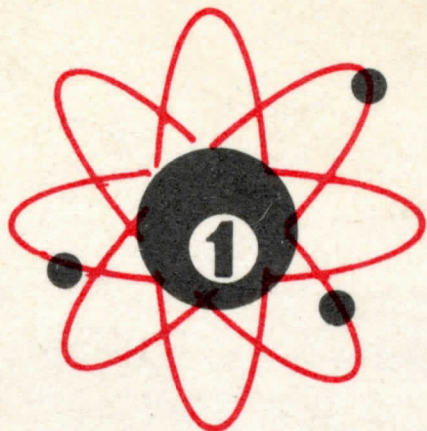


# SENCORE



**SET-UP  
BOOK  
FOR THE**

## MIGHTY MITE

MODELS TC114, TC130, TC136, TC142, TC154

**America's most popular tube tester**

- Fast, accurate, checks over 3,000 tubes and never lets you down.
- Checks emission at full rated cathode current.
- 100 megohms grid leakage test
- "Stethoscopic" shorts test
- Portable, rugged all steel case

# MIGHTY MITE

THIS IS A UNIVERSAL SET-UP BOOK FOR THE TC114, TC130, TC136, TC142 OR TC154 MIGHTY MITE TUBE CHECKERS. THIS PROTECTIVE COVER IS DESIGNED SO THAT YOU MAY CARRY THE BOOKLET IN THE SMALL COMPARTMENT WITHOUT DAMAGE OR IT CAN BE ATTACHED TO THE COVER TO REPLACE BOOKLETS THAT HAVE BEEN PREVIOUSLY CEMENTED IN THE COVER. NOTE THAT LARGE TYPE IS USED SO THAT INDEXING IS NO LONGER NECESSARY. THIS SAVES WEAR ON THE SET-UP PAGES.

# SENCORE

# MIGHTY MITE

## OPERATING INSTRUCTIONS FOR MODELS TC114, TC130, TC136, TC142, TC154

Set controls A, B, C, and D according to the set-up chart and insert tube in socket indicated in the chart. Use the cap lead if tube has a top cap connection. On Mighty Mites up to TC142, set FUNCTION switch to the CAL position and adjust the CAL control so that the meter reads full scale (marked CAL). On the TC154 Mighty Mite press the SHORTS function pushbutton, and adjust the METER ZERO control to position the meter pointer to the extreme left hand edge of the meter scale.

Switch to the SHORT TEST or SHORTS function and rotate the D switch through all positions. The SHORT IND. or SHORTS light will glow if a tube is shorted or has excessive leakage. Tubes marked with an asterisk (\*) in the set-up chart have internal connections that will show up as a short on the D switch positions indicated. The H-K setting is for heater to cathode leakage (or short) test. ANY TUBE THAT SHOWS A SHORT NOT INDICATED AS NORMAL SHOULD BE REJECTED IMMEDIATELY, AS POSSIBLE DAMAGE TO THE MIGHTY MITE TRANSFORMER WILL RESULT FROM CHECKING A SHORTED TUBE FOR EMISSION. Switch to the EMISSION position, and return the D switch to the setting indicated in the set-up book. Read the top BAD ? GOOD scale on the meter, and reject any tube that reads in the BAD area of the meter scale.

Occasionally you will encounter a tube which has a FILAMENT SENSITIVE cathode. This tube will test good in your Mighty Mite when operated at the rated filament voltage but may not work in circuit. This is especially true of tubes in series string receivers. If the line voltage is low, or one or more of the tubes in the series string is dropping a higher than normal voltage, the emission level of the cathode drops and the circuit ceases to function.

The test you should make on every tube to determine if it has a FILAMENT SENSITIVE cathode is a LIFE TEST. When you test the tube for emission and it reads in the GOOD area of the meter, switch the FILAMENT (A) switch DOWN one step (i.e. 6V to 4-5V). The meter indication of a good tube will not change, or change only slightly, but a filament sensitive tube will drop off quickly to the (?) or BAD area.

If the meter reading falls off but still remains in the GOOD area, the tube is still acceptable, but once the meter reading hits the question mark (?) or BAD area, this tube should be replaced.

You should run this quick LIFE TEST on all tubes you check. This will give you double insurance that the tube will work in the circuit.

Switch to the GRID LEAKAGE function, and read the bottom GOOD ? BAD meter scale. Reject any tube that reads up into the BAD area of the meter.

When replacing a costly horizontal output tube in a television receiver, it is a good idea to check the horizontal oscillator tube for emission, filament sensitive cathode and for warm up time. If the horizontal oscillator tube is slower in warming up due to a weak cathode or filament sensitive cathode, the output tube will draw heavy current and its life will be shortened considerably. Checking the warm up time of the oscillator tube and making sure that it is as fast or faster than the output tube can reduce the chance of a call back later for the same trouble and keep your customer's confidence high in your service ability.

## **MAGNOVAL BASED TUBES**

† All tubes marked with a dagger (†) are magnoval based tubes and are checked in socket number 12 on the Mighty Mite V and in socket number 5 on the Mighty Mite II, III and IV. When checking the magnoval based tubes in socket number 5, DO NOT insert this tube fully into the socket, as the pins are larger in diameter than the novar based tubes. If the tube is inserted fully into the socket it can spread the contacts and cause damage. Instead, hold the tube while making firm contact between the tube pins and socket contacts for the test. This will eliminate any possibility of damage to the socket when checking the magnoval based tubes.

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
1A3	1	J	2	F	7	*1AU2	1	H	7	A	8
1A5	1	F	6	E	1	<b>Disregard Shorts</b>					
1A7	1	G	6	E	1	*1AU3	1	J	3	K	1
1AB5	1	E	8	F	9	<b>Disregard Shorts</b>					
1AB6	1	F	8	D	7	1	J	7	K	8	
1AC6	1	F	6	D	7	<b>Disregard Shorts</b>					
*1AD2	1	H	7	K	10	1AY2	1	J	6	K	3
<b>Disregard Shorts</b>						<b>Insert leads into pins</b>					
1AE4	1	G	5	F	7	<b>1 &amp; 5, use top cap</b>					
1AF4	1	F	5	F	7	*1B3	1	H	3	K	1
1AF5	1	G	6	F	7	<b>Disregard Shorts</b>					
	1	H	6	C	7	1B7	1	G	6	E	1
1AF33	1	G	6	C	7	1B8	1	F	6	E	1
	1	G	6	F	7	1	G	6	K	1	
1AF34	1	G	6	C	7	1	G	6	H	1	
	1	G	6	F	7	*1BC2	1	J	6	K	8
*1AG2	1	H	1	K	8	<b>Disregard Shorts</b>					
<b>Disregard Shorts</b>						<b>Normal Shorts A,F,H-K</b>					
*1AG3	1	H	1	K	8	1BG2	1	J	6	K	3
<b>Disregard Shorts</b>						<b>Insert leads into pins</b>					
1AH5	1	G	6	F	7	<b>1 &amp; 5, use top cap</b>					
	1	H	6	C	7	*1BH2	1	J	6	K	8
*1AJ2	1	H	4	K	10	<b>Normal Shorts A,F, H-K</b>					
<b>Disregard Shorts</b>						*1BK2	1	J	1	K	8
1AJ4	1	G	5	F	7	<b>Disregard Shorts</b>					
1AM4	1	G	5	F	7	1BL2	1	J	6	K	3
1AN5	1	G	5	F	7	<b>Insert leads into pins</b>					
1AQ5	1	G	5	D	7	<b>1 &amp; 5, use top cap</b>					
1AR5	1	G	6	F	7	*1BQ2	1	J	2	K	5
	1	H	6	C	7	<b>Disregard Shorts</b>					
1AS5	1	G	6	F	7	*1BX2	1	H	7	K	8
1	1	H	6	D	7	<b>Disregard Shorts</b>					

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*1BY2	1	H	8	K	10	1F33	1	F	6	F	7
Normal Shorts A,B,E,F,J, H-K						1F34	1	F	6	F	7
1C1	1	F	5	D	7	1FD1	1	G	2	F	7
1C2	1	F	6	D	7		1	H	2	C	7
1C3	1	F	2	D	7	1FD9	1	G	6	F	7
1C5	1	F	6	E	1		1	H	6	C	7
1C7	2	F	6	E	1	*1G3	1	H	3	K	1
1D5	2	F	6	K	1	Disregard Shorts					
1D7	2	F	6	E	1	1G4	1	F	6	E	1
1D8	1	F	6	E	1	1G5	2	E	6	E	1
	1	G	6	K	1	1G6	1	F	6	D	1
	1	G	6	H	1		1	F	6	E	1
1D13	1	J	2	F	7	*1H2	1	H	1	K	8
*1DG3	1	H	7	K	2	Disregard Shorts					
Disregard Shorts						1H4	2	F	6	E	1
1DN5	1	F	6	F	7	1H5	1	G	6	K	1
	1	H	6	D	7		1	G	6	E	1
*1DY4	1	D	7	B	4	1H6	2	F	6	F	1
Normal Shorts, A,G							2	G	6	E	1
1E3	1	D	3	A	3		2	G	6	D	1
1E4	1	F	6	E	1	1H33	1	F	6	F	7
1E5	2	G	6	K	1	1H34	1	F	6	F	7
1E7	2	E	6	D	1	1H35	1	G	6	D	7
	2	E	6	E	1	*1J3	1	J	3	K	1
1F1	1	G	5	F	7	Disregard Shorts					
1F2	1	F	5	F	7	1J5	2	E	6	E	1
1F3	1	F	5	F	7	1J6	2	F	6	D	1
1F5	2	E	6	E	1		2	F	6	E	1
1F7	2	G	6	K	1	*1K3	1	J	3	K	1
	2	G	6	E	1	Disregard Shorts					
	2	G	6	D	1	1K5	2	F	6	K	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
1K7	2	F	6	K	1	1Q5	1	E	6	E	1
1L4	1	F	5	F	7	1R	1	G	6	K	1
1L5	2	D	6	E	1	1R4	1	H	6	D	9
1L6	1	G	6	D	7	1R5	1	F	5	D	7
1L33	1	E	6	C	7	1R-K23	1	H	1	K	8
1L34	1	F	6	C	7	*1R-K31	1	J	6	K	8
1LA4	1	F	6	F	9		<b>Disregard Shorts</b>				
1LA6	1	F	6	D	9	*1R-K41	1	J	6	K	8
1LB4	1	F	4	F	9		<b>Disregard Shorts</b>				
1LB6	1	F	6	F	9	*1S2	1	H	1	K	8
1LC5	1	F	5	F	9		<b>Disregard Shorts</b>				
1LC6	1	F	6	D	9	*1S4	1	F	5	C	7
1LD5	1	G	6	D	9		<b>Normal Shorts B,F</b>				
	1	G	6	F	9	1S5	1	G	6	F	7
1LE3	1	F	5	F	9		1	H	6	C	7
1LF3	1	F	5	F	9	1SA6	1	F	6	D	1
1LG5	1	F	5	F	9	1SB6	1	G	6	H	1
1LH4	1	F	6	F	9		1	G	6	E	1
	1	G	6	D	9	1T2	1	H	6	K	3
1LN5	1	F	5	F	9		<b>Insert leads into pins</b>				
1M5	2	F	6	K	1		<b>1 &amp; 5, use top cap</b>				
*1N2	1	H	3	K	1	1T4	1	F	5	F	7
	<b>Disregard Shorts</b>					1T5	1	E	6	E	1
1N5	1	F	6	K	1	1U4	1	F	5	F	7
1N6	1	F	6	E	1	1U5	1	G	6	F	7
	1	G	6	F	1		1	H	6	D	7
1P1	3	G	5	F	7	1U6	1	G	6	D	7
1P5	1	F	6	K	1	*1V2	1	H	3	A	8
*1P10	3	F	5	C	7		<b>Disregard Shorts</b>				
	<b>Normal Shorts B,F</b>					1W4	1	F	6	F	7
1P11	3	F	5	F	7	*1X2	1	H	1	K	8
							<b>Disregard Shorts</b>				

TUBE	A	B	C	D	Skt
2A4	2	F	6	E	1
2A7	2	F	6	E	7
*2AF4	2	D	7	B	4
<b>Normal Shorts A,G</b>					
2AH2	Refer to special section in the back of the book				
*2AV2	1	H	3	A	8
<b>Disregard Shorts</b>					
*2AZ2	2	H	7	K	8
<b>Disregard Shorts</b>					
*2B3	1	H	1	K	1
<b>Disregard Shorts</b>					
2B25	1	G	6	D	7
2B35	2	E	2	A	4
*2BA2	1	H	3	A	8
<b>Disregard Shorts</b>					
2BC5	2	E	2	A	4
2BH5	2	F	6	D	6
*2BJ2	2	G	1	K	8
<b>Normal Shorts C,F,G</b>					
*2BN4	2	E	2	G	4
<b>Normal Shorts A,F</b>					
*2BU2	2	G	9	K	10
<b>Disregard Shorts</b>					
2C22	6	E	7	K	1
2C26	6	E	7	K	1
2C50	12	C	6	A	2
	12	C	6	D	2
2C52	12	F	6	A	2
	12	F	6	D	2

TUBE	A	B	C	D	Skt
2C53	6	F	6	E	1
*2CN3	2	J	6	K	1
<b>Normal Shorts A,C,E,H, H-K</b>					
2CW4	2	F	6	D	6
2CY5	2	E	2	A	4
2D21	6	A	8	F	4
<b>Emission and Shorts Test</b>					
	6	A	8	A	4
<b>Grid Leakage Test</b>					
2DF4	2	B	10	H	3
2DS4	2	G	6	D	6
*2DX4	2	D	7	B	4
<b>Normal Shorts A,G</b>					
*2DY4	2	D	7	B	4
<b>Normal Shorts A,G</b>					
*2DZ4	2	D	7	B	4
<b>Normal Shorts A,G</b>					
*2E24	6	C	7	E	1
<b>Normal Shorts A,D</b>					
2E25	6	C	6	E	1
*2E26	6	A	1	E	1
<b>Normal Shorts D,F</b>					
2E30	6	C	8	A	4
2EA5	2	E	8	A	4
2EG4	2	F	6	D	6
2EN5	2	F	6	B	4
	2	F	6	G	4
2ER5	2	E	8	B	4
2ES5	2	E	8	B	4
2EV5	2	E	8	A	4
2FH5	2	E	8	B	4



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
2FQ5	2	E	8	B	4	3A5	3	F	4	C	7
2FS5	2	D	2	A	4		3	F	4	E	7
2FV6	2	E	2	A	4	3A8	3	G	6	K	1
2FY5	2	E	1	B	4		3	G	6	H	1
2GK5	2	E	8	B	4		3	G	6	E	1
2GU5	2	E	2	A	4	*3AF4	3	D	7	B	4
2GW5	2	D	7	B	4		<b>Normal Shorts A,G</b>				
2HA5	2	E	2	A	4	3AJ8	3	E	6	B	3
2HK5	2	E	2	A	4		3	F	6	J	3
2HM5	2	D	2	A	4	3AL5	3	E	6	B	4
2HQ5	2	E	2	A	4		3	E	6	G	4
2HR8	2	F	6	J	3	*3AT2	3	H	9	K	10
*2J2	2	H	1	K	8		<b>Disregard Shorts</b>				
	<b>Disregard Shorts</b>					3AU6	3	D	6	A	4
2N-H11	2	G	6	D	6	3AV6	3	F	6	A	4
2N-H12	2	F	6	D	6		3	G	6	E	4
*2T4	2	D	7	B	4		3	G	6	F	4
	<b>Normal Shorts A,G</b>					*3AW2	3	J	9	K	10
*2V2	2	J	5	K	1		<b>Disregard Shorts</b>				
	<b>Disregard Shorts</b>					*3AW3	3	H	9	K	1
2V3	2	H	6	K	1		<b>Disregard Shorts</b>				
*2W3	2	B	6	D	1	*3B2	3	H	9	K	1
	<b>Normal Shorts H, H-K</b>						<b>Disregard Shorts</b>				
2X3	2	B	6	K	1	*3B5	3	E	1	E	1
*3A2	3	H	1	K	8		<b>Disregard Shorts</b>				
	<b>Disregard Shorts</b>					*3B7	3	F	4	C	2
*3A3	3	H	9	K	1		3	F	4	F	2
	<b>Disregard Shorts</b>						<b>Normal Shorts A, H-K</b>				
*3A4	3	F	5	D	7	3BA6	3	D	6	A	4
	<b>Normal Shorts B,F</b>					3BC5	3	E	2	A	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*3BE6	3	D	6	A	4	3C4	3	G	5	F	7
Normal Shorts A,F						3C5	3	F	9	E	1
*3BF2	3	G	11	K	10	3C6	3	F	8	D	9
Disregard Shorts Except H-K							3	F	8	E	9
*3BH2	3	J	6	K	8	*3CA3	3	H	3	K	1
Normal Shorts A,F, H-K						Disregard Shorts					
*3BL2	3	J	9	K	10	3CB6	3	D	6	A	4
Disregard Shorts						3CE5	3	E	2	A	4
*3BM2	3	H	9	K	10	3CF6	3	D	6	A	4
Disregard Shorts						*3CN3	3	J	6	K	1
*3BN2	3	J	9	K	10	Normal Shorts A,C,E,H, H-K					
Disregard Shorts						*3CQ3	3	H	6	K	1
*3BN4	3	E	2	G	4	Disregard Shorts					
Normal Shorts A,F						3CS6	3	D	6	A	4
3BN6	3	H	6	E	4	*3CU3	3	H	6	K	1
Emission and Shorts Test						Normal Shorts A,C,E, H-K					
	3	H	6	B	4	*3CV3	3	H	9	K	1
Grid Leakage Test						Normal Shorts A,E,C,H					
*3BS2	3	J	9	K	10	*3CX3	3	J	2	K	2
Disregard Shorts						Disregard Shorts					
*3BT2	3	J	9	K	10	*3CY3	3	H	6	K	1
Disregard Shorts						Normal Shorts A,E,C, H-K					
3BU8	3	D	6	G	3	3CY5	3	E	2	A	4
*3BW2	3	J	9	K	10	*3CZ3	3	H	3	K	1
Disregard Shorts						Disregard Shorts					
3BX6	3	D	1	B	3	3D6	1	E	8	F	9
3BY6	3	D	6	A	4	3D21	12	C	1	F	1
3BY7	3	D	3	B	3	*3DA3	3	F	2	K	2
3BZ6	3	D	6	A	4	Disregard Shorts					
*3C2	3	H	5	K	1	*3DB3	3	H	6	K	1
Disregard Shorts						Normal Shorts A,C,E, HK					

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*3DC3	3	J	3	K	1	3FQ5	3	E	8	B	4
<b>Normal Shorts A,E,G</b>						3FS5	3	D	2	A	4
*3DF3	3	F	7	K	2	3FY5	3	E	1	B	4
<b>Disregard Shorts</b>						3FY22	3	E	1	B	4
3DG4	<b>Refer to special section in the back of the book</b>					3GK5	3	E	8	B	4
*3DH3	3	H	6	K	1	3GS8	3	D	6	G	3
<b>Disregard Shorts Except H-K</b>						3GU5	3	D	2	A	4
*3DJ3	3	H	6	K	1	3GW5	3	D	7	B	4
<b>Normal Shorts A,C,E, H-K</b>						3HA5	3	D	2	A	4
3DK6	3	D	6	A	4	3HK5	3	E	2	A	4
3DT6	3	E	6	A	4	3HM5	3	D	2	A	4
*3DX4	3	D	7	B	4	3HM6	3	D	1	B	3
<b>Normal Shorts A,G</b>						3HQ5	3	E	2	A	4
*3DY4	3	D	7	B	4	3HS8	3	D	6	G	3
<b>Normal Shorts A,G</b>						3HT6	3	D	1	B	3
3DZ4	3	D	7	B	4	3JC6	3	D	1	B	3
<b>Normal Shorts A,G</b>						3JD6	3	D	1	B	3
3E5	3	F	5	F	7	3JH6	3	D	6	A	4
3E6	3	F	5	F	9	3KF8	3	D	6	G	3
3E22	12	A	5	B	2	3KT6	3	D	3	B	3
	12	A	5	G	2	3LE4	3	E	8	F	9
3EA5	3	E	8	A	4	3LF4	3	E	8	F	9
*3EH7	3	D	3	B	3	3M-P26	3	F	6	A	4
<b>Permissible Shorts F</b>						3M-R24	3	D	6	A	4
*3EJ7	3	D	3	B	3	3M-V7	3	D	6	A	4
<b>Permissible Shorts F</b>						*3Q4	3	F	5	C	7
3ER5	3	E	8	B	4	<b>Normal Shorts B,F</b>					
3ES5	3	E	8	B	4	3Q5	3	E	9	E	1
3EV5	3	E	8	A	4	*3S4	3	F	5	C	7
3FH5	3	E	8	B	4	<b>Normal Shorts B,F</b>					
						3V4	3	F	5	F	7

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*3W4	3	F	5	C	7	4BU8	4	D	6	G	3
	<b>Normal Shorts B, F</b>					4BX8	4	E	6	B	3
*3Z4	3	F	5	C	7		4	E	6	G	3
	<b>Normal Shorts B, F</b>					4BZ6	4	D	6	A	4
4A6	4	G	9	D	1	4BZ7	4	E	6	B	3
	4	G	9	E	1		4	E	6	G	3
*4AF4	4	D	7	B	4	4BZ8	4	E	6	B	3
	<b>Normal Shorts A, G</b>						4	E	6	G	3
4AG6	4	G	1	D	1	4CB6	4	D	6	A	4
	4	G	1	E	1	4CE5	4	E	2	A	4
4AU6	4	D	6	A	4	4CM4	4	E	3	F	8
4AV6	4	F	6	A	4	4CS6	4	E	6	A	4
	4	G	6	E	4	4CX7	4	E	9	B	3
	4	G	6	F	4		4	E	9	G	3
4BA6	4	D	6	A	4	4CY5	4	E	2	A	4
4BC5	4	E	2	A	4	4DE6	4	D	6	A	4
4BC8	4	E	6	B	3	4DK6	4	D	6	A	4
	4	E	6	G	3	4DT6	4	E	6	A	4
4BE6	4	D	6	A	4	*4EH7	4	D	3	B	3
4BL8	4	D	6	B	3		<b>Permissible Shorts F</b>				
	4	D	6	J	3	*4EJ7	4	D	3	B	3
*4BN4	4	E	2	G	4		<b>Permissible Shorts F</b>				
	<b>Normal Shorts A, F</b>					4ES8	4	D	6	B	3
4BN6	4	H	6	E	4		4	D	6	G	3
	<b>Emission and Shorts Test</b>					4EW6	4	D	6	A	4
	4	H	6	B	4	4FS7	4	D	3	B	3
	<b>Grid Leakage Test</b>						4	D	3	F	3
4BQ7	4	E	6	B	3	4FY5	4	E	7	B	4
	4	E	6	G	3	4GJ7	4	D	3	B	3
4BS8	4	E	6	B	3		4	E	3	J	3
	4	E	6	G	3	4GK5	4	E	8	B	4

TUBE	A	B	C	D	Skt
4GM6	4	D	6	A	4
4GS7	4	D	3	A	3
	4	D	3	J	3
4GS8	4	D	6	G	3
4GW5	4	D	7	B	4
4GX7	4	D	3	B	3
	4	D	3	J	3
4GZ5	4	C	5	B	4
4HA5	4	E	2	A	4
4HA7	4	E	5	J	10
	4	E	5	A	10
4HC7	4	D	8	J	10
	4	G	8	A	10
4HG8	4	D	3	B	3
	4	D	3	F	3
4HK5	4	E	2	A	4
4HM5	4	D	2	A	4
4HM6	4	D	1	B	3
4HQ5	4	E	2	A	4
4HR8	4	F	6	J	3
4HS8	4	D	6	G	3
4HT6	4	D	1	B	3
4JC6	4	D	1	B	3
4JD6	4	D	1	B	3
4JH6	4	D	6	A	4
4JK6	4	D	6	A	4
4JL6	4	D	6	A	4
4JW8	4	F	6	B	3
	4	G	6	J	3
4KE8	4	D	6	J	3
	4	E	6	B	3

TUBE	A	B	C	D	Skt
4KF8	4	D	6	G	3
4KN8	4	D	6	B	3
	4	D	6	G	3
4KT6	4	D	3	B	3
4LJ8	4	D	3	A	3
	4	D	3	J	3
4LU6	4	C	6	A	4
4MK8	4	E	6	G	3
4M-P2	4	C	6	A	4
4M-P12	5	C	6	A	4
4R-HH2	4	E	6	B	3
	4	E	6	G	3
4R-HH8	4	D	6	B	3
	4	D	6	G	3
5A6	5	C	10	G	3
5A-160H	6	E	6	A	4
*5AF4	5	D	7	B	4
Normal Shorts A,G					
5AM8	5	D	6	B	3
	5	F	6	H	3
5AN8	5	D	6	B	3
	5	D	6	H	3
5AQ4	5	B	6	D	1
	5	B	6	F	1
5AQ5	5	C	8	A	4
*5AR4	5	A	1	D	1
	5	A	1	F	1
Normal Shorts H, H-K					
*5AS4	5	A	6	D	1
	5	A	6	F	1
Normal Shorts H, H-K					

TUBE	A	B	C	D	Skt
5AS8	5	D	6	B	3
	5	F	6	F	3
*5AT4	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
5AT8	5	D	6	A	3
	5	D	6	J	3
*5AU4	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
5AV8	5	E	6	B	3
	5	E	6	F	3
*5AW4	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
*5AX4	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
*5AZ4	5	B	6	D	9
	5	B	6	F	9
<b>Normal Shorts B, H-K</b>					
*5B8	5	D	6	B	3
	5	D	6	F	3
<b>Permissible Shorts A, Only</b>					
5BC3	<b>Refer to special section in the back of the book</b>				
*5BE8	5	D	6	A	3
	5	D	6	J	3
<b>Permissible Shorts C, Only</b>					
5BK7	5	E	6	B	3
	5	E	6	G	3

