

SUPREME

TEST INSTRUMENT BULLETIN



Our 26th Year

Greenwood, Mississippi, U.S.A.

First Quarter 1953

BRING YOUR TUBE SETTING LISTS UP TO DATE

New roll charts are available for all Supreme Tube Testers manufactured since 1940, and several of the earlier series. Supreme revises and reprints new roll charts at least once a year to include the new tube types. Supplementary data is supplied only for the latest edition. Send \$1.17 with the model number and old chart number to SUPREME TUBE SETTING SERVICE, BOX 3552, GREENWOOD, MISS. A new chart will make your tube tester much more valuable.

NEW SETTINGS FOR SUPREME TUBE TESTERS

For Models 589, 599 & 504-A,B.

6AD5	2 6 25 C 78
6AE8 (a4X6)	4 6 18 C 235
6AE8	4 6 18 C 356
6CL6	4 6 18 C 15
6SE7	2 6 26 C 57

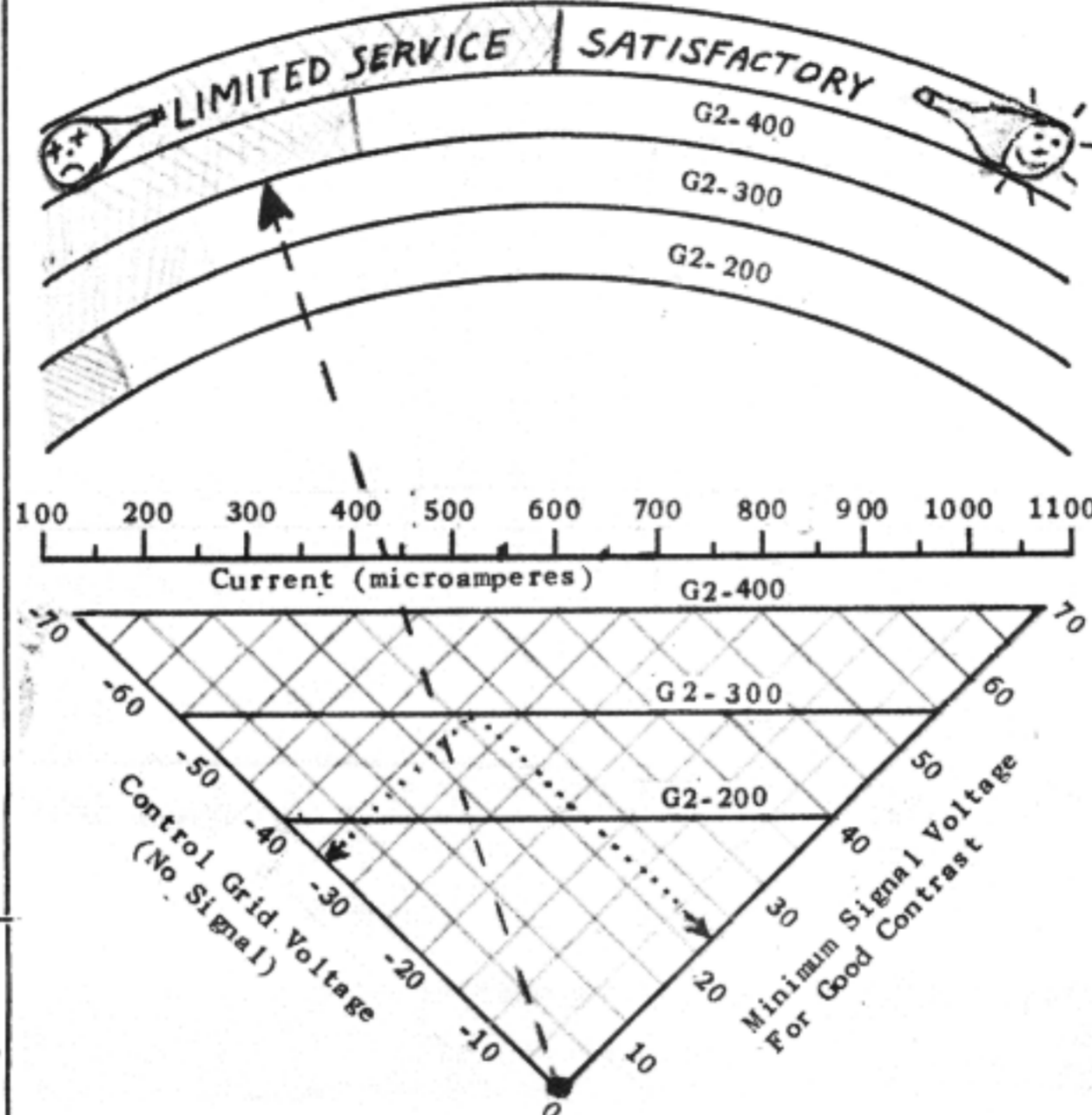
(a4X6) Connect lead on 9544X adapter to pin no. 6 of loctal socket.

