

CABINET-REAR VIEW DISASSEMBLY INSTRUCTIONS

TV CHASSIS REMOVAL

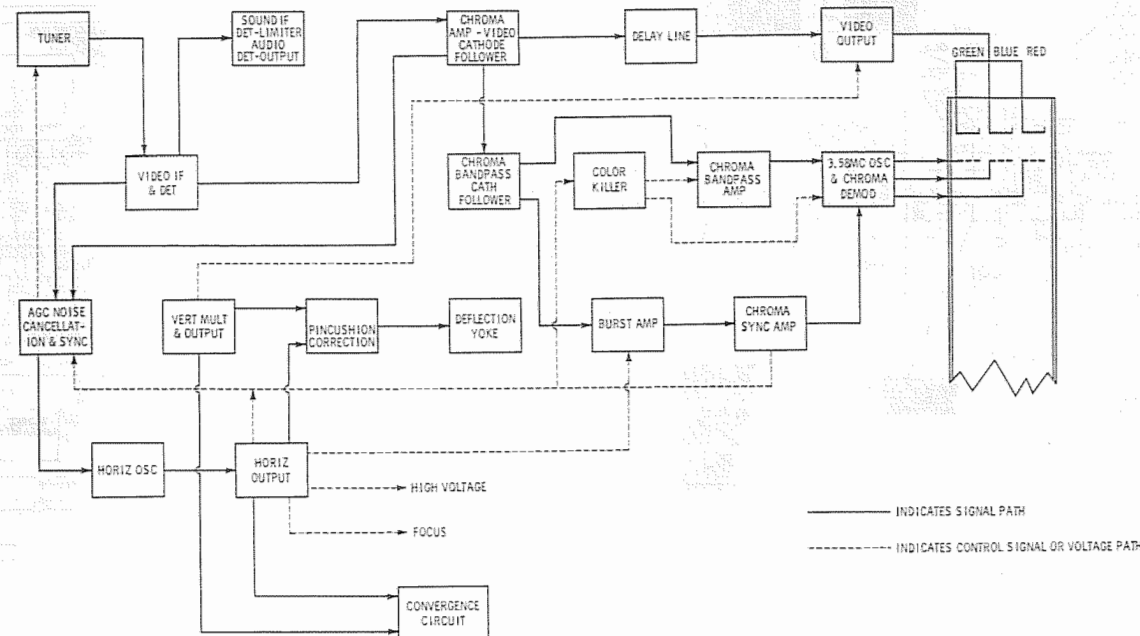
1. Remove 8 screws holding back cover and remove back cover. It is necessary to disconnect antenna leads and remove all knobs.
2. Disconnect 2 yoke plugs, high voltage anode lead, picture tube socket, speaker leads, 2 ground wires, and degaussing coil leads.
3. Remove 6 screws from chassis bottom and 2 screws from control bracket, inside of cabinet.
4. To remove speaker panel, turn panel locking screw 90° to the left. To remove convergence panel, remove 4 rubber retainers (screws in some sets) and lift retaining spring.

5. To remove escutcheon, apply upward pressure, lifting escutcheon approximately 1/32". While applying upward pressure, gently pull forward.
6. Lift out chassis and tuner.

NOTE: Most components may be serviced without removing chassis.

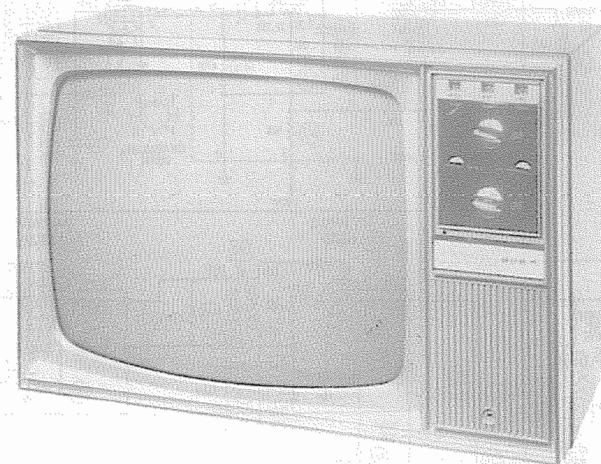
PICTURE TUBE REMOVAL

1. Follow "Chassis Removal" procedure. Lay set face down on a soft protective surface.
2. Remove degaussing coil. Loosen 1 screw holding picture tube retainer wire and lift out picture tube. Do not lift out tube by the neck.



PHOTOFACT® Folder

with CIRCUITRACE



MODEL CT606CN

TRADE NAME	Motorola	Models	Chassis
Covering Chassis Codes: A-00, A-05	CT606CN, CT607CM/CW, CT608CW, CS615CM/CW 20TS-918A		
	CU610CM/CW, CU611CS, CU612CM, CU613CF 20TS-918A		
	CL717CW, CL718CW, CL719CM, CL720CS 22TS-918A		
	CL721CF, CD723CU, CD724CW, CD725CD, CD726CH/CW 22TS-918A		
SUPPLIER TYPE SET TUBES POWER SUPPLY TUNING RANGE	RL717CW, RL720CS, RD723CU, RD724CW, RD725CD, RD726CH/CW A22TS-918A		
	(RL and RD prefix numbers above use Remote Control Transmitter TRT-5 and Remote Control Receiver TRR-6)		
	CL801CM/CW, CL802CW, CL803CS, CL804CF 23TS-918A		
	For current address, see Annual Index.		
	Color Television Receiver		
	Nineteen		
	110-120 Volts AC, 60 Cycles		
	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		
	TRANSISTORS Three		
	RATING 299 Watts, 3 Amps. @ 117 Volts AC		

SERVICING IN THE FIELD

SAFETY GLASS

The safety glass is an integral part of the picture tube.

FUSE OR FUSE DEVICE

Two 1" lengths of fuse wire are used for filament protection. (For location, see F2 and F3 in "Chassis - Top View" and "Chassis - Bottom View" photos.)

A Circuit Breaker is used for low voltage power supply protection and may be reset by depressing the reset button. (See "Tube Placement Chart" for location.)

VHF OSCILLATOR ADJUSTMENT

The Fine Tuning mechanically engages oscillator slug for adjustment (one slug for each channel). It may be necessary to adjust over-all oscillator trimmer for best results.

AGC

The AGC may be varied by means of an AGC control. (See "Tube Placement Chart" for location.)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

The Horizontal Oscillator slug is used for the horizontal hold. (See "Tube Placement Chart" for location.)

WIDTH

The width may be varied by a Horizontal Size coil. (See "Cabinet - Rear View" photo for location.)

FOCUS

The focus may be varied by means of a Focus control. (See "Cabinet - Rear View" photo for location.)

CENTERING

Centering is accomplished by Vertical and Horizontal Centering controls. (See "Cabinet - Rear View" photo for location.)

PINCUSHION CORRECTION

Pincushion adjustments are made by Top Tilt Pincushion Corrector and Bottom Amp. Pincushion Adjust controls. (For location, see "Cabinet - Rear View" photo.)

HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206



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. SB065

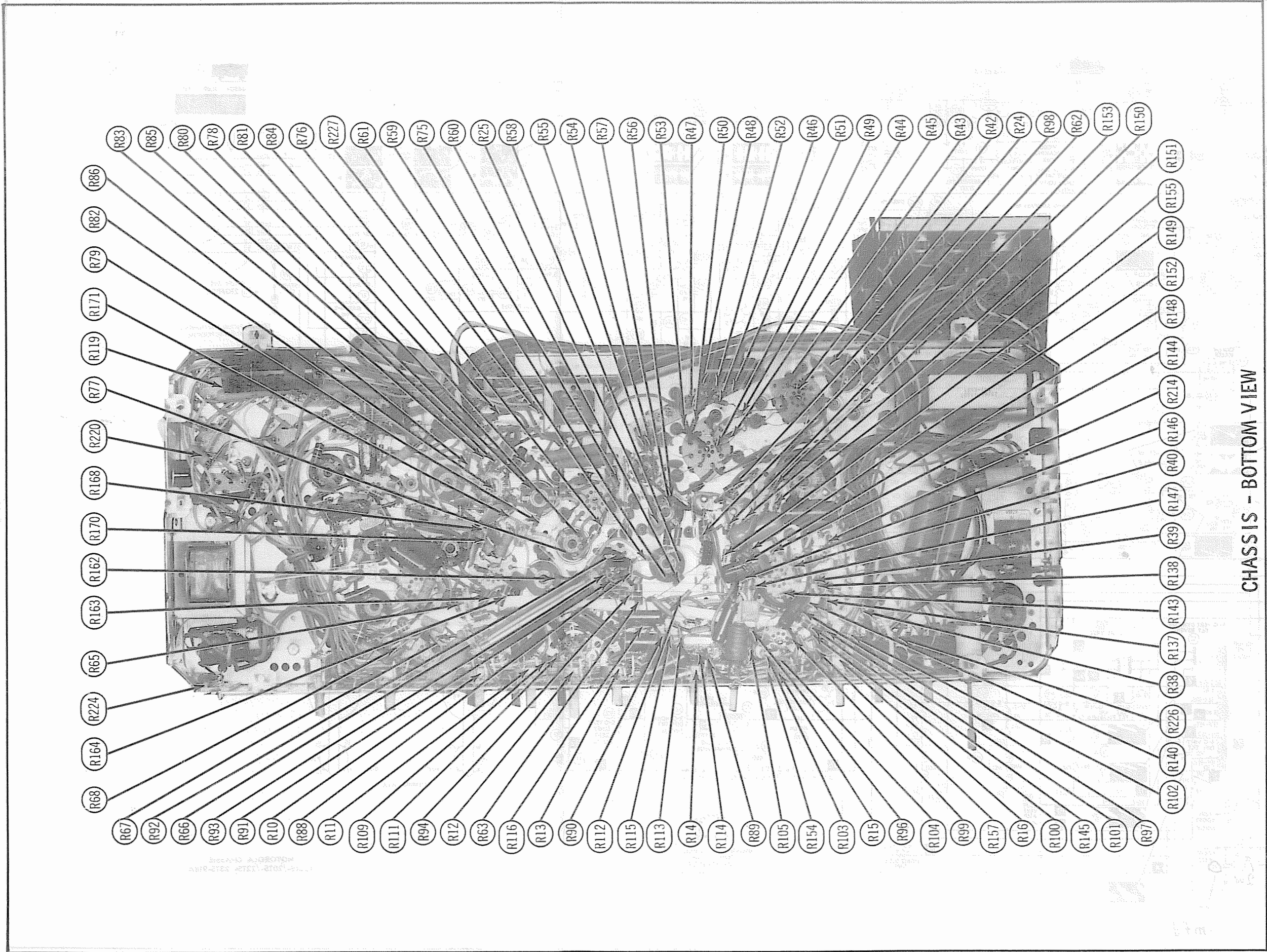
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IMPORTANT FILING NOTICE

Some models covered by this PHOTOFACT Folder employ chassis in addition to the TV chassis. PHOTOFACT Folders covering these additional chassis are packaged immediately behind this Folder and should be filed with this Folder in the yellow filing jacket provided. For specific coverage see index below.

