

VOLUME CONTROL
ON-OFF SWITCH

PICTURE
CONTROL

CHANNEL
SELECTOR

FINE
TUNING

ADMIRAL MODEL 17DX12

TRADE NAME	Admiral	MODELS	CHASSIS
		17DX10, 17DX11, 17DX12	19B1
		121DX10	19C1
		121DX11	19F1A
		121DX12, 121DX16, 121DX17	19C1
		121DX12A, 121DX16A, 121DX17A	19C1, 19F1
		121DX16L, 121DX17L	19K1
		221DX15, 221DX16, 221DX17 221DX26, 221DX38	19C1
		221DX15A, 221DX16A, 221DX17A	19C1, 19F1
		221DX15L, 221DX16L, 221DX17L 221DX26L	19K1
		221DX26A	19F1
		221DX38A	19C1, 19F1
		222DX15	19H1
MANUFACTURER Admiral Corp., 3800 W. Cortland St., Chicago 47, Ill.			
TYPE SET Television Receiver			
TUBES Nineteen			
POWER SUPPLY 110-120 Volts AC-60 Cycle			
TUNING RANGE- Channels 2 thru 13, Video IF 25.75MC, Sound IF 21.25MC (Inter-carrier)			
RATING 1.56 Amp. @ 117 Volts AC			
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HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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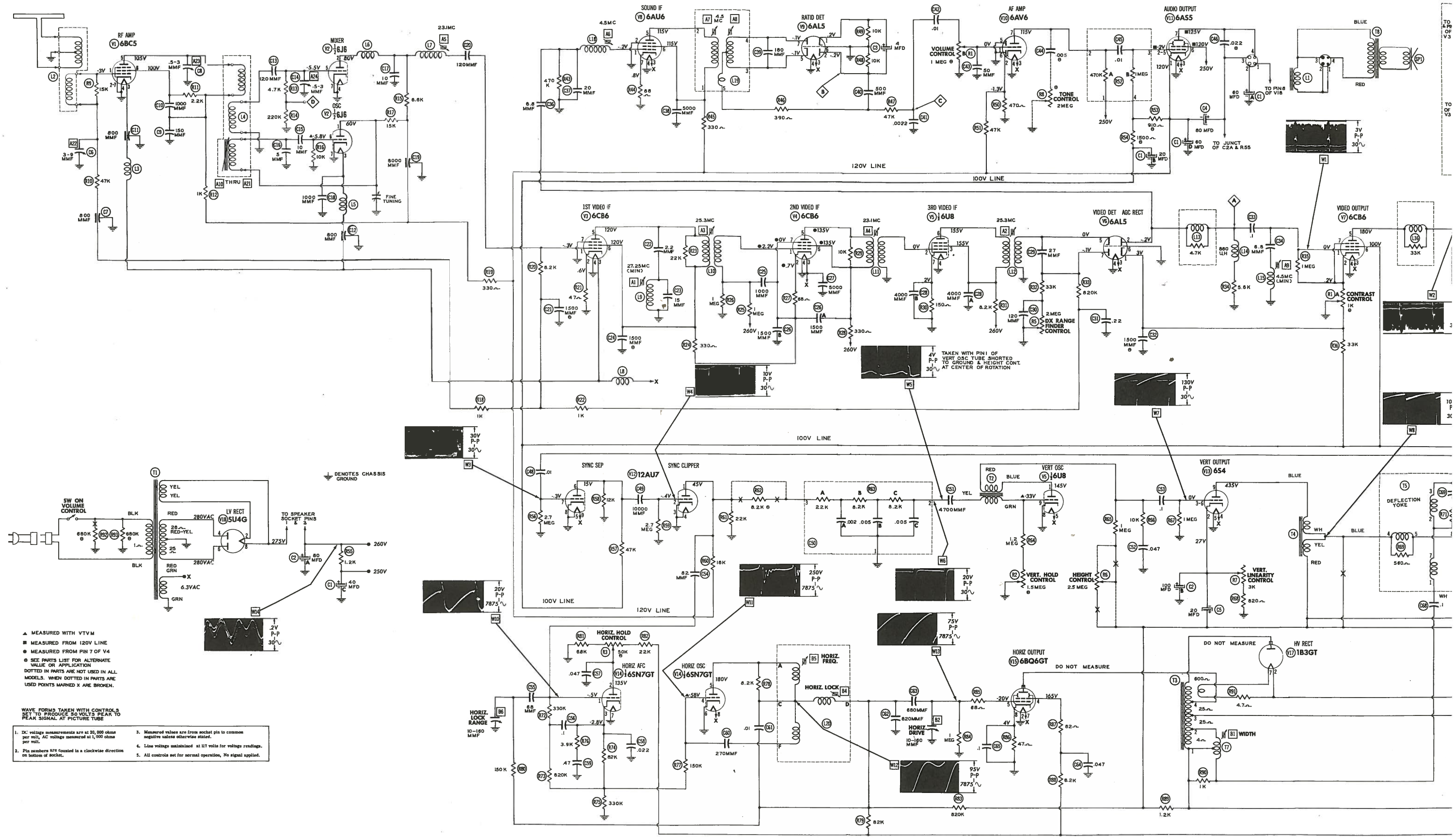
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DATE 7 -53

SET 210

FOLDER 2

ADMIRAL
CHASSIS 19B1, 19C1, 19F1, A, 19H1, 19K1



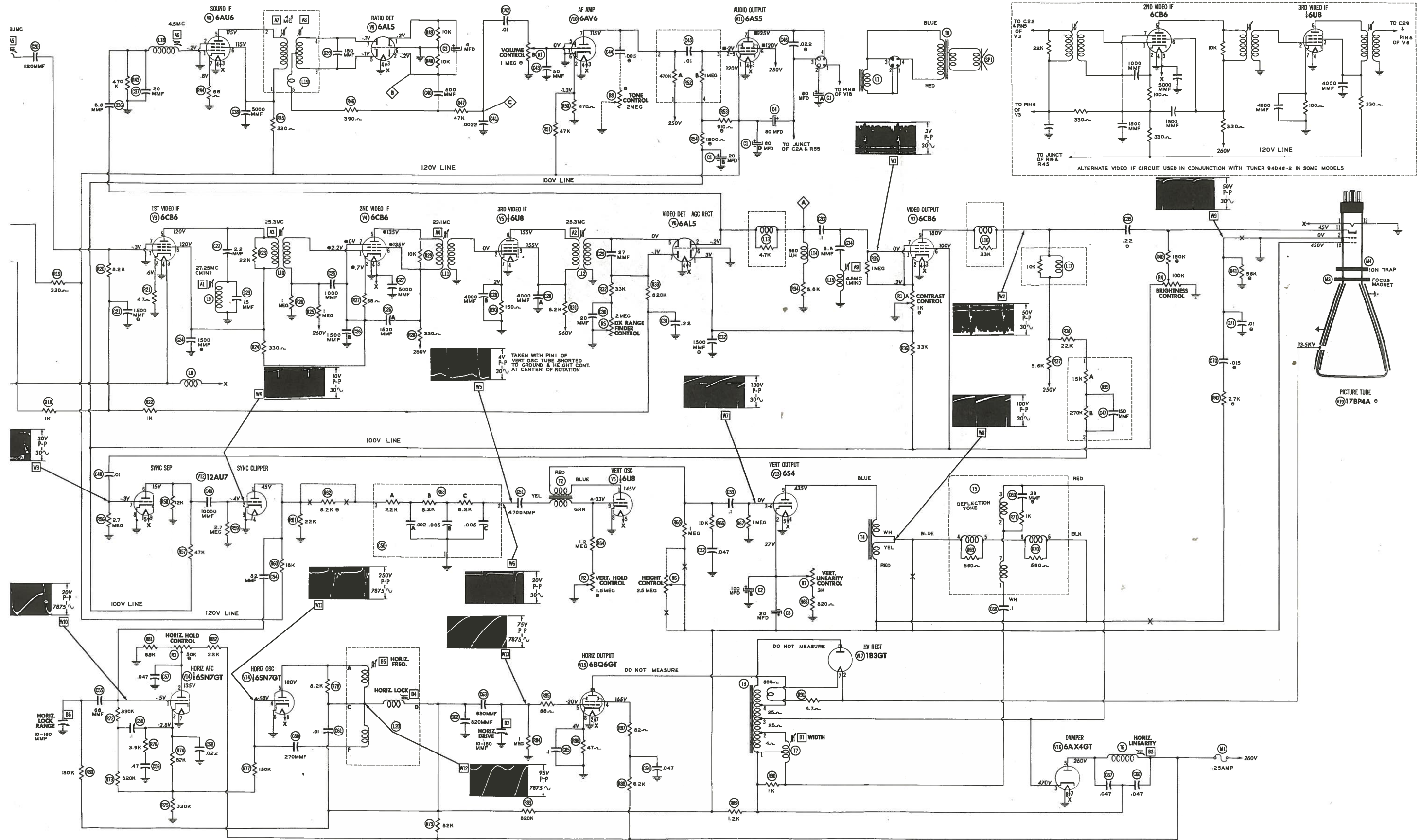
▲ MEASURED WITH VTVM
 ■ MEASURED FROM 120V LINE
 ● MEASURED FROM PIN 7 OF V4
 ○ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
 DOTTED IN PARTS ARE NOT USED IN ALL MODELS. WHEN DOTTED IN PARTS ARE USED POINTS MARKED X ARE BROKEN.

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

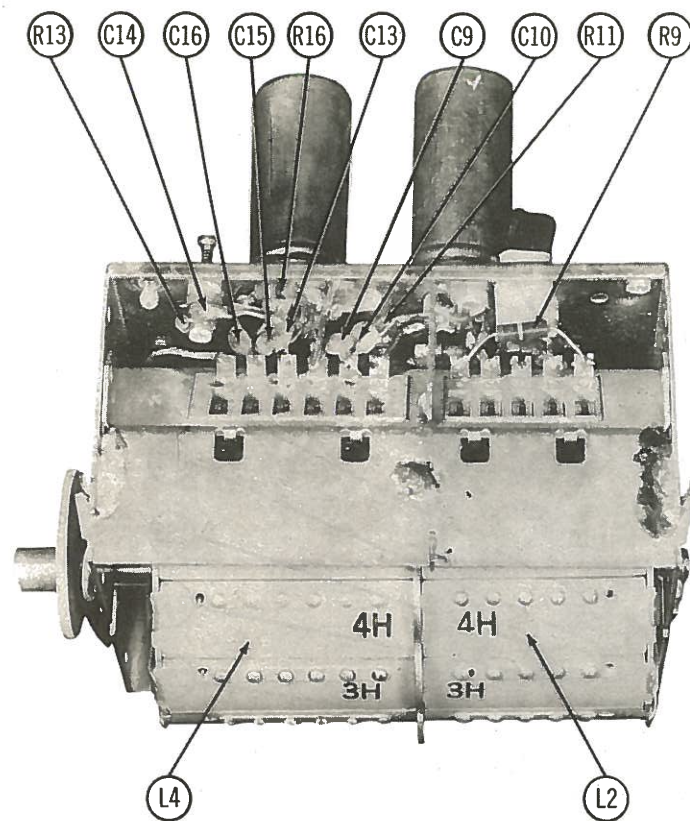
1. DC voltage measurements are at 20,000 ohms per volt, AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are found in a clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation, No signal applied.

