

Simpson

INSTRUMENTS THAT STAY ACCURATE

OPERATOR'S MANUAL

MODEL 305 and MODEL 305-RC TUBE TESTER

SIMPSON ELECTRIC CO.

5200 W. Kinzie St., Chicago 44, Illinois, EStebrook 9-1121

In Canada, Bach-Simpson, Ltd., London, Ontario

Tube Type	F.I.T. Set.	F.I.T. Ret.	Tube Set.	Tog. Down.	Leakage or Short Test		Cath-Htr. Tog. Up.	C.I.R. Set. (separately)	C.I.R. Set. (Togethers Up)	Quality Test
					Inter-Element	Inter-Element				
GL-5750	9	3	44	C	H	4	S	1-5-6-7	1	1567
GL-5814A-TRI-1	11	4	35	C	H	5	S	1-2-6-7	2	67
GL-5814A-TRI-2	11	4	35	C	H	5	S	1-2-6-7	2	12
GL-5844-TRI-1	9	3	10		H	4	S	1-2-5-6	3	25
GL-5844-TRI-2	9	3	10		H	4	S	1-2-5-6	3	14
GL-6463-TRI-1	11	4	10	C	H	5	S	1-3-6-8	3	68
GL-6463-TRI-2	11	4	10	C	H	5	S	1-3-6-8	3	13
GL-6005	5	3	42	7	H	4	S	1-5-6	1	156
GL-6072-TRI-1	11	4	34	C	H	5	S	1-2-6-7	2	67
GL-6072-TRI-2	11	4	34	C	H	5	S	1-2-6-7	2	12
GL-6087-DIO-1	8	2	35		S	4-6	S		1	6
GL-6087-DIO-2	8	2	35		S	4-6	S		1	4
GL-6135	9	3	42	5	H	4	S	1-6	1	16
GL-6136	9	3	45		H	4	S	1-5-6	1	156
GL-6137	9	2	42		H	7	S	3-4-6-8	1	3468
GL-6201-TRI-1	11	4	37	C	H	5	S	1-2-6-7	2	67
GL-6201-TRI-2	11	4	37	C	H	5	S	1-2-6-7	2	12
GL-6202-DIO-1	9	3	37		H	4	S	1-6	1	6
GL-6202-DIO-2	9	3	37		H	4	S	1-6	1	1
GL-6265	9	3	37		H	4	S	1-5-6-7	2	1567
GL-6386-TRI-1	9	1	36		H	C	S	3-4-6-7	2	67
GL-6386-TRI-2	9	1	36		H	C	S	3-4-6-7	2	34
KT-66	9	2	43		H	7	S	3-4-5	1	345
LA	9	1	40		S	2-3-4	S		1	234

Foreword

There are several types of tube-testers for the serviceman. Simpson manufactures all different accepted types. Among these, the Simpson Models 305 and 305RC are the most modest in price. But this does not mean that they are limited in performance of necessary functions. Such instruments are simply not produced by Simpson, because Simpson does not manufacture to sell at a price. First consideration is the design of an instrument that will do a thorough job.

Simpson Models 305 and 305RC are designed to provide accurate testing for all tubes with filament voltages from .5 volts to and including 120 volts. It tests local, single ended tubes, bantams, midgets, miniatures, ballast tubes, gaseous rectifiers, acorn tubes, Christmas tree bulbs, and all popular radio receiver tubes.

Like other Simpson tube-testers, the 305's incorporate 3-way switching which makes it possible to test any tube regardless of its base connections or the internal connections of its elements. This method, the result of exhaustive research and expensive construction, protects the Model 305's against obsolescence. No adapters or special sockets are required. In addition to having a complete set of sockets for every tube now on the market, this tester has a spare socket, to provide for future tube developments.

On the Model 305RC, the "No-Backlash" Roll Chart prevents the chart from being torn or from getting out of align-

ment by automatically keeping chart in constant tension. This gives precision selection at all times. If you will remove the Roll Chart unit you will see the very superior Simpson construction throughout. It is, beyond question, the finest roll chart mechanism, in design and in quality manufacture, on any tube tester today.

These testers have provision for testing pilot lamps of various voltages as well as Christmas tree bulbs. It tests gaseous rectifiers of the OZ4 type—also tests ballast tubes direct in socket for burnouts and opens. Has neon bulb of proper sensitivity for checking shorts. This tube-tester is fused, and has the latest improved circuit. It provides for line adjustment from 100 to 130 volts, with smooth vernier control.

When you purchase Simpson test equipment you get equipment made almost entirely within the various plants of our Company. We are by far more self-contained than any other manufacturer of test equipment. This is your assurance that testers we offer will not quickly become obsolete. Our tremendous investment in expensive production tools is your safeguard against obsolescence and further assurance of unvarying quality.

Here at Simpson we do not regard our job finished when we have sold an instrument. Our interest in your Model 305 or 305RC never ceases. We want your satisfaction with it to be continuing. That is the reason for this Operator's Manual. We want you to know how to get the most from your tube-tester.

We have made this instrument as rugged as we know how. Give it the care and careful handling it deserves, and it will give you a lifetime of accurate, dependable service.



Simpson Model 305 Tube Tester
Size: 8" x 10 $\frac{1}{4}$ " x 5 $\frac{1}{2}$ ". Weight: 8 lbs.

OPERATOR'S MANUAL

SIMPSON MODEL 305 AND MODEL 305-RC TUBE TESTER

GENERAL

The toggle switches marked C, 1, 2, 3, 4, 5, 6, 7, and 8 are connected to the correspondingly numbered tube elements in accordance with the standard RMA numbering system. Toggle switch 9 is a meter reversing switch.

The position of any of the rotary or toggle switches for the various tests on a tube are indicated on the chart. Any of the toggle switches which are not indicated on the chart are to be left in the normal position. Normal position for switches C, 1, 2, 3, 4, 5, 6, 7 and 8 is center. Normal position for switch 9 is down.

Multipurpose tubes such as the 1B5 or 1E7 require more than one test and the switches should be reset for each of the tests as indicated on the chart.

OPERATING PROCEDURE

1. Set all of the group of ten toggle switches, located just below the meter, to the normal position.
2. Rotate the switches marked FILAMENT SELECTOR, FILAMENT RETURN, and TUBE SELECTOR to the position shown on the chart.
3. Throw any toggle switches to the downward position if so called for on the chart in column TOG DOWN.
4. Insert the tube in the proper socket.
5. Test the line voltage by throwing the LINE TEST—TUBE TEST switch to the LINE TEST position. Adjust the line voltage by rotating the knob marked LINE ADJUSTMENT until the meter pointer is at the center mark on the dial marked LINE. Return the LINE TEST—TUBE TEST switch to the TUBE-TEST position.
6. SHORT TEST—CATHODE-HEATER LEAKAGE: If no switch settings are indicated in the column CATHODE-

HEATER LEAKAGE on the chart, the tube has no cathode and no test is necessary.

To test cathode-heater leakage, rotate the **CIRCUIT SELECTOR** switch to the **H** position. The neon tube will glow until the toggle switch called for in the **CATHODE-HEATER LEAKAGE** column is thrown to the upward position. If the neon does not glow, the heater is open. Throw the toggle switch called for on the chart (which is a heater terminal) to the upward position. The neon tube will be dark unless there is a leakage current flowing between the cathode and heater. The tube should be tapped gently during the test. The neon **SENSITIVITY** switch should ordinarily be in the **LOW** position to prevent indication of normal leakage currents, especially in high filament voltage tubes. However, if for some reason, it is desired to detect very slight leakage currents between the cathode and heater, the **SENSITIVITY** switch may be placed in the **HIGH** position.

After making the **CATHODE-HEATER** leakage test, return toggle switch, shown in **CATHODE-HEATER** column, to the center or normal position.

7. SHORT TEST — LEAKAGES BETWEEN ELEMENTS OTHER THAN CATHODE AND HEATER: To test for leakages between the remaining elements of cathode type tubes and to test leakage between elements of filament type tubes, rotate the **CIRCUIT SELECTOR** switch to the **S** position. Throw one of the toggle switches, shown on the chart under column **TOGGLES UP** (separately), to the upward position and note if the neon glows or flickers, indicating a short or leakage. Then return it to the center or normal position. Repeat this same procedure for each toggle switch indicated on the chart in this column. The tube should be tapped gently during this test and the neon **SENSITIVITY** switch should be set in the **HIGH** position.

8. QUALITY TEST: After testing the tube for leakages and shorts, rotate the **CIRCUIT SELECTOR** switch to position 1, 2, 3, or 4 as indicated on the chart. Throw all of the toggle switches called for on the chart to the upward position. Read the condition of the tube on the **GOOD-DOUBTFUL-BAD** scale on the meter.

9. OPEN ELEMENTS: In the case of a few tubes, certain elements which are comparatively distant from the cathode may be open without much change in the total reading on the dial, so that the pointer will remain in the **GOOD** portion of the dial. To detect such elements, after making the **QUALITY TEST**, return each toggle switch to the center or normal position, one at a time. If any of the elements are open, there will be no change in the pointer deflection as the corresponding toggle switch is returned to the center position.

10. PILOT AND CHRISTMAS TREE LIGHTS: The center of the 7-prong socket is arranged for insertion of pilot lamps and Christmas tree bulbs. To test these lamps, rotate the **FILAMENT RETURN** switch to 1 and the **FILAMENT SELECTOR** switch to the proper position for the lamp under test, as follows:

Fil. Sel.	Approx. Volts	Fil. Sel.	Approx. Volts
1	0.5	12	17.5
2	0.75	13	25
3	1.0	14	35
4	1.5	15	40
5	2.0	16	50
6	2.5	17	60
7	3.0	18	70
8	5.0	19	80
9	6.0	20	90
10	7.5	21	100
11	12.0	22	110

12. BALLAST TUBES: To test ballast tubes, set the **CIRCUIT SELECTOR** switch to the **S** position. Throw all of the ten toggle switches to the downward position. Refer to the tube base wiring diagram of the ballast tube and note the numbers of the two pins to which the resistance element is connected, in accordance with the RMA numbering system. Then test each resistance element separately by throwing the two toggle switches corresponding to the numbers of the two pins, one toggle switch to the center and one to the upward position. The neon tube will glow if the resistance element is not burned out. Return the two toggle switches to the downward position, and repeat the same test on any other resistance element in the ballast tube.

