OPERATING INSTRUCTIONS

for

RCA PHOTOPHONE

"TYPE C" SOUND AND PICTURE

REPRODUCING EQUIPMENT

RCA Photophone, Inc.
411 FIFTH AVENUE NEW YORK, N. Y.

OIA

O P E R A T I N G I N S T R U C T I O N S

for

R C A P H O T O P H O N E I N C.,

"T Y P E C" S O U N D A N D P I C T U R E

R E P R O D U C I N G E Q U I P M E N T

RCA PHOTOPHONE INC.,

411 Fifth Ave., New York, N.Y.

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ILLUSTRATIONS

R. C. A. PHOTOPHONE "TYPE C" AMPLIFIER.

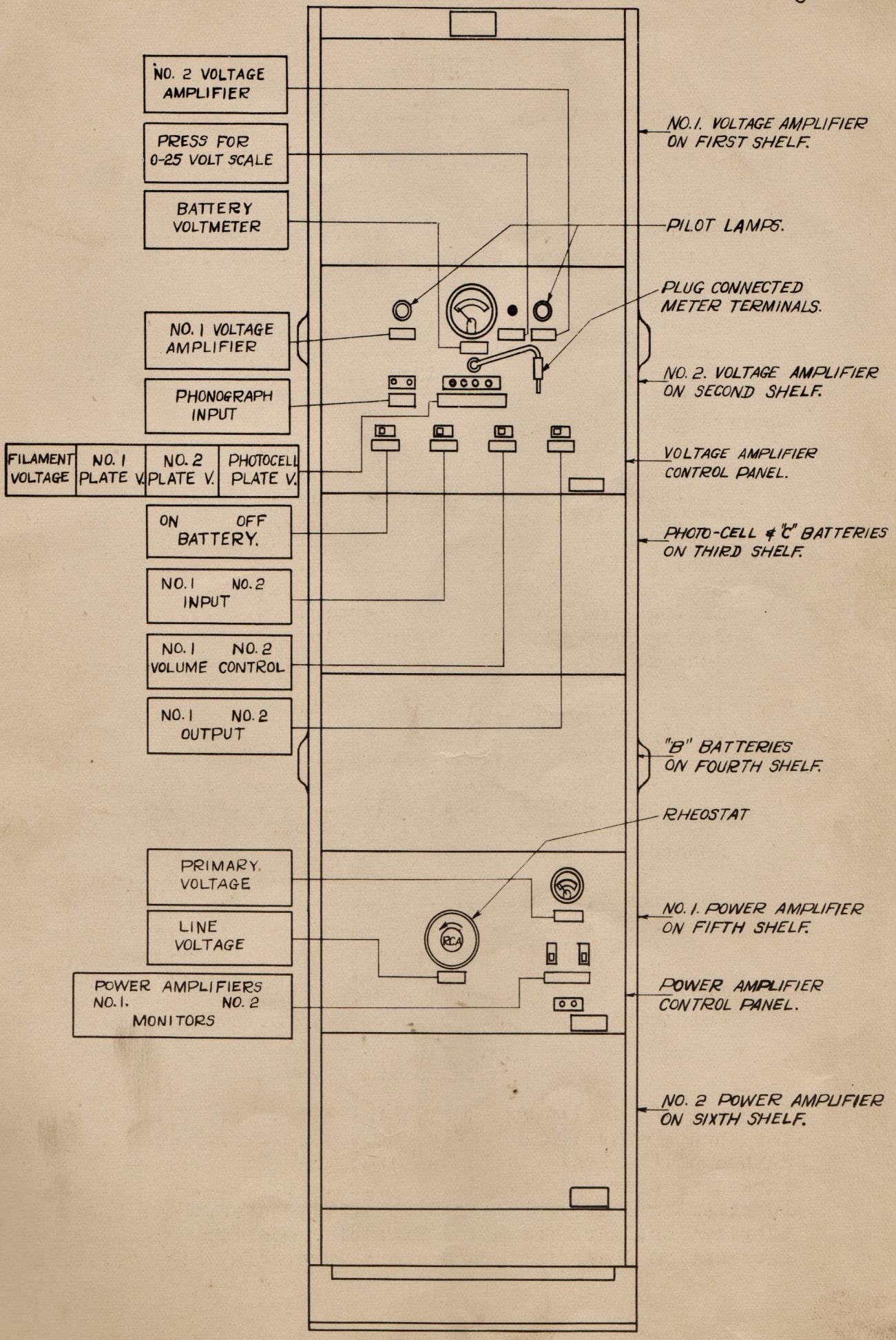


Fig. 1.

