

# OPERATING MANUAL

**EMC Model 213-215**

**WARNING:** Do not misplace this book. It contains complete instructions necessary for the operation of this instrument. **DO NOT** plug instrument into a DC POWER LINE. Unless otherwise indicated, this instrument is designed for 105-135 volt, 60 cycle, AC power.

**ELECTRONIC MEASUREMENTS**  
CORPORATION

## OPERATING INSTRUCTIONS FOR MODEL 213 OR 215

### GENERAL

MODEL 211 or 213 is a compact, completely flexible tube checker. It is normally designed for 105-130 volt AC 60 cycle operation.

It uses an NE2 neon bulb for a "short" indicator.

All slide switches at the bottom of the panel should normally be kept in "K" position.

The N-S slide switch is normally kept in the "N" position unless the tube chart indicates otherwise.

## 11. SHORT TEST

1. Set "SHORT-QUALITY" switch to "SHORT" position.
2. Press the slide switches up, one at a time to "P" position, and return them to "K" position.
3. The slide switch corresponding to the number in the "FILAMENT SELECTOR" column is not touched but is left in the "K" position. For example, on the 1S5 tube, slide switch #1 is kept in the "K" position at all times.
4. Unless the tube chart indicates otherwise, it is normal for the neon lamp to glow when only one of the slide switches is pressed to "P" position. This simply indicates filament or heater continuity. However, unless the tube chart indicates otherwise, if the neon lamp glows when more than one slide switch is pressed to "P" position, the tube is defective and should be discarded without further test. A momentary flash of the neon bulb should be disregarded.
5. A shorted tube should not be checked for quality since it might overload the meter or transformer.
6. Tubes having a filament or heater voltage of 18 volts or higher sometimes show a steady leakage at the rated heater voltage, although they are satisfactory to use. In such cases reduce the "FILAMENT VOLTS" switch by 1 position. If the glow still persists at the reduced heater voltage, the heater is actually defective. If it dies down at the lower voltage, disregard the glow, reset the "FILAMENT VOLTS" switch to the rated value, and continue with the quality test.
7. Tubes with a filament or heater voltage of 50V or higher must be checked for shorts with the "FILAMENT VOLTS" switch at position "d". After the short test, the "FILAMENT VOLTS" switch is set to the position indicated

on the tube chart and the tube checked for quality.

### III. QUALITY TEST

1. Make sure that the "SHUNT" control is correctly set to the value indicated on the tube chart and set "SHORT-QUALITY" switch to "QUALITY" position.
2. Press the switch or switches in the "P" column to "P" position.
3. Allow about 1/2 minute or so for the tube to heat up. Power tubes require more time to heat up.
4. Read the tube quality on the "REJECT-GOOD" scale. If the meter doesn't move, try tapping the meter lightly with a finger before rejecting the tube. If the tube chart says "OK over diode" in the "Notation" column, the pointer need go only past the "Diodes OK" mark (about 3 meter divisions) to be considered good.
5. If the tube has more than one section, return all the switches in the "P" position to the "K" position after completing the test on one section. Then reset the switches and shunt control for the other section or sections.

#### NOTE: -

If a tube starting with 4 such as 4EJ7 for example is not listed, look under 6EJ7 and use identical settings for testing it except that the short test should be done at "c" instead of "d".

If a tube starting with 10,12,13, or 15 such as 13Z10 for example is not listed, look under 6Z10 and use identical settings for testing it except that the Filament Volts switch is set at "e" instead of "d".

IV. VOLTAGE REGULATOR TUBES, VR75, VR90, VR105 and VR150

1. Set "SHORT-QUALITY" switch to "QUALITY" Position.
2. Set "SHUNT" control to "O" position.
3. Press #2 and #10 switches to "P" position.
4. If tube is good, it will glow.

GUARANTEE

This instrument is guaranteed for 90 days from date of purchase to be free from any defect in workmanship or material. ELECTRONIC MEASUREMENTS CORPORATION will replace any defective part or parts within this period without charge, if tests at our factory show that the defect was not caused by abuse or tampering.

ELECTRONIC MEASUREMENTS CORPORATION reserves the right to make changes in design or add improvements to equipment manufactured by them without incurring any obligation to incorporate such changes or improvements in equipment previously sold by them.

N-S Switch is kept in N Position unless tube chart indicates otherwise

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
OA2	-	1	1-5-10	0	Glows at 1,2,4,5, 7 Tube Glows
OA4	-	1	5-7-10	75	
OB2	-	1	1-5-10	0	Glows at 1,2,4,5, 7 Tube Glows
OY4	-	1	3-5-10	21	
1A5	b	2	3-4-5	56	
1A7	b	2	5-6	60	
1A7	b	2	3-4-10	68	
1AD2/1BY2	b	10	8-10-12	90	Glows at 1,2,5, 6,8,9,11,12. Set N-S switch to "S" OK over diode
1AF4	b	7	2-3-6	35	Glows at 1,5
1AX2	b	10	1-4-6-9-10	83	Glows at 1,2,4,5, 6,8,9. Press to "S" for quality check. Ok over diode.
1B3	a	10	2-10	82	Glows at 2,7. Press to "S". OK over 18
1B7	b	2	3-5-6	58	
1BC2	b	10	1-4-6-9-10	50	Glows at 1,4,5,6, 8,9. Set N-S switch to "S". OK over diode.

1C5	b	2	3-5	47
1D8	b	2	3-4-5	40
1D8	b	2	6	56
1DN5	b	1	3-4-6	51
1E7	b	2	3-4-8-10	62
1E7	b	2	5-6-8-10	62
1G4	b	2	3-5	46
1G6	b	2	3-4	49
1G6	b	2	5-6	49
1H4	b	2	3-5	54
1H5	b	2	3	52
1J3	b	10	2-10	82
1J5	b	2	3-4-5	51
1J6	b	2	3-4	58
1J6	b	2	5-6	58
1K3	a	10	2-10	82
1L6	b	1	2-3-4-5-6	53
1LA6	b	1	3-4	57
1LA6	b	1	2-5-6-10	60
1LC5	b	1	2-3-6	45
1LC6	b	1	3-4	58
1LC6	b	1	2-5-6-10	55
1LE3	b	1	2-6	52
1LG5	b	1	2-3-6	52

Glows at 2,7.  
Press to "S".  
OK over diode.

Glows at 2,7.  
Press to "S". OK  
over diode.

Glows at 5,8

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
1LH4	b	1	2-6	50	
1LH5	b	1	2-3-6	50	
1N5	b	2	3-4	56	
1N5	b	2	3-4	56	
1P5	b	2	3-4	50	
1Q5	b	2	3-4-5	29	
1R5	b	7	3-4	50	Glow at 1,5
1R5	b	7	2-3-6-10	59	
1S5	b	1	3	70	OK over diode
1S5	b	1	4-5-6	51	
1T4	b	7	2-3-6	42	Glow at 1,5
1T5	b	2	3-4-5	52	
1U4	b	7	2-3-6	46	Glow at 1,5
1U5	b	1	2-3-6	50	
1U5	b	1	4	60	OK over diode
1V2	a	4	1-8-9-10	80	OK over diode
1X2	b	10	1-4-6-9-10	80	Glow at 1,2,4,5,6,8,9. Press to "S" for quality check. OK over diode.
2A4	c	2	3-5-10	22	Tube Glows
2AF4	c	3	1-2-6-7	20	Glow at 1,2,4,6,7
2AH2	c	10	3-9-10-12	5	Glow at 1,2,3,5,6,7,8,9,11,12. Set N-S Switch to "S" position. OK over diode.



2AS2	c	10	10-12	80	N-S Switch in "S" position. OK over 18. Glows at 1,2,5,6,9,12.
2AV2	c	4	1-9-10	90	Glows at 1,5,9
2B3	b	10	2-10	80	Press to "S". OK over 20.
2BN4	c	3	2-5-7	20	Glows at 1,2,4,6,7
2CW4	c	1	2-10	53	
2CY5	c	3	1-5	25	Glows at 2,4,7
2D21	d	3	1-5-7	22	Glows at 4,5,7
2EG4	c	1	2-4	17	
2EN5	c	3	2	22	
2EN5	c	3	7	22	
2ER5	c	4	2-5-6	15	Glows at 1,3,7
2FH5	c	4	2-5-6	15	Glows at 1,3,7
2FS5	c	3	1-5-6	19	Glows at 2,4,7
2V2	b	10	5-10	60	Press to "S". OK over diode. Glows at 2,5,6,7,8
3A2	c	10	2-5-8-10	70	Glows at 1,2,4,5,6,8,9. Press to "S". OK over 20
3A3	c	10	2-10	80	Glows at 2,3,5,7,8. Press to "S". OK over 18.
3A4	b	5	2-3-4-6	48	Glows at 1,2,6,7
3A5	b	4	5-6	33	Glows at 1,7
3A5	b	4	2-3	33	
3A8	b	1	3-4	46	Glows at 2,7

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
3AL5	c	3	2	26	
3AL5	c	3	7	26	
3AT2	c	10	3-8-10-12	80	N-S Switch in "S" position. Glows at 1,2,3,5,6,8,9, 11,12 .OK over 15
3AU6	c	3	1-2-5-6	20	
3AV6	c	3	1-7	30	
3AV6	c	3	5	55	OK over diode
3AW2	c	10	8-10-12	70	N-S Switch in "S" position. Glows at 1,2,5,6,8,9,12
3B5	c	8	3-4-5	33	Glows at 2,7
3BA6	c	3	1-5-6	30	
3BC5	c	3	1-5-6	21	Glows at 2,4,7
3BE6	c	3	5-6-7-10	56	
3BE6	c	3	1-5-7	23	
3BN4	c	3	2-5-7	22	Glows at 1,2,4,6,7
3BN6	c	3	2-5-6-7-10	80	OK over 20
3BT2	c	10	8-10-12	80	N-S Switch in "S" position. Glows at 1,2,5,6,8,9,12
3BU8	c	4	2-3-7	30	
3BU8	c	4	2-7-8	30	
3BY6	c	3	1-5-6-7	25	
3BZ6	c	3	1-5-6	20	
3C2	b	10	5-10	65	Glows at 2,4,5,6, 7,8.Press to "S"
3CA3	c	2	4-5	90	OK over 2 div. Glows at 7,8

3CB6	c	3	1-5-6-7	20	
3CN3	c	10	3-5-7-10	66	N-S Switch in "S" position. Glows at 2,3,5,7
3CS6	c	3	1-5-6-7	22	
3CU3A	c	10	7-8-10	60	Glows at 2,7,8. Keep N-S switch in "S" position.
3CY5	c	3	1-5-6	20	Glows at 2,4,7
3DC3	c	10	2-10	70	N-S switch in "S" position
3DG4	d	1	5	50	Allow 1 minute to heat. OK over diode.
3DJ3	c	10	2-10	80	Glows at 1,2,3,5,7. Press to "S". OK over 16.
3DK6	c	3	1-5-6-7	20	
3DK6	c	3	1-6	19	
3DT6	c	3	1-5-6-7	22	
3E6	b	5	2-3-6	52	Glows at 1,8
3FS5	c	3	1-5-6	22	Glows at 2,4,7
3GK5	c	4	2-5-6	20	Glows at 1,3,7
3GS8	c	4	2-7	24	
3HA5	c	3	1-5-6	23	Glows at 2,4,7
3HM5	c	3	1-5-6	23	Glows at 2,4,7
3LF4	b	7	2-3-10	80	Glows at 1,8
3Q4	b	5	2-3-4-6	38	Glows at 1,2,6,7
3Q5	b	8	3-4-5	33	Glows at 2,7
3S4	b	5	2-3-4-6	35	Glows at 1,2,6,7
3V4	b	5	2-3-6	30	Glows at 1,7
4AU6	d	3	1-2-5-6	20	
4BC8	d	4	1-6-10	49	
4BN6	d	3	2-5-6-7-10	80	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
4BO7A	d	4	1-6-10	52	
4BS8	d	4	1-6-10	49	
4BU8	d	4	2-7-9	22	
4BU8	c	4	2-3-7	22	
4BZ7	d	4	1-6-10	50	
4CB6	d	3	1-5-6-7	20	
4CS6	d	3	1-6-7	21	
4CY5	d	3	5-6-10	50	Glow at 2,4,7
4DE6	d	3	1-5-6	20	
4DT6	d	3	1-5-6-7	22	
4GZ5	d	3	2-5-6-7	22	Glow at 2,4,5
4HA7/4HC7	d	1	9-10	21	Keep #10 in "p" position during short test. Short test at "c".
4HA7/4HC7	d	1	9-11	21	
4HM6	d	4	2-8	20	Glow at 1,3,5
4HT6	d	4	2-8	20	Glow at 1,3,5
4JC6	d	4	2-8	23	Glow at 1,3,5
4JD6	c	4	2-8-9	27	Glow at 1,3,5
4KE8	d	4	1-9	21	Short test at "C"
4KE8	d	4	2-3-6	21	
4LJ8	d	4	1-2	19	Glow at 3,5,8. Short test at "C"
4LJ8	d	4	6-7-9	17	
5AM8	d	4	2-3	20	
5AM8	d	4	8	25	
5AN8	d	4	1-2	22	
5AN8	d	4	6-7-8	20	
5AQ5	d	3	1-5-6-7	28	Glow at 1,4,7
5AR4	d	2	4	27	
5AR4	d	2	6	27	