INDEX

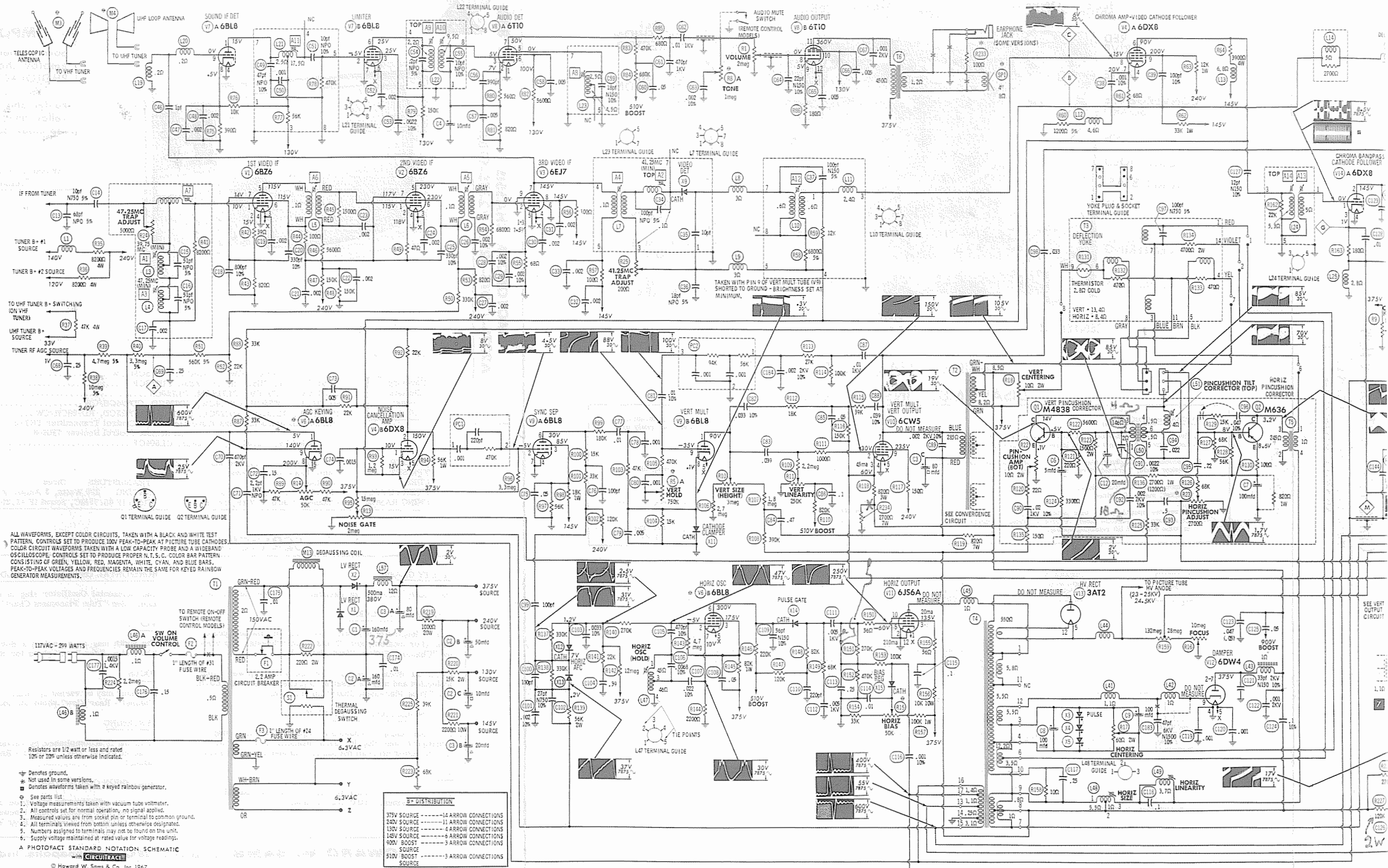
Remote Control Receiver TRR-6,
Transmitter TRT-5 SET 880, FOLDER 2-A

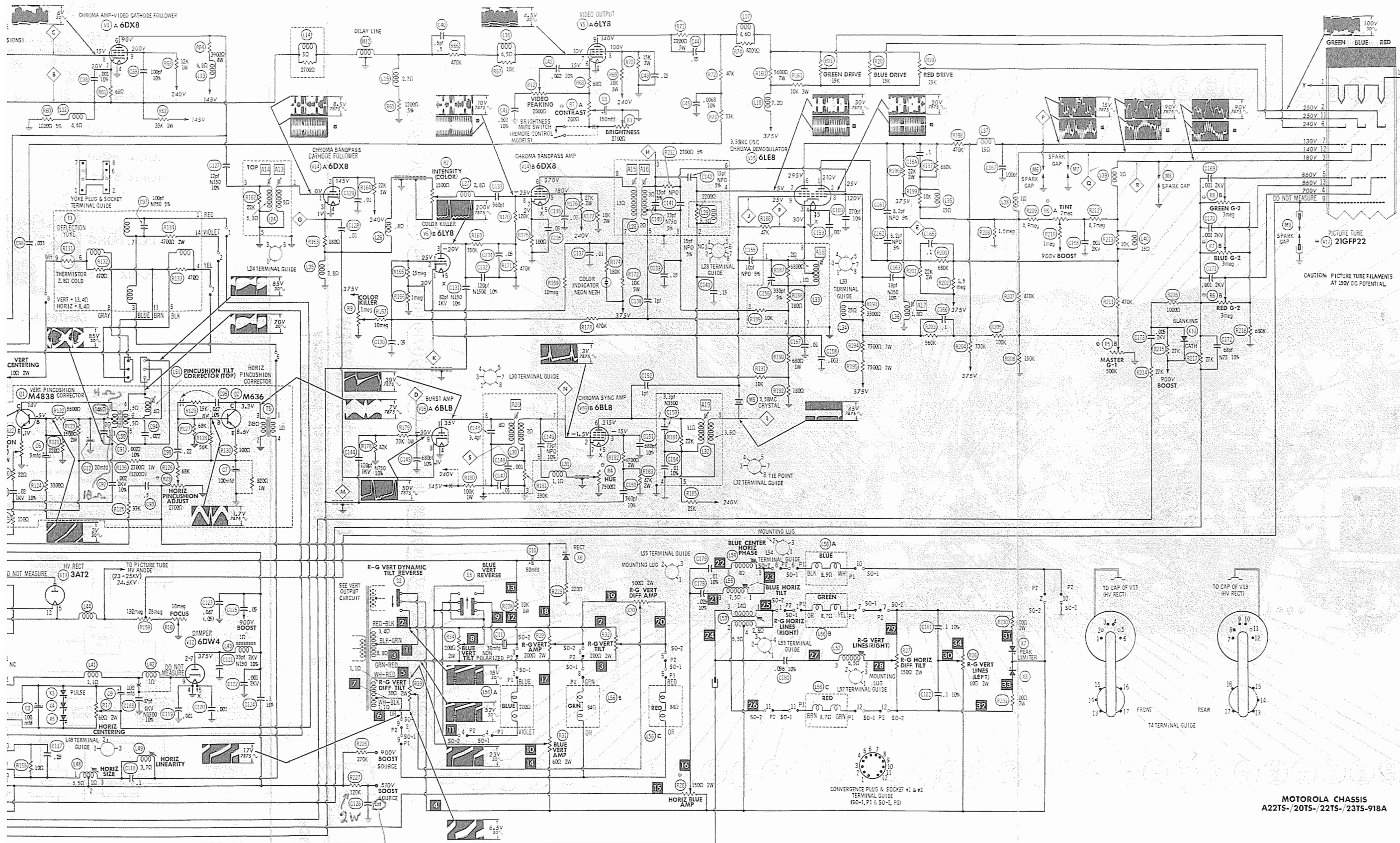


CHASSIS - BOTTOM VIEW

MOTOROLA CHASSIS
A22TS-/20TS-/22TS-/23TS-918A

COLOR





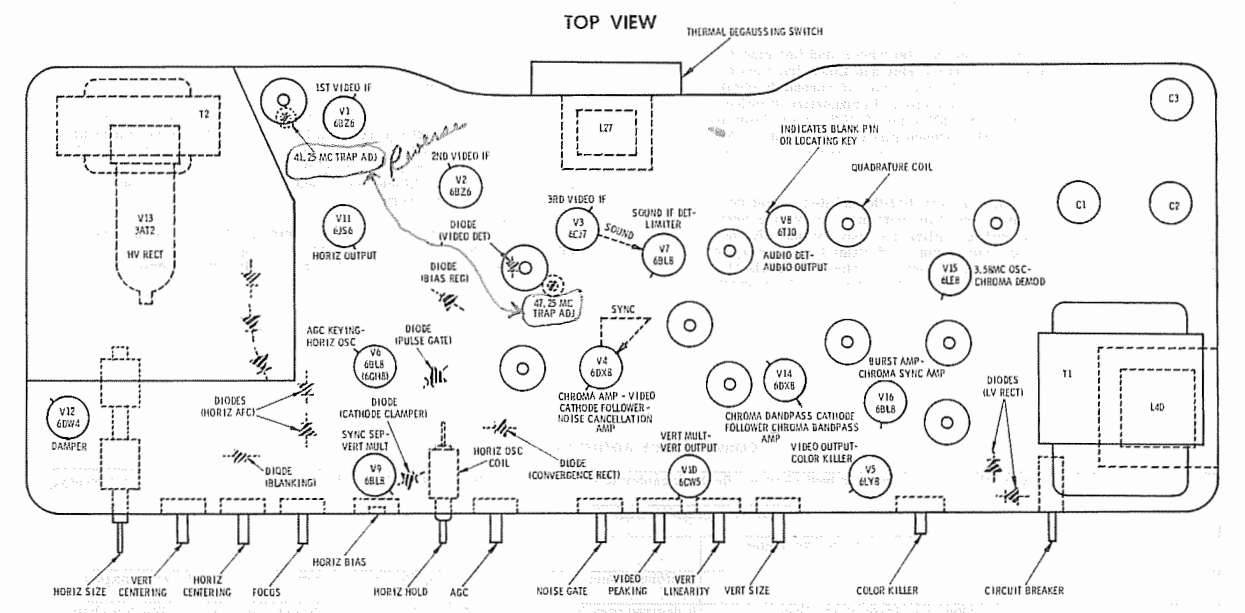
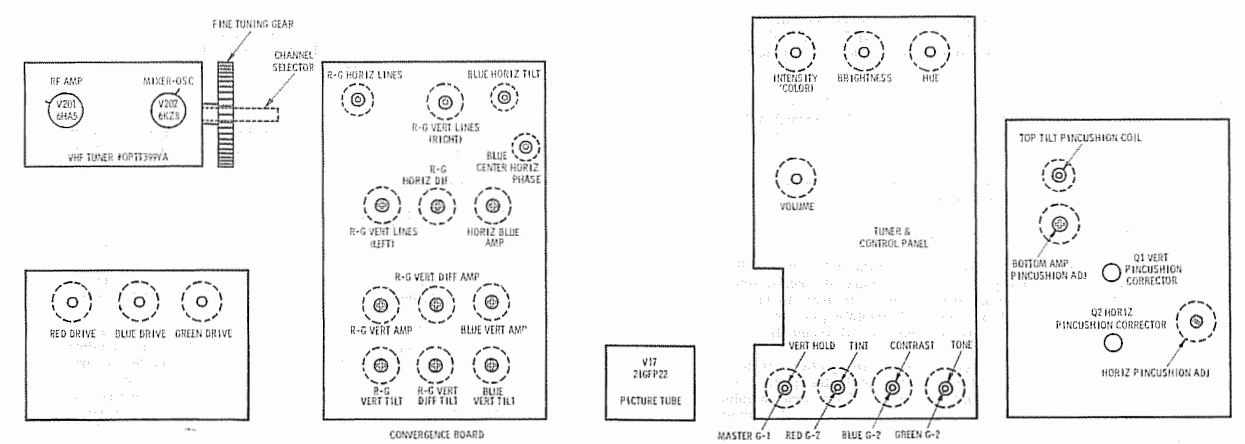
MOTOROLA CHASSIS
A22T5-20T5-22T5-23T5-918A