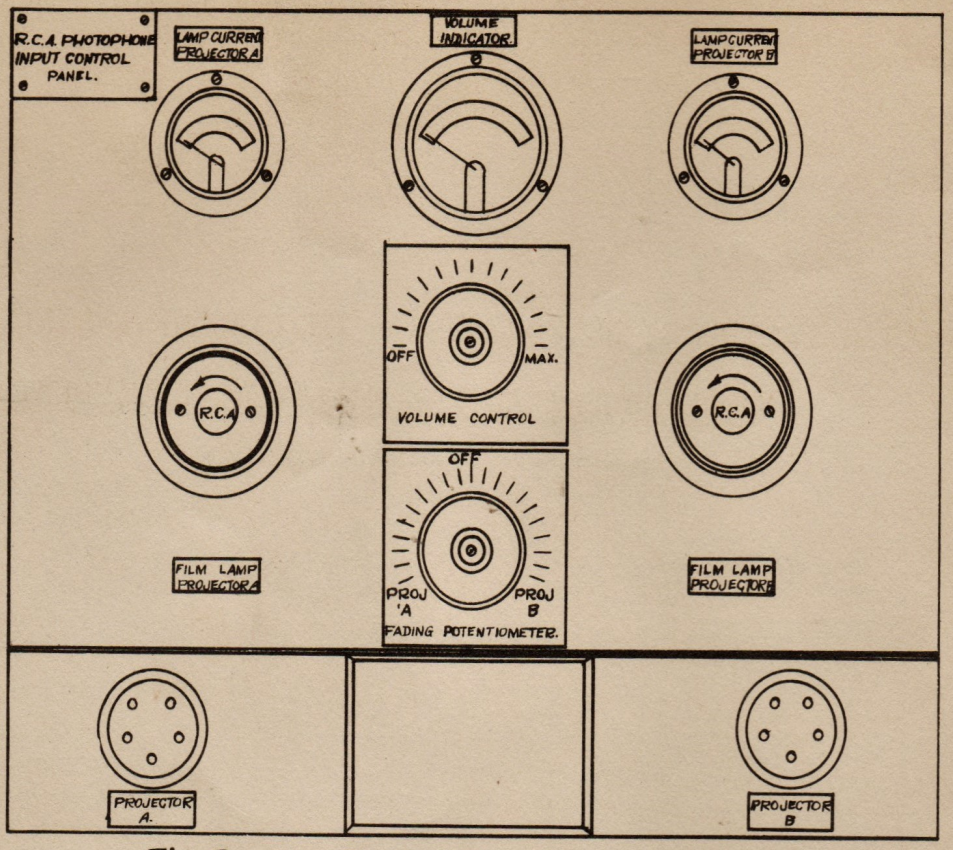
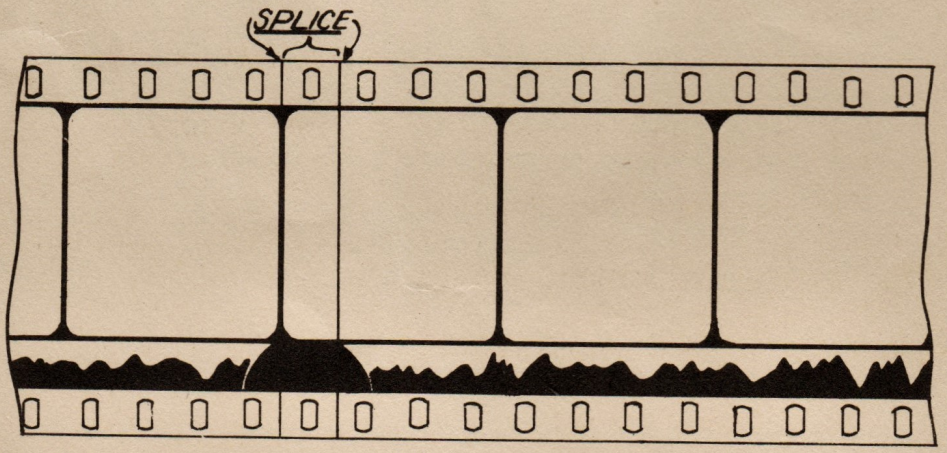
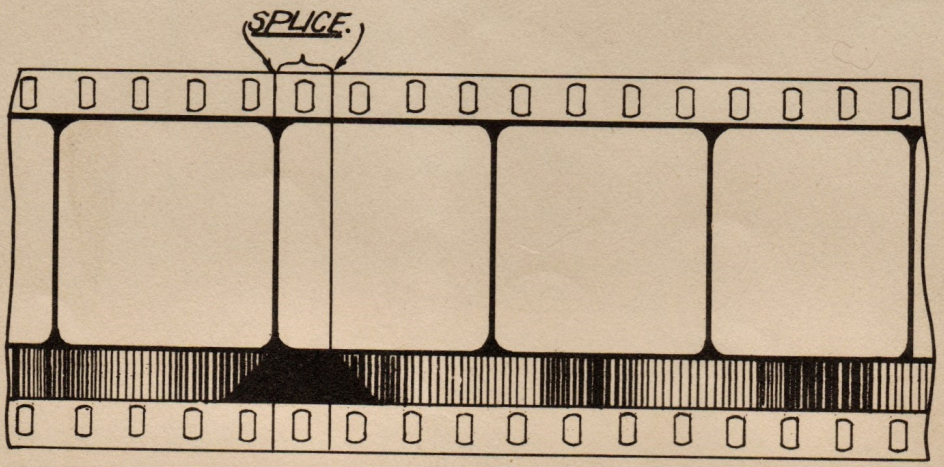


Fig. 2 INPUT CONTROL PANEL



Blackening Splice For Varying Width Sound Record.



Blackening Splice For Varying Density Sound Record.

Fig. 3

OPERATING INSTRUCTIONS FOR AN RCA PHOTOPHONE INSTALLATION WHICH COMPRISES THE FOLLOWING EQUIPMENT

2 Simplex Projectors With Sound Heads

2 A-C. Synchronous Projector Motors

2 Synchronous Turntables

1 Input Control Panel

1 "Type C" Amplifier

8 Loudspeakers

4 MVJ-13 3-Cell Storage Batteries

1 Tube Type Battery Charger

1 Signal System

TO THE PROJECTIONIST

These instructions are intended to cover only the simple operations necessary to success with your "Type C" RCA Photophone equipment. No attempt is made to explain the theory. If they are carefully followed, no difficulty should be experienced.

Properly maintained, your equipment is capable of delivering a good picture and excellent sound reproduction. To assist you in getting the best possible results, these instructions are divided under four headings, namely;

Daily Maintenance And Checks

Operating Silent

Operating With Sound

Troubles - Their Location And Correction

Illustrations show the parts and operations referred to in the text.

An RCA Photophone service man will call frequently. He will explain the operation of any part of the equipment that is not entirely clear to you.

DAILY MAINTENANCE

Before The Show

1. Check the condition of the storage batteries. The fully charged reading is between 1.210 and 1.220. The allowable drop in specific gravity is 75 points. Connect one storage battery to the amplifier. Charge the other if necessary. See that the batteries are clean and that the terminal connections are tight and free from corrosion.

2. Clean and oil the projectors. Wipe off any excess oil.

3. Clean and oil the sound heads. Wipe off any excess oil.

4. Clean and oil the synchronous turntables.

5. Keep the grease cup of the sound head viscous damping device filled with white vaseline. The cap should be screwed down one full turn at the beginning of the daily performance.

6. Keep the grease cup of the synchronous turntable viscous damping device filled with white vaseline. The cap should be screwed down one full turn at the beginning of the daily performance.

7. Clean the sound gates and the outsides of the condenser lenses of both sound heads. The sound gate should be wiped out after running every reel. Do not disturb the sound head optical systems. This is important.