5AS4	d	2	4	60
5AS4	d	2	6	60
5AS8	d	4	6	25
5AS8	d	4	1-2-9	20
5AT8	d	4	1-2	21
5AT8	d	4	7-8-10	66
5AU4	d	2	4-10	75
5AU4	d	2	6-10	55
5AV8	d	4	2-3	24
5AV8	d	4	6-8-9	23
5AW4	d	2	4	62
5AW4	d	2	6	62
5AZ4	d	2	4	60
5AZ4	d	2	6	60
5B4	d	4	2-3-6-8	20
5BC3	d	1	5-6	50
5BE8	d	4	1-2	21
5BE8	d	4	7-9	21
5BK7A	d	4	1-2	20
5BK7A	d	4	6-7	20
5BQ7	d	4	1-2	21
5BQ7	d	4	6-7	21
5BR8	d	4	1-2	20
5BR8	d	4	6-7-9	21
5BT8	d	4	1-2	36
5BT8	d	4	7-8	21
5BW8	d	4	6-8-9	20
5BW8	d	4	1	25
5BW8	d	4	3	25
5CG8	d	4	1-2	23
5CL8	d	4	1-2	19
5CL8	d	4	7-9	20
5CM8	d	4	1-9	28
5CM8	d	4	2-7	22

Glow at 2,3,5,6,  
8,9

Glow at 3,5,8

SHORT TEST.

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
5CQ8	d	4	2-3	21	
5CQ8	d	4	1-9	21	
5CZ5	d	4	1-3-6-9	28	Glow at 3,5,6
5DH8	d	4	1-2	23	
5DH8	d	4	6-7-9	20	
5EU8	d	4	2-3	21	
5EU8	d	4	7-9	20	
5GJ7	d	4	7-8-9	31	
5GS7	d	4	6-7-9	21	Glow at 3,5,8
5GS7	d	4	1-2	21	
5J6	d	3	2-5	23	
5J6	d	3	1-6	23	
5JK6	d	3	1-6	23	
5KE8	d	4	1-2-3-9	22	
5LJ8	d	4	1-2	24	Glow at 3,5,8
5LJ8	d	4	7-9	24	
5MB8	d	4	1-2	20	
5MB8	d	4	7-9	20	
5R4	d	2	4	52	
5R4	d	2	6	52	
5T4	d	2	4	52	
5T4	d	2	6	50	
5T8	d	4	1	25	
5T8	d	4	2	25	
5T8	d	4	6	25	
5T8	d	4	8-9	36	
5U4	d	2	4	50	
5U4	d	2	6	50	
5U8	d	4	2-3	20	
5U8	d	4	1-9	20	
5V3	d	2	4	55	OK over diode
5V3	d	2	6	55	OK over diode

5V4	d	2	4	26
5V4	d	2	6	28
5V6	d	2	3-4-5	31
5W4	d	2	4	55
5W4	d	2	6	51
5X4	d	7	3	58
5X4	d	7	5	60
5X8	d	4	2-3	23
5X8	d	4	7-8-9	21
5Y3	d	2	4	60
5Y3	d	2	6	60
5Y4	d	7	3	56
5Y4	d	7	5	56
5Z4	d	2	4	38
5Z4	d	2	6	38
6A5	d	2	3-5	48
6A8	d	2	5-6	50
6A8	d	2	3-4-10	62
6AB4	d	3	1-6	20
6AB7	d	2	4-6-8	30
6AB8/ECL80	d	4	1-2-8-9	20
6AC5	d	2	3-5	38
6AC7	d	2	4-6-8	26
6AC10	d	1	7-9-10	20
6AC10	d	1	2-10-11	20
6AD6	d	2	3-5-10	0
6AD6	d	2	4-5-10	0
6AD7	d	2	3-4-5	52
6AD7	d	2	1-6	73
6AD10	d	1	3-6-7-10	31

Keep #10 in "p"  
position during  
short test.

Eye 1 open. Eye  
2 closed.  
Eye 2 open. Eye  
1 closed.

Keep #10 in "p"  
position during  
short test.

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6AD10	d	1	8-10-11	21	
6AE5	d	2	3-5	33	
6AE6	d	2	3-5	36	
6AE6	d	2	4-5	36	
6AE7	d	2	3-4-6	20	
6AF3	d	4	2-9-10	20	Glows at 2,5,9
6AF4	d	3	1-2-6-7	20	Glows at 1,2,4,6,7
6AF6	d	2	3-5-10	0	Eye 1 open. Eye 2 closed.
6AF6	d	2	4-5-10	0	Eye 2 open. Eye 1 closed.
6AF9	d	5	1-3	18	
6AF9	d	5	8-9	18	
6AF11	d	1	3-4	50	Glows at 1,5,7,12
6AF11	d	1	6-8	25	
6AF11	d	1	11	26	
6AG5	d	3	1-5-6	21	Glows at 2,4,7
6AG7	d	2	4-6-8	20	
6AG9	d	1	5-7-10	19	Keep #10 in "P" position during short test.
6AG11	d	1	3	20	Keep #10 in "P" position during short test.
6AG11	d	1	5-6-10	20	
6AG11	d	1	7-8-10	20	
6AH4	d	2	1-5	28	
6AH6	d	3	1-5-6	20	
6AH7	d	7	1-3	35	
6AH7	d	7	5-6	35	
6AH9	d	1	2-3	21	Glows at 5,6,12
6AH9	d	1	5-6-8-11	18	



6AJ4	d	7	1-3-4-5-6-9	20	Glow at 1,3,4,6,8,9
6AJ5	d	3	1-5-6	23	Glow at 2,4,7
6AJ8	d	4	1-2-7-9	22	
6AK5	d	3	1-5-6	22	Glow at 2,4,7
6AK6	d	3	1-5-6	32	
6AK8	d	4	2	25	
6AK8	d	4	1-6-8-9	22	
6AL3	d	4	3-6-7-8-9-10	29	Glow at 1,2,3,5,6,7,8,9
6AL5	d	3	2	22	
6AL5	d	3	7	22	
6AL7	d	2	3-10	20	
6AL11	d	1	3-6-7-10	25	Keep #10 in "p" position during short and quality test.
6AL11	d	1	8-10-11	20	
6AM4	d	7	1-3-4-5-6-9	19	Glow at 1,3,4,6,8,9
6AM8	d	4	2-3	20	
6AM8	d	4	8	25	
6AN4	d	3	1-2-6-7	18	Glow at 1,2,4,6,7
6AN5	d	3	1-5-6	22	Glow at 2,4,7
6AN6	d	1	2	49	
6AN6	d	1	3	51	
6AN6	d	1	4	49	
6AN6	d	1	5	49	
6AN8	d	4	1-2	22	
6AN8	d	4	6-7-8	20	
6AQ5	d	3	1-5-6-7	32	Glow at 1,4,7
6AQ6	d	3	1-7	32	
6AQ6	d	3	5	65	OK over 10
6AQ6	d	3	6	65	OK over 10

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6AQ7	d	7	1	80	
6AQ7	d	7	3	80	
6AQ8	d	4	1-2	22	
6AQ8	d	4	6-7	22	
6AR5	d	3	1-5-6	28	
6AR8	d	4	2-3-6	22	
6AR11	d	1	3-4-5-10	20	Keep #10 in "P" position during short test.
6AR11	d	1	9	17	
6AS5	d	3	2-5-6-7	27	Glow at 2,4,5
6AS6	d	3	1-5-6	25	
6AS8	d	4	6	25	
6AS8	d	4	1-2-9	20	
6AS11	d	1	3-4	25	Keep #10 in "P" position during short test.
6AS11	d	1	6-8	23	
6AS11	d	1	2-11	19	
6AT6	d	4	1-7	30	
6AT6	d	4	5	80	OK over 20
6AT6	d	4	6	80	OK over 20
6AT8	d	4	1-2	21	
6AT8	d	4	7-8-10	66	
6AU4	d	7	5	30	
6AU5	d	2	5-8	75	
6AU6	d	3	1-5-6	23	
6AU8	d	4	2-3	22	
6AU8	d	4	7-8-9	22	
6AV5	d	2	1-5-8	28	
6AV6	d	3	5	80	OK over 18

6AV6	d	3	6	82	OK over 18
6AV6	d	3	1-7	32	
6AV8	d	4	2-3	24	
6AV8	d	4	6-8-9	23	
6AV11	d	1	2-10-11	20	
6AV11	d	1	5-7-10	20	Keep #10 in "P" position during short test.
6AV11	d	1	9	33	
6AW8	d	4	2-3	27	
6AW8	d	4	7-8	20	
6AX3	d	1	4	27	
6AX4	d	7	5	35	Keep #10 in "P" position during short test. Glows at 4,12
6AX5	d	2	3	50	
6AX5	d	2	5	50	
6AX8	d	4	2-3	22	
6AX8	d	4	1-9	22	
6AY3	d	4	2-7	22	Glows at 2,5,7 Keep #10 in "P" position during short and quality check.
6AY11	d	1	5-6	22	
6AY11	d	1	7-8	22	
6AZ8	d	4	6-8-9	20	
6B4	d	2	3-5	22	
6B6	d	2	3	35	
6B6	d	2	4	60	
6B6	d	2	5	60	
6B8	d	2	3-6	60	
6B8	d	2	4	60	
6B8	d	2	5	60	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6B10	d	1	3-4-10	20	Keep #10 in "P" position during short test.
6B10	d	1	5-6-10	20	
6B10	d	1	8-10	20	
6B10	d	10	1-10	20	N-S Switch in "S" position.
6BA6	d	3	1-5-6	30	
6BA7	d	4	1-2	20	
6BA7	d	4	1-7-9	55	OK over diode
6BA8	d	4	2-3	27	
6BA8	d	4	7-8	20	
6BA11	d	1	3-4-10	19	Keep #10 in "P" position during short and quality check.
6BA11	d	1	9-10-11	21	
6BC5	d	3	1-5-6	22	Glows at 2,4,7
6BC7	d	4	8	21	
6BC7	d	4	6	20	
6BC7	d	4	2	22	
6BC8	d	4	1-2	22	
6BC8	d	4	6-7	22	
6BD5	d	2	1-5-8	27	
6BD11	d	1	3-4-10	23	Keep #10 in "P" position during short test.
6BD11	d	1	6-8-10	21	
6BD11	d	1	10-11	30	