RESISTANCE MEASUREMENTS

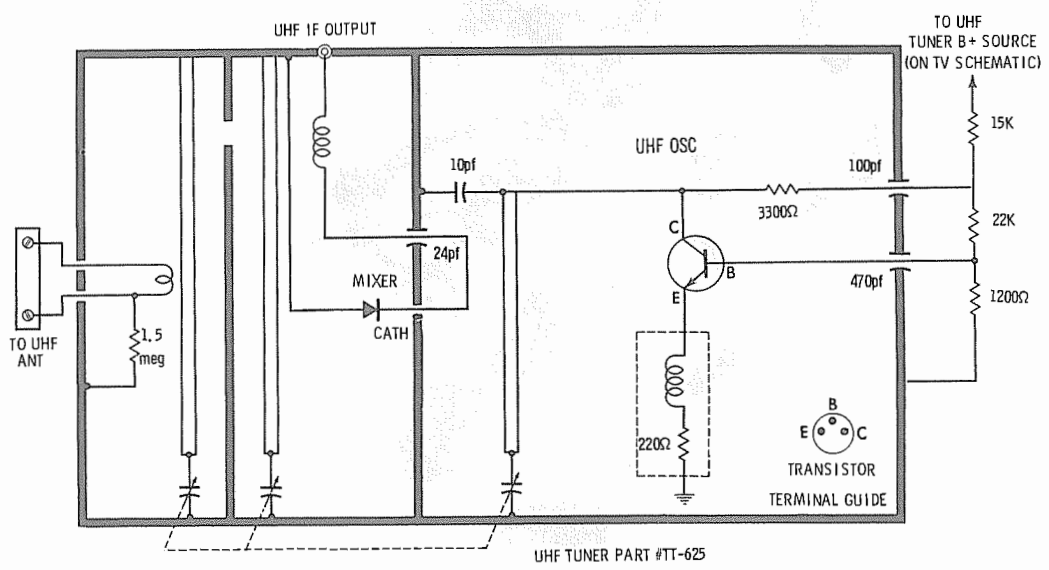
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9	Pin 10	Pin 11	Pin 12
V1	6BZ6	580K	859Ω	FIL	FIL	147Ω Δ	147Ω Δ	859Ω					
V2	6BZ6	87K	1Nf	FIL	FIL	832Ω †	832Ω †	47Ω Δ					
V3	6EJ7	68Ω	6800Ω	68Ω	FIL	FIL	0Ω	3312Ω †	3312Ω †	0Ω			
V4	6DX8	1.1meg	16K †	630Ω	FIL	FIL	6700Ω †	700Ω	2000Ω ⊙	13K †			
V5	6LY8	1000Ω	525K	620K	FIL	FIL	400Ω	470K	8000Ω †	6500Ω †			
V6	6BL8	3meg	800K	80K	FIL	FIL	340K †	2200Ω	40K	57K †			
V7	6BL8	10K	470K	170K †	FIL	FIL	170K †	0Ω	390Ω	.9Ω			
V8	6T10	FIL	1380Ω	830Ω	0Ω	7Ω	19K	1.3meg †	400K	180Ω	14K †	462Ω †	FIL
V9	6BL8	1.3meg †	4.4meg	17K †	FIL	FIL	136K	0Ω	380Ω ⊙	850K			
V10	6CW5	NC	2.4meg	2400Ω	FIL	FIL	NC	1135Ω †	NC	1115Ω †			
V11	6JS6A	FIL	0Ω	10.1K †	NC	600K	NC	NC	NC	0Ω	NC	FIL	
V12	6DW4	NC	NC	NC	FIL	FIL	NC	18Ω †	NC	600K			
V13	3AT2	NC	NC	NC	NC	165meg	NC	NC	NC	NC	NC	NC	165meg
V14	6DX8	5Ω	23K †	181Ω	FIL	FIL	10K †	100Ω	600K	9000Ω † #			
V15	6LE8	22K †	14K	1000Ω	FIL	FIL	22K †	10.2K	15K †	48K			
V16	6BL8	103K †	330K	52K	FIL	FIL	23K †	0Ω	1.4Ω	115K			
V17	21GFP22	FIL	7000Ω †	240K †	550K †	50K †	5000Ω †	78K †	NC	33meg	NC	6800Ω †	250K †
							Pin 13 80K †	Pin 14 FIL					
V201	6HA5	5meg	0Ω	FIL	FIL	11.4K †	0Ω	0Ω					
V202	6KZ8	15K †	150K	0Ω	FIL	FIL	9000Ω †	31K †	1000Ω	11K			

THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT. NC NO CONNECTION
Δ MEASURED FROM PIN 2 OF V2. † MEASURED FROM OUTPUT OF X2.
‡ MEASURED FROM PIN 9 OF V12. ⊙ READING DEPENDS ON POLARITY OF METER CONNECTIONS.

TUBE PLACEMENT CHART

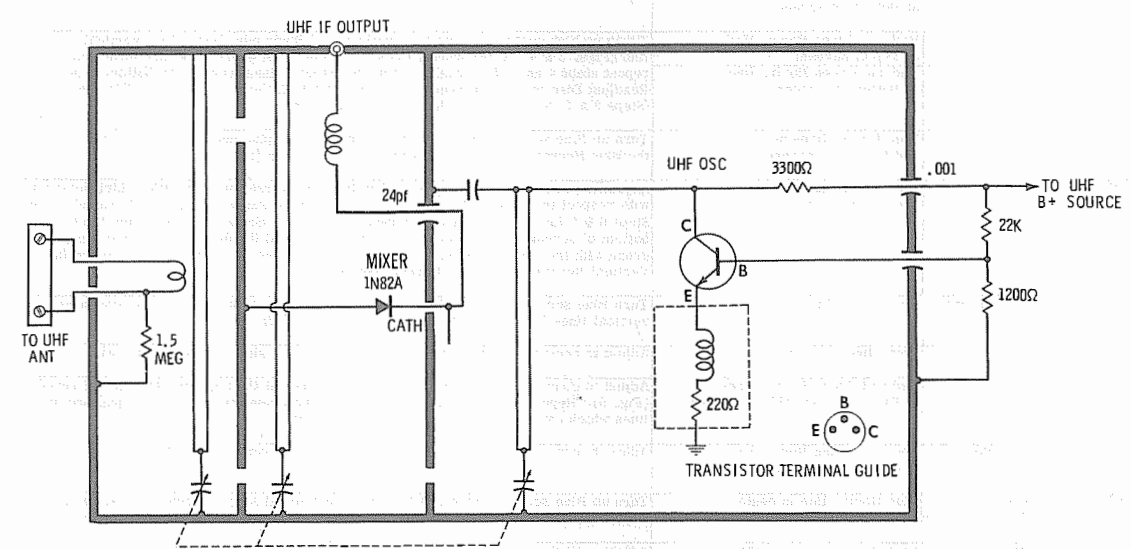


MOTOROLA CHASSIS
A22T5-/20T5-/22T5-/23T5-918A



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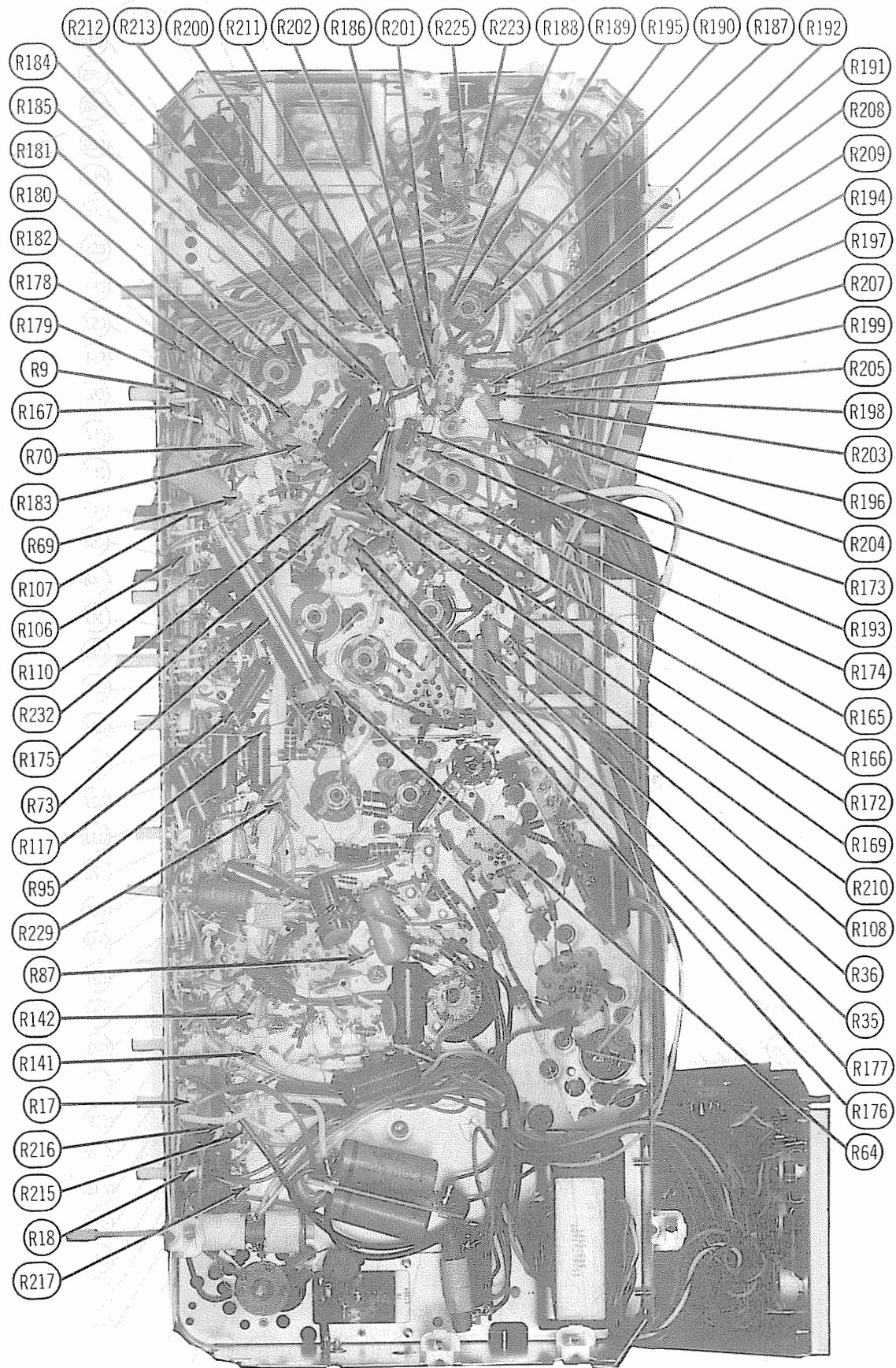
UHF TUNER TT-625



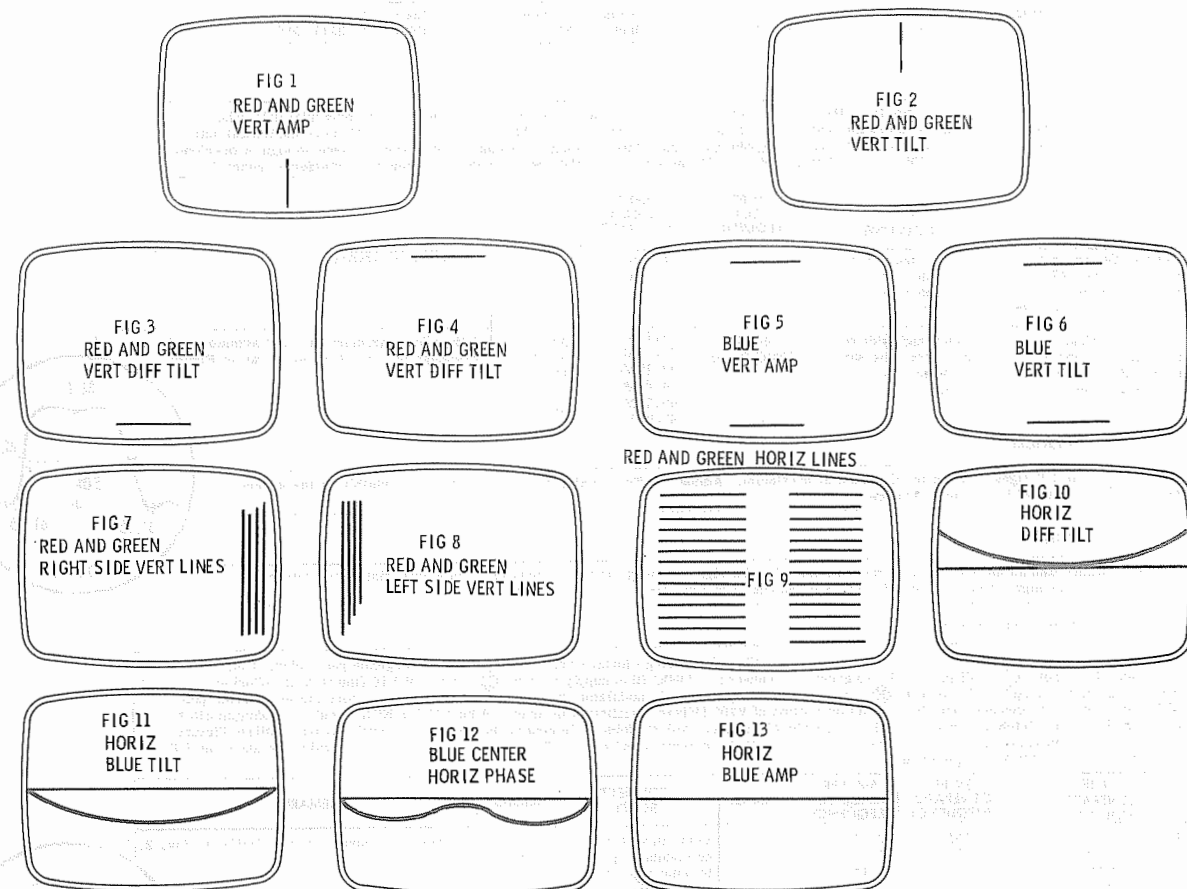
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UHF TUNER TT-624