TUBE	A	B	C	D	Skt
5BM8	5	C	6	C	3
	5	F	6	A	3
*5BQ5	5	C	1	B	3
<b>Permissible Shorts F, H and one other pin</b>					
5BQ7	5	E	6	B	3
	5	E	6	G	3
5BR8	5	D	6	A	3
	5	D	6	J	3
5BS8	5	E	6	B	3
	5	E	6	G	3
5BT8	5	D	6	H	3
	5	G	6	B	3
	5	G	6	A	3
5BW8	5	D	6	F	3
	5	F	6	C	3
	5	F	6	A	3
5BZ7	5	E	6	B	3
	5	E	6	G	3
*5CG4	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
5CG8	5	E	3	A	3
	5	E	3	J	3
5CL8	5	D	6	A	3
	5	D	6	J	3
5CM6	5	C	7	C	3
5CM8	5	E	6	B	3
	5	F	6	J	3
5CQ8	5	D	6	J	3
	5	D	6	B	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*5CR8	5	D	6	B	3	5GM6	5	D	6	A	4
	5	E	6	J	3	5GS7	5	E	3	A	3
<b>Permissible Shorts H, Only</b>						5	E	3	J	3	
*5CU4	5	A	6	D	1	5GX6	5	E	6	A	4
	5	A	6	F	1	5GX7	5	D	3	B	3
<b>Normal Shorts H, H-K</b>						5	D	3	J	3	
*5CZ5	5	C	7	C	3	5HA7	5	E	5	J	10
<b>Permissible Shorts H</b>						5	E	5	A	10	
<b>and one other pin</b>						5HB7	5	D	3	B	3
*5DH8	5	D	6	J	3	5	D	3	J	3	
	5	D	6	A	3	5HC7	5	D	8	J	10
<b>Permissible Shorts C, Only</b>						5	G	8	A	10	
5DN4	5	A	6	D	1	5HG8	5	D	3	B	3
	5	A	6	F	1	5	D	3	F	3	
5EA8	5	D	6	J	3	5HZ6	5	F	6	A	4
	5	D	6	B	3	5J6	5	E	6	E	4
5EH8	5	D	1	B	3	5	E	6	F	4	
	5	D	1	G	3	5JK6	5	D	6	A	4
5ES8	5	E	6	B	3	5JL6	5	D	6	A	4
	5	E	6	G	3	5JW8	5	E	6	B	3
5EU8	5	D	6	B	3	5	F	6	J	3	
	5	D	6	G	3	5KD8	5	D	6	B	3
5EW6	5	D	6	A	4	5	D	6	J	3	
5FG7	5	D	3	J	3	5KE8	5	D	6	J	3
	5	E	3	A	3	5	E	6	B	3	
5FV8	5	D	6	A	3	5KZ8	5	D	6	B	3
	4	D	6	J	3	5	D	6	J	3	
5GH8	5	D	6	B	3	5LJ8	5	D	3	A	3
	5	D	6	J	3	5	D	3	J	3	
5GJ7	5	D	3	B	3	5MB8	5	D	6	A	3
	5	E	3	J	3	5	E	6	J	3	

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
5M-HH3	5	E	6	E	4	*5V3	5	A	6	D	1
	5	E	6	F	4		5	A	6	F	1
5M-K9	5	B	6	E	4		Normal Shorts H, H-K				
5MQ8	5	E	6	B	3	*5V4	5	B	6	D	1
	5	D	6	J	3		5	B	6	F	1
*5R4	5	A	6	D	1		Normal Shorts H, H-K				
	5	A	6	F	1	5V6	5	C	6	E	1
	Normal Shorts H, H-K					5V9	5	D	6	H	11
5R-DDH1	5	E	6	A	3		5	E	6	C	11
	5	E	6	F	3	*5W4	5	B	6	D	1
5R-HR1	5	D	6	B	3		5	B	6	F	1
	5	D	6	J	3		Normal Shorts H, H-K				
5R-HP1	5	D	6	B	3	5X4	5	A	6	C	2
	5	D	6	J	3		5	A	6	E	2
5R-K16	5	A	6	A	3	5X8	5	E	6	B	3
	5	A	6	H	3		5	E	6	G	3
*5T4	5	A	6	D	1	5X9	5	D	6	C	11
	5	A	6	F	1		5	E	6	K	11
	Normal Shorts H, H-K					*5Y3	5	B	6	D	1
5T8	5	F	6	H	3		5	B	6	F	1
	5	G	6	B	3		Normal Shorts H, H-K				
	5	G	6	F	3	5Y4	5	B	6	C	2
	5	G	6	A	3		5	B	6	E	2
*5U4	5	A	6	D	1	*5Z4	5	A	6	D	1
	5	A	6	F	1		5	A	6	F	1
	Normal Shorts H, H-K						Normal Shorts H, H-K				
5U8	5	D	6	B	3	*5Z10	5	A	6	D	1
	5	D	6	J	3		5	A	6	F	1
5U9	5	D	6	C	11		Normal Shorts H, H-K				
	5	D	6	K	11						



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6-30L2	6	D	6	B	3	6AE7	6	F	6	D	1
	6	D	6	G	3		6	F	6	F	1
6A5	6	C	9	E	1	6AE8	6	E	6	B	3
6A8	6	E	6	E	1		6	F	6	G	3
6AB4	6	E	6	F	4	*6AF3	6	A	2	J	3
6AB7	6	D	6	D	1	<b>Disregard Shorts Except H-K</b>					
6AB8	6	D	6	J	3	*6AF4	6	D	7	B	4
	6	F	6	B	3	<b>Normal Shorts A,G</b>					
6AB9	6	D	6	A	11	6AF5	6	F	6	E	1
	6	D	6	G	11	*6AF9	6	C	6	H	11
6AC5	6	F	6	E	1		6	D	6	A	11
6AC7	6	D	6	D	1	<b>Normal Shorts B, Only</b>					
6AC9	6	D	6	B	10	6AF10	6	D	6	C	10
	6	D	6	C	10		6	E	6	K	10
	6	D	6	J	10	6AF11	6	C	6	A	10
6AC10	6	E	6	A	10		6	F	6	F	10
	6	E	6	G	10		6	F	6	C	10
	6	E	6	J	10	6AG5	6	E	2	A	4
6AC11	6	E	6	C	10	6AG6	6	F	6	E	1
	6	E	6	F	10	6AG7	6	C	6	D	1
	6	C	6	H	10	6AG9	6	E	6	E	10
6AD5	6	F	6	E	1		6	C	6	A	10
6AD7	6	G	6	A	1	6AG10	6	D	6	A	10
	6	F	6	E	1	6AG11	6	E	6	H	10
6AD8	6	E	6	B	3		6	E	6	E	10
	6	G	6	H	3		6	F	6	K	10
	6	G	6	G	3		6	F	6	C	10
6AD10	6	E	6	C	10	6AH4	6	C	6	A	1
	6	C	6	H	10	6AH5	6	F	6	F	1
6AE5	6	G	6	E	1	6AH6	6	D	6	A	4
6AE6	6	F	6	E	1						

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6AH7	6	F	6	A	2	6AL9	6	E	9	E	10
	6	F	6	E	2		6	C	9	A	10
6AH9	6	E	5	B	10	6AL11	6	C	6	H	10
	6	C	5	F	10		6	D	6	C	10
6AJ5	6	G	2	A	4	6AM5	6	D	6	A	4
6AJ7	6	E	6	D	1	6AM6	6	E	6	A	4
6AJ8	6	E	6	B	3	6AM8	6	D	6	B	3
	6	E	6	J	3		6	G	6	H	3
6AJ9	6	C	6	C	11	*6AN4	6	D	7	B	4
	6	D	6	K	11						
6AK5	6	E	2	A	4		<b>Normal Shorts A,G</b>				
6AK6	6	D	6	A	4	6AN5	6	C	2	A	4
6AK7	6	C	6	D	1	6AN6	6	F	6	B	7
6AK8	6	F	6	H	3		6	F	6	C	7
	6	G	6	F	3		6	F	6	D	7
	6	G	6	B	3		6	F	6	E	7
	6	G	6	A	3	6AN7	6	E	6	B	3
6AK9	6	E	7	C	10		6	F	6	J	3
	6	E	7	K	10	6AN8	6	D	6	B	3
	6	B	7	H	10		6	D	6	H	3
6AK10	6	E	6	A	10	*6AQ4	6	E	7	A	4
	6	E	6	G	10						
	6	E	6	J	10		<b>Normal Shorts B,E</b>				
*6AL3	6	A	7	C	8	6AQ5	6	C	8	A	4
						6AQ6	6	F	6	A	4
							6	G	6	F	4
							6	G	6	E	4
						6AQ7	6	F	6	D	2
							6	G	6	C	2
							6	G	6	A	2
						6AQ8	6	D	6	B	3
							6	D	6	G	3
						6AR5	6	C	6	A	4

Use second setting if first setting gives no reading

\*6AL3 6 A 2 J 3

Disregard Shorts Except H-K

6AL5 6 E 6 B 4

6 E 6 G 4

6AL6 6 C 6 E 1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6AR6	6	G	6	E	2	6AU7	6	D	10	B	3
<b>Make Emission and Shorts Test only; Normal Shorts F, H-K</b>						6AU8	6	D	6	G	3
6AR7	6	F	6	K	9	6AV4	6	A	6	A	4
	6	G	6	F	9		6	A	6	F	4
	6	G	6	E	9	6AV5	6	A	6	A	1
6AR8	6	D	6	F	3	6AV6	6	F	6	A	4
6AR11	6	D	6	E	10		6	G	6	E	4
	6	D	6	K	10		6	G	6	F	4
6AS4	6	B	6	C	1	6AV8	6	D	6	B	3
	6	B	6	E	1		6	D	6	H	3
6AS5	6	C	5	B	4	6AV11	6	D	6	A	10
6AS6	6	E	6	A	4		6	D	6	G	10
6AS7	6	A	6	A	2		6	D	6	J	10
	6	A	6	D	2	6AW6	6	D	6	A	4
6AS8	6	D	6	B	3	6AW7	6	F	6	B	2
	6	F	6	F	3		6	G	6	C	2
6AS11	6	D	6	A	10		6	G	6	D	2
	6	D	6	C	10	6AW8	6	D	6	G	3
	6	D	6	F	10		6	F	6	B	3
6AT6	6	F	6	A	4	*6AX2	6	J	11	K	8
	6	G	6	E	4	<b>Disregard Shorts</b>					
	6	G	6	F	4	6AX3	6	A	11	D	10
6AT7	6	E	6	B	3	6AX4	6	A	2	E	2
	6	E	6	G	3	6AX5	6	B	6	C	1
6AT8	6	D	6	A	3		6	B	6	E	1
	6	D	6	J	3	6AX6	6	A	6	C	1
6AU4	6	A	2	E	2		6	A	6	E	1
6AU5	6	A	6	A	1	6AX7	6	F	10	B	3
6AU6	6	D	6	A	4		6	F	10	G	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6AX8	6	D	6	B	3	6BA11	6	D	6	J	10
	6	D	6	J	3		6	E	6	D	10
*6AY3	6	A	8	B	5	6BC4	6	D	8	C	8
<b>Disregard Shorts Except H-K</b>						6BC5	6	E	2	A	4
6AY11	6	E	6	K	10	6BC7	6	E	6	B	3
	6	E	6	C	10		6	E	6	F	3
	6	F	6	H	10		6	E	6	H	3
	6	F	6	E	10	6BC8	6	E	6	B	3
6AZ8	6	D	6	F	3		6	E	6	G	3
	6	D	6	J	3	6BC32	6	F	6	A	4
6B3	6	B	6	H	8		6	G	6	E	4
6B4	6	C	6	E	1		6	G	6	F	4
6B6	6	F	6	K	1	6BD4	6	G	6	E	1
	6	G	6	E	1	6BD5	6	A	6	A	1
	6	G	6	D	1	6BD6	6	D	6	A	4
6B8	6	E	6	K	1	6BD7	6	F	6	H	3
	6	G	6	E	1		6	G	6	F	3
	6	G	6	D	1		6	G	6	B	3
6B10	6	E	6	C	10	6BD11	6	D	6	A	10
	6	E	6	E	10		6	E	6	C	10
	6	F	6	H	10		6	F	6	F	10
	6	F	6	K	10	6BE3	6	A	4	K	10
6B32	6	E	6	B	4	6BE6	6	D	6	A	4
	6	E	6	G	4	6BE7	6	F	9	G	3
*6BA3	6	A	8	B	5	*6BE8	6	D	6	A	3
<b>Disregard Shorts Except H-K</b>							6	D	6	J	3
6BA6	6	D	6	A	4	<b>Permissible Shorts C, Only</b>					
6BA7	6	D	6	B	3	6BF5	6	C	8	A	4
6BA8	6	D	6	G	3	6BF6	6	F	6	A	4
	6	D	6	B	3		6	G	6	E	4
							6	G	6	F	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6BF8	6	F	6	A	3	6BK6	6	F	6	A	4
	6	F	6	B	3		6	G	6	E	4
	6	F	6	C	3		6	G	6	F	4
	6	F	6	G	3	6BK7	6	E	6	B	3
	6	F	6	H	3		6	E	6	G	3
	6	F	6	J	3	6BK8	6	E	2	J	3
6BF11	6	C	6	H	10	6BK11	6	G	9	A	10
	6	D	6	C	10		6	G	9	G	10
6BG6	6	A	6	E	1		6	G	9	J	10
*6BH3	6	A	8	B	5	6BL4	6	A	2	E	2
<b>Disregard Shorts Except H-K</b>						6BL7	6	C	6	A	2
6BH5	6	F	9	B	3		6	C	6	D	2
6BH6	6	E	6	A	4	6BL8	6	D	6	B	3
6BH8	6	D	6	G	3		6	D	6	J	3
	6	D	6	B	3	6BM5	6	C	8	A	4
6BH11	6	D	6	D	10	6BM8	6	C	6	C	3
	6	D	6	F	10		6	F	6	A	3
	6	D	6	H	10	*6BN4	6	E	2	G	4
6BJ3	6	A	4	K	10	<b>Normal Shorts A,F</b>					
6BJ5	6	C	6	A	4	6BN5	6	C	3	B	3
*6BJ6	6	D	6	A	4	6BN6	6	H	6	E	4
<b>Disregard Shorts Except H-K</b>						<b>Emission and Shorts Test</b>					
6BJ7	6	F	6	B	3		6	H	6	B	4
	6	F	6	F	3	<b>Grid Leakage Test</b>					
	6	F	6	H	3	6BN7	6	C	6	G	3
6BJ8	6	D	6	H	3		6	F	6	B	3
	6	E	6	F	3	6BN8	6	D	6	A	3
	6	E	6	A	3		6	D	6	F	3
*6BK4	6	G	3	E	1		6	E	6	H	3
<b>Disregard Shorts Except H-K</b>						6BN11	6	E	6	C	10
6BK5	6	C	8	C	3		6	E	6	G	10

TUBE	A	B	C	D	Skt
*6BQ5	6	C	1	B	3
<b>Disregard Shorts Except H-K</b>					
6BQ6	6	A	6	E	1
6BQ7	6	E	6	B	3
	6	E	6	G	3
*6BR3	6	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
*6BR7	6	E	10	G	3
	6	E	10	F	3
	6	E	10	B	3
<b>Normal Shorts F,G</b>					
6BR8	6	D	6	J	3
	6	D	6	A	3
*6BS3	6	A	8	B	5
<b>Disregard Shorts Except H-K</b>					
*6BS4	6	D	7	B	4
<b>Normal Shorts A,G</b>					
6BS5	6	C	1	B	3
6BS7	6	G	1	K	3
6BS8	6	E	6	B	3
	6	E	6	G	3
6BT6	6	F	6	A	4
	6	G	6	C	4
	6	G	6	F	4
6BT8	6	D	6	H	3
	6	G	6	B	3
	6	G	6	A	3
*6BU4	6	G	3	E	1
<b>Disregard Shorts Except H-K</b>					
6BU5	6	G	2	D	2

TUBE	A	B	C	D	Skt
6BU6	6	E	6	A	4
	6	G	6	C	4
	6	G	6	F	4
6BU8	6	D	6	G	3
6BV7	6	E	8	H	3
	6	G	8	F	3
	6	G	8	A	3
6BV8	6	E	6	B	3
	6	E	6	J	3
	6	E	6	F	3
6BV11	6	F	6	F	10
	6	F	6	G	10
*6BW3	6	A	4	K	10
<b>Disregard Shorts Except H-K</b>					
6BW4	6	B	6	A	3
	6	B	6	G	3
*6BW6	6	C	1	B	3
<b>Permissible Shorts F and one other pin</b>					
6BW7	6	D	3	B	3
6BW8	6	E	6	F	3
	6	F	6	C	3
	6	F	6	A	3
6BW11	6	D	6	A	10
	6	D	6	C	10
6BX4	6	A	6	A	4
	6	A	6	F	4
6BX6	6	D	1	B	3
6BX7	6	C	6	A	2
	6	C	6	D	2

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6BX8	6	E	6	B	3	6C18	6	E	7	G	3
	6	E	6	G	3		6	D	7	J	3
6BY5	6	A	3	D	1	6C31	6	E	6	E	1
	6	A	3	E	1	6CA4	6	A	7	A	8
6BY6	6	D	6	A	4		6	A	7	G	8
6BY7	6	D	3	B	3	6CA5	6	C	5	B	4
6BY8	6	D	6	A	3	6CA7	6	A	6	E	1
	6	E	6	F	3	6CA11	6	E	6	C	10
6BY11	6	F	6	C	10		6	E	6	F	10
	6	A	6	H	10		6	C	6	K	10
*6BZ3	6	A	4	K	10	*6CB5	6	A	5	D	1
<b>Disregard Shorts Except H-K</b>						<b>Normal Shorts A,C,F,H</b>					
6BZ6	6	D	6	A	4	6CB6	6	D	6	A	4
6BZ7	6	E	6	B	3	6CB11	6	D	6	C	10
	6	E	6	G	3		6	C	6	A	10
6BZ8	6	E	6	B	3	6CC10	6	E	6	A	2
	6	E	6	G	3		6	E	6	D	2
6C4	6	E	1	F	4	6CC31	6	E	6	E	4
6C5	6	E	6	E	1		6	E	6	F	4
6C8	6	F	6	E	1	6CC43	6	D	6	B	3
	6	F	6	K	1		6	D	6	G	3
6C9	6	E	6	A	3	6CD3	6	A	4	K	10
	6	E	6	G	3	6CD6	6	A	6	E	1
6C10	6	F	9	A	10	*6CE3	6	A	4	K	10
	6	F	9	G	10	<b>Disregard Shorts Except H-K</b>					
	6	F	9	J	10	6CE5	6	E	2	A	4
6C12	6	E	6	B	3	6CF6	6	D	6	A	4
	6	E	6	J	3	6CF8	6	F	6	J	3
6C16	6	D	6	B	3	*6CG3	6	A	4	K	10
	6	D	6	J	3	<b>Disregard Shorts Except H-K</b>					

TUBE	A	B	C	D	Skt
6CG6	6	E	6	A	4
6CG7	6	E	6	B	3
	6	E	6	G	3
6CG8	6	E	3	A	3
	6	E	3	J	3
*6CH3	6	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
*6CH6	6	C	1	B	3
<b>Permissible Shorts F,G</b>					
<b>and one other pin</b>					
6CH7	6	E	9	B	3
	6	E	9	G	3
6CH8	6	E	6	G	3
	6	E	6	H	3
6CH40	6	E	6	B	3
	6	E	6	J	3
6CJ3	6	A	8	B	5
*6CJ6	6	C	1	B	3
<b>Permissible Shorts</b>					
<b>F, G and H or J</b>					
*6CK3	6	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
6CK4	6	C	3	A	1
6CK6	6	C	6	B	3
*6CL3	6	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
*6CL5	6	A	5	D	1
<b>Normal Shorts A,C,F,H</b>					
*6CL6	6	C	10	B	3
<b>Normal Shorts C,H</b>					

TUBE	A	B	C	D	Skt
6CL8	6	D	6	A	3
	6	D	6	J	3
*6CM3	6	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
6CM4	6	E	3	F	8
*6CM5	6	A	3	E	1
<b>Permissible Shorts A</b>					
<b>and one other pin</b>					
6CM6	6	C	7	C	3
6CM7	6	D	2	G	3
	6	D	2	H	3
6CM8	6	E	6	B	3
	6	F	6	J	3
6CN6	6	C	6	E	1
6CN7	6	F	10	A	3
	6	F	10	B	3
	6	F	10	G	3
6CQ4	6	A	2	E	2
6CQ6	6	D	6	B	3
	6	D	6	J	3
6CQ6	6	E	6	A	4
6CQ8	6	D	6	B	3
	6	D	6	J	3
*6CR5	6	C	9	C	3
<b>Normal Shorts A,B,F,G</b>					
6CR6	6	E	6	G	4
	6	G	6	B	4
*6CR8	6	D	6	B	3
	6	D	6	J	3
<b>Permissible Shorts H, Only</b>					



TUBE	A	B	C	D	Skt
*6CS5	6	C	7	C	3
<b>Permissible Shorts H and one other pin</b>					
6CS6	6	D	6	A	4
6CS7	6	C	2	C	3
	6	F	2	G	3
6CS8	6	D	6	B	3
	6	E	6	J	3
*6CT3	6	A	2	F	3
<b>Disregard Shorts Except H-K</b>					
6CU5	6	C	5	B	4
6CU6	6	A	6	E	1
6CU7	6	F	9	A	10
	6	F	9	G	10
	6	F	9	J	10
*6CU8	6	E	6	G	3
	6	E	6	H	3
<b>Permissible Shorts A, Only</b>					
6CW4	6	F	6	D	6
*6CW5	6	C	1	B	3
<b>Disregard Shorts Except H-K</b>					
6CW7	6	D	8	F	3
	6	D	8	B	3
6CX7	6	E	9	B	3
	6	E	9	G	3
6CX8	6	C	6	G	3
	6	E	6	B	3
6CY5	6	E	2	A	4
6CY7	6	C	2	C	3
	6	E	2	G	3

TUBE	A	B	C	D	Skt
*6CZ5	6	C	7	C	3
<b>Permissible Shorts H and one other pin</b>					
6D1	6	F	1	F	4
6D2	6	E	6	B	4
	6	E	6	G	4
6D4	6	F	6	A	4
6D5	6	C	6	E	1
6D8	6	E	6	E	1
6D10	6	E	9	A	10
	6	E	9	G	10
	6	E	9	J	10
6DA4	6	A	2	E	2
6DA6	6	D	1	B	3
6DA7	6	C	2	C	3
	6	E	2	G	3
*6DB5	6	C	7	C	3
<b>Normal Shorts B,G; Permissible Shorts H and one other pin</b>					
6DB6	6	E	6	A	4
6DC6	6	E	6	A	4
6DC8	6	D	6	B	3
	6	G	6	G	3
	6	G	6	H	3
6DE4	6	A	2	E	2
6DE6	6	D	6	A	4
6DE7	6	C	3	B	3
	6	E	3	G	3
6DF12	6	D	6	B	3
	6	G	6	G	3
	6	G	6	H	3

TUBE	A	B	C	D	Skt
6DG6	6	C	6	E	1
*6DG7	6	D	1	B	3
<b>Permissible Shorts F and one other pin</b>					
6DJ8	6	D	6	B	3
	6	D	6	G	3
*6DK3	6	A	8	B	5
<b>Permissible Shorts C,F,H</b>					
6DK6	6	D	6	A	4
*6DL3	6	A	8	B	5
<b>Disregard Shorts</b>					
*6DL4	6	H	1	H	3
<b>Normal Shorts A,C,F,G,J</b>					
<b>Emission and Shorts Test Only</b>					
6DL5	6	C	8	A	4
6DM4	6	A	2	E	2
6DM8	6	E	6	F	5
	6	E	6	H	5
	6	E	6	J	5
*6DN3	6	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
6DN6	6	A	6	E	1
6DN7	6	C	6	A	2
	6	F	6	D	2
*6DQ3	6	A	11	D	10
<b>Normal Shorts B,E,F,I ,J</b>					
6DQ4	6	A	2	E	2
*6DQ5	6	A	5	A	1
<b>Normal Shorts C,D,F,H</b>					
6DQ6	6	A	6	E	1
6DR4	6	F	1	F	4

TUBE	A	B	C	D	Skt
*6DR6	6	D	1	B	3
<b>Permissible Shorts F,G and one other pin</b>					
6DR7	6	C	3	B	3
	6	E	3	G	3
6DR8	6	G	6	H	3
	6	G	6	B	3
	6	G	6	G	3
6DS4	6	G	6	D	6
6DS5	6	C	8	A	4
6DS8	6	F	6	B	3
	6	G	6	J	3
*6DT3	6	A	11	D	10
<b>Normal Shorts B,E,F,H,J</b>					
6DT4	6	A	1	E	2
*6DT5	6	C	7	C	3
<b>Permissible Shorts H and one other pin</b>					
6DT6	6	E	6	A	4
6DT8	6	E	6	B	3
	6	E	6	G	3
*6DW4	6	A	8	B	5
<b>Disregard Shorts Except H-K</b>					
6DW5	6	C	7	C	3
*6DX4	6	D	7	B	4
<b>Normal Shorts A,G</b>					
6DX8	6	D	6	H	3
	6	F	6	A	3
*6DY4	6	D	7	B	4
<b>Normal Shorts A,G</b>					
6DY5	6	B	1	B	3