6BE3	d	1	4	24	Keep #10 in "P" position during short test. Glows at 4,12
6BE6	d	3	5-6-7	55	Ok over diode
6BE6	d	3	1-5-7	22	
6BF5	d	3	1-5-6-7	32	Glows at 1,4,7
6BF6	d	3	5	60	OK over diode
6BF6	d	3	6	60	OK over 10
6BF6	d	3	1-7	37	
6BF11	d	1	3-6-7-10	31	Keep #10 in "P" position during short and quality test.
6BF11	d	1	8-10-11	21	
6BG6	d	2	5-8-10	22	
6BH6	d	3	1-5-6	23	
6BH8	d	4	2-3	22	
6BH8	d	4	7-8-9	22	
6BH11	d	1	3-4-10	19	Keep #10 in "P" position during short test.
6BH11	d	1	8-9-10	19	
6BH11	d	1	6-7-10	20	OK over diode
6BJ3	d	1	4	24	Keep #10 in "P" position during short test. Glows at 4,12.
6BJ6	d	3	1-5-6	23	
6BJ7	d	4	2	25	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6BJ7	d	4	6	25	
6BJ7	d	4	8	25	
6BJ8	d	4	1	27	
6BJ8	d	4	6	28	
6BJ8	d	4	7-8	28	OK over diode.
6BK4/6EL4	d	2	5-10	40	Glows at 3,4,6,7, 8
6BK5	d	4	1-3-7-8	25	
6BK7	d	4	1-2	20	
6BK7	d	4	6-7	20	
6BL7	d	7	1-2	27	OK over diode
6BL7	d	7	4-5	27	OK over diode
6BL8	d	4	2-3-6	18	
6BL8	d	4	1-9	22	
6BM8	d	4	3-6-7	21	
6BM8	d	4	1-9	30	
6BN4	d	3	2-5-7	21	Glows at 1,2,4,6, 7
6BN6	d	3	2-5-6-7-10	68	
6BN8	d	4	1	30	
6BN8	d	4	6	30	
6BN8	d	4	7-8	23	
6BN8	d	4	1-7-8	20	
6BN8	d	4	6-7	28	
6BN11	d	1	3-4	24	
6BN11	d	1	7-9	24	
6BQ5	d	4	1-2-9	22	Glows at 1,2,5
6BQ6	d	2	4-5-10	22	
6BQ7	d	4	6-7	21	
6BQ7	d	4	1-2	21	
6BR5/EM80	d	4	1-7	30	Glows at 3,5,8,9
6BR8	d	4	1-2	20	

6BR8	d	4	6-7-9	21	Glow at 2,5,7
6BS3	d	4	2-7	27	
6BS8	d	4	1-2	25	
6BS8	d	4	6-7	25	
6BU8	d	4	2-3-7	22	
6BU8	d	4	2-7-8	22	
6BV8	d	4	2-3	21	
6BV8	d	4	6	23	
6BV8	d	4	9	23	
6BV11	d	1	6	20	
6BV11	d	1	7-9	21	
6BW4	d	4	1	47	
6BW4	d	4	7	47	
6BW8	d	4	1	25	
6BW8	d	4	3	25	
6BW8	d	4	6-8-9	23	
6BW11	d	1	3-4-10	17	Keep #10 in "P" position during short test.
6BW11	d	1	9-10-11	17	
6BW11	d	1	8-9-10-11	20	Keep #10 in "P" position during short test.
6BW11	d	1	3-4-5-10	20	
6BX6/EF80	d	4	2-8	23	Glow at 1,3,5
6BX7	d	7	1-2	32	
6BX7	d	7	4-5	32	
6BY5	d	2	4	40	Glow at 1,3,5
6BY5	d	2	5	40	
6BY6	d	3	1-5-6-7	22	
6BY7/EF85	d	4	2-8	20	
6BY8	d	4	1-8	24	
6BY8	d	4	6	27	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6BZ3	d	1	4	20	Keep #10 in "P" position during short test. Glows at 4,12
6BZ6	d	3	1-5-6	20	
6BZ7	d	4	1-2	21	
6BZ7	d	4	6-7	21	
6BZ8	d	4	1-2	20	
6BZ8	d	4	6-7	20	
6C4	d	3	1-5-6	28	Glows at 1,4,5
6C5	d	2	3-5	40	
6C8	d	2	5-6-10	23	
6C9	d	4	1-2-3-10	20	Keep #10 in "P" position during short and quality test.
6C9	d	4	7-8-9-10	20	
6C10	d	1	2-11	29	Keep #10 in "P" position during short test.
6C10	d	1	5-7	29	
6C10	d	1	9	29	
6CA4/EZ81	d	4	1	30	
6CA4/EZ81	d	4	7	30	
6CA5	d	3	2-5-6-7	28	Glows at 2,4,5
6CB5	d	2	1-4-5-8-10	27	Glows at 1,3,4,5,6,7,8. Allow 1 minute to heat.
6CB6	d	3	1-5-6-7	21	



6CD3/6CE3	d	1	4	19	Keep #4 in "p" position during short and quality test. Glows at 10,12
6CD6	d	2	5-8-10	25	Allow 1 minute to heat.
6CD7/EM34	d	2	4-10	30	
6CE5	d	3	1-5-6	20	Glows at 2,4,7
6CF6	d	3	1-5-6-7	20	
6CG3	d	1	4	19	Keep #4 in "p" position during short and quality test. Glows at 10,12
6CG7	d	4	1-2	32	
6CG7	d	4	6-7	32	
6CG8	d	4	1-2	23	Glows at 3,5,8
6CG8	d	4	6-7-9	20	
6CH7	d	4	1-2	22	
6CH7	d	4	6-7	22	
6CH8	d	4	8-9	24	
6CH8	d	4	2-3-7	21	
6CJ3	d	4	2-7	20	Glows at 2,5,7
6CK3	d	4	2-7	18	Glows at 2,5,7
6CK4	d	2	1-3-5	23	Glows at 1,3,7
6CK6/EL85	d	4	1-2	20	
6CL3	d	4	2-7	18	Glows at 2,5,7
6CL6	d	4	2-3-6-8-9	23	Glows at 2,3,5,8
6CL8	d	4	7-9	20	
6CL8	d	4	1-2	20	
6CM3	d	4	2-7	19	Glows at 2,5,7
6CM6	d	4	1-3-6	28	Glows at 3,5,6
6CM7	d	4	6-7	33	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6CM7	d	4	1-8	28	
6CM8	d	4	2-7	20	
6CM8	d	4	1-9	22	
6CN7	c	9	7-8	32	Glows at 4,5
6CN7	c	9	1	25	
6CN7	c	9	2	25	
6CQ4	d	7	5	21	
6CQ8	d	4	2-3	22	
6CQ8	d	4	1-9	22	
6CR6	d	3	2-6-7	34	
6CS5	d	4	1-3-6	34	Glows at 2,3,5,6
6CS6	d	3	1-6-7	24	
6CS7	d	4	1-3	27	
6CS7	d	4	6-7	36	
6CU5	d	3	2-5-6-7	26	Glows at 2,4,5
6CU6	d	2	4-5-10	23	
6CU8	d	4	8-9	25	
6CU8	d	4	2-3-7	20	
6CW4	d	1	2-10	53	
6CW5	d	4	1-2-9	24	Glows at 1,2,5
6CX8	d	4	2-3	30	
6CX8	d	4	7-8-9	22	
6CY5	d	3	1-5-6	20	Glows at 2,4,7
6CY7	d	4	1-2-3	20	Glows at 1,2,5
6CY7	d	4	6-7	38	
6CZ5	d	4	1-3-6-9	30	Glows at 3,5,6
6D4	d	3	1-7	25	Glows at 2,4,6
6D8	d	2	3-4-10	54	
6D10	d	1	2-11	20	Keep #10 in "P" position during short test.

6D10	d	1	5-7	20	
6D10	d	1	9	20	
6DA4	d	7	5	20	
6DA5	d	4	1-7	50	
6DA5	d	4	3-7-8-9-10	80	OK over diode.
6DB5	d	4	1-3-6	34	Glows at 2,3,5,6
6DC6	d	3	1-6-7	20	
6DC8/EBF89	d	4	1-2	24	
6DC8/EBF89	d	4	7	50	OK over diode
6DC8/EBF89	d	4	8	50	OK over diode
6DE4	d	7	5	32	
6DE6	d	3	1-5-6	20	
6DE7	d	4	1-2-3	22	Glows at 2,3,5
6DE7	d	4	6-7	35	
6DG6	d	2	4-5	25	
6DJ8	d	4	1-2	21	
6DJ8	d	4	6-7	21	
6DK6	d	3	1-6-7	19	
6DN3	d	4	2-7	20	Glows at 2,5,7
6DN6	d	2	5-8-10	25	Allow 1 minute to heat
6DN7	d	7	1-2	27	
6DN7	d	7	4-5	38	
6DQ4	d	7	5	20	
6DQ5	d	2	1-4-5-8	20	Glows at 1,3,4,5,6,7,8
6DQ6	d	2	4-5-10	22	
6DR7	d	4	1-2-3	23	Glows at 2,3,5
6DR7	d	4	6-7	35	
6DS4	d	1	2-10	80	OK over diode
6DS5	d	3	1-6-7	29	Glows at 1,4,7
6DT5	d	4	1-3-6-9	24	Glows at 3,5,6
6DT6	d	3	1-5-6	22	
6DT8	d	4	1-2	19	

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
6DT8	d	4	6-7	19	
6DX8	d	4	8-9	28	
6DX8	d	8	1-2	28	
6DW4	d		2-7	23	Glow at 2,5,7
6DW5	d		1-3-6	22	Glow at 3,5,6
6DZ4	d	3	1-2-6-7	18	Glow at 1,2,4,6,7
6DZ7	d	2	1-3-4	32	
6DZ7	d	2	4-5-6	32	
6EA4	d	1	6	80	Glow at 2,5,9,12. OK over 20
6EA5	d	3	1-6	19	Glow at 2,4,7
6EA7	d	7	1-2	25	
6EA7	d	7	4-5	35	
6EA8	d	4	1-9	20	
6EA8	d	4	2-3-6	20	
6EB5	d	3	2-7	25	OK over diode
6EB8	d	4	2-3	27	
6EB8	d	4	7-8	23	
6EC4/EY500	d	4	2-7-8-10	20	Glow at 2,5,7,8
6EH5	d	3	2-5-6-7	26	Glow at 2,4,5
6EH7	d	4	2-7-8-9	17	Glow at 1,3,5
6EH8	d	4	2-3	20	
6EH8	d	4	7-8-9	20	
6EJ4	d	1	2-6-9-11	55	Glow at 2,9,11
6EJ7	d	4	2-7-8-9	15	Glow at 1,3,5
6EL4	d	2	5-10	40	Glow at 3,4,6,7,8
6EM5	d	4	1-3-6-9	27	Glow at 3,5,6
6EM7	d	7	1-4	20	
6EM7	d	7	2	20	OK over diode
6EQ7	d	4	2-6-8	24	

6ER5	d	3	2-5-6	20	Glow at 1,4,7
6ES5	d	3	2-5-6	20	Glow at 1,4,7
6ES8	d	4	1-2	18	
6ES8	d	4	6-7	18	
6ET7	d	4	7-8	28	
6ET7	d	4	2	60	OK over diode
6ET7	d	4	3	60	OK over diode
6EU7	d	1	5-6	20	
6EU7	d	1	7-8	20	
6EU8	d	4	2-3	21	
6EU8	d	4	7-9	20	
6EV5	d	3	1-6	18	Glow at 2,4,7
6EW6	d	3	1-6	20	
6EW7	d	4	1-2-3	17	Glow at 2,3,5
6EW7	d	4	6-7	31	
6EY6	d	2	3-4-5	25	
6EZ5	d	2	4-5	21	
6EZ8	d	4	2-3	24	
6EZ8	d	4	6-7	28	
6EZ8	d	5	8-9	28	
6F5	d	2	4	29	
6F6	d	2	3-4-5	38	
6F8	d	2	3	37	
6F8	d	2	5-6-10	24	
6FD7	d	4	1-2-3	18	Glow at 2,3,5
6FD7	d	4	6-7	33	
6FG6/EM84	d	4	1-7-10	0	Glow at 2,5,6,8
6FG7	d	4	7-9	20	Glow at 3,5,8
6FG7	d	4	1-2	20	
6FH5	d	3	2-5-6	18	Glow at 1,4,7
6FH8	d	4	6-7	21	
6FH8	d	4	2-3	21	
6FJ7	d	1	3-5-10	20	Keep #10 in "P" position during short test.

