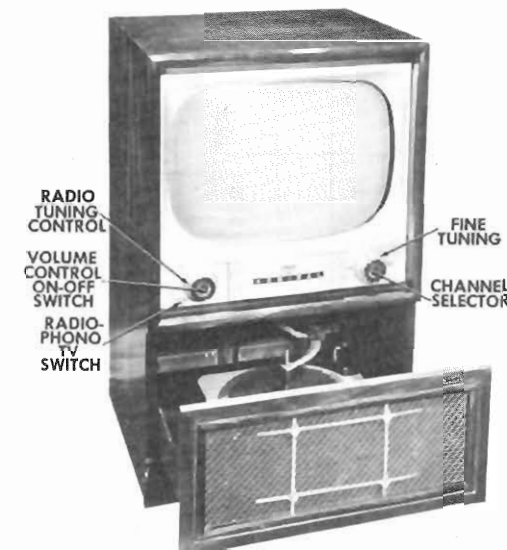


VIEW-RESISTOR IDENTIFICATION



ADMIRAL MODEL K2216

TRADE NAME	Admiral	MODELS	CHASSIS	RADIO	RECORD CHANGER
		C2236, C2237, T2215, T2216, T2217, T2218, T2219	19A2, A		
		C2215, C2216, C2217, H2216, H2217	19A2, A, AZ, Z		
		CU2236, CU2237, TU2215, TU2216, TU2217, TU2218, TU2219	19B2, A		
		CU2215, CU2216, CU2217, HU2216, HU2217	19B2, A, AZ, Z		
		K2216, K2217	19D2, A	Built-in AM	RC600
		KU2216, KU2217	19E2, A	Built-in AM	RC600
		L2215Z, L2216Z, L2217Z	19F2AZ, Z	Ch. 3D1	RC600
		K2226, K2227	19G1, A	Built-in AM	RC600
		TU2222, TU2226, 121UDX12	19J1		
		TU2212	19J1A		
		LU2215Z, LU2216Z, LU2217Z	19K2AZ, Z	Ch. 3D1	RC600
		121UDX16L, 121UDX17L, 221UDX15L, 221UDX16L, 221UDX17L, 221UDX26L	19L1		
		321UDX15L, 321UDX16L	19P1	Built-in AM	RC600
		TU1811, TU1812, TU1822, 17UDX11, 17UDX12	19S1		
MANUFACTURER	Admiral Corp., 3800 W. Cortland St., Chicago 47, Illinois				
TYPE SET	TV-Radio Phono Combination Receiver				
TUBES	Twenty-one				
POWER SUPPLY	110-120 Volts AC-60 Cycles				
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 VHF, Video IF 25.75MC, Sound IF 21.25MC (Inter-carrier)				
	AM Radio 535-1620KC, AM IF 455KC				

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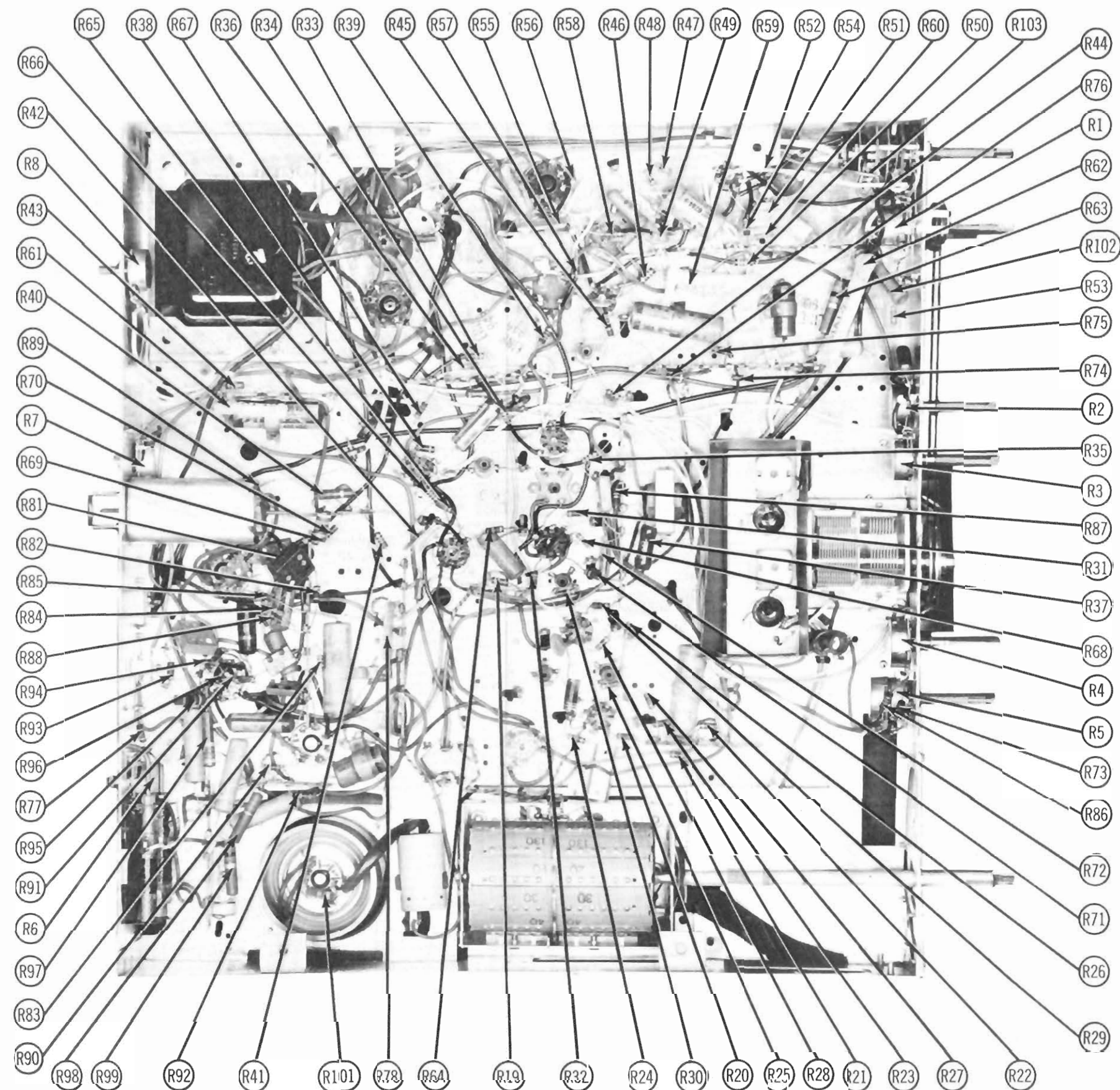
FOR SERVICE INFORMATION ON RECORD CHANGER MODEL RC600 SEE PHOTOFACT SET 218, FOLDER 2, OR RECORD CHANGER MANUAL CM-5.

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

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."

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CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

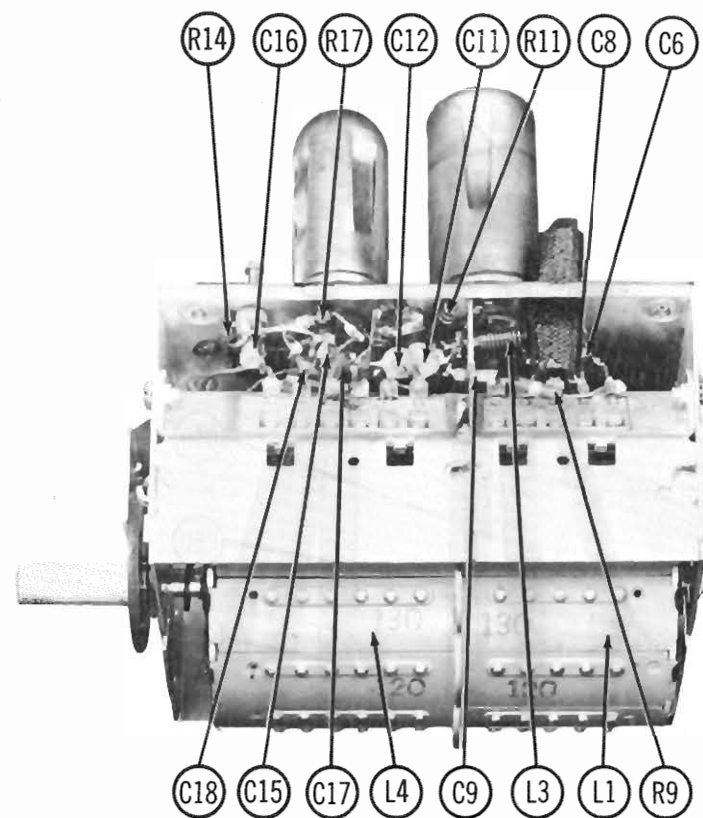
TRADE NAME A

MANUFACTURER
TYPE SET
TUBES
POWER SUPPLY
TUNING RANGE

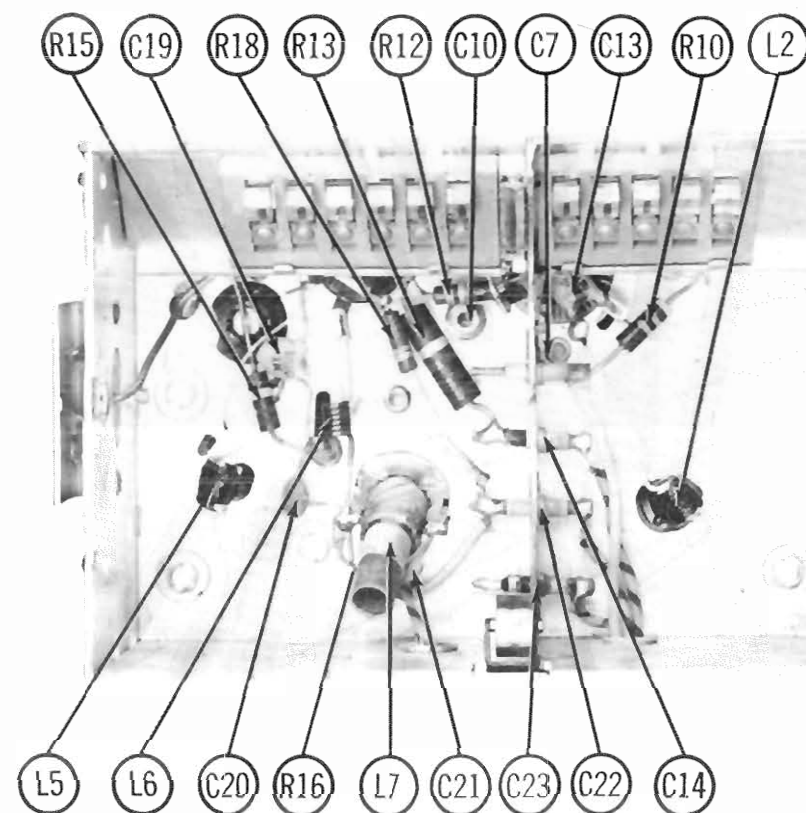
Alignment Instructio
Drive Cord Stringing
Disassembly Instruc
Horizontal Sweep Ct
Parts List and Desc
Photographs
Cabinet-Rear V
Capacitor Identifi
Chassis-Top V
Radio Chassis
RF Tuner
Resistor Identifi

