

VOLUME CONTROL ON-OFF SWITCH

CONTRAST CONTROL

CHANNEL SELECTOR

FINE TUNING

RCA VICTOR MODEL 21-S-354

TRADE NAME	RCA Victor	MODELS	CHASSIS	TUNER
		21-S-362M, 21-S-367	KCS83	KRK29
		21-S-362MU, 21-S-367U	KCS83A	KRK29A/27
		21-S-354	KCS83C	KRK29B
		21-S-353, 21-S-355	KCS83C	KRK29
		21-S-353G, 21-S-354G, 21-S-355G,		
		21-S-357G, 21-S-359G, 21-S-362G	KCS83C or KCS83PC - "G",	KRK29
		21-S-367G, 21-S-369G	KCS83PK	KRK22C
		21-S-353U, 21-S-354U, 21-S-355U	KCS83D	KRK29A/27
		21-S-353GU, 21-S-354GU, 21-S-355GU,		
		21-S-357GU, 21-S-359GU, 21-S-362GU,		
		21-S-367GU, 21-S-369GU	KCS83D or KCS83PD - "GU"...	KRK29A/27
		21-S-348, 21-S-348G	KCS83PJ	KRK29
		21-S-348G	KCS83PL	KRK22C
		21-S-348GU	KCS83PM	KRK29A/27
MANUFACTURER	RCA Victor Div., Radio Corp. of America, Camden, N. J.			
TYPE SET	Television Receiver			
TUBES	Twenty-two			
POWER SUPPLY	110-120 Volts AC-60 Cycle		* RATING 1.9 Amp, @ 117 Volts AC	
TUNING RANGE -	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)			

INDEX

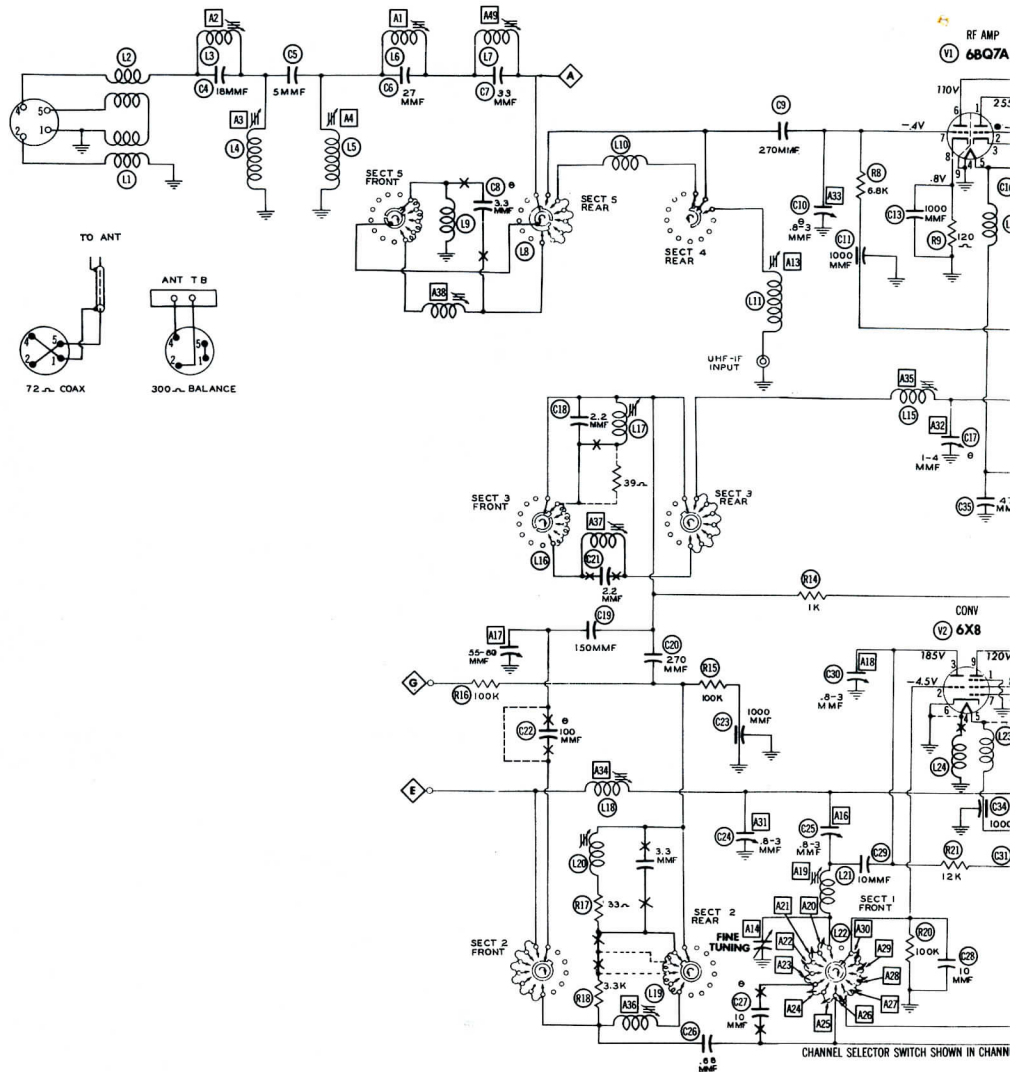
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RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)



● MEASURED FROM PIN 3 OF V1
 ○ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

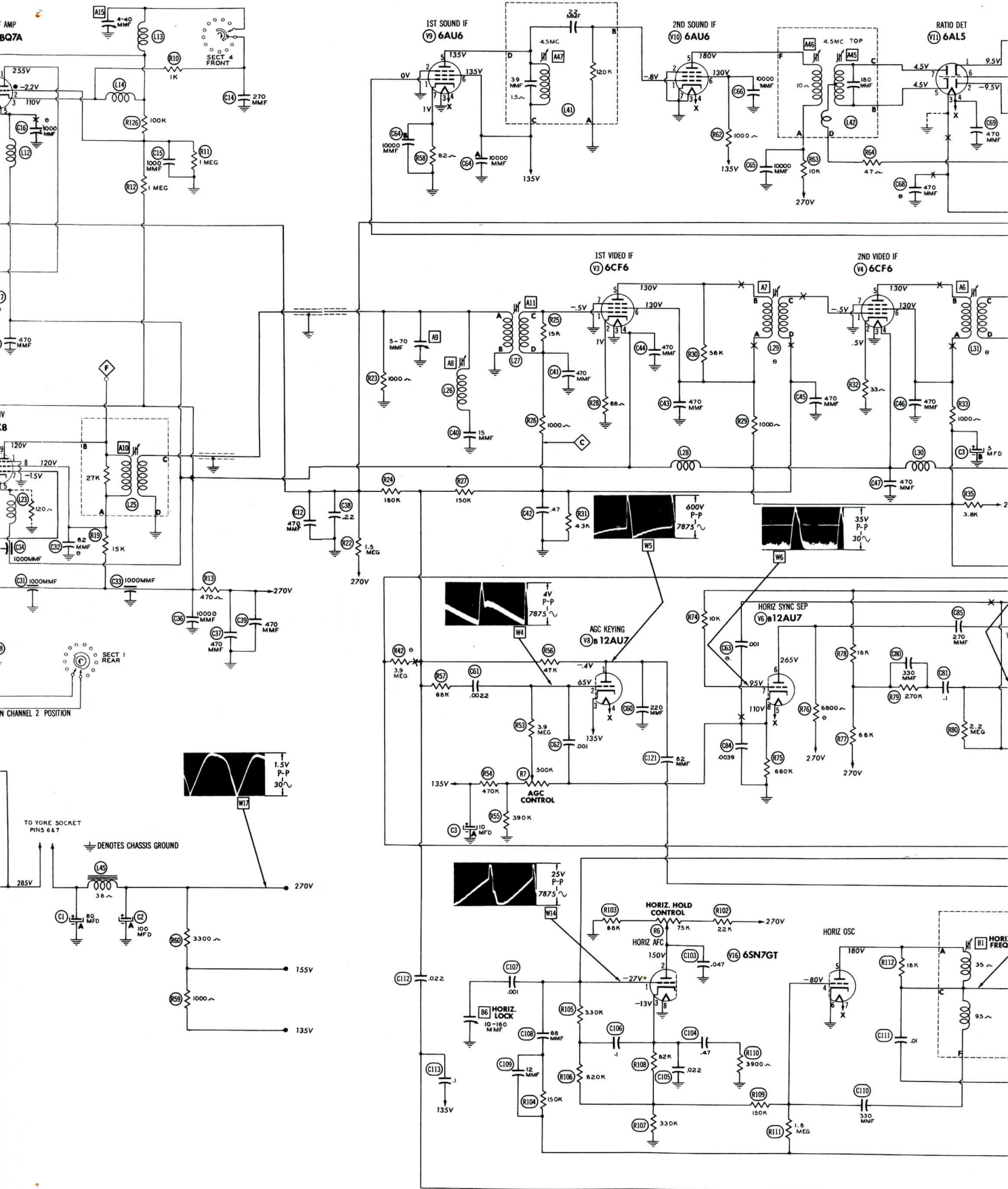
⋯ DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

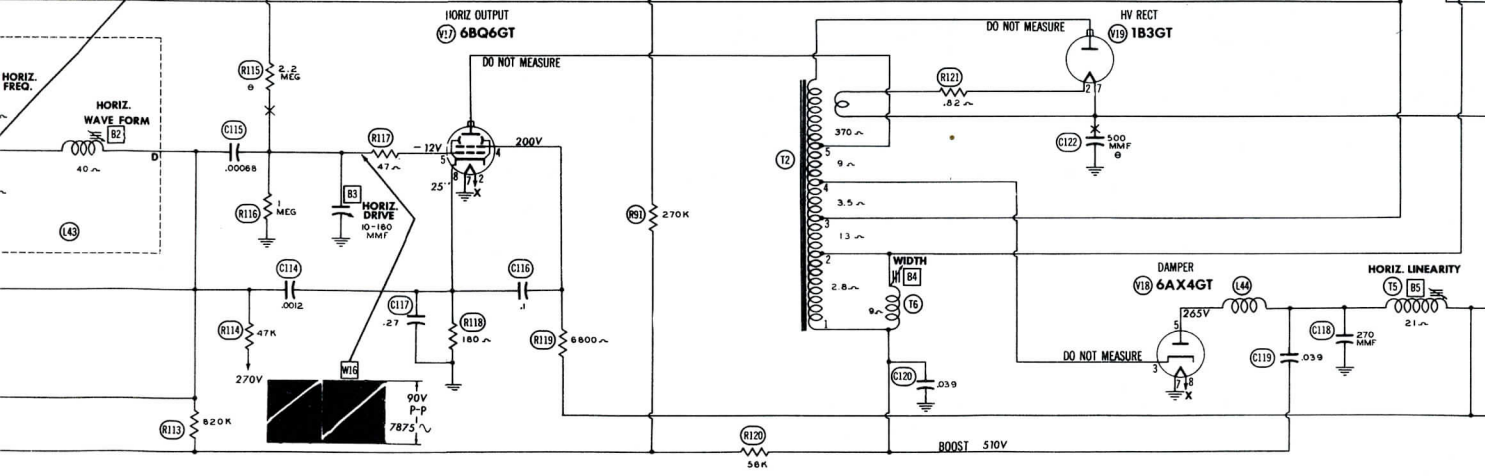
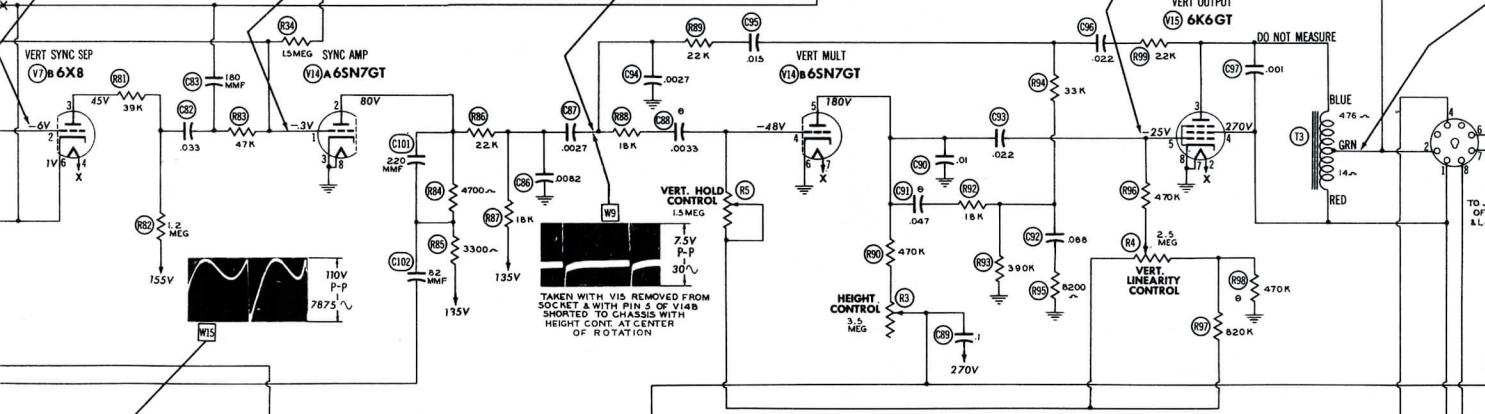
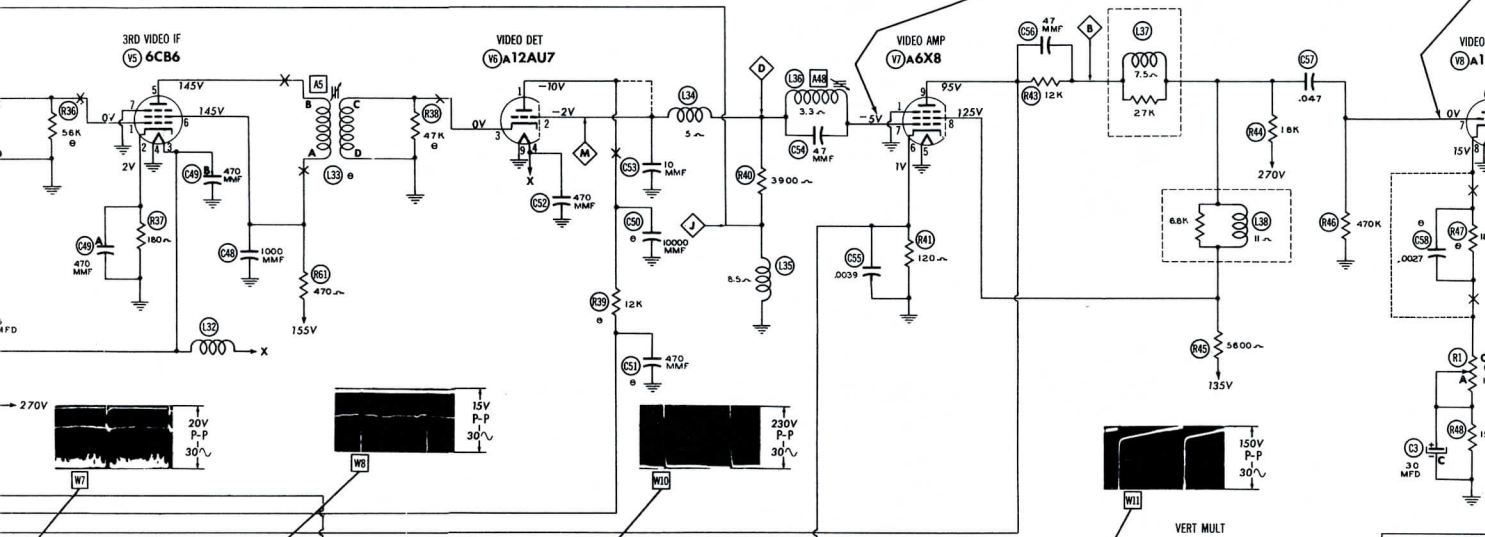
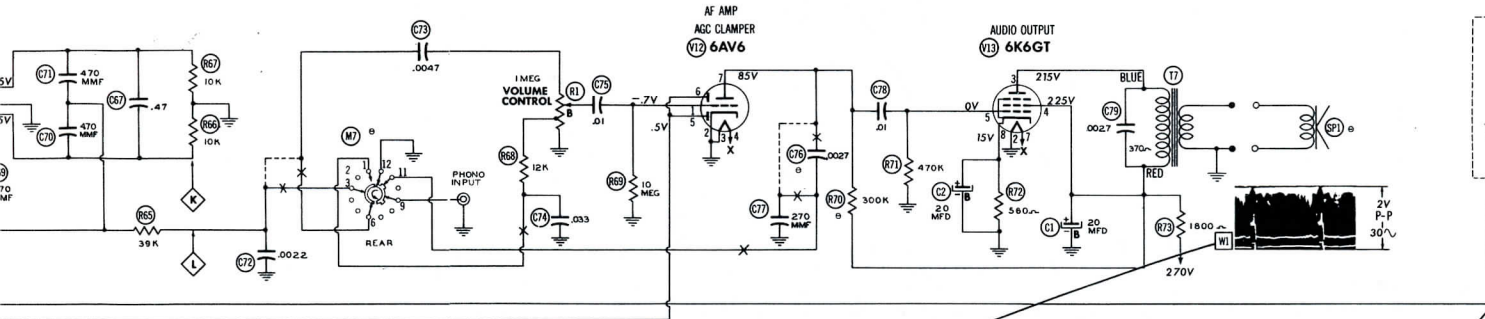
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)

WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE

- | | |
|--|--|
| 1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1,000 ohms per volt. | 3. Measured values are from socket pin to common negative unless otherwise stated. |
| 2. Pin numbers are counted in a clockwise direction on bottom of socket. | 4. Line voltage maintained at 117 volts for voltage readings. |
| | 5. All controls set for normal operation; no signal applied. |

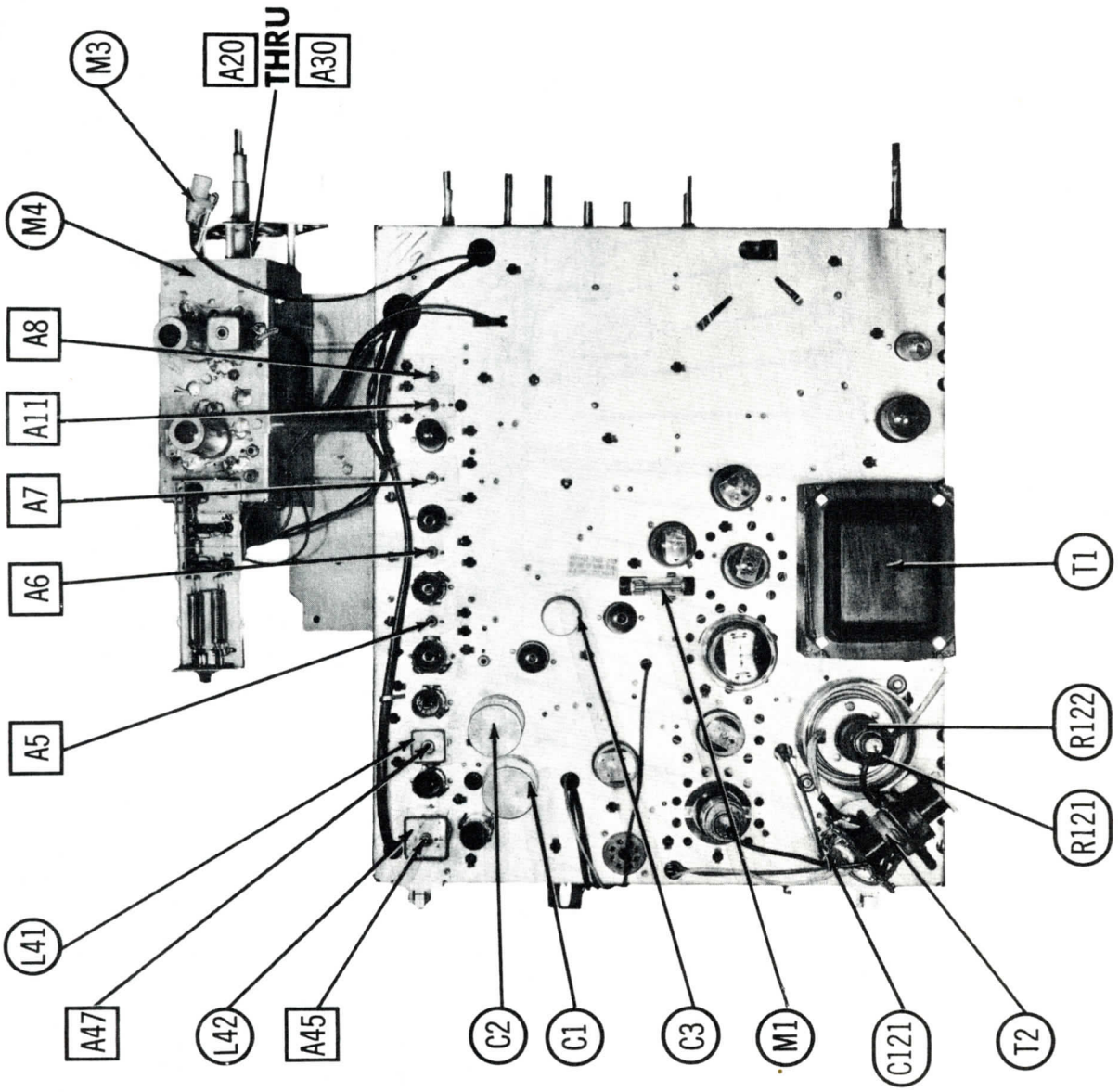
SECT 4 FRONT

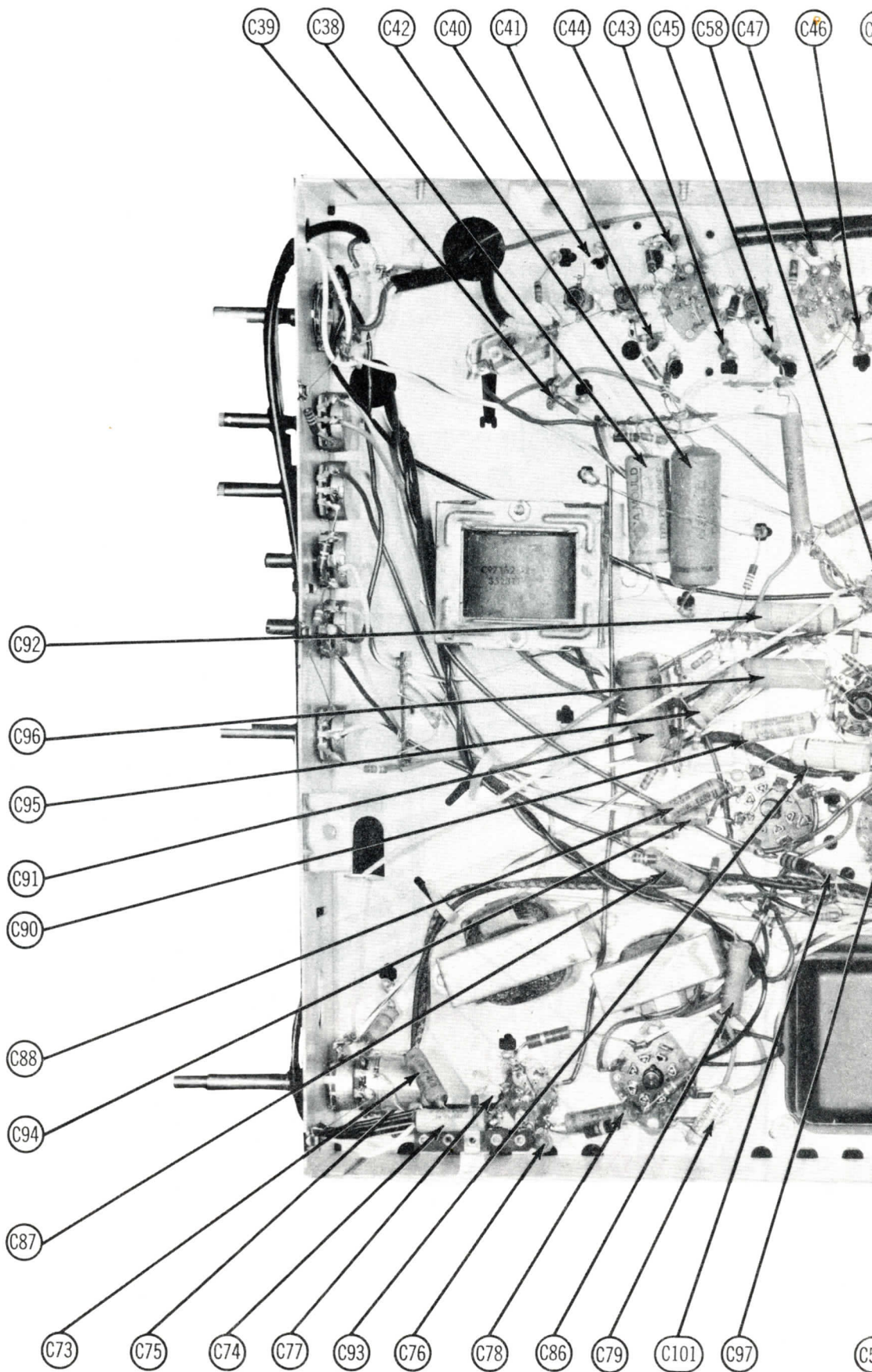




RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G,
 GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G,
 GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KC583 Series)

CHASSIS TOP VIEW





CHASSIS BOTTOM VIEW-CA



RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

CAPACITOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube (V16) from its socket.

KRK29 OR KRK29A ANTENNA MATCHING UNIT ALIGNMENT

The antenna matching unit has been properly aligned at the factory. The RF unit is aligned with a particular antenna matching unit in place. If a new antenna unit is installed, the RF unit should be realigned. Alignment should not be attempted without the proper alignment facilities.

The FM trap, L7, may be aligned without adversely affecting the alignment of the unit. Disconnect the lead from the FM trap (L7) to the channel selector switch. Use a short jumper to connect point Δ on the matching unit thru a .001MFD capacitor to pin 1 (grid) of 6CF6 (V4). Remove 6CF6 (V3) from its socket.

The matching unit cover must be in place during alignment. Connect the ends of a 1000 Ω potentiometer across a 7.5 volt battery capable of withstanding considerable current drain. Connect the positive terminal to chassis and connect the potentiometer arm to point Δ . Set the potentiometer arm to obtain -5 volts at point Δ . Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Two 130 Ω Carbon Resistors	Across antenna terminals with 130 Ω in each lead.	Not used	45.75MC (400% Mod)	Any	Vert. Amp. to point Δ . Low side to chassis.	A1	Set scope gain for maximum. Turn AGC. Adjust for MINIMUM 400% response on scope.
2. "	"	"	41.25MC (400% Mod)	"	"	A2	"
3. "	"	50MC (20MC Swp)	50MC 52MC 53MC	"	Vert. Amp. thru detector (Fig.1) to point Δ . Low side to chassis.	A3, A4	Remove the .001MFD capacitor (see instructions above) from point Δ and connect a 300 Ω , $\frac{1}{2}$ watt carbon Resistor from point Δ to chassis using very short leads. Adjust to obtain response curve similar to Fig. 2. Repeat steps 1, 2 and 3 until no further improvement is noted. Remove the 300 Ω resistor and detector probe. Restore connection between L7 and the channel switch. Replace V3 in its socket.

KRK22C ANTENNA MATCHING UNIT ALIGNMENT (CH. KCS83PK & KCS 83PL)

The antenna matching unit has been properly aligned at the factory. The RF unit is aligned with a particular antenna matching unit in place. If a new antenna unit is installed, the RF unit should be realigned. Alignment should be attempted without the proper alignment facilities. The FM trap (A49) may be aligned without adversely affecting the unit. Disconnect the lead from point Δ to the channel selector switch. Use a short jumper to connect point Δ on the matching unit through a .001MFD capacitor to Pin 1 (grid) of the second video IF amplifier (6CF6). Remove the first video IF amplifier (6CF6) from its socket. The matching unit cover must be in place during alignment. Connect the ends of a 1000 Ω potentiometer across a 7.5 volt battery capable of withstanding considerable current drain. Connect the positive terminal to chassis and connect the potentiometer arm to point Δ . Set the potentiometer arm for -5 volts at point Δ . Follow the procedure outlined under steps 1, 2 and 3 for "KRK29 or KRK29A antenna matching unit alignment". Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

VIDEO IF ALIGNMENT (MODELS 21-S-354 & 21-S-362, MODELS 21-S-348 THRU 21-S-369)

Leave bias connected as under "antenna matching unit alignment". Turn AGC control fully clockwise Models 21-S-348 through 21-S-369 incorporate three printed circuit type video IF transformers. Location of these transformers and their A numbers is shown in Fig. 6. Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. Direct	High side to terminal "A" of L27. Low side to terminal "B".	Not used	44.5MC	Any not used locally	Use VTVM, DC probe to point Δ . Common to chassis.	A5	Attenuate generator output to maintain -3 volts at VTVM. Adjust for maximum deflection.
5. "	"	"	45.5MC	"	"	A6	"
6. "	"	"	43.0MC	"	"	A7	"
7. "	"	"	47.25MC	"	"	A8	Adjust for MINIMUM deflection. Use sufficient generator output to produce -3 volts at VTVM.
8. .0015MFD Ceramic Capacitor	High side to point Δ . Low side to tuner chassis. Use very short leads.	44MC (10MC Swp)	42.5MC 45.75MC 47.25MC	4	Vert. Amp. thru detector (Fig.1) to pin 5 (plate) of 6CF6 (V3). Low side to chassis.	A10, All A9	Connect 330 Ω resistors from plate to screen of V4 and V5. Preset A9 to MINIMUM capacity. Connect 180 Ω carbon resistor from plate to screen of V3. Set AGC control fully clockwise. Couple a second signal generator loosely to detector (Fig. 1) to furnish markers. Attenuate sweep output to maintain 0.3 volt peak to peak for final adjustments. Adjust A10 and A11 for maximum gain with 45.75MC marker at 75%. Adjust A9 to place 42.5MC marker at 70% on response curve as shown in Fig. 3. Remove detector probe and disconnect the 180 Ω and the two 330 Ω resistors.
9. "	"	"	42.5MC 45.0MC 45.75MC 46.5MC	"	Vert. Amp. to point Δ . Low side to chassis.	"	Adjust sweep generator output for 3 volts peak to peak on scope. Couple the marker generator loosely to pin 1 (grid) of V3. Retouch A5, A6 and A7 to obtain response curve similar to Fig. 4. Continue alignment with step 14.

TELEVISION CHANNEL FREQUENCIES

Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier
2	54-60	55.25	59.75	23	524-530	525.25	529.75	44	650-656	651.25	655.75	64	770-776	771.25	775.75
3	60-66	61.25	65.75	24	530-536	531.25	535.75	45	656-662	657.25	661.75	65	776-782	777.25	781.75
4	66-72	67.25	71.75	25	536-542	537.25	541.75	46	662-668	663.25	667.75	66	782-788	783.25	787.75
5	76-82	77.25	81.75	26	542-548	543.25	547.75	47	668-674	669.25	673.75	67	788-794	789.25	793.75
6	82-88	83.25	87.75	27	548-554	549.25	553.75	48	674-680	675.25	679.75	68	794-800	795.25	799.75
7	174-180	175.25	179.75	28	554-560	555.25	559.75	49	680-686	681.25	685.75	69	800-806	801.25	805.75
8	180-186	181.25	185.75	29	560-566	561.25	565.75	50	686-692	687.25	691.75	70	806-812	807.25	811.75
9	186-192	187.25	191.75	30	566-572	567.25	571.75	51	692-698	693.25	697.75	71	812-818	813.25	817.75
10	192-198	193.25	197.75	31	572-578	573.25	577.75	52	698-704	699.25	703.75	72	818-824	819.25	823.75
11	198-204	199.25	203.75	32	578-584	579.25	583.75	53	704-710	705.25	709.75	73	824-830	825.25	829.75
12	204-210	205.25	209.75	33	584-590	585.25	589.75	54	710-716	711.25	715.75	74	830-836	831.25	835.75
13	210-216	211.25	215.75	34	590-596	591.25	595.75	55	716-722	717.25	721.75	75	836-842	837.25	841.75
14	470-476	471.25	475.75	35	596-602	597.25	601.75	56	722-728	723.25	727.75	76	842-848	843.25	847.75
15	476-482	477.25	481.75	36	602-608	603.25	607.75	57	728-734	729.25	733.75	77	848-854	849.25	853.75
16	482-488	483.25	487.75	37	608-614	609.25	613.75	58	734-740	735.25	739.75	78	854-860	855.25	859.75
17	488-494	489.25	493.75	38	614-620	615.25	619.75	59	740-746	741.25	745.75	79	860-866	861.25	865.75
18	494-500	495.25	499.75	39	620-626	621.25	625.75	60	746-752	747.25	751.75	80	866-872	867.25	871.75
19	500-506	501.25	505.75	40	626-632	627.25	631.75	61	752-758	753.25	757.75	81	872-878	873.25	877.75
20	506-512	507.25	511.75	41	632-638	633.25	637.75	62	758-764	759.25	763.75	82	878-884	879.25	883.75
21	512-518	513.25	517.75	42	638-644	639.25	643.75	63	764-770	765.25	769.75	83	884-890	885.25	889.75
22	518-524	519.25	523.75	43	644-650	645.25	649.75								

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

VIDEO IF ALIGNMENT (MODELS 21-S-354U THRU 21-S-362U, MODELS 21-S-348U THRU 21-S-369U)