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
6FJ7	d	1	11	37	
6FM7	d	1	3-5-8	18	Glow at 3,7,8,12
6FM7	d	1	11	32	
6FM8	d	4	2	25	
6FM8	d	4	6	23	
6FM8	d	4	8-9	37	
6FQ5	d	3	2-6	19	Glow at 1,4,7
6FQ7	d	4	1-2	26	
6FQ7	d	4	6-7	26	
6FS5	d	3	1-5-6	20	
6FV6	d	3	1-6	18	
6FV8	d	4	6-7-9	19	
6FV8	d	4	1-2	19	
6FW5	d	2	1-8	19	
6FY5	d	3	2-5-6	18	Glow at 1,4,7
6FY6	d	3	1-6	19	
6FY7	d	1	3-5	19	
6FY7	d	1	11	34	
6G6	d	2	3-4-5	35	
6G11	d	1	3-4-6-7	32	Keep #10 in "P" position during short test.
6G11	d	1	8-11	20	
6GB5/EL500	d	4	1-2-10	20	Glow at 1,2,3,5,6,7,8
6GC5	d	4	1-3-6-8	26	Glow at 1,3,5,6,8
6GE5	d	1	3-7-10-11	20	Keep #10 in "P" position during short test. Glow at 3,4,11,12

6GF5	d	1	3-7-10-11	20	Keep #10 in "P" position during short test. Glows at 3,4,11,12
6GF7	d	4	8-9	30	
6GF7	d	4	2-6	20	
6GH8	d	4	1-9	21	
6GH8	d	4	2-3-6	20	
6GJ5	d	4	1-2-6-7	19	Glows at 1,2,5,6,7
6GJ7	d	4	2-7	25	Glows at 1,3,5
6GJ7	d	4	8-9	28	
6GK5	d	4	2-5-6	16	Glows at 1,3,7
6GK6	d	4	2-7-8	23	Glows at 3,5,9
6GL7	d	7	1-2	20	
6GL7	d	7	4-5	34	
6GM5	d	4	1-6	21	
6GM6	d	3	1-5-6-7	16	
6GM8	d	4	1-2	26	
6GM8	d	4	6-7	26	
6GN8	d	4	2-3	28	
6GN8	d	4	7-8-9	20	
6GT5	d	4	1-2-6-7	25	Glows at 1,2,5,6,7
6GU5	d	3	1-5-6	20	Glows at 2,4,7
6GU7	d	4	1-2	27	
6GU7	d	4	6-7	27	
6GV5	d	1	5-9-10	21	Keep #10 in "P" position during short and quality test. Glows at 3,4,5,7,9,11,12
6GV8	d	4	1-2	24	
6GV8	d	4	7-9	22	
6GW5	d	3	1-2-6-7	18	Glows at 1,2,4,6,7

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6GW6	d	2	4-5	22	
6GW8	d	4	3-8	21	
6GW8	d	4	1-9	30	
6GX6	d	3	1-5-6-7	22	
6GX7	d	4	2-7	25	Glow at 1,3,5
6GX7	d	4	8-9	25	
6GX6	d	3	1-6	17	
6GY5	d	1	3-5-7-9-10-11	20	Keep #10 in "P" position during short test. Glows at 3,4,5,7,9,11,12
6GY6	d	3	1-6	17	
6GY8	d	4	1-2	25	
6GY8	d	4	3-9	32	
6H6	d	2	3	39	
6H6	d	2	5	39	
6HA5	d	3	1-5	16	Glows at 2,4,7
6HB5	d	1	3-10-11	20	Keep #10 in "P" position during short and quality test. Glows at 3, 4,11,12
6HB6	d	4	2-6-8	26	Glows at 3,5,6,8, 9
6HB7	d	4	2-6-7	25	Glows at 1,3,5
6HB7	d	4	8-9	25	
6HD7	d	4	2-7	25	Glows at 1,3,5
6HD7	d	4	8-9	28	
6HE5	d	1	2-3-6-9	25	Glows at 2,3,4,9, 11,12. Keep #10 in "P" position during short check



6HF5	d	1	5-9-10	24	Keep #10 in "P" position during short and quality test. Glows at 3, 4,5,6,8,9,11,12
6HF8	d	4	2-3	22	
6HF8	d	4	7-8	20	
6HG5	d	3	1-6-7	34	Glows at 1,4,7
6HG8	d	4	2-9	21	Glows at 1,3,5
6HG8	d	4	6-7	24	
6HJ8	d	4	2-3	19	
6HJ8	d	4	8-9	22	
6HK5	d	3	1-5	16	Glows at 2,4,7
6HL8	d	4	1-2	19	
6HL8	d	4	3-9	21	
6HM5	d	3	1-5	16	Glows at 2,4,7
6HM6	d	4	2-7-8	18	Glows at 1,3,5
6HQ5	d	3	1-5-6	23	Glows at 2,4,7
6HS5	d	1	2-10-11	20	Keep #10 in "P" position during short test. Glow at 2,3,11,12
6HS6	d	3	1-6	27	
6HS8	d	4	2-7	20	
6HS8	d	4	2-3-7	19	
6HS8	d	4	2-7-8	19	
6HV5	d	1	2-10-11	21	Keep #10 in "P" position during short test. Glows at 2,3,11,12
6HW8	d	4	3-6	21	
6HZ6	d	3	1-6	20	
6HZ8	d	4	2-3	25	
6HZ8	d	4	7-8-9	22	
6J4	d	3	1-5-6-7	20	Glows at 1,4,5,6

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
6J5	d	2	3-5	29	
6J6	d	3	2-5	23	
6J6	d	3	1-6	23	
6J7	d	2	3-4	35	
6J8	d	2	5-6	25	
6J8	d	2	3-4-10	75	
6J9	d	4	1-2-10	15	
6J9	d	4	7-8-10	15	
6J9	d	4	6-9-10	15	
6J10	d	1	2-9-11	22	
6J10	d	1	4-6-7-10	50	OK over diode.
6J11	d	1	2-3-5	18	Keep #10 in "P" position during short test.
6J11	d	1	7-9-11	18	
6JB6	d	4	1-2-6-7	21	Glow at 1,2,5,6,7
6JC6	d	4	2-8	20	Glow at 1,3,5
6JC8	d	4	2-3-8-9	18	Glow at 1,5,7
6JD6	d	4	2-8	21	Glow at 1,3,5
6JE6	d	4	1-2-6-7	23	Glow at 1,2,5,6, 7
6JE8	d	4	2-3	23	
6JE8	d	4	7-8	19	
6JF6	d	4	1-2-6-7	18	Glow at 1,2,5,6, 7
6JG6	d	4	1-2-7	25	Glow at 1,5,7
6JH6	d	3	1-5-6	17	
6JH8	d	4	2-3-6	20	
6JK6	d	3	1-6	17	
6JK8	d	4	1-2-9	25	
6JK8	d	4	6-7	26	

6JM6	d	1	3-5-10	26	Keep #10 in "P" position during short test. Glows at 4,12
6JN6	d	1	3-7-10	33	Keep #10 in "P" position during short test.
6JN6	d	1	10-11	24	
6JN8	d	4	1-2	23	
6JN8	d	4	7-9	23	
6JS6	d	1	3-5-10-11	20	Keep #10 in "P" position during short test. Glows at 3,4,11,12
6JT8	d	4	2-3	32	
6JT8	d	4	7-8	17	
6JU8	d	4	1	20	Glows at 2,5,8
6JU8	d	4	1-2	20	
6JU8	d	4	7	20	
6JU8	d	4	7-8	20	
6JV8	d	4	2-3	21	
6JV8	d	4	7-8	19	
6JW8	d	4	2-3	25	
6JW8	d	4	1-9	27	
6JZ8	d	1	2-4-8-10	40	Glows at 6,7,12 Keep #10 in "P" position during short and quality check.
6K5	d	2	3	28	
6K6	d	2	3-4-5	35	
6K7	d	2	3-4	35	
6K8	d	2	5-6	25	
6K8	d	2	3-4-10	58	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6K11	d	1	2-11	30	Keep #10 in "P" position during short test.
6K11	d	1	5-7	30	
6K11	d	1	9	30	
6KA8	d	4	1-2	23	
6KA8	d	4	6-8	20	
6KD6	d	1	3-5-9-10-11	22	Keep #10 in "P" position during short test. Glows at 3,4,5,9,11,12
6KD8	d	4	2-3-6	18	
6KD8	d	4	1-9	17	
6KE8	d	4	2-3-6	22	
6KG6/EL50	d	4	1-2-3-6-7-8	20	Glows at 1,2,3,5, 6,7,8
6KM6	d	4	1-7-8-10	32	Glows at 1,2,5,6, 7
6KM6	d	4	2-6	24	
6KM8	d	4	3	70	OK over diode
6KM8	d	4	7-8	25	OK over diode
6KN6	d	1	5-9-10	27	Keep #10 in "P" position during short test. Glows at 3,4,5,9,11,12
6KR8	d	4	2-3	25	
6KR8	d	4	7-8-9	22	
6KS8	d	4	2-3	25	
6KS8	d	4	7-8-9	22	
6KT6	d	4	2-8	20	Glows at 1,3,5
6KT8	d	4	2-3-7-8	17	

6KU8	d	4	7-8	26
6KU8	d	4	2-3-9	70
6KV8	d	4	2-3	22
6KV8	d	4	7-8	19
6KY8	d	4	2-7	20
6KY8	d	4	6-8-9	35
6KZ8	d	4	1-9	19
6KZ8	d	4	2-6-7	20
6L5	d	2	3-5	36
6L6	d	2	3-4-5	31
6L7	d	2	4	30
6L7	d	2	3-4-5	28
6LB6	d	1	5-9-10	27
6LC8	d	4	1-2	28
6LC8	d	4	6-8	24
6LE8	d	4	8-9	22
6LF6	d	1	3-10-11	27
6LF8	d	4	2-3	32
6LF8	d	4	7-8	25
6LH6	d	7	5	54
6LJ8	d	4	1-2	25
6LJ8	d	4	7-9	25
6LM8	d	4	2-3	22
6LM8	d	4	1-9	22
6LN8	d	4	1-2	30
6LN8	d	4	3-9	30

Keep #10 in "P"  
position during  
short test. Glows  
at 3,4,5,9,11,12

Keep #10 in "P"  
position during  
short test. Glows  
at 3,4,5,9,11,12

Glows at 1,2,3,4  
Glows at 3,5,8

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6LQ6/6JE6	d	4	1-2-6-7	21	Glows at 1,2,5,6, 7
6LQ8	d	4	2-3	20	
6LQ8	d	4	7-8	18	
6LT8	d	4	2-9	18	
6LT8	d	4	6-8	18	
6LU8	d	1	6-7-10	21	Glows at 6,7,12. Keep #10 in "P" position during short test.
6LU8	d	1	2-4-8-10	28	
6LX8	d	4	1-9	21	
6LX8	d	4	2-3	19	
6LY8	d	4	2-3	23	
6LY8	d	4	7-8	17	
6M11	d	1	2-10	19	Glows at 5,6,7,8, 12
6M11	d	1	7-8-10	20	
6MD8	d	4	1-2-3-6-8-9	18	
6ME5	d	3	5-10	0	Eye is open.
6ME5	d	3	2-5-10	0	Eye is closed.
6ME5	d	3	1-5-10	29	
6ME8	d	4	2-3-6	22	
6MF8	d	1	6-7-8-10	18	Glows at 6,7,12
6MF8	d	1	2	21	
6MJ8	d	1	2-4-6-8-10	20	Keep #10 in "P" position during short test.
6MN8	d	1	4-6-8	19	
6MN8	d	1	2-11	18	
6MN8	d	1	4	20	
6MN8	d	1	6-8	18	

6MQ8	d	4	1-9	18	
6MQ8	d	4	2-3-6	18	
6MU8	d	4	1-9	22	
6MU8	d	4	2-3-6	20	
6N6	d	2	3-4-5	50	
6N7	d	2	3-4	40	
6N7	d	2	5-6	40	
6P5	d	2	3-5	36	
6P7	d	2	6-7	36	
6P7	d	2	4-5	50	
6Q7	d	2	3	33	
6Q7	d	2	4	34	
6Q7	d	2	5	34	
6R7	d	2	3	38	
6R7	d	2	4-10	15	OK over diode
6R7	d	2	5-10	15	OK over diode
6S4	d	4	3-6-9	30	Glows at 3,5,6
6S7	d	2	3-4	35	
6S8	d	7	1-10	25	OK over diode
6S8	d	7	4	18	OK over diode
6S8	d	7	6	34	
6SA7	d	2	4-5	28	
6SA7	d	2	3-4-8-10	57	
6SB7Y	d	2	4-5	22	
6SB7Y	d	2	3-4-8	48	OK over diode
6SC7	d	7	2-3	39	
6SC7	d	7	4-5	39	
6SD7	d	2	4-6-8	23	
6SF5	d	7	3-5	32	
6SF7	d	7	2-4-6	39	
6SF7	d	7	5	50	OK over diode
6SG7	d	2	4-6-8	23	Glows at 3,5,7
6SH7	d	2	4-6-8	23	Glows at 3,5,7