FOLDER 2



CHASSIS - BOTTOM VIEW



CABINETS & CABINET PARTS
(When Ordering Specify Model, Chassis & Color)

		CT606CN	CT607CN	CT607CW	CT608CW	CU610CN	CU610CW	CU611CS	CU612CN	CU613CF	CS615CN	CS615CW	RL717CW	CL717CW	CL718CW	CL719CN	RL720CS	CL720CS	CL721CF	RD723CU	CD723CU	RD724CW	CD724CW	RD725CD	CD725CD	RD726CH	CD726CH	RD726CW	CD726CW	CL801CN	CL801CW	CL802CN	CL802CS	CL804CF	
Cabinet	16F68174A03	X																																	
Cabinet	16F68174A02		X																																
Dial-UHF Scale	34D68216A02	X	X	X	X	X	X	X	X	X	X	X																							
Dial-VHF Scale	34D68216A01	X	X	X	X	X	X	X	X	X	X	X																							
Dial-VHF Scale	34D68261A01												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Door - Control	15P65145A32	X																																	
Door - Control	15P65145A34		X	X	X	X	X	X	X	X	X	X																							
Door - Control	15P65145A25												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Door - Control	15P65145A27												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						
Escutcheon - Bezel	13D68186A02	X	X	X	X	X	X	X	X	X	X	X																							
Knob - Brightness, Intensity Hue	36C68236A03	X	X	X	X	X	X	X	X	X	X	X																							
Knob - Brightness, Intensity Hue	36C68235A03												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Knob-On-Off Volume	36D68218A09	X	X	X	X	X	X	X	X	X	X	X																							
Knob-Fine Tune, Volume	36D6842A01												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Knob-UHF Channel Selector	36D68217A03	X	X	X	X	X	X	X	X	X	X	X																							
Knob-VHF Channel Selector	36D68217A01												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Knob-VHF Channel Selector	36D68217A07	X	X	X	X	X	X	X	X	X	X	X																							
Knob - VHF Fine Tune	36D68218A10	X	X	X	X	X	X	X	X	X	X	X																							
Knob-VHF Fine Tune	36D6842A02												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Overlay-Bezel	13B68187A01	X	X	X	X	X	X	X	X	X	X	X																							
Overlay-Controls	13D68262A01												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Window -Color Ind.	61P65145A35	X	X	X	X	X	X	X	X	X	X	X																							
Window -Dial Scale	61C68276A01												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Window -Color Ind.	61P65145A29												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						

MOTOROLA CHASSIS
A21TS-201TS-221TS-231TS-918A

FOLDER 2

VHF TUNER PARTS LIST

LOPTT-399YA

TUBES

* AMPEREX *			* GENERAL ELECTRIC *			* RCA *			* SYLVANIA *		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6HA5	V202	Mixer - Osc.	6K26						

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBIERRE PART No.	ELANCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N470 5%	#21S124946						10TCT-Q27
C202	43 N470 5%	#21S180C26						10TCT-Q27
C203	27 N470 5%	#21S124946						10TCT-Q27
C204	100 N1500			TCL-100			2DV310	10TCU-Q30
C205	30 N750 5%			TCN-30				
C206	12 N220 5%	#21S131101						
C207	.001		DI-1000	DD-102	JBS601 YP102K	CCD-102	GP210	10TS-D10
C208	2.2 5%		NFO-DI 2.2	DTZ-2R2	CZ601CJ2R2D	CC70-2R2	CN0522	10TCC-V22
C209	.001							
C210	33 5%	#21S134221						
C211	18 N220 3%	#21S134220						
C212	5.8 NPO ±.25	#21S135751						
C213	1.6 10%	#21S180A23						
C214	2 NPO ±.25		NFO-DI 1.5	DTZ-1R5	CZ601CJ2R2D	CC70-2R2	CN0515	10TCC-V15
C215	470 5%		NFO-DI 2.2	DTZ-2R2	CZ601CJ2R2D	CC70-2R2	CN0522	10TCC-V22
C216	15	#21S120556	DI-470	DD-471	JBS601 YP171K	CCD-471	GP947	10TS-T97
C217	.001		EF-001	MFT-1000		CCF-102	CT280A	
C218	.001		EF-001	MFT-1000		CCF-102	CT280A	
C219	.001		EF-001	MFT-1000		CCF-102	CT280A	
C220	.001		EF-001	MFT-1000		CCF-102	CT280A	
C221	.001		DI-1000	DD-102	JBS601 YP102K	CCD-102	GP210	10TS-D10
C222	.001		DI-1000	DD-102	JBS601 YP102K	CCD-102	GP210	10TS-D10
C223	.001		EF-001	MFT-1000		CCF-102	CT280A	
C224	.001		EF-001	MFT-1000		CCF-102	CT280A	

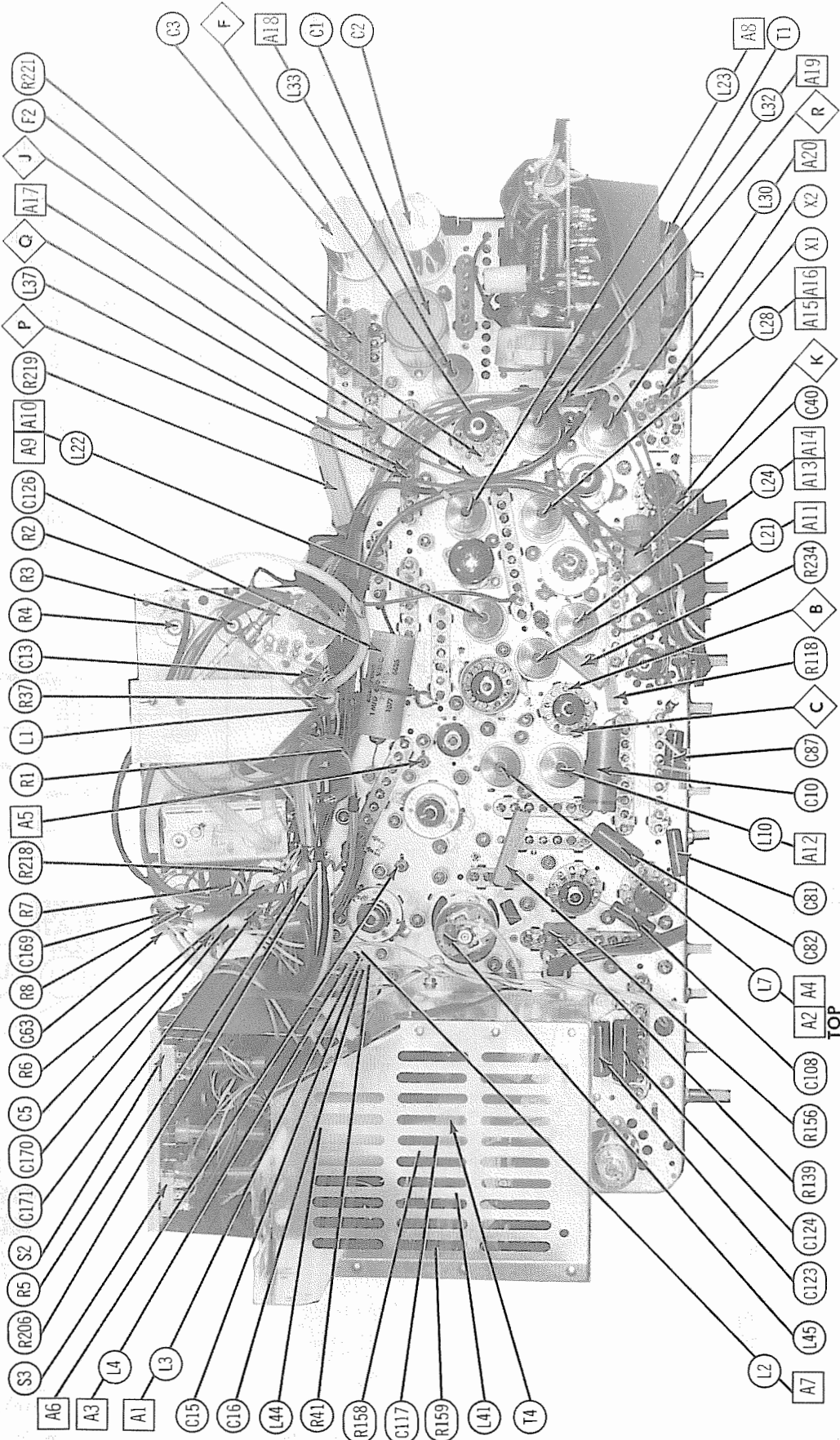
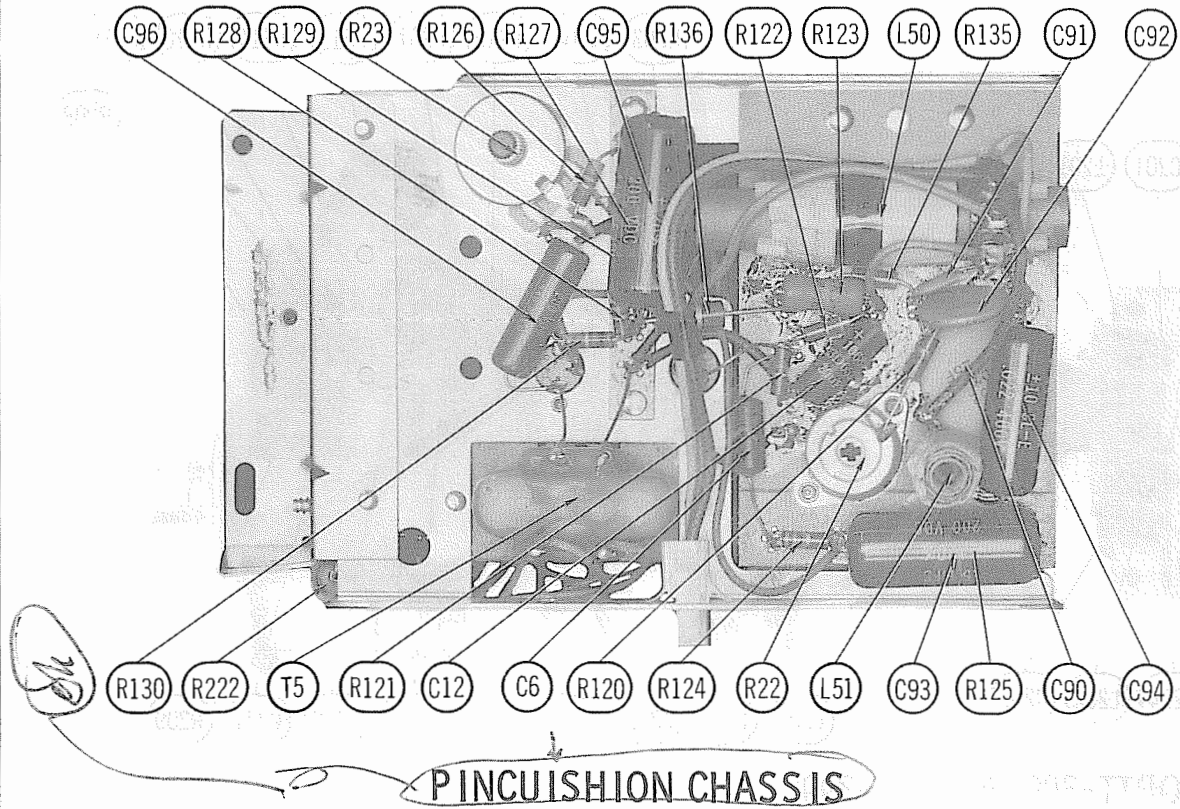
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Motorola Part Number

COILS (RF-IF)

ITEM No.	USE	MOTOROLA PART No.	NOTES	ITEM No.	USE	MOTOROLA PART No.	NOTES
L201	Balan	24P65110A90		L209	Mixer Grid Coils	40P65144A43	Wafer Assembly Includes R212 and R213.
L202	FM Trap			L210	Mixer Grid Coil	24P65114A35	Channel 13
L203	Antenna Coils	40P65144A41	Wafer Assembly Includes R201	L211	Mixer Plate Coil	24P65144A37	IF Output Coil
L204	Antenna Coil	24P65114A27	Channel 13	L212	Mixer Screen	24P65144A39	8 Turns
L205	RF Plate Coil	24P65115A76	Channel 13	L213	Hi Band Reut.	24P65110A92	Channels 7-13
L206	RF Plate Coils	40P65144A42	Wafer Assembly Includes R206	L214	UHF Input	24P65144A38	
L207	Overall Osc. Adj.	24P65118A81		L215	Filament Choke		20 Turns
L208	Oscillator Coils	1P65121A40	Rotor Assembly (Coils only)	L216	Filament Choke		20 Turns

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M201	Antenna Input Filter Preset Screw Assy	24P65144A40	Assembly - Includes L201, L202, C201, C202, C203 and C204.
S201	Oscillator Stator Assy	1P65110A46	Oscillator - Includes Gear Head Screws, Spring and Holder.
S202	UHF Input Switch	40P65110A44	Includes Contacts
	Switch	40P65144A44	Includes C207 and L215.
		40P65144A45	UHF B+ and Dial Light.



