Film-Tech

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SERVICE SECTION

16mm
SOUND MOTION PICTURE PROJECTORS

MODELS
40-A, 40-B, 40-BX, 55,
56, 60-B, 60-2, 60-4,
60-10, 60-25,
AND
G (BRITISH GREYLINE VICTOR)

PREPARED BY

VICTOR ANIMATOGRAPH CORPORATION
DAVENPORT, IOWA, U. S. A.

JANUARY, 1954 FORM 2296 PRINTED IN U. S. A.

FOREWORD

This Service and Parts Manual has been prepared for your information and guidance. It is given to you as confidential matter. (Additional copies of Manual $3.00.)

It contains all data, photographs, and wiring diagrams for the servicing of Victor 16mm Sound Motion Picture Projectors from the Model 40 through 60 series. The Manual is organized so that data appears on left hand pages with corresponding photographs on right hand pages, opposite.

On pages that show general assemblies, a column will be found directly to the right of nomenclature giving page number of assembly breakdown.

At the right side of the nomenclature list appears a chart showing interchangeability of parts. The "G" in this chart denotes the British Greyline Victor Projector.

You will note that various parts are NOT numbered. These are factory operations and have been purposely excluded for reasons of simplification.

Parts that are complete assemblies have their photograph key number encircled.

Read and observe the following so there will be no misunderstanding in regard to the Victor Service Policy:

A. All parts orders and correspondence pertaining to service should be sent directly to our Service Manager, and not included in correspondence for other departments.

B. When ordering, the number of each part and its description should be given, as well as the model and serial number of equipment, if available.

C. The Victor Warranty does not cover lamps or tubes, or the replacement of parts which become inoperative because of misuse, accident or negligence, nor if the part or parts have been repaired or altered in any way which, in our judgment, affects their condition or operation. Also, our Warranty does not cover labor charges unless the equipment is shipped prepaid to the factory at Davenport, Iowa, U. S. A., or to the Chicago or New York branches.

D. All parts taken from equipment in guarantee must be returned to the factory for inspection before "No Charge" replacements can be made. Full information must be given as to serial number, model and date of sale of said equipment.

E. Authorization must be received from the factory before any parts or equipment may be returned for credit. A ten percent (10%) handling charge will be deducted from all credits issued for parts that have been overstocked.

VICTOR ANIMATOGRAPH CORPORATION
Davenport, Iowa, U. S. A.

GENERAL INSPECTION

A general inspection will be adequate in most cases especially where the projector has been checked periodically and its general performance known in advance. In any case the preliminary check will soon indicate if there is any need to disassemble the projector for a more elaborate overhaul.

PROCEDURE

A. INSPECTING THE PROJECTOR

Set-up. Set the machine up as for a show and check all cords and plugs in the process.

Belts & Pulleys. Replace belts if stretched or kinked. Check pulleys for excessive wear.

Sprockets. Make sure the sprocket guards have the proper clearance and see that the sprocket teeth are not worn. Worn teeth can be extremely damaging to film.

Rollers. Make sure all rollers are clean and revolve freely. If there is any question make a special check to see if the rollers have any flat surfaces anywhere. If so, replace.

Gate. Clean the gate, pressure plate, aperture and sound drum. An orangewood manicure stick is very good for removing encrusted emulsion and "fuzz" from corners of the aperture. Check carefully for wear of guides or "rails" on which the film rides.

Shuttle. Check for wear on shuttle teeth. Lower shuttle tooth should receive special attention.

Lens. Clean lens carefully. Use lens cleaning tissue in preference to a handkerchief although this is all right if laundered soft and the glass not pressed hard. (Remember that optical glass is much softer than ordinary glass.)

Lamphouse. Release the lamphouse locking screw and remove the lamphouse. Clean the condenser and reflector with tissue.

Lamp. Check the lamp for excessive blackening adjacent to the condenser, and wipe it clean. If the glass is blistered or if the filaments seem to sag, replace the lamp.

Motor.

a. Check the motor brush accessible from the front. If worn, remove the projector from case and check the rear brush. Replace them if necessary.

b. Make sure that the bearing surface of the brush is smooth and shiny. If rough and oily the commutator needs cleaning.

c. The commutator can be cleaned moderately well if not in bad condition by using a small piece of cheesecloth or extra fine abrasive.

Speeds. Turn the motor on, listen to its sound and see that it operates at 16 and 24 speeds, forward and reverse. (Count 80 and 120 revolutions of the 12 tooth feed sprocket per minute for the 16 and 24 speeds respectively.) The operation of the switches can be determined at this time.

For sound film the projector MUST run at *exactly* 24 frames per second. Use the neon lamp stroboscope and check the teeth of the sound sprocket. Shade the teeth from outside light. By the neon lamp they will appear to stand still when the projector is running at the proper speed.

Clutch and Trip. These should operate freely.

Takeups. The operation of these is best checked with film threaded on the projector. Inadequate pull or jerkiness may mean new belts or adjustment of the clutch pulleys.

Governor. If projector is not running at proper speed, the governor should be adjusted.

a. First, clean the contact points and check the speed with the neon lamp again. Contacts controlling the sound speed (24 frames per second) are at the bottom. They can be recognized by the heavier spring and also by the fact that the silent speed (16 frames per second) contacts are held down by a straight lug while the other lugs are curved.

b. If the speeds are still inaccurate, adjust the contacts until correct.

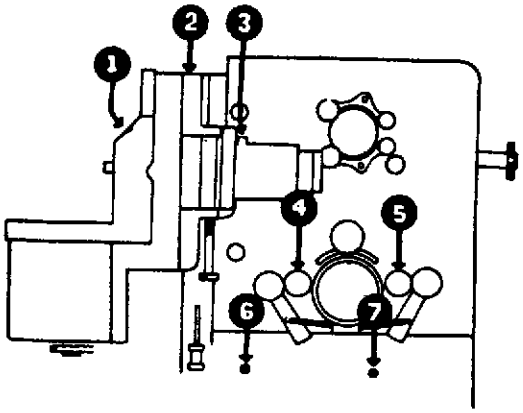
c. Clean the commutator ring at the back of the governor and make sure the brushes are not worn and that they are making good contact.

Illumination. Turn on the lamp and make sure the light on the screen is constant all the way across. (A photocell type exposure meter will be found useful for this, although visual inspection will usually be satisfactory.) If necessary

adjust the lamp sideways in the lamphouse until illumination is properly centered.

Still Picture. This rarely needs attention, but check it for operation.

Film Scratches. Make a loop of about 18" of new (light struck) film which is very soft and run it through the projector a dozen times or so. This will quickly indicate any scratching at the gate. If any abrasion marks appear, the front and back gate plates and other parts such as sprocket guards must be cleaned and checked very carefully.



OILING

More service problems result from over-oiling than under-oiling. Excess oil clogs the light slit of the sound lens, gums the brushes of motor and governor commutators and destroys wire insulation. This results in loss of sound quality, irregular speed and short circuiting of electrical components.

For this reason the oiling schedule as follows is recommended:

OILING POINTS	AMOUNT & FREQUENCY
1, 2 and 3	Four drops every four hours of running time.
4 and 5	Two drops every fifteen hours of running time.
6 and 7	Two drops every four hours of operation.

Oiling points 6 and 7 will not be found on any projector having a ball bearing motor.

All oiling points should likewise be oiled as above when the equipment is installed and after prolonged periods of idleness.

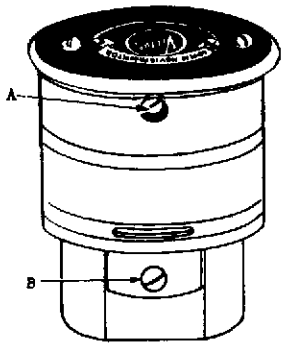


Illustration I

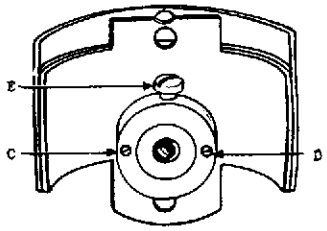


Illustration II

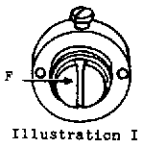


Illustration III

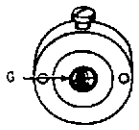


Illustration IV

CLEANING SOUND LENS

FIVE-HOUR CLEANING:

Remove sound drum by pulling directly out after loosening set screw. Use pipe cleaner to clean the film channel slot and the groove in the top of the sound lens. Also clean lower side of sound lens inside the sound drum. Be sure no lint remains on lens or slot. Also be sure sound drum is fully seated with slot in top position.

FIFTY-HOUR CLEANING:

Remove sound drum as above. Remove screws 'A' and 'B' (Illustration I). Thereafter lift out sound channel and sound lens assembly and place in inverted position. Next remove screws 'C' and 'D' (Illustration II) and lift out sound lens unit. (WARNING — *Do not tamper with or loosen screw 'E'. To do so will necessitate return of entire assembly to the factory or nearest Victor Service Center for resetting of lens.*) With a clean lintless cloth polish sound slot 'F' (Illustration III by placing cloth over thumb nail. Also polish condenser lens 'G' (Illustration IV). Thereafter, re-assemble sound drum being careful to have sound slot nearest screw 'B'. (Illustration I), as shown.

B. INSPECTING THE SOUND REPRODUCTION SYSTEM.

Exciter Lamp. Remove and check for excessive blackening and for sagging filament. Wipe clean and replace. Make sure the lamp is aligned with the slit. This can be seen easily when photo-electric cell is removed and a piece of paper held in its place. Be certain solder contact base is clean.

Photocell. Remove cap, wipe clean. Correct functioning of the photocell can be determined by noting the hiss when the amplifier is turned on and without film, and with the photocell voltage adjusting screw set properly. (Not on all units.) Sometimes photocell breakdown will be checked best by listening to a test film with another photocell in the projector.

Sound Drum and Slit. Clean these very carefully. An ordinary pipe cleaner is effective. Lens tissue or even cheesecloth, with or without an orange-wood stick is satisfactory. Make sure the guides or "rails" are not worn. (See Page ix.)

Tubes. While the operating of the tubes can be gauged by listening to a test reel, it is preferable to remove and check in a standard tube tester. A good tester will show when a tube is near the end of its useful life and will avoid subsequent trouble.

Fuse. Some users replace the regular fuse with other fuses up to 10 amp. capacity. The fuse is for protection and 3 amp. is the maximum size to be used for all 110 V., A.C. or D.C. Models.

Test Film. Use a sound subject, preferably the S.M.P.T.E. test reel or some other good subject with which you are thoroughly familiar. Then you can quickly recognize any variation from standard and investigate further.

Sound Quality.

a. WOWS. Slow speed oscillations are usually caused by improper operation of the impedance roll assembly. Make sure that the flywheel is working smoothly and that the pressure roller runs free.

b. FLUTTER. Relatively high speed oscillations are usually caused by improper functioning of the sound sprocket filter mechanism. Check the clearance and smoothness of the sound sprocket and its roller. (See Page xi.)

(Note: Wows are sometimes described as "mushy sound" and flutter as "sour sound." While inexact, they are quite descriptive and may have some definitive value.)

Sound Controls. Check the operation of switches, volume and tone controls. Listening to the sound while operating the latter will indicate whether the amplifier needs further attention.

GENERAL OVERHAUL

A periodical overhauling is indicated when the equipment has been in frequent use even though the General Inspection shows that it is functioning satisfactorily. Such an overhaul may be likened to the 10,000 and 20,000 mile checkups on your car.

The following overhaul procedure is indicated also where there is any question about the proper performance of the projector, irrespective of the amount of use it has had.

The General Overhaul involves dismantling the projector in four main operations as below:

1. REMOVE PROJECTOR FROM CASE:

The projector is held in the case by four screws at the bottom of the case. After removing the screws, tilt the projector forward carefully to gain access to the plugs connecting projector to the amplifier. Disconnect these plugs and remove projector.

2. REMOVE LAMPHOUSE:

Loosen the thumbscrew holding the lamphouse and remove same. Then remove the five screws holding the remaining part of the lamphouse unit to the main casting of the projector. This exposes the shutter and intermittent mechanism, etc.

3. REMOVE SIDE PLATE:

This plate is held by four screws and covers the takeups, clutch pulleys, flywheels, etc.

4. REMOVE THE MOTOR:

This is necessary only when the commutator or bearings need attention.

The Motor Armature, No. 26841 or 20261, should be checked when giving the projector a complete overhaul. The commutators, if rough, can be turned on a lathe. If the undercut taken on the commutator is too deep,

the armature will not operate satisfactorily and should be replaced.

Under the following headings are given the steps most often necessary for properly checking the projector mechanism. Owing to the extreme accessibility of the mechanism, replacements even of vital parts are easy and positive.

5. SHUTTLE:

This part, #20219-A, is the heart of the entire mechanism and must be checked carefully.

a. Check for wear or looseness of the sides of the shuttle against the heart shaped cam. Replace if loose. Do not attempt to "bend" to fit. (It is possible to "stone" the shuttle to smooth out minor "grooves," but this is not recommended except with *extreme* caution.)

b. Make sure the shuttle teeth are not badly worn or rough. Minor rough spots on the shuttle teeth can be "stoned" smooth provided care is used. (Caution is urged if this is attempted.)

c. When replacing the Shuttle Bearings, #20222, make certain they are seated properly so that the shuttle will not strike them in its up and down motion. Also be certain that the shuttle retaining clamps are securely in place and the screw is tight.

d. When it is found necessary to replace the shuttle, Shuttle Bearings, #20222, should be thoroughly checked. If they are beginning to show wear, they should be replaced.

e. When installing a new Shuttle, #20219-A, the Oscillating Gear Assembly, #19479-A, should be adjusted to the proper position as this assembly controls the shuttle action. The shuttle teeth should not extend through the film channel more than 1/16 of an inch. This adjustment on the oscillating assembly can be made by using Tool #9159.

In the event of any question of the best functioning of this vital part, replace the entire shuttle to circumvent subsequent complaints.

6. MAIN DRIVE BELT:

a. The Motor Drive Belt #19128, should be checked, and if it shows signs of wear, it should be replaced.

b. Remove motor fan and upper safety shutter guide. Also remove shutter support plate.

7. STARTING LEVER UNIT:

If the roller is loose on the shaft, replace the entire assembly.

8. SAFETY SHUTTER:

It may be necessary to adjust the eccentric washer. This adjustment raises or lowers the safety shutter with relation to the main aperture. The alignment of the two can be readily seen.

Make certain that the shutter slides quite freely between the guide screws #19457 and #19471 so it will drop of its own weight.

If a dark shadow appears either at the top or bottom of the screen, undoubtedly the Safety Shutter, #19460-A, is out of adjustment. This can be corrected with the eccentric washer on this assembly.

9. FLYWHEEL UNITS:

The necessary end play for flywheel shafts is .004". Occasionally this tolerance will need adjusting. Use the feeler gauge to check this. Do NOT tighten them up too close to the bushing or too much drag will occur. This is worse than if they were a bit loose.

a. The Filter Flywheel Assembly, #19270-A, should be checked to make certain that the filter springs are not touching the gear. This would result in an uneven action and poor sound reproduction. One of the filter springs is straight, while the other one has a small bend or angle.

10. TAKEUP PULLEYS:

Uneven action of these pulleys causes a jumpy action of the takeup and may result in the film "spilling over." This uneven action, in turn, may be caused by wear or oil and grease in the assembly.

The assembly should be checked for worn parts and cleaned.

The Takeup Clutch Assembly, #26836-A, should be checked to see if it is working correctly and is clean. This assembly must be removed from the projector to disassemble. Extreme caution should be exercised in taking this assembly apart so that the small clutch balls will not become lost. This should be assembled dry. Carbon tetrachloride may be used to clean it.

11. GOVERNOR:

Occasionally the brushes need replacement. (The governor itself rarely needs replacement.)

To remove the governor, first remove the end plate and speed switch from the motor housing. Then loosen the locking screw on the governor hub and slide off the motor shaft. In replacing, allow proper (⅛") clearance for the brushes.

a. The Motor Governor, #19533 or #26708-A, should be checked to make certain that the points are smooth. If the points are found to be rough, a regular point file may be used.

b. The governor rings can be polished if mounted on an Arbor either in a lathe or drill press.

c. When replacing the governor, be sure that there is at least ⅛" clearance between the governor brush holders and the governor.

12. FILM SHOES — UPPER AND LOWER:

Rollers should roll freely and show no wear. Film shoes should be properly seated on drive sprocket. Tolerance should be approximately two thicknesses of film.

13. FEED SPROCKET:

The Feed Sprocket, #21184-A, should be checked after excessive use for grooves in the sprocket teeth which will result in film noise. If this should occur, the sprocket should be replaced making certain the proper end play (.004) is set.

14. SOUND SPROCKET:

The teeth of the Sound Sprocket, #30368-A, will also become grooved after extensive use which will result in flutter in sound reproduction. This should also be replaced when sprocket is worn.

15. HAND CONTROL SHAFT:

The Hand Control Shaft, #20739-AR, requires very little grease or oil. However, this shaft should be checked when the projector is given a complete overhaul.

16. FILM CHANNEL CLIPS:

Film Channel Clips, #19316, should be cleaned thoroughly and checked for wear to make certain they are functioning properly. If it is found necessary to replace the clips, the simplest way to do this is to loosen the four screws on the film channel enough to slip out the old clips and slip in the new ones. The Film Channel Retaining Screws should then be tightened into place.

17. FILM CHANNEL:

The Film Channel, #19315, should be checked for worn rails. If these show wear, the channel should be replaced.

18. APERTURE PLATE:

The tension of the Aperture Plate, #30151-A, should be four ounces and not more than six ounces. If too much tension is applied to the aperture plate, it will result in loss of loop when running new film.

19. LENS MOUNT:

A picture that is out of focus on one side may be corrected by adjusting the Lens Mount Stop Screw, #19301, located under and to the inside of the Lens Mount.

20. LAMP ADJUSTING NUT:

If shaded areas appear on either side of the screen, this would indicate that the projection lamp is not in correct alignment. This can be corrected by loosening the Lamp Adjusting Nut, #20496, and moving from side to side to clear up dark areas. This is located directly beneath the lamphouse assembly.

21. PROJECTION LAMP:

The Projection Lamp should always be replaced when blisters or bubbles appear on it. The greatest damage is done to a projection lamp immediately after the lamp is turned off. Blisters or bubbles can be prevented by turning on the motor switch and letting it run for two or three minutes after the lamp switch has been turned off, thus cooling the lamphouse and lamp.

22. PROJECTION LAMP SWITCH:

When the Projection Lamp Switch, #23330, is turned on and the projection lamp burns but the motor will not run, this would indicate a faulty lamp switch.

23. OSCILLATING GEAR ASSEMBLY:

The Oscillating Gear Assembly, #19479-A, should be checked for wear making certain that there is not over .003 end play as this assembly controls the action of the shuttle.

24. CAM BEARING:

The Cam Bearing, #20563, should be checked very carefully for wear and if found to be worn should be replaced. Before disassembling the Cam Pulley Assembly, #20565-A, a mark should be put on the pulley to indicate the exact location of the cam so that when assembling this unit, the cam can be put back into the exact position. This is done to prevent the Cam Pulley getting out of balance.

a. When replacing the Cam Pulley Assembly, #20565-A, make certain to place the small washer, #19113, on the cam shaft in front of the pulley assembly. One washer is usually sufficient and not more than two should be used.

25. SHUTTER SUPPORT PLATE:

The Shutter Support Plate, #26210-A, is adjustable. If there appears to be excessive gear noise in the shutter support plate, it can be adjusted by loosening the nut on the jack shaft and adjusting the eccentric screw.

