WESTERN ELECTRIC ELECTRON TUBE TEST DATA
KS-15560, L1 AND L2 TUBE TESTERS

1. GENERAL

1.01 Methods of making tests with a KS-15560, L1 and L2 tube testers are covered in the section numbered 100-635-101.

1.02 Issue 3 makes changes in the selector settings for the following tubes: 2C51/396A, 407A and 412A. The previous settings were not in error, but with the new settings for the first two of these tubes, cathode to heater shorts will be more easily identified with the proper section of the tube. Cases of plate to plate shorts have been observed in certain tubes similar to the 412A, of other than Western Electric manufacture. The new settings for this tube will make identification of such a condition easy if it occurs. Changes have been made in the test requirements for the 403A and B, and the 408A tubes.

1.03 To secure the greatest utility with the tester it is suggested that the attached fanfolded sheet be removed from the section and attached to the roll chart in the tester itself. Care should be exercised in the method of fastening this table to the existing chart, since otherwise it may pull loose and cause trouble in the operation of the rolls. In order to reduce the amount of space and to provide a smooth surface at the junction, it is suggested that Scotch tape be used on both the front and back of the joint between the new chart and the old. Since particles of the adhesive may cling to the surface of the Scotch tape or may squeeze out around the edges and cause the tape to adhere to adjacent layers of paper when it is rolled, it is suggested that the surface of the Scotch tape, after it has been attached to the paper, be well dusted with talcum powder or powdered chalk. Subsequently, if there appears to be any tendency towards sticking, this powder should be used again.

Attached:
Table of Western Electric Electron Tube Test Data

1.04 Attention is directed to certain high gain tubes (404A, 417A, and 418A), which have close tolerance grid to cathode spacing. As shown under NOTATIONS, the control grid (G1) has been omitted in a special SHORTS test selector setting in order to eliminate the possibility of cathode surface pitting due to the peak shorts test voltage used in this set. Grid to cathode short indications may be verified with the standard grid current test described in 3.10 and 3.11 of the main Section 100-635-101. (See also note regarding false screen-cathode shorts indications on attached tube data sheet for the 404A tube.)

1.05 Dual coded Western Electric Company tubes should be tested according to the data accompanying this section rather than according to the commercial roll chart, if there are differences.

1.06 A special grid current test, if required, will be found listed under NOTATIONS; e.g. for the 399B tube.

1.07 Column headings, column spacings, and symbols used in the attached data table are similar to those on the roll chart with the exception of two additional symbols which have been used as follows:

@ has been used in place of the words "cathode activity limit" in order to conserve space in the table.

** indicates that the cathode activity switch should be operated to the TEST position and the filament switch should be set at 7.5 volts. With this arrangement, no cathode activity test is made. Care should be exercised in making this test as the tube may be damaged if the cathode activity switch is operated to NORMAL with the filament switch set at 7.5 volts (normal heater voltage is 6.3 volts).

WESTERN ELECTRIC ELECTRON TUBE TEST DATA

KS-15560, L1, L2 TUBE TESTERS

(Attachment to Section 100-635-501; Issue 3, April 1958)

