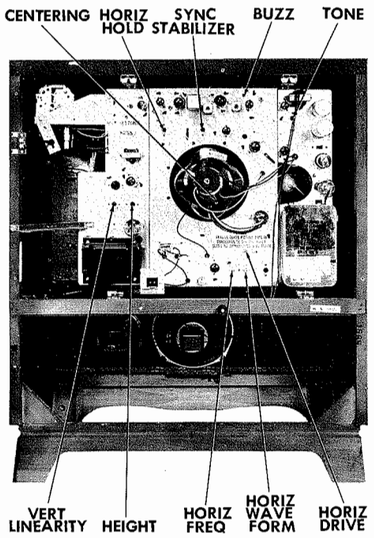


CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Suggested alignment tools: General Cement #6279, 9050L or 9150
Walsco #2521 or 2524

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

Turn the Horizontal Hold control to the center of its range.

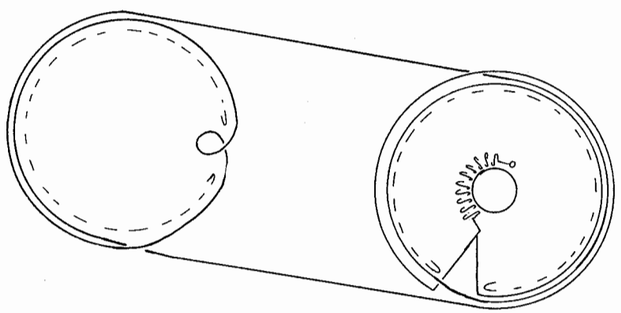
Connect a clip lead across the Horizontal Waveform coil (Ll7). Adjust the Horizontal Frequency slug (Bl) until the picture synchronizes horizontally.

Remove the clip lead from Ll7. Connect the vertical amplifier of a scope thru a low capacity probe to point ⓒ. Low side to chassis.

Adjust the Horizontal Waveform slug (B2) for equal amplitudes of the round and sharp peaks of the waveform as shown in Fig.4. While making this adjustment, keep the picture in sync with the Horizontal Hold control and Bl.

Turn the Horizontal Drive trimmer (B3) clockwise as far as possible without the presence of vertical white lines or compression near the center of the raster.

FIG. 4



FINE TUNING DRIVE CORD STRINGING

PHOTOFACT* Folder

*TRADE MARK

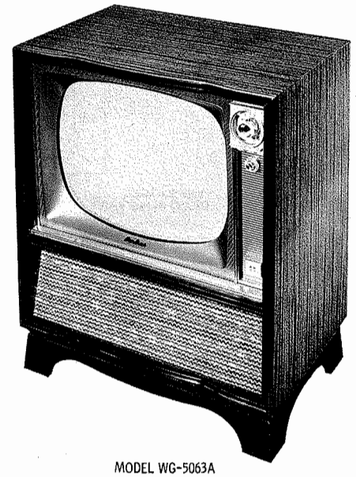
EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

AIRLINE MODELS WG-5063A, WG-5073A, WG-5163A, WG-5173A

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 5 push-on type knobs from the front and channel indicator panel.
2. Remove 5 wood and 1 metal screw holding rear cover.
3. Remove picture tube socket, yoke plug, HV and speaker leads.
4. Loosen 2 wood screws and remove antenna terminal board.
5. Remove 1 wood screw holding chassis support bracket.
6. Remove 2 wood screws holding chassis at top.
7. Remove 4 bottom chassis bolts.
8. Partially remove chassis from rear of cabinet. Remove pilot light. Remove chassis.



MODEL WG-5063A

TRADE NAME	Airline	MODELS WG-5063A, WG-5073A, WG-5163A, WG-5173A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago, Illinois	
TYPE SET	Television Receiver	
TUBES	Eighteen	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 180 Watts, 1.7 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Oscillator is possible by removing the Channel Selector and Dial Indicator panel by pulling outward. Set the Fine Tuning at the center of its range. The adjustments are accessible, one at a time, as the Channel Selector is rotated. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 5 wood screws holding the metal trim strip at the top edge of the Safety Glass. Tilt glass out at the top and lift up to remove.

SPECIAL ADJUSTMENTS

A. Range
Observe the picture and advance the Range control to a point where the picture distorts or a buzz is heard in the sound. Back off from this setting until the picture becomes stable with no noise in the sound.

B. Focus
Adjust the Beam Alignment magnet on the neck of the Picture Tube for best focus.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (Bl) until the picture synchronizes horizontally. (For location, see tube placement chart.)

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate intercarrier buzz, adjust the Buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart.)

FUSE

One fuse is used for low voltage supply protection. (For location, see tube placement chart.) One fuse wire is used for filament protection.

FUSE DEVICE

A Thermal Switch is used for low voltage power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

DATE 12-58 SET 424 FOLDER 2

AIRLINE MODELS WG-5063A, WG-5073A, WG-5163A, WG-5173A
SET 424 FOLDER 2

TUNER SCHEMATIC LOCATED ON PAGE 5.

- ⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
- DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
- ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
- WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in 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.