Leave bias connected as under " antenna matching unit alignment. Turn AGC control fully clockwise. Models 21-S-348U thru 21-S-369U incorporate three printed circuit tube video IF transformers. Location of these transformers and their A numbers is shown in Fig. 6.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. Direct	High side to terminal "A" of first video IF transformer, Low side to terminal "B".	Not used	44.5MC	Any not used locally	Use VTVM. DC probe to point D. Common to chassis.	A5	Attenuate generator output to maintain -3 volts at VTVM. Adjust for maximum deflection.
5. "	"	"	45.5MC	"	"	A6	"
6. "	"	"	43.0MC	"	"	A7	"
7. "	"	"	47.25MC	"	"	A8	Use sufficient generator output to produce -3 volts at VTVM. Adjust for MINIMUM deflection.
8. .0015MFD ceramic capacitor	High side to point E. Low side to tuner chassis. Use very short leads.	44MC (10MC Swp)	42.5MC 45.75MC 47.25MC	4	Vert. Amp. thru detector (Fig.1) to pin 5 (plate) of first video IF amp. Low side to chassis.	A10, All A9	Connect 330Ω carbon resistors across primaries of third and fourth video IF transformers. Preset A9 to MINIMUM capacity. Connect 180Ω carbon resistor across primary of second video IF transformer. Couple a second signal generator loosely to detector probe (Fig.1) to furnish markers. Attenuate sweep output to maintain 0.3 volts peak to peak for final adjustments. Adjust A10 and A11 for maximum gain with 45.75MC marker at 75%. Adjust A9 to place 42.5MC marker at 70% on response curve as shown in Fig. 3. Remove detector probe, the 180Ω and the two 300 resistors.
9. "	"	"	42.5MC 45.0MC 45.75MC 46.5MC	"	Vert. Amp. to point B. Low side to chassis.	"	Adjust sweep generator output for 3 volts peak to peak on scope. Couple the marker generator loosely to grid of first video IF amplifier. Retouch A5, A6 and A7 to obtain response curve similar to Fig. 4.
10. 1000Ω Carbon Resistor in series with .0015M MFD ceramic capacitor	High side thru dummy to rear terminal of 1N82 crystal holder. Low side to tuner chassis. Use very short leads.	44MC (10MC Swp)	41.25MC 46.75MC	47 (670MC)	Vert. Amp. thru detector (Fig.1) to junction of 180Ω resistor and .0015MFD capacitor at point F. (See remarks) Low side to tuner chassis.	A12, A13	Set UHF changeover switch to UHF position. Connect a .0015MFD capacitor in series with 180Ω carbon resistor from point F to chassis with the capacitor end connected to point E. Couple second signal generator to detector probe (Fig.1) to furnish markers. Connect the potentiometer arm of a second bias supply to the tuner AGC terminal. Connect positive side to chassis. Adjust for -3 volts at tuner AGC terminal. Attenuate sweep generator output to produce 0.3 volt peak to peak on scope. Adjust A12 and A13 for maximum gain with video and sound markers not lower than 90% or response curve as in Fig. 5. Remove resistor, capacitor and detector probe from point F.
11. "	"	"	"	"	Vert. Amp. to point D. Low side to chassis.	"	Attenuate sweep generator output to maintain 3 volts peak to peak on scope. If necessary, retouch A12 and A13 only to obtain response similar to Fig. 5.
12. Two 130Ω Carbon Resistors	Across VHF antenna terminals with 130Ω in each lead.	213MC (10MC Swp) 207MC (10MC Swp) 201MC (10MC Swp) 195MC (10MC Swp) 189MC (10MC Swp) 183MC (10MC Swp) 177MC (10MC Swp) 85MC (10MC Swp) 79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	211.25MC 215.75MC 209.75MC 199.25MC 203.75MC 193.25MC 197.75MC 187.25MC 191.75MC 181.25MC 185.75MC 175.25MC 179.75MC 83.25MC 87.75MC 77.25MC 81.75MC 87.25MC 71.75MC 61.25MC 65.75MC 55.25MC 59.75MC	13 12 11 10 9 8 7 6 5 4 3 2	Vert. Amp. to point D. Low side to chassis.	"	Couple marker generator loosely to grid of first video IF amplifier. Leave the AGC bias at -3 volts and the IF bias at -5 volts. Check all channels for response similar to Fig. 4. If necessary, SLIGHTLY retouch A5 and A6 to correct any overall tilt that is essentially the same on all channels.
13.	Remove VHF sweep generator and connect UHF sweep generator to antenna terminals. Check all UHF channels for response similar to Fig. 4. If necessary, SLIGHTLY retouch A5 and A6 to correct any overall tilt. Disconnect generators and bias supplies.						

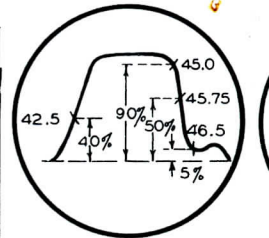


FIG. 4

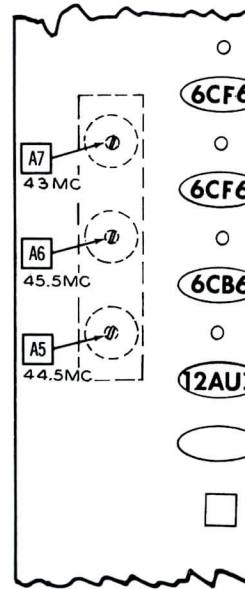


FIG. 6

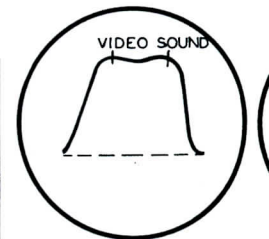


FIG. 7

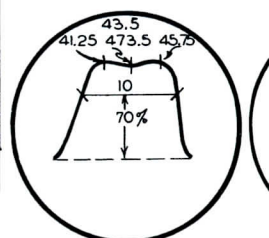


FIG. 9

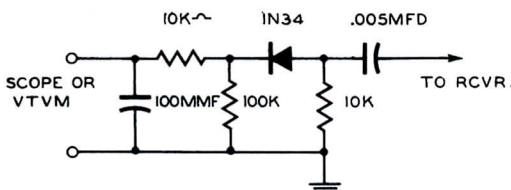


FIG. 1

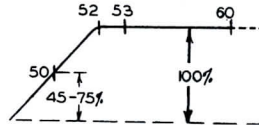


FIG. 2

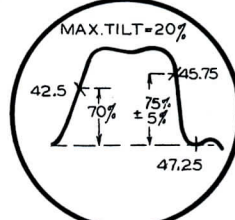


FIG. 3

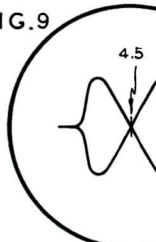


FIG. 10

ALIGNMENT INSTRUCTIONS (cont)

RU 21-S-362U, MODELS 21-S-348U THRU 21-S-369U)

ully clockwise. Models 21-S-348U thru 21-S-369U incorporate their A numbers is shown in Fig. 6.

CONNECT TYPE	ADJUST	REMARKS
p. to point \diamond to chassis.	A5	Attenuate generator output to maintain -3 volts at VTVM. Adjust for maximum deflection.
	A6	"
	A7	"
	A8	Use sufficient generator output to produce -3 volts at VTVM. Adjust for MINIMUM deflection.
p. thru (Fig.1) to (e) of first amp. Low chassis.	A10, All A9	Connect 330 Ω carbon resistors across primaries of third and fourth video IF transformers. Preset A9 to MINIMUM capacity. Connect 180 Ω carbon resistor across primary of second video IF transformer. Couple a second signal generator loosely to detector probe (Fig.1) to furnish markers. Attenuate sweep output to maintain 0.3 volts peak to peak for final adjustments. Adjust A10 and A11 for maximum gain with 45.75MC marker at 75%. Adjust A9 to place 42.5MC marker at 70% on response curve as shown in Fig. 3. Remove detector probe, the 180 Ω and the two 300 resistors.
p. to point w side to		Adjust sweep generator output for 3 volts peak to peak on scope. Couple the marker generator loosely to grid of first video IF amplifier. Retouch A5, A6 and A7 to obtain response curve similar to Fig. 4.
p. thru (Fig.1) to 180 Ω re- .0015MFD at point ee remarks) to tuner	A12, A13	Set UHF changeover switch to UHF position. Connect a .0015MFD capacitor in series with 180 Ω carbon resistor from point \diamond to chassis with the capacitor end connected to point \diamond . Couple second signal generator to detector probe (Fig.1) to furnish markers. Connect the potentiometer arm of a second bias supply to the tuner AGC terminal. Connect positive side to chassis. Adjust for -3 volts at tuner AGC terminal. Attenuate sweep generator output to produce 0.3 volt peak to peak on scope. Adjust A12 and A13 for maximum gain with video and sound markers not lower than 90% or response curve as in Fig. 5. Remove resistor, capacitor and detector probe from point \diamond .
p. to point w side to		Attenuate sweep generator output to maintain 3 volts peak to peak on scope. If necessary, retouch A12 and A13 only to obtain response similar to Fig. 5.
p. to point w side to		Couple marker generator loosely to grid of first video IF amplifier. Leave the AGC bias at -3 volts and the IF bias at -5 volts. Check all channels for response similar to Fig. 4. If necessary, SLIGHTLY retouch A5 and A6 to correct any overall tilt that is essentially the same on all channels.
s. Check all UHF channels for response similar to Fig. 4. If generators and bias supplies.		

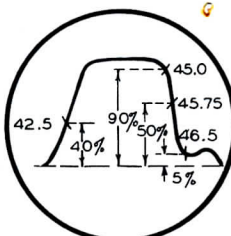


FIG. 4

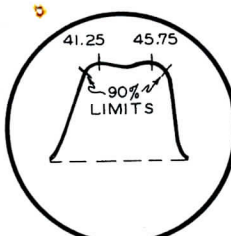


FIG. 5

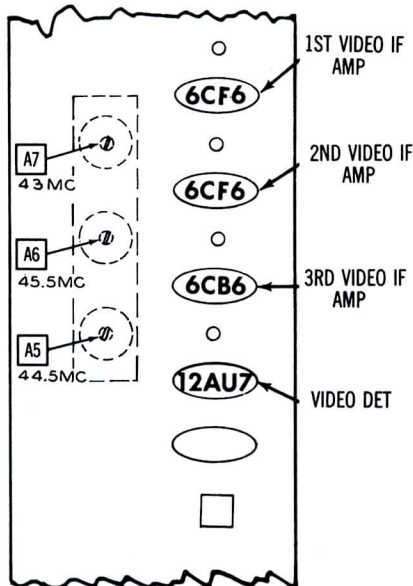


FIG. 6

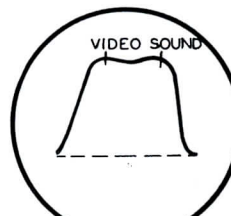


FIG. 7

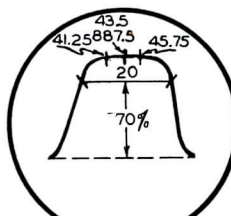


FIG. 8

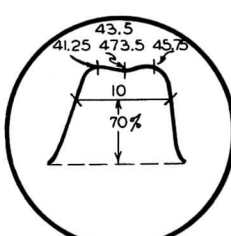


FIG. 9

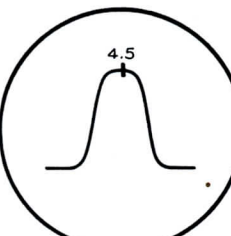


FIG. 10

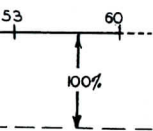


FIG. 2

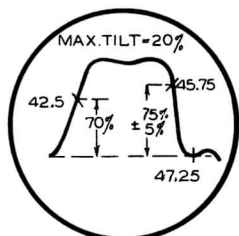


FIG. 3

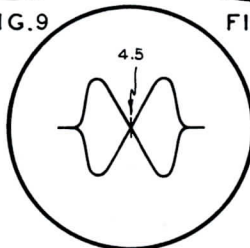


FIG. 11

KR29B TUNER ALIGNMENT (MODE)

An RF unit which is operative and requires only minor touch-ups is necessary make the following adjustments. Pre-set A14 all the way out. Set channel 7 to 13 oscillator slugs from terminals "A" and "B" of L27 (first video IF trans) and terminals "A" and "B" of L28 (second video IF trans). Tuner alignment as outlined below requires the use of a heterodyne. The synchronized sweep voltage from the sweep generator. The sweep generator output lead should be terminated with its characteristic impedance.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY
14. Direct	High side to point \diamond . Low side to chassis.	Not used	43.5MC (40% Mod)
15.	RF input of heterodyne frequency meter to end of insulated wire inserted in hole provided for adjustment of A17.	"	Set freq. meter to 227MC
NOTE: If channel 8 oscillator frequency cannot be reached by then switch to channel 12 and adjust A20 for channel 12 oscillator proper oscillator frequency on each channel. Also, on channel 12 then switch back to channel 8 and adjust A18 again.			
16.	Two 130 Ω Carbon Resistors Across antenna terminals with 130 Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC
17.	Connect the DC probe of VTVM to point \diamond . Common to chassis similar to Fig. 7. Adjust A33 for maximum gain at mid-point		
18.	Connect frequency meter as in step 15.	Not used	Freq. meter to 257MC
19.	Two 130 Ω Carbon Resistors Across antenna terminals with 130 Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC
20.	Connect frequency meter as in step 15.	Not used	Freq. meter to 227MC
21.	Two 130 Ω Carbon Resistors Across antenna terminals with 130 Ω in each lead.	183MC (10MC Swp)	181.25MC 185.75MC
22.	Connect frequency meter as in step 15.	Not used	Freq. meter to 129MC
23.	Two 130 Ω Carbon Resistors Across antenna terminals with 130 Ω in each lead.	85MC (10MC Swp)	83.25MC 87.75MC
24.	" Across antenna terminals with 130 Ω in each lead.	79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	77.25MC 81.75MC 87.25MC 91.75MC 96.25MC 55.25MC 59.75MC

INSTRUCTIONS (cont)

KRK29B TUNER ALIGNMENT (MODELS 21-S-354 & 21-S-362, MODELS 21-S-348 THRU 21-S-369G)

An RF unit which is operative and requires only minor touch-up adjustments will require no pre-setting of adjustments. Where complete alignment is necessary make the following adjustments.
 Pre-set A14 all the way out. Set channel 7 to I3 oscillator slugs one turn from tight. Adjust A10 so that slug is all the way out. Disconnect the link from terminals "A" and "B" of L27 (first video IF trans) and terminate the link with a 390 carbon resistor.
 Tuner alignment as outlined below requires the use of a heterodyne frequency meter.
 Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
 The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

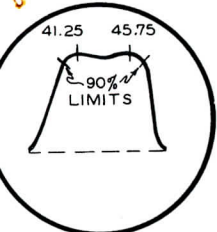


FIG. 5

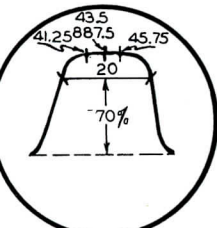
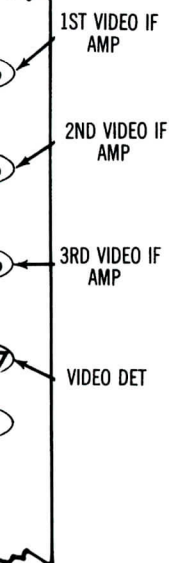


FIG. 8

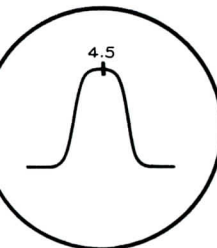


FIG. 10

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14. Direct	High side to point \odot . Low side to chassis.	Not used	43.5MC (400% Mod)	2	Vert. Amp. to point \odot . Low side to chassis.	A15	Short the tuner AGC terminal to ground. Adjust scope for maximum gain and signal generator for maximum output. Adjust A15 for MINIMUM 400% indication on scope. Remove short from AGC terminal.
15.	RF input of heterodyne frequency meter to end of insulated wire inserted in hole provided for adjustment of A17.	"	Set freq. meter to 227MC	8	Not used	A18, A14	Connect the potentiometer arm of the bias supply to the tuner AGC terminal. Connect the positive lead to tuner chassis. Adjust for -3 volts at tuner AGC terminal. Pre-set A18 for -3 volts on VTVM at point \odot . (Limits of oscillator injection voltage are two 5.5 volts). Turn fine tuning control fully clockwise. Adjust A18 for audible beat on frequency meter. Adjust A14 clockwise until beat note just begins to change, then turn one full turn in same clockwise direction. Return fine tuning control to its mid-range position.
NOTE: If channel 8 oscillator frequency cannot be reached by adjustment of A18 switch to channel 13 and adjust A19 for channel 13 oscillator frequency, then switch to channel 12 and adjust A20 for channel 12 oscillator frequency. Continue down to channel 8 adjusting proper oscillator trimmer to obtain proper oscillator frequency on each channel. Also, on channel 8, adjust A18 for channel 8 oscillator frequency. Switch to channel 13 and adjust A19, then switch back to channel 8 and adjust A18 again.							
16. Two 1300 Carbon Resistors	Across antenna terminals with 1300 in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	8	Vert. Amp. to point \odot . Low side to chassis.	A31, A17, A32, A33	Set A10 to maximum counter clockwise rotation. If a separate marker generator is used connect it loosely to antenna terminals. Adjust scope for maximum gain and attenuate sweep generator output for a MINIMUM signal input to produce useable pattern on scope. Adjust A31, A17, A32 and A33 for response similar to Fig. 7.
17.	Connect the DC probe of VTVM to point \odot . Common to chassis. Adjust A16 for -3 volts at point \odot . Readjust A14, A17, A31 and A32 for response similar to Fig. 7. Adjust A33 for maximum gain at mid-point of response curve. If necessary, repeat until desired response is obtained.						
18.	Connect frequency meter as in step 15.	Not used	Freq. meter to 257MC	13	Not used	A19	Turn fine tuning control fully clockwise. Adjust A19 for audible beat on frequency meter. SLIGHTLY overshoot the adjustment an additional turn in the same direction, and then adjust A14 to again obtain an audible beat.
19. Two 1300 Carbon Resistors	Across antenna terminals with 1300 in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	"	Vert. Amp. to point \odot . Low side to chassis.	A34 A35	Adjust for response similar to Fig. 7. Turn off generator and check oscillator injection voltage at point \odot with VTVM. Voltage should be within limits (2 - 5.5 volts). If A16 required readjustment turn sweep generator back on and recheck channel 13 response. If necessary, retouch A34 and A35 to obtain desired response.
20.	Connect frequency meter as in step 15.	Not used	Freq. meter to 227MC	8	Not used	A14	Check for audible beat on frequency meter. If necessary, readjust A14 for proper oscillator frequency.
21. Two 1300 Carbon Resistors	Across antenna terminals with 1300 in each lead.	183MC (10MC Swp)	181.25MC 185.75MC	"	Vert. Amp. to point \odot . Low side to chassis.	A31, A17 A32 A33	If necessary, retouch A31, A17, A32 and A33 to obtain response similar to Fig. 7. If A31 required adjustment turn off generator and switch back to channel 13 and check oscillator injection voltage at point \odot with VTVM. If the oscillator injection trimmer, A16, was far off it may be necessary to repeat steps 20 and 21 several times before proper setting of A16 is obtained.
22.	Connect frequency meter as in step 15.	Not used	Freq. meter to 129MC	6	Not used	A26	Set fine tuning control to its mid-range position. Adjust A26 for audible beat on frequency meter.
23. Two 1300 Carbon Resistors	Across antenna terminals with 1300 in each lead.	85MC (10MC Swp)	83.25MC 87.75MC	"	Vert. Amp. to point \odot . Low side to chassis.	A36 A37 A38	Adjust for response similar to Fig. 7. Check oscillator injection voltage at point \odot with VTVM. If necessary, readjust A16. If A16 required readjustment switch the receiver and generator to channel 8. If necessary, retouch A31 for response similar to Fig. 6. Recheck A14 and A18 for proper oscillator frequency as in step 15.
24.	Across antenna terminals with 1300 in each lead.	79MC (10MC Swp)	77.25MC 81.75MC	5	Vert. Amp. to point \odot . Low side to chassis.		Check for response similar to Fig. 6. If markers fall below 80% on any channel retouch A36 and A37 for best compromise on all low band channels. Check oscillator injection voltage at point \odot with VTVM. It should be within limits of 2 to 5.5 volts.
69MC (10MC Swp)		67.25MC 71.75MC	4				
63MC (10MC Swp)		61.25MC 65.75MC	3				
57MC (10MC Swp)		55.25MC 59.75MC	2				