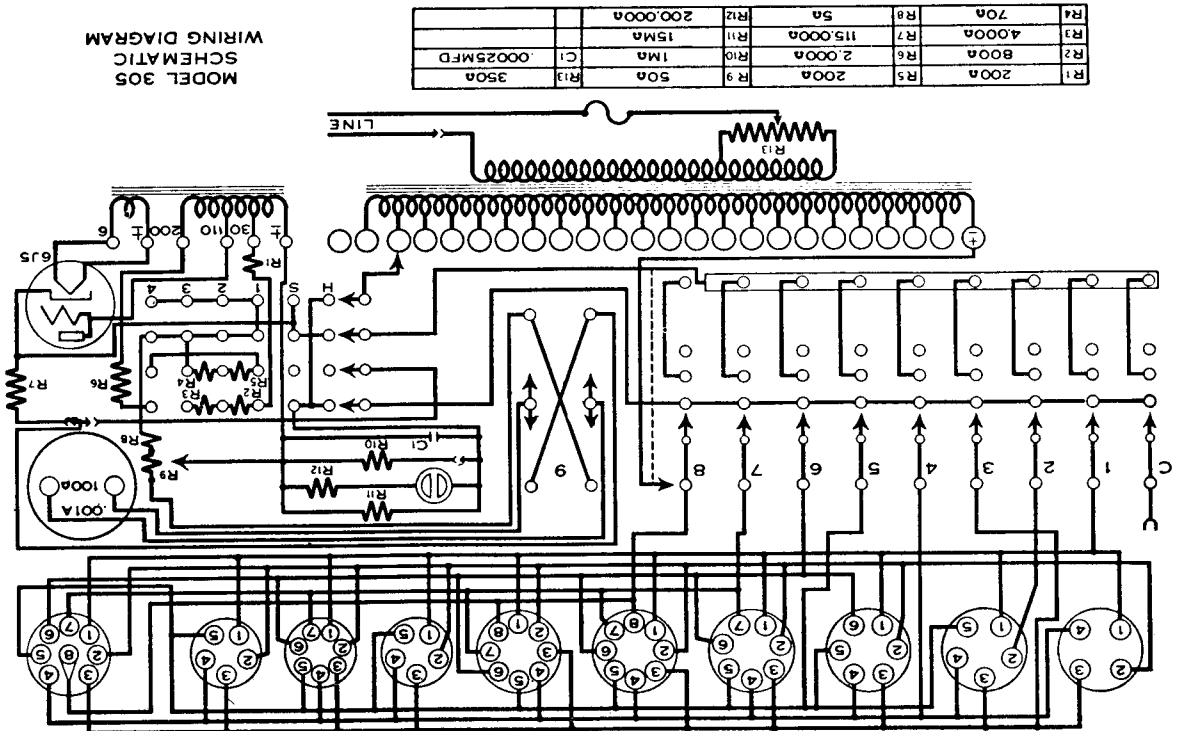
ROLL CHART INSTRUCTIONS (MODEL 305-RC)

To remove old chart:

1. Wind entire chart to the upper roller.
2. Place the mechanism on its side with the panel toward you and the knob to the right.
3. Loosen tape from bottom roller and pull old chart from the mechanism.

To install new chart:

1. Turn mechanism upside down with knob to the right. Place new chart, printed side down, on opposite side of mechanism and feed the end of the chart between the guard plate and the panel, then around the roller nearest the panel and out the other side. Place mechanism on its side with the panel away from you and the knob to the right.
 2. Remove the covering from the scotch tape attached to the chart and attach to the top roller. Be sure to center paper between the two end discs before attaching. Smooth tape out by rubbing with the fingers and press firmly to the roller. With the mechanism in the same position, roll the chart onto the top roller until the end of the chart is even with the front panel.
 3. While holding the end of the paper tightly, revolve the knob until the paper is wound tight on the roller. While holding the knob, pull the end of the chart toward you about even with the center of the bottom roller and hold in this position by pressing against the top roller.
- Revolve the bottom roller a few turns toward the paper until it runs back against its spring tension, then wind it ten complete turns toward the paper and hold in this position.
4. Remove the covering from the scotch tape and attach to the bottom roller, being sure to center the paper between the end discs of the roller. Smooth out tape and press firmly to roller.
 5. If the paper is either too tight or too loose, the tape may be pulled away from the roller and the tension adjusted as desired.



Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Toq. Down	Leakage or Short Test		Cath-Htr. Sel. (Together)	C.I.R. Sel. (Separately)	C.I.R. Sel. (Together)	Quality Test
					Inter-Element	Inter-Element				
1B8-TRI	4	2	35		S	C-3-4-5-6-8	2	2	2	C6
1B8-PEN	4	2	35		S	C-3-4-5-6-8	2	2	2	345
1B8-DIO	4	2	0	6	S	2-4	2	2	2	8
1C3	4	2	35		S	2-4	2	2	2	24
1C5	4	2	36		S	3-4-5	2	2	2	345
1C6	5	1	32		S	C-2-3-4-5	2	2	2	C2345
1C7	5	2	32		S	C-3-4-5-6	2	2	2	C3456
1C21	13	2	33		S	5-7	1	1	1	57
1D5	5	2	32		S	C-3-4	2	2	2	C34
1D7	5	2	29		S	C-3-4-5-6	2	2	2	C3456
1D8-TRI	4	2	32		S	C-3-4-5-6-8	2	2	2	C6
1D8-PEN	4	2	36		S	C-3-4-5-6-8	2	2	2	345
1D8-DIO	4	2	0		S	3-5	2	2	2	8
1E4	4	2	37		S	3-5	2	2	2	35
1E5	5	2	31		S	C-3-4	2	2	2	C34
1E7-PEN 1	5	2	35		S	3-4-5-6-8	2	2	2	348
1E7-PEN 2	5	2	35		S	3-4-5-6-8	2	2	2	568
1F4	5	1	33		S	2-3-4	2	2	2	234
1F5	5	2	34		S	3-4-5	2	2	2	345
1F6-PEN	5	1	32		S	C-2-3-4-5	2	2	2	C23
1F6-DIO 1	5	1	0		S	C-2-3-4-5	2	2	2	4
1F6-DIO 2	5	1	0		S	C-2-3-4-5	2	2	2	5
1F7-PEN	5	2	27		S	C-3-4-5-6	2	2	2	C36
1F7-DIO 1	5	2	0		S	C-3-4-5-6	2	2	2	4
1F7-DIO 2	5	2	0		S	3-5	2	2	2	5
1G4	4	2	37		S	3-4-5	2	2	2	345
1G5	5	2	36		S	3-4-5	2	2	2	345
1G6-TRI 1	4	2	35		S	3-4-5-6	2	2	2	34
1G6-TRI 2	4	2	35		S	3-5	2	2	2	56
1H4	5	2	32		S	3-5	2	2	2	35

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Toq. Down	Leakage or Short Test		Cath-Htr. Sel. (Together)	C.I.R. Sel. (Separately)	C.I.R. Sel. (Together)	Quality Test
					Inter-Element	Inter-Element				
00A	8	1	39		S	2-3	1	1	1	23
01-A	8	1	36		S	2-3	1	1	1	23
0A2	22	2	33	147	S	2-3	1	1	1	5
0A3	15	2	37		S	5	1	1	1	5
0A4	1	1	41		S	5	4	4	4	5
0A5	2	1	0	3	S	2-4-5-7	4	4	4	47
0B2	17	2	19	457	S	1	1	1	1	1
0B3	18	2	40		S	5	1	1	1	5
0C3	18	2	35		S	5	1	1	1	5
0D3	22	2	38		S	5	1	1	1	5
0Y4	1	1	45		S	5	4	4	4	5
0Z4-P 1	1	1	46		S	3-5	4	4	4	5
0Z4-P 2	1	1	46		S	2	1	1	1	5
1A3	4	1	0	2	S	6	7	4	4	6
1A4	5	1	31		S	C-2-3	2	2	2	C23
1A5	4	2	33		S	3-4-5	2	2	2	345
1A6	5	1	30		S	C-2-3-4-5	2	2	2	C2345
1A7	4	2	32		S	C3-4-5-6	2	2	2	C3456
1A85	4	1	34	8	S	2-3-6	2	2	2	236
1A84	3	1	38		S	2-3-6	1	1	1	236
1AF4	4	1	32		S	2-3-6	2	2	2	236
1AF5-PEN	4	1	25		S	3-4-5-6	2	2	2	456
1AF5-DIO	4	1	0		S	3-4-5-6	3	3	3	C
1B3/8016	4	2	20		S	C	4	4	4	C
1B4-951	5	1	32		S	C-2-3	2	2	2	C23
1B5-255-TRI	5	1	30		S	2-3-4-5	2	2	2	25
1B5-255-DIO1	5	1	0		S	2-3-4-5	2	2	2	3
1B5-255-DIO2	5	1	0		S	3-4-5-6	2	2	2	4
1B7	4	2	36		S	C-3-4-5-6	2	2	2	C3456

Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr	Cir. Tog. Sel. Up	Cir. Tog. Sel. (Separately)	Cir. Togles up Sel. (Together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element					
1S5-PEN	4	1	30	30	S	3-4-5-6						456
1S5-DIO	4	1	0	0	S	1-3-6-8						3
1S6-DIO	3	5	5	10	S	3-4-6-8						138
1S6-PEN	3	5	0	0	S	3-4-6-8						6
1S66-DIO	4	2	2	35	S	3-4-6-8						3468
1S66-PEN	4	2	2	34	S	3-4-5-8						348
1T4	4	2	0	35	S	2-3-6						5
1T5	4	2	2	38	S	3-4-5						236
1U4	4	1	30	30	S	2-3-6						236
1U5-PEN	4	7	27	27	S	2-3-4-6						236
1U5-DIO	4	7	0	0	S	2-3-4-6						4
1V	9	1	45	45	S	2						2
1V2	2	4	0	0	S							4
1W4	4	3	1	30	S	2-3-6						236
1X2	3	2	15	58	S	3						3
1X2	4	2	30	30	S	2-3-6						2
1Z2	4	1	0	46	S	2-3						4
2A3	6	1	46	46	S	2-3						23
2A4-T 1	6	2	46	46	S	3-5						3
2A4-T 2	6	2	46	46	S	3-5						5
2A5	6	1	41	41	S	2-3-4						1
2A6-TRI	6	1	41	41	S	2-3-4						234
2A6-DIO 1	6	1	0	0	S	C-2-3-4						3
2A6-DIO 2	6	1	0	0	S	C-2-3-4-5						4
2A7	6	1	41	41	S	C-2-3-4-5						1
2B6-IN	6	1	35	35	S	2-3-4-5						34
2B6-OUT	6	1	42	42	S	2-3-4-5						2345

Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr	Cir. Tog. Sel. Up	Cir. Tog. Sel. (Separately)	Cir. Togles up Sel. (Together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element					
1H5-TRI	4	2	31	31	S	C-3-5						2
1H5-DIO	4	2	0	28	S	3-4-5-6						3
1H6-TRI	5	2	0	0	S	3-4-5-6						36
1H6-DIO 1	5	2	0	0	S	3-4-5-6						5
1H6-DIO 2	5	2	0	0	S	3-4-5						4
1J5	5	2	32	31	S	3-4-5						345
1J6-TRI 1	5	2	31	31	S	3-4-5-6						2
1J6-TRI 2	5	2	31	31	S	3-4-5-6						2
1L4	4	1	34	34	S	2-3-6						2
1L44	4	1	35	35	S	2-3-6						2
1LA6	4	1	32	32	S	2-3-4-5-6						2
1LB4	4	1	34	34	S	2-3-6						2
1LC5	4	1	34	34	S	2-3-4-6						2
1LC6	4	1	32	32	S	2-3-4-6						2
1LD5-PEN	4	1	36	36	S	2-3-4-5-6						2
1LD5-DIO	4	1	0	0	S	2-3-4-6						2
1LE3	4	1	35	35	S	2-6						4
1LG5	4	1	35	35	S	2-6						2
1LH4-TRI	4	1	26	26	S	2-3-4-5-6						2
1LH4-DIO	4	1	35	35	S	2-4-6						2
1LN5	4	1	38	38	S	2-3-4-6						4
1N5	4	2	35	35	S	C-3-4						2
1N6-PEN	4	2	35	35	S	C-3-4						2
1N6-DIO	4	2	0	0	S	3-4-5-6						2
1P5	4	2	31	31	S	C-3-4						2
1Q5	4	2	38	38	S	3-4-5						2
1R4	4	1	0	0	S	2-4						4
1R5	4	4	34	34	S	2-3-4-6						2
1S4	4	5	37	37	S	2-3-4						2

Tube Type	Fil. Sel.	Fil. Ret.	Tube Sel.	Toq. Down	Leakage or Short Test		Cath-Htr Sel. (Toq. up)	Inter-Element		Quality Test
					Cir. Sel.	Cir. Sel.		Cir. Sel.	Cir. Sel.	
2G22-TRI 1	3	1	32							57
2S-4S-P 1	6	1	0							2
2S-4S-P 2	6	1	0							3
2V3	6	2	16							4
2W3	6	2	36							4
2X2	6	1	32							1
2Y2	6	1	32							1
2Z2	6	1	30							2
3A4	6	1	35							2
3A5-TRI 1	6	1	37							2
3A5-TRI 2	6	1	37							2
3A8-TRI	6	2	34							2
3A8-PEN	6	2	37							2
3A8-DIO	6	2	0							2
3B4	6	4	0							3
3B5	6	2	36							2
3B7-TRI 1	6	1	37							2
3B7-TRI 2	6	1	37							2
3B7-TRI 1	6	1	37							2
3B7-TRI 2	6	1	37							2
3B24	8	2	37							4
3C5	6	2	36							2
3C6-TRI 1	7	1	36							2
3C6-TRI 2	7	1	36							2
3D6	6	1	39							2
3D21A	11	2	46							1
3E5	6	1	31							2
3E6	6	1	37							2
3LE4	6	1	36							2
3LE4	6	1	36							2
3LF4	6	1	36							2
3Q5	6	2	34							2

Tube Type	Fil. Sel.	Fil. Ret.	Tube Sel.	Toq. Down	Leakage or Short Test		Cath-Htr Sel. (Toq. up)	Inter-Element		Quality Test
					Cir. Sel.	Cir. Sel.		Cir. Sel.	Cir. Sel.	
2B7-PEN	6	1	34							1
2B7-DIO 1	6	1	0							3
2B7-DIO 2	6	1	0							3
2C4	6	1	44							1
2C21-TRI 1	9	1	40							1
2C21-TRI 2	9	1	40							1
2C22	9	2	45							1
2C22	9	2	45							1
2C51-TRI 1	9	1	43							1
2C51-TRI 2	9	1	43							1
2C52-TRI 1	11	7	42							1
2C52-TRI 2	11	7	42							1
2C53	9	2	44							4
2D21	9	3	50							4
2E5	6	1	34							1
2E24	9	2	45							1
2E25A	9	2	42							1
2E26	9	2	44							1
2E30	9	3	44							1
2E31	3	3	35							2
2E32	3	3	35							2
2E35	3	3	0							3
2E36	3	3	0							3
2E41	3	4	0							3
2E42	3	4	0							3
2G5	6	1	34							1
2G21-HEP	3	1	32							3
2G22-HEP	3	1	8							3

For Quality Test connect lead to both top caps in parallel.
 For Inter-Element Leakage connect lead to each top cap in succession.
 For Quality Test connect lead to both top caps in parallel.

Tube Type	Fil. Sel.	Fil. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Quality Test
					Cath-Htr Sel. Up	Cir. Sel. (Separately)	Cir. Sel. (Together)	
3S4	6	1	35	56	S	2-3-4	2	234
3V4	7	1	41	5	S	2-3-6	2	236
4A6-TRI 1	5	8	37		S	3-4-5-6	2	34
4A6-TRI 2	5	8	37		S	3-4-5-6	2	56
5A6	8	5	44	C8	S	1-3-6-7	1	1367
5AZ4-P 1	8	2	36		S	4-6	1	4
5AZ4-P 2	8	2	36		S	4-6	1	6
5R4-P 1	8	2	41		S	4-6	1	6
5R4-P 2	8	2	41		S	4-6	1	4
5T4-P 1	8	2	43		S	4-6	1	4
5T4-P 2	8	2	43		S	4-6	1	6
5U4-P 1	8	2	41		S	4-6	1	4
5U4-P 2	8	2	41		S	4-6	1	6
5V4-P 1	8	2	46		S	4-6	1	4
5V4-P 2	8	2	46		S	4-6	1	6
5X3-P 1	8	1	41		S	2-3	1	2
5X3-P 2	8	1	41		S	2-3	1	3
5X4-P 1	8	8	43		S	3-5	1	3
5X4-P 2	8	8	43		S	3-5	1	3
5Y3-P 1	8	8	36		S	4-6	1	4
5Y3-P 2	8	2	36		S	4-6	1	6
5Y4-P 1	8	8	35		S	3-5	1	3
5Y4-P 2	8	8	35		S	3-5	1	3
5Z3-P 1	8	1	41		S	2-3	1	2
5Z3-P 2	8	1	41		S	2-3	1	3
5Z4-P 1	8	2	44		S	4-6	1	4
5Z4-P 2	8	2	44		S	4-6	1	6
6A3	9	1	45		S	2-3	1	23

Tube Type	Fil. Sel.	Fil. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Quality Test
					Cath-Htr Sel. Up	Cir. Sel. (Separately)	Cir. Sel. (Together)	
6A4	9	1	43	8	S	2-3-4	1	234
6A5	9	2	43		S	3-5	1	35
6A6-TRI 1	9	1	41		S	2-3-5-6	1	23
6A6-TRI 2	9	1	41		S	2-3-5-6	1	56
6A7	9	1	41		S	C-2-3-4-5	1	C2345
6A8	9	2	42		S	C-3-4-5-6	1	C3456
6AB4	9	3	45		S	1-6	1	16
6AB5	9	1	24		S	2-3-4	1	234
6AB6	9	2	37		S	3-4-5	1	345
6AB7	9	2	45		S	3-4-6-8	1	3468
6AC5	9	2	42		S	3-5	1	35
6AC6	9	2	42		S	3-4-5	1	345
6AC7	9	2	47		S	3-4-6-8	1	3468
6AD5	9	2	39		S	3-5	1	35
6AD6-TAR	9	2	0		S	3-4-5	4	5
6AD6-CON 1	9	2	0		S	3-4-5	4	35
6AD6-CON 2	9	2	0		S	1-3-4-5-6	4	45
6AD7-TRI	9	2	7		S	1-3-4-5-6	4	45
6AD7-PEN	9	2	41		S	3-5	1	345
6AE5	9	2	44		S	3-5	1	35
6AE6-REM	9	2	40		S	3-4-5	1	345
6AE6-SHARP	9	2	40		S	3-4-5	1	34
6AE7-TRI-1	9	2	42		S	3-4-6	1	34
6AE7-TRI-2	9	2	42		S	3-4-6	1	36
6AF4	9	3	46	67	S	1-2	1	12
6AF5	9	2	44		S	3-5	1	35
6AF6-TAR	9	2	0		S	3-4-5	4	5
6AF6-CON-1	9	2	0		S	3-4-5	4	35
6AF6-CON 2	9	2	0		S	1-5-6	4	45
6AG5	9	3	38		S	4	1	156

Tube Type	Fll. Ret.	Fll. Ret.	Tube Set.	Tog. Down	Leakage or Short Test			Cath-Htr	Citr. Up	Citr. Sel.	Inter-Element	Citr. Sel. (Together)	Quality Test
					Cath-Htr	Citr. Up	Citr. Sel.						
6A85	9	9	3	41	H	4	S	1-5-6	S	1-5-6	1	156	
6A86	9	9	6	45	H	8	S	3-5-7	S	3-5-7	1	357	
6A85	9	9	3	43	H	4	S	2-6-7	S	2-6-7	1	267	
6AS7-TRI 1	9	9	7	46	H	8	S	1-2-4-5	S	1-2-4-5	1	12	
6AS7-TRI 2	9	9	7	46	H	8	S	1-2-4-5	S	1-2-4-5	1	45	
6AT6-TRI	9	9	3	41	H	4	S	1-5-6-7	S	1-5-6-7	1	17	
6AT6-DIO 1	9	9	3	0							3	5	
6AT6-DIO 2	9	9	3	0							3	6	
6AU4	9	9	7	44	H	8	S	1-5-8	S	1-5-8	1	5	
6AU5	9	9	2	44	H	7	S	1-2-5-6	S	1-2-5-6	1	158	
6AU6	9	9	3	45	H	4	S	1-5-8	S	1-5-8	1	1256	
6AV5	9	9	2	44	H	7	S	1-5-8	S	1-5-8	1	158	
6AV6-TRI	9	9	3	43	H	4	S	1-5-6-7	S	1-5-6-7	1	17	
6AV6-DIO 1	9	9	3	0							3	6	
6AV6-DIO 2	9	9	3	0							3	5	
6AW6	9	9	3	45	H	4	S	1-5-6-7	S	1-5-6-7	1	1567	
6AX4	9	9	7	25	H	8	S	5	S	5	3	5	
6AX5-P1	9	9	2	42	H	7	S	3-5	S	3-5	1	5	
6AX5-P2	9	9	2	42	H	7	S	3-5	S	3-5	1	35	
6B4	9	9	2	45							1	35	
6B5	9	9	1	36	H	6	S	2-3-4	S	2-3-4	1	234	
6B6-TRI	9	9	2	42	H	7	S	C-3-4-5	S	C-3-4-5	1	C3	
6B6-DIO 1	9	9	2	0							3	4	
6B6-DIO 2	9	9	2	0							3	5	
6B7-PEN	9	9	1	34	H	7	S	C-2-3-4-5	S	C-2-3-4-5	1	C23	
6B7-DIO 1	9	9	1	0							3	4	
6B7-DIO 2	9	9	1	0							3	5	
6B8-PEN	9	9	2	32	H	7	S	C-3-4-5-6	S	C-3-4-5-6	1	C36	
6B8-DIO 1	9	9	2	0							3	4	