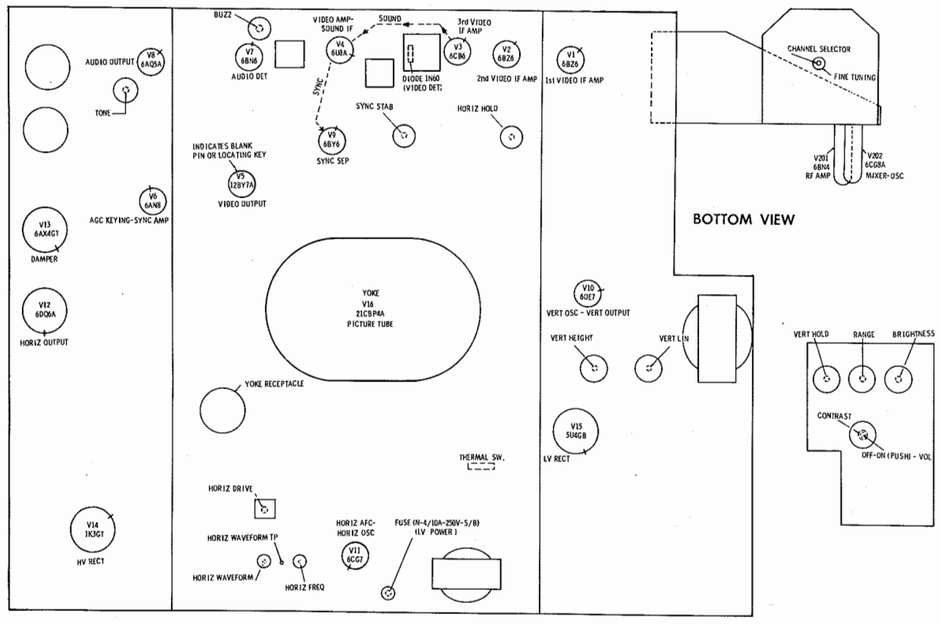
A PHOTOFACT STANDARD NOTATION SCHEMATIC

AIRLINE MODELS WG-5063A, WG-5073A, WG-5163A, WG-5173A

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	100K	47Ω	.1Ω	0Ω	†2100Ω	†2100Ω	0Ω		
V2	6BZ6	100K	47Ω	.1Ω	0Ω	†2100Ω	†2100Ω	0Ω		
V3	6CB6	.1Ω	180Ω	0Ω	.1Ω	†1700Ω	†1700Ω	0Ω		
V4	6U8A	†8000Ω	6Ω	†34K	.1Ω	0Ω	†34K	2200Ω	1.6Ω	3900Ω
V5	12BY7A	• 310Ω	1meg	0Ω	0Ω	0Ω	.1Ω	†3600Ω	†1200Ω	0Ω
V6	6AN8	†12K	47K	0Ω	0Ω	.1Ω	360K	†0Ω	†35K	†1200Ω
V7	6BN6	•330Ω	3.6Ω	0Ω	.1Ω	†5900Ω	4.6Ω	†330K		
V8	6AQ5A	0Ω	270Ω	0Ω	.1Ω	†970Ω	†470Ω	0Ω		
V9	6BY6	• 500K	0Ω	0Ω	.1Ω	†820K	†28K	2.2meg		
V10	6DE7	†400Ω	2.2meg	2.2meg	0Ω	.1Ω	• ‡1.6meg	• 850K	175Ω	•1700Ω
V11	6CG7	†56K	310K	0Ω	0Ω	.1Ω	•†23K	1.5meg	310K	0Ω
V12	6DQ6A	TP	.1Ω	NC	†10K	470K	TP	0Ω	100Ω	TOP CAP ‡10Ω
V13	6AX4GT	TP	NC	¶1.1meg	NC	†.1Ω	TP	.1Ω	0Ω	
V14	1K3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡317Ω
V15	5U4GB	NC	¶	NC	20Ω	NC	22Ω	NC	¶	
V16	21CBP4A	0Ω	1meg	Pin 6 †100K	Pin 10 ‡10meg	Pin 11 • 180K	Pin 12 .1Ω			
V201	6BN4	0Ω	1.1Meg	0Ω	.1Ω	†2200Ω	0Ω	1.1meg		
V202	6CG8	3900Ω	†5100Ω	0Ω	0Ω	.1Ω	†2200Ω	†11K	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

