

REGAL MODEL 20D36	
TRADE NAME	Regal Models 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36
MANUFACTURER	Regal Electronics Corp., 605 W. 130th. St., New York, N. Y.
TYPE SET	TV-AM-FM Receiver (Some models TV "only")
TUBES	Thirty one (TV "only" Models) Thirty six (TV-AM-FM Models)
POWER SUPPLY	110-120 Volts AC-60 Cycle
TUNING RANGE	(TV) Channels 2 thru 13 (FM) 88-108MC (AM) 540-1650KC
RATINGS	(TV) 3.3 Amp. at 117 Volts AC (RADIO) 2.2 Amp. at 117 Volts AC

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REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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AM FM TUNER SCHEMATIC

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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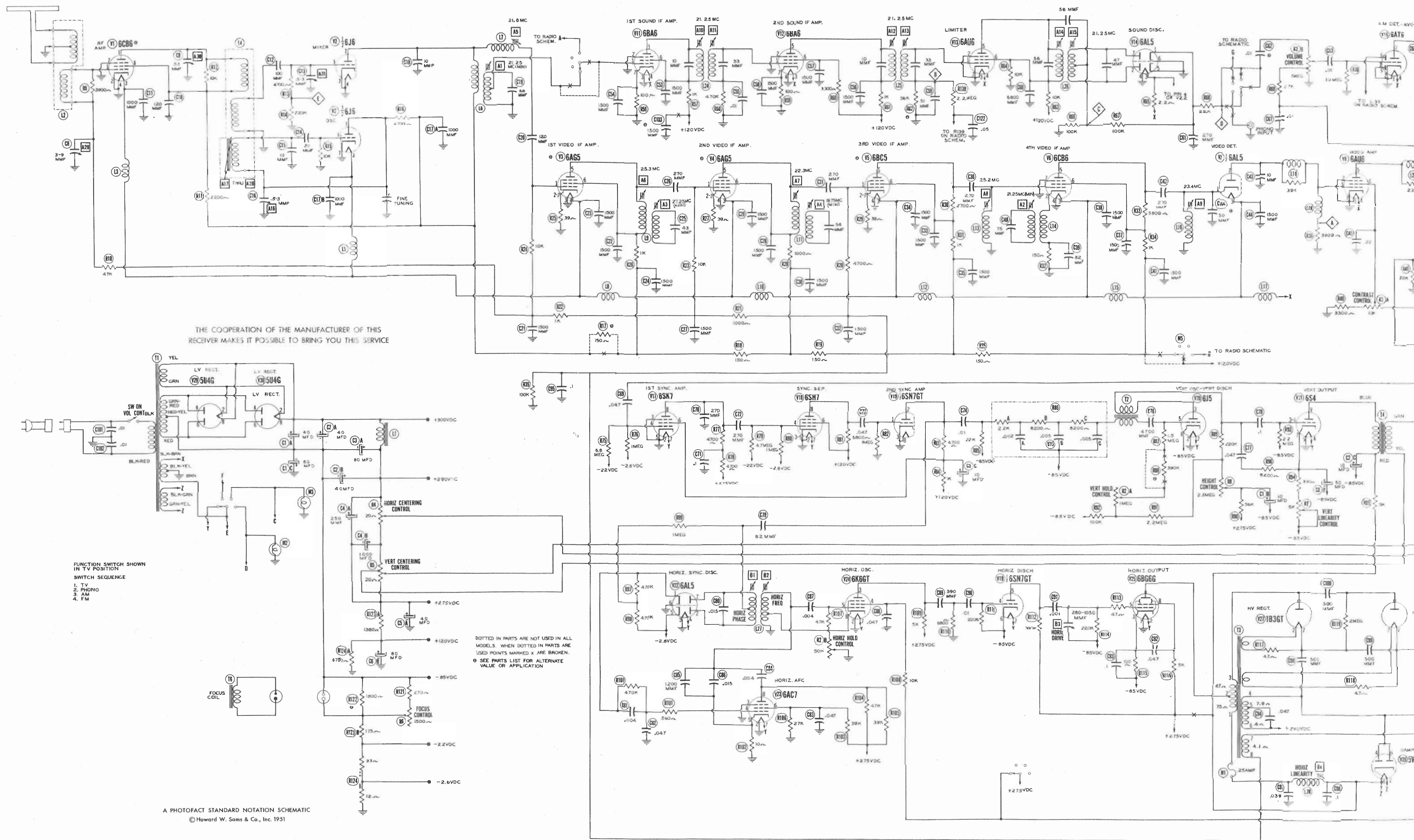
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IF = 456 KC AM

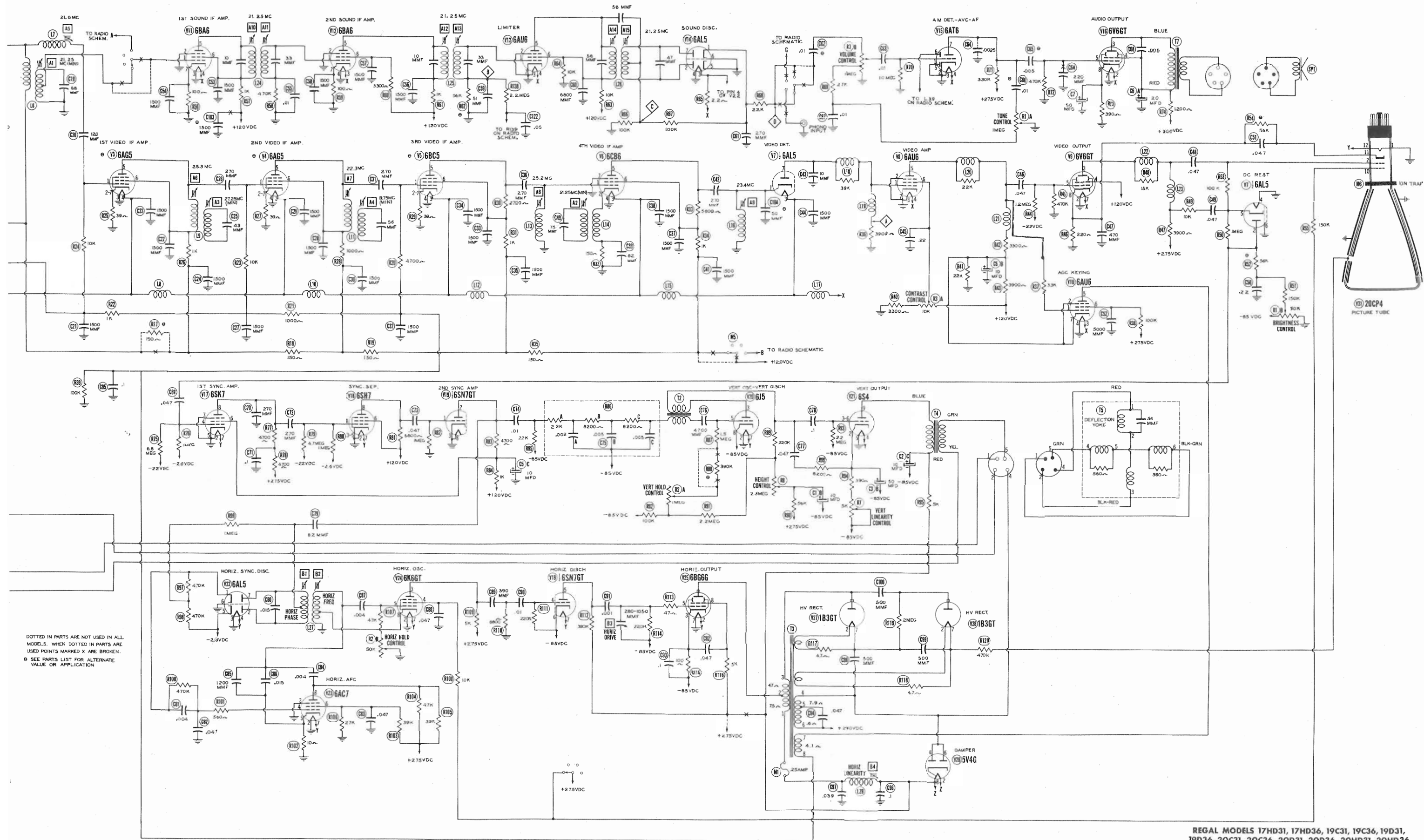
TRADE NAME	Regal Model
MANUFACTURER	Regal Electronics
TYPE SET	TV - A.M. - F.M.
TUBES	Thirty one Thirty six
POWER SUPPLY	110-120 Volts
TUNING RANGE	-(TV) Channels 2-13 (FM) 88-108 (AM) 540-1600

- Alignment Instructions
- Drive Cord Stringing
- Disassembly Instructions
- Horizontal Sweep Circuit A
- Parts List and Description
- Photographs
- AM-1M Tuner
- Cabinet - Rear View
- Capacitor and Alignment