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6SJ7	d	2	4-6-8	33	
6SK7	d	2	4-6-8	31	
6SL7	d	7	1-2	34	
6SL7	d	7	4-5	34	
6SN7	d	7	1-2	34	
6SN7	d	7	4-5	34	
6SQ7	d	7	2-6	50	
6SQ7	d	7	4	57	OK over diode
6SQ7	d	7	5	57	
6SR7	d	7	2-6	38	
6SR7	d	7	4	35	OK over diode
6SR7	d	7	5	35	OK over diode
6SS7	d	2	4-6-8	35	
6ST7	d	7	2-6	37	
6ST7	d	7	4-10	50	
6ST7	d	7	5	52	
6SU7	d	7	4-5	32	
6SU7	d	7	1-2	32	
6SV7	d	7	5	40	
6SV7	d	7	2-4-6	26	
6T4	d	3	1-2-6-7	20	Glow at 1,2,4,6
6T7	d	2	3	59	
6T7	d	2	4	48	
6T7	d	2	5	48	
6T8	d	4	8-9	34	
6T8	d	4	1-2	20	
6T8	d	4	6	25	
6T9	d	1	4	32	
6T9	d	1	6-8	25	
6T10	d	1	3-6-8	20	
6T10	d	1	8-10-11	20	



6U4	d	7	5	25
6U6	d	2	3-4-5	26
6U7	d	2	3-4	38
6U8	d	4	2-3	20
6U8	d	4	1-9	20
6U10	d	1	2-11	25
6U10	d	1	5-7	30
6U10	d	1	9-10	20
6V3	d	4	2-7-9-10	22
6V4	d	4	1	37
6V4	d	4	7	37
6V6	d	2	3-4-5	31
6V7	d	2	3	38
6V7	d	2	4	40
6V7	d	2	5	45
6V8	d	4	1-6	32
6V8	d	4	2	20
6V8	d	4	9	22
6V8	d	4	7	40
6W4	d	7	5	26
6W6	d	2	3-4-5	26
6W7	d	2	3-4	28
6X4	d	3	1	35
6X4	d	3	6	35
6X5	d	2	3	35
6X5	d	2	5	35
6X8	d	4	2-3	21
6X9	d	5	3-7-8-10	18
6X9	d	5	9	19
6Y6	d	2	3-4-5	28
6Y7	d	2	3-4	35
6Y9	d	5	1-3	17
6Y9	d	5	8-9	17
6Z7	d	2	5-6	33

Glow at 3,6,12

Glow at 2,5,7,9

OK over diode

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
6Z10	d	1	2-11	26	
6Z10	d	1	6-10	40	OK over diode
6ZY5	d	2	3	35	
6ZY5	d	2	5	35	
7A4	d	1	2-6	29	
7A5	d	1	2-3-6	25	
7A6	d	1	3	45	
7A6	d	1	6	45	
7A7	d	1	2-3-6	31	
7A8	d	1	3-4	35	
7A8	d	1	2-5-6	65	OK over diode
7AF7	d	1	3-4	30	
7AF7	d	1	5-6	30	
7AG7	d	1	2-3-6	22	
7AH7	d	1	2-3-6	20	
7AU7	c	9	1-2	31	Glow at 4,5
7AU7	c	9	6-7	31	
7B4	d	1	2-6	28	
7B5	d	1	2-3-6	36	
7B6	d	1	2-3	35	Glow at 4,7,8
7B6	d	1	5	50	OK over diode
7B6	d	1	6	50	OK over diode
7B7	d	1	2-3-6	32	
7B8	d	1	2-4-5	49	
7B8	d	1	2-5-6	70	OK over diode
7C4	d	1	4	70	OK over diode
7C5	d	1	2-3-6	28	
7C6	d	1	2-3	42	Glow at 4,7,8
7C6	d	1	5	42	OK over diode
7C6	d	1	6	42	OK over diode
7C7	d	1	2-3-6	30	

7DJ8/PCC88	d	4	1-2	25	
7DJ8/PCC88	d	4	6-7	25	
7E5	d	2	1-3-5-7	20	Glows at 1,3,5,6,8
7E6	d	1	2-3	35	Glows at 4,7,8
7E6	d	1	5	50	OK over diode
7E6	d	1	6	50	OK over diode
7EY6	d	2	4-5	24	
7E7	d	1	2-5-6	42	
7E7	d	1	4	50	OK over diode
7E7	d	1	3	50	OK over diode
7E7	d	1	3-4	33	
7F7	d	1	5-6	33	
7F7	d	1	6-8	22	
7F8	d	2	2-3-6	22	
7G7	d	1	2-3-4	27	
7G8	d	1	3-5-7	30	
7G8	d	1	1-2	23	
7GS7	d	4	7-9	23	
7GS7	d	4	2-7	20	Glows at 5,6,8
7GV7	d	4	1-9	24	
7GV7	d	4	2-3-6	20	
7H7	d	1	2-5-6	25	
7J7	d	1	3-4	36	
7J7	d	1	3-4	36	
7K7	d	1	3-4	36	
7K7	d	1	5	55	OK over diode
7K7	d	1	6	55	OK over diode
7L7	d	1	2-3-6	25	
7N7	d	1	3-4	35	
7N7	d	1	5-6	34	
7Q7	d	1	3-4	23	
7Q7	d	1	2-3-6	55	OK over diode
7R7	d	1	2-5-6	25	
7R7	d	1	3	80	OK over diode
7R7	d	1	4	80	OK over diode

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
7S7	d	1	2-5-6	26	
7S7	d	1	3-4	35	
7V7	d	1	2-3-6	22	
7W7	d	1	2-3-6	23	
7X6	d	1	3	28	
7X6	d	1	6	28	
7X7	d	1	2-3	48	
7X7	d	1	5	32	
7Y4	d	1	6	35	
7Y4	d	1	3	35	
7Z4	d	1	6	50	
8AC9	e	1	2-3-10	20	Short test at "d" Keep #10 in "P" position during short test. Glows at 3,12.
8AC9	e	1	7-9-10-11	20	
8AW8	d	4	2-3	27	
8AW8	d	4	7-8	22	
8BH8	d	4	2-3	21	
8BH8	d	4	7-8	21	
8BM11	e	1	3-6-10	20	Short test at "d" Keep #10 in "P" position during short test.
8BM11	e	1	9-10-11	20	
8BQ11	d	1	9	55	
8BU11	e	1	3-4-10	21	Keep #10 in "P" position during short test.
8BU11	e	1	6-7-10	21	
8BU11	e	1	8-9-10	21	

8CB11	e	1	5-10	21	Keep #10 in "P" position during short test.
8CB11	e	1	3-7-9-10	46	
8CG7	d	4	1-2	33	
8CG7	d	4	6-7	34	
8CS7	e	4	1-3	27	
8CS7	e	4	6-7	36	
8EB8	d	4	2-3	27	
8EB8	d	4	7-8	23	
8ET7	d	4	7-8	22	
8ET7	d	4	2-3	45	OK over diode
8FQ7	d	4	1-2	35	
8FQ7	d	4	6-7	35	
8JV8	e	4	2-3	28	
8JV8	e	4	7-8	28	
8LT8	d	4	2-9	22	
8LT8	d	4	6-8	22	
9A8/PCF80	d	4	1-9	29	
9A8/PCF80	d	4	2-3	26	
9AU7	d	9	1-2	28	Glows at 4,5
9AU7	d	9	6-7	30	
9BJ11	e	1	9-10-11	20	Keep #10 in "P" position during short test. Short test at "d".
9BJ11	e	1	3-6-10	20	
9BR7	d	9	1-2	22	Glows at 4,5.
9BR7	d	9	6	27	
9BR7	d	9	7	30	

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
9ED4	e	4	8-10	26	Glows at 2,3,5, 6,7,9. Short test at "d"
9KC6	e	4	2-9	18	Short test at "d".
9KX6	e	4	2-8	19	Glows at 3,5,9.
10C8	e	4	1-2	24	
10C8	e	4	6-7-8	20	
10DE7	e	4	1-2-3	28	Glows at 2,3,5.
10DX8	e	4	1-2	23	
10DX8	e	4	8-9	23	
10EG7	e	7	1-2	20	
10EG7	e	7	4-5	35	
10JA8	e	4	2-3	32	
10JA8	e	4	7-8	26	
10JY8	e	4	2-3	27	
10JY8	e	4	7-8	29	
10LB8	e	4	7-8-9	18	Glows at 5,6,7
10LB8	e	4	2-3	26	
10LW8	e	4	2-3	32	
10LW8	e	4	7-8	17	
10LZ8	e	4	2-3	32	
10LZ8	e	4	7-8	17	
11BQ11	e	1	3-4-5-10	20	Keep #10 in "P" position during short test.
11BQ11	e	1	7-8-9	20	
11BT11	e	1	5-10-11	26	
11BT11	e	1	3-7	30	
11BT11	e	1	2-9	90	

11CY7	e	4	1-2-3	23	Glows at 1,2,5
11CY7	e	4	6-7	35	
11JE8	e	4	2-3	25	
11JE8	e	4	7-8	22	
11HM7	e	4	2-8	21	Glows at 3,5,6, 9
11KV8	e	4	2-3	28	
11KV8	e	4	7-8-9	26	
11LQ8	e	4	2-3	27	
11LQ8	e	4	7-8	27	
11MS8	e	4	1-2	24	
11MS8	e	4	7-9	24	
12A4	e	3	2-7-9	23	Glows at 2,4,5, 7
12A5	e	6	2-3-4	34	Glows at 1,7
12A6	e	2	3-4-5	34	
12A8	e	2	5-6-10	23	
12A8	e	2	3-4	60	OK over diode
12AB5	e	4	1-3-6-8	30	Glows at 1,3,5, 6,8.
12AC6	e	3	1-6	30	
12AD6	e	3	1-6-7	22	
12AE6	e	3	1-5-6-7	36	
12AE10	e	1	3-6-10	21	Keep #10 in "P" position during short test.
12AE10	e	1	8-10	21	
12AF3	e	4	2-9-10	22	Glows at 2,5,9
12AF6	e	3	1-5-6	22	
12AH7	e	7	1-3	38	
12AH7	e	7	5-6	38	
12AJ6	e	3	1-5-6-7	27	
12AJ7	e	4	8-9	26	
12AJ7	e	4	1-2-6	21	

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
12AL5	e	3	2	26	
12AL5	e	3	7	26	
12AL8	e	4	1-3-8	28	
12AQ5	e	3	1-5-6-7	32	Glow at 1,4,7
12AT6	e	4	1-7	32	
12AT6	e	4	5	50	OK over diode
12AT6	e	4	6	50	OK over diode
12AT7	d	9	1-2	20	Glow at 4,5
12AT7	d	9	6-7	20	
12AU6	e	3	1-5-6	23	
12AU7	d	9	1-2	28	Glow at 4,5
12AU7	d	9	6-7	28	
12AV5	e	2	1-5-8	26	
12AV6	e	3	1-7	32	
12AV6	e	3	5	80	OK over 18
12AV6	e	3	6	82	OK over 18
12AV7	d	9	1-2	20	Glow at 4,5
12AV7	d	9	6-7	20	
12AW6	e	3	1-5-6	22	
12AX4	e	7	5	32	
12AX7	d	9	1-2	30	Glow at 4,5
12AX7	d	9	6-7	30	
12AY3	e	4	2-7	22	Glow at 2,5,7
12AY7	d	9	1-2	32	Glow at 4,5
12AY7	d	9	6-7	32	
12AZ7	d	9	1-2	32	Glow at 4,5
12AZ7	d	9	6-7	32	
12B4	d	3	2-7-9	20	Glow at 2,4,5,7
12BA6	e	3	1-5-6	23	
12BA7	e	4	1-2	20	
12BA7	e	4	1-6-7-9	52	OK over diode
12BD6	e	3	1-5-6	28	