For Models 600 and 616.

6AD5	25 C 2 7 78
6AE8	18 C 4 7 235
6AE8	18 C 4 7 359
6CL6 (2389)	18 C 4 7 15
6SE7	26 C 2 7 57

TSE OF K.C. SPONSORS NATESA CONVENTION

The National Alliance of Television and Electronic Service Associations will gather for their spring convention in Kansas City this year. This is the fourth national convention for NATESA and the first to be (continued on page 2 col. 4)



ANALYSIS OF PICTURE TUBES

The main job of a picture tube is to convert video signals into various degrees of light intensity. To measure light intensity directly, requires complicated equipment if the answer is to be in foot-lamberts. Fortunately, there is a relation between foot-lamberts and cathode current. Therefore we can make some important tests with ordinary test equipment of the types used in diagnosing circuit troubles. The tube can be checked in its normal circuit. This is very important in the case of picture tubes.

What To Look For

Cathode current can be easily set for certain conditions by varying the control grid voltage. If the maximum current (measured under peak operating conditions) is below normal, one would have reason to think the tube was approaching the end of its useful life. If the control element (G1) does not cause the current to vary uniformly, it is also a sign of trouble that may mean "curtains" for a particular tube.

Making The Tests

Assuming that the fixed voltages applied to the picture tube from the set are normal, only the following are needed to make the necessary tests: video signal; oscilloscope; VTVM; microammeter; a convenient means of getting to the tube elements. The procedure is simple.

1. Check G2 voltage.
2. Check control grid voltage for zero cathode current, using a VTVM.
3. Check peak video signal voltage with an oscillo-

(continued on page 2 column 1)

WHEN IS A PICTURE TUBE BAD?

Before telling a customer that the picture tube in his TV set needs replacing, a technician wants to be sure that it is no longer usable. Sometimes, the mere suggestion that the picture tube is "on the blink" prompts a customer to seek other opinions. If someone else says that the tube is still usable, the first technician is branded as either incompetent or unethical. Invariably, this will get around--affecting everyone in the service profession.

Tolerant Viewer

Picture tube life has turned out to be much longer than expected. The increase of warranty from 90 days to 1 year on picture tubes is evidence of this. The question is: When does a tube fall in that doubtful or weak category? All doubt is removed relative to its condition when an element is shorted or the filament is open. However, a burned spot on the screen may be tolerated by the customer for a while if he is running low on cash. Some owners become accustomed to reduced brilliance and contrast, just like radio listeners who do not notice distortion from speakers in small sets. In such cases they may be perfectly happy with its performance "as is". The old tube will have to really interfere with their enjoyment of the set before they will spend the extra cost of a new tube.

Inadequate Luminance

A picture tube (to the average eye) is either bad or is going bad fast when the maximum brilliance is below 20 foot-lamberts. It could also be bad when a normal composite video output signal will not produce proper light variations.

(continued on page 2 column 3)

WHEN IS A PIX TUBE BAD?

(Cont'd from page 1 Col. 4)

Questionable Decision

Foot-lamberts, a measurement of light intensity, is related to cathode current which in turn is related to the potentials on the other elements. Under certain operating conditions, there is a minimum value of cathode current required for continued satisfactory operation over a period of time. If the current is below this value, and the tube is usable at all, make replacement optional. In some cases, increasing the filament voltage will extend the life of a tube to such time when the customer's finances are in better shape. At any rate, it is better to inform him about these possibilities rather than have the second technician do it. It is also important that the repair bill indicate that the condition of the picture tube is questionable.

Insufficient Data

A lot has been learned about checking picture tubes during the past few years; however, the number of specimens of defective tubes available to design engineers is still too small to set accurate rejection limits. Furthermore, picture tubes are going through a period of design changes, and some of the replacement tubes are better than the originals. Production variations caused by engineering changes and short runs have not brought forth what one could call an average tube. In time this situation will level off, permitting the tube tester designers to see a satisfactory answer.

In the meantime, we suggest analyzing the condition of tubes by checking current under various voltage conditions.

Surroundings Reflect Professional And Business Habits

You are used to the way your shop looks, but a new customer is not. A neat, clean test bench with parts and sets arranged in an orderly manner inspires confidence in your ability and business relationships.

The opinion of your customers and the salesmen that call on you is important and should be taken seriously. These opinions are reflected in the form of getting the better (good pay) customers and also improving your credit standing with your suppliers.

How much time do you spend looking for tools and parts or service manuals that do not have a definite place? Give that test bench a professional look instead of a confused appearance. It will give you confidence which cannot help from being transferred to your customers and creditors.