TUBE	A	B	C	D	Skt
6DY7	6	C	6	A	1
	6	C	6	E	1
*6DZ4	6	D	7	B	4
<b>Normal Shorts A,G</b>					
6DZ7	6	C	6	A	1
	6	C	6	E	1
6DZ8	6	C	6	C	3
	6	F	6	A	3
6E8	6	D	6	K	1
*6EA4	6	G	2	F	10
<b>Disregard Shorts Except H-K</b>					
6EA5	6	E	8	A	4
6EA7	6	D	6	A	2
	6	F	6	D	2
6EA8	6	D	6	B	3
	6	D	6	J	3
6EB5	6	F	6	B	4
	6	F	6	G	4
6EB8	6	C	6	G	3
	6	F	6	B	3
6EC7	6	D	3	A	3
†*6ED4	6	G	2	H	12
<b>Disregard Shorts Except H-K</b>					
*6EF4	6	H	6	F	10
<b>Disregard Shorts Except H-K</b>					
6EF6	6	C	6	E	1
*6EH4	6	G	9	F	10
<b>Normal Shorts A,B,E</b>					
6EH5	6	C	5	B	4
*6EH7	6	D	3	B	3
<b>Permissible Shorts F</b>					

TUBE	A	B	C	D	Skt
6EH8	6	D	1	B	3
	6	D	1	G	3
6EJ4	6	H	6	F	10
*6EJ7	6	D	3	B	3
<b>Permissible Shorts F</b>					
*6EL4	6	J	3	E	1
<b>Disregard Shorts Except H-K</b>					
6EL7	6	D	1	B	3
*6EM5	6	C	7	C	3
<b>Permissible Shorts H and one other pin</b>					
6EM7	6	D	6	A	2
	6	F	6	D	2
6EN4	6	G	7	E	1
6EQ7	6	E	6	B	3
	6	G	6	H	3
6ER5	6	E	8	B	4
6ES5	6	E	8	B	4
6ES6	6	D	6	A	4
6ES8	6	D	6	B	3
	6	D	6	G	3
6ET6	6	D	6	A	4
6ET7	6	D	6	G	3
	6	G	6	C	3
	6	G	6	B	3
6EU7	6	G	6	E	13
	6	G	6	H	13
<b>See back of book for Mighty Mites not having socket no. 13</b>					
6EU8	6	D	6	B	3
	6	D	6	G	3

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
6EV5	6	E	8	A	4
6EV7	6	E	6	B	3
	6	E	6	G	3
6EV8	6	D	6	A	3
	6	D	6	J	3
6EW6	6	D	6	A	4
6EW7	6	F	3	G	3
	6	C	3	B	3
6EX6	6	A	6	E	1
6EY6	6	C	6	E	1
6EZ5	6	C	6	E	1
6EZ8	6	E	6	B	3
	6	E	6	G	3
	6	E	6	J	3
6F5	6	G	6	K	1
6F6	6	B	6	E	1
6F8	6	E	6	K	1
	6	E	6	E	1
6F10	6	D	6	D	1
6F11	6	E	6	A	4
6F12	6	D	6	A	4
6F18	6	D	3	A	3
6F19	6	D	3	B	3
6F21	6	E	6	A	4
6F22	6	F	2	J	3
6F23	6	D	1	B	3
*6F24	6	D	3	B	3
	<b>Permissible Shorts F</b>				
*6F25	6	D	3	B	3
	<b>Permissible Shorts F</b>				
6F26	6	D	3	B	3

TUBE	A	B	C	D	Skt
6F29	6	D	3	B	3
6F30	6	D	3	B	3
6F31	6	D	6	A	4
6F32	6	E	2	A	4
6F33	6	E	6	A	4
6F35	6	G	2	A	4
6F36	6	D	6	A	4
6FA7	6	F	6	G	3
	6	G	6	C	3
6FB8	6	H	6	A	3
	6	H	6	B	3
	6	H	6	C	3
	6	H	6	F	3
	6	H	6	G	3
	6	H	6	H	3
6FC7	6	D	8	B	3
	6	D	8	F	3
6FD6	6	F	6	A	4
6FD7	6	C	2	C	3
	6	F	2	G	3
6FD12	6	D	6	B	3
	6	G	6	G	3
	6	G	6	H	3
6FE5	6	C	6	E	1
6FG5	6	D	2	A	4
*6FG6	6	G	6	A	3
	<b>Normal Shorts B,F,H</b>				
6FG7	6	D	3	J	3
	6	E	3	A	3
6FH5	6	E	8	B	4
6FH6	6	A	6	E	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6FH8	6	E	6	B	3	6G11	6	C	5	H	10
	6	E	6	F	3		6	D	5	C	10
<b>Normal Shorts H-K</b>						6GA7	6	A	2	A	10
6FJ7	6	E	7	K	10		6	A	2	D	10
	6	A	7	C	10	6GA8	6	D	6	B	3
6FM7	6	C	9	C	10		6	D	6	G	3
	6	E	9	K	10	6G-B3A	6	A	3	E	1
6FM8	6	F	6	B	3	†*6GB5	6	A	2	A	12
	6	F	6	H	3	<b>Normal Shorts C,F,G,H</b>					
*6FN5	6	A	4	E	1	6G-B6	6	A	6	E	1
<b>Normal Shorts A,C,F,H</b>						6G-B7	6	A	3	E	1
6FQ5	6	D	1	B	4	6G-B9	6	A	6	E	1
6FQ7	6	D	6	B	3	*6GC5	6	C	7	C	3
	6	D	6	G	3	<b>Normal Shorts A,H</b>					
6FR7	6	C	3	B	3	6GC6	6	A	4	E	1
	6	F	3	G	3	6GD7	6	D	3	A	4
6FS5	6	D	2	A	4		6	D	3	J	4
6FV6	6	E	6	A	4	*6GE5	6	A	1	C	10
6FV8	6	D	6	A	3	<b>Normal Shorts D,K</b>					
	6	D	6	J	3	6GE8	6	B	6	C	3
6FW5	6	A	6	A	1		6	F	6	H	3
6FW8	6	E	6	B	3	*6GF5	6	A	1	C	10
	6	E	6	G	3	<b>Normal Shorts D,K</b>					
6FX4	6	A	6	A	4	6GF7	6	C	6	B	5
6FY5	6	E	1	B	4		6	G	6	J	5
6FY7	6	C	9	C	10	6GH8	6	D	6	B	3
	6	F	9	K	10		6	D	6	J	3
6FY8	6	E	6	C	3	*6GJ5	6	A	7	B	5
	6	F	6	A	3	<b>Normal Shorts A,G</b>					
6G6	6	D	6	E	1	6GJ7	6	D	3	B	3
							6	E	3	J	3

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
6GJ8	6	E	6	B	3
	6	E	6	J	3
6GK5	6	E	8	B	4
6GK6	6	C	3	B	3
*6GK7	6	F	3	B	3
<b>Permissible Shorts F</b>					
6G-K17	6	A	2	E	2
6GL7	6	C	6	D	2
	6	E	6	A	2
6GM5	6	C	3	F	8
6GM6	6	D	6	A	4
6GM8	6	E	6	B	3
	6	E	6	G	3
6GN6	6	E	6	A	4
	6	E	6	G	4
6GN8	6	C	6	G	3
	6	G	6	B	3
6GQ7	6	E	3	B	3
	6	E	3	F	3
	6	E	3	H	3
6GS7	6	E	3	A	3
	6	E	3	J	3
6GS8	6	D	6	G	3
*6GT5	6	A	7	B	5
<b>Normal Shorts A,G</b>					
6GU5	6	D	2	A	4
6GU7	6	D	6	B	3
	6	D	6	G	3
*6GV5	6	A	5	J	10
<b>Normal Shorts A,C,D,G,K</b>					

TUBE	A	B	C	D	Skt
6GV7	6	E	7	G	3
	6	D	7	J	3
6GV8	6	B	6	J	3
	6	F	6	B	3
6GW5	6	D	7	B	4
6GW6	6	A	6	E	1
6GW8	6	C	6	H	3
	6	G	6	A	3
6GX6	6	E	6	A	4
6GX7	6	D	3	B	3
	6	D	3	J	3
*6GY5	6	A	5	J	10
<b>Normal Shorts A,C,D,G,K</b>					
6GY6	6	E	6	A	4
*6GY8	6	E	6	A	3
	6	E	6	C	3
	6	G	6	F	3
<b>Normal Shorts H-K</b>					
6GZ5	6	C	5	B	4
6H4	6	F	6	D	1
6H6	6	E	6	C	1
	6	E	6	E	1
6H8	6	D	6	K	1
	6	G	6	E	1
	6	G	6	D	1
6H-31	6	D	6	A	4
6HA5	6	E	2	A	4
*6HA6	6	C	3	B	3
<b>Normal Shorts F,G</b>					
*6HB5	6	A	3	A	10
<b>Normal Shorts D,K</b>					

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6HB6	6	C	3	B	3	*6HL5	6	A	1	B	3
<b>Normal Shorts F,H</b>						<b>Disregard Shorts on F, H, and one other pin</b>					
6HB7	6	D	3	B	3	6HL8	6	D	6	B	3
	6	D	3	J	3		6	D	6	J	3
6HC8	6	C	6	C	3	6HM5	6	D	2	A	4
	6	F	6	A	3	6HM6	6	D	1	B	3
*6HD5	6	A	1	C	10	6HQ5	6	E	2	A	4
<b>Normal Shorts D,E,J,K</b>						6HQ6	6	D	6	A	4
6HD7	6	F	3	B	3	6HR5	6	A	8	A	4
	6	F	3	J	3	6HR6	6	D	6	A	4
*6HE5	6	A	2	J	10	*6HS5	6	A	1	B	10
<b>Normal Shorts A,C,D,K</b>						<b>Disregard Shorts Except H-K</b>					
6HE7	6	A	11	B	10	6HS6	6	E	6	A	4
	6	A	11	J	10	6HS8	6	D	6	G	3
*6HF5	6	A	5	J	10	*6HT5	6	J	3	F	10
<b>Normal Shorts A,C,D,F,H,K</b>						<b>Disregard Shorts Except H-K</b>					
6HF8	6	D	6	G	3	6HT6	6	D	1	B	3
	6	F	6	B	3	*6HU6	6	G	6	A	3
6HG5	6	C	8	A	4	<b>Normal Shorts B,F,H</b>					
6HG8	6	D	3	B	3	6HU8	6	C	6	B	3
	6	D	3	F	3		6	C	6	F	3
*6HJ5	6	A	1	C	10	*6HV5	6	A	1	B	10
<b>Normal Shorts D,E,J,K</b>						<b>Disregard Shorts Except H-K</b>					
6HJ7	6	F	3	B	3	6HW8	6	E	6	F	3
	6	F	3	J	3	*6HZ5	6	A	1	B	10
6HJ8	6	D	6	B	3	<b>Disregard Shorts Except H-K</b>					
	6	G	6	H	3	6HZ6	6	F	6	A	4
6HK5	6	E	2	A	4	6HZ8	6	D	6	G	3
6HK8	6	E	6	B	3		6	E	6	B	3
	6	E	6	G	3						

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6J4	6	H	1	G	4	*6JD5	6	A	2	A	10
<b>Emission and Shorts Test only;</b>						<b>Disregard Shorts Except H-K</b>					
<b>Normal Shorts A,F</b>						<b>Normal Shorts A,G</b>					
6J5	6	E	6	E	1	6JD6	6	D	1	B	3
6J6	6	E	6	E	4	*6JE6	6	A	7	B	5
	6	E	6	F	4	<b>Normal Shorts A,G</b>					
6J7	6	F	6	K	1	6JE8	6	F	6	B	3
6J8	6	F	6	E	1		6	D	6	G	3
	6	F	6	K	1	*6JF6	6	A	7	B	5
6J9	6	F	6	G	3	<b>Normal Shorts A,G</b>					
	6	F	6	J	3	*6JG5	6	B	3	G	3
	6	F	6	B	3	<b>Normal Shorts A,B</b>					
6J10	6	C	6	A	10	*6JG6	6	A	9	B	5
	6	H	6	G	10	<b>Normal Shorts A,G</b>					
6J11	6	D	6	E	10	*6JH5	6	A	2	A	10
	6	D	6	A	10	<b>Normal Shorts C,G,H,K</b>					
*6JA5	6	A	10	B	10	6JH6	6	D	6	A	4
<b>Normal Shorts A,C,D,K</b>						6JH8	6	D	6	F	3
6JA8	6	D	6	G	3	*6JK5	6	A	2	A	10
	6	F	6	B	3	<b>Normal Shorts C,G,H,K</b>					
*6JB5	6	C	2	J	10	6JK6	6	D	6	A	4
<b>Normal Shorts A,C,D,K</b>						6JK8	6	E	6	B	3
*6JB6	6	A	7	B	5		6	E	6	G	3
<b>Normal Shorts A,G</b>						6JL6	6	D	6	A	4
6JB8	6	D	6	B	3	6JL8	6	C	6	G	3
	6	F	6	G	3		6	E	6	B	3
*6JC5	6	A	10	B	10	*6JM6	6	A	9	E	10
<b>Normal Shorts A,C,D,K</b>						<b>Normal Shorts D,J,K</b>					
6JC6	6	D	1	B	3	6JN6	6	A	4	A	10
6JC8	6	E	1	H	3	6JN8	6	D	6	A	3
	6	D	1	B	3		6	D	6	J	3



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6JQ6	6	A	8	H	3	6JZ8	6	C	7	G	10
	6	G	8	F	3		6	E	7	K	10
	Normal Shorts B,C					6K5	6	F	6	K	1
*6JR6	6	A	9	B	5	6K6	6	B	6	E	1
	Normal Shorts A,G					6K7	6	E	6	K	1
*6JS6	6	A	10	E	10	6K8	6	E	6	E	1
	Normal Shorts A,C,D,K					6K11	6	F	6	A	10
*6JT6	6	A	9	B	5		6	F	6	G	10
	Normal Shorts A,G						6	D	6	J	10
6JT8	6	D	6	G	3	6KA8	6	E	6	F	3
	6	F	6	B	3		6	F	6	B	3
*6JU6	6	A	7	B	5	*6KD6	6	A	10	E	10
	Normal Shorts A,G						Normal Shorts A,C,D,K				
*6JU8	6	E	6	A	3	6KD8	6	D	6	B	3
	6	E	6	G	3		6	D	6	J	3
	6	E	1	B	3	*6KE6	6	A	10	E	10
	6	E	8	H	3		Normal Shorts A,D,J,K				
	Grid Leakage Normal for last					6KE8	6	D	6	J	3
	two Tests; Normal Shorts B,H						6	E	6	B	3
6JV8	6	D	6	G	3	6KF8	6	D	6	G	3
	6	G	6	B	3	†*6KG6	6	A	1	H	12
*6JW6	6	C	7	B	3		Normal Shorts B,C,F,G				
	Normal Shorts C,J					6KH8	6	C	6	B	3
6JW8	6	D	6	J	3		6	C	6	F	3
	6	C	6	B	3	6KL8	6	D	6	B	3
6JX8	6	E	6	B	3		6	F	6	H	3
	6	E	6	J	3	*6KM6	6	A	7	B	5
6JY8	6	C	6	G	3		Normal Shorts A,G				
	6	D	6	B	3	6KM8	6	F	6	G	3
*6JZ6	6	A	8	E	10		6	H	6	C	3
	Normal Shorts D,K										

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6KN6	3	A	10	E	10	6KZ8	6	D	6	B	3
<b>Normal Shorts A,C,D,G,K, H-K</b>						6KZ8	6	D	6	J	3
6KN8	6	D	6	B	3	6L5	6	F	6	E	1
	6	D	6	G	3	6L6	6	C	6	E	1
6KR8	6	D	6	B	3	6L7	6	F	6	K	1
	6	C	6	G	3	6L10	6	C	6	D	1
6KS6	6	H	6	E	4	6L12	6	D	6	B	3
<b>Emission and Shorts Test</b>						6L12	6	D	6	G	3
	6	H	6	B	4	6L13	12	F	10	B	3
<b>Grid Leakage Test</b>						6L13	12	F	10	G	3
6KS8	6	F	6	B	3	6L16	6	D	8	F	3
	6	C	6	G	3		6	D	8	B	3
6KT6	6	D	3	B	3	6L31	6	C	8	A	4
6KT8	6	D	6	G	3	*6L34	6	E	7	A	4
	6	G	6	B	3	<b>Normal Shorts B,E</b>					
6KU8	6	D	6	G	3	*6L40	6	C	1	B	3
	6	G	6	C	3	<b>Permissible Shorts F and H and one other pin</b>					
	6	G	6	B	3	*6L43	6	C	1	B	3
*6KV6	6	A	9	B	5	<b>Normal Shorts C,H</b>					
<b>Normal Shorts A,G</b>						*6LB6	6	A	10	E	10
6KV8	6	C	6	G	3	<b>Normal Shorts A,C,D,K</b>					
	6	F	6	B	3	*6LB8	6	D	6	B	3
6KW6	6	B	9	A	12		6	D	6	G	3
6KX6	6	G	6	A	3	<b>Normal Shorts C,H</b>					
	6	G	6	K	3	*6LC6	6	J	3	E	1
6KX8	6	G	6	A	3	<b>Normal Shorts C,D,H</b>					
	6	G	6	K	3	6LC8	6	E	6	F	3
6KY6	6	C	3	B	3		6	F	6	B	3
6KY8	6	C	6	B	5	6LD6	6	C	7	B	5
	6	G	6	J	5						

TUBE	A	B	C	D	Skt
6LD12	6	F	6	H	3
	6	G	6	F	3
	6	G	6	B	3
	6	G	6	A	3
6LD13	6	F	6	H	3
	6	G	6	F	3
	6	G	6	B	3
6LE8	6	D	6	J	3
*6LF6	6	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
6LF8	6	D	6	G	3
	6	G	6	B	3
	6	A	5	J	10
<b>Normal Shorts A,C,D,K</b>					
*6LH6	6	H	6	E	1
<b>Normal Shorts A,C,D,H</b>					
6LJ6	6	H	6	E	1
6LJ8	6	D	3	A	3
	6	D	3	J	3
6LM8	6	D	6	B	3
	6	D	6	J	3
6LN8	6	D	6	B	3
	6	D	6	J	3
6LP12	6	C	6	C	3
	6	F	6	A	3
*6LQ6	6	A	2	F	5
<b>Normal Shorts A,G</b>					
6LQ8	6	D	6	B	3
	6	D	6	G	3
*6LR6	6	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					

TUBE	A	B	C	D	Skt
6LR8	6	C	6	B	5
	6	D	6	J	5
6LT8	6	E	6	J	3
	6	C	6	F	3
	6	C	6	H	3
6LU6	6	D	6	A	4
6LU8	6	B	8	F	10
	6	F	8	K	10
*6LV6	6	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
*6LW6	6	A	6	E	2
<b>Permissible Shorts A, F and one other pin</b>					
*6LX6	6	A	10	E	10
<b>Normal Shorts, A,C,D,G,H, H-K</b>					
*6LX8	6	D	6	J	3
	6	C	6	B	3
6LY8	6	F	6	B	3
	6	C	6	G	3
*6LZ6	6	A	7	B	5
<b>Normal Shorts A,G,J</b>					
*6M5	6	C	7	B	3
<b>Permissible Shorts H and one other pin</b>					
6M6	6	F	6	E	1
6M7	6	D	6	K	1
6M8	6	D	6	K	1
	6	F	6	E	1
	6	G	6	H	1
6M11	6	D	6	B	10
	6	E	6	E	10
	6	E	6	H	10

TUBE	A	B	C	D	Skt
*6MA6	6	G	1	F	2
Normal Shorts C,D,E					
*6MB6	6	A	6	E	10
Normal Shorts A,C,D,G,J,K					
6MB8	6	D	6	A	3
	6	E	6	J	3
*6MC6	6	A	7	B	5
Normal Shorts A,G					
6MD8	6	D	6	F	5
	6	D	6	J	5
	6	D	6	H	5
*6ME6	6	A	7	B	5
Normal Shorts A,G,J					
6ME8	6	D	6	F	3
6MF8	6	A	8	F	10
	6	E	8	K	10
6MG8	6	D	6	J	3
	6	E	6	B	3
*6M-H1	6	G	1	G	4
Emission and Shorts Test only;					
Normal Shorts E,F					
*6MH6	6	A	10	E	10
Normal Shorts A,C,D,K					
6M-HH3	6	E	6	E	4
	6	E	6	F	4
*6MJ6	6	A	8	B	5
Normal Shorts A,G,J					
6MJ8	6	D	6	A	10
	6	D	6	H	10
	6	D	6	K	10
6MK8	6	E	6	G	3

TUBE	A	B	C	D	Skt
6ML8	6	D	6	F	3
	6	D	6	H	3
	6	D	6	J	3
6MN8	6	D	6	A	10
	6	D	6	H	10
	6	D	6	K	10
6M-P20	6	C	6	A	4
6MQ8	6	E	6	B	3
	6	D	6	J	3
6MU8	6	C	6	B	3
	6	E	6	J	3
6MV8	6	F	6	B	3
	6	D	6	G	3
6MY8	6	F	8	K	10
	6	A	8	F	10
*6N3	6	A	2	J	3
Disregard Shorts					
*6N4	6	D	8	A	4
Normal Shorts B,F					
6N7	6	E	6	D	1
	6	E	6	E	1
6N8	6	F	6	B	3
	6	G	6	G	3
	6	G	6	H	3
6N-H10	6	G	6	D	6
6NK7	6	F	6	K	1
6N-L7	6	F	6	D	6
6P5	6	F	6	E	1
*6P7	6	F	6	K	1
Normal Shorts C					

TUBE	A	B	C	D	Skt
6P8	6	E	6	K	1
	6	F	6	E	1
6P9	6	C	8	A	4
*6P15	6	C	1	B	3
<b>Permissible Shorts F,H</b>					
<b>and one other pin</b>					
6P17	6	C	6	A	4
6P25	6	F	6	E	1
6PL12	8	C	6	C	3
	8	F	6	A	3
*6P-P22	6	D	2	J	3
<b>Normal Shorts C,H</b>					
6Q4	6	G	8	A	8
6Q5	6	F	6	E	1
6Q6	6	F	6	K	1
	6	G	6	E	1
6Q7	6	F	6	K	1
	6	G	6	E	1
	6	G	6	D	1
6Q8	6	E	6	E	1
6Q11	6	D	6	J	10
	6	F	6	G	10
	6	F	6	A	10
*6QL6	6	B	1	J	3
<b>Normal Shorts B,C,G,H</b>					
*6R3	6	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
6R4	6	C	6	A	3
6R6	6	E	6	K	1
6R7	6	E	6	K	1
	6	G	6	E	1
	6	G	6	D	1

TUBE	A	B	C	D	Skt
6R8	6	E	6	H	3
	6	G	6	F	3
	6	G	6	B	3
	6	G	6	A	3
6R-HH2	6	E	6	B	3
	6	E	6	G	3
6R-HH8	6	D	6	B	3
	6	D	6	G	3
*6R-K19	6	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
6R-P10	<b>Refer to special section</b>				
<b>in the back of the book</b>					
6R-P15	6	A	2	A	3
*6R-P22	6	A	10	B	3
<b>Normal Shorts C,H</b>					
6R-R8	<b>Refer to special section</b>				
<b>in the back of the book</b>					
*6S2	6	H	1	K	8
<b>Disregard Shorts</b>					
*6S4	6	C	3	F	3
<b>Disregard Shorts Except H-K</b>					
6S6	6	D	6	K	1
6S7	6	E	6	K	1
6S8	6	F	6	K	2
	6	G	6	D	2
	6	G	6	C	2
	6	G	6	A	2
6SA7	6	D	6	E	1
6SB7	6	D	6	E	1
6SC7	6	F	6	C	2
	6	F	6	D	2
6SD7	6	D	6	D	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6SE7	6	F	6	D	1	*6T1	6	D	7	B	4
6SF5	6	F	6	C	2	<b>Normal Shorts A,G</b>					
6SF7	6	D	6	B	2	*6T4	6	D	7	B	4
	6	G	6	E	2	<b>Normal Shorts A,G</b>					
6SG7	6	D	5	D	1	6T6	6	E	6	K	1
6SH7	6	D	5	D	1	6T7	6	F	6	K	1
6SH8	6	E	6	G	3		6	G	6	E	1
6SJ7	6	E	6	D	1		6	G	6	D	1
6SK7	6	D	6	D	1	6T8	6	F	6	H	3
6SL7	6	F	6	A	2		6	G	6	F	3
	6	F	6	D	2		6	G	6	B	3
6SN7	6	E	6	A	2		6	G	6	A	3
	6	E	6	D	2	6T9	6	C	6	H	10
6SQ7	6	F	6	B	2		6	D	6	D	10
	6	G	6	D	2	6T10	6	D	6	C	10
	6	G	6	E	2		6	C	6	H	10
6SR7	6	E	6	B	2	6TE8	6	F	6	E	1
	6	G	6	D	2		6	F	6	K	1
	6	G	6	E	2	6TE9	6	F	6	G	3
6SS7	6	E	6	D	1		6	F	6	H	3
6ST7	6	F	6	B	2	6TH8	6	F	6	E	1
	6	G	6	D	2		6	F	6	K	1
	6	G	6	E	2	*6U3	6	A	1	J	3
6SU7	6	F	6	A	2	<b>Disregard Shorts Except H-K</b>					
	6	F	6	D	2	6U4	6	A	6	E	2
6SV7	6	F	6	B	2	6U6	6	C	6	E	1
	6	G	6	E	2	6U7	6	E	6	K	1
6SZ7	6	F	6	B	2	6U8	6	D	6	B	3
	6	G	6	D	2		6	D	6	J	3
	6	G	6	E	2	6U9	6	D	6	C	11
							6	D	6	K	11