26. EXCITER LAMP:

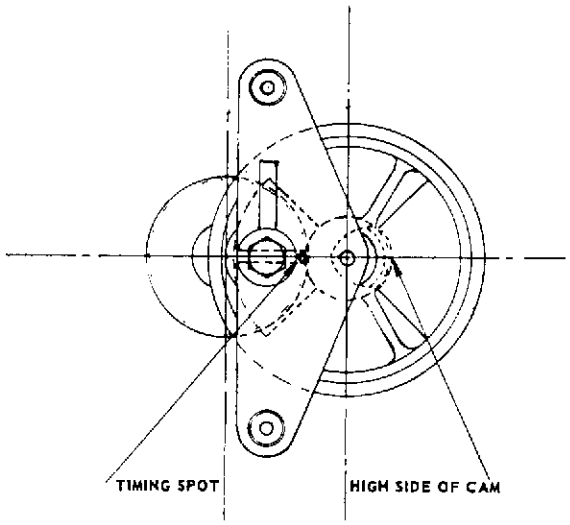
If the Exciter Lamp, #19299, lights intermittently, check for a corroded contact. This can be quickly corrected by polishing with a piece of emery cloth.

27. SNAP-ACTION MICRO SWITCH:

The Models 60-4, 60-10 and 60-25 are equipped with a Snap-Action Micro Switch, #26949, in conjunction with the motor wiring. If the motor races when the projector is not in operation, this would indicate that an adjustment is necessary on the switch arm or that the switch is in need of replacement.

28. IMPEDANCE LOOP ROLL ASSEMBLY:

The Impedance Loop Roll Assembly, #30369-A, should be checked to make certain there are no flat spots on it and also that this assembly with the flywheel is free and spins easily.



Shutter to be in this position when spot on oscillating gear is in line with rib of cam pulley — with high side of cam in position as shown.

29. TIMING THE PROJECTOR:

The Victor projector is the simplest to time and it is almost impossible to do it incorrectly. Only TWO simple precautions have to be observed.

a. Replace the Cam Pulley Shutter and Gear Assembly, #20565-A, with the small end of the cam centered (horizontally) against the punch mark on the large Cam Oscillating Gear, #19479-A. (It will be noticed that one "spoke" of the pulley is

over the center punch mark of the oscillating gear.)

b. While the two gears are still set horizontally as above, set the Shutter Assembly, #20580-A, so that the blades are horizontal also. This places the open part of the shutter at the top and at the bottom. Then replace the Support Plate, #26210-A.

If these things are done the projector will be set correctly but it is always a good idea to turn it over by hand and make sure. Check to see that the shuttle teeth start to pull down while the shutter is closed.

TOLERANCES

19061-A	Impedance Roll (end play)	.004 - or - .001
30368-A	Sound Sprocket (end play)	.004 - or - .001
19185-A	Feed Sprocket Clutch and Shaft Assembly (end play)	.004 - or - .001
20261	Motor Armature Shaft (end play)	.004 - or - .001
19479-A	Oscillating Gear Assembly (end play)	.000 to .002
19533	Governor Setting ⅛" clearance between Brush Holders and Commutator	
30151-A	Aperture Plate (Float) 1/32" Side to Side, .020" in and out, tension 4 oz. not over 6 oz.	
20219-A	Shuttle Pawls Extend Through Film Channel 1/16"	
	Distance between upper and lower pawl	.272
	Distance between upper and lower cam race	.654
20041-A	Film Shoe Roll 18218 should ride lightly on flange of 21184-A Feed Sprocket	
20040-A	Film Shoe Roll 18218 should ride lightly on flange of 21184-A Feed Sprocket	

MOTOR WIRING COLOR CODE

One side of field Red
One side of field Green
Left motor brush Blue
Right motor brush White
Outside governor brush Black
Inside governor brush Yellow
(Center Governor Brush Wire 19528A connects motor brush with governor brush)

TERMINAL STRIP COLOR CODE

Right side of speed switch Black
Right side and center of reverse switch White
Left side of resistor Blue
Right side bottom reverse switch Green
Left side bottom reverse switch Red

Speaker

Wipe dust from speaker cone and make certain it is not cracked or broken.

SOME COMMON PROJECTOR TROUBLES AND THEIR REMEDIES

1. Premature Lamp Blow Out

a. High Line Voltage:

This is nearly always the cause of the trouble. Check line with a good meter. The power companies often boost the supply voltage to compensate for heavy loads in outlying districts. Voltages also tend to vary with the general industrial load and may vary greatly in different parts of the same area at the same time.

b. Incorrect Lamp Used:

The lamps usually stocked by the dealer are rated for 110 volts and are suitable for line voltages of from 100 volts to 115 volts. While they can be used on 120 volt lines, their life will be curtailed, especially the ten hour lamps.

Lamps rated at 100 V, 105 V, 115 V, 120 V, and 125 V can be obtained on order. (Use of a low rating lamp increases illumination at the expense of lamp life.) Occasionally we run into line voltages of 130 and 135 volts. Obviously,

even a 125 volt lamp will burn out on such a line.

2. Main Line Fuse Blows

This indicates a short or ground in the wiring. Test the projector and amplifier separately. Localize the fault by disconnecting motor, lamp, governor, etc., as necessary until the faulty part is found.

3. Motor Will Not Run

a. Check cords and plugs.
b. Check motor brushes.
c. Check main switch contacts.
d. Check governor brushes and contacts.
e. Check line fuse.

4. Speed Variation

Clean governor contact points and readjust setting if necessary.

5. Loss of Top Loop

Check for:
a. Friction washer on feed arm spindle may be sticking due to dirt (Model 40 only). Try oiling before disassembling.
b. Improper seating of upper film shoe.
c. Torn film perforations.

6. Loss of Lower Loop

Check for:
a. Torn film perforations.
b. Film not threaded properly at gate.
c. Film shoes and gate clearance.
d. Excessive wear of shuttle.

7. Film Scratches

This is usually due to an accumulation of hardened emulsion on aperture plates or film channel because these parts have not been kept clean. It may also be due to physical damage to extremely smooth surface of gate plates or wear of guides on back film channel, aperture plate, or sound drum. If so, replacement is indicated.

8. Pictures Unsteady

a. Film badly shrunken and perforations chipped.
b. Wear on shuttle or other parts of intermittent mechanism.
c. Projector used on shaky table.
d. Pressure plate not properly seated in film channel.

9. Flicker

a. Governor set too slow.
b. Cam gear replaced "out of time".
c. Light shutter "out of time".

10. Film Spills Over

a. Insufficient friction on feed spindle.
b. Worn takeup clutch.
c. Rewind belt not in place on reel arm. (Applies to all projectors in metal cases.)

11. "Motor-Boating"

a. Sound drum not replaced properly, causing film misalignment.
b. Impedance roll sticking.

12. Film Tears at Drive Sprocket

a. If sprocket is replaced without hardened thrust washer between it and the casting, the sprocket teeth will not align with groove of idler rollers.
b. Film shoes too tight. Adjust with 2 thicknesses of film.

13. Film Perforations Chip

a. Worn sprocket teeth.
b. Worn shuttle or shuttle teeth.
c. Tension at gate insufficient.
d. Badly shrunken film.

14. Insufficient Light on Screen

a. Still picture shutter "up". (Not furnished on all models.)
b. Dirty lens, condenser, or reflector.
c. Lamp old, blackened or dirty.
d. Low line voltage.
e. Dirty screen.
f. Lamp improperly seated.

15. Picture Partly Out of Focus

a. Aperture plate improperly aligned — must be parallel to film channel.
b. Too little tension at gate allows film to move in and out of focus.
c. Dirt on lens.
d. Projector not at 90° angle with screen.

16. Travel Ghost

A picture with a streaked effect, particularly on white scenes, is caused by light shutter not properly timed.

POSSIBLE AMPLIFIER TROUBLES AND THEIR REMEDIES

1. Hum:

a. Shield off of 1st stage tube or P. E. Cell.
b. Excessive voltage on P. E. Cell. Check the setting of the P. E. potentiometer screw on models that are so equipped.
c. Check all condensers, particularly filter condensers.

2. Noise:

a. Try reversing plug in power supply line.
b. Check speaker cord and connections.
c. Defective or microphonic 1st stage tube. Try one or two other tubes.
d. A loose connection, particularly in the plugs connecting to the projector.
e. Check resistors.
f. Check condensers.

3. Low Volume:

a. Check P. E. Cell adjustment on models so equipped. Make certain the proper type of cell is in use.
b. Defective tubes, P. E. Cell, or exciter lamp.
c. Make certain exciter lamp is aligned with slit.
d. Dirt or oil on optical slit or lens.
e. Low line voltage.

4. No Sound Response:

a. Check power source, cords, etc. Check fuse (see items listed under FUSE).
b. Check output transformer, speaker, etc.
c. Check speaker for ground, short, or open circuit.

5. Fuse:

a. Blows as power is switched on — probably a short in power transformer.
b. If amplifier warms up and then fuse blows, check the rectifier and output tubes and then the filter condensers.

6. P. E. Cell:

a. Short life; caused by excessive voltage setting of potentiometer screw (on models so equipped). (This ionizes the cell.)
b. Excessive "rushing" sound or hiss in speaker line when exciter lamp is off is caused by slightly high setting of potentiometer screw (on models so equipped).

PROJECTION LAMPS:

WATTS	INCANDESCENT	HALOGEN
1000	DFT 25 HOURS	BTR 200 HOURS
1000	DFD 10 HOURS	BTR 200 HOURS
750	DDB 25 HOURS	BTN 500 HOURS OR BTP 200 HOURS
500	CZX/DAB 25 HOURS	BTM 100 HOURS

EXCITER LAMPS FOR THESE MODELS:

40A, 40B, 41A, 41B WITH SERIAL NUMBERS BELOW 63017
USES "BXJ" 8½ VOLT, 4 AMPERE, BAYONET BASE

40A, 41A SERIAL NUMBERS 63018 TO 64055
40B, 41B SERIAL NUMBERS 63018 TO 63929
USES "BXB" 8½ VOLT, 4 AMPERE, PREFOCUS BASE

40A, 41A SERIAL NUMBERS 64056 AND OVER
40B, 41B SERIAL NUMBERS 65930 AND OVER
USES "BVK/BVS" 5 VOLT, 6½ AMPERE, PREFOCUS BASE

55, 56, 60-2, 60-4, 60-10, 60-25
USES "BVK/BVS" 5 VOLT, 6½ AMPERE, PREFOCUS BASE

PHOTOTUBE: RCA 927

PILOT LAMP: # 47 MINIATURE LAMP

BELTS

VICTOR #	DESCRIPTION	PRB #
16164	TAKE-UP BELT, SPRING	WP75 (WB03 CUT TO 22.50" LONG)
19513	REWIND BELT, SPRING	WP76 (WB08 CUT TO 36.37" LONG)
19128	MOTOR DRIVE BELT	OC 18.7
19128-40	MOTOR DRIVE BELT, 40 SERIES	VT 12 (V RUBBER FABRIC)
23216	REWIND BELT, SPRING	WP78 (WB08 CUT TO 35.37" LONG)
23217	TAKE-UP BELT, SPRING	WP77 (WB03 CUT TO 36.00" LONG)

MANUFACTURING DATES

40A 1939 - 1947

40B 1939 - 1947

55 1947 - 1949

56 "ENVOY" 1949 - 1950

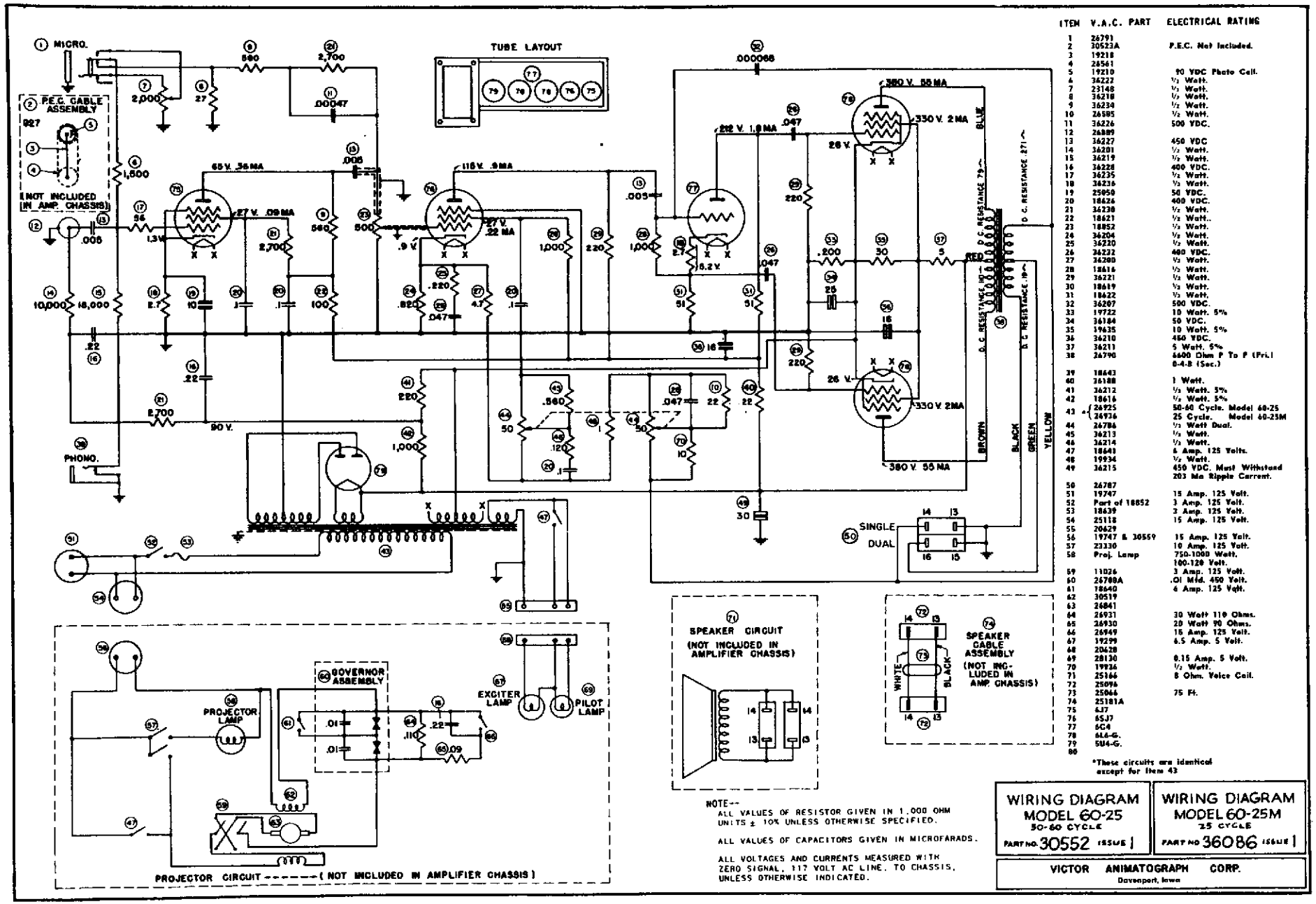
60B 1947 - 1949

60-2 "TRIUMPH" 1949 - 1950

60-4 "NEW LITE WEIGHT SPECIAL" 1952 - 1954

60-10 "ESCORT" 1950 - 1951

60-25 "SOVEREIGN" 1950 - 1951



ITEM	V.A.C. PART	ELECTRICAL RATING
1	26791	
2	30523A	P.E.C. Not Included.
3	19218	
4	26561	
5	19210	90 VDC Photo Cell.
6	36222	½ Watt.
7	23148	½ Watt.
8	36218	½ Watt.
9	36234	½ Watt.
10	26585	½ Watt.
11	36226	500 VDC.
12	26889	
13	36227	450 VDC
14	36201	½ Watt.
15	36219	½ Watt.
16	36228	400 VDC.
17	36235	½ Watt.
18	36236	½ Watt.
19	25058	50 VDC.
20	18426	400 VDC.
21	36238	½ Watt.
22	18621	½ Watt.
23	18852	½ Watt.
24	36204	½ Watt.
25	36220	½ Watt.
26	36232	400 VDC.
27	36280	½ Watt.
28	18616	½ Watt.
29	36221	½ Watt.
30	18619	½ Watt.
31	18622	½ Watt.
32	36207	500 VDC.
33	19722	10 Watt. 5%
34	36184	50 VDC.
35	19635	10 Watt. 5%
36	36210	450 VDC.
37	36211	5 Watt. 5%
38	26790	6600 Ohm P To P (Pri.) 0-4-8 (Sec.)
39	18643	
40	36188	1 Watt.
41	36212	½ Watt. 5%
42	18616	½ Watt. 5%
43 *	26925	50-60 Cycle. Model 60-25
	26926	25 Cycle. Model 60-25M
44	26786	½ Watt Dual.
45	36213	½ Watt.
46	36214	½ Watt.
47	18648	6 Amp. 125 Volts.
48	19934	½ Watt.
49	36215	450 VDC. Must Withstand 203 Ma Ripple Current.
50	26787	
51	19747	15 Amp. 125 Volt.
52	Part of 18852	3 Amp. 125 Volt.
53	18639	3 Amp. 125 Volt.
54	25118	15 Amp. 125 Volt.
55	20629	
56	19747 & 30559	15 Amp. 125 Volt.
57	23330	10 Amp. 125 Volt.
58	Proj. Lamp	750-1000 Watt. 100-120 Volt.
59	11026	3 Amp. 125 Volt.
60	26788A	.01 Mfd. 450 Volt.
61	18640	6 Amp. 125 Volt.
62	30519	
63	26861	
64	26931	30 Watt 110 Ohms.
65	26930	20 Watt 90 Ohms.
66	26949	15 Amp. 125 Volt.
67	19299	6.5 Amp. 5 Volt.
68	20628	
69	28130	0.15 Amp. 5 Volt.
70	19936	½ Watt.
71	25166	8 Ohm. Voice Coil.
72	25096	
73	25066	75 Ft.
74	25181A	
75	6J7	
76	6SJ7	
77	6C4	
78	6L6-G.	
79	5U4-G.	
80		

*These circuits are identical except for Item 43

NOTE--
ALL VALUES OF RESISTOR GIVEN IN 1,000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

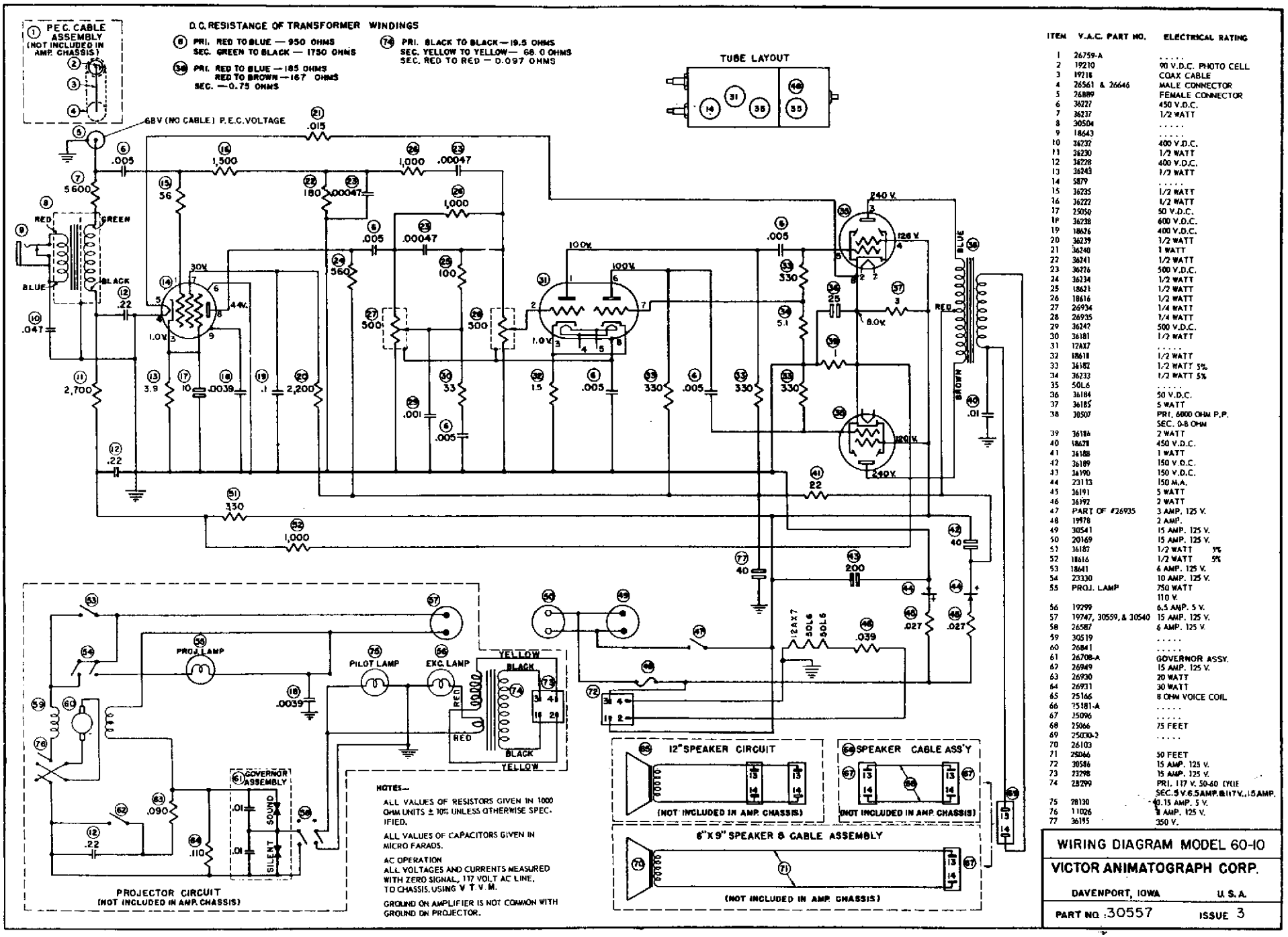
ALL VALUES OF CAPACITORS GIVEN IN MICROFARADS.

ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS, UNLESS OTHERWISE INDICATED.

WIRING DIAGRAM
MODEL 60-25
50-60 CYCLE
PART NO. 30552 ISSUE 1

WIRING DIAGRAM
MODEL 60-25M
25 CYCLE
PART NO 36086 ISSUE 1

VICTOR ANIMATOGRAPH CORP.
Davenport, Iowa



NOTES—

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS, USING V T V M.

GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

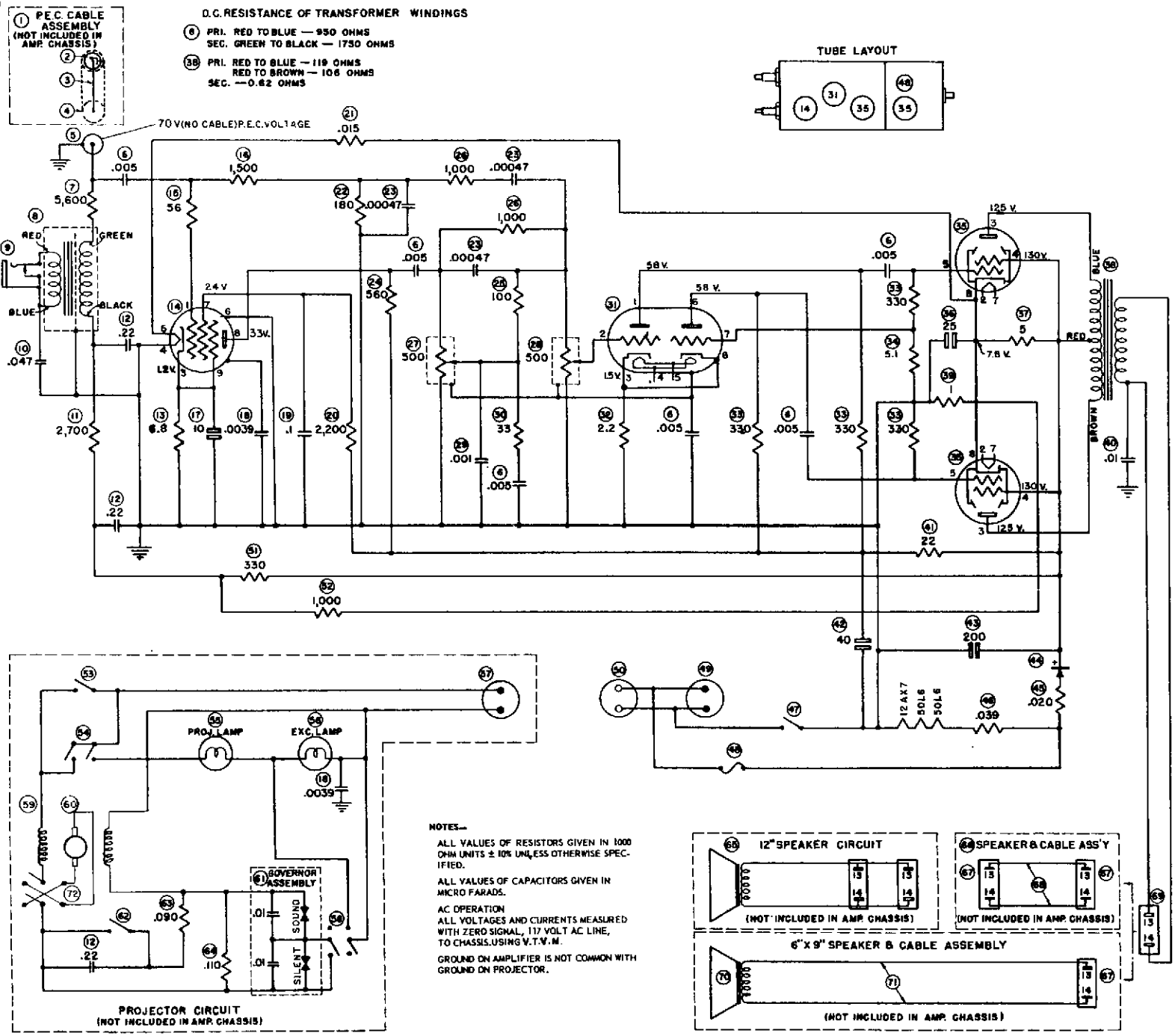
ITEM	V.A.C. PART NO.	ELECTRICAL RATING
1	26759-A	.....
2	19210	90 V.D.C. PHOTO CELL
3	19218	COAX CABLE
4	26561 & 26646	MALE CONNECTOR
5	26889	FEMALE CONNECTOR
6	36227	450 V.D.C.
7	36237	1/2 WATT
8	30504	.....
9	18643	.....
10	36232	400 V.D.C.
11	36230	1/2 WATT
12	36228	400 V.D.C.
13	36243	1/2 WATT
14	5879	.....
15	36235	1/2 WATT
16	36222	1/2 WATT
17	25050	50 V.D.C.
18	36238	600 V.D.C.
19	18626	400 V.D.C.
20	36239	1/2 WATT
21	36240	1 WATT
22	36241	1/2 WATT
23	36226	500 V.D.C.
24	36234	1/2 WATT
25	18621	1/2 WATT
26	18616	1/2 WATT
27	26934	1/4 WATT
28	26935	1/4 WATT
29	36247	500 V.D.C.
30	36181	1/2 WATT
31	12AX7	.....
32	18618	1/2 WATT
33	36182	1/2 WATT 5%
34	36233	1/2 WATT 5%
35	50L6	.....
36	36184	50 V.D.C.
37	36185	5 WATT
38	30507	PRI. 6000 OHM P.P. SEC. 0-8 OHM
39	36186	2 WATT
40	18628	450 V.D.C.
41	36188	1 WATT
42	36189	150 V.D.C.
43	36190	150 V.D.C.
44	23113	150 M.A.
45	36191	5 WATT
46	36192	2 WATT
47	PART OF #26935	3 AMP. 125 V.
48	19978	2 AMP.
49	30541	15 AMP. 125 V.
50	20169	15 AMP. 125 V.
51	36187	1/2 WATT 5%
52	18616	1/2 WATT 5%
53	18641	6 AMP. 125 V.
54	23330	10 AMP. 125 V.
55	PROJ. LAMP	750 WATT 110 V.
56	19299	6.5 AMP. 5 V.
57	19747, 30559, & 30540	15 AMP. 125 V.
58	26587	6 AMP. 125 V.
59	30519	.....
60	26841	.....
61	26708-A	GOVERNOR ASSY.
62	26949	15 AMP. 125 V.
63	26930	20 WATT
64	26931	30 WATT
65	25166	8 OHM VOICE COIL
66	25181-A	.....
67	25096	.....
68	25066	75 FEET
69	25030-2	.....
70	26103	
71	25066	50 FEET
72	30586	15 AMP. 125 V.
73	23298	15 AMP. 125 V.
74	28299	PRI. 117 V. 50-60 CYCLE SEC. 5 V. 6.5 AMP. @ 117 V. .15 AMP.
75	28130	0.15 AMP. 5 V.
76	11026	3 AMP. 125 V.
77	36195	350 V.

WIRING DIAGRAM MODEL 60-10

VICTOR ANIMATOGRAPH CORP.

DAVENPORT, IOWA U. S. A.

PART NO. 30557 ISSUE 3



NOTES—

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS USING V.T.V.M.

GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

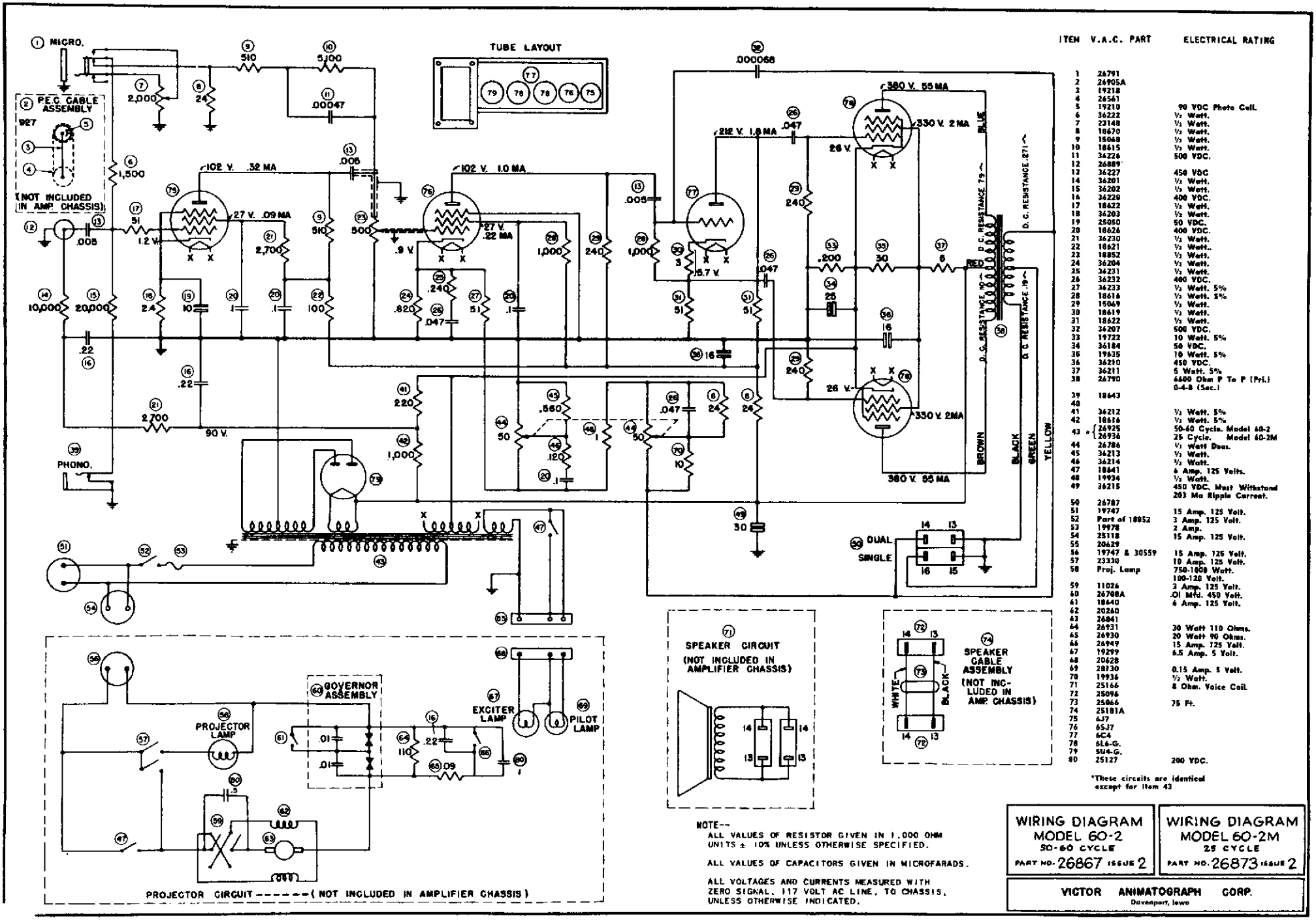
ITEM	V.A.C. PART	ELECTRICAL RATING
1	26759-A	.....
2	19210	90 V.D.C. PHOTO CELL # 927
3	19218	COAX CABLE
4	26561 & 26646	MALE CONNECTOR
5	26889	FEMALE CONNECTOR
6	36297	450 V.D.C.
7	36237	1/2 WATT
8	30504	.....
9	18643	.....
10	36227	400 V.D.C.
11	36230	1/2 WATT
12	36228	400 V.D.C.
13	36196	1/2 WATT
14	5879	.....
15	36235	1/2 WATT
16	36222	1/2 WATT
17	25050	50 V.D.C.
18	18631	600 V.D.C.
19	18626	400 V.D.C.
20	36239	1/2 WATT
21	36240	1 WATT
22	36241	1/2 WATT
23	36226	500 V.D.C.
24	36234	1/2 WATT
25	18621	1/2 WATT
26	18616	1/2 WATT 5%
27	26934	1/4 WATT
28	26935	1/4 WATT
29	36242	500 V.D.C.
30	36181	1/2 WATT
31	12AX7	.....
32	36197	1/2 WATT
33	36182	1/2 WATT 5%
34	36233	1/2 WATT 5%
35	50L6	.....
36	36184	50 V.D.C.
37	36198	5 WATT
38	30502	(PRI.) 4000Ω P.P. (SEC.) 0-8Ω
39	36186	2 WATT
40	18628	450 V.D.C.
41	36188	1 WATT
42	36189	150 V.D.C.
43	36196	150 V.D.C.
44	23113	150 M.A.
45	36199	5 WATT
46	36197	2 WATT
47	PART OF # 26935	3 AMP. 125 V.
48	19978	2 AMP.
49	30541	15 AMP. 125 V.
50	20169	15 AMP. 125 V.
51	36182	1/2 WATT 5%
52	18616	1/2 WATT 5%
53	18641	3 AMP. 125 V.
54	23330	10 AMP. 125 V.
55	PROJ. LAMP	750 WATT 110 V.
56	19299	6.5 AMP. 5 V.
57	19747, 30559 & 30540	15 AMP. 125 V.
58	26587	6 AMP. 125 V.
59	30519	.....
60	26841	.....
61	26708-A	GOVERNOR ASSY.
62	26949	15 AMP. 125 V.
63	26930	20 WATT
64	26931	30 WATT
65	25166	8 OHM VOICE COIL
66	25181-A	.....
67	25096	.....
68	25066	75 FEET
69	25030-2	.....
70	26103	.....
71	25046	50 FEET
72	11026	3AMP. 125V.

WIRING DIAGRAM MODEL 60-4

VICTOR ANIMATOGRAPH CORP.

DAVENPORT, IOWA U. S. A.

PART NO. 36061 ISSUE 1



ITEM	V.A.C. PART	ELECTRICAL RATING
1	26791	
2	26905A	
3	19218	
4	26561	
5	19210	90 VDC Photo Cell.
6	36222	½ Watt.
7	23148	½ Watt.
8	18670	½ Watt.
9	15068	½ Watt.
10	18615	½ Watt.
11	36216	500 VDC.
12	26889	
13	36227	450 VDC
14	36201	½ Watt.
15	36202	½ Watt.
16	36220	400 VDC.
17	18622	½ Watt.
18	36203	½ Watt.
19	25050	50 VDC.
20	18626	400 VDC.
21	36210	½ Watt.
22	18621	½ Watt.
23	18852	½ Watt.
24	36204	½ Watt.
25	36231	½ Watt.
26	36232	400 VDC.
27	36233	½ Watt. 5%
28	18616	½ Watt. 5%
29	15069	½ Watt.
30	18619	½ Watt.
31	18622	½ Watt.
32	26207	500 VDC.
33	19722	10 Watt. 5%
34	36184	50 VDC.
35	19635	10 Watt. 5%
36	36210	450 VDC.
37	36211	5 Watt. 5%
38	26790	6600 Ohm P To P (Pri.) 0-4-8 (Sec.)
39	18643	
40		
41	36217	½ Watt. 5%
42	18616	½ Watt. 5%
43 *	26925	50-60 Cycle. Model 60-2
	26936	25 Cycle. Model 60-2M
44	26786	½ Watt Bias.
45	36213	½ Watt.
46	36214	½ Watt.
47	18641	6 Amp. 125 Volts.
48	19934	½ Watt.
49	36215	450 VDC. Must Withstand 203 Ma Ripple Current.
50	26787	
51	19747	15 Amp. 125 Volt.
52	Part of 18852	3 Amp. 125 Volt.
53	19978	2 Amp.
54	25118	15 Amp. 125 Volt.
55	20629	
56	19747 & 30559	15 Amp. 125 Volt.
57	23330	10 Amp. 125 Volt.
58	Proj. Lamp	750-1000 Watt. 100-120 Volt.
59	11026	3 Amp. 125 Volt.
60	26708A	.01 Mfd. 450 Volt.
61	18640	6 Amp. 125 Volt.
62	20260	
63	26861	
64	26931	30 Watt 110 Ohms.
65	26930	20 Watt 90 Ohms.
66	26949	15 Amp. 125 Volt.
67	19299	6.5 Amp. 5 Volt.
68	20628	
69	28130	0.15 Amp. 5 Volt.
70	19936	½ Watt.
71	25166	8 Ohm. Voice Coil.
72	25096	
73	25066	75 Ft.
74	25181A	
75	6J7	
76	6SJ7	
77	6C4	
78	6L6-G.	
79	5U4-G.	
80	25127	200 VDC.