8. Make sure that the photo-cell windows are clean.

9. Amplifier starting instructions:

a. The "FADING POTENTIOMETER" must be in the "OFF" position.

b. Snap the a-c. supply line switch to the "ON" position.

c. Turn "ON" the "BATTERY" switch.

d. Snap the "INPUT", "VOLUME CONTROL" and "OUTPUT" switches to position "NO. 1".

e. Snap the "POWER AMPLIFIER" switches "NO. 1" and "NO. 2" to the "ON" position.

f. Adjust and hold the "PRIMARY VOLTAGE" at 100 volts by means of the "LINE VOLTAGE" rheostat.

g. Insert the monitor plug in one of the "MONITOR" jacks.

10. Insert the voltmeter plug in the jack on the voltage amplifier control panel marked "FILAMENT VOLTAGE". Press the voltmeter button and read the 0-25 volt scale. The meter reading should be approximately 12 volts. Never press the voltmeter button when reading voltages higher than 25 volts.

11. Insert voltmeter plug in the jack marked "NO. 1 PLATE V". The meter should read between 115 volts and 135 volts, on the 0-250 volt scale.

12. Snap the "INPUT", "VOLUME CONTROL" and "OUTPUT" switches to position "NO. 2".

13. Insert voltmeter plug in the jack marked "NO. 2 PLATE V". The meter should read between 115 volts and 135 volts.

14. Snap the "INPUT", "VOLUME CONTROL" and "OUTPUT" switches back to position "NO. 1".

15. Insert the voltmeter plug in the jack marked "PHOTO CELL PLATE V". The meter reading should be between 180 volts and 200 volts on the 0-250 volt scale.

16. Turn on the exciter lamp of Projector A by rotating the "FILM LAMP PROJECTOR A" rheostat in the direction of the arrow until the "LAMP CURRENT PROJECTOR A" meter reads 5 amperes.

17. See that all the exciter lamps light and check the position of each lamp by holding a white card in the space between the sound gate and the light shield, interrupting the light beam. The circular field of light projected upon the surface of the card should be evenly and completely illuminated.

18. Place the "VOLUME CONTROL" at its normal setting.

19. Check the photo-cell of Projector A as follows:

a. Put the "FILM-DISK" switch on "FILM".

b. Turn the "FADING POTENTIOMETER" from the "OFF" position to its normal setting for Projector A.

c. Open the sound gate and interrupt the light beam by passing an opaque card in front of the lens barrel of the optical system. A pronounced click should be noticed.

d. If the volume is not sufficient, insert a new photo-cell.

e. Turn the "FADING POTENTIOMETER" to the "OFF" position.

20. Check the synchronous turntable circuit of Projector A as follows:

a. Put the "FILM-DISK" switch on "DISK".

b. See that the "VOLUME CONTROL" is at its normal setting.

c. Turn the "FADING POTENTIOMETER" from the "OFF" position to its normal setting on the side for Projector A.

d. With the forefinger, rub the needle of the magnetic pickup of Projector A and note whether the proper volume of sound is produced.

e. Turn the "FADING POTENTIOMETER" to the "OFF" position.

21. Test the output of each power amplifier separately by plugging the monitor in one "MONITOR" jack after the other, and interrupting the light beam with the opaque card to determine whether the amplifier being tested is in operating condition.

22. Snap the "INPUT", "VOLUME CONTROL" and "OUTPUT" switches to position "NO. 2" and make same test as above. After the voltage amplifier has been tested on "NO. 2" position, the switches should be thrown back to the "NO. 1" position and "NO. 2" voltage amplifier should be used as a spare.

23. Test Projector B in the same way.

After The Show

1. Check all meter readings while the "BATTERY" switch is "ON".

2. The "FADING POTENTIOMETER" must be in the "OFF" position.

3. Turn off the exciter lamps by rotating the "FILM LAMP PROJECTOR A" and "FILM LAMP PROJECTOR B" rheostat knobs against the direction of the arrow to the stop position.

4. See that the "POWER AMPLIFIER" switches "NO. 1" and "NO. 2" are in the "OFF" position.

5. Turn "OFF" the "BATTERY" switch.

6. Snap the switch in the a-c. supply line to the "OFF" position.

7. Check the storage batteries by means of the hydrometer.

8. Place the batteries on charge as is required.

OPERATING SILENT

It is assumed that the amplifier is shut down and the "FADING POTENTIOMETER" is in the "OFF" position.

Starting With Silent Film

1. Use the full aperture plate in the projector.

2. Thread the projector according to the threading diagram.

3. Strike the projector arc.

4. At the proper time, start the projector by snapping the motor switch to the "ON" position.

5. When (and not before) the motor has attained normal running speed, open the dowser.

Fading With Silent Film

1. Use the full aperture plate in the incoming projector.

2. Thread the incoming projector according to the threading diagram.

3. Strike the projector arc.

4. At sight of the cue, start the motor of the incoming projector.

5. When the motor has attained normal running speed, close the dowser on the outgoing projector and open the dowser on the incoming projector.

6. Stop the motor of the outgoing projector.

7. Kill the projector arc.

Stopping With Silent Film

1. Close the dowser.

2. Stop the projector motor.

3. Kill the projector arc.

THREADING DIAGRAM.
R.C.A. PHOTOPHONE SOUND HEAD.

