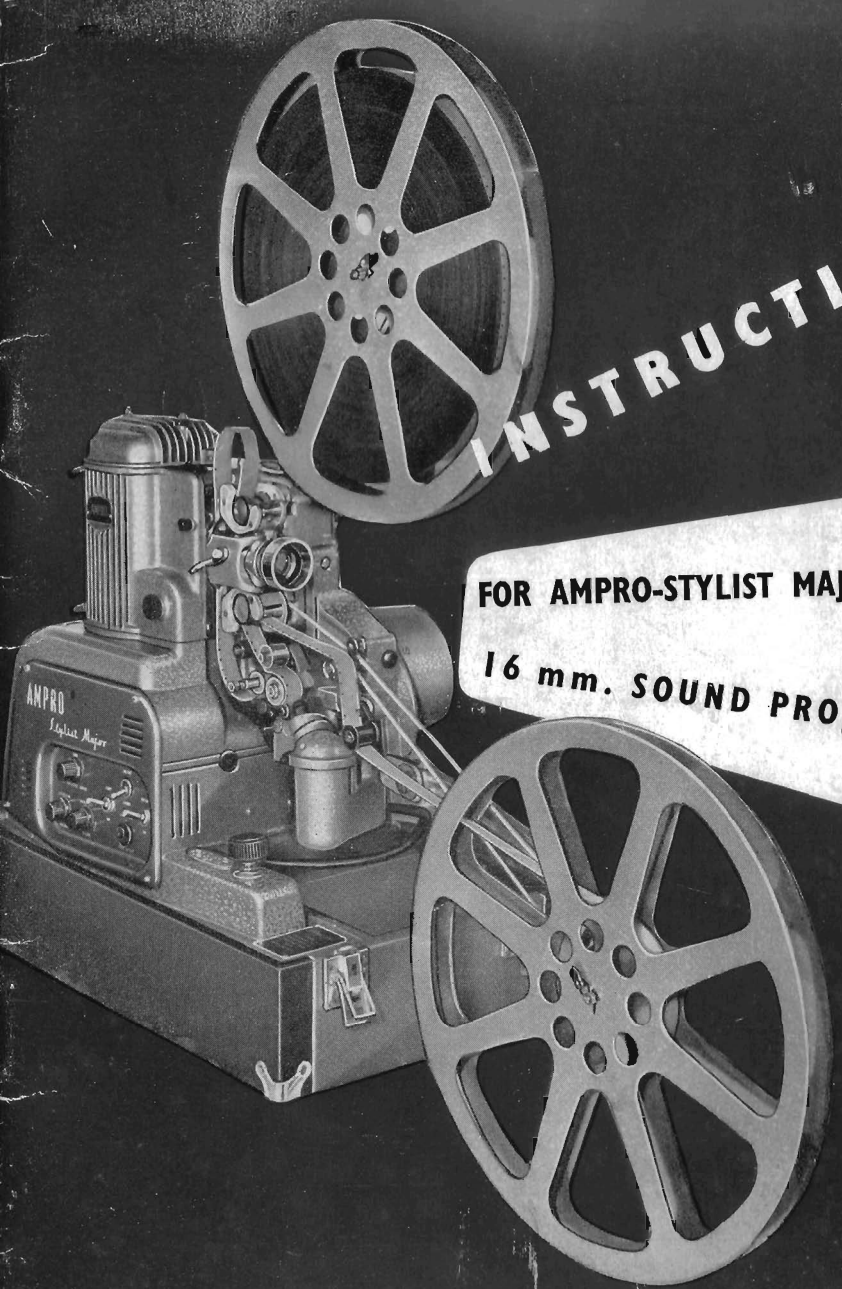
# INSTRUCTIONS

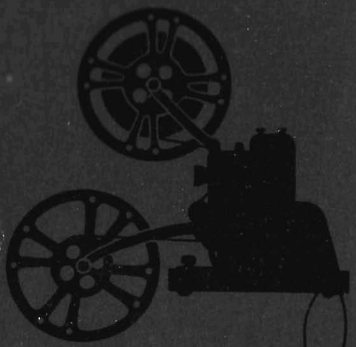
## FOR AMPRO-STYLIST MAJOR Mk. 2

## 16 mm. SOUND PROJECTOR




SIMPLEX-AMPRO LTD
167–169 WARDOUR STREET, LONDON, W.1 ENGLAND

*Manufactured in Gt. Britain under U.K. patents of Ampro Corp. U.S.A. by*
KELVIN & HUGHES LTD
LONDON GLASGOW BASINGSTOKE



## GUARANTEE

Ampro Projectors are fully guaranteed, for a period of six months from date of purchase, against original defects in materials or workmanship; fair wear and tear or misuse excepted. Any part or parts showing such defects will be replaced free of charge provided the projector is forwarded to the supplier or to Simplex-Ampro Ltd., with all transportation charges paid by purchaser.

The guarantee is not valid unless the purchaser forwards to Simplex-Ampro Ltd. the registration card attached within ten days from receipt of the projector.

The guarantee does not include proprietary items such as valves which are governed by the guarantee of the manufacturers concerned.

*Complete range of accessories and replacement parts is available for the Ampro Stylist Major; full particulars on application to your supplier.*

# 16MM SOUND PROJECTOR

# AMPRO

## Stylist Major MK 2

## SPECIFICATION

**Power Supply:** The Projector operates on 105–125 volts Alternating Current (40–100 c.p.s.). It can be operated on A.C. supplies outside this range by using an Ampro Transformer.

**Projector Lamp:** 115 volts—750 watt Class 'A' Tubular on a standard prefocus Cap is supplied (Part No. 34116). Other wattages up to a maximum of 1,000 watts may be used if desired.

**Exciter Lamp:** 4 volt 0·75 amp. Type G.1 with transverse filament in prefocus mount (Part No. 37626).

**Photocell:** Type 30 C.G. (Part No. 37625).

**Transformer:** Necessary for A.C. voltages of 200–250 volts (Part No. 35356) with voltage regulator and voltmeter as illustrated or (Part No. 35054) without.

**Amplifier Valves:** 1 Type 6BR7 (Part No. 37294); 2 Type 12AX7 (Part No. 37295); 3 Type 6BW6 (Part No. 37724); 1 Type 5Z4 (Part No. 33374).

**Amplifier Fuse:** 1½ amp. (Part No. 33400).

**Film Capacity:** The projector will accommodate reels from 400 ft. to 2,000 ft. capacity. It may be used to project sound films at a constant speed of 24 frames/sec., or silent films at a constant speed of 16 frames/sec.

**Projector Lens:** A 2 in. focal-length coated lens of aperture *f*1·6 is supplied as standard equipment (Part No. 32006). A range of lenses is available and the table on page 16 should be consulted.

**Dimensions:** Projector in case 10¾ in. wide x 20½ in. high x 19 in. deep. Weight approximately 42 lbs. excluding power transformer. Speaker Unit in case 10¾ in. wide × 20½ in. high × 19 in. deep. Weight approximately 26 lbs.

**Accessories:** An accessory kit containing an aperture cleaning brush, lamp remover, Amproil lubricant, 5 spare fuses, take-up spring belt and spare exciter lamp is supplied with each projector.

**Conversion:** The Ampro Stylist Major Mk2 is so designed that it can be readily converted into a magnetic optical projector, either by the manufacturers or at selected agencies throughout the world.
Write to your dealers for further information.

# SETTING UP

1 Open the three catches which secure the top of the case and lift off the cover.

2 Place the Projector on a stand, desk or table at a suitable distance from the screen. This distance should be selected by reference to the table on page 16 in conjunction with the lens and screen which are to be used.

3 Uncoil the projector power cable (**1** · *Fig.* 1). Swing down the take up reel arm (**2** · *Fig.* 1). Using the reel arm lock pin (**3** · *Fig.* 1) engage the arm in the upper position for reels of less than 800 ft. capacity or the lower position for reels of 800 ft. and above. Move the projector to the front edge of the stand or table so that the largest reel to be used will clear the edge. Move the belt shifter (**4** · *Fig.* 1) to the forward position as indicated.

4 Swing the feed reel arm (**6** · *Fig* 1) to the forward position making sure that the rewind belt (**7** · *Fig.* 1) is in the groove of the spindle pulley.

5 If not already known, check the voltage and nature of the power supply. *On no account must this model be connected to the D.C. supplies.* The projector may be connected direct to the A.C. supply mains **only if the voltage is between 105 and 125.** For other A.C. voltages a transformer must be used.

