

H.G.CISIN'S

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Admiral TTV

**TROUBLE-INDICATING
TUBE LOCATION
GUIDES**

1948-1956 MODELS

Admiral

TV "TROUBLE INDICATING" TUBE LOCATION GUIDES

By H.G.Cisin, Consulting Engineer

This compilation of tube location guides includes over 1150 ADMIRAL TV models, from the earliest sets to the newest 1956 models. Every effort has been made to make this the most complete listing of ADMIRAL TV sets ever published.

Each guide in this volume shows the positions and type numbers of all tubes and also, by a novel copyrighted method, indicates the effect of each tube on the operation of the TV set. This system discards old-style function names and, instead, by nine simple code letters tells plainly what each tube actually does.

For example, a tube coded "S" handles the sound signals and if such a tube becomes defective, sound becomes weak, distorted or absent. Replacement of the tube restores normal sound. A tube coded "P" affects picture signals. When tubes perform multiple functions, code letters are combined. In many instances, a tube may be used to strengthen or otherwise affect both picture and sound signals, in which case it is coded "PS". A tube coded "PSC" controls picture, sound and contrast. The meaning of each code letter or code letter combination is given beneath each tube location guide, thus making the chart very easy to use.

This book also contains an illustrated GUIDE TO TV TUBE TROUBLES, which shows at a glance what happens when any particular tube in the TV set becomes defective.

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TV TROUBLE-INDICATING TUBE LOCATION GUIDES

By H.G.Cisin, Consulting Engineer

Model	Guide No.	Model	Guide No.	Model	Guide No.
3A14N	29	4H115S	29	4H146SN	29
3A14S	29	4H115SN	29	4H147S	29
4H1	29	4H116S	29	4H147SN	29
4H15	30	4H116SN	29	4H147	30
4H15A	30	4H117S	29	4H147A	30
4H15B	30	4H117SN	29	4H147B	30
4H15C,N	30	4H126	30	4H147C	30
4H15S	29	4H126A	30	4H147CN	30
4H15SN	29	4H126B	30	4H155	30
4H16	30	4H126C	30	4H155A	30
4H16A	30	4H126CN	30	4H155B	30
4H16B	30	4H126S	29	4H155C	30
4H16C	30	4H126SN	29	4H155CN	30
4H16CN	30	4H137	30	4H155S	29
4H16S	29	4H137A	30	4H155SN	29
4H16SN	29	4H137B	30	4H156	30
4H17	30	4H137C	30	4H156A	30
4H17A	30	4H137CN	30	4H156B	30
4H17B	30	4H137S	29	4H156C	30
4H17C	30	4H137SN	29	4H156CN	30
4H17CN	30	4H145	30	4H156S	29
4H17S	29	4H145A	30	4H156SN	29
4H17SN	29	4H145B	30	4H157	30
4H18	30	4H145C	30	4H157A	30
4H18C	30	4H145CN	30	4H157B	30
4H18CN	30	4H145S	29	4H157C	30
4H18S	29	4H145SN	29	4H157CN	30
4H18SN	29	4H146	30	4H157S	29
4H19	30	4H146A	30	4H157SN	29
4H19C	30	4H146B	30	4H165	30
4H19CN	30	4H146C	30	4H165A	30
4H19S	29	4H146CN	30	4H165B	30
4H19SN	29	4H146S	29	4H165C	30

Model	Guide No.	Model	Guide No.	Model	Guide No.
4H165CN	30	17XP3	18	19F2AZ	19
4H165S	29	18SX4BZ	12	19F2Z	19
4H165SN	29	18SX4CZ	13	19G1	19
4H166	30	18SX4EZ	12	19G1A	19
4H166A	30	18SX4FZ	12	19H1	34
4H166B	30	18SX4GZ	12	19J1	19
4H166C	30	18X4CZ	11	19J1A	19
4H166CN	30	18X4EZ	11	19K1	34
4H166S	29	18X4FZ	11	19K2AZ	19
4H166SN	29	18X4GZ	11	19K2Z	19
4H167	30	18XP4BZ	10	19L1	19
4H167A	30	18XP4HZ	10	19L2	31
4H167B	30	18Y4B, E	8	19L2Z	31
4H167C	30	19A2, A	19	19M2	31
4H167CN	30	19A2AZ, Z	19	19N1	34
4H167S	29	19A11S, SN	35	19N2Z	31
4H167SN	29	19A15S	35	19P1	19
4J1	29	19A15SN	35	19S1	19
4K1	29	19A1	35	19R2	31
5B2	28	19A2	19	19S2	31
4L1	28	19A2A	19	19T1	31
8C11	29	19A2AZ	19	19T1C	31
8C12	29	19A2Z	19	19T2	34
8C13	29	19A11S	35	19T2A	34
12X11	28	19A11SN	35	19W1	31
12X12	28	19A12S	35	19W1A	31
14R11	27	19A12SN	35	19W1B	31
14R12	27	19A15S	35	19W1C	31
14R16	27	19A15SN	35	19Y1A	31
15K21	27	19B1	34	19Y4G	9
16M12	25	19B1C	34	20A1	30
16R11	33	19B1X	34	20A2	22
16R12	33	19B1Y	34	20A2Z	22
17DX10	34	19B2	19	20AX5	17
17DX11	34	19B2A	19	20AX5A	17
17DX12	34	19B2AZ	19	20AX5B	17
17K11	33	19B2Z	19	20AX5CZ	17
17K12	33	19C1	34	20AX5D	17
17K16	33	19C1A	34	20AX5EZ	17
17K21	33	19C1B	34	20AX5F	17
17K22	33	19C1C	34	20AX5GZ	17
17M15	33	19D2	19	20D1	22
17M16	33	19D2A	19	20D2	22
17M17	33	19E1	34	20L2	31
17SX3	16	19E2	19	20SX5EZ	17
17SX3Z	16	19E2A	19	20SY4B	7
17UDX11	19	19F1	34	20SY4BF	7
17UDX12	19	19F1A	34	20SY4E	3
17X3Z	18	19F1B	34	20SY4F	3

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20SY4FF	3	21D1	33	24A12N	30
20SY4H	6	21D3Z	15	24A125	30
20SY4L	3	21E1	33	24A125AN	28
20SY4LF	3	21F1	33	24A125N	30
20SY4LS	3	21G1	33	24A126	30
20T1	27	21G3Z	14	24A126N	30
20V1	27	21H1	33	24A127	30
20X1	28	21H3Z	15	24A127N	30
20X5	17	21J1	33	24C15	30
20X5A	17	21K1	33	24C15N	30
20X5B	17	21L1	33	24C16	30
20X5C	17	21M1	33	24C16N	30
20X5CZ	17	21N1	33	24C17	30
20X5EZ	17	21P1	33	24C17N	30
20X5GZ	17	21Q1	33	24D1	26
20X11	28	21W1	25	24E1	26
20X12	28	21X1	25	24F1	26
20X122	28	21X2	25	24G1	26
20X136	28	21Y1	25	24H1	26
20X145	28	21Z1	25	24R11	27
20X146	28	21Z1A	25	24R12	27
20X147	28	22A2	24	24X15	28
20XP5	17	22A2A	24	24X15S	28
20XP5A	17	22A3	32	24X16	28
20Y1	28	22A3A	32	24X16S	28
20Y4B	1	22A3AZ	32	24X17	28
20Y4BF	1	22A3Z	32	24X17S	28
20Y4D	4	22B3	32	25A15	30
20Y4DF	4	22B3AZ	32	25A15N	30
20Y4E	2	22B3Z	32	25A16	30
20Y4EF	2	22C2	23	25A16N	30
20Y4F	2	22E2	23	25A17	30
20Y4FF	2	22F2	21	25A17N	30
20Y4H	5	22F2Z	32	26R11	33
20Y4HF	5	22G2	32	26R12	33
20Y4L	2	22G2Z	32	26R25	26
20Y4LF	2	22M2	21	26R25A	33
20Y4MS	2	22N2	32	26R26	26
20Y4NF	2	22P2	21	26R26A	33
20Y4LF	2	22R2	21	26R35	26
20Y4LS	2	22X12	28	26R35A	33
20Z1	28	22X25	28	26R36	26
21A1	30	22X26	28	26R36A	33
21A3Z	14	22X27	28	26R37	26
21A3AZ	14	22Y1	24	26R37A	33
21B1	33	23A1	20	26X35	26
21B3Z	15	24A11	30	26X36	26
21C1	33	24A11N	30	26X36A	33
21C3Z	14	24A12	30	26X36AS	33

Model	Guide No.	Model	Guide No.	Model	Guide No.
26X36S	33	27K86	33	30F16A	30
26X37	26	27K87	33	30F16AN	30
26X45	26	27M12	25	30F16N	30
26X46	26	27M25	33	30F17	30
26X55	26	27M26	33	30F17A	30
26X56	26	27M27	33	30F17AN	30
26X57	26	27M35	33	30F17N	30
26X55A	33	27M36	33	32X15	28
26X56A	33	29X15	26	32X16	28
26X57A	33	29X16	26	32X26	28
26X65	26	29X17	26	32X27	28
26X65A	33	29X25	26	32X35	28
26X66	26	29X25A	33	32X36	28
26X66A	33	29X26	26	32X36AN	28
26X67	26	29X26A	33	36R37	33
26X67A	33	29X27	26	36R45	33
26X75	26	30A1	29	36R46	33
26X75A	33	30AA1	29	36R46N	33
26X76	26	30A12	29	36X35	26
26X76A	33	30A12S	29	36X35A	26
27K12	33	30A12SN	29	36X36	26
27K15	33	30A13	29	36X36A	26
27K15A	33	30A13S	29	36X37	26
27K15B	33	30A13SN	29	36X37A	26
27K16	33	30A14	29	37F15	33
27K16A	33	30A14SA	29	37F15A	33
27K16B	33	30A15	29	37F15B	33
27K17	33	30A15SA	29	37F16	33
27K17A	33	30A16	29	37F16A	33
27K17B	33	30B1	29	37F16B	33
27K25	33	30B15S	29	37F27	33
27K25A	33	30B15SN	29	37F27A	33
27K25B	33	30B16S	29	37F27B	33
27K26	33	30B16SN	29	37F28	33
27K26A	33	30B17S	29	37F28A	33
27K26B	33	30B17SN	29	37F28B	33
27K27	33	30C1	29	37F35	33
27K27A	33	30C15S	29	37F35A	33
27K27B	33	30C15SN	29	37F35B	33
27K35	33	30C16S	29	37F36	33
27K35A	33	30C16SN	29	37F36A	33
27K35B	33	30C17S	29	37F36B	33
27K36	33	30C17SN	29	37F55	33
27K36A	33	30D1	29	37F56	33
27K36B	33	30F15	30	37F57	33
27K46	33	30F15A	30	37K15	33
27K46A	33	30F15AN	30	37K15A	33
27K46B	33	30F15N	30	37K15B	33
27K85	33	30F16	30	37K16	33

Model	Guide No.	Model	Guide No.	Model	Guide No.
37K16A	33	121DX10	34	221K45	33
37K16B	33	121DX10A	34	221K45A	24
37K27	33	121DX11	34	221K46	33
37K27A	33	121DX12	34	221K46A	24
37K27B	33	121DX12A	34	221K47	33
37K28	33	121DX16	34	221K47A	24
37K28A	33	121DX16A	34	221M26	33
37K28B	33	121DX16L	34	221M27	33
37K35	33	121DX17	34	221UDX15L	19
37K35A	33	121DX17A	34	221UDX16L	19
37K35B	33	121DX17L	34	221UDX17L	19
37K36	33	121K15	33	222DX15	34
37K36A	33	121K15A	24	222DX15B	21
37K36B	33	121K16	33	222DX15S	23
37K55	33	121K16A	24	222DX16	23
37K56	33	121K17	33	222DX16B	21
37K57	33	121K17A	24	222DX16N	23
37M15	33	121K35	33	222DX17	23
37M16	33	121K36	33	222DX17B	21
37M25	25	121M10	24	222DX27	23
37M26	25	121M11	33	222DX27B	21
37M27	25	121M11A	24	222DX48	23
39X16	26	121M12	24	222DX49	23
39X16A	26	121M12A	24	222UDX15	21
39X16B	26	121UDX12	19	222UDX16	21
39X17	26	121UDX16L	19	222UDX17	21
39X17A	26	121UDX17L	19	228DX16	20
39X17B	26	122DX12	21	228DX17	20
39X17C	33	122UDX12	21	320R17	33
39X25	33	221DX15	34	320R25	33
39X25A	33	221DX15A	34	320R26	33
39X26	33	221DX15L	34	321DX15	34
39X26A	33	221DX16	34	321DX15A, L.	34
39X35	33	221DX16A	34	321DX16	34
39X36	33	221DX16L	34	321DX16A	34
39X37	33	221DX17	34	321DX16L	34
47M15	25	221DX17A	34	321DX17	34
47M15A	25	221DX17L	34	321DX17A	34
47M16	25	221DX26	34	321DX17L	34
47M17	25	221DX26A	34	321DX25	34
47M35	25	221DX26L	34	321DX25A	34
47M36	25	221DX38	34	321DX25B	34
47M37	25	221DX38A	34	321DX26	34
52M15	25	221K16	33	321DX26A	34
52M16	25	221K16A	33	321DX26B	34
52M17	25	221K26	33	321DX27	34
57M10	25	221K28	33	321DX27A	34
57M11	25	221K35	33	321DX27B	34
57M12	25	221K36	33	321F15	33

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321F18	33	521M17	25	C2827Z	14
321F27	33	521M17A	24	CA2215Z	31
321F35	33	C23A1	8	CA2216Z	31
321F36	33	C23A2	8	CA2217Z	31
321F46	33	C23A3	8	CA2236	31
321F47	33	C23A6	8	CA2236A	31
321F49	33	C23A7	8	CA2237	31
321F65	33	C23A8	8	CA2246	31
321F66	33	C23B1	2	CA2256	17
321F67	33	C23B2	2	CA2306BZ	17
321K15	33	C23B2H	2	CA2306Z	17
321K16	33	C23B3	2	CA2307BZ	17
321K18	33	C23B16	2	CA2307Z	17
321K27	33	C23B17	2	CA2316Z	15
321K35	33	C23B18	2	CA2317Z	15
321K36	33	C23B26	2	CA2326Z	15
321K46	33	C23B27	2	CA2526	31
321K47	33	C25B6	2	CA2826Z	15
321K49	33	C25B7	2	CA2827Z	15
321K65	33	C25B8	2	CS23B1	3
321K66	33	C28B6	4	CS23B2	3
321L67	33	C28B7	4	CS23B3	3
321M25	25	C2215	19	CS2306BZN	17
321M25A	24	C2216	19	CS2306Z	17
321M26	25	C2216Z	22	CS2307BZ,Z	17
321M26A	24	C2216AZ	22	CS23B16	3
321M27	25	C2217	19	CS23B26	3
321M27A	24	C2225Z	32	CS23B27	3
321UDX15L	19	C2226Z	32	CS25B6	3
321UDX16L	19	C2227Z	32	CS25B7	3
322DX16	23	C2236	22	CS2306BZN,Z	17
322UDX16	21	C2236A	22	CS2307BZ,Z	17
322DX16A	21	C2237	19	CS2317	3
421M15	25	C2256	17	CS2336Z,N	13
421M15A	24	C2316A	22	CS2337Z,N	13
421M16	25	C2316Z	14	CS2338Z,N	13
421M16A	24	C2317Z	14	CS2356Z,N	13
421M35	24	C2319Z	14	CS2365Z	12
421M36	24	C2326Z	14	CS2366FZ	12
421M37	24	C2327Z	14	CS2367FZ	12
520M11	24	C2336Z,N	11	CS2566FZ	12
520M12	24	C2337Z,N	11	CS2567FZ	12
520M15	24	C2338Z,N	11	CU2215	19
520M16	24	C2356Z	11	CU2216	19
520M17	24	C2356N	11	CU2217	19
521M15	25	C2566FZ	11	CU2225Z	32
521M15A	24	C2566N	11	CU2226Z	32
521M16	25	C2567FZ,N	11	CU2227Z	32