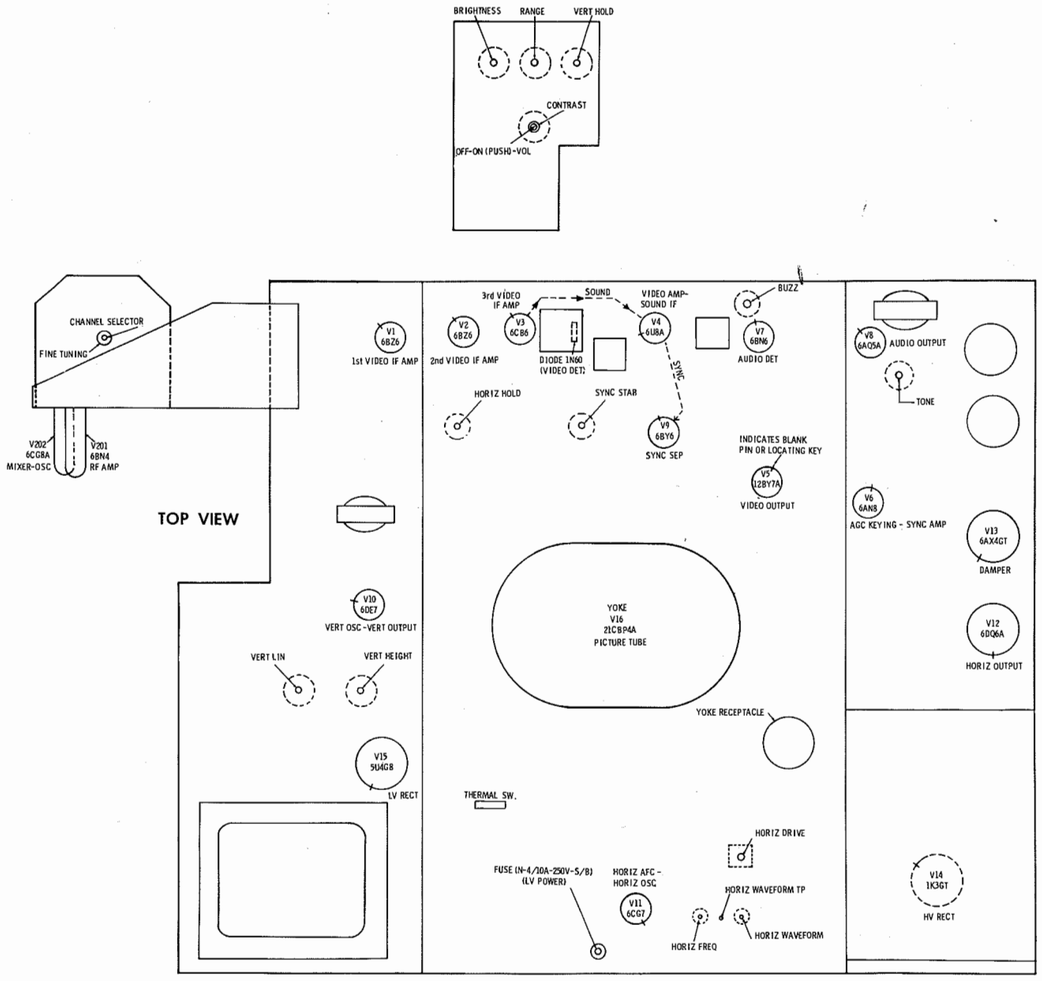
¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM 250V SOURCE. NC NO CONNECTION.
‡ MEASURED FROM PIN 3 OF V13. TP TIE POINT.



BOTTOM VIEW

TUBE PLACEMENT CHART

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

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

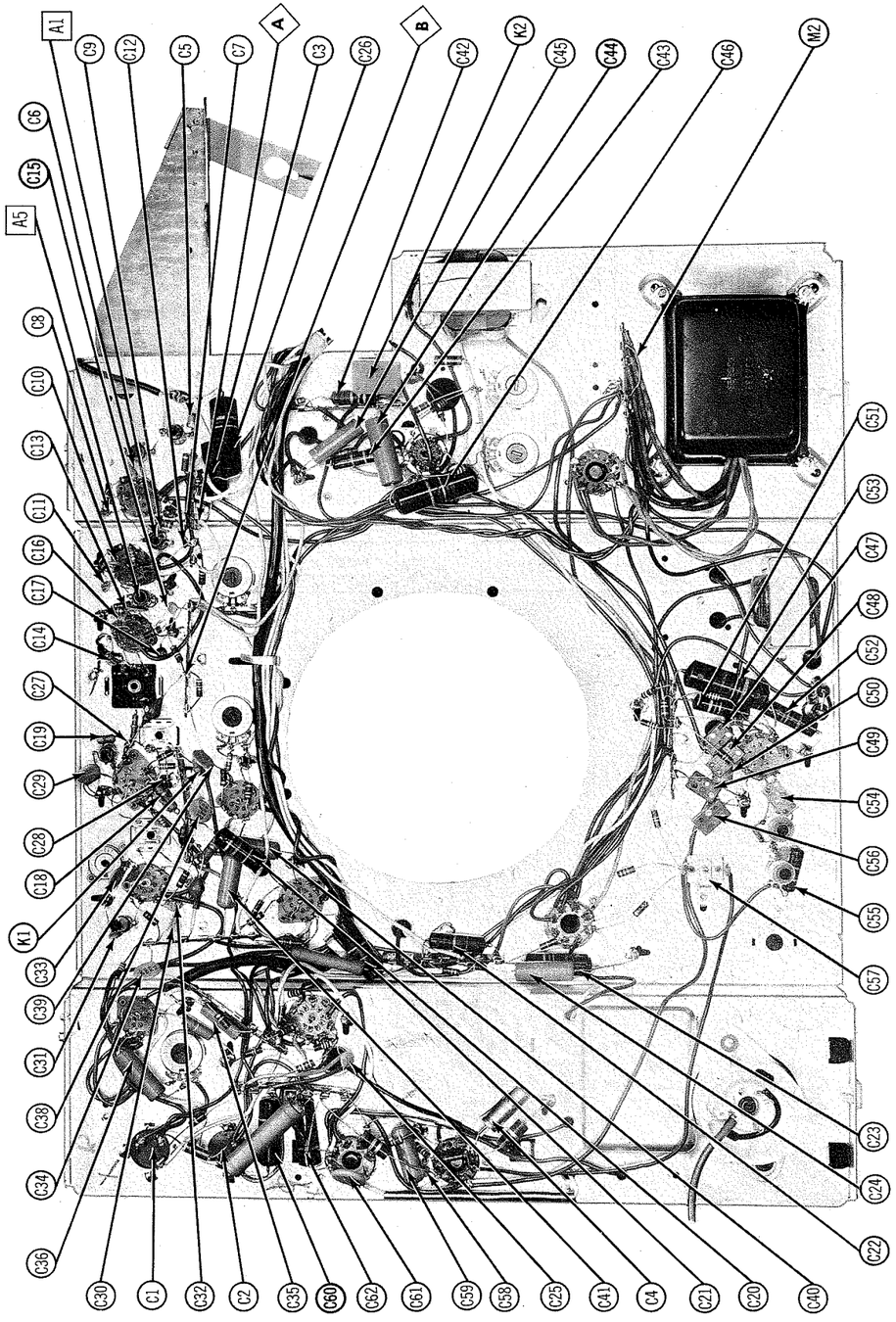
POWER SUPPLY FAILURE
No raster, no sound Fuse (B+), Thermal Switch (M6), V15