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6U10	6	E	6	A	10	6X6	6	F	6	C	1
	6	E	6	G	10		6	G	6	E	1
	6	E	6	J	10	6X8	6	E	6	B	3
6V3	6	A	3	G	8		6	E	6	G	3
6V4	6	A	7	A	8	6X9	6	D	6	C	11
	6	A	7	G	8		6	E	6	K	11
6V5	6	C	6	E	2	6Y3	6	F	6	K	1
6V6	6	C	6	E	1	6Y6	6	C	6	E	1
6V7	6	F	6	K	1	6Y7	6	F	6	D	1
	6	G	6	E	1		6	F	6	E	1
	6	G	6	D	1	6Y9	6	C	6	H	11
6V8	6	F	6	F	3		6	D	6	A	11
	6	G	6	J	3	6Y10	6	C	6	C	10
	6	G	6	G	3		6	F	6	H	10
	6	G	6	B	3	6Z4	6	A	6	A	4
6V9	6	D	6	H	11		6	A	6	F	4
	6	E	6	C	11	6Z7	6	F	6	D	1
6W4	6	A	2	E	2		6	F	6	E	1
6W5	6	B	6	C	1	6Z10	6	C	6	A	10
	6	B	6	E	1		6	H	6	G	10
6W6	6	C	6	E	1	6Z31	6	B	6	A	4
6W7	6	F	6	K	1		6	B	6	F	4
6W9	6	C	6	H	11	6ZY5	6	A	6	C	1
	6	D	6	A	11		6	A	6	E	1
6X2	6	J	6	K	3	7A4	6	E	5	F	9
	Insert leads into pins					7A5	6	C	6	F	9
	1 & 5, use top cap					7A6	6	E	6	C	9
6X4	6	B	6	A	4		6	E	6	F	9
	6	B	6	F	4	7A7	6	E	6	F	9
6X5	6	B	6	E	1	7A8	6	E	6	D	9
	6	B	6	C	1						

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt	
*7AB7	6	F	6	E	1	*7D10	6	C	1	B	3	
<b>Normal Shorts D,F,H</b>						<b>Permissible Shorts F, G and one other pin</b>						
7AD7	6	C	6	F	9	7D11	6	A	6	E	1	
7AF7	6	E	6	D	9	7DJ8	7	D	6	B	3	
	6	E	6	E	9		7	D	6	G	3	
7AG7	6	E	6	F	9	*7E5	6	F	5	A	9	
7AH7	6	E	6	F	9	<b>Disregard Shorts</b>						
7AJ7	6	E	6	F	9	7E6	6	F	4	C	9	
7AK7	6	C	6	F	9		6	G	4	E	9	
7AN7	7	E	8	B	3		6	G	4	F	9	
	7	E	8	F	3	7E7	6	E	6	F	9	
7AU7	7	D	10	B	3		6	G	6	D	9	
	7	D	10	G	3		6	G	6	C	9	
7B4	6	F	6	F	9	7ED7	7	E	3	B	3	
7B5	6	C	6	F	9	7EK7	7	E	8	B	3	
7B6	6	F	4	C	9		7	E	8	F	3	
	6	G	4	E	9	7ES8	7	D	6	B	3	
	6	G	4	F	9		7	D	6	G	3	
7B7	6	E	6	F	9	7EY6	7	C	6	E	1	
7B8	6	F	6	D	9	7F7	6	F	6	D	9	
7C4	6	F	6	D	9		6	F	6	E	9	
7C5	6	C	6	F	9	7F8	<b>Refer to special section in the back of the book</b>					
7C6	6	F	4	C	9		7FC7	7	D	8	B	3
	6	G	4	E	9		7	D	8	F	3	
	6	G	4	F	9	7G7	6	F	6	F	9	
7C7	6	E	6	F	9	7G8	6	F	6	D	9	
7D7	6	D	6	F	9		6	F	6	E	9	
	6	F	6	D	9		6	F	6	E	9	
7D9	6	D	6	A	4							



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
7GS7	7	E	3	A	3	7Y4	6	B	4	C	9
	7	E	3	J	3		6	B	4	F	9
7GV7	7	E	7	J	3	7Z4	6	B	4	C	9
	7	D	7	G	3		6	B	4	F	9
7H7	6	D	6	F	9	8A8	8	D	6	B	3
7HG8	7	D	3	B	3		8	E	6	J	3
	7	D	3	F	3	8AC9	8	D	6	B	10
7J7	6	F	6	D	9		8	D	2	C	10
	6	E	6	F	9		8	D	6	J	10
7K7	6	F	6	D	9	8AC10	8	E	6	A	10
	6	G	6	E	9		8	E	6	G	10
	6	G	6	F	9		8	E	6	J	10
7KY6	7	C	3	B	3	8AG10	8	D	6	A	10
7KZ6	7	C	3	B	3	8AL9	8	E	9	E	10
7L7	6	F	6	F	9		8	C	9	A	10
7M-P18	7	A	8	A	4	8AR11	8	D	6	E	10
7N7	6	E	6	D	9		8	D	6	K	10
	6	E	6	E	9	8AU8	8	D	6	G	3
7Q7	6	E	6	D	9		8	E	6	B	3
7R7	6	F	6	F	9	8AV11	8	D	6	A	10
	6	G	6	D	9		8	D	6	G	10
	6	G	6	C	9		8	D	6	J	10
7S7	6	D	6	F	9	8AW8	8	D	6	G	3
	6	E	6	D	9		8	F	6	B	3
7T7	6	E	6	F	9	8B8	8	C	6	C	3
7V7	6	E	6	F	9		8	F	6	A	3
7W7	6	D	4	F	9	8B10	8	E	6	C	10
7X6	6	B	6	C	9		8	E	6	E	10
	6	B	6	F	9		8	F	6	H	10
7X7	6	F	6	C	9		8	F	6	K	10
	6	G	6	E	9	8BA8	8	D	6	G	3
	6	G	6	F	9		8	E	6	B	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
8BA11	8	D	6	D	10	8CS7	8	C	2	C	3
	8	E	6	J	10		8	F	2	G	3
8BH8	8	D	6	G	3	*8CW5	8	C	1	B	3
	8	E	6	B	3	<b>Disregard Shorts Except H-K</b>					
8BM11	8	D	6	F	10	8CX8	8	C	6	G	3
	8	E	6	A	10		8	E	6	B	3
8BN8	8	D	6	A	3	8CY7	8	C	2	C	3
	8	D	6	F	3		8	E	2	G	3
	8	E	6	H	3	8D3	6	E	6	A	4
8BN11	8	E	6	C	10	*8D5	9	E	10	G	3
	8	E	6	G	10		9	E	10	F	3
*8BQ5	8	C	1	B	3		9	E	10	B	3
<b>Disregard Shorts Except H-K</b>						<b>Normal Shorts F,G</b>					
8BQ7	8	E	6	B	3	8D6	6	D	3	B	3
	8	E	6	G	3	8D7	6	G	1	K	3
8BQ11	8	E	6	E	10	8D8	8	G	2	J	3
	8	E	6	K	10	8DX8	8	D	6	H	3
8BU11	8	D	6	D	10		8	F	6	A	3
	8	D	6	F	10	8EB8	8	C	6	G	3
	8	D	6	H	10		8	F	6	B	3
8BV7	8	E	8	H	3	8EL8	8	D	6	J	3
	8	G	8	F	3	*8EM5	8	C	7	C	3
	8	G	8	A	3	<b>Permissible Shorts H and one other pin</b>					
8CB11	8	D	6	E	10	8ET7	8	D	6	G	3
	8	C	6	K	10		8	G	6	C	3
8CG7	8	E	6	B	3		8	G	6	B	3
	8	E	6	G	3	8FQ7	8	D	6	B	3
8CM7	8	D	2	G	3		8	E	6	G	3
	8	D	2	H	3	8GJ7	8	D	3	B	3
8CN7	8	F	10	A	3		8	E	3	J	3
	8	F	10	B	3						
	8	F	10	G	3						

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
8GK6	8	C	3	B	3	8KR8	8	D	6	B	3
8GM6	8	D	6	A	4		8	B	6	G	3
8GN8	8	C	6	G	3	8KS8	8	F	6	B	3
	8	G	6	B	3		8	C	6	G	3
8GU7	8	D	6	B	3	8LC8	8	E	6	F	3
	8	D	6	G	3		8	F	6	B	3
8GX7	8	D	3	B	3	8LE8	8	D	6	J	3
	8	D	3	J	3	8LN8	8	D	6	B	3
*8HA6	8	C	3	B	3		8	D	6	J	3
<b>Normal Shorts F,G</b>						8LS6	8	D	3	B	3
8HG8	8	D	3	B	3	8LT8	8	C	6	F	3
	8	D	3	F	3		8	C	6	H	3
8JE8	8	D	6	G	3		8	E	6	J	3
	8	F	6	B	3	8MU8	8	C	6	B	3
8JK8	8	E	6	B	3		8	E	6	J	3
	8	E	6	G	3	8R-HP1	8	C	6	C	3
8JL8	8	C	6	G	3		8	F	6	A	3
	8	E	6	B	3	8R-LP1	8	C	6	C	3
8JT8	8	D	6	G	3		8	F	6	A	3
	8	F	6	B	3	8SN7	8	E	6	A	2
*8JU8	8	E	6	A	3		8	E	6	D	2
	8	E	6	G	3	*8TL8	8	E	6	J	3
	8	E	1	B	3		8	C	6	F	3
	8	E	8	H	3		8	C	6	H	3
<b>Grid Leakage Normal for last two tests; Normal Shorts B,H</b>						<b>Normal Shorts A, Only</b>					
8JV8	8	D	6	G	3	8U9	8	D	6	C	11
	8	G	6	B	3		8	D	6	K	11
8KA8	8	E	6	F	3	8X9	8	D	6	C	11
	8	F	6	B	3		8	E	6	E	11

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
9A8	9	D	6	B	3	9CG8	9	E	3	A	3
	9	D	6	J	3		9	E	3	J	3
9AB4	9	E	6	F	4	9CL8	9	D	6	A	3
9AH9	9	E	5	B	10		9	D	6	J	3
	9	C	5	F	10	9D6	9	F	6	A	4
9AK8	9	F	6	H	3	9D7	9	E	1	B	3
	9	G	6	F	3	9DZ8	9	C	6	C	3
	9	G	6	B	3		9	F	6	A	3
	9	G	6	A	3	9EA8	9	D	6	J	3
9AK10	9	E	6	A	10		9	D	6	B	3
	9	E	6	G	10	†*9ED4	9	G	2	H	12
	9	E	6	J	10	Disregard Shorts Except H-K					
9AM10	9	E	6	A	10	9EF6	9	C	6	E	1
	9	E	6	H	10	9GH8	9	D	6	B	3
	9	E	3	K	10		9	D	6	J	3
9AQ8	9	D	6	B	3	9GV8	9	B	6	J	3
	9	D	6	G	3		9	F	6	B	3
9AU7	9	D	10	B	3	9JC8	9	E	1	H	3
	9	D	10	G	3		9	D	1	B	3
9BJ11	9	F	6	A	10	9JW8	9	G	6	J	3
	9	E	6	F	10		9	F	6	B	3
9BM5	9	C	8	A	4	9KC6	9	D	6	B	3
*9BR7	9	E	10	G	3	9KX6	9	C	3	B	3
	9	E	10	F	3	9KZ6	9	C	3	B	3
	9	E	10	B	3	9KZ8	9	D	6	B	3
Normal Shorts F,G							9	D	6	J	3
9BR8	9	D	6	J	3	9LA6	9	C	3	B	3
	9	E	6	A	3	9ML8	9	D	6	F	3
*9BW6	9	C	1	B	3		9	D	6	H	3
Permissible Shorts F							9	D	6	J	3
and one other pin						9M-P12	9	C	6	A	4

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
9MN8	9	D	6	A	10	10DR7	10	C	3	B	3
	9	D	6	H	10		10	E	3	G	3
	9	D	6	K	10	10DX8	10	D	6	H	3
9P9	9	C	8	A	4		10	F	6	A	3
9R-A6	9	C	2	G	3	10EB8	10	C	6	G	3
9R-AL1	9	C	3	B	3		10	F	6	B	3
	9	F	3	G	3	10EG7	10	D	6	A	2
9R-HH2	9	D	6	B	3		10	E	6	D	2
	9	D	6	J	3	10EM7	10	D	6	A	2
9R-HR2	9	D	6	B	3		10	F	6	D	2
	9	D	6	J	3	10EW7	10	C	3	G	3
9U8	9	D	6	B	3		10	F	3	B	3
	9	D	6	J	3	10FD7	10	F	3	G	3
9V9	9	D	6	H	11		10	C	3	B	3
	9	E	6	C	11	10FD12	19	E	6	B	3
9X8	9	E	6	B	3		19	G	6	G	3
	9	E	6	G	3		19	G	6	H	3
10AL11	10	C	6	H	10	10FH6	10	A	6	E	1
	10	D	6	C	10	10FR7	10	C	3	B	3
*10BQ5	10	C	1	B	3		10	F	3	G	3
<b>Disregard Shorts Except H-K</b>						10GF7	10	C	6	B	5
10C8	10	D	6	H	3		10	G	6	J	5
	10	E	6	B	3	10GK6	10	C	3	B	3
10C14	19	E	6	B	3	10GN8	10	C	6	G	3
	19	F	6	J	3		10	G	6	B	3
*10CW5	10	C	1	B	3	10GV8	10	C	6	J	3
<b>Disregard Shorts Except H-K</b>							10	E	6	B	3
10DA7	10	C	2	C	3	*10HA6	10	C	3	B	3
	10	E	2	G	3	<b>Normal Shorts F,G</b>					
10DE7	10	C	3	B	3	10HF8	10	D	6	G	3
	10	E	3	G	3		10	F	6	B	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
10J10	10	C	6	A	10	10LW8	10	F	6	B	3
	10	H	6	F	10		10	C	6	G	3
*10JA5	10	A	10	B	10	10LY8	10	F	6	B	3
<b>Normal Shorts A,C,D,K</b>							10	C	6	G	3
10JA8	10	D	6	G	3	10LZ8	10	E	6	B	3
	10	F	6	B	3		10	D	6	G	3
10JT8	10	D	6	G	3	*10P18	45	C	1	B	3
	10	F	6	B	3	<b>Disregard Shorts Except H-K</b>					
10JY8	10	C	6	G	3	10PL12	50	C	6	C	3
	10	D	6	B	3		50	E	6	A	3
10KR8	10	C	6	G	3	10T10	10	D	6	C	10
	10	D	6	B	3		10	C	6	H	10
10KU8	10	D	6	G	3	10Z10	10	C	6	A	10
	10	G	6	C	3		10	H	6	F	10
	10	G	6	B	3	11AC11	11	E	6	C	10
10LB8	10	D	6	B	3		11	E	6	F	10
	10	D	6	G	3		11	C	6	H	10
10L14	26	D	6	B	3	*11AF9	11	C	6	H	11
	26	D	6	G	3		11	D	6	A	11
*10LD3	14	F	6	F	9	<b>Normal Shorts B, Only</b>					
	14	G	6	E	9	11AR11	11	D	6	K	10
	14	G	6	C	9		11	D	6	E	10
<b>Normal Shorts G, H-K</b>						11BM8	11	C	6	C	3
10LD12	28	F	6	H	3		11	F	6	A	3
	28	G	6	F	3	11BQ11	11	E	6	E	10
	28	G	6	B	3		11	E	6	K	10
	28	G	6	A	3	*11BT11	11	E	6	C	10
10LD13	14	F	10	B	3		11	E	6	E	10
	14	G	10	F	3		11	E	6	A	10
	14	G	10	H	3	<b>Normal Shorts F, Only</b>					
10LE8	10	D	6	J	3	11C5	11	C	5	B	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
11CA11	11	E	6	C	10	11MS8	11	B	6	B	3
	11	E	6	F	10		11	F	6	J	3
	11	C	6	H	10	11R3	11	A	2	J	3
11CF11	11	C	6	E	10	11Y9	11	C	6	H	11
	11	E	6	A	10		11	D	6	A	11
	11	E	6	J	10	1204	6	F	7	E	9
*11CH11	10	E	6	C	10	12A4	12	C	3	G	8
	10	E	6	E	10	12A6	12	C	6	E	1
	10	B	6	A	10	12A8	12	E	6	E	1
<b>Normal Shorts F, Only</b>						*12AB5	12	C	3	F	3
11CY7	11	C	2	C	3	<b>Normal Shorts A,H</b>					
	11	E	2	G	3	12AC6	12	F	6	A	4
11D12	6	A	6	A	2	12AC10	12	D	6	A	10
	6	A	6	D	2		12	D	6	G	10
11DS5	11	C	8	A	4		12	D	6	J	10
11E13	12	C	10	A	3	12AD5	12	F	8	B	3
	12	C	10	C	3	12AD6	12	F	6	A	4
11FY7	11	C	9	C	10	12AD7	12	F	10	B	3
	11	F	9	K	10		12	F	10	G	3
*11HM7	11	C	7	B	3	12AE6	12	F	6	A	4
<b>Normal Shorts C,J</b>							12	G	6	E	4
11JE8	11	F	6	B	3		12	G	6	F	4
	11	D	6	G	3	12AE7	12	F	10	B	3
11KV8	11	C	6	G	3		12	G	10	G	3
	11	F	6	B	3	12AE10	12	F	6	C	10
11LQ8	11	D	6	B	3		12	C	6	H	10
	11	D	6	G	3	*12AF3	12	A	2	J	3
11LT8	11	E	6	J	3	<b>Disregard Shorts Except H-K</b>					
	11	C	6	F	3	12AF6	12	F	6	A	4
	11	C	6	H	3	12AG6	12	F	6	A	4
11LY6	11	C	3	B	3	12AG7	12	C	6	D	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
12AH6	12	D	6	A	4	12AV5	12	A	6	A	1
12AH7	12	F	6	A	2	12AV6	12	F	6	A	4
	12	F	6	E	2		12	G	6	E	4
12AH8	12	F	10	B	3		12	G	6	F	4
	12	F	10	G	3	12AV7	12	D	10	B	3
12AJ6	12	F	6	A	4		12	D	10	G	3
	12	G	6	E	4	12AW6	12	E	6	A	4
	12	G	6	F	4	12AX3	12	A	11	D	10
12AJ7	12	F	6	B	3	12AX4	12	A	2	E	2
	12	G	6	J	3	12AX7	12	F	10	B	3
12AJ8	12	E	6	B	3		12	F	10	G	3
	12	E	6	J	3	*12AY3	12	A	8	B	5
12AK7	12	C	6	D	1	<b>Disregard Shorts Except H-K</b>					
12AL5	12	E	6	B	4	12AY7	12	F	10	B	3
	12	E	6	G	4		12	F	10	G	3
12AL8	12	E	6	C	3	12AZ7	12	E	10	B	3
	12	G	6	H	3		12	E	10	G	3
12AL11	12	C	6	H	10	12B3	12	A	6	G	8
	12	E	6	C	10	12B4	12	C	3	G	8
12AQ5	12	C	8	A	4	12B6	12	F	6	K	1
12AS5	12	C	5	B	4		12	G	6	E	1
12AT6	12	F	6	A	4	12B7	12	E	6	F	9
	12	G	6	E	4	12B8	12	E	6	K	1
	12	G	6	F	4		12	F	6	H	1
12AT7	12	E	10	B	3	12BA6	12	D	6	A	4
	12	E	10	G	3	12BA7	12	D	6	B	3
12AU6	12	D	6	A	4	†*12B-B14	12	A	1	B	12
12AU7	12	D	10	B	3	<b>Normal Shorts C,F,G,H</b>					
	12	D	10	G	3	12BD5	12	A	6	A	1
12AU8	12	D	6	G	3	12BD6	12	D	6	A	4
	12	D	6	B	3	12BE3	12	A	4	K	10

† See Magnoval Note on page B



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
12BE6	12	D	6	A	4	12BU6	12	E	6	A	4
12BF6	12	F	6	A	4		12	G	6	E	4
	12	G	6	E	4		12	G	6	F	4
	12	G	6	F	4	*12BV7	12	C	7	B	3
12BF11	12	C	6	H	10	<b>Normal Shorts C,J</b>					
	12	D	6	C	10	12BV11	12	F	6	F	10
12BH7	12	D	10	B	3		12	F	6	G	10
	12	D	10	G	3	12BW4	12	B	6	A	3
12BJ3	12	A	4	K	10		12	B	6	G	3
12BK5	12	C	8	C	3	12BX6	12	D	1	B	3
12BK6	12	F	6	A	4	*12BY3	12	A	2	J	3
	12	G	6	E	4	<b>Disregard Shorts Except H-K</b>					
	12	G	6	F	4	12BY7	12	C	7	B	3
12BL6	12	F	6	A	4	<b>Normal Shorts C,J</b>					
12BM5	12	C	8	A	4	12BZ6	12	D	6	A	4
*12BN6	12	H	6	E	4	12BZ7	12	F	10	B	3
<b>Emission and Shorts Test</b>							12	F	10	G	3
	12	H	6	B	4	12C5	12	C	5	B	4
<b>Grid Leakage Test</b>						12C8	12	E	6	K	1
12BQ6	12	A	6	E	1		12	G	6	D	1
*12BR3	12	A	2	J	3		12	G	6	E	1
<b>Disregard Shorts Except H-K</b>						12CA5	12	C	5	B	4
*12BR7	12	E	10	G	3	*12CK3	12	A	2	G	5
	12	E	10	F	3	<b>Disregard Shorts Except H-K</b>					
	12	E	10	B	3	*12CL3	12	A	2	G	5
<b>Normal Shorts F,G</b>						<b>Disregard Shorts Except H-K</b>					
*12BS3	12	A	8	B	5	12CM6	12	C	7	C	3
<b>Disregard Shorts Except H-K</b>						12CN5	12	F	5	B	4
12BT3	12	A	4	K	10	*12CR5	12	C	9	C	3
12BT6	12	F	6	A	4	<b>Normal Shorts A, B, F, G</b>					
	12	G	6	E	4	12CR6	12	E	6	G	4
	12	G	6	F	4		12	G	6	B	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*12CS5	12	C	7	C	3	12DL8	12	C	6	C	3
<b>Permissible Shorts H</b>						12DL8	12	G	6	A	3
<b>and one other pin</b>						12DL8	12	G	6	J	3
12CS6	12	D	6	A	4	12DM4	12	A	2	E	2
*12CT3	12	A	.2	F	3	12DM5	12	C	5	B	4
<b>Disregard Shorts Except H-K</b>						12DM7	12	E	10	B	3
12CT8	12	D	6	H	3	12DM7	12	E	10	G	3
	12	E	6	B	3	12DM8	12	D	6	F	5
12CU5	12	C	5	B	4		12	D	6	H	5
12CU6	12	A	6	E	1		12	D	6	J	5
12CX6	12	F	6	A	4	12DQ4	12	A	2	E	2
12CY6	12	F	6	A	4	12DQ6	12	A	6	E	1
12D4	12	A	6	E	2	*12DQ7	12	C	7	B	3
12DA6	12	D	7	B	3	<b>Normal Shorts C,J</b>					
*12DB5	12	C	7	C	3	12DS7	12	D	6	C	3
<b>Normal Shorts B,G; Permissible</b>							12	G	6	A	3
<b>Shorts H and one other pin</b>							12	G	6	J	3
12DE8	12	F	6	C	3	*12DT5	12	C	7	C	3
	12	F	6	A	3	<b>Permissible Shorts H</b>					
12DF5	12	B	10	A	3	<b>and one other pin</b>					
	12	B	10	F	3	12DT6	12	E	6	A	4
12DF7	12	F	10	B	3	12DT7	12	G	10	B	3
	12	F	10	G	3		12	G	10	G	3
12DJ8	12	D	6	B	3	12DT8	12	E	6	B	3
	12	D	6	G	3		12	E	6	G	3
12DK5	12	F	6	B	3	12DU7	12	D	9	A	3
12DK6	12	D	6	A	4		12	G	9	G	3
12DK7	12	E	9	A	3		12	G	9	J	3
	12	G	9	F	3	12DV7	12	G	10	B	3
	12	G	9	J	3		12	G	10	C	3
							12	G	10	G	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
12DV8	12	D	6	C	3	*12EM6	12	E	8	A	3
	12	G	6	A	3		12	G	8	J	3
	12	G	6	J	3		<b>Permissible Shorts H</b>				
*12DW4	12	A	8	B	5		<b>and one other pin</b>				
<b>Disregard Shorts Except H-K</b>						12EN6	12	C	6	E	1
12DW5	12	C	7	C	3	12EQ7	12	E	6	B	3
12DW7	12	D	10	B	3		12	G	6	H	3
	12	F	10	G	3	12EZ6	12	F	6	A	4
12DW8	12	E	6	B	3	12F5	12	F	6	K	1
	12	F	6	G	3	12F8	12	F	6	H	3
	12	F	6	J	3		12	G	6	F	3
12DY8	12	D	6	A	3		12	G	6	A	3
	12	F	6	J	3	12F31	12	D	6	A	4
12DZ6	12	F	6	A	4	12FA6	12	F	6	A	4
12DZ8	12	C	6	C	3	12FB5	12	C	1	B	3
	12	F	6	A	3	12FK6	12	F	6	A	4
12E5	12	F	6	E	1		12	G	6	E	4
12E13	6	C	6	E	1		12	G	6	F	4
12EA6	12	F	6	A	4	12FM6	12	F	6	A	4
12EC8	12	F	6	A	3		12	G	6	E	4
	12	F	6	J	3		12	G	6	F	4
12ED5	12	C	5	B	4	12FQ7	12	D	6	B	3
12EF6	12	C	6	E	1		12	D	6	G	3
12EG6	12	F	6	A	4	12FQ8	12	G	6	B	3
12EH5	12	C	5	B	4		12	G	6	G	3
12EK6	12	E	6	A	4	*12FR8	12	F	6	C	3
12EL6	12	F	6	A	4		12	G	6	A	3
	12	G	6	E	4		12	G	6	J	3
	12	G	6	F	4		<b>Normal Shorts H,K</b>				