A PHOTOFAC STANDARD NOTATION SCHEMATIC
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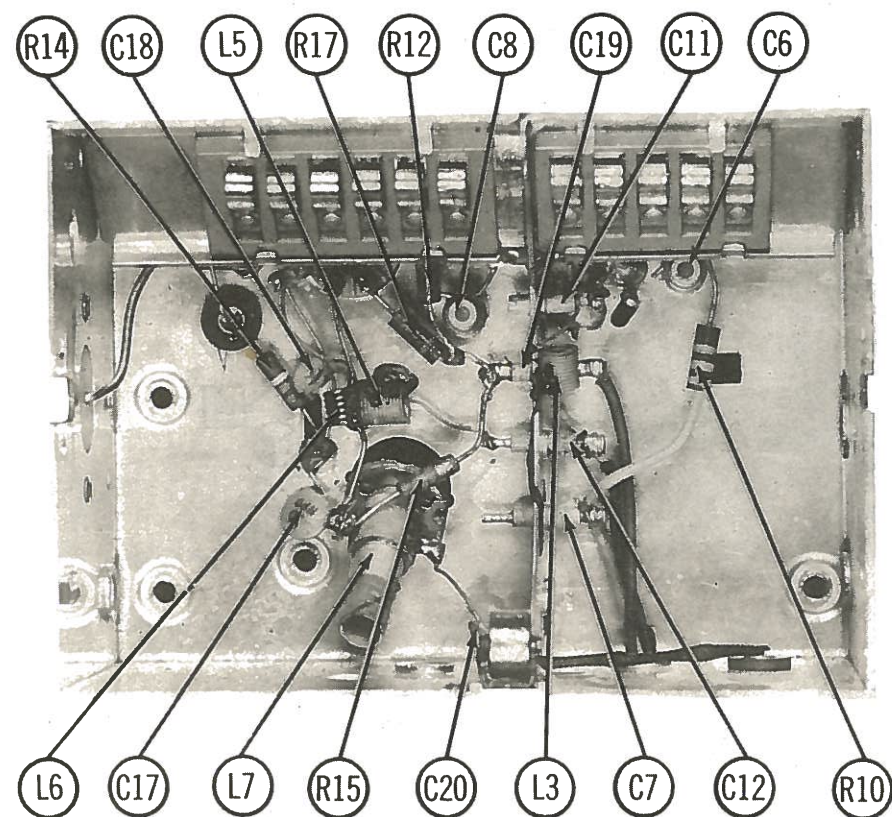
ADMIRAL
CHASSIS 19B1, 19C1, 19F1, A, 19H1, 19K1



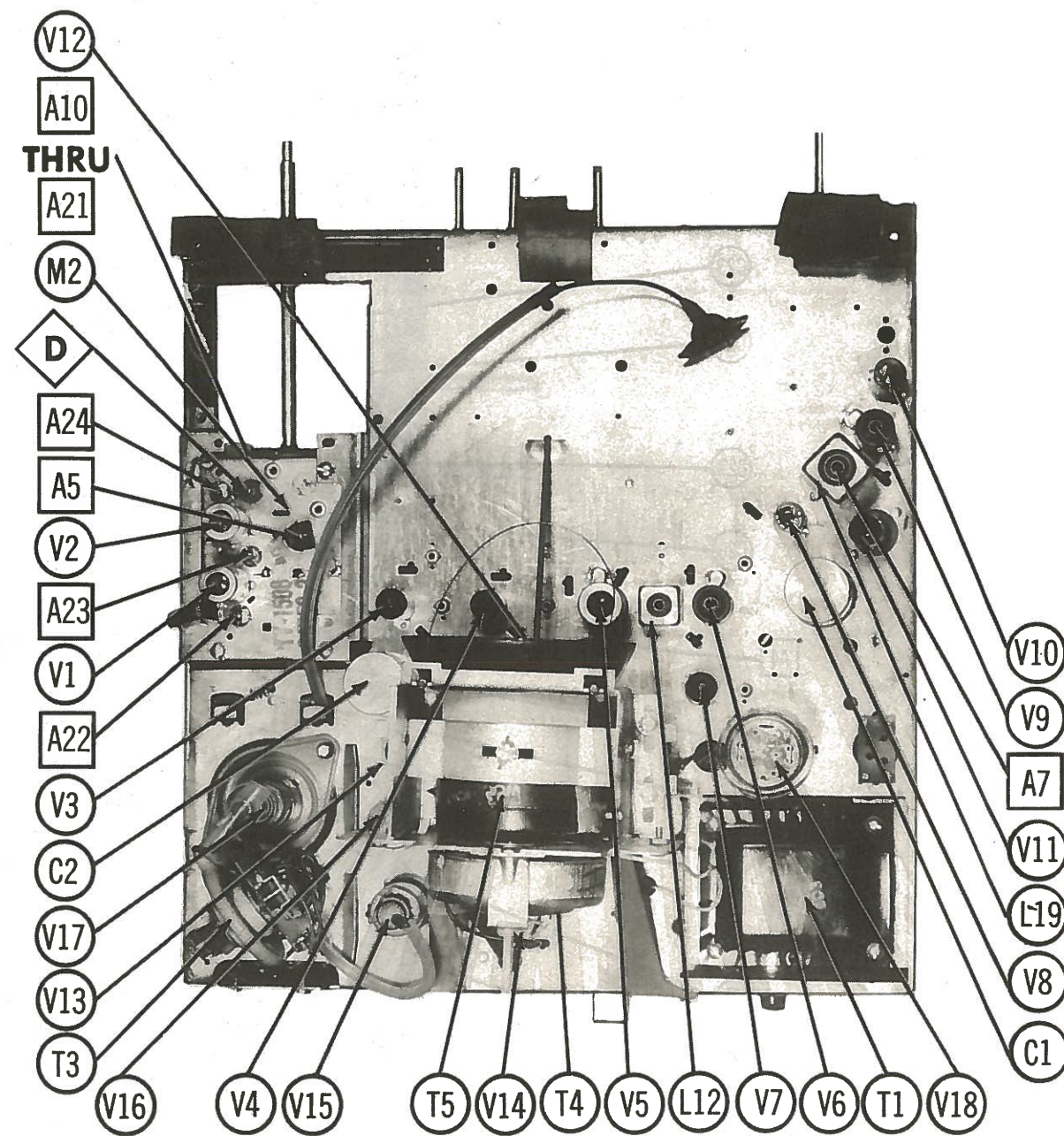
ADMIRAL
CHASSIS 19B1, 19C1, 19F1, A, 19H1, 19K1



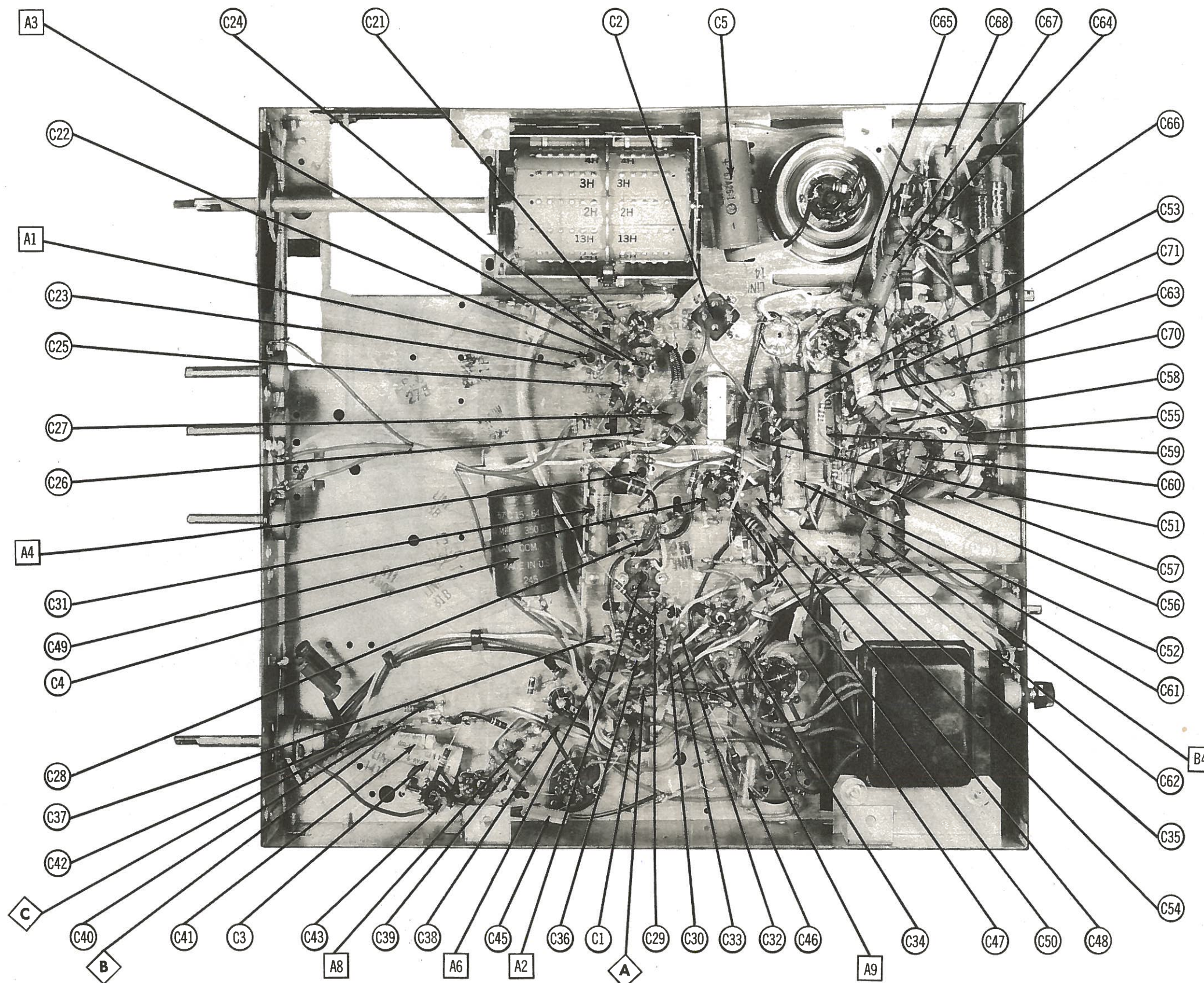
RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