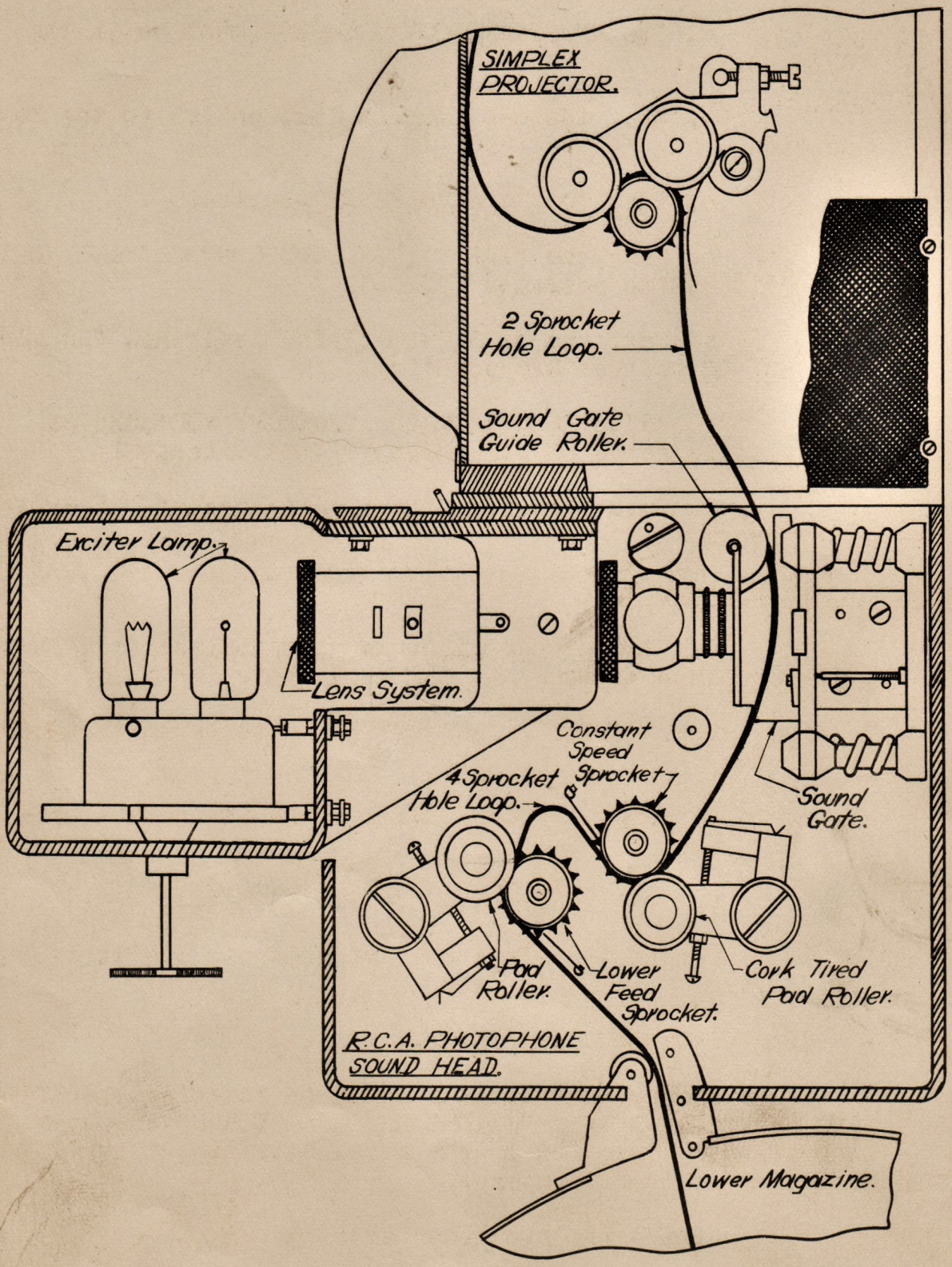


Fig. 4.

OPERATING WITH SOUND

Amplifier Starting Instructions

a. The "FADING POTENTIOMETER" must be in the "OFF" position.

b. Snap the a-c. supply line switch to the "ON" position.

c. Turn "ON" the "BATTERY" switch.

d. Snap the "INPUT", "VOLUME CONTROL" and "OUTPUT" switches to position "NO. 1".

e. Snap the "POWER AMPLIFIER" switches "NO. 1" and "NO. 2" to the "ON" position.

f. Adjust and hold the "PRIMARY VOLTAGE" at 100 volts by means of the "LINE VOLTAGE" rheostat.

g. Insert the monitor plug in one of the "MONITOR" jacks.

Starting With Sound Film

1. Use the proper aperture plate (either the Photophone or the Movietone) in the projector.

2. The "FADING POTENTIOMETER" must be in the "OFF" position.

3. Place the "VOLUME CONTROL" at its normal setting.

4. Put the "FILM-DISK" switch on "FILM".

5. Thread the projector according to the threading diagram.

6. Start the amplifier.

7. Turn on the exciter lamps by rotating the "FILM LAMP PROJECTOR A" and "FILM LAMP PROJECTOR B" rheostat knobs in the direction of the arrow until the "LAMP CURRENT" meters read 5 amperes.

8. Strike the projector arc.

9. At the proper time, start the projector motor by snapping the motor switch to the "ON" position.

10. When the motor has attained normal running speed, open the dowser.

11. Just before the sound starts, bring the "FADING POTENTIOMETER" down to its normal setting on the side for the projector being used.

12. Regulate the volume of the sound by means of the "VOLUME CONTROL". During the running of the show, the signal system should be carefully observed and the volume of sound from the loudspeakers regulated until it complies exactly with the wishes of the signal system operator.

Fading With Sound Film

1. Use the proper aperture plate (either the Photophone or the Movietone) in the incoming projector.

2. See that the "FILM-DISK" switch of the incoming projector is on "FILM".

3. Thread the incoming projector according to the threading diagram.

4. See that the exciter lamp is lit.

5. Strike the projector arc.

6. At sight of the cue, start the motor of the incoming projector.

7. When the motor has attained normal running speed, close the dowser on the outgoing projector and open the dowser on the incoming projector.

8. As soon as the sound from the outgoing projector stops, turn the "FADING POTENTIOMETER" to the "OFF" position, then down to its normal setting on the side for the incoming projector.

9. Regulate the volume of the sound by means of the "VOLUME CONTROL".

10. Stop the motor of the outgoing projector.

11. Kill the projector arc.

Stopping With Sound Film

1. Turn the "FADING POTENTIOMETER" to the "OFF" position.

2. Close the dowser.

3. Stop the projector motor.

4. Kill the projector arc.

5. Snap the "POWER AMPLIFIER" switches "NO. 1" and "NO. 2" to the "OFF" position.

6. Turn "OFF" the "BATTERY" switch.

Starting With Record

1. Use the full aperture plate in the projector.

2. The "FADING POTENTIOMETER" must be in the "OFF" position.

3. Place the "VOLUME CONTROL" at its normal setting.

4. Put the "FILM-DISK" switch on "DISK".

5. With the framing mechanism handle in mid position, turn the projector by hand until the cut-off blade of the shutter has just passed the lens and the intermittent sprocket has just ceased to move. Thread the projector with the word "START" in frame.

