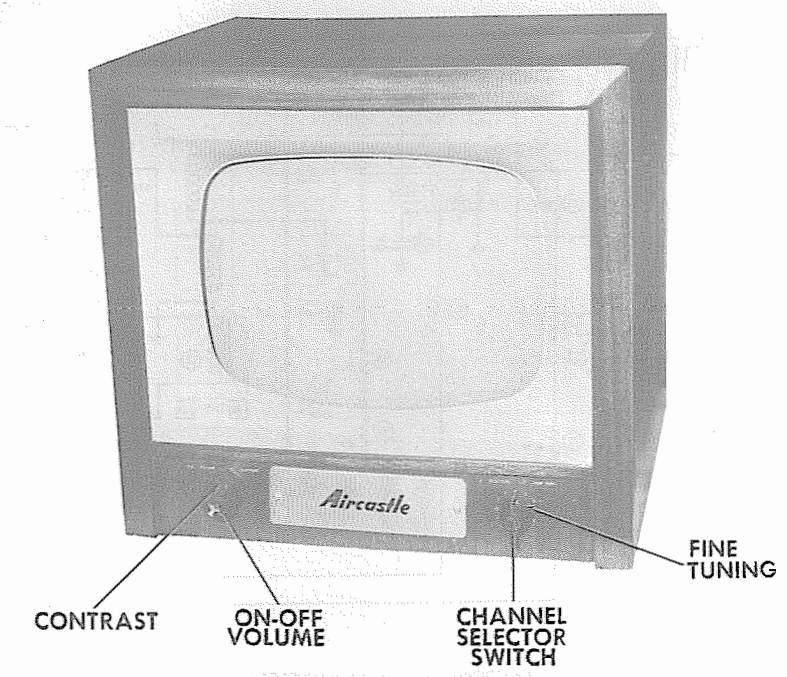




RESISTOR IDENTIFICATION



AIRCATTLE MODEL 472.17XUT.7			
TRADE NAME	Aircastle	MODELS	CHASSIS
		472.17XUCM, 472.17XUCM.1	317-B
		472.17XUCM.2, 472.17XUCM.3,	
		472.17XUCM.4, 472.17XUCM.5	317-D
		472.17XUC0, 472.17XUC0.1	
		472.17XUT.4, 472.17XUT.5	317-B
		472.17XUT.6, 472.17XUT.7,	
		472.17XUT.8	317-D
		472.21XUT, 472.21XUT.1	321-B
		472.21XUT.2	321-D
		472.21XUCM, 472.21XUC0	321-B
		472.21XUC0.1, 472.21XUC0.2	321-D
		472.217C, 472.217C.1,	
		472.217T, 472.217T.1	317-D
		472.221XC, 472.221XT,	
		472.221XT.1	321-D
SUPPLIER	Spiegel Inc., 1061 W. 35th. St., Chicago 9, Ill.		
TYPE SET	Television Receiver		
TUBES	Twenty		
POWER SUPPLY	110-120 Volts AC-60 Cycle		
TUNING RANGE	Channels 2 thru 13, Video IF 25.75MC, Sound IF 21.25MC (Intercarrier)		
		RATING 1.76 Amp. @ 117 Volts AC	

INDEX	
Alignment Instructions	6, 7 Photographs (Cont)
Disassembly Instructions	18 Trans., Inductor and Alignment Identification
Horizontal Sweep Circuit Adjustments	11 Resistance Measurements
Parts List and Descriptions	14, 15, 16 Servicing in the Field
Photographs	Schematic
Cabinet-Rear View	11 Trouble Shooting Aids
Capacitor Identification	4, 9 Tube Failure Check Chart
Chassis-Top View	3 Tube Placement Chart (Bottom View)
RF Tuner	10 Tube Placement Chart (Top View)
Resistor Identification	19, 20

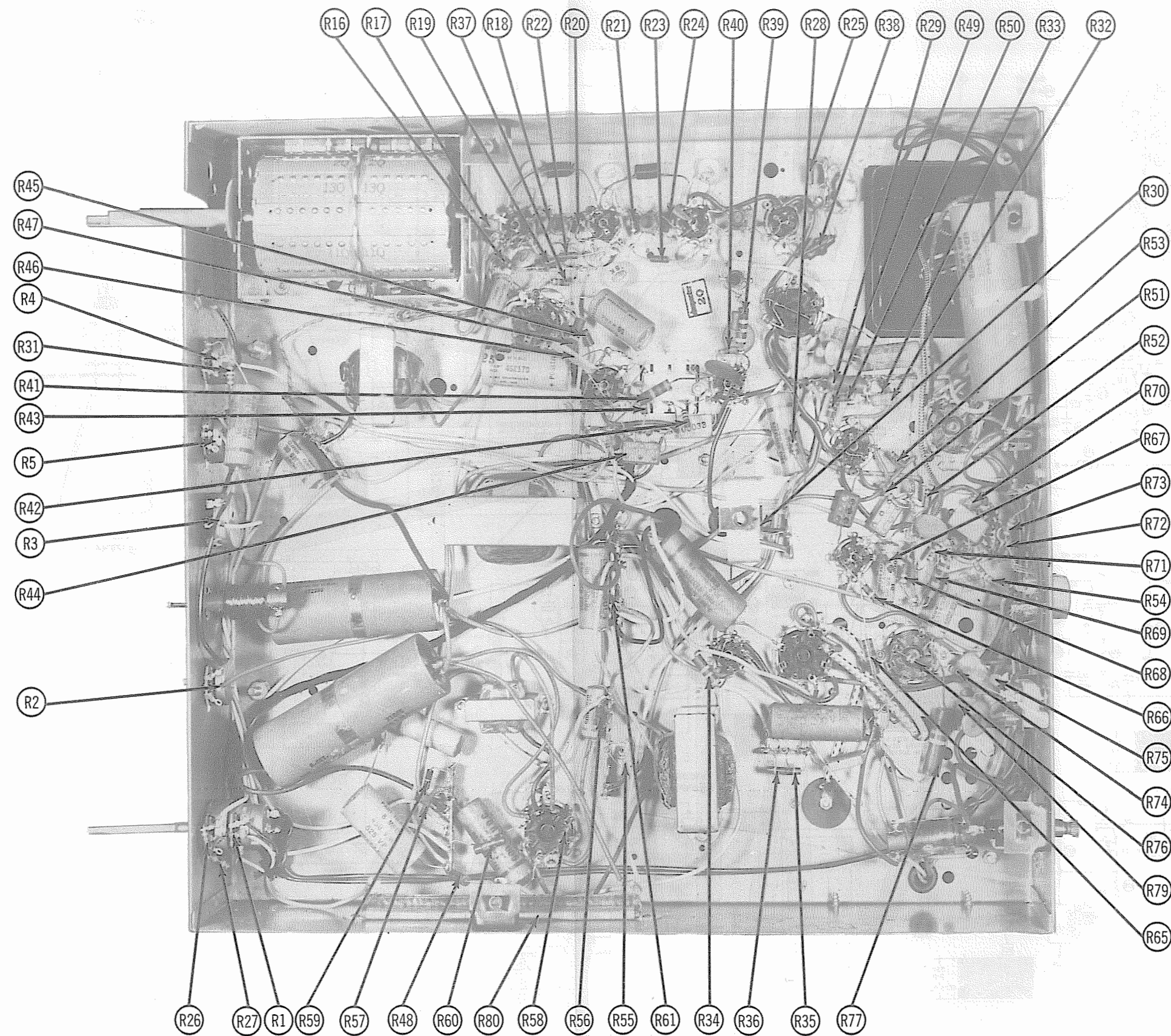
HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

"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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AIRCATTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO, XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1, XUT.2, 472.217C, C.1, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)