TUBE TYPE	FIL.	SELECTORS	BIAS VOLTS	FUNCT. OR SHUNT	PRESS	MIN. TRANSCOND.	NOTATIONS
101D (D86326, D82437)	4.3	JR-3200-0	14	Hi-3	P4	800	@ 25% 944 WEB Adap.
101F, J, L, M	4.3	JR-3200-0	14	Hi-3	P4	850	@ 25% 944 WEB Adap.
101FA	4.3	JR-3200-0	13.5	Hi-3	P4	1050	@ 25% 944 WEB Adap.
102D,E,G	2.0	JR-3200-0	1	Lo-6	P4	350	@ 25% 944 WEB Adap.
102F, L	2.0	JR-3200-0	1	Lo-6	P4	350	@ 20% 944 WEB Adap.
104D (D86327)	4.3	JR-3200-0	25	Hi-3	P4	800	@ 25% 944 WEB Adap.
205D, E, F (D156734)	5.0	JR-3200-0	2	Hi-3	P4	1450	@ 15% 978 WEB Adap.
215A	1.1	JR-3200-0	20	Hi-3	P4	275	@ 25% 972 Adap.
231D	3.0	JR-3200-0	10	Hi-3	P4	400	@ 25%
239A	1.1	JR-3200-0	15	Hi-3	P4	300	@ 25%
244A	2.0	JR-3204-0	9	Hi-3	P4	650	@ 25%
245A	2.0	JR-0234-0	7.5	Hi-3	P1,P4*	400	@ 25% Cap = G.
247A	2.0	JR-3204-0	6	Hi-3	P4	530	@ 25%
257A	3.0	JR-0200-0	10	Hi-3	P4	400	@ 25% Cap = G.
259A, B	2.0	JR-0234-0	0.5	Lo-6	P1,P4*	840	@ 25% Cap = G.
262A, B	10	JR-0203-0	6	Lo-6	P4	570	@ 25% Cap = G.
264B, C	1.5	JR-3200-0	17	Hi-3	P4	375	@ 25%
271A	5.0	JR-3204-0	4.5	Lo-6	P4	2300	@ 25%
272A	10	JR-3204-0	15	Hi-3	P4	570	@ 25%
274A	5.0	JR-0300-0	0	SH-50	P3	★	Plate No. 1
274A	5.0	JR-0200-0	0	SH-50	P3	★	Plate No. 2
274B	5.0	HR-0600-0	0	SH-50	P3	★	Plate No. 1
274B	5.0	HR-0400-0	0	SH-50	P3	★	Plate No. 2
275A	5.0	JR-3200-0	20	Hi-3	P4	1750	@ 25%
283A	2.0	JR-0234-0	0.5	Lo-6	P1,P4*	950	@ 25% Cap = G.
285A	2.0	JR-0234-0	10	Hi-3	P4	700	@ 25% Cap = G.
286A	2.0	JR-0235-4	0.5	Lo-6	P1,P4*	1000	@ 25% Cap = G.
290A	10	JR-0235-4	0.5	Lo-6	P1,P4*	900	@ 25% Cap = G.
291A	10	JR-5436-2	15	Hi-3	P4	280	Oscillator Section
291A	10	JR-0236-5	9	Hi-3	P4	900	@ 30% CAP = G. AMPL. SECT.
292A	10	JR-0205-0	8	Lo-6	P4	500	@ 25% CAP = G. TRIODE SECT.
292A	10	JR-0405-2	0	SH-21	P1	★	Diode No. 1
292A	10	JR-0305-2	0	SH-21	P1	★	Diode No. 2
293A	10	JR-4235-0	10.5	Hi-3	P4	900	@ 25%
294A	10	JR-0234-0	10.5	Hi-3	P4	900	@ 25% Cap = G.
300A, B	5.0	JR-3200-0	15	Hi-6	P4	2900	@ 25%
303A	2.0	JR-0205-0	8	Lo-6	P4	500	@ 25% CAP = G. TRIODE SECT.
303A	2.0	JR-0405-2	0	SH-21	P1	★	Diode No. 1
303A	2.0	JR-0305-2	0	SH-21	P1	★	Diode No. 2
307A	5.0	JR-3020-4	7	Hi-3	P4	2000	@ 30% CAP = P. G1 AS CONTROL GRID CAP = P. G3 AS CONTROL GRID OBSERVE FOR MIN. TRANSCOND.
307A	5.0	JR-4020-3	7	Hi-3	P4	900	