6. Set up the record on the turntable of the projector as follows:

a. Note that the tone-arm is in the tone-arm rest. Insert a new needle in the magnetic pickup.

b. Using both hands, place the record on the record plate in such a position that the starting line or arrow is approximately at the point where the needle will come when it is placed upon the record.

c. Wipe the record clear of dust by brushing it lightly with the record cleaner.

d. Hold the magnetic pickup between the thumb and fingers of the right hand with the needle suspended just above but not touching the record.

e. Place the fingers of the left hand on the under side of the record plate and hold it lightly but firmly to prevent rotation.

f. With the thumb of the left hand, slide the record slightly backward or forward until the starting line is under the needle.

g. Lower the needle directly into the starting groove. Press the magnetic pickup lightly from side to side to be certain that the needle point is resting properly in the groove.

h. Set the record weight over the record pin. Never remove the record weight from the record while the record plate is in motion.

j. Turn the projector and turntable mechanism by hand until the record has turned through the distance specified on the record label. Note that the needle of the magnetic pickup is tracking freely.

7. Start the amplifier but do not turn on the exciter lamps.

8. Strike the projector arc.

9. At the proper time, start the projector motor by snapping the motor switch to the "ON" position.

10. When the motor has attained normal running speed, open the dowser.

11. Just before the sound starts, bring the "FADING POTENTIOMETER" down to its normal setting on the side for the projector being used.

12. Regulate the volume of the sound by means of the "VOLUME CONTROL".

Fading With Record

1. Use the full aperture plate in the incoming projector.

2. See that the "FILM-DISK" switch of the incoming projector is on "DISK".

3. Thread the incoming projector according to the threading diagram.

4. Set up the record on the turntable of the incoming projector.

5. Strike the projector arc.

6. At sight of the cue, start the motor of the incoming projector.

7. When the motor has attained normal running speed, close the dowser on the outgoing projector and open the dowser on the incoming projector.

8. As soon as the sound from the outgoing projector stops, turn the "FADING POTENTIOMETER" to the "OFF" position, then down to its normal setting on the side for the incoming projector.

9. Regulate the volume of the sound by means of the "VOLUME CONTROL".

10. Stop the motor of the outgoing projector.

11. Kill the projector arc.

12. After the turntable has stopped, lift the tone-arm from the record and place it in the tone-arm rest. Caution: Do not use the record plate as a brake for slowing down or stopping the projector.

Stopping With Record

1. Turn the "FADING POTENTIOMETER" to the "OFF" position.

2. Close the dowser.

3. Stop the projector motor.

4. Kill the projector arc.

5. After the turntable has stopped, lift the tone-arm from the record and place it in the tone-arm rest.

6. Snap the "POWER AMPLIFIER" switches "NO. 1" and "NO. 2" to the "OFF" position.

7. Turn "OFF" the "BATTERY" switch.

Fading From Sound Film To Record

1. Use the full aperture plate in the incoming projector.

2. Put the "FILM-DISK" switch of the incoming projector on "DISK".

3. Thread the incoming projector according to the threading diagram.

4. Set up the record on the turntable of the incoming projector.

5. Strike the projector arc.

6. At sight of the cue, start the motor of the incoming projector.

7. When the motor has attained normal running speed, close the dowser on the outgoing projector and open the dowser on the incoming projector.

8. As soon as the sound from the outgoing projector stops, turn the "FADING POTENTIOMETER" to the "OFF" position, then down to its normal setting on the side for the incoming projector.

9. Regulate the volume of the sound by means of the "VOLUME CONTROL".

10. Stop the motor of the outgoing projector.

11. Kill the projector arc.

Fading From Record To Sound Film

1. Use the proper aperture plate (either the Photophone or the Movietone) in the incoming projector.

2. Put the "FILM-DISK" switch of the incoming projector on "FILM".

3. Thread the incoming projector according to the threading diagram.

4. See that the exciter lamp is lit.

5. Strike the projector arc.

6. At sight of the cue, start the motor on the incoming projector.

7. When the motor has attained normal running speed, close the dowser on the outgoing projector and open the dowser on the incoming projector.

8. As soon as the sound from the outgoing projector stops, turn the "FADING POTENTIOMETER" to the "OFF" position, then down to its normal setting on the side for the incoming projector.

9. Regulate the volume of the sound by means of the "VOLUME CONTROL".

10. Stop the motor of the outgoing projector.

11. Kill the projector arc.

12. After the turntable has stopped, lift the tone-arm from the record and place it in the tone-arm rest.

General Hints

1. Keep both exciter lamps lit when running sound film.

2. Be sure the exciter lamps are properly adjusted vertically.

3. Keep the light aperture in the sound gate clean and be careful that oil does not get into it.

4. Sound film must be clean.

5. The time to fade is best determined by means of rehearsal.

The ideal method of fading is:

a. To let the sound finish on the outgoing projector.

b. To catch the start of the sound on the incoming projector. This may require holding the "FADING POTENTIOMETER" at the "OFF" position for an appreciable period of time before fading in the sound on the incoming projector if the subjects on the outgoing and the incoming projectors are different.

6. Do not fade before the motor of the incoming projector is up to speed.

7. The proper volume is that which would be produced if the action were actually taking place on the stage.

TROUBLES - THEIR LOCATION AND CORRECTION

No Sound With Sound Film

1. Are the switches and rheostats set correctly? Check against "Starting With Sound Film".

2. Exciter lamp burned out? Turn another lamp in position.

3. "FILM-DISK" switch set wrong.

4. "FADING POTENTIOMETER" in the "OFF" position or set for the wrong projector?

5. Voltage amplifier defective? Change to the other voltage amplifier.

6. Sound gate aperture dirty? Inspect the aperture through the photo-cell housing.

7. Photo-cell defective? Try a new photo-cell.

8. Power amplifier a-c. supply circuit broken - "PRIMARY VOLTAGE" meter on "0"? Replace the line fuses once if they are blown.

9. Are the loudspeakers plugged in on the stage?

10. Short circuit on the storage battery line - all exciter lamps and voltage amplifier tubes out? Change to the other storage battery. Inspect the fuses of the 4-p., d-t. switch. If blown, test for the location of the short circuit as follows: Turn the "BATTERY" switch "OFF" and disconnect the plugs on input control panel. Insert new fuses in the 4-p., d-t switch. Turn the "BATTERY" switch "ON" and reconnect the plugs on the input control panel one at a time. If the fuses blow when the "BATTERY" switch is turned "ON", make same test with the other voltage amplifier in the circuit. The trouble is in the part of the circuit which blows the fuses when connected. Operate without this part of the circuit if possible.