Tube Type	Fll. Ret.	Fll. Ret.	Tube Set.	Tog. Down	Leakage or Short Test			Cath-Htr	Citr. Up	Citr. Sel.	Inter-Element	Citr. Sel. (Together)	Quality Test
					Cath-Htr	Citr. Up	Citr. Sel.						
6AG7	9	9	2	47	H	7	S	1-4-6-8	S	1-4-6-8	1	1468	
6AH4	9	9	2	45	H	7	S	1-4-6	S	1-4-6	1	146	
6AH6	9	9	3	47	H	4	S	1-2-5-6	S	1-2-5-6	1	1256	
6AH7-TRI 1	9	9	8	37	H	7	S	1-3-5-6	S	1-3-5-6	1	13	
6AH7-TRI 1	9	9	8	37	H	7	S	1-3-5-6	S	1-3-5-6	1	13	
6AJ4	9	9	8	43	H	7	S	1-5	S	1-5	2	15	
6AJ5	9	9	3	46	H	4	S	1-5-6	S	1-5-6	1	156	
6AK5	9	9	3	44	H	4	S	1-5-6	S	1-5-6	1	156	
6AK6	9	9	3	41	H	4	S	1-2-5-6	S	1-2-5-6	1	1256	
6AL5-DIO 1	9	9	3	0							3	7	
6AL5-DIO 2	9	9	3	0							3	2	
6AL6	9	9	2	45	H	7	S	C-4-5	S	C-4-5	1	C45	
6AL7-TRI	9	9	2	8	H	7	S	1-3-4-5-6	S	1-3-4-5-6	2	13456	
6AL7-TAR	9	9	2	8	H	7	S	1-3-4-5-6	S	1-3-4-5-6	2	13456	
6AM4	9	9	7	45	H	8	S	1-5	S	1-5	1	15	
6AN4	9	9	3	45	H	4	S	1-2	S	1-2	1	12	
6AN5	9	9	3	45	H	4	S	1-5-6	S	1-5-6	1	156	
6AN6-DIO 1	9	9	1	10	H	7	S	2-3-4-5	S	2-3-4-5	3	5	
6AN6-DIO 2	9	9	1	10	H	7	S	2-3-4-5	S	2-3-4-5	3	4	
6AN6-DIO 3	9	9	1	10	H	7	S	2-3-4-5	S	2-3-4-5	3	3	
6AN6-DIO 4	9	9	1	10	H	7	S	2-3-4-5	S	2-3-4-5	3	2	
6AN7-TRI	9	9	4	39	H	5	S	C-1-2-7-8	S	C-1-2-7-8	1	C8	
6AN7-HEX	9	9	4	44	H	4	S	1-5-6	S	1-5-6	1	C127	
6AQ5	9	9	3	42	H	4	S	1-5-6	S	1-5-6	1	156	
6AQ6-AMP	9	9	3	40	H	4	S	1-5-6-7	S	1-5-6-7	1	17	
6AQ6-DIO 1	9	9	3	0							3	5	
6AQ6-DIO 2	9	9	3	0							3	6	
6AQ7-TRI	9	9	8	40	H	7	S	1-3-4-5	S	1-3-4-5	1	45	
6AQ7-DIO 1	9	9	8	0							3	1	
6AQ7-DIO 2	9	9	8	0							3	3	

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel.	Tog. Up Sel.	Cir. Sel.	Toggles Up (Separately)	Cir. Sel. (Together)	Quality Test
					Inter-Element	Toggles Up	(Together)						
68T6-TRI 1	9	3	33		H	4	S	1-5-6-7				17	56
68T6-DIO 1	9	3	5		H	4	S	1-5-6-7				6	56
68T6-DIO 2	9	3	5		H	4	S	1-5-6-7				5	56
68U6-TRI 1	9	3	33		H	4	S	1-5-6-7				17	56
68U6-DIO 1	9	3	5		H	4	S	1-5-6-7				6	56
68U6-DIO 2	9	3	5		H	4	S	1-5-6-7				5	56
68X7-TRI 1	9	7	45		H	8	S	1-2-4-5				45	56
68X7-TRI 2	9	7	45		H	8	S	1-2-4-5				12	56
68Y5-P1	9	2	42		H	7	S	4-5				5	56
68Y5-P2	9	2	42		H	7	S	4-5				4	56
68Z7-TRI 1	9	4	38		H	5	S	1-2-6-7				67	56
68Z7-TRI 2	9	4	38		H	5	S	1-2-6-7				12	56
6C4	9	3	44	1	H	4	S	5-6				1	56
6C5	9	2	41		H	7	S	3-5				35	56
6C6	9	1	42		H	6	S	C-2-3-4				1	56
6C7-TRI	9	1	42		H	7	S	C-2-4-5				4	56
6C7-DIO 1	9	1	0									3	56
6C7-DIO 2	9	1	0									3	56
6C8-TRI 1	9	2	36		H	7	S	C-3-5-6				1	56
6C8-TRI 2	9	2	36		H	7	S	C-3-5-6				1	56
6CB6	9	3	46		H	4	S	1-5-6-7				1	56
6CD6	9	2	45		H	7	S	C-5-8				1	56
6CF6	9	4	13		H	3	S	1-5-6				3	56
6CL6	9	4	45	C8	H	5	S	2-3-6-7				1	56
6CS6	9	4	48		H	3	S	1-5-6-7				2	56
6D4	9	3	44		H	4	S	1-7				1	56
6D5	9	2	40		H	7	S	3-5				1	56
6D6	9	1	40		H	6	S	C-2-3-4				1	56
6D7	9	1	43		H	7	S	C-3-4-5-6				1	56
6E5	9	2	41		H	7	S	C-3-4-5-6				1	56

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel.	Tog. Up Sel.	Cir. Sel.	Toggles Up (Separately)	Cir. Sel. (Together)	Quality Test
					Inter-Element	Toggles Up	(Together)						
68A5	9	3	37		H	6	S	1-5-7				2	56
68A6	9	3	45		H	4	S	1-2-5-6				1	56
68C5	9	3	45		H	4	S	1-5-6				1	56
68C7-DIO 1	9	4	26	3	H	5	S	2-6-8				3	56
68C7-DIO 2	9	4	26	3	H	5	S	2-6-8				3	56
68C7-DIO 3	9	4	26	3	H	5	S	2-6-8				3	56
68D5	9	2	44		H	7	S	1-5-8				1	56
68D6	9	4	42		H	3	S	1-2-5-6				1	56
68E6	9	3	45		H	4	S	1-5-6-7				1	56
68E7	9	4	35		H	5	S	C-1-2-6-7				1	56
68F5	9	3	45	7	H	4	S	1-5-6				1	56
68F6-TRI	9	3	40		H	4	S	1-5-6-7				1	56
68F6-DIO 1	9	3	7									3	56
68F6-DIO 2	9	3	7									3	56
68G6	9	2	45		H	7	S	C-5-8				1	56
68H6	9	3	46		H	4	S	1-5-6-7				1	56
68J6	9	3	45		H	4	S	1-5-6-7				1	56
68K5	9	4	45		H	5	S	1-3-8				1	56
68K6-TRI	9	3	33		H	4	S	1-5-6-7				2	56
68K6-DIO 1	9	3	10									3	56
68K6-DIO 2	9	3	10									3	56
68K7-TRI 1	9	4	45		H	5	S	1-2-6-7				1	56
68K7-TRI 2	9	4	45		H	5	S	1-2-6-7				1	56
68L7-TRI 1	9	7	45		H	8	S	1-2-4-5				1	56
68L7-TRI 2	9	7	45		H	8	S	1-2-4-5				1	56
68N6	9	3	23		H	4	S	2-5-6-7				4	56
68P6	9	2	45		H	7	S	C-4-5				1	56
68Q7-TRI 1	9	4	45		H	5	S	1-2-6-7				1	56
68Q7-TRI 2	9	4	45		H	5	S	1-2-6-7				1	56

Tube Type	F.I.I. Sel.	F.I.I. Ret.	Tube Sel.	Toq. Down.	Leakage or Short Test			Cath-Htr Sel. (Together)	C.I.T. Sel. (Separately)	C.I.T. Sel. (Together)	Quality Test
					C.I.T. Sel. (Together)	Inter-Element	Up.				
6L6	9	9	2	9	45	7	S	3-4-5	1	345	1
6L7	9	9	2	9	44	7	S	C-3-4-5	1	C345	1
6M5	9	9	4	9	45	5	S	1-2-7	1	127	1
6M8-PEN	9	9	2	9	41	7	S	C-3-4-5-6-8	1	C34	1
6M8-TRI	9	9	2	9	34	7	S	C-3-4-5-6-8	1	C34	1
6M8-DIO	9	9	2	9	0	7	S	C-3-4-5-6-8	1	56	3
6N4	9	9	3	9	42	4	S	1-5	1	15	1
6N5	9	9	1	9	24	6	S	2-3-4	1	234	1
6N5-TRI	9	9	1	9	26	6	S	2-3-4	1	23	1
6N5-TAR	9	9	1	9	0	6	S	2-3-4	1	24	1
6N6	9	9	2	9	36	7	S	3-4-5	1	345	1
6N7-TRI 1	9	9	2	9	42	7	S	3-4-5-6	1	34	1
6N7-TRI 2	9	9	2	9	42	7	S	3-4-5-6	1	34	1
6N8-PEN	9	9	4	9	44	5	S	C-1-2-6-7-8	1	126	1
6N8-DIO 1	9	9	4	9	0	5	S	C-1-2-6-7-8	1	8	3
6N8-DIO 2	9	9	4	9	0	5	S	C-1-2-6-7-8	1	7	3
6P5	9	9	2	9	39	7	S	3-5	1	35	1
6P7-TRI	9	9	2	9	8	3	S	C-4-5-6-7	1	67	1
6P7-PEN	9	9	2	9	34	3	S	C-4-5-6-7	1	C45	1
6Q4	9	9	4	9	47	5	S	C-1	1	C1	1
6Q5	9	9	2	9	3	5	S	C-1	1	35	3
6Q6-TRI	9	9	2	9	40	7	S	C-3-5	1	C3	1
6Q6-DIO	9	9	2	9	0	7	S	C-3-5	1	5	3
6Q7-TRI	9	9	2	9	42	7	S	C-3-4-5	1	C 3	1
6Q7-DIO 1	9	9	2	9	0	7	S	C-3-4-5	1	4	3
6Q7-DIO 2	9	9	2	9	0	7	S	C-3-4-5	1	5	3
6R4	9	9	4	9	44	5	S	1-8	1	18	1
6R6	9	9	1	9	37	8	S	2-3-6	1	236	1
6R7-TRI	9	9	2	9	38	7	S	C-3-4-5	1	C3	1
6R7-DIO 1	9	9	2	9	0	7	S	C-3-4-5	1	4	3