CHASSIS TOP VIEW

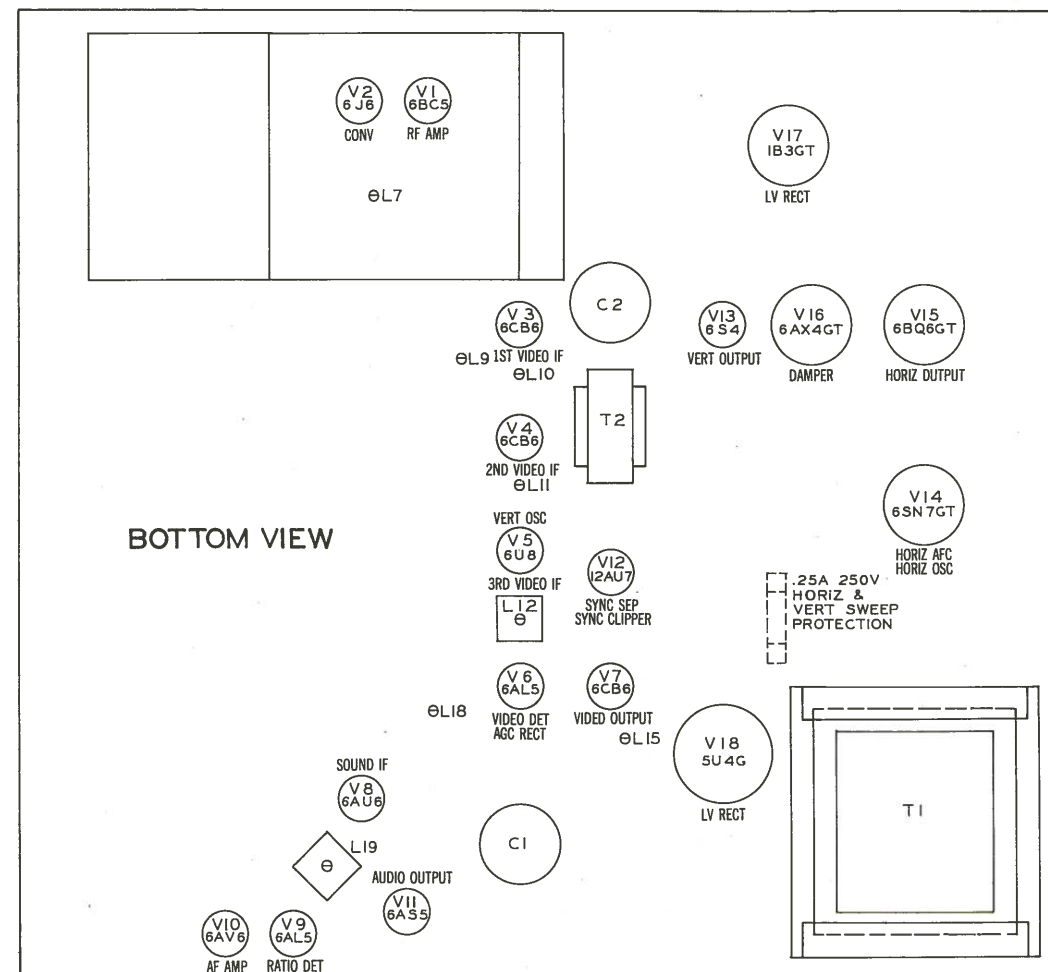


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

RESISTANCE MEASUREMENTS

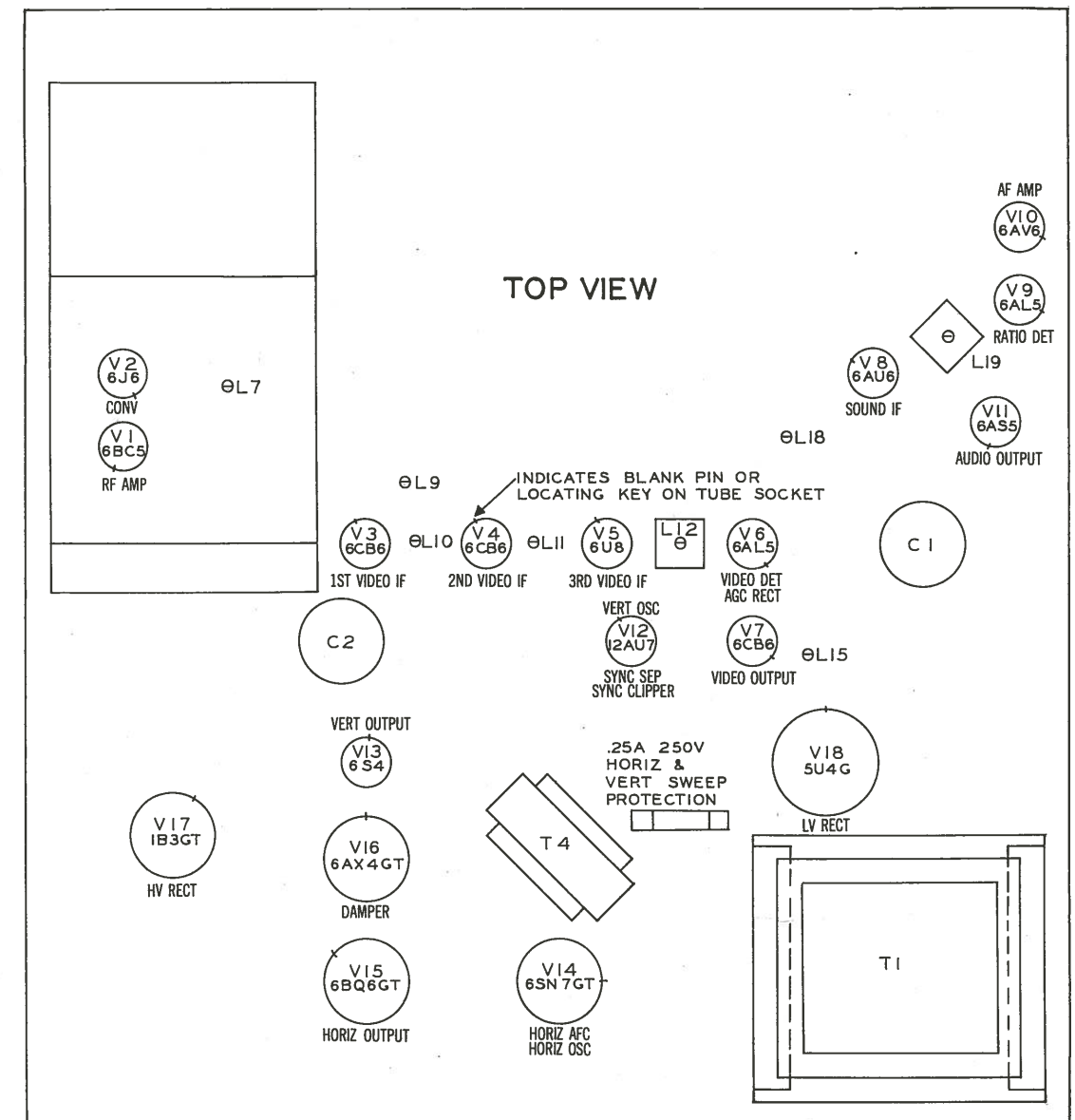
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BC5	1.9Meg	0Ω	.1Ω	0Ω	‡1.3KΩ	‡3.5KΩ	0Ω		
V 2	6J6	‡15.3KΩ	‡7.1KΩ	.1Ω	0Ω	225KΩ	10KΩ	0Ω		
V 3	6CB6	1.9Meg	47Ω	.1Ω	0Ω	‡330Ω	‡330Ω	0Ω		
V 4	6CB6	600KΩ	‡68Ω	.1Ω	0Ω	‡407Ω	‡407Ω	‡10Ω		
V 5	6U8	‡1.8Meg	.4Ω	‡8.3KΩ	0Ω	.1Ω	‡8.3KΩ	150Ω	0Ω	1.7Meg
V 6	6AL5	990Ω	5.6KΩ	.1Ω	0Ω	.4Ω	0Ω	1 Meg		
V 7	6CB6	1 Meg	8Ω	.1Ω	0Ω	‡5.7KΩ	‡2.4KΩ	8Ω		
V 8	6AU6	470KΩ	0Ω	.1Ω	0Ω	‡330Ω	‡330Ω	68Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 10	6AV6	50Ω	470Ω	.1Ω	0Ω	0Ω	0Ω	‡470KΩ		
V 11	6AS5	10.8KΩ	‡1 Meg	.1Ω	0Ω	‡1 Meg	‡1.3KΩ	‡370Ω		
V 12	12AU7	‡13KΩ	2.7Meg	0Ω	0Ω	0Ω	‡17KΩ	2.7Meg	0Ω	.1Ω
V 13	6S4	INF	2KΩ	1Meg	.1Ω	0Ω	1 Meg	INF	INF	‡2.3KΩ
V 14	6SN7GT	1.5Meg	‡24KΩ	410KΩ	480KΩ	‡82KΩ	0Ω	0Ω	.1Ω	Top Cap ‡25Ω
V 15	6BQ6GT	‡8.2KΩ	0Ω	‡77Ω	‡8.3KΩ	1 Meg	‡82KΩ	.1Ω	47Ω	
V 16	6AX4GT	‡1.2KΩ	INF	1 Meg	INF	‡92Ω	‡3.9KΩ	.1Ω	0Ω	Top Cap ‡625Ω
V 17	1B3GT	PINS 1 - 8 HAVE INF RESISTANCE								
V 18	5U4G	‡6.9KΩ	110KΩ	‡30KΩ	26.2Ω	INF	24.5Ω	.1Ω	110KΩ	
V 19	17BP4A	.1Ω	56KΩ	‡1.2KΩ	‡200KΩ	Pin 11 0Ω	Pin 12 0Ω			

‡ MEASURED FROM PIN 8 OF V18.
‡ MEASURED FROM 120 VOLT LINE.
‡ MEASURED FROM PIN 3 OF V16.
‡ MEASURED FROM PIN 7 OF V4.



TUBE PLACEMENT CHART

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 - V18

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5, V6, V7
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V7, V8
Has pic, no sound - V8, V9, V10, V11

SYNC FAILURE
No vert. sync - V5, V12
No horiz. sync - V12, V14
No vert. or horiz. sync - V12

SWEEP FAILURE
No raster, has sound - V14, V15, V16, V17, V19, Fuse (M1)
No vertical deflection - V5, V13
Poor vert. linearity or foldover - V5, V13
Poor horiz. linearity or foldover - V14, V15, V16
Narrow picture - V14, V15, V16, V17, V18
Vert. off freq. - V5, V12
Horiz. off freq. - V12, V14

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT										
The high voltage lead should be securely taped and kept away from the chassis. Do not remove the horizontal oscillator tube to disable the high voltage.										
VIDEO IF ALIGNMENT										
Remove the converter tube, V2, from its socket and replace with a 6J6 which has pin 1 removed. This will disable the local oscillator and reduce the possibility of erroneous indications. Connect the negative lead of a 3 volt battery to the ungrounded side of C21. Connect the positive lead to chassis.										
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS				
Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	27.25MC (Unmod)	Any	DC probe to point  Common to chassis.	A1	Adjust for MINIMUM deflection.				
"	"	25.3MC	"	"	A2, A3	Adjust for maximum deflection.				
"	"	23.1MC	"	"	A4, A5	Adjust for maximum deflection. Repeat step 1.				
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	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS			
Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.25MC 22.0MC 24.3MC 25.0MC 25.75MC 27.25MC	Any	Vert. Amp. to point  Low side to chassis.		Check for response similar to Fig. 1. If necessary retouch A2 thru A5 for desired response.			
SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM										
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS				
.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point  Common to chassis.	A6, A7	Adjust for maximum deflection.				
"	"	"	"	DC probe to point  Common to chassis.	A8	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 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.										
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS			
.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. Amp. to point  Low side to chassis.	A6, A7	Disconnect stabilizer capacitor C3. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.			
"	"	"	"	"	Vert. Amp. to point  Low side to chassis.	A8	Reconnect capacitor C3. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.			
4.5MC TRAP ALIGNMENT										
DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS				
.01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point  Common to chassis.	A9	Connect a 10MMF capacitor from pin 5 of V7 to pin 7 of V8. Adjust A9 for MINIMUM deflection. Remove the 10MMF capacitor from V7 and V8.				
OSCILLATOR ALIGNMENT										
Remove the dummy converter tube and replace the original 6J6 in its socket. The channel oscillator adjustment screws 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. Connect bias battery as under Video IF Alignment. Connect the synchronized sweep voltage from the signal 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. Set the fine tuning control to the mid-position of its range.										
DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS			
Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. Amp. to point  Low side to chassis.	A10	Adjust to place video marker at 50% on high frequency slope of IF response curve as in Fig. 4.			
		207MC (10MC Swp)	205.25MC 209.75MC	12		A11				
		201MC (10MC Swp)	199.25MC 203.75MC	11		A12				
		195MC (10MC Swp)	193.25MC 197.75MC	10		A13				
		189MC (10MC Swp)	187.25MC 191.75MC	9		A14				
		183MC (10MC Swp)	181.25MC 185.75MC	8		A15				
		177MC (10MC Swp)	175.25MC 179.75MC	7		A16				
		85MC (10MC Swp)	83.25MC 87.75MC	6		A17				
		79MC (10MC Swp)	77.25MC 81.75MC	5		A18				
		69MC (10MC Swp)	67.25MC 71.75MC	4		A19				
		63MC (10MC Swp)	61.25MC 65.75MC	3		A20				
		57MC (10MC Swp)	55.25MC 59.75MC	2		A21				

ALIGNMENT INSTRUCTIONS (CONT.)

RF AND MIXER ALIGNMENT							
Connect bias battery as under Video IF Alignment. If unable to obtain response curve of sufficient amplitude, remove the battery and connect a short across C21. Connect the synchronized sweep voltage from the signal 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
9. 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 D. Low side to chassis	A22, A23, A24	Adjust for curve of maximum amplitude of maximum amplitude with flat top and band width as in Fig. 5.
10. "	"	213MC (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 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 67.25MC 71.75MC 61.25MC 65.75MC 55.25MC 59.75MC	13 11 10 9 8 7 6 5 4 3 2	"		Check for response similar to Fig. 5. If markers fall below 70% on any channel, make slight compromise adjustments of A22, A23 and A24 with channel switch set to that channel then recheck all other channels to see that they have not been seriously affected.

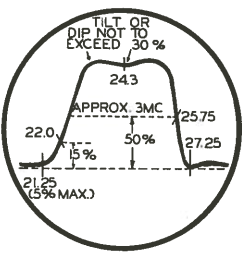


FIG.1

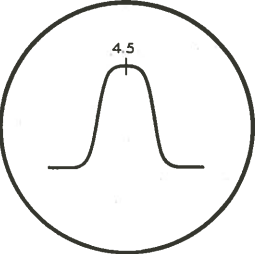


FIG. 2

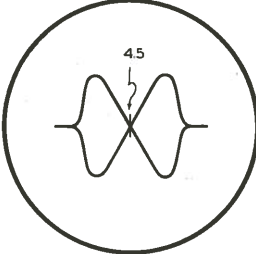


FIG. 3

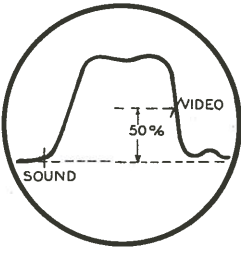


FIG.4

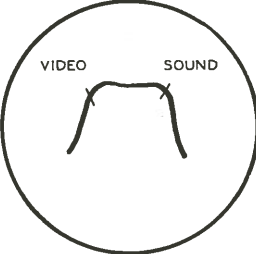


FIG.5

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the RF Tuner Oscillator Circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

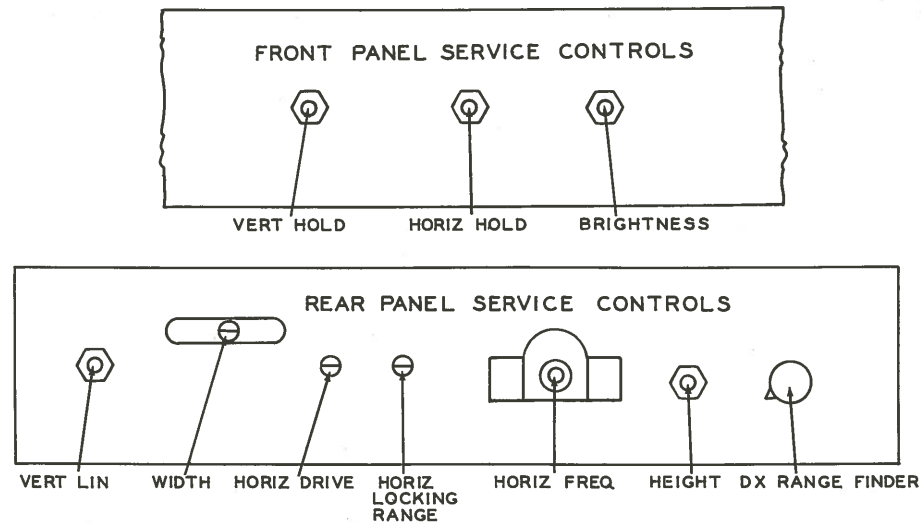
Remove 4 metal screws and 4 triangle plates located at each corner.

Remove safety glass. Hold safety glass in while removing. Use extreme caution when removing safety glass.

PICTURE TUBE REMOVAL

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

SERVICE ADJUSTMENT LOCATION



SPECIAL ADJUSTMENTS- DX RANGE FINDER ADJUSTMENT

In normal signal strength areas the DX range finder control will usually be set at "0" position. In intermediate areas a setting from 10 to 150 may prove satisfactory and in fringe areas position 150 to 300 may give best results. In weak signal - high noise level areas adjust for minimum snow in the picture.