CHASSIS - TOP VIEW

MOTOROLA CHASSIS
A22TS-201S-221S-231S-918A

FOLDER 2

UHF TUNER PARTS LIST

UHF TUNER HTT-623, HTT-627

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES	MOTOROLA PART No.
			DELCO PART No.	GENERAL ELECTRIC PART No.	RCA PART No.			
Q301	SE1044	UHF Oscillator		GE-11	SK-3019	NPN		40P05123A95

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES				NOTES
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.	
X301		1N82A (48C74370)	1N82A	1N82A			

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				NOTES
			AEROVOX PART No.	CENTRALAB PART No.	CORNEILL-DUBIER PART No.	ELWENCO PART No.	
C301	2.2 N470 ±1	#21R134242					
C302	1-5		EF-001	MFT-1000		CCF-102	CT280A
C303	1-5		EF-001	MFT-1000		CCF-102	CT280A
C304	1-5		EF-001	MFT-1000		CCF-102	CT280A
C305	18 500V 10%		DD-18	DD-180		CCD-180	GFH18 10TS-Q18

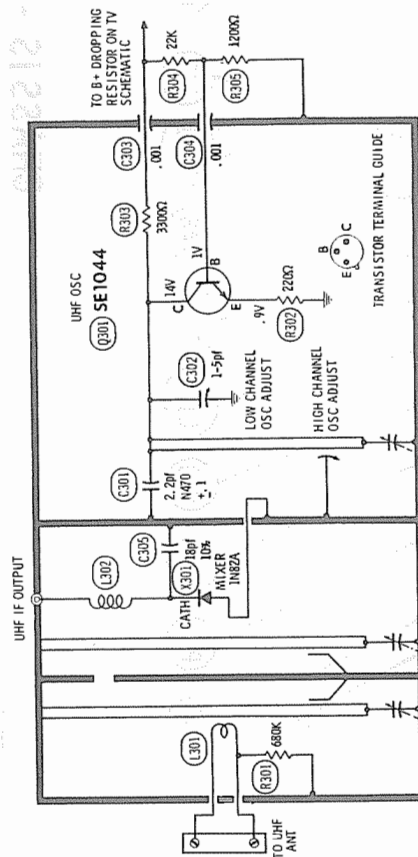
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

COILS (RF-IF)

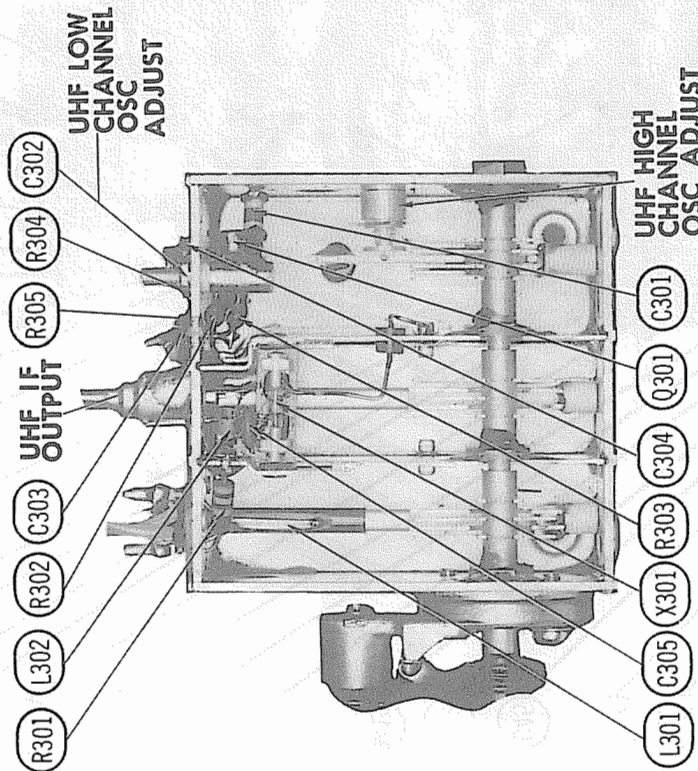
ITEM No.	USE	MOTOROLA PART No.	NOTES	ITEM No.	USE	MOTOROLA PART No.	NOTES
L301	Antenna Coupling	1P65112A08	Includes terminals and R301.	L302	UHF IF Output	24P65112A11	

MISCELLANEOUS

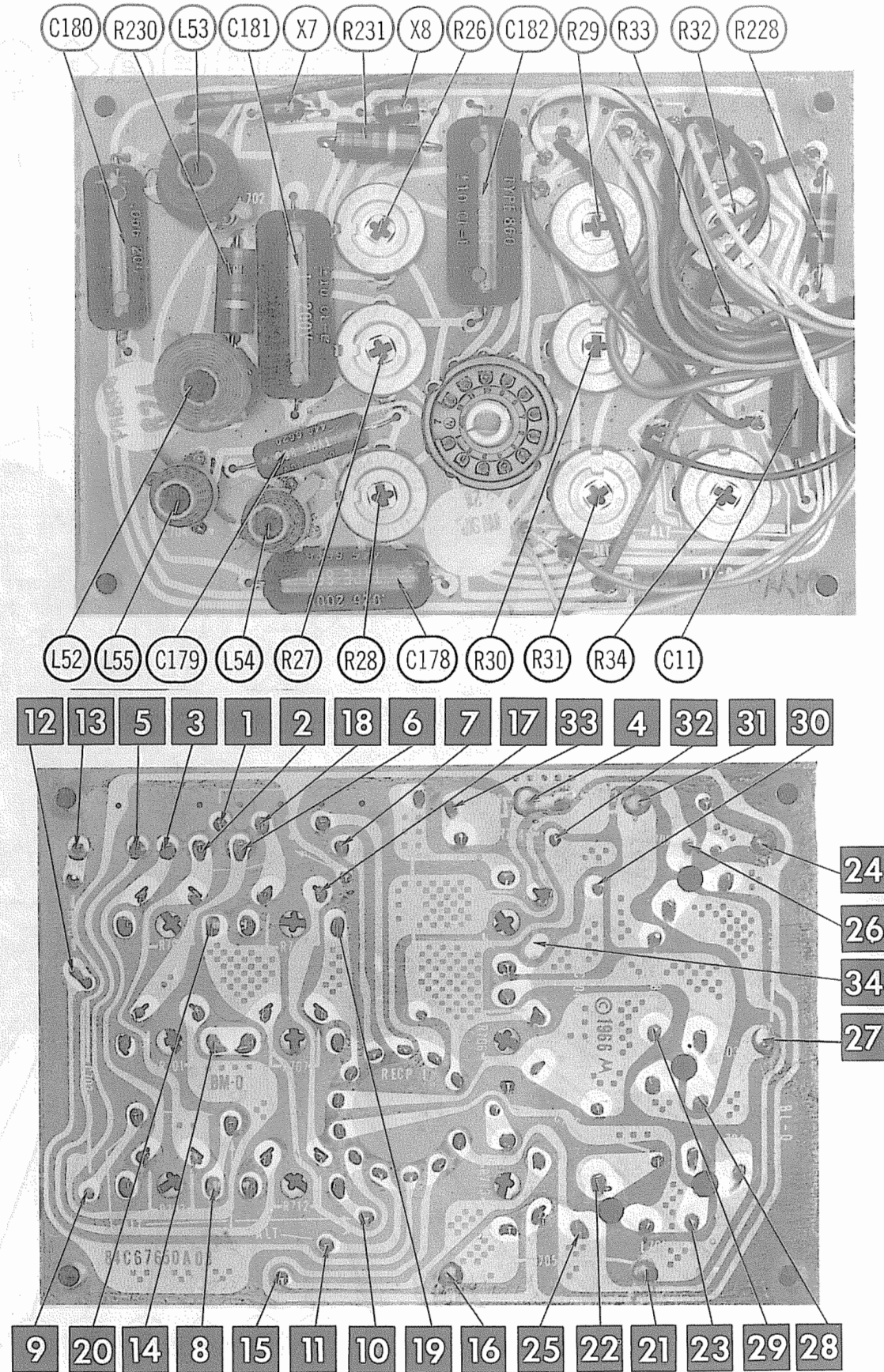
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
	Anti-Backlash Gear and Clutch Assembly Cover Drive Assembly and Plate Drive Assembly and Plate	44P65127A55 15P65112A17 15P65112A18 47P65142A09 47P65142A62	Includes Lever Tension Spring Oscillator Section Tuner Includes Mounting Screws (HTT-623) Includes Mounting Screws (HTT-627)



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UHF TUNER PART HTT-623 & HTT-627



UHF TUNER HTT-627



A Howard W. Sams CIRCUITRACE Photo

CONVERGENCE BOARD

MOTOROLA CHASSIS
A22TS-20TS-22TS-23TS-918A

FOLDER 2

PARTS LIST AND DESCRIPTION (CONTINUED)

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

RESISTORS (Power and Special)

ITEM No.	RATING	REPLACEMENT DATA			ITEM No.	RATING	REPLACEMENT DATA		
		IRC PART No.	WORKMAN PART No.	MOTOROLA PART No.			IRC PART No.	WORKMAN PART No.	MOTOROLA PART No.
R35	8200Ω 4W		5W-SQ-8.2K	17K739824	R159A	132meg			6D67800A03
R36	8200Ω 4W		5W-SQ-8.2K	17K739824	R160	5600Ω 7W	PW10-6000	10W-SQ-5.6K	17S754325
R37	47K 4W			17S743157	R161	10K 3W		3G-10K	17K744464
R64	3900Ω 4W	PW5-3900	4G-3.9K	17K740922	R172	10K 5W		5G-10K	17D65903A16
R69	10K 3W		3G-10K	17K744464	R194	7500Ω 7W	PW10-7500	10W-SQ-7.5K	17S10130A13
R71	2200Ω 5W	PW5-2250	5G-2K	17S10130A13	R195	7500Ω 7W	PW10-7500	10W-SQ-7.5K	17S10130C78
R118	820Ω 3W	PW5-820	5W-SQ-800	17S135203	R219	1000Ω 20W	2C-1000	20W-SQ-1K	17S135176
R119	820Ω 7W	PW10-820	10W-SQ-800	17S134152	R221	2200Ω 10W		5G-10K	17S132446
R131	Thermistor (3.0 Cold)		FR-3.8	6K743343	R234	2700Ω 7W	PW10-2500	10W-SQ-2.85K	17S647134
R156	10K 10W	PW10-10K	10W-SQ-10K	17K744464					