Tube Type	F.I.I. Sel.	F.I.I. Ret.	Tube Sel.	Toq. Down.	Leakage or Short Test			Cath-Htr Sel. (Together)	C.I.T. Sel. (Separately)	C.I.T. Sel. (Together)	Quality Test
					Cath-Htr Sel. (Together)	Inter-Element	Up.				
6E6-TRI 1	9	9	1	9	41	7	S	2-3-5-6	1	23	1
6E6-TRI 2	9	9	1	9	41	7	S	2-3-5-6	1	56	1
6E7	9	9	1	9	42	7	S	C-2-3-4	1	C234	1
6E7	9	9	1	9	47	6	S	2-3	1	23	1
6E5	9	9	2	9	43	7	S	C-4	1	C4	1
6F6	9	9	2	9	40	7	S	3-4-5	1	345	1
6F7-TRI	9	9	1	9	8	7	S	C-2-3-4-5	1	45	1
6F7-PEN	9	9	1	9	38	7	S	C-2-3-4-5	1	C23	1
6F8-TRI 1	9	9	2	9	43	7	S	C-3-5-6	1	C3	1
6F8-TRI 2	9	9	2	9	43	7	S	C-3-5-6	1	56	1
6G5	9	9	1	9	34	6	S	2-3-4	1	234	1
6G6	9	9	2	9	42	7	S	3-4-5	1	345	1
6H4	9	9	2	9	0	7	S	3-4-5	1	4	3
6H5	9	9	1	9	34	6	S	2-3-4	1	234	1
6H6-DIO 1	9	9	2	9	0	6	S	2-3-4	1	2	3
6H6-DIO 2	9	9	2	9	0	6	S	2-3-4	1	5	3
6J4	9	9	3	9	47	4	S	6-7	1	67	1
6J5	9	9	2	9	45	7	S	3-5	1	35	1
6J6-TRI 1	9	9	3	9	46	4	S	1-2-5-6	1	25	1
6J6-TRI 2	9	9	3	9	46	4	S	1-2-5-6	1	16	1
6J7	9	9	2	9	42	7	S	C-3-4-5	1	C345	1
6J8-TRI	9	9	2	9	37	7	S	C-3-4-5-6	1	56	1
6J8-HEP	9	9	2	9	41	7	S	C-3-4-5-6	1	C345	1
6K5	9	9	2	9	43	7	S	C-3	1	C3	1
6K6	9	9	2	9	41	7	S	3-4-5	1	345	1
6K7	9	9	2	9	40	7	S	C-3-4-5	1	C345	1
6K8-TRI	9	9	2	9	45	7	S	C-3-4-5-6	1	56	1
6K8-HEX	9	9	2	9	45	7	S	C-3-4-5-6	1	345	1
6L4	9	9	1	9	45	6	S	2-3	1	23	1
6L5	9	9	2	9	44	7	S	3-5	1	35	1

Tube	Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Quality Test
						Cath-Htr	Inter-Element	Cir. (Together)	
7R7-PEN		9	9	1					256
7R7-DIO 1		9	9	1					3
7R7-DIO 2		9	9	1					3
7R7-HEP		9	9	1					4
7S7-TRI		9	9	1					1
7T7		9	9	1					34
7V7		9	9	1					1
7W7		9	9	1					1
7X6-P1		9	9	1	7				1
7X6-P2		9	9	1					1
7X7-TRI		9	9	1					23
7X7-DIO 1		9	9	1					5
7X7-DIO 2		9	9	1					3
7Y4-P 1		9	9	1					6
7Y4-P 2		9	9	1					1
7Z4-P 1		9	9	1					1
7Z4-P 2		9	9	1					1
10		10	10	1					23
12A		8	8	1					1
12A4		11	11	4	37				1
12A5		11	11	1					1
12AL5-DIO 1		11	11	3					3
12AL5-DIO 2		11	11	3					3
12A35		11	11	3	7				7
12A6		11	11	2					2
12A7-REC		11	11	1					5
12A7-PEN		11	11	1					1
12A8		11	11	2					1
12A7-TRI 1		11	11	8					13
12A7-TRI 2		11	11	8					1

Tube	Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Quality Test
						Cath-Htr	Inter-Element	Cir. (Together)	
7C5		9	9	1					236
7C6-TRI		9	9	1					1
7C6-DIO 1		9	9	1					23
7C6-DIO 2		9	9	1					5
7C7		9	9	1					6
7E5		9	9	2					13
7E6-TRI		9	9	1					1
7E6-DIO 1		9	9	1					23
7E6-DIO 2		9	9	1					5
7E7-PEN		9	9	1					256
7E7-DIO 1		9	9	1					3
7E7-DIO 2		9	9	1					3
7E7-TRI 1		9	9	1					4
7E7-TRI 2		9	9	1					34
7F7-TRI 1		9	9	1					1
7F7-TRI 2		9	9	1					1
7F8-TRI 1		9	9	2					2
7F8-TRI 2		9	9	2					2
7G7		9	9	1					68
7G8/1206-TEST 1		9	9	1					1
7G8/1206-TEST 2		9	9	1					1
7H7		9	9	1					234
7J7-TRI		9	9	1					1
7J7-HEX		9	9	1					1
7K7-TRI		9	9	1					1
7K7-DIO 1		9	9	1					34
7K7-DIO 2		9	9	1					6
7L7		9	9	1					5
7N7-TRI 1		9	9	1					2346
7N7-TRI 2		9	9	1					1
7Q7		9	9	1					1
7S5		9	9	2	567				13
7S6-TRI		9	9	1					1
7S6-DIO 1		9	9	1					23
7S6-DIO 2		9	9	1					5
7T5		9	9	2					13
7T6-TRI		9	9	1					1
7T6-DIO 1		9	9	1					23
7T6-DIO 2		9	9	1					5
7T7		9	9	1					6
7T8-TRI 1		9	9	1					1
7T8-TRI 2		9	9	1					1
7U7		9	9	1					1
7V7		9	9	1					1
7W7		9	9	1					1
7X6-P1		9	9	1					1
7X6-P2		9	9	1					1
7X7-TRI		9	9	1					1
7X7-DIO 1		9	9	1					1
7X7-DIO 2		9	9	1					1
7Y4-P 1		9	9	1					1
7Y4-P 2		9	9	1					1
7Z4-P 1		9	9	1					1
7Z4-P 2		9	9	1					1
10		10	10	1					23
12A		8	8	1					1
12A4		11	11	4					1
12A5		11	11	1					1
12AL5-DIO 1		11	11	3					3
12AL5-DIO 2		11	11	3					3
12A35		11	11	3					7
12A6		11	11	2					2
12A7-REC		11	11	1					5
12A7-PEN		11	11	1					1
12A8		11	11	2					1
12A7-TRI 1		11	11	8					13
12A7-TRI 2		11	11	8					1

Tube	Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr	C.I.L. Tog. Sel. Up	C.I.L. Tog. Sel. (Separately)	C.I.L. Togles Up Sel. (Together)	Quality Test
						Inter-Element		C					
						Cath-Htr	Inter-Element						
12BH7-TRI 2		11	4	45	C							12	
12BK6-TRI 1		11	3	33								17	
12BK6-DIO 1		11	3	10								6	
12BK6-DIO 2		11	3	10								5	
12BN6		11	3	24								4	
12BZ7-TRI 1		11	4	40	C							2567	
12BZ7-TRI 2		11	4	40	C							67	
12C8-PEN 1		11	2	36								12	
12C8-DIO 1		11	2	0								36	
12C8-DIO 2		11	2	0								4	
12ES		11	2	40								35	
12F5		11	2	43								1	
12H6-DIO 1		11	2	0								5	
12H6-DIO 2		11	2	0								3	
12J5		11	2	44								35	
12J7		11	2	42								1	
12K7		11	2	41								1	
12K8-TRI		11	2	46								56	
12K8-HEX		11	2	46								1	
12L8-PEN 1		11	7	43								158	
12L8-PEN 2		11	7	43								1	
12Q7-TRI		11	2	43								1	

Tube	Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr	C.I.L. Tog. Sel. Up	C.I.L. Tog. Sel. (Separately)	C.I.L. Togles Up Sel. (Together)	Quality Test
						Inter-Element		C					
						Cath-Htr	Inter-Element						
12AT6-TRI		11	3	42								17	
12AT6-DIO 1		11	3	0								6	
12AT6-DIO 2		11	3	0								5	
12AT7-TRI 1		11	4	47	C							67	
12AT7-TRI 2		11	4	47	C							1	
12A7-TRI 1		11	4	44	C							1256	
12A7-TRI 2		11	4	44	C							67	
12AV7-TRI 1		11	4	46	C							67	
12AV7-TRI 2		11	4	46	C							1	
12AV6-TRI		11	3	43								17	
12AV6-DIO 1		11	3	5								6	
12AV6-DIO 2		11	3	5								5	
12AV7-TRI 1		11	4	46	C							67	
12AV7-TRI 2		11	4	46	C							1	
12AW6		11	3	46								12	
12AX4-DIO		11	7	25								156	
12AX7-TRI 1		11	4	44	C							5	
12AX7-TRI 2		11	4	44	C							67	
12AY7-TRI 1		11	4	40	C							12	
12AY7-TRI 2		11	4	40	C							67	
12AZ7-TRI 1		11	4	45	C							12	
12AZ7-TRI 2		11	4	45	C							67	
12B7		11	1	43								2348	
12B8-TRI		11	2	45								1	
12B8-PEN		11	2	43								58	
12BA6		11	3	46								1	
12BA7		11	4	45								1256	
12BD6		11	4	42								1	
12BE6		11	3	45								1567	
12BH7-TRI 1		11	4	45	C							67	