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

ALIGNMENT INSTRUCTIONS (cont)

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
25. Two 130Ω Carbon Resistor	Across antenna terminals with 130Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point \diamond . Low side to chassis.	A17 A31 A32	Check for response similar to Fig. 6. If markers fall below 80% retouch A17, A31, and A32 for best compromise on all high band channels. Check oscillator injection voltage at point \diamond with VTVM. It should be within limits of 2 to 5.5 volts.
		207MC (10MC Swp)	205.25MC 209.75MC	12			
		201MC (10MC Swp)	199.25MC 203.75MC	11			
		195MC (10MC Swp)	193.25MC 197.75MC	10			
		189MC (10MC Swp)	187.25MC 191.75MC	9			
		183MC (10MC Swp)	181.25MC 185.75MC	8			
		177MC (10MC Swp)	175.25MC 179.75MC	7			
		26.	Connect frequency meter as in step 15.	Not used			
			251MC	12		A20	
			245MC	11		A21	
			239MC	10		A22	
			233MC	9		A23	
			227MC	8		A24	
			221MC	7		A25	
			215MC	6		A26	
			209MC	5		A27	
			203MC	4		A28	
			197MC	3		A29	
			191MC	2		A30	

KRK29A VHF TUNER ALIGNMENT MODELS 21-S-354U & 21-S-362U, MODELS 21-S-348U THRU 21-S-369GU

The VHF alignment procedure for the KRK29A tuner is identical to alignment procedure for KRK29B tuner. Perform the indicated operations outlined in steps 14 through 26 under "KRK29B tuner alignment."

KRK27 UHF TUNER ALIGNMENT (MODELS 21-S-354U & 21-S-362U, MODELS 21-S-348U THRU 21-S-369GU)

Ground the IF transformer, whose adjustment is A12, by connecting one end of a clip lead to tuner chassis and inserting the opposite end through the aperture provided on top of the tuner.
 If the oscilloscope available does not have a sensitivity of 0.03 volts per inch a suitable amplifier may be used.
 Fabricate a test dial with marks scribed on its circumference at 0, 9, and 168 degrees. The dial should be made to fit over the split gear on the tuner shaft for accurate alignment. Locate the 0 degree reference point with the capacitor plates fully meshed. To make certain that the plates are fully meshed, place a 1/16" shim between the stop pin on the tuner and the stop plate on the gear assembly.
 Connect the high side of the VHF marker signal generator through a 1000Ω carbon resistor to the rear terminal of the IN82 crystal holder.
 Connect the UHF marker generator loosely to antenna terminals.
 Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
 The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
27. Two 130Ω Carbon Resistors	Across antenna terminals with 130Ω in each lead.	887.5MC (Use Max. sweep width)	41.25MC 43.5MC 45.75MC 887.5MC	83 (168 degree on tuning dial)	Vert. Amp. (thru pre-amp. if needed) to point \diamond . Low side to chassis.	A39 A40 A41	Adjust A39 and A40 for maximum amplitude overcoupled response curve, centered at 887.5MC, similar to Fig. 8. Adjust A41 until 43.5MC marker coincides with 887.5MC marker. The 41.25MC and 45.75 MC markers should be symmetrically located on top of response curve as in Fig. 8.
29.							Tune thru entire UHF range and check tracking. If the 41.25MC and 45.75MC markers fall below 70% on any UHF channel it will be necessary to bend the RF plates to correct the mistracking. The plates may be bent by inserting a knife blade thru the two holes provided on the left side of the tuner. Knife the plates while tuning lower in frequency that tracking above the point of knifeing will not be disturbed. A check of the section requiring knifeing may be made by touching the plates with the knifeing tool while noting the effect on the response curve. Connect the DC probe of VTVM to point \diamond . Common to chassis. Tune thru the entire UHF range at the same time noting the reading on the VTVM. Readings between .05 and .4 volt should be obtained. If voltages outside this limit are obtained it indicates low B+ voltage, low or high crystal impedance or an oscillator tube outside allowable limits. If the oscillator tube is replaced steps 27 and 28 should be repeated.

KRK22C TUNER ALIGNMENT

The alignment procedure for the KRK22C tuner is identical to alignment for KRK29B. Perform the indicated operations outlined in steps 14 through 26 under "KRK29B" tuner alignment.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
30. .001MFD	High side to point \diamond . Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe to point \diamond . Common to chassis.	A46	Attenuate generator output to maintain 6 volts at VTVM. Adjust for maximum deflection.
31. "	"	"	"	DC probe to point \diamond . Common to chassis.	A45	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Repeat steps 30 and 31.
32. "	"	"	"	DC probe to point \diamond . Common to chassis.	A47	Attenuate generator output to maintain 6 volts at VTVM. Adjust for maximum deflection.

4.5MC TRAP ALIGNMENT

Short pin 1 (grid) of third video IF amplifier (6CB6) to ground.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
33. 100Ω resistor	High side to point \diamond . Low side to chassis.	4.5MC (400% Mod)	Any	Use scope. Vert. amp. thru detector (Fig. 1) to pin 9 (plate) of 6X8 (V7A). Low side to chassis.	A48	Adjust for MINIMUM 400% indication on scope.

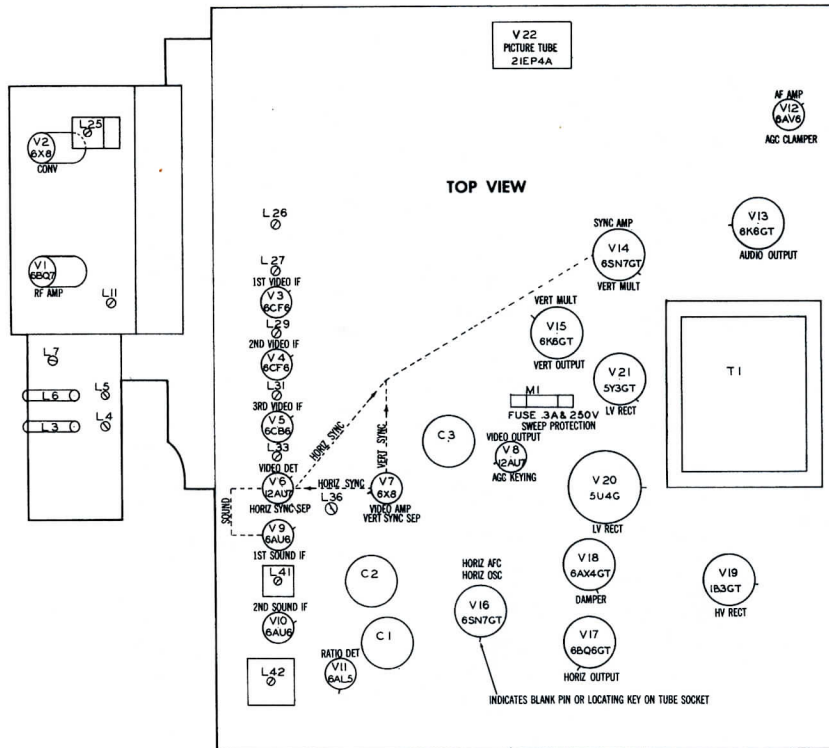
ALTERNATE 4.5MC TRAP ALIGNMENT

Tune in a station and inspect picture for 4.5MC beat interference. If 4.5MC beat interference is evident turn the fine tuning control slightly clockwise to emphasize beat then adjust A48 for MINIMUM 4.5MC beat interference in picture.

FM TRAP ADJUSTMENT

If interference from a strong FM station is encountered, adjust A49 (on top of antenna matching transformer) for MINIMUM interference in the picture.

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - V20, V21

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V8, V22
Has pic, no sound - V7, V10, V11, V12, V13
Overloaded picture - V8, V12

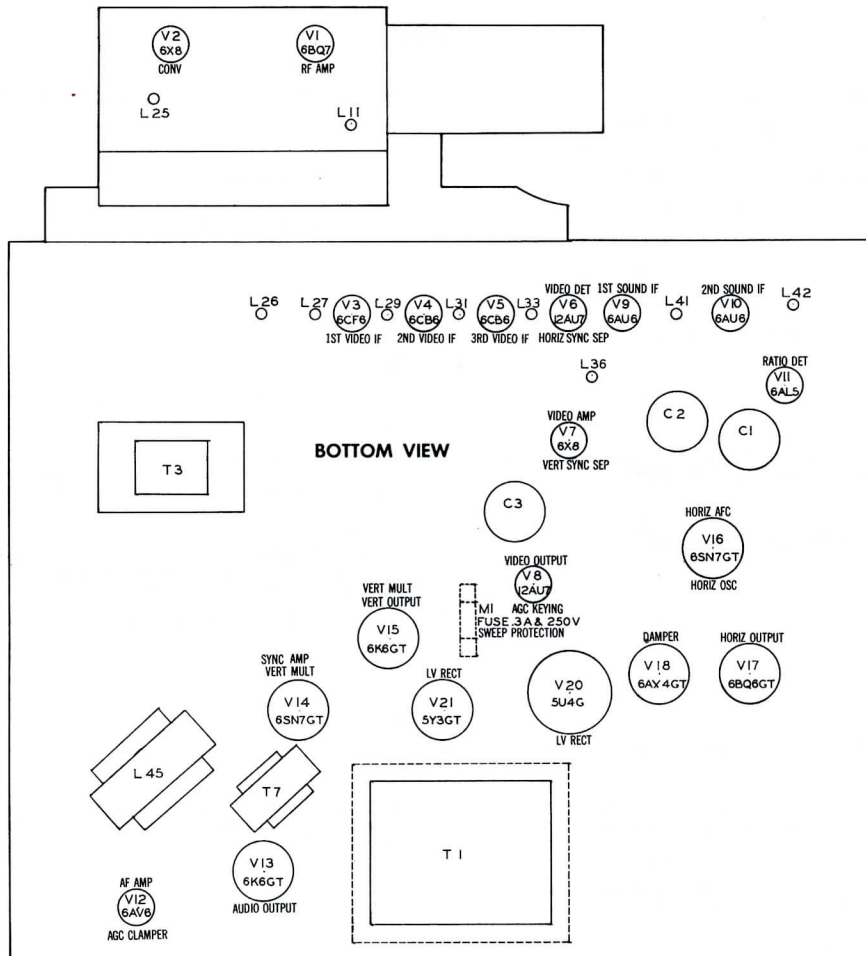
SYNC FAILURE
No vert. sync - V7, V14
No horiz. sync - V6, V14, V16
No vert. or horiz. sync - V14

SWEEP FAILURE
No raster, has sound - V16, V17, V18, V19, V22, Fuse (M1)
No vertical deflection - V14, V15
Poor vert. linearity or foldover - V14, V15
Poor horiz. linearity or foldover - V16, V17, V18
Narrow picture - V16, V17, V18, V19, V20, V21
Vert. off freq. - V7, V14
Horiz. off freq. - V6, V14, V16

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	†1.5KΩ	400KΩ	500KΩ	0Ω	.1Ω	500KΩ	350KΩ	120Ω	0Ω
V 2	6X8	0Ω	100KΩ	†12.5KΩ	0Ω	.1Ω	0Ω	100KΩ	†15.5KΩ	†15.5KΩ
V 3	6CF6	44KΩ	68Ω	0Ω	.1Ω	†4.8KΩ	†4.8KΩ	0Ω		
V 4	6CF6	43KΩ	33Ω	0Ω	.1Ω	†4.8KΩ	†4.8KΩ	0Ω		
V 5	6CB6	.3Ω	180Ω	.1Ω	0Ω	†3.7KΩ	†3.7KΩ	0Ω		
V 6	12AU7	2Meg	3.9KΩ	.3Ω	.1Ω	.1Ω	†6.8KΩ	†30KΩ	400KΩ	0Ω
V 7	6X8	0Ω	2.2Meg	†1.2Meg	.1Ω	0Ω	120Ω	3.9KΩ	†10KΩ	†22KΩ
V 8	12AU7	250KΩ	4.5Meg	†4.3KΩ	.1Ω	.1Ω	†7.5KΩ	470KΩ	11KΩ	0Ω
V 9	6AU6	8.5Ω	0Ω	0Ω	.1Ω	†4.3KΩ	†4.3KΩ	82Ω		
V 10	6AU6	120KΩ	0Ω	0Ω	.1Ω	†10KΩ	†5.3KΩ	0Ω		
V 11	6AL5	10KΩ	10KΩ	0Ω	.1Ω	INF	0Ω	INF		
V 12	6AV6	10Meg	0Ω	0Ω	.1Ω	350KΩ	350KΩ	†300KΩ		
V 13	6K6GT	INF	0Ω	†2.2KΩ	†1.8KΩ	470KΩ	INF	.1Ω	560Ω	
V 14	6SN7GT	†1.5Meg	†12.3KΩ	0Ω	1.8Meg	1.6Meg	0Ω	.1Ω	0Ω	
V 15	6K6GT	INF	.1Ω	†525Ω	†40Ω	1.8Meg	INF	0Ω	0Ω	
V 16	6SN7GT	1.5Meg	†45KΩ	410KΩ	480KΩ	†47KΩ	0Ω	.1Ω	0Ω	
V 17	6BQ6GT	INF	.1Ω	INF	†6.8KΩ	1Meg	2.2Meg	0Ω	180Ω	TOP CAP .8Ω
V 18	6AX4GT	INF	INF	1Meg	INF	†70Ω	INF	0Ω	.1Ω	
V 19	1B3GT	PIN 1 - 8 HAVE				INF	RESISTANCE			TOP CAP .380Ω
V 20	5U4G	INF	60KΩ	INF	13Ω	INF	13Ω	INF	60KΩ	
V 21	5Y3GT	INF	60 KΩ	INF	13Ω	INF	13Ω	INF	60KΩ	
V 22	21EP4A	0Ω	470KΩ	PIN 10 325KΩ	PIN 11 170KΩ	PIN 12 .1Ω				