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 until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

Bottom slug accessible through hex hole in top slug. Use appropriate hex alignment tool and adjust L19 until Sound IF detector buzz disappears.

FUSES

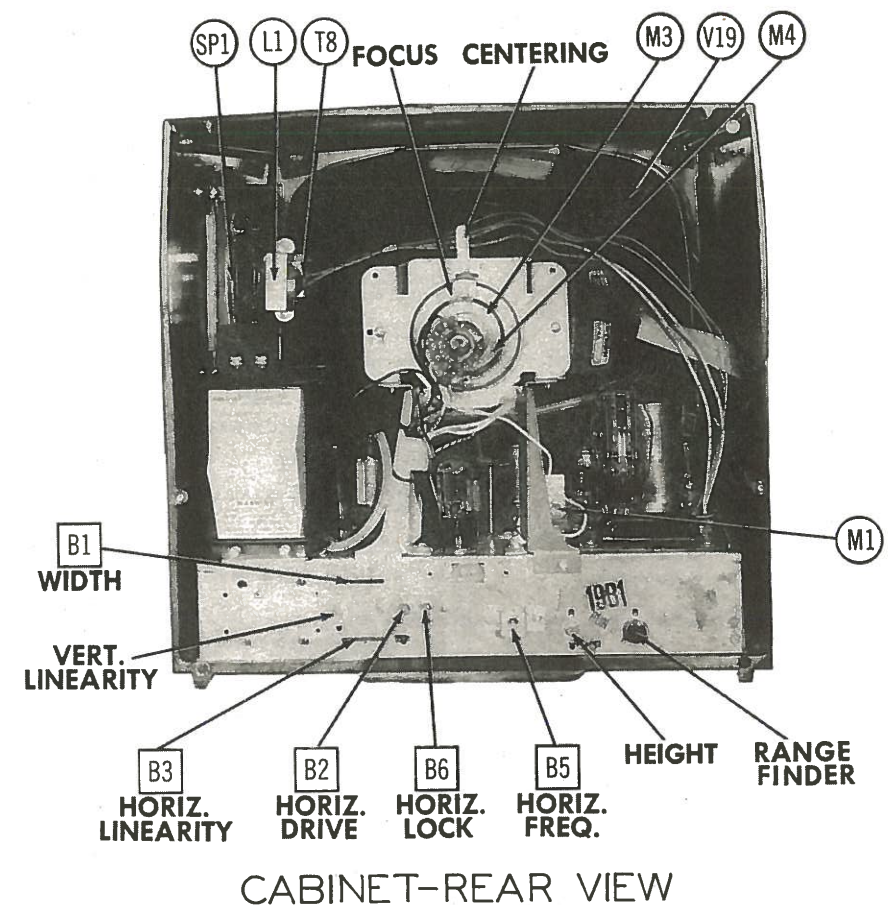
One fuse is used for horizontal sweep circuit protection. (For location, see tube placement chart.)

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.

DISASSEMBLY INSTRUCTIONS

1. Remove 4 push on type control knobs from front panel.
2. Disconnect built-in antenna (This is fastened to inside to back cover.)
3. Remove 6 metal screws. Remove rear cover.
4. Disconnect speaker. Remove 2 screws. Speaker will slide out.
5. Remove 4 chassis bolts. Remove chassis.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern. The DX range finder control should be properly set before proceeding with the horizontal adjustments. Set the contrast control for normal contrast.

DX RANGE FINDER ADJUSTMENT

In normal signal strength areas the DX range finder control will usually be set at "0" position. In intermediate areas a setting from 10 to 150 may prove satisfactory and in fringe areas position 150 to 300 may give best results. In weak signal-high noise level areas adjust for minimum snow in the picture.

Adjust as follows:

1. Tune in strongest TV signal available.
2. Set the contrast control fully clockwise.
3. Starting from "0" position turn DX range finder control clockwise for best contrast with minimum snow in the picture.

Check for bending of vertical objects in the picture and unstable sync when switching from channel to channel and make slight readjustment, if necessary, to correct these symptoms.

HORIZONTAL OSCILLATOR ADJUSTMENT

If necessary make width, drive and linearity adjustments before proceeding. Adjust width slug (B1) for a picture slightly wider than necessary to fill the picture mask horizontally. Adjust the horizontal drive trimmer (B2) counter clockwise as far as possible without the presence of vertical white lines in the picture. Adjust the horizontal linearity slug (B3) for a picture that is symmetrical from left to right. Connect the high side of an oscilloscope through 10MMF to terminal "C" or "2" on L20. Connect the low side to chassis.

Adjust the horizontal lock slug (B4) for a waveform on scope as in Fig. 6 with broad and narrow peaks of equal height. If necessary during adjustment of B4 keep the picture in sync by adjusting the horizontal frequency slug (B5). Remove the oscilloscope from L20.

Turn the horizontal hold control fully counter clockwise and momentarily interrupt the signal by turning off channel and back again. If the picture remains in sync adjust B5 slightly until the picture goes out of sync and several bars sloping down to the left appear on the screen. Slowly turn the horizontal hold control clockwise and note the least number of bars appearing just before the picture locks into sync.

If more than 3 bars are present adjust the horizontal lock range trimmer (B6) slightly clockwise. If less than 3 bars are present adjust B6 counter clockwise until 3 bars are present at sync pull in point. With the picture centering lever, move the picture to the right so that the blanking bar is visible at the left side of the picture.

Adjust B5 to move the picture to the right until the blanking bar begins to jitter or wobble. Then turn B5 in the opposite direction until blanking bar moves off screen at the left, leaving the picture in sync. Recenter the picture with the centering lever.

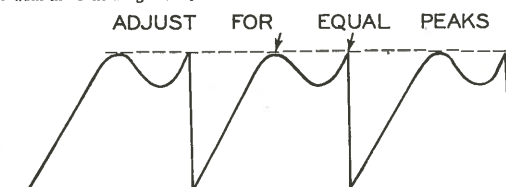


FIG. 6

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL								
<p>LOSS OF SWEEP</p> <p>Follow procedure outlined under loss of high voltage.</p> <p>INSUFFICIENT SWEEP</p> <p>Check by substitution V14, V15, V16, V17 and V18. Check amplitude of waveform W-13.</p> <table> <tr> <td>If Low</td><td>If Correct</td></tr> <tr> <td>Check components of V14 and coupling network between V14 and V15.</td><td>Check components of V16 and V17, particularly C64, T3 and T7.</td></tr> </table> <p>DRIVE LINES</p> <p>If drive control does not correct this, substitute V15 and V16. Check components, especially C62, C66 and C67. Also, T3.</p> <p>COMPRESSED AT LEFT SIDE</p> <p>Substitute V16 and check T3, T6 and other components.</p> <p>FOLDS</p> <p>Substitute V15 and V16. Check T3 and T6. Check associated components. Check T5.</p>	If Low	If Correct	Check components of V14 and coupling network between V14 and V15.	Check components of V16 and V17, particularly C64, T3 and T7.	<p>LOSS OF SWEEP</p> <p>Check by substitution V5 and V13. Check waveform W7.</p> <table> <tr> <td>If Unsatisfactory</td><td>If Satisfactory</td></tr> <tr> <td>Check T2 and other components of vertical oscillator.</td><td>Check T4, T5 and coupling network between V5 and V13.</td></tr> </table> <p>INSUFFICIENT SWEEP</p> <p>Follow procedure outlined under loss of vertical sweep.</p> <p>COMPRESSED AT BOTTOM</p> <p>Substitute V13. Check C2B for open, C5 for leaking condition.</p> <p>COMPRESSED AT TOP</p> <p>Substitute V13. Check C53 and other components of vertical output including T4.</p> <p>WILD VERTICAL OSCILLATOR (Fig. 1)</p> <p>Fig. 1 illustrates the results of C52 being open.</p> <p>FOLDS</p> <p>Substitute V13 and check T4 and T5B.</p>	If Unsatisfactory	If Satisfactory	Check T2 and other components of vertical oscillator.	Check T4, T5 and coupling network between V5 and V13.
If Low	If Correct								
Check components of V14 and coupling network between V14 and V15.	Check components of V16 and V17, particularly C64, T3 and T7.								
If Unsatisfactory	If Satisfactory								
Check T2 and other components of vertical oscillator.	Check T4, T5 and coupling network between V5 and V13.								

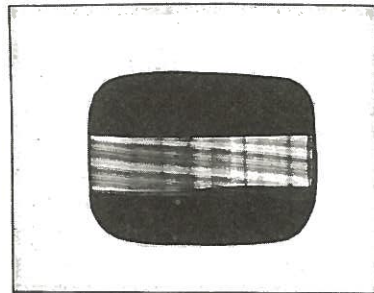


Fig. 1. Wild Vertical Oscillator
See Vertical Sweep

SYNC

HORIZONTAL	VERTICAL								
<p>LOSS OF SYNC</p> <p>Substitute V12 and V14. Check waveform W10</p> <table> <tr> <td>If Unsatisfactory</td><td>If Satisfactory</td></tr> <tr> <td>Check components of V12 and grid circuit of V14.</td><td>Substitute for C60. Check C56 for short or open. Check C57 for short. Check value of R77. Check lead dressing in horizontal oscillator circuit.</td></tr> </table> <p>CRITICAL SYNC</p> <p>Follow procedure outlined under loss of horizontal sync.</p> <p>PULLING PICTURE</p> <p>Substitute V14. Check components particularly C57.</p>	If Unsatisfactory	If Satisfactory	Check components of V12 and grid circuit of V14.	Substitute for C60. Check C56 for short or open. Check C57 for short. Check value of R77. Check lead dressing in horizontal oscillator circuit.	<p>LOSS OF SYNC</p> <p>Check by substitution V5, V12 and V13. Check waveform W5.</p> <table> <tr> <td>If Unsatisfactory</td><td>If Satisfactory</td></tr> <tr> <td>Check components of V12 and integrator</td><td>Check T2 and other components of V5B. Check coupling network V5 and V13.</td></tr> </table> <p>CRITICAL SYNC</p> <p>Substitute V5, V12 and V13. Follow procedure outlined under loss of sync.</p> <p>TRIGGERING</p> <p>Substitute V5. Dress filament leads away from grid lead and components of V5B.</p>	If Unsatisfactory	If Satisfactory	Check components of V12 and integrator	Check T2 and other components of V5B. Check coupling network V5 and V13.
If Unsatisfactory	If Satisfactory								
Check components of V12 and grid circuit of V14.	Substitute for C60. Check C56 for short or open. Check C57 for short. Check value of R77. Check lead dressing in horizontal oscillator circuit.								
If Unsatisfactory	If Satisfactory								
Check components of V12 and integrator	Check T2 and other components of V5B. Check coupling network V5 and V13.								

VIDEO

<p>SOUND BARS</p> <p>Check adjustment of A9 (4.5MC Trap). Check setting of local oscillator and alignment of IF stages.</p> <p>POOR RESOLUTION</p> <p>Check alignment of Video IF stages. If this does not correct trouble, substitute Video IF tubes and check circuit components.</p> <p>SMEAR</p> <p>Check R37 for change in value. Check L16 for open. Check coupling capacitor C31 by substitution. Check Video Detector and IF stages for overloading.</p>	<p>ONE WIDE BLACK BAR ACROSS PICTURE</p> <p>Check tuner, Video IF, detector and Video Output tube for filament to cathode leakage.</p> <p>POOR CONTRAST</p> <p>Check amplitude of waveform W1.</p> <table> <tr> <td>If Insufficient</td><td>If Sufficient</td></tr> <tr> <td>Substitute V3, V4, V5 and V6. Check alignment of IF stages.</td><td>Check waveform W2.</td></tr> </table> <p>Check waveform W2.</p> <table> <tr> <td>If Insufficient</td><td>If Sufficient</td></tr> <tr> <td>Substitute V7 and check associated components. Check C35 for open.</td><td>Check picture tube and R40.</td></tr> </table>	If Insufficient	If Sufficient	Substitute V3, V4, V5 and V6. Check alignment of IF stages.	Check waveform W2.	If Insufficient	If Sufficient	Substitute V7 and check associated components. Check C35 for open.	Check picture tube and R40.
If Insufficient	If Sufficient								
Substitute V3, V4, V5 and V6. Check alignment of IF stages.	Check waveform W2.								
If Insufficient	If Sufficient								
Substitute V7 and check associated components. Check C35 for open.	Check picture tube and R40.								

TROUBLE SHOOTING AIDS (CONT.)

AUDIO

<p>WEAK OR NO SOUND</p> <p>Substitute V8, V9, V10 and V11. Check alignment of ratio detector and Sound IF stages. Check alignment of Video IF stages.</p> <p>BUZZ</p> <p>Adjust ratio detector secondary for minimum buzz. If still noticeable, substitute V9 and readjust.</p>	<p>DISTORTED</p> <p>Check audio amplifier stages V10 and V11 using audio signal generator.</p> <table> <tr> <td>If Undistorted</td><td>If Distorted</td></tr> <tr> <td>Check adjustment of ratio detector and Sound IF stages. Check Video IF alignment.</td><td>Check components of amplifier stage where distortion occurs.</td></tr> </table>	If Undistorted	If Distorted	Check adjustment of ratio detector and Sound IF stages. Check Video IF alignment.	Check components of amplifier stage where distortion occurs.
If Undistorted	If Distorted				
Check adjustment of ratio detector and Sound IF stages. Check Video IF alignment.	Check components of amplifier stage where distortion occurs.				