309A	10	JR-0234-0	0.5	Lo-6	P1,P4*	800	@ 25% Cap = G.
310A, B	10	JR-0235-4	3.7	Lo-6	P4	1100	@ 25% Cap = G.
311A, B	10	JR-0234-0	15	Lo-6	P4	2200	@ 20% Cap = G.
328A	7.5	JR-0235-4	3.7	Lo-6	P4	1100	@ 25% Cap = G.
329A	7.5	JR-0234-0	15	Lo-6	P4	2200	@ 20% Cap = G.
336A	10	JR-4235-0	3.5	Lo-6	P4	3500	@ 25%
337A	10	JR-0235-4	3.8	Lo-6	P4	1070	@ 25% Cap = G.
339A	5.0	JR-3020-4	8	Hi-6	P4	3000	@ 25% Cap = P.
347A	6.3	JR-0407-0	6	Lo-6	P4	570	@ 25% Cap = G.
348A	6.3	JR-0347-5	3.4	Lo-6	P4	1150	@ 25% Cap = G.
349A	6.3	JR-5347-0	3.5	Lo-6	P4	3500	@ 25%
350A	6.3	JR-3024-0	6	Hi-15	P4	4800	@ 25% Cap = P.
350B	6.3	JR-5347-0	6	Hi-15	P4	4800	@ 25%
351A	6.3	JR-0507-2	0	SH-70	P3	★	Plate No. 1
351A	6.3	JR-0307-2	0	SH-70	P3	★	Plate No. 2
352A	10	JR-0205-0	8	Lo-6	P4	500	@ 25% CAP = G. TRIODE SECTION
352A	10	JR-0405-2	0	SH-21	P1	★	Diode No. 1
352A	10	JR-0305-2	0	SH-21	P1	★	Diode No. 2
367A	6.3	JV-6147-0	4.5	Lo-15	P4	4500	@ 25%
373A	2.0	JR-4760-3	3.1	Lo-6	P4	800	@ 25%
374A	3.0	JR-4760-3	10	Hi-6	P4	1800	@ 25%
375A	20	JR-5347-0	25	Lo-6	P4	1700	@ 20%
381A	6.3	HR-0502-0	0	SH-55	P1	★	Diode Test
383A	6.3	HR-4602-0	4.4	Lo-6	P4	1800	@ 30%
385A	6.3	HR-5032-8	2.7	Lo-6	P4	1500	@ 30% Cap = P.
387A	6.3	HR-5032-8	2.9	Lo-6	P4	2000	@ 30% Cap = P.
396A(2C51)	6.3	KR-7608-0	0-ϕ	Lo-6	P4	3400	@ 25% TRIODE NO. 1 ϕ240-OHM ± 5% SELF BIAS RES.
396A(2C51)	6.3	KR-3402-0	0-ϕ	Lo-6	P4	3400	@ 25% TRIODE NO. 2 ϕ240-OHM ± 5% SELF BIAS RES.
398A(5603)	6.3	JR-4760-3	10	Lo-6	P4	3750	@ 25%
399B	1.1	DX-6215-0	0	Lo-6	P1,P4*	670	@ 20 % GRID CUR. AT −1.5V. BIAS, MAX. = ½ SC. DIV.
401A(5590) ϕ	6.3	JR-3562-0	0-ϕ	Lo-6	P1,P4*	1450	@ 25% ϕ400-OHM ± 5% SELF BIAS RES.
401A(5590)	6.3	JR-3562-0	2.9	Lo-6	P1,P4*	1500	@ 25%
403A(6AK5)	6.3	JR-3562-0	0-ϕ	Lo-6	P4	3000	@ 25% ϕ290-OHM ± 5% SELF BIAS RES.
403B(5591)	6.3	JR-3562-0	0-ϕ	Lo-6	P4	3000	@ 25% ϕ290-OHM ± 5% SELF BIAS RES.
404A(5847)(1)	6.3	DZ-1684-0	0-ϕ	Lo-30	P4	7800	@ 25% ϕ110 RES. ± 5-OHM SELF BIAS RES. USE LOW SHORTS TEST
404A(5847)	6.3	DZ-0684-0	0-ϕ	Lo-30	—	—	SHORTS TEST ONLY. USE GRID CUR. TEST TO CHECK GRID TO CATHODE INSULATION.
407A	20	KV-7608-0	0-ϕ	Lo-6	P4	3400	@ 25% TRIODE NO. 1 ϕ240-OHM ± 5% SELF BIAS RES.
407A	20	BV-3402-0	0-ϕ	Lo-6	P4	3400	@ 25% TRIODE NO. 2 ϕ240-OHM ± 5% SELF BIAS RES.