† MEASURED FROM PIN 8 OF V21
 ▲ MEASURED FROM PIN 3 OF V18



TUBE PLACEMENT CHART

SET 242 FOLDER 8

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL				
<p><u>LOSS OF SWEEP</u></p> <p>Follow procedure outlined under "Loss of High Voltage".</p> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check by substitution V16, V17, V18, V20 and V21. Check adjustments B3, B4 and B5. Check waveform W16.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>If Satisfactory</p> <p>Check C116, C119, C120, C117, R119, T2, T4A and other associated components.</p> </td> <td style="vertical-align: top;"> <p>If Unsatisfactory</p> <p>Check R114, R116, C115 and other associated circuit components.</p> </td> </tr> </table> <p><u>DRIVE LINES</u></p> <p>Check adjustment B3. Check by substitution V16, V17 and V18. Check C114, C115, C119, C120, C123, T2, T4A and other associated circuit components for failure or change of value.</p> <p><u>COMPRESSED LEFT SIDE</u></p> <p>Check by substitution V16, V17 and V18. Check adjustments B3, B4 and B5. Check components associated with the horizontal output and damper stages especially T2 and T4A.</p> <p><u>FOLDS</u></p> <p>Follow procedure outlined under "Drive Lines".</p> <p><u>PIE CRUST EFFECT</u></p> <p>Check V17 and V18 for internal arcing. Check T2, T4A, T5 and T6 for internal arcing.</p> <p><u>XMAS TREE EFFECT</u></p> <p>Substitute V16. Check L43, C111, C110, C115, C114 and other associated components for failure or change of value.</p>	<p>If Satisfactory</p> <p>Check C116, C119, C120, C117, R119, T2, T4A and other associated components.</p>	<p>If Unsatisfactory</p> <p>Check R114, R116, C115 and other associated circuit components.</p>	<p><u>LOSS OF SWEEP</u></p> <p>Check by substitution V14 and V15. Check waveform W11.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>If Satisfactory</p> <p>Check T3, T4B, and other associated components.</p> </td> <td style="vertical-align: top;"> <p>If Unsatisfactory</p> <p>Check C91, C94, C95, C96, C93, R90, R96, R99 and other associated components.</p> </td> </tr> </table> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check adjustment of height and vertical linearity controls. Proceed as outlined under "Loss of Sweep".</p> <p><u>COMPRESSED AT BOTTOM</u></p> <p>Check by substitution V14 and V15. Check T3, T4B and other associated components for failure or change of value.</p> <p><u>COMPRESSED AT TOP</u></p> <p>Check by substitution V14 and V15. Check R94, R96, R99, R92, R93, R89, C94, C95, C96, C93 and other associated circuit components.</p> <p><u>FOLDS</u></p> <p>Check by substitution V14 and V15. Check components associated with V14B and V15 including T3 and T4B.</p>	<p>If Satisfactory</p> <p>Check T3, T4B, and other associated components.</p>	<p>If Unsatisfactory</p> <p>Check C91, C94, C95, C96, C93, R90, R96, R99 and other associated components.</p>
<p>If Satisfactory</p> <p>Check C116, C119, C120, C117, R119, T2, T4A and other associated components.</p>	<p>If Unsatisfactory</p> <p>Check R114, R116, C115 and other associated circuit components.</p>				
<p>If Satisfactory</p> <p>Check T3, T4B, and other associated components.</p>	<p>If Unsatisfactory</p> <p>Check C91, C94, C95, C96, C93, R90, R96, R99 and other associated components.</p>				

SYNC

<p><u>LOSS OF VERTICAL AND HORIZONTAL SYNC</u></p> <p>Check by substitution V6, V7, V8 and V14. Check coupling capacitors, plate load resistors, and grid resistors associated with these stages.</p> <p><u>LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY</u></p> <p>Check by substitution V7 and V14. Check waveform W9.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>If Satisfactory</p> <p>Check components associated with V14B.</p> </td> <td style="vertical-align: top;"> <p>If Unsatisfactory</p> <p>Check vertical integrator network and other associated components. Check video IF stages for overloading.</p> </td> </tr> </table>	<p>If Satisfactory</p> <p>Check components associated with V14B.</p>	<p>If Unsatisfactory</p> <p>Check vertical integrator network and other associated components. Check video IF stages for overloading.</p>	<p><u>LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY</u></p> <p>Check by substitution V6 and V16. Check associated components especially L43, R111, R114, C110, C115 and C103.</p> <p><u>HORIZONTAL BENDING</u></p> <p>Check by substitution V16 and V17. Check the horizontal AFC filter network for component failure or change of value.</p>
<p>If Satisfactory</p> <p>Check components associated with V14B.</p>	<p>If Unsatisfactory</p> <p>Check vertical integrator network and other associated components. Check video IF stages for overloading.</p>		

VIDEO

<p><u>LOSS OF VIDEO</u></p> <p>Check by substitution V7 and V8. Check components associated with V7A and V8A for failure or change of value. Check contrast control and picture tube.</p> <p><u>SOUND BARS (4.5MC BEAT)</u></p> <p>Adjust tuner fine tuning for best picture and sound. Check adjustment A48. Check video IF alignment.</p> <p><u>POOR CONTRAST</u></p> <p>Check by substitution V6, V7 and V8. Check contrast control, picture tube and other associated circuit components.</p>	<p><u>NEGATIVE PICTURE</u></p> <p>Check adjustment of the AGC control. Check by substitution V8, V7, V6, V4, V3 and V1. Check AGC network. Check components associated with the tuner and IF strip. Check picture tube and other associated components.</p> <p><u>SMEAR</u></p> <p>Check by substitution V6, V7 and V8. Check peaking coils, plate load resistors, grid load resistors, contrast control, coupling capacitors and other components associated with V6A, V7A and V8A. Check picture tube.</p> <p><u>WIDE BLACK BAR ACROSS PICTURE</u></p> <p>Check V1, V3, V4, V5, V7 and V8 for heater to cathode leakage.</p>
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AUDIO

<p><u>WEAK OR NO SOUND</u></p> <p>Check by substitution V9, V10, V11, V12 and V13. Check stages V12 and V13 using audio signal generator. Apply audio signal across R69.</p> <table border="0"> <tr> <td style="vertical-align: top;"> <p>If Satisfactory</p> <p>Check ratio detector and audio IF alignment and circuit components.</p> </td> <td style="vertical-align: top;"> <p>If Unsatisfactory</p> <p>Check components associated with V12 and V13 especially C78 and T7.</p> </td> </tr> </table>	<p>If Satisfactory</p> <p>Check ratio detector and audio IF alignment and circuit components.</p>	<p>If Unsatisfactory</p> <p>Check components associated with V12 and V13 especially C78 and T7.</p>	<p><u>BUZZ</u></p> <p>Adjust tuner fine tuning for best picture and sound. Adjust A45 for minimum buzz. If still unsatisfactory, substitute V11 and realign ratio detector and audio IF stages. Check C67, C71 and C70.</p> <p><u>DISTORTED</u></p> <p>Follow procedure outlined under "Weak or No Sound".</p>
<p>If Satisfactory</p> <p>Check ratio detector and audio IF alignment and circuit components.</p>	<p>If Unsatisfactory</p> <p>Check components associated with V12 and V13 especially C78 and T7.</p>		

TROUBLE SHOOTING AIDS (cont)

POWER

DEAD SET

If filaments fail to light, check AC interlock assembly, switch on volume control and T1. If filaments light, substitute V20 and V21. Check B+ filter and decoupling network components.

SMALL AND/OR DIM PICTURE

Check by substitution V20 and V21. Check B+ filter and decoupling network components.

HIGH VOLTAGE

LOSS OF HIGH VOLTAGE

Check by substitution V16, V17, V18 and V19. Check waveform W16.

If Satisfactory

Check T2, T4A, C122, R121, and other associated circuit components.

If Unsatisfactory

Check C115, R116 and other associated components.

INSUFFICIENT HIGH VOLTAGE

Check by substitution V16, V17, V18, V19, V20 and V21. Check picture tube. Proceed as outlined under "Loss of High Voltage".

BLOOMING

Check by substitution V16, V17, V18, V19, V20 and V21. Check T2, T4A, C122, R121, R119, C116, picture tube and other associated circuit components.

GENERAL

RASTER SOUND NO PICTURE

Follow procedure outlined under "Loss of Video".

RASTER PICTURE NO SOUND

Follow procedure outlined under "Weak or No Sound".

RASTER NO SOUND NO PICTURE

Check by substitution V1, V2, V3, V4, V5 and V6. Check associated circuit components.

NO RASTER NO SOUND

Follow procedure outlined under "Dead Set".

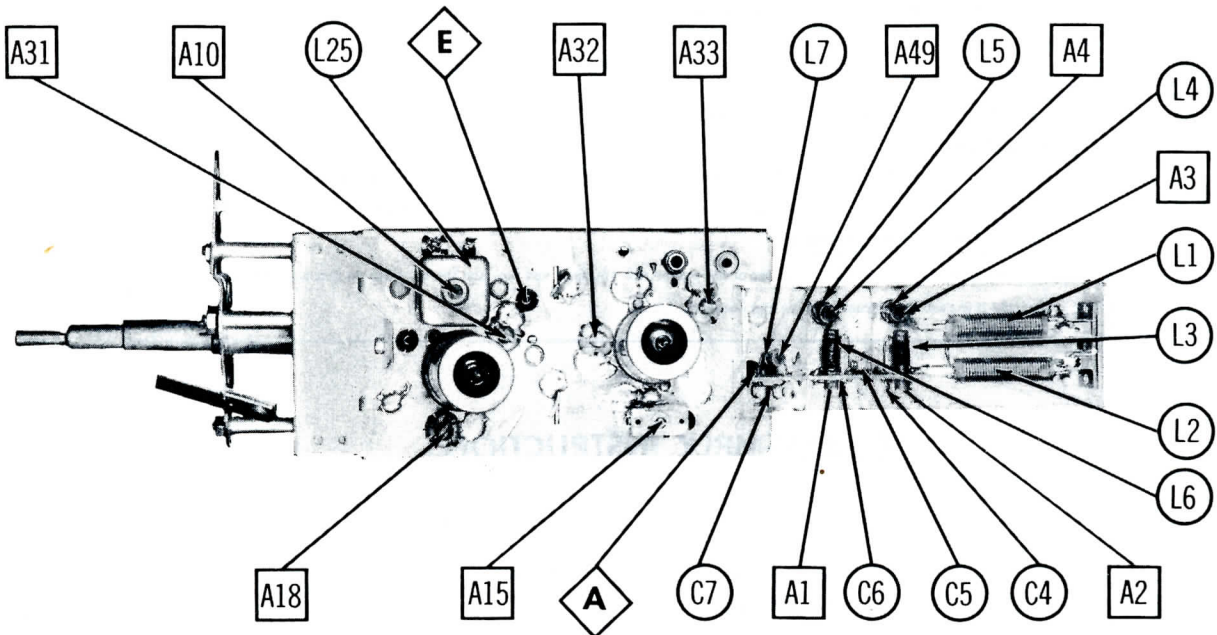
KEYSTONE EFFECT

Check T4, C123, R122, R123 and R124.

INTERMITTENT STREAKS

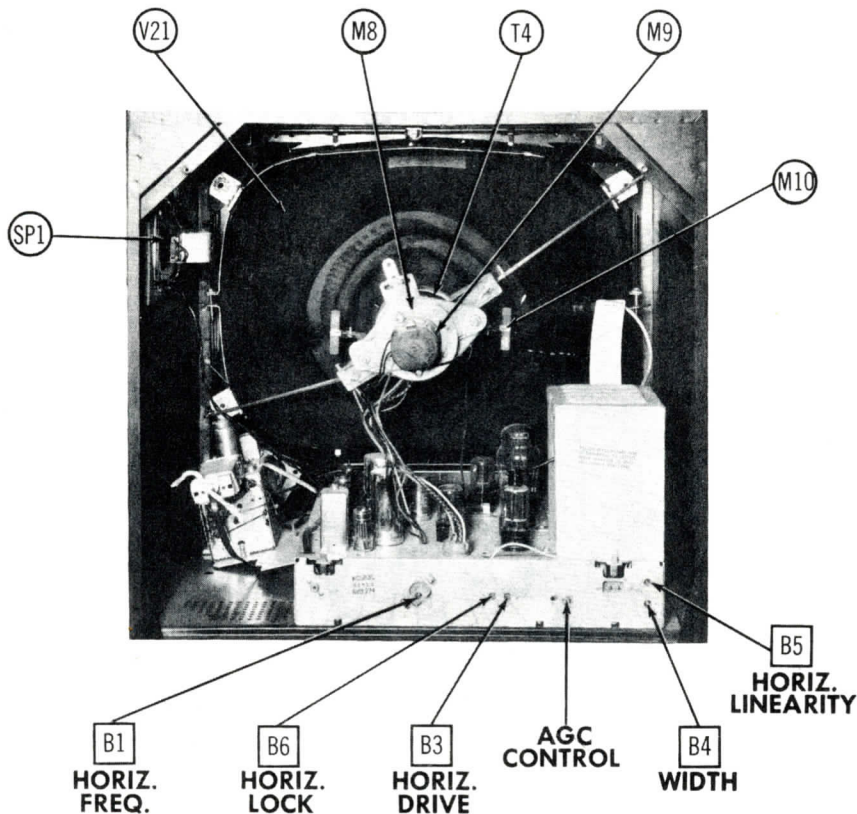
Check high voltage section for corona discharge and arcing.

Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



VHF TUNER TOP VIEW

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KC583 Series)



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL FREQUENCY ADJUSTMENT

Turn the set on and tune in a TV station, preferably a test pattern. If the picture cannot be synchronized horizontally with the horizontal hold control, adjust the horizontal frequency slug (B1) until the picture synchronizes. If picture still will not synchronize, adjust the horizontal waveform slug (B2) several turns out of the coil and readjust B1 to synchronize the picture. If picture width or linearity is incorrect, adjust the horizontal drive trimmer (B3) and the width control slug (B4) and the horizontal linearity slug (B5) for proper results.

HORIZONTAL WAVEFORM ADJUSTMENT

The horizontal waveform adjustment is made at the factory and normally will require no adjustment. B1 and B2 are adjusted simultaneously while watching the picture. Set the horizontal hold control fully clockwise. Turn B1 until the picture falls out of sync and 3 or 4 diagonal bars sloping down to the right appears on the screen.

Turn B2 clockwise, at the same time adjusting B1 to maintain 3 or 4 diagonal bars on the screen.

Continue adjusting B1 and B2 in that manner until the oscillator begins to motorboat, then adjust B2 counter clockwise until the motorboating stops. To check adjustment turn B1 until picture synchronizes, then reverse the direction until picture falls out of sync with the diagonal bars sloping down to the right.

Continue to turn B1 in the same direction. No additional bars should appear on the screen. Instead the horizontal oscillator should start to motorboat.

Retouch B2 until this condition is obtained.

To observe the horizontal waveform connect the low capacity probe of an oscilloscope to terminal "C" of L43. Turn the horizontal hold control 1/4 turn from clockwise so that picture is in sync. The waveform on the scope should appear as in Fig. 12.

Adjust B2 for broad and narrow peaks of equal height as in Fig. 12. If necessary, while adjusting B2, keep the picture in sync with the horizontal hold control. Remove the oscilloscope.

HORIZONTAL LOCKING RANGE ADJUSTMENT

With the horizontal hold control in full counter clockwise position, momentarily interrupt the signal by switching off channel and back again. If picture remains in sync turn B1 slightly and again switch off channel, repeating procedure until picture loses sync with diagonal bars sloping down to the left. Slowly turn the horizontal hold control clockwise and note the least number of bars obtained just before the picture pulls into sync. If the number is more than three adjust the horizontal locking trimmer (B6) slightly clockwise. If the number is less than two adjust B6 slightly counter clockwise. Recheck as above for the least number of bars and readjust B6 if necessary, until two or three bars are present. Turn the horizontal hold control fully clockwise and adjust B1 until the diagonal bar sloping down to the right appears on the screen, then reverse direction of adjustment of B1 until the diagonal bar just disappears, leaving the picture in synchronization.

AGC CONTROL ADJUSTMENT

Connect the vertical amplifier of oscilloscope to pin 9 (plate of the video amplifier (6X8). Connect low side to chassis. Tune in a strong station and adjust scope to observe video waveform. Rotate the AGC control clockwise until sync pulse tips begin to be compressed, then counter clockwise until the compression disappears.