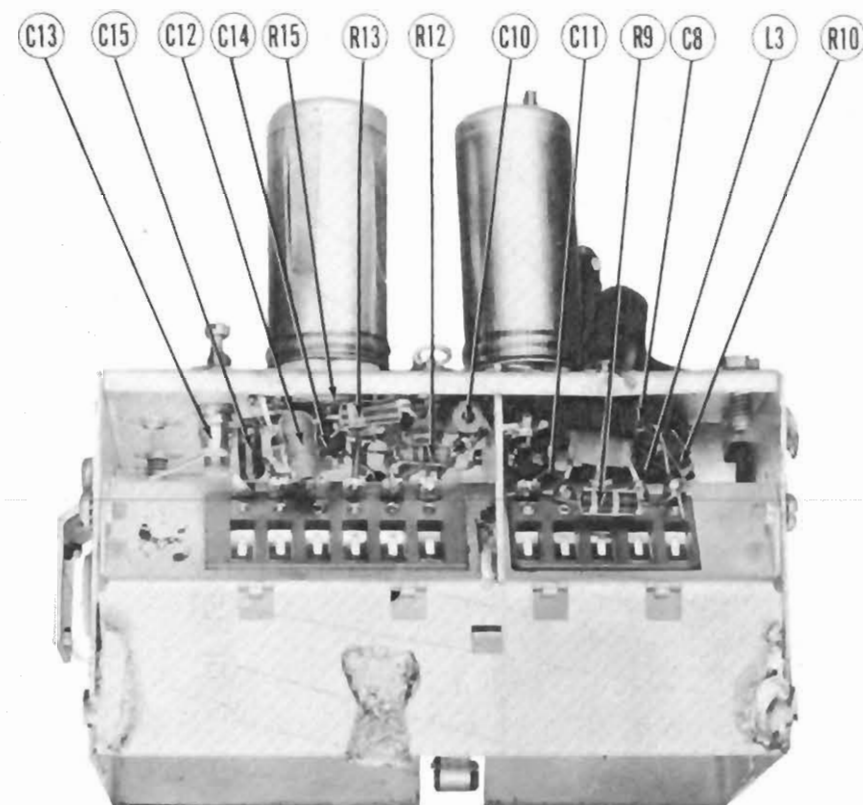
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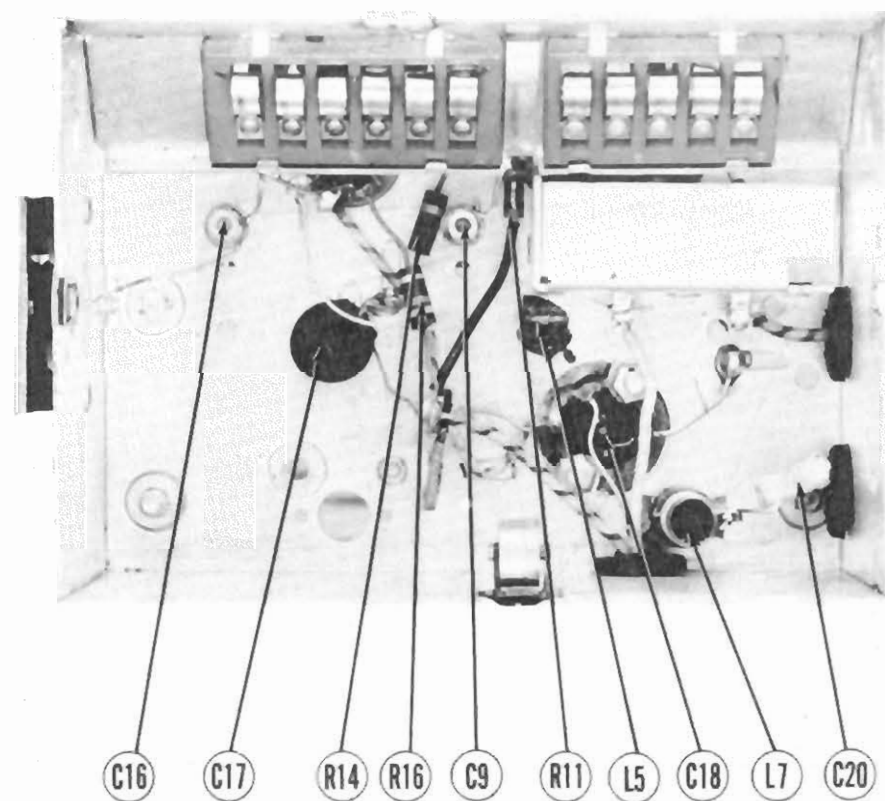




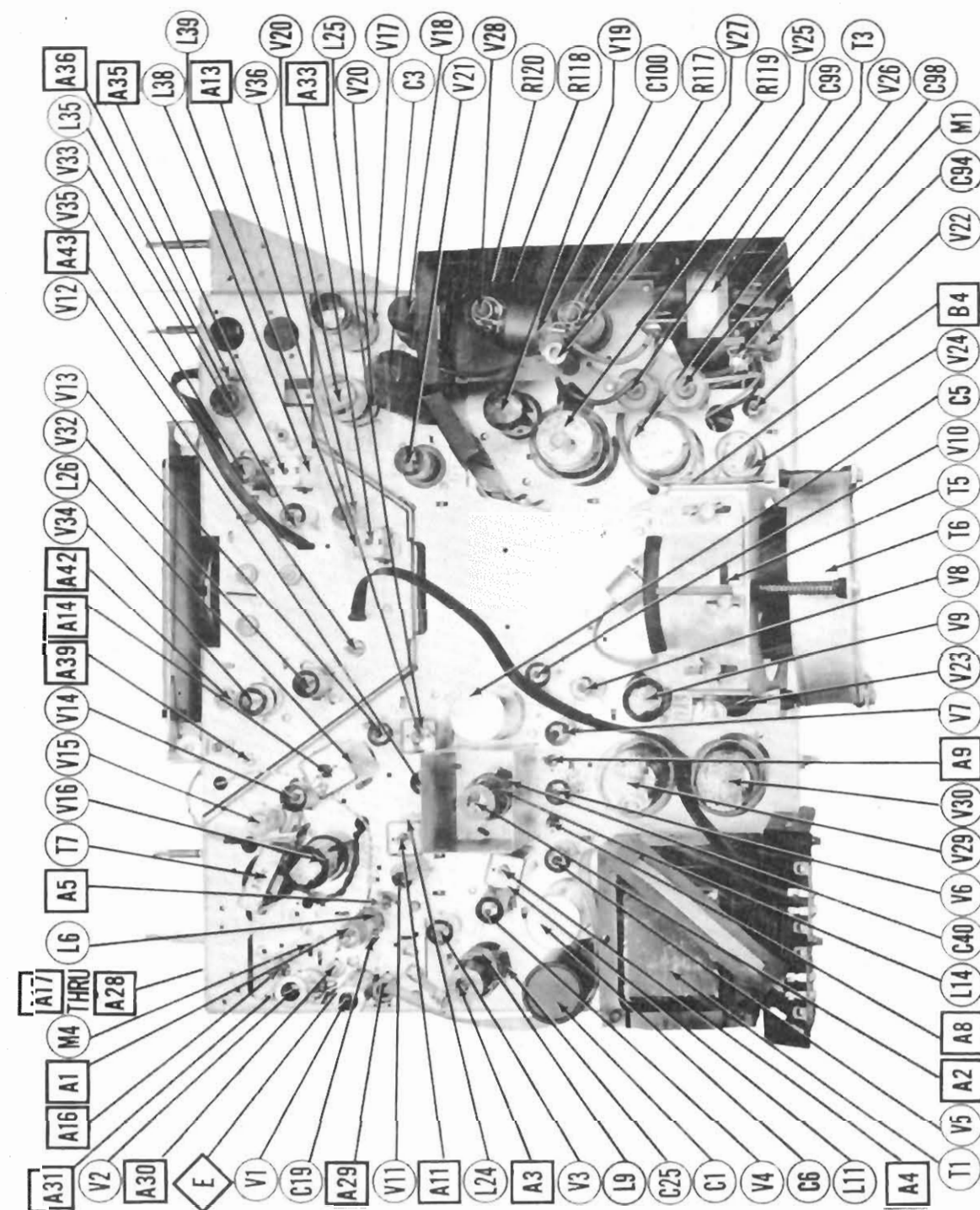
DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION



RIF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW

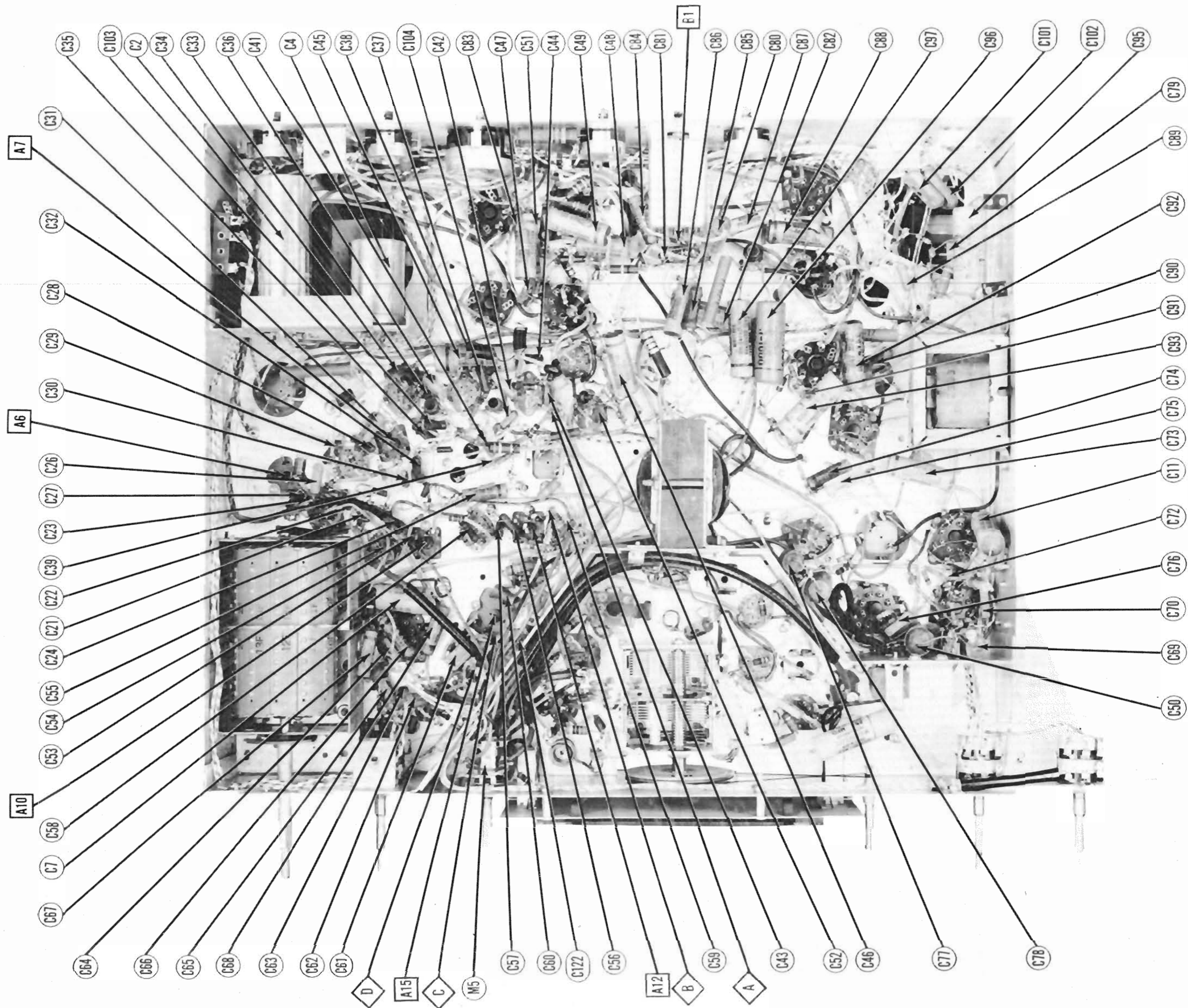


REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36

CHASSIS TOP VIEW

REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31,
19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36

CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



VOLTAGE AND RESISTANCE MEASUREMENTS

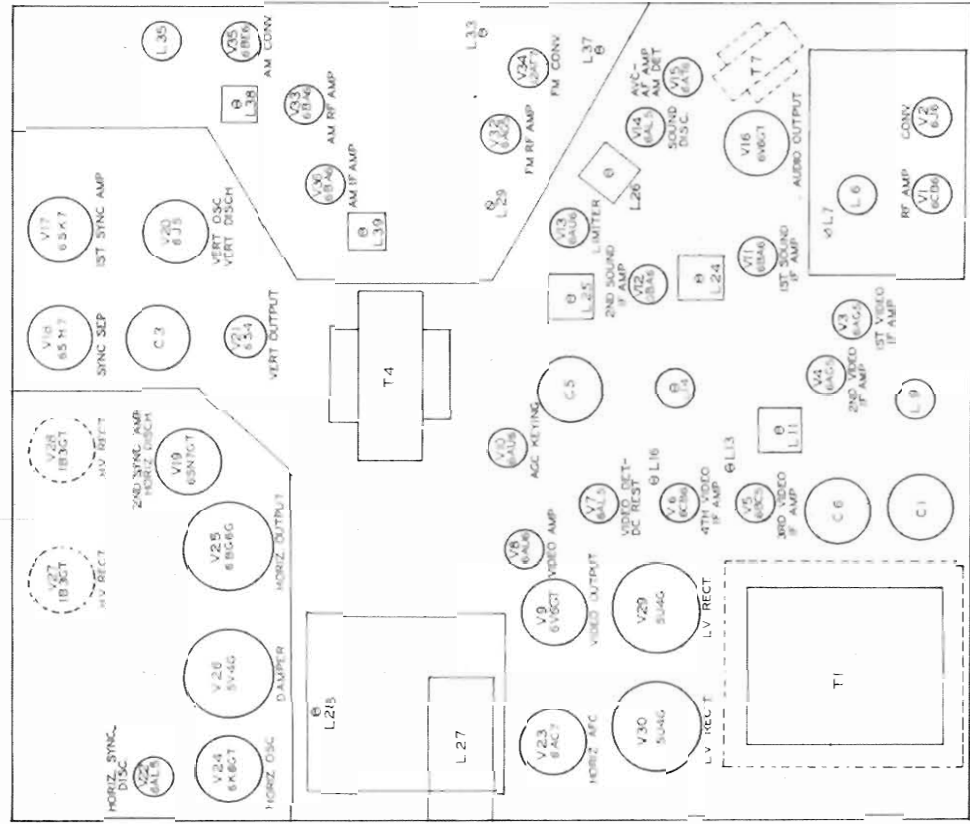
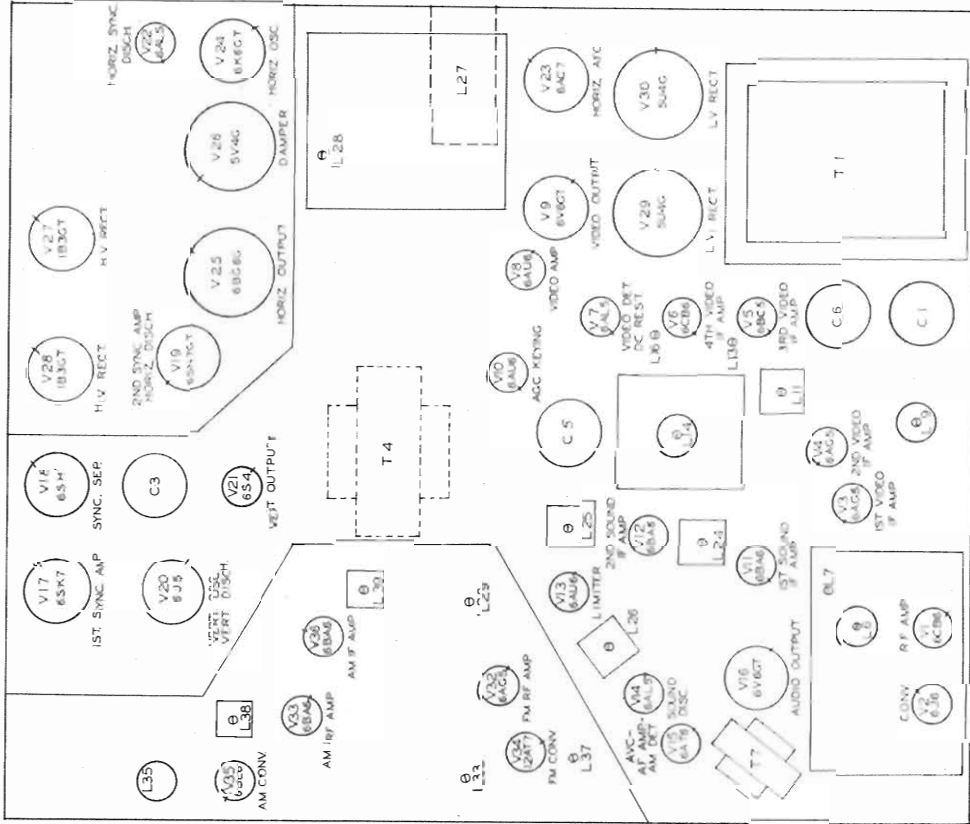
VOLTAGE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6C10B	-1.3VDC	0V	6.3VAC	0V	90VDC	0V	0V	0V
V 2	6J6	10VDC	10VDC	6.3VAC	0V	-1.5VDC	0V	0V	0V
V 3	6AG5	-3VDC	1VDC	0V	6.3VAC	105VDC	105VDC	1VDC	0V
V 4	6AG5	-3VDC	1VDC	0V	6.3VAC	105VDC	105VDC	1VDC	0V
V 5	6BC5	-3VDC	1VDC	0V	6.3VAC	105VDC	105VDC	1VDC	0V
V 6	6C10B	1.4VDC	0V	6.3VAC	0V	65VDC	105VDC	0V	0V
V 7	6AL5	0V	0V	6.3VAC	0V	-5VDC	0V	-3VDC	0V
V 8	6AL5	-3VDC	0V	0V	6.3VAC	95VDC	3VDC	0V	0V
V 9	6V6GT	0V	0V	23VDC	10VDC	-2.5VDC	20VDC	6.3VAC	2.5VDC
V 10	6AL6	0V	0V	6.3VAC	0V	-1.8VDC	23VDC	105VDC	0V
V 11	6BA6	0V	0V	0V	6.3VAC	105VDC	105VDC	1.2VDC	0V
V 12	6BA6	0V	0V	0V	6.3VAC	105VDC	105VDC	1.2VDC	0V
V 13	6AL6	-5VDC	0V	0V	6.3VAC	55VDC	55VDC	0V	0V
V 14	6AL5	-2VDC	0V	5.1VAC	0V	0V	-1VDC	0V	0V
V 15	6AT6	-4VDC	0V	0V	6.3VAC	0V	-3VDC	65VDC	0V
V 16	6V6GT	0V	0V	6.3VAC	25VDC	0V	0V	0V	15VDC
V 17	6SK7	0V	0V	0V	-4VDC	0V	10VDC	6.3VAC	10VDC
V 18	6SH7	0V	0V	0V	-1.3VDC	0V	12VDC	6.3VAC	12VDC
V 19	6SN7GT	-8VDC	75VDC	0V	-3.8VDC	-48VDC	-4V	0V	0V
V 20	615	0V	0V	270VDC	-4.7VDC	-1.8VDC	-1VDC	6.3VAC	0V
V 21	6S4	0V	0V	0V	6.3VAC	0V	0V	0V	0V
V 22	6AL5	-5VDC	-4.4VDC	0V	5.1VAC	-2.5VDC	0V	-4.4VDC	0V
V 23	6AC7	0V	0V	0V	-1.1VDC	0V	55VDC	6.3VAC	22VDC
V 24	6K6GT	0V	0V	18VDC	265VDC	1.2VDC	27VDC	6.3VAC	2VDC
V 25	6BG6G	0V	0V	0V	14VDC	0V	-2.5VDC	0V	0V
V 26	5Y4G	0V	40VDC	265VDC	280VDC	280VDC	300VDC	300VDC	300VDC
V 27	10XGT	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE
V 28	10XGT	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE	DO NOT MEASURE
V 29	5U4G	0V	30VDC	0V	280VAC	0V	280VAC	0V	30VDC
V 30	5U4G	0V	30VDC	0V	280VAC	0V	280VAC	0V	30VDC
V 31	20CP4	0V	8VDC	270VDC	2.4VDC	6.3VAC	6.3VAC	6.3VAC	6.3VAC
V 32	6AG5	10V	1.2VDC	0V	16.3VAC	125VDC	125VDC	1.2VDC	0V
V 33	6BA6	10V	0V	0V	16.3VAC	125VDC	125VDC	1.2VDC	0V
V 34	12AT7	135VDC	10V	13VDC	16.3VAC	130VDC	130VDC	1.2VDC	0V
V 35	6BE6	114VDC	0V	0V	6.3VAC	120VDC	120VDC	1.2VDC	0V
V 36	6BA6	-2VDC	0V	0V	6.3VAC	120VDC	120VDC	1.2VDC	0V