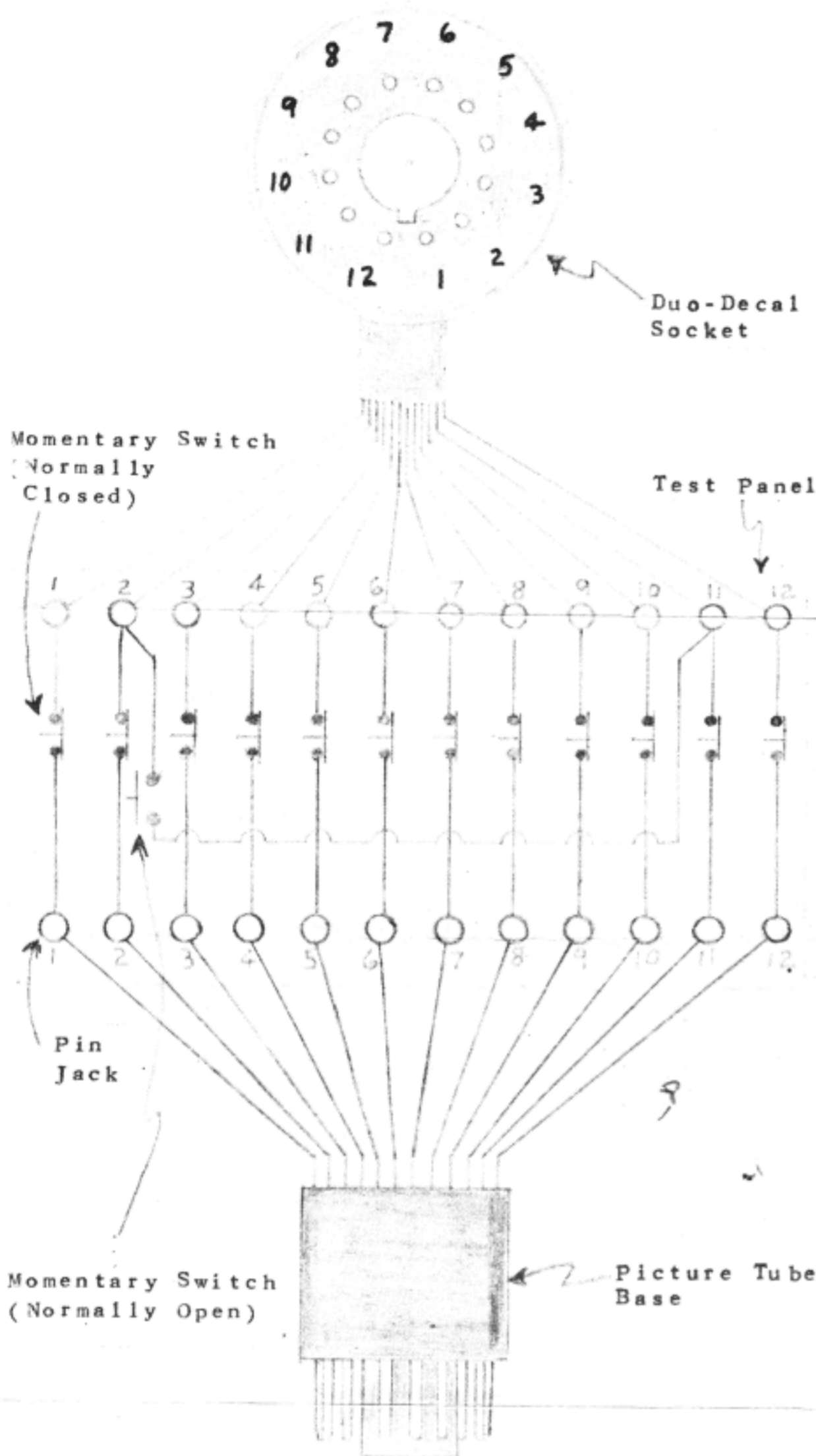
N A T E S A

(Cont'd from page 1 col. 1)

held outside of Chicago.

The Television Service Engineers of Kansas City are sponsoring this meeting beginning April 10. The program contains special demonstrations and open forum discussions of interest to those who are making electronic service a career.

It is good to see men representing such an important segment of the electronic industry gather from all parts of the nation to discuss matters which affect their economic and professional status.



HANDY GADGET -- Diagram of free-reference point analyzer which provides quick access to picture tube elements for making voltage and current tests. Layout of the test panel is not critical and cables may be any convenient length.

ANALYSIS OF PIX TUBES

(Cont'd from page 1 Col. 2)

scope at the output of last video amplifier when signal is normal.

4. Check the maximum cathode current at zero grid volts.

5. Compare results with manufacturers ratings or a chart similar to the one illustrated in this issue.

From SUPREME, INCORPORATED
Box 3552, Greenwood, Mississippi
Return Postage Guaranteed

REDER DRUG CO
BLUE RAPIDS KAN

Sec. 34.66, P. L. & R.
U. S. POSTAGE
Paid
Greenwood, Miss.
Permit No. 81

311313



Publication Digitized and Provided By

www.StevenJohnson.com

Vintage Schematics, and Publications

Steve's Antique Technology