FOR SERVICE INFO
RECORD CHANGER

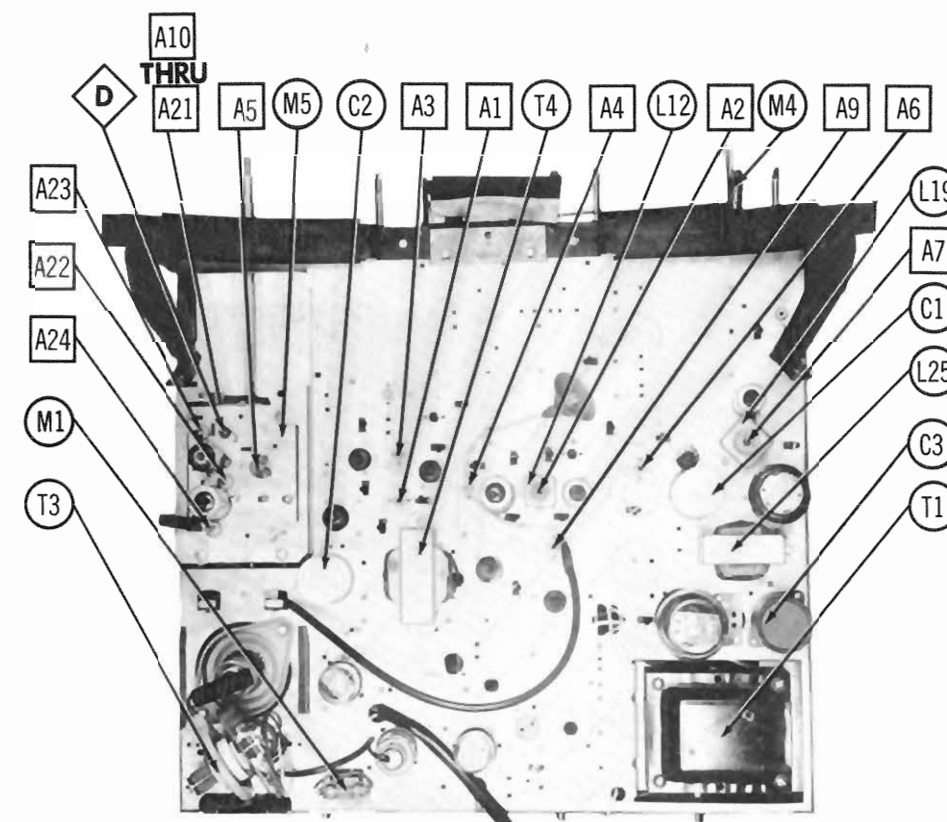
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Inc., by the manufacturers
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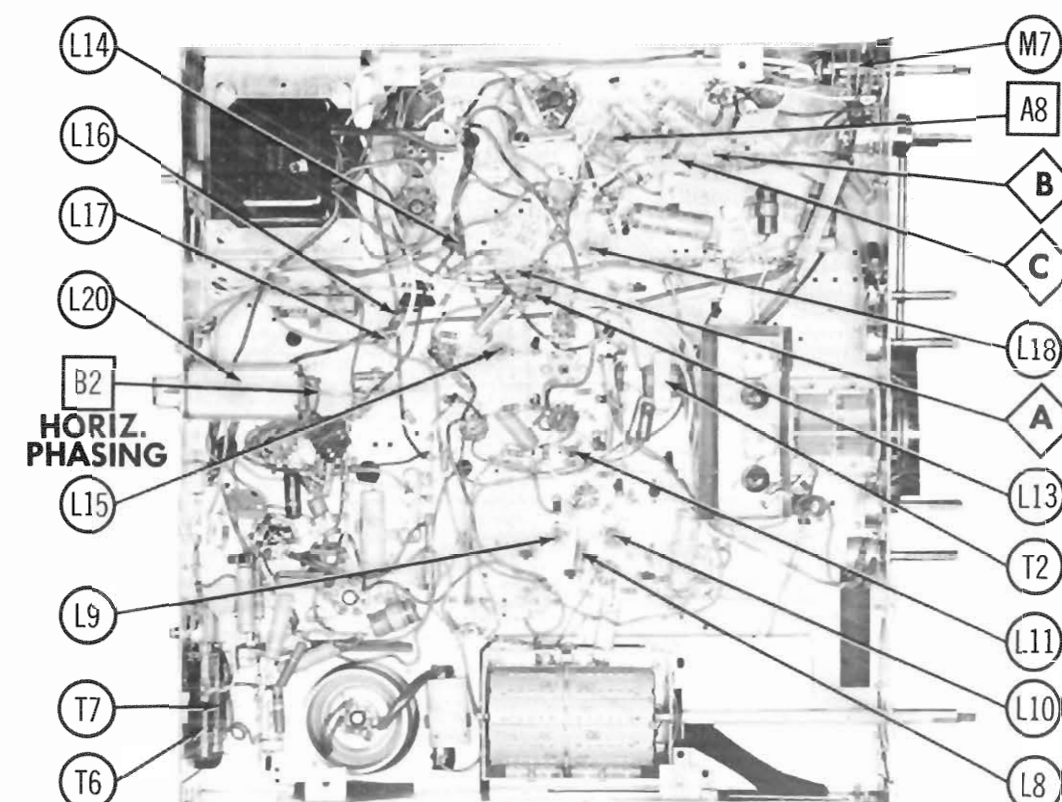
VHF TUNER-RIGHT SIDE



VHF TUNER-BOTTOM VIEW



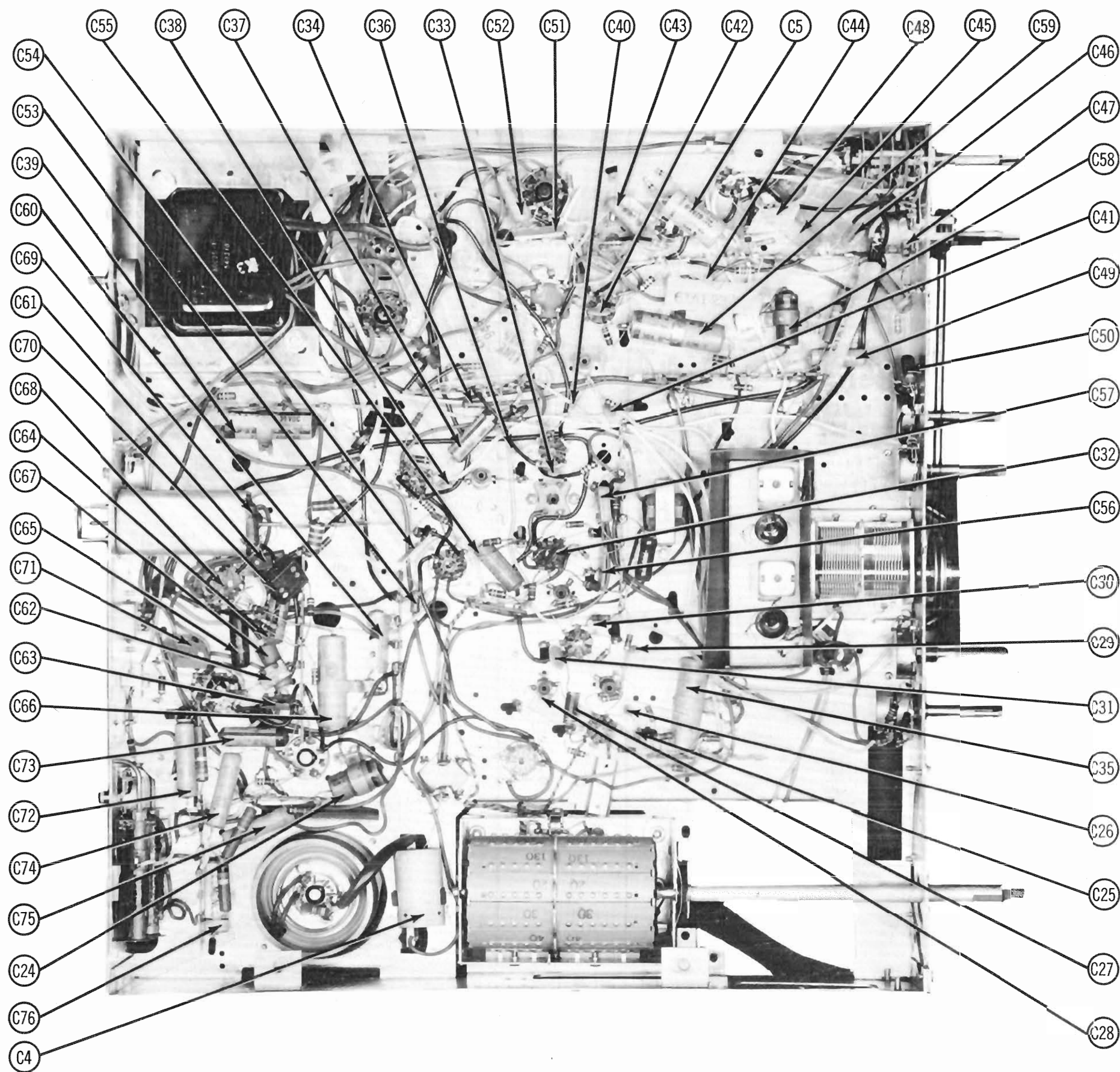
CHASSIS-TOP VIEW



CHASSIS BOTTOM VIEW-TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION

SET 271 FOLDER 1

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, AZ, Z, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION

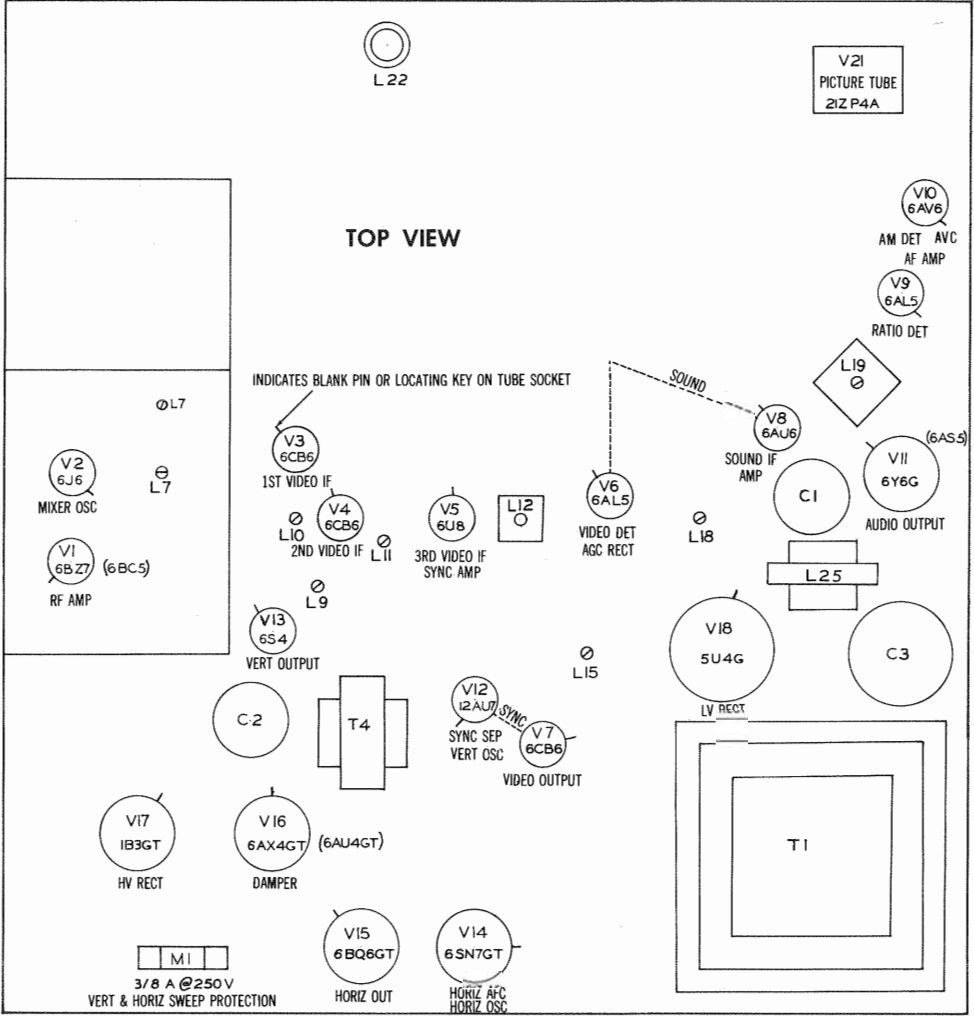
ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z,
19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

RESISTANCE MEASUREMENTS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BZ7	INF	4Meg	0Ω	.1Ω	0Ω	†1.5KΩ	150KΩ	INF	0Ω
V 2	6J6	‡15KΩ	‡8.2KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	2Meg	47Ω	.1Ω	0Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 4	6CB6	2Meg	68Ω	.1Ω	0Ω	†5.5KΩ	†5.5KΩ	0Ω		
V 5	6U8	†60KΩ	.4Ω	‡330Ω	0Ω	.1Ω	‡330Ω	100Ω	0Ω	10KΩ
V 6	6AL5	800Ω	5.6KΩ	.1Ω	0Ω	.4Ω	0Ω	1.5Meg		
V 7	6CB6	1Meg	200Ω	.1Ω	0Ω	†6.8KΩ	‡3KΩ	200Ω		
V 8	6AU6	470KΩ	0Ω	.1Ω	0Ω	‡330Ω	‡330Ω	68Ω		
V 9	6AL5	10KΩ	10KΩ	.1Ω	0Ω	INF	0Ω	INF		
V 10	6AV6	4.7Meg	470Ω	.1Ω	0Ω	‡700KΩ	0Ω	†470KΩ		
V 11	6Y6G	INF	.1Ω	†315Ω	†1.2KΩ	1Meg	1Meg	0Ω	‡2.5KΩ	40KΩ
V 12	12AU7	‡20KΩ	2.7Meg	0Ω	0Ω	0Ω	‡2.3Meg	2Meg	0Ω	.1Ω
V 13	6S4	INF	2KΩ	1Meg	.1Ω	0Ω	1Meg	INF	INF	‡2.5KΩ
V 14	6SN7GT	1.7Meg	†35KΩ	400KΩ	510KΩ	†82KΩ	0Ω	0Ω	.1Ω	
V 15	6BQ6GT	†8.2KΩ	0Ω	‡820KΩ	†8.2KΩ	1Meg	‡820KΩ	.1Ω	47Ω	Top Cap ‡23Ω
V 16	6AX4GT	INF	INF	350KΩ	INF	†75Ω	INF	0Ω	.1Ω	
V 17	1B3GT		PINS	1 - 8	HAVE	INFINITE	RESISTANCE			Top Cap ‡558Ω
V 18	5U4G	INF	30KΩ	INF	27Ω	INF	25Ω	INF	30KΩ	
V 19	6BE6	22KΩ	.4Ω	.1Ω	0Ω	†‡2.2KΩ	†‡12.2KΩ	‡1.7Meg		
V 20	6BA6	‡1.7Meg	0Ω	.1Ω	0Ω	†‡2.2KΩ	†‡29KΩ	150Ω		
V 21	21ZP4A	.1Ω	56KΩ	‡1.2KΩ	‡250KΩ	0Ω				

† MEASURED FROM PIN 8 OF V18.
‡ MEASURED FROM 120V LINE.
‡ MEASURED IN "RADIO" POSITION.
‡ MEASURED FROM PIN 3 OF V16.
ALL MEASUREMENTS TAKEN IN "TV" POSITION UNLESS OTHERWISE DESIGNATED.

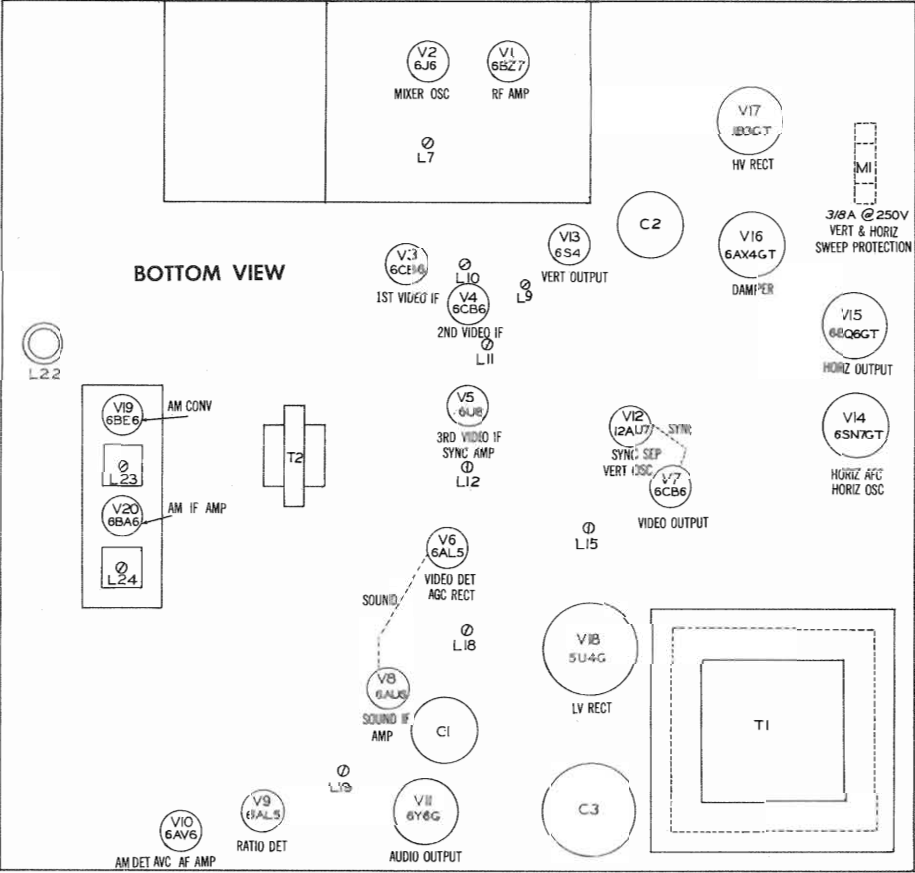
TUBE PLACEMENT CHART



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, V11 No pic, no sound, has snow - V1, V2, V3 No pic, has sound, has raster - V7, V21 Has pic, no sound - V8, V9, V10, V11
SYNC FAILURE	No vert. sync - V5, V12 No horiz. sync - V5, V14 No vert. or horiz. sync - V5, V12
SWEEP FAILURE	No raster, has sound - V14, V15, V16, V17, V21, Fuse (M1) No vertical deflection - V12, V13 Poor vert. linearity or foldover - V12, V13 Poor horiz. linearity or foldover - V14, V15, V16 Narrow picture - V14, V15, V16, V17, V18 Vert. off freq. - V5, V12 Horiz. off freq. - V5, V14

TUBE PLACEMENT CHART



ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

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 (V14) to disable the high voltage. Allow a 15 minute warm-up period for receiver and test equipment.

VIDEO IF ALIGNMENT

Remove the converter tube (V2) from its socket and replace with a 6J6 which has pin removed. This will disable the local oscillator and reduce the possibility of erroneous indications.
Connect the negative lead of a 4.5 volt bias supply to the ungrounded side of C25. Connect the positive side to chassis.
Remove the antenna and connect a short jumper across the antenna terminals.
Set the contrast control fully counter clockwise.