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CU2236	19	KA2257	17	T2215	19
CU2237	19	KA2366Z	17	T2216	19
F2216Z	32	KA2367Z	17	T2216A	22
F2217Z	32	KU2216	19	T2216Z	32
F2218Z	32	L23B6	5	T2217	19
F2226	22	L23B7	5	T2217A	22
F23B6	2	L2215Z	19	T2217Z	32
F23B7	2	L2216Z	19	T2218	19
F25B6	2	L2217Z	19	T2218Z	32
F25B7	5	L2326Z	14	T2222	34
F2216Z	32	L2327Z	14	T2226	34
F2217Z	32	LA2215Z	31	T2236,Z	32
F2218Z	32	LA2216Z	31	T2237,Z	32
F2226	22	LA2217Z	31	T2239,Z	32
F2326Z	14	LA2326Z	15	T2242BZ	17
F2327Z	14	LA2327Z	15	T2301D	8
F2328Z	14	LS23B6	6	T2301Z,N,SZ	10
FA2226	31	LS23B7	6	T2302Z,N	10
FA2326Z	15	LU2215Z	19	T2311Z	14
FA2327Z	15	LU2216Z	19	T2312Z	14
FA2328Z	15	LU2217Z	19	T2316Z	14
FU 2216Z	32	T18A1,N	18	T2317Z	14
FU2217Z	32	T18A2,N	18	T2318Z	14
FU2218Z	32	T18A3,N	18	T2319Z	14
H2216	19	T23B1	2	T2326Z,N,SZ	10
HA2216Z	31	T23B2	2	T2327Z,N,SZ	10
HU2216	19	T23B6	2	T2336Z,N	10
H2217	19	T23B7	2	T2337Z,N	10
HA2217Z	31	T23B16	1	T2501Z	11
HU2217	19	T23B17	1	T2502Z	11
K23A6	9	T23B18	1	T2506FZ	11
K23A7	9	T23B26	2	T2507FZ	11
K2216	19	T23B27	2	TA1812 B	17
K2216A	22	T25B26	2	TA1831	17
K2217	19	T25B27	2	TA1832	17
K2217A	22	T1801,N	18	TA1842	17
K2226	19	T1802,N	18	TA2211	31
K2227	19	T1806	18	TA2212	31
K2256	17	T1806N	18	TA2212B	17
K2257	17	T1807	18	TA2215,Z	31
K2366Z	17	T1807N	18	TA2216,A	31
K2367Z	17	T1811	19	TA2217,A	31
KA2216	31	T1812	34	TA2218	31
KA2217	31	T1822	34	TA2222	31
KA2226	31	T1831	17	TA2226	31
KA2227	31	T1832	17	TA2242	31
KA2256	17	T1842	17	TA2311Z	15
KA2257	17	T2212	34	TA2312Z	15
KA2366Z	17	T2212B	17	TA2316Z	15

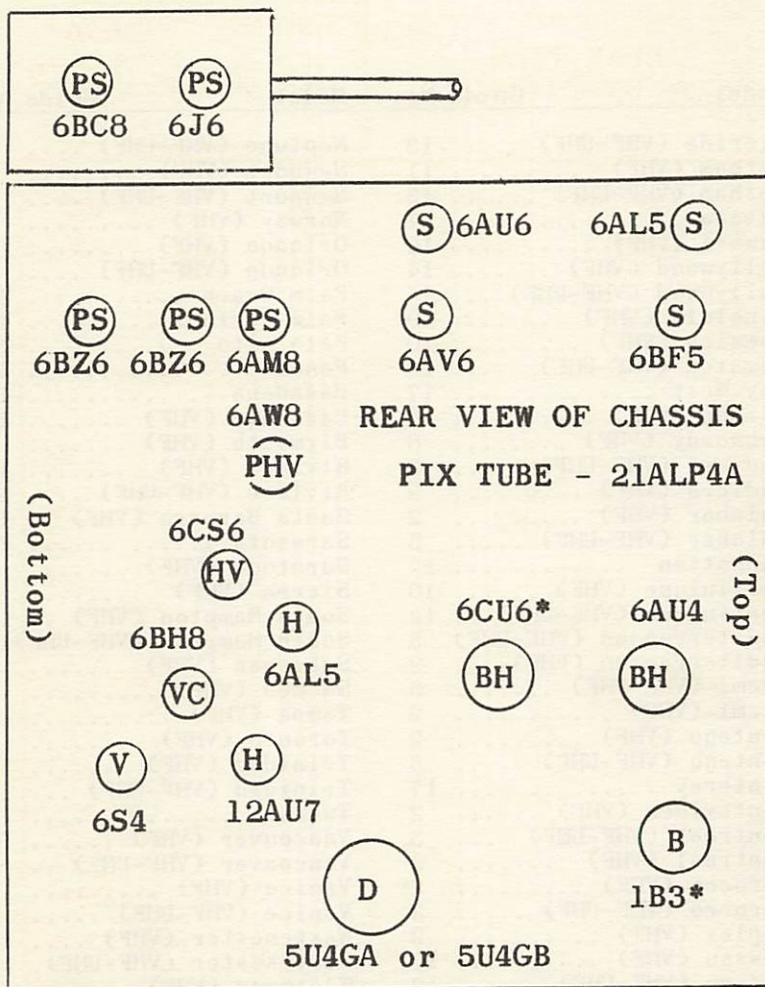
Model	Guide No.	Model	Guide No.	Model	Guide No.
TA2318Z	15	TS1801	18	TU1812	19
TA2319Z	15	TS1802	18	TU1822	19
TS18A1,N	16	TS1806	18	TU2212	19
TS18A2,N	16	TS1807	18	TU2215	19
TS18A3,N	16	TS2301DRW	3	TU2216	19
TS23B1	3	TS2301Z,N	12	TU2217	19
TS23B2	3	TS2302DRW	3	TU2218	19
TS23B6	3	TS2302Z,N	12	TU2222	19
TS23B7	3	TS2303DRW	3	TU2226	19
TS23B16	7	TS2326Z,N	12	TU2232	32
TS23B17	7	TS2327Z,N	12	TU2232Z	32
TS23B18	7	TS2501Z	12	TU2236	32
TS23B26	3	TS2502Z	12	TU2236Z	32
TS23B27	3	TS2506FZ	12	TU2237	32
TS25B26	3	TS2507FZ	12	TU2237Z	32
TS25B27	3	TU1811	19		

Model	Guide No.	Model	Guide No.
Algiers (VHF)	18	Capri	17
Algiers (VHF-UHF)	16	California (VHF)	14
Alhambra (VHF)	18	California (VHF-UHF)	15
Alhambra (VHF-UHF)	16	Caracas (VHF)	1
Ardmore	17	Caracas (VHF-UHF)	7
Arizona	17	Colonial (VHF)	1
Asheville	17	Colonial (VHF-UHF)	7
Atlantis (VHF)	18	Casablanca (VHF)	14
Atlantis (VHF-UHF)	16	Casablanca (VHF-UHF)	15
Bahamas (VHF)	10	Catalina (VHF)	14
Bahamas (VHF-UHF)	12	Catalina (VHF-UHF)	15
Bar Harbor (VHF)	14	Claremont (VHF)	2
Bar Harbor (VHF-UHF)	15	Claremont (VHF-UHF)	3
Bel-Aire (VHF)	14	Coral Gables (VHF)	14
Bel-Aire (VHF-UHF)	15	Coral Gables (VHF-UHF)	15
Belvedere (VHF)	2	Cuba (VHF)	1
Belvedere (VHF-UHF)	3	Cuba (VHF-UHF)	7
Berkeley (VHF)	2	Daytona	17
Berkeley (VHF-UHF)	3	Deauville (VHF)	14
Bermuda (VHF)	14	Deauville (VHF-UHF)	15
Bermuda (VHF-UHF)	15	Delmonico (VHF)	8
Beverly Hills (VHF)	14	Del-Monte (VHF)	14
Beverly Hills (VHF-UHF)	15	Del-Monte (VHF-UHF)	15
Boulevard (VHF)	2	Denmark (VHF-UHF)	3
Boulevard (VHF-UHF)	3	Denmark (VHF)	2
Brentwood (VHF)	8	Delray (VHF)	2
Burlingame (VHF)	2	Delray (VHF-UHF)	3
Burlingame (VHF-UHF)	3	El Dorado (VHF)	14
Cape Cod (VHF)	11	El Dorado (VHF-UHF)	15
Cape Cod (VHF-UHF)	13	Florida (VHF)	11

Model	Guide No.	Model	Guide No.
Florida (VHF-UHF)	13	Neptune (VHF-UHF)	3
Gotham (VHF)	11	Newport (VHF)	2
Gotham (VHF-UHF)	13	Newport (VHF-UHF)	3
Havana	17	Norway (VHF)	2
Hawaii (VHF)	10	Orlando (VHF)	2
Hollywood (VHF)	14	Orlando (VHF-UHF)	3
Hollywood (VHF-UHF)	15	Palm Beach	18
Honolulu (VHF)	10	Palm Springs	18
Jamaica (VHF)	10	Palo Alto	18
Jamaica (VHF-UHF)	12	Panama	17
Key West	17	Pasadena	18
Lisbon (VHF)	8	Park Ave (VHF)	14
Lombardy (VHF)	8	Plymouth (VHF)	2
Madiera (VHF-UHF)	3	Riviera (VHF)	14
Madiera (VHF)	2	Riviera (VHF-UHF)	15
Malabar (VHF)	2	Santa Barbara (VHF)	14
Malabar (VHF-UHF)	3	Sarasota	17
Manhattan	17	Saratoga (VHF)	2
Martinique (VHF)	10	Sierra (VHF)	4
Martinique (VHF-UHF)	12	South Hampton (VHF)	11
Mediterranean (VHF-UHF)	3	South Hampton (VHF-UHF)	13
Mediterranean (VHF)	2	Suburban (VHF)	4
Miami (VHF-UHF)	3	Sweden (VHF)	2
Miami (VHF)	2	Tampa (VHF)	9
Montego (VHF)	2	Toronto (VHF)	9
Montego (VHF-UHF)	3	Trinidad (VHF)	14
Monterey	17	Trinidad (VHF-UHF)	15
Montevideo (VHF)	2	Tucson	17
Montreal (VHF-UHF)	3	Vancouver (VHF)	5
Montreal (VHF)	2	Vancouver (VHF-UHF)	6
Morocco (VHF)	2	Venice (VHF)	5
Morocco (VHF-UHF)	3	Venice (VHF-UHF)	6
Naples (VHF)	2	Westchester (VHF)	14
Nassau (VHF)	10	Westchester (VHF-UHF)	15
Nassau (VHF-UHF)	12	Westwood (VHF)	14
Neptune (VHF)	2	Westwood (VHF-UHF)	15

NOTE: Model number with suffix "N", if not shown in above INDEX, uses same tube location guide as model without this suffix.

All tube charts in this book show tube locations looking at the top of chassis, except where sets employ a vertical chassis, in which case rear view of chassis is shown.

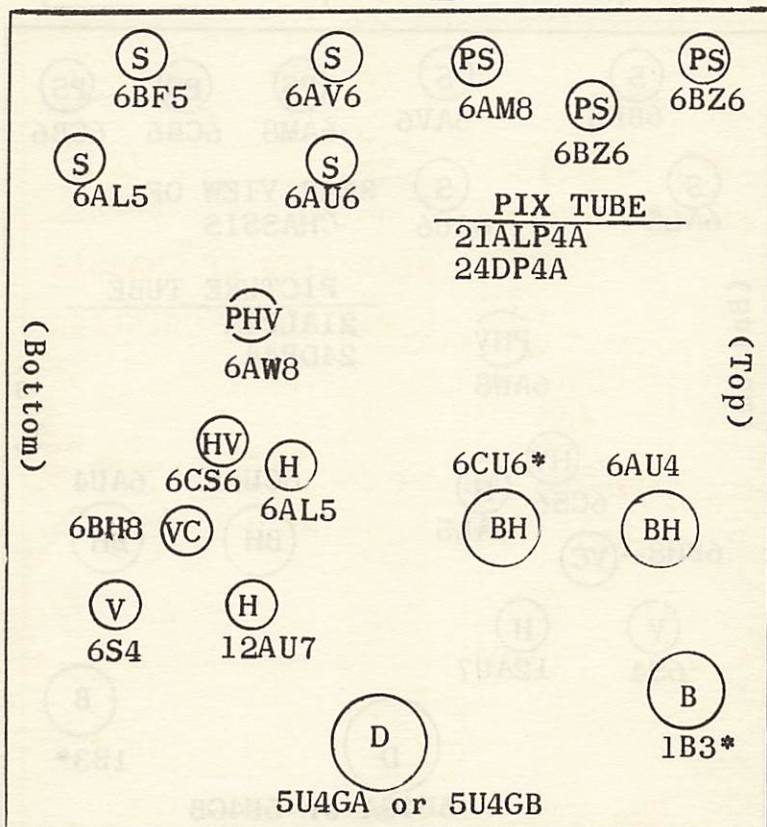
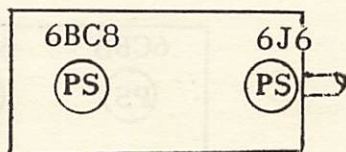


TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 1

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

REAR VIEW
OF CHASSIS

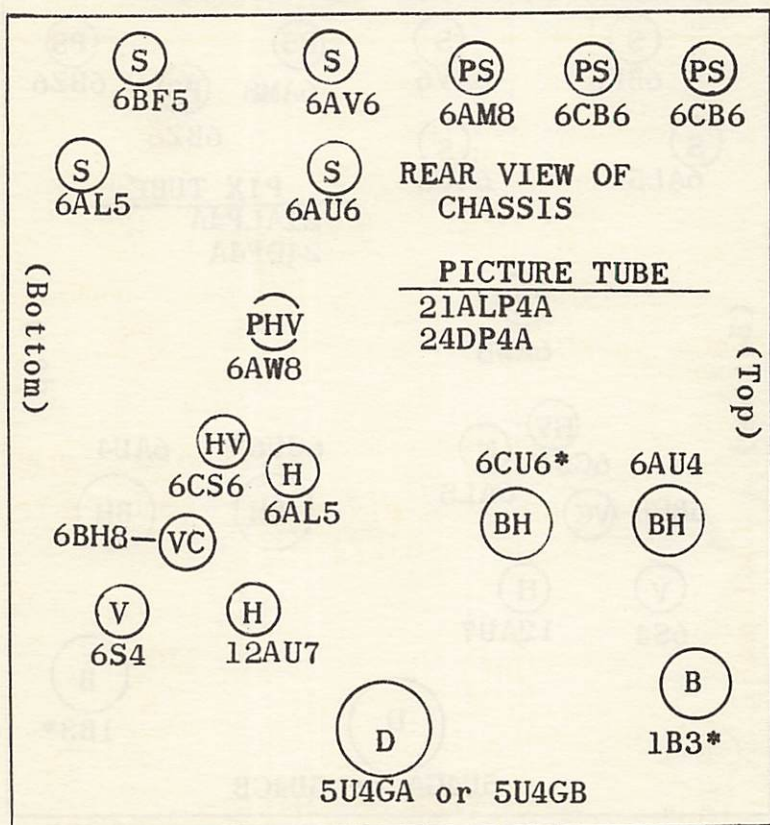
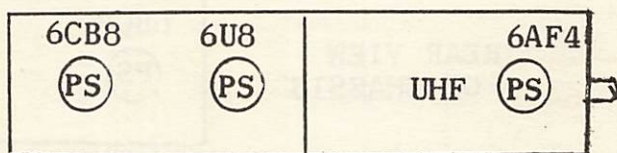


TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 2

MEANING OF DIFFERENT SIZE CIRCLES

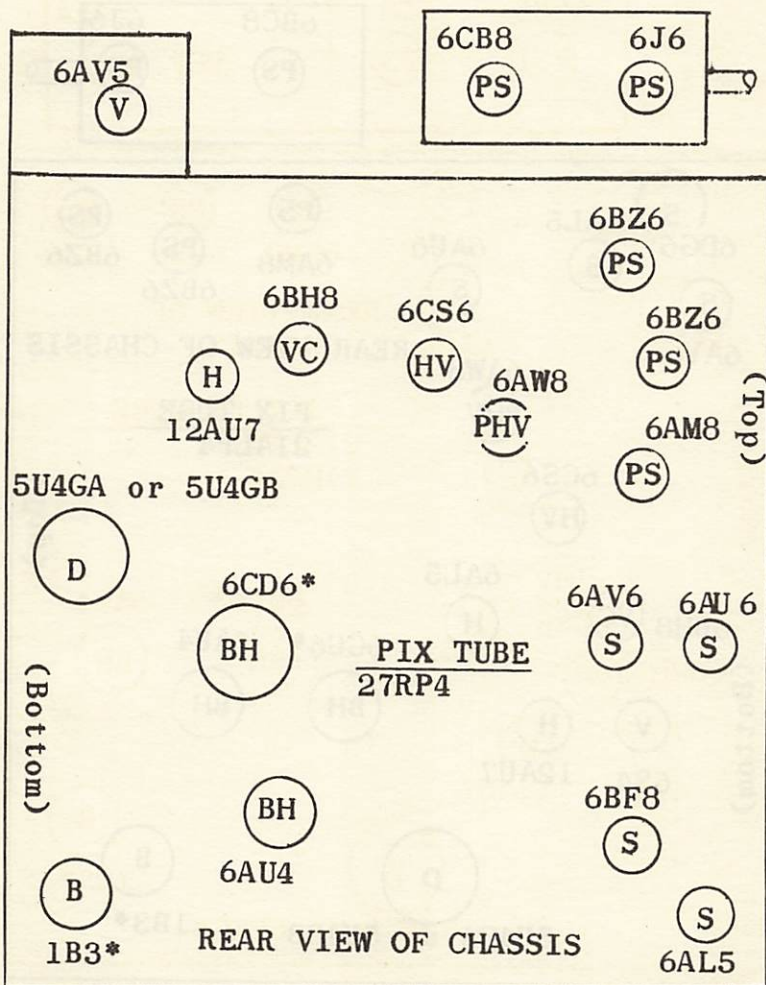
Small circle: "Miniature" type tube
 Medium circle: "GT", "Octal" or "Metal"
 Large circle: "G" type tube
 Letters "G" and "GT" have been omitted from tube type designations. Special sizes such as "GA", etc. are specified.



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 3

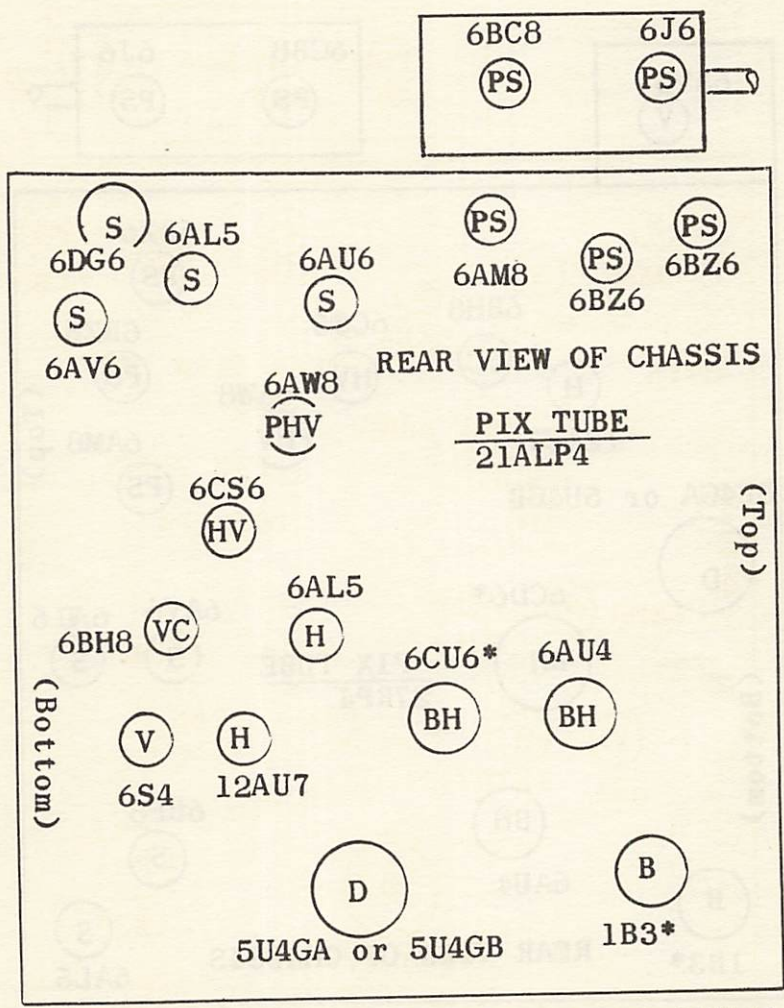
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 4

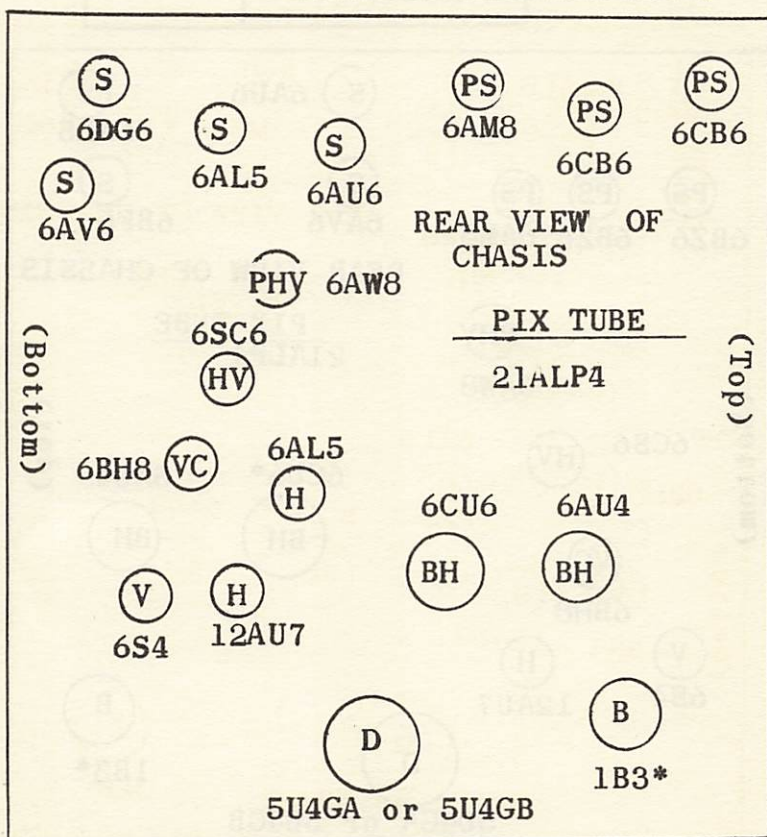
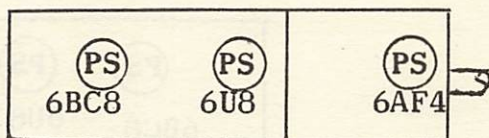
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 5

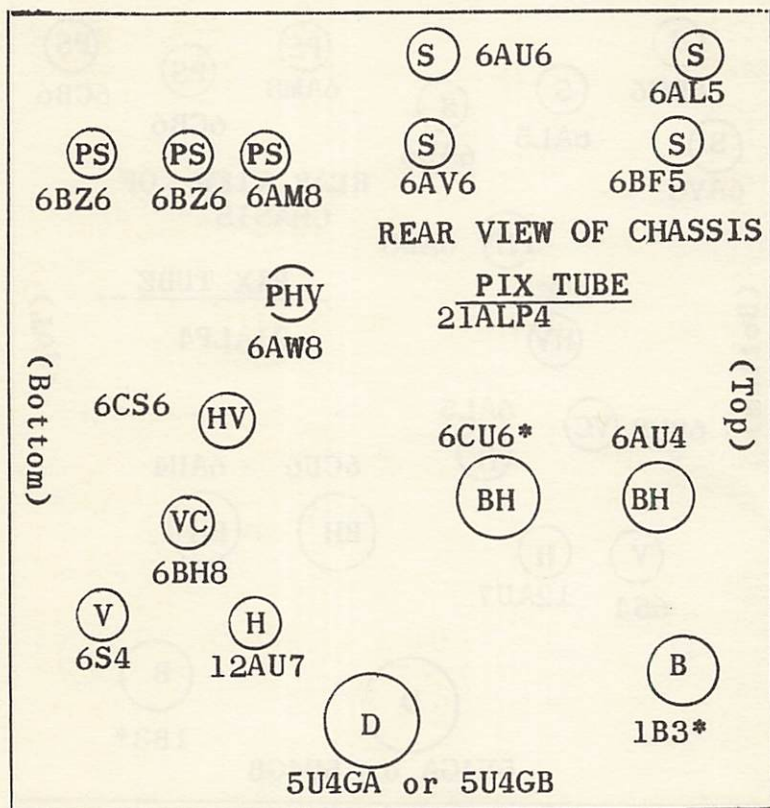
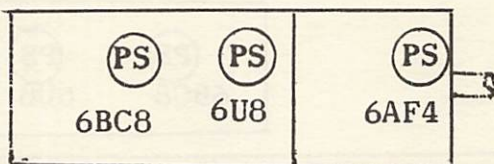
- | | | |
|--------------------------|----|-------------------------------|
| Picture ----- | P | Horizontal movement and |
| Sound ----- | S | bright area ----- BH |
| Picture and sound ----- | PS | Picture, sound, br area D |
| Bright area ----- | B | Background ----- G |
| Horizontal movement ---- | H | Focus ----- F |
| Vertical movement ----- | V | Contrast ----- C |
| Horizontal and vertical | | An asterisk (*) indicates |
| movement ----- | HV | the presence of high voltage. |



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 6

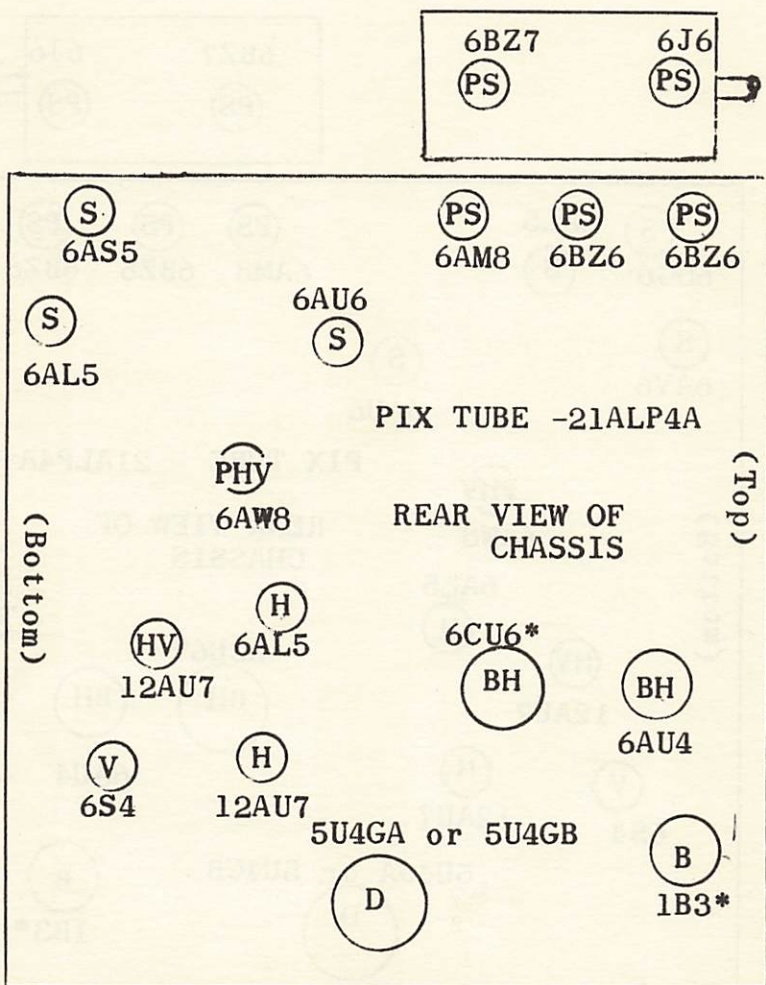
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 7