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
ALL MEASUREMENTS TAKEN IN TV POSITION UNLESS NOTED.
1. MEASURED IN FM POSITION.
2. MEASURED IN AM POSITION.
3. MEASURED FROM PIN 8 OF V28.
4. MEASURED FROM -8VDC LINE.
5. MEASURED IN FM RADIO POSITION.
6. MEASURED IN AM RADIO POSITION.
7. VERTICAL AND HORIZONTAL CENTERING FULLY COUNTER CLOCKWISE.
8. TAKEN WITH VACUUM TUBE VOLTMETER.
9. USE EXTREME CAUTION WHEN MEASURING THIS VOLTAGE.

RESISTANCE READINGS									
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V 1	6C10B	50KΩ	0Ω	10Ω	0Ω	14.2KΩ	14.2KΩ	0Ω	0Ω
V 2	6J6	16.7KΩ	12KΩ	10Ω	0Ω	22KΩ	10KΩ	0Ω	0Ω
V 3	6AG5	10KΩ	30Ω	0Ω	10Ω	12.8KΩ	12.8KΩ	30Ω	0Ω
V 4	6AG5	10KΩ	30Ω	0Ω	10Ω	12.7KΩ	12.7KΩ	30Ω	0Ω
V 5	6BC5	10KΩ	30Ω	0Ω	10Ω	15.3KΩ	15.3KΩ	30Ω	0Ω
V 6	6C10B	10Ω	150Ω	10Ω	0Ω	18KΩ	12.4KΩ	0Ω	0Ω
V 7	6AL5	30Ω	2.3KΩ	10Ω	0Ω	1.1MΩ	0Ω	3.9KΩ	0Ω
V 8	6AL5	3.9KΩ	0Ω	10Ω	10Ω	18.6KΩ	15KΩ	0Ω	0Ω
V 9	6V6GT	0Ω	0Ω	13.8KΩ	11.4KΩ	34KΩ	170Ω	10Ω	220Ω
V 10	6AL6	14KΩ	15.3KΩ	10Ω	0Ω	10KΩ	110KΩ	15.3KΩ	0Ω
V 11	6BA6	10Ω	0Ω	10Ω	10Ω	12.4KΩ	12.4KΩ	100Ω	0Ω
V 12	6BA6	47KΩ	0Ω	10Ω	0Ω	12.4KΩ	14.7KΩ	100Ω	0Ω
V 13	6AL6	50KΩ	0Ω	10Ω	10Ω	17KΩ	17KΩ	0Ω	0Ω
V 14	6AL5	20KΩ	10KΩ	10Ω	0Ω	0Ω	0Ω	10KΩ	0Ω
V 15	6AT6	10MΩ	0Ω	10Ω	10Ω	51KΩ	133KΩ	0Ω	0Ω
V 16	6V6GT	150Ω	10Ω	11.4KΩ	47KΩ	20KΩ	0Ω	390Ω	0Ω
V 17	6SK7	0Ω	0Ω	1MΩ	0Ω	12.4KΩ	10Ω	15.5KΩ	0Ω
V 18	6SH7	0Ω	0Ω	1MΩ	0Ω	11.4KΩ	10Ω	18.2KΩ	0Ω
V 19	6SN7GT	1MΩ	77.1KΩ	0Ω	42.2KΩ	42.2KΩ	10Ω	10Ω	0Ω
V 20	615	0Ω	51.3KΩ	150KΩ	150KΩ	4.1MΩ	10Ω	4.5KΩ	0Ω
V 21	6S4	10Ω	3.9KΩ	10Ω	0Ω	4.2.2MΩ	10Ω	4.2.2MΩ	10Ω
V 22	6AL5	94KΩ	1.5MΩ	10Ω	10Ω	120Ω	0Ω	1.5MΩ	0Ω
V 23	6AC7	0Ω	0Ω	1.4MΩ	10Ω	118KΩ	10Ω	122KΩ	0Ω
V 24	6K6GT	10Ω	0Ω	15KΩ	10KΩ	170Ω	10Ω	10Ω	0Ω
V 25	6BG6G	10Ω	10Ω	100KΩ	10Ω	42.2KΩ	42.2KΩ	0Ω	45KΩ
V 26	5Y4G	10Ω	10Ω	115KΩ	150Ω	170Ω	150Ω	150Ω	5MΩ
V 27	10XGT	PINS 1-8 HAVE INF. RESISTANCE							
V 28	10XGT	PINS 1-8 HAVE INF. RESISTANCE							
V 29	5U4G	10Ω	4.3KΩ	10Ω	400Ω	10Ω	400Ω	10Ω	4.3KΩ
V 30	5U4G	10Ω	4.3KΩ	10Ω	400Ω	10Ω	400Ω	10Ω	4.3KΩ
V 31	20CP4	0Ω	1.3MΩ	115.5KΩ	50KΩ	10Ω	10Ω	10Ω	10Ω
V 32	6AG5	0Ω	47Ω	0Ω	1.10	112KΩ	11.2KΩ	47Ω	0Ω
V 33	6BA6	1.5MΩ	0Ω	0Ω	10Ω	11.4KΩ	11.4KΩ	47Ω	0Ω
V 34	12AT7	112KΩ	47KΩ	2.2KΩ	1.10	112.4KΩ	18KΩ	30Ω	0Ω
V 35	6BE6	22KΩ	80Ω	0Ω	10Ω	11.4KΩ	11.4KΩ	1.6MΩ	0Ω
V 36	6BA6	1.5MΩ	0Ω	0Ω	10Ω	11.4KΩ	11.4KΩ	100Ω	0Ω

ALL MEASUREMENTS TAKEN WITH PICTURE TUBE REMOVED.
ALL MEASUREMENTS TAKEN IN TV POSITION UNLESS NOTED.
1. MEASURED IN FM POSITION.
2. MEASURED IN AM POSITION.
3. MEASURED FROM PIN 8 OF V28.
4. MEASURED FROM -8VDC LINE.
5. MEASURED IN FM RADIO POSITION.
6. MEASURED IN AM RADIO POSITION.
7. VERTICAL AND HORIZONTAL CENTERING FULLY COUNTER CLOCKWISE.

REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36
TUBE PLACEMENT CHART



TV ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Turn the function selector switch to "TV", (maximum counter-clockwise).
The high voltage shock hazard may be eliminated by removing the horizontal oscillator tube, (V24), from its socket.

VIDEO IF ALIGNMENT

Remove the converter tube, (V2), and replace it with a 6J6 which has pin 1 removed. This will disable the local oscillator and prevent the possibility of erroneous indications.
Connect the negative lead of a 3 volt battery to the ungrounded lead of C95, connect the positive lead to chassis.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	21.25MC (unmod.)	Any	DC Probe to Point \odot . Common to Chassis.	A1, A2	Adjust for MINIMUM deflection.
2. "	"	27.25MC	"	"	A3	"
3. "	"	19.75MC	"	"	A4	"
4. "	"	21.8MC	"	"	A5	Adjust for maximum deflection.
5. "	"	25.3MC	"	"	A6	"
6. "	"	22.3MC	"	"	A7	"
7. "	"	25.2MC	"	"	A8	"
8. "	"	23.4MC	"	"	A9	Adjust for maximum deflection. Recheck traps A1, A2, and A3.

OVERALL VIDEO IF RESPONSE CHECK

Connect the synchronized sweep voltage from the signal generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9. Direct	High side to an ungrounded tube shield floating over dummy converter tube, (V2). Low side to chassis.	24MC (10MC SWP)	21.25MC 25.75MC	Any	Vert. Amp. to Point \odot . Low side to chassis.		Check for response curve similar to fig. 1. If necessary retouch A5 thru A9 for proper response.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10. .01MFD.	High side to pin 1 (Grid) of 6BA6, (VII). Low side to chassis.	21.25MC (unmod.)	Any	DC Probe thru line to Point \odot . Common to chassis.	A10, A11, A12, A13	Adjust for maximum deflection.
11. "	"	"	"	DC Probe thru line to Point \odot . Common to chassis.	A14	"
12. "	"	"	"	DC Probe to Point \odot . Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 80% modulation and 450KC sweep. Use 120V sawtooth voltage in scope for horizontal deflection.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
10. .01MFD.	High side to pin 1, (Grid) of 6BA6, (VII). Low side to chassis.	21.25MC (450KC SWP)	21.25MC	Any	Vert. Amp. thru 22K to Point \odot . Low side to chassis.	A10, A11, A12, A13	Adjust for maximum amplitude and symmetry as per fig. 2.
11. "	"	"	"	"	Vert. Amp. to Point \odot . Low side to chassis.	A15, A14	Adjust A15 so 21.25MC occurs at center of crossover lines as per fig. 3. Adjust A14 for maximum amplitude and straightness of crossover lines. Continue with step 13.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.
Complete oscillator alignment may not be necessary. If the oscillator seems to be off frequency approximately the same amount for a majority of the channels, it may be possible to correct them in one step using A16. It should be noted that this is an all channel oscillator circuit adjustment, and should not be adjusted for any individual channel. If adjustment of A16 will not bring all channels well within the range of the fine tuning control, it will be necessary to adjust the channel strip adjustments for each channel that is off frequency. The channel strip adjustments are reached through a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible through this hole as the channel switch is turned to each channel. The signal generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
13. Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	215.75MC (unmod.)	13	DC Probe to Point \odot . Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
		209.75MC	12		A18	
		203.75MC	11		A19	
		197.75MC	10		A20	
		191.75MC	9		A21	
		185.75MC	8		A22	
		179.75MC	7		A23	
		87.75MC	6		A24	
		81.75MC	5		A25	
		71.75MC	4		A26	
		65.75MC	3		A27	
		59.75MC	2		A28	