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				
		MOTOROLA PART No.	MEISSNER Part No.	MERIT PART No.	MILLER PART No.	WORKMAN PART No.
L1	RF Choke (8.4uh)		19-1009	BC-566	74F826A P	T822
L2	1st Video IF	①				
L3	39.75MC Trap	①				
L4	47.25MC Trap	①				
L5	2nd Video IF	24D67362A03	17-4523	TV-130	6219	T217
L6	3rd Video IF	24D67362A04	17-4523	TV-130	6219	T217
L7	4th Video IF	24V66546A12				
L8	41.25MC Trap					
L9	RF Choke (7.5uh)	24C66772A01	19-1009	BC-565	74F826A P	T982
L10	RF Choke (7.5uh)	14C66772A01	19-1009	BC-565	74F826A P	T982
L11	4.5MC Trap	24P65143A38				
L12	Peaking (30uh)	24C66772A09	19-6033		72F275A P	T972
L13	Peaking (125uh)	24D67324A34	19-3125	BC-670	72F124A P	T387
L14	Peaking (22uh)	24D67324A41	19-2027	BC-673	72F224A P	
L15	Peaking (125uh)	②	19-3125 *	BC-670 *	72F124A P *	T387 *
L16	Peaking (50uh)	24K750836		BC-665	72F175A P	T973
L17	Peaking (30uh)	24D68002A27	19-3300	TV-199	6155	T340
L18	Peaking (100uh)	24D68002A28	19-2025	BC-669	6112	T341
L19	Peaking (27uh)	24D68028A21	19-3274	BC-674	72F274A P	T347
L20	RF Choke (2.7uh)	24D68002A29	19-2011	SW-630	74F276A P	T814
L21	RF Choke (1.5uh)	24C66772A07	19-1001	BC-562	74F156A P	T856
L22	1st Sound IF	24P65133A26				
L23	2nd Sound IF	24P65133A25				
L24	Quadrature	24V66545A29				
L25	Chroma Take-off	24P65133A28				
L26	RF Choke (15uh)	24C65828A43	19-2011	TV-192	74F155A P	T989
L27	RF Choke (2.7uh)	24C65828A25		SW-630	74F276A P	T814
L28	RF Choke (15uh)	24C65828A43		TV-192	74F155A P	T989
L29	Chroma Bandpass	24P65143A34				
L30	Peaking (15uh)	24D67324A18 ①	19-2026 *	BC-671 *	72F154A P *	T343 *
L31	Burst Phase	24V66549A89				
L32	RF Choke (6uh)	24S135220	19-2014	BC-565	4610	T992
L33	Chroma Ref. Osc. Control	24V66549A91				
L34	3.58MC Oscillator	24P65133A30				
L35	Peaking (1mh)	24D68002A26	19-2032	BC-681	72F103A P	T873
L36	Peaking (45uh)	24D67324A40 ⑤		TV-203	6138	TA304
L37	3.58MC Trap	24D66857A06	19-6821		4207	
L38	Peaking (45uh)	24D67324A07		BC-677	6138	T352
L39	RF Choke (6.6uh)	24C66772A03	19-2014	BC-565	4610	T992
L40	RF Choke (6.6uh)	24C66772A03	19-2014	BC-565	4610	T992
L41	Peaking (45uh)	24D67324A07		BC-677	6138	T352
L42	RF Choke (6.2uh)	24S135050	19-1004	BC-565	4610	T992
L43	RF Choke (6.6uh)	24C66772A03 ④	19-2014	BC-565	4610	T992
L44	RF Choke (4.1uh)	24C66772A02	19-1003	BC-564	74F396A P	T818
L45	RF Choke (4.1uh)	24C66772A02	19-1003	BC-564	74F396A P	T818
L46A	Line Choke (112uh)	24C67534A06			5250	
L46B	Line Choke (112uh)				5250	

① Part of Assembly #24V66550A32. ④ When replacing use 24C66772A05. ⑤ Part Number includes 10K Resistor.
② Includes 2700Ω Resistor. * Shunt with 2700Ω Resistor.
③ Includes 2200Ω Resistor. † Shunt with 2200Ω Resistor.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						
		MOTOROLA PART No.	MERIT PART No.	MILLER PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	WORKMAN PART No.
L47	Horiz. Osc. (Hold)	24D65853A10						
L48	Horiz. Size	24D65698A13						
L49	Horiz. Linearity	24D65853A13						
L50	Pincushion Modulator	24D66847A08						
L51	Pincushion Tilt	24D66857A05		6318				
L52	Dynamic Convergence Right R/G Vert. Lines (2.2mh-5.4mh)	24D67682A07						
L53	Dynamic Convergence Right R/G Horiz. Lines (1mh-2.95mh)	24D67682A06						
L54	Dynamic Convergence Blue Center Horiz. Pulse (.56mh-2.9mh)	24D67682A03						
L55	Blue Horiz. Tilt (.56mh-2.9mh)							
L56	Convergence Yoke Assembly							
A	Blue Section	24P65145A43						
B	Green Section	24P65145A44						
C	Red Section	24P65145A44						

FILTER CHOKE

ITEM No.	RATINGS		REPLACEMENT DATA						NOTES
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000-)	MOTOROLA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
L57	.3A, DC	12Ω	.4 H	25C65806A10 (25D67554A04)	C-4133	C-2708	26C81	C-40X	

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MOTOROLA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ 3A, AC	150VAC @ .5A, DC	6.3VAC @ 10A, AC	25D66841A16					
	SEC. 3								
	6.3VAC @ 1.3A, AC								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T2	Vert. Output Yoke (Horiz. 11.3mh) 92° (Vert. 23mh)	25D66761A07					
T3		24D67822A07					
T4	Horiz. Output Primary-Secondary Winding	24D67564B06					
T5	Pincushion Corrector (Saturable Reactor)	24D67565A05					
		24T66553A67					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
		MOTOROLA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T6	12,300Ω	6-8Ω	25D67552A05	A-2900	A-3865	22S68	S-51X

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	JENSEN PART No.	QUAM PART No.	
SP1	4" PM 6-8Ω	50D68384A01	C4T8	4A128	Used in Models CT606CN, CT607CM, CT608CW, CU610CM, CU611S, CU612CM, CU613CF, CS615CM, CW.
	4"	50D66232A10			Used in Models RD/CD724CW, RD/CD725CD, RD/CD726CH/CW.
	4" x 6" PM	50D67337A01			Used in Models RL/CL717CW, CL781CW, CL719CW, RL/CL720CS, CL712CF, RD/CD724CW, RD/CD725CD, RD/CD726CH/CW.
	6" PM	50D67952A04			Used in Models RL/CL717CW, CL718CW, CL719CW, RL/CL720CS, CL712CF, RD/CD723CU, RD/CD724CW, RD/CD725CD, RD/CD726CH/CW.

FUSE DEVICES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PART No.		LITTELFUSE PART No.		BUSS PART No.	
F1	Circuit Breaker	2.2 Amp.	80C66390A13		8153, 25			
F2	1" length of	#31 fuse wire						
F3	1" length of	#24 fuse wire						

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
PC1	Sync. Clipper	470K, 220pF, .001	51D65239A21	Aerovox PA-798 Centralab PC-436
PC2	Vert. Integrator	56K, 94K, .001, .001	51D65239A22	Centralab PC-504

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	VHF Tuner	OPTT-399YA	Used in 21" Models
M2	VHF Tuner	LOPTT-399	Used in 23" & 25" Models
M3	UHF Tuner	ALOPTT-399	Used in Remote Control Models
M4	UHF Tuner	TT-524	
M5	UHF Tuner	TT-625	
M6	UHF Tuner	TT-627	
M7	UHF Antenna	1C67859A02	
M8	Sleeve & Spring Assy.	1C67859A01	Tube, Rod & Ball Assembly. Two Used in Models CT606CN, CT607CM, CW, CT608CW, JFD Replacement TA-365.
M9	UHF Antenna	85P65133A40	For VHF Antenna
M10	Crystal	48C66805A03	BowTie, Used in Models CT606CN, CT607CM, CW, CT608CW, JFD Replacement TA-545.
M11	Spark Gap	80C68147A01	
M12	Spark Gap	80C68147A01	
M13	Spark Gap	80C68147A01	
M14	Spark Gap	1A67478A02	
M15	Magnet	59D68009A01	(Focus Volt)
M16	Magnet	76D6816A06	Blue Lateral & Parity Ring
M17	Delay Line	24D66855A09	Radial: Static Convergence
M18	Degaussing Coil	24D67730A08	(Upper or Lower Coil)
M19	Printed Circuit Board	84C6750A03	Convergence Panel (Less all Components)
S1	Switch	40P65143A39	Thermal Degaussing
S2	Switch	40C6513A01	R-G Vert. Dynamic Tilt Reversing
S3	Switch	40C6513A05	Blue Vert. Reversing

SEE PAGE 5 FOR CABINET PARTS LIST

PARTS LIST AND DESCRIPTION

(When ordering parts, state Model, Part Number, and Description.)

Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869 (17KV) or 8868 (25KV)
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8730 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in 12 Colors 8524 (Stranded) Available in 12 Colors 8874 (Rubber) or 8895 (Plastic)
Power Cord (Interlock Type)	Use BELDEN No. 8225
3000 Tuner Input Lead	Use BELDEN No. 8275 (Foam Core) or 8285 (Foam Jacketed)
3000 Antenna Lead-in	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor
Antenna Rotor Cable	Use BELDEN No. 8485 (Round) - 5 Conductor 8480 (Round) - 8 Conductor

TUBES

* AMPEREX		* GENERAL ELECTRIC		* RCA		* SYLVANIA	
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE
V201	RF Amp.	6HA5	V9	Sync Sep. - Vert. Mult.	6BL8		
V202	Mixer - Osc.	6KZ8	V10	Vert. Mult. - Vert. Output	6CW5		
V1	1st Video IF	6BZ6	V11	Horiz. Output	6JS6A		
V2	2nd Video IF	6BZ6	V12	Damper	6DW4		
V3	3rd Video IF	6EJ7	V13	HY Rectifier	3AT2		
V4	Chroma Amp. - Video Cath. Follower - Noise Cancel. Amp.	6DX8	V14	Chroma Bandpass Follower	6DX8		
V5	Video Output - Color Killer	6LY8	V15	Chroma Bandpass Amp.	6LEB		
V6	AGC Keying - Horiz. Osc.	6BL8 (6GH8) *	V16	Chroma Demodulator			
V7	Sound IF Det. - Limiter	6BL8		Burst Amp.			
V8	Audio Det. - Audio Output	6T10		Chroma Sync Amp.	6BL8		

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	MOTOROLA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V17	21GF22 ① 23EGP22 ② 25A P22A ③	23EGP22 25A P22A †	25A P22A †	RE25AP22A ‡	† Aluminized ‡ Color Bright

① Used in Chassis 20TS-918A.

② Used in Chassis A/22TS-918A.

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES	MOTOROLA PART No.
			DELCO ELECTRIC PART No.	GENERAL ELECTRIC PART No.	RCA PART No.		
Q1	4734	1st Amp.	DS-66	GE-10		NPN	48S134734
Q2	4854	2nd Amp.	DS-66	GE-10		NPN	48S134854
Q3	4734	3rd Amp.	DS-66	GE-10		NPN	48S134734
Q4	4854	Audio Step & Hue (Green)	DS-66	GE-10		NPN	48S134854
Q5	4854	Mute & Function	DS-66	GE-10		NPN	48S134854
Q6	4854	Channel & Hue (Red)	DS-66	GE-10		NPN	48S134854

CONTROLS

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

ITEM No.	USE	RESIST-ANCE	REPLACEMENT DATA				
			MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-HRC PART No.	MALLORY PART No.
R1	Noise Rejection	10K 2W	47D5820A02 47D5820A02-AE)			P115R103A	MHI0KT

POWER RECTIFIERS & SIGNAL DIODES

ITEM No.	MEASURED CURRENT	ORIGINAL Part or Type No.	RECTIFIERS & DIODES		RECTIFIERS	
			GENERAL ELECTRIC PART No.	INTERNATIONAL RECTIFIER PART No.	MALLORY PART No.	RCA PART No.
XI	011A Maximum	485T10062A01	GE-504A or GE-505	5A4-D or 5D500	A50 or 1N536	SK-3016 or SK-3017 F-1 or 40C

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			
		MOTOROLA PART No.	WEISSNER PART No.	MILLER PART No.	WORKMAN PART No.
L1	41.25KC Relay Control	24D66131A03			
L2	40KC Relay Control	24D66131A03			
L3	38.5KC Relay Control	24D66131A03			