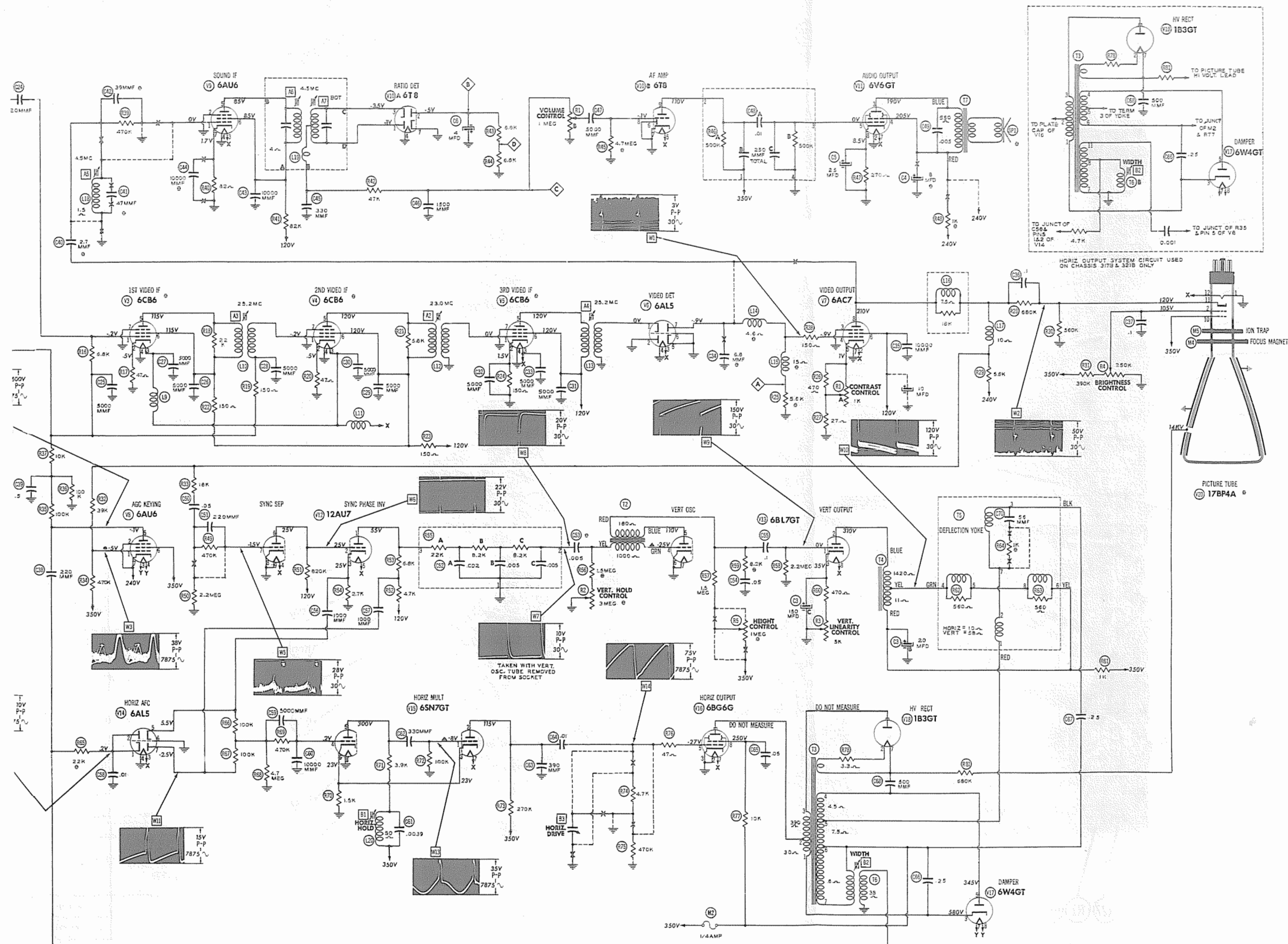




CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION

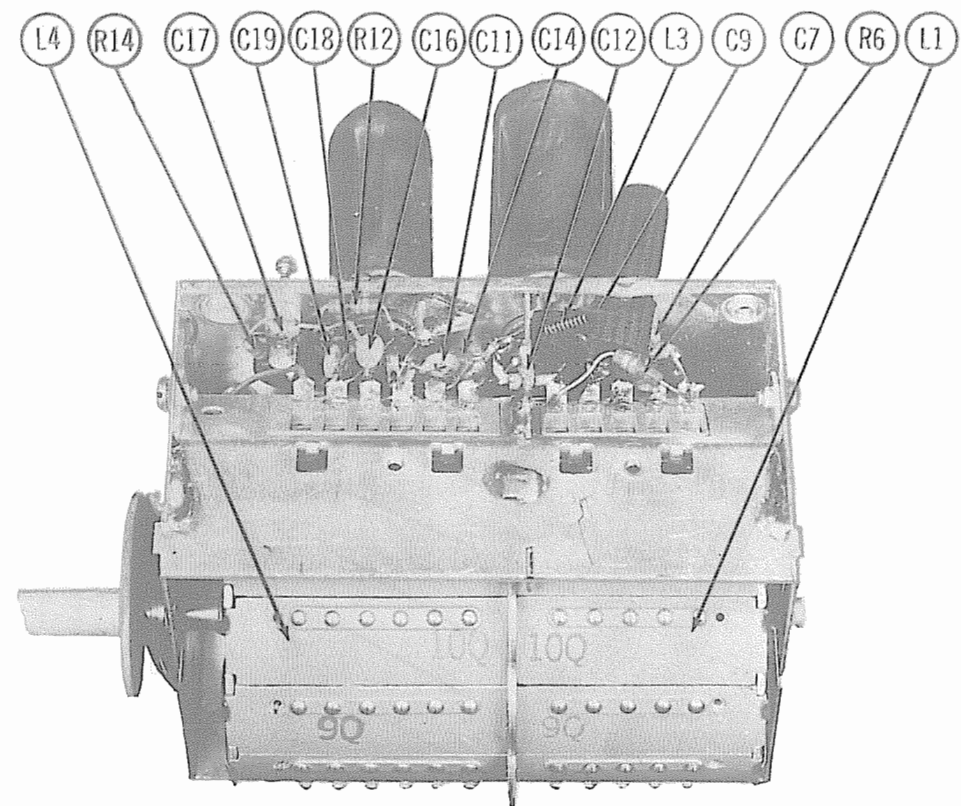




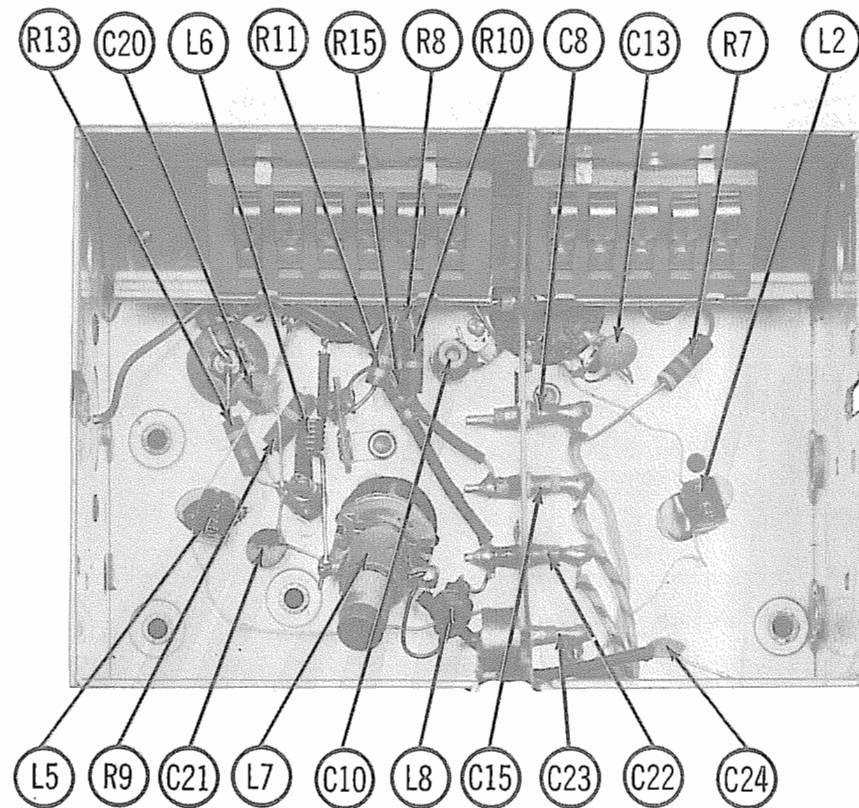


AIRCATTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO.1, XUCO.2, XUT.1, XUT.2, XUT.3, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT.1, XUT.2, 472.217C, C.1, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)

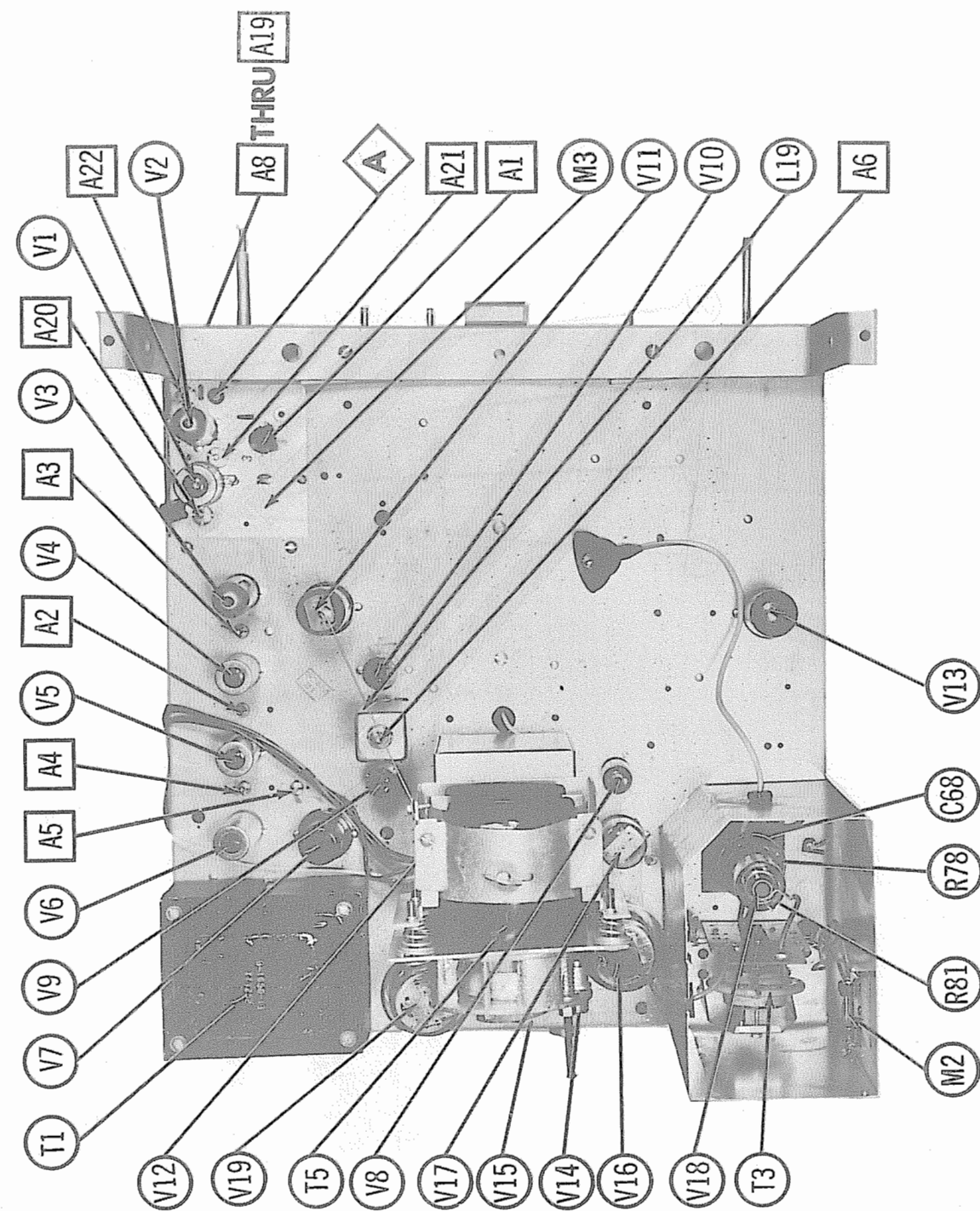
AIRCATTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO.1, XUCO.2, XUT.1, XUT.2, XUT.3, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT.1, XUT.2, 472.217C, C.1, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)