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel. Up	Cir. Sel. (separately)	Cir. Sel. (together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element				
28D7-P 2	13	6	1		41	35	35	H	6	2	234
29-TRI 1	6	6	1		35	35	32		2-3-4	1	23
29-TRI 2	6	5	1		35	32	32		2-3	1	24
30	5	5	1		32	32	32		C-3	2	23
30S	5	5	1		32	32	32		2-3	2	23
31	5	5	1		33	33	33		C-2-3	2	23
32	5	2	1		46	46	46	H	7	1	6
32L7-REC	14	14	2		46	45	45		3-4-5-6	1	234
32L7-TET	14	14	2		45	35	35		2-3-4	2	234
34	6	5	1		31	31	31	H	5	2	C23
35-51	6	6	1		40	40	40	H	5	1	C23
35A5	14	14	1		46	46	46	H	8	1	236
35B5	14	14	3		45	45	45	H	4	1	156
35C5	14	14	3		44	44	44	H	4	1	267
35L6	14	14	2		47	47	47	H	7	1	345
35W4	14	14	3		46	46	46	H	4	1	5
35Y4	13	13	1		45	45	45	H	8	1	5
35Z3	14	14	1		47	47	47	H	8	1	2
35Z4	14	14	2		46	46	46	H	7	1	5
35Z5	14	14	2		47	47	47	H	7	1	3
35Z6-P 1	14	14	2		47	47	47	H	7	1	3
35Z6-P 2	14	14	2		47	47	47	H	7	1	3
36	9	9	1		41	41	41	H	5	1	23
37	9	9	1		39	39	39	H	5	1	C23
38	9	9	1		40	40	40	H	5	1	C23
39-44	9	9	1		37	37	37	H	5	1	C23
40	8	8	1		38	38	38	H	7	1	23
40Z5	15	15	2		43	43	43	H	6	1	5
41	9	9	1		43	43	43	H	6	1	234

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel. Up	Cir. Sel. (separately)	Cir. Sel. (together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element				
25N6	13	2	41		7	7	7	H	3-4-5	1	345
25S-1B5-TRI	5	1	30		S	S	S		2-3-4-5	2	25
25S-1B5-DIO1	5	1	0							3	3
25S-1B5-DIO2	5	1	0							3	3
25W4	13	7	43		8	8	8	H	5	1	5
25X6-P 1	13	2	43		7	7	7	H	3-5	1	3
25X6-P 2	13	2	43		7	7	7	H	3-5	1	3
25Y5-P 1	11	1	45		6	6	6	H	2-5	1	5
25Y5-P 2	13	1	45		6	6	6	H	2-5	1	5
25Z4	13	2	47		7	7	7	H	5	1	5
25Z5-P 1	13	1	46		6	6	6	H	2-5	1	5
25Z5-P 2	13	1	46		6	6	6	H	2-5	1	5
25Z6-P 1	13	2	46		7	7	7	H	3-5	1	3
25Z6-P 2	13	2	46		7	7	7	H	3-5	1	3
26	4	1	36		2-3	2-3	2-3	S	2-3	1	23
26A6	13	3	46		1-2-5-6	1-2-5-6	1-2-5-6	H	1-2-5-6	1	1256
26A7-PEN 1	13	6	46		1-3-4-5	1-3-4-5	1-3-4-5	H	1-3-4-5	1	15
26A7-PEN 2	13	6	46		1-3-4-5	1-3-4-5	1-3-4-5	H	1-3-4-5	1	345
26C6-TRI	13	3	40		1-5-6-7	1-5-6-7	1-5-6-7	H	1-5-6-7	1	17
26C6-DIO 1	13	3	0							3	5
26C6-DIO 2	13	3	0							3	5
26D6	13	3	45		1-5-6-7	1-5-6-7	1-5-6-7	H	1-5-6-7	1	1567
26BK6-TRI	13	3	34		1-5-6-7	1-5-6-7	1-5-6-7	H	1-5-6-7	2	17
26BK6-DIO 1	13	3	10							3	6
26BK6-DIO 2	13	3	10							3	6
26Z5W-DIO 1	13	4	25		1-6	1-6	1-6	H	1-6	3	6
26Z5W-DIO 2	13	4	25		1-6	1-6	1-6	H	1-6	3	6
26Z7-P 1	6	1	37		2-3	2-3	2-3	H	2-3	3	23
28D7-P 1	13	1	41		2-3-4-5-7	2-3-4-5-7	2-3-4-5-7	H	2-3-4-5-7	2	357

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test		
					Cath-Htr	Inter-Element	Quality Test
	Cir. Sel.	Tog. Up	Cir. Sel.	Tog. Up	Cir. Sel.	Tog. Up	Cir. Sel.
885	6	1	45	H	5	2-3	1
950	5	1	32	S	2-3-4	2-3	23
951-1B4	5	1	34	S	C-2-3	2-3-4	234
954	9	1	40	H	C-3-4-8	3-4	C348
955	9	1	35	H	S	3-4	34
956	9	1	38	H	C-3-4-8	3-4	C348
957	3	1	26	S	S	S	34
958	3	1	28	S	S	3-4	34
959	3	1	32	S	C-3-4-8	3-4	C348
986-P 1	8	1	47	S	S	2-3	3
986-P 2	8	1	47	S	S	2-3	3
1201	9	2	44	H	8	1-3	13
1203A	9	1	15	H	8	4	4
1204	9	2	42	H	7	1-3-5	135
1206-TET 1	9	1	43	H	8	2-3-4-5-7	357
1206-TET 2	9	1	43	H	6	C-2-3-4	234
1221	9	2	42	H	6	C-2-3-4	C234
1223	9	2	42	H	7	C-3-4-5	C345
1229	5	1	29	S	C-2-3	C-2-3	C23
1231	9	1	45	H	8	2-3-4-6	2346
1232	9	1	46	H	8	2-3-4-6	2346
1267	2	2	35	S	5-7	5-7	5
1273	9	1	43	H	8	2-3-4-6	2346
1280	11	1	43	H	8	2-3-4-6	2346
1291-TRI 1	6	1	37	S	2-3-6-7	2-3-6-7	23
1291-TRI 2	6	1	37	S	2-3-6-7	2-3-6-7	23
1293	4	1	32	S	2-6	2-6	26
1294	4	1	0	S	2-4	2-4	4
1299	6	1	41	S	2-3-6	2-3-6	236
1602	10	1	39	S	7	7	7

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test		
					Cath-Htr	Inter-Element	Quality Test
	Cir. Sel.	Tog. Up	Cir. Sel.	Tog. Up	Cir. Sel.	Tog. Up	Cir. Sel.
85-DIO 1	9	1	0	S	0	0	3
85-DIO 2	9	1	0	S	0	0	3
89	9	1	39	H	6	C-2-3-4	4
99	7	1	0	S	2-3	2-3	23
117L7-REC	22	2	45	H	7	3-4-5-6	6
117L7-TET	22	2	46	H	7	3-4-5-6	6
117M7-REC	22	2	46	H	7	3-4-5-6	6
117M7-TET	22	2	46	H	7	3-4-5-6	6
117N7-REC	22	2	46	H	7	3-4-5	6
117N7-TET	22	2	46	H	7	3-4-5	6
117P7-REC	22	2	47	H	7	3-4-5	6
117P7-TET	22	2	47	H	7	3-4-5	6
117Z3	22	3	44	H	4	5	5
117Z4	22	2	46	H	7	5	5
117Z6-P 1	22	2	46	H	7	3-5	5
117Z6-P 2	22	2	46	H	7	3-5	5
182	8	1	41	S	2-3	2-3	23
183	8	1	41	S	2-3	2-3	23
257	7	1	33	S	2-3-4	2-3-4	234
484	7	1	41	H	5	2-3	23
502A	9	2	46	H	7	3-5-6	356
585	10	1	39	S	2-3	2-3	23
586	10	1	39	S	2-3	2-3	23
717A	9	2	37	H	7	4-6-8	468
807	9	1	43	H	5	C-2-3	C23
840	5	1	33	S	C-2-3-4	C-2-3-4	C234
864	4	1	30	S	2-3	2-3	23
874	16	1	21	S	3	3	1
879/2X2	6	1	32	S	C	C	4
884	9	3	45	H	7	3-5	5

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr. Sel.	C.I.R. Sel.	Tog. Up Sel.	C.I.R. Sel.	Tog. Up Sel.	Inter-Element	Quality Test
					Cath-Htr. Sel.	C.I.R. Sel.	Tog. Up Sel.							
1654	4	1	31		S	C	4	C	S	C-3-4-5	1	1	4	C
1851	9	2	47		S	S	1	S	S	3-4-6-8	1	1	1	C345
1852	9	2	47		S	S	1	S	S	3-4-6-8	1	1	1	3468
1853	9	2	45		S	S	1	S	S	3-4-6-8	1	1	1	3468
2050	9	2	47		S	S	1	S	S	3-5-6	1	1	1	356
2051	9	2	47		S	S	1	S	S	3-5-6	1	1	1	356
5516	9	2	44	146	S	S	7	S	S	C-3-5	1	1	1	C35
5517	6	3	29	267	S	S	7	S	S	C-4	4	4	4	C4
5608A-TRI 1	6	1	41		S	S	7	S	S	2-3-5-6	1	1	1	56
5608A-TRI 2	6	1	41		S	S	7	S	S	2-3-5-6	1	1	1	23
5610	9	3	41	5	S	H	4	S	S	1-6	1	1	1	16
5618	9	1	46		S	S	1	S	S	2-3-4-6	1	1	1	2346
5642	3	0			S	C	3	C	S		3	3	3	C
5651	17	2	10	34567	S	H	4	S	S	1-5-6	2	2	2	1
5654	9	3	37		S	H	4	S	S	1-5-6	2	2	2	156
5662	9	3	43		S	H	4	S	S	1-7	4	4	4	7
5663	9	3	43		S	H	4	S	S	1-5-7	4	4	4	7
5670-TRI 1	9	1	36		S	H	5	C	S	3-4-6-7	2	2	2	67
5670-TRI 2	9	1	36		S	H	5	C	S	3-4-6-7	2	2	2	34
5679-DIO 1	9	1	15		S	H	8	S	S	3-6	3	3	3	6
5679-DIO 2	9	1	15		S	H	8	S	S	3-6	3	3	3	3
5687-TRI 1	11	4	46		S	H	5	S	S	C-1-2-7	1	1	1	C7
5687-TRI 2	11	4	46		S	H	5	S	S	C-1-2-7	1	1	1	12
5691-TRI 1	9	7	39		S	H	8	S	S	1-2-4-5	1	1	1	45
5691-TRI 2	9	7	39		S	H	8	S	S	1-2-4-5	1	1	1	12
5692-TRI 1	9	7	41		S	H	8	S	S	1-2-4-5	1	1	1	45
5692-TRI 2	9	7	41		S	H	8	S	S	1-2-4-5	1	1	1	45
5693	9	3	43		S	H	7	S	S	3-4-6-8	1	1	1	3468