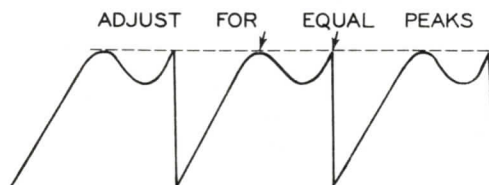
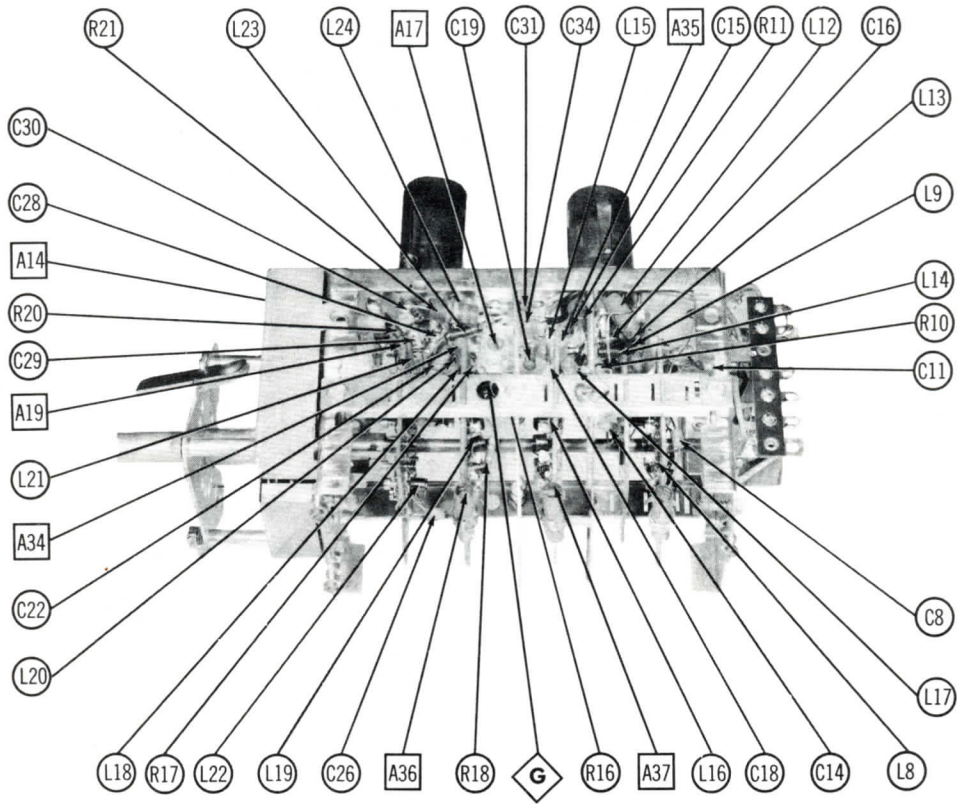
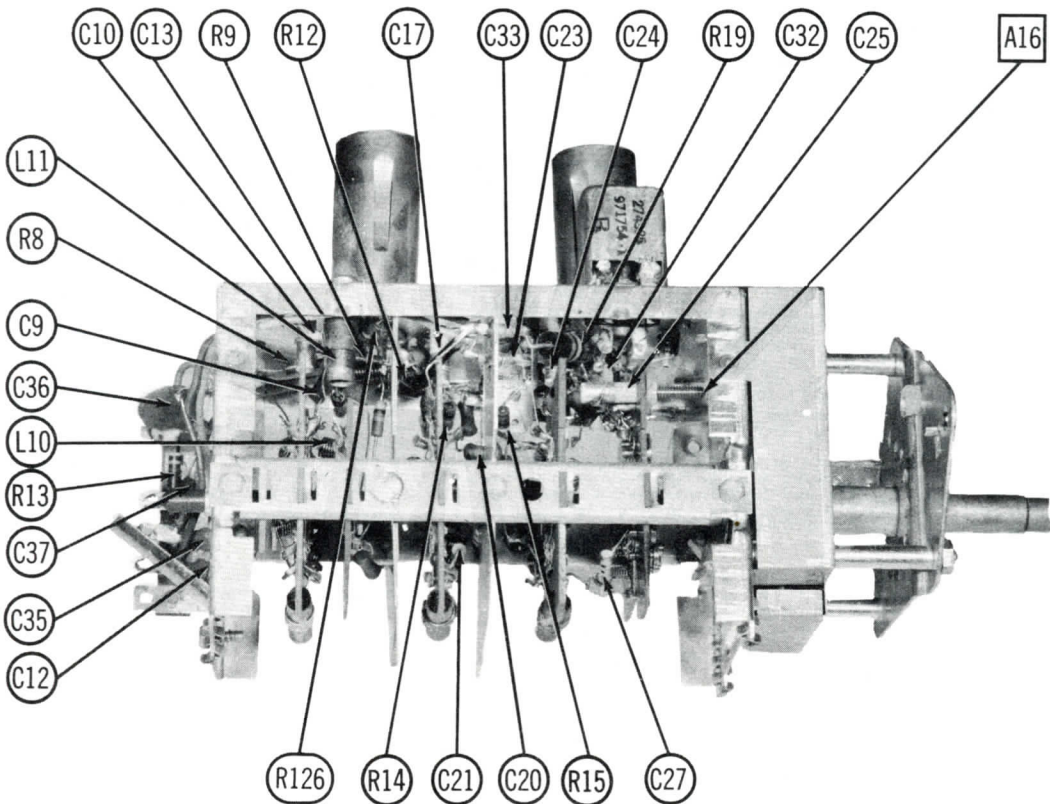


FIG. 12

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)



VHF TUNER-RIGHT SIDE



VHF TUNER-LEFT SIDE

PARTS LIST & DESCRIPTION

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETMA BASE TYPE	NOTES
		RCA Victor PART No.	STANDARD REPLACEMENT		
V1	RF-Amplifier	6BQ7A	6BQ7A	9AJ	
V2	Converter	6X8	6X8	9AK	
V3	1st Video IF Amp.	6CF6	6CF6	7CM	
V4	2nd Video IF Amp.	6CF6	6CF6	7CM	
V5	3rd Video IF Amp.	6CB6	6CB6	7CM	
V6	Video Detector- Horiz. -Sync-Sep.	12AU7	12AU7	9A	
V7	Video Amplifier- Vert. Sync Sep.	6X8	6X8	9AK	
V8	Video Output- AGC Keying	12AU7	12AU7	9A	
V9	1st Sound IF Amp.	6AU6	6AU6	7BK	
V10	2nd Sound IF Amp.	6AU6	6AU6	7BK	
V11	Ratio Detector	6AL5	6AL5	6BT	
V12	AF Amplifier- AGC Clamper	6AV6	6AV6	7BT	
V13	Audio Output	6K6GT	6K6GT	7S	
V14	Sync Amplifier- Vert. Mult.	6SN7GT	6SN7GT	8BD	
V15	Vert. Mult. - Vert. Output	6K6GT	6K6GT	7S	
V16	Horiz. AFC - Horiz. Oscillator	6SN7GT	6SN7GT	8BD	
V17	Horiz Output	6BQ6GT	6BQ6GT	6AM	
V18	Damper	6AX4GT	6AX4GT	4CG	
V19	HV Rectifier	1B3GT	1B3GT	3C	
V20	LV Rectifier	5U4G	5U4G	5T	
V21	LV Rectifier	5Y3GT	5Y3GT	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					RETMA BASE TYPE	NOTES
	RCA Victor PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V22A	21EP4A	21EP4A 21EP4B ①	21EP4A	21EP4A	21EP4A 21EP4B ①	12N 12N	① Aluminized ② Circuit changes necessary
B	21ZP4A	21ZP4A	21ZP4A	21ZP4A	21ZP4A	12N	
C	21AP4	21AP4 ②	21AP4 ②			12D	

CAPACITORS

Capacity values given in the rating column are in mfd. for Electrolytic and Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRAL LAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	.80	400	77644	AFH2-63		C036		FP444.8	TVL-2673	
B	.20	400								
C2A	.100	400	78212	AFH2-91		C152		FP431.4	TVL-3672	
B	.20	50								
C3A	.10	350	78213	AFH3-136		C153		FP231	TVL-3637	
B	.5	350						TC47		
C	.30	50								
C4	18		54207	SI18NP0	TCZ-18	TZ12	NP0K-180		5TCC-Q18	
C5	5		93056	SI5NP0	TCZ-4.7	TZ07	NP0K-050	ZT-555	5TCCB-V47	
C6	27		70935	SI27NP0	TCZ-27	TZ16	NP0K-270		5TCC-Q27	
C7	33		78739	SI33NP0	TCZ-33	TZ18	NP0K-330	ZT-5433	5TCC-Q33	
C8	3.3		71504	SI3.3NP0	TCZ-3.3	TZ06	NP0K-3R3	ZT-5533	5TCCB-V33	Note 2
C9	270		75199	SI270	D6-271	TP41	GP2K-271	UC-5327	5GA-T27	
C10	.8-3				829-3		311-01-0R5			Note 6
C11	1000		77084	EF-001	MFT-1000				503C-D1	
C12	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C13	1000		77252	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C14	270		75199	SI270	D6-271	TP41	GP2K-271	UC-5327	5GA-T27	
C15	1000		77252	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C16	1000		77252	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 2
C17	1-4				829-4		3115-01-10			Note 7
C18	2.2		71502	SI2.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	
C19	150		78276	SI150	D6-151	TP36	GP2K-151	UC-5315	5GA-T15	
C20	270		75199	SI270	D6-271	TP41	GP2K-271	UC-5327	5GA-T27	
C21	2.2		71502	SI2.2NP0	TCZ-2.2	TZ05	NP0K-2R2		5TCCB-V22	Note 2
C22	100		75437	SI100	D6-101	TP34	GP1K-101	UC-531	5GA-T1	Note 2
C23	1000		77084	EF-001	MFT-1000				503C-D1	
C24	.8-3		77151		829-3		3115-01-0R5	CT565A		
C25	.8-3		77913		829-3		3115-01-0R5	CT565A		
C26	.68		71504		TCZ-.68	TZ02	NP0K-R68			
C27	10		77865	SI10NP0	TCZ-10	TZ09	NP0K-100	ZT-541	5TCC-Q1	Note 2
C28	10		78247	SI10NP0	TCZ-10	TZ09	NP0K-100	ZT-541	5TCC-Q1	
C29	10		77865	SI10NP0	TCZ-10	TZ09	NP0K-100	ZT-541	5TCC-Q1	
C30	.8-3		77151		829-3		3115-01-0R5	CT565A		
C31	1000		77084	EF-001	MFT-1000				503C-D1	
C32	82			SI82	D6-820	G040	GPIK-820	UC-5482	5GA-Q82	Note 8
C33	1000		77084	EF-001	MFT-1000				503C-D1	
C34	1000		77084	EF-001	MFT-1000				503C-D1	
C35	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C36	10000		73960	BPD-01	DD-103	K082	811-01	DC-511	5HK-S1	
C37	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C38	.22	400	73794	P488-22		CUB4P22		PT4025	4TM-P22	
C39	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C40	15		39044	SI15N750	TCN-15	TN03	N750K-150	NT-5415	5TCC-Q15	
C41	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C42	.47	200	73787	P488-47		CUB2P47		PT405	2TM-P47	
C43	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C44	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C45	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C46	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C47	470		77293	BPD-00047	D6-471	K060	821-471	UC-5347	5GA-T47	
C48	1000		77253	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	

(CONT'D ON NEXT PAGE)

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

PARTS LIST & DESCRIPTION (continued)

CONTROLS (cont)

MALLORY PART No.	SPRAGUE PART No.	NOTES
UC-5347	5GA-T47	Note 2
UC-5347	5GA-T47	
DC-511	5HK-S1	Note 2
UC-5347	5GA-T47	
UC-5347	5GA-T47	Note 2
ZT-541	5TCC-Q1	
ZT-5447	5TCC-Q47	
UC-5447	5GA-Q47	Note 2
PT6147	6TM-S47	
PT601	6TM-P1	Note 2
MCK322	10GA-T22	
PT6222	6TM-D22	Note 2
PT621	6TM-D1	
PT621	6TM-D1	Note 2
DC-521	5HK-2S1	
DC-521	5HK-S1	Note 2
DC-521	5HK-S1	
PT405	2TM-P47	Note 2
UC-5347	5GA-T47	
UC-5347	5GA-T47	Note 2
MCB245	MS-35	
MCB245	MS-35	Note 2
PT621	6TM-D22	
PT6247	6TM-D47	Note 2
PT4133	4TM-S1	
PT401	4TM-S1	Note 2
UC-5327	5GA-T27	
PT411	4TM-S1	Note 5
PT401	4TM-P1	
PT6133	4TM-P1	Note 4
PT6233	6TM-D33	
PT601	6TM-P1	Note 1
PT6147	6TM-S47	
PT6122	6TM-S22	Note 4
PT6122	6TM-S22	
PT6121	MB-D1	Note 3
PT6147	6TM-S47	
PT6247	6TM-D47	Note 3
PT601	6TM-P1	
PT6147	6TM-S47	Note 3
PT405	2TM-P47	
PT4122	4TM-S22	Note 1
PT401	4TM-P1	
PT621	6TM-D1	Note 1
MS-47	MS-47	
UC-5412	5GA-Q12	Note 2
PT6122	MB-S22	
PT401	4TM-P1	Note 3
PT601	6TM-P1	

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R6A	75KΩ		77639	Q11-125	A47-75K-S	AB-35	U-41	Horiz. Hold Attach to R6A AGC Attach to R7A
B	Shaft		Not Req.	KSS-3	AK-4	AK-4	Not Req.	
R7A	500KΩ		76975	Q11-133	A47-500K-S	AB-59	SU-50	
	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	

* CONC TRIKIT EQUIVALENT KIT K-2 BASE ELEMENTS & SHAFTS B17-116 & P1-200 (Panel)
B13-137X & R1-216 (Rear) & SWITCH 76-1.
† Universal replacement (Mallory exact duplicate Part No. UE775S)

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.			OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R8	6800Ω		503268	BTS-6800		R87	10KΩ 5%	502310	BTS-10K 5%	Note 2	
R9	120Ω		502112	BTS-120		R88	12KΩ	503312	BTS-12K		
R10	1000Ω		503210	BTS-1000		R69	10 Meg	503610	BTS-10 Meg	Note 4	
R11	1 Meg		503510	BTS-1 Meg		R70	300KΩ 5%	503447	BTA-330K 5%		
R12	1 Meg		503510	BTS-1 Meg		R71	470KΩ	503427	BTS-470K		
R13	470Ω		503147	BTS-470		R72	560Ω	513156	BTA-560	Note 6	
R14	1000Ω		503210	BTS-1000		R73	1800Ω	523218	BTB-1800		
R15	100KΩ		503410	BTS-100K		R74	10KΩ	503310	BTS-10K		
R16	100KΩ		503410	BTS-100K		R75	680KΩ	503468	BTS-680K		
R17	33Ω		502033	BTS-33		R76	6800Ω	503368	BTS-6800		
R18	3300Ω		503233	BTS-3300		R77	68KΩ	503318	BTS-68K		
R19	15KΩ		523315	BTB-15K		R78	18KΩ	503318	BTS-18K		
R20	1.00KΩ		503410	BTS-100K		R79	270KΩ	503427	BTS-270K		
R21	12KΩ		523312	BTB-12K		R80	2.2Meg	503522	BTS-2.2Meg		
R22	1.5 Meg 5%		502515	BTS-1.5Meg 5%		R81	59KΩ	503339	BTS-59K		
R23	1000Ω		503210	BTS-1000		R82	1.2Meg	503339	BTS-1.2Meg		
R24	180K 5%		502418	BTS-180K 5%		R83	47KΩ	503347	BTS-47K		
R25	15KΩ		503315	BTS-15K		R84	4700Ω	503247	BTA-4700		
R26	1000Ω		503210	BTS-1000		R85	3300Ω 5%	30733	BTS-330 5%		
R27	150KΩ		502415	BTS-150K		R86	22KΩ	503322	BTS-22K		
R28	68Ω		502068	BTS-68		R87	18KΩ	503318	BTS-18K		
R29	1000Ω		503210	BTS-1000		R88	18KΩ	503318	BTS-18K		
R30	56KΩ		502356	BTS-56K		R89	22KΩ	503322	BTS-22K		
R31	43KΩ 5%		502343	BTS-43K 5%		R90	470KΩ	503447	BTS-470K		
R32	33Ω 5%		502033	BTS-33 5%		R91	270KΩ	503427	BTS-270K		
R33	1000Ω		503210	BTS-1000		R92	18KΩ 5%	502318	BTS-18K 5%		
R34	1.5 Meg		502515	BTS-1.5Meg		R93	390KΩ	503439	BTS-390K		
R35	3800Ω		77671			R94	33KΩ 5%	502333	BTS-33K 5%		
R36	56KΩ 5%		502356	BTS-56K 5%	Note 3	R95	8200Ω	503282	BTS-8200		
R37	180Ω		502118	BTS-180	Note 3	R96	470KΩ	503447	BTS-470K 5%		
R38	47KΩ		503347	BTS-47K	Note 3	R97	820KΩ 5%	502482	BTS-820K 5%		
R39	12KΩ		503312	BTS-12K	Note 3	R98	470KΩ 5%	502447	BTS-470K 5%		
R40	3900Ω 5%		502239	BTS-3900 5%		R99	22KΩ 5%	502322	BTS-22K 5%		
R41	120Ω		503112	BTS-120		R100	3300Ω	503233	BTS-3300		
R42	3.9Meg		503539	BTS-3.9Meg	Note 3	R101	15KΩ	503315	BTS-15K		
R43	12KΩ		503312	BTS-12K		R102	22KΩ	503222	BTS-22K		
P44	18KΩ		523318	BTB-18K		R103	68KΩ	503368	BTS-68K		
K45	560Ω		503256	BTS-560		R104	150KΩ	503415	BTS-150K		
R46	470KΩ		503447	BTS-470K		R105	330KΩ	503433	BTS-330K		
R47	180Ω		503118	BTS-180	Note 3	R106	500Ω	503482	BTS-500Ω		
R48	1500Ω		503215	BTA-1500		R107	330KΩ	503433	BTS-330K		
R49	7500Ω 5%		512275	BTA-7500 5%		R108	82KΩ	503382	BTS-82K		
R50	470KΩ		503447	BTS-470K		R109	150KΩ 5%	512415	BTA-150K 5%		
R51	22KΩ		503422	BTS-22K		R110	3900Ω	503239	BTS-3900		
R52	150KΩ		503415	BTS-150K	Note 1	R111	1.8Meg 5%	512518	BTA-1.8Meg 5%		
R53	3.9 Meg		503539	BTS-3.9Meg		R112	18KΩ	503318	BTS-18K		
R54	470KΩ		503447	BTS-470K		R113	820KΩ 5%	502482	BTS-820K 5%		
R55	390KΩ		503439	BTS-390K		R114	47KΩ 5%	513347	BTA-47K 5%		
R56	47KΩ		513347	BTA-47K		R115	2.2Meg	503522	BTS-2.2Meg		
R57	68KΩ		503368	BTS-68K		R116	1 Meg	503510	BTS-1 Meg		
R58	82Ω		503082	BTS-82		R117	47Ω	503047	BTS-47		
R59	1000Ω		513210	BTA-1000		R118	180Ω	76639	BTS-6800		
R60	3300Ω		77670			R119	6800Ω	523268	BTB-6800		
R61	470Ω		503447	BTS-470		R120	56KΩ	503356	BTS-56K		
R62	1000Ω		503210	BTS-1000		R121	.82Ω	76382	BTS-1000		
R63	10KΩ		523310	BTB-10K		R122	1000Ω	503210	BTS-560		
R64	47Ω		503047	BTS-47		R123	560Ω	503210	BTS-560		
R65	39KΩ		503339	BTS-39K		R124	560Ω	503210	BTS-560		
R66	10KΩ 5%		502310	BTS-10K 5%		R125	100KΩ	503210	BTA-100K		

- Note 1. Some models may use a 270KΩ resistor in this application.
- Note 2. Some models may use a 330KΩ resistor in this application.
- Note 3. Not used in all models.
- Note 4. Some models may use a 5600Ω resistor in this application.
- Note 5. Some models may use an 820Ω resistor in this application.
- Note 6. Some Models may use a 390KΩ resistor in this application.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triod PART No.	RCA TYPE No.	Haldorson PART No.	Thordarson PART No.
T1	117VAC @1.9A	550VCT .280ADC	5VA @5A	78200	P-8167 ①			R-61BC ②		26R00 ③
		SEC. 3	SEC. 4	SEC. 5						
		6.3VAC @9.5A								

- ① Parallel and phase 6.3V windings and use as Sec. 3.
- ② Drill new mounting holes.
- ③ Parallel and phase 4 6.3V @ 3A windings and use as Sec. 3.