RF TUNER-RIGHT SIDE



RF TUNER-BOTTOM VIEW



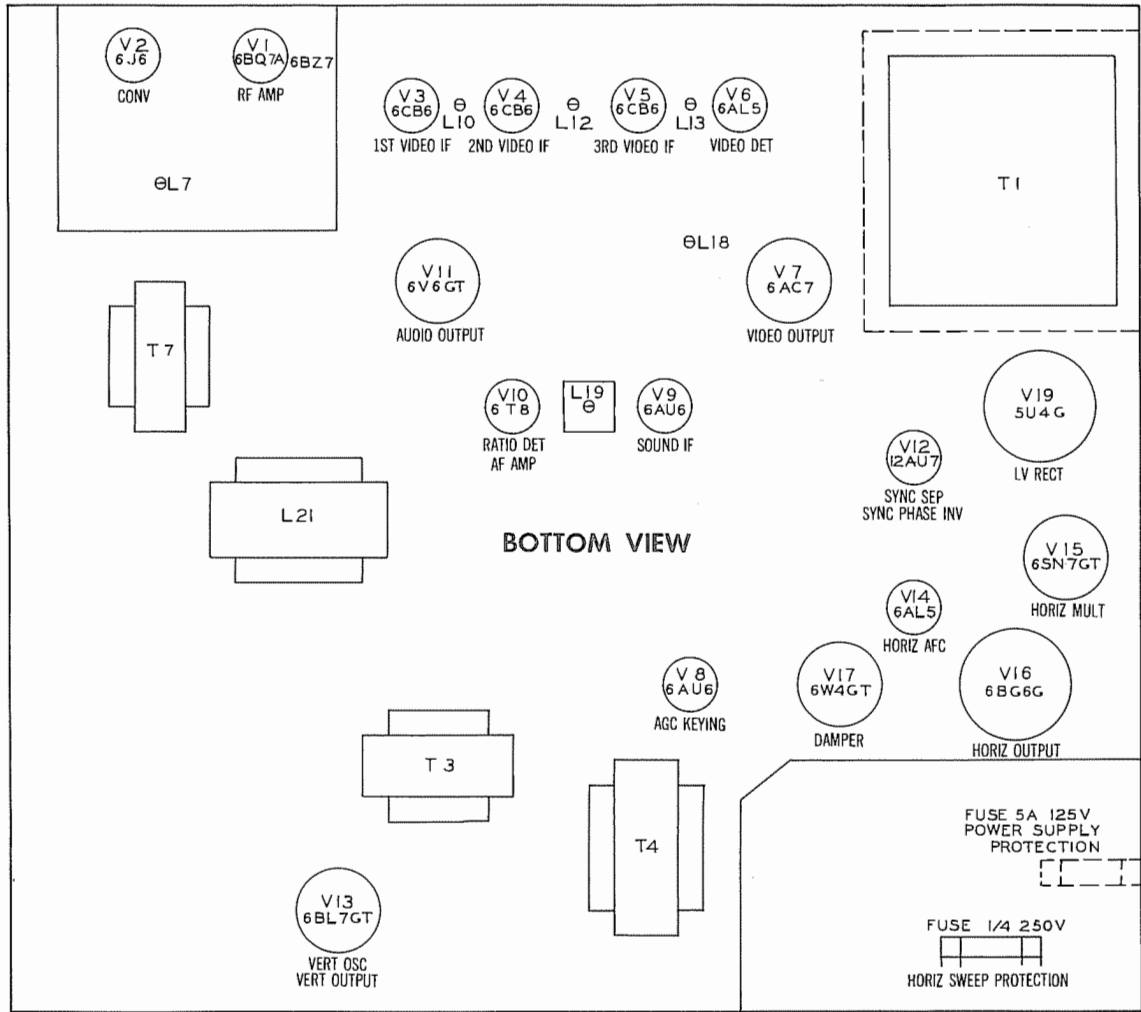
SET 223 FOLDER 2

AIRCASTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5,  
XUCO, XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2,  
XUT, XUT.1, XUT.2, 472.217C, C.1, T, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)  
MAIN DOI SSSVCHD

RESISTANCE MEASUREMENTS

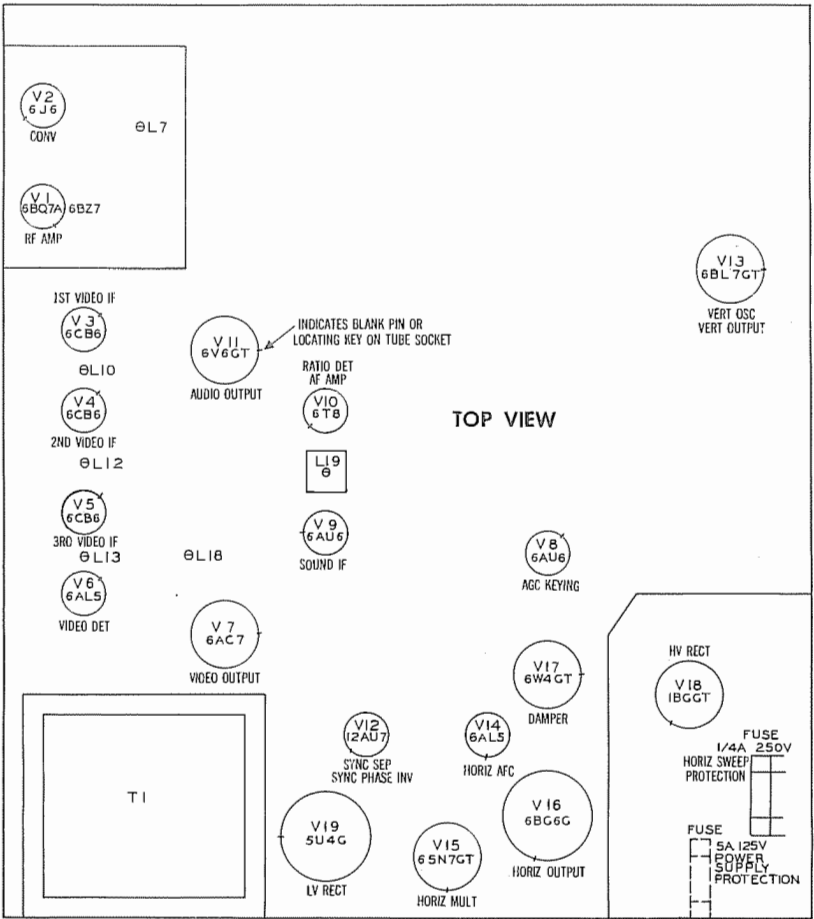
Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V 1	6BQ7A	INF	155KΩ	0Ω	.1Ω	0Ω	2.6KΩ	150KΩ	INF	0Ω
V 2	6J6	18.5KΩ	3.5KΩ	.1Ω	0Ω	230KΩ	10KΩ	0Ω		
V 3	6CB6	117KΩ	47Ω	.1Ω	0Ω	3.7KΩ	3.7KΩ	0Ω		
V 4	6CB6	110KΩ	47Ω	.1Ω	0Ω	3.6KΩ	3.6KΩ	0Ω		
V 5	6CB6	.3Ω	150Ω	.1Ω	0Ω	3.4KΩ	3.4KΩ	0Ω		
V 6	6AL5	.3Ω	0Ω	.1Ω	0Ω	0Ω	0Ω	5.6KΩ		
V 7	6AC7	0Ω	.1Ω	0Ω	5.7KΩ	120Ω	3.3KΩ	0Ω	6.7KΩ	
V 8	6AU6	40KΩ	1.1KΩ	1.1KΩ	1.1KΩ	200KΩ	55Ω	1.1KΩ		
V 9	6AU6	470KΩ	0Ω	.1Ω	0Ω	85KΩ	85KΩ	82Ω		
V 10	6T8	1.1Meg	13.6KΩ	1.1Meg	0Ω	.1Ω	0Ω	0Ω	4.7Meg	500KΩ
V 11	6V6GT	INF	0Ω	2.5KΩ	2KΩ	500KΩ	INF	.1Ω	270Ω	
V 12	12AU7	14.8KΩ	820KΩ	2.7KΩ	.1Ω	.1Ω	820KΩ	2.7Meg	0Ω	0Ω
V 13	6BL7GT	2.2Meg	2.5KΩ	1.4KΩ	1.7Meg	1.6Meg	0Ω	0Ω	.1Ω	
V 14	6AL5	22KΩ	22KΩ	.1Ω	0Ω	4.8Meg	0Ω	4.8Meg		
V 15	6SN7GT	100KΩ	270KΩ	1.5KΩ	5.2Meg	4KΩ	1.5KΩ	.1Ω	0Ω	
V 16	6BG6G	470KΩ	0Ω	0Ω	INF	475KΩ	INF	.1Ω	10KΩ	TOP CAP 30Ω
V 17	6W4GT	INF	INF	INF	INF	70Ω	65Ω	120KΩ	120KΩ	
V 18	1B3GT	PINS 1-8 HAVE INF RESISTANCE								TOP CAP 420Ω
V 19	5U4G	INF	100KΩ	INF	22Ω	INF	24Ω	INF	100KΩ	
V 20	17BP4A	0Ω	330KΩ	PIN 10 55Ω	PIN 11 560KΩ	PIN 12 .1Ω				