6 Ampro Transformers are designed for A.C. supplies of 200–250 volts. Set the voltage tapping to the value closest to that of the supply voltage. Plug the projector power cable (**6** · *Fig.* 2) into the transformer and connect the transformer power cable (**7** · *Fig.* 2) to the nearest power point. If using the transformer with voltmeter fitted, adjust the fine voltage tapping to give slightly more than 115 volts when the projector is not running.

7 When changing the plug connector on either the projector or transformer power cables the following colour coding should be observed:

RED—Line BLACK—Neutral GREEN—Earth

8 Place the loudspeaker (**1** · *Fig.* 2) close to the screen with the grille facing the audience. Slip-off hinges are provided on the back of the speaker

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Stylist Major MK2

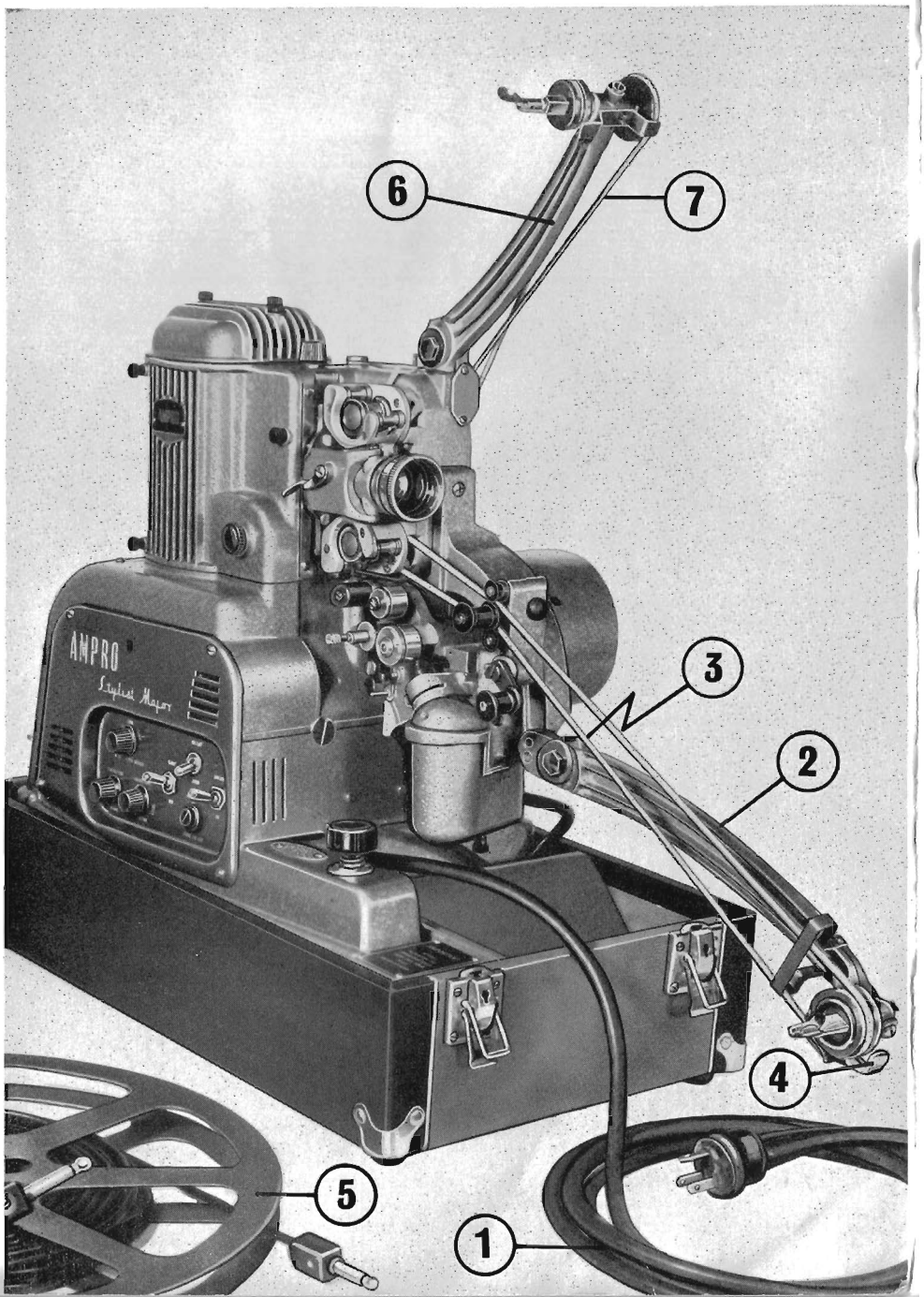


*Fig.* 1

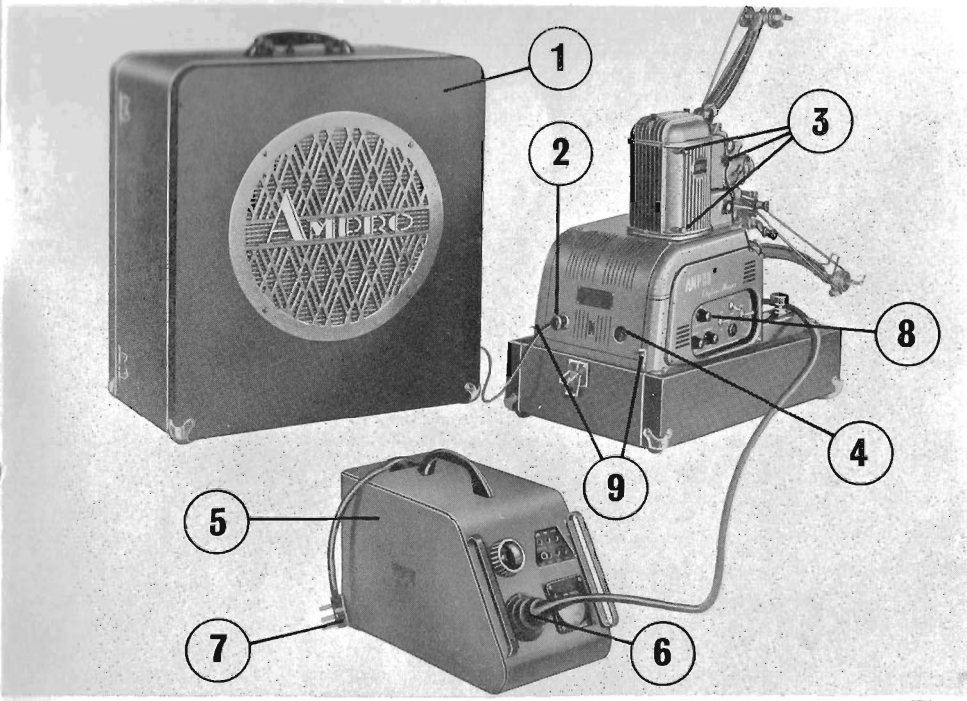


*Fig.* 2

case and this back should always be removed when the speaker is in use. The best position for the loudspeaker will vary considerably from place to place but it will generally be found advisable to raise it at least 18 in. from the floor.

**9** Remove the 1,600 ft. reel and speaker cable (**5** · *Fig.* 1) from the back of the speaker case. The speaker cable is fitted with identical jack plugs at each end; one plug should be inserted into either of the jack sockets fitted to the loudspeaker case whilst the other end should be plugged into the speaker jack socket (**2** · *Fig.* 2) at the rear of the projector. The 50 ft. of speaker cable may be easily unwound from its reel if a pencil or similar rod is utilized as a pivot through the centre enabling it to be run off rapidly.