*These circuits are identical except for Item 43

NOTE--
ALL VALUES OF RESISTOR GIVEN IN 1,000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

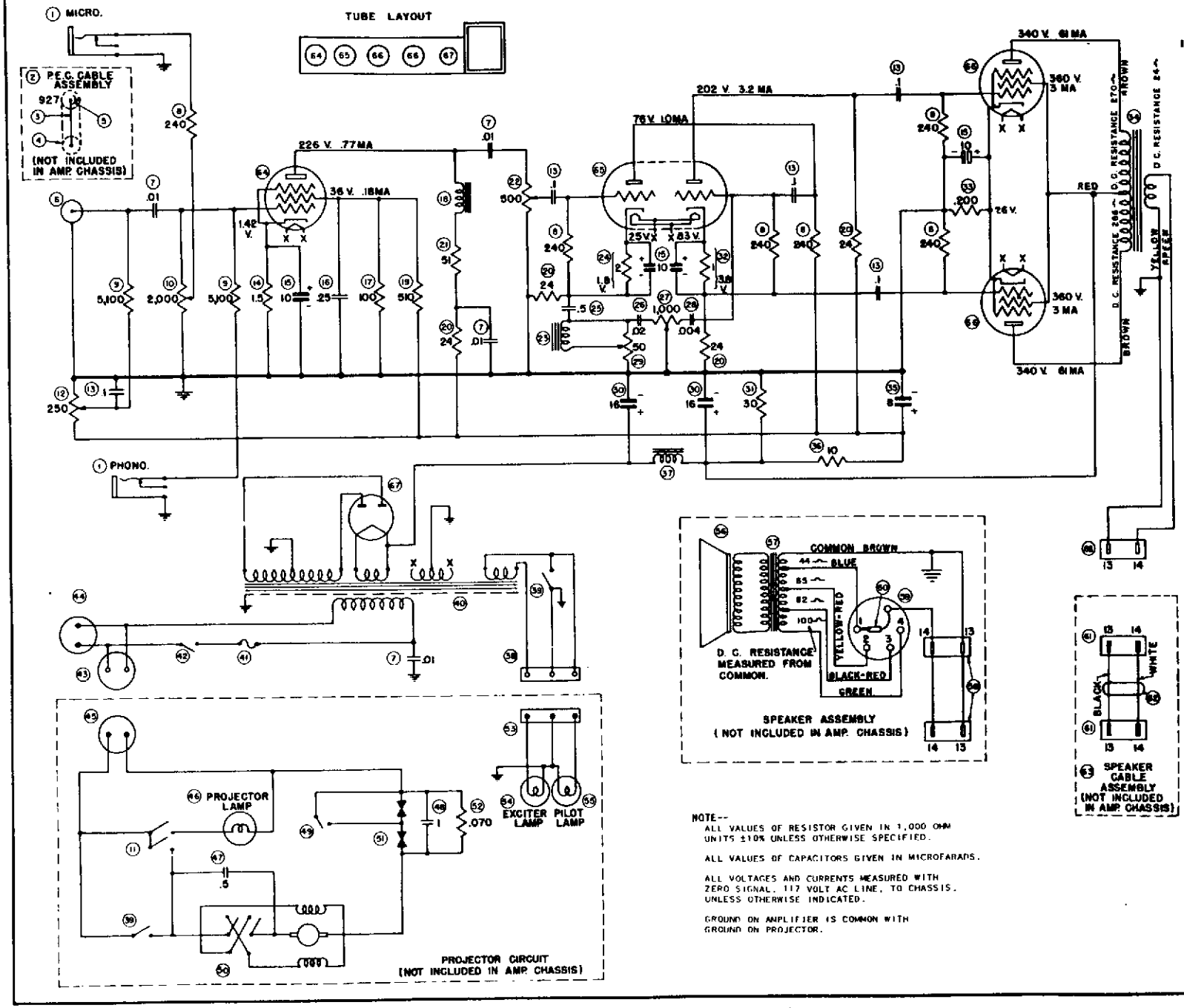
ALL VALUES OF CAPACITORS GIVEN IN MICROFARADS.

ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS, UNLESS OTHERWISE INDICATED.

WIRING DIAGRAM
MODEL 60-2
50-60 CYCLE
PART NO. 26867 ISSUE 2

WIRING DIAGRAM
MODEL 60-2M
25 CYCLE
PART NO. 26873 ISSUE 2

VICTOR ANIMATOGRAPH CORP.
Davenport, Iowa



ITEM	V.A.C. PART	ELECTRICAL RATING
1	18643	.....
2	20717-A	P.E.C. NOT INCLUDED
3	19218	COAX. CABLE
4	19819	.....
5	19210	90 VDC PHOTO CELL
6	19818	.....
7	18628	450 VDC
8	15069	1/2 WATT
9	18615	1/2 WATT
10	23148	1/3 WATT
11	23330	10 AMP. 125 VOLT
12	19719	1/3 WATT
13	18626	400 VDC
14	18618	1/2 WATT
15	25050	50 VDC
16	25021	400 VDC
17	18621	1/2 WATT
18	15076	PEAKING CHOKE D.C. RESISTANCE 300Ω
19	15068	1/2 WATT
20	18670	1/2 WATT
21	18622	1/2 WATT
22	18852	1/3 WATT
23	15077	BASS CHOKE D.C. RESISTANCE 200Ω
24	25126	1/2 WATT
25	15072	200 VDC
26	18661	600 VDC
27	18635	1/3 WATT
28	18631	600 VDC
29	23127	1/3 WATT
30	23277	500 VDC
31	19635	10 WATT
32	19934	1/2 WATT
33	19722	10 WATT
34	15120	6600 P TO P (PRI) 500 OHM LINE (SEC)
35	19675	450 VDC
36	19668	5 WATT
37	23134	D.C. RESISTANCE 175Ω
38	20629	.....
39	18641	6 AMP. 125 VOLT
40	19845	50-60 CYCLE
41	19978	2 AMP.
42	PART OF 18852	3 AMP. 125 VOLT
43	20169	15 AMP. 125 VOLT
44	19747	15 AMP. 125 VOLT
45	17192	15 AMP. 125 VOLT
46	PROJ. LAMP	750-1000 WATT 100-120 VOLT
47	25127	200 VDC
48		
49	18640	6 AMP. 125 VOLT
50	11026	3 AMP. 125 VOLT
51	20257	.....
52	19685	WIRE WOUND 30 WATT
53	20628	.....
54	19299	6.5 AMP. 5 VOLT
55	28130	.15 AMP. 5 VOLT
56	15061	.....
57	15064	0-500-1000-1500-2000 (PRI) 8 OHM (SEC)
58	25030	.....
59	19717	.....
60	19718	.....
61	25098	.....
62	25066	75 FT.
63	26146-A	.....
64	6SJ7	.....
65	6SN7-GT	.....
66	6L6-G	.....
67	5U4-G	.....

NOTE--
ALL VALUES OF RESISTOR GIVEN IN 1,000 OHM UNITS ±10% UNLESS OTHERWISE SPECIFIED.

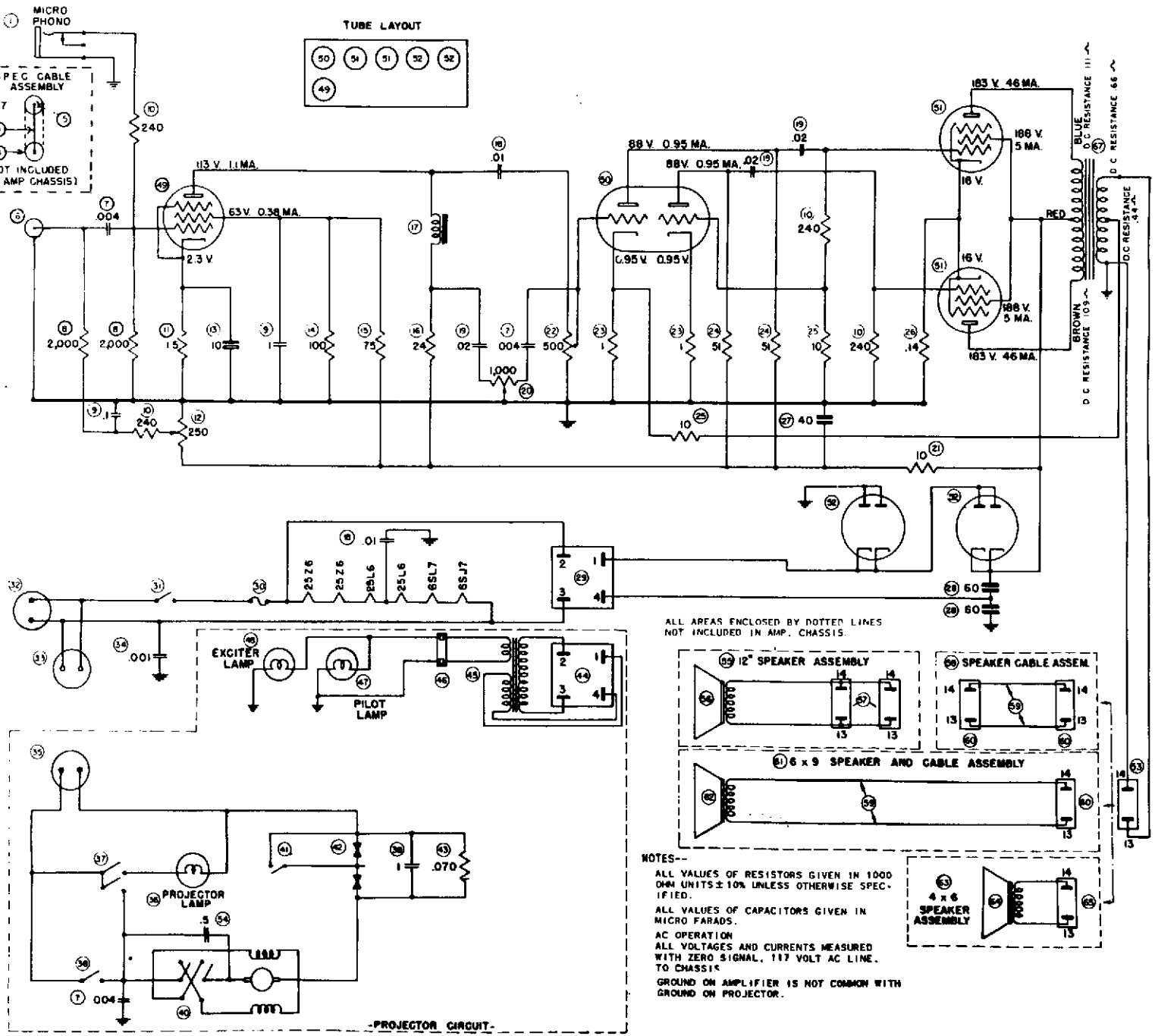
ALL VALUES OF CAPACITORS GIVEN IN MICROFARADS.

ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS, UNLESS OTHERWISE INDICATED.

GROUND ON AMPLIFIER IS COMMON WITH GROUND ON PROJECTOR.

WIRING DIAGRAM	MODEL 60
VICTOR ANIMATOGRAPH CORP.	
DAVENPORT, IOWA	U. S. A.
PART NO. 23244	ISSUE 9

CAN BE USED ON 60-B



ITEM	V.A.C. PART	ELECTRICAL RATING
1	18643	.....
2	20717-A	P.E.C. NOT INCLUDED
3	19218	COAX. CABLE
4	19819	.....
5	19210	90 VDC PHOTO CELL
6	19818	.....
7	18631	600 VDC
8	18620	1/2 WATT
9	18626	400 VDC
10	15069	1/2 WATT
11	18618	1/2 WATT
12	19719	1/3 WATT
13	25050	50 VDC
14	18621	1/2 WATT
15	18617	1/2 WATT
16	18670	1/2 WATT
17	22290	300 OHMS DC RESISTANCE
18	18628	600 VDC
19	18661	600 VDC
20	18635	1/3 WATT
21	25123	1 WATT
22	18852	1/3 WATT
23	19934	1/2 WATT
24	18622	1/2 WATT
25	19936	1/2 WATT
26	19689	5 WATT ±5%
27	25121	250 VDC
28	23259	150 VDC
29	23297	.....
30	19978	2 AMP.
31	PART OF 18852	3 AMP. 125 VOLT
32	19747	15 AMP. 125 VOLT
33	25119	15 AMP. 125 VOLT
34	25125	600 VDC
35	17192	15 AMP. 125 VOLT
36	PROJ. LAMP	750 WATT 110 VOLT
37	23330	LAMP SWITCH
38	18641	6 AMP. 125 VOLT
39	25127	200 VDC
40	11026	3 AMP 125 VOLT
41	18640	6 AMP. 125 VOLT
42	26708-A	MOTOR GOVERNOR
43	19685	30 WATT
44	23298	.....
45	23299	117 V. (PRI.) 120 V. .12 AMP. (SEC.#1) 5 V. 6.5 AMP. (SEC.#2)
46	23295	.....
47	28130	5 VOLT 15 AMP.
48	19799	5 VOLT 6.5 AMP.
49	6SJ7	.....
50	6SL7	
51	25L6	
52	25Z6	
53	25030-2	
54	25127	200 VDC
55	26143-A	
56	15061	
57	25030	
58	25171-A	
59	25066	
60	25096	
61	26626-A	
62	26103	
63	23267-A	
64	23303	
65	23301	
67	23282	(PRI.) 4000 ~ P-P- (SEC.) 0-4-8 ~

NOTES--

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS

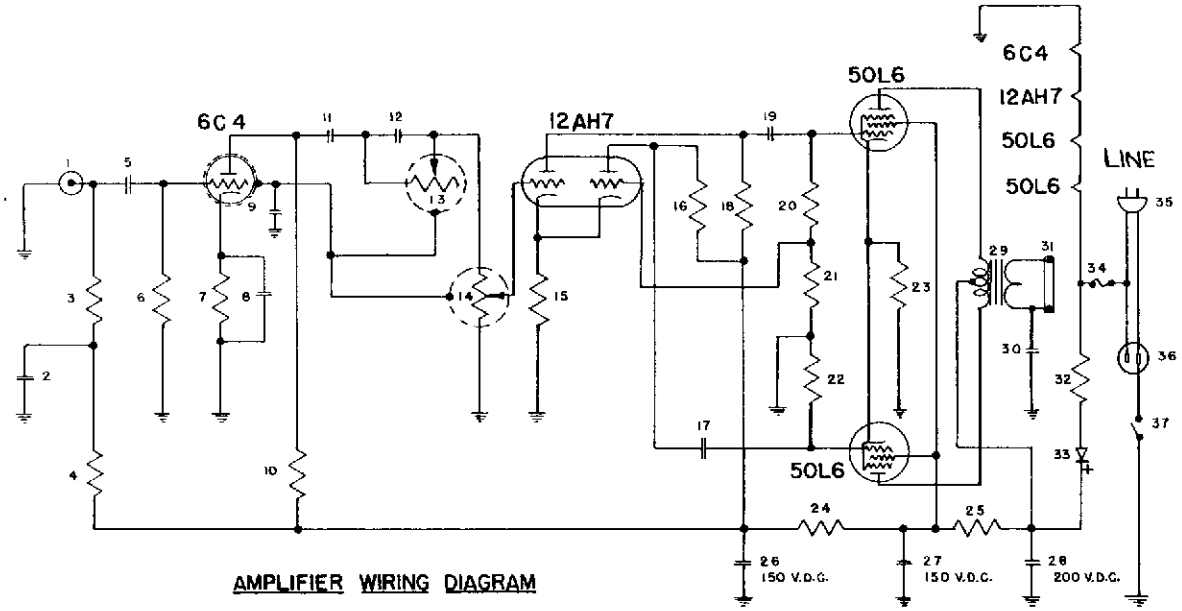
GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

WIRING DIAGRAM **MODEL 55**

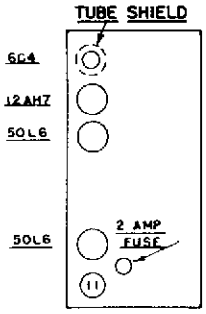
VICTOR ANIMATOGRAPH CORP.
DAVENPORT, IOWA U. S. A.

PART NO. 23370 ISSUE 1

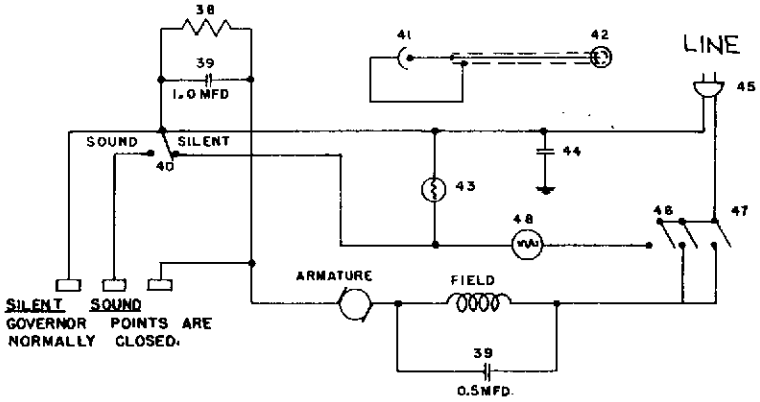
PART NUMBER 26502	ISSUE 2	
DR. BY HUCK	DATE 5-12-53	CH. BY
CHANGE NO.	BY	DATE
10641	RS	2-14-[illegible]