12BE6	e	3	1-5-7	22	
12BE6	e	3	5-6-7	55	OK over diode
12BF6	e	3	5	60	OK over diode
12BF6	e	3	6	60	OK over diode
12BF6	e	3	1-7	37	
12BH7	d	9	1-2	25	Glow at 4,5
12BH7	d	9	6-7	25	
12BK5	e	4	1-3-7-8	25	Glow at 3,5,7
12BL6	e	3	1-2-5-6	23	
12BQ6	e	2	4-5	25	
12BR7	d	9	1-2	21	Glow at 4,5
12BR7	d	9	6	30	
12BR7	d	9	7	30	
12BT3	e	1	4-10	24	Keep #10 in "P" position during short test. Glow at 4,12
12BT6	e	3	1-7	32	
12BT6	e	3	5	50	OK over diode
12BT6	e	3	6	50	OK over diode
12BV7	d	6	2-7-8	21	Glow at 3,4,5,9
12BV11	e	1	7-10	19	Keep #10 in "P" position during short test.
12BV11	e	1	4-6-10	19	
12BW4	e	4	7	47	
12BY7	d	6	2-8	20	Glow at 3,4,5,9
12BZ7	d	9	1-2	20	Glow at 4,5
12BZ7	d	9	6-7	20	
12C5	e	3	2-5-6-7	28	
12C8	e	2	5-6-10	23	
12CA5	e	3	2-5-6-7	23	Glow at 2,4,5
12CN5	e	3	2-5-6	23	Glow at 2,4,5
12CR6	e	3	2-5-6-7	30	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
12CT8	e	4	1-2	27	
12CU5	e	3	2-5-6-7	27	Glow at 2,4,5
12CU6	e	2	4-5-10	23	
12CX6	e	3	1-6	20	
12D4	e	7	5	28	
12D5	e	3	2-5-6	25	Glow at 2,4,5
12DB5	e	4	1-3-6-9	27	Glow at 2,3,5, 6
12DE8	e	4	1-8	23	
12DE8	e	4	3	20	
12DL8	e	4	1-9	70	
12DL8	e	4	3-6	36	
12DQ6	e	2	4-5	28	
12DS7	e	4	1-3-6-7	24	
12DT5	e	4	1-3-6	20	Glow at 3,5,6
12DT8	e	4	1-2	20	
12DT8	e	4	6-7	20	
12DU7	e	4	1-3-6	18	
12DU7	e	4	7	60	OK over diode
12DU7	e	4	9	60	OK over diode
12DV8	e	4	1	60	OK over diode
12DV8	e	4	9	60	OK over diode
12DV8	e	4	3-6-7	26	
12DW7	d	9	1-2	31	Glow at 4,5
12DW7	d	9	6-7	26	
12DZ6	e	3	1-5-6	22	
12DZ6	e	3	1-2-5-6	19	
12EA6	e	3	1-5-6	21	
12EC8	e	4	1-2	18	
12EC8	e	4	7-9	17	
12ED5	e	3	2-5-6-7	24	Glow at 2,4,5
12EG6	e	3	1-6	22	

12EK6	e	3	1-2-5-6	19	
12EL6	e	3	1-2	23	
12EL6	e	3	5	45	OK over diode
12EL6	e	3	6	45	OK over diode
12EM6	e	4	1-3-6-9	22	
12EN6	e	2	3-4-5	25	
12F5	e	2	4	29	
12F8	e	4	1	50	OK over diode
12F8	e	4	6	50	
12F8	e	4	2-3-8	30	
12FK6	e	3	1-7	21	
12FK6	e	3	5	45	OK over diode
12FK6	e	3	6	45	OK over diode
12FM6	e	3	1-5-6-7	22	
12FQ8	e	4	1-2-3	30	
12FQ8	e	4	6-7-8	30	
12FR8	e	4	1-9	23	
12FR8	e	4	3-6-7	20	
12FR8	e	4	8	60	OK over diode
12FX5	e	3	2-5-6	23	Glow at 2,4,5
12FX8	e	4	1-2	22	
12FX8	e	4	6-8	25	
12GC6	e	2	4-5-8	24	Glow at 4,7,8
12GE5	e	1	2-3-10-11	26	Keep #10 in "P" position during short test. Glows at 3,4,11,12
12GN7	d	6	2	19	Glow at 3,4,5,9
12H6	e	2	3	39	
12H6	e	2	5	39	
12HE7	e	1	2-10	30	Keep #10 in "P" position during short test.

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
12HG7	d	6	2-7-8	22	Glows at 3,4,5, 9
12HL7	e	4	2-8	27	Glows at 3,5,6, 9
12J5	e	2	3-5	30	
12J7	e	2	3-4-10	35	
12J8	e	4	1-3-6	20	
12J8	e	4	8-9	22	
12JT6	e	4	2-7	20	
12K5	e	3	2-5-6-7	22	Glows at 4,5,6
12K7	e	2	3-4	48	
12K8	e	2	3-4	60	OK over diode
12K8	e	2	5-6	23	
12L6	e	2	3-4-5	27	
12L8	e	7	3-4-5	32	
12L8	e	7	1-5-8	32	
12MD8	e	4	1-2-3-6-8-9	20	
12Q7	e	2	3	33	
12Q7	e	2	5	34	
12R5	e	3	2-5-6-7	38	Glows at 2,4,5
12S8	e	7	3-10	50	
12S8	e	7	1-4	32	
12SA7	e	2	4-5	27	
12SA7	e	2	3-4-8	60	OK over diode
12SC7	e	7	2-3	39	
12SC7	e	7	4-5	39	
12SF5	e	7	3-5	29	
12SF7	e	7	2-4-6	38	
12SF7	e	7	5	55	OK over diode
12SG7	e	2	4-6-8	22	Glows at 3,5,7
12SH7	e	2	4-6-8	22	Glows at 3,5,7

12SJ7	e	2	4-6-8	28	
12SK7	e	2	4-6-8	33	
12SL7	e	7	4-5	33	
12SL7	e	7	1-2	33	
12SN7	e	7	1-2	33	
12SN7	e	7	4-5	33	
12SQ7	e	7	2-6	35	
12SQ7	e	7	4	65	OK over diode
12SQ7	e	7	5	65	OK over diode
12SR7	e	7	2-6	27	
12SR7	e	7	4	60	OK over diode
12SY7	e	2	4-5	27	
12SY7	e	2	3-4-8	60	OK over diode
12V6	e	2	3-4-5	31	
12W6	e	2	3-4-5	24	
12X4	e	3	1	39	
12X4	e	3	6	39	
12Z5	e	7	6	32	
12Z5	e	7	2	32	
13DE7	e	4	6-7	35	Glow at 2,3,5
13DR7	e	4	1-2-3	24	Glow at 2,3,5
13DR7	e	4	6-7	35	
13EM7	e	7	1-4	20	
13EM7	e	7	2	20	OK over diode
13FD7	e	4	1-6-7	27	Glow at 2,3,5
13FD7	e	4	2-3	22	
13GB5	e	4	1-2-6-7	23	Glow at 1,2,3,5, 6,7,8
13V10	e	1	3-6-10	21	Keep #10 in "P" position during short test.
13V10	e	1	8-11	24	
14A4	e	1	2-6	29	
14A5	e	1	2-3-6	37	
14A7	e	1	2-3-6	30	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
14AF7	e	1	3-4	32	
14AF7	e	1	5-6	32	
14B6	e	1	2-3	33	Glows at 4,7,8
14B6	e	1	5	50	OK over diode
14B6	e	1	6	60	OK over diode
14B8	e	1	2-5-6	60	OK over diode
14B8	e	1	2-4-5	30	
14BL11	e	1	5-11	24	Glows at 4,6,12
14BL11	e	1	3-10	24	
14BR11	e	1	2-3-10	22	
14BR11	e	1	6-8-10	25	
14C5	e	1	2-3-6	28	
14C7	e	1	2-3-6	32	
14E6	e	1	2-3	35	
14E6	e	1	5	50	OK over diode
14E6	e	1	6	50	OK over diode
14E7	e	1	2-5-6	42	Glows at 4,7,8
14E7	e	1	2-5-6	42	Glows at 4,7,8
14E7	e	1	4	50	OK over diode
14E7	e	1	5	50	OK over diode
14F7	e	1	3-4	33	
14F7	e	1	5-6	33	
14F8	e	2	1-3	21	
14F8	e	2	6-8	21	
14GT8	e	4	2	26	
14GT8	e	4	6	26	
14GT8	e	4	8-9	34	
14H7	e	1	2-3-6	20	
14J7	e	1	3-4	36	

14JG8	e	4	2	22	
14JG8	e	4	6	22	
14JG8	e	4	8-9	25	
14N7	e	1	3-4	35	
14N7	e	1	5-6	34	
14Q7	e	1	3-4	23	
14Q7	e	1	2-3-6	55	OK over diode
14R7	e	1	2-5-6	25	
14R7	e	1	3	80	OK over diode
14R7	e	1	4	80	OK over diode
14S7	e	1	2-5-6	26	
14S7	e	1	3-4	35	
14W7	e	1	2-3-6	26	
14Y4	e	1	3	35	
14Y4	e	1	6	35	
14Z3	e	1	2	28	
15DQ8	e	4	1-2-8-9	24	
15HB6	e	4	2-6-7-8	22	Glows at 3,5,6,8, 9
15KY8	e	4	8-9	35	
15KY8	e	4	2-7	25	
15LE8	e	4	8-9	23	
16A8/PCL82	e	4	1	35	
16A8/PCL82	e	4	3-7	26	
16AK9	e	6	2-3-8-10	20	Glows at 1,2. Keep #10 in "P" position during short test.
16AQ3	e	4	1-2-3-6-7-8-9-10	30	Glows at 1,2,3,5, 6,7,8,9
16BQ11	e	1	5-10	18	Keep #10 in "P" position during short test.
16BQ11	e	1	2-3-9-10	52	

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
16BX11	e	1	2-3-10	18	Keep #10 in "P" position during short test.
16BX11	e	1	7-8-10	19	
16BX11	e	1	5-6-10	19	
16GY5	e	1	5-9-10	20	Keep #10 in "P" position during short and quality test. Glows at 3,4,5,7,9,11,12.
17AB10	e	1	2-11	20	
17AX4	f	7	5	30	OK over diode
17AY3	e	4	2-7	26	Glows at 2,5,7
17BB14	e	4	1-2-6-7	19	Glows at 1,2,3,5,6,7,8.
17BS3	e	4	2-7	27	Glows at 2,5,7
17BW3	e	1	4	25	Keep #10 in "P" position during short test. Glows at 4,12
17DE4	f	7	5-10	30	
17DM4	e	7	5	25	
17DQ6	e	2	4-5	28	
17EW8	f	4	1-2	22	
17EW8	f	4	6-7	22	
17GJ5	e	4	1-2-6-7	28	Glows at 1,2,5,6
17GW6	e	2	4-5-10	21	
17H3	e	4	3-8	27	



17JM6	e	1	3-5-10	25	Keep #10 in "P" position during short test.
					Glows at 4,12.
17JZ8	e	1	6-7-8-10	21	Keep #10 in "P" posit. during short test.
17JZ8	e	1	2	48	Glows at 6,7,12
17KV6	e	4	1-2-7	20	Glows at 1,5,7
17LD8	f	4	9	66	
17LD8	f	4	2-7	50	
17X10	e	1	4-6-7-10	55	OK over diode
17X10	e	1	2-9-11	25	
17Y9	e	5	1	19	
17Y9	e	5	8-9	18	
18A5	f	2	1-5	25	
18AJ10	f	1	8-10	23	Keep #10 in "P" position during short test.
18AJ10	f	1	3-6-10	24	
18FW6	f	3	1-6	21	
18FX6	f	3	1-6-7	23	
18FY6	f	3	1-5-6-7	27	
18GD6	f	3	1-6	21	
18GV8/PCL85	f	4	1-2	25	
18GV8/PCL85	f	4	7-9	25	
19AU4	f	7	5-10	34	
19BG6	f	2	5-8	32	
19CG3	f	1	4	50	Keep #10 in "P" position during short test.
					Glows at 4,12
19CL8	e	4	1	21	
19CL8	e	4	9	21	
19EA8	e	4	1-9	25	

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
19EA8	e	4	2-3	26	
19HV8	f	4	1-2	33	
19HV8	f	4	6-7-9	20	
19J6	f	3	1-6	25	
19J6	f	3	2-5	25	
19JN8	f	4	1-2-10	20	
19JN8	f	4	6-7-9-10	20	
19KG8	e	4	1-2	20	
19KG8	e	4	6-7-9	20	
19T8	f	4	1	25	
19T8	f	4	6	25	
19T8	f	4	2	25	
19T8	f	4	8-9	36	
20AQ3	f	4	1-2-3-6-7-8-9-10	28	Glows at 1,2,3, 5,6,7,8,9. Short test at e position. Glows at 1,2
20EZ7	e	3	5-6	27	
20EZ7	e	3	7-8	27	
21BV11	f	1	6	22	
21BV11	f	1	7-9	22	
21GY5	f	1	5-9-10	24	Keep #10 in "P" position during short test. Glows at 3,4,5, 7,9,11,12
21HJ5	f	1	3-5-9-10-11	30	Glows at 3,4,5, 9,11,12. Keep #10 in "P" position during short test.