**10** Turn the 'Tone Control' (**11** · *Fig.* 3) clockwise to switch on the amplifier.

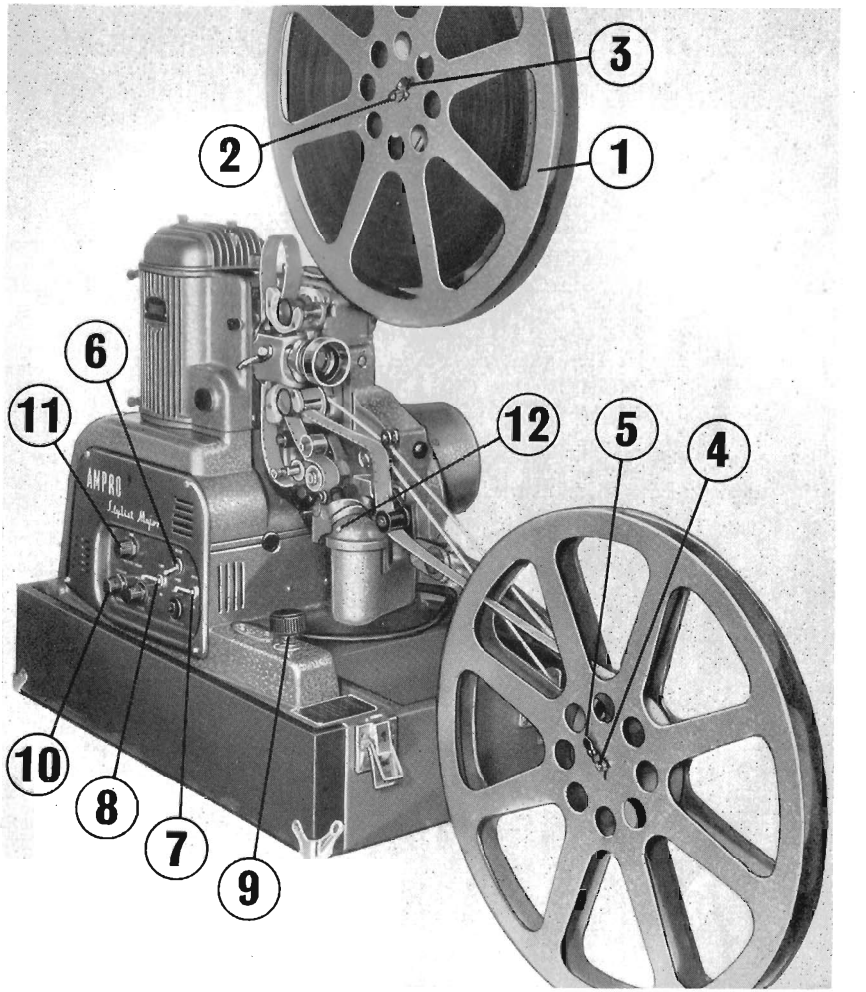


*Fig.* 3

## THREADING *(see Figs. 3–7 inclusive)*

1 Place the reel of film which is to be projected (**1** · *Fig.* 3) on the feed spindle (**2** · *Fig.* 3) and fold over the reel lock finger (**3** · *Fig.* 3).

2 Place an empty reel of suitable capacity on to the take-up spindle (**4** · *Fig.* 3) and secure with the take-up reel lock finger (**5** · *Fig.* 3).

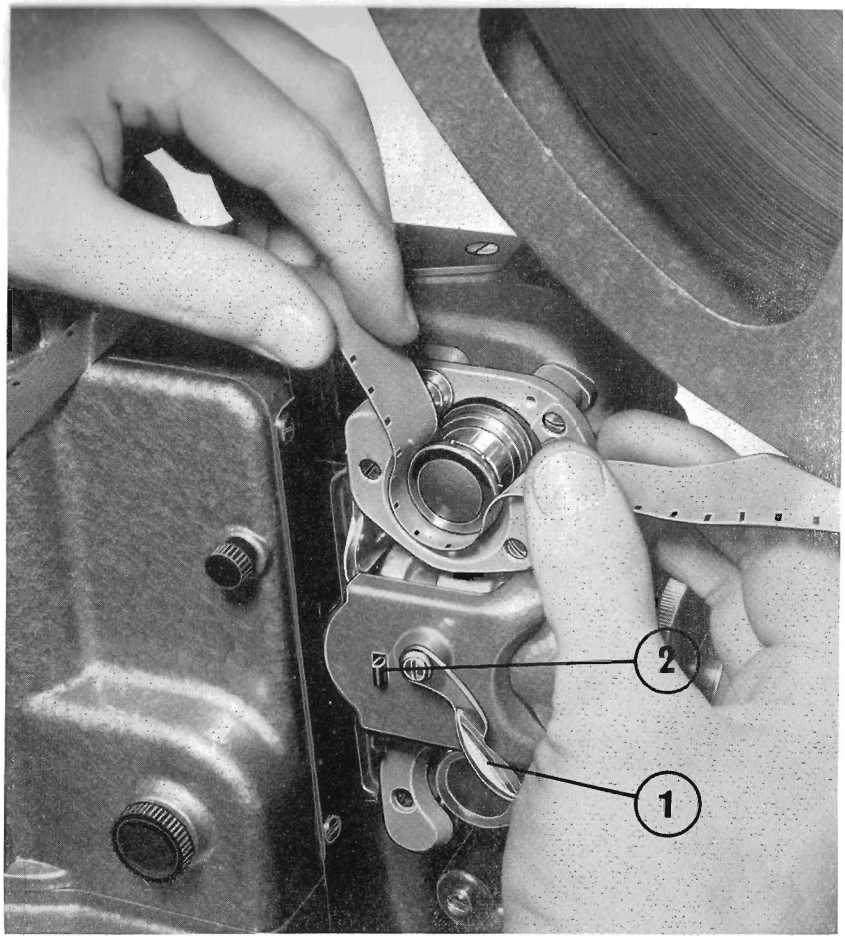


*Fig.* 4

NOTE: If the film is properly wound for projection, the sprocket holes will be toward the operator, the film will feed off the side of the reel nearest the screen and if an individual frame is inspected, the image will be upside down and titles will read from right to left.

**3** Unwind about 3½ ft. of film.

**4** Push forward the retractor lever (**1** · *Fig.* 4).

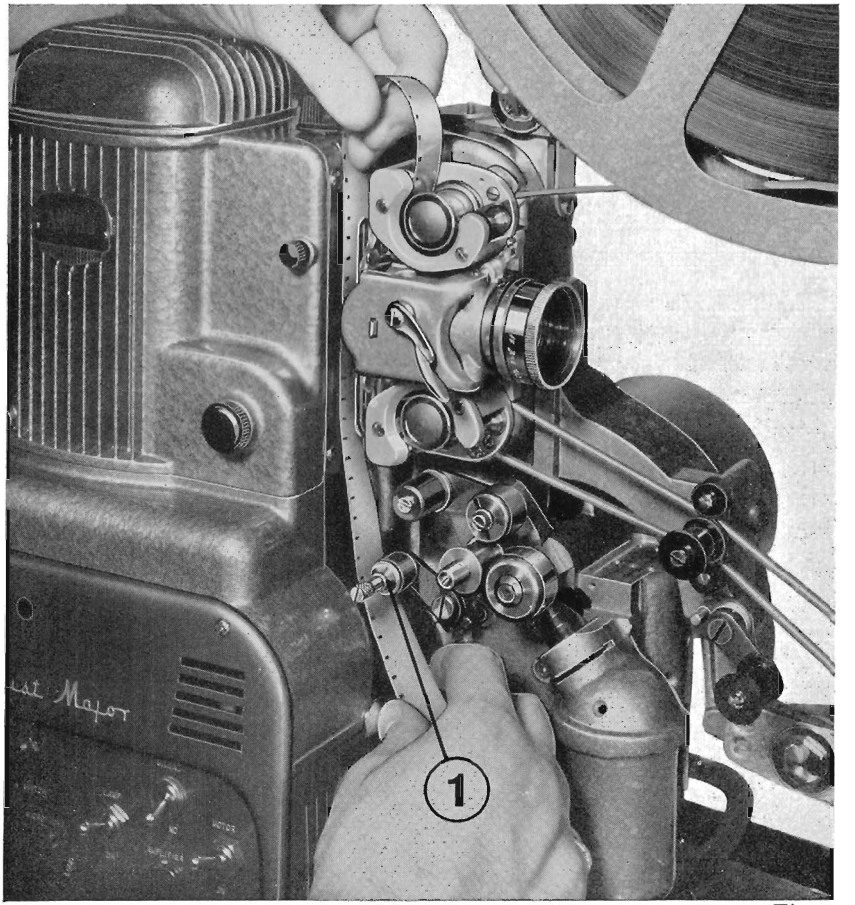


*Fig.* 5

**5** Form a loop in the unwound film close to the reel and slip the film edgeways on to the 'Feed Sprocket' (*see Fig.* 4). Pull up on the loose end to ensure that the sprocket holes engage with the sprocket teeth.

**6** Thread the film through the film gate (*see Fig.* 5) leaving a loop at the top large enough for the insertion of two fingers.