■ MEASURED FROM PIN 2 OF V19.  
▲ MEASURED FROM PIN 3 OF V17.



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 - V19, Fuse (M1)
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, V20 Has pic, no sound - V9, V10, V11 Overloaded picture - V8
SYNC FAILURE	No vert. sync - V12, V13 No horiz. sync - V12, V14, V15 No vert. or horiz. sync - V12
SWEEP FAILURE	No raster, has sound - V15, V16, V17, V18, V20, Fuse (M2) No vertical deflection - V13 Poor vert. linearity or foldover - V13 Poor horiz. linearity or foldover - V15, V16, V17 Narrow picture - V15, V16, V17, V18, V19 Vert. off freq. - V12, V13 Horiz. off freq. - V12, V14, V15

ARCASILE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO,  
XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1,  
XUT.2, 472.217C, C.1, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)



## 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 (behind metal plug). The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

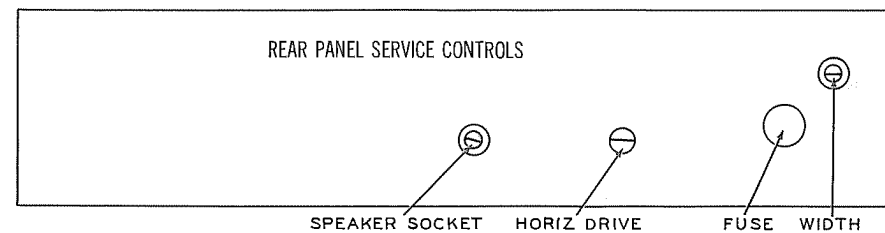
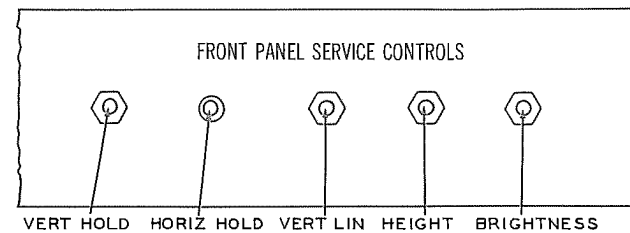
### PICTURE TUBE SAFETY GLASS CLEANING

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

### PICTURE TUBE REMOVAL

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

### SERVICE ADJUSTMENT LOCATION



### HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Adjust the horizontal hold slug (L20) until 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

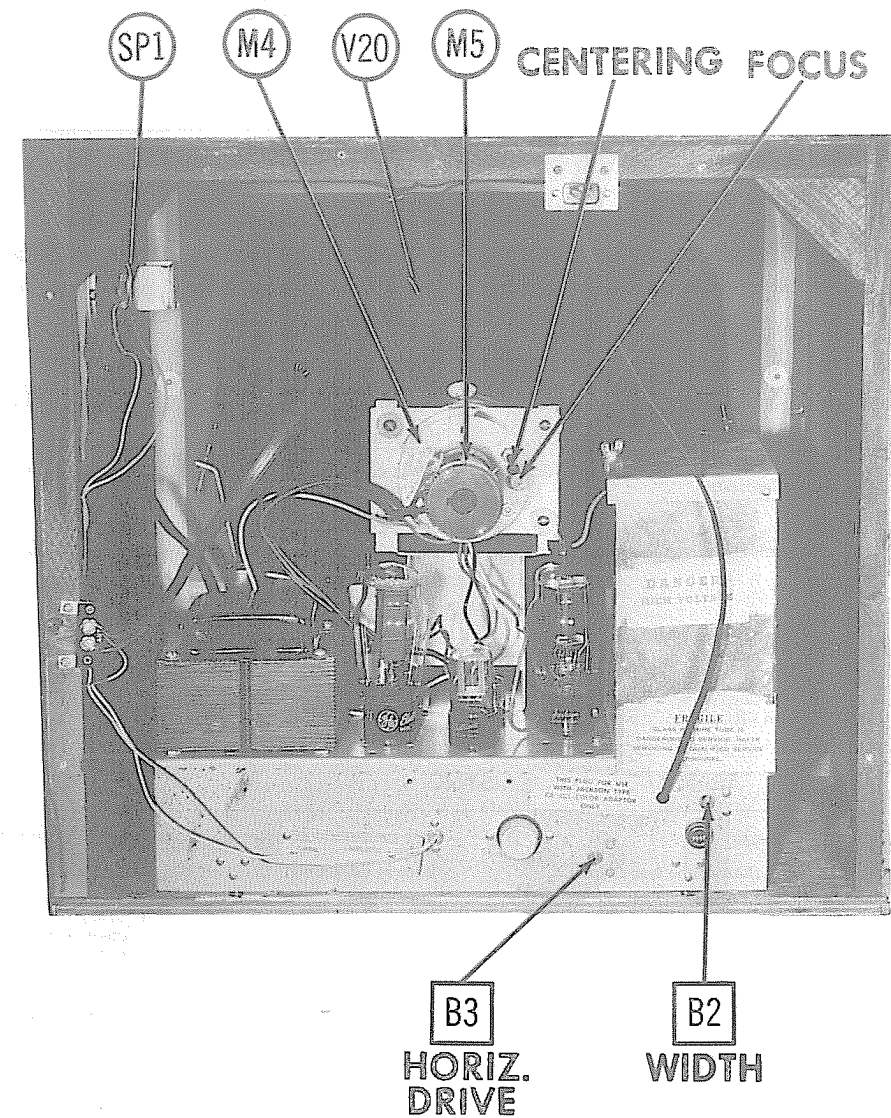
Two fuses are used. One for horizontal sweep circuit protection and one LV power supply protection. (For location, see tube placement chart).

### 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. Remove 6 wood screws. Remove rear cover.
3. Disconnect built-in antenna and speaker.
4. Remove 2 wood screws. Remove antenna bracket.
5. Remove 2 wood screws. Remove AC input plate.
6. Remove 5 chassis bolts. Remove chassis.
7. Remove 2 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.

Adjust the horizontal hold slug (B1) until the picture synchronizes horizontally.

Turn the width control slug (B2) fully clockwise.

Adjust the horizontal drive trimmer (B3) for best compromise between maximum brightness and horizontal linearity.

Adjust B2 for a picture slightly wider than necessary to fill the picture mask horizontally.

AIRCRAFT MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO,  
XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1,  
XUT.2, 472.217C, C.1, T, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)

PARTS LIST AND DESCRIPTIONS (Continued)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA				
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 Hz)	AIRCRAFTLE PART No.	STANCOR PART No.	MERIT PART No.	CHICAGO PART No.	TRIAD PART No.
L21	.230A	55Ω	2.2HY	A-1651-13 B-1651-10②	C-2325	C-2974①	TR-4200①	C-23X

