SERVICE BULLETIN

Service Bulletin #4 August 6, 1969

Subject: CLEANING AND LUBRICATION

Lubrication is normally not required for average operation. It is recommended that once a year or every 1000 hours, whichever occurs first, the moving parts be inspected for signs of excessive wear, cleaned and lubricated.

Use methyl hydrate, alcohol or tri-chlorethylene as cleaning agents. We do not recommend carbon tetrachloride due to the dangers involved.

Polyurethane belts must be clean and dry. Remove oil and dirt accumulation with cloth moistened with cleaning agent.

Ball bearings should be clean and roll smoothly. If bearings are noisy or do not roll freely, they should be replaced.

Shafts without ball bearings should be clean and lubricated with silicone fluid or a light smear of silicone compound. Remove excess.

Rollers must rotate freely. Shafts and inside surface of rollers must be clean, free from burrs, scratches or other defects. Lubricate sparingly with a light silicone oil or other fine oil. Remove excess.

Camtank shutter assembly is packed with silicone compound, Dow Corning #44 or equivilant. Use approx. 1/2 teaspoonful around fiber cam.

Shutter pulley cone clutch surface and surface of shutter blade hub should be clean and dry. Surface of pulley and cast iron plate washer should be clean and dry. Use light silicone oil or fluid to lubricate bronze bushing in shutter pulley.

Fiber gears must not be allowed to run dry. Use light silicone oil or other light fine oil and cover all teeth with oil. Wipe off excess. This treatment will generally last many thousands of hours.

AVOID OVER LUBRICATION.

Please be sure to insert this bulletin in your Service Manual.

SERVICE BULLETIN

Service Bulletin #5 December 1, 1969

Subject: SOCKET VOLTAGES FOR EJL (HALOGEN) LAMPS

1. Some customers have been getting less than the rated 25 hours of burning time on EJL Lamps. This could be because the lamps are defective, or because the socket voltages are above 24 volts.

   Lamps are rated at an average of 25 hours if half of them burn longer, and half burn shorter, so some variation is expected. With low-voltage lamps the percentage of voltage variation is much greater when the actual variation fluctuates by only 1 or 2 volts.

2. IAV ROYAL Projectors have the primary of the transformer on the 115v tap. If your part of the country consistently has voltages above 115V, you should change the primary to the 125v tap. Here is a chart of lamp characteristics at various socket voltages:

LINE VOLTAGE	TRANSFORMER - 115v TAP	LIFE	BRIGHTNESS	COLOR TEMPERATURE
110v	Lower socket voltage, 23v	40.00 hours	85%	3945° K
115v	Correct socket voltage, 24v	25.00 hours	100%	4000
120v	Higher socket voltage, 25v	13.75 hours	112%	4045
124v	Higher socket voltage, 26v	8.75 hours	127%	4095
	TRANSFORMER - 125v TAP			
115v	Lower socket voltage, 22v	75.00 hours	74%	3900
120v	Lower socket voltage, 23v	40.00 hours	85%	3945
125v	Correct socket voltage, 24v	25.00 hours	100%	4000

3. Socket voltages should be measured with an accurate voltmeter since inexpensive voltmeters permit a 5% or more inaccuracy. This is the important measurement as far as IAV ROYAL Projectors are concerned, but a customer can call his local power and light company to get information about average line voltages. If line voltages usually run around 120 volts it would be better to shift the primary input to the 125v tap.

4. Defective lamps which burn much less than 25 hours at the rated voltage should be examined and replaced by your local G.E. representative.

SERVICE BULLETIN

Service Bulletin #6 June 4, 1970

Subject: Improvements and Modifications to ST series.

Symptom: Self-threading guides not releasing on projectors with serial numbers over 20,000.

Reason: 1. Bar on release bracket attached to last roller not clearing "catch".

Remedy: Bend bar on release bracket to clear "catch" when release roller is pulled to "release" position.

Reason: 2. Too much friction on pin where it touches main belt depressing bracket.