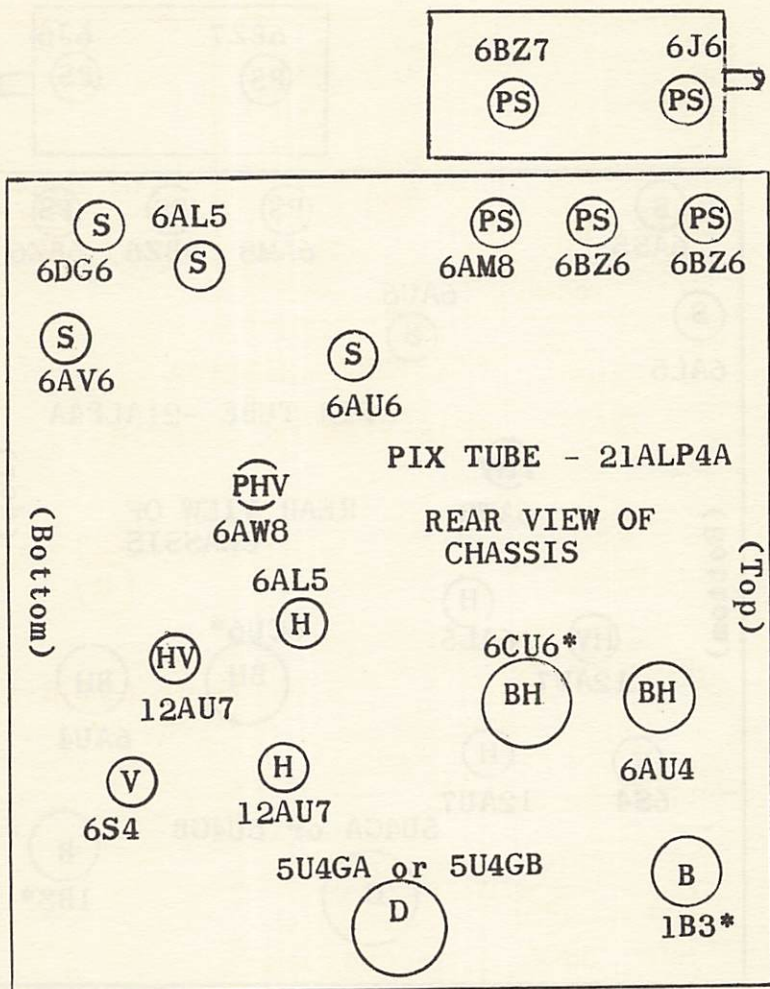
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 8

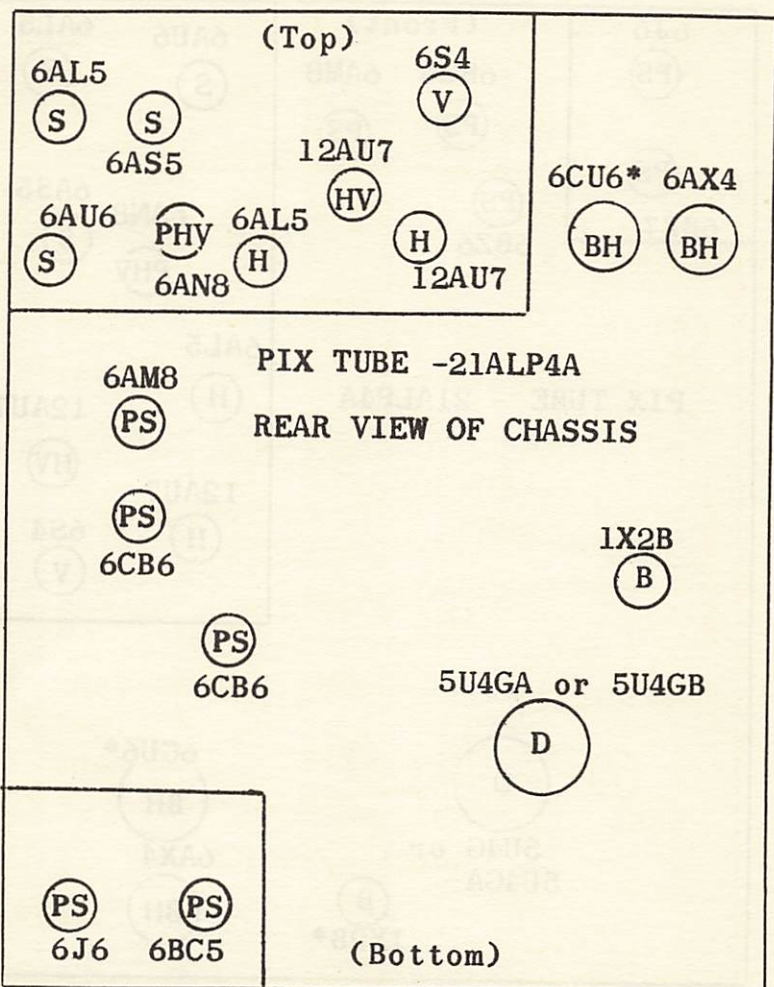
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 9

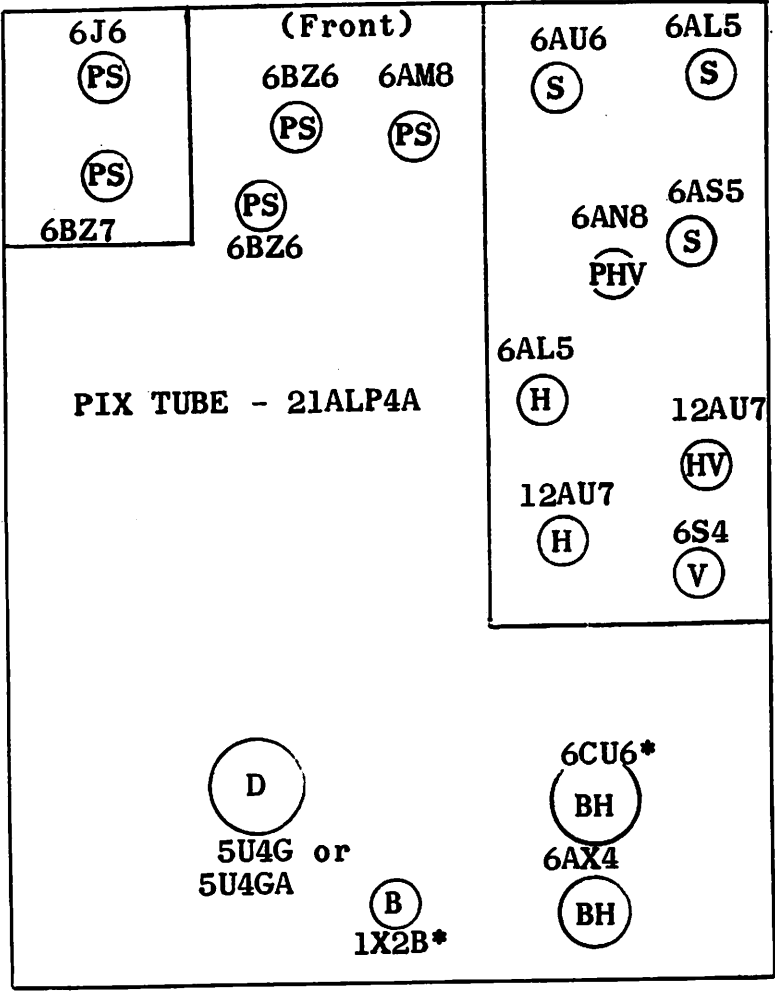
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 10

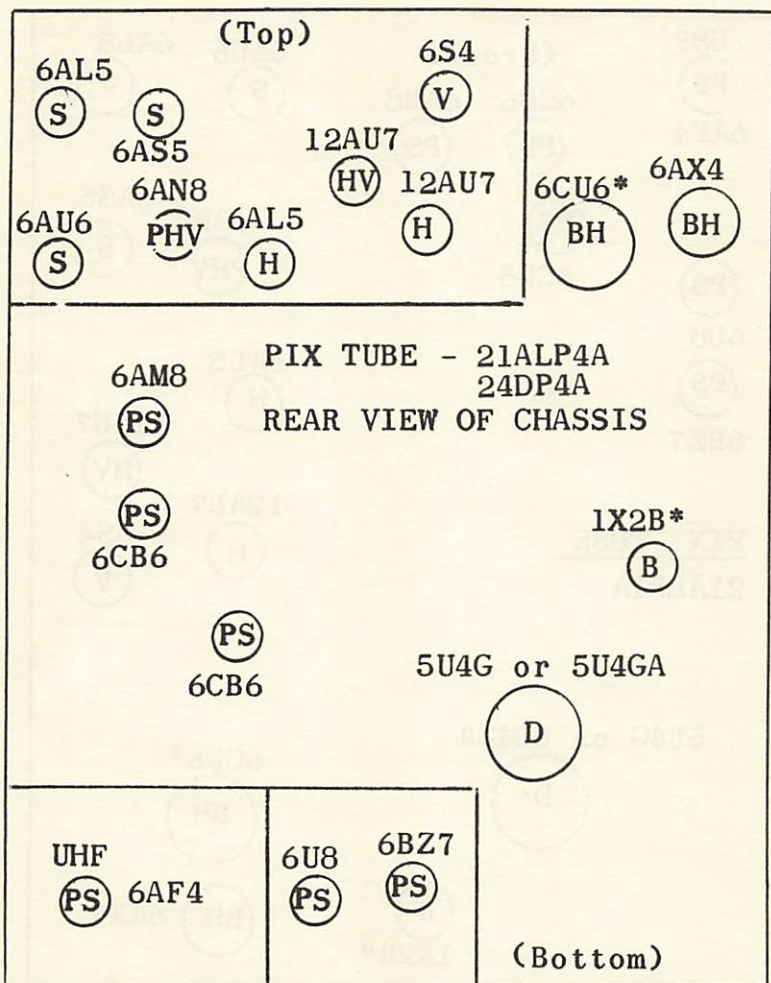
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical movement -----	HV	An asterisk (*) indicates the presence of high voltage.	



TRUBLE INDICATING TUBE LOCATION GUIDE

NO. 11

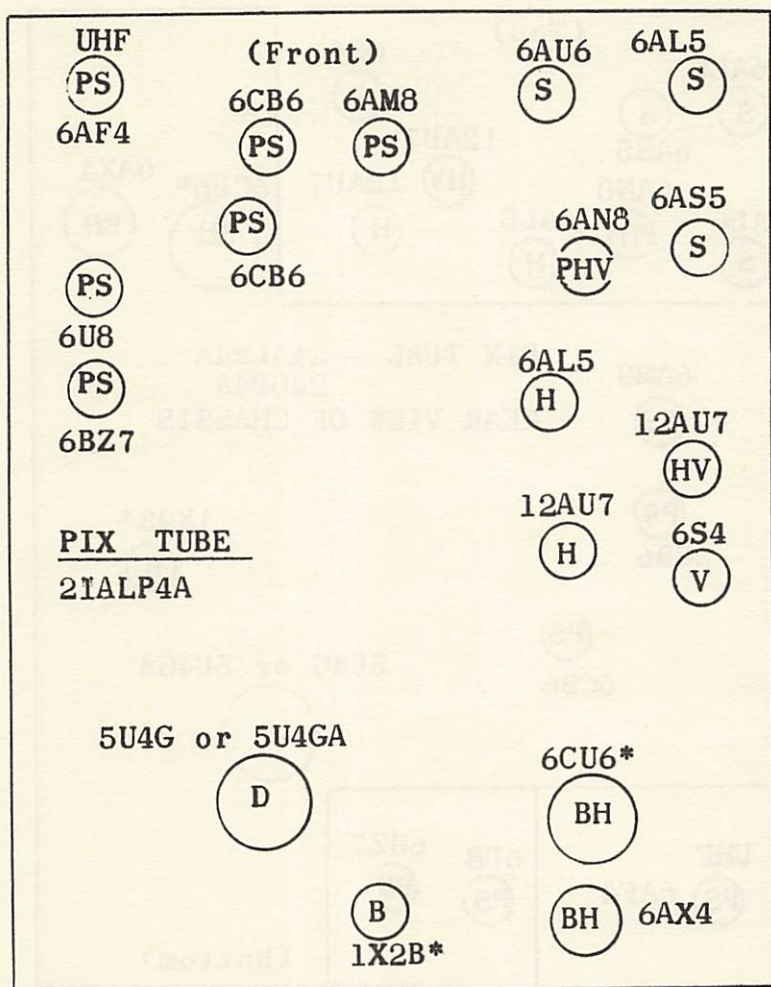
- | | | | |
|--------------------------|----|-------------------------------|----|
| Picture ----- | P | Horizontal movement and | |
| Sound ----- | S | bright area ----- | BH |
| Picture and sound ----- | PS | Picture, sound, br area | D |
| Bright area ----- | B | Background ----- | G |
| Horizontal movement ---- | H | Focus ----- | F |
| Vertical movement ----- | V | Contrast ----- | C |
| Horizontal and vertical | | An asterisk (*) indicates | |
| movement ----- | HV | the presence of high voltage. | |



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 12

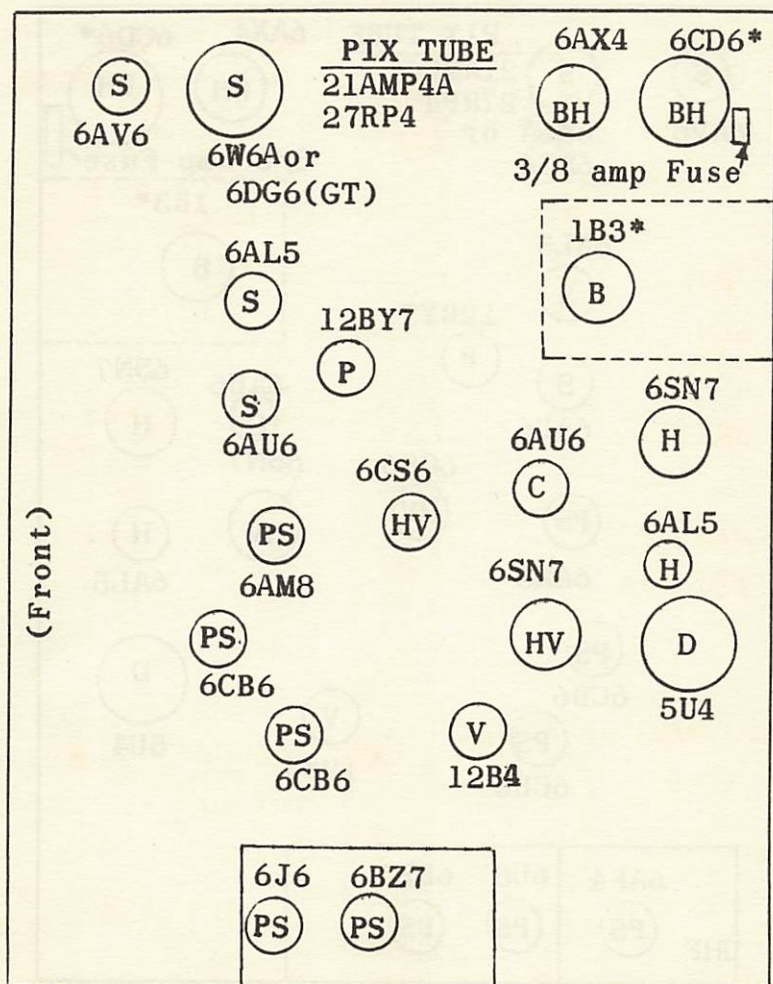
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presehce of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 13