SWEEP FAILURE
No raster, has sound V11, V12, V13, V14, V16
No vertical deflection V10
Poor vert. linearity or foldover V10
Poor horiz. linearity or foldover V11, V12, V13
Narrow picture V11, V12, V13, V15
Vert. off freq. V10
Horiz. off freq. V11

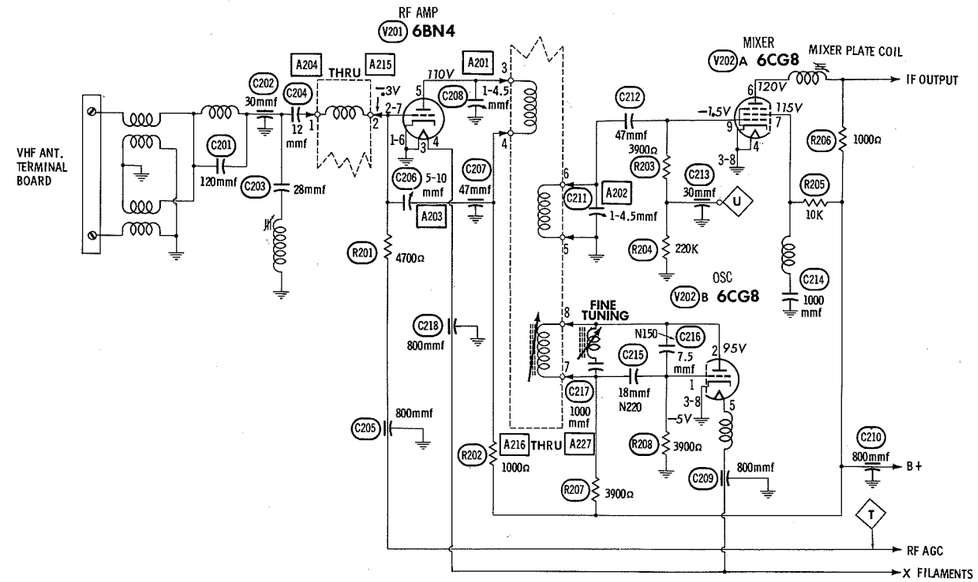
LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det)
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V5, V16
Has pic, no sound V4, V7, V8
Overloaded picture V6

SYNC FAILURE
No vert. sync V9, V6
No horiz. sync V9, V6, V11
No vert. or horiz. sync V9, V6

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

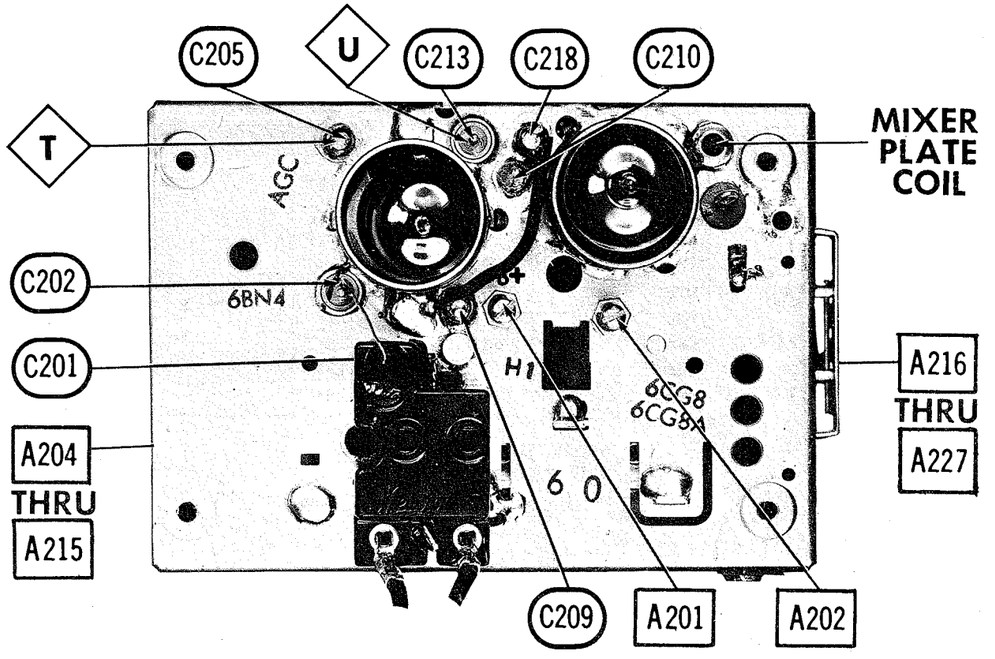


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



A PHOTOFACT STANDARD NOTATION SCHEMATIC

VHF TUNER 25A1174



TUNER 25A1174 - TOP VIEW

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
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.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2.	"	"	"	"	"	Vert. Amp. thru detector (Fig. 202). to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3.	"	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
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.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across video detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 203. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