TV ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT

The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14. Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	207MC (10MC SWP)	205.25MC 209.75MC	12	Vert. Amp. thru 10KΩ to Point \odot . Low side to chassis.	A29, A30, A31	Adjust for response curve similar to fig. 4 with markers above 90%.
15. "	"	213MC (10MC SWP)	211.25MC 215.75MC	13	"	"	Check all channels for response similar to fig. 4. If markers fall below 70% on any channel, make slight adjustment of A29, A30, and A31 with channel switch set for that channel. Recheck all channels to see that they have not been seriously effected.
		201MC (10MC SWP)	199.25MC	11			
		195MC (10MC SWP)	193.25MC	10			
		189MC (10MC SWP)	187.25MC	9			
		183MC (10MC SWP)	181.25MC	8			
		177MC (10MC SWP)	175.25MC	7			
		85MC (10MC SWP)	83.25MC	6			
		79MC (10MC SWP)	77.25MC	5			
		69MC (10MC SWP)	67.25MC	4			
		63MC (10MC SWP)	61.25MC	3			
		57MC (10MC SWP)	55.25MC	2			
			59.75MC				

FIG. 1

FIG. 2

FIG. 3

FIG. 4

RADIO ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning gang fully closed and set pointer under the vertical portion of the "V" on the "54" at the low frequency end of the AM dial scale.

AM ALIGNMENT

Turn the function selector switch to "AM", (third position clockwise).
 Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
 Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
16. .01MFD.	High side to pin 1, (Grid), of 6BA6, (V33). Low side to chassis.	456KC (400V Mod.)	AM	Tuning gang fully open.	Across voice coil.	A32, A33, A34, A35	Adjust for maximum output.
17. "	"	"	"	"	"	A36	Adjust for MINIMUM output.
18. "	Loop	1650KC	"	"	"	A37	Adjust for maximum output.
19. "	Loop	1500KC	"	Tune for max. output.	"	A38	"

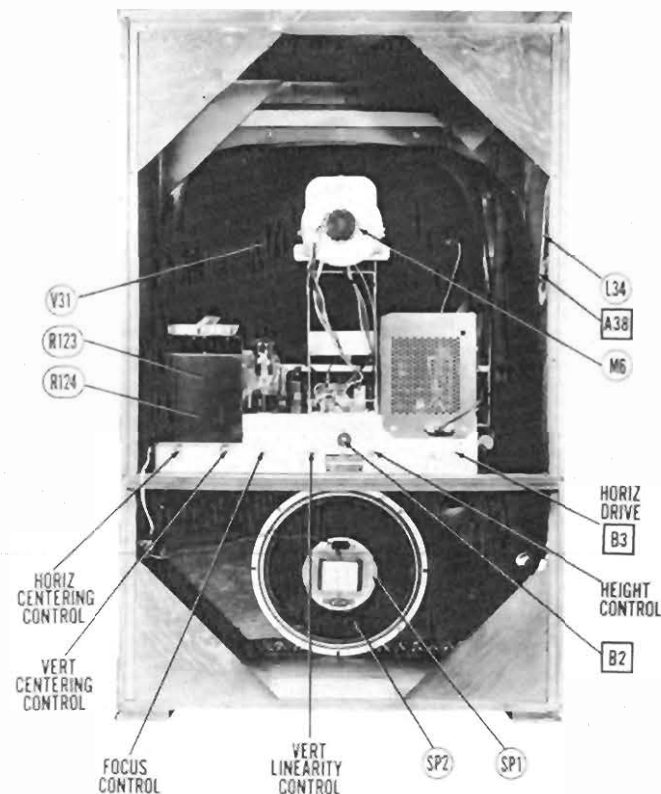
FM IF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
20. .01MFD.	High side to pin 2, (Grid), of 12AT7, (V34). Low side to chassis.	21.25MC (unmod.)	FM	Tuning gang fully open.	DC Probe to Point \odot . Common to Chassis.	A39	Adjust for maximum deflection.

FM RF ALIGNMENT

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
21. Two 150Ω carbon resistors	Across "FM" ant. terminals with 150Ω in each lead.	108.5MC (unmod.)	FM	Tuning gang fully open.	DC Probe to Point \odot . Common to chassis.	A40	Adjust for maximum deflection.
22. "	"	105MC	"	Tune for max. deflection.	"	A41	Rock tuning gang while adjusting A41 for maximum deflection.
23. "	"	87.5MC	"	Tuning gang fully closed.	"	A42	Adjust for maximum deflection. Repeat steps 21 and 23 until tuning range is correct.
24. "	"	90MC	"	Tune for max. deflection.	"	L31	Expand or compress coil turns for maximum deflection. Repeat steps 22 and 24 until no further improvement can be made.
24. "	"	98MC	"	"	"	A43	Adjust for maximum deflection. Check L31 with a tuning wand. If necessary adjust L31 for maximum deflection.

REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36



CABINET-REAR VIEW HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

HORIZONTAL OSCILLATOR ALIGNMENT CHECK:

While receiving a television signal turn the horizontal hold control fully counter-clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return it to its normal operating position. The picture should pull back into synchronization.

Now turn the horizontal hold control fully clockwise. Remove the picture momentarily by turning the contrast control fully counter-clockwise and then return it to its normal operating position. The picture should pull back into synchronization.

If receiver synchronizes properly under these checks it is not necessary to align the horizontal oscillator. However, if the picture is not normal or stable, the horizontal oscillator must be aligned.

SLIGHT RETOUCH ALIGNMENT

If the receiver failed in the above check at either extreme of the hold control, it may be possible to align the horizontal oscillator by making slight adjustments.

Tune in a TV station and adjust fine tuning for best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal. Turn the horizontal hold control to the extreme position in which the oscillator falls out of synchronization. Momentarily remove the signal. Adjust B₂ (rear of chassis) until the oscillator pulls into synchronization. Check hold and pull-in as outlined above.

COMPLETE ALIGNMENT

Tune in a TV station for the best sound quality. Adjust vertical hold control to vertically synchronize the picture. Adjust the contrast control to slightly less than normal.

Adjust B₁ until the blanking bar, which may appear in the picture, moves to the right and off the raster. If ripples occur in the raster turn B₁ in a clockwise direction until the unstable condition is removed. The length of this adjustment screw in its correct position is usually about 1/4 inch beyond the bushing.

Turn horizontal hold control fully counter-clockwise and adjust B₂ counter-clockwise to the point where the picture synchronizes. Readjust B₁ so that the left side of the picture is close to the left side of the raster but does not fold over.

Turn the horizontal hold control fully clockwise. The right side of the picture should be close to the right side of the raster, but should not fold over. If it does, readjust B₁.

Momentarily remove the signal. When signal is restored, the picture should fall into synchronization. If it does not, turn B₂ counter-clockwise until picture falls into synchronization.

Turn horizontal hold control fully counter-clockwise. Picture should fall back into synchronization after momentary removal of the signal.

If picture fails to synchronize after momentary removal of the signal at both extremes of the horizontal hold control, there may be insufficient pull-in range. However, if picture will pull in through 3/4 of the hold control range, operation should be satisfactory as excessive pull-in is objectionable. Excessive pull-in makes the control circuits more sensitive which may result in their being triggered by noise pulses. Also the vertical synchronizing and equalizing pulses may cause a bend in the upper part of the picture.

HORIZONTAL LINEARITY ADJUSTMENTS

Turn the horizontal drive trimmer, (B3), clockwise as far as possible without crowding or bright vertical lines appearing in the picture. Adjust the horizontal linearity slug, (B4), until the picture is symmetrical from left to right. Readjustment of B3 may be necessary for optimum results.