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	PRI.	SEC. 1 SEC. 2	MOTOROLA PART No.	MERIT PART No.	STANCOR PART No.	THORDARSON PART No.	TRIAD PART No.	
T1	117VAC @ .012A AC	9.8VAC @ .011A DC	25D6607BA01					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA					SPRAGUE PART No.
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNEIL-DUBUIER PART No.	GENERAL ELECTRIC PART No.	MALLORY PART No.	
C1	100	18	23C66135A02	BCD18100	NLW100-25	MT1-20	T25X100	TL-1184
C2	100	18	23C66135A02	BCD18100	NLW100-25	MT1-20	T25X100	TL-1184
C3	25	18	23C66135A03	BCD25025	NLW25-25	MT1-11	T25X25	VL-1210
C4	25	18	23C66135A03	BCD25025	NLW25-25	MT1-11	T25X25	VL-1210
C5	25	18	23C66135A03	BCD25025	NLW25-25	MT1-11	T25X25	VL-1210
C6	100	3	23C66135A01	BCD3100	NLW100-3	MT1-16	T3X100	VL-1051

CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL- DUBILIER PART No.	ELEMCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C7	.47	3V		UK-474	HCS3ROXR474P		MAC3047	HY130
C8	.05	50V	TTD-05	CK-503	HOV101ZV503Z		TC-SS0	TC-SS0
C9	.47	3V		UK-474	HCS3ROXR474P		HY130	HY130
C10	.05	50V	TTD-05	CK-503	HOV101ZV503Z		TC-SS0	TC-SS0
C11	.47	3V		UK-474	HCS3ROXR474P		HY130	HY130
C12	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	MAC3047	MAC3047
C13	56	N150 5%				*	G2P10	10TCS-D10
C14	56	N150 5%				*	*	10TCP-Q36
C15	56	N150 5%				*	*	10TCP-Q36
C16	820	100V 5%	ADM-206-821		CD19 P321 J500	DM-19-821	MS-382	MS-382
C17	820	100V 5%	ADM-206-821		CD19 P321 J500	DM-19-821	MS-382	MS-382
C18	820	100V 5%	ADM-206-821		CD19 P321 J500	DM-19-821	MS-382	MS-382
C19	.15	400V	DBE4P15		DMF4P15	4DP-4-154	PVC6015	4PS-P15
C20	.15	400V	DBE4P15		DMF4P15	4DP-4-154	PVC6015	4PS-P15
C21	.15	400V	DBE4P15		DMF4P15	4DP-4-154	PVC6015	4PS-P15
C22	1mdd	600V				CCD-472		
C23	.004†		DI-4700	DD-472	JBT601Y P472K	CCD-472	G2P47	10TS-D47
C24	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	G2P10	10TS-D47

+	Alternate Value
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* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
K1	Relay Control	80D56087A02	Audio and Hue (Green) Mute and Function
K2	Relay Control	80D56087A02	Channel and Hue (Red)
K3	Relay Control	80D56087A06	Mute and Function Selector (Includes Leaf Switch)
K4	Relay Control	80D56087A05	VOLUME Adjust (Includes Leaf Switch Assembly)
M1	Microphone	59D56084A05	Headset Channel
M2	Motor	59D57991A01	Hue Control (Includes Drive Gear)
M3	Motor Gear Box	13D565989A11	Assembly, Channel Change (Includes Switch, 1D56599A15)
S1	Switch	1D65989A15	Safety, Brightness, Mute & Audio Mute (on Tuner Motor)
S2	Printed Circuit Board	40P65142A13	Stop-Strip (Part of VHF Tuner)
		84C68014A01	Without Components

CABINETS & CABINET PARTS

(When Ordering Specify Model, Chassis & Color)

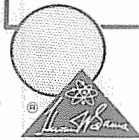
ITEM	PART No.	ITEM	PART No.
Transmitter, Complete	1D67984A01	Pushbutton	38B6058A02
Rod, 38.5K (Channel & Hue, Red)	47B7485401	Spring (Actuator)	41A68837A01
Rod, 40.0K (Mute & Function)	47K748544	Spring (Button)	41A65061A01
Rod, 41.25K (Audio & Hue, Green)	47K748546	Spring (Coil)	41A747736
Lever & Stud Assembly		Spring (Transducer Rod Mounting)	41A66146A02
Lever & Stud Assembly	1D66168A02	Cover (Housing, Black)	15D83271A02
Lever & Stud Assembly (Channel & Hue, Red)	1D66168A03	Housing (Gold, includes Overlay)	1D67894A03
Lever & Stud Assembly (Mute & Function)	1D67984A02	Overlay (Housing)	13C67993A03
		Screen (Housing Cover, Gold)	35B65270A03



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. NB915

MOTOROLA REMOTE CONTROL
RECEIVER TRR-6, TRANSMITTER TRT-5

SET 880 FOLDER 2-A



PHOTOFACT® Folder

with **CIRCUITTRACE™**

IMPORTANT FILING NOTICE

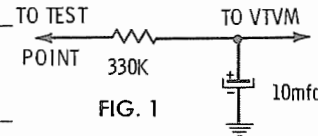
This PHOTOFACT Folder covers equipment used with the TV chassis covered in PHOTOFACT SET 880 FOLDER 2 . File this Folder with the TV Folder in the yellow filing jacket provided.

ALIGNMENT INSTRUCTIONS

REMOTE RECEIVER ALIGNMENT

Signal source for this alignment procedure is a TRT-5 Motorola Remote Transmitter known to be working properly. Maintain adequate distance (6-8 inches) between transmitter and receiver to obtain a useable dip. The delay circuit shown will help maintain a stable VTVM reading.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	Depress channel switch on transmitter (approximately once per second).	38.5KC	Channel Selector (Hue)	High side thru delay circuit (Fig. 1) to point \diamond . Low side to ground.	A1	Adjust for maximum dip on VTVM.
2.	Depress mute switch on transmitter (approximately once per second).	40KC	Mute (Function)	High side thru delay circuit (Fig. 1) to point \diamond . Low side to ground.	A2	TO TEST POINT 330K TO VTVM 10mf
3.	Depress audio switch on transmitter (approximately once per second).	41.5KC	Audio (Hue)	High side thru delay circuit (Fig. 1) to point \diamond . Low side to ground.	A3	"

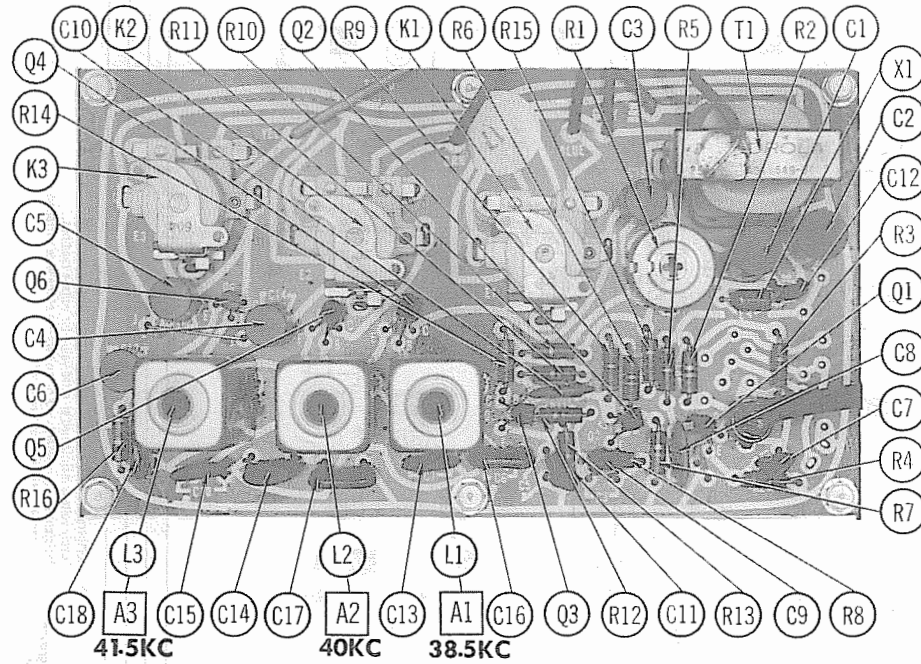


HOWARD W. SAMS & CO., INC. Indianapolis, Indiana 46206

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**MOTOROLA REMOTE CONTROL
RECEIVER TRR-6, TRANSMITTER TRT-5**

SET 880 FOLDER2-A



TRADE NAME
SUPPLIER
TYPE SET
TRANSISTORS
POWER SUPPLY

Motorola
For current address, see Annual Index.
Remote Control Receiver TRR-6, Transmitter TRT-5
Six
110-120 Volts AC, 60 Cycles