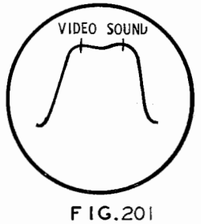


FIG.201

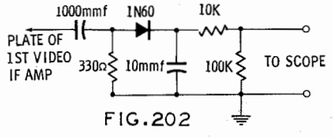


FIG.202

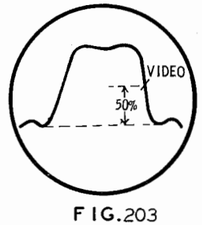


FIG.203

TUNER PARTS LIST AND DESCRIPTIONS

25A1174

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BN4	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CG8	

FIXED CAPACITORS

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

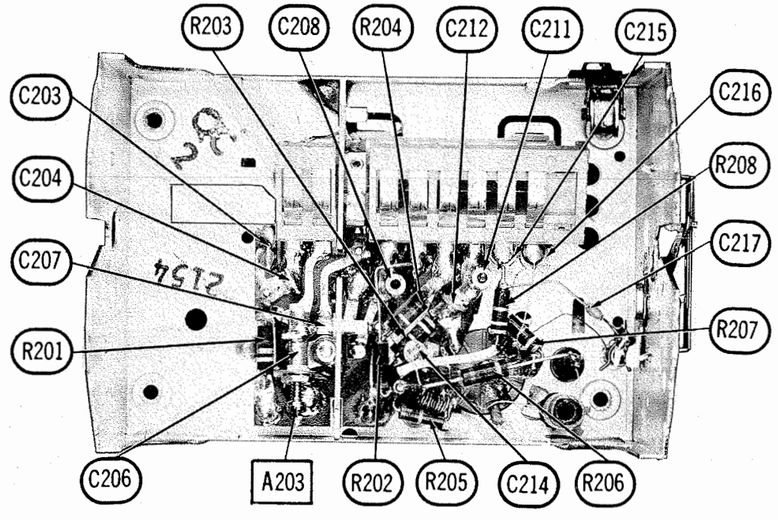
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C201	120			BPD-00012	DD-121	L10T12	UC-5312	5GA-T12	
C202	30								
C203	28								
C204	12								
C205	800								
C206	5-10								
C207	47								
C208	1-4.5								
C209	800								
C210	800								
C211	1-4.5								
C212	47								
C213	30								
C214	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C215	18								N220
C216	7.5								N150
C217	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C218	800								

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	AIRLINE PART No.	NOTES
R201	4700Ω			
R202	1000Ω			
R203	3900Ω			
R204	220K			

ITEM No.	RATING OHMS	RATING WATT	AIRLINE PART No.	NOTES
R205	10K			
R206	1000Ω			
R207	3900Ω			
R208	3900Ω			



TUNER 25A1174 BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AIRLINE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	N	4/10A 125V S/B	16X162	16X163	333.400 (N 4/10A-125V-S/B)	346009	N 4/10	HN 3/10 to 1/2
M2	#24 AWG Copper Wire 2" Length							

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		AIRLINE PART No.	CBS PART No.	SYLVANIA PART No.	
M3	1N60 *		1N60	1N295	Video Detector (Pigtail) * Some versions may use a CK706A in this application.

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M4	Lamp		#47
M5	Tuner	25A1174	VHF
M6	Thermal Switch	2A495	
M7	Magnet	2A476	Beam Alignment

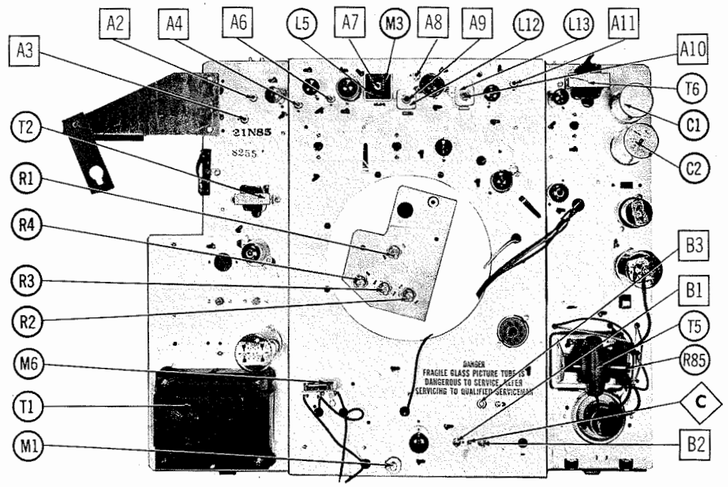
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	17X199-1	
Knob	10A943-1	Channel Selector
Knob	10A945-1	Fine Tuning
Knob	10A933-1	Contrast
Knob	10A932-1	Volume
Knob	10A944-1	Brightness, Range, Vert. Hold

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested alignment tools: General Cement #8282, 8606, 8606L or 9295
Walsco #2543, 2544 or 2545