DISASSEMBLY INSTRUCTIONS

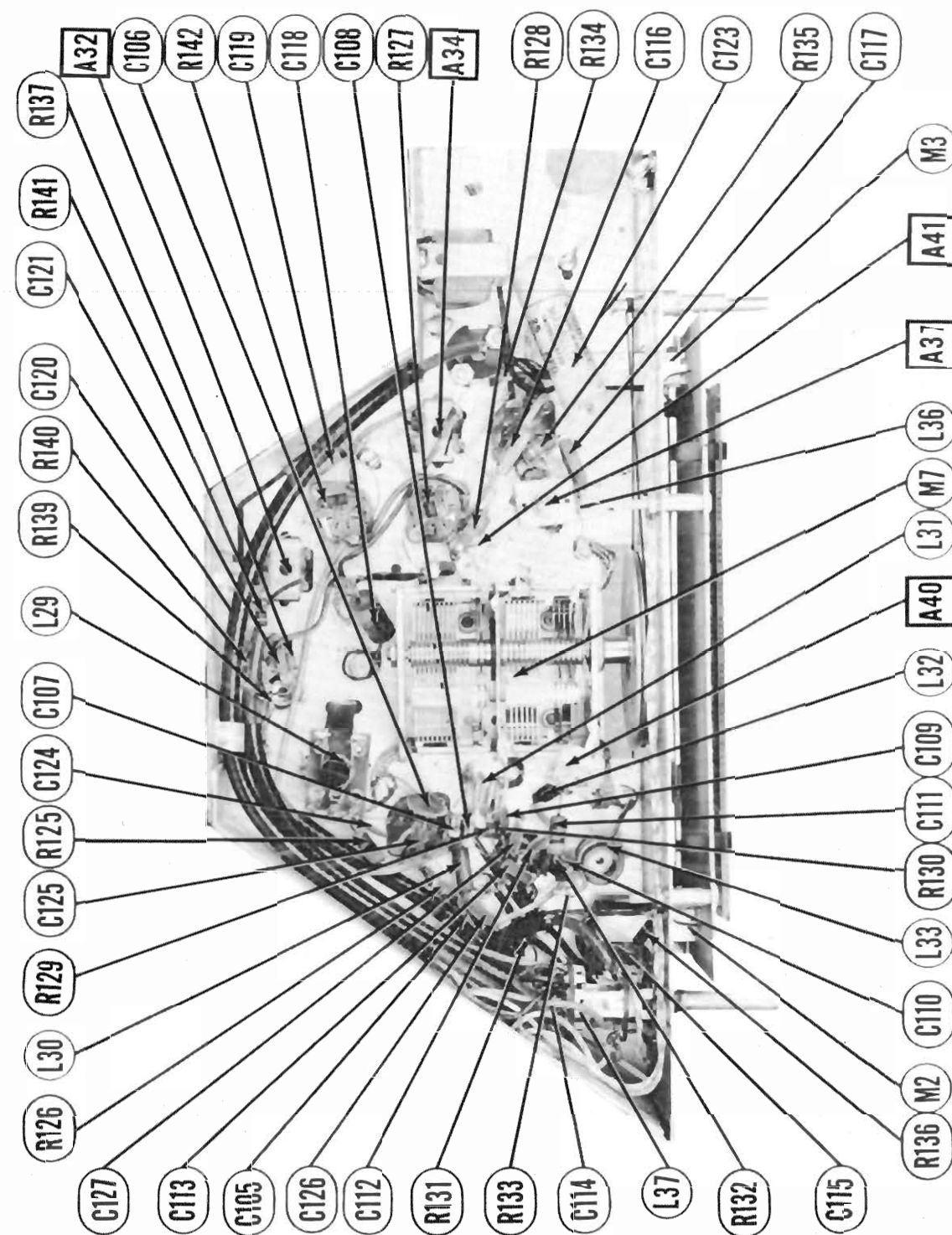
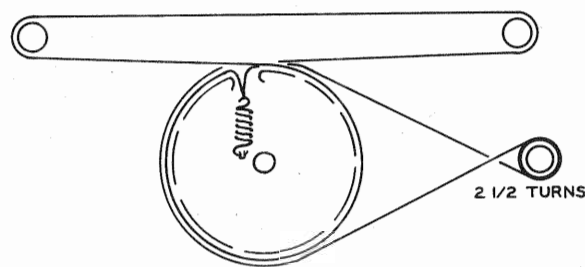
1. Remove ten push-on type control knobs.
2. Remove seven wood screws from rear cover. Remove rear cover.
3. Disconnect AM loop.
4. Disconnect speaker.
5. Remove four metal screws from chassis. Remove chassis.
6. Remove four 5/16" hex nuts from speaker. Remove speaker.

NOTE: FOR PICTURE TUBE REMOVAL IT IS NECESSARY TO REMOVE THE FOLLOWING:

1. Remove ten push-on type control knobs.
2. Remove front panel. Remove picture tube.

DIAL CORD STRINGING

TUNING GANG FULLY CLOSED



REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36
VIEW BOTTOM - TUNER - W-F-W

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA			NOTES
	FIELD RES.	V. C. IMP.	REAG	VIKING	QUAM	
			PART No.	PART No.	PART No.	
SP1	PM	3.5Ω		12J12	12A4A	
SP2	CONE DIA.	V. C. DIA.				
	11 3/8	1"				

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA				INSTALLATION NOTES
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (1000 μH)	REGAL PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.
L1	.350A	4.3Ω	1.5 Henries	T140-14	C-2326		TR-3300

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	REGAL PART No.		
L2	Ant. Coil	0Ω	0Ω			
L3	Fil. Choke	0Ω				
L4	RF, Mixer Grid and Osc. Coil	0Ω				
L5	Fil. Choke	0Ω				
L6A	Plate Choke	1.8Ω				
B	Sound Take-off Coil	0Ω				
L7	1st. Video IF	1.2Ω				
L8	Fil. Choke	0Ω		T-30-11		Includes Trap
L9	2nd. Video IF	.3Ω		T-30-4		
L10	Fil. Choke	0Ω		T-30-11		Includes Trap
L11	3rd. Video IF	.2Ω		T-30-5		
L12	Fil. Choke	0Ω		T-30-11		
L13	4th. Video IF	.1Ω		T-30-6		
L14	Cathode Trap	.1Ω		T-30-3		
L15	Fil. Choke	0Ω		T-30-11		
L16	5th. Video IF	.2Ω		T-30-6		
L17	Fil. Choke	0Ω		T-30-11		
L18	Peaking	6.5Ω		T-30-9		180 Microhenries wound on 39KΩ resistor.
L19	Peaking	7.5Ω		T-30-8		250 Microhenries
L20	Peaking	7Ω		T-30-7		120 Microhenries wound on 22KΩ resistor
L21	Peaking	4.5Ω		T-30-10		93 Microhenries
L22	Peaking	4.5Ω		T-30-10		93 Microhenries
L23	Peaking	1.6Ω		T-3-59		20 Microhenries
L24	1st. Sound IF	.2Ω	.1Ω	T-30-1		
L25	2nd. Sound IF	.2Ω	.1Ω	T-30-1		
L26	Disc. Trans.	.1Ω	.1Ω	T-30-2		Tap .1Ω
L27	Horiz. Disc. Trans.	46Ω	39Ω	T-30-18		Tap on Primary 0Ω. Tap on Secondary 10Ω
L28	Horiz. Lin.	30Ω		T-30-16		Tap 0Ω
L29	FM Ant. Trans.	0Ω	0Ω	30-160		
L30	Plate Choke	.3Ω		140-114		
L31	FM-RF Coil	0Ω		30-193		
L32	Cathode Choke	.3Ω		140-114		
L33	FM Osc. Coil	0Ω		30-163		
L34	AM Loop Ant.	1.1Ω		30-128		
L35	AM RF Coil	48Ω		30-106		
L36	AM Osc. Coil	6Ω		30-153		
L37	1st. FM IF	.1Ω		55-103		
L38	1st. AM IF	.6Ω	.6Ω	30-154		
L39	2nd. AM IF	10Ω	.0Ω	30-155		

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				REMARKS
			REGAL PART No.		LITTE/FUSE PART No.		
			FUSE	HOLDER	FUSE	HOLDER	
M1	3AG	.250	312.250		357001		

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					REGAL PART No.		
M2	Bayonet	6-8	.15	Brown			Type number 47.
M3	Bayonet	6-8	.15	Brown			Type number 47.

MISCELLANEOUS

ITEM No.	PART NAME	REGAL PART No.	NOTES
M4	RF Tuner	T-30-23	
M5	Switch	T-95-1A	Function (FM, AM, Phono TV)
M6	Ion Trap		
M7	Tuning Cap	40-114B	(18-425MMF, 20-220MMF)
B3	Trimmer	40-103	280-1050MMF (Horiz. Drive)
A38	Trimmer	40-108	AM Ant.
A41	Trimmer	40-115	FM RF (2.5-13MMF)
A40	Trimmer	40-115	FM Osc. (2.5-13MMF)
A37	Trimmer	40-108	AM Osc.

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		REGAL PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	6CB6	6CB6	7CM	
B	RF Amplifier	6AG5	6AG5	7BD	
V2	Converter	6J6	6J6	7BF	
V3A	1st Video IF Amp.	6AG5	6AG5	7BD	
B	1st Video IF Amp.	6BC5	6BC5	7BD	
V4A	2nd Video IF Amp.	6AG5	6AG5	7BD	
B	2nd Video IF Amp.	6BC5	6BC5	7BD	
V5A	3rd Video IF Amp.	6BC5	6BC5	7BD	
B	3rd Video IF Amp.	6AG5	6AG5	7BD	
V6	4th Video IF Amp.	6CB6	6CB6	7CM	
V7	Video Detector DC Restorer	6AL5	6AL5	6BT	
V8	Video Amplifier	6AU6	6AU6	7BK	
V9	Video Output	6V6GT	6V6GT	7AC	
V10	AGC Keying	6AU6	6AU6	7BK	
V11	1st Sound IF Amp.	6BA6	6BA6	7BK	
V12	2nd Sound IF Amp.	6BA6	6BA6	7BK	
V13	Limiter	6AU6	6AU6	7BK	
V14	Sound Discr.	6AL5	6AL5	6BT	
V15	AM Detector-AVC-AF Amplifier	6AT6	6AT6	7BT	
V16	Audio Output	6V6GT	6V6GT	7AC	
V17	1st Sync. Amp.	6SK7	6SK7	8N	
V18	Sync. Separator	6SH7	6SH7	8BK	
V19	2nd Sync. Amp.	6SN7GT	6SN7GT	8BD	
V20	Horiz. Discharge	6J5	6J5	6Q	
V21	Vertical Output	6S4	6S4	9AC	
V22	Vertical Disch.	6AL5	6AL5	6BT	
V23	Horizontal AFC	6AC7	6AC7	8N	
V24	Horizontal Osc.	6K6GT	6K6GT	7S	
V25	Horiz. Output	6BG6G	6BG6G	5BT	
V26	Damper	5V4G	5V4G	5L	
V27	HV Rectifier	1B3GT	1B3GT	3C	
V28	HV Rectifier	1B3GT	1B3GT	3C	
V29	LV Rectifier	5U4G	5U4G	5T	
V30	LV Rectifier	5U4G	5U4G	5T	
V32	FM RF Amplifier	6AG5	6AG5	7BD	
V33	AM RF Amplifier	6BA6	6BA6	7BK	
V34	FM Converter	12AT7	12AT7	9A	
V35	AM Converter	6BE6	6BE6	7CH	
V36	AM IF Amplifier	6BA6	6BA6	7BK	