HIGH VOLTAGE

<p>LOSS OF HIGH VOLTAGE</p> <p>Check fuse in horizontal sweep circuit. Check by substitution V14, V15, V16 and V17. Check waveform W13.</p> <table> <tr> <td>If Unsatisfactory</td><td>If Satisfactory</td></tr> <tr> <td>Check L20 and other components of V14, particularly C63.</td><td>Check T3, T6, T7 and associated components. Check C64.</td></tr> </table>	If Unsatisfactory	If Satisfactory	Check L20 and other components of V14, particularly C63.	Check T3, T6, T7 and associated components. Check C64.	<p>INSUFFICIENT HIGH VOLTAGE</p> <p>If substituting V15, V16 and V17 fails to correct this, follow procedure under "Loss of High Voltage".</p> <p>BLOOMING</p> <p>Check by substitution V15, V16, V17 and V18. Check components of T3. Check R91 for increase in value.</p>
If Unsatisfactory	If Satisfactory				
Check L20 and other components of V14, particularly C63.	Check T3, T6, T7 and associated components. Check C64.				

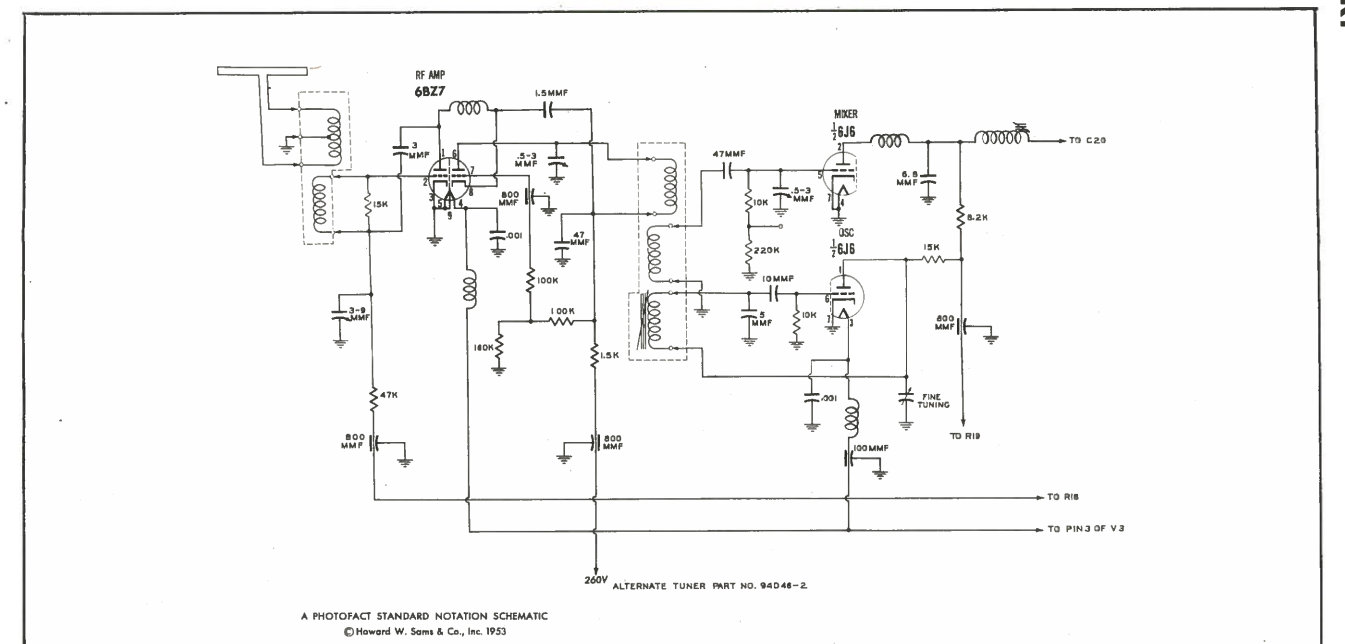
POWER

<p>SMALL RASTER, WEAK SOUND</p> <p>Substitute V18. Check B plus circuit for shorts and replace any leaky capacitor.</p>	<p>DIM PICTURE</p> <p>Check picture. Follow procedure outlined under "Small Raster, Weak Sound". Also, check Boost B+ circuit components.</p>
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GENERAL

<p>NO PICTURE, NO SOUND, NO SNOW</p> <p>Check by substitution V2, V3, V4 and V6. Check associated components.</p> <p>WEAK PICTURE, WEAK SOUND</p> <p>Substitute V5 and check components.</p> <p>SOUND, BUT NO PICTURE</p> <p>Substitute V7 and check associated components.</p>	<p>SNOWY PICTURE, NO SOUND</p> <p>Substitute V1 and check tuner components.</p> <p>INTERMITTENT STREAKS</p> <p>Check high voltage circuit for corona discharge and arcing.</p>
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The Trouble - Shooting photographs shown above are made with permission of transmitting station WFBM-TV and in no way reflect the quality of the transmitted picture. Similarly, symptoms shown are assumed and are not indicative of the quality and workmanship of this receiving equipment.



ALTERNATE TUNER SCHEMATIC

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ADMIRAL PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	8AG	1/4A @ 250V	84A4-2	84A5-1	362.250	387001	AGX 1/4	4520

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M2A	RF Tuner	94D52-1	For Models 17DX10, 17DX11, 17DX12
B	RF Tuner	94D46-2	For Models 121DX10, 121DX12, 121DX16, 221DX17, 221DX15, 221DX26, 221DX38, 121DX11, 222DX15
M3	Focus Magnet	94C53-1	Includes centering device
M4	Ion Trap	94A15-3	
B2, B6	Trimmer Capacitor	66A32-3	Dual 10-160MMF, Horiz. Locking Range, Horiz. Drive
	Cabinet	34E61-6	For Model 17DX10
	Cabinet	34E61-4	For Model 17DX11
	Cabinet	34E61-5	For Model 17DX12
	Cabinet	34E57-3	For Model 121DX10
	Cabinet	34E57-1	For Model 121DX11
	Cabinet	34E57-2	For Model 121DX12
	Cabinet	35E235-1	For Model 221DX38
	Cabinet	35E227-2	For Model 121DX16
	Cabinet	35E222-1	For Model 221DX15
	Cabinet	35E222-2	For Model 221DX16
	Cabinet	35E222-3	For Model 221DX17
	Cabinet	35E223-2	For Model 221DX26
	Cabinet	35E225-1	For Model 222DX15
	Cabinet Back	A3777	For Model 17DX10, 17DX11, 17DX12
	Cabinet Back	A3763	For Models 121DX10, 121DX11, 121DX12
	Cabinet Back	A3773	For Model 222DX15
	Control Panel Door	23B130	For Models 17DX10, 17DX11, 17DX12, 221DX38
	Control Panel Door	23D131-3	For Models 121DX10, 121DX11, 121DX12, 121DX16, 221DX15, 221DX18, 221DX17, 221DX26
	Control Panel Door	23D133-5	For Model 222DX15
	Safety Glass	21B65-1	For Models 17DX10, 17DX11, 17DX12
	Safety Glass	21B65-2	For Models 121DX10, 121DX11, 121DX12, 121DX16
	Safety Glass	21B62-7	For Models 221DX38, 221DX15, 221DX16, 221DX17, 221DX26
	Safety Glass	21B64-2	For Model 222DX15
	Mask (Metal)	23D128	For Models 221DX38, 221DX16, 221DX15, 221DX16, 221DX17, 221DX26
	Mask (Plastic)	23E123	For Model 222DX15
	Door Escutcheon (less key)	37A86-1	Left Side (Facing Front) For Model 221DX38
	Door Escutcheon (less Key)	37A86-2	Right Side (Facing Front) For Model 221DX38
	Door Escutcheon (key)	37A86-3	For Model 221DX38
	Knob	33C52-23	TV Tuning, Maroon, "Channel" with gold inserts
	Knob	33C53-26	TV Tuning, Maroon, "Channel" less gold inserts
	Knob	33C53-5	TV Tuning, Maroon, "Channel" less inserts for 17DX12 only
	Knob	33D88-21	Tuning, Maroon, with gold ring
	Knob	33D88-23	Tuning, Maroon, less gold ring
	Knob	33C53-6	Tuning, Maroon, less gold ring for 17DX12 only
	Knob	33C53-24	Maroon Off/On Volume 2 1/4" dia. with gold inserts
	Knob	33C53-25	Maroon Off/On Volume 2 1/8" dia. with gold inserts
	Knob	33C53-27	Maroon Off/On Volume less inserts
	Knob	33C53-7	Maroon Off/On Volume less inserts for 17DX12 only
	Knob	33D88-20	Maroon, picture with gold ring
	Knob	33D88-22	Maroon, picture less gold ring
	Knob	33D53-8	Maroon, picture less gold ring for 17DX12 only
	Knob	33A92-3	Maroon, vertical
	Knob	33C53-29	Brown "Channel" with gold inserts
	Knob	33C53-18	Brown "Tuning"
	Knob	33C53-31	Brown "Off/On Volume" with gold inserts
	Knob	33C53-20	Brown "Picture"
	Knob	33C53-1	Ebony "Channel"
	Knob	33C53-2	Ebony "Tuning"
	Knob	33C53-3	Ebony "Off/On Volume"
	Knob	33C53-4	Ebony "Picture"
	Knob	33A23-4	Ebony "DX Rangefinder"

PARTS LIST AND DESCRIPTIONS

TUBES (SYLVANIA or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
V1	RF Amplifier	6BC5	6BC5	7BD	
V2	Converter	6J6	6J6	7BF	
V3	1st. Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd. Video IF amp.	6CB6	6CB6	7CM	
V5	3rd. Video IF Amp.	6CB6	6CB6	7CM	
V6	Vert. Oscillator	6U8	6U8	9AE	
V7	Video Detector-AGC Rectifier	6AL5	6AL5	6BT	
V8	Video Output	6CB6	6CB6	7CM	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector	6AL5	6AL5	6BT	
V11	AF Amplifier	6AV6	6AV6	7BT	
V12	Audio Output	6AS5	6AS5	7CV	
V13	Sync Separator-Sync Clipper	12AU7	12AU7	9A	
V14	Vert. Output	6S4	6S4	9AC	
V15	Horiz. AFC	6SN7GT	6SN7GT	8BD	
V16	Horiz. Oscillator	6BQ6GT	6BQ6GT	6AM	
V17	Horiz. Output	6AX4GT	6AX4GT	4CG	
V18	Damper	1B3GT	1B3GT	3C	
	HV Rectifier	5U4G	5U4G	5T	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	ADMIRAL PART No.	SYLVANIA PART No.			
V19A	17BP4A	17BP4A 17BP4 ① 17HP4 ① 17RP4 ①		12D 12D 12C 12C	① Circuit changes necessary
B	20DP4A	20DP4A		12D	
C	21WP4	21WP4		12D	
D	21WP4X	21WP4		12D	
	21EP4A	21EP4A		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	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	.001	350	87C15-23	AFH3-29		CO23			TVL-4609	
B	.001	150		PRS250/30-30		BR6025				
C	.001	350								
D	.001	250								
C2A	.001	350	87C15-22	AFH3-142		C109		FP375	TVL-3722	
B	.001	50								
C3	.001	50		PRS150/4		BR550		TC30	TVA-1303	
C4	.001	350		AFH1-42		XA011		FP138	TVL-1630	
C5	.001	475	87A21-1	PRS500/16		BR2050A		TC83	TVA-1804	
C6	.001	350		98A45-96						
C7	.001	800		CN-1-001	829-10					
C8	.001	5-3		94C37-90	MFT-1000					
C9	.001	150	98A45-23	BPD-00015	829-3			CT565A	503C-D1	
C10	.001	1000		BPD-001	D6-151	TM5T15	GP2K-151	UC-5315	5GA-T15	
C11	.001	800		CN-1-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C12	.001	800		94C37-90	MFT-1000				503C-D1	
C13	.001	120	98A45-23	BPD-00012	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C14	.001	5-3		98A45-64	829-3			CT565A		
C15	.001	10		SI0NP0	TCZ-10					
C16	.001	5		SI5N750	TCN-5					
C17	.001	10	98A45-64	SI0NP0	TCZ-10					
C18	.001	1000		BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C19	.001	800		CN-1-001	MFT-1000				503C-D1	
C20	.001	120		94C37-90	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C21	.001	1500	85C6-86	BPD-00012	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	Note 1
C22	.001	2.2		SI1500						
C23	.001	15		SI15NP0	TCZ-15					
C24	.001	1500		SI1500	D6-152	TM5D15	NP0K-150	UC-5215	5TCC-Q15	Note 1
C25	.001	1000	85C6-41	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D1	
C26A	.001	1500		BPD-2X0015	DD-2-152	TM5DD15	812-0015	DCD-5215	5HK-2D15	
B	.001	1500								
C27	.001	5000		85C10-1	BPD-005	MD-502	TM5D5	811-005	5HK-D5	
C28A	.001	4000	85A17-1	BPD-2X004	DD-2-502	TM5DD4	822-004	DCD-524	5HK-2D4	
B	.001	4000								
C29	.001	27		85C6-87						
C30	.001	120		85C6-86						
C31	.001	.22	84B9-5	SI120	D6-121	TM5 T12	GP2K-121	UC-5312	5GA-T12	
C32	.001	1500		P488-22		PTE4P22		PT4025	2TM-P22	
C33	.001	.1		SI1500	D6-152	TM5D15	GP2L-152	UC-5215	5HK-D15	Note 1
C34	.001	6.8		P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C35	.001	.22	84B9-5	SI6.8NP0	TCZ-6.8			NP0K-6R8	5TCCB-V68	Note 2
C36	.001	6.8		SI6.8NP0		PTE4P22		PT4025	4TM-P22	
C37	.001	20		SI20NP0	TCZ-20			NP0K-6R8	5TCCB-V68	
C38	.001	5000		SI20NP0	MD-502	TM5D5	NP0K-200	811-005	5TCC-Q2	
C39	.001	180	85C6-59	BPD-005				DC-525	5HK-D5	
C40	.001	500		85C6-6						
C41	.001	.0022		SI500	D6-501	TM5T5	GP2K-501	UC-535	5GA-T5	
C42	.001	.01		P688-0022	D6-222	PTE6D22	GP2-333-222	PT6222	6TM-D22	
C43	.001	50	84B9-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	4TM-S1	
C44	.001	.005		SI47N750	TCN-50			N750K-500	NT-5447	
C45	.001	.01		84B9-15	P688-005	PTE6D5	GP2-333-502	PT625	6TM-D5	
C46	.001	.022		P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	Note 3
C47	.001	150	84B9-11	P488-022	DD-203	PTE4S22		PT4122	4TM-S22	Note 2
C48	.001	.01		SI63B6-4	SI150	TM5T15	GP2K-151	UC-5315	5GA-T15	
C49	.001	10000		84B9-13	P488-01	PTE4S1	GP2-333-103	PT411	4TM-S1	
				85C10-3	BPD-01	DD-1032	TM5S1	811-01	DC-511	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (CONT.)