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr. Sel.	C.I.R. Sel.	Tog. Up Sel.	C.I.R. Sel.	Tog. Up Sel.	Inter-Element	Quality Test
					Cath-Htr. Sel.	C.I.R. Sel.	Tog. Up Sel.							
1603	9	1	42		S	H	6	S	S	C-2-3-4	1	1	1	C234
1609	3	1	32		S	S	2	S	S	2-3-4	2	2	2	234
1612	9	2	42		S	H	7	S	S	C-3-4-5	1	1	1	C345
1614	9	2	42		S	H	7	S	S	3-4-5	1	1	1	345
1619	6	2	42		S	H	7	S	S	3-4-5	1	1	1	345
1620	9	2	41		S	H	7	S	S	C-3-4-5	1	1	1	C345
1621	9	2	41		S	H	7	S	S	3-4-5	1	1	1	345
1622	9	2	45		S	H	7	S	S	3-4-5	1	1	1	345
1624	6	1	42		S	S	3	S	S	C-2-3	1	1	1	C23
1625	11	1	45		S	H	7	S	S	C-3-4	1	1	1	C34
1626	11	2	40		S	H	7	S	S	3-5	1	1	1	35
1629-TRI	11	2	35		S	H	7	S	S	3-4-5	1	1	1	35
1629-TAR	11	2	0		S	H	7	S	S	3-4-5	1	1	1	35
1631	11	2	43		S	H	7	S	S	3-4-5	1	1	1	345
1632	11	2	43		S	H	7	S	S	3-4-5	1	1	1	345
1633-TRI 1	13	8	44		S	H	7	S	S	3-4-5	1	1	1	345
1633-TRI 2	13	8	43		S	H	7	S	S	1-2-4-5	1	1	1	45
1634-TRI 1	11	8	41		S	H	7	S	S	2-3-4-5	1	1	1	45
1634-TRI 2	11	8	41		S	H	7	S	S	2-3-4-5	1	1	1	45
1635-TRI 1	9	2	42		S	H	7	S	S	3-4-5-6	1	1	1	23
1635-TRI 2	9	2	42		S	H	7	S	S	3-4-5-6	1	1	1	23
1641/RK60-P1	8	1	41		S				S	C-C	1	1	1	C
1641/RK60-P2	8	1	41		S				S	C-C	1	1	1	C
1641/RK60	8	1	41		S				S	C-C	1	1	1	C
1642-TRI 1	9	1	40		S	H	7	S	S	C-3-4-5	1	1	1	45
1642-TRI 2	9	1	40		S	H	7	S	S	C-3-4-5	1	1	1	45
1644-PEN 1	11	7	43		S	H	6	S	S	1-3-4-5-8	1	1	1	158
1644-PEN 2	11	7	43		S	H	6	S	S	1-3-4-5-8	1	1	1	158

Tube Type	F.I. Sel.	F.I. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test		Cath-Htr Sel.	Tog. Up Sel.	Citr. Sel.	Toggles Up (Separately)	Citr. Sel.	Toggles Up (Together)	Quality Test
					Inter-Element	Inter-Element							
CK1013	6	3	29	267	S	C-4	S	7	H	2-3-5-6	4	56	
CK5608-TR11	6	1	40		S	C-4	S	7	H	2-3-5-6	4	56	
CK5608-TR12	9	3	37		S	1-5-6	S	4	H	1-5-6	2	156	
CK5654	9	4	46		S	1-2-3-7-8	S	5	H	1-2-3-7-8	1	137	
CK5656-TEST1	9	4	46		S	4-6-7	S	5	S	4-6-7	3	467	
CK5656-TEST2	4	5	0		S	5-7	S	5	S	5-7	3	57	
CK5677	3	4	0		S	4-6-7	S	5	S	4-6-7	3	467	
CK5678	3	3	0		S	4-6-7	S	5	S	4-6-7	3	467	
CK5686	9	4	41	C	S	2-6-7	S	5	H	2-6-7	1	267	
CK5694-TR11	9	2	41		S	3-4-5-6	S	7	H	3-4-5-6	1	56	
CK5694-TR12	9	2	41		S	1-3-6-7	S	5	H	1-3-6-7	1	1367	
CK5703	9	4	0		S	3-7	S	5	H	3-7	3	37	
CK5725	9	3	44		S	1-5-6-7	S	4	H	1-5-6-7	1	1567	
CK5726-P 1	9	3	44		S	2-7	S	4	H	2-7	1	7	
CK5726-P 2	9	3	44		S	4-7	S	6	H	4-7	1	47	
CK502AX	3	5	10		S	4-6-7	S	5	S	4-6-7	3	467	
CK503AX	3	5	10		S	4-6-7	S	5	S	4-6-7	3	467	
CK506AX	3	5	30		S	4-6-7	S	5	S	4-6-7	2	467	
CK523AX	3	5	10		S	4-6-7	S	5	S	4-6-7	3	467	
CK568AX	3	4	0		S	5-7	S	5	S	5-7	3	57	
CK569AX	3	3	0		S	4-6-7	S	5	S	4-6-7	3	467	
CK551AXA-FM	3	2	0		S	3-5-6-7	S	6	S	3-5-6-7	3	367	
CK551AXA-DIO	3	2	0		S	3-5-6-7	S	6	S	3-5-6-7	3	367	
CK606BX	9	5	6		S	7	S	6	H	7	3	7	

Tube Type	F.I. Sel.	F.I. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test		Cath-Htr Sel.	Tog. Up Sel.	Citr. Sel.	Toggles Up (Separately)	Citr. Sel.	Toggles Up (Together)	Quality Test
					Inter-Element	Inter-Element							
5696	9	3	45	7	S	1-5-6	S	4	H	1-5-6	4	6	
5722	8	3	20		S	1-5-6	S	4	H	1-5-6	1	1	
5731	9	1	37		S	3-4	S	6	H	3-4	1	34	
5749	9	3	44		S	1-2-5-6	S	5	H	1-2-5-6	1	1256	
5751-TRI 1	11	4	42	C	S	1-2-6-7	S	5	H	1-2-6-7	1	67	
5751-TRI 2	11	4	42	C	S	1-2-6-7	S	5	H	1-2-6-7	1	12	
5763	9	4	45		S	1-3-6-8	S	5	H	1-3-6-8	1	1368	
5812	9	3	43		S	1-2-5-6	S	5	H	1-2-5-6	1	1256	
5814-TRI 1	11	4	42	C	S	1-2-6-7	S	5	H	1-2-6-7	1	67	
5814-TRI 2	11	4	42	C	S	1-2-6-7	S	5	H	1-2-6-7	1	67	
5824	13	2	44		S	3-4-5	S	7	H	3-4-5	1	345	
5879	9	4	33		S	C-1-7-8	S	7	H	C-1-7-8	2	C178	
5881	9	2	43		S	3-4-5	S	7	H	3-4-5	1	345	
5910	4	1	32	5	S	2-3-6	S	7	H	2-3-6	2	236	
5963-TRI 1	11	5	41	C	S	1-2-6-7	S	4	H	1-2-6-7	1	67	
5963-TRI 2	11	5	41	C	S	1-2-6-7	S	4	H	1-2-6-7	1	12	
6080-TRI 1	9	8	43		S	1-2-4-5	S	7	H	1-2-4-5	1	45	
6080-TRI 2	9	8	43		S	1-2-4-5	S	7	H	1-2-4-5	1	45	
7000	9	2	42		S	C-3-4-5	S	7	H	C-3-4-5	1	12	
7000	9	2	42		S	C-2-3-4	S	5	H	C-2-3-4	1	C345	
7193	9	2	45		S	C	S	7	H	C	1	C	
7193	9	2	45		S	C	S	7	H	C	1	C	
8016	4	2	6		S	C	S	4	H	C	4	C	
9001	9	3	42		S	1-5-6	S	4	H	1-5-6	1	156	
9002	9	3	42		S	5-6	S	4	H	5-6	1	56	
9003	9	3	42		S	1-5-6	S	4	H	1-5-6	1	156	
9004	9	1	15		S	3	S	6	H	3	3	3	
9005	7	1	0		S	4	S	6	H	4	3	4	
9006	9	3	0	25	S	4	S	6	H	4	3	4	

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel.	Citr. Tog. Sel.	Citr. Togles Up (Separately)	Citr. Togles Up Sel. (Together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element					
VR150	22	2	38	7	S	5	S	5	S	5	1	5
XXB-TRI 1	7	1	36	7	S	2	S	2	S	2	2	56
XXB-TRI 2	7	1	36	7	S	2	S	2	S	2	2	34
XXD-TRI 1	11	1	43		S	1	S	1	S	1	1	34
XXD-TRI 2	11	1	43		S	1	S	1	S	1	1	56
XXFM-TRI	9	1	41		S	1	S	1	S	1	1	23
XXFM-DIO 1	9	1	0		S	3	S	3	S	3	3	5
XXFM-DIO 2	9	1	0		S	3	S	3	S	3	3	6
XXL	9	1	45		S	2-6	S	2-6	S	2-6	1	26
LAD4	3	5	0		S	1-2-4	S	1-2-4	S	1-2-4	3	124
1L6	4	1	26		S	2-3-4-5-6	S	2-3-4-5-6	S	2-3-4-5-6	2	23456
1LH4TRI	4	1	31		S	2-4-6	S	2-4-6	S	2-4-6	2	26
1LH4-DIO	4	1	0		S		S		S		3	4
2AF4-A	6	4	45	6-7	S	3	S	3	S	3	1	12
2V2	6	2	0	5	S	C	S	C	S	C	4	C
3AL5-DIO	7	3	23		S	2-6-7	S	2-6-7	S	2-6-7	3	2
3AL5-DIO-2	7	3	23		S	4	S	4	S	4	3	7
3AV6-DIO	6	3	43		S	1-2-5-6	S	1-2-5-6	S	1-2-5-6	1	1256
3AV6-TRI	6	3	43		S	1-5-6-7	S	1-5-6-7	S	1-5-6-7	1	17
3AV6-DIO-2	6	3	5		S		S		S		3	5
3BC5	6	4	45	7	S	3	S	3	S	3	1	156
3BZ6	6	4	44		S	3	S	3	S	3	1	156
3BN6	6	3	23		S	2-5-6-7	S	2-5-6-7	S	2-5-6-7	4	2567
3CB6	6	4	42		S	1-5-6	S	1-5-6	S	1-5-6	1	156
3CS6	6	4	37		S	3	S	3	S	3	2	1567