CATHODE-RAY TUBE

ITEM No.	REGAL PART No.	SYLVANIA PART No.	THOMAS PART No.	RTMA BASE TYPE	NOTES
V31A	20CP4A	20CP4A	20CP4	12D	
B	19AP4A	19AP4A		12D	
C	18DP4A		19BP4A	12D	
D	17BP4A	17BP4A	17BP4	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					IDENTIFICATION CODES AND INSTALLATION NOTES
		REGAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNING PART No.	ERIE PART No.	
C1A	40 450	T-60-1	AFH3-148		UPT4145-820		Filter
B	10 450						Vert. Osc. Dec.
C	80 150						Bias Filter
C2A	40 450	T-60-2	AFH3-43		UPT4145		Filter
B	40 450						Filter
C	10 450						Filter
C3A	80 450	T-60-3	AFH2-91		UPT8045		Vert. Output Dec.
B	50 50				V5		Filter
C4A	250 10	T-60-6	AFH2-74		UPT200		Vert. Output Cathode
B	1000 6						Horiz. Cent. Bypass
C5A	40 450	T-60-4	AFH3-154		UPT4145		Vert. Cent. Bypass
B	10 450						Filter
C	10 350						Video Amp. Dec.
C6A	20 450	T-60-5	AFH2-95		UPT245-835		Sync. Dec.
B	80 350						Audio Output Dec.
C7	50 50	60-104	PR850/50				Decoupling
C8	3-9			329-10			Audio Output Cathode
C9	.5-3			329-3			Variable Trimmer
C10	1000			ICN-120		N750L-121	Variable Trimmer
C11	100		SI1000	D6-102		GP2L-102	RF Amp. Decoupling
C12	.5-3		SI100N750	ICN-100		N750L-101	RF Amp. Fil.
C13	20		SI20NP0	329-3			RF Coupling
C14	10		SI10N750	FCZ-20		NPCK-200	Variable Trimmer
C15	.5-3			ICN-10		N750K-100	One. Grid Cap.
C16	1000		BPD-2X001	DD-2-102		812-001	Fixed Trimmer
C17A	1000						Variable Trimmer
B	1000						RF Bypass
C18	10		SI10NP0	TCZ-10		NPCK-100	Conv. Fil.
C19	68		469-000307	TCZ-68		NP0-333-680	Fixed Trimmer
C20	120			TCN-120		N750L-121	Fixed Trimmer
C21	1500		SI1500	D6-152	1W5D15	GP2L-152	IF Coupling
C22	1500		SI1500	D6-152	1W5D15	GP2L-152	AGC Filter
C23	1500		SI1500	D6-152	1W5D15	GP2L-152	1st. Video IF Dec.
C24	1500		SI1500	D6-152	1W5D15	GP2L-152	1st. Video IF Fil.
C25	43			TCZ-43		NP0L-430	RF Bypass
C26	27 0		1469-0003	D6-271	5R5T3	GP2K-271	Fixed Trimmer
C27	1500		SI1500	D6-152	1W5D15	GP2L-152	IF Coupling
C28	1500		SI1500	D6-152	1W5D15	GP2L-152	AGC Filter
C29	1500		SI1500	D6-152	1W5D15	GP2L-152	2nd. Video IF Dec.
C30	1500		SI1500	D6-152	1W5D15	GP2L-152	2nd. Video IF Fil.
C31	270		1469-0003	D6-271	5R5T3	GP2K-271	RF Bypass
C32	1500		SI1500	D6-152	1W5D15	GP2L-152	IF Coupling
C33	1500		SI1500	D6-152	1W5D15	GP2L-152	AGC Filter

REGAL MODELS 17HD31, 17HD36, 19C31, 19C36, 19D31, 19D36, 20C31, 20C36, 20D31, 20D36, 20HD31, 20HD36

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

CAPACITORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA					IDENTIFICATION CODES AND INSTALLATION NOTES	
	CAP.	VOLT	REGAL PART No.	AEROVOX PART No.	CORNELL DUBIER PART No.	ERIE PART No.	SPRAGUE PART No.	INSTALLATION NOTES	
C34	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	3rd. Video IF Fil.
C35	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	RF Bypass
C36	270	500		1469-0003	D6-271	SR5T3	GP2K-271	MS-33	IF Coupling
C37	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	4th. Video IF Dec.
C38	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	4th. Video IF Fil.
C39	82				TCZ-82		NP0-333-820		4th. Video IF Cathode
C40	75	500		1469-000075			NP0-333-750		Fixed Trimmer
C41	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	RF Bypass
C42	270	500		1469-0003	D6-271	SR5T3	GP2K-271	MS-33	IF Coupling
C43	10	500		1469-00001	TCZ-10	SR5Q1	NP0K-100	MS-41	Video Det. Filter
C44	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	Video Det. Fil.
C45	.22	400		P488-22	DF-503	GT4P25	4TM-P22	4TM-P22	Video Amp. Screen
C46	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Video Coupling
C47	.070	500		1469-0005	D6-471	SR5T5	GP2K-471	MS-35	Video Amp. Cathode
C48	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Video Coupling
C49	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Video Coupling
C50	.22	400		P488-22	DF-503	GT4P25	4TM-P22	4TM-P22	Decoupling
C51	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Video Coupling
C52	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	AGC Keying Screen
C53	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	1st. Sound IF Dec.
C54	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	1st. Sound IF Cathode
C55	.01	400		P488-01	D6-103	PTE451	GP2K-333-103	4TM-S1	2nd. Sound IF Grid
C56	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	2nd. Sound IF Plate
C57	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	2nd. Sound IF Screen
C58	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	2nd. Sound IF Cathode
C59	51			SI50	D6-500	SW5Q5	GP1K-500	5GA-4.5	Limiter Grid Filter
C60	6800			SI6800	D6-682	ID5D7	GP2-333-682	SHK-D68	Limiter Decoupling
C61	270	500		1469-0003	D6-271	SR5T3	GP2K-271	MS-33	De-emphasis
C62	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Audio Coupling
C63	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Audio Coupling
C64	.220	500		1469-00025	D6-221	SW5T25	GP2K-221	IF M-325	Audio Output Grid
C65	.005	600		P488-005	D6-502	PTE6D5	GP2-333-502	6TM-D5	Audio Coupling
C66	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Audio Coupling
C67	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Audio Output Plate
C68	.005	600		P488-005	DF-503	PTE6D5	GP2-333-502	6TM-D5	Sync. Coupling
C69	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	1st. Sync. Amp. Plate
C70	270	1000		1469-0002	D6-271	SR5T3	GP2K-271	MS-33	1st. Sync. Amp. Dec.
C71	.1	600		P488-01	DF-104	PTE6P1	6TM-P1	6TM-P1	Sync. Coupling
C72	270	1000		1469-0002	D6-271	SR5T3	GP2K-271	MS-33	Sync. Coupling
C73	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Sync. Coupling
C74	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Vert. Sync. Coupling
C75A	.002			P488-002	DF-503	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C76	.005			P488-005	DF-503	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C77	.005			P488-005	DF-503	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C78	.005			P488-005	DF-503	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C79	.005			P488-005	DF-503	PTE6D5	GP2-333-502	6TM-D5	Vert. Integrator Net
C80	.015	1000		P488-015	D6-103	PTE451	GP2K-333-103	4TM-S1	Vert. Discharge
C81	.004	1000		P488-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	Vert. Sweep Coupling
C82	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Horiz. Sync. Coupling
C83	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Fixed Trimmer
C84	.004	1000		P488-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	Fixed Trimmer
C85	1200			SI1200	D6-122	JWSD15	GP2L-122	SHK-D15	Fixed Trimmer
C86	.015	1000		P488-015	D6-402	PTE6D4	GP2-333-402	6TM-D4	AFC Filter
C87	.004	1000		P488-004	D6-402	PTE6D4	GP2-333-402	6TM-D4	AFC Filter
C88	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	AFC Filter
C89	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	AFC Filter
C90	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	AFC Screen
C91	.001	1000		P488-001	DF-503	PTE6D5	GP2-333-502	6TM-D5	AFC Coupling
C92	.047	600		P488-047	DF-503	PTE655	6TM-S47	6TM-S47	Phase Shifting Net.
C93	.1	600		P488-01	DF-104	PTE6P1	6TM-P1	6TM-P1	Phase Shifting Net.
C94	.047	600		P488-047	DF-103	PTE655	6TM-S47	6TM-S47	Horiz. Osc. Grid Cap.
C95	.1	100		P488-01	DF-103	PTE655	6TM-S47	6TM-S47	Horiz. Osc. Screen
C96	.1	1000		P488-01	DF-103	PTE655	6TM-S47	6TM-S47	Differentiating Net.
C97	.035	1000		P488-01	DF-103	PTE655	6TM-S47	6TM-S47	Differentiating Net.
C98	500	20000		HV20C	TV3-502				Damper Filter
C99	500	20000		HV20C	TV3-502				Damper Filter
C100	500	20000		HV20A	TV1-502				Damper Filter
C101	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	HV Doubler
C102	.01	400		P488-01	D6-103	PTE451	GP2-333-103	4TM-S1	Line Filter
C103	1500			SI1500	D6-152	JWSD15	GP2L-152	SHK-D15	Line Filter
C104	50	500		1469-00005	DD-502	ID5D5	811-005	SHK-D5	RF Bypass
C105	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	Fixed Trimmer
C106	1000			BPD-001	DD-102	ID5D1	801-001	SHK-D1	FM RF Amp. Dec.
C107	50			SI47N750	TCN-47	ID5D5	811-005	SHK-D5	FM RF Amp. Cathode
C108	50			SI47N750	TCN-47	ID5D5	811-005	SHK-D5	FM RF Coupling
C109	5000			SI47N750	TCN-47	ID5D5	811-005	SHK-D5	FM RF Coupling
C110	50			SI47N750	TCN-47	ID5D5	811-005	SHK-D5	Conv. Cathode
C111	50			SI47N750	TCN-47	ID5D5	811-005	SHK-D5	FM Osc. Grid Cap.
C112	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	Fixed Padder
C113	2.2	500		BPD-005	DD-502	ID5D5	811-005	SHK-D5	FM Osc. Anode
C114	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	FM Osc. Coupling
C115	250	500		1468-00025	D6-251	SW5T25	GP2K-251	IF M-325	Conv. Decoupling
C116	100	500		1468-0001	D6-101	SW5T1	GP1K-101	IF M-31	FM IF Coupling
C117	100	500		1468-0001	TCZ-100	SR5T1	NP0-333-101	MS-31	AM RF Coupling
C118	.05	200		P288-05	DF-503	PTE455	2TM-S5	2TM-S5	AM Osc. Grid Cap.
C119	.05	200		P288-05	DF-503	PTE455	2TM-S5	2TM-S5	AGC Filter
C120	.05	200		P288-05	DF-503	PTE455	2TM-S5	2TM-S5	AM IF Amp. Cathode
C121	.05	200		P288-05	DF-503	PTE455	2TM-S5	2TM-S5	Diode RF Filter
C122	.05	200		P288-05	DF-503	PTE455	2TM-S5	2TM-S5	Diode RF Filter
C123	.25	400		P288-25	DF-503	GT4P25	4TM-P25	4TM-P25	AVC Filter
C124	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	Decoupling
C125	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	FM Ant. Isolation
C126	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	FM RF Amp. Dec.
C127	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	RF Bypass
C128	5000			BPD-005	DD-502	ID5D5	811-005	SHK-D5	FM Conv. Fil.