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C50A	.002	}	† 63B6-2	P688-002	† PC-100	PTE6D2	† 1405-01	PT622	† 101C1	
B	.005			P688-005				PTE6D5		PT625
C	.005			P688-005				PTE6D5		PT625
C51	4700	500	65B21-472	1464-005		1DR5D5		MCB465	MS-25	
C52	.047	600	64A2-14	P688-047	DF-503	PTE6S47		PT6147	6TM-S47	
C53	.1	800	64B9-7	P688-1	DF-104	PTE6P1		PT601	6TM-P1	
C54	.82	500	65B21-820							
C55	.68	500	65B21-680	1469-00007		5R5Q7			MS-47	
C56	.1	200	64B9-7	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C57	.047	400	64B9-9	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C58	.022	400	64B9-11	P488-022	DD-203	PTE4S22		PT4122	4TM-S22	
C59	.47	100	64B9-3	P288-47		PJ2P5		PT405	2TM-P5	
C60	270	500	65B21-271	1469-00003		5R5T3		MS-33		
C61	.01	600	64B9-13	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1	
C62	.820	500								
C63	.680	500	65B21-681	1479-00007		2R5T7			MS-37	
C64	.047	400	64A2-14	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C65	.1	200	64B9-7	P288-1	DF-104	PJ2P1		PT401	2TM-P1	
C66	.047	400	64A2-14	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C67	.074	400	64A2-14	P488-047	DF-503	PTE4S47		PT4147	4TM-S47	
C68	.1	400	64B9-7	P488-1	DF-104	PTE4P1		PT401	4TM-P1	
C69	.39	2000								
C70	.015	600		P688-015		PTE6S15		TP411	20GA-Q39	
C71	.01	400	64B9-13	P488-01	D6-103	PTE4S1	GP2-333-103	PT411	6TM-S15	

Note 4

Note 5

Note 1. Some Models use 1000MMF in this application (Part #65C6-41)
Note 2. Some Models use .01MFD in this application (Part #64B9-13)
Note 3. Used in Ch. 19C1, and 19H1 only
Note 4. Some Models use 47MMF in this application (Part #65B1-64)
Note 5. Not used in all Models.
† Items C45, R52A, R52B are combined in one unit.
† Items C41, R39A, R39B are combined in one unit.
† Items C50A, C50B, C50C, R63A, R63B, R63C are combined in one unit.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ADMIRAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
R1A	1000Ω	1/2	75B11-21	QJ-397**	RTV-395	SBB-733-S	UF13L	Contrast-Panel-Note 1
B	1 Meg	1/2					UR16A	Volume-Rear-Note 2
C	Switch	1/2					US-26	Attach to R1B
RIA	1000Ω	1/2	75B13-21	QJ7-108	AG-8-S	AB-5	U-4	Contrast
B	Not Req.	1/2	75C2-16	Q19-137X	KSS-3	AK-4	Not Req.	Attach to R1AA
R1BA	1 Meg	1/2	75C2-16	Q19-137X	AT-112	BT-74-S	UT-443	Volume Tap @ 500KΩ
B	Not Req.	1/2	Not Req.	Not Req.	FS-3	Not Req.	Not Req.	Attach to R1BA
C	Switch	1/2	Not Req.	Not Req.	SW-A	Not Req.	US-26	Attach to R1BA
R2A	1.5Meg	1/2	75B13-26	QJ1-138	AG-83-S	AB-75	U-155	Vert. Hold-Note 3
B	Not Req.	1/2	Not Req.	Not Req.	KSS-3	AK-4	U-35	Attach to R2A
R3A	50KΩ	1/2	75B13-23	QJ1-123	AG-44-S	AB-31	U-155	Horiz. Hold-Note 3
B	Not Req.	1/2	Not Req.	Not Req.	KSS-3	AK-4	U-35	Attach to R3A
R2AA	1.5Meg	1/2	75B13-26	QJ7-400*	RTV-394	UF26L	Not Req.	Vert. Hold-Panel
R3AA	50KΩ	1/2	75B13-23	QJ7-400*	RTV-394	UF26L	Not Req.	Horiz. Hold-Rear
R4A	100KΩ	1/2	75B13-25	QJ1-128	AG-49-S	AB-40	U-41	Brightness
B	Not Req.	1/2	Not Req.	Not Req.	KSS-3	AK-4	U-41	Attach to R4A
R5A	2 Meg	1/2	75B1-53	QJ1-139	AG-83-S	B-75	Not Req.	DX Range Finder
B	Not Req.	1/2	Not Req.	Not Req.	FS-3	Not Req.	U-56	Height
R6A	2.5Meg	1/2	75B13-3	QJ1-239	AG-84-S	AB-83	Not Req.	Attach to R5A
B	Not Req.	1/2	Not Req.	Not Req.	FKS-1/4	AK-1	SU-565	Height
R7A	3000Ω	1/2	75B13-7	QJ1-112	AG-15-S	AB-8	U-8	Attach to R6A
B	Not Req.	1/2	Not Req.	Not Req.	FKS-1/4	AK-1	U-8	Vert. Linearity
R8A	2 Meg	1/2	75B13-22	QJ1-139	AG-83-S	AB-75	U-56	Attach to R7A
B	Not Req.	1/2	Not Req.	Not Req.	KSS-3	AK-4	U-56	Tone-Note 4

Note 1. Some models may use a single control (See R1AA).
Note 2. Some models may use a single control (See R1BA).
Note 3. Some models may use a dual concentric control (See R2AA, R3AA).
Note 4. Used only in chassis No. 19C1 & 19H1.
* CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B11-138 & P1-121 (Panel) B11-123 & R12-129 (Rear).
** CONCENTRIKIT EQUIVALENT-KIT K-2, BASE ELEMENTS & SHAFTS B17-108 & P1-126 (Panel) B13-137 & R2-212 (Rear) & SWITCH 76-1.
† UNIVERSAL REPLACEMENT-(MALLORY EXACT DUPLICATE PART NO. UE575).

RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R9	15KΩ	1/2	98A45-67		
R10	47KΩ	1/2	98A45-17		
R11	2200Ω	1/2	98A45-19	BTS-2200	
R12	1000Ω	1/2	94C37-86	BTS-1000	
R13	4700Ω	1/2	98A45-20	BTS-4700	
R14	220KΩ	1/2	98A45-21	BTS-220K	
R15	6800Ω-5%	1/2	60B8-682	BTS-6800-5%	
R16	10KΩ	1/2	98A45-18	BTS-10K	
R17	15KΩ	1/2	98A45-67		
R18	1000Ω	1/2	60B8-102	BTS-1000	
R19	330Ω	1/2	60B8-331	BTS-330	
R20	8200Ω-5%	1/2	60B7-822		
R21	47Ω	1/2	60B28-45	BTS-47	
R22	1000Ω	1/2	60B8-102	BTS-1000	
R23	22KΩ	1/2	60B8-223		
R24	330Ω	1/2	60B8-331	BTS-330	
R25	1 Meg	1/2	60B8-105		
R26	1 Meg	1/2	60B8-105		
R27	68Ω	1/2	60B28-44	BTS-68	
R28	330Ω	1/2	60B8-331	BTS-330	
R29	10KΩ-5%	1/2	60B7-103		
R30	150Ω	1/2	60B8-151	BTS-150	
R31	8200Ω	1/2	60B20-822		
R32	33KΩ	1/2	60B8-333	BTS-33K	
R33	820KΩ	1/2	60B8-824	BTS-820K	
R34	5600Ω	1/2	60B8-562	BTS-5600	
R35	1 Meg	1/2	60B8-105	BTS-1 Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ADMIRAL PART No.	IRC PART No.	
R36	33KΩ	1/2	60B8-333	BTS-33K	
R37	5600Ω	1/2		BTA-5600	Note 1
R38	22KΩ	1/2	60B8-223	BTS-22K	
R39A	15KΩ	1/2	† 63B6-4	BTS-15K	
B	270KΩ	1/2		BTS-270K	
R40	180KΩ	1/2	60B8-184	BTS-180K	Note 2
R41	56KΩ	1/2	60B8-563	BTS-56K	Note 3
R42	2700Ω	1/2	60B8-272	BTS-2700	Note 3
R43	470KΩ	1/2	60B8-474		
R44	68Ω	1/2	60B28-44	BTS-68	
R45	330Ω	1/2	60B8-331	BTS-330	
R46	390Ω	1/2	60B8-391	BTS-390	
R47	47KΩ	1/2	60B8-473	BTS-47K	
R48	10KΩ	1/2	60B8-103	BTS-10K	
R49	10KΩ	1/2	60B8-103	BTS-10K	
R50	470Ω	1/2	60B8-471	BTS-470	
R51	47KΩ	1/2	60B8-473	BTS-47K	
R52A	470KΩ	1/2		BTS-470K	
B	1 Meg	1/2	† 63B6-5	BTS-1 Meg	
R53	910Ω-5%	1/2		BTS-910-5%	Note 4
R54	1500Ω-5%	1/2		BTS-1500-5%	Note 5
R55	1200Ω	1/2	60B8-122	BTS-1200	
R56	2.7Meg	1/2	60B8-275	BTS-2.7Meg	
R57	47KΩ	1/2	60B8-473	BTS-47K	
R58	12KΩ	1/2	60B8-123	BTS-12K	
R59	2.7Meg	1/2	60B8-275	BTS-2.7Meg	
R60	18KΩ	1/2	60B14-183	BTA-18K	