Low Volume With Sound Film

1. Exciter lamp currents correct?

2. Storage battery discharged - exciter lamp currents need frequent readjustments? Switch to the other storage battery.

3. Exciter lamp out of focus? Make the card test. Turn another exciter lamp in position.

4. Sound gate aperture partly clogged? Inspect the aperture through the photo-cell housing.

5. Photo-cell defective - low volume on one projector? Use a new photo-cell if the other projector gives decidedly better results.

6. Voltage amplifier defective? Change to the other voltage amplifier.

7. One power amplifier defective? If the individual fuses of the power amplifier are blown, replace them once. If the plates of the rectifier tubes (UX-281) get red hot, turn the power amplifier switch "OFF". Adjust the "PRIMARY VOLTAGE" meter reading to 100 volts.

Poor Quality With Sound Film

1. Poor sound film?

2. Dirty sound gate?

3. Dirty film?

4. Dirty constant speed sprocket?

5. One or more tubes of the voltage amplifier not lighted or defective? Change voltage amplifiers. Replace the defective tubes.

6. One tube of a power amplifier not lighted or defective? Replace the defective tube.

7. Loudspeaker out of adjustment? Hold your ear close to each loudspeaker. Cut out the defective loudspeaker by disconnecting the two plugs from it.

Film Breaks When Running Sound Film

The picture and the sound are always synchronized since the sound-record is on the same film as the picture.

1. Close the dowser.

2. Stop the projector motor.

3. Bring the "FADING POTENTIOMETER" to the "OFF" position.

4. Rethread the projector.

5. Start the projector motor.

6. When the motor attains normal running speed, open the dowser and bring the "FADING POTENTIOMETER" down to its normal setting.

When the film is spliced, paint a half moon over the sound track splice if the film has a varying width sound-record. Paint a blunt apex triangle over the sound track splice if the film has a varying density sound-record. Use Zapon Concentrated Black Laquer #2002-2.

No Sound With Record

1. Are the switches and rheostats set correctly? Check against "Starting With Record".

2. "FILM-DISK" switch set wrong?

3. "FADING POTENTIOMETER" in the "OFF" position or set for wrong projector?

4. Voltage amplifier defective? Change to the other voltage amplifier.

5. Pickup defective? Rub the needle with the finger. Try a new pickup.

6. Power amplifier a-c. supply circuit broken - "PRIMARY VOLTAGE" meter on "0"? Replace the line fuses once if they are blown.

7. Are loudspeakers plugged in on the stage?

8. Short circuit on the storage battery line - all exciter lamps and voltage amplifier tubes out? Change to the other storage battery. Inspect the fuses of the 4-p., d-t. switch. If blown, test for the location of the short circuit as follows: Turn the "BATTERY" switch "OFF" and disconnect the plugs on the input control panel. Insert new fuses in the 4-p., d-t. switch. Turn the "BATTERY" switch "ON" and reconnect the plugs on the input control panel one at a time. If the fuses blow when the "BATTERY" switch is turned "ON", make the same test with the other voltage amplifier in the circuit. The trouble is in the part of the circuit which blows the fuses when connected. Operate without this part of the circuit if possible.

Low Volume With Record

1. Storage battery discharged? Switch to the other storage battery.

2. Pickup defective - low volume on one projector? Use a new pickup if the other projector gives decidedly better results.

3. Voltage amplifier defective? Change to the other voltage amplifier.

4. One power amplifier defective? If the individual fuses of the power amplifier are blown, replace them once. If the plates of the rectifier tubes (UX-281) get red hot, turn the power amplifier switch "OFF". Adjust the "PRIMARY VOLTAGE" meter reading to 100 volts.

Poor Quality With Record

1. Poor record?

2. Dirty record?

3. Pickup defective on one projector? Use a new pickup if the sound of the other projector is alright.

4. One or more tubes of the voltage amplifier not lighted or defective? Change voltage amplifiers. Replace the defective tubes.

5. One tube of a power amplifier not lighted or defective? Replace the defective tube.

6. Loudspeaker out of adjustment? Hold your ear close to each loudspeaker. Cut out the defective loudspeaker by disconnecting the two plugs from it.

Film Breaks Below Upper Feed Sprocket When Running Record

The picture and the sound are still synchronized. Do not lift the pickup from the record.

1. Close the dowser.

2. Stop the projector motor.

3. Bring the "FADING POTENTIOMETER" to the "OFF" position.

4. Rethread the projector without taking the film from the upper feed sprocket.

5. Start the projector motor.

6. When the motor attains normal running speed, open the dowser and bring the "FADING POTENTIOMETER" down to its normal setting.

When splicing film always keep the film of constant length by inserting a strip of black leader equal in length to the piece cut out.

Film Breaks Above Upper Feed Sprocket When Running Record

The picture and the sound are no longer synchronized.

1. Close the dowser.

2. Stop the projector.

3. Bring the "FADING POTENTIOMETER" to the "OFF" position.

4. Rethread the projector.

5. Start the projector motor.

6. When the motor attains normal running speed, open the dowser. Leave the "FADING POTENTIOMETER" in the "OFF" position and run the film silent.

When splicing film always keep the film of constant length by inserting a strip of black leader equal in length to the piece cut out.

Needle Of Pickup Jumps Groove On Record

The picture and the sound are no longer synchronized. Bring the "FADING POTENTIOMETER" to the "OFF" position. Run the film without sound. Inspect the tonearm to see if it binds or catches at any point as the pickup moves over the record. It is unwise to use a record again on which the needle has once jumped the groove.