408A(6028)	20	JR-3562-0	0-ϕ	Lo-6	P4	3000	@ 25% ϕ290-OHM ± 5% SELF BIAS RES.
409A/6AS6	6.3	JR-3562-7	3	Lo-6	P4	2000	@ 25%
412A	6.3	EV-0907-1	0	SH-65	P3	★	Plate No. 1
412A	6.3	EV-0103-9	0	SH-65	P3	★	Plate No. 2
414A ϕ	6.3	JR-3562-0	0-ϕ	Lo-6	P1,P4*	1800	@ 25% ϕ430-OHM ± 5% SELF BIAS RES.
414A	6.3	JR-3562-0	3.5	Lo-6	P1,P4*	1800	@ 25%
415A	6.3	JR-3562-7	3	Lo-6	P4	2000	@ 25%
417A(5842)	6.3	DZ-5106-0	0-ϕ	Lo-30	P4	14000	@ 25% ϕ82-OHM ± 1% SELF BIAS RES.
417A(5842)	6.3	DZ-0106-0	0-ϕ	Lo-30	—	—	SHORTS TEST ONLY. USE GRID CUR. TEST TO CHECK GRID TO CATHODE INSULATION.
418A	6.3	BW-8254-0	0-ϕ	Lo-30	P4	13000	@ 25% ϕ27-OHM ± 1% SELF BIAS RES.
418A	6.3	BW-0254-0	0-ϕ	Lo-30	—	—	SHORTS TEST ONLY
420A	12.6	EV-6807-3	0	Lo-6	P4	950	@ 25% Triode No. 1
420A	12.6	EV-3102-6	0	Lo-6	P4	950	@ 25% Triode No. 2
421A	★★	JX-4506-1	18	Hi-15	P4	6250	Triode Sect. 1
421A	★★	JX-2103-5	18	Hi-15	P4	6250	Triode Sect. 2
422A	5.0	HR-0600-0	0	SH-78	P3	★	Plate No. 1
422A	5.0	HR-0400-0	0	SH-78	P3	★	Plate No. 2
429A	20	BW-8254-0	4	Lo-6	P4	3800	@ 25%
CK108	6.3	JR-0235-4	5	Lo-6	P4	800	@ 25% Cap = G.
TS251	50	JR-5347-6	36	Hi-3	P4	775	@ 25% PENTODE SECTION
TS251	50	JR-0602-3	0	SH-80	P3	★	Rectifier Section

★ A star in the MIN. TRANSCOND. column indicates that the FUNCTION switch should be set on SHUNT and tube should be tested with respect to RECTIFIERS & DIODES—OK index mark on meter scale.

* This symbol in the PRESS column requires holding down the P1 button before and during the depressing of the P4 (GM switch) button for a reading.

@ This symbol stands for "cathode activity limit."

ϕ This symbol in BIAS VOLTS column with zero (0) BIAS VOLTS listed indicates a self-bias resistor of the value given under NOTATIONS is required. When this symbol follows the tube type number it indicates that an alternate optional test (2nd choice) is available using voltage bias.

★★ Operate CATH. ACT. switch to TEST position and set FILAMENT switch at 7.5V. No cathode activity test is made.

(1) False screen-cathode shorts indications (lamps 2 and 3) can occur immediately after heating the 404A (5847) tube for GM tests. For verification repeat test after tube has cooled.

STOP

STOP