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
12FS5	12	D	2	A	4	*12GJ5	12	A	7	B	5
12FT6	12	E	6	A	4	<b>Normal Shorts A,G</b>					
	12	G	6	E	4	12G-K17	12	A	6	E	2
	12	G	6	F	4	12GN6	12	E	6	A	4
12FV7	12	D	10	B	3		12	E	6	G	4
	12	D	10	G	3	*12GN7	12	D	7	B	3
12FX5	12	C	5	B	4	<b>Normal Shorts C,J</b>					
*12FX8	12	F	6	B	3	*12GT5	12	A	7	B	5
	12	F	6	F	3	<b>Normal Shorts A,G</b>					
<b>Normal Shorts H,K</b>						*12GV5	12	A	5	J	10
12FY8	12	E	6	C	3	<b>Normal Shorts A,C,D,G,K</b>					
	12	F	6	A	3	12GW6	12	A	6	E	1
*12G4	12	E	5	F	4	*12H4	12	E	2	F	4
<b>Permissible Shorts B and one other pin</b>						<b>Normal Shorts A,E</b>					
12G7	12	F	6	K	1	12H6	12	F	6	C	1
	12	G	6	E	1		12	F	6	E	1
	12	G	6	D	1	12H31	12	D	6	A	4
12G8	12	E	10	C	3	12HE7	12	A	11	B	10
	12	E	10	H	3		12	A	11	J	10
12G11	12	C	5	H	10	*12HG7	12	C	7	B	3
	12	D	5	C	10	<b>Normal Shorts C,J</b>					
12GA6	12	F	6	A	4	*12HL5	12	A	1	B	3
12G-B3	12	A	3	E	1	<b>Disregard Shorts on F, H, and one other pin</b>					
12G-B6	12	A	6	E	1	*12HL7	12	C	7	B	3
12G-B7	12	A	3	E	1	<b>Normal Shorts C,J</b>					
*12GC6	12	A	4	E	1	12HU8	12	C	6	B	3
<b>Permissible Shorts A,F, and one other pin</b>							12	C	6	F	3
*12GE5	12	A	1	C	10	12J5	12	E	6	E	1
<b>Normal Shorts D,K</b>						12J7	12	F	6	K	1

TUBE	A	B	C	D	Skt
12J8	12	D	6	A	3
	12	F	6	H	3
	12	F	6	J	3
*12JB6	12	A	7	B	5
<b>Normal Shorts A,G</b>					
*12JF5	12	A	1	C	10
<b>Normal Shorts D,E,F,H,J, H-K</b>					
12JN6	12	A	4	A	10
12JN8	12	D	6	A	3
	12	D	6	J	3
*12JQ6	12	A	8	H	3
	12	G	8	F	3
<b>Normal Shorts B,C</b>					
*12JS6	12	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
*12JT6	12	A	9	B	5
<b>Normal Shorts A,G</b>					
12JZ8	12	C	7	G	10
	12	E	7	K	10
12K5	12	D	7	E	4
12K7	12	E	6	K	1
12K8	12	E	6	E	1
12KL8	12	D	6	B	3
	12	F	6	H	3
12L6	12	C	6	E	1
12MD8	12	D	6	F	5
	12	D	6	H	5
	12	D	6	J	5
12NK7	12	F	6	K	1
12Q7	12	F	6	K	1
	12	G	6	E	1
	12	G	6	D	1

TUBE	A	B	C	D	Skt
12R5	12	C	5	B	4
*12R-K19	12	A	10	B	3
<b>Disregard Shorts Except H-K</b>					
12R-LL3	12	E	10	B	3
	12	E	10	G	3
12RLL5	12	D	6	B	3
	12	D	6	G	3
12S8	12	F	6	K	2
	12	G	6	D	2
	12	G	6	C	2
	12	G	6	A	2
12SA7	12	D	6	E	1
12SC7	12	F	6	C	2
	12	F	6	D	2
12SF5	12	F	6	C	2
12SF7	12	D	6	B	2
	12	G	6	E	2
12SG7	12	D	5	D	1
12SH7	12	D	5	D	1
12SJ7	12	E	6	D	1
12SK7	12	D	6	D	1
12SL7	12	F	6	A	2
	12	F	6	D	2
12SN7	12	E	6	A	2
	12	E	6	D	2
12SQ7	12	F	6	B	2
	12	G	6	D	2
	12	G	6	E	2
12SR7	12	E	6	B	2
	12	G	6	D	2
	12	G	6	E	2
12SS7	12	E	6	D	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
12ST7	12	E	6	B	2	13DR7	13	C	3	B	3
	12	G	6	D	2		13	E	3	G	3
	12	G	6	E	2	13EA7	15	B	6	A	2
12SW7	12	E	6	B	2		15	F	6	D	2
	12	G	6	D	2	13EC7	13	D	3	A	3
	12	G	6	E	2	13EM7	13	D	6	A	2
12SX7	12	E	6	A	2		13	F	6	D	2
	12	E	6	D	2	13FD7	13	C	2	C	3
12SY7	12	D	6	E	1		13	F	2	G	3
12T10	12	C	6	H	10	13FM7	13	C	9	C	10
	12	D	6	C	10		13	E	9	K	10
12TE8	12	F	6	E	1	13FR7	13	F	3	G	3
	12	F	6	K	1		13	C	3	B	3
12TE9	12	F	6	G	3	*13GB5	13	A	2	A	12
	12	F	6	H	3	Normal Shorts C,F,H,G					
12U7	12	G	10	B	3	13GC8	13	C	6	J	3
	12	G	10	G	3		13	E	6	B	3
12V6	12	C	6	E	1	13GF7	13	C	6	B	5
12W6	12	C	6	E	1		13	G	6	J	5
12X4	12	B	6	A	4	13J10	13	C	6	A	10
	12	B	6	F	4		13	H	6	G	10
*13CM5	13	A	3	E	1	*13JZ6	13	A	8	E	10
Permissible Shorts A and one other pin						Normal Shorts D,K					
13CW4	13	F	6	D	6	13JZ8	13	C	7	G	10
13D2	6	E	6	A	2		13	E	7	K	10
	6	E	6	D	2	13V10	13	F	6	C	10
13D3	13	G	10	G	3		13	C	6	H	10
	13	G	10	B	3	13Z10	13	C	6	A	10
13DE7	13	C	3	B	3		13	H	6	G	10
	13	E	3	G	3	14A4	14	E	5	F	9
						14A5	14	C	6	F	9

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
14A7	14	E	6	F	9	14GW8	14	C	6	H	3
14AF7	14	E	6	D	9		14	G	6	A	3
	14	E	6	E	9	14H7	14	D	6	F	9
14B6	14	F	4	Q	9	14J7	14	D	6	F	9
	14	G	4	E	9		14	F	6	D	9
	14	G	4	F	9	14JG8	14	G	6	B	3
14B8	14	F	6	D	9		14	G	6	F	3
14BL11	14	E	6	C	10		14	F	6	H	3
	14	E	6	E	10	*14L7	14	F	6	F	9
	14	C	6	A	10		14	G	6	E	9
14BR11	14	C	6	B	10		14	G	6	C	9
	14	E	6	H	10						
	14	E	6	K	10						
14C5	14	C	6	F	9	14N7	14	E	6	D	9
14C7	14	E	6	F	9		14	E	6	E	9
14DA7	14	C	2	C	3	14Q7	14	E	6	D	9
	14	E	2	G	3	14R7	14	F	6	F	9
14E6	14	F	4	C	9		14	G	6	D	9
	14	G	4	E	9	14S7	14	G	6	C	9
	14	G	4	F	9		14	D	6	F	9
14E7	14	E	6	F	9		14	F	6	D	9
	14	G	6	D	9	14V7	14	E	6	F	9
	14	G	6	C	9	14W7	14	D	4	F	9
14F7	14	F	6	D	9	14X7	14	F	6	C	9
	14	F	6	E	9		14	G	6	E	9
14G6	14	F	10	B	3	14Y4	14	G	6	F	9
	14	G	10	F	3		14	B	4	C	9
	14	G	10	H	3		14	B	4	F	9
14GT8	14	F	6	B	3	14Y7	14	D	6	B	3
	14	F	6	F	3		14	F	6	J	3
	14	F	6	H	3	15A6	15	C	6	B	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
15A8	15	F	6	C	1	*15HB6	15	C	3	B	3
	15	C	6	D	1	<b>Normal Shorts F,H</b>					
15AB9	15	D	6	A	11	15KY8	15	C	6	B	5
	15	D	6	G	11		15	G	6	J	5
15AF11	15	C	6	A	10	15LE8	15	D	6	J	3
	15	F	6	C	10	15MF8	15	A	8	F	10
	15	F	6	F	10		15	E	8	K	10
15BD7	15	F	6	B	3	15MX8	15	B	6	B	5
	15	G	6	F	3		15	F	6	J	5
	15	G	6	H	3	*16A5	16	C	9	B	3
15BD11	15	D	6	A	10	<b>Permissible Shorts F</b>					
	15	E	6	C	10	<b>and one other pin</b>					
	15	F	6	F	10	16A8	16	C	6	C	3
*15CW5	15	C	1	B	3		16	E	6	A	3
<b>Disregard Shorts Except H-K</b>						16AK9	16	E	7	C	10
15DQ8	15	D	6	A	3		16	E	7	K	10
	15	D	6	H	3		16	B	7	H	10
15EA7	15	B	6	A	2	16AQ3	16	<b>Refer to special section</b>			
	15	F	6	D	2	<b>in the back of the book</b>					
15EM7	15	B	6	A	2	16BQ11	16	E	6	E	10
	15	F	6	D	2		16	E	6	K	10
15EW6	15	D	6	A	4	16BX11	16	D	6	B	10
15EW7	15	F	3	G	3		16	E	6	E	10
	15	C	3	B	3		16	E	6	H	10
15FM7	15	C	9	C	10	*16C-B28	16	A	4	E	10
	15	E	9	K	10	<b>Normal Shorts</b>					
15FY7	15	C	9	C	10	*16G-B16	16	A	5	A	1
	15	E	9	K	10	<b>Normal Shorts C,D,F,H</b>					
*15HA6	15	C	3	B	3	16GK6	16	C	3	B	3
<b>Normal Shorts F,G</b>											



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
16GK8	16	C	6	C	3	*17BH3	17	A	8	B	5
	16	F	6	A	3	<b>Disregard Shorts Except H-K</b>					
*16GY5	16	A	5	J	10	17BJ6	17	D	6	A	4
<b>Normal Shorts A,C,D,G,K</b>						17BQ6	17	A	6	E	1
*16KA6	16	A	8	E	10	*17BR3	17	A	2	J	3
<b>Normal Shorts A,C,D,G</b>						<b>Disregard Shorts Except H-K</b>					
16LU8	16	B	8	F	10	*17BS3	17	A	8	B	5
	16	E	8	K	10	<b>Disregard Shorts Except H-K</b>					
16MY8	16	A	8	F	10	17BW3	17	A	4	K	10
	16	F	8	K	10	*17BZ3	17	A	4	K	10
16Y9	16	C	6	H	11	<b>Disregard Shorts Except H-K</b>					
	16	D	6	A	11	17C5	17	C	5	B	4
17A8	17	D	6	B	3	17C8	17	F	6	B	3
	17	E	6	J	3		17	G	6	G	3
17AB9	17	D	6	A	11		17	G	6	H	3
	17	D	6	F	11	17C9	17	E	6	A	3
17AB10	17	A	6	A	10		17	E	6	G	3
	17	H	6	G	10	17CA5	17	C	5	B	4
17AV5	17	A	6	A	1	17CA9	17	C	5	B	4
17AX3	17	A	11	D	10	*17CK3	17	A	2	G	5
17AX4	17	A	2	E	2	<b>Disregard Shorts Except H-K</b>					
17AX10	17	A	6	A	10	*17CL3	17	A	2	G	5
	17	H	6	G	10	<b>Disregard Shorts Except H-K</b>					
*17AY3	17	A	8	B	5	17CQ4	17	A	2	E	2
<b>Disregard Shorts Except H-K</b>						*17CT3	17	A	2	F	3
†*17B-B14	17	A	1	B	12	<b>Disregard Shorts Except H-K</b>					
<b>Normal Shorts C,F,G,H</b>						17CU5	17	C	5	B	4
17BE3	17	A	4	K	10	17D4	17	A	2	E	2
17BF11	17	C	6	H	10	17DE4	17	A	2	E	2
	17	F	6	C	10	17DL8	17	C	6	B	3
							17	D	6	J	3

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
17DM4	17	A	2	E	2	*17JG6	17	A	9	B	5
17DQ4	17	A	2	E	2	<b>Normal Shorts A,G</b>					
17DQ6	17	A	6	E	1	17JK8	17	F	6	G	3
*17DW4	17	A	8	B	5		17	E	6	B	3
<b>Disregard Shorts Except H-K</b>						*17JM6	17	A	9	E	10
17EM7	17	D	6	A	2	<b>Normal Shorts D,K</b>					
	17	F	6	D	2	17JN6	17	A	4	A	10
17EW8	17	E	6	B	3	*17JQ6	17	A	8	H	3
	17	E	6	G	3		17	G	8	F	3
17G-B3	17	A	3	E	1	<b>Normal Shorts B,C</b>					
*17GE5	17	A	1	C	10	*17JR6	17	A	9	B	5
<b>Normal Shorts D,K</b>						<b>Normal Shorts A,G</b>					
*17GJ5	17	A	7	B	5	*17JT6	17	A	9	B	5
<b>Normal Shorts A,G</b>						<b>Normal Shorts A,G</b>					
*17GT5	17	A	7	B	5	17JZ8	17	C	7	G	10
<b>Normal Shorts A,G</b>							17	E	7	K	10
*17GV5	17	A	5	J	10	*17KV6	17	A	9	B	5
<b>Normal Shorts A,C,D,G,K</b>						<b>Normal Shorts A,G</b>					
17GV8	17	C	6	A	3	†*17KW6	17	B	9	A	12
	17	E	6	J	3	<b>Normal Shorts C,F,G,H</b>					
17GW6	17	A	6	E	1	17L6	17	C	6	E	1
*17H3	17	A	7	C	8	17LD8	17	C	6	B	5
<b>Disregard Shorts Except H-K</b>							17	G	6	J	5
†*17H-B25	17	A	1	B	12	17N8	17	F	6	B	3
<b>Normal Shorts C,F,G,H</b>							17	G	6	G	3
17HC8	17	C	6	C	3		17	G	6	H	3
	17	F	6	A	3	17R5	17	C	5	B	4
*17JB6	17	A	7	B	5	17R-HH2	17	E	6	B	3
<b>Normal Shorts A,G</b>							17	E	6	G	3
*17JF6	17	A	7	B	5	*17RK19	17	A	2	J	3
<b>Normal Shorts A,G</b>						<b>Disregard Shorts Except H-K</b>					

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
17W6	17	C	6	E	1
17X10	17	B	6	A	10
	17	H	6	G	10
17Y9	17	D	6	A	11
	17	C	6	H	11
*17Z3	17	A	2	J	3

**Disregard Shorts Except H-K**

18A5	18	A	6	A	1
18AJ10	18	F	6	C	10
	18	B	6	H	10
18AK5	18	E	2	A	4
18AQ5	18	C	8	A	4
18D2	10	D	6	J	3
	10	D	6	B	3
18DZ8	18	C	6	A	3
	18	F	6	C	3
18FW6	18	D	6	A	4
18FX6	18	E	6	A	4
18FY6	18	F	6	A	4
	18	G	6	E	4
	18	G	6	F	4
*18GB5	18	A	2	A	12

**Normal Shorts C,F,G,H**

18GD6	18	D	6	A	4
18GE6	18	F	6	A	4
	18	G	6	E	4
	18	G	6	F	4
18GV8	18	B	6	J	3
	18	F	6	B	3
18HB8	18	C	6	J	3
	18	F	6	A	3

TUBE	A	B	C	D	Skt
18J6	18	E	6	E	4
	18	E	6	F	4
18RAL1	18	C	3	B	3
	18	F	3	G	3
19A3	19	A	7	E	4
19AJ8	19	E	6	B	3
	19	F	6	J	3
19AQ5	19	C	8	A	4
19AU4	19	A	2	E	2
*19BD	19	A	2	J	3

**Disregard Shorts Except H-K**

19BG6	19	A	6	E	1
19BX6	19	D	1	B	3
19BY7	19	C	7	B	3
19C8	19	F	6	H	3
	19	G	6	F	3
	19	G	6	B	3
	19	G	6	A	3
*19CG3	19	A	4	K	10

**Disregard Shorts Except H-K**

19CL8	19	D	6	A	3
	19	D	6	J	3
19CS4	19	A	6	E	2
19D8	19	E	6	B	3
	19	F	6	J	3
19DC8	19	E	6	B	3
	19	G	6	G	3
	19	G	6	H	3
*19DE3	19	A	11	D	10

**Disregard Shorts Except H-K**

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
19DE7	19	C	3	B	3	†*19KF6	19	A	1	G	12
	19	E	3	G	3						
*19DK3	19	A	8	B	5						
	<b>Permissible Shorts C,F,H</b>										
*19DQ3	19	A	11	D	10						
	<b>Normal Shorts B,E,F,H,J</b>										
19EA8	19	D	6	B	3	19KG8	19	D	6	B	3
	19	D	6	J	3		19	E	6	J	3
19EW7	19	F	3	G	3	19M-R9	19	F	6	A	4
	19	C	3	B	3	19M-R10	19	E	6	A	4
19EZ8	19	E	6	B	3	19Q9	19	D	6	B	3
	19	E	6	G	3		19	D	6	H	3
	19	E	6	J	3	19R-LL1	<b>Refer to special section in the back of the book</b>				
†*19FK6	19	A	1	G	12	19R-P11	19	C	6	A	8
	<b>Normal Shorts H and one other pin</b>					*19SU	19	A	2	J	3
19FL8	19	E	6	B	3		<b>Disregard Shorts Except H-K</b>				
	19	G	6	G	3	19T8	19	F	6	H	3
	19	G	6	H	3		19	G	6	F	3
19GQ7	19	E	3	B	3		19	G	6	B	3
	19	E	3	F	3		19	G	6	A	3
	19	E	3	H	3	*19U3	19	A	2	J	3
19FX5	19	C	5	B	4		<b>Disregard Shorts Except H-K</b>				
19HR6	19	D	6	A	4	19V8	19	F	6	F	3
19HS6	19	E	6	A	4		19	G	6	J	3
19HV8	19	D	6	J	3		19	G	6	G	3
	19	F	6	A	3		19	G	6	B	3
19J6	19	E	6	E	4	*19W3	19	A	2	J	3
	19	E	6	F	4		<b>Disregard Shorts Except H-K</b>				
19JN8	19	D	6	J	3	*19X3	19	A	2	J	3
	19	D	6	A	3		<b>Disregard Shorts Except H-K</b>				
						19X8	19	E	6	B	3
							19	E	6	G	3

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
*19Y3	19	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
*20AQ3	20				
<b>Refer to special section in the back of the book</b>					
20D3	12	F	10	B	3
	12	F	10	G	3
20D4	20	D	6	B	3
	20	D	6	J	3
20EQ7	20	E	6	B	3
	20	G	6	H	3
20EW7	20	F	3	G	3
	20	C	3	B	3
20EZ7	20	G	6	E	13
	20	G	6	H	13
<b>See back of book for Mighty Mites not having socket No. 13</b>					
20J8	20	E	6	K	1
	20	F	6	E	1
*20LF6	20	A	10	E	10
<b>Normal Shorts D,K</b>					
*20LX6	20	A	10	E	10
<b>Normal Shorts A,C,D,G,K, H-K</b>					
*20P18	15	C	1	B	3
<b>Disregard Shorts Except H-K</b>					
*21A6	21	C	1	B	3
<b>Permissible Shorts F or G and one other pin</b>					
21A7	21	E	6	F	9
	21	F	6	D	9

TUBE	A	B	C	D	Skt
*21B6	21	C	1	B	3
<b>Permissible Shorts F or G and one other pin</b>					
21EX6	21	A	6	E	1
*21GY5	21	A	5	J	10
<b>Normal Shorts A,C,D,G, K</b>					
*21HB5	21	A	3	A	10
<b>Normal Shorts D,K</b>					
*21HD5	21	A	1	C	10
<b>Normal Shorts D,E,J,K</b>					
*21HJ5	21	A	1	C	10
<b>Normal Shorts D,E,J,K</b>					
*21JS6	21	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
21JV6	21	A	6	A	10
*21JZ6	21	A	8	E	10
<b>Normal Shorts D,K</b>					
*21KA6	21	A	8	E	10
<b>Normal Shorts A,C,D,G</b>					
†*21KQ6	21	A	1	H	12
<b>Normal Shorts B,C,F,G</b>					
*21LG6	21	A	5	J	10
<b>Normal Shorts A,C,D,K</b>					
21LR8	21	C	6	B	5
	21	D	6	J	5
21LU8	21	B	8	F	10
	21	E	8	K	10
21MY8	21	F	8	K	10
	21	B	8	F	10
*22BH3	22	A	8	B	5
<b>Disregard Shorts Except H-K</b>					

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
22BW3	22	A	4	K	10
22DE4	22	A	2	E	2
*22JF6	22	A	7	B	5
<b>Normal Shorts A,G</b>					
*22JG6	22	A	9	B	5
<b>Normal Shorts A,G</b>					
*22JR6	22	A	9	B	5
<b>Normal Shorts A,G</b>					
*22JU6	22	A	7	B	5
<b>Normal Shorts A,G</b>					
*22KM6	22	A	7	B	5
<b>Normal Shorts A,G</b>					
*22KV6	22	A	9	B	5
<b>Normal Shorts A,G</b>					
*23JS6	23	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
*23MB6	23	A	3	E	10
<b>Normal Shorts A,C,D,G,J,K</b>					
23Z9	23	E	7	C	10
	23	E	7	K	10
	23	C	7	H	10
24AX4	24	A	2	E	2
24BF11	24	C	6	H	10
	24	D	6	C	10
24GA7	24	A	2	D	10
	24	A	2	A	10
24JE6	Refer to special section in the back of the book				
24JZ8	24	C	7	G	10
	24	E	7	K	10

TUBE	A	B	C	D	Skt
24LQ6	Refer to special section in the back of the book				
*24LZ6	24	A	2	F	5
<b>Normal Shorts A,G,J</b>					
25A6	25	C	6	E	1
25A7	25	B	6	F	1
	25	C	6	E	1
25AC5	25	F	6	E	1
25AU4	25	A	2	E	2
25AV5	25	A	6	A	1
25AX4	25	A	2	E	2
25B6	25	C	6	E	1
25B8	25	E	6	K	1
	25	F	6	H	1
†*25B-B14	25	A	1	B	12
<b>Normal Shorts C,F,G,H</b>					
25BK5	25	C	8	C	3
25BQ5	25	A	6	E	1
25BQ6	25	A	6	E	1
*25BR3	25	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
25C5	25	C	5	B	4
25C6	25	C	6	E	1
25CA5	25	C	5	B	4
25CD6	25	A	6	E	1
*25CG3	25	A	4	K	10
<b>Disregard Shorts Except H-K</b>					
*25CK3	25	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
*25CM3	25	A	2	G	5
<b>Disregard Shorts Except H-K</b>					

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
*25CR5	25	C	9	C	3
<b>Normal Shorts A,B,F,G</b>					
*25CT3	25	A	2	F	3
<b>Disregard Shorts Except H-K</b>					
25CU6	25	A	6	E	1
25D4	25	A	6	E	2
25D8	25	E	6	K	1
	25	G	6	H	1
	25	G	6	E	1
*25DK3	25	A	8	B	5
<b>Permissible Shorts C,F,H</b>					
25DK4	25	B	8	E	4
*25DL3	25	A	8	B	5
<b>Disregard Shorts</b>					
25DN6	25	A	6	E	1
25DQ6	25	A	6	E	1
*25DT5	25	C	7	C	3
<b>Permissible Shorts H</b>					
<b>and one other pin</b>					
25E5	25	C	1	E	1
25EC6	25	A	6	E	1
25EH5	25	C	5	B	4
25F5	25	C	5	B	4
25FY8	25	E	6	C	3
	25	F	6	A	3
25G-B6	25	A	6	E	1
25GF6	25	C	1	E	1
*25HX5	25	A	8	A	12
<b>Normal Shorts B,C,H</b>					

TUBE	A	B	C	D	Skt
*25JQ6	25	A	8	H	3
	25	G	8	F	3
<b>Normal Shorts B,C</b>					
25JZ8	25	C	7	G	10
	25	E	7	K	10
25L6	25	C	6	E	1
25M-P20	25	A	6	A	4
*25R-K19	25	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
25SN7	25	E	6	A	2
	25	E	6	D	2
25U4	25	A	2	E	2
25W4	25	A	2	E	2
25W6	25	C	6	E	1
25X6	25	B	6	C	1
	25	B	6	E	1
25Y4	25	B	6	E	1
25Z4	25	B	6	E	1
25Z6	25	B	6	C	1
	25	B	6	E	1
26A6	26	D	6	A	4
26AQ8	26	D	6	B	3
	26	D	6	G	3
26BK6	26	F	6	A	4
	26	G	6	E	4
	26	G	6	F	4
26C6	26	F	6	A	4
	26	G	6	E	4
	26	G	6	F	4
26CG6	26	E	6	A	4

