



RCA 400 AMPLIFIER SCHEMATIC

T-164927-0

## CLEANING AND LUBRICATION

Inspect all bushings, bearings, and other parts for cleanliness.

Thoroughly clean all parts before reassembly with carbon tetrachloride or other solvent to avoid abrasive action of dirt on moving parts.

Apply four or five drops of light oil such as Sonony Vacuum "Vactra Light X" (RCA Stock 25367) to all shafts and bushings prior to their reassembly.

Lightly apply lubriplate 110 to the teeth of all gears after their reassembly.

Place a few drops of light oil in motor oil holes once every 1000 hours.

Felt oil pads and wicks in oiling tubes should be saturated with "Sta-Put 370 Oil" (E. F. Houghton Co.).

Lubricate shafts carrying plastic rollers with micro-fine graphite or a soft lead pencil.

Do not use carbon tetrachloride or other solvent to clean coated lens surfaces. Breathe on lens and clean with lens tissue.

Do not force the assembly of parts. It should not be necessary to alter any parts by operations such as filing, tapping, drilling, scraping, etc., to enable them to be assembled.

Always use the proper tool designed to do the job.

## SERVICE AIDS

These notes have been prepared to aid the 16mm technician to quickly localize the cause of a given effect when its symptom is apparent and to suggest the required corrective action.

### SOUND SYSTEM

<i>Symptom</i>	<i>Probable Cause</i>	<i>Correction</i>
Weak or no sound. projection lamp lighted.	AMPL switch off. Volume control off. Blown amplifier fuse.  Loudspeaker not connected. Plug out of back of projector. Power cord not connected to proper source of supply. Exciter lamp out.  Defective Oscillator coil. Weak rectifier tube 5Y3GT. Open speaker voice coil circuit.  Sound optic dirty or out of adjust- ment. Sound mirror dirty or out of adjust- ment. Phototube installed incorrectly.	Turn switch on. Adjust control. Replace with 2 amp. fuse only. If recurrent, determine cause. Plug in. Plug in. Check frequency and voltage  Replace. If new exciter lamp does not light, replace Oscillator tube 6V6GT. Replace. Replace. Replace cone after first checking speaker connections. Clean, See Page 24.  Clean, See Page 21.  Install in correct position, see page 26.
Sound on MIC--no sound on FILM.	Microphone plug in jack. Exciter lamp out. Sound optic dirty or out of adjust- ment. Sound mirror dirty or out of adjust- ment. Photocell defective or installed in- correctly.	Remove plug from jack. Replace --Check Oscillator tube. Clean, See Page 24.  Clean, See Page 21.  See Page 26.
Sound on FILM--no sound on MIC.	Microphone plug not in jack. Microphone plug or receptacle defective. Microphone defective.	Insert plug in jack. Repair or replace.  Replace.
Sound microphonic (Ringing noise) (a) With Volume con- trol on. (b) With Volume con- trol off.	Phototube loose or hitting cover. Defective 6J7 tube. Defective 6J5 or 6SN7GT tube.	See Page 26. Replace. Replace.
Tone unsteady. (High or low fre- quency variations in pitch)	Film threaded under tension roller. Sound drum, shaft or bearings. Pressure roller incorrectly adjusted. Pressure roller dirty or binding. Tension roller incorrectly adjusted.	Thread over tension roller. See Page 21. See Page 23. Clean, See Page 23. See Page 27.

<i>Symptom</i>	<i>Probable Cause</i>	<i>Correction</i>
Tone unsteady (continued)	Sound drum dirty. Guide roller sticking. Phototube cover interfering with pressure roller arm. Erratic takeup tension.	Clean. See Page 22.  Install cover correctly, see page 26. See Page 34.
Motor "hash" in sound.	Open capacitor across governor control, 1 mfd. Open capacitor from power line to frame .01 mfd or 2200 mfd (inside motor). Defective governor or governor brushes. Commutator brushes not seated. Lock washers missing from screws holding amplifier cover.	Replace.  Replace.  Repair or replace.  Repair. Replace.
Sound but no picture.	Lamp switch off. Projection lamp missing or burned out.	Turn on. Replace.
Loses both film loops.	Upper sprocket shoe out of adjustment.	Adjust, See Page 33.
Loses lower loop.	Broken sprocket holes. Bad splices. Film binding in gate.  Claw out of adjustment. Dirty claw.	Cut out and splice film. Resplice. Check for thick splices. Check side pressure shoes. Adjust, See Pages 13, 14 and 15. Remove dirt and emulsion from claw.
Improper tapeup operation.	Takeup bearing sticking. Excessive takeup tension.	See Page 34. See Page 34.
Projector mechanism noisy.	Claw travel excessive.	See Page 15.
Tears sprocket holes.	Upper reel arm shaft binding. Under-cut claw. Under-cut film sprocket teeth. Excessive takeup tension.	See Page 33—Adjust end play. See Page 13. See Page 20. See Page 34.
Travel ghosts. White streaks above or below white areas on screen image)	Shutter out of adjustment.	See Page 12.
Picture motion unsteady.	Unsteadiness present in picture print. Claw travel too short. Improper threading. Claw undercut. Side pressure shoe springs on aperture plate too weak. Picture gate not latched securely.	See Page 32. Check loops for proper length. See Page 13. See Page 18.  Bend latch spring, See Page 19.
Picture indistinct or illumination low.	Projection lens dirty. Condenser lens dirty. Condenser lens incorrectly assembled. Reflector dirty or damaged. Projection lamp black or blistered. Low line voltage.	Clean, See Page 3. Clean, See Page 7. See Page 7.  Clean or replace, See Page 7. Replace lamp. Use a Voltage Booster.
Film scratched.	Film pressure shoe dirty or damaged. Sound drum pressure roller dirty or damaged. Emulsion hardened on film-gate shoe. Aperture plate dirty or damaged. Guide roller dirty or sluggish. Snubber roller damaged.	Clean or replace, See Page 19.  Clean, See Page 23.  Remove emulsion.  Clean or replace, See Page 18. Clean, See Page 22. See Page 28.