**7** Push the 'Lower Film Loop Synchroniser' (**1** · *Fig.* 5) to the rear position and thread the film up over the 'Lateral Guide Roller' (**1** · *Fig.* 6).

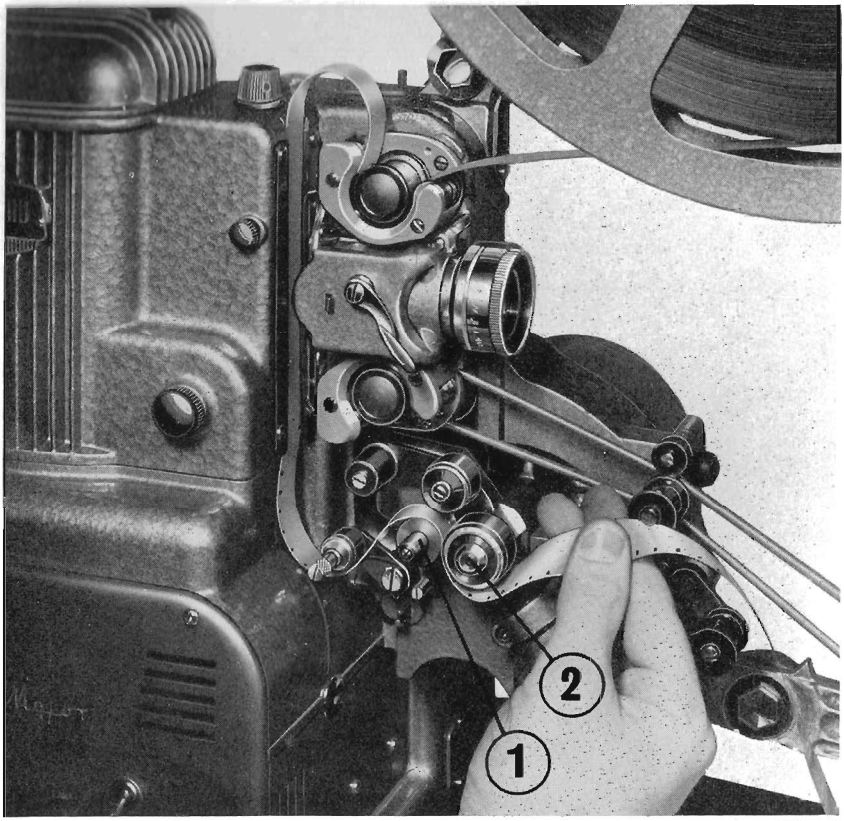


*Fig.* 6

**8** Thread the film around the 'Sound Drum' (**2** · *Fig.* 6) and beneath the 'Sound Drum Follower Roller' (**1** · *Fig.* 7) to the 'Take-up Sprocket) (**2** · *Fig.* 7).

**9** Slip the film edgeways on to and around the take-up sprocket (**2** · *Fig.* 7) and pull on the loose end in order to be sure that the sprocket holes have engaged the sprocket teeth.

**10** Place the film on top of the 'Film Guide Roller' (**3** · *Fig.* 7) and under the 'Tension Equalizer Roller' (**4** · *Fig.* 7).

**11** Place the loose end of the film in a slot in the reel hub and turn the take-up reel in a clockwise direction in order to take up the slack film.

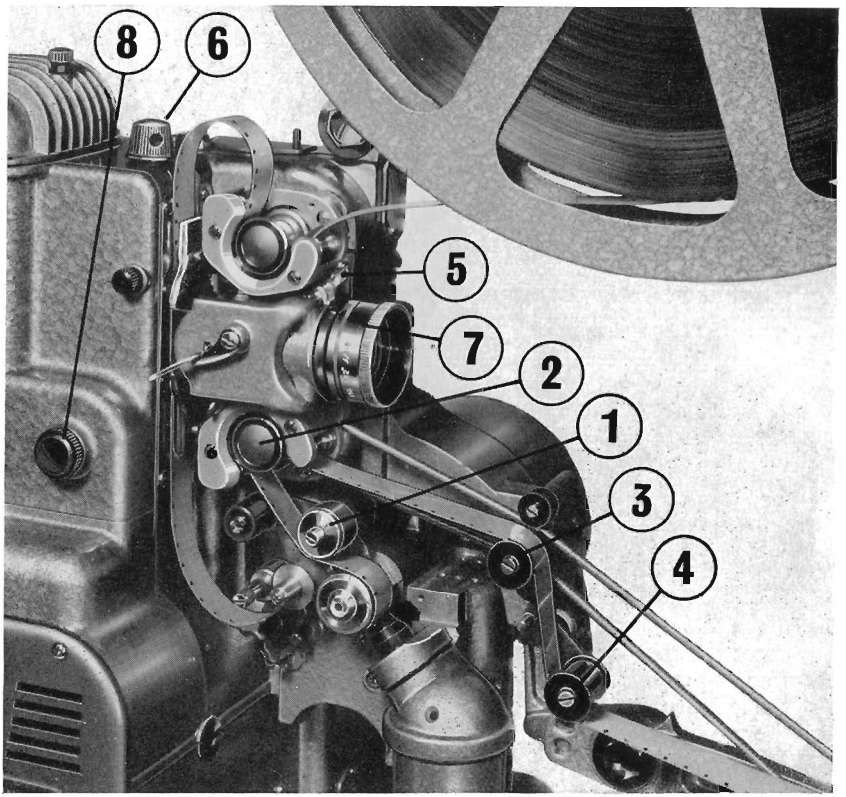


*Fig.* 7

**12** Make sure that the film lies in the recessed portion of the film gate, then push back the retractor lever (**1** · *Fig.* 4) thereby closing the film gate and the sprocket shoes.

**13** Swing the 'Lower Film Loop Synchonizer' (**1** · *Fig.* 5) to the forward position automatically providing the correct size of film loop.

**14** Rotate the 'Inching Knob' (**1** · *Fig.* 8) so that the top surface of the knob is turned towards the screen and make sure that the upper and lower film loops are maintained. (If not, recheck threading.)

# PROJECTING THE PICTURE

1 Set the 'Speed Switch' (**6** · *Fig.* 3) for either sound or silent film.

2 Switch on the 'Motor Control Switch' (**7** · *Fig.* 3). Check that the film is feeding smoothly through the projector and then switch on the projection lamp switch (**8** · *Fig.* 3). Do not switch on the projection lamp unless the motor is running and the film in motion.

3 Before focusing release the lens locking lever (**5** · *Fig.* 7). A spring loaded quick thread holds the lens in place so that a straight pull will allow rough focusing or complete removal. Fine focusing is obtained by rotating the lens in the usual way. After the picture has been properly focused the lens should be locked into position.

4 If parts of two pictures or a horizontal line appears on the screen rotate the framing knob (**6** · *Fig.* 7) in order to correct the condition.

5 If the picture is too high or too low, rotate the tilt knob (**9** · *Fig.* 3) to correct its position on the screen.

NOTE: If the picture is larger than the screen decrease the distance between projector and screen. If the picture is smaller than the screen, increase the distance.

6 If sound film is being projected turn the 'Volume Control' (**10** · *Fig.* 3) clockwise until the proper volume level is established, then adjust the 'Tone Control' (**11** · *Fig.* 3) to obtain satisfactory reproduction of sound.

6a In the event of losing the lower film loop (when projecting film with damaged sprocket holes) it is only necessary to move the 'Lower Film Loop Synchronizer' (**1** · *Fig.* 5) to the rear position and then return to the forward position to re-establish the lower film loop without stopping the projector.

7 When projecting Silent film set the speed switch to 'Silent' (**6** · *Fig.* 3). Unless the amplifier is required for microphone or gramophone it should be switched off by turning the 'Tone Control' (**11** · *Fig.* 3) fully anti-clockwise. When using the amplifier with silent film the projector volume control should be switched off, by turning fully anti-clockwise to obviate the buzzing note, due to the sprocket holes, which will otherwise occur.

8 If required, single frames of the film may be projected as 'Stills' by turning the still picture button (**8** · *Fig.* 7) clockwise until the mechanism stops. After the projector has stopped, if the picture is partly or completely obscured, rotate the inching knob (**1** · *Fig.* 8) to bring the complete frame into view. The film will be automatically protected from excessive heat by the safety shutter. To put the projector back into motion rotate the still motion button fully anti-clockwise.

9 When 'The End' trailer appears on the screen switch off the Projection Lamp and turn down the volume. When the last of the film has passed through the projector switch the motor to the 'Off' position.