When projector is put into "self-thread" mode, the main drive belt is depressed away from loop restorer gear. A pin, ST-17391, is mounted horizontally on long guide bar, ST-17091. When this guide bar moves toward rear of projector, the pin depresses bracket, ST-18121. On the lower end of this bracket is a nylon roller which depresses the main drive belt away from the loop setter gear.

The friction of a steel pin riding on a steel edge is too great to be overcome by the return spring, ST-17111, which is attached to front end of guide bar ST-17091.

(NOTE: Part numbers are those found in new ST parts list which you will receive very soon.)

Remedy: Replace "return" spring with a stronger one. About double the tension of existing spring will be adequate. Replacement spring ST-17111 can be used, or you may obtain from a local electronic parts house as General Cement #6455, dial drive tension spring, 2" long-T6)

Additional Suggestion: Users have a natural tendency to try to release the threading guides by pulling back on the tab of the S-366 lever--the same tab used to close the guides. This bends the bar on the release bracket attached to last roller. On current production projectors this tab has been eliminated, and we recommend that it be cut off of projectors that come in for service or that you have in stock. This can be done without removing from the projector, using a small hack-saw blade. A drop of acetone will smooth out the area where the tab was removed.

INTERNATIONAL AUDIO VISUAL, INC., 1111 BLANCHARD STREET, SEATTLE, WASH. 98121 (206) 624-5714

SERVICE BULLETIN

Service Bulletin #7 June 4, 1970

Subject: Improvements and Modifications to ST/M series.

Symptoms: Poor Rewind--Slows down near end of 2000' reel.

Reason: 1. Supply (front) arm belt slipping.

Remedy: Remove supply arm cover plate and inspect belt and pulleys. Clean with alcohol or equivalent and wipe dry. It should be necessary to stretch belt at least 10% when installing. Replace if necessary.

Reason: 2. Take-up clutch too tight, causing too much resistance.

Remedy: (a) Lubricate cork liner with G.C. Phono-Lub 1223-S.*

(b) If diameter of cork liner is too small, above lubrication will not be satisfactory. A very dry tight cork liner may cause take-up arm belt to twist and bind around pulley. It will be necessary to replace complete spindle or increase cork diameter by using sandpaper to remove some of the cork.

To check clearance cut a 3 3/4" length of 16mm film and install on inside of cork liner. This should provide a moderately snug fit when placed on steel drum. With film removed, a slight amount of "play" should be observed when moving spindle up and down.

NOTES: If too much cork is removed, the bottom of a full 2000 ft. reel may touch the arm.

Do not overlubricate cork liner. Some grease may work over to the take-up arm belt. The net result of too much lubrication is insufficient friction and a very poor take-up. Film wound too loosely is apt to be scratched.

Clean and lubricate upper pulley and hub of take-up arm with silicon fluid.

*If you cannot find this locally, we will supply it @ $1.00 for 2 oz. tube.

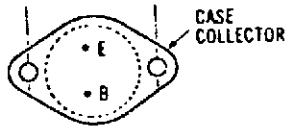
SERVICE BULLETIN

Service Bulletin #15 January 11, 1971

SUBJECT: CHECKING TRANSISTORS

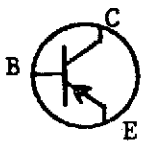
Case outline - (bottom view)

2SA249	PNP	2SB371	PNP	2SC538	NPN
2SB346	PNP	2SB178B	PNP	2SC696	NPN
2SB348	PNP	2SD178B	NPN	2SC644	NPN
				2SA546	PNP

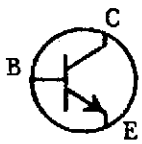


2SB128	PNP
2SC647	NPN
2SC586	NPN
2SB 201	NPN

Schematic



PNP



NPN

	COMPARABLE VACUUM TUBE ELEMENTS:
B - Base	- Grid
C - Collector	- Plate
E - Emitter	- Cathode

To check for shorts or open in transistors use RX10 on ohmmeter.