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. Low side to chassis.	27.25MC (Unmod)	Any unused high band channel	High side thru decoupling filter to point \odot . Low side to chassis.	A1	Attenuate generator output to maintain not more than 1 volt at VTVM. Adjust for MINIMUM deflection.
2. "	"	25.3MC	"	"	A2, A3	Adjust for maximum deflection.
3. "	"	23.1MC	"	"	A4, A5	Adjust for maximum deflection. Repeat step 1.

OVERALL VIDEO IF RESPONSE CHECK

Connect the 4.5 volt bias battery and set the contrast control as under "Video IF Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Use only enough sweep generator output to provide usable indication on scope.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. Direct	High side to ungrounded tube shield floating over dummy converter tube. Low side to chassis.	24MC (10MC Swp)	21.25MC 22.5MC 24.3MC 25.75MC	Any unused high band channel	Vert. Amp. thru decoupling filter (Fig. 2) to point \odot . Low side to chassis.		Check for response curve similar to Fig. 1. If necessary, retouch A2 thru A5 to obtain desired response. Retouch A1 for MINIMUM marker amplitude at 21.25MC. Use high scope gain to view 21.25MC and 27.25MC markers.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

If a signal generator of crystal accuracy is not available restore the set to normal operating condition and tune in a tone modulated TV signal and follow the procedure outlined below.

DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5. .01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point \odot . Common to chassis.	A6, A7	Attenuate generator output to maintain 1 volt at VTVM. Adjust for maximum deflection.
6. "	"	"	"	DC probe to point \odot . Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Final adjustment of A8 may be made by tuning in a TV signal and adjusting A8 clearest sound with MINIMUM buzz.

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
5. .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 \odot . Low side to chassis.	A6, A7	Disconnect stabilizing capacitor C5. Adjust for curve of maximum amplitude and symmetry similar to Fig. 3.
6. "	"	"	"	"	Vert. Amp. to point \odot . Low side to chassis.	A8	Reconnect stabilizing capacitor C5. Adjust so that 4.5MC occurs at center of crossover line as in Fig. 4. 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
7. .01MFD	High side to pin 2 (plate) of 6AL5 (V6). Low side to chassis.	4.5MC (Unmod)	Any	DC probe to point \odot . Common to chassis.	A9	Connect a 10MMF capacitor from pin 5 (plate) of 6CB6 (V7) to pin 7 (cathode) of 6AU6 (V8). Adjust A9 for MINIMUM deflection. Remove 10MMF capacitor from plate to cathode of 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 thru a hole just to the right of the channel switch shaft. The correct adjustment screw is accessible thru this hole as the channel switch is turned to each channel.
Leave the bias supply connected 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
8. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp) 207MC (10MC Swp) 201MC (10MC Swp) 195MC (10MC Swp) 189MC (10MC Swp) 183MC (10MC Swp) 177MC (10MC Swp) 85MC (10MC Swp) 79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	211.25MC 215.75MC 209.75MC 203.75MC 197.75MC 191.75MC 185.75MC 179.75MC 83.25MC 77.25MC 71.25MC 65.25MC 59.75MC	13 12 11 10 9 8 7 6 5 4 3 2	Vert. Amp. thru decoupling network (Fig. 2) to point \odot . Low side to chassis.	A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21	Adjust to place video marker at 50% on response curve as in Fig. 5. Sound marker should fall below 5%.

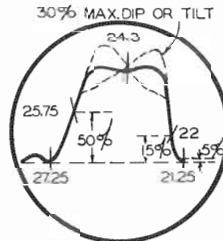


FIG. 1

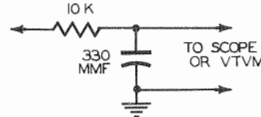


FIG. 2

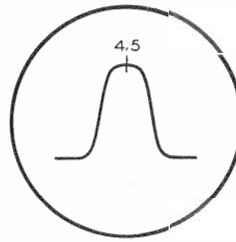


FIG. 3

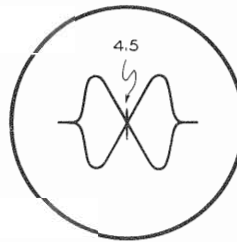


FIG. 4

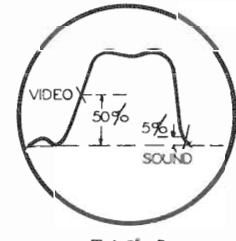


FIG. 5

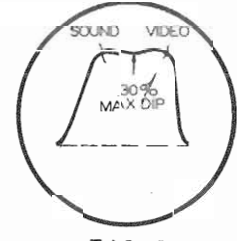



FIG. 6

RF AND MIXER ALIGNMENT FOR SETS USING TUNERS 96D46-2, -3 AND -4

On sets using the all channel UHF tuner A3969, A4000 or A4160 set the channel selector and sweep generator to channel 6 instead of channel 10 as in step 9. In step 9, set the channel selector and sweep generator to channel 5 instead of channel 6. See "Oscillator Alignment" for sweep and marker generator frequencies for channel 5.
Leave bias supply connected as under "Video IF Alignment". If it is difficult to obtain a usable response on scope remove the bias supply and connect a short jumper from the ungrounded side of C25 to chassis.
Use only enough sweep and marker generator output to provide usable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point  . Low side to chassis.	A22,A23	Alternately adjust A22 and A23 for response similar to Fig. 6 with markers above 90%.
10. "	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A24	Adjust for maximum amplitude response curve similar to Fig. 6. Recheck channel 10. If necessary repeat step 9.
11. "	"	213MC (10MC Swp) 207MC (10MC Swp) 201MC (10MC Swp) 195MC (10MC Swp) 189MC (10MC Swp) 183MC (10MC Swp) 177MC (10MC Swp) 79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	211.25MC 215.75MC 209.75MC 203.75MC 197.75MC 191.75MC 185.75MC 179.75MC 77.25MC 71.25MC 65.25MC 59.75MC	13 12 11 10 9 8 7 5 4 3 2	"		Check for response similar to Fig. 6. If markers fall below 70% on any channel make compromise adjustments of A22, A23 and A24 with channel switch set to that channel. Check all other channels to see that they have not been seriously affected.

RF AND MIXER ALIGNMENT FOR SETS USING TUNERS 94D52-1, -2

On set using the all channel UHF tuner #3969, A4000 and A4160 set the channel selector and sweep generator to channel 6 instead of channel 10 as in step 9.
Leave the bias supply connected as under "Video IF Alignment". If it is difficult to obtain a usable response on scope remove the bias supply and connect a short jumper from the ungrounded side of C25 to chassis.
Use only enough sweep and marker generator output to provide usable indication on scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
9. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC (10MC Swp)	193.25MC 197.75MC	10	Vert. Amp. thru 10KΩ to point \odot . Low side to chassis.	A ₂₂ , A ₂₃ , A ₂₄	Adjust for response curve similar to Fig. 6. with markers above 90%.
10. "	"	213MC (10MC Swp) 207MC (10MC Swp) 201MC (10MC Swp) 195MC (10MC Swp) 189MC (10MC Swp) 183MC (10MC Swp) 177MC (10MC Swp) 85MC (10MC Swp) 79MC (10MC Swp) 69MC (10MC Swp) 63MC (10MC Swp) 57MC (10MC Swp)	211.25MC 215.75MC 209.75MC 203.75MC 197.75MC 191.75MC 185.75MC 179.75MC 83.25MC 77.25MC 71.25MC 65.25MC 59.75MC	13 12 11 10 9 8 7 6 5 4 3 2	"		Check for response curve similar to Fig. 6. If markers fall below 70% on any channel make compromise adjustments of A ₂₂ , A ₂₃ and A ₂₄ with channel switch set to that channel. Recheck all other channels to see that they have not been seriously affected. Continue alignment with Step 12.

UHF TUNER ALIGNMENT

The UHF tuner portion of this receiver has been properly aligned at the factory and is very stable.
Adjustments of this portion should not be attempted in the field. In cases where alignment becomes necessary, the entire UHF tuner unit should be returned to the factory service department.

RADIO ALIGNMENT

Remove the bias battery (or jumper) from C25 to chassis.
Turn the function switch to "Radio" position.
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
12. .1MFD	High side to antenna stator lug on tuning gang. Low side to chassis.	455KC (Unmod)	Radio	Tuning gang fully open	Across voice coil	A25, A26, A27, A28	Adjust for maximum output.
13. "	"	1620KC	"	"	"	A29	"
14. "	Loop	1400KC	"	Tune to 1400KC signal	"	A30	Fasten loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF tuner oscillator circuit may be accomplished by removal of the channel selector and fine tuning knobs. The adjustments are accessible, one at a time, thru the small hole in the cabinet to the right of the channel selector shaft.

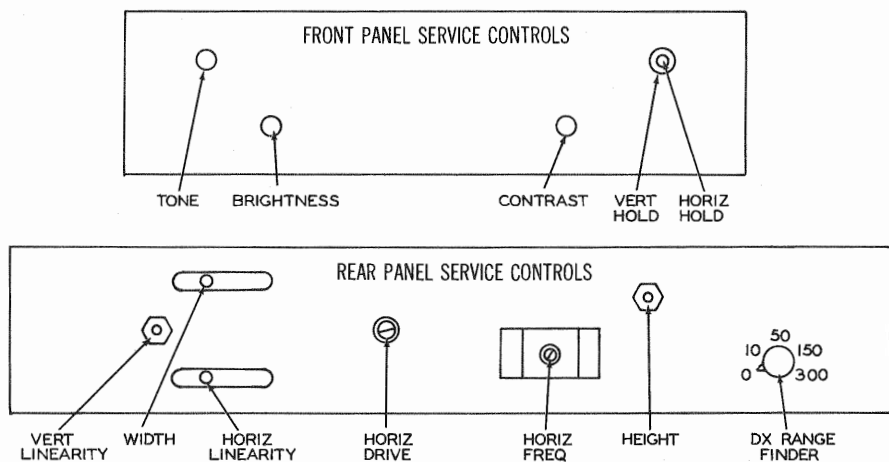
PICTURE TUBE SAFETY GLASS CLEANING

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

PICTURE TUBE REMOVAL

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

SERVICE ADJUSTMENT LOCATION



DX RANGE FINDER ADJUSTMENT

Reception of weak signals can often be improved by advancing the DX range finder in a clockwise direction. However, if the control is turned too far in this direction the picture may disappear entirely on strong signals.