TUBE	A	B	C	D	Skt
26D6	26	E	6	A	4
26E6	26	C	6	E	1
26HU5	26	A	5	A	2
*26LW6	26	A	6	E	2

Permissible Shorts A,  
F and one other pin

\*26LX6 26 A 10 E 10

Normal Shorts A,C,D,G,K, H-K

26Z5 26 B 10 A 3

26 B 10 F 3

27BL7 27 C 6 A 2

27 C 6 D 2

27BL8 27 D 6 B 3

27 D 6 J 3

†\*27GB5 27 A 2 A 12

Normal Shorts C,F,G,H

†\*27KG6 27 A 1 H 12

Normal Shorts B,C,F,G

28AK8 28 F 6 H 3

28 G 6 F 3

28 G 6 B 3

28 G 6 A 3

28D7 28 D 6 B 9

28 D 6 G 9

†\*28GB5 28 A 2 A 12

Normal Shorts C,F,G,H

\*28HA6 28 C 3 B 3

Normal Shorts F,G

\*28HD5 28 A 1 C 10

Normal Shorts D,E,J,K

TUBE	A	B	C	D	Skt
28Z5	28	B	4	C	9
	28	B	4	F	9
29GK6	29	C	3	B	3
*29HA6	29	C	3	B	3

Normal Shorts F,G

†\*29KQ6 29 A 1 H 12

Normal Shorts B,C,F,G

\*29LE6 29 A 9 A 12

Normal Shorts B,C,F,G

30A5 30 C 5 B 4

30AE3 30

Refer to special section  
in the back of the book

30AG3 30

Refer to special section  
in the back of the book

30AG11 30 E 6 E 10

30 E 6 H 10

30 F 6 C 10

30 F 6 K 10

30C1 9 D 6 B 3

9 D 6 J 3

30C13 9 D 6 B 3

9 D 6 J 3

30C18 7 E 7 J 3

7 D 7 G 3

\*30CW5 30 C 1 B 3

Disregard Shorts Except H-K

30F5 7 E 3 B 3

\*30HD5 30 A 1 C 10

Normal Shorts D,E,J,K

† See Magnoval Note on page B



TUBE	A	B	C	D	Skt
*30HJ5	30	A	1	C	10
Normal Shorts D,E,J,K					
*30JZ6	30	A	8	E	10
Normal Shorts D,K					
30KD6	Refer to special section in the back of the book				
30L1	7	E	8	B	3
	7	E	8	F	3
30L15	7	E	8	B	3
	7	E	8	F	3
*30MB6	30	A	6	E	10
Normal Shorts A,C,D,G,J,K					
30M-P27	30	B	2	E	4
30P4	25	C	1	E	1
30P12	12	C	1	B	3
30P16	16	C	7	B	3
*30P18	15	C	1	B	3
Permissible Shorts on F, H and one other pin					
30P19	25	C	1	E	1
30PL1	13	C	6	J	3
	13	E	6	B	3
30PL10	13	C	6	J	3
	13	E	6	B	3
30PL12	16	C	6	C	3
	16	E	6	A	3
30PL13	16	C	6	C	3
	16	F	6	A	3
30PL14	16	C	6	C	3
	16	F	6	A	3

TUBE	A	B	C	D	Skt
31AL10	31	F	7	A	10
	31	F	7	C	10
	31	A	7	H	10
*31AV3	31	A	2	J	3
Disregard Shorts Except H-K					
*31JS6	31	A	10	E	10
Normal Shorts A,C,D,K					
31LQ6	Refer to special section in the back of the book				
31LR8	31	C	6	B	5
	31	D	6	J	5
31LZ6	Refer to special section in the back of the book				
32A8	32	C	6	C	3
	32	G	6	A	3
32ET5	32	C	5	B	4
32GA7	32	A	2	D	10
	32	A	2	A	10
*32HQ7	32	A	8	B	10
	32	A	8	J	10
Normal Shorts C,F,K					
32L7	32	A	6	F	1
	32	C	6	E	1
*33GT7	33	A	8	B	10
Normal Shorts A,J					
	16	A	10	A	10
Normal Shorts G, H-K					
*33GY7	33	A	8	B	10
Normal Shorts J,K					
	16	A	11	J	10
Normal Shorts G, H-K					

TUBE	A	B	C	D	Skt
‡33HE7	33	A	11	B	10
	33	A	11	J	10
33HK7	33	A	11	B	10
	33	A	11	J	10
*33JR6	33	A	1	B	5
<b>Normal Shorts A,G</b>					
<b>and one other pin</b>					
33JV6	33	A	6	A	10
34CD3	34	A	4	K	10
*34CE3	34	A	4	K	10
<b>Disregard Shorts Except H-K</b>					
*34CM3	34	A	2	G	5
<b>Disregard Shorts Except H-K</b>					
*34DK3	6	A	8	B	5
<b>Permissible Shorts C,F,H</b>					
34GD5	34	C	2	E	4
*34R3	34	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
35A3	35	B	6	E	4
35A5	35	C	6	F	9
35B5	35	C	8	A	4
35C3	35	B	6	E	4
35C5	35	C	5	B	4
35CD6	35	A	6	E	1
*35D5	35	C	10	A	3
<b>Normal Shorts B,C,G,H</b>					
35DZ8	35	C	6	C	3
	35	F	6	A	3
35EH5	35	C	5	B	4
*35FM5	35	A	4	E	1
<b>Normal Shorts A,C,F,H</b>					

TUBE	A	B	C	D	Skt
35GL6	35	C	7	B	4
35HB8	35	C	6	J	3
	35	F	6	A	3
35L6	35	C	6	E	1
35LR6	<b>Refer to special section</b>				
	<b>in the back of the book</b>				
*35QL6	35	C	1	J	3
<b>Normal Shorts C,J</b>					
35W4	35	A	7	E	4
35X4	35	A	6	E	4
35Y4	35	A	4	B	9
35Z3	35	A	6	B	9
35Z4	35	B	6	E	1
35Z5	35	B	3	E	1
35Z6	35	B	6	C	1
	35	B	6	E	1
36AM3	36	A	7	E	4
36KD6	<b>Refer to special section</b>				
	<b>in the back of the book</b>				
*36LW6	6	A	6	E	2
<b>Permissible Shorts A,</b>					
<b>F, and one other pin</b>					
*36MC6	36	A	7	B	5
<b>Normal Shorts A,G</b>					
*38A3	38	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
‡38HE7	38	A	11	B	10
	38	A	11	J	10
38HK7	38	A	11	B	10
	38	A	11	J	10
40FR5	40	C	5	B	4

‡ Long warm up time is normal

TUBE	A	B	C	D	Skt
40KD6	Refer to special section in the back of the book				
*40KG6	40	A	1	H	12
Normal Shorts B,C,F,G					
40Z5	40	B	3	E	1
*42KN6	21	A	10	E	10
Disregard Shorts A,C,D,G,K,H-K					
*45B5	45	C	1	B	3
Disregard Shorts Except H-K					
*45Z3	45	A	7	B	7
Permissible Shorts on C and one other pin					
45Z5	45	B	3	E	1
50A5	50	C	6	F	9
50AX6	50	A	6	C	1
	50	A	6	E	1
50B5	50	C	8	A	4
50BK5	50	C	8	C	3
50BM8	50	C	6	C	3
	50	F	6	A	3
50C5	50	C	5	B	4
50C6	50	C	6	E	1
50CA5	50	C	5	B	4
50CD6	50	A	6	E	1
50DC4	50	A	7	E	4
50E5	50	C	1	E	1
50EH5	50	C	5	B	4
50FA5	50	C	5	B	4
50FE5	50	C	6	E	1
50FK5	50	C	5	B	4

TUBE	A	B	C	D	Skt
50FY8	50	E	6	C	3
	50	F	6	A	3
*50GY7	50	A	8	B	10
Normal Shorts J,K					
	25	A	11	J	10
Normal Shorts G, H-K					
50HC6	50	C	7	B	4
50HC8	50	C	7	B	4
50HK6	50	C	7	B	4
50HK7	50	A	11	B	10
	50	A	11	J	10
50HN5	50	C	1	B	3
50JY6	50	A	6	E	1
50L6	50	C	6	E	1
50X6	50	A	6	C	9
	50	A	6	F	9
50Y6	50	B	6	C	1
	50	B	6	E	1
50Y7	50	A	7	C	1
	50	A	7	E	1
50Z6	50	A	6	C	1
	50	A	6	E	1
50Z7	50	A	7	C	1
	50	A	7	E	1
*52KU	5	A	6	D	1
	5	A	6	F	1
Normal Shorts H, H-K					
53HK7	53	A	11	B	10
	53	A	11	J	10
54KU	5	B	6	D	1
	5	B	6	F	1

TUBE	A	B	C	D	Skt
*55N3	50	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
‡58HE7	58	A	11	B	10
	58	A	11	J	10
60E3	60	A	6	E	4
60EH5	50	D	5	B	4
60FX5	50	D	5	B	4
*60HL5	60	A	1	B	3
<b>Disregard Shorts on F,H, and one other pin</b>					
63T1	6	D	6	G	3
	6	D	6	B	3
63TP	6	D	6	J	3
	6	F	6	B	3
64SPT	6	D	1	B	3
‡70A7	50	D	7	E	1
‡70L7	50	C	6	H	1
	50	D	6	E	1
‡117L7	50	B	6	D	1
	50	B	6	F	1
‡117M7	50	B	6	J	1
	50	B	6	D	1
‡117N7	50	F	6	D	1
‡117P7	50	F	6	D	1
‡117Z3	50	F	1	E	4
‡117Z4	50	F	6	E	1
‡117Z6	50	F	6	C	1
	50	F	6	E	1

‡ Long warm up time is normal

TUBE	A	B	C	D	Skt
*141DDT	14	F	6	F	9
	14	G	6	E	9
	14	G	6	C	9
<b>Normal Shorts G, H-K</b>					
*163PEN	16	C	9	B	3
<b>Permissible Shorts F and one other pin</b>					
171DDP	17	F	6	B	3
	17	G	6	G	3
	17	G	6	H	3
*213PEN	21	C	1	B	3
<b>Permissible Shorts F or G and one other pin</b>					
401A	6	F	8	A	4
403B	6	E	8	A	4
408A	20	E	2	A	4
*815	6	A	5	B	2
<b>Normal Shorts A,C,F</b>					
*1201	6	F	5	A	9
<b>Disregard Shorts</b>					
‡1203A	6	F	6	D	9
1204	6	F	7	E	9
1206	6	F	6	D	9
	6	F	6	E	9
1216	6	G	6	E	4
	6	G	6	F	4
1217	6	F	6	A	4
1219	<b>Refer to special section in the back of the book</b>				
1220	6	D	2	A	4
1223	6	F	6	K	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
1231	6	E	6	F	9	*1654	1	H	2	K	7
1232	6	F	6	F	9		<b>Disregard Shorts</b>				
*1238	28	D	6	B	2	1655	6	F	6	C	2
	<b>Disregard Shorts Except H-K</b>						6	F	6	D	2
1273	6	F	6	F	9	*1662	3	F	5	D	7
1280	12	F	6	F	9		<b>Normal Shorts B,F</b>				
1282	6	D	4	F	9	1679	6	E	6	E	4
*1291	6	F	4	C	2		6	E	6	F	4
	6	F	4	F	2	1852	6	D	6	D	1
	<b>Normal Shorts A, H-K</b>					1853	6	D	6	D	1
1293	1	F	5	F	9	2050	6	A	6	C	1
1294	1	H	6	D	9		<b>Emission and Shorts</b>				
1299	1	E	8	F	9		6	A	6	E	1
1611	6	B	6	E	1		<b>Grid Leakage</b>				
1612	6	F	6	K	1	*2076	5	A	6	D	1
1613	6	B	6	E	1		5	A	6	F	1
1614	6	A	6	E	1		<b>Normal Shorts H, H-K</b>				
1619	2	A	6	E	1	*4037	6	C	3	K	1
1620	6	F	6	K	1		<b>Normal Shorts E,H</b>				
1621	6	C	6	E	1	5590	6	F	8	A	4
1622	6	C	6	E	1	5591	6	E	8	A	4
1626	12	E	6	E	1	5610	6	D	5	F	4
1631	12	C	6	E	1	5618	6	C	5	F	7
1632	12	C	6	A	2	5642	1	H	6	K	3
1633	25	E	6	A	2		<b>Insert Leads into pins 1</b>				
	25	E	6	D	2		<b>and 5, use top cap</b>				
1634	12	F	6	C	2	5654	6	D	2	A	4
	12	F	6	D	2	5656	6	E	2	A	4
1635	6	F	6	D	1	5659	12	C	6	E	1
	6	F	6	E	1	5660	12	E	6	K	1
1649	6	D	6	D	1		12	G	6	D	1
							12	G	6	E	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
5661	12	D	6	D	1	5750	6	D	6	A	4
5670	Refer to special section in the back of the book					5751	12	F	10	B	3
5679	6	E	4	C	9	5763	6	C	9	J	3
	6	E	4	F	9	5814	12	D	10	B	3
*5686	6	C	3	B	3		12	D	10	G	3
	Normal Shorts A,F,H,J					5824	25	C	6	E	1
5687	12	D	9	B	3	5838	12	B	6	C	1
	12	D	9	G	3		12	B	6	E	1
5691	6	F	6	A	2	5839	26	B	6	C	1
	6	F	6	D	2		26	B	6	E	1
5692	6	E	6	A	2	5844	6	G	6	E	4
	6	E	6	D	2		6	G	6	F	4
5693	6	F	6	D	1	5845	5	G	8	A	4
5694	6	F	6	D	1		5	G	8	E	4
	6	F	6	E	1	5852	6	B	6	C	1
5696	6	A	8	F	4		6	B	6	E	1
	Emission and Shorts Test					5871	6	C	6	E	1
	6	A	8	A	4	5879	6	F	6	A	3
	Grid Leakage Test					5881	6	C	6	E	1
5721	12	F	10	B	3	5890	6	G	8	B	10
	12	F	10	G	3	5910	1	G	5	F	7
5725	6	E	6	A	4	5915	6	E	6	A	4
5726	6	E	6	B	4	5920	6	E	6	E	4
	6	E	6	G	4		6	E	6	F	4
5727	6	A	8	F	4	5928	6	F	2	J	3
	Emission and Shorts Test					*5931	5	A	6	D	1
	6	A	8	A	4		5	A	6	F	1
	Grid Leakage Test						Normal Shorts H, H-K				
5732	6	E	6	K	1	5932	6	C	6	E	1
5749	6	D	6	A	4						

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
5963	12	E	10	B	3	6058	6	E	6	B	4
	12	E	10	G	3		6	E	6	G	4
5964	6	E	6	E	4	6059	6	F	6	K	1
	6	E	6	F	4	6060	12	E	10	B	3
5965	12	E	10	B	3		12	E	10	G	3
	12	E	10	G	3	6061	6	C	6	E	1
*5969	1	G	6	B	2	6062	6	C	9	J	3
	1	G	6	G	2	6063	6	B	6	A	4
<b>Normal Shorts A, H-K</b>							6	B	6	F	4
*5970	1	G	6	B	2	6064	6	D	6	A	4
	1	G	6	G	2	6065	6	E	6	A	4
<b>Normal Shorts A, H-K</b>						6066	6	F	6	A	4
5992	6	C	6	E	1		6	G	6	E	4
5998	6	C	6	A	2		6	G	6	F	4
	6	C	6	D	2	6067	12	D	10	B	3
6000	26	C	6	A	1		12	D	10	G	3
*6004	5	B	6	K	1	6072	12	F	10	B	3
	5	B	6	K	1		12	F	10	G	3
<b>Change clip lead from one tube cap to other;</b>						6080	6	A	6	A	2
<b>Normal Shorts H, H-K</b>							6	A	6	D	2
6005	6	C	8	A	4	6082	26	A	6	A	2
6006	6	D	5	D	1		26	A	6	D	2
6028	20	E	2	A	4	6084	6	G	6	J	3
6042	6	E	6	A	2	6085	12	E	10	B	3
	6	E	6	D	2		12	E	10	G	3
6045	6	E	6	E	4	*6087	5	B	6	D	1
	6	E	6	F	4		5	B	6	F	1
6046	25	C	6	E	1	<b>Normal Shorts H, H-K</b>					
6057	12	G	10	B	3	*6094	6	C	7	A	3
	12	G	10	G	3	<b>Normal Shorts B,C,G,J, H-K</b>					
						6095	6	C	8	A	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
6096	6	E	2	A	4	*6159	26	C	1	E	1
6097	6	E	6	B	4	<b>Normal Shorts D,F</b>					
	6	E	6	G	4	6180	6	E	6	A	2
*6098	6	G	6	E	2		6	E	6	D	2
<b>Emission and Shorts Test only;</b>						6186	6	E	2	A	4
<b>Normal Shorts H, H-K</b>						6187	6	E	6	A	4
6099	6	E	6	E	4	6188	6	F	6	A	2
	6	E	6	F	4		6	F	6	D	2
6100	6	E	1	F	4	6189	12	D	10	B	3
6101	6	E	6	E	4		12	D	10	G	3
	6	E	6	F	4	*6197	6	C	10	B	3
*6106	5	B	6	D	1	<b>Normal Shorts C,H</b>					
	5	B	6	F	1	6201	12	E	10	B	3
<b>Normal Shorts H, H-K</b>							12	E	10	G	3
6113	6	F	6	A	2	6202	6	B	6	A	4
	6	F	6	D	2		6	B	6	F	4
6118	6	G	6	K	1	6203	6	B	6	A	3
	6	H	6	D	1		6	B	6	J	3
	6	H	6	E	1	6211	12	F	10	B	3
*6132	6	C	1	B	3		12	F	10	G	3
<b>Permissible Shorts F</b>						*6215	1	H	3	K	1
<b>and one other pin</b>						<b>Normal Shorts H, H-K</b>					
6134	6	D	6	D	1	*6216	6	C	7	B	3
6135	6	E	1	F	4	<b>Normal Shorts C,H</b>					
6136	6	D	6	A	4	6218	6	H	9	B	3
6137	6	D	6	D	1	6227	6	C	1	B	3
6145	6	E	6	F	9	6265	6	E	6	A	4
*6146	6	C	1	E	1	6267	6	F	2	J	3
<b>Normal Shorts D,F</b>						6277	6	C	1	B	3
6158	13	G	10	G	3	*6287	6	C	2	H	3
	13	G	10	B	3	<b>Normal Shorts C,F,J</b>					



TUBE	A	B	C	D	Skt
*6293	6	A	1	E	1
<b>Normal Shorts D,F</b>					
6325	6	A	6	C	2
	6	A	6	E	2
6327	6	C	1	E	1
6336	6	C	6	A	2
	6	C	6	D	2
6350	12	E	10	C	3
	12	E	10	H	3
6352	3	G	4	E	2
6360	12	C	10	A	3
	12	C	10	C	3
*6384	6	G	6	E	2
<b>Emission and Shorts Test Only;</b>					
<b>Normal Shorts H, H-K</b>					
6386	Refer to special section in the back of the book				
6394	26	C	6	A	2
	26	C	6	D	2
6414	12	E	10	B	3
	12	E	10	G	3
6417	12	A	10	H	3
6463	12	E	10	C	3
	12	E	10	H	3
6485	6	E	6	A	4
6516	6	C	6	A	4
6520	6	A	6	A	2
	6	A	6	D	2

TUBE	A	B	C	D	Skt
6525	6	A	8	F	4
<b>Emission and Shorts Test</b>					
	6	A	8	A	4
<b>Grid Leakage Test</b>					
6528	6	C	6	A	2
	6	C	6	D	2
6550	6	A	6	E	1
6660	6	D	6	A	4
6661	6	E	6	A	4
6662	6	E	6	A	4
6663	6	E	6	B	4
	6	E	6	G	4
6664	6	E	2	F	4
6669	6	C	8	A	4
6676	6	D	6	A	4
*6677	6	C	1	B	3
<b>Normal Shorts C,H</b>					
6678	6	D	6	B	3
	6	D	6	J	3
6679	12	E	10	B	3
	12	E	10	G	3
6680	12	D	10	B	3
	12	D	10	G	3
6681	12	F	10	B	3
	12	F	10	G	3
6686	6	C	1	B	3
6687	6	F	6	A	4
6688	6	D	1	B	3
6689	6	E	6	B	3
6754	6	B	6	A	3
	6	B	6	J	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*6792	6	F	9	E	1	6927	6	E	6	E	4
Normal Shorts C,E						6928	6	E	6	F	4
6829	12	E	10	B	3	6939	6	C	8	A	4
	12	E	10	G	3		12	C	10	A	3
6840	12	D	10	C	3		12	C	10	C	3
	12	D	10	H	3	6954	6	E	6	A	4
6851	6	F	10	B	3	6955	12	D	10	B	3
	6	F	10	G	3		12	D	10	G	3
*6853	5	B	6	D	1	6968	6	E	2	A	4
	5	B	6	F	1	*6973	6	C	7	C	3
Normal Shorts H, H-K						Normal Shorts A,H					
*6870	12	C	7	B	3	6998	6	E	2	A	4
Normal Shorts C,J						7000	6	F	6	K	1
*6877	6	C	7	A	3	7001	6	C	2	A	4
Normal Shorts C,J, H-K						7025	12	G	10	B	3
*6883	12	C	1	E	1		12	G	10	G	3
Normal Shorts D,F						*7027	6	C	7	E	1
6887	6	E	6	B	4	Normal Shorts A,D					
	6	E	6	G	4	7036	6	D	6	A	4
6888	6	C	6	D	1	7044	12	C	9	B	3
*6893	12	A	1	E	1		12	C	9	G	3
Normal Shorts D,F						7054	13	C	3	B	3
6900	12	C	9	B	3	7055	13	E	6	B	4
	12	C	9	G	3		13	E	6	G	4
6913	12	E	10	B	3	7056	13	E	6	A	4
	12	E	10	G	3	7057	13	E	6	B	3
6919	6	E	6	B	4		13	E	6	G	3
	6	E	6	G	4	7058	13	F	6	B	3
6922	6	E	6	B	3		13	F	6	G	3
	6	E	6	G	3	7059	13	D	6	B	3
							13	D	6	J	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
7060	13	D	6	B	3	7244	6	E	6	E	4
	13	D	6	H	3		6	E	6	F	4
*7061	13	C	7	C	3	*7245	6	H	1	G	4
<b>Normal Shorts A,H</b>						<b>Emission and Shorts Test Only;</b>					
7062	12	E	10	B	3	<b>Normal Shorts E,F</b>					
	12	E	10	G	3	7247	12	D	10	B	3
7105	13	C	6	A	2		12	G	10	G	3
	13	C	6	D	2	7258	13	D	6	B	3
7119	12	D	9	B	3		13	D	6	H	3
	12	D	9	G	3	7308	6	E	6	B	3
*7137	6	H	1	G	4		6	E	6	G	3
<b>Emission and Short Test Only;</b>						7316	12	E	10	B	3
<b>Normal Shorts E,F</b>							12	E	10	G	3
7167	13	E	2	A	4	7318	12	E	10	B	3
7184	6	C	6	E	1		12	E	10	G	3
*7189	6	C	1	B	3	*7320	6	C	1	B	3
<b>Disregard Shorts Except H-K</b>						<b>Permissible Shorts on</b>					
7194	12	F	10	B	3	<b>F or H and one other pin</b>					
	12	F	10	G	3	7355	6	C	6	F	1
7199	6	D	6	G	3	*7357	26	A	1	E	1
	6	E	6	J	3	<b>Normal Shorts D,F</b>					
*7212	6	C	1	E	1	*7358	6	A	1	E	1
<b>Normal Shorts D,F</b>						<b>Normal Shorts D,F</b>					
7227	27	C	7	B	3	7360	6	E	6	C	3
*7233	6	A	8	B	3	7370	40	D	8	B	3
<b>Disregard Shorts</b>							40	D	8	G	3
7236	6	C	6	A	2	7408	6	C	6	E	1
	6	C	6	D	2	7494	12	F	10	B	3
*7239	6	B	2	A	3		12	F	10	G	3
<b>Permissible Shorts on</b>						<b>Permissible Shorts on</b>					
<b>C,H, and one other pin</b>						<b>C,H, and one other pin</b>					

TUBE	A	B	C	D	Skt
*7534	6	C	3	E	1
<b>Permissible Shorts A</b>					
<b>or F and one other pin</b>					
7543	6	D	6	A	4
7548	6	C	3	B	3
*7551	12	C	1	B	3
<b>Normal Shorts C,H</b>					
*7558	6	C	1	B	3
<b>Normal Shorts C,H</b>					
7581	6	C	6	E	1
7586	6	F	6	D	6
7587	6	F	6	D	6
7591	6	C	4	F	1
*7607	6	A	1	E	1
<b>Normal Shorts D,F</b>					
7623	6	A	6	E	1
7624	6	A	6	E	1
7643	6	D	6	B	3
	6	E	6	J	3
7645	12	B	10	A	3
	12	B	10	C	3
*7683	6	E	2	A	3
<b>Normal Shorts C,F,J</b>					
7687	6	E	6	B	3
	6	F	6	J	3
7693	6	E	6	A	4
7695	50	A	3	F	8
7699	6	D	10	A	3
	6	D	10	C	3
*7701	13	C	1	B	3
<b>Normal Shorts C,G,H,J</b>					

TUBE	A	B	C	D	Skt
7716	13	D	6	G	3
	13	F	6	B	3
7717	6	E	2	A	4
7719	12	F	1	G	8
*7721	6	C	7	B	3
<b>Normal Shorts A,C</b>					
*7722	6	C	7	B	3
<b>Normal Shorts A,C</b>					
7724	14	F	6	H	3
	14	G	6	F	3
	14	G	6	B	3
7728	12	E	10	B	3
	12	E	10	G	3
7729	12	F	10	B	3
	12	F	10	G	3
7730	12	D	10	B	3
	12	D	10	G	3
7731	6	D	6	B	3
	6	D	6	J	3
7732	6	D	6	A	4
*7733	12	C	7	B	3
<b>Normal Shorts C,J</b>					
7734	6	B	6	C	3
	6	F	6	H	3
7737	6	D	1	B	3
*7738	6	D	7	B	4
<b>Normal Shorts A,G</b>					
7751	6	A	6	E	1
7752	6	E	6	A	4
7754	6	A	3	F	8