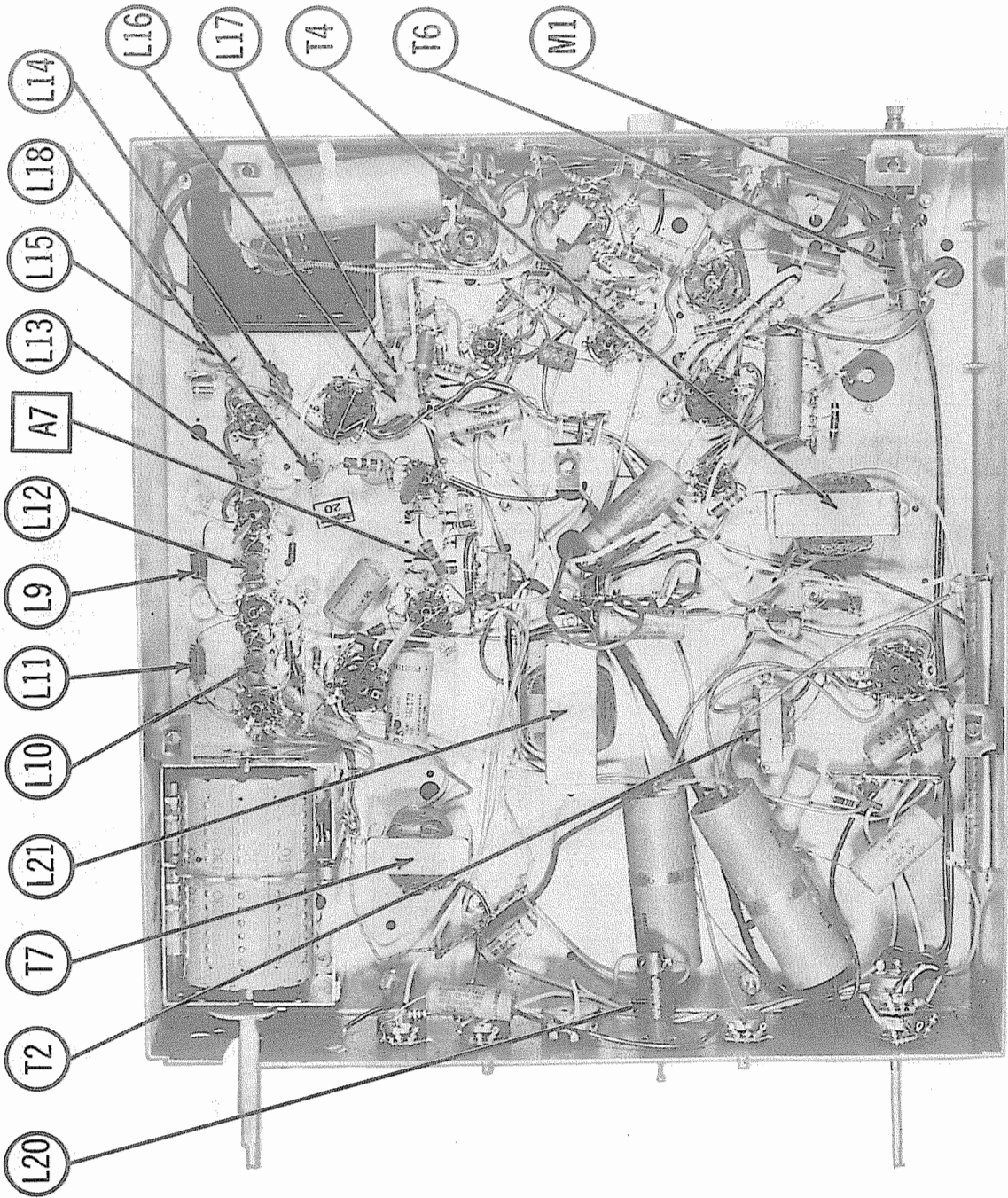
① Drill one new mounting hole.  
② Alternate filter choke.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AIRCRAFTLE PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	5A 250V	A-3751-30		312005 (5A-3AG)	342001	MTH5	HKP
M2	3AG	1/4A 250V	A-3750-30		312.250 (1/4A-3AG)	357001	AGC1/4	4405

MISCELLANEOUS

ITEM No.	PART NAME	AIRCRAFTLE PART No.	NOTES
M3	RF Tuner	A-4112-33	Cascade, Standard Coil
M4	Focus Magnet	B-4101-33	Includes Centering Assembly
M5	Ion Trap	A-4102-33	
B4	Trimmer Cap	CVM501ST	
	Knob	A-1054-4	Horiz. Drive 50-500MMF
	Knob	A-1055-4	Channel Selector-all standard models
	Knob	A-1056-4	Fine Tuning-all standard models
	Knob	A-1057-4	Off-On Volume-all standard models
	Safety Glass	B-4623-25	Contrast-all standard models
	Safety Glass	B-4624-25	17" standard models
	Mask	B-4870-1	21" standard models
	Mask	B-4872-1	17" standard models
	Knob	A-1050-4	21" standard models
	Knob	A-1051-4	Channel Selector-all deluxe models
	Knob	A-1052-4	Fine Tuning-all deluxe models
	Knob	A-1053-4	Off-On Volume-all deluxe models
	Safety Glass	B-4611-25	Contrast-all deluxe models
	Safety Glass	B-4612-25	17" deluxe models
	Mask	B-4359-35	21" deluxe models
	Mask	B-4361-35	17" deluxe models
	Back Cover	C-1702-19	21" deluxe models
	Back Cover	C-1705-19	All 17" Models
			All 21" Models



AIRCRAFTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO, XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1, XUT.2, 472.217C, C.1, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)

NONIFICATION INEWNGIT AND ALIGNMENT INDUCTION TRANSFORMER BOTTOM VIEW



## TUBES (SYLVANIA, GENERAL ELECTRIC or Equivalent)

ITEM No.	USE	REPLACEMENT DATA		RTMA BASE TYPE	NOTES
		AIRCATTLE PART No.	STANDARD REPLACEMENT		
V1A	RF Amplifier	6BQ7A	6BQ7A	9A7	*Not directly interchangeable with 6CB6
B	RF Amplifier	6BZ7	6BZ7	9A7	
V2	Converter	6J6	6J6	7B7	
V3A	1st. Video IF Amp.	6CB6	6CB6	7CM	
B	1st. Video IF Amp.*	6AG5	6AG5	7BD	
V4A	2nd. Video IF Amp.	6CB6	6CB6	7CM	
B	2nd. Video IF Amp.*	6AG5	6AG5	7BD	
V5A	3rd. Video IF Amp.	6CB6	6CB6	7CM	
B	3rd. Video IF Amp.*	6AG5	6AG5	7BD	
V6	Video Detector	6AL5	6AL5	6BT	
V7	Video Output	6AC7	6AC7	8N	
V8	AGC Keying	6AU6	6AU6	7BK	
V9	Sound IF Amp.	6AU6	6AU6	7BK	
V10	Ratio Detector - AF Amplifier	6T8	6T8	9E	
V11	Audio Output	6V6GT	6V6GT	7S	
V12	Sync Separator-Sync Clipper	12AU7	12AU7	9A	
V13	Vert. Oscillator-Vert. Output	6BL7GT	6BL7GT	8BD	
V14	Horiz. AFC	6AL5	6AL5	6BT	
V15	Horiz. Mult.	6SN7GT	6SN7GT	8BD	
V16	Horiz. Output	6BG6G	6BG6G	5BT	
V17	Damper	6W4GT	6W4GT	4CG	
V18	HV Rectifier	1B3GT	1B3GT	3Q	
V19	LV Rectifier	5U4G	5U4G	5T	

## CATHODE-RAY TUBE

ITEM No.	REPLACEMENT DATA			RTMA BASE TYPE	NOTES
	AIRCATTLE PART No.	SYLVANIA PART No.	GENERAL ELECTRIC PART No.		
V20A	17BP4A	17BP4A 17BP4① 17HP4① 17RP4①	17BP4A 17BP4B	12D 12D 12C 12C 12D	① Circuit changes necessary.
B	21EP4A	21EP4A	21EP4A		

## 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	AIRCATTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C1A	40	450	CED4445	PRS450/40-		BO45		2N537	TVA-2740	Red
B	40	450		40						
C2	00	450	CES8045	PRS450/80		BR8045A		ST045	TVA-1716	
C3A	10	450	CET21C45	PRS450/20-		CU15		4N723	TVL-3817	Blue Red Green Note 1
B	20	450		20						
C	150	50								
C4	8	250	PRS50/100	PRS50/100		BR845A		TC71	TVA-1704	
C5	25	25	CES2003	PRS25/25		BR252A		TC26	TVA-1205	
C6	4	50	CES0405	PRS150/4		BR415		TC30	TVA-1303	
C7	3-9		CVC050908T		829-10					
C8	000		CBZ05802Y	EF-001	MFT-1000					
C9	3.6		CDC05039C							
C10	.5-3		CVC0308T							
C11	47		CDP05470K	BPD-000047	D6-470		GP1K-470	CT505A	5GA-Q47	
C12	800		CBZ05802Y	EF-001	MFT-1000			UC-5447	503C-D1	
C13	1000		CDZ05102Y	BPD-001	DD-102	TM5D1	801-001	DC-521	5HK-D5	
C14	1.5		CDC05050C	SLI-5NP0	TCZ-1.5		NP0K-IR5	2T-5515	5TCCB-V15	
C15	800		CBZ05802Y	EF-001	MFT-1000			503C-D1	5GA-Q47	
C16	47		CDP05470K	BPD-000047	D6-470		GP1K-470	UC-5447	503C-D1	
C17	.5-3		CVC0308T					CT505A	5GA-Q47	
C18	10		CDC05100K	SLI0NP0	TCZ-10		NP0K-100	2T-541	5TCC-V1	
C19	5		CDU05050D	SLI5N750	TCN-5		N750K-050	DC-521	5TCCB-V68	Note 1
C20	1000		CDZ05102Y	BPD-001	DD-102	TM5D1	801-001	DC-521	503C-D1	
C21	6.8		CDC05080C	SLI6-8NP0	TCZ-6.8		NP0K-GR8	2T-5568	5TCCB-V68	
C22	800		CBZ05802Y	EF-001	MFT-1000					
C23	800		CBZ05802Y	EF-001	MFT-1000					
C24	120		CCU05121K	BPD-00012	D6-121	TM5T12	GP2K-121	UC-5312	5GA-T12	
C25	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C26	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C27	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C28	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C29	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C30	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C31	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C32	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C33	5000		CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C34	6.8		CDZ05103Y	SLI6-8NP0	TCZ-6.8		NP0K-GR8	2T-5568	5TCCB-V68	Note 1
C35	10000		BPD-01	DD-1032	TM5S1		811-01	DC-511	5HK-S1	
C36	.1	400	CPZ04104M	P488-1	DF-104	PTE4P1	PT401	4TM-P1	4TM-P1	
C37	.1	400	CPZ04104M	P488-1	DF-104	PTE4P1	PT401	4TM-P1	4TM-P1	
C38	220	500								
C39	5	200	CPZ02504M	P288-5	D6-221	5W5T25	GP2K-221	PT405	1FM-325	Note 2
C40	2.7								2TM-P5	
C41	47									
C42	30									Note 5
C43	10000		CDZ05103Y	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C44	10000		CDZ05103Y	BPD-01	DD-1032	TM5S1	811-01	DC-511	5HK-S1	
C45	330	500	CMA05331M							
C46	1500	500	CMA05152M							
C47	5000	500	CDZ05502Y	BPD-005	MD-502	TM5D5	811-005	DC-525	5HK-D5	
C48A	.01									
B	250		†A-1376-6F	†PA-112-3	†PC-80		†1404-01		†102C1	
C										
C49	.005	600	CWZ06502M	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	
C50	.05	400	CPZ04503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5	
C51	220	500	CMA03221M	1468-00025	5W5T25	GP2K-221			1FM-325	
C52A	.002									
B	.005		†A-1375-6F	†PA-110	†PC-121	PTE6D2		PT622		
C										