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Ⓐ. Positive to chassis.
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.
Use only enough sweep generator output to provide a usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over Mixer-Osc. tube (V202). Low side to chassis.	44.0MC (10MC Swp)	47.25MC	Any non-interfering channel	Vert. Amp. thru demodulator probe (Fig. 1) to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.	A1	Adjust to place marker in trap notch as in Fig. 2.
2.	"	"	"	41.25MC 45.75MC 47.25MC	"	"	A2, A3, & Mixer Plate Coil	Adjust for response similar to Fig. 2. Mixer Plate Coil and A2 affect the shape of the top. A3 is adjusted to position the 41.25MC marker. This adjustment must be made correctly or the sound rejection will not be correct. The 45.75MC marker must be exactly on peak.
3.	"	"	"	42.8MC	"	Vert. Amp. thru 10K to point Ⓑ. Low side to chassis. DC probe of VTVM thru 10K to same point. Common to chassis. (Across Video Det. load)	A4	Increase bias at point A to 4.5 volts. Adjust sweep output for -2 volts DC at point Ⓑ. Adjust A4 for maximum amplitude at marker.
4.	"	"	"	41.25MC	"	"	A5	Adjust for MINIMUM amplitude at marker.
5.	"	"	"	45.3MC	"	"	A6	Adjust for maximum gain at marker.
6.	"	"	"	44.0MC	"	"	A7	"
7.	"	"	"	41.25MC 42.4MC 42.8MC 44.0MC 44.5MC 45.3MC 45.75MC 47.25MC	"	"		Check for response similar to Fig. 3 with markers as shown. If necessary, retouch A2 thru A7 for desired response. A7 controls the symmetry of the top. A6 controls position of the 45.75MC marker. A4 controls position of the 42.4MC marker (this slug will seldom need retouching). CAUTION : The position of 44.5MC marker is very critical (98%).

4.5MC TRAP ALIGNMENT

Use 0-10 volts AC scale on VTVM.
Set Contrast fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
8.	.005mfd	High side to pin 9 (grid) of 6U8 (V4). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	RF probe to pin 11 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Tune in a TV signal and reduce signal level at the antenna terminals, by use of an attenuator or similar device, until a hiss similar to super-regeneration is heard in the sound.
Adjust A9, A10 and A11 for maximum undistorted sound.
Adjust the Buzz control (R10) for MINIMUM buzz.

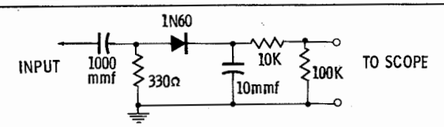


FIG. 1

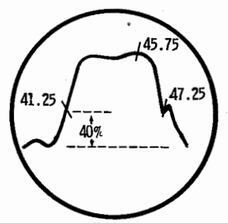


FIG. 2

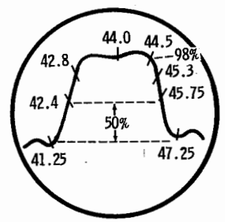


FIG. 3

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6BZ6	
V3	3rd. Video IF Amp.	6CB6	
V4	Video Amp.-Sound IF Amp.	6U8A	
V5	Video Output	12BY7A	
V6	AGC Keying-Sync Amp.	6AN8	
V7	Audio Det.	6BN6	
V8	Audio Output	6AQ5A	

ITEM No.	USE	TYPE	NOTES
V9	Sync Sep.	6BY6	
V10	Vert. Osc.-Vert. Output	6DE7	
V11	Horiz. AFC-Horiz. Osc.	6CQ7	
V12	Horiz. Output	6DQ6A	
V13	Damper	6AX4GT	
V14	HV Rect.	1K3GT	
V15	LV Rect.	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	AIRLINE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V16	21CBP4A		21CBP4-A①	21CBP4/ 21CBP4A ②	① "Silverama" ⑱ ② "Silver Screen 85"

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	300	45X428	AFH4-07	C0239	FP333.8 TT50X10	TMQ-167	T-525 MT-0510	TVLS-3573.7
B	■20	300							
C	▲20	50							
C2A	▲80	300	45X429	AFH3-29-50	C0194 BR2035			Q-187.5	TVLS-3573.9
B	■60	300							
C	▲40	50							
C3	4	50	45X418	PRS150V4	BBR4-50	TT50X5	TD-4-50	MT-0504	TVA-1402
C4	4	50	45X418	PRS150V4	BBR4-50	TT50X5	TD-4-50	MT-0504	TVA-1402