Noise Or Intermittent Sound With Either Sound Film Or Record

1. Dirt and acid on top of storage battery? Switch to the other storage battery. Clean.

2. Gassing storage battery? Do not use a storage battery immediately after charging.

3. Loose storage battery terminal connection? Clean and tighten the terminal connections.

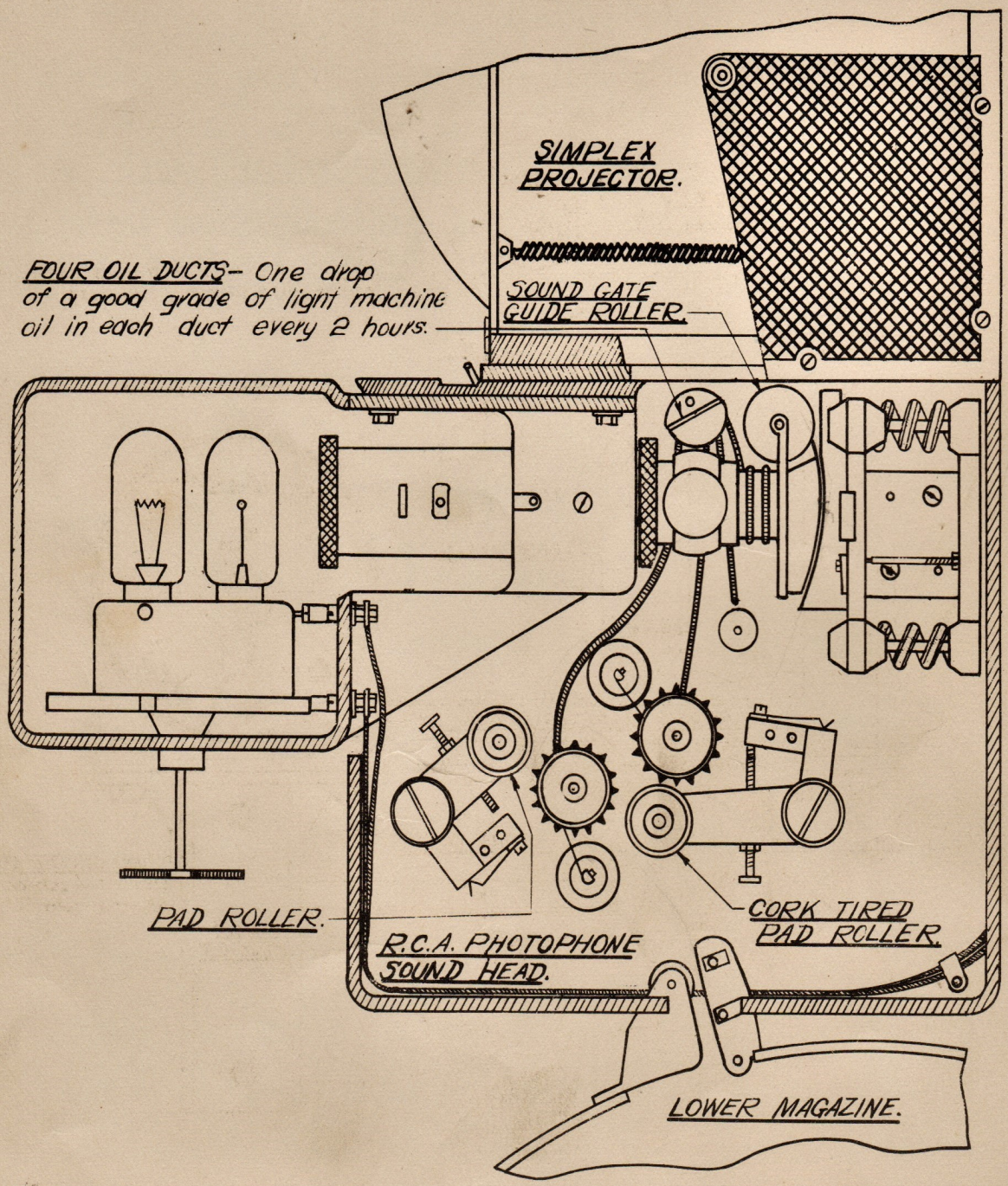
4. Loose connection on dry batteries? Clean and tighten the terminal connections.

5. Poor ground connection? Clean and tighten the ground connections.

Motor Stops When Running Either Sound Film Or Record

Motor supply line open? Check the supply circuit switches and fuses. Replace the fuses once if they are blown. Check the projector and sound mechanism for any hot bearings.

LUBRICATION CHART.
FILM SIDE OF PROJECTOR.



PAD ROLLERS- Dip the end of a toothpick in a good grade of light machine oil and apply the oil which adheres to the toothpick to these oil holes once each day.

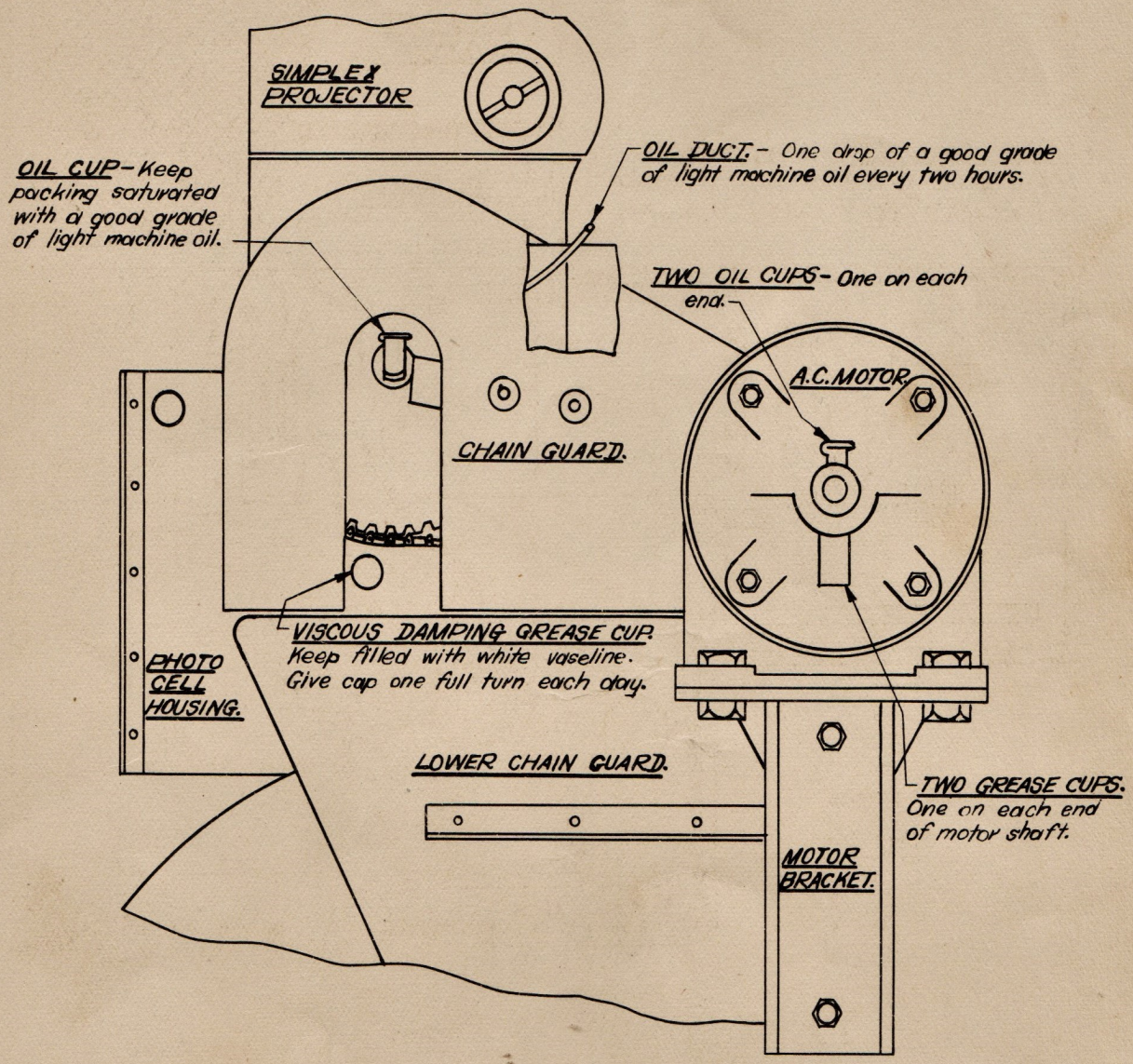
SOUND GATE GUIDE ROLLER:- Apply a good grade of light machine oil to the pivots of the roller once each day by means of a toothpick as outlined above.