21JZ6	f	1	3-5-10	23	Keep #10 in "P" position during short test. Glows at 4,12.
21KA6	f	1	3-5-10	28	Glows at 4,11,12
21LG6	f	1	3-5-9-10-11	23	Keep #10 in "P" position during short test. Glows at 3,4,5,9,11,12.
21LR8	f	4	8-9	40	
21LR8	f	4	2-7	40	
21LU8	f	1	6-7-10	23	Keep #10 in "P" position during short test. Glows at 6,7,12.
21LU8	f	1	2-4-8-10	31	
22BH3	f	4	2-3-7	40	Glows at 2,3,5,7
22BW3	f	1	4	60	Keep #4 in "P" position during short test. Glows at 10,12
22DE4	f	7	5	40	
22JG6	f	4	2	65	Glows at 1,5,7
22JG6	f	4	1-7	50	OK over diode
22JU6	f	4	1-2-6-7	55	Glows at 1,2,5,6,7
22KM6	f	4	1-2-6-7	40	Glows at 1,2,5,6,7
23Z9	e	1	2-3-10	25	Glows at 6,12
23Z9	f	6	10-11	80	OK over 18. Keep #1 between K and P

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
23Z9	f	6	5-8-9-10	25	Keep #1 between K and P
24JE6A	f	4	1-2-6-7	40	Glow at 1,2,5, 6,7
24LQ6	f	4	1-2-6-7	40	Glow at 1,2,5, 6,7
25A6	f	2	3-4-5	52	
25A7	f	2	3-4-5	42	
25A7	f	2	6	42	
25AV5	f	2	1-5-8	27	
25AX4	f	7	5	35	
25B6	f	2	3-4-5	27	
25BK5	f	4	1-3-7-8	23	Glow at 3,5,7
25BQ6	f	2	4-5	33	
25C5	f	3	2-5-6-7	23	Glow at 2,4,5
25C6	f	2	3-4-5	33	
25CA5	f	3	2-5-6-7	30	
25CD6	f	2	5-8	39	
25DN6	f	2	5-8	50	
25E5/PL36	f	2	1-4-5-10	27	Glow at 1,3,4, 7,8
25EC6	f	2	5-8	37	
25EH5	f	3	2-5-6-7	23	Glow at 2,4,5
25FSA	f	3	2-5-6-7	25	Glow at 2,4,5
25L6	f	2	3-4-5	23	
25W4	f	7	5	29	
25Z6	f	2	3	31	
25Z6	f	2	5	31	
26A6	f	3	1-5-6	22	
27GB5/PL500	f	4	1-2-6-7	30	Glow at 1,2,3, 5,6,7,8

28D7	f	1	2-3-4	34	
28D7	f	1	3-5-7	34	
30AE3/PY88	f	4	3-6-7-8-9-10	27	Glows at 1,2,3, 5,6,7,8,9.
31AL10	e	6	2-3-5-8-10	20	Glows at 1,12. Keep #10 in "P" position during short test.
31AL10	e	6	10-11	21	
31JS6	f	1	3-5-9-10-11	23	Keep #10 in "P" position during short test. Glows at 3,4,5, 9,11,12
32ET5	f	3	2-5-6	25	Glows at 2,4,5
32HQ7	f	1	9-11	25	
32L7	f	2	3-4-5	30	
33GT7	f	1	2-10	40	Glows at 1,9,11, 12. Keep #10 in "P" position during short and quality check.
33GT7	f	1	5-9-10-11	40	
33GY7	f	7	5-9-11	80	Glows at 1,7,9,12. Keep #10 in "P" position during short test. Short test at e.
33GY7	f	1	2-10	30	
33JV6	f	1	3-7-10	29	Keep #10 in "P" position during short test. Glows at 4,12.

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
33JV6	f	1	10-11	22	
34CE3	f	1	4	25	Keep #4 in "P" position during short test. Glow at 10,12
34GD5A	f	3	2-5-6	36	Glow at 2,4,5
35A5	f	1	2-3-6	26	
35B5	f	3	1-5-6-7	25	Glow at 1,4,7
35C5	f	3	2-5-6-7	30	Glow at 2,4,5
35EH5	f	3	2-5-6-7	20	Glow at 2,4,5
35L6	f	2	3-4-5	24	
35W4	b	3	short test only		Glow at 4,6
35W4	f	3	5	22	
35Y4	f	1	2	25	
35Z3	f	1	2	21	
35Z4	f	2	5	21	
35Z5	f	7	5	21	Glow at 2,3
35Z6	f	2	3	21	
35Z6	f	2	5	21	
36AM3	e	6	5	25	Glow at 3,4
38HE7	f	10	9-10-11	40	Keep #10 in "P" position during short test. Glow at 1,12.
38HE7	f	10	2-10	35	Short test at "d"
38HK7	f	1	2-10	30	Keep #10 in "P" position during short test.

40KD6	f	1	3-5-9-10-11	29	Keep #10 in "P" position during short test. Glows at 3,4,5,9,11,12
42KN6	f	1	5-9-10	25	Keep #10 in "P" position during short test. Glows at 3,4,5,7,9,11,12
50A1	f	4	-	-	Glows at 1,2,7,9
50A5	f	1	2-3-6	27	
50B5	f	3	1-5-6-7	22	Glows at 1,4,7
50C5	f	3	2-5-6-7	24	Glows at 2,4,5
50C6	f	2	3-4-5	27	
50DC4	f	6	5-10	28	Glows at 3,4
50EH5	f	3	2-5-6-7	23	Glows at 2,4,5
50HK6	f	3	2-5-7	25	Glows at 4,6
50JY6	f	2	3-4-5	27	
50L6	f	2	3-4-5	31	
50X6	f	1	3	26	
50X6	f	1	6	26	
50Y6	f	2	3	28	
50Y6	f	2	5	28	
50Y7	f	2	3	24	Glows at 6,7
50Y7	f	2	5	24	
117L7	g	2	3-4-5	29	
117L7	g	2	6	21	
117M7	g	2	3-4-5	29	
117M7	g	2	6	21	
117N7	g	2	3-4-5	25	
117P7	g	2	3-4-5	28	
117Z3	g	3	1-5	24	Glows at 1,4,5

<u>TUBE</u>	<u>FILAMENT VOLTS</u>	<u>FILAMENT SELECT.</u>	<u>SLIDE SWITCH IN P POSITION</u>	<u>SHUNT</u>	<u>NOTATION</u>
117Z4	g	2	5	23	
117Z6	g	2	3	25	
117Z6	g	2	5	25	
502A	d	2	3-5	21	
884	d	2	3-5	33	
1629	e	2	3-5-10	25	
1629	e	2	3-5-8-10	0	Eye open
1629	e	2	5-8-10	0	Eye closed
2050	d	2	3-5-6	21	
2051	d	2	3-5-6	21	
5687	d	8	1-2	20	Glow at 4,5
5687	d	8	7-9	20	
5696A	d	3	1-6	21	Glow at 4,5,7
5751	d	9	1-2	30	Glow at 4,5
5751	d	9	6-7	30	
5763	d	4	1-3-6-8-9	20	Glow at 2,5,7, 8,9
5814A	d	9	1-2	48	
5814A	d	9	6-7	48	
5879	d	4	1-7-8	34	
5881	d	2	3-4-5	27	
5963	d	9	1-2	28	Glow at 4,5
5963	d	9	6-7	28	
5915	d	3	1-6-7	24	
6072	d	9	6-7	32	Glow at 4,5
6072	d	9	1-2	32	
6146	d	2	3-5	25	Glow at 1,4,6,7
6201	d	9	1-2	24	
6201	d	9	6-7	24	
6216	d	4	2-7	23	Glow at 1,3,5,6, 8



6485	d	3	1-2-5-6	20	
6550	d	2	3-4-5	27	
6973	d	4	1-2-3-6-8-9	27	Glows at 1,3,5, 6,8
7025	d	9	1-2	26	Glows at 4,5
7025	d	9	6-7	26	
7027A	d	2	1-4-5-6	25	Glows at 1,4,5,6, 7
7054	e	4	2-8	20	Glows at 3,5,9
7061	e	4	1-3-6-8-9	30	Glows at 1,3,5,6, 8
7189	d	4	1-2-6-9	21	Glows at 1,2,5,6, 9
7199	d	4	1-9	20	
7199	d	4	3-7	20	
7233	d	4	1-2-3-6-7-9	21	Glows at 1,2,3,5, 6,7,9
7247	d	9	1-2	27	Glows at 4,5
7247	d	9	6-7	27	
7355	d	2	6-8	22	
7408	d	2	3-4-5	28	
7581	d	2	3-4-5	28	
7586	d	1	2-10	53	
7587	d	1	2-10	45	
7591	d	2	4-6-8	20	Glows at 4,7,8
7868	d	4	1-2-6-7	21	Glows at 1,2,5, 6,7
7895	d	1	2-4	20	
7984	e	10	1-10	20	N-S in "S" position. Glows at 2,3,4,5,6,7, 8,9,11,12

TUBE	FILAMENT VOLTS	FILAMENT SELECT.	SLIDE SWITCH IN P POSITION	SHUNT	NOTATION
8106	d	4	1-7	60	Glow at 2,3,5,6,8,9
8113	d	3	1-5-6	18	Glow at 2,4,7
8417	d	2	4-5	20	
DAF96	b	1	4-5-6	55	
DAF96	b	1	3	50	OK over diode
DK92	b	1	2-3-4-5-6	39	
DL94/3V4	b	5	2-3-6	30	Glow at 1,7
DF96/1AS4	b	7	2-3-6	40	Glow at 1,5
EABC80	d	4	2-8	19	
EABC80	d	4	1	20	
ECC808	d	4	1	30	
ECC808	d	4	3-9	30	
ECH81	d	4	1-2-7-9	20	
EF86	d	4	2-7-8-9	30	Glow at 2,5,7
EF89	d	4	2-7-8-9	24	Glow at 1,5,6
EL34	d	2	3-4-5	21	
EL83	d	4	1-2	21	
EL84	d	4	1-2-7-9	25	Glow at 1,2,5
EL86	d	4	1-2-7-8-9	21	Glow at 1,2,5,7,8
EL95	d	3	1-6-7	24	Glow at 1,4,7
ELL80	d	4	1-2	21	
ELL80	d	4	6-9	21	
EM84	d	4	1-7-10	0	Glow at 2,5,6,8
EMM801	d	4	1-7-8-9	27	
EZ80	d	4	1	30	
EZ80	d	4	7	30	
GZ34	d	2	4	27	
GZ34	d	2	6	27	
KT66	d	2	3-4-5	30	
KT88	d	2	3-4-5	22	