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 (L20) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the ratio detector secondary (L19) located on bottom of chassis.

(See tube placement chart).

FUSES

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

CENTERING

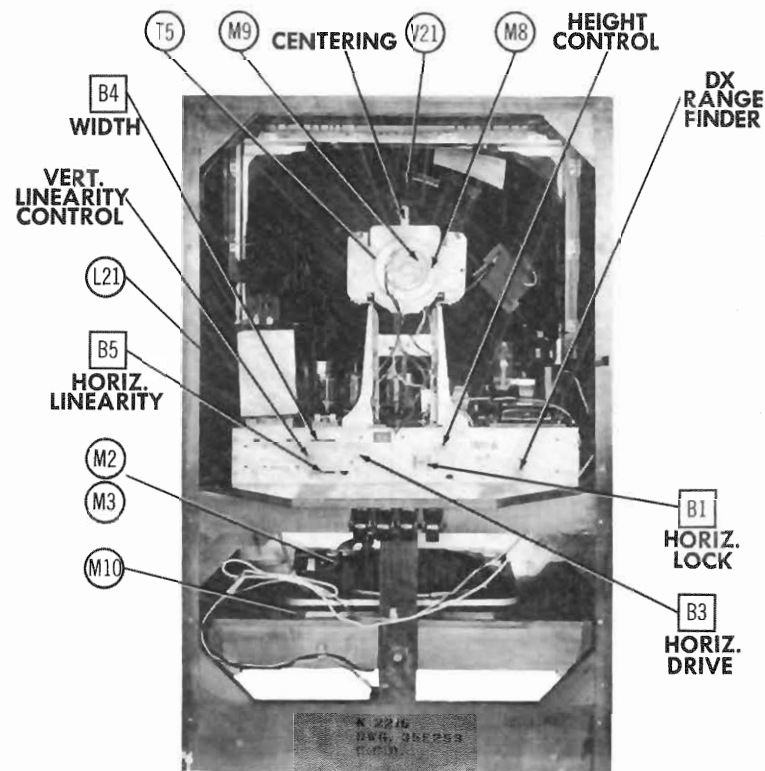
Centering is accomplished mechanically by means of a centering lever on the PM focusing assembly. Adjust the centering lever from side to side, and up and down until the picture is properly centered.

DISASSEMBLY INSTRUCTIONS

1. Remove 6 push-on type control knobs from front panel. (Vert. & horiz. hold knob under door).
2. Remove 8 wood screws and 2 metal screws from rear cover. Remove rear cover.
3. Disconnect phono AC and audio leads from chassis.
4. Disconnect speaker leads from chassis.
5. Disconnect leads from radio antenna.
6. Disconnect TV built-in antenna.
7. Remove 4 chassis bolts. Remove chassis.

SPEAKER REMOVAL

1. Remove 7 wood screws from lower rear cover. Remove cover.
2. Remove 2 lead clamps.
3. Remove 7 wood screws from metal cover in phono changer compartment. Remove cover.
4. Remove 4 speaker nuts. Remove speaker.



CABINET-REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably a test pattern.

Check the horizontal holding action as follows:

- (A) The picture should remain stable throughout complete rotation of the horizontal hold control on strong and medium signals.
 - (B) The picture should remain stable through 1/2 to 3/4 rotation of the horizontal hold control on weak signals.
- If the picture jitters, bends or loses sync while making the checks in (A) or (B) horizontal sync adjustment should be made as outlined in the following steps:
- (1) Set the DX range finder to "0" position and adjust the contrast control for normal picture.
 - NOTE: In some chassis (stamped Run 1) the horizontal hold control has been wired in reverse. The blue wire should be connected to the lug nearest the bottom edge of the chassis and the 68KΩ resistor should be connected to the lug nearest the top of the chassis. Be sure to check these connections since it may be impossible to make the following adjustments properly.
 - (2) Connect the high side of vertical amplifier of oscilloscope thru a 10MMF capacitor to terminal "C" of L20. Connect low side to chassis.
 - (3) Adjust the horizontal waveform slug (B2) for waveform similar to Fig. 7. Keep the picture in sync while making this adjustment by turning the horizontal frequency slug (B1) or the lock range trimmer (B6). (Later model sets do not have a lock range trimmer). Remove the scope.
 - (4) Turn the horizontal hold control maximum counter clockwise. If picture does not lose sync switch off channel and back again or adjust B1 until 4 or 5 bars appear sloping downward to the left.
 - (5) Turn the horizontal hold control slowly clockwise until picture falls into sync. If set has horizontal lock range trimmer it is properly adjusted if 2 or 3 bars are present. Turn the horizontal hold control fully counter clockwise and adjust B1 until picture falls into sync.
 - (6) If more than 3 bars were present in step 5 turn the lock range trimmer (B6) slightly clockwise. If less than 2 bars were present turn B6 slightly counter clockwise. Repeat steps 4 and 5.

The horizontal holding action should now be as outlined in paragraphs (A) and (B) above.

If the horizontal holding action is still not satisfactory set the horizontal hold control to the point where the picture just loses sync or becomes unstable and adjust B1 until the picture falls into sync. Repeat this procedure until proper holding action is obtained.

HORIZONTAL DRIVE ADJUSTMENT

Switch channel selector to an unused channel. Turn contrast and horizontal hold controls fully counter clockwise, and set the brightness control below average setting. Adjust the horizontal drive trimmer (B3) counter clockwise as far as possible without the presence of vertical white lines or compression near the center of the picture. Adjust the width control slug (B4) for a picture slightly wider than necessary to fill the picture mask horizontally. Adjust the horizontal linearity slug (B5) for picture that is symmetrical from left to right.

ADJUSTMENT OF CURVATURE CORRECTING MAGNETS FOR SETS USING 24" PICTURE TUBES

These magnets are located above and below the deflection yoke. A red dot will be found on one pole of each magnet. The red dot on the top magnet should be to the right and the red dot on the lower magnet should be to the left as the chassis is viewed from the rear.

(A) Adjust the controls for a normal picture.

(B) Move either magnet away from the picture tube and note the scanning lines on the same side of the picture that the magnet is located. Slowly move the magnet forward until curvature of the scanning lines is removed. Do not move the magnets too close to the picture tube as this may cause the corners to become shaded.

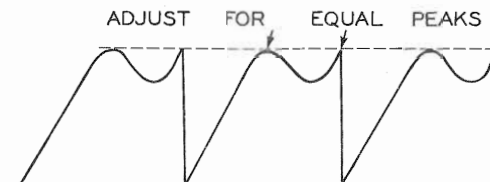


FIG. 7

SET 271 FOLDER 1

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL				
<p><u>LOSS OF SWEEP</u></p> <p>Follow procedure outlined under "Loss of High Voltage".</p> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check by substitution V15, V16 and V18. Check adjustments B3, B4 and B5. Check T3, T5A, R96, R97, R95, C73, C71 and other associated components.</p> <p><u>DRIVE LINES</u></p> <p>Check by substitution V15 and V16. Check adjustments B3 and B5. Check R96, R97, C71, C73 and other associated components.</p> <p><u>COMPRESSED LEFT SIDE</u></p> <p>Check by substitution V15 and V16. Check horizontal output and damper stages for component failure or change of value.</p> <p><u>FOLDS</u></p> <p>Follow procedure outlined under "Drive Lines".</p> <p><u>PIE CRUST EFFECT</u></p> <p>Check by substitution V14, V15 and V16. Check C64 for open. Check L20, C68, R89 and other associated components.</p> <p><u>XMAS TREE EFFECT</u></p> <p>Check by substitution V14, V15 and V16. Check T3 and T5A for internal arcing. Check L20, C68, C69, C71, R89, R92 and other associated components.</p>	<p><u>LOSS OF SWEEP</u></p> <p>Check by substitution V12 and V13. Check waveform W7.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check T4, T5B, R6, R77, C4, C2B and other associated components.</td><td>Check T2, R75, R7, R98, C59 and other associated components.</td></tr> </table> <p><u>INSUFFICIENT SWEEP</u></p> <p>Check by substitution V12 and V13. Check height and vertical linearity controls for proper operation. Check T3, T4B, R75 and other associated components.</p> <p><u>COMPRESSED AT BOTTOM</u></p> <p>Check by substitution V12 and V13. Check R96, R75, R7, T2 and other associated components.</p> <p><u>COMPRESSED AT TOP</u></p> <p>Check by substitution V12 and V13. Check C2B, R77, R6, T4 and other associated components.</p> <p><u>FOLDS</u></p> <p>Check by substitution V12 and V13. Check R74, R77, C58, T4 and other associated components.</p>	If Satisfactory	If Unsatisfactory	Check T4, T5B, R6, R77, C4, C2B and other associated components.	Check T2, R75, R7, R98, C59 and other associated components.
If Satisfactory	If Unsatisfactory				
Check T4, T5B, R6, R77, C4, C2B and other associated components.	Check T2, R75, R7, R98, C59 and other associated components.				

SYNC

<p><u>LOSS OF VERTICAL AND HORIZONTAL SYNC</u></p> <p>Check by substitution V12 and V5. Check C54B, C55, R66, R69, R65 and other associated components.</p> <p><u>LOSS OF VERTICAL SYNC - HORIZONTAL SYNC SATISFACTORY</u></p> <p>Substitute V12. Check waveform W5.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check T2, R5A, R73 and other associated components.</td><td>Check vertical integrator network for component failure or change of value.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check T2, R5A, R73 and other associated components.	Check vertical integrator network for component failure or change of value.	<p><u>LOSS OF HORIZONTAL SYNC - VERTICAL SYNC SATISFACTORY</u></p> <p>Substitute V14. Check C61, C62, C67, R5B, R87 and other associated components.</p> <p><u>HORIZONTAL BENDING</u></p> <p>Check by substitution V5, V12 and V14. Check horizontal AFC network.</p>
If Satisfactory	If Unsatisfactory				
Check T2, R5A, R73 and other associated components.	Check vertical integrator network for component failure or change of value.				