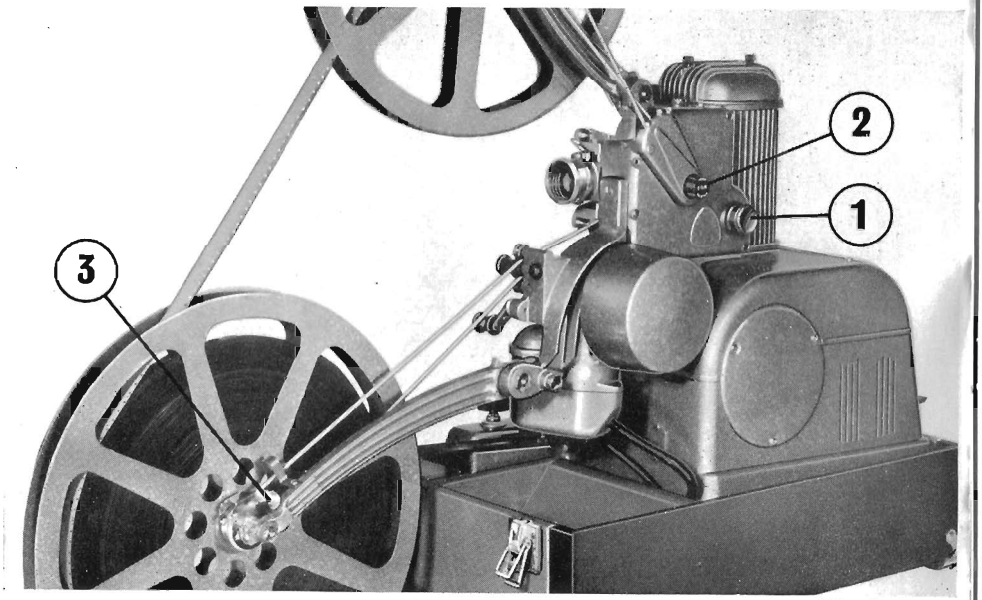


*Fig.* 8

## REWINDING FILM (*See Fig.* 8)

1 Thread the film from the lower reel to the upper reel as indicated. Insert the loose end of the film in a slot in the upper reel and turn the reel (clockwise as viewed in *Fig.* 8) two or three turns to wind up the slack.

2 Set the speed switch (**6** · *Fig.* 3) to the 'Silent' position and switch on the motor (**7** · *Fig.* 3).

3 Push in the rewind clutch (**2** · *Fig.* 8) and after approximately 150 ft. of film have been rewound move the belt shifter (**3** · *Fig.* 8) to its maximum clockwise position.

4 Switch the motor to the 'Off' position just as the last of the film leaves the take-up reel so as to permit the rewind clutch to restore to its normal position. This will reduce the momentum of the upper reel and will prevent the film end from flapping.

5 Rotate the belt shifter (**3** · *Fig.* 8) to its maximum anti-clockwise position.

## STORAGE

1 If the projector is to be used more than once in the same location within a few hours all that is necessary is to turn off all switches, disconnect the transformer or projector power cable and fold back the reel arms. It is advisable to roll up the power and speaker cables to prevent any one tripping over them.

2 If the projector is to be moved or put away, disconnect the projector power cable, fold back the upper and lower reel arms, remove the speaker plug from the speaker jack socket and wind the cable on to the reel (**5** · *Fig.* 1) as indicated.

3 Tilt the projector by turning the tilt knob (**9** · *Fig.* 3) anti-clockwise until the rear stops (**9** · *Fig.* 2) 'bottom' on the edge of the case.

4 Place the reel of speaker cable on the screw post on the back of the speaker case. Replace the speaker back.

5 Place the top portion of the carrying case over the projector, making sure that the catches are properly aligned before closing them.

6 The projector should always be stored in a dry and reasonably dust-free atmosphere.

## MAINTENANCE—CLEANING

A Before each show the aperture should be cleaned as follows. Press forward the retractor lever (**1** · *Fig.* 4), release catch (**2** · *Fig.* 4) and swing the gate outwards. Clean the pressure shoe and gate aperture using either the cleaning brush or a soft cloth.

B Loosen the lens locking lever (**5** · *Fig.* 7) and remove the lens (**7** · *Fig.* 7). Clean the lens surface with lens tissue. If the surfaces cannot be cleaned by breathing on them and wiping them with tissue, then dampen the tissue with lens cleaner. It is not advisable to pour lens cleaners or other solvents on to the lens elements as some liquids may cause them to separate.

C Wipe the guide and tension rollers with a soft cloth.

D Wipe off any dirt on the projector mechanism and periodically clean the case.

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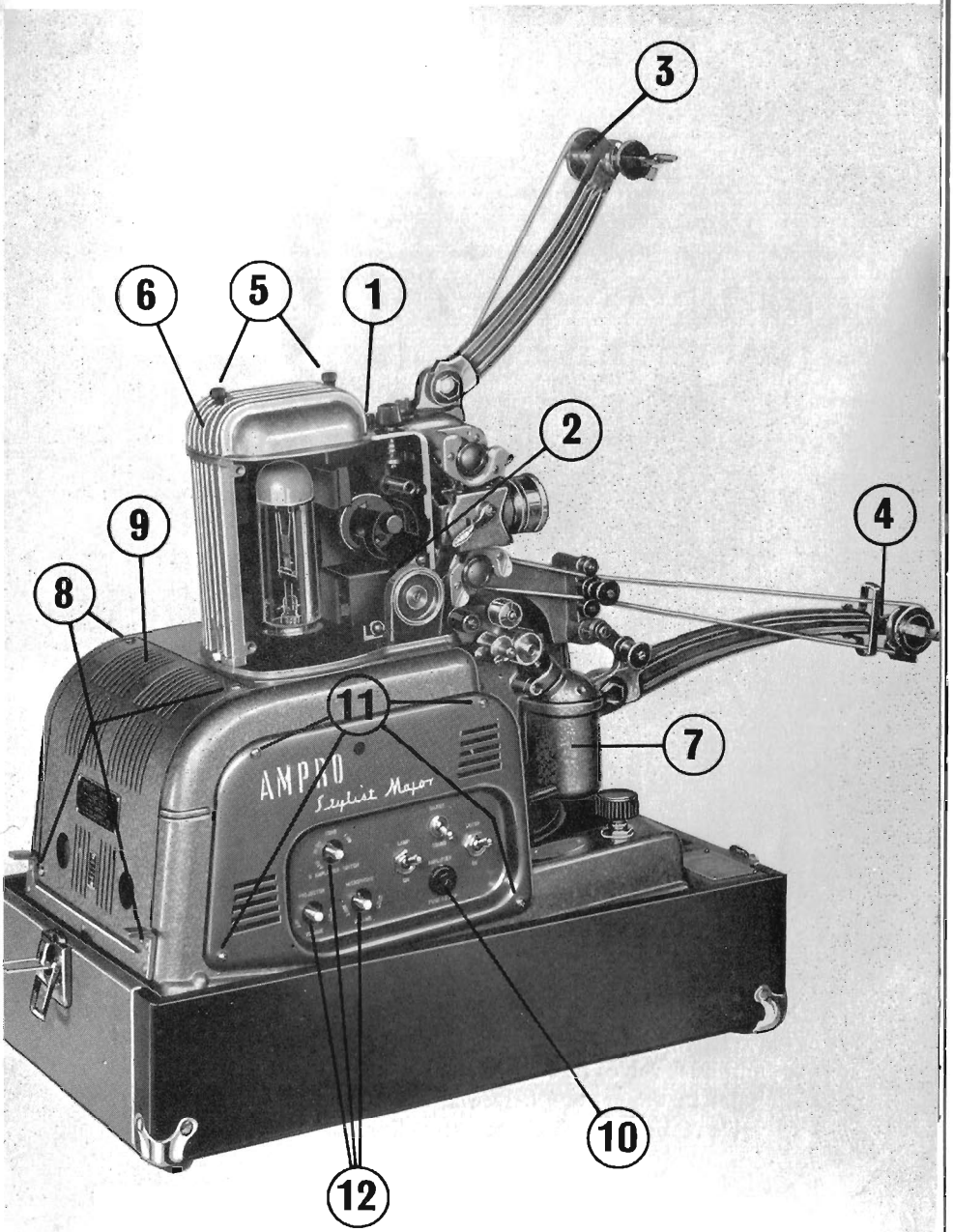



*Fig. 9*

### LUBRICATION

A After each 25 hours of operation apply 2 or 3 drops of Amproil to the central oil well ( **1** · *Fig.* 9). Remove the three cover screws (**3** · *Fig.* 2) and pull off the front cover assembly. Apply 2 or 3 drops of Amproil to the vertical camshaft bearing oil hole (**2** · *Fig.* 9). Before replacing the front cover clean the condenser lenses and reflector.