PARTS LIST AND DESCRIPTIONS  
CAPACITORS (cont)

RATING			REPLACEMENT DATA								NOTES
			AIRCATTLE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.		
C53	.005	600	CPZ06502M	P688-005	D6-502	PTE6D5	GP2-333-502	PT625	6TM-D5	Note 7	
C54	.05	600	CPZ06503M	P688-05	DF-503	PTE6S5		PT615	6TM-S5		
C55	1	600	CPZ06104M	P688-1	DF-104	PTE0P1		PT601	6TM-P1		
C56	1000	500	CMA05102K	1468-001	D6-102	1WSD1	GP2L-102		1FM-21		
C57	1000	500	CMA05102K	1468-001	D6-102	1WSD1	GP2L-102		1FM-21		
C58	.01	600	CPZ06103M	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1		
C59	5000	600	CDZ05502Y	BPD-005	MD-502	TMSD5	811-005	DC-525	5HK-D5		
C60	10000	600	CDZ05103Y	BPD-01	DD-1032	TMSD1	811-01	DC-511	5HK-S1		
C61	.0039	600	CMB05392K	1464-004		1DR5D4			MS-24		
C62	330	500	CMA05331K	1469-00035							
C63	390	500	CMA05301K	1469-0004							
C64	.01	600	CPZ06103M	P688-01	D6-103	PTE6S1	GP2-333-103	PT611	6TM-S1		
C65	.05	400	CPZ06503M	P488-05	DF-503	PTE4S5		PT415	4TM-S5		
C66	.25	600	CPZ06254M	684-25		PTE6P25		PT6025	6TM-P25		
C67	.25	600	CPZ06254M	P288-25		PT2P25		PT4025	2TM-P25		
C68	500	20000	CDZ05K501	HV20C	TV3-502	MM-C20T5	413-501	HV20035A	200K-T5		
C69	10000		CDZ05103Y	BPD-01	DD-1032	TMSD1	811-01	DC-511	5HK-S1		
C70	.56	2000	CMA20560K								

Note 1. Not used in all Models.  
Note 2. Some Models use .001MFD in this application (part #CPZ06102M).  
Note 3. Some Models use 1.0MFD in this application.  
Note 4. Some Models use 6.0MMF in this application (part #CCC05068K).  
Note 5. Not used in some Models, others use 20MMF in this application.  
Note 6. Some Models use 20MMF in this application (part #CCC05200K).  
Note 7. Some Models use .01MFD in this application.  
† Items C48A, C40B, C48C, R48A, R48B are combined in one unit.  
when replacing items separately C48B and C48C should total 250MMF.  
‡ Items C52A, C52B, C52C, R50A, R50B, R55C are combined in one unit.

## CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRCATTLE PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	MALLORY PART No.	
RIA-B	1000Ω		RVM-1005	QJ-258*	RTV-386		UF13L	Contrast - Panel
C	1Meg		Not Req.	Not Req.	Not Req.		UR16A	Volume-Rear
R2A	3Meg		RVC-102N	QJ1-140	AG-05-S	AB-84	U-59	Attach to R1B
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Vert. Hold-Note 1
R3A	5000Ω	2	RVC-103N	QJ1-130	A43-5000	VK-135	R5000L	Attach to R2A
B	Shaft		Not Req.	Not Req.	FKS-1/4	Not Req.	Not Req.	Vert. Linearity
R4A	250KΩ		RVC-100N	QJ1-137	AG-55-S	AB-50	SU-46	Attach to R3A
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Brightness
R5A	1Meg		RVC-101N	QJ1-137	AG-61-S	AB-69	SU-54	Attach to R4A
B	Shaft		Not Req.	Not Req.	FKS-1/4	AK-1	Not Req.	Height-Note 2

\*CONCENTRIKIT EQUIVALENT-KIT K-2 BASE ELEMENTS & SHAFT QJ1-108-P1-204 (PANEL)  
QJ1-137 & R2-216 (REAR) & SWITCH 76-1

Note 1. Some models may use a 1Meg control in this application.  
Note 2. Some models may use a 3Meg control in this application.

## RESISTORS

ITEM No.	RATING		REPLACEMENT DATA		NOTES	
	OHMS	WATT	AIRCATTLE PART No.	IRC PART No.		
R6	15KΩ			BTS-15K		
R7	47KΩ		RCC472M	BTS-100K		
R8	100KΩ			BTS-100K		
R9	160KΩ 5%			BTS-100K		
R10	1500Ω		RCC153M	BTS-1500		
R11	100KΩ 5%			BTS-10K		
R12	10KΩ			BTS-10K		
R13	220KΩ			BTS-10K		
R14	10KΩ			BTS-10K		
R15	15KΩ			BTS-10K		
R16	6800Ω		RCC682K	BTS-6800	Note 3	
R17	47Ω		RCC470K	BTS-47		
R18	22KΩ		RCC223K	BTS-150		
R19	150Ω		RCC151M	BTS-150		
R20	47Ω		RCC470K	BTS-47		
R21	5600Ω		RCC562K	BTS-5600		
R22	150Ω		RCC151M	BTS-150		
R23	150Ω		RCC151M	BTS-150		
R24	150Ω		RCC151M	BTS-150		
R25	5600Ω		RCC562K	BTS-5600		
R26	470Ω		RCC471M	BTS-47	Note 4	
R27	27Ω		RCC270M	BTS-27		
R28	680KΩ		RCC684M	BTA-5600		Note 5
R29	5600Ω		RCC564M	BTS-600K		
R30	560KΩ		RCC594M	BTS-39K		
R31	390KΩ			BTS-39K		
R32	39KΩ			BTS-39K		
R33	18KΩ		RCC183M	BTS-18K		
R34	470KΩ		RCC474M	BTA-470K		
R35	100KΩ		RCC104M	BTS-100K		
R36	100KΩ		RCC104M	BTS-100K	Note 4	
R37	10KΩ		RCC103M	BTS-10K		
R38	150Ω		RCC151M	BTS-150		
R39	470KΩ			BTA-470K		
R40	82Ω		RCC820M	BTS-82		
R41	82KΩ			BTS-82K		
R42	47KΩ		RCC473M	BTS-47K		
R43	6800Ω		RCC682K	BTS-6600		
R44	6800Ω		RCC682K	BTS-6600		
R45	4.7Meg		RCC475M	BTS-4.7Meg		Note 4

ITEM No.	RATING		REPLACEMENT DATA		NOTES	
	OHMS	WATT	AIRCATTLE PART No.	IRC PART No.		
R46A	500KΩ	1	†A-1376-6F	BTS-500K	Note 1	
R46B	500KΩ	1		BTS-500K		
R47	270Ω	1	RCF271M	BTA-270		
R48	1000Ω	1		BTA-1000		
R49	470KΩ	1	RCC474M	BTS-470K		
R50	2.2Meg	1	RCC225M	BTS-2.2Meg		
R51	820KΩ	1	RCC824M	BTS-820K		
R52	4700Ω	1	RCC477K	BTS-4700		
R53	6800Ω	1	RCC682K	BTS-6800		
R54	2700Ω	1	RCC272K	BTS-2700		
R55A	22KΩ	1		BTS-22K	Note 2	
R55B	8200Ω	1	♦A-1375-6F	BTS-8200		
R56	8200Ω	1		BTS-8200		
R56	1.5Meg	1	RCC155M	BTS-1.5Meg		
R57	1.5Meg	1	RCC155M	BTS-1.5Meg		
R58	2.2Meg	1	RCC225M	BTS-2.2Meg		
R59	8200Ω	1	RCC822K	BTS-8200		
R60	470Ω	1	RCC471M	BTS-470		
R61	1000Ω	1	RCF102M	BTA-1000		
R62	560Ω	1	RCC561K	BTS-560		
R63	560Ω	1	RCC561K	BTS-560	Note 4	
R64	1000Ω	1		BTS-1000		
R65	22KΩ	1		BTA-22K		Note 5
R66	100KΩ	1	RCC104K	BTS-100K		
R67	100KΩ	1	RCC104K	BTS-100K		
R68	4.7Meg	1	RCC475M	BTS-4.7Meg		
R69	470KΩ	1	RCC474M	BTA-470K		
R70	1500Ω	1	RCC152K	BTS-1500		
R71	3900Ω	1	RCC392K	BTS-3900		
R72	100KΩ	1	RCC104K	BTS-100K		
R73	270KΩ	1	RCC274K	BTS-270K	Note 4	
R74	4700Ω	1		BTS-4700		
R75	470KΩ	1		BTA-470K		
R76	47Ω	2	RCG103M	BT 8-47		
R77	10KΩ	2	RCG103M	BTB-10K		
R78	3.3KΩ	2	RCC093K	BTS-33K		
R79	220KΩ	2	RCC224M	BTS-220K		
R80A	2300Ω	9	RWT332K			
R80B	1000Ω	12	RWT332K			
R81	6800Ω	1	RCC684M	BTS-680K		