VIDEO

<p><u>LOSS OF VIDEO</u></p> <p>Substitute V7. Check C37, C39, R41, R40, L17, L16 and other associated components.</p> <p><u>SOUND BARS (4.5MC BEAT)</u></p> <p>Adjust tuner fine tuning for best sound and picture. Check adjustment A9. Check video IF alignment.</p> <p><u>POOR CONTRAST</u></p> <p>Check by substitution V6 and V7. Check contrast control. Check picture tube. Check C37, L14, R39 and other associated components.</p>	<p><u>NEGATIVE PICTURE</u></p> <p>Substitute V7. Check picture tube and video detector network. Check C37, C39 and L16. Check video IF alignment.</p> <p><u>SMEAR</u></p> <p>Substitute V7. Check L13, L14, L16, L17, C37, C39 and other associated components.</p> <p><u>WIDE BLACK BAR ACROSS PICTURE</u></p> <p>Check by substitution V1, V3, V4, V5, V6 and V7 for heater to cathode leakage.</p>
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AUDIO

<p><u>WEAK OR NO SOUND</u></p> <p>Check by substitution V8, V9, V10 and V11. Check stages V10 and V11 using audio signal generator. Apply audio signal across A1.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check ratio detector and audio IF stages for component failure or change of value.</td><td>Check C51, C52, C3, C48A, R55A, R61, T8, speaker and other associated components.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check ratio detector and audio IF stages for component failure or change of value.	Check C51, C52, C3, C48A, R55A, R61, T8, speaker and other associated components.	<p><u>BUZZ</u></p> <p>Adjust tuner fine tuning for best sound and picture. Check adjustment A8. If still unsatisfactory, check audio IF alignment.</p> <p><u>DISTORTED</u></p> <p>Follow procedure outlined under "Weak or No Sound".</p>
If Satisfactory	If Unsatisfactory				
Check ratio detector and audio IF stages for component failure or change of value.	Check C51, C52, C3, C48A, R55A, R61, T8, speaker and other associated components.				

TROUBLE SHOOTING AIDS (cont)

POWER

<p><u>DEAD SET</u></p> <p>If filaments fail to light, check AC interlock assembly. Check switch on volume control and T1. If filaments light, substitute V18. Check B+ filter and decoupling network.</p>	<p><u>SMALL AND/OR DIM PICTURE</u></p> <p>Substitute V18. Check B+ filter and decoupling network.</p>
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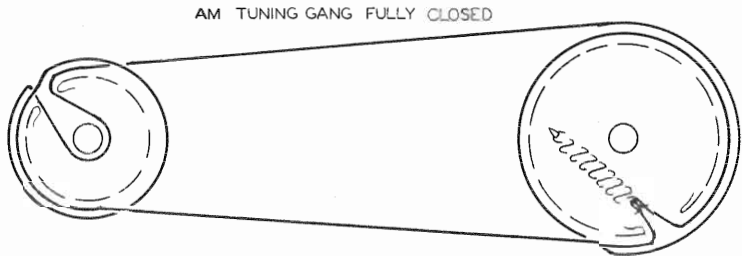
HIGH VOLTAGE

<p><u>LOSS OF HIGH VOLTAGE</u></p> <p>Check by substitution V14, V15, V16 and V17. Check M1 fuse. Check waveform W12.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check T3, T5A, T6, T7, C76, C74, C75, R98, R96, R97, R95 and other associated components.</td><td>Check L20, C71, C69, C67, C68, R90, R87 and other associated components.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check T3, T5A, T6, T7, C76, C74, C75, R98, R96, R97, R95 and other associated components.	Check L20, C71, C69, C67, C68, R90, R87 and other associated components.	<p><u>INSUFFICIENT HIGH VOLTAGE</u></p> <p>Check by substitution V15, V16, V17 and V18. Check adjustments B2, B3, B4 and B5. Check C71, C73, R95, R96, R97 and other associated components.</p> <p><u>BLOOMING</u></p> <p>Check by substitution V15, V16, V17 and V18. Check C71, C73, R96, R97, T7, T3 and other associated components.</p>
If Satisfactory	If Unsatisfactory				
Check T3, T5A, T6, T7, C76, C74, C75, R98, R96, R97, R95 and other associated components.	Check L20, C71, C69, C67, C68, R90, R87 and other associated components.				

GENERAL

<p><u>RASTER, SOUND, NO PICTURE</u></p> <p>Follow procedure outlined under "Loss of Video".</p> <p><u>RASTER, PICTURE, NO SOUND</u></p> <p>Follow procedure outlined under "Weak or No Sound".</p> <p><u>RASTER, NO SOUND, NO PICTURE</u></p> <p>Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check video IF components for failure or change of value.</p>	<p><u>NO RASTER, NO SOUND</u></p> <p>Follow procedure outlined under "Dead Set".</p> <p><u>KEYSTONE EFFECT</u></p> <p>Check T5 and its associated components.</p> <p><u>INTERMITTENT STREAKS</u></p> <p>Check high voltage section for corona discharge and arcing.</p>
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Symptoms shown are assumed and are not indicative of the quality and workmanship of this equipment.



RADIO DRIVE CORD STRINGING

ADMIRAL Ch. 19A2, A, AZ, Z, 19B2, A, AZ, Z, 19D2, A, 19E2, A, 19F2AZ, Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

COILS (cont)

- Part no. 72C96-21 used with pentode tuners.
- Parallel with 4.7K Ω resistor.
- ▲ Disconnect cap. in parallel.
- ♦ Parallel with 33K Ω resistor.
- Parallel with 10K Ω resistor.
- † Disconnect external cap. if any.
- †† Enlarge mounting hole.
- # Part no. 69A52-9 used in 3 tube radio (3DI).
- † Drill mounting hole.

FILTER CHOKE

① Drill one new mounting hole.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			ADMIPAL PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	8AG	3/8A 250V	84A4-3	84A5-1	362. 375 (3/8A-3AG)	387001	AGX 3/8	4520

PHONO CARTRIDGE

ASTATIC, SHURE AND ELECTRO-VOICE NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGES LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENT SEE BELOW.

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA				REMARKS
	ADMIRAL PART No.	JENSEN PART No.	PERMO PART No.	WALCO PART No.	
M3		*JP-332 or †JPS-332	*B-416 or †B-419 or ♦B-419D	*W-31AGA or †W-31AGS	* Metal † Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	ADMIRAL PART No.	NOTES
M4	Dial Light	81A1-8	#47, Bayonet - Not used in some models
M5	Tuner	94D46-4	VHF - Chassis vith 20" or 21" picture tubes
	Tuner	94D46-1	VHF - Chassis vith 20" or 21" picture tubes
	Tuner	94D46-1	VHF - Chassis vith 20" or 21" picture tubes
	Tuner	94D46-1	VHF - Chassis vith 17" picture tubes
	Tuner	94D46-1	VHF - Chassis vith 17" picture tubes
	Tuner	A3909	UHF - Chassis 9J1, 19J1A, 19P1, 19S1, 19E2, 19B2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ, 19L1, 19E2
	Tuner	A4000	UHF - Chassis 1J1, 19JA, 19L1, 19P1, 19S1, 19B2, 19E2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ, 19E2
	Tuner	A4160	UHF - Chassis 1S1, 19J1A, 19B2, 19J1, 19E2, 19L1, 19B2A, 19B2Z, 19B2AZ, 19K2Z, 19K2AZ
	Tuning Cap.	68B53-1	12-422MMF, 17-20MMF (2 tube radio) Alternate part #68B53
	Tuning Cap.	68B32	3 Tube Radio
M6	Switch	77A47	UHF-VHF - Chassis 19B2, 19B2A, 19B2AZ, 19B2Z, 19E2, 19E2, 19E2A, 19K2AZ, 19K2Z, 19S1, 19J1A, 19J1, 19L1, 19P1
M7	Switch	77C43	Function - Chassis 19G1, 19G1A, 19PIK, 19D2, 19D2A, 19E2, 19E2A
	Switch	77B49	Function - Chassis 19F2Z, 19F2AZ, 19K2Z, 19K2AZ
M8	Focus Magnet	94C55-1	Includes centering device
M9	Ion Trap	94A15-3	
M10	Phono Motor	407C20	
33, B6	Trimmer Cap.	66A30-2	Horiz. Drive (0-160MMF) - Some models use 2 section trimmer cap. (0-160MMF each), horizon lock & horiz. drive (Admiral part #6A32-3)
	Cabinet	34E61-9	Ebony - Models TU181, 17UDX11
	Cabinet	34E61-10	Mahogany - Models TU812, 17UDX12
	Cabinet	34E61-12	Mahogany - Model TU822
	Cabinet	34E57-5	Mahogany - Model TU212
	Cabinet	34E57-9	Mahogany - Model TU222
	Cabinet	35E227-11	Mahogany - Model TU226
	Cabinet	35E245-1	Walnut - Model 321UDX15L
	Cabinet	35E245-2	Mahogany - Model 321UDX16L
	Cabinet	34E57-1	Mahogany - Model 121UDX12
	Cabinet	35E246-2	Mahogany - Model 121UDX16L

TUBES (SYLVANIA, GENERAL ELECTRIC, WESTINGHOUSE)

ITEM No.	USE	REPLACEMENT DATA		RETM BASE TYPE	NOTES
		ADMIRAL PART No.	STANDARD REPLACEMENT		
V1	RF Amp.	6BZ7	6BZ7	9AJ	used in some chassis.
V2	Mixer-Osc.	6CB6	6CB6	7BF	
V3	1st Video IF Amp.	6CB6	6CB6	7CM	
V4	2nd Video IF Amp.	6CB6	6CB6	7CM	
V5	3rd Video IF Amp. Sync Amp.	6U8	6U8	9AE	Sync amp. section of 6U8 used as vert. osc. in some chassis
V6	Video Detector- AGC Rectifier	6AL5	6AL5	6BT	
V7	Video Output	6CB6	6CB6	7CM	
V8	Sound IF Amp.	6AU6	6AU6	7BK	
V9	Ratio Detector	6AL5	6AL5	6BT	
V10	AM Det.-AVC. AF Amp.	6AV6	6AV6	7BT	
V11	Audio Output	6Y6G	6Y6G	7S	6AS5 used in "TV only" models
V12	Sync Sep. - Vert. Osc.	12AU7	12AU7	9A	Vert. Osc. section of 12AU7 used as sync amp. in some chassis.
V13	Vert. Output	6S4	6S4	9AC	6AU4GT may be used in some chassis Radio chassis.
V14	Horiz. AFC. Horiz. Osc.	6SN7GT	6SN7GT	8B5	
V15	Horiz. Output	6BQ6GT	6BQ6GT	6AM	
V16	Damper	6AX4GT	6AX4GT	4CG	
V17	HV Rectifier	1B3GT	1B3GT	3C	
V18	LV Rectifier	5U4G	5U4G	5T	
V19	AM Converter	6BE6	6BE6	7C6	
V20	AM IF Amp.	6BA6	6BA6	7BX	

CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA					REPAIR BASE TYPE	NOTES
	ADMINISTRATIVE PART No.	CBS-HYTRON PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	WESTINGHOUSE PART No.		
V21	21ZP4A	21ZP4A	21ZP4A	21ZP4A 21ZP4A ① 21ZP4B 21ZP4D 21WP4	21ZP4A	12N 12D 12N 12N	① Circuit changes necessary
	21ZP4B	21ZP4B	21ZP4B		21ZP4B	12N	
	21WP4	21WP4				12N	
				21WP4A		12N	
	17BP4A	17BP4A	17BP4A	17BP4A	17BP4A	12N	

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	▲60	350	67C15-23	AFH3-29		C023		FP375.6	TVL-4609	
C1B	▲40	350		PRS350/30-		BR6025		TC68		
C1C	▲40	200		30						
C2A	▲80	350	67C15-22	AFH3-142		C109		FP229.8	TVL-3722	
C3	▲30	50								
C4	80	350	67C 5-64	AFH1-42		XA011		FP138	TVL-1630	
C5	20	475	67A15-1-240	PRS500/20		BR2050		TC83	TVA-1804	
C6	3-9	50	98A15-96	EF-001	129-10			TC30	TVA-1303	
C7	800		94C17-90	EF-001	129-3					503C-D1
C8	3		94D17-54	S13NP0	129-3	Z007	NP0K-030	ZT-5533	503C-B-V33	
C9	800		94C17-90	EF-001	129-3				503C-D1	
C10	5-3		98A15-23	S11.5NP0	129-3					
C11	1.5		94D16-84	S11.5NP0	129-3	Z004	NP0K-IR5	CT565A	503C-B-V15	
C12	47		94D17-50	130D-000047	129-3	G033	801-470	CT565A	503C-B-V15	
C13	1000		98A45-21	130D-001	129-3	G033	801-001	CT565A	503C-B-V15	
C14	800		94C37-9	EF-001	129-3	G033	801-470	CT565A	503C-B-V15	
C15	47		94D47-5	BPD-000047	129-3	G033	801-470	CT565A	503C-B-V15	
C16	5-3		98A45-21	S11.5NP0	129-3	G033	801-470	CT565A	503C-B-V15	
C17	10		98A45-64	S11.5NP0	129-3	G033	801-470	CT565A	503C-B-V15	
C18	5		94D47-5	S11.5NP0	129-3	G033	801-470	CT565A	503C-B-V15	
C19	1000		98A45-21	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C20	6.8		94D47-5	S11.5NP0	DD-102	K069	801-001	DC-521	5HK-D1	
C21	120		98A45-73	BPD-0012	DD-502	K080	811-005	DC-525	5HK-D5	
C22	800		94C37-9	EF-001	DD-102	K069	801-001	DC-521	5HK-D1	
C23	800		94C37-9	EF-001	DD-102	K069	801-001	DC-521	5HK-D1	
C24	1	800	64B9-7	P688-001	DD-102	K069	801-001	PT801	5HK-D1	Note 1
C25	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C26	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C27	2.2		65C6-86							
C28	15		65C6-54							
C29	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C30	1000		65C6-41	BPD-001	DD-102	K069	801-001	DC-521	5HK-D1	
C31	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	Note 2
C32	4000		65A17-1	BPD-2X004	DD-502	K080	811-005	DC-525	5HK-D5	
C33	27		65C6-67							
C34	120		65C6-66	S112	D6-121	TP35	GP2-K-121	UC-5312	5GA-T12	Note 9
C35	47	100	64A10-1	P23-47	D6-121	TP35	GP2-K-121	UC-5312	5GA-T12	Note 9
C36	1000		64C6-4	BPL-001	DD-102	K069	801-001	DC-521	5HK-D1	Note 9
C37	1	200	64B9-7	P23-1	DD-102	K069	801-001	DC-521	5HK-D1	Note 9
C38	6.8		65C6-7	S11.5NP0	DD-102	K069	801-001	DC-521	5HK-D1	
C39	22	400	64B8-2	P488-22	DD-103	K082	811-001	DC-511	5GA-T1	
C40	6.8		65C6-7	S11.5NP0	DD-103	K082	811-001	DC-511	5GA-T1	
C41	20		65C6-51	S120NPG	DD-502	K080	811-005	DC-525	5HK-D5	
C42	5000		65C10-1	BPD-005	DD-502	K080	811-005	DC-525	5HK-D5	
C43	180		65C6-59							
C44	500		65C6-6	S1500	D6-501	K061	811-005	DC-525	5HK-D5	
C45	.0022	600	64B9-17	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	
C46	10000		64B3-13	BPD-01	DD-103	K082	811-001	DC-511	5HK-S1	
C47	100		65C6-3	S1100	DD-103	K082	811-001	DC-511	5HK-S1	
C48A	.01		163B6-10	1A-141	DD-103	K082	811-001	DC-511	5HK-S1	
C49	.0047	600	64B9-15	P688-0047	D6-472	CUB6D47	GP2-333-472	PT6247	6TM-D47	Note 10
C50	.0022	600	64B9-17	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	Note 13
C51	.0022	600	64B9-17	P688-0022	D6-222	CUB6D22	GP2-333-222	PT6222	6TM-D22	Note 1

Z, 1961, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1
MIRAL CH: 19AZ, A, AL, Z, 19BZ, A, AL, Z, 19DZ, A, 19EZ, A, 19FAZ,
Z, 19G1, A, 19J1, A, 19K2AZ, Z, 19L1, 19P1, 19S1 & Radio Ch. 3D1

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

CAPACITORS (cont)									
ITEM No.	RATING CAP. VOLT	REPLACEMENT DATA						NOTES	
		ADMIRAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNFELT CUBIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C51	.01	#63B6-5	*PA-139	D6-103	CUB681	GP2-333-103	PT611	6TM-S1	Note 6
C52	.01	64B8-13	P688-01	D6-103	CUB681	GP2-333-103	PT611	6TM-S1	
C53	18	65B5-4			22R6Q18				Note 11
C54A	150	*63B6-8	*PA-140	D6-151	TP36	GP2K-151	UC-5315	5GA-T15	
B	.01			DD-103	K082	811-01	DC-511	5HX-S1	Note 7
C55	.1	64B9-7	P288-1	DF-104	CUB2P1		PT401	2TM-P1	
C56A	.002			DD-202	K072	801-002	DC-522	5HX-D2	Note 8
B	.005	*63C6-11	*FA-110-4	DD-502	K080	811-005	DC-525	5HX-D5	
C	.005			DD-502	K080	811-005	DC-525	5HX-D5	Note 9
C57	4700	65B21-472	1464-005	DF-503	IRSD47		MCB465	MS-25	
C58	.047	64A2-14	P688-047	DF-503	CUB6847		PT6147	6TM-S47	Note 10
C59	.1	64B9-7	P288-1	DF-104	CUB6P1		PT601	6TM-P1	
C60A	.01	*63C6-12	*TPA-282						Note 12
B	.01								
C61	82	65B21-820			22R5Q82				Note 13
C62	68	65B21-680	1469-00007		22R5Q68				
C63	82	65B21-820			22R5Q82				Note 14
C64	.1	200	64B9-7	P288-1	CUB2P1		PT401	2TM-P1	
C65	.022	200	64B9-11	P488-022	CUB4S22	817-02	PT4122	4TM-S22	Note 15
C66	.47	100	64B9-72	P288-47	CUB2P47		PT4047	2TM-P47	
C67	.047	400	64B9-9	P488-047	CUB4S47		PT4147	4TM-S47	Note 16
C68	270	500	65B21-271	1469-0003	22R5T27		MS-33		
C69	.01	400	65A13-8						Note 17
C70	820	500	65B21-821		5R5T82		MS-37		
C71	680	500	65B21-681		CUB4S47		PT4147	4TM-S47	Note 18
C72	.047	400	64A2-14	P488-047	DF-503		PT4147	4TM-S47	
C73	.1	200	64B9-7	P288-1	DF-104		PT4147	4TM-S47	Note 19
C74	.047	400	64A2-14	P488-047	CUB4S47		PT4147	4TM-S47	
C75	.047	400	64A2-14	P488-047	CUB4S47		PT4147	4TM-S47	Note 20
C76	.1	400	64B9-7	P488-1	DF-104		PT4147	4TM-P1	
C77	.47	1500	65B1-64	HYD15-1500	DD16-47	MCQ47	20GA-Q47	5GA-Q47	Note 21
C78	.47		65C6-79	SH7	D6-470	TP29	UC-5447	5GA-Q47	
C79	.1	400	64A3-15	P488-1	DF-104	CUB4P1	PT401	4TM-P1	Note 22
C80	.1	400	64A3-15	P488-1	DF-104	CUB4P1	PT401	4TM-P1	
C81	.1	400	64B9-7	P488-1	DF-104	CUB4P1	PT401	4TM-P1	Note 23
C82	5000	400	65C10-1	BPD-005	DD-502	K080	UC-531	5GA-T1	
C83	100	65C6-3	SH100	DD-101	TP34	GP1K-101			Note 24

Note 1: Used in combination model only.
 Note 2: In chassis 19B1, C30 is 1500MMF and is combined with C78 into a dual unit. (part no. 65A17-2).
 Note 3: In chassis 19B1, C35 is .22MFD (part no. 64B8-24).
 Note 4: Used only in chassis having 2 tube AM tuner.
 Note 5: When C48A is not used, C48B is a separate unit.
 Note 6: Some chassis may use .02MFD in this application.
 Note 7: When V12B is used as a sync amp., C55 is a .01MFD part no. 65C10-3.
 Note 8: Some chassis may use a variable trimmer (10-160MMF) in this application.
 Note 9: Not used in chassis 19G1A.
 Note 10: Used only in chassis 19D2, A, 19E2, A and 19P1.
 Note 11: Not used in some chassis.
 Note 12: Some chassis may use a .01MFD part no. 65C10-3 in this application.
 Note 13: Not used in chassis 19B1 and 19J1A.
 † Items C48A, C48B, R51 are combined in one unit in models having 2 tube AM tuner.
 * Items C51, R55A, R55B are combined in one unit.
 † Items C54A, C54B, R42 are combined in one unit.
 † Items C56A, C56B, C56C, R72A, R72B are combined in one unit.
 † Items C60A, C60B, R78A, R78B are combined in one unit.