B After each 75 hours of operation apply 2 or 3 drops of oil to the reel spindle oil holes (**3** & **4** · *Fig.* 9).

## REMOVAL OF PARTS FOR INSPECTION OR REPLACEMENT

**Always disconnect from power supply before removing covers.**

A *Projection Lamp*—Remove the two cover screws (**5** · *Fig.* 9) and lift off the lamp house top (**6** · *Fig.* 9). Gripping the lamp with the lamp remover, press downwards and turn it 90° anti-clockwise; this will release the lamp so that it may be removed from the lamp house. To replace the lamp reverse the procedure. NOTE: *One of the flanges on the lamp base is wider than the other—line up the flanges with the corresponding slots in the lamp socket when replacing the lamp.* When a new lamp has been fitted the lamp adjusting screw (**13** · *Fig.* 9) should be turned with a screwdriver until illumination on the screen is even and free from bands.

B *Exciter Lamp*—Take off the P.E.C. housing (**7** · *Fig.* 9) by removing the two knurled headed securing screws located on its under side. Rotate the exciter lamp anti-clockwise to release it from its socket. NOTE: *The slots in the exciter lamp base are not equi-spaced. When replacing the lamp be sure to position the base so that the three slots line up with the pins in the socket.*

C *Photocell*—Remove the P.E.C. housing as explained in the previous paragraph. Making sure to grip the photocell by its base, withdraw it from its holder.

D *Valves*—Remove the four screws (**8** · *Fig.* 9) and lift off the valve cover (**9** · *Fig.* 9). This will expose the valves (*see Fig.* 11). When replacing the amplifier valves be sure to align the valve pins with their corresponding holes in the sockets before attempting to insert them. To release the valve retainers push the retainer clips to the left.

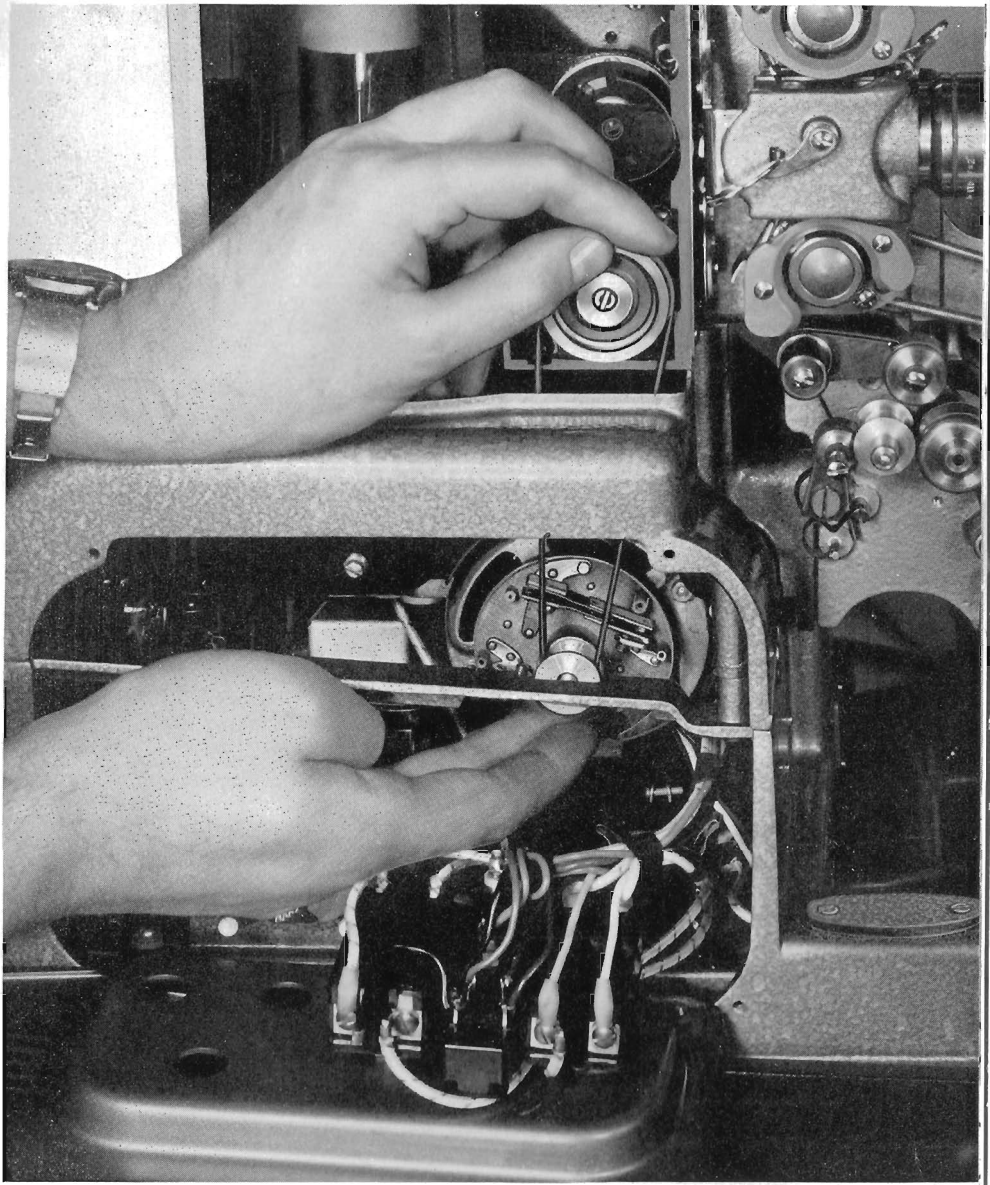


*Fig. 10*

E *Fuse*—Unscrew and remove the fuse holder cap (**10** · *Fig.* 9) to which the fuse is attached. NOTE: *Always use the correct value of fuse since its purpose is to protect the amplifier.*

F *Reel Arm Belts*—Unhook the old belt at the join and attach one end of the new belt to it. If the old belt is now pulled out it will automatically thread the new one over the pulleys. When fitting the re-wind belt it should always be crossed before joining its ends.

G *Drive Belt*—Remove the four screws (**11** · *Fig.* 9), loosen the three grub screws which secure the volume and tone control knobs (**12** · *Fig.* 9). Remove the control knobs and tip the top of the control panel outwards. Remove the front cover from the mechanism and pull off the drive belt. Slip the new belt over the lower (motor) pulley and hold in position. Thread top end through casting and ease gently over upper (mechanism) pulley (*see Fig.* 10).

## SCREEN TABLE

| Focal length of lens in inches | DISTANCE FROM SCREEN IN FEET | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 6 | 7 | 8 | 10 | 12 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 60 | 70 | 90 |
| 1 | 1′ 8″<br>2′ 3″ | 2′ 0″<br>2′ 8″ | 2′ 3″<br>3′ 0″ | 2′ 10″<br>3′ 9″ | 3′ 4″<br>4′ 6″ | 4′ 3″<br>5′ 8″ | 5′ 8″<br>7′ 6″ | | | | | | | | | |
| 1½ | 1′ 1″<br>1′ 6″ | 1′ 4″<br>1′ 9″ | 1′ 6″<br>2′ 0″ | 1′ 10″<br>2′ 6″ | 2′ 3″<br>3′ 0″ | 2′ 10″<br>3′ 9″ | 3′ 9″<br>5′ 0″ | 4′ 8″<br>6′ 3″ | 5′ 8″<br>7′ 6″ | 6′ 7″<br>8′ 10″ | | | | | | |
| *2 | | | | 1′ 4″<br>1′ 10″ | 1′ 8″<br>2′ 3″ | 2′ 1″<br>2′ 10″ | 2′ 10″<br>3′ 9″ | 3′ 6″<br>4′ 9″ | 4′ 3″<br>5′ 8″ | 4′ 11″<br>6′ 7″ | 5′ 8″<br>7′ 6″ | 6′ 4″<br>8′ 6″ | | | | |
| 2½ | | | | 1′ 1″<br>1′ 6″ | 1′ 4″<br>1′ 9″ | 1′ 8″<br>2′ 3″ | 2′ 3″<br>3′ 0″ | 2′ 10″<br>3′ 9″ | 3′ 4″<br>4′ 6″ | 3′ 11″<br>5′ 3″ | 4′ 6″<br>6′ 0″ | 5′ 1″<br>6′ 9″ | 5′ 8″<br>7′ 6″ | 6′ 9″<br>9′ 1″ | | |
| 3¼ | | | | | | | | 2′ 2″<br>2′ 10″ | 2′ 7″<br>3′ 5″ | 3′ 0″<br>4′ 0″ | 3′ 5″<br>4′ 7″ | 3′ 11″<br>5′ 3″ | 4′ 4″<br>5′ 9″ | 5′ 2″<br>6′ 11″ | 6′ 1″<br>8′ 1″ | |
| 4 | | | | | | | | 1′ 9″<br>2′ 4″ | 2′ 1″<br>2′ 10″ | 2′ 5″<br>3′ 3″ | 2′ 10″<br>3′ 9″ | 3′ 2″<br>4′ 3″ | 3′ 6″<br>4′ 9″ | 4′ 3″<br>5′ 8″ | 4′ 11″<br>6′ 7″ | 6′ 4″<br>8′ 6″ |