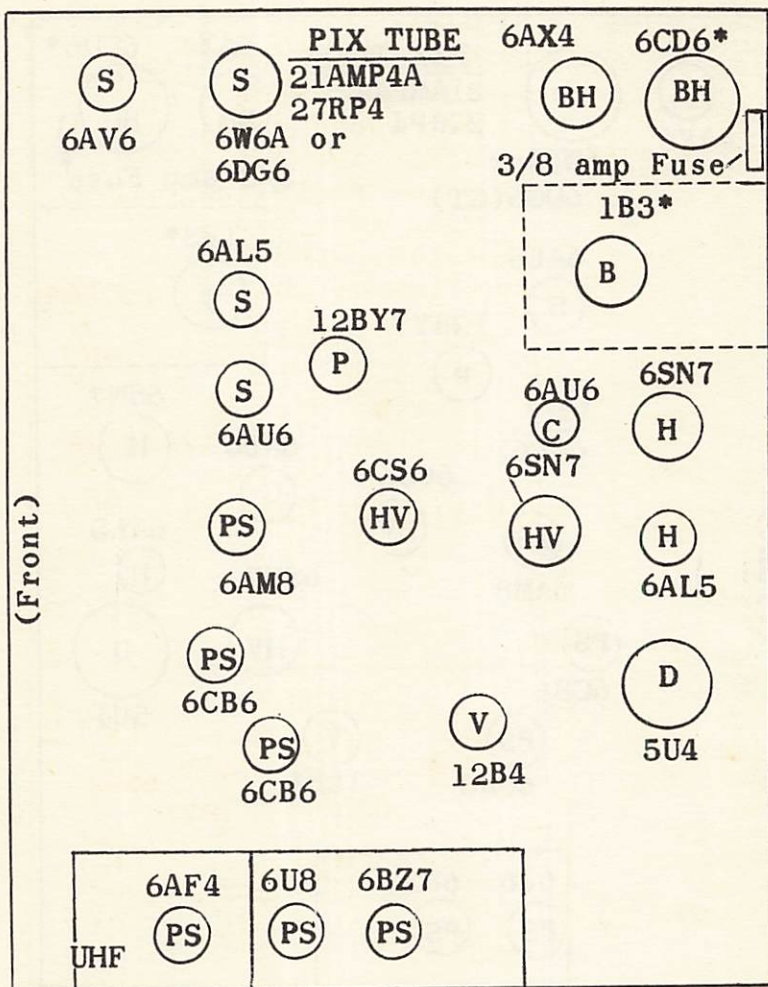
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 14

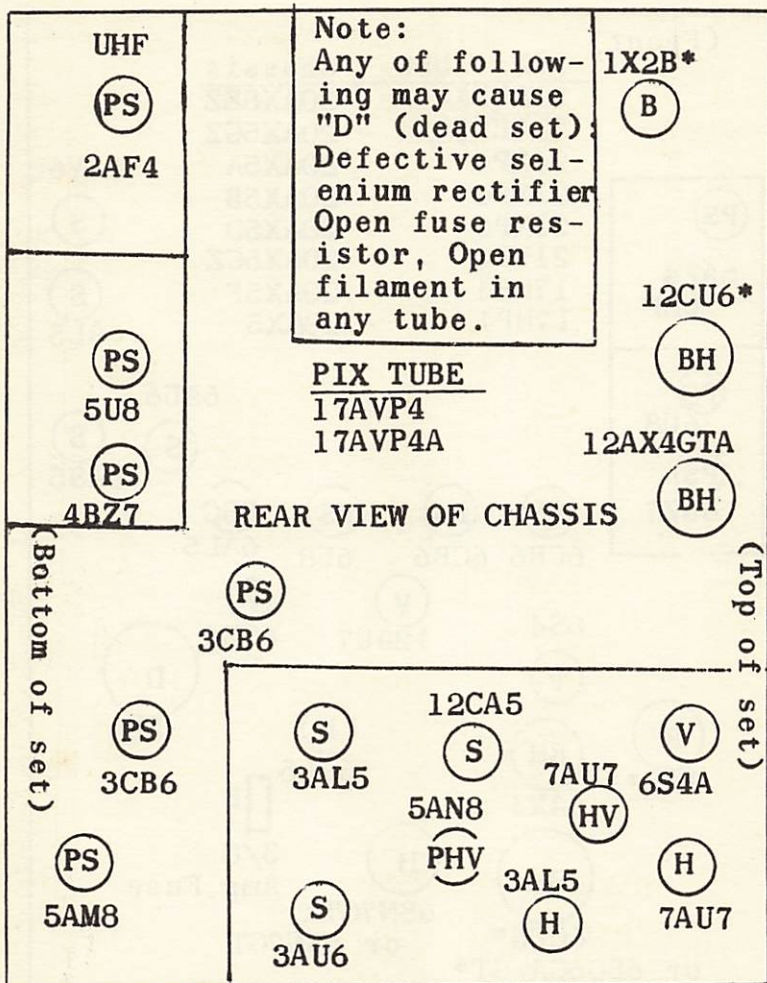
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 15

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 16

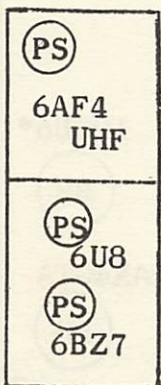
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

(Front)

PIX TUBE - Chassis

21AUP4A	-	20AX5EZ
21AUP4A/4	-	20AX5GZ
21XP4	-	20AX5A
21XP4	-	20AX5B
21XP4	-	20AX5D
21YP4	-	20AX5CZ
17HP4	-	20AX5F
17HP4	-	20AX5

6AV6



(S)

(S)

6AL5

6AU6

(S)

(S)

6AS5

(PS)

6CB6

(PS)

6CB6

(PS)

6U8

(PSC)

6AL5

6S4

(V)

12AU7

(P)

6CB6

(V)

(D)
5U4

(B)
1B3*

(BH)
6AX4

(H)
6AL5

(B)
3/8
Amp. Fuse

(BH)
6CU6*

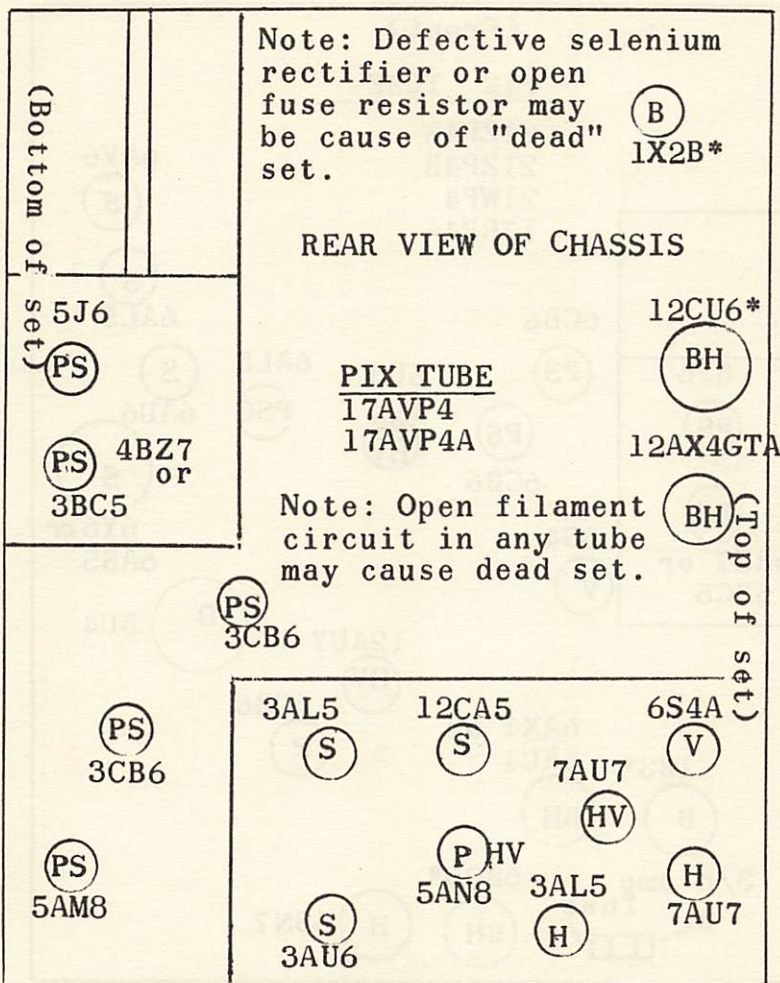
(H)
6SN7GTA
or 6SN7GT

or 6BQ6GA/GT*

TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 17

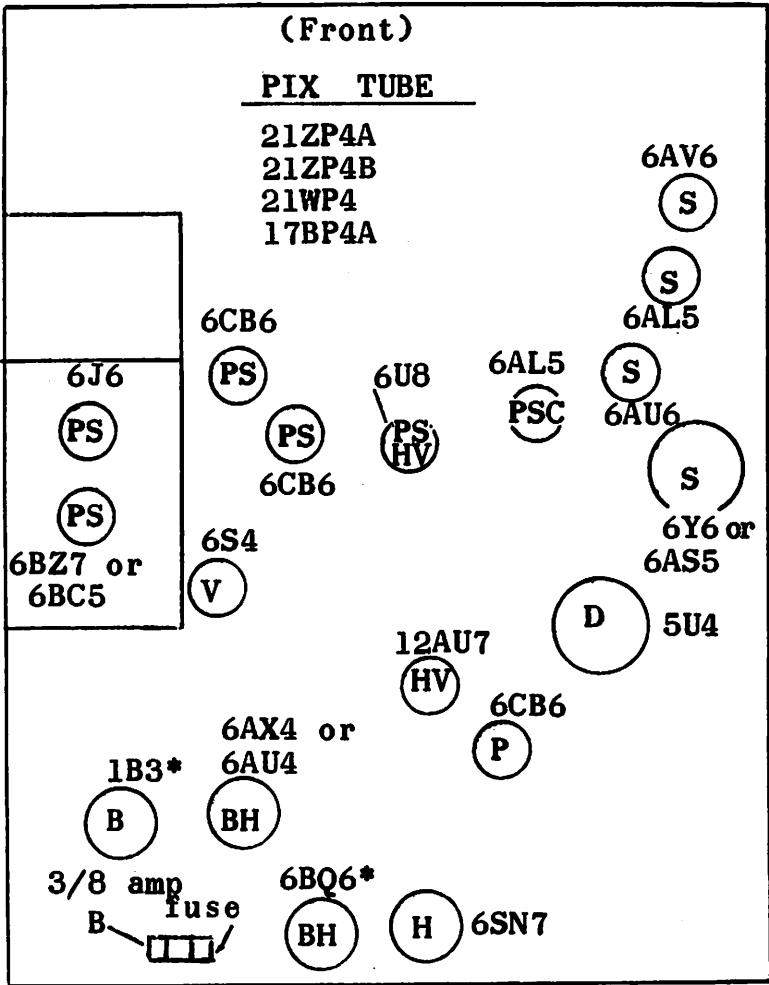
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement -----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 18

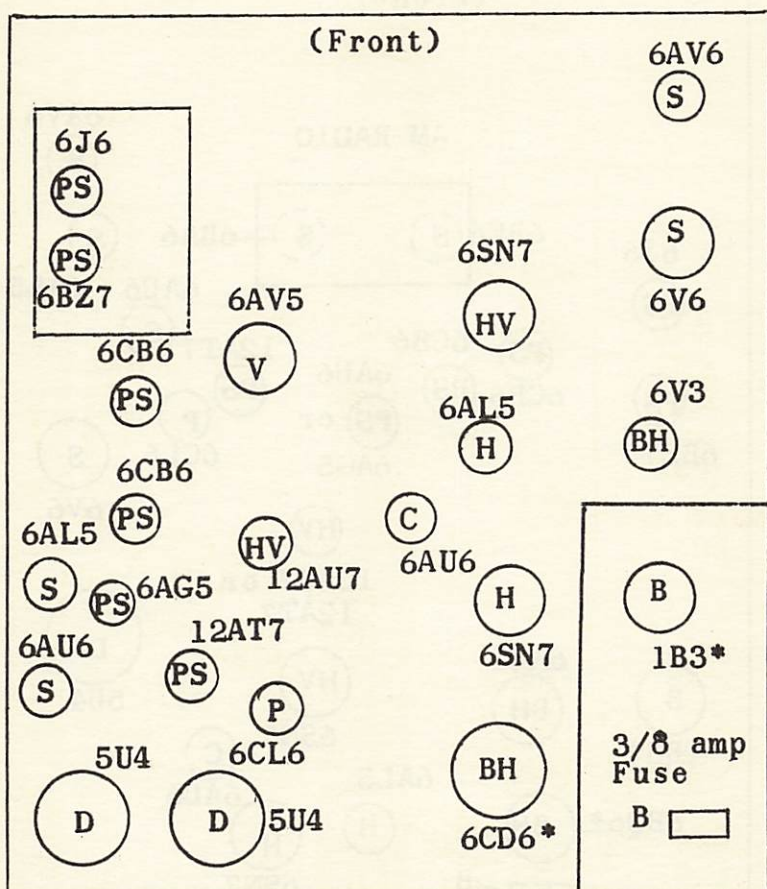
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical movement -----	HV	An asterisk (*) indicates the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 19

- | | | | |
|--------------------------|----|-------------------------------|----|
| Picture ----- | P | Horizontal movement and | |
| Sound ----- | S | bright area ----- | BH |
| Picture and sound ----- | PS | Picture, sound, br area | D |
| Bright area ----- | B | Background ----- | G |
| Horizontal movement ---- | H | Focus ----- | F |
| Vertical movement ----- | V | Contrast ----- | C |
| Horizontal and vertical | | An asterisk (*) indicates | |
| movement ----- | HV | the presence of high voltage. | |

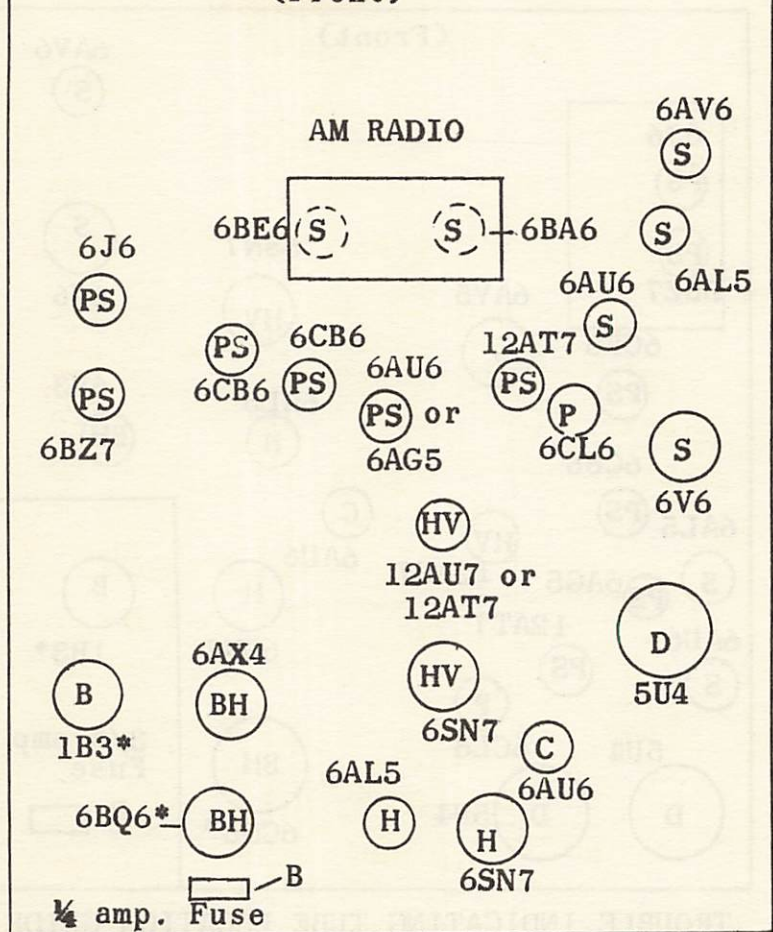


TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 20

Picture -----	P	Horizontal movement and
Sound -----	S	bright area -----
Picture and sound -----	PS	Picture, sound, br area
Bright area -----	B	Background -----
Horizontal movement ----	H	Focus -----
Vertical movement -----	V	Contrast -----
Horizontal and vertical		
movement -----	HV	
		An asterisk (*) indicates
		the presence of high voltage.