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ADMIRAL PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L2A	Ant. Coil	0Ω CT	0Ω	94D52-52				Channel 2, Note 1
B	Ant. Coil	0Ω CT	0Ω	94D52-53				Channel 3, Note 2
C	Ant. Coil	0Ω CT	0Ω	94D52-54				Channel 4, Note 3
D	Ant. Coil	0Ω CT	0Ω	94D52-55				Channel 5, Note 4
E	Ant. Coil	0Ω CT	0Ω	94D52-56				Channel 6, Note 5
F	Ant. Coil	0Ω CT	0Ω	94D52-57				Channel 7, Note 6
G	Ant. Coil	0Ω CT	0Ω	94D52-58				Channel 8, Note 7
H	Ant. Coil	0Ω CT	0Ω	94D52-59				Channel 9, Note 8
I	Ant. Coil	0Ω CT	0Ω	94D52-60				Channel 10, Note 9
J	Ant. Coil	0Ω CT	0Ω	94D52-61				Channel 11, Note 10
K	Ant. Coil	0Ω CT	0Ω	94D52-62				Channel 12, Note 11
L	Ant. Coil	0Ω CT	0Ω	94D52-63				Channel 13, Note 12
L3	Flt. Choke	0Ω						
L4A	RF, Mixer Grid & Osc. Coil	0Ω		94D52-72				Channel 2, Note 13
B	RF, Mixer Grid & Osc. Coil	0Ω		94D52-73				Channel 3, Note 14
C	RF, Mixer Grid & Osc. Coil	0Ω		94D52-74				Channel 4, Note 15
D	RF, Mixer Grid & Osc. Coil	0Ω		94D52-75				Channel 5, Note 16
E	RF, Mixer Grid & Osc. Coil	0Ω		94D52-76				Channel 6, Note 17
F	RF, Mixer Grid & Osc. Coil	0Ω		94D52-77				Channel 7, Note 18
G	RF, Mixer Grid & Osc. Coil	0Ω		94D52-78				Channel 8, Note 19
H	RF, Mixer Grid & Osc. Coil	0Ω		94D52-79				Channel 9, Note 20
I	RF, Mixer Grid & Osc. Coil	0Ω		94D52-80				Channel 10, Note 21
J	RF, Mixer Grid & Osc. Coil	0Ω		94D52-81				Channel 11, Note 22
K	RF, Mixer Grid & Osc. Coil	0Ω		94D52-82				Channel 12, Note 23
L	RF, Mixer Grid & Osc. Coil	0Ω		94D52-83				Channel 13, Note 24
L5	Flt. Choke	0Ω		98A45-14				
L6	RF Choke	0Ω		94D46-86				
L7	1st. Video IF	.8Ω		94D46-85	17-1004	TV-103 *	6189 *	1.5 Microhenries
L8	Flt. Choke	0Ω		73A2-5			4604	Admiral part no. includes C22 & C23
L9	27.25MC Trap	.1Ω		72C96-23	20-1006		6171A	Note 25
L10	2nd. Video IF	.4Ω	.4Ω	72C96-21	17-1062			
L11	3rd. Video IF	.4Ω	.4Ω	72C96-22	17-1063			
L12	4th. Video IF	.4Ω	.4Ω	72B107-1				
L13	Series Peak- ing Coil	5.3Ω		73A5-15	19-3180 **		6180 **	190 Microhenries, wound on 4.7KΩ resistor
L14	Shunt Peak- ing Coil	16.5Ω		73A5-17	19-3880			
L15	4.5MC Trap	16.5Ω	4.6Ω	72B99-6	20-1004	TV-151	1470	860 Microhenries
L16	Series Peak- ing Coil	7Ω		73A5-13	19-3300 †		4565 †	284 Microhenries, wound on 33KΩ resistor
L17	Shunt Peak- ing Coil	8Ω		73A5-9	19-1923		4648	370 Microhenries, wound on 10KΩ resistor
L18	Sound IF	5Ω		72B99-7	20-1005	TV-151	1470	
L19	Ratio Det.	3.6Ω	.2Ω CT	72B88-1	17-1033 †	TV-110 †	1468 †	
L20	Horiz. Osc.	75Ω		69B110	20-1402	TV-162	6183	Tertiary winding -.9Ω, Tapped @ 52Ω, Horiz. waveform winding -45Ω

** Parallel with 4.7KΩ resistor

† Parallel with 33KΩ resistor

* Enlarge mounting hole.

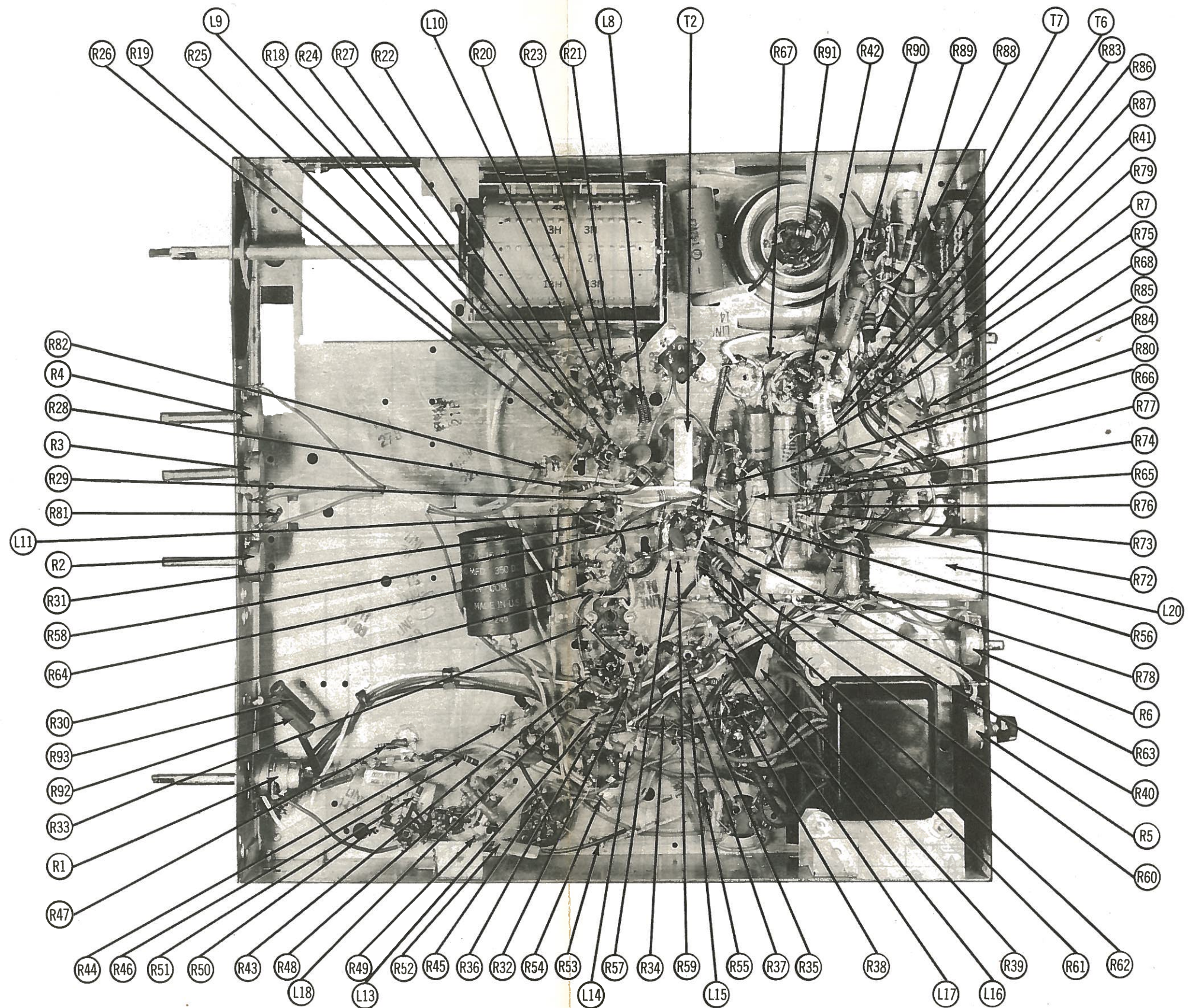
‡ Disconnect 47MMF capacitor in parallel.

§ Disconnect C39 when used as a replacement.

▲ Disconnect 10MMF capacitor parallel.

¶ Parallel with 10KΩ resistor

Note 1. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-52 in this application.
Note 2. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-53 in this application.
Note 3. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-54 in this application.
Note 4. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-55 in this application.
Note 5. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-56 in this application.
Note 6. Alternate tuner part No. 94D46-2 (Stamped 2Q, 3Q, etc.) uses part #94D 46-57 in this application.
Note 7. Alternate tuner



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 2 IN SET 210

Admiral Ch. 19B1, 19C1, 19F1, 19F1A, 19H1 and 19K1 are covered in Photofact Folder 2 - Set 210.

Several new models and chassis have now been added to this group. A list of all the models, with the chassis used in each is given below.

MODEL	CHASSIS	MODEL	CHASSIS
C2246	19F1B	121DX16L	19K1
T1811	19B1, 19B1C	121DX17	19C1
T1812	19B1, 19B1C	121DX17A	19C1, 19F1
T1822	19B1, 19B1C	121DX17L	19K1
T2211	19F1B	221DX15	19C1
T2211A	19T2A	221DX15A	19C1, 19F1
T2212	19F1A, 19F1B	221DX15L	19K1
T2222	19F1, 19F1C	221DX16	19C1
T2226	19F1	221DX16A	19C1, 19F1
T2242	19K1	221DX16L	19K1
17DX10	19B1	221DX17	19C1
17DX11	19B1	221DX17A	19C1, 19F1
17DX12	19B1	221DX17L	19K1
121DX10	19C1	221DX26	19C1
121DX11	19F1A	221DX26A	19F1
121DX12	19C1	221DX26L	19K1
121DX12A	19C1, 19F1	221DX38	19C1
121DX16	19C1	221DX38A	19C1, 19F1
121DX16A	19C1, 19F1	222DX15	19H1

Ch. 19B1

Chassis 19B1 may be considered as the basic chassis for this group. The pentode tuner (part #94D52-1, -2) and a 17BP4A picture tube are used in Ch. 19B1. The tone control is omitted in Ch. 19B1. All other chassis are similar to chassis 19B1, except for different tuners, picture tubes, chassis lay-out, etc. A list of the variations for each chassis is given below.

Ch. 19B1C

Chassis 19B1C is identical to late production of chassis 19B1, except for the following:

The DX range finder control (R5) is omitted. A schematic is given in Fig. 1 which shows the revised circuit.

The $\frac{1}{2}$ of a 12AU7 (V12), formerly used as sync clipper, is used as sync separator, the $\frac{1}{2}$ of a 12AU7 (V12), formerly used as sync separator is used as vertical oscillator, and the $\frac{1}{2}$ of a 6U8 (V5), formerly used as vertical oscillator, is used as sync clipper. A partial schematic is given in Fig. 2, which shows the revised sync and vertical circuit. In addition when this circuit is used the horizontal lock range trimmer capacitor (B6) is replaced by a fixed 82MMF, $\pm 10\%$, mica capacitor.