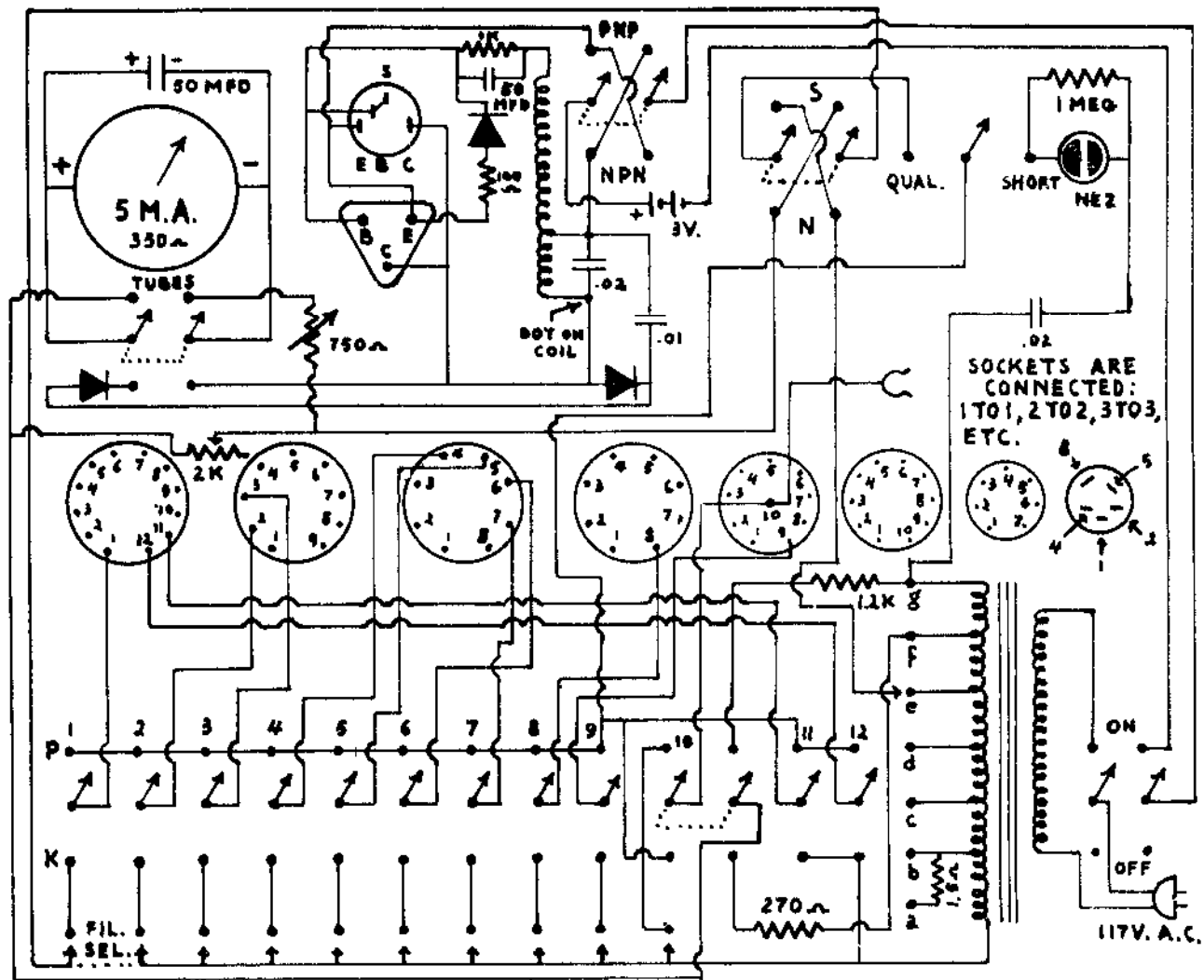
SUPPLEMENTARY TUBE SETTINGS

1S2A	b	10	1-4-6-9-10	80	Glows at 1,2,4,5,6,8,9. Set N-S Switch to "S" position. OK over 20
2BU2	c	10	1-2-5-7-9-10	80	Set N-S switch to "S" position. Glows at 1,2,3,5,7,8,9,12. OK over 14
3CX3/3DA3	c	10	3-10	80	N-S switch in "S" position. Glows at 2,3,4,6,8. OK over 18
3CY3/3DB3	c	10	2-10	90	N-S switch in "S" position. Glows at 1,2,3,5,7. OK over 12
3DH3	c	10	3-5-10	90	N-S switch in "S" position. Glows at 3,4,5,6,8
4LU6	d	3	1-6	21	Short test at "C"
6BD6	d	3	1-5-6	28	
6EV7	d	4	2-6	21	
6EV7	d	4	1-7	21	
6HE5	d	1	2-6-9-10	20	Keep #10 in "P" position during short test. Glows at 2,3,4,9,11,12
6HR6	d	3	1-2-5	18	
6JA8	d	4	2-3	18	
6JA8	d	4	7-8	18	
6JG5	d	4	7-8	19	
6JH5	d	1	2-10-11	21	Keep #10 in "P" position during short test. Glows at 2,3,7,8,11,12

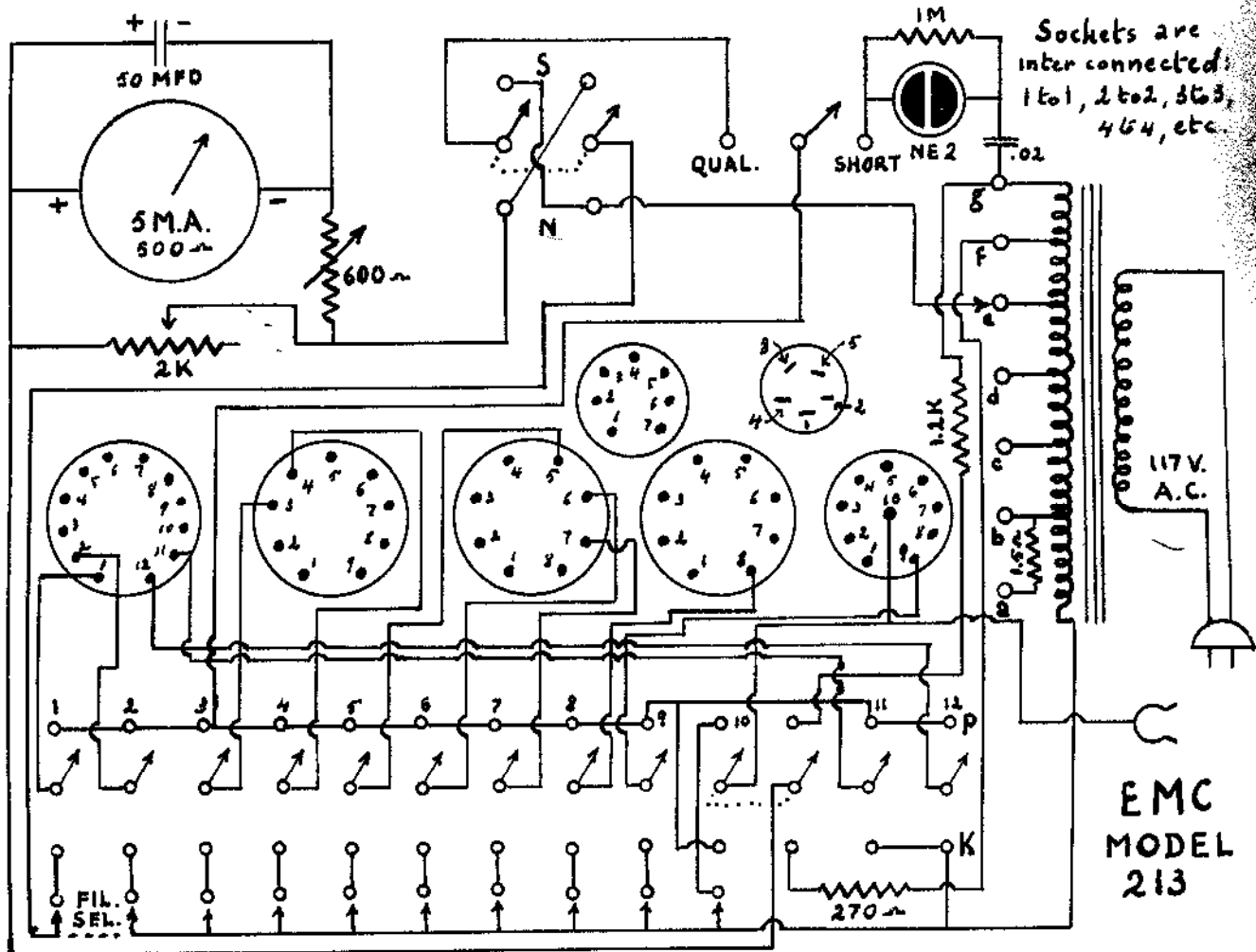
6JK5	d	1	2-10-11	22	Keep #10 in "P" position during short test. Glows at 2,3,7,8,11,12
6JZ6	d	1	3-5-10	20	
6LR6	d	1	5-9-10	25	
6MB8	d	4	1-2	22	Keep #10 in "P" position during short test. Glows at 3,4,5,9,11,12
6MB8	d	4	6-7-9	60	
6MK8	d	4	2-7-8	21	
6MK8	d	4	2-3-7	21	
6ML8	d	4	1-2-3	95	
6ML8	d	4	6	20	
6ML8	d	4	8	20	
6ML8	d	4	9	20	
6MU8	d	4	1-9	20	
6MU8	d	4	2-3-6	18	
6MV8	d	4	2-3	30	
6MV8	d	4	7-8-9	20	
6U9/ECF21	d	5	9	24	OK over 16
6U9/ECF21	d	5	3-7-8	17	
7KY6	d	4	2-8	17	Glows at 3,5,9 Short test at "d"
8AL9	e	1	5-7	19	
8AL9	e	1	2-11	19	Keep #10 in "P" position during short test. Glows at 2,3,4,9,11,12. OK over 1 division
10JA5	e	1	2-6-7-10	90	

11DS5	e	3	1-5-6-7	25	Glow at 1,4,7
12JQ6	e	4	6	58	Glow at 2,3,5,7,8
12JQ6	e	4	1-2-3-7-8	21	
17BR3/17RK19	e	4	2-9-10	21	Glow at 2,5,9. Keep #10 in "P" position during short test
17C5/17CU5	e	3	2-5-6	25	Glow at 2,4,5
17CT3	e	4	2-6	20	Glow at 2,5,6
19HR6	f	3	1-2-5	20	
20LF6	f	1	3-10-11	35	Keep #10 in "P" position during short test. Glow at 3,4,5,9,11,12
20LF6	f	1	5-9-10	30	
21HB5	f	1	2-3-7-10-11	26	Keep #10 in "P" position during short test. Glow at 3,4,11,12
22JF6	f	4	1-2-6-7	31	Glow at 1,2,5,6,7
22JR6	f	4	1-2-7-9	26	Glow at 1,5,7
22KV6	f	4	1-2-7	38	Glow at 1,5,7
25DK3	f	4	2-7-10	22	Glow at 2,5,7
26HU5	f	7	1-3-5	32	Glow at 1,2,5,6,8
26LX6	f	1	3-5-9-10-11	26	Glow at 3,4,5,7,9,11,12. Keep #10 in "P" position during short test. Keep #7 switch between K and P
26Z5	e	9	1-2	35	Glow at 4,5
26Z5	e	9	6-7	35	
29KQ6/PL521	f	4	1-3-6-8	22	Glow at 1,2,3,5,6,7,8

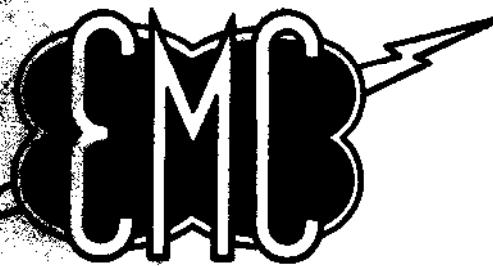
30MB6	f	1	5-9-10	22	Keep #10 in "p" position during short test. Glows at 3,4,5,9,11,12
30MB6	f	1	3-10-11	30	
31LZ6	f	4	1-2-6-7	25	Glows at 1,2,5,6,7
36MC6	f	4	1-2-6-7	25	Glows at 1,2,5,6,7
5670	d	1	3-4	18	
5670	d	1	6-7	18	
6005	d	3	1-6-7	26	Glows at 1,4,7
6082	f	7	4-5	30	
6082	f	7	1-2	30	
6414	d	9	2-7	16	Glows at 4,5
7558	d	4	2-3-6-8	20	Glows at 1,3,5,8,9
EBC81	d	4	2-6-8	28	Glows at 5,7,9



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REPRINTED 3/77