(Front)



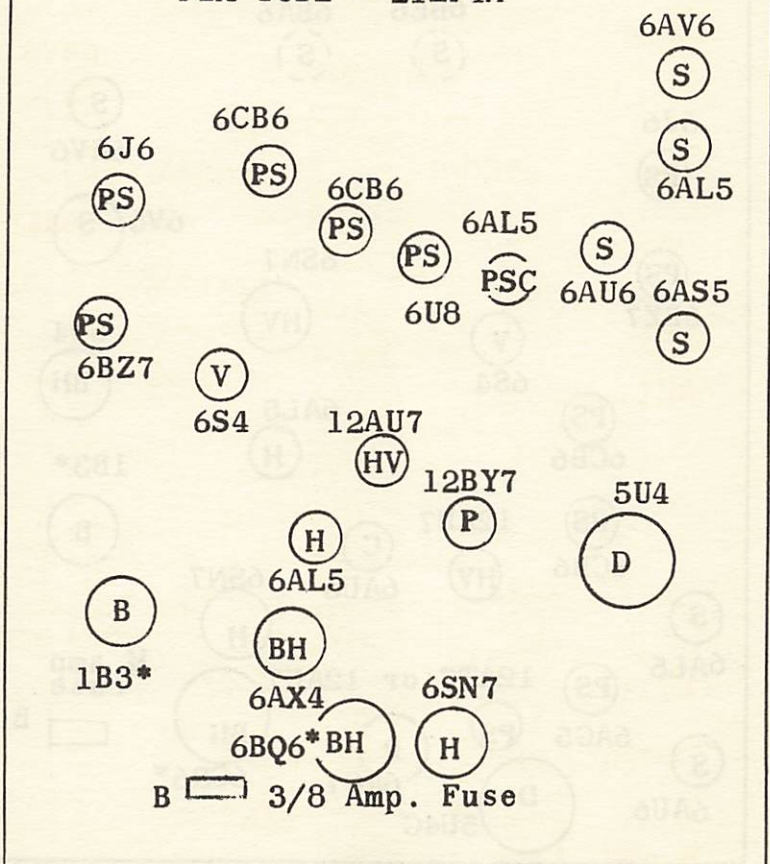
TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 21

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

(Front)

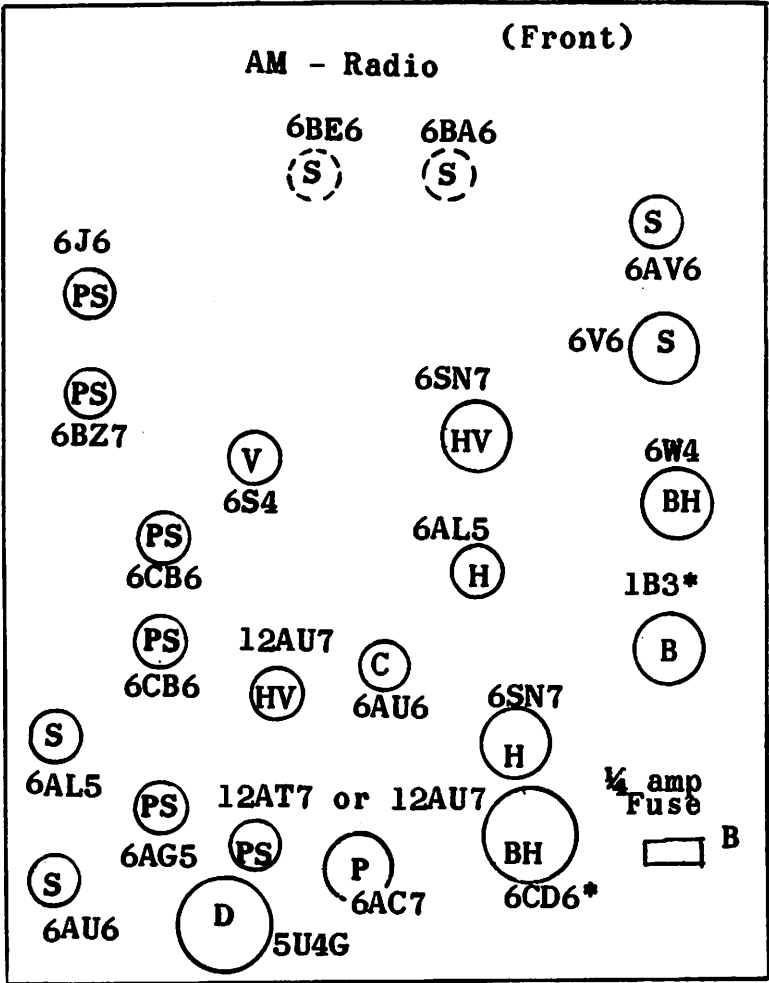
PIX TUBE - 21ZP4A



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 22

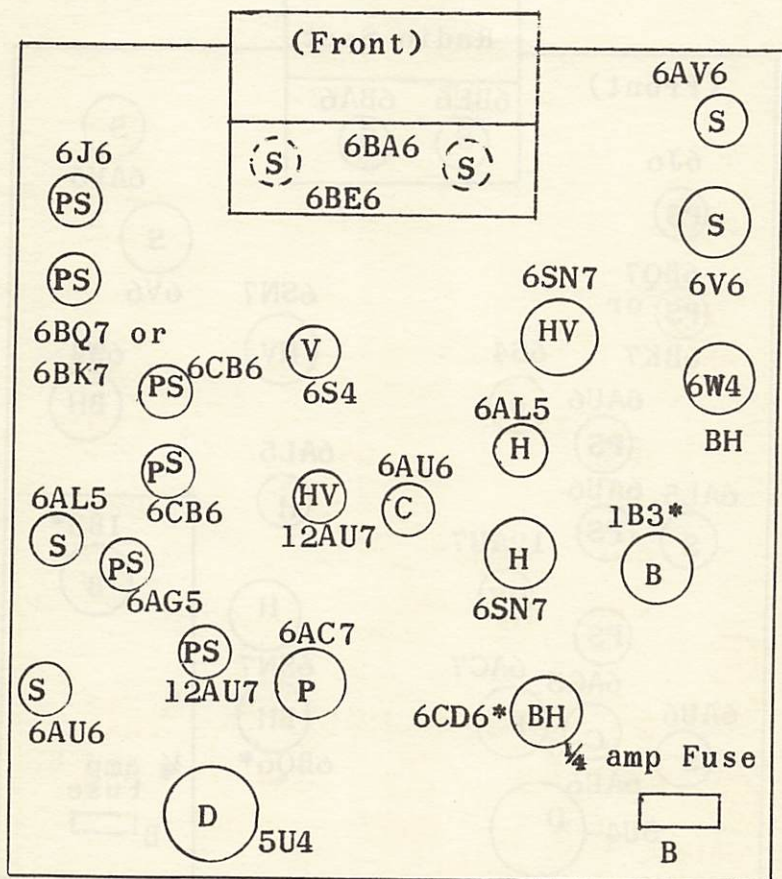
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 23

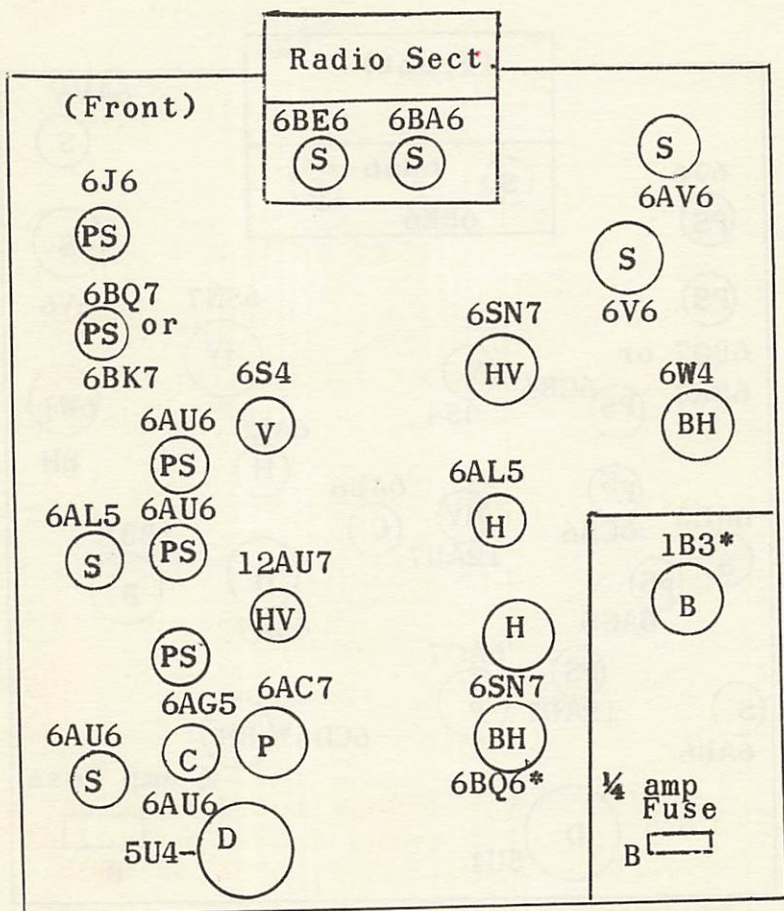
- | | | | |
|--------------------------|----|-------------------------------|----|
| Picture ----- | P | Horizontal movement and | |
| Sound ----- | S | bright area ----- | BH |
| Picture and sound ----- | PS | Picture, sound, br area | D |
| Bright area ----- | B | Background ----- | G |
| Horizontal movement ---- | H | Focus ----- | F |
| Vertical movement ----- | V | Contrast ----- | C |
| Horizontal and vertical | | An asterisk (*) indicates | |
| movement ----- | HV | the presence of high voltage. | |



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 24

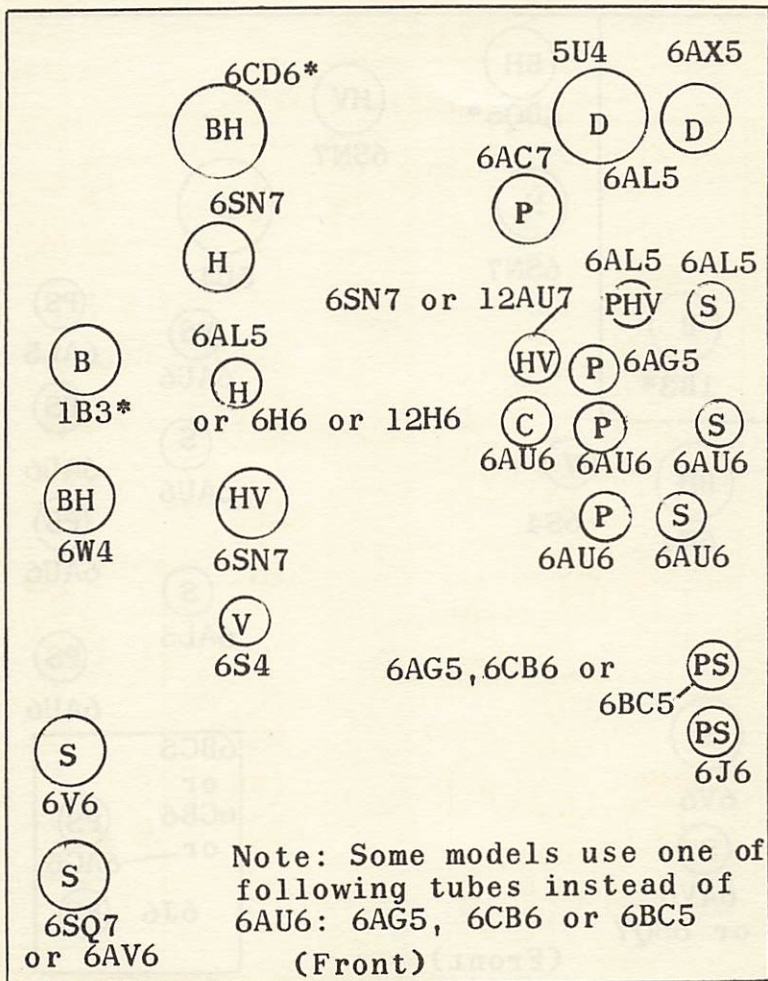
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 25