Oil the rest of the projector in accordance with the manufacturers instructions.

Fig. 5.

LUBRICATION CHART.

MOTOR SIDE OF PROJECTOR.

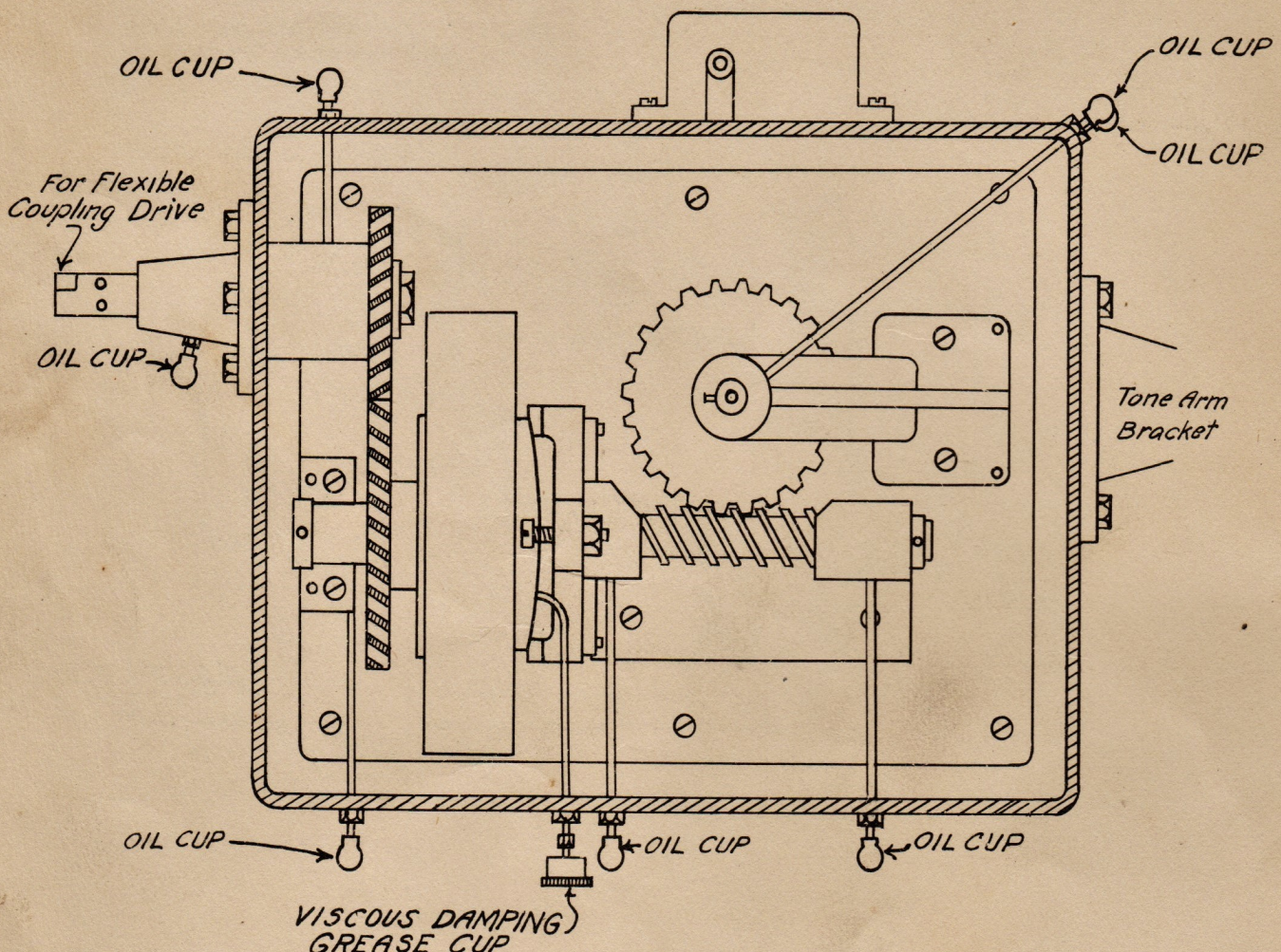


Put 3 drops of light machine oil in the TWO OIL CUPS ON THE MOTOR SHAFT at weekly intervals.

Renew the vaseline in the TWO GREASE CUPS ON THE MOTOR SHAFT at monthly intervals.

Fig 6.

LUBRICATION CHART.
FOR R.C.A. PHOTOPHONE
SYNCHRONOUS TURNTABLE.



7 OIL CUPS - Keep packing saturated with a good grade of light machine oil.

VISCOUS DAMPING GREASE CUP - Keep filled with white vaseline. Give cap one full turn once each day.

Fig. 7.