AMPLIFIER WIRING DIAGRAM



AMPLIFIER TUBE LAYOUT

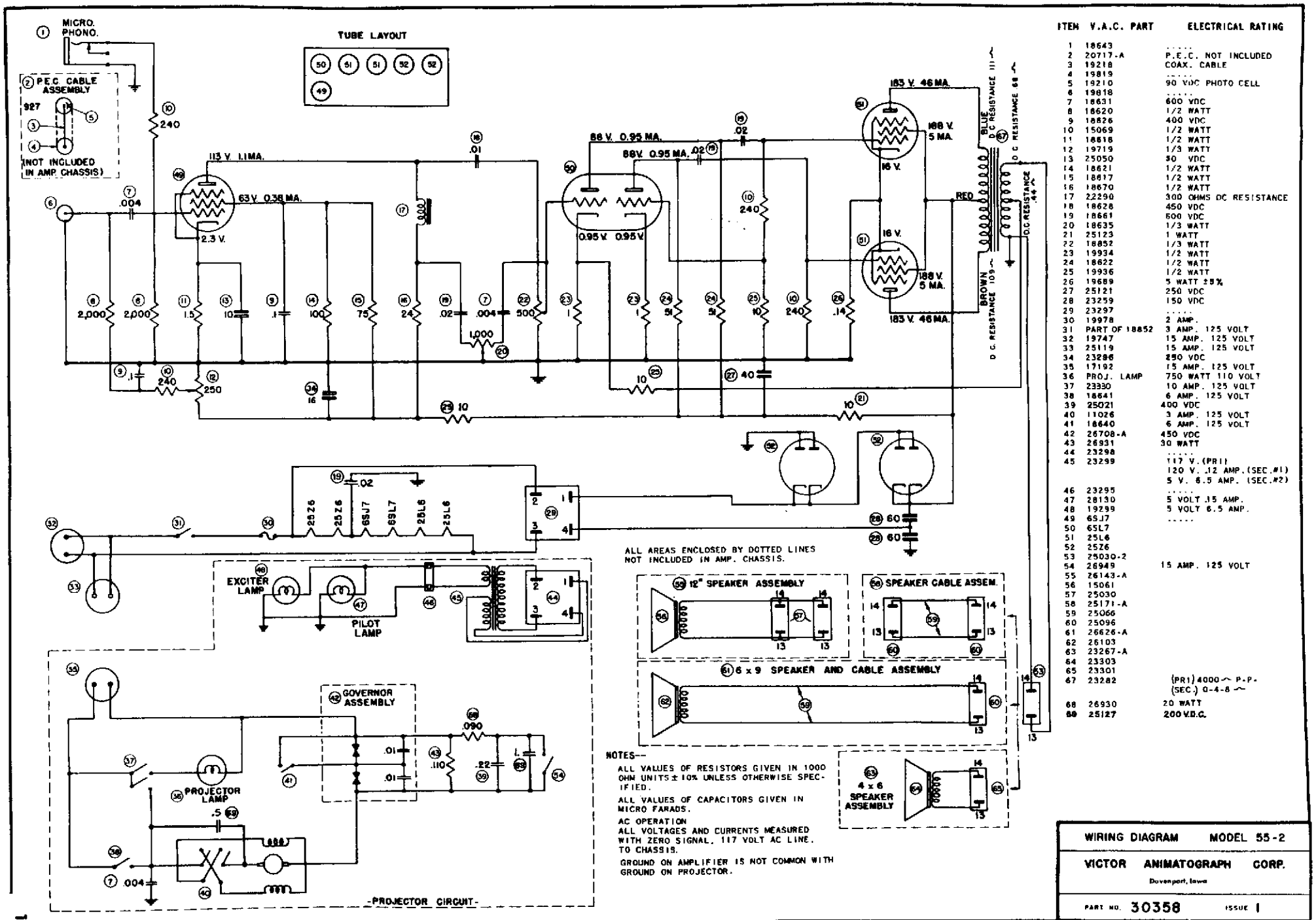


PROJECTOR WIRING DIAGRAM

1.	26562	P.E.CELL SOCKET
2.	18626	CAP. 0.1 MFD. 400 V.D.C.
3.	18620	RESISTOR 2 MEG. 1/2 WATT
4.	15069	RESISTOR 240K 1/2 WATT
5.	18631	CAP. 0.004 MFD. 600 V.D.C.
6.	18620	RESISTOR 2 MEG. 1/2 WATT
7.	19666	RESISTOR 5.1K 1/2 WATT
8.	25050	CAP. 10 MFD. 50 W.V.D.C.
9.	18631	CAP. 0.004 MFD. 600 V.D.C.
10.	15069	RESISTOR 240K 1/2 WATT
11.	18628	CAP. 0.01 MFD. 450 V.D.C.
12.	23088	CAP. 0.0005 MFD. 600 V.D.C.
13.	18635	TONE CONTROL 1 MEG.
14.	18852	VOLUME CONTROL 500 K
15.	18619	RESISTOR 3K 1/2 WATT
16.	15069	RESISTOR 240K 1/2 WATT
17.	18661	CAP. 0.02 MFD. 600 V.D.C.
18.	15069	RESISTOR 240K 1/2 WATT
19.	18661	CAP. 0.02 MFD. 600 V.D.C.
20.	15069	RESISTOR 240K 1/2 WATT
21.	26585	RESISTOR 22K 1/2 WATT
22.	15069	RESISTOR 240K 1/2 WATT
23.	23102	RESISTOR 75 OHM VIT. 10 WATT
24.	19936	RESISTOR 10K 1/2 W
25.	23115	RESISTOR 2K 5 WATT
26. 27. 28.	23103	CAP. 40-40-40 MFD./150-150-200 V.D.C.
29.	23282	OUTPUT TRANSFORMER
30.	18631	CAP. 0.004 MFD. 600 V.D.C.
31.	25030-2	SPEAKER SOCKET
32.	23114	RESISTOR 27 OHM 5 WATT
33.	23113	SELENIUM RECTIFIER 150 MA.
34.	19978	FUSE - 2 AMP.
35.	26641	LINE PLUG
36.	20169	A.C. SOCKET
37.	———	S.P.S.T SWITCH - PART OF ITEM # 14
38.	18685	RESISTOR 70 OHM 40 WATT
39.	26592	CAP. 1.0-0.5 MFD./200-200 V.D.C.
40.	26587	SWITCH, SOUND-SILENT
41.	19210	PHOTO ELECTRIC CELL
42.	19819	P.E.C. MALE CONNECTOR
43.	19299	EXCITER LAMP - 5 VOLT 6.5 AMP.
44.	18631	CAP. 0.004 MFD. 600 V.D.C.
45.	26613	PLUG, PROJECTOR
46.	23330	LAMP SWITCH
47.	18641	MOTOR SWITCH
48.	———	PROJECTION LAMP - 750 WATT

NOTE: PROJECTOR MECHANISM TO BE GROUNDED TO PROJECTOR CASE.

SCALE	NAME WIRING DIAGRAM
	MODEL 56-C-2
GENERAL TOLERANCES	VICTOR ANIMATOGRAPH CORP.
MATERIAL SPECIFICATIONS	Davenport, Iowa
TREATMENT & FINISH DATA	PART NUMBER 26502 ISSUE 2
TOLERANCE	



ITEM	V.A.C. PART	ELECTRICAL RATING
1	18643	.....
2	20717-A	P.E.C. NOT INCLUDED
3	19218	COAX. CABLE
4	19819	.....
5	19210	90 VDC PHOTO CELL
6	19818	.....
7	18631	600 VDC
8	18620	1/2 WATT
9	18626	400 VDC
10	15069	1/2 WATT
11	18618	1/2 WATT
12	19719	1/3 WATT
13	25050	50 VDC
14	18621	1/2 WATT
15	18617	1/2 WATT
16	18670	1/2 WATT
17	22290	300 OHMS DC RESISTANCE
18	18628	450 VDC
19	18661	600 VDC
20	18635	1/3 WATT
21	25123	1 WATT
22	18852	1/3 WATT
23	19934	1/2 WATT
24	18622	1/2 WATT
25	19936	1/2 WATT
26	19689	5 WATT ±5%
27	25121	250 VDC
28	23259	150 VDC
29	23297	.....
30	19978	2 AMP.
31	PART OF 18852	3 AMP. 125 VOLT
32	19747	15 AMP. 125 VOLT
33	25119	15 AMP. 125 VOLT
34	23286	250 VDC
35	17192	15 AMP. 125 VOLT
36	PROJ. LAMP	750 WATT 110 VOLT
37	23330	10 AMP. 125 VOLT
38	18641	6 AMP. 125 VOLT
39	25021	400 VDC
40	11026	3 AMP. 125 VOLT
41	18640	6 AMP. 125 VOLT
42	26708-A	450 VDC
43	26931	30 WATT
44	23298	.....
45	23299	117 V. (PRI.) 120 V. .12 AMP. (SEC. #1) 5 V. 6.5 AMP. (SEC. #2)
46	23295	.....
47	28130	5 VOLT 3.5 AMP.
48	19299	5 VOLT 6.5 AMP.
49	6SJ7	.....
50	6SL7	
51	25L6	
52	25Z6	
53	25030-2	
54	26949	15 AMP. 125 VOLT
55	26143-A	
56	15061	
57	25030	
58	25171-A	
59	25066	
60	25096	
61	26626-A	
62	26103	
63	23267-A	
64	23303	
65	23301	
67	23282	(PRI.) 4000 ~ P-P- (SEC.) 0-4-8 ~
68	26930	20 WATT
69	25127	200 V.D.C.

NOTES--

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

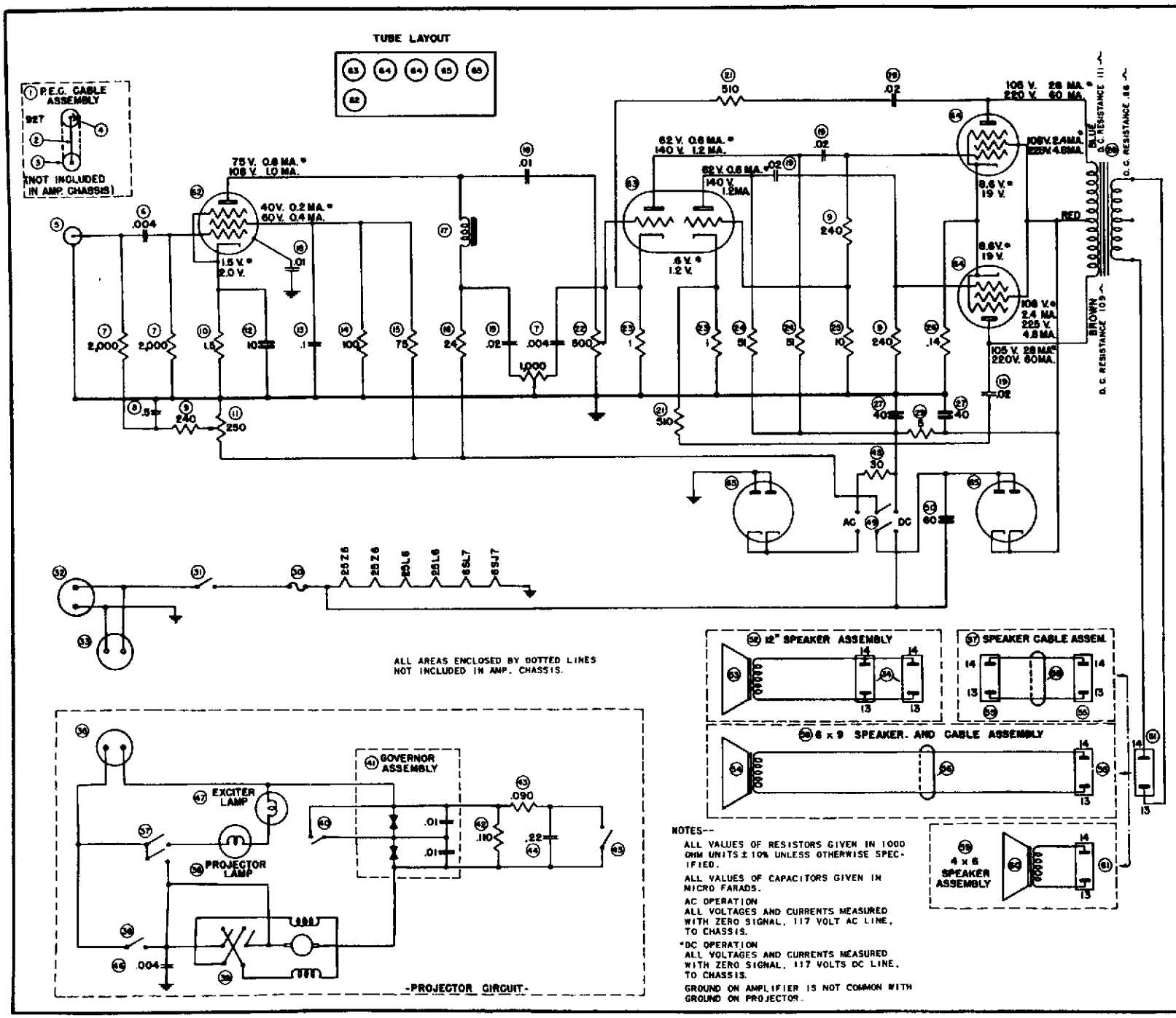
AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS.

GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

WIRING DIAGRAM MODEL 55-2

VICTOR ANIMATOGRAPH CORP.
Davenport, Iowa

PART NO. 30358 ISSUE 1



ITEM	V.A.C PART	ELECTRICAL RATING
1	20717-A	P.E.C. NOT INCLUDED
2	19218	COAX. CABLE
3	19819	.....
4	19210	90 VDC PHOTO CELL
5	19818	.....
6	18631	600 VDC
7	18620	1/2 WATT
8	15072	200 VDC
9	15069	1/2 WATT
10	18618	1/2 WATT
11	19719	1/3 WATT
12	25050	50 VDC
13	18626	400 VDC
14	18821	1/2 WATT
15	18617	1/2 WATT
16	18670	1/2 WATT
17	22290	300~D.C. RESISTANCE
18	18628	450 VDC
19	18661	600 VDC
20	18635	1/3 WATT
21	15068	1/2 WATT
22	18852	1/3 WATT
23	19934	1/2 WATT
24	18622	1/2 WATT
25	19936	1/2 WATT
26	19689	5 WATT 3%
27	25121	250 VDC
28	23282	4000 P TO P (PRI) 0-4-8 OHM (SEC)
29	25124	1 WATT
30	19976	2 AMP.
31	PART OF 18652	3 AMP. 125 VOLT
32	19747	15 AMP. 125 VOLT
33	25118	15 AMP. 125 VOLT
34	25030	
35	19747 & 26523	15AMP. 125 VOLT
36	PROJ. LAMP	750 WATT
37	23330	12 AMP. 125 VOLT
38	18641	MOTOR SWITCH
39	11026	3 AMP. 125 VOLT
40	18640	8 AMP. 125 VOLT
41	28708-A	450 VDC
42	26931	30 WATT
43	26930	20 WATT
44	25021	400 VDC
45	26949	10 AMP. 125 VOLT
46	26765	1200 VDC
47	19299	6.5 AMP. 5 VOLT
48	25122	1/2 WATT
49	11026	3 AMP. 125 VOLT
50	23259	175 VDC
51	25030-2	
52	26143-A	
53	15061	
54	26103	
55	25098	
56	25066	
57	25181-A	
58	26110-A	
59	28630-A	
60	23303	
61	23301	
62	6SJ7	
63	6SL7 GT	
64	25L6 GT	
65	25Z6 GT	

NOTES--

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS.

*DC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLTS DC LINE, TO CHASSIS.

GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

WIRING DIAGRAM MODEL 55C-2

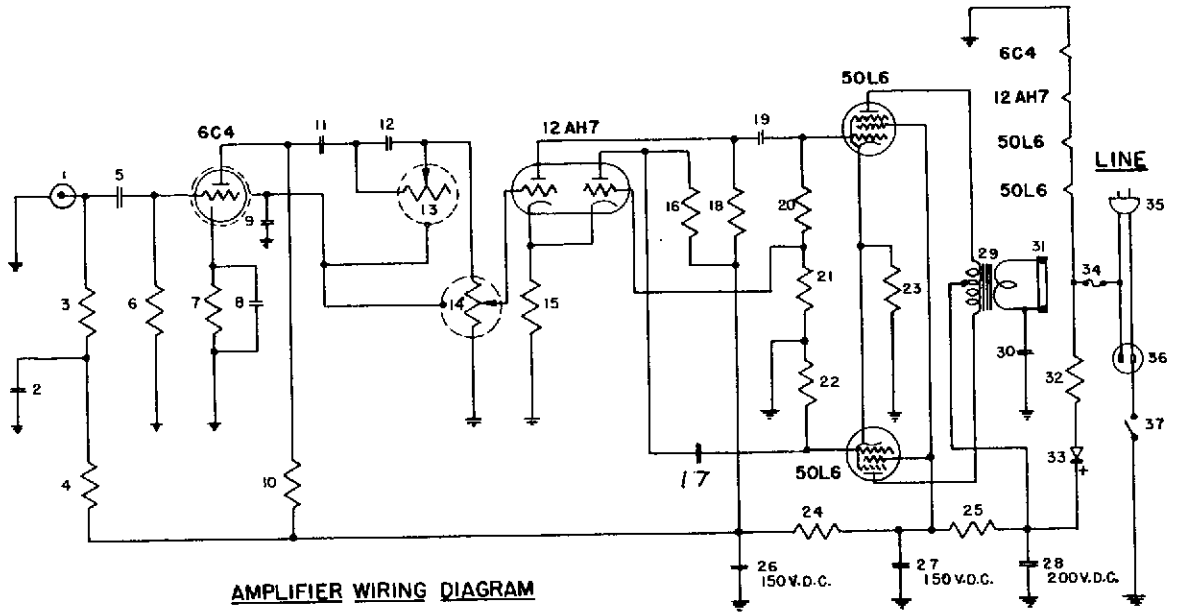
VICTOR ANIMATOGRAPH CORP.
Davenport, Iowa

PART NO. 23380 ISSUE 1

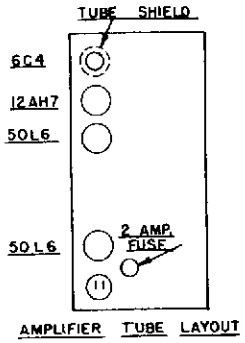
PART NUMBER	ISSUE
26986	1

DR. BY	DATE	CK. BY
HUCK	5-11-53	

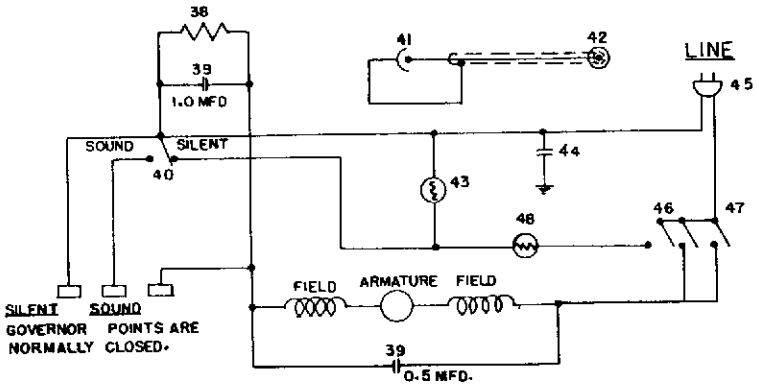
CHANGE NO.	BY	DATE



AMPLIFIER WIRING DIAGRAM



AMPLIFIER TUBE LAYOUT

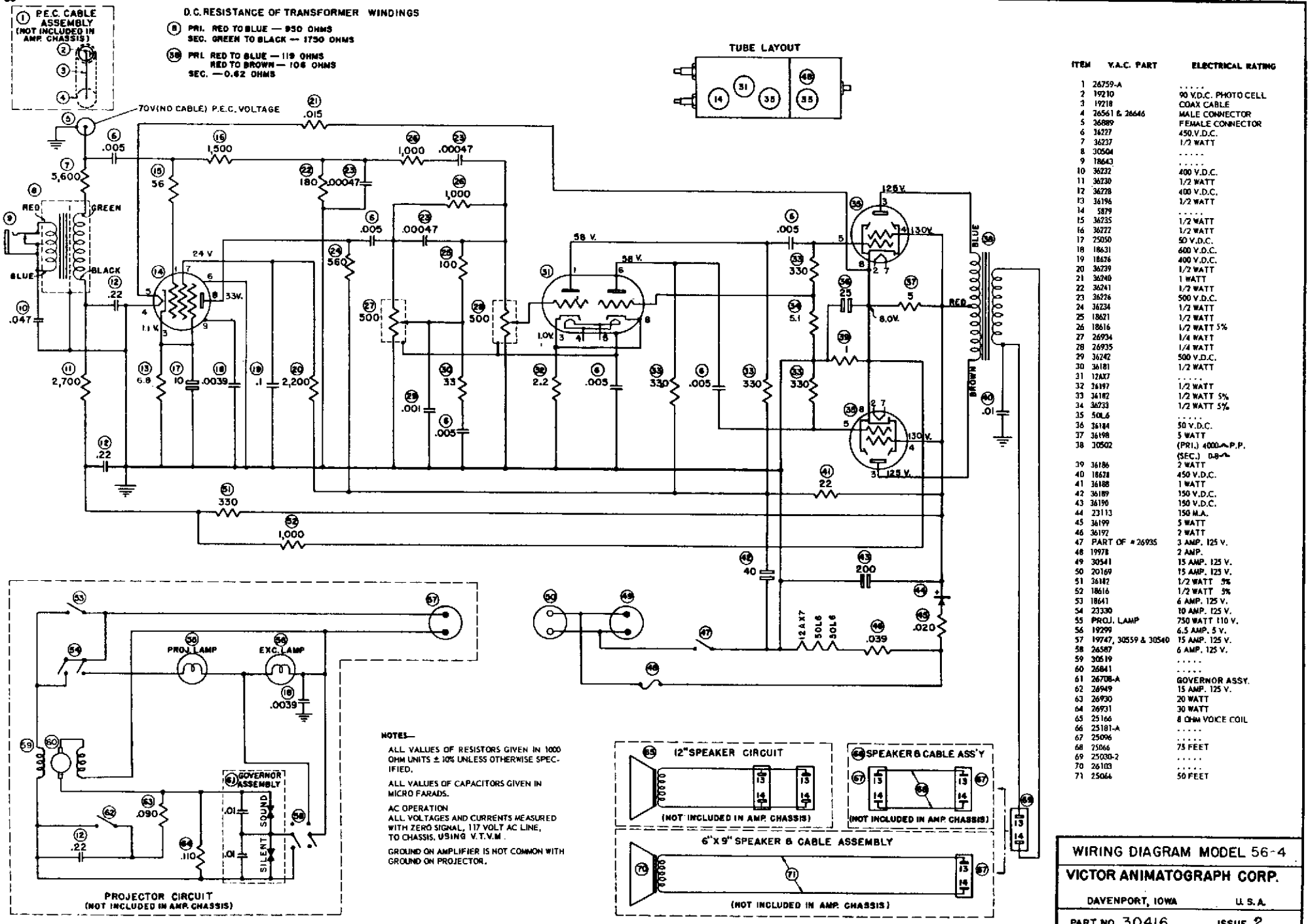


PROJECTOR WIRING DIAGRAM

NOTE: PROJECTOR MECHANISM TO BE GROUNDED TO PROJECTOR CASE.

1.	26562	P.E.CELL SOCKET
2.	18626	CAP. .01 MFD. 400 V.D.C.
3.	18620	RESISTOR 2 MEG. 1/2 WATT
4.	15069	RESISTOR 240K. 1/2 WATT
5.	18631	CAP. 0.004 MFD. 600 V.D.C.
6.	18620	RESISTOR 2 MEG. 1/2 WATT
7.	19666	RESISTOR 5.1 K 1/2 WATT
8.	25050	CAP. 10 MFD. 50 W.V.D.C.
9.	18631	CAP. 0.004 MFD. 600 V.D.C.
10.	15069	RESISTOR 240 K. 1/2 WATT
11.	18628	CAP. 0.01 MFD. 600 V.D.C.
12.	23088	CAP. 0.0005 MFD. 600 V.D.C.
13.	18635	TONE CONTROL 1 MEG.
14.	18852	VOLUME CONTROL 500K
15.	18619	RESISTOR 3K 1/2 WATT
16.	15069	RESISTOR 240K 1/2 WATT
17	18661	CAP. 0.02 MFD. 600 V.D.C.
18.	15069	RESISTOR 240K. 1/2 WATT
19.	18661	CAP. 0.02 MFD. 600 V.D.C.
20.	15069	RESISTOR 240 K. 1/2 WATT
21.	26585	RESISTOR 22 K. 1/2 WATT
22.	15069	RESISTOR 240 K. 1/2 WATT
23.	23102	RESISTOR 75 OHM VIT. 10 WATT
24.	19936	RESISTOR 10K. 1/2 WATT
25.	23115	RESISTOR 2K. 5 WATT
26. 27. 28.	23103	CAP. 40-40-40 MFD/150-150-200 V.D.C.
29.	23282	OUTPUT TRANSFORMER
30.	18631	CAP. 0.004 MFD. 600 V.D.C.
31.	25030-2	SPEAKER SOCKET
32.	23114	RESISTOR 27 OHM 5 WATT
33.	23113	SELENIUM RECTIFIER 150 MA.
34.	19978	FUSE - 2 AMP.
35.	26641	LINE PLUG
36.	20169	A.C. SOCKET
37.	———	S.P.S.T. SWITCH - PART OF ITEM #14
38.	19685	RESISTOR 70 OHM 40 WATT
39	26592	CAP. 1.0-0.5 MFD./200-200 V.D.C.
40.	26587	SWITCH, SOUND-SILENT
41.	19210	PHOTO ELECTRIC CELL
42.	19819	P.E.C. MALE CONNECTOR
43.	19299	EXCITER LAMP — 5 VOLT 6.5 AMP.
44.	18631	CAP. 0.004 MFD. 600 V.D.C.
45.	26613	PLUG, PROJECTOR LINE
46.	23330	LAMP SWITCH
47.	18641	MOTOR SWITCH
48.	———	PROJECTION LAMP — 750 WATT

SCALE	NAME WIRING DIAGRAM MODEL 56-C-3
GENERAL TOLERANCES DEC. ± ____ FRACT. ± ____ ANGLES ____ CONCENTRICITY WITHIN ____ T. I. R. RUNOUT LESS THAN ____ T. I. R. AT MAX. DIA. MAX. DEVIATION FROM STRAIGHT ± ____ TREATMENT & FINISH DATA TOLERANCE	MATERIAL SPECIFICATIONS MFR. STANDARD TOLS. & SPECS. TO APPLY TO ALL PURCHASED ITEMS & MATERIAL	VICTOR ANIMATOGRAPH CORP. Davenport, Iowa PART NUMBER 26986 ISSUE 1



ITEM	V.A.C. PART	ELECTRICAL RATING
1	26759-A	.....
2	19210	90 V.D.C. PHOTO CELL
3	19218	COAX CABLE
4	26561 & 26646	MALE CONNECTOR
5	36889	FEMALE CONNECTOR
6	36227	450.V.D.C.
7	36237	1/2 WATT
8	30504	.....
9	18643	.....
10	36232	400 V.D.C.
11	36230	1/2 WATT
12	36228	400 V.D.C.
13	36196	1/2 WATT
14	5879	.....
15	36235	1/2 WATT
16	36272	1/2 WATT
17	25050	50 V.D.C.
18	18631	600 V.D.C.
19	18626	400 V.D.C.
20	36239	1/2 WATT
21	36240	1 WATT
22	36241	1/2 WATT
23	36226	500 V.D.C.
24	36234	1/2 WATT
25	18621	1/2 WATT
26	18616	1/2 WATT 5%
27	26934	1/4 WATT
28	26935	1/4 WATT
29	36242	500 V.D.C.
30	36181	1/2 WATT
31	12AX7	.....
32	36197	1/2 WATT
33	36182	1/2 WATT 5%
34	36233	1/2 WATT 5%
35	50L6	.....
36	36184	50 V.D.C.
37	36198	5 WATT
38	30502	(PRI.) 4000Ω P.P. (SEC.) 0.8Ω
39	36186	2 WATT
40	18628	450 V.D.C.
41	36188	1 WATT
42	36189	150 V.D.C.
43	36190	150 V.D.C.
44	23113	150 M.A.
45	36199	5 WATT
46	36192	2 WATT
47	PART OF #26935	3 AMP. 125 V.
48	19978	2 AMP.
49	30541	15 AMP. 125 V.
50	20169	15 AMP. 125 V.
51	36182	1/2 WATT 5%
52	18616	1/2 WATT 5%
53	18641	6 AMP. 125 V.
54	23330	10 AMP. 125 V.
55	PROJ. LAMP	750 WATT 110 V.
56	19299	6.5 AMP. 5 V.
57	19747, 30559 & 30540	15 AMP. 125 V.
58	26597	6 AMP. 125 V.
59	30519	.....
60	26841	.....
61	26708-A	GOVERNOR ASSY.
62	26949	15 AMP. 125 V.
63	26930	20 WATT
64	26931	30 WATT
65	25166	8 OHM VOICE COIL
66	25181-A	.....
67	25096	.....
68	25066	75 FEET
69	25030-2	.....
70	26103	.....
71	25066	50 FEET

NOTES—

ALL VALUES OF RESISTORS GIVEN IN 1000 OHM UNITS ± 10% UNLESS OTHERWISE SPECIFIED.

ALL VALUES OF CAPACITORS GIVEN IN MICRO FARADS.

AC OPERATION
ALL VOLTAGES AND CURRENTS MEASURED WITH ZERO SIGNAL, 117 VOLT AC LINE, TO CHASSIS, USING V.T.V.M.

GROUND ON AMPLIFIER IS NOT COMMON WITH GROUND ON PROJECTOR.

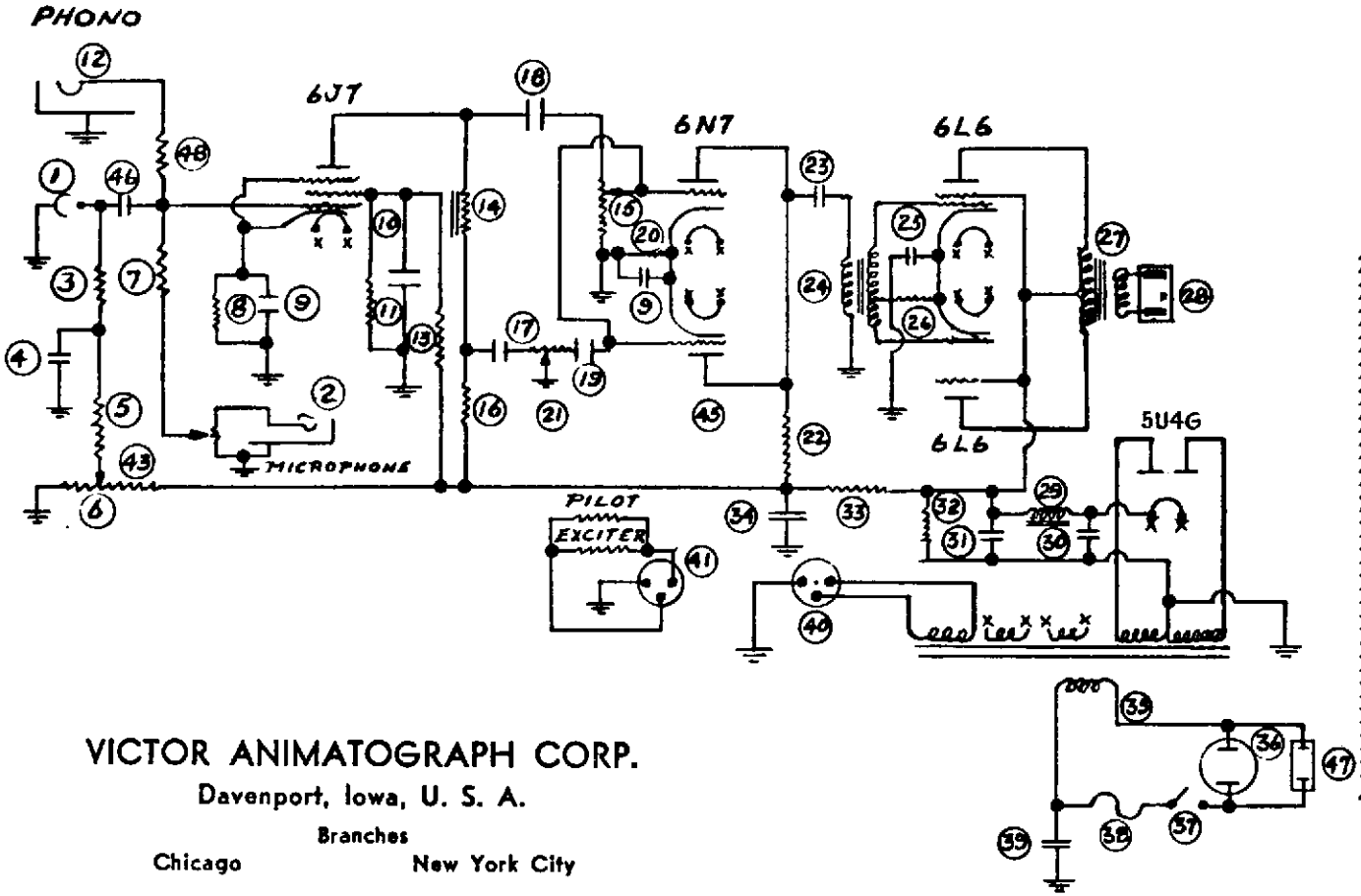
WIRING DIAGRAM MODEL 56-4

VICTOR ANIMATOGRAPH CORP.

DAVENPORT, IOWA U. S. A.

PART NO. 30416 ISSUE 2

MODEL 40B AMPLIFIER WIRING DIAGRAM



VICTOR ANIMATOGRAPH CORP.

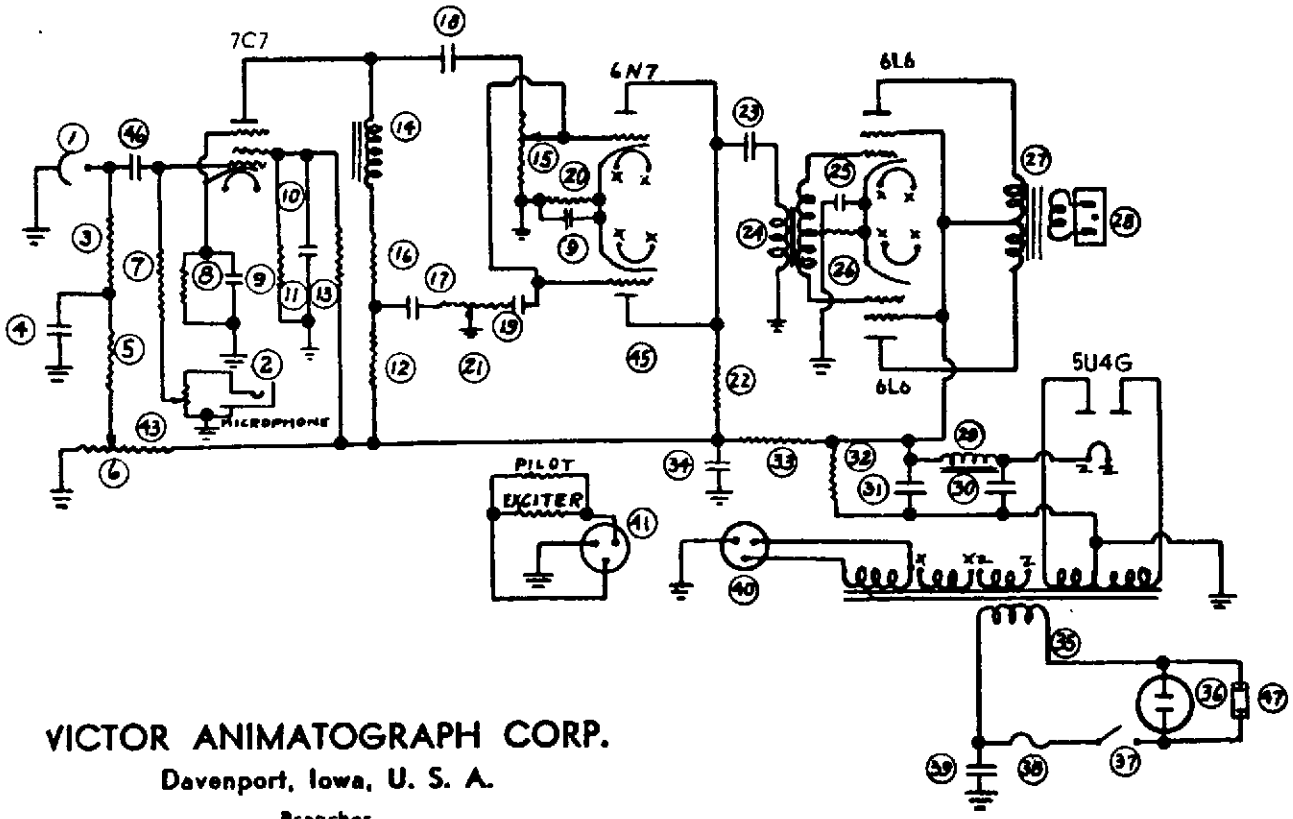
Davenport, Iowa, U. S. A.

Branches

Chicago New York City

1	19210	P. E. Cell
2	18643	Micro Jack
3	18615	Resistor 5.1 Meg ½ Watt
4	18626	Condenser .1 Mfd 400 VDC.
5	18616	Resistor 1 Meg ½ Watt
6	19719	P. E. Cell Control ¼ Meg
7	18620	Resistor 2 Meg ½ Watt
8	18618	Resistor 1500 Ohms ½ W.
9	25050	Condenser 10 Mfd 50 W.VDC.
10	18621	Resistor 100,000 Ohm ½ W.
11	25021	Condenser .22 Mfd 400 W.VDC.
12	18643	Phono. Jack
13	15069	Resistor 240,000 Ohms ½ W.
14	15076	Plate Choke
15	18852	Volume Control ½ Meg
16	18617	Resistor 75,000 Ohms ½ W.
17	25021	Condenser .22 Mfd 400 W.VDC.
18	18628	Condenser .01 Mfd 600 W. VDC.
19	18631	Condenser .004 Mfd 600 W.VDC.
20	19934	Resistor 1,000 Ohms ½ Watt
21	18635	Tone Control 1 Meg
22	18617	Resistor 75,000 Ohms ½ Watt
23	18626	Condenser .1 Mfd 400 W.VDC.
24	15078	Input Transformer
25	25050	Condenser 10 Mfd 50 W.VDC.
26	19722	Resistor 200 Ohm 10 Watt
27	15120	Output Transformer
28	25030	Speaker Socket
29	18732	Filter Choke 200 Ohm
30	23277	Filter Condenser 16 Mfd 500 W. V.
31	23277	Filter Condenser 16 Mfd 500 W.V.
32	19635	Resistor 30,000 Ohms 10 Watt
33	19668	Resistor 10,000 Ohms 5 Watt
34	19675	Condenser 8 Mfd 450 W.VDC.
35	19845	Power Transformer
36	19747	AC Receptacle
37	18852	Power Switch Part Of
38	19978	Fuse 2 Amp.
39	18661	Condenser .02 Mfd 600 W.VDC.
40		Exciter Lamp Connector Socket
	19644	3 Contact Round
	20619	4 Contact Round
	20629	3 & 4 Contact Rectangular
41		Exciter Lamp Plug Attached to Proj.
	19643	3 Contact Round
	20618	4 Contact Round
	20628	3 & 4 Contact Rectangular
42		
43	18634	Microphone Control ½ Meg
44		
45	18620	Resistor 2 Meg ½ Watt
46	18628	Condenser .01 Mfd 600 W. VDC.
47	20169	Projector Power Socket
48	18615	Resistor 5.1 Meg ½ Watt

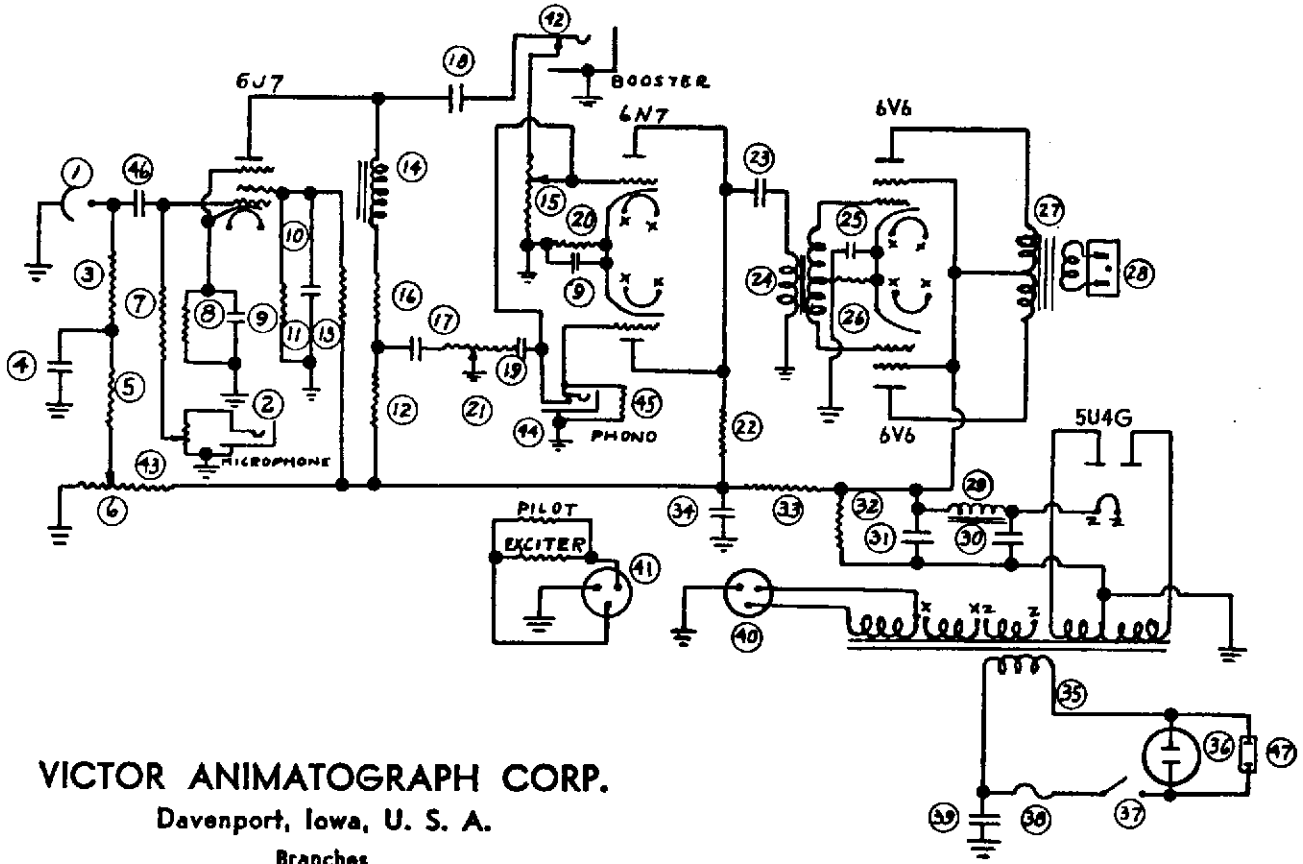
MODEL 40BX AMPLIFIER WIRING DIAGRAM



VICTOR ANIMATOGRAPH CORP.
Davenport, Iowa, U. S. A.
Branches
Chicago New York City

1	19210	P. E. Cell
2	18643	Micro Jack
3	18615	Resistor 5.1 Meg 1/2 Watt
4	18626	Condenser .1 Mfd 400 VDC.
5	18616	Resistor 1 Meg 1/2 Watt
6	19719	P. E. Cell Control 1/4 Meg
7	18620	Resistor 2 Meg 1/2 Watt
8	18618	Resistor 1500 Ohms 1/2 W.
9	25050	Condenser 10 Mfd 50 W.VDC.
10	18621	Resistor 100,000 Ohm 1/2 W.
11	25021	Condenser .22 Mfd 400 W.VDC.
12	18622	Resistor 51,000 Ohms 1/2 Watt
13	18617	Resistor 75,000 Ohms 1/2 Watt
14	15076	Plate Choke
15	18852	Volume Control 1/2 Meg
16	18670	Resistor 24,000 Ohms 1/2 Watt
17	25021	Condenser .22 Mfd 400 W.VDC.
18	18628	Condenser .01 Mfd 600 W. VDC.
19	18631	Condenser .004 Mfd 600 W.VDC.
20	19934	Resistor 1,000 Ohms 1/2 Watt
21	18635	Tone Control 1 Meg
22	18617	Resistor 75,000 Ohms 1/2 Watt
23	18626	Condenser .1 Mfd 400 W.VDC.
24	15078	Input Transformer
25	25050	Condenser 10 Mfd 50 W.VDC.
26	19722	Resistor 200 Ohm 10 Watt
27	15120	Output Transformer
28	25030	Speaker Socket
29	18732	Filter Choke 200 Ohm
30	23277	Filter Condenser 16 Mfd 500 W. V.
31	23277	Filter Condenser 16 Mfd 500 W.V.
32	19635	Resistor 30,000 Ohms 10 Watt
33	19668	Resistor 10,000 Ohms 5 Watt
34	19675	Condenser 8 Mfd 450 W.VDC.
35	19845	Power Transformer
36	19747	AC Receptacle
37	18852	Power Switch Part Of
38	19978	Fuse 2 Amp.
39	18661	Condenser .02 Mfd 600 W.VDC.
40		Exciter Lamp Connector Socket
	19644	3 Contact Round
	20619	4 Contact Round
	20629	3 & 4 Contact Rectangular
41		Exciter Lamp Plug Attached to Proj.
	19643	3 Contact Round
	20618	4 Contact Round
	20628	3 & 4 Contact Rectangular
42		
43	18634	Microphone Control 1/2 Meg
44		
45	18620	Resistor 2 Meg 1/2 Watt
46	18628	Condenser .01 Mfd 600 W.VDC.
47	20169	Projector Power Socket
48	18615	Resistor 5.1 Meg 1/2 Watt

MODEL 40A AMPLIFIER WIRING DIAGRAM



VICTOR ANIMATOGRAPH CORP.

Davenport, Iowa, U. S. A.

Branches

Chicago New York City

1	19210	P. E. Cell
2	18643	Micro Jack
3	18615	Resistor 5.1 Meg ½ Watt
4	18626	Condenser .1 Mfd 400 VDC.
5	18616	Resistor 1 Meg ½ Watt
6	19719	P. E. Cell Control ¼ Meg
7	18620	Resistor 2 Meg ½ Watt
8	18618	Resistor 1500 Ohms ½ W.
9	25050	Condenser 10 Mfd 50 W.VDC.
10	18621	Resistor 100,000 Ohm ½ W.
11	25021	Condenser .22 Mfd 400 W.VDC.
12	18622	Resistor 51,000 Ohms ½ Watt
13	18617	Resistor 75,000 Ohms ½ Watt
14	15076	Plate Choke
15	18852	Volume Control ½ Meg
16	18670	Resistor 24,000 Ohms ½ Watt
17	25021	Condenser .22 Mfd 400 W.VDC.
18	18628	Condenser .01 Mfd 600 W. VDC.
19	18631	Condenser .004 Mfd 600 W.VDC.
20	19934	Resistor 1,000 Ohms ½ Watt
21	18635	Tone Control 1 Meg
22	18617	Resistor 75,000 Ohms ½ Watt
23	18626	Condenser .1 Mfd 400 W.VDC.
24	15078	Input Transformer
25	25050	Condenser 10 Mfd 50 W.VDC.
26	19722	Resistor 200 Ohm 10 Watt
27	15120	Output Transformer
28	25030	Speaker Socket
29	18732	Filter Choke 200 Ohm
30	23277	Filter Condenser 16 Mfd 500 W. V.
31	23277	Filter Condenser 16 Mfd 500 W.V.
32	19635	Resistor 30,000 Ohms 10 Watt
33	19668	Resistor 10,000 Ohms 5 Watt
34	19675	Condenser 8 Mfd 450 W.VDC.
35	19745	Power Transformer
36	19747	AC Receptacle
37	18852	Power Switch Part Of
38	19978	Fuse 2 Amp.
39	18661	Condenser .02 Mfd 600 W.VDC.
40		Exciter Lamp Connector Socket
	19644	3 Contact Round
	20619	4 Contact Round
	20629	3 & 4 Contact Rectangular
41		Exciter Lamp Plug Attached to Proj.
	19643	3 Contact Round
	20618	4 Contact Round
	20628	3 & 4 Contact Rectangular
42	18643	Booster Jack
43	18634	Microphone Control ½ Meg
44	18643	Microphone Jack
45	18620	Resistor 2 Meg ½ Watt
46	18628	Condenser .01 Mfd 600 W. VDC.
47	20169	Projector Power Socket
48	18615	Resistor 5.1 Meg ½ Watt

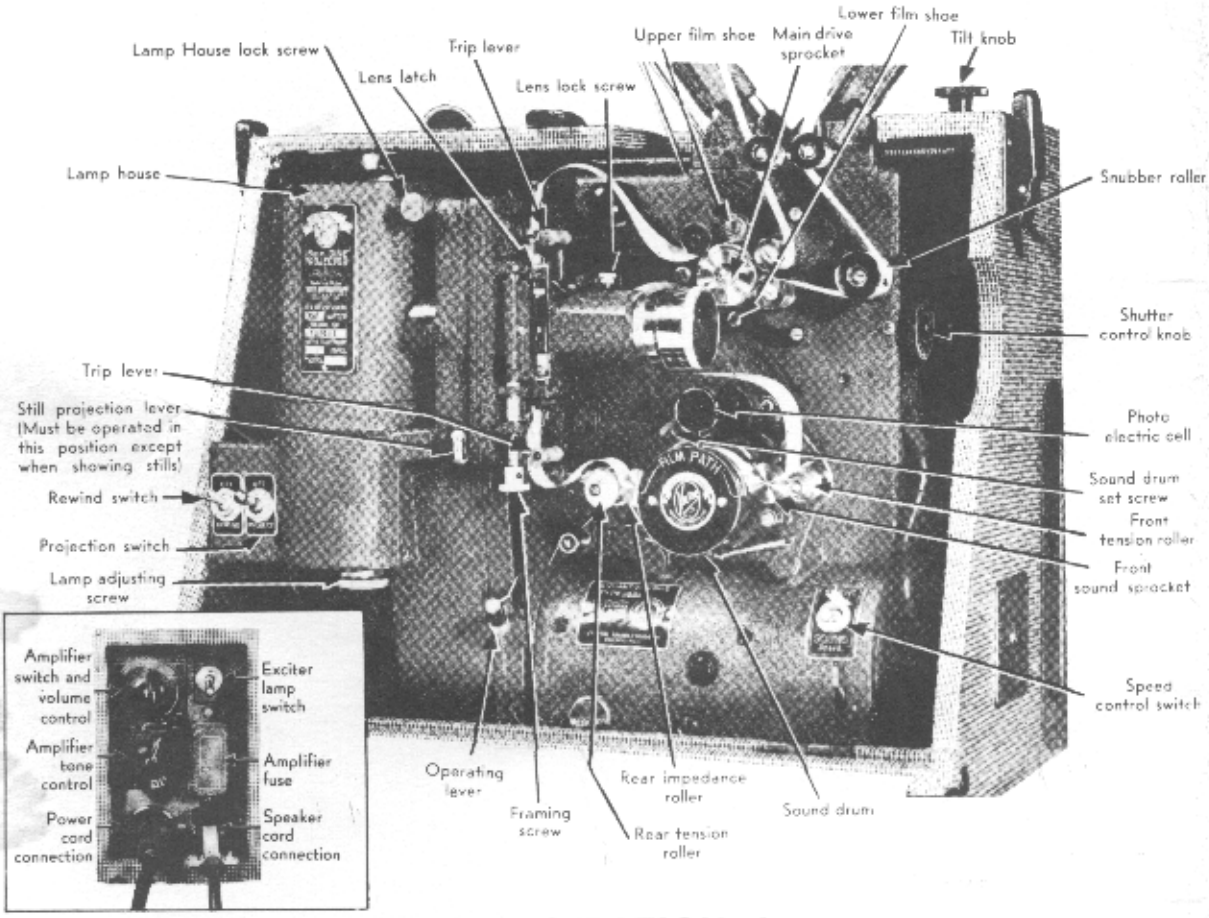


ILLUSTRATION A

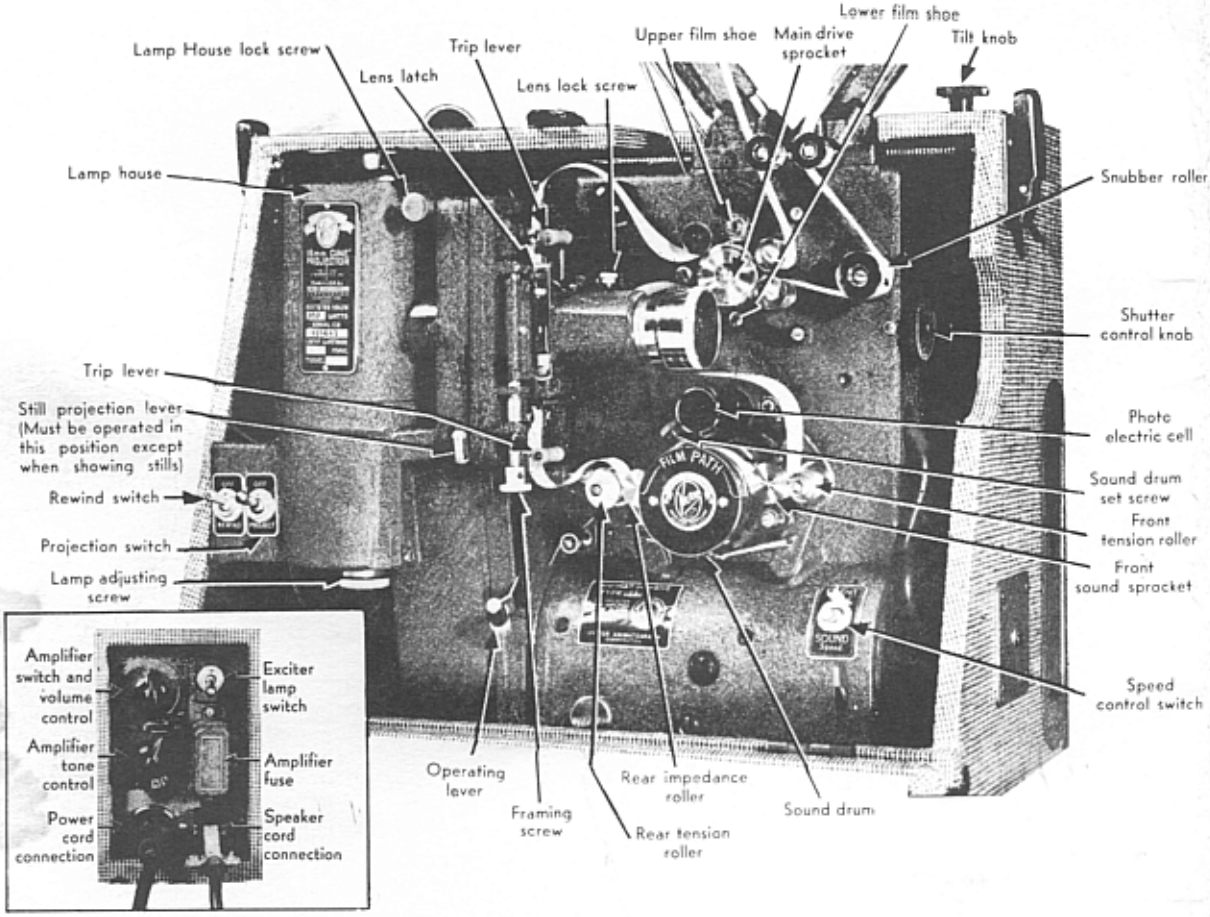


ILLUSTRATION A

THREADING

Before threading, open sound tension rollers, open swing-out lens at

THREADING CHA

SETTING UP

Install reel arms so that reel shafts point toward operator's side of the projector. Place rewind belt on large pulley of rear reel arm. Place reverse take-up belt (nearest or inside belt) on small pulley of rear reel arm. Front belt (or outside belt) should be placed on small pulley of front reel arm for film reels of 400' or less and on large pulley for films of greater length. Both take-up belts receive half twist.

Place supply reel on rear reel arm and take-up reel on front reel arm.

POWER REQUIREMENTS

Model 40 — 100-120 Volts 50-60 Cycle A.C.
Model 40B — 100-120 Volts 50-60 Cycle A.C.
Model 40C — 100-120 Volts 25-60 Cycle A.C./D.C.
Model 41 — 100-120 Volts 50-60 Cycle A.C.
Model 41B — 100-120 Volts 50-60 Cycle A.C.
Model 41C — 100-120 Volts 25-60 Cycle A.C./D.C.
Model 55 — 100-120 Volts 50-60 Cycle A.C.
Model 55C — 100-120 Volts 25-60 Cycle A.C./D.C.
Model 56 — 100-120 Volts 25-60 Cycle A.C./D.C.
Model 60 — 100-120 Volts 50-60 Cycle A.C.
Model 60B — 100-120 Volts 50-60 Cycle A.C.
Model 60-4 — 100-120 Volts 25-60 Cycle A.C./D.C.
Model 60-10 — 100-120 Volts 50-60 Cycle A.C.
Model 60-25 — 100-120 Volts 50-60 Cycle A.C.

NOTE: All projectors which are A. C. only require a rotary or vibrator converter for use with direct current.

SPEAKER SET-UP

Remove speaker cord from rack in rear of speaker. Plug one end of speaker cord into socket at rear of speaker proper and the other end into the projector speaker socket. If using two or more 12-inch speakers, plug one to the next after plugging main speaker in projector.

NOTE: If using two or more speakers with Model 60-25, plug one to the next and main speaker into projector socket marked "dual."

SOUND FILM

Turn on exciter lamp on those projectors having a separate exciter switch.

Turn amplifier on with volume control.

Raise volume by turning volume control clockwise.

Increase bass by turning tone control clockwise.

PUBLIC ADDRESS

Do not turn on exciter lamp on those projectors having a separate exciter switch.

MICROPHONE: Insert microphone in marked jack. Monitor volume with "MIC" volume control on projectors having a separate control. Use volume control on all other models. Place microphone and loud-speaker as far apart as possible to avoid "feed-back" (loud squeal from speaker).

PHONOGRAPH: Insert phonograph plug in marked jack and monitor with projector volume control on projectors having a separate phonograph input. On models having a microphone-phonograph input, use projector volume control.

THREADING

Before threading, open sound tension rollers, open swing-out lens at catch marked "pull," and open film shoes.

Thread film from supply reel onto top of take-up reel. Pull enough film from supply reel to cover nameplate below projector motor. Slide film over sound drum. Engage sprocket holes on teeth of sound sprocket on the right of sound drum. Close front and rear tension rollers.

Thread film loosely behind middle Safety Film Trip and under drive sprocket. Engage sprocket teeth and close bottom film shoe.

Place film in film gate channel, allowing bottom loop the size of index finger below lower Safety Film Trip. (Bottom loop determines accuracy of sound synchronization.) Close swing-out lens. Thread film over top of drive sprocket engaging sprocket holes with teeth and close top film shoe.

Check threading by turning hand operating control.

OPERATION

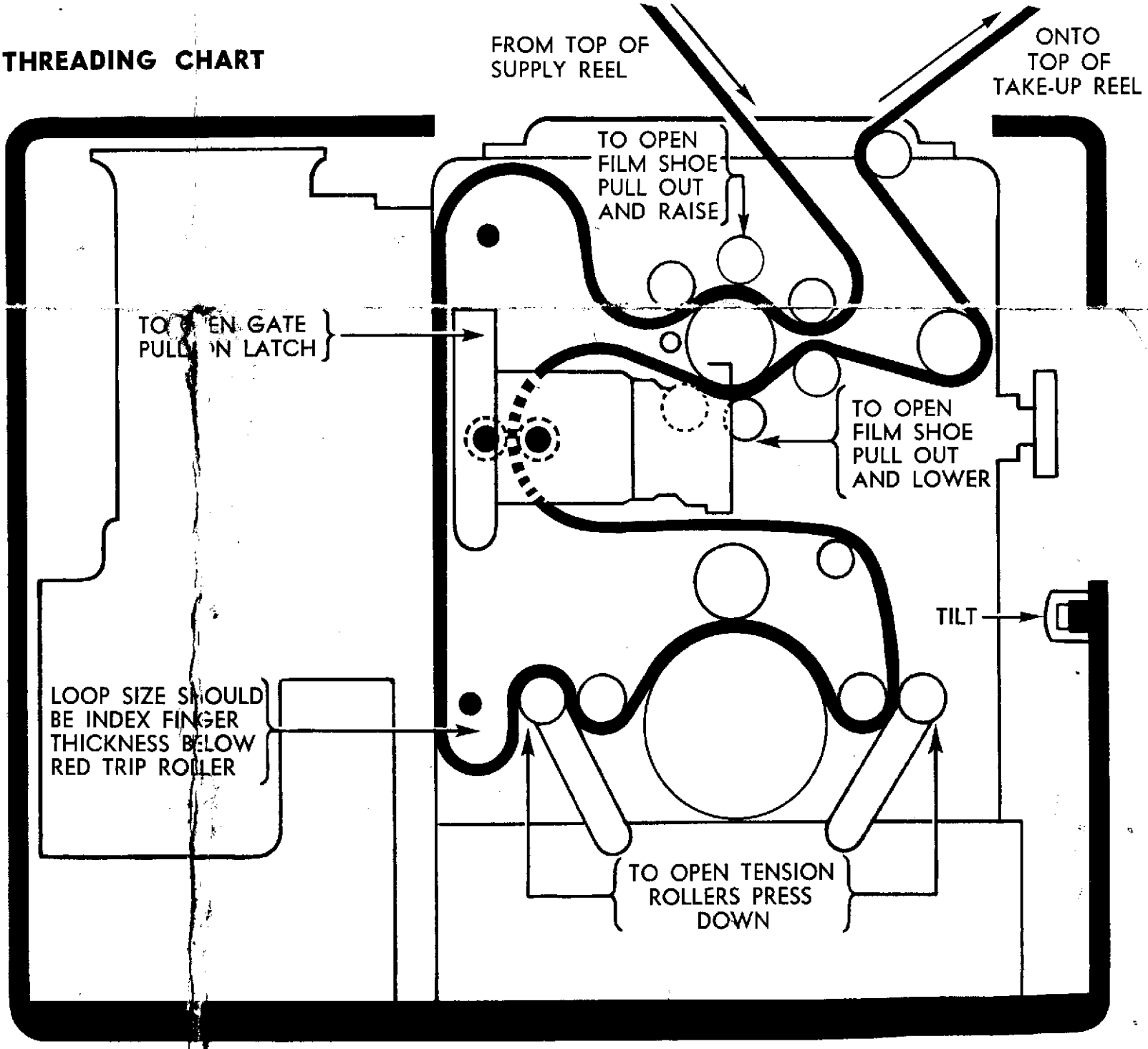
1. Select sound or silent speed.
2. Raise operating lever.
3. Press motor switch down.
4. Press lamp switch down.
5. Center picture on screen with projector tilt.
6. Focus by turning lens until picture on screen is sharp. Tighten lens lock screw.
7. Frame picture by turning framing screw.
8. Adjust sound tone and volume.
9. To stop film movement, press forward top Safety Film Trip.

VICTOR Animatograph Corporation
A DIVISION OF KALART
PLAINVILLE, CONN., U. S. A.

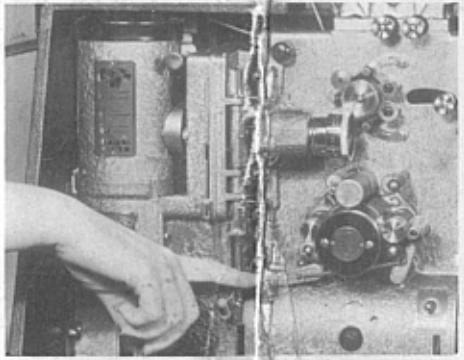
current.

input, use projector volume control.

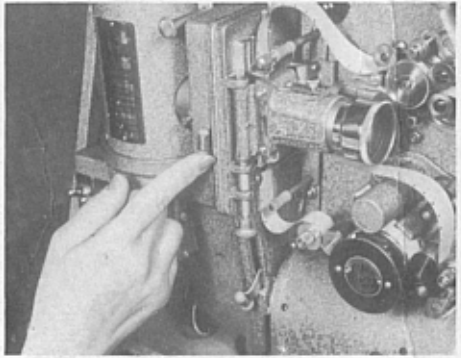
THREADING CHART



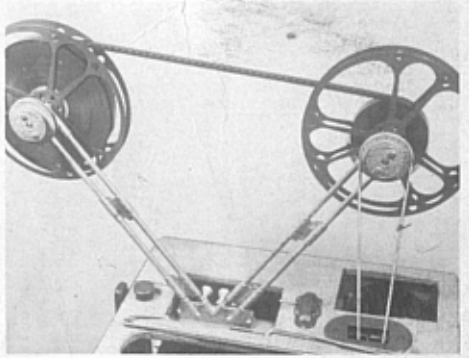
If incorrectly threaded or film is defective, Safety Film Trips automatically stop projector. Check film loops and raise operating lever.



REVERSE: *For simple, one-control reverse of film, while projector is running, press down rear tension roller. When using reverse constantly, it is advisable that supply and take-up reels be of the same size.*



STILL PICTURE: *Stop projector by releasing top Safety Film Trip. (Motor continues to run). Raise still picture lever. Should no picture appear on screen, turn hand operating control to open shutter. To resume projection, release still picture lever and raise operating lever.*



REWIND: *Operating lever must be in released position when rewinding. (To release operating lever, push top Safety Film Trip forward.) Thread film directly back to supply reel, press rewind lever completely down and hold until film is entirely rewound. No changing of belts or reels.*

CLEANING

A scrupulously clean projector is a prerequisite to perfect showmanship. A clean optical system assures brighter, sharper pictures. A clean sound system assures crisp sound in greater measure. Clean film channels, sprockets and rollers prevent film scratching and unnecessary wear.

CLEANING OPTICAL SYSTEM

(EACH 10 HOURS OF USE OR OFTENER) (SEE ILLUSTRATION "A")

Remove lamp house and polish reflector and condensor surfaces with clean, soft, lintless cloth or chamois. Also polish projection lens. At all times avoid finger-marking lens surface since this will reduce illumination and picture definition.

CLEANING SOUND SYSTEM

5-HOUR CLEANING

(SEE ILLUSTRATION "B")

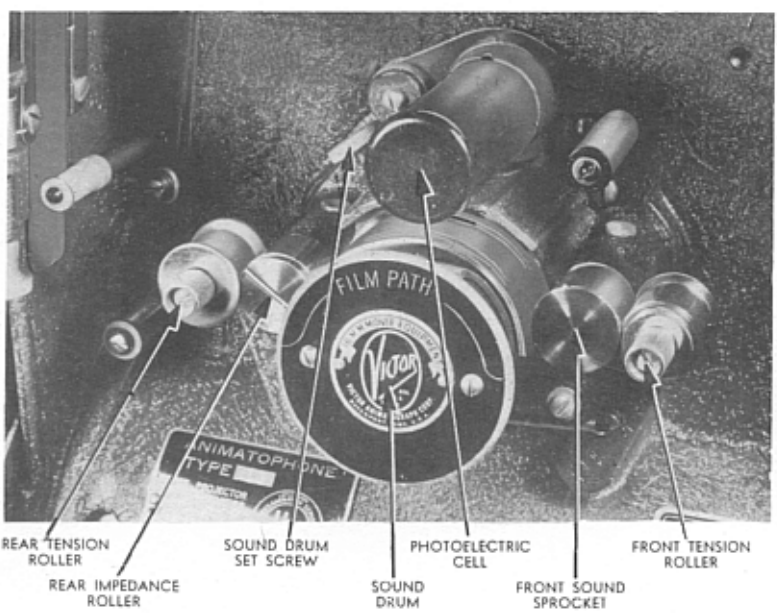


ILLUSTRATION B

Clean rear impedance roller and front sound sprocket, also front and rear tension rollers, using soft cloth. Oil or hardened film emulsion gum can be removed with carbon tetrachloride.

Be sure rear impedance roller — also front and rear tension rollers — revolve freely.

Loosen sound drum set screw and remove sound drum by pulling directly outward.

Refer to illustration "C". After wiping sound film channel, clean the film channel slot by inserting the doubled end of a pipe cleaner in the opening. Also clean lower side of sound lens inside the sound drum. Be sure no lint remains on lens or slot — blowing out if necessary.

In returning sound drum, be sure it is fully seated, all the way in and with the slot in top position.

50-HOUR CLEANING

(SEE ILLUSTRATION "C")

Remove sound drum as above. Remove screws "A" and "B". Thereafter lift off sound film channel and sound lens assembly and place in inverted position Next remove screws "C" and "D" and lift out sound lens unit.

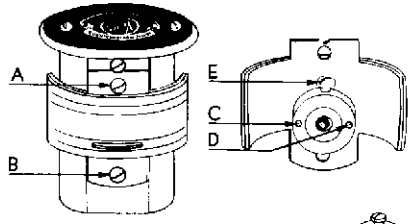
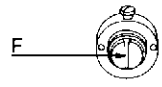
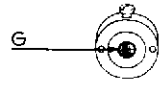


ILLUSTRATION C

WARNING — Do not tamper with or loosen screw "E". To do so will necessitate return of entire assembly to the nearest Victor Service Center for resetting of lens unit.

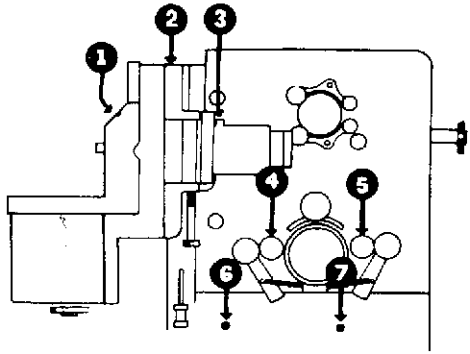


With a clean, lintless cloth, polish sound slit "F" by placing cloth over thumb-nail. Also polish condensor lens "G". (If sound lens unit is oil soaked, entire unit should be sent to nearest Victor Service Center for cleaning.)



Reassemble sound unit and sound drum being careful to have slot in sound film channel nearest screw "B" as shown.

OILING



More service problems result from over-oiling than under-oiling. Excess oil clogs the light slit of the sound lens, gums the brushes of motor and governor commutators and destroys wire insulation. This results in loss of sound quality, irregular speed and short circuiting of electrical components.

For this reason the oiling schedule as follows is recommended:

Oiling Points

1, 2 and 3 — Four drops every three hours of running.

4 and 5 — One drop every ten hours of running.

6 and 7 — Two drops every four hours of operation.

All oiling points should likewise be oiled as above after prolonged periods of idleness.

CLEANING CHANNELS AND ROLLERS

BEFORE EACH SHOWING

(SEE ILLUSTRATION "D")

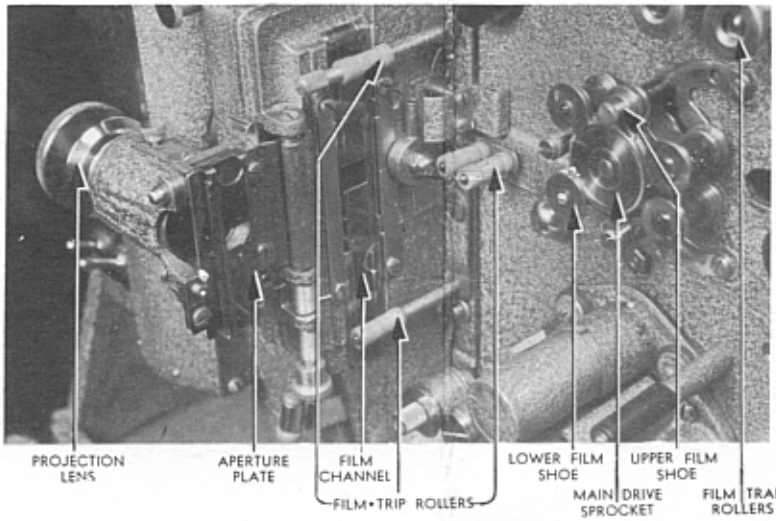


ILLUSTRATION D

Clean aperture plate and film channel. Victor's exclusive swing-out lens makes both surfaces instantly and completely accessible.

Cleaning may be accomplished with a cloth or chamois but the most convenient and practical method is to use the index or second finger to rub these surfaces clean and to also remove foreign accumulations at the picture aperture.

CAUTION: Do not use any metal instrument to clean the above or other film travel surfaces.

Keep film trip rollers and upper and lower film shoes clean. See that film shoe rollers and film trap rollers operate freely.

ILLUSTRATION E

CLEANING GOVERNOR

(SEE ILLUSTRATION "E")

Dirty or pitted governor breaker points will cause motor speed fluctuations resulting in sour, uneven sound, most noticeable in sustained musical instrumental notes.

Access to governor is gained through perforated grill-covered opening in bottom of projector case directly under motor. Rest projector on side and partially remove grill.

Two sets of breaker points are on governor commutator. One set has stiff tension and controls sound speed. The other with soft tension controls silent speed.

Separate the former breaker points with small thin screw-driver. Then insert very fine flat file (preferably breaker-point file), remove screw-driver and smooth surfaces with several strokes of file. ***File only enough to remove roughness.*** Test for results using motor switch only. ***Do not turn on lamp while projector is on side.*** Disconnect power cord while working on governor.

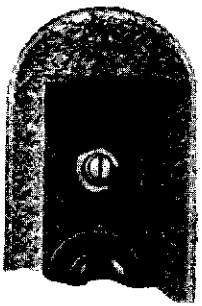
TROUBLE LOCATING CHART

	Bad Screen Image	No Picture on Screen	Sour Sound	No Sound	Noisy Sound	Sound Not Clear	Sound Too Weak	Unsteady Picture
Dirty, Worn, Scratched Film	X				X	X	X	X
Still Picture Lever Raised	X							
Dirty Optical System	X							
Too Much Extraneous Light	X							
Low Line Voltage	X		X				X	
Power Cord Too Small or Defective	X		X				X	
Old Projector Lamp	X							
Lamp Burned Out		X						
Lamp Switch Off		X						
Faulty Room Acoustics					X	X		
Poor or Dirty Screen	X							
Dirty Sound Lens						X	X	
Speed Switch in Silent Position			X					
Tone Control Set Too Low						X		
PE Cell Control Set Too Low				X			X	
PE Cell Control Set too High					X	X		
Dirty or Pitted Governor or Points			X					
Defective Amplifier Tube				X	X		X	
Exciter Lamp Burned Out				X				
Old Exciter Lamp					X	X	X	
Amplifier Fuse Burned Out				X				
Speaker Not Connected				X				
Speaker Grill Covered						X	X	
Exciter Switch Turned Off				X				
PE Cell Dead				X				
Sound Drum Not Seated				X				
Rear Impedance Roll Stuck			X			X		
Dirty Motor Commutator			X		X			
Loose or Broken Speaker Cone					X	X		
Speaker Location Too Low						X	X	
Damaged Sprocket Holes or Green Film								X
Amplifier not Turned On				X				
Speaker Cable Broken				X				
Defective Photo Cell							X	

IF DIFFICULTY ENCOUNTERED CANNOT BE CORRECTED WITH THE AID OF THE ABOVE, ANIMATOPHONE SHOULD BE REFERRED TO AN AUTHORIZED VICTOR SERVICE CENTER

ADJUSTING PHOTO CELL VOLTAGE

(For Models 40-40B-40C-60B see slotted photo cell voltage control on right front of case. For Model 55 control is in area below motor and lamp switches. All other models are pre-set.)



With power and speaker connected but with no film in projector, turn amplifier volume control to maximum position. Also turn on exciter lamp. Using a small screw-driver or thumb nail, turn P.E. Cell voltage control to the right (clockwise) until excessive humming sets in. Then turn control back until humming is slightly reduced. Thereafter thread and project film, regulating volume with Amplifier volume control.

CAUTION: Excessive photo cell voltage results in objectionable background noise, distortion and also shortens cell life; when set too low, in loss of sound volume.

CARE OF FILM

Whenever possible avoid projection of dirty film. Dirt, oil and emulsion gum may be deposited on channels and rollers and eventually cause scratching. Dirty film will also result in reduced screen brilliance and definition as well as loss in sound quality and volume.

Immediately following the running of such film, carefully clean all film channels, rollers, trips, etc., preferably with carbon tetrachloride.

TO CLEAN FILM: Place film on rewind and draw it slowly between a soft lintless cloth or pads, well saturated with carbon tetrachloride. Frequently change cloth or pad surfaces and re-moisten with carbon tetrachloride as they become charged with film soil.

KODACHROME AND ANSCO COLOR FILM: Use same procedure as above, but with only a small quantity of carbon tetrachloride since it has a tendency to soften the emulsion of Kodachrome and Ansco Color Film.

"GREEN" OR FRESH FILM: Occasionally new prints just out of the processing laboratory are "green" — a condition of stickiness which may cause "jumpy" pictures, loss of loop or noisy projection. The same condition may occur with films which have been over-humidified.

Such film may be conditioned by exposure of the reel to air for at least twelve hours for partial drying. Another expedient is to run the film through the Animatophone at 16 frame silent speed, with projection and exciter lamps on, and with projection lens gate open.

FILM PRECAUTIONS: Don't allow film to remain on projector after showing. Always immediately replace in film can.

Don't pull end of film to tighten on reel since this may result in scratch.

Never place films on radiators thus causing drying and consequent warped, brittle film.

Always keep spare take-up reels clean and in dustproof container, also remove any dust on inside reel surfaces before using. ***Dust transferred to film and film channels causes scratch.***

Avoid using bent reels and thus prevent film take-up difficulties.

DDB

REPLACEMENTS

PROJECTION LAMP — Loosen lamp house lock screw, then lift lamp house up and off. Press down and turn lamp counter clockwise one-quarter turn and lift out. Place new lamp so wings coincide in size and position with slots in base, press down and turn right one-quarter turn, as far as lamp will go. Polish lamp surface, also reflector and condensor before replacing lamphouse. Replace lamphouse, fully seating into flange at base. Test for rigidity and thereafter tighten lock screw.

ALIGNING NEW LAMPS — Without film, project light onto screen. If unevenly illuminated, loosen lamp adjusting screw and move until light on screen is free from objectionable streaks. Then lock adjusting screw.

BVK

EXCITER LAMP — Loosen sound drum set screw and pull out sound drum. Press in and turn exciter lamp slightly to left and remove. To install new lamp, insert so that holes in base collar coincide with lock pins, press in and turn to right as far as it will go to lock securely in proper position. Always keep a spare exciter lamp on hand. Specify GE, T-8, 5V.6.5 Amp., Prefocused.

PILOT LAMP — Unscrew cap, press in and turn lamp slightly to left to remove. Insert replacement (GE T-3¼, 5V. bayonet base.)

PHOTO CELL — Remove metal cover by pulling outward. Thereafter, carefully pull straight outward on photo cell. CAUTION: Do not use oscillating movement since cement seal in base is apt to become damaged. To replace, match prongs on cell base to those in socket and insert. Keep an extra cell on hand.

AMPLIFIER FUSE — Remove metal cover (Illustration "A") and replace fuse. CAUTION: Use only 2 amp. fuse. Heavier fuse may result in serious amplifier damage.

AMPLIFIER TUBES — All tubes are standard radio tubes, keyed to tube sockets in amplifier base. Sockets are numbered to correspond with the numbers of the tubes which they accommodate. Match numbers before attempting to insert tubes. Also match prongs with holes in socket and push tube down. Do not force tubes into position. If force is required, prongs and holes probably do not coincide, and amplifier will not function with jammed tubes.

TABLE OF IMAGE SIZES

Focus of Lens	DISTANCE BETWEEN PROJECTOR AND SCREEN (IN FEET)										
	5	10	15	20	30	40	50	60	70	80	100
1½"	1'4"	2'11"	3'11"	5'2"	8'2"						
2"	1'0"	1'11"	2'11"	3'11"	5'10"	7'10"	9'9"				
2½"		1'7"	2'4"	3'1"	4'8"	6'3"	7'10"	9'4"			
3"		1'4"	1'11"	2'7"	3'11"	5'2"	6'6"	7'10"	9'1"	10'5"	
3½"		1'1"	1'8"	2'3"	3'4"	4'5"	5'7"	6'10"	7'10"	8'11"	
4"		1'	1'6"	1'11"	2'11"	3'11"	4'11"	5'10"	6'10"	7'10"	9'9"