RANGE OF PROJECTION LENSES AVAILABLE

*Standard Lens supplied with Projector.

All Lenses are supplied with bloomed finish.

| | | |
|---|---|---|
| 1 inch F2 | - - | Part No. 32004 |
| 1½ inch F1.65 | - - | Part No. 32005 |
| *2 inch F1.6 | - - | Part No. 32006 |
| 2½ inch F1.8 | - - | Part No. 32007 |
| 3¼ inch F2.2 | - - | Part No. 32008 |
| 4 inch F2.8 | - - | Part No. 32009 |


*Fig. 11*

# FAULT FINDING

| | SYMPTOM | PROBABLE CAUSES |
|---|---|---|
| 1 | Valves do not light, Motor and Lamp do not operate. | Supply failure.<br>Supply Fuse burned out.<br>Broken Power Cable. |
| 2 | Valves light but Motor and Lamp do not operate. | Motor Switch has failed. |
| 3 | Valves light and Motor runs but Lamp does not light. | Lamp burned out.<br>Faulty Lamp Switch. |
| 4 | Motor does not run. | Worn Motor Brushes.<br>Worn Governor Brushes.<br>Dirty Governor Contacts. |
| 5 | Motor runs but mechanism does not. | Still Button screwed in.<br>Worn Belt or Belt off pulleys. |
| 6 | Valves do not light. | Burned out Amplifier Fuse.<br>Amplifier Plug not connected inside. |
| 7 | Amplifier Fuse burns out. | Excessive Line Voltage.<br>Faulty Amplifier. |
| 8 | Valves light but Exciter Lamp does not. | Exciter Lamp burned out.<br>Faulty Oscillator Valve. |
| 9 | Valves and Exciter Lamp light but no sound. | Disconnection or fault in Loudspeaker Cable.<br>Faulty Amplifier. |
| 10 | Volume decreases when Lamp switched on. | Poorly regulated supply.<br>Probably due to unsuitable or faulty supply wiring or loose connection in power cable. |
| 11 | Hum or crackle from Speaker. | Dirty Motor Brushes.<br>Faulty Motor.<br>Faulty Amplifier. |

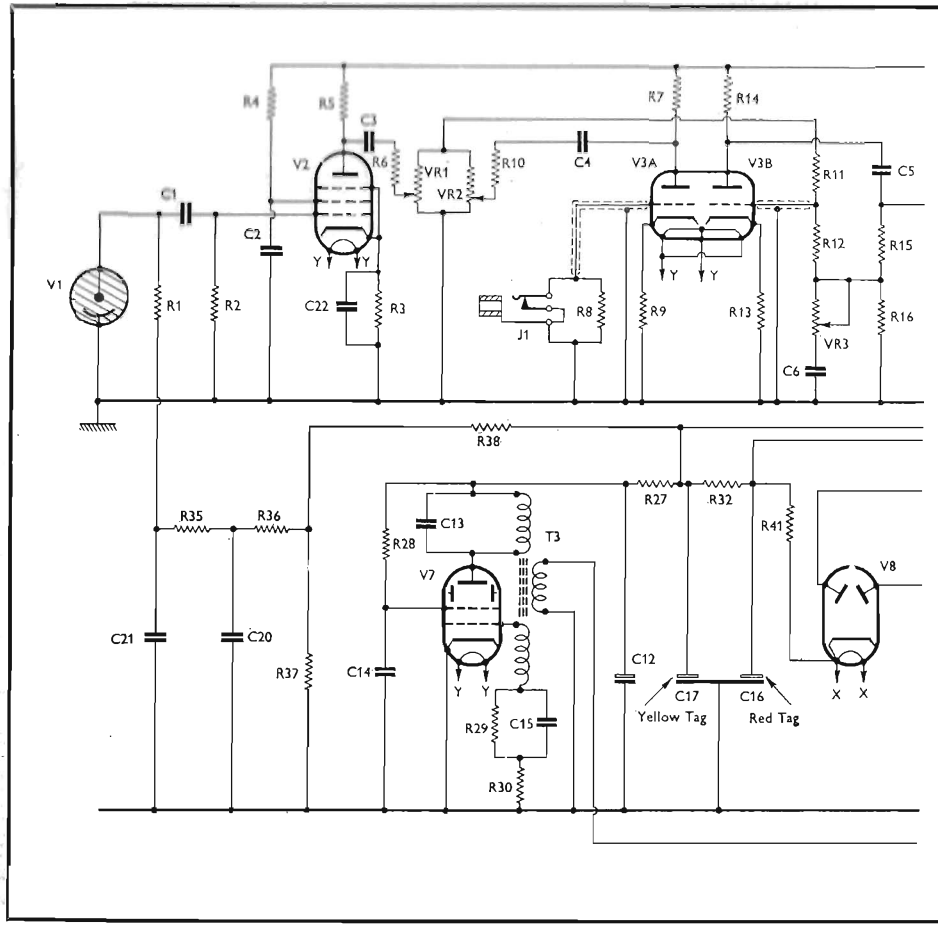
| | SYMPTOM | PROBABLE CAUSES |
|---|---|---|
| 12 | Ringing noise from Speaker. | Faulty Photocell or Exciter Lamp. |
| 13 | Regular thumping noise from Speaker. | Dirt on edge of Sound Drum. |
| 14 | Film noise in Gate. | Green Film or excessively shrunk Film.<br>Mechanism requires adjustment. |
| 15 | Picture Unsteady. | Green or excessively shrunk Film.<br>Dirt in Film Gate.<br>Mechanism requires adjustment. |
| 16 | Poor Focus. | Dirty Lens.<br>Warped Film. |
| 17 | Colour Bands on Screen. | Old or Damaged Lamp.<br>Lamp not Centred. |

## ACCESSORIES AND REPLACEMENT PARTS

| | *Part No.* |
|---|---|
| Mains Transformer, 200–250V. A.C. with Voltmeter and Fine Control | 35356 |
| Mains Transformer, 200–250V. A.C. | 35054 |
| Rubber Lamp Remover | 34159 |
| Projector Lamp, 115V, 750W | 34116 |
| Projector Lamp, 115V, 1,000W | 34618 |
| Exciter Lamp, 4V, 0.75A | 37626 |
| Photocell | 37625 |
| Fuse, 1.5 Amp | 33400 |
| Valve, 6BR7 (formerly 8D5), 1 per set | 37294 |
| Valve, 12AX7, 2 per set | 37295 |
| Valve, 6BW6, 3 per set | 37724 |
| Valve, 5Z4 or 5Z4GT, 1 per set | 33374 |
| Condenser Lens, Front | 32111 |
| Condenser Lens, Rear | 32112 |
| Reflector | 32103 |