TROUBLE SHOOTING AIDS

SWEEP

HORIZONTAL	VERTICAL								
<p><b>LOSS OF SWEEP</b></p> <p>See "Loss of High Voltage".</p> <p><b>INSUFFICIENT SWEEP</b></p> <p>Check by substitution V15, V16, V17, and V19. Check adjustments B2 and B3. Check waveform W14.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check C65, C66, C67, R77, T3, T5A and other associated circuit components.</td><td>Check C61, C62, C63, C64, R71, R72, R73, R74, L20 and other associated circuit components.</td></tr> </table> <p><b>DRIVE LINES</b></p> <p>Check adjustment of B3. Check by substitution V15, V16, and V17. Check T3, T5A and other associated circuit components.</p> <p><b>COMPRESSED LEFT SIDE</b></p> <p>Check by substitution V17, V16 and V15. Check T3, T5A and damper filter components.</p> <p><b>FOLDS</b></p> <p>Check by substitution V15, V16, and V17. Check associated circuit components especially T3 and T5A.</p> <p><b>XMAS TREE EFFECT</b></p> <p>Substitute V15. Check C61, C62, C63, and L20.</p>	If Satisfactory	If Unsatisfactory	Check C65, C66, C67, R77, T3, T5A and other associated circuit components.	Check C61, C62, C63, C64, R71, R72, R73, R74, L20 and other associated circuit components.	<p><b>LOSS OF SWEEP</b></p> <p>Substitute V13. Check waveform W9.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check T4, T5B, R61, R60, R3 and other associated components.</td><td>Check T2, C54, C55, R57, R56, R5 and other associated circuit components.</td></tr> </table> <p><b>INSUFFICIENT SWEEP</b></p> <p>Check adjustment of height and vertical linearity controls. Check by substitution V13. Follow procedure outlined under "Loss of Sweep".</p> <p><b>COMPRESSED AT BOTTOM</b></p> <p>Substitute V13. Check C54, C55, R58, R59 and other associated circuit components.</p> <p><b>COMPRESSED AT TOP</b></p> <p>Substitute V13. Check R60, C3C, T4, T5B and other associated components.</p> <p><b>FOLDS</b></p> <p>Substitute V13. Check associated circuit components.</p>	If Satisfactory	If Unsatisfactory	Check T4, T5B, R61, R60, R3 and other associated components.	Check T2, C54, C55, R57, R56, R5 and other associated circuit components.
If Satisfactory	If Unsatisfactory								
Check C65, C66, C67, R77, T3, T5A and other associated circuit components.	Check C61, C62, C63, C64, R71, R72, R73, R74, L20 and other associated circuit components.								
If Satisfactory	If Unsatisfactory								
Check T4, T5B, R61, R60, R3 and other associated components.	Check T2, C54, C55, R57, R56, R5 and other associated circuit components.								

SYNC

<p><b>LOSS OF HORIZONTAL AND VERTICAL SYNC</b></p> <p>Substitute V12. Check signal at W5 for overload and/or sync clipping.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check components associated with V12.</td><td>Substitute V6, V7, and V8. Check components associated with these stages.</td></tr> </table> <p><b>LOSS OF HORIZONTAL SYNC-VERTICAL SYNC SATISFACTORY</b></p> <p>Substitute V14 and V15. Check waveform W11.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check components associated with V13 especially C59, C60, C61, C62, L20, R68, R69, R70, R71 and R72.</td><td>Check components that are associated with V12 and V14 especially R66, R67, C56 and C57.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check components associated with V12.	Substitute V6, V7, and V8. Check components associated with these stages.	If Satisfactory	If Unsatisfactory	Check components associated with V13 especially C59, C60, C61, C62, L20, R68, R69, R70, R71 and R72.	Check components that are associated with V12 and V14 especially R66, R67, C56 and C57.	<p><b>LOSS OF VERTICAL SYNC-HORIZONTAL SYNC SATISFACTORY</b></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 T2 and other components associated with V13.</td><td>Check vertical integrator network.</td></tr> </table> <p><b>HORIZONTAL BENDING OR S-ING</b></p> <p>Substitute V15 and V16. Check horizontal AFC filter network for component failure or change of value.</p> <p><b>VERTICAL JITTER</b></p> <p>Substitute V12 and V13. Check associated circuit components especially C53, R56 and R2.</p>	If Satisfactory	If Unsatisfactory	Check T2 and other components associated with V13.	Check vertical integrator network.
If Satisfactory	If Unsatisfactory												
Check components associated with V12.	Substitute V6, V7, and V8. Check components associated with these stages.												
If Satisfactory	If Unsatisfactory												
Check components associated with V13 especially C59, C60, C61, C62, L20, R68, R69, R70, R71 and R72.	Check components that are associated with V12 and V14 especially R66, R67, C56 and C57.												
If Satisfactory	If Unsatisfactory												
Check T2 and other components associated with V13.	Check vertical integrator network.												

VIDEO

<p><b>LOSS OF VIDEO</b></p> <p>Substitute V7. Check picture tube and components associated with V7 and picture tube.</p> <p><b>SOUND BARS (4.5MC BEAT)</b></p> <p>Check adjustment of local oscillator in RF tuner. Check sound take-off adjustment, A5. Check video IF alignment.</p> <p><b>NEGATIVE PIX</b></p> <p>Check by substitution V7, V8, and V6. Check AGC network for proper operation. Check picture tube and other associated components. Check video IF tubes and alignment.</p>	<p><b>POOR CONTRAST</b></p> <p>Check by substitution V6 and V7. Check components associated with these stages for change of value or failure. Check picture tube and associated circuit components. Check video IF tubes and alignment.</p> <p><b>SMEAR</b></p> <p>Substitute V6 and V7. Check L16 and L17. Check C35 and C36. Check R26, R27, R28 and R29 for change of value. Check picture tube and other associated circuit components.</p> <p><b>WIDE BLACK BAR ACROSS PIX</b></p> <p>Check V1, V2, V3, V4, V5, V6 and V7 for heater to cathode leakage.</p>
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TROUBLE SHOOTING AIDS (cont)

AUDIO

<p><b>WEAK OR NO SOUND</b></p> <p>Check by substitution V9, V10, and V11. Check stages of V10B and V11 using audio signal generator.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check ratio detector and audio IF alignment and circuit components.</td><td>Check components associated with V10B and V11.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check ratio detector and audio IF alignment and circuit components.	Check components associated with V10B and V11.	<p><b>BUZZ</b></p> <p>Check adjustment of local oscillator. Adjust A7 for minimum buzz. If buzz is still objectionable substitute V10 and readjust A6 and A7. Check components associated with V10A.</p> <p><b>DISTORTED OR GARBLED</b></p> <p>Check by substitution V9, V10, and V11. Check stages of V10B and V11 using an audio signal generator and scope. Apply audio signal across R45. Connect scope across primary of T7.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check ratio detector and audio IF alignment and components.</td><td>Check components that are associated with V10B and V11.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check ratio detector and audio IF alignment and components.	Check components that are associated with V10B and V11.
If Satisfactory	If Unsatisfactory								
Check ratio detector and audio IF alignment and circuit components.	Check components associated with V10B and V11.								
If Satisfactory	If Unsatisfactory								
Check ratio detector and audio IF alignment and components.	Check components that are associated with V10B and V11.								

POWER

<p><b>DEAD SET</b></p> <p>Check fuse M1, AC interlock assembly, switch on volume control and T1.</p>	<p><b>SMALL AND/OR DIM PIX</b></p> <p>Substitute V19. Check B+ filter and decoupling network components.</p>
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HIGH VOLTAGE

<p><b>LOSS OF HIGH VOLTAGE</b></p> <p>Check fuse M2. Check by substitution V15, V16, V17 and V18. Check waveform W14.</p> <table> <tr> <td>If Satisfactory</td><td>If Unsatisfactory</td></tr> <tr> <td>Check R78, R81, C68, T3, T5A, C65, R77 and other components.</td><td>Check C62, C63, C64, R70, R71, R72, R73, R74, R75 and other associated components.</td></tr> </table>	If Satisfactory	If Unsatisfactory	Check R78, R81, C68, T3, T5A, C65, R77 and other components.	Check C62, C63, C64, R70, R71, R72, R73, R74, R75 and other associated components.	<p><b>INSUFFICIENT HIGH VOLTAGE</b></p> <p>Check by substitution V15, V16, V17, V18 and V19. Check picture tube. Proceed as outlined under "Loss of High Voltage".</p> <p><b>BLOOMING</b></p> <p>Check by substitution V18, V19, V17, V16 and V15. Check R78, R81, C68, T3, T5A, C65, R77, picture tube and other associated components.</p>
If Satisfactory	If Unsatisfactory				
Check R78, R81, C68, T3, T5A, C65, R77 and other components.	Check C62, C63, C64, R70, R71, R72, R73, R74, R75 and other associated components.				