TUBE	A	B	C	D	Skt
*7757	6	B	7	A	3
<b>Normal Shorts B,C,G,H-K</b>					
7763	6	E	6	F	3
*7788	6	C	1	B	3
<b>Normal Shorts F,J</b>					
7802	6	A	6	A	2
	6	A	6	D	2
7803	6	C	6	B	3
	6	C	6	G	3
7867	6	C	6	E	1
*7868	6	A	7	B	5
<b>Normal Shorts A,G</b>					
7892	12	D	9	B	3
	12	D	9	G	3
7895	6	G	6	D	6
7898	12	E	10	B	3
	12	E	10	G	3
7983	3	A	10	C	3
	3	A	10	A	3
*7984	13	C	1	K	10
<b>Disregard Shorts Except G,K</b>					
*8016	1	H	3	K	1
<b>Disregard Shorts</b>					
*8032	13	B	1	E	1
<b>Normal Shorts D,F</b>					
8056	6	G	6	D	6
*8058	6	G	2	K	6
<b>Connect to large lug;</b>					
<b>Normal Shorts D, H</b>					
8068	6	D	6	E	1
8077	13	C	10	B	3

TUBE	A	B	C	D	Skt
8084	13	E	6	A	4
8102	13	E	6	C	3
	13	E	6	J	3
*8106	13	D	2	G	3
<b>Normal Shorts C,F,H,J</b>					
8113	6	D	2	A	4
8136	6	E	6	A	4
*8149	12	A	1	K	10
<b>Normal Shorts B,C,D,H,J</b>					
*8150	13	A	1	K	10
<b>Normal Shorts B,D,E,F,G,H</b>					
*8156	13	B	1	K	10
<b>Disregard Shorts Except G,K,H-K</b>					
8203	6	E	6	D	6
8223	6	C	6	B	3
	6	C	6	G	3
*8233	6	D	10	H	5
<b>Normal Shorts B,F</b>					
<b>Do NOT test for shorts on TC114</b>					
*8255	6	H	1	H	3
<b>Emission and Shorts Test Only;</b>					
<b>Normal Shorts C,F,G,J</b>					
*8278	6	C	8	C	5
<b>Normal Shorts B,F</b>					
*8298	6	A	1	E	1
<b>Normal Shorts D,F</b>					
*8323	6	A	10	H	5
<b>Normal Shorts B,F</b>					
*8327	6	C	1	B	3
<b>Disregard Shorts Except H-K</b>					

TUBE	A	B	C	D	Skt
*8334	6	C	7	B	4
<b>Normal Shorts A,G</b>					
8380	6	F	6	D	6
8382	6	E	6	D	6
8393	13	G	6	D	6
8417	6	A	6	E	1
8425	6	D	6	A	4
8426	12	D	6	A	4
8431	12	D	6	B	3
	12	D	6	G	3
8441	6	F	6	D	6
8445	6	D	6	B	3
	6	D	6	J	3
8446	6	D	6	A	3
	6	D	6	J	3
*8447	12	C	10	B	3
	12	D	10	F	3
	12	D	10	G	3
<b>Normal Shorts F,G</b>					
*8448	6	C	7	B	3
<b>Normal Shorts C,J</b>					
8449	6	D	6	B	3
	6	D	6	H	3
8456	6	F	6	D	6
8457	6	C	10	A	3
	6	C	10	C	3
8458	6	A	10	A	5
	6	A	10	C	5
*8463	1	B	2	C	3
<b>Normal Shorts H,J</b>					

TUBE	A	B	C	D	Skt
8489	6	D	6	B	3
	6	D	6	H	3
*8532	6	G	1	G	4
<b>Normal Shorts E,F</b>					
*8552	12	C	1	E	1
<b>Normal Shorts D,F</b>					
*8556	6	G	1	H	8
<b>Normal Shorts C,E,F</b>					
*8608	6	B	2	H	12
<b>Normal Shorts G,J</b>					
*8627	6	E	2	K	6
<b>Connect to large lug;</b>					
<b>Normal Shorts D,H</b>					
9001	6	F	2	A	4
*9002	6	E	2	F	4
<b>Normal Shorts A,E</b>					
9003	6	E	2	A	4
*9006	6	F	1	E	4
<b>Normal Shorts B,G</b>					
*A61	17	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
A863	6	F	6	K	1
A1834	6	A	6	A	2
	6	A	6	D	2
A2900	12	E	10	B	3
	12	E	10	G	3
AA91E	6	E	6	B	4
	6	E	6	G	4
ABC91	12	C	6	E	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
AFX212	6	F	6	A	4	B759	12	F	10	B	3
B36	12	E	6	A	2		12	F	10	G	3
	12	E	6	D	2	BPM04	6	C	8	A	4
B65	6	E	6	A	2	BVA264	6	F	6	E	1
	6	E	6	D	2	BVA265	6	F	6	E	1
B109	26	D	6	B	3	C10B	2	F	6	E	1
	26	D	6	G	3	C610	6	F	6	D	9
B139	7	E	8	B	3		6	E	6	F	9
	7	E	8	F	3	CC81E	12	E	10	B	3
B152	12	E	10	B	3		12	E	10	G	3
	12	E	10	G	3	CC86E	6	E	6	B	3
B309	12	E	10	B	3		6	E	6	G	3
	12	E	10	G	3	CCA	6	E	6	B	3
B317	7	E	7	B	3		6	E	6	G	3
	7	E	7	F	3	CXF80	4	E	6	B	3
B319	7	E	7	B	3		4	E	6	G	3
	7	E	7	F	3	D2M9	6	E	6	B	4
B329	12	D	10	B	3		6	E	6	G	4
	12	D	10	G	3	D63	6	F	6	C	1
B339	12	F	10	B	3		6	F	6	E	1
	12	F	10	G	3	D77	6	E	6	B	4
B349	7	E	8	B	3		6	E	6	G	4
	7	E	8	F	3	D152	6	E	6	G	4
B719	6	D	6	B	3		6	E	6	B	4
	6	D	6	G	3	*D193	3	F	5	D	7
B729	6	D	6	B	3		Normal Shorts B,F				
	6	D	6	G	3	*D430	1	H	3	K	1
B739	12	E	10	B	3		Disregard Shorts				
	12	E	10	G	3	D717	6	E	6	B	4
B749	12	D	10	B	3		6	E	6	G	4
	12	D	10	G	3	DA90	1	J	2	F	7

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
DAC21	1	G	6	F	7	DF904	1	F	5	F	7
	1	H	6	C	7	DH63	6	F	6	K	1
DAC32	1	G	6	K	1		6	G	6	E	1
	1	G	6	E	1		6	G	6	D	1
DAE32	1	F	6	K	1	DH74	12	F	6	K	1
	1	G	6	E	1		12	G	6	E	1
DAF90	1	J	2	F	7		12	G	6	D	1
DAF91	1	G	6	F	7	DH76	12	F	6	K	1
	1	H	6	C	7		12	G	6	E	1
DAF92	1	G	6	F	7		12	G	6	D	1
	1	H	6	D	7	DH77	6	F	6	A	4
DAF96	1	G	2	F	7		6	G	6	E	4
	1	H	2	C	7		6	G	6	F	4
DAF97	1	G	5	F	7	DH81	6	F	4	C	9
DC80	1	D	3	A	3		6	G	4	E	9
DCC90	3	F	4	C	7	DH109	28	F	6	H	3
	3	F	4	E	7		28	G	6	F	3
DD6	6	E	6	B	4		28	G	6	B	3
	6	E	6	G	4		28	G	6	A	3
DD7	6	C	6	A	4	*DH118	14	F	6	F	9
DD77	6	E	6	B	4		14	G	6	E	9
	6	E	6	G	4		14	G	6	C	9
DDR7	6	D	6	A	4		Normal Shorts G, H-K				
DF26	1	G	6	F	7	DH119	14	F	10	B	3
	1	H	6	C	7		14	G	10	F	3
DF33	1	F	6	K	1		14	G	10	H	3
DF91	1	F	5	F	7	*DH142	14	F	6	F	9
DF92	1	F	5	F	7		14	G	6	E	9
DF96	1	G	5	F	7		14	G	6	C	9
DF97	1	G	2	A	4		Normal Shorts G, H-K				



TUBE	A	B	C	D	Skt
DH147	6	F	6	K	1
	6	G	6	E	1
	6	G	6	D	1
DH149	6	F	4	F	9
	6	G	4	E	9
	6	G	4	C	9
DH719	6	F	6	H	3
	6	G	6	F	3
	6	G	6	B	3
	6	G	6	A	3
DK32	1	G	6	E	1
DK91	1	F	5	D	7
DK92	1	F	6	D	7
DK96	1	F	6	D	7
DK97	1	F	8	D	7
DL29	1	E	8	F	9
DL31	1	F	6	E	1
DL33	3	D	9	E	1
DL35	1	F	6	E	1
DL36	1	E	6	E	1
DL37	6	C	6	E	1
DL63	6	F	6	K	1
	6	G	6	E	1
	6	G	6	D	1
DL74M	12	F	6	K	1
	12	G	6	E	1
	12	G	6	D	1
DL82	6	F	4	C	9
	6	G	4	E	9
	6	G	4	F	9

TUBE	A	B	C	D	Skt
*DL91	1	F	5	C	7
	Normal Shorts B,F				
*DL92	3	F	5	C	7
	Normal Shorts B,F				
*DL93	3	F	5	D	7
	Normal Shorts B,F				
DL94	3	F	5	F	7
*DL95	3	F	5	C	7
	Normal Shorts B,F				
DL96	3	G	5	F	7
DL193	3	F	5	D	7
DP51	6	E	2	A	4
DP61	6	E	2	A	4
*DY30	1	H	2	K	1
	Normal Shorts H, H-K				
DY51	1	J	6	K	3
	Insert leads into pins1 and 5, use top cap				
DY70	1	H	6	K	3
	Insert leads into pins 1 and 5, use top cap				
*DY80	1	H	1	K	8
	Disregard Shorts				
*DY86	1	H	1	K	8
	Disregard Shorts				
*DY87	1	H	1	K	8
	Disregard Shorts				
*E55L	6	D	10	H	5
	Normal Shorts B,F				
	Do Not test for shorts on TC114				

TUBE	A	B	C	D	Skt
E80CC	12	E	10	B	3
	12	E	10	G	3
E80CF	6	D	6	B	3
	6	E	6	J	3
E80F	6	G	6	J	3
E80L	6	C	1	B	3
E80T	6	H	9	B	3
E81CC	12	E	10	B	3
	12	E	10	G	3
E81L	6	C	1	B	3
E82CC	12	D	10	B	3
	12	D	10	G	3
E82CF	6	D	6	B	3
	6	D	6	J	3
E83CC	12	F	10	B	3
	12	F	10	G	3
E83F	6	E	6	B	3
*E84L	6	C	1	B	3
<b>Permissible Shorts F</b>					
<b>or H and one other pin</b>					
*E86C	6	D	1	F	8
<b>Normal Shorts C,G</b>					
*E88C	6	H	1	H	3
<b>Normal Shorts C,F,G,J</b>					
E88CC	6	E	6	B	3
	6	E	6	G	3
*E89F	6	D	1	B	3
<b>Permissible Shorts F</b>					
<b>and one other pin</b>					
E90CC	6	E	6	E	4
	6	E	6	F	4

TUBE	A	B	C	D	Skt
E90F	6	E	6	A	4
E90Z	6	B	6	A	4
	6	B	6	F	4
E91AA	6	E	6	B	3
	6	E	6	G	3
E91H	6	F	6	A	4
*E92CC	6	E	6	C	3
	6	E	6	F	3
<b>Normal Shorts B,F</b>					
E95F	6	E	2	A	4
E99F	6	E	6	A	4
*E130L	6	C	3	E	1
<b>Disregard Shorts on</b>					
<b>A,B,E, if any</b>					
E180CC	12	E	10	B	3
	12	E	10	G	3
E180F	6	D	1	B	3
*E180L	6	C	3	E	1
<b>Permissible Shorts A</b>					
<b>or F and one other pin</b>					
E182CC	12	D	9	B	3
	12	D	9	G	3
E186F	6	D	1	B	3
E188CC	6	E	6	B	3
*E280F	6	C	7	B	3
<b>Normal Shorts A,C</b>					
E288C	6	C	6	B	3
	6	C	6	G	3
*E810F	6	C	1	B	3
<b>Normal Shorts F,J</b>					

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
E902	6	B	6	A	4	EBC3	6	F	6	H	3
	6	B	6	F	4		6	G	6	F	3
*E1485	3	F	5	D	7		6	G	6	B	3
Normal Shorts B,F						EBC33	6	E	6	K	1
E2016	6	E	6	A	4		6	G	6	E	1
E2157	12	E	10	B	3		6	G	6	D	1
	12	E	10	G	3	EBC80	6	F	6	H	3
E2163	12	D	10	B	3		6	G	6	F	3
	12	D	10	G	3		6	G	6	B	3
E2164	12	F	10	B	3	EBC81	6	F	6	H	3
	12	F	10	G	3		6	G	6	F	3
EA50	2	E	2	A	4		6	G	6	B	3
EAA91	6	E	6	B	4	EBC90	6	F	6	A	4
	6	E	6	G	4		6	G	6	E	4
EAA901	6	E	6	B	4		6	G	6	F	4
	6	E	6	G	4	EBC91	6	F	6	A	4
EAB80	6	F	6	H	3		6	G	6	E	4
	6	G	6	G	3		6	G	6	F	4
	6	G	6	B	3	EBC91	6	F	6	A	4
	6	G	6	A	3		6	G	6	E	4
EABC80	6	F	6	H	3		6	G	6	F	4
	6	G	6	F	3	EBC91	6	F	6	A	4
	6	G	6	B	3		6	G	6	E	4
	6	G	6	A	3	EBC91	6	F	6	A	4
EAF801	6	D	6	B	3		6	G	6	E	4
	6	D	6	H	3	EBC91	6	F	6	A	4
EB34	6	E	6	C	1		6	G	6	E	4
	6	E	6	E	1	EBC91	6	F	6	A	4
EB91	6	E	6	B	4		6	G	6	E	4
	6	E	6	G	4	EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
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						EBC91	6	F	6	A	4
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						EBC91	6	F	6	A	4
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						EBC91	6	F	6	A	4
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						EBC91	6	F	6	A	4
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							6	G	6	F	4
						EBC91	6	F	6	A	4
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							6	G	6	F	4
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							6	G	6	F	4
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						EBC91	6	F	6	A	4
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						EBC91	6	F	6	A	4
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							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G	6	E	4
							6	G	6	F	4
						EBC91	6	F	6	A	4
							6	G			

TUBE	A	B	C	D	Skt
EBF89	6	D	6	B	3
	6	G	6	G	3
	6	G	6	H	3
EC22	6	C	6	A	3
EC80	6	D	8	A	8
EC81	6	E	3	F	8
EC86	6	E	3	F	8
*EC88	6	H	1	H	3

Normal Shorts C,F,G,J.

Emission and Shorts Test Only

EC90	6	D	1	F	4
*EC91	6	E	7	A	4

Normal Shorts B,E

EC92	6	E	2	F	4
*EC93	6	D	7	B	4

Normal Shorts A,G

*EC94	6	D	7	B	4
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Normal Shorts A,G

EC95	6	E	8	B	4
EC97	6	E	1	B	4
*EC806	6	D	1	E	8

Normal Shorts C,G

EC900	6	E	2	A	4
*EC903	6	D	7	B	4

Normal Shorts A,G

*EC8010	6	G	1	H	8
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Normal Shorts C,E,F

*EC8020	6	G	1	H	8
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Normal Shorts C,E,F

TUBE	A	B	C	D	Skt
ECC32	6	E	6	A	2
	6	E	6	D	2
ECC33	6	E	6	A	2
	6	E	6	D	2
ECC35	6	F	6	A	2
	6	F	6	D	2
ECC70	12	E	10	B	3
	12	E	10	G	3
ECC81	12	E	10	B	3
	12	E	10	G	3
ECC82	12	D	10	B	3
	12	D	10	G	3
ECC83	12	F	10	B	3
	12	F	10	G	3
ECC84	6	D	8	F	3
	6	E	8	B	3
ECC85	6	D	6	B	3
	6	D	6	G	3
ECC86	6	E	6	B	3
	6	E	6	G	3
ECC88	6	D	6	B	3
	6	D	6	G	3
ECC89	6	D	8	B	3
	6	D	8	F	3
ECC91	6	E	6	E	4
	6	E	6	F	4
ECC180	6	E	6	G	3
	6	E	6	B	3
ECC186	12	D	10	B	3
	12	D	10	G	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
ECC189	6	D	10	B	3	ECF83	6	F	6	J	3
	6	D	10	G	3		6	F	6	B	3
ECC230	6	A	6	A	2	ECF86	6	D	6	B	3
	6	A	6	D	2		6	D	6	F	3
ECC801	12	E	10	B	3	ECF200	6	D	6	C	11
	12	E	10	G	3		6	E	6	K	11
ECC802S	12	D	10	B	3	ECF201	6	D	6	C	11
	12	D	10	G	3		6	D	6	K	11
ECC803	12	F	10	B	3	ECF801	6	D	3	B	3
	12	F	10	G	3		6	E	3	J	3
ECC804	6	D	6	B	3	ECF802	6	D	6	J	3
	6	D	6	G	3		6	D	6	B	3
ECC807	6	G	6	B	3	ECF804	6	E	6	B	3
	6	G	6	J	3		6	D	6	J	3
ECC808	6	G	6	A	3	ECF805	6	E	7	G	3
	6	G	6	K	3		6	D	7	J	3
ECC813	12	E	10	C	3	ECH33	6	E	6	E	1
	12	E	10	H	3	ECH35	6	D	6	K	1
ECC863	12	G	10	B	3	ECH36	6	E	6	E	1
	12	G	10	G	3	ECH80	6	E	6	B	3
ECC900	6	E	2	A	4		6	F	6	J	3
ECC960	6	E	6	F	4	ECH81	6	E	6	B	3
	6	E	6	E	4		6	E	6	J	3
ECC962	6	E	6	C	3	ECH82	6	D	6	K	1
	6	E	6	F	3	ECH83	6	F	6	B	3
ECC2000	6	D	1	C	11		6	G	6	J	3
	6	D	1	H	11	ECH84	6	E	6	B	3
ECF80	6	E	6	B	3		6	E	6	J	3
	6	E	6	J	3	ECH200	6	D	6	H	11
ECF82	6	D	6	B	3		6	E	6	C	11
	6	D	6	J	3						

TUBE	A	B	C	D	Skt
ECL80	6	D	6	J	3
	6	F	6	B	3
ECL82	6	C	6	C	3
	6	F	6	A	3
ECL83	6	C	6	J	3
	6	G	6	B	3
ECL84	6	D	6	H	3
	6	F	6	A	3
ECL85	6	C	6	J	3
	6	E	6	B	3
ECL86	6	C	6	H	3
	6	G	6	A	3
ECLL800	6	F	6	B	3
	6	C	6	F	3
ED2	6	E	6	B	4
	6	E	6	G	4
*ED500	6	G	2	H	12
<b>Disregard Shorts Except H-K</b>					
EF2	6	D	1	B	3
EF5	6	D	1	B	3
EF13	6	D	1	B	3
EF22	6	F	6	F	9
EF36	6	F	6	K	1
EF39	6	E	6	K	1
EF80	6	D	1	B	3
EF81	6	F	9	B	3
*EF82	6	C	1	B	3
<b>Permissible Shorts F and one other pin</b>					
EF83	6	E	2	J	3
EF85	6	D	3	B	3

TUBE	A	B	C	D	Skt
EF86	6	F	2	J	3
EF87	6	F	6	J	3
EF89	6	D	1	B	3
*EF89F	6	D	1	B	3
<b>Permissible Shorts F and one other pin</b>					
EF91	6	D	6	A	4
EF92	6	E	6	A	4
EF93	6	D	6	A	4
EF94	6	D	6	A	4
EF95	6	E	2	A	4
EF96	6	D	6	A	4
EF97	6	D	6	A	4
EF98	6	D	6	A	4
EF183	6	D	1	B	3
EF184	6	D	1	B	3
EF190	6	D	6	A	4
EF804	6	F	1	J	3
EF806	6	F	2	J	3
*EF811	6	D	3	B	3
<b>Permissible Shorts F</b>					
EF812	6	D	1	B	3
EF861	6	D	1	B	3
EF905	6	D	2	A	4
EFL200	6	C	6	H	11
	6	D	6	A	11
EH90	6	D	6	A	4
EK90	6	D	6	A	4
EL33	6	F	6	E	1
EL34	6	A	6	E	1

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
*EL36	6	A	3	E	1	†*EL504	6	A	2	A	12
Permissible Shorts A and one other pin						Normal Shorts C,F,G,H					
EL37	6	C	6	E	1	†*EL505	6	A	1	H	12
EL38	6	C	6	E	1	Normal Shorts B,C,F,G					
*EL80	6	C	7	B	3	EL508	6	B	9	A	12
Permissible Shorts H and one other pin						†*EL509	6	A	1	H	12
*EL81	6	C	1	B	3	Normal Shorts B,C,F,G					
Permissible Shorts F or G and one other pin						EL802	6	C	7	B	5
EL82	6	B	1	B	3	EL803	6	C	6	B	3
EL83	6	C	6	B	3	*EL821	6	C	1	B	3
*EL84	6	C	1	B	3	Permissible Shorts F and one other pin					
Permissible Shorts F or H and one other pin						EL822	6	C	6	B	3
EL85	6	C	9	B	3	EL861	6	C	1	B	3
*EL86	6	C	1	B	3	ELL80	6	C	6	B	3
Permissible Shorts F or H and one other pin							6	C	6	F	3
EL90	6	C	8	A	4	*EM84	6	G	6	A	3
EL91	6	C	6	A	4	Normal Shorts B,F,H					
EL95	6	C	8	A	4	*EM85	6	D	1	B	3
*EL180	12	C	7	B	3	Permissible Shorts F and one other pin					
Normal Shorts C,J						*EM87	6	G	6	A	3
*EL300	6	A	4	E	1	Normal Shorts B,F,H					
Normal Shorts A,C,F,H						*EM840	6	G	6	A	3
†*EL500	6	A	2	A	12	Normal Shorts B,F,H					
Normal Shorts C,F,G,H						EN93	6	F	6	A	4
*EL503	6	C	8	C	5	EQ80	6	F	9	G	3
Normal Shorts B,F						EY51	6	J	6	K	3
						Insert leads into pins 1 & 5, Use top cap					

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
*EY80	6	A	1	J	3
<b>Disregard Shorts</b>					
*EY81	6	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
*EY82	6	A	2	J	3
<b>Disregard Shorts Except H-K</b>					
*EY83	6	A	1	J	3
<b>Disregard Shorts Except H-K</b>					
*EY86	6	J	1	K	8
<b>Disregard Shorts</b>					
*EY87	6	J	1	K	8
<b>Disregard Shorts</b>					
EY88	6				
<b>Refer to special section in the back of the book</b>					
EZ3	6	A	7	A	8
	6	A	7	G	8
EZ4	6	A	7	A	8
	6	A	7	G	8
EZ11	6	A	7	A	8
	6	A	7	G	8
EZ22	6	B	4	C	9
	6	B	4	F	9
EZ35	6	B	6	C	1
	6	B	6	E	1
EZ80	6	A	7	A	8
	6	A	7	G	8
EZ81	6	A	7	A	8
	6	A	7	G	8
EZ90	6	B	6	A	3
	6	B	6	F	3

TUBE	A	B	C	D	Skt
EZ91	6	A	6	A	4
	6	A	6	F	4
EZ900	6	B	6	A	4
	6	B	6	F	4
*F1EL	6	C	8	C	5
<b>Normal Shorts B,F</b>					
FF95	6	E	2	A	4
*GY501	3	J	6	K	8
<b>Normal Shorts A,F,H-K</b>					
*GZ30	5	B	6	D	1
	6	B	6	F	1
<b>Normal Shorts H, H-K</b>					
*GZ31	5	B	6	D	1
	5	B	6	F	1
<b>Normal Shorts H, H-K</b>					
*GZ32	5	B	6	D	1
	5	B	6	F	1
<b>Normal Shorts H, H-K</b>					
*GZ34	5	A	1	D	1
	5	A	1	F	1
<b>Normal Shorts H, H-K</b>					
H36	6	G	6	K	1
*H52	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
H63	6	F	6	K	1
H1112	6	F	6	D	6
H1208	6	F	6	D	6
HAA9	12	E	6	B	4
	12	E	6	G	4



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
HAA91	12	E	6	B	4	HL90	19	C	8	A	4
	12	E	6	G	4	HL92	50	C	5	B	4
HABC80	19	F	6	H	3	HL94	30	C	5	B	4
	19	G	6	G	3	HMO4	6	D	6	A	4
	19	G	6	B	3	HP6	6	E	6	A	4
	19	G	6	A	3	HY65	6	A	6	E	1
HBC80	19	F	6	H	3	HY90	35	A	7	E	4
	19	G	6	F	3	HY145	1	F	5	F	7
	19	G	6	B	3	HZ90	12	B	6	A	4
	19	G	6	A	3		12	B	6	F	4
HBC90	12	F	6	A	4	KBC32	2	F	6	F	1
	12	G	6	E	4		2	G	6	E	1
	12	G	6	F	4		2	G	6	D	1
HBC91	12	F	6	A	4	KF35	2	F	6	E	1
	12	G	6	E	4	KK32	1	E	6	E	1
	12	G	6	F	4	KL35	2	E	6	E	1
HCC85	17	E	6	B	3	KT32	25	C	6	E	1
	17	E	6	G	3	KT33	25	C	6	E	1
HCH81	12	F	6	B	3	KT61	6	F	6	E	1
	12	G	6	J	3	KT63	6	B	6	E	1
HD14	1	G	6	E	1	KT66	6	C	6	E	1
	1	F	6	K	1	KT71	50	C	6	E	1
*HD93	1	H	1	K	8	KT77	6	A	6	E	1
	<b>Disregard Shorts</b>					KT88	6	C	6	E	1
HD94	6	A	6	E	1	KTW63	6	E	6	K	1
HD96	25	A	6	E	1	KTZ63	6	F	6	K	1
HF93	12	D	6	A	4	*KY80	2	H	1	K	8
HF94	12	D	6	A	4		<b>Disregard Shorts</b>				
HK90	12	D	6	A	4	L63	6	E	6	E	1
*HL86	30	C	1	B	3	L77	6	E	1	E	4
	<b>Disregard Shorts Except H-K</b>					LC900	3	E	2	A	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
LCC189	5	E	6	B	3	*LL500	18	A	2	A	12
	5	E	6	G	3						
	<b>Normal Shorts C,F,G,H</b>										
LCF80	8	D	6	B	3	†*LL505	27	A	1	H	12
	8	D	6	J	3						
	<b>Normal Shorts B,C,F,G</b>										
LCF86	5	D	3	B	3	†*LL521	21	A	1	H	12
	5	D	3	F	3						
	<b>Normal Shorts B,C,F,G</b>										
LCF200	5	D	6	C	11	LN119	50	C	6	C	3
	5	E	6	K	11		50	F	6	A	3
LCF201	5	D	6	C	11	LN152	6	D	6	J	3
	5	D	6	K	11		6	F	6	B	3
LCF801	5	D	3	B	3	LN309	16	C	6	C	3
	5	E	3	J	3		16	E	6	A	3
LCF802	6	D	6	J	3	LN319	13	C	6	J	3
	6	C	6	B	3		13	E	6	B	3
LCH200	5	D	6	H	11	LY81	11	A	2	J	3
	5	E	6	C	11	LY88	20				
LCL82	11	C	6	C	3						
	11	F	6	A	3						
LCL84	10	D	6	H	3						
	10	F	6	A	3						
LCL85	10	C	6	J	3						
	10	E	6	B	3						
*LF183	4	D	3	B	3						
	<b>Permissible Shorts F</b>										
*LF184	4	D	3	B	3						
	<b>Permissible Shorts F</b>										
LFL200	11	C	6	H	11	LZ319	9	D	6	B	3
	11	D	6	A	11		9	D	6	J	3
*LL86	10	C	1	B	3	LZ329	9	D	6	B	3
							9	D	6	J	3
	<b>Disregard Shorts on F,</b>										
	<b>H and one other pin</b>										
						‡M7	50	B	6	D	1
							50	B	6	F	1
						M8063	6	E	6	A	4
						M8079	6	E	6	B	4
							6	E	6	G	4
						M8080	6	E	1	F	4

**Refer to special section  
in the back of the book**

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
M8081	6	E	6	E	4	N19	3	F	5	F	7
	6	E	6	F	4	†*N22LL	19	A	1	G	12
M8083	6	D	6	A	4	<b>Normal Shorts H</b>					
M8096	6	C	9	J	3	<b>and one other pin</b>					
M8100	6	E	2	A	4	N25	3	G	5	F	7
M8136	12	D	10	B	3	*N30EL	6	A	10	E	10
	12	D	10	G	3	<b>Normal Shorts A,C,D,K</b>					
M8137	12	F	10	B	3	N47	6	D	6	A	4
	12	F	10	G	3	N63	6	B	6	E	1
M8161	6	E	6	A	4	N66	6	C	6	E	1
M8162	12	E	10	B	3	N77	6	C	6	A	4
	12	E	10	G	3	N78	6	C	6	A	4
M8196	6	E	6	A	4	*N119	45	C	1	B	3
M8212	6	E	6	B	4	<b>Permissible Shorts F or</b>					
	6	E	6	G	4	<b>H and one other pin</b>					
*M8232	6	G	6	G	4	N144	6	C	6	A	4
<b>Emission and Shorts Test Only;</b>						N147	6	F	6	E	1
<b>Normal Shorts E,F</b>						*N152	21	C	1	B	3
M8245	6	C	8	A	4	<b>Permissible Shorts F or</b>					
MV6 - 5	6	D	6	E	1	<b>G and one other pin</b>					
*N2ED	6	J	3	F	10	N153	15	C	6	B	3
<b>Disregard Shorts Except H-K</b>						*N154	16	C	9	B	3
N14	1	E	6	E	1	<b>Permissible Shorts F</b>					
N15	3	G	5	F	7	<b>and one other pin</b>					
N16	3	F	9	E	1	N155	6	C	3	B	3
*N17	3	F	5	C	7	N308	25	C	1	E	1
<b>Normal Shorts B,F</b>						N309	15	C	6	B	3
*N18	3	F	5	C	7	N329	16	C	7	B	3
<b>Normal Shorts B,F</b>											

TUBE	A	B	C	D	Skt
*N359	21	C	9	B	3
Permissible Shorts F and one other pin					
*N369	16	C	6	C	3
	16	E	6	A	3
Permissible Shorts F and one other pin					
*N378	15	C	1	B	3
Disregard Shorts Except H-K					
*N379	15	C	1	B	3
Permissible Shorts F or H and one other pin					
*N707	6	C	1	B	3
Permissible Shorts F, H and one other pin					
*N709	6	C	1	B	3
Permissible Shorts F, H and one other pin					
N727	6	C	8	A	4
OBC3	12	F	6	B	2
	12	G	6	D	2
	12	G	6	E	2
OF1	6	E	6	K	1
OF5	12	E	6	K	1
OH4	12	E	6	E	1
OM6	6	E	6	K	1
OM10	6	E	6	E	1
OSW2190	6	D	6	D	1

TUBE	A	B	C	D	Skt
OSW2192	6	C	6	D	1
OSW2600	6	D	6	D	1
OSW2601	6	C	6	D	1
OSW3104	6	D	6	E	1
OSW3105	6	F	6	B	2
	6	G	6	D	2
	6	G	6	E	2
*OSW3107	5	A	6	D	1
	5	A	6	F	1
Normal Shorts H, H-K					
OSW3109	6	E	6	C	1
	6	E	6	E	1
OSW3111	6	D	6	D	1
PABC80	9	F	6	H	3
	9	G	6	F	3
	9	G	6	B	3
	9	G	6	A	3
PC86	4	E	3	F	8
PC95	4	E	8	B	4
PC97	4	E	1	B	4
PC200	8	D	6	C	11
	8	E	6	E	11
PC900	4	E	2	A	4
PCC84	7	E	7	B	3
	7	E	7	F	3
PCC85	9	E	6	B	3
	9	E	6	G	3

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
PCC88	7	D	6	B	3	PCF806	8	D	3	B	3
	7	D	6	G	3		8	E	3	J	3
PCC89	7	D	8	B	3	PCH200	9	D	6	H	11
	7	D	8	F	3		9	E	6	C	11
PCC186	7	D	10	B	3	PCL82	16	C	6	C	3
	7	D	10	G	3		16	E	6	A	3
PCC189	7	E	6	B	3	PCL83	12	C	6	J	3
	7	E	6	G	3		12	G	6	B	3
PCC805	7	E	8	B	3	PCL84	15	D	6	A	3
	7	E	8	F	3		15	D	6	H	3
PCF80	9	D	6	B	3	PCL85	18	C	6	J	3
	9	D	6	J	3		18	E	6	B	3
PCF82	9	D	6	B	3	PCL86	14	C	6	H	3
	9	D	6	J	3		14	G	6	A	3
PCF86	8	D	6	B	3	PCL88	16	C	6	C	3
	8	E	6	F	3		16	F	6	A	3
PCF200	8	D	6	C	11	PCL800	16	C	6	C	3
	8	E	6	E	11		16	F	6	A	3
<b>Checked in TC136 Only</b>						PCL801	13	C	6	J	3
PCF201	8	D	6	C	11		13	E	6	B	3
	8	D	6	K	11	†*PD500	9	G	2	H	12
PCF801	8	D	3	B	3	<b>Disregard Shorts Except H-K</b>					
	8	E	3	J	3	PF9	6	E	6	K	1
PCF802	9	D	6	J	3	PF86	4	F	6	J	3
	9	C	6	B	3	PF818	7	E	3	B	3
PCF805	7	E	7	J	3	PFL200	16	D	6	A	11
	7	D	7	G	3		16	C	6	H	11
						PH4	6	E	6	E	1

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt
PL36	25	C	1	E	1
PL81	22	C	1	B	3
PL82	16	C	7	B	3
PL83	15	C	6	B	3
*PL84	15	C	1	B	3

**Permissible Shorts F or  
H and one other pin**

PL86	14	C	6	H	3
	14	G	6	A	3
*PL87	16	C	9	B	3

**Permissible Shorts F  
and one other pin**

PL302	25	C	1	E	1
†*PL500	27	A	2	A	12

**Normal Shorts C,F,G,H**

*PL505	40	A	1	H	12
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**Normal Shorts B,C,F,G**

†*PL508	17	B	9	A	12
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**Normal Shorts C,F,G,H**

*PL509	40	A	1	H	12
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**Normal Shorts B,C,F,G**

†PL521	15	A	8	H	12
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PL801	12	C	1	B	3
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*PL820	21	C	1	B	3
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**Permissible Shorts F or  
G and one other pin**

PLL80	12	C	6	B	3
	12	C	6	F	3

TUBE	A	B	C	D	Skt
PM04	6	D	6	A	4
PM05	6	E	2	A	4
PM07	6	D	6	A	4
PM95	6	D	6	A	4
PY32	29	A	3	E	1
*PY80	19	A	2	J	3

**Disregard Shorts Except H-K**

*PY81	17	A	2	J	3
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**Disregard Shorts Except H-K**

*PY82	19	A	2	J	3
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**Disregard Shorts Except H-K**

*PY83	17	A	2	J	3
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**Disregard Shorts Except H-K**

PY88	30				
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**Refer to special section  
in the back of the book**

PY301	19	A	6	E	2
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*PY800	17	A	2	J	3
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**Disregard Shorts Except H-K**

PY801	19	A	6	J	3
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QA2400	6	E	6	A	4
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QA2401	6	E	1	F	4
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QA2404	6	E	6	B	4
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	6	E	6	G	4
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QA2406	12	E	10	B	3
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	12	E	10	G	3
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QA2407	6	B	6	A	4
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	6	B	6	F	4
--	---	---	---	---	---

† See Magnoval Note on page B

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
QA2408	6	E	6	A	2	QQV03-10	12	C	10	A	3
	6	E	6	D	2		12	C	10	C	3
QB65	6	E	6	A	2	QS2404	6	E	6	B	3
	6	E	6	D	2		6	E	6	G	3
QB309	12	E	10	B	3	QS2406	12	E	10	B	3
	12	E	10	G	3		12	E	10	G	3
QB329	12	D	10	B	3	QV03-12	6	C	9	J	3
	12	D	10	G	3	*QV06-20	6	C	7	E	1
QB339	12	F	10	B	3	<b>Normal Shorts A,D</b>					
	12	F	10	G	3	QW77	6	E	6	A	4
QE03-10	6	C	9	J	3	QZ77	6	E	6	A	4
*QE05-40	6	C	7	E	1	R3	1	F	6	F	7
<b>Normal Shorts A,D</b>						R12	6	J	6	K	3
QL77	6	E	1	F	4	<b>Insert Leads into pins</b>					
*QM328	6	C	3	B	3	<b>1 &amp; 5, Use top cap</b>					
<b>Normal Shorts A,F,H,J</b>						R16	1	H	6	K	3
QM556	6	B	6	A	4	<b>Insert Leads into pins</b>					
	6	B	6	F	4	<b>1 &amp; 5, Use top cap</b>					
QM557	6	D	2	A	4	*R17	6	A	1	K	8
QM558	6	E	6	A	4	<b>Disregard Shorts Except H-K</b>					
QM559	6	E	6	B	4	*R18	6	A	1	K	8
	6	E	6	G	4	<b>Disregard Shorts Except H-K</b>					
QQE02-5	12	C	10	A	3	*R19	1	H	1	K	8
	12	C	10	C	3	<b>Disregard Shorts</b>					
QQE03-12	12	C	10	A	3	*R20	2	H	1	K	8
	12	C	10	C	3	<b>Disregard Shorts</b>					
QQV02-6	12	C	10	A	3	*R52	5	A	6	D	1
	12	C	10	C	3		5	A	6	F	1

**Normal Shorts H, H-K**

TUBE	A	B	C	D	Skt
R144	6	E	6	A	4
*RS2	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
RS1029	12	C	10	A	3
	12	C	10	C	3
RZ	2	F	6	E	1
S6F12	6	E	6	A	4
SP6	6	D	6	A	4
SU61	6	J	6	K	3
<b>Insert Leads into pins 1 &amp; 5, Use top cap</b>					
T2M05	6	E	6	E	4
	6	E	6	F	4
TD24	12	C	10	A	3
	12	C	10	C	3
*TJ-800	6	C	3	B	3
<b>Normal Shorts A,F</b>					
TM12	6	F	6	K	1
TS229	12	D	9	B	3
	12	D	9	G	3
TT23	12	C	10	A	3
	12	C	10	C	3
TT24	12	C	10	A	3
	12	C	10	C	3
TTZ63	6	F	6	K	1
*U26	6	H	1	K	8
<b>Disregard Shorts</b>					

TUBE	A	B	C	D	Skt
U31	25	B	6	E	1
U37	1	F	5	F	7
*U41	1	H	2	K	1
<b>Disregard Shorts</b>					
U43	6	J	6	K	3
<b>Insert Leads into pins 1 &amp; 5, Use top cap</b>					
*U49	6	H	1	K	8
<b>Disregard Shorts</b>					
*U50	5	B	6	D	1
	5	B	6	F	1
<b>Normal Shorts H, H-K</b>					
*U51	5	B	6	D	1
	5	B	6	F	1
<b>Normal Shorts H, H-K</b>					
*U52	5	A	6	D	1
	5	A	6	F	1
<b>Normal Shorts H, H-K</b>					
U70	6	B	6	C	1
	6	B	6	E	1
U74	35	B	6	E	1
U76	35	B	6	E	1
*U77	5	A	1	D	1
	5	A	1	F	1
<b>Normal Shorts H, H-K</b>					
U78	6	B	6	A	4
	6	B	6	F	4



TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
U82	6	B	4	C	9	*U381	38	A	2	J	3
	6	B	4	F	9	<b>Disregard Shorts Except H-K</b>					
*U119	38	A	2	J	3	U707	6	B	6	A	4
<b>Disregard Shorts Except H-K</b>							6	B	6	F	4
U147	6	B	6	C	1	U709	6	A	7	A	8
	6	B	6	E	1		6	A	7	G	8
U149	6	B	4	C	9	U4020	2	F	6	E	1
	6	B	4	F	9	UABC80	28	F	6	H	3
U151	6	B	6	A	4		28	G	6	F	3
	6	B	6	F	4		28	G	6	B	3
*U152	19	A	2	J	3		28	G	6	A	3
<b>Disregard Shorts Except H-K</b>						UBC41	14	F	4	F	9
*U153	17	A	2	J	3		14	G	4	E	9
<b>Disregard Shorts Except H-K</b>							14	G	4	C	9
*U154	19	A	2	J	3	UBC80	14	F	10	B	3
<b>Disregard Shorts Except H-K</b>							14	G	10	F	3
U191	19	A	6	E	2		14	G	10	H	3
*U192	19	A	2	J	3	UBC81	14	F	10	B	3
<b>Disregard Shorts Except H-K</b>							14	G	10	F	3
*U193	17	A	2	J	3		14	G	10	H	3
<b>Disregard Shorts Except H-K</b>						UBF80	17	F	6	B	3
U291	29	A	3	E	1		17	G	6	G	3
*U319	19	A	2	J	3		17	G	6	H	3
<b>Disregard Shorts Except H-K</b>						UBF89	19	E	6	B	3
U339	19	A	6	E	2		19	G	6	G	3
*U349	17	A	2	J	3		19	G	6	H	3
<b>Disregard Shorts Except H-K</b>						UC92	9	E	2	F	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
UCC85	26	D	6	B	3	*UY89	31	A	2	J	3
	26	D	6	G	3	<b>Disregard Shorts Except H-K</b>					
UCF80	27	D	6	B	3	V2M70	6	B	6	A	4
	27	D	6	J	3		6	B	6	F	4
UCH80	14	D	6	B	3	V177	6	E	6	A	4
	14	F	6	J	3	V741	6	E	1	F	4
UCH81	19	E	6	B	3	V884	6	E	6	A	4
	19	F	6	J	3	V886	6	D	6	A	4
UCL82	50	C	6	C	3	VP6	6	E	6	A	4
	50	E	6	A	3	VP12D	12	F	6	K	1
UCL83	38	C	6	J	3		12	G	6	E	1
	38	E	6	B	3		12	G	6	D	1
UCL86	43	C	6	H	3	W17	1	F	5	F	7
	43	F	6	A	3	W25	1	G	5	F	7
UF80	19	D	1	B	3	W26	1	G	5	F	7
UF85	19	D	1	B	3	W61	6	E	6	K	1
UF86	12	F	2	J	3	W63	6	E	6	K	1
UF89	12	D	7	B	3	W76	12	E	6	K	1
*UL84	45	C	1	B	3	W77	6	E	6	A	4
<b>Permissible Shorts F,</b>						W81	6	E	6	F	9
<b>H and one other pin</b>						W110	13	D	3	A	3
UR1C	2	F	6	E	1	W119	13	D	3	A	3
UU12	6	A	7	A	8	W147	6	E	6	K	1
	6	A	7	G	8	W148	6	E	6	F	9
*UY82	50	A	2	J	3	W149	6	E	6	F	9
<b>Disregard Shorts Except H-K</b>						W179	6	D	6	B	3
*UY85	38	A	2	J	3	W719	6	C	6	A	2
<b>Disregard Shorts Except H-K</b>							6	C	6	D	2

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
W727	6	D	6	A	4	X719	6	E	6	B	3
X14	1	G	6	E	1		6	E	6	J	3
X17	1	F	5	D	7	X727	6	D	6	A	4
X18	1	F	6	D	7	X6030	3	G	4	E	1
X20	1	F	6	D	7	XAA91	3	E	6	B	4
X25	1	F	6	D	7		3	E	6	G	4
X61M	6	E	6	E	1	XB91	3	E	6	B	4
X63	6	E	6	E	1		3	E	6	G	4
X64	6	E	5	K	1	XC95	2	E	8	B	4
X65	6	E	6	E	1	XC97	2	E	1	B	4
X66	6	E	6	E	1	XC900	2	E	2	A	4
X71M	12	E	6	E	1	XCC82	7	D	10	B	3
X75	12	E	6	E	1		7	D	10	G	3
X76M	12	E	6	E	1	XCC189	4	D	6	B	3
X77	6	D	6	A	4		4	D	6	G	3
X79	6	E	6	B	3	XCF80	4	D	6	B	3
	6	F	6	G	3		4	D	6	J	3
X81	6	D	6	F	9	XCF82	5	D	6	B	3
	6	E	6	D	9		5	D	6	J	3
X107	18	E	6	A	4	XCF801	4	D	3	B	3
X119	19	E	6	B	3		4	E	3	J	3
	19	F	6	J	3	XCH81	3	E	6	B	3
X147	6	D	6	K	1		3	F	6	J	3
X148	6	D	6	F	9	XCL82	8	C	6	C	3
	6	E	6	D	9		8	F	6	A	3
X155	6	E	6	B	3	XCL84	8	D	6	H	3
	6	E	6	G	3		8	F	6	A	3

TUBE	A	B	C	D	Skt
XCL85	9	C	6	J	3
	9	E	6	B	3
XF80	3	D	1	B	3
XF85	3	D	3	B	3
XF86	2	F	6	J	3
XF94	3	D	6	A	4
*XF183	3	D	1	B	3
<b>Permissible Shorts F</b>					
*XF184	3	D	1	B	3
<b>Permissible Shorts F</b>					
*XL36	13	A	3	E	1
<b>Permissible Shorts A</b>					
<b>and one other pin</b>					
*XL84	8	C	1	B	3
<b>Permissible Shorts F,</b>					
<b>H and one other pin</b>					
*XL86	8	C	1	B	3
<b>Disregard Shorts on F,H, if any</b>					
*XL500	13	A	2	A	12
<b>Normal Shorts C,F,G,H</b>					
XXB	3	F	8	D	9
	3	F	8	E	9
XXD	14	E	6	D	9
	14	E	6	E	9
XXFM	6	F	6	C	9
	6	G	6	E	9
	6	G	6	F	9
XXL	6	E	5	F	9

TUBE	A	B	C	D	Skt
XY88	16				
<b>Refer to special section</b>					
<b>in the back of the book</b>					
YC95	3	E	8	B	4
YC97	3	E	1	B	4
YCC189	5	E	6	B	3
	5	E	6	G	3
YCF86	5	D	3	B	3
	5	D	3	F	3
YCL84	10	D	6	H	3
	10	F	6	A	3
YF183	4	D	1	B	3
YF184	4	D	1	B	3
*YL84	10	C	1	B	3
<b>Disregard Shorts Except H-K</b>					
*YL86	10	C	1	B	3
<b>Disregard Shorts Except H-K</b>					
*YL1370	6	C	1	E	1
<b>Normal Shorts D,F</b>					
*YL1371	13	B	1	E	1
<b>Normal Shorts D,F</b>					
*YL1372	26	C	1	E	1
<b>Normal Shorts D,F</b>					
Z14	1	F	6	K	1
Z63	6	F	6	K	1
Z77	6	D	6	A	4

TUBE	A	B	C	D	Skt	TUBE	A	B	C	D	Skt
Z150	6	F	9	A	10						
	6	F	9	G	10						
	6	F	9	J	10						
Z152	6	D	6	B	3						
Z179	6	D	6	B	3						
Z329	7	E	3	B	3						
Z719	6	D	6	B	3						
Z729	6	F	2	J	3						
Z1494	6	D	2	A	4						
Z1751	6	E	6	B	4						
	6	E	6	G	4						
ZD17	1	G	6	F	7						
	1	H	6	C	7						
ZD25	1	G	6	F	7						
	1	H	6	C	7						
ZD152	6	F	6	B	3						
	6	G	6	G	3						
	6	G	6	H	3						

## ADDITIONAL TUBE SET-UP INFORMATION

These additional tubes can be checked on your Mighty Mite Tube Checker in the following manner.

**2AH2** — The 2AH2 can be checked by bending pin 9 in toward the center of the base and use the following settings:

	A	B	C	D	Socket
*2AH2	2	J	3	K	10

### Disregard Shorts

**3DG4** Tube can be checked by connecting a jumper wire between pins 1 and 2 before inserting it into socket.

Set-up is:

A	B	C	D	Socket
3	A	1	E	1

### Normal Shorts C, H-K

Although the above test only checks one side of the 3DG4, it is generally true that in rectifier tubes, if one half is good the other half in most cases is good too.

**5BC3** Tube can be checked by doing the following:

1. Bend pin 6 toward outside of Tube.

(Count pins clockwise when viewing tube from pin side).

2. Insert Tube so that pins 1 & 2 fall into pins 5 and 6 of socket 5.

(Count pins in counterclockwise direction on socket 5 when inserting tube).

### Settings

A	B	C	D	Socket
5	A	2	C	5
5	A	2	J	5

**Disregard Shorts if Emission is O.K.**

**\*6386**

Connect temporary jumper wire between pins 1 and 5 on tube base.

Set-up is:

6	E	1	C	3
6	E	1	G	3

**Normal Shorts G, H-K**

**\*6EU7 ( for Mighty Mites not having socket No. 13)**

Connect temporary jumper wire as on 6386.

Set-up is:

6	F	1	H	3
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**Normal Shorts B, H-K**

**7F8** — Connect temporary jumper wire between pins 7 and 8.

7	G	8	C	9
7	G	8	F	9

**6R-P10** — Connect temporary jumper wire between pins 5 and 6. Set-up is:

6	C	7	H	3
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**Disregard Shorts**

**\*6R-R8** — Connect temporary jumper wire between pins 5 and 3 on tube base.

6	D	3	A	3
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**Normal Shorts D,J, H-K**

**19R-LL1** — Connect temporary jumper wire as on 6386.

19	E	1	C	3
19	E	1	G	3

**\*20EZ7 (for Mighty Mites not having socket No. 13)**

Connect a temporary jumper wire between pins 1 and 5 on the tube base. Set-up is:

11	F	1	H	3
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**Normal Shorts B,C, H-K**

\*1219 and \*5670 – Connect temporary jumper wire as on 6386.

6	E	1	C	3
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6	E	1	G	3
---	---	---	---	---

**Normal Shorts G, H-K**

16AQ3, 20AQ3, 30AE3, 30AG3, EY88, LY88, and PY88 have internal support jumpers that can be varied from manufacture to manufacture. If the test listed below does not work, then use the second test using the jumper wire.

Tube	A	B	C	D	Socket
**	A	7	C		8

**Disregard Shorts Except H-K**

If the tube will not give an emission reading after a normal warm up time with the above settings, connect a temporary jumper wire between pins 7, 8, and 9 and use the following settings:

Tube	A	B	C	D	Socket
**	A	6	G		8

**Disregard Shorts Except H-K**

\*\* - Use filament voltage listed under tube in set-up chart section. \*Tubes marked with an asterisk (\*) indicates that the tube has internal connections. Be sure to read the short test instructions directly below each tube listing before rejecting a tube for shorts.



The following tubes may or may not have a filament center tap. If a tube that has a center tap is tested at normal voltage, the tubes heater will be burned out. The first setting is for the tube with a center tap, and should be tried first. If this setting results in little or no emission, try the second setting.

TUBE	A	B	C	D	Socket
*24JE6	12	A	7	B	5
	24	A	7	B	5
<b>Normal Shorts A,G</b>					
*24LQ6	12	A	7	B	5
	24	A	7	B	5
<b>Normal Shorts A,G</b>					
*30KD6	15	A	5	J	10
	30	A	5	J	10
<b>Normal Shorts A,C,D,K</b>					
*31LQ6	15	A	7	B	5
	31	A	7	B	5
<b>Normal Shorts A,G</b>					
'31LZ6	15	A	7	B	5
	31	A	7	B	5
<b>Normal Shorts A,G,J</b>					
*35LR6	17	A	10	E	10
	35	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
*36KD6	18	A	10	E	10
	36	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					
*40KD6	20	A	10	E	10
	40	A	10	E	10
<b>Normal Shorts A,C,D,K</b>					