INSTALLATION NOTES	
Contrast (Panel)	Volume tapped at 250K (Rear)
Attach to R1B	Brightness
Attach to R2A	Height
Attach to R3A.	Vert. Linearity
Attach to R4A	Vert. Hold
Attach to R5A	

ITEM No.	USE
T2	Horiz. Output Trans.
T3	Vert. Output Trans.
T4	Yoke-Horiz. (13.4MH)
T5	Yoke-Vert. (37MH)
T6	Horiz. Lin. Coil (2-8.5MH)
	Width Coil (1.8-13MH)

① Drill new mounting holes.
② Connect as auto transformer.
③ Includes the following items:
④ Enlarge mounting hole.
⑤ Connected to coded blue and red.
⑥ Alternate deflection yoke for

ORIGINAL TERMINAL CONNECTION	5
	4
	3
	2
	1
Connect Width Coil Across	2 & 1
Special Notes	

ITEM No.	IMPEDANCE		RCA Victor PART No.
	PRI.	SEC.	
T7	6.5KΩ	3.5Ω	76997

ITEM No.	RATINGS		
	SIZE	FIELD	V. C. IMP.
SP1A	5"	PM	3.5Ω
B	8"	PM	3.5Ω

ITEM No.	USE	DC RES.
		PRI.
L1	Ant. Trans.	.6Ω
L2	Ant. Trans.	.6Ω
L3	IF Trap	0Ω
L4	Ant. Shunt Coil	0Ω
L5	Ant. Shunt Coil	0Ω
L6	IF Trap	0Ω
L7	FM Trap	0Ω
L8	Ant. Coils	0Ω
L9	Ant. Coil	0Ω
L10	Ant. Coil	0Ω
L11	UHF IF Input Coil	0Ω
L12	Fill. Choke	0Ω
L13	IF Trap	.3Ω
L14	Neutr. Coil	0Ω
L15	RF Coil	0Ω
L16	RF Coils	0Ω
L17	RF Coil	0Ω
L18	Mixer grid coil	0Ω

TION (continued)

CENTRAL LAB PART No.	MALLORY PART No.	INSTALLATION NOTES
AB-35 AK-4 AB-59 AK-1	U-41 Not Req. SU-50 Not Req.	Horiz. Hold Attach to R6A AGC Attach to R7A

SHAFTS B17-116 & P1-200 (Panel)
WITCH 76-1.
(75S)

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
37	10KΩ	5%	502310	BTS-10K 5%	Note 2
38	12KΩ		503312	BTS-12K	
39	10 Meg		503610	BTS-10 Meg	
70	300KΩ	5%		BTA-330K 5%	
71	470KΩ		503447	BTS-470K	
72	560Ω		513156	BTA-560	
73	1800Ω		523218	BTB-1800	
74	10KΩ		503310	BTS-10K	
75	680KΩ		503468	BTS-680K	
76	6800Ω			BTS-6800	Note 4
77	68KΩ		503368	BTS-68K	
78	18KΩ		503318	BTS-18K	
79	270KΩ		503427	BTS-270K	
80	2.2Meg		503522	BTS-2.2Meg	
81	39KΩ		503339	BTS-39K	
82	1.2Meg		503512	BTS-1.2Meg	
83	47KΩ		503347	BTS-47K	
84	4700Ω		503247	BTA-4700	
85	3300Ω	5%	30733	BTS-330 5%	
86	22KΩ		503322	BTS-22K	
87	18KΩ		503318	BTS-18K	
88	18KΩ		503318	BTS-18K	
89	22KΩ		503322	BTS-22K	
90	470KΩ		503447	BTS-470K	
91	270KΩ		503427	BTS-270K	
92	18KΩ	5%	502318	BTS-18K 5%	
93	390KΩ		503439	BTS-390K	
94	33KΩ	5%	502333	BTS-33K 5%	
95	8200Ω		503282	BTS-8200	
96	470KΩ		503447	BTS-470K	
97	820KΩ	5%	502482	BTS-820K 5%	
98	470KΩ	5%	502447	BTS-470K 5%	
99	22KΩ	5%	502322	BTS-22K 5%	
100	3300Ω		503233	BTS-3300	
101	15KΩ		503315	BTS-15K	
102	22KΩ		503222	BTS-22K	
103	68KΩ		503368	BTS-68K	
104	150KΩ		503415	BTS-150K	
105	330KΩ		503433	BTS-330K	
106	820KΩ		503482	BTS-820K	
107	330KΩ		503433	BTS-330K	
108	82KΩ		503382	BTS-82K	
109	150KΩ	5%	512415	BTA-150K 5%	
110	3900Ω		503239	BTS-3900	
111	1.8Meg	5%	512518	BTA-1.8Meg 5%	
112	18KΩ		503318	BTS-18K	
113	820KΩ	5%	502482	BTS-820K 5%	
114	47KΩ	5%	513347	BTA-47K 5%	
115	2.2Meg		503522	BTS-2.2Meg	
116	1 Meg		503512	BTS-1 Meg	
117	47Ω		503047	BTS-47	
118	180Ω		76639		
119	6800Ω		523268	BTB-6800	
120	56KΩ		503356	BTS-56K	
121	.82Ω		76382		
122	1000Ω		503210	BTS-1000	
123	560Ω			BTS-560	
124	560Ω			BTS-560	
125	100KΩ			BTA-100K	

istor in this application.
istor in this application.
istor in this application.
istor in this application.
istor in this application.

(POWER)

REPLACEMENT DATA				
Merit PART No.	Triad PART No.	RCA TYPE No.	Haldorson PART No.	Thordarson PART No.
	R-61BC ②			26R00 ② ③

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Haldorson PART No.	Thordarson PART No.
T2	Horiz. Output Trans.	78201		*A-8137	*HV0-9	*D-19		
T3	Vert. Output Trans.	78202		A-8145 ②	A-3038 ②	A-108X		*FB411
T4A	Yoke-Horiz. (13.4MH)	76616 ③		D6-9A	MDF-72	Y-17		Z1802 ②
B	Yoke-Vert. (37MH)	77697 ④ ⑤						DF602
T5	Horiz. Lin. Coil (2-8.5MH)	76442	WC-8	MWC-6 ④	WC-12 ⑤			
T6	Width Coil (1.8-13MH)	78205	WC-8	MWC-6 ④	WC-12 ⑤			

- ① Drill new mounting holes.
- ② Connect as auto transformer.
- ③ Includes the following items: 6 contact male connector (part #75542), C123, R122, R123, R124.
- ④ Enlarge mounting hole.
- ⑤ Connected to coded blue and red terminals.
- ⑥ Alternate deflection yoke for all chassis with printed circuit IF.

*** HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA**

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Stancor Replacement Connections	Merit Replacement Connections	Triad Replacement Connections	RCA Replacement Connections	Haldorson Replacement Connections	Thordarson Replacement Connections
5	7	9	9		9	
4	4	8	7 & 8		8	
3	T	7 or 5	5		7 or 5	
2	3	3	3		3	
1	1	1	1		1	
Connect Width Coil Across	2 & 1	3 & 1	3 & 1		3 & 1	
Special Notes		①	①	①	①	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Haldorson PART No.	Thordarson PART No.	
T7	6.5KΩ	3.5Ω	76997	A-3878 ①	A-3020	S-5X ①	Z1113 ①	T-26848	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	JENSEN PART No.	QUAM PART No.	
SP1A	5"	PM	3.5Ω	77000	ST-105 (Mod. P5-X)	5A07	① Used in Models 21S362M and 21-S362U
B	8"	PM	3.5Ω	75022 ①			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Trans.	.8Ω	.6Ω	73591				See Note 1 Includes core; core Part # 76543 Includes stator complete with rotor & coils Channel 13; core Part # 77914 Includes stator complete with rotor, coils, L15, L17, C19, C21, & R14 Channel 2 Channel 13; core Part # 77914
L2	Ant. Trans.	.8Ω	.6Ω	73591				
L3	IF Trap	0Ω		76542				
L4	Ant. Shunt Coil	0Ω		76538				
L5	Ant. Shunt Coil	0Ω		76537				
L6	IF Trap	0Ω		76541				
L7	FM Trap	0Ω		76540				
L8	Ant. Coils	0Ω		78398				
L9	Ant. Coil	0Ω		77859				
L10	Ant. Coil	0Ω		78401				
L11	UHF IF Input Coil	0Ω		78271				
L12	Fl. Choke	0Ω		77206				
L13	IF Trap	0Ω	.3Ω					
L14	Neutr. Coil	0Ω		76562				
L15	RF Coil	0Ω		77921				
L16	RF Coils	0Ω		78274				
L17	RF Coil	0Ω						
L18	Mixer grid coil	0Ω		77919				

(CONT'D ON NEXT PAGE)

RCA VICTOR MODELS 21-S-348, G, GU, U, 21-S-353, G, GU, U, 21-S-354, G, GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G, GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)

PARTS LIST & DESCRIPTION (continued)

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L19	Mixer grid coils	0Ω		78272				Includes stator complete with rotor, coils, L18, L20, C20, C27, R15, R16, R17 & R18
L20	Mixer grid coil	0Ω						
L21	Osc. Coil	0Ω		77915				Channel 2 Channel 13; core Part # 77914
L22	Osc. Coils	0Ω		77911				
L23	Fil. Choke	0Ω		76763				Note 3 Includes 27KΩ resistor
L24	Fil. Choke	0Ω		78763				
L25	Conv. Plate	.3Ω	.1Ω	78399				
L26	47.25MC Trap	.1Ω		78204	20-1047		6219 †	
L27	1st Video IF	.1Ω	.2Ω	78203	17-4523		6219	
L28	Fil. Choke	0Ω		73477	19-3001	TV-189	4604	1.36 Microhenries
L29	2nd Video IF	.3Ω	.3Ω	76433	17-4523		6219	See Note 2
L30	Fil. Choke	0Ω		73477	19-3001	TV-189	4604	1.36 Microhenries
L31	3rd Video IF	.3Ω	.3Ω	76433	17-4523		6219	See Note 2
L32	Fil. Choke	0Ω		73477	19-3001	TV-189	4604	1.36 Microhenries
L33	4th Video IF	.3Ω	.3Ω	76433	17-4523		6219	See Note 2
L34	Series Peaking Coil	5Ω		75253	19-3125		6153	120 Microhenries
L35	Shunt Peaking Coil	8.5Ω		71526	19-3250	TV-185	6181	250 Microhenries
L36	4.5MC Trap	3.3Ω		76983	20-1004	TV-151	1470	RCA Part # includes C55
L37	Series Peaking Coil	7.5Ω		77674	19-3250 *	TV-185 *	6181 *	250 Microhenries; wound on 27KΩ resistor
L38	Shunt Peaking Coil	11Ω		78222	19-3250 ■	TV-185 ■	6181 ■	250 Microhenries; wound on 6.8KΩ resistor
L39	Series Peaking Coil	5Ω		71529	19-3125 ▲	TV-182	6178	120 Microhenries; wound on 22KΩ resistor
L40	Shunt Peaking Coil	12Ω		75252	19-3500	TV-188	6174	500 Microhenries
L41	Sound IF	1.5Ω		76981	17-1071			Includes 22MMF capacitor & 120KΩ resistor
L42	Ratio Det.	10Ω	.3ΩCT	77112	17-1033	TV-110	1468	Tertiary winding= 5Ω
L43	Horiz. Osc.	130Ω		76440	20-1402	TV-162	6183	Pri. tapped @ 95Ω; horiz. waveform winding=40Ω
L44	RF Choke	.72Ω		76640	19-1001		4604	1.5 Microhenries; Part # CL-1

Note 1. Complete antenna matching transformer (Part # 78396); includes L1 & L2.
 Note 2. Chassis KCS83PC, KCS83PD, KCS83PJ, KCS83PK, KCS83PL, KCS83PM, use printed circuit type of IF transformers replaceable with one unit. Unit includes L29, L31, & L33.
 Note 3. Not used in all models.
 † Use one winding only.
 * Parallel with 27KΩ resistor.
 ■ Parallel with 6.8KΩ resistor.
 ▲ Parallel with 22KΩ resistor.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 C)	RCA Victor PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	Halldorson PART No.	Thordarson PART No.
L45	.280ADC	38Ω	1.06 Hy.	77676	C-2326Ⓛ	C-2996Ⓛ	C-17X Ⓛ	C5037Ⓛ	F-26C44Ⓛ

Ⓛ Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3/10A	78214	78218	312.300 (3AG-3/10A)	357001	AGC 3/10	4405

CRYSTAL DIODES

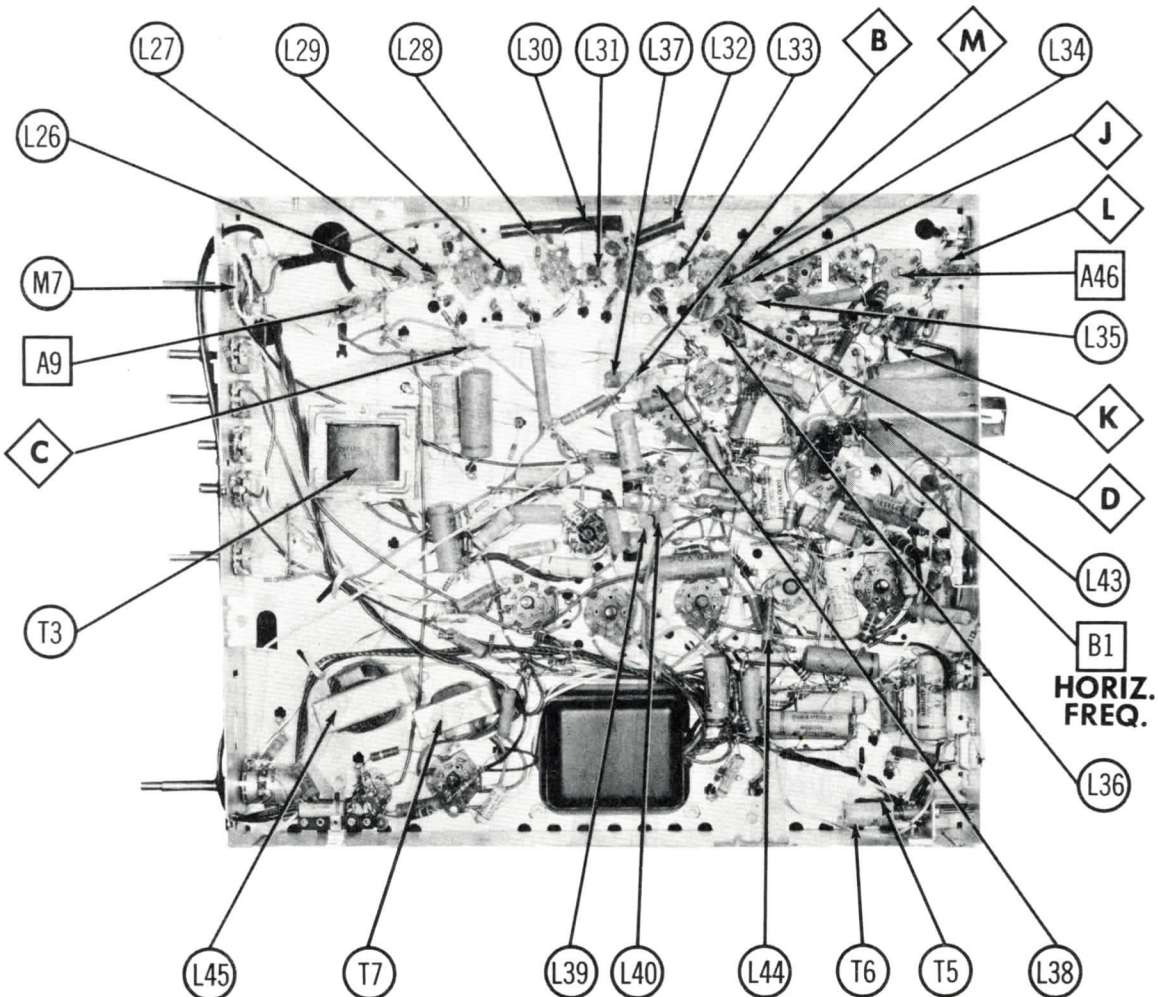
ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	SYLVANIA PART No.	FEDERAL PART No.	
M2	1N82		1N82 or A		UHF Mixer

PARTS LIST & DESCRIPTION (continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M3	Dial Light	11765	#51 (Not used on Model 21-S-348G)
M4	Tuner		KRK29 (VHF only)
M5	Tuner		KRK22C (VHF only)
M6	Tuner		KRK29A/27 (VHF/UHF)
M7	Switch	78211	TV-phono tone (Not used on Model 21-S-348G)
M8	Focus Magnet	76168	Includes centering device
M9	Ion Trap	76141	
M10	Correction Magnet	76633	(2 Used)
B3, B6	Trimmer Cap.	75217	Dual 10-160MMF (Horiz. Drive & horiz. lock)
A9	Trimmer Cap.	78220	5-70MMF (IF input coupling)
	Knob	77699	Brightness - brown
	Knob	77719	Brightness - med. beige
	Knob	77708	Channel Selector (inner)
	Knob	79078	Channel Selector (ebony) - KRK29, KRK29A/27
	Knob	79085	Channel Selector (maroon) KRK29, KRK29A/27
	Knob	77708	Channel Selector KRK29 tuner (inner)
	Knob	79077	Fine tuning - sandtone - KRK29
	Knob	79081	Fine tuning - sandtone - KRK29A/27
	Knob	77707	Fine tuning - brown - KRK29
	Knob	77717	Fine tuning - Med. beige - KRK29
	Knob	77735	TV-Phono tone - brown
	Knob	77736	TV-phono tone - med. beige
	Knob	79080	Picture - sandtone
	Knob	77709	Picture - brown
	Knob	77718	Picture - med. beige
	Knob	79079	Volume - ebony
	Knob	79072	Volume - maroon
	Knob	77710	Volume - inner
	Knob	78343	VHF fine tuning & UHF channel selector - brown
	Knob	78342	VHF fine tuning & UHF channel selector - med. beige
	Safety glass	78329	For metal table models
	Safety glass	78815	Models 21S326G, 67G, 69G
	Safety glass	78314	Models 21S362M & MU

RCA VICTOR MODELS 21-S-348, G, GU, 21-S-353, G, GU, U, 21-S-354, G,
 GU, U, 21-S-355, G, GU, U, 21-S-357G, GU, 21-S-359G, GU, 21-S-362G,
 GU, M, MU, 21-S-367, G, GU, U, 21-S-369G, GU (Ch. KCS83 Series)



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR & ALIGN. IDENTIFICATION

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removing the channel selector and fine tuning knobs.