FIXED CAPACITORS

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

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT	AIRLINE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C6	47			SI 47	D6-470	LT6Q47	UC-5447	5GA-Q47	
C7	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C8	680			BPD-00068	DD-681	BYAI0T68	UC-5368	5GA-T68	
C9	56								NPO 5%
C10	470			BPD-00047	DD-471	BYAI0T47	UC-5347	5GA-T47	
C11	680			BPD-00068	DD-681	BYAI0T68	UC-5368	5GA-T68	
C12	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C13	68								NPO 5%
C14	680				D6-681	1R5T68		MS-368	10%
C15	680			BPD-00068	DD-681	BYAI0T68	UC-5368	5GA-T68	
C16	470			BPD-00047	DD-471	BYAI0T68	UC-5347	5GA-T47	
C17	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C18	30								N33 10% ①
C19	100			SI 100	D6-101	LT6T1	UC-531	5GA-T1	
C20	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C21	.1	400		P488N-1	DF-104	CUB4P1	GEM-401	4TM-P1	
C22	.015	600		P688N-015	DF-153	CUB6S15	GEM-6115	8TM-S15	
C23	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C24	.1	200		P288N-1	DF-104	CUB2P1	GEM-201	2TM-P1	
C25	1000	1400		DAC-2	DD30-102	HVE16D1		B1-D10	
C26	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C27	3.3			NPO-SI 3.3	TCZ-3R3	CTA6V33C	ZT-5533	5TCCB-V33	
C28	1000			BPD-001	DD-102	BYA6D1	DC521	5HK-D1	
C29	5000			BPD-005	DD-502	BYAI0D5	DC525	5HK-D5	
C30	470			BPD-00047	DD-471	BYAI0T47	UC-5347	5GA-T47	
C31	15			NPO-DI 15	DD-150	L10Q15		5TCC-Q15	10%
C32A	1000			BPD-2X001	DD2-102	BYC6DD1	DCD521	5HK-2D1	
B	1000								
C33	5000			BPD-005	DD-502	BYAI0D5	DC525	5HK-D5	
C34	5000			BPD-005	DD-502	BYAI0D5	DC525	5HK-D5	
C35	.0047	400		P488N-0047	D6-472	CUB6D47	GEM-6247	6TM-D47	
C36	.022	600		P688N-022	DD-203	CUB6S22	GEM-6122	6TM-D22	
C37	.47	200		P288N-47		CUB2P47	GEM-2047	2TM-P47	
C38	5000			BPD-005	DD-502	BYAI0D5	DC525	5HK-D5	
C39	5000			BPD-005	DD-502	BYAI0D5	DC525	5HK-D5	
C40	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C41	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C42	.01	400		P488N-01	D6-103	CUB4SI	GEM-411	4TM-SI	
C43	.01	400		P488N-01	D6-103	CUB4SI	GEM-411	4TM-SI	
C44	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C45	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C46	.1	600		P688N-1	DF-103	CUB6P1	GEM-601	6TM-P1	
C47	18		RCM20B180K	1469-000018	D6-180	22R5Q18		MS-418	10%
C48	82			1469-000082	D6-820	22R5Q82		MS-482	10%
C49	100			1469-0001	D6-101	22R5T1	MCB235	MS-31	10%
C50	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C51	.047	200		P288N-047	DF-503	CUB2S47	GEM-4147	2TM-S47	
C52	.022	200		P288N-022	DD-203	CUB2S22	GEM-4122	2TM-S22	
C53	.47	200		P288N-47		CUB2P47	GEM-2047	2TM-P47	
C54	220			1469-00022	D6-221	5R5T22		MS-322	10%
C55	.01	400		P488N-01	D6-103	CUB4SI	GEM-411	4TM-SI	
C56	820			1484-00082		1R5T82		MS-382	10%
C57	170-700		17A271						
C58	1000			BPD-001	DD-103	BYA6D1	DC521	5HK-D1	
C59	.047	400		P488N-047	DF-503	CUB4S47	GEM-4147	4TM-S47	
C60	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C61	56	5000	47X755						10%
C62	.047	600		P688N-047	DF-503	CUB6S47	GEM-6147	6TM-S47	
C63	.22	400		P488N-22		CUB4P22	GEM-4022	4TM-P22	

① Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	750Ω	½	76X32					Contrast
B	1meg	½						Volume, Tap @ 300K
C	Switch							Push-Push Type
R2A	500K	½	40X447	AB-59	A47-500K-S	Q11-133	U50	Brightness
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R3A	2.5meg	½	40X448	AB-83	A47-2.5meg -S	Q11-239	U255	Range
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R4A	1meg	½	40X446	AB-89	A47-1meg-S	Q11-137	U54	Vert. Hold
B	Shaft			AK-8 †	RS-3/16	NQ	DS-37	
R5A	1500Ω	½	40X454	AB-6	B47-1500-S	B11-109	PTA152L	Vert. Lin.
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R6A	2.5meg	½	40X453	AB-83	B47-2.5meg -S	B11-239	TA255L	Height
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R7A	50K	½	40X449	AB-31	B47-50K-S	B11-123	PTA54L	Horiz. Hold
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R8A	100K	½	40X407	AB-40	B47-100K-S	B11-128	TA15L	Tone
B	Shaft			AK-1	Not Req.	TM2	Not Req.	
R9A	2.5meg	½	40X398	AB-83	B47-2.5meg -S	B11-239	PTA26L	Sync - Stab
B	Shaft			AK-19	Not Req.	TM2	Not Req.	
R10	500Ω	2(WW)	40X397		39-500		FL-600	Buzz

† File shaft flat as required.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R11	390K			
R12	4700Ω			
R13	4700Ω			
R14	4700Ω			
R15	47Ω			
R16	68K			
R17	1000Ω			
R18	470Ω			
R19	47Ω			
R20	22K			
R21	470Ω			
R22	180Ω			
R23	470Ω			
R24	3900Ω			
R25	5600Ω	1		
R26	1meg			
R27	6800Ω			①
R28	3600Ω 5%	4	43X331	
R29	68Ω			
R30	1200Ω			
R31	1meg			
R32	22K			
R33	100K			
R34	2200Ω			
R35	100K			
R36	33K			
R37	47K			
R38	47K			
R39	330K			
R40	100K			
R41	470K			
R42	2.2meg			
R43	820K			
R44	33K			
R45	2200Ω			
R46	680Ω			
R47	330K			
R48	4700Ω			
R49	120K			
R50	270Ω	1		