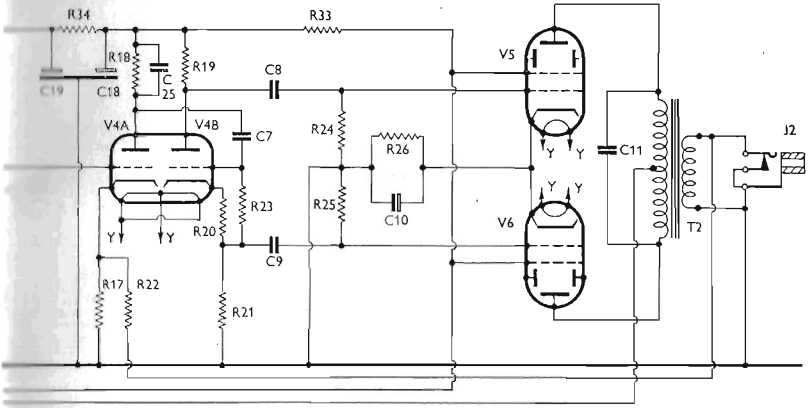
| | *Part No.* |
|---|---|
| Projection Lens, 1" focal length | 32004 |
| Projection Lens, 1½" focal length | 32005 |
| ProjectionLens,2" focal length (Standard) | 32006 |
| Projection Lens, 2½" focal length | 32007 |
| Projection Lens, 3½" focal length | 32008 |
| Projection Lens, 4" focal length | 32009 |
| Motor Drive Belt | 37249 |
| Take-up Spring Belt | 37652 |
| Rewind Spring Belt | 34565 |
| Amproil, 1 oz. bottle | 34182 |
| Aperture Cleaning Brush | 34160 |
| Instruction Manual | 37655 G |
| Loudspeaker Unit (less Reel and Cable) | 37371 G |
| Loudspeaker Cable (50 ft.—for Interconnecting Twin Speakers) | 37796 G |
| Loudspeaker Cable—100 ft. | 37372 G |

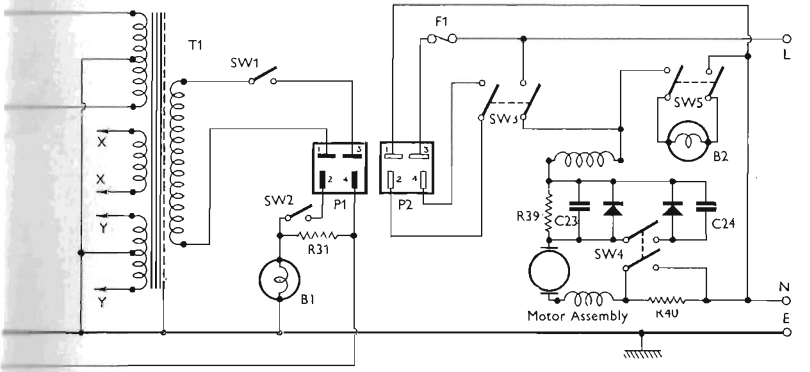
**See the Ampro Accessories Catalogue for particulars of projector stands screens—film splicers, microphones, record players and other accessories.**



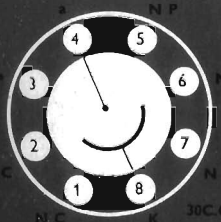

| Reference | Description | Part No. |
|---|---|---|
| R1, R2. | Resistor, Carbon, ½W, 5·6M, 10% | 37152 |
| R3, R9, R13 R17, R20 | Resistor, Carbon, ½W, 1·5K, 10% | 37600 |
| R4, R24, R25. | Resistor, Carbon, ½W, 470K, 10% | 37159 |
| R5, R7, R14. | Resistor, Carbon, ½W, 100K, 10% | 37157 |
| R19, R21. | Resistor, Carbon, ½W, 100K, 5% | 37720 |
| R6, R23. | Resistor, Carbon, ½W, 330K, 10% | 37602 |
| R8, R11, R12, R18 | Resistor, Carbon, ½W, 270K, 10% | 37155 |
| R10, R37. | Resistor, Carbon, ½W, 1M, 10% | 37615 |
| R15. | Resistor, Carbon, ½W, 150K, 10% | 37603 |
| R16. | Resistor, Carbon, ½W, 27K, 10% | 37604 |
| R22. | Resistor, Carbon, ½W, 22K, 10% | 37164 |
| R26. | Resistor, Wirewound, 4W, 250Ω, 10% | 37606 |
| R27. | Resistor, Wirewound, 4W, 1200Ω, 20% | 37608 |
| R28. | Resistor, Carbon, 1W, 56K, 10% | 37609 |
| R29. | Resistor, Carbon, ½W, 1·8K, 5% | 37610 |
| R30. | Resistor, Carbon, ½W, 1·5K, 5% | 40771 |
| R31. | Resistor, Wirewound, 4W, 20Ω, 20% | 37611 |
| R33, R34. | Resistor, Carbon, ½W, 22K, 10% | 37164 |
| R35, R36. | Resistor, Carbon, ½W, 2·2M, 10% | 37153 |
| R32. | Resistor, Wirewound, 6W, 680Ω, 20% | 37612 |
| R38. | Resistor, Carbon, ½W, 3·3M, 10% | 37613 |
| R39. | Resistor, Wirewound, 90Ω, 10% | 37662 |
| R40. | Resistor, Wirewound, 25W, 30Ω, 20% | 37633 |
| R41. | Resistor, Wirewound, 6W, 120Ω, 10% | 37830 |
| C2. C3, C4, C8, C9. | Capacitor, Paper, 0·03μF, 350V | 37150 |
| C5, C22. | Capacitor, Paper, 0·1μF, 250V | 37620 |
| C10. | Capacitor, Electrolytic, 25μF, 25V | 37621 |

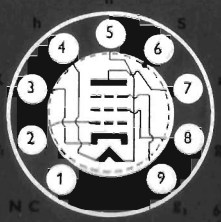
| Reference | Description | Part No. |
|---|---|---|
| C11. | Capacitor, 500pF, 750V | 37722 |
| C12. | Capacitor, Electrolytic, 8μF, 350V | 37622 |
| C13, C15. | Capacitor, Ceramic, 100pF, 500V | 37183 |
| C16, C17. | Capacitor, Electrolytic, 16+16μF, 450V | 37650 |
| C18, C19. | Capacitor, Electrolytic, 16+16μF, 350V | 37623 |
| C20, C21. | Capacitor, Paper, 0·25μF, 150V | 37172 |
| C23, C24. | Capacitor, Paper, 0·5μF+·25μF, 400V | 37629 |
| C25. | Capacitor, Ceramic, 500pF, 350V | 37170 |
| C6, C7, C14. | Capacitor, Paper, ·01μF, 350V | 37169 |
| C1. | Capacitor, Paper, ·01μF, 150V | 37721 |
| VR1. | Control—Projector Volume. | 37143 |
| VR2. | Control—Microphone Volume | 37618 |
| VR3. | Control—Tone | 37143 |
| J1. | Input Jack—Mic./Gram. | 37624 |
| J2. | Output Jack—Loudspeaker | 37624 |
| P1. | Male Connector | 37617 |
| P2. | Female Connector | 37631 |
| T1. | Transformer, Mains | 37628 |
| T2. | Transformer, Output | 37627 |
| T3. | Coil, Oscillator | 37147 |
| F1. | Fuse, 1·5 Amp. | 33400 |
| SW1. | On Tone Control (VR3) | |
| SW2. | On Proj. Volume Control (VR1) | |
| SW3. | Motor Switch | 33360 |
| SW4. | Sound-Silent Switch | 37630 |
| SW5. | Lamp Switch | 33360 |
| B1. | Lamp, Exciter | 37626 |
| B2. | Lamp, Projection, 750W | 34116 |
| V1. | Cell, Photo-Electric, Type 30CG | 37625 |
| V2. | Valve, 6BR7 | 37294 |
| V3, V4. | Valve, 12AX7 | 37295 |
| V5, V6, V7. | Valve, 6BW6 | 37724 |
| V8. | Valve, 5Z4G | 33374 |




## VALVE BASE CONNECTIONS







### SYMBOLS

a — Anode
a', a'' — Anode 1, Anode 2
bp — Beam Plates
g — Grid
g₁, g₂ — Grid 1, Grid 2
h — Heater
K — Cathode
K', K'' — Cathode 1, Cathode 2
I C — Internal connection
N C — No connection
N P — No Pin
S — Internal Shield


## SERVICE

AMPRO products are distributed throughout the world with suitable Service facilities. When ordering any spare parts or entering into any correspondence it is essential to quote both the projector model and serial number. The names and addresses of the nearest Ampro Dealer and Servicing Depot will be furnished on request.

*This apparatus has been designed and tested for use with electronic valves manufactured by members of the B.R.V.M.A. who mark their valves with the letters B.V.A. which is a guarantee of quality and efficiency. No responsibility can be accepted for the performance of the apparatus if electronic valves other than those marked B.V.A. are employed.*

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