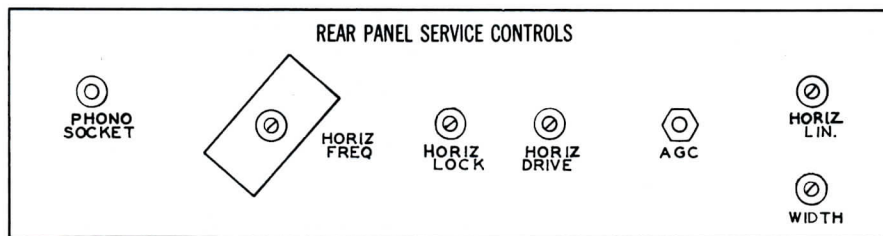
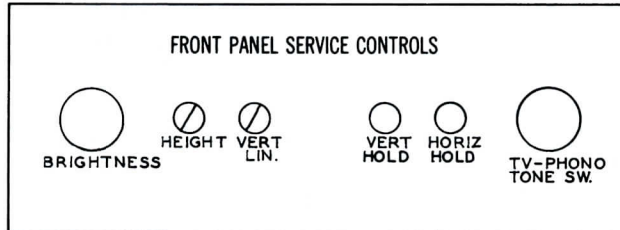
PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning, it is necessary to remove chassis. (See disassembly instructions).

PICTURE TUBE REMOVAL

For picture tube removal it is necessary to remove chassis. (See disassembly instructions).

SERVICE ADJUSTMENT LOCATION



HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjustment of the horizontal oscillator circuit can be made from the rear panel of the chassis. Set the horizontal hold control at the mid-position of its range and adjust the horizontal frequency slug (L43) until the picture synchronizes horizontally. If synchronization cannot be obtained by the above adjustment see Horizontal Sweep Circuit Adjustments on page 13.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate Sound IF Detector Buzz, adjust the ratio detector secondary (L42) located on top of chassis. (See tube placement chart).

FUSES

One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart).

CENTERING

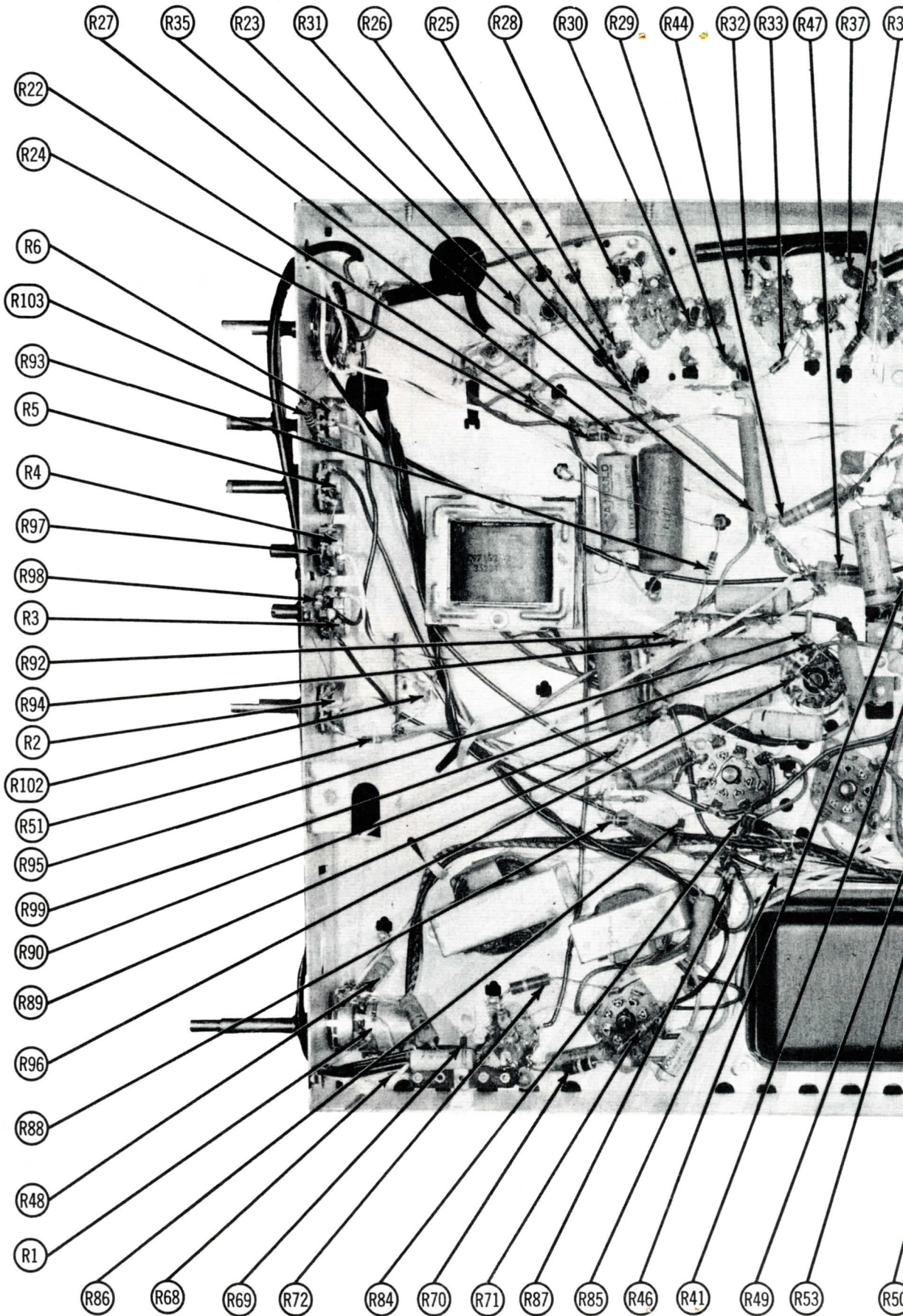
Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

ANTI-PIN CUSHION ADJUSTMENT

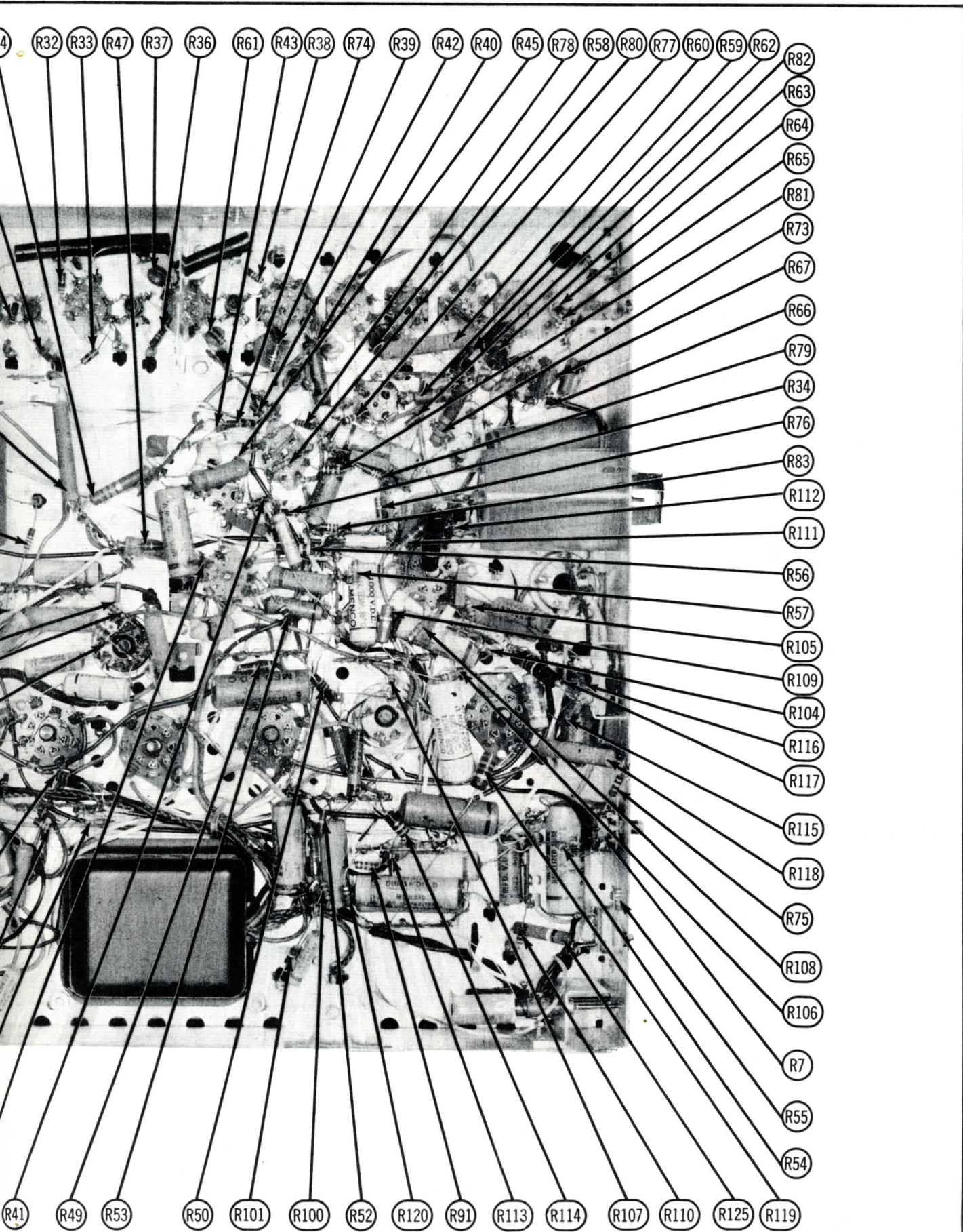
Reduce the picture size so that the sides of the raster are visible, and position the magnets so that all sides are straight lines and the corners are at right angles.

DISASSEMBLY INSTRUCTIONS

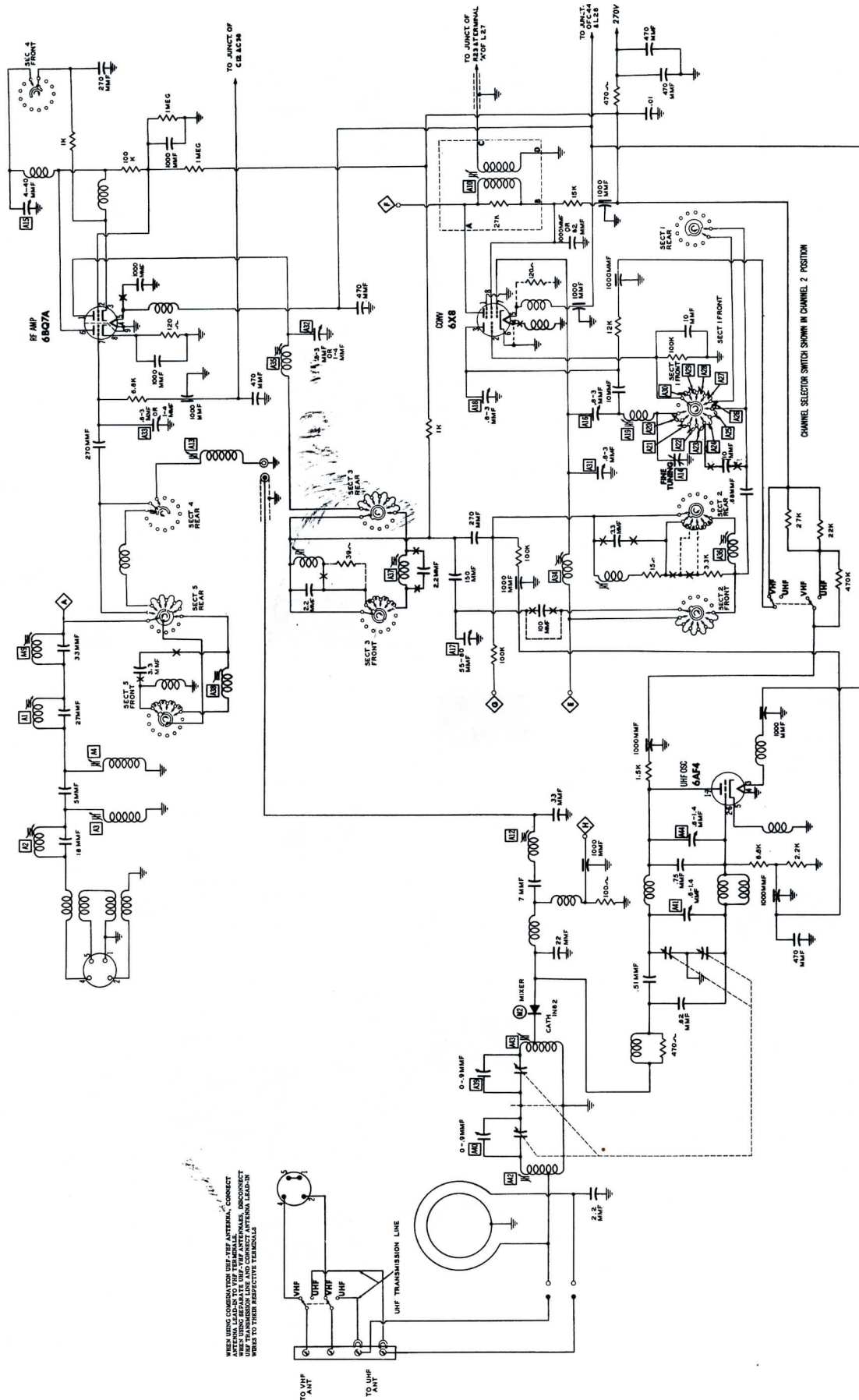
1. Remove 6 push on type control knobs from front panel.
2. Disconnect transmission lines.
3. Remove 2 metal screws and 2 snap clips. Remove rear cover.
4. Disconnect speaker plugs, yoke plug, CRT socket, and HV plug.
5. Remove 5 chassis bolts. Remove chassis.
6. Remove 4 speaker nuts. Remove speaker.



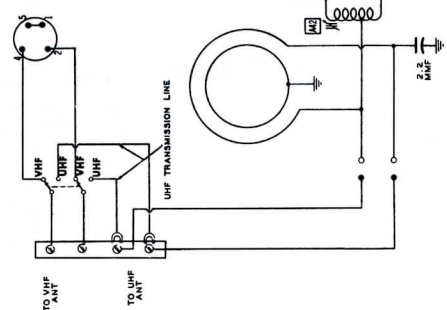
CHASSIS BOTTOM VIEW-RESISTOR ID



VIEW-RESISTOR IDENTIFICATION



WHEN USING CONVENTIONAL UHF ANTENNA, CONNECT ANTENNA LEAD-IN TO THE TERMINAL. WHEN USING A TRANSDUCER ANTENNA, CONNECT UHF TRANSMISSION LINE AND CONDUCT ANTENNA LEAD-IN WIRE TO THEIR RESPECTIVE TERMINALS.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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 UHF-VHF TUNER NPK28A/27 USED ON CHASSIS KCS 99PS, KCS 93A, KCS 83D, KCS 93PM

ALTERNATE TUNER SCHEMATIC