2-55 SUPPLEMENT

Tube Type	Fll. Sel.	Fll. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel.	Citr. Tog. Sel.	Citr. Togles Up (Separately)	Citr. Togles Up Sel. (Together)	Quality Test
					Inter-Element	Inter-Element	Inter-Element					
CK605CX	9	4	44		S	5	S	5	S	5	1	1367
CK608CX	9	1	0		S	3-7	S	3-7	S	3-7	3	37
%	10	1	32		S	2	S	2	S	2	1	2
GL6134	9	2	46		S	3-4-6-8	S	3-4-6-8	S	3-4-6-8	1	3468
GL6203-P 1	9	4	39		S	C-1	S	C-1	S	C-1	1	C
GL6203-P 2	9	4	39		S	5	S	5	S	5	1	1
HI-P0567-P1	8	2	42		S	4-6	S	4-6	S	4-6	1	1
HI-P0567-P2	8	2	42		S		S		S		1	6
HY113	4	1	0		S	2-3	S	2-3	S	2-3	3	23
HY115	4	1	5		S	2-3-4	S	2-3-4	S	2-3-4	3	234
HY123	4	1	0		S	2-3	S	2-3	S	2-3	3	23
HY125	4	1	5		S	2-3-4	S	2-3-4	S	2-3-4	3	234
HY145	4	1	5		S	2-3-4	S	2-3-4	S	2-3-4	3	234
HY155	4	1	5		S	2-3-4	S	2-3-4	S	2-3-4	3	234
K24	6	1	40		S	5	S	5	S	5	1	C23
KR1	9	1	46		S	4	S	4	S	4	1	2
KR2	8	1	46		S	4	S	4	S	4	1	2
KR5	9	1	42		S	2-3-4	S	2-3-4	S	2-3-4	1	2
KR25	6	1	41		S	2-3-4	S	2-3-4	S	2-3-4	1	234
KR28-P 1	9	1	42		S	2-3-4	S	2-3-4	S	2-3-4	1	234
KR28-P 2	9	1	42		S	2-3	S	2-3	S	2-3	1	2
KR98-P 1	9	1	42		S	2-3	S	2-3	S	2-3	1	3
KR98-P 2	9	1	42		S	2-3	S	2-3	S	2-3	1	3
KT66	9	2	43		S	3-4-5	S	3-4-5	S	3-4-5	1	345
LA	9	1	40		S	2-3-4	S	2-3-4	S	2-3-4	1	234
P861-P 1	9	1	42		S	2-3-4	S	2-3-4	S	2-3-4	1	234
P861-P 2	9	1	42		S	2-3	S	2-3	S	2-3	1	2
VR75	15	2	37		S	5	S	5	S	5	1	3
VR90	18	2	40		S	5	S	5	S	5	1	5
VR105	18	2	35		S	5	S	5	S	5	1	5

Tube Type	F.I.L. Sel.	F.I.L. Ret.	Tube Sel.	Tog. Down	Leakage or Short Test			Cath-Htr Sel. Up	Inter-Element			C.I.R. Sel. (Together)	Quality Test
					Cath-Htr Sel. Up	C.I.R. Sel. (Separately)	C.I.R. Sel. (Together)		Cath-Htr Sel. Up	C.I.R. Sel. (Separately)	C.I.R. Sel. (Together)		
6A88-DIO	9	9	4	10	H	5	S	C-2-3-7-8	S	3	3	6	9
6A88-PEN	9	9	4	37	H	5	S	C-2-3-7-8	S	2	2	23	9
6A88-TRI	9	9	4	37	H	5	S	C-2-3-7-8	S	2	2	23	9
6A88-PEN	9	9	4	46	H	5	S	C-2-3-7-8	S	1	1	C78	9
6A88-TRI	9	9	4	46	H	5	S	C-2-3-7-8	S	1	1	C78	9
6A88-PEN	9	9	4	44	H	5	S	C-2-3-7-8	S	1	1	23	9
6AX7-TRI-1	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6AX7-TRI-2	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6B7-TRI-1	9	9	4	45	H	5	S	C-1-2-7	S	1	1	C127	9
6B7-TRI-2	9	9	4	45	H	5	S	C-1-2-7	S	1	1	C127	9
6B7-TRI-3	9	9	4	35	H	5	S	1-2	S	2	2	C5	9
6B7-DIO-1	9	9	4	16	H	7	S	5	S	2	2	C5	9
6B7-DIO-2	9	9	4	8	H	5	S	2-6-8	S	3	3	2	9
6B7-DIO-3	9	9	4	8	H	5	S	2-6-8	S	3	3	2	9
6B7-TRI	9	9	4	8	H	5	S	2-6-8	S	3	3	2	9
6B7-TRI-1	9	9	4	45	H	3	S	1-5-6	S	1	1	1567	9
6B7-TRI-2	9	9	4	37	H	4	S	1-5-6-7	S	2	2	1567	9
6B7-TRI-3	9	9	4	37	H	4	S	1-5-6-7	S	2	2	1567	9
6C96-DIO	9	9	3	0	H	7	S	C-4-5	S	3	3	2	9
6C96-TRI-1	9	9	2	43	H	7	S	C-4-5	S	1	1	C45	9
6C96-TRI-2	9	9	2	43	H	7	S	C-4-5	S	1	1	C45	9
6C96-PEN	9	9	4	34	H	5	S	C-1-3	S	2	2	C13	9
6C96-TRI-1	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-2	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-3	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-4	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-5	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-6	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-7	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-8	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-9	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-10	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-11	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-12	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-13	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-14	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-15	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-16	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-17	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-18	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-19	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-20	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-21	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-22	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-23	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-24	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-25	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-26	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-27	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-28	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-29	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-30	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-31	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-32	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-33	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-34	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-35	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-36	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-37	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-38	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-39	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-40	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-41	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-42	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-43	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-44	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-45	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-46	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-47	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-48	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-49	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-50	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-51	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-52	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-53	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-54	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-55	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-56	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-57	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-58	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-59	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-60	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-61	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-62	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-63	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-64	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-65	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-66	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-67	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-68	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-69	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-70	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-71	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-72	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-73	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-74	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-75	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-76	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-77	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-78	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-79	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-80	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-81	9	9	5	42	H	4	S	1-2-6-7	S	1	1	67	9
6C96-TRI-8													

Tube Type	F.I. Sel.	F.I. Ret.	Tube Sel.	Tog. Down	Leakage of Short Test				Quality Test
					Cath-Htr	Inter-Element	Cir. Tog. Up	Cir. Sel. (separately)	
6101-TRI-2	9	3	37		S	4-6			2
6106-P1	8	2	35		S				16
6106-P2	8	2	35		S				6
6118-TRI	9	2	41		S	C-3-4-5			1
6118-DIO-1	9	2	0		S				1
6118-DIO-2	9	2	0		S				3
6146	9	2	43	4-6	S	C-3-5			5
6197	9	4	45	8-C	S	2-3-6-7			1
CK507-AX	3	3	0		S	1-2-4			3
CK518-AX	3	3	0		S	1-2-4			3
CK521-AX	3	3	0		S	1-2-4			3
CK522-AX	3	3	0		S	1-2-4			3
CK524-AX	3	3	0		S	1-2-4			3
CK525-AX	3	3	0		S	1-2-4			3
CK526-AX	3	3	0		S	1-2-4			3
CK527-AX	3	3	0		S	1-2-4			3
CK528-AX	3	3	0		S	1-2-4			3
CK529-AX	3	3	0		S	1-2-4			3
CK533AX	3	3	0		S	1-2-4			3
CK5676	3	4	33		S	5-7			3
CK5744	9	3	10		S	1-4			3
CK5875	3	3	10		S	1-2-4			3
GL-5654	9	3	39	7	S	1-5-6			2
GL-5670-TRI-1	1	1	38		S	3-4-6-7			2
GL-5670-TRI-2	2	1	38		S				2
GL-5686	9	4	42	C-3-8	S	2-6-7			1
GL-5725	9	3	37		S	1-5-6			2
GL-5726-DIO-1	1	3	10		S	2-7			3
GL-5726-DIO-2	2	3	45		S	1-5-6			3

Tube Type	F.I. Sel.	F.I. Ret.	Tube Sel.	Tog. Down	Leakage of Short Test				Quality Test
					Cath-Htr	Inter-Element	Cir. Tog. Up	Cir. Sel. (separately)	
12BF6-DIO-2	11	3	45	7	S	1-3-8			3
12BT6-TRI	11	3	35		S	1-5-6-7			1
12BT6-DIO-1	11	3	10		S				2
12BT6-DIO-2	11	3	10		S				1
12B06-DIO-1	11	3	10		S	1-5-6-7			1
12B06-DIO-2	11	3	10		S				3
12BY7	11	4	45	6	S	2-7-8			3
12C06	11	7	45		S	3-4-5			1
12C06	11	4	45		S	3-4-5			1
12G4	11	3	6	5	S	1-6			3
12L6	11	2	46		S	3-4-5			1
12W6	11	2	46		S	3-4-5			1
19-TRI-1	5	1	31		S	2-3-4-5			2
19-TRI-2	5	1	31		S				2
19X8-TRI	12	5	45		S	C-2-3-7-8			1
19X8-PEN	12	5	38		S				2
25AX4	13	7	41		S	5			1
25CD6	13	2	46		S	C-5-8			1
485	8	1	41		S	2-3			1
485	7	1	40		S	2-3			1
5678	3	3	5		S	1-2-4			3
5690-TRI-1	9	6	44		S				1
5690-TRI-2	9	1	44		S	3			1
5964-TRI-1	9	3	37		S	1-2-5-6			2
5964-TRI-2	9	3	37		S				2
5965-TRI-1	11	4	38	C	S	1-2-6-7			2
5965-TRI-2	11	4	38		S				2
6101-TRI-1	9	3	37	C	S	1-2-5-6			2