ITEM No.	RATING		AIRLINE PART No.	NOTES
	OHMS	WATT		
R51	10K			
R52	2.2meg			
R53	47K			
R54	270K			
R55	820K			
R56	27K	1		
R57	47K			
R58	1meg			
R59	6800Ω			①
R60	470K			
R61	390K			
R62	22K			
R63	4700Ω			
R64	2.2meg			
R65	180Ω			
R66	1000Ω	1		
R67	560Ω			
R68	560Ω			
R69	220K			
R70	330K			
R71	820K			
R72	120K			
R73	82K			
R74	330K			
R75	3900Ω			
R76	82K			
R77	22K			
R78	56K			
R79	1meg			
R80	68Ω			
R81	470K			
R82	10K	2		
R83	100Ω	2		
R84	10meg			
R85	5600Ω			
R86	470Ω	1		
R87	1200Ω	15		
R88	100K	2	D85104	
R89	270K		B84274	

① Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	39MC Trap	9A2369			4202		
L2	1st. Video IF	9A2365	17-4534	TV-131	4202	RF-4	
L3A	2nd. Video IF	9A2363	17-4536		6222		
B	47.25MC Trap						
L4A	3rd. Video IF	9A2414	17-4535		6221		
B	41.25MC Trap						
L5	4th. Video IF	9A2370					Includes Caps & 30 Microhenry Choke
L6	Resonant Choke	9A2375					30 Microhenries
L7	Shunt Peaking Coil	36A2	19-3180	TV-184	6180	VP-5	190 Microhenries
L8	4.5MC Trap	9A2413	17-3400	TV-151		SF-3	
L9	Shunt Peaking Coil	36A42					30 Microhenries, wound on 1800Ω resistor
L10	Shunt Peaking Coil	36A41	19-3100 *	TV-194 *	6112 *		100 Microhenries, wound on 390Ω resistor
L11	Shunt Peaking Coil	36A2	19-3180	TV-184	6180	VP-5	190 Microhenries
L12	1st. Sound IF	9A2434	17-1026				
L13	2nd. Sound IF	9A2368	17-3495	TV-113	6203	SF-2	
L14	Quadrature Coil	9A2367	20-1005	TV-121	1480		
L15	RF Choke	9A2380	19-1001	BC-562	4604		1.5 Microhenries

* Parallel with 390Ω resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	AIRLINE PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordorson PART No.	
L16	79Ω		9A2371		TV-165	6211 *		HS-7	Horiz. Freq Tapped @ 55Ω
L17	58Ω		9A2372			6313		HS-5 *	Horiz. Waveform * Enlarge mounting hole.

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (@ CURRENT 1000 ~)	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Rom PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
L18	.280A	40Ω	1 Hy.	52X95-10	C5037 ①	C-2991 ①		C-2326 ①	26C43 ①	C-27X

① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Rom PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T1	117V @ 1.7A	500VCT @ .280A	5V @ 3A	53X369A 53X354 ②		P-8330 P-8330		P-8332 ① P-8332 ①	26R88 26R88	R-64BC R-64BC
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 8.5A									

① Parallel and phase 6.3V windings. ② Alternate Part Number.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							
		AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Rom PART No.	Rogers PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
T2	Vert. Osc.	54X19-A	B6702	A-3003	V405		A-8125	26A03	A-97X
	Alt. Vert. Osc.	54X19							
T3	Vert. Output	51X186-2B	Z1900①②	A-3038①③	V307①③		VO-100 ③	26S73 ③	A-118X③
	Alt. Vert. Output	51X186-2							
T4	Yoke-Horiz. (24MH) (90°)-Vert. (39MH)	C9A2403	DF607 ④⑤	MDF-92 ④⑤	Y90F19/43 ④⑤		DY-16A ④⑤	Y-45 ④⑤	Y-45 & NW21 ⑤
	Alt. Yoke	9A2403							
	Rear Cover & Centering Device	2A435							YC-1 & CL-1
	Yoke Clamp	30X611							
T5	Horiz. Output	53X362C	FB486 ③ * §	HVO-157 ③ * §	X174	EFR188 ③⑥*§	HO-283 * §	FLY-143 ③ * §	D-123 * §
	Alt. Horiz. Output	53X362							

① Connect as autoformer.
② Use 9 : 1 turns ratio.
③ Drill new mounting hole(s).
④ Use original rear cover & centering device. Use original damping network.
⑤ Connect same as original.
⑥ Trim 1 1/2" from top of terminal board.
§ This part may be superceded by Parts Manufacturer's introduction of special unit for this application.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
	4	5	5		5	8	4	P
	7	2	2		2	3	8 & 7	3
	6	6	6		6	2	2	2
	5	1	1		1	1	5	1
Special Notes →		⑦	⑦		⑦			

⑦ Remove one turn from filament winding.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	AIRLINE PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	
T6	4700Ω	3-4Ω	51X176	Z1005	A-2930	AU-604 ①	A-3877	26S49 ①	S-5Z ①	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	12A548 ①	8A21	① Used in Console Models .
	4" x 6"	PM	3-4Ω	12A531 ②	46A1	② Used in Table Models.
SP2	4"	PM	3-4Ω	21A547 ①	4A07	③ Alternate 4" speaker used in Console Models
	4"	PM	3-4Ω	12A543 ③		

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K1	Sync Coupling Circuit	330mmf, 150K	76X15	Sprague	PRC-5
K2	Vert. Integrator	2000mmf, 5000mmf, 5000mmf, 22K, 8200Ω, 8200Ω	76X7	Aerovox Centralab Cornell-Dubilier Sprague	PA-110 PC-104 115TM1 V1/V3