ADMIRAL CHASSIS 19B1, 19B1C, 19C1, 19F1, 19F1A, 19F1B, 19F1C, 19H1, 19K1, 19T2, A

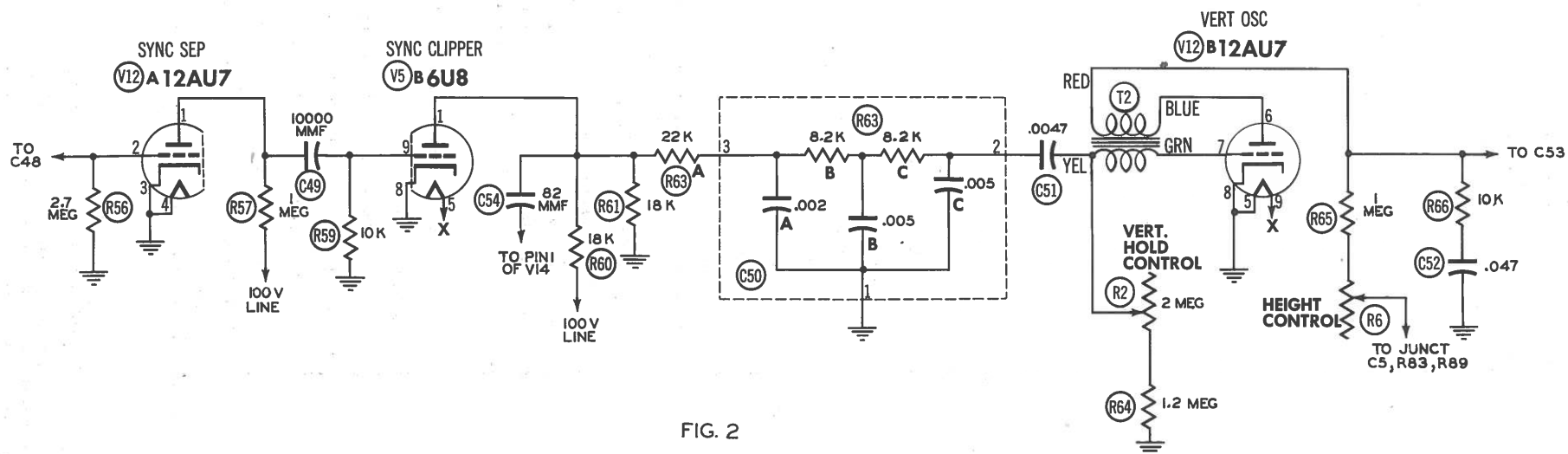
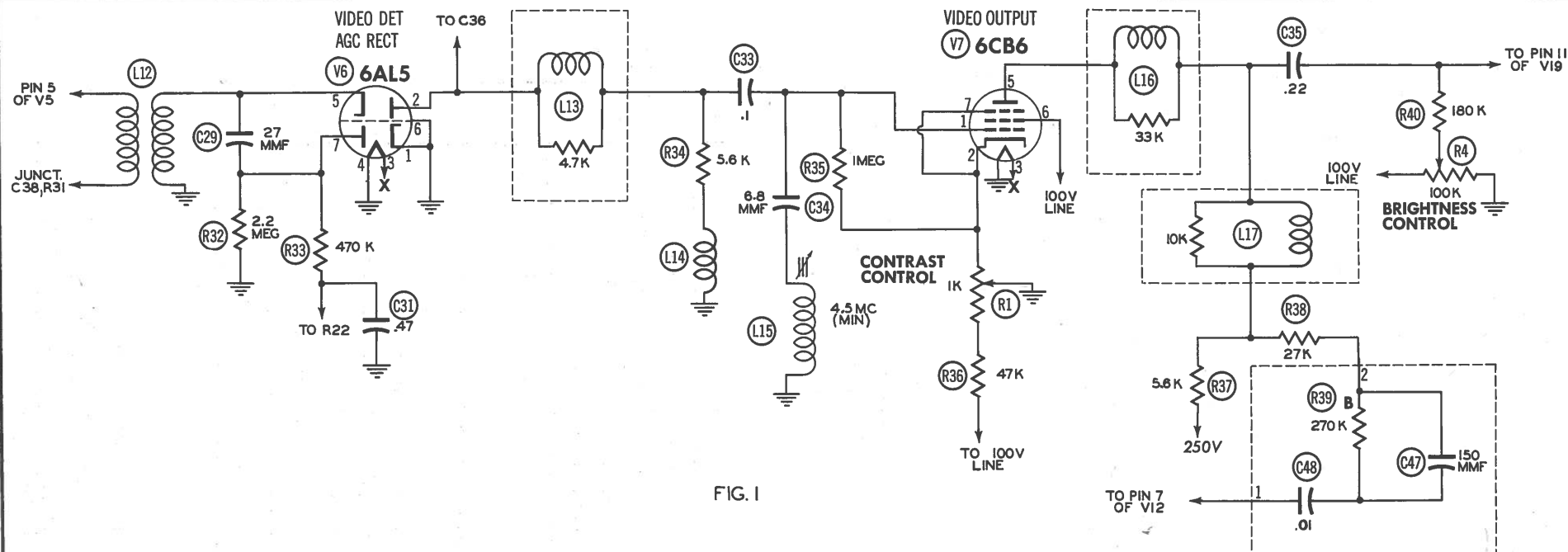
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Ch. 19C1	<p>Chassis 19C1 is identical to chassis 19B1, except for the following:</p> <p>The 94D46-2 or 94D46-3 tuner is used in chassis 19C1. A schematic of this tuner is given on page 17 in Photofact Folder 2 — Set 206. These two tuners are identical, except for shaft length. When the tuner is used the alternate video IF circuit, shown in the upper right hand corner of the schematic on page 2 (Photofact Folder 2 — Set 206) is used.</p> <p>Chassis 19C1 also uses a 20DP4A picture tube and tone control is included in the chassis.</p>
Ch. 19F1, A	<p>Chassis 19F1 and 19F1A are identical to chassis 19C1, except a 21WP4 or 21WP4X picture tube is used. In Ch. 19F1A the tone control is also omitted.</p>
Ch. 19F1B, C	<p>Chassis 19F1B and 19F1C are identical to later production of Ch. 19F1 and 19F1A, except for the following:</p> <p>The DX range finder control (R5) is omitted in Ch. 19F1B and 19F1C. A partial schematic is given in Fig. 1, which shows this revised circuit.</p> <p>The $\frac{1}{2}$ of a 12AU7 (V12), formerly used as sync clipper, is used as sync separator, the $\frac{1}{2}$ of a 12AU7 (V12), formerly used as sync separator, is used as vertical oscillator and the $\frac{1}{2}$ of a 6U8 (V5), formerly used as vertical oscillator, is used as sync clipper. A partial schematic is given in Fig. 2, which shows the revised sync and vertical oscillator circuit. In addition, when this circuit is used the horizontal lock range trimmer capacitor (B6) is replaced by a fixed 82MMF, $\pm 10\%$, mica capacitor.</p>
Ch. 19H1	<p>Chassis 19H1 is identical to chassis 19C1, except a 21EP4A picture tube is used.</p>
Ch. 19K1	<p>Chassis 19K1 is identical to chassis 19C1, except a 21ZP4A picture tube is used.</p>
Ch. 19T2, A	<p>Chassis 19T2 and 19T2A are identical to Ch. 19B1C, except a 21WP4 picture tube is used. In chassis 19T2 the tone control is also included in the chassis. The tone control is omitted in Ch. 19T2A.</p>
Runs 1 & 2	<p>Production Changes thru Run 2 are covered in Photofact Folder 2 — Set 210. Later production changes are given below.</p>
Run 3 (Except Ch. 19B1)	<p>1ST AND 2ND VIDEO IF AMPLIFIERS REVISED</p> <p>The 1st and 2nd video IF amplifiers (V3 and V4) B+ voltages were connected in parallel, instead of in series as in earlier production, in order to apply AGC voltage to the tubes. A partial schematic is given in Fig. 3 which shows this circuit.</p> <p>TO REDUCE SNOW</p> <p>A voltage divider network was added in the AGC circuit to reduce the amount of AGC voltage applied to the tuner in respect to the 1st and 2nd video IF amplifiers. The partial schematic given in Fig. 3 also shows this circuit.</p>
Run 4	<p>TO IMPROVE HORIZONTAL SYNC STABILITY</p> <p>An 8.2KΩ resistor was added between terminal 3 of the vertical integrator C-R unit (C50, R63) and pin 1 of V12. This resistor is shown as R62 in the schematic on page 2 in Photofact Folder 2 — Set 210.</p>
Run 5	<p>VERTICAL RETRACE BLANKING ADDED</p> <p>A vertical retrace blanking circuit was added in all chassis, Run 5 and higher. This circuit is shown as R41, R42, C70 and C71 in the schematic on page 2 of Photofact Folder 2 — Set 210.</p>
Run 6	<p>TUNER SHAFT LENGTH INCREASED</p> <p>The tuner shaft length was increased, in all chassis stamped Run 6 and higher, in order to accommodate future installation of UHF tuner. The 94D46-3 cascode tuner is used in all chassis, except 19B1, C and 19T2, A. Ch. 19B1, C and 19T2, A use the 94D52-2 pentode tuner. These tuners are identical to the 94D46-2 and 94D52-1 tuners, respectively, except for shaft length.</p>

*Tuner in Set. 210
Folder 2, page 17*

*Cross ref. to 19C1 & 19B1 not accurate.
19K1 uses video IF circuitry of Fig 3 in this PCB
Also circuits of Fig 4 & 5 used
in 19K1*

Run 7	<p>C-R UNITS CHANGED</p> <p>The vertical integrator C-R unit (C50-R63) was changed from part #63B6-2 to part #63B6-11. This unit is identical to the original, except R63A is not included in the unit. When this unit is used the 8.2KΩ resistor (R62) added in Run 4 is not used and a separate 22KΩ resistor is used in place of R63A. This change was made to improve horizontal sync stability.</p> <p>The sync C-R unit (R39-C47) was changed from part #63B6-4 to part #63B6-8. This unit is identical to the original unit, except C48 is included in the unit and R39A is not. When this unit is used R38 is changed to 27KΩ.</p> <p>Partial schematics are given in Fig.4 and 5 which show the connections to the two new C-R units.</p>
Run 9	<p>COMPONENT CHANGE</p> <p>In all Run 9 and higher chassis R41, R42, C70 and C71, which were added in Run 5 for vertical retrace blanking, were replaced by a C-R unit (part #63C6-12). The partial schematic in Fig. 6 shows the connections to this unit.</p>
Run 10	<p>COMPONENT CHANGE</p> <p>C33 was changed from .1MFD, 200V, capacitor to a .1MFD, 400V, unit (part #64B9-7).</p>
Run 12	<p>TO INCREASE THE RANGE OF THE VERTICAL HOLD CONTROL</p> <p>In sets using a 12AU7 tube as vertical oscillator R64 was changed from 1.2Meg to 1.5Meg. In some sets a 2Meg vertical hold control (part #75C13-22) is used. Replacement may be made with either the 1.5Meg or 2Meg control.</p>
Run 13	<p>COMPONENT CHANGE</p> <p>To eliminate horizontal sync instability due to C61 changing value slightly after set has warmed up, C61 was changed to a .01MFD, $\pm 10\%$, capacitor (part #64A2-16).</p> <p>NOTE: If replacement of C61 is attempted in the field complete adjustment of the horizontal oscillator may have to be made. See page 11, Photofact Folder 2 —Set 210.</p>
Run 15, & R17	<p>TO IMPROVE SYNC STABILITY</p> <p>An 18MMF, $\pm 10\%$ mica, high pass filter capacitor was added from the junction of R38 and R39 to ground. The addition of this capacitor eliminates high frequency components of the video signal from passing into the sync circuits.</p>
Run 17 (Ch. 19B1, 19F1, A)	<p>The $\frac{1}{2}$ of a 12AU7 (V12) formerly used as sync clipper, is used as sync separator, the $\frac{1}{2}$ of a 12AU7 (V12), formerly used as sync separator, is used as vertical oscillator, and the $\frac{1}{2}$ of a 6U8 (V5), formerly used as vertical oscillator, is used as sync clipper. A partial schematic is given in Fig. 2, which shows the revised sync and vertical oscillator circuits. In addition, when this circuit is used, the horizontal lock range trimmer capacitor (B6) is replaced by a fixed 82MMF, $\pm 10\%$, mica capacitor.</p>
Run 19	<p>TO PREVENT RF AMP FROM DRAWING EXCESSIVE PLATE CURRENT</p> <p>In all 19 series chassis using the cascode tuner (page 17, Photofact Folder 2 — Set 210) a 22KΩ, 1 watt, resistor was added in series with the 1.5KΩ, RF amplifier plate load resistor, to 260V.</p> <p>In addition to the preceding changes the fuse (M1) has been changed from 1/4 amp., 250V, to 3/8 amp., 250V. For replacement purposes the 3/8 amp. fuse should be used in all chassis.</p>

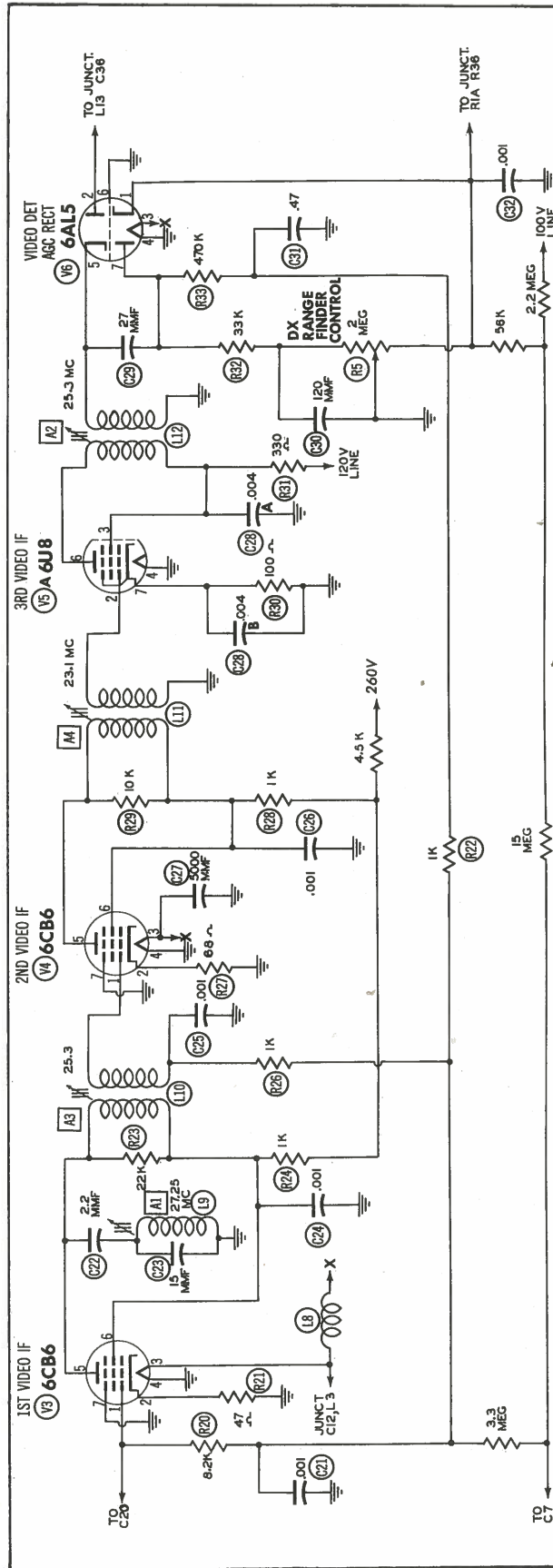


FIG. 3

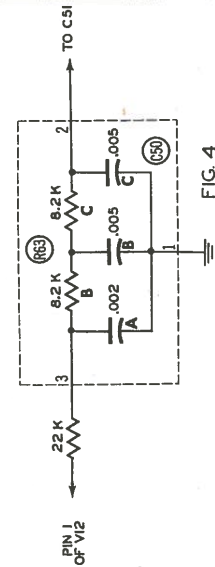


FIG. 4

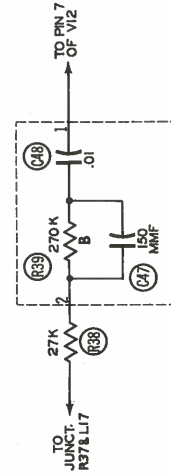


FIG. 5

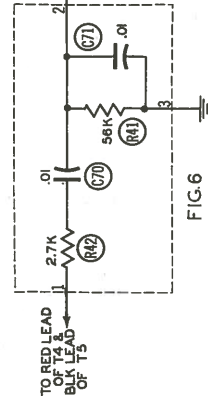


FIG. 6

V19