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

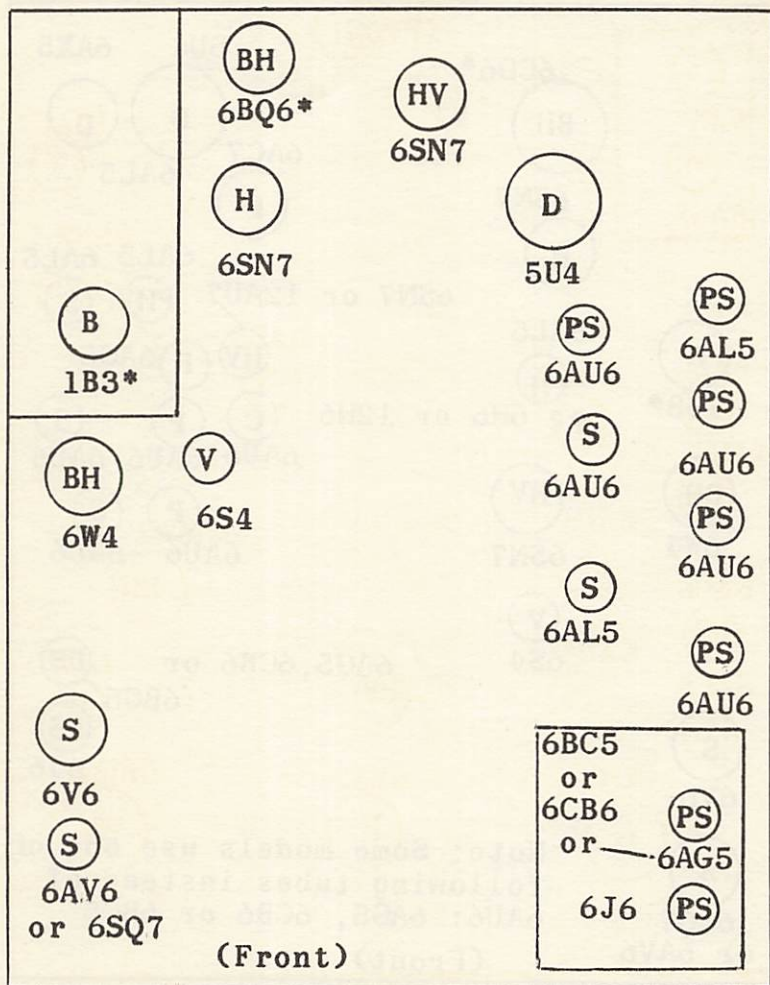


Note: Some models use one of following tubes instead of 6AU6: 6AG5, 6CB6 or 6BC5

TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 26

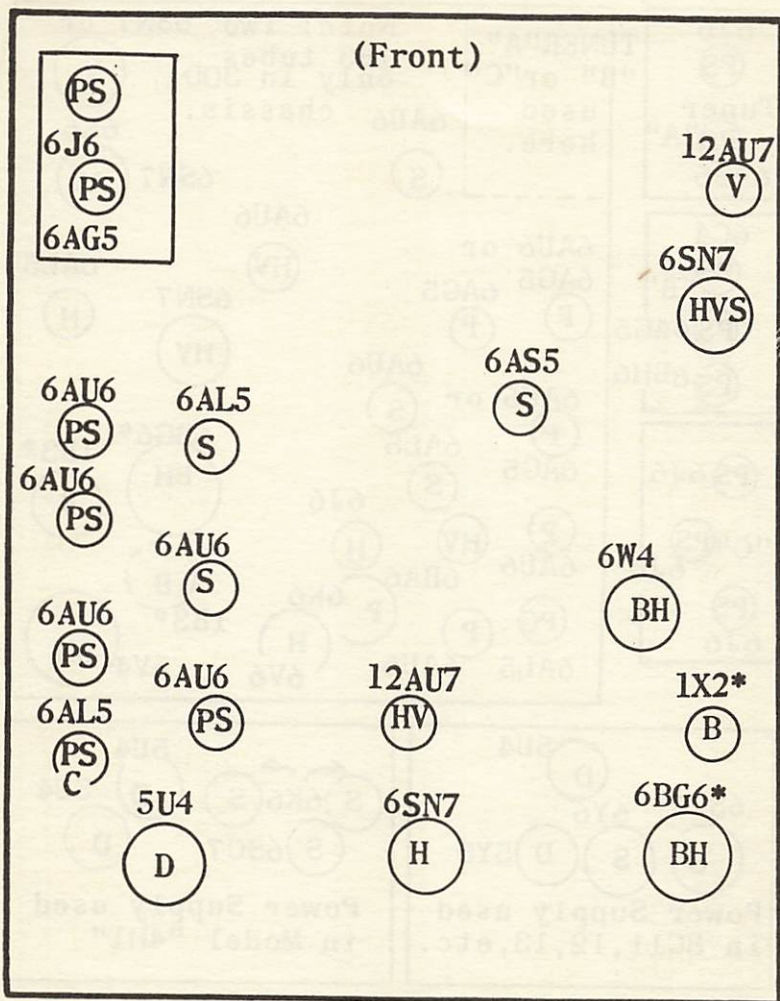
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 27

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

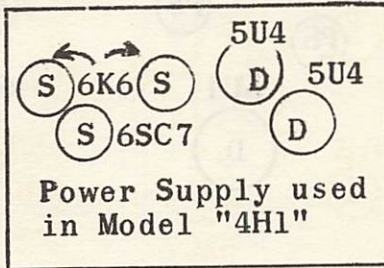
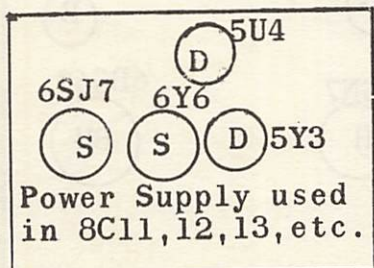
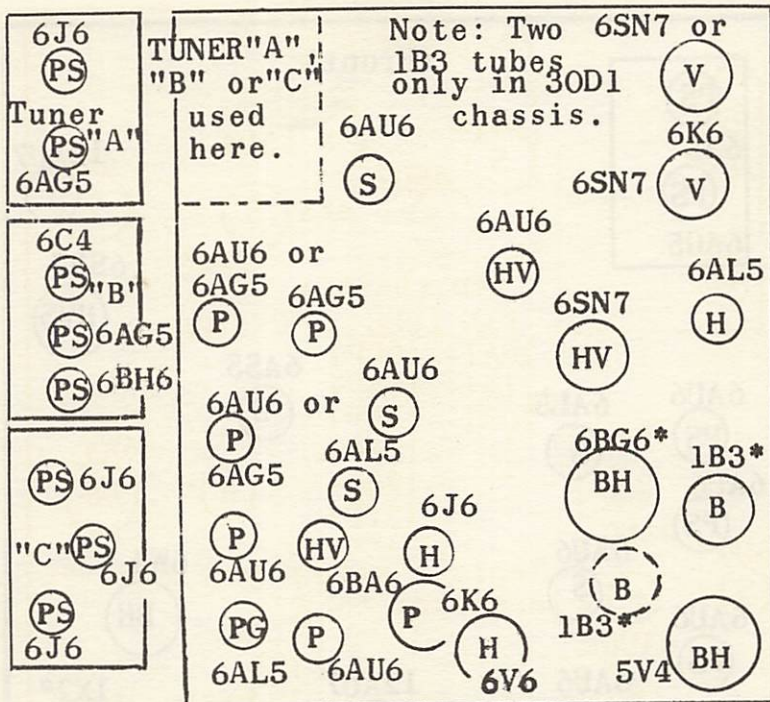


TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 28

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ---	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

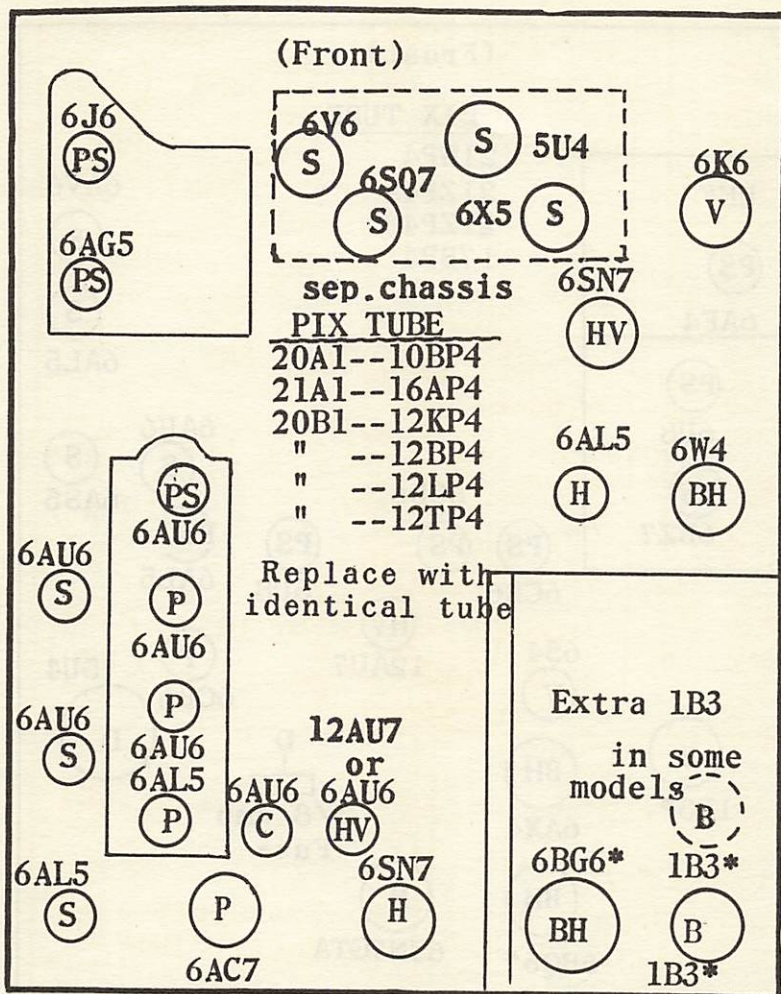
(Front)



TRouble INDICATING TUBE LOCATION GUIDE

NO. 29

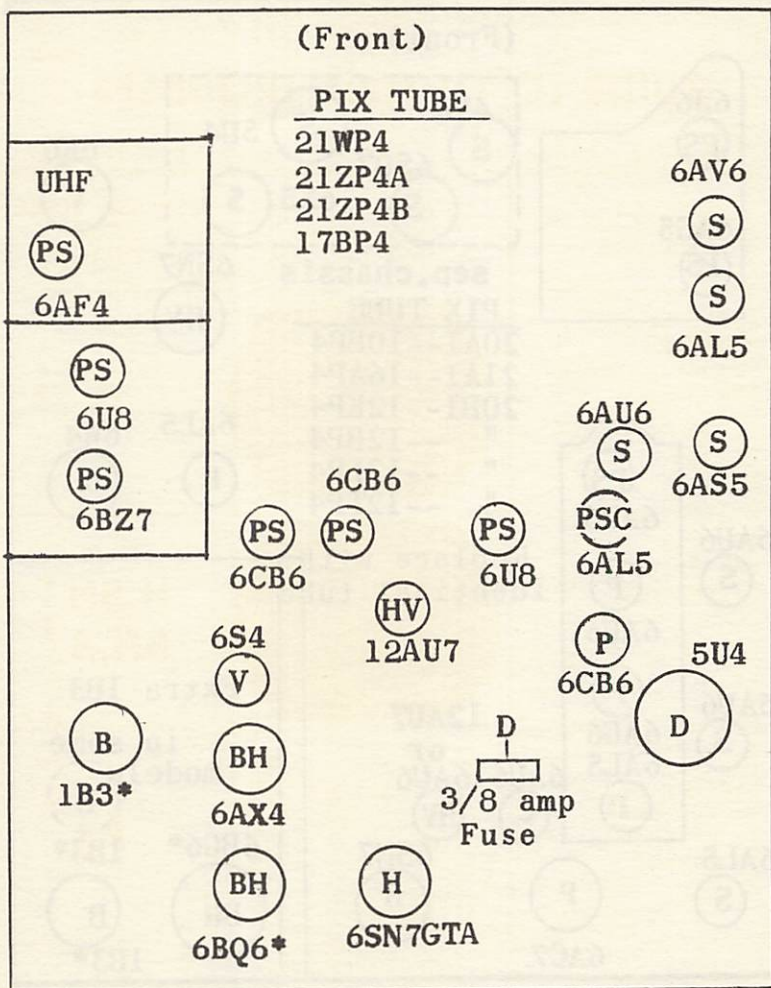
Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 30

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical movement -----	HV	An asterisk (*) indicates the presence of high voltage.	



TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 31



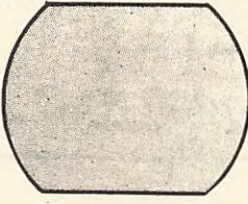
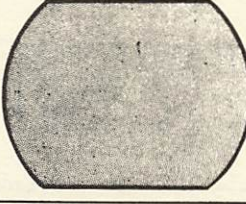
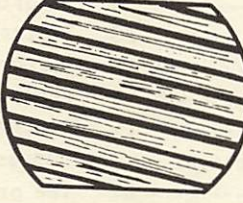
Picture -----	P	Horizontal movement and
Sound -----	S	bright area -----
Picture and sound -----	PS	Picture, sound, br area
Bright area -----	B	Background -----
Horizontal movement ----	H	Focus -----
Vertical movement -----	V	Contrast -----
Horizontal and vertical		
movement -----	HV	

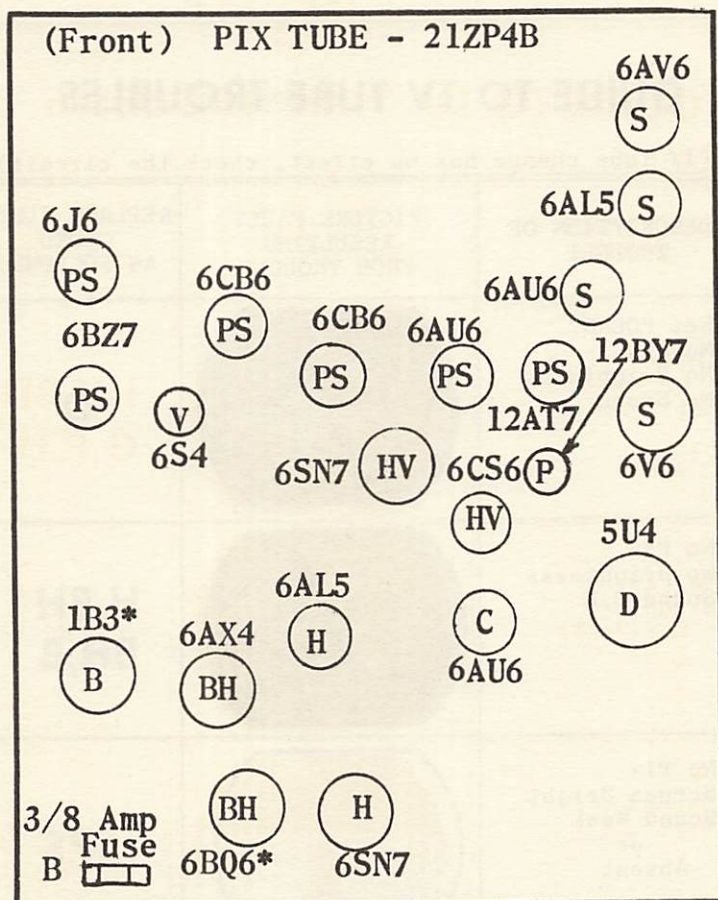
BH
 D
 G
 F
 C

An asterisk (*) indicates
 the presence of high voltage.