GENERAL

<p><b>RASTER SOUND NO PIX</b></p> <p>See "Loss of Video".</p> <p><b>RASTER NO SOUND NO PIX</b></p> <p>Check by substitution V1, V2, V3, V4, V5, V6 and V7. Check associated circuit components.</p>	<p><b>NO RASTER NO SOUND</b></p> <p>See "Dead Set".</p> <p><b>INTERMITTENT STREAKS</b></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 receiving equipment.

AIRCRAFT MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO, XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1, XUT.2, 472.217C, C1, T, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)


ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage lead should be securely taped and kept away from the chassis.


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 1.5 volt battery to the ungrounded side of C29. Connect the positive lead to chassis.




DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1. Direct	High side to an ungrounded tube shield floating over dummy converter tube. Low side to chassis.	23.0MC (Unmod)	Any	DC probe to point  . Common to chassis.	A1, A2	Adjust for maximum deflection.
2. "	"	25.2MC	"	"	A3, A4	"

OVERALL VIDEO IF RESPONSE CHECK

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
3. 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 25.75MC	Any	Vert. Amp. to point  . Low side to chassis.		Check for response curve similar to Fig. 1. If necessary retouch A1 thru A4 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
4. .001MFD	High side to pin 4 (grid) of 6AC7 (V7). Low side to chassis.	4.5MC Unmod	Any	DC probe to point  . Common to chassis.	A5, A6	Adjust for maximum deflection.
5. "	"	"	"	DC probe to point  . Common to point  .	A7	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. Set the contrast control to maximum.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4. .001MFD	High side to Pin 4 (grid) of 6AC7 (V7). Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any	Vert. amp to point  . Low side to chassis.	A8, A6	Disconnect stabilizer capacitor C6. Adjust for curve of maximum amplitude and symmetry as in Fig. 2.
5. "	"	"	"	"	Vert. amp to point  . Low side to chassis.	A7	Reconnect stabilizer capacitor C6. Adjust so that 4.5MC occurs at center of crossover lines as in Fig. 3. Slightly retouch A6 for maximum amplitude and straightness of crossover lines.

OSCILLATOR ALIGNMENT

Remove the dummy converter tube and replace the original 6J6 in its socket.  
The channel 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 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 control to the mid-position of its range.  
Leave 1.5 bias battery connected as under Video IF Alignment.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6. Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC	13	Vert. Amp. to point  . Low side to chassis.	A6	Adjust to place video marker at 50% on response curve as in Fig. 4. Sound marker should be at 5% or less.
		207MC (10MC Swp)	205.25MC	12		A9	
		201MC (10MC Swp)	199.25MC	11		A10	
		195MC (10MC Swp)	193.25MC	10		A11	
		189MC (10MC Swp)	187.25MC	9		A12	
		183MC (10MC Swp)	181.25MC	8		A13	
		177MC (10MC Swp)	175.25MC	7		A14	
		85MC (10MC Swp)	83.25MC	6		A15	
		79MC (10MC Swp)	77.25MC	5		A16	
		69MC (10MC Swp)	67.25MC	4		A17	
		63MC (10MC Swp)	61.25MC	3		A18	
		57MC (10MC Swp)	55.25MC	2		A19	
			59.75MC				

ALIGNMENT INSTRUCTIONS (cont)

RF AND MIXER ALIGNMENT							
Remove the 1.5 volt bias battery. 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
7. 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 E. Low side to chassis.	A20, A21 A22	Adjust for response curve similar to Fig. 5, with markers as shown.
8. "	"	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 (10 MC 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 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 compromise adjustments of A20, A21, and A22 with channel switch set to that channel, then check all other channels to see that they have not been seriously affected.

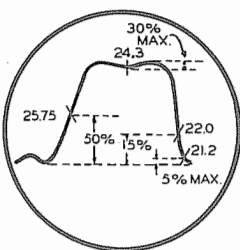


FIG. 1

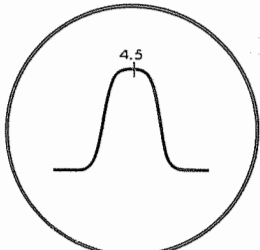


FIG. 2

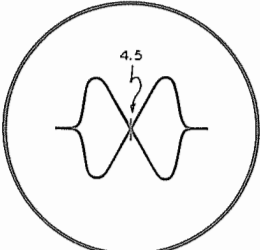


FIG. 3

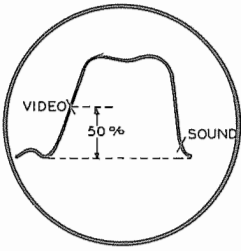


FIG. 4

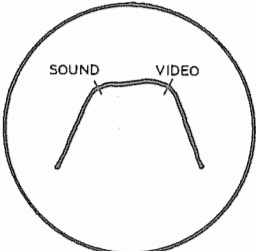
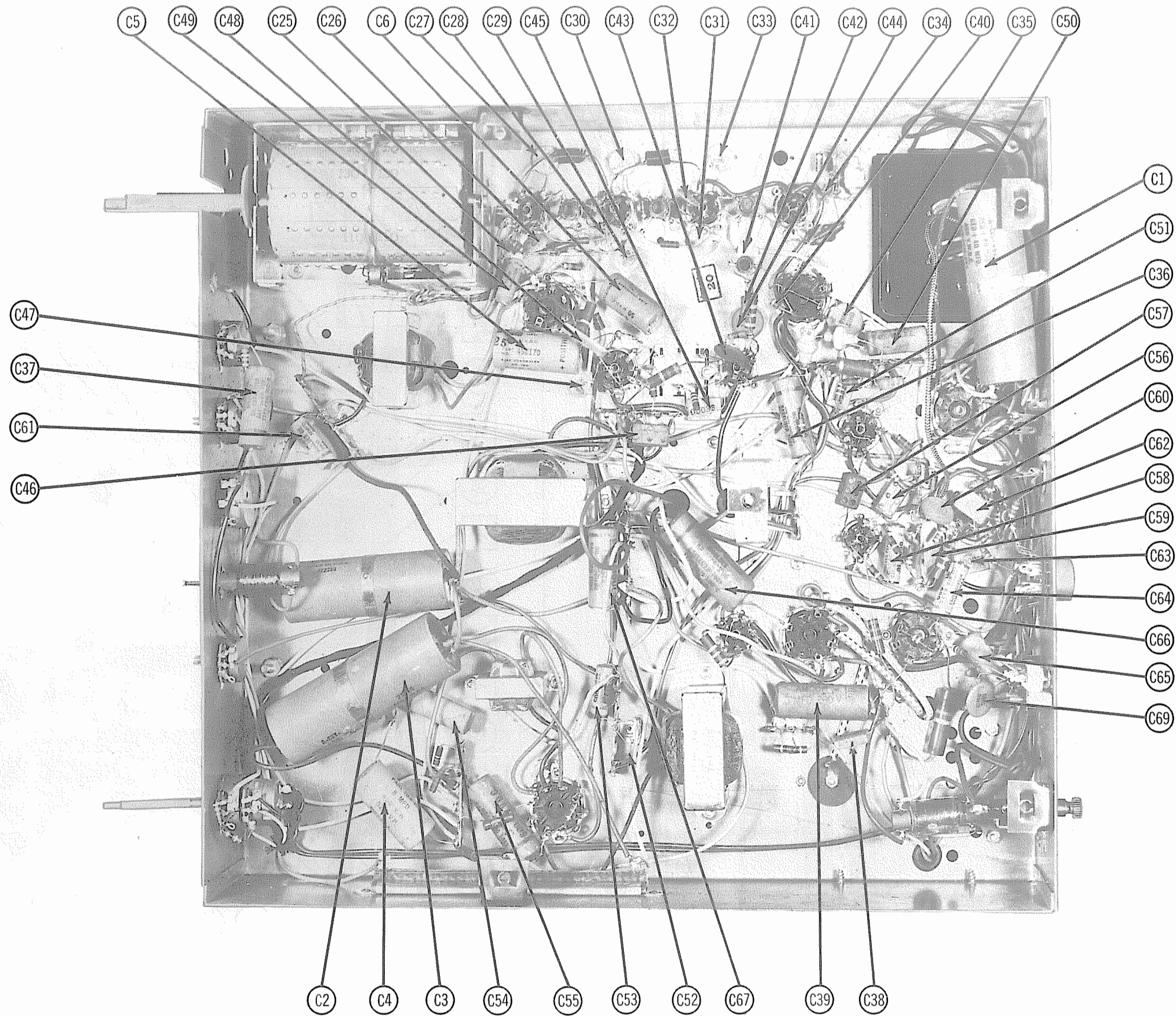


FIG. 5

AIRCRAFT MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5, XUCO,  
XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2, XUT, XUT.1,  
XUT.2, 472.217C, C.1, T, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)



AIRCASTLE MODELS 472.17XUCM, XUCM.1, XUCM.2, XUCM.3, XUCM.4, XUCM.5,  
 XUCO, XUCO.1, XUT.4, XUT.5, XUT.6, XUT.8, 472.21XUCM, XUCO, XUCO.1, XUCO.2,  
 XUT, XUT.1, XUT.2, 472.217C, C.1, T, T.1, 472.221XC, XT, XT.1 (Ch. 317-B, -D, 321-B, -D)



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION