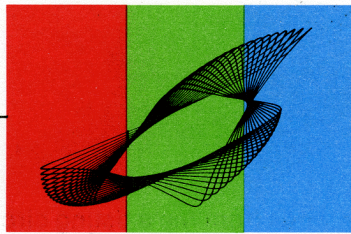


# OPTICAL PERCEPTIONS



technical & commercial  
sales information on  
electro-optical devices

SLATERSVILLE DIVISION • AMPEREX ELECTRONIC CORPORATION • SLATERSVILLE, RHODE ISLAND 02876

## PLUMBICON® APPLICATION BULLETIN NO. 38 SK70 Conversion CONVERTING THE HITACHI SK70 FROM SATICON TO PLUMBICON®

### GENERAL

In order to use Plumbicon® tubes in SK70 cameras, some minor modifications are necessary. These modifications include a PC/socket change, three resistors, and the addition of an infrared blocking filter. The required parts for this modification will be supplied by Amperex at no cost. A detailed explanation of the modification procedure follows.

### PICKUP TUBE SOCKET

The Saticon is an eight pin tube; whereas, the Plumbicon® is a seven pin tube. The pinning differences are as follows:

PIN	FIL	FIL	K	G1	G2	G3	G4	N/C
Plumbicon	4	3	1	5	6	7	2	-
Saticon	1	8	7	6	5	4	2	3

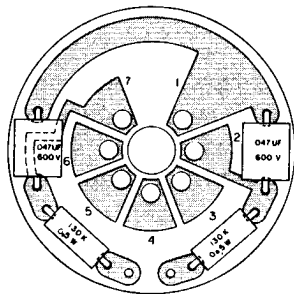
The tube sockets J17 (red), J18 (green), J19 (blue) in a SK70 camera are mounted on a small circular printed circuit board. This board also contains the decoupling components for the G3 and G4 elements. To facilitate modification, Amperex supplies the seven pin socket mounted on a new circuit board. A step-by-step replacement of the board is as follows: (Please note that the following steps should be completed for one socket at a time.)

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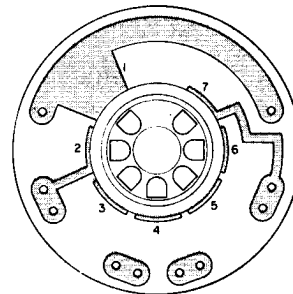
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**STEP 1:** Remove all the wires from the existing circuit board connections making sure to tag the wires as to their pin locations on this board. (Be sure to note that Pin 2 and Pin 4 are connected through a 130K resistor.)

**STEP 2:** Remove the two capacitors and the two resistors, then install them on Side A of the new board as per referenced drawing 1A.

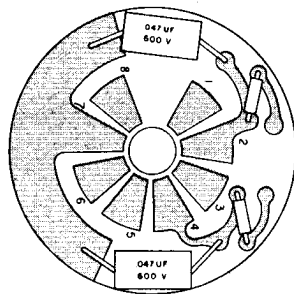


1A

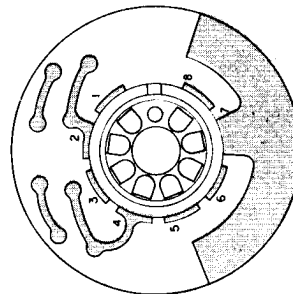


1B

Plumbicon® Socket Boards



2A



2B

Saticon Socket Boards

**STEP 3:** Reconnect the wires in the following order:

1. Former Pin 7 to new Pin 1
2. Former Pin 2 to new Pin 2 (Through 130K resistor)
3. Former Pin 8 to new Pin 3
4. Former Pin 1 to new Pin 4
5. Former Pin 6 to new Pin 5
6. Former Pin 5 to new Pin 6
7. Former Pin 4 to new Pin 7 (Through 130K resistor)

### **G3 to G4 RATIO**

Remove R7, R9 and R11 on the color camera head control panel, and replace each with the new 560K resistors. (Refer to drawing 3115222 in the Manual.)

### **INFRARED FILTER**

In order to install the infrared filter, follow the instructions for prism removal in Section 5.7 of the SK70 Manual. The infrared filter and holder supplied, mounts on the front of the prism assembly. (Before remounting the prism, check to see that there are no smudges or dirt on the prism due to handling.)

### **SET UP**

1. Target voltage must be adjusted from the 50V setting, down to 45V.
2. Follow the set-up procedure given in the technical manual after completing the installation of the new tubes.
3. Plumbicon® tubes provide ½ to 1 F-stop more sensitivity than Saticon tubes. This improvement can be used in two ways: better sensitivity under low light levels; or given the same F-stop, reduced noise in the video. If you would opt for quieter pictures, after the camera is calibrated according to the gain adjustments in Section 3.5 of the Technical Manual, open the iris of one F-stop and readjust the R, B, G, to produce 0.5V at the output of the preamps while observing a gray scale.

With the assistance of KMJ TV, Fresno, California, and Laclede Communications, St. Louis, Missouri, we have checked out this modification to our satisfaction. If you have any questions, please feel free to contact your Amperex Regional Sales Engineer or the Marketing Department, Amperex Electronic Corporation, Slatersville, Rhode Island.