PNP type - "Plus" lead on Base, "minus" lead on Emitter - 100 ohms to 500 ohms
"plus" lead on Base, "minus" lead on Collector - 100 ohms to 500 ohms

NPN type - "Minus" lead on Base, "plus" lead on Emitter - 100 ohms to 500 ohms
"Minus" lead on Base, "plus" lead on Collector - 100 ohms to 500 ohms

e.g. 2SB128 may read approximately 100 ohms, 2SC647 may read approx. 500 ohms

Reading must be the same in both tests on any given transistor plus or minus 5%. Readings on any other position of tester leads between any two elements of transistor must be infinity or very high resistance.

Preliminary checks may be made with transistor in the circuit, power off. A lower reading will be seen due to relatively low parallel resistance in Base-Emitter circuit. A suspicious transistor reading should be confirmed with transistor removed from the circuit.

A leaky or partially open phase splitter may not be discovered by the above procedure. If the push-pull driver transistors and the output transistors are good, the Collector-Emitter voltage across each of the 2 power output transistors should be equal or nearly equal. A difference greater than 4 - 6 volts should be corrected. The phase-splitter transistor is likely the problem.

Please insert this bulletin into your service manual.

SERVICE BULLETIN

Service Bulletin #16 June 4, 1971

SUBJECT: REVERSING ROLLER ST-41201 BINDING OR SEIZING ON SHAFT

The hub of this roller is made of powdered metal. The spring ST-41111 pushes the roller against the head of screw XT-3505. Over a period of time the powdered metal hub could distort so that the roller binds or seizes on the shaft.

REMEDY:

A. Remove roller, clean and polish shaft ST-41121

B. If necessary, ream hole of roller with "B" size reamer. Roller must rotate freely. Burrs caused by screw head at end of hole may be removed with a small round file. Be careful not to damage rest of hole. To further improve the situation a small taper reamer can be used in end of hole to help overcome any distortion or compression caused by excessive wear or pressure at screw head.

C. Use 1 or 2 drops of silicone oil on shaft and install in sequence the spring - fibre washer - roller. Install fibre washer or brass washer under screw. Tighten securely. (The fibre washer located between spring and bracket may be used under screw head.)

D. Wipe off any excess oil. Oil on rubber roller will cause malfunction.

The factory has remedied the problem by using a different type metal and installing the washer under the screw.

We will replace seized rollers with reversing rollers #ST-41201 which have been modified as outlined, or if you order this part for stock you will receive a modified roller.

All projectors currently delivered by us receive the above recommended treatment.

PLEASE INSERT THIS BULLETIN INTO YOUR SERVICE MANUAL

SERVICE BULLETIN

Service Bulletin #20 January 11, 1972

Subject: ST/M SPROCKET SHOE "V" SPRINGS ST-15181

Problem: #2 sprocket shoe is kept from opening too far by a screw or stopper pin located in the main casting. The screw type was not a positive stop. The shoe may be pushed over screw head and then the "V" spring ST-15181 can come out.

Remedy: "ST" projectors beginning with Serial No. 26925 and "M" projectors from Serial No. 73612 have a stopper pin part No. ST-16091 instead of the screw.

For a field remedy we suggest the addition of some washers under the screw to raise the head approximately 1/8". We will be stocking the stopper pin, so you may order if you wish.

PLEASE INSERT THIS BULLETIN IN YOUR SERVICE MANUAL

FOR FUTURE REFERENCE

INTERNATIONAL AUDIO-VISUAL INC. 1111 ALLEN BLANCHARD STREET, SEATTLE, WASHINGTON 98121 (206) 624-5714

SERVICE BULLETIN

Service Bulletin #21 January 11, 1972

Subject: 2SC647 OUTPUT TRANSISTORS

"ST" projectors beginning with Serial No. 29117 and "M" projectors beginning with Serial No. 75180 will have output transistors 2SD201. These are directly interchangeable with the 2SC647.

We expect that this change will also appear on the EX-1510 amplifiers as well as the new solid state EX 3000/EX 5000.

2SD201 = ECG 130

PLEASE INSERT THIS BULLETIN IN YOUR SERVICE MANUAL

FOR FUTURE REFERENCE

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