GUIDE TO TV TUBE TROUBLES

(If tube change has no effect, check the circuit)

DESCRIPTION OF TROUBLE	PICTURE FAULT RESULTING FROM TROUBLE	REPLACE TUBES CODED AS FOLLOWS:
Set "DEAD" No Pix No Brightness No Sound		D
No Pix No Brightness Sound O.K.		H,BH * BH,B *
No Pix Screen Bright Sound Weak or Absent		PS
No Pix or Intermittent Pix Screen Bright Sound O.K.		P,C
Diagonal Lines		H,HV



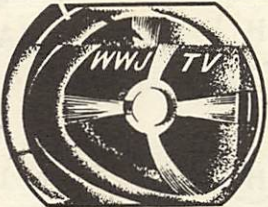
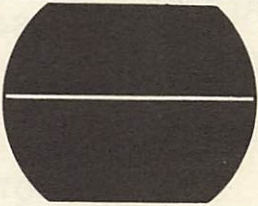
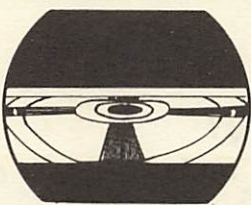
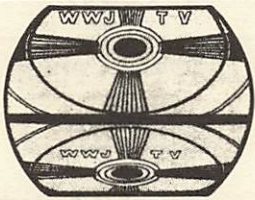
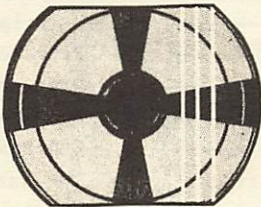
TROUBLE INDICATING TUBE LOCATION GUIDE

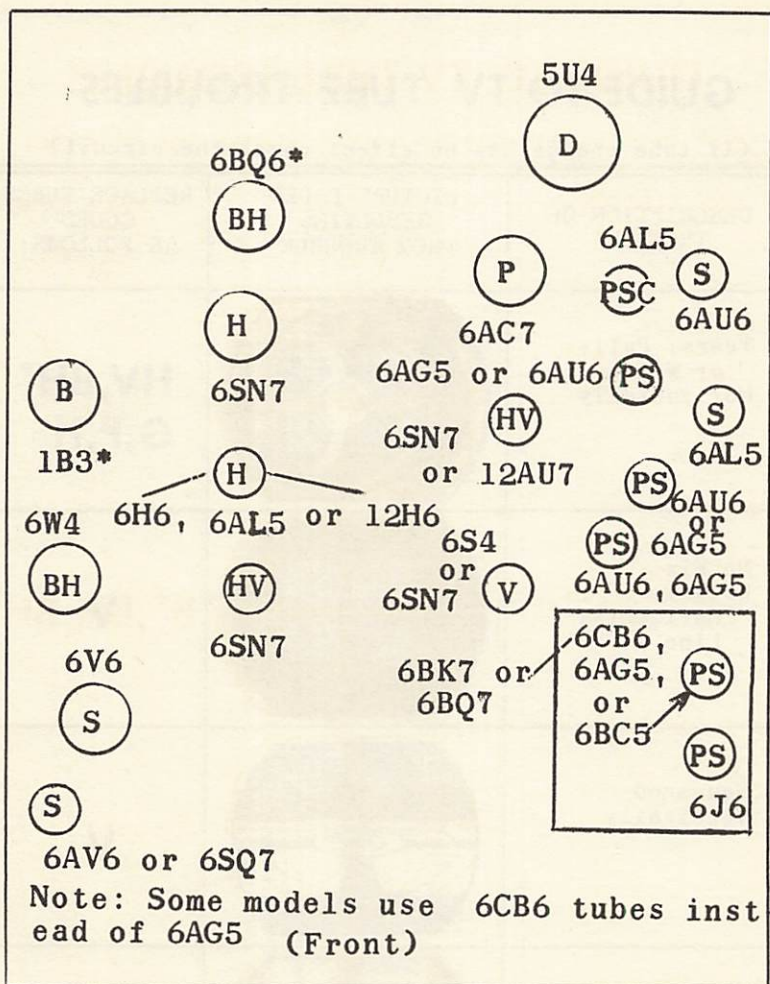
NO. 32

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

GUIDE TO TV TUBE TROUBLES

(If tube change has no effect check the circuit)

DESCRIPTION OF TROUBLE	PICTURE FAULT RESULTING FROM TROUBLE	REPLACE TUBES CODED AS FOLLOWS:
Tears, Pulls or Weaves Horizontally		HV, BH* G, P, H
No Pix Bright Horizontal Line		V
Squeezed Vertically		V
Pix Rolls up or Down		V
Vertical Lines at Right		BH*



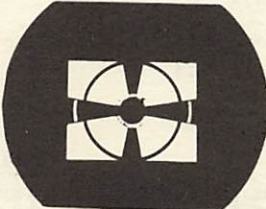
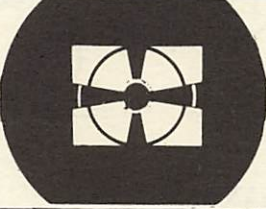
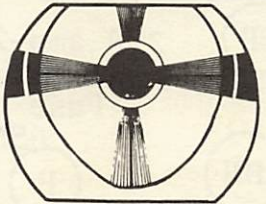
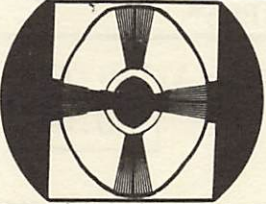

TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 33

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

GUIDE TO TV TUBE TROUBLES

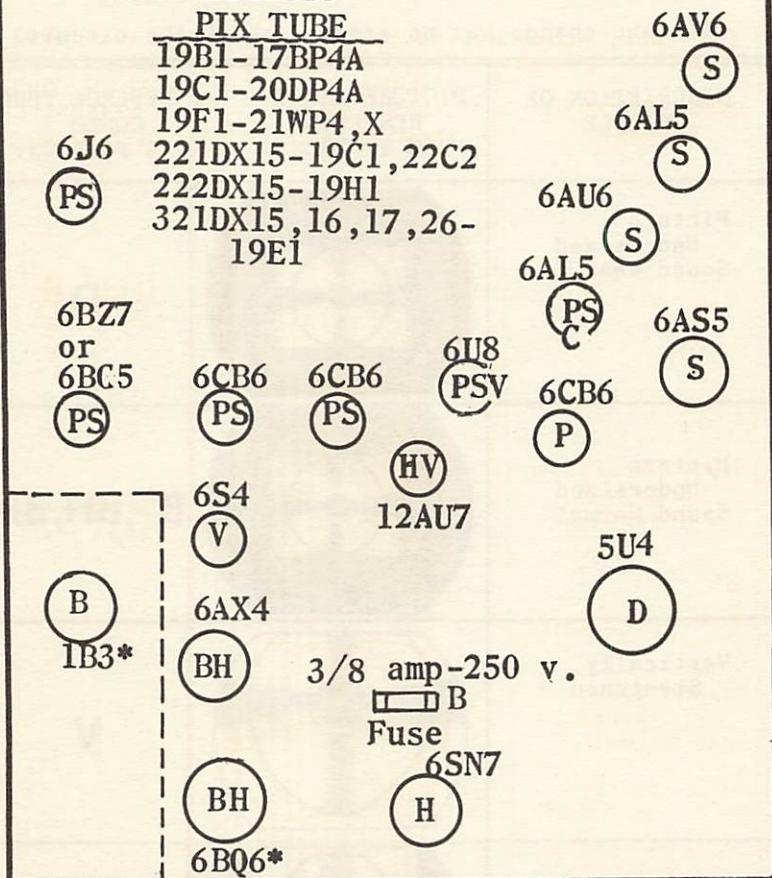
(If tube change has no effect, check the circuit)

DESCRIPTION OF TROUBLE	PICTURE FAULT RESULTING FROM TROUBLE	REPLACE TUBES CODED AS FOLLOWS:
Picture Undersized Sound Weak		D
Picture Undersized Sound Normal		B* ,BH,BH*
Vertically Stretched		V
Insufficient Width		BH* BH H
Fold-over at Sides		BH* BH H

(Front)

PIX TUBE

PIX TUBE



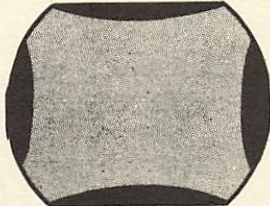

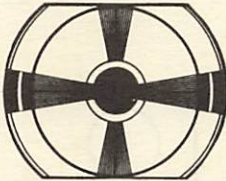
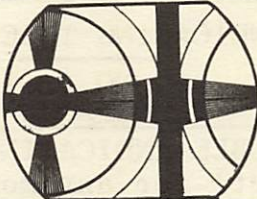
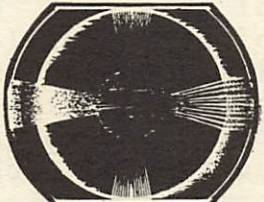
TROUBLE INDICATING TUBE LOCATION GUIDE

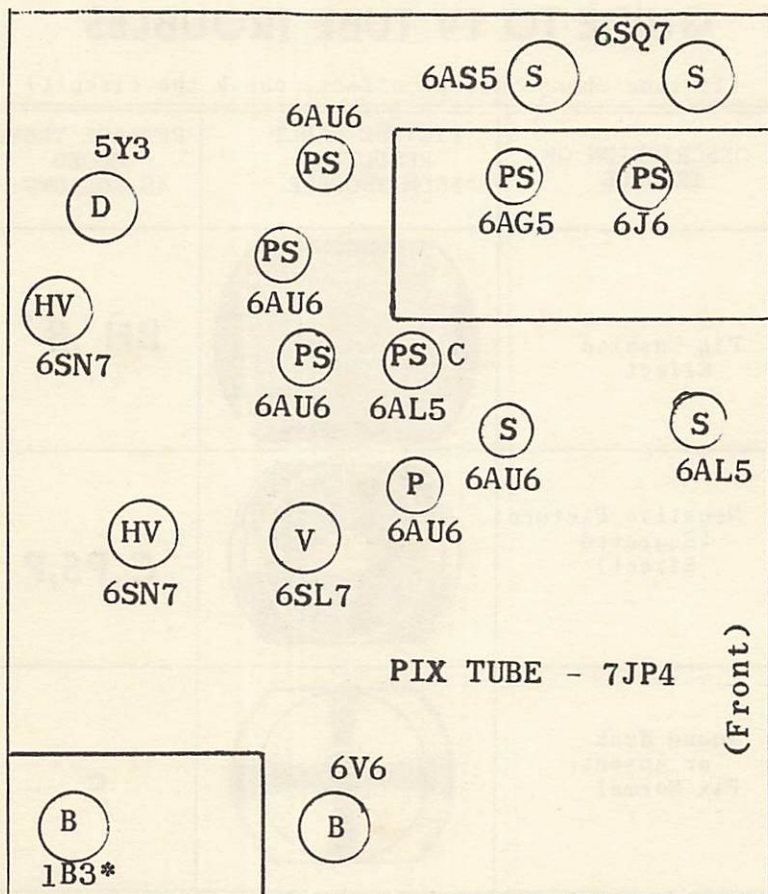
NO. 34

Picture -----	P	Horizontal movement and	
Sound -----	S	bright area -----	BH
Picture and sound -----	PS	Picture, sound, br area	D
Bright area -----	B	Background -----	G
Horizontal movement ----	H	Focus -----	F
Vertical movement -----	V	Contrast -----	C
Horizontal and vertical		An asterisk (*) indicates	
movement -----	HV	the presence of high voltage.	

GUIDE TO TV TUBE TROUBLES

(If tube change has no effect, check the circuit)

DESCRIPTION OF TROUBLE	PICTURE FAULT RESULTING FROM TROUBLE	REPLACE TUBES CODED AS FOLLOWS:
Pin-Cushion Effect		BH [*] , B [*]
Negative Picture (Engraved Effect)		C, PS, P
Sound Weak or Absent Pix Normal		S
Right Portion on Left Side		H
Weak, Darkened		PS, P, G



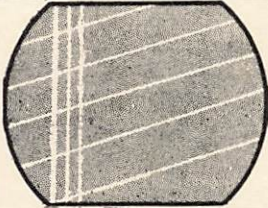

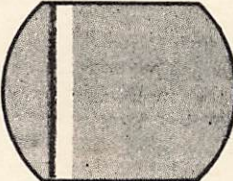
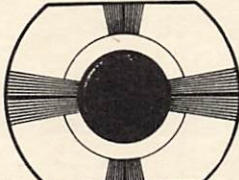
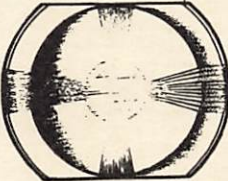
TROUBLE INDICATING TUBE LOCATION GUIDE

NO. 35

To get TROUBLE INDICATING TUBE LOCATION GUIDE (chart) for any model TV set, write Publisher of this book, giving make and model No. of set, plus layout of tubes, stamped self-addressed envelope and 50¢ to cover cost. If mfg.'s tube layout is not available, send rough layout showing position and type of each tube.

GUIDE TO TV TUBE TROUBLES

(If tube change has no effect, check the circuit)

DESCRIPTION OF TROUBLE	PICTURE FAULT RESULTING FROM TROUBLE	REPLACE TUBES CODED AS FOLLOWS:
Bright Vertical Bars at Left		BH BH*,H
Out of Focus		F,B*
Faint dark Vertical Line or Lines Followed by Light Area		BH*
Abnormally Enlarged Picture		BH*,B*
Weak Picture		PS,C,P,G

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TV TUBE LOCATOR

TROUBLE INDICATING TUBE LOCATION GUIDES over 3000 most popular models. Admiral to Zenith. Shows PIX tubes used in many models. Covers products of over 110 different TV manufacturers. Over 135 common TV troubles are listed with explicit directions for locating defective tubes which cause each fault.



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How to Diagnose and Remedy TV Troubles; Useful Info About TV Sets; Easy Trouble Checks; UHF Servicing; Antenna Know-How; Servicing Hints; Color TV; Troubles Due to Defective Tubes; How to Read Schematic diagrams. Practical hints for prospective TV servicemen.

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NEW! TV & RADIO TUBE SUBSTITUTION GUIDE



Contains tube replacements for TV sets, radios and other electronic devices. All fit same socket and **NEED NO CHANGES IN WIRING**. Also contains complete data on

TV PICTURE TUBE

replacements, many directly, others with only slight changes.

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No. S1.....Only 50c

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Vol. 1 (No. TT1) older models;
Vol. 2 (No. TT2) 1952-1953 sets;
Vol. 3 (No. TT3) 1953-1954 sets;
Vol. 4 (No. TT4) 1954-1955 models.

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Easy To Use—No. T1.....\$1

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