* Not used in all models.
† Some models use 1500MMF. in this application.
‡ Some models use 220MMF. in this application.
§ Some models use .01MFD. in this application.
¶ Some models use .0025MFD. in this application.
• Items C75A, C75B, C75C, R86A, R86B, R86C are combined in one unit.

ITEM No.	RATING		REPLACEMENT DATA				INSTALLATION NOTES
	RESIST-ANCE	WATTS	REGAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	1Meg	1/2	T-20-2	Concentrik B11-137 ϕ	RTV-65		Tone Control-Front Brightness Control-Rear Attach Per Instructions in Concentrik
B	50K			Concentrik B11-123 ϕ			
C	Shaft End			E-187 ϕ			
R2A	1Meg	1/2	T-20-2	Concentrik B11-137 ϕ	RTV-65		Vert. Hold Control-Front Horiz. Hold Control-Rear Attach Per Instructions in Concentrik
B	50K			Concentrik B11-123 ϕ			
C	Shaft End			E-187 ϕ			
R3A	10K	1/2	T-20-12	Concentrik B11-116 ϕ	RTV-65		Contrast Control-Front Volume Control-Tapped 150K Ω Rear Attach Per Instructions in Concentrik
B	1Meg			B13-137X ϕ			
C	Shaft End			E-187 ϕ			
D	Switch			76-1 ϕ			Attach Per Instructions in Concentrik
R4	20K	2	T-20-7	W-20	43-20	VR-110	Horiz. Centering Control-Wire Wound
R5	20K	2	T-20-7	W-20X10	RTV-98	SVT-98	Vert. Centering Control-Tapped 100 Ω Wire Wound
R6	1500K	4	T-20-8		RTV-6	SVT-994	Focus Control-Wire Wound
R7A	5000K	1	T-20-6	Q11-114	AM-19-5	AN-10	Vert. Linearity Control
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Attach to RTA Per Instructions
R8A	2.5Meg	1	T-20-5	Q11-239	AM-84-5	AN-83	Height Control
B	Shaft		Not Req.	Not Req.	FKS-1	AK-1	Attach to R8A Per Instructions

* Additional parts to be used with Concentrik.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		IDENTIFICATION CODES	
		RESISTANCE	WATTS	REGAL PART No.	IRC PART No.
R9	3000K			BTS-300	Antenna Coil Shunt
R10	47K 20%			BTS-47K	AGC Network
R11	2200K 20%			BTS-220K	RF Amp. Decoupling
R12	10K			BTS-10K	RF Coil Shunt
R13	470K			BTS-470K	Mixer Grid
R14	220K 20%			BTS-22K	Mixer Grid
R15	10K			BTS-10K	Osc. Grid
R16	470K			BTS-470K	Osc. Plate
R17	150K			BTS-150K	Decoupling-See Note 1
R18	150K 20%			BTS-150K	Decoupling
R19	150K			BTS-150K	Decoupling
R20	4700K			BTS-4700K	AGC Network
R21	1000K			BTS-1000K	AGC Network
R22	1000K			BTS-1000K	AGC Network
R23	10K			BTS-10K	AGC Network
R24	10K 20%			BTS-10K	AGC Network
R25	30K			BTS-300K	1st Video IF Amp. Cathode
R26	100K			BTS-100K	1st Video IF Amp. Decoupling
R27	30K			BTS-300K	2nd Video IF Amp. Cathode
R28	1000K			BTS-1000K	2nd Video IF Amp. Decoupling
R29	30K			BTS-300K	3rd Video IF Amp. Cathode
R30	2700K			BTS-2700K	3rd Video IF Amp. Plate
R31	1000K 20%			BTS-1000K	3rd Video IF Amp. Decoupling
R32	150K 20%			BTS-150K	4th Video IF Amp. Cathode
R33	5000K			BTS-5000K	4th Video IF Amp. Plate
R34	1000K 20%			BTS-1000K	4th Video IF Amp. Decoupling
R35	150K 20%			BTS-150K	Decoupling
R36	3000K			BTS-300K	Video Det. Diode Load
R37	23K			BTS-23K	Keyed AGC Grid
R38	100K 20%			BTA-100K	Keyed AGC Screen
R39	100K			BTS-100K	AGC Network
R40	33K			BTA-330K	Voltage Divider
R41	22K			BTA-22K	Voltage Divider
R42	330K			BTS-330K	Video Amp. Plate
R43	3000K			BTA-300K	Video Amp. Plate Decoupling
R44	1.2Meg			BTS-1.2Meg	Bias Network
R45	47K 20%			BTS-470K	Video Output Grid
R46	22K			BTS-22K	Video Output Cathode
R47	2500K			BTA-2500K	Video Output Plate
R48	15K			BTS-15K	Video Peaking Coil Shunt
R49	10K			BTS-10K	Isolation
R50	1Meg			BTS-1Meg	DC Restorer Diode Load
R51	150K			BTS-150K	Voltage Divider
R52	50K			BTA-50K	Voltage Divider-See Note 2
R53	100K 20%			BTA-100K	Picture Tube Grid
R54	50K			BTA-50K	Picture Tube Cathode-See Note 2
R55	150K			BTS-150K	ACC Anode Load
R56	100K			BTS-100K	1st Sound IF Amp. Cathode
R57	1000K 20%			BTS-1000K	1st Sound IF Amp. Decoupling
R58	470K 20%			BTS-470K	2nd Sound IF Amp. Grid
R59	100K			BTS-100K	2nd Sound IF Amp. Cathode
R60	3300K			BTS-330K	2nd Sound IF Amp. Screen
R61	1000K 20%			BTS-1000K	2nd Sound IF Amp. Plate
R62	50K			BTA-50K	Limiter Grid-See Notes 2 and 4
R63	10K			BTA-10K	Limiter Decoupling
R64	10K			BTA-10K	Voltage Divider
R65	2.2K			1W-1.2K	Diode Filament-Wire Wound
R66	100K			BTS-100K	Disc Diode Load
R67	100K			BTS-100K	Disc Diode Load
R68	22K			BTA-22K	De-Emphasis
R69	27K			BTS-27K	Tune Compensation
R70	10Meg			BTS-10Meg	AF Amp. Grid
R71	330K			BTS-330K	AF Amp. Plate
R72	470K			BTS-470K	Output Grid
R73	300K			BTA-300K	Output Cathode
R74	1200K			1 3/4A-1200K	Output Decoupling-Wire Wound
R75	6.8Meg			BTS-6.8Meg	Bias Network
R76	1Meg 20%			BTS-1Meg	1st Sync. Amp. Grid
R77	4700K			BTA-4700K	1st Sync. Amp. Plate
R78	4700K			BTA-4700K	1st Sync. Amp. Plate Decoupling
R79	4.7Meg			BTS-4.7Meg	Bias Network
R80	1Meg			BTS-1Meg	Sync. Sep. Grid
R81	6800K			BTS-6800K	Sync. Sep. Plate
R82	1Meg			BTS-1Meg	2nd Sync. Amp. Grid
R83	4700K			BTA-4700K	2nd Sync. Amp. Plate
R84	1000K 20%			BTS-1000K	Decoupling
R85	22K 20%			BTS-22K	Voltage Divider
R86A	22K			BTS-22K	Integrator
B	8200K			BTS-8200K	Integrator
C	8200K			BTS-8200K	Integrator