CONTROLS									
ITEM No.	RATING RESISTANCE WATTS	REPLACEMENT DATA						INSTALLATION NOTES	
		ADMIRAL PART No.	IRC PART No.	CLAROSTAR PART No.	CENTRALAB PART No.	MALLORY PART No.			
R1A	1Meg	75C2-16	Q9-137X	AT-112	BT-74-S	UT-443		Volume tapped at 500KΩ	Note 1
B	Shaft	Not Req.	Not Req.	FS-3	Not Req.	US-28		Attach to R1A	
C	Switch	Not Req.	76-1	SWE-12	Not Req.	U-56		Attach to R1A	Note 2
R2A	2Meg	75B13-22	Q11-139	A47-2Meg-S	AB-75	U-56		Tone - Note 3	
B	Shaft	Not Req.	Not Req.	KSS-3	AK-4	Not Req.		Attach to R2A	Note 3
R3A	100KΩ	75B13-25	Q11-128	A47-100K-S	AB-40	U-41		Brightness	
B	Shaft	Not Req.	Not Req.	KSS-3	AK-4	Not Req.		Attach to R3A	Note 4
R4A	1000Ω	75B13-21	Q17-106	A47-1000-S	AB-5	U-4		Contrast	
B	Shaft	Not Req.	Not Req.	KSS-3	AK-4	Not Req.		Attach to R4A	Note 5
R5A	1.5Meg	75B17-3	*Q1-400	RTV-394	UF26L	UF26L		Vert. Hold - Panel - Note 1	
B	50KΩ				UR54L	UR54L		Horiz. Hold - Rear	Note 6
R6A	3000Ω	75B13-7	Q11-112	A47-3000-S	AB-8	U-8		Vert. Linearity	
B	Shaft	Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.		Attach to R6A	Note 7
R7A	2.5Meg	75B13-3	Q11-239	A47-2.5Meg-S	AB-83	SU-565		Height	
B	Shaft	Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.		Attach to R7A	Note 8
R8A	2Meg	75C1-53	Q11-139	A47-2Meg-S	B-75	U-56		DX Range Finder - Note 2	
B	Shaft	Not Req.	Not Req.	FS-3	Not Req.	Not Req.		Attach to R8A	Note 9

* CONCENTRIC EQUIVALENT KIT: K-2, BASE ELEMENTS & SHAFTS, 311-138 & P1-121 (PANEL)
 311-123 & R12-129 (REAR)
 Note 1: Some versions may use a single 2Meg control part no. 75C13-22 or a 1.5Meg control part no. 75C13-26.
 Note 2: Not used in chassis 19G1A.
 Note 3: Not used in chassis 19B1 and 19J1A.

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		ADMIRAL PART No.	IRC PART No.	
		OHMS	WATT	
R9	15KΩ	98A45-67	BTS-15K	Note 21
R10	47KΩ	98A45-17	BTS-47K	
R11	330KΩ		BTS-330K	Note 22
R12	220KΩ		BTS-220K	
R13	1500Ω		BTA-1500	Note 10
R14	10KΩ		BTS-10K	
R15	220KΩ		BTS-220K	Note 11
R16	8200Ω 5%		BTS-8200 5%	
R17	10KΩ		BTS-10K	Note 12
R18	15KΩ	98A45-67	BTS-15K	
R19	330Ω	60B8-331	BTS-330	Note 14
R20	8200Ω 5%	60B7-822	BTS-8200 5%	

ITEM No.	RATING	REPLACEMENT DATA		NOTES
		ADMIRAL PART No.	IRC PART No.	
		OHMS	WATT	
R21	3.3Meg	60B8-335	BTS-3.3Meg	Note 21
R22	15MΩ	60B8-156	BTS-15Meg	
R23	1000Ω	60B8-102	BTS-1000	Note 22
R24	47Ω	60B28-45	BTS-47	
R25	22KΩ	60B8-223	BTS-22K	Note 10
R26	1000Ω	60B8-102	BTS-1000	
R27	100Ω	60B8-102	BTS-1000	Note 11
R28	68Ω	60B28-44	BTS-68	
R29	1000Ω	60B8-102	BTS-1000	Note 12
R30	10KΩ 5%	60B7-103	BTS-10K 5%	
R31	100Ω	60B8-101	BTS-100	Note 11
R32	330Ω	60B8-331	BTS-330	

ITEM No.	RATING OHMS WATT	REPLACEMENT DATA		NOTES	
		ADMIRAL PART No.	IRC PART No.		
R33	56KΩ	60B8-563	BTS-56K	Note 22	Note 24
R34	33KΩ	60B8-333	BTS-33K		
R35	470KΩ	60B8-474	BTS-470K	Note 3	Note 13
R36	5000Ω	60B8-502	BTS-5000		
R37	4500Ω	61A1-24	PW7-5000	Note 14	Note 15
R38	1Meg	60B8-105	BTS-1Meg		
R39	33KΩ	60B8-333	BTS-33K	Note 16	Note 17
R40	5600Ω	60B14-562	BTS-56K		
R41	27KΩ	60B8-273	BTS-27K	Note 18	Note 19
R42	270KΩ	*63B6-8	BTS-270K		
R43	180KΩ		BTS-180K	Note 20	Note 21
R44	470KΩ	60B8-474	BTS-470K		
R45	68Ω	60B28-44	BTS-68	Note 22	Note 23
R46	330Ω	60B8-331	BTS-330		
R47	10KΩ	60B8-103	BTS-10K	Note 24	Note 25
R48	10KΩ	60B8-103	BTS-10K		
R49	390Ω	60B8-391	BTS-390	Note 26	Note 27
R50	47KΩ	60B8-473	BTS-47K		
R51	4.7Meg	163B6-10	BTS-4.7Meg	Note 28	Note 29
R52	470Ω	60B8-471	BTS-470		
R53	82KΩ	60B8-823	BTS-82K	Note 30	Note 31
R54	47KΩ		BTS-47K		
R55A	470KΩ	*63B6-5	BTS-470K	Note 32	Note 33
B	1Meg		BTS-1Meg		
R56	150Ω		BTS-150	Note 34	Note 35
R57	2000Ω 5%	60B7-202	BTS-2000 5%		
R58	1500Ω 5%	60B7-152	BTS-1500 5%	Note 36	Note 37
R59	2500Ω	61A1-23	BTS-2500		
R60	15KΩ	60B8-153	BTS-15K	Note 38	Note 39
R61	1200Ω	61A1-10	PW7-1250		
R62	15KΩ	61A1-7	BTS-15K	Note 40	Note 41
R63	1000Ω	60B20-102	BTS-1000		
R64	2.7Meg	60B8-275	BTS-2.7Meg	Note 42	Note 43
R65	12KΩ	60B8-123	BTS-12K		
R66	47KΩ	60B8-473	BTS-47K	Note 44	Note 45
R67	2.2Meg	60B8-225	BTS-2.2Meg		
R68	10KΩ		BTS-10K	Note 46	Note 47
R69	47KΩ		BTS-47K		
R70	15KΩ	60B8-153	BTS-15K	Note 48	Note 49
R71	22KΩ	60B8-223	BTS-22K		

† Items R51, C48A, C48B are combined in one unit.
 † Items R55A, R55B and C51 are combined in one unit.
 * Items R42, C54A and C54B are combined in one unit.
 † Items R78A, R78B, C60A and C60B are combined in one unit.
 Note 1: Not used in some chassis.
 Note 2: Some chassis may use a 1Meg resistor in this application.
 Note 3: Chassis 19B2A, AZ may use a 47KΩ resistor in this application.
 Note 4: Chassis 19B2A, AZ may use a 18KΩ or a 33KΩ resistor in this application.
 Note 5: Chassis 19B2A, AZ may use a 680Ω resistor in this application.
 Note 6: Chassis 19A2, A, AZ and 19B2, A, AZ may use a 68KΩ resistor in this application.
 Note 7: Chassis using a 6A5 for audio output may use a 90Ω resistor in this application.
 Note 8: When V12B is used as a sync amp., R68 is a 2.7Meg resistor.
 Note 9: Some chassis may use a 680 resistor in this application.
 Note 10: Chassis 19B1 may use a 330Ω resistor in this application.
 Note 11: Chassis 19B1 may use a 150Ω resistor in this application.
 Note 12: Chassis 19B1 may use a 8200Ω 2 watt resistor in this application.
 Note 13: Chassis 19B1 may use a 820KΩ resistor in this application.
 Note 14: Some chassis may use a 100Ω resistor in this application.
 Note 15: Some chassis may use a 1.2Meg resistor in this application.
 Note 16: Some chassis may use a 18KΩ or 22KΩ resistor in this application.
 Note 17: Used only in chassis have 2 tube AM tuner.
 Note 18: Used only in chassis 19D2, A, 19E2, A and 19P1.
 Note 19: Used only in combination models.
 Note 20: Chassis using a 6A5 for audio output may use a 1500Ω resistor in this application.
 Note 21: Chassis 19B1 may use a 1000Ω resistor in this application.
 Note 22: Not used in chassis 19B1.
 Note 23: Chassis 19F2, Z, AZ and 19K2, Z, AZ may use a 2500Ω 7.5 watt resistor in this application.
 Note 24: Not used in chassis 19G1A.

TRANSFORMER (POWER)										
ITEM No.	RATING			REPLACEMENT DATA						
	PRI	SEC. 1	SEC. 2	ADMIRAL PART No.	Stancor PART No.	Merit PART No.	Triad PART No.	RCA TYPE No.	Hallidorsen PART No.	Thordarsen PART No.
T1	117VAC (1) 1.56A	550VCT .220ADCB	5VAC 3A	80C35-1 80C35-2 (2)	P-8164	P-3077	R-61BC (1)		P9733	26R33 (3) (4) (5)
	SEC. 2 6.5VAC (6) 9A	SEC. 4	SEC. 5							