CAPACITORS

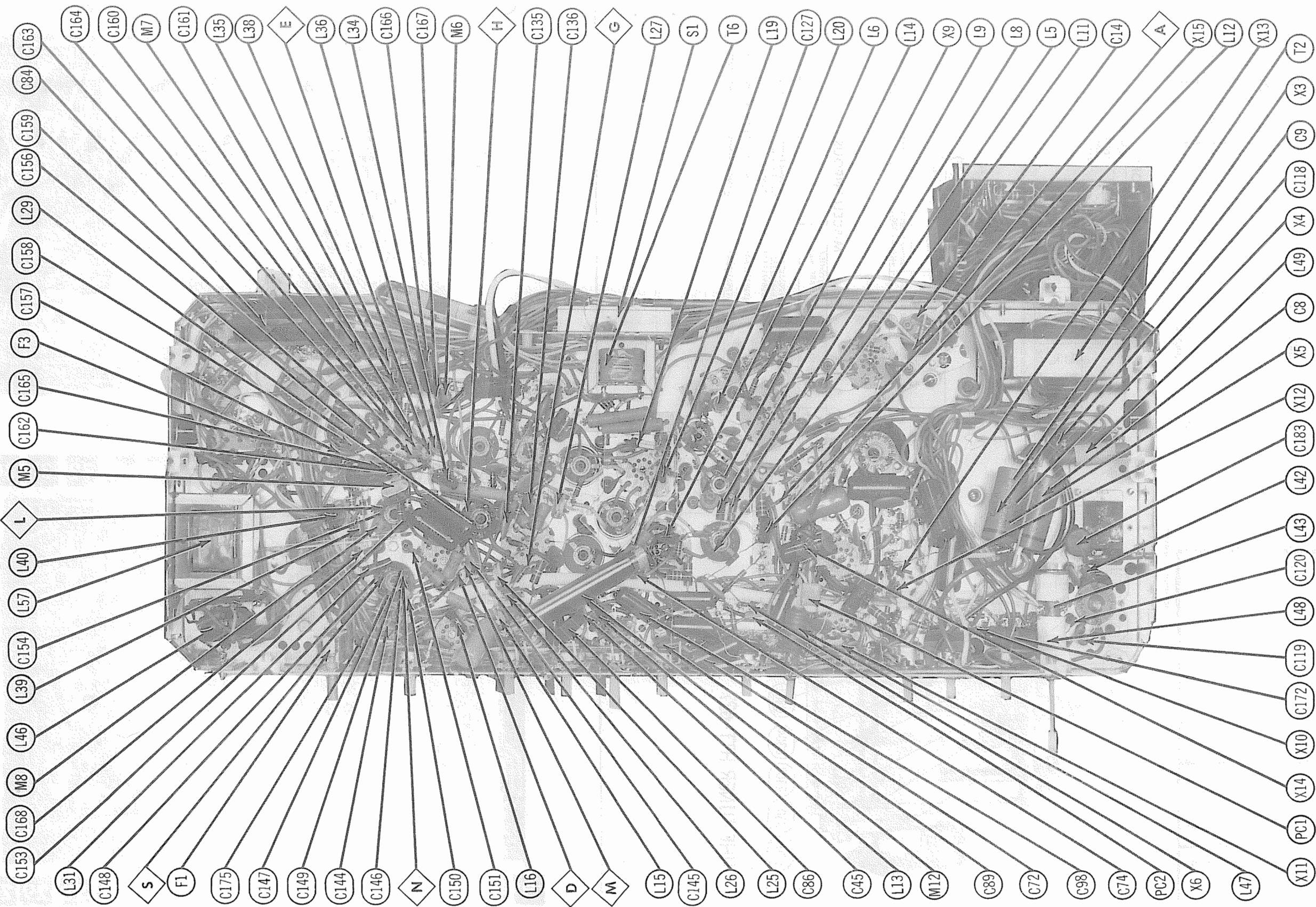
ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C13	68	NFO 5%	NFO-D1 68	DTZ-48	CX601CG100J	CCTO-680	CNO468	10TCC-Q68
C14	10	N750 5%	NFO-D1 10	DTN-10	C2601UJ100J	CCTN-100	CNT410	10TCC-Q10
C15	51	100V NFO 5%	NFO-D1 50	DTZ-50		CCTO-510	CNO450	10TCC-Q50
C16	51	100V NFO 5%	NFO-D1 50	DTZ-50		CCTO-510	CNO450	10TCC-Q50
C17	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C18	800	10%	BDP-0008	DD-201		CCD-601		10TS-T80
C19	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C20	330	10%	DI-330	DD-201	JBX601Y P331K	CCD-331	GP331	10TS-T39
C21	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C22	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C23	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C24	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C25	330	10%	DI-330	DD-201	JBX601Y P331K	CCD-331	GP331	10TS-T33
C26	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C27	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C28	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C29	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C30	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C31	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C32	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C33	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C34	100	NFO 5%	NFO-D1 100	DTZ-100	CV601CG100J	CCTO-101	CNO510	10TCC-Q10
C35	100	NFO 5%	NFO-D1 100	DTZ-100	CV601CG100J	CCTO-101	CNO510	10TCC-Q10
C36	100	NFO 5%	NFO-D1 100	DTZ-100	CV601CG100J	CCTO-101	CNO510	10TCC-Q10
C37	100	N150 5%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-T10
C38	.001	10%	DI-1000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C39	100	10%	DI-1000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C40	.5	100V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C41	.001	10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C42	.002	10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C43	.25	400V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C44	.05	200V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C45	.0008	10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C46	.01		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C47	.002		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C48	.002		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C49	.001	NFO 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C50	.001	NFO 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C51	10	NFO 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C52	.002		DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C53	.0022	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C54	22	NFO 5%	NFO-D1 22	DTZ-22	CV601CG100J	CCTO-220	CNO422	10TCC-Q22
C55	10	NFO 10%	NFO-D1 10	DTZ-10	CV601CG100J	CCTO-100	CNO410	10TCC-Q10
C56	390		DI-390	DD-391	JBS601Y P391K	CCD-391	GP391	10TS-T39
C57	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C58	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C59	.05	N150 10%	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C60	.05	800V	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C61	.470	1KV	DI-4700	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C62	.01	1KV	DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C63	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C64	.22	N150 10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C65	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C66	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C67	.001	2KV	DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C68	.25	400V	DI-2500	DD-251	JBS601Y P251K	CCD-251	GP211	10TS-D10
C69	.25	400V	DI-2500	DD-251	JBS601Y P251K	CCD-251	GP211	10TS-D10
C70	.470	2KV	DI-4700	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C71	2.2	NFO 1KV	NFO-D1 2.2	DTZ-2.2	CV601CG100J	CCTO-2.2	CNO42.2	10TCC-Q2.2
C72	.15	200V	DI-1500	DD-151	JBS601Y P151K	CCD-151	GP311	10TS-T10
C73	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C74	.0015		DI-1500	DD-151	JBS601Y P151K	CCD-151	GP311	10TS-T10
C75	.05	200V	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C76	100		DI-1000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C77	.01		DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C78	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C79	.005		DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C80	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C81	.01	400V 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C82	.033	800V 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C83	.039	800V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C84	.47	600V	DI-4700	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C85	.1	200V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C86	.01	1KV	DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C87	.039	600V 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C88	.002	2KV 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C89	.002	1KV 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C90	.0022	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C91	.0022	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C92	.002	2KV 10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C93	.5	200V	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C94	.022	400V	DI-2200	DD-221	JBS601Y P221K	CCD-221	GP211	10TS-D10
C95	.22	200V	DI-2200	DD-221	JBS601Y P221K	CCD-221	GP211	10TS-D10
C96	.047	200V 10%	DI-4700	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C97	100	N750 5%	NFO-D1 100	DTZ-100	CV601CG100J	CCTO-100	CNO510	10TCC-Q10
C98	.033	600V	DI-330	DD-331	JBS601Y P331K	CCD-331	GP331	10TS-T33
C99	100		DI-1000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C100	100		DI-1000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C101	.002	10%	DI-2000	DD-202	JBX601Y P202K	CCD-202	GP220	10TS-D20
C102	27	N750 10%	DI-2700	DD-271	JBS601Y P271K	CCD-271	GP211	10TS-D10
C103	.0033	10%	DI-3300	DD-331	JBS601Y P331K	CCD-331	GP331	10TS-T33
C104	.39	300V	DI-390	DD-391	JBS601Y P391K	CCD-391	GP391	10TS-T39
C105	.470	10%	DI-470	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C106	.0008	400V 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C107	.022	400V 10%	DI-2200	DD-221	JBS601Y P221K	CCD-221	GP211	10TS-D10
C108	.05	400V	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C109	.50	N150 10%	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C110	220	10%	DI-2200	DD-221	JBS601Y P221K	CCD-221	GP211	10TS-D10
C111	.005	1KV	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C112	.005	1KV	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C113	.25	400V	DI-2500	DD-251	JBS601Y P251K	CCD-251	GP211	10TS-D10
C114	.01		DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10
C115	.1	600V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C116	.001	10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C117	.25	400V	DI-2500	DD-251	JBS601Y P251K	CCD-251	GP211	10TS-D10
C118	.1	600V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C119	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C120	.001		DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C121	.33	2KV N150 10%	DI-3300	DD-331	JBS601Y P331K	CCD-331	GP331	10TS-T33
C122	.001	2KV	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C123	.047	600V	DI-4700	DD-471	JBS601Y P471K	CCD-471	GP347	10TS-T47
C124	.1	600V 10%	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C125	.05	600V	DI-5000	DD-502	JBS601Y P502K	CCD-502	GP250	10TS-D50
C126	.1	600V	DI-1000	DD-102	JBS601Y P102K	CCD-102	GP210	10TS-D10
C127	12	N150 10%	DI-1200	DD-121	JBS601Y P121K	CCD-121	GP211	10TS-D10
C128	.01		DI-10000	DD-101	JBS601Y P101K	CCD-101	GP310	10TS-T10

PARTS LIST AND DESCRIPTION (CONTINUED)

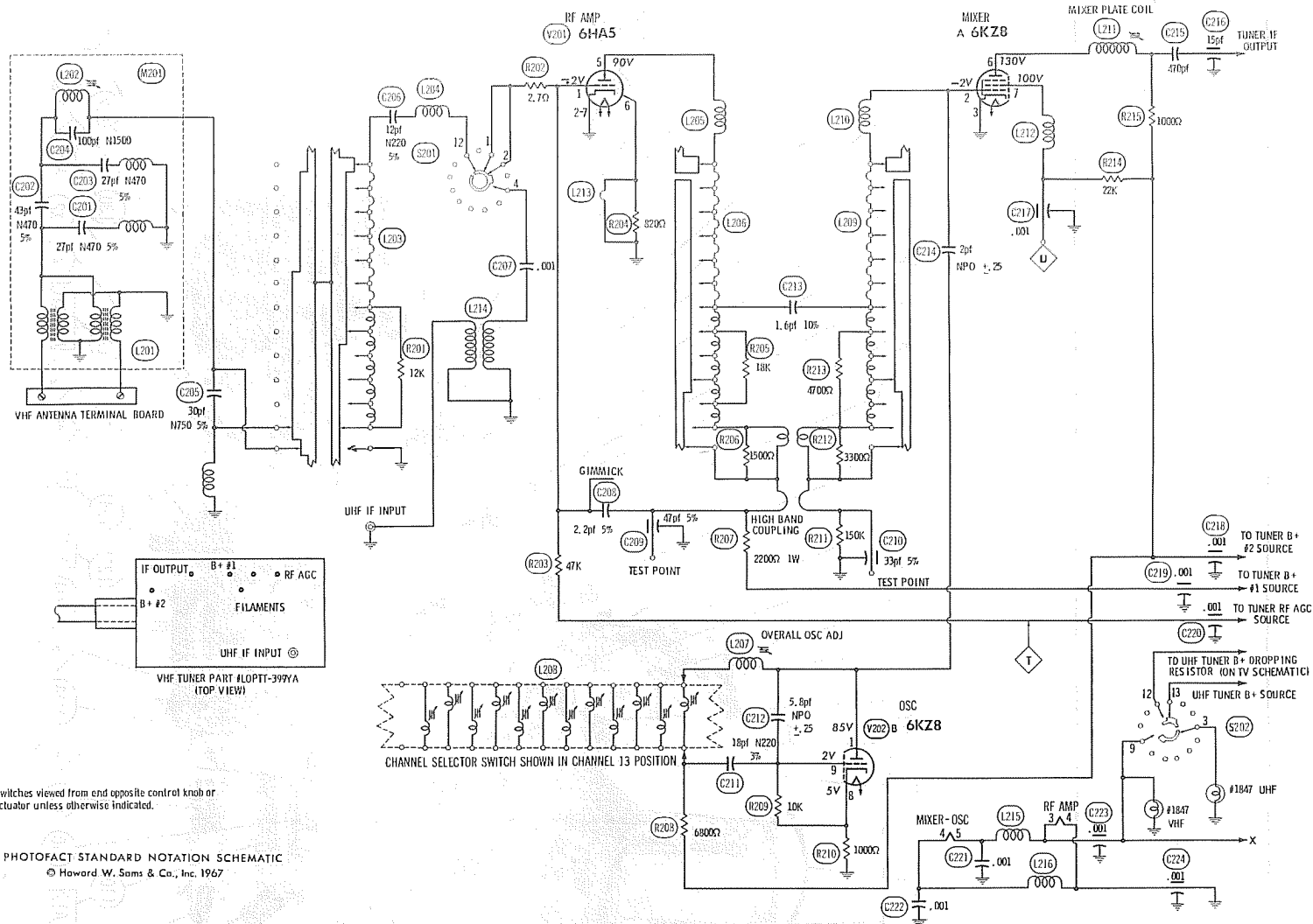
(When ordering parts, state Model, Part Number, and Description.)
Replacement parts shown may be superseded by the availability of newly introduced replacements.
Have your local distributor check Sams COUNTER FACTS for the most up-to-date replacement.

CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C129	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C130	.05	100V	BPD-05	DD-503		CCD-503	GP150	5HK-S50
C131	82 1KV N150 10%	#21S131554				*		10TCP-Q82
C132	120 N1500 10%	#21S180B38					2HV312	
C133	560	10%	DI-560	DD-561	JBY601YP561K	CCD-561	GP356	10TS-T56
C134	.05	100V	BPD-05	DD-503		CCD-503	GP503	5HK-S50
C135	.05	100V	BPD-05	DD-503		CCD-503	GP150	5HK-S50
C136	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C137	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C138	1			TCZ-1			CN0610	10TCC-V10
C139	.15	200V	D8E2P15	DMF2P15		2DP-3-154	PVC2015	2PS-P15
C140	33 N750 5%		NB5E-DI-33	DTN-33	CZ601UJ330K	CCTN-330	CN7433	10TCU-Q33
C141	15 NPO 5%		NPO-DI-15	DTZ-15	CZ601CG150J	CCCTO-150	CN0415	10TCC-Q15
C142	15 NPO 5%		NPO-DI-15	DTZ-15	CZ601CG150J	CCCTO-150	CN0415	10TCC-Q15
C143	.15	200V	D8E2P15	DMF2P15		2DP-3-154	PVC2015	2PS-P15
C144	120 12KV N750 10%		TCN-120	DD-601	JBY601YP601K	CCN-121	CN7312	10TCU-T12
C145	.01	10%	DI-600	DD-601		CCD-601	CN0601	10TS-T60
C146	3.4		NPO-DI 3.0	DTZ-3R3		CCCTO-3R3	CN0633	10TCC-V30
C147	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C148	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C149	75 NPO 10%		NPO-DI 75	DTZ-75		CCD-750	CN0475	10TCC-Q75
C150	560	10%	DI-560	DD-561	JBY601YP561K	CCD-561	GP356	10TS-T56
C151	680	10%	DI-680	DD-681	JBY601YP681K	CCD-681	GP368	10TS-T68
C152	1			TCZ-1		*	CN0610	10TCC-V10
C153	3.3 N3300						*	
C154	.01	10%	DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C155	10 NPO 5%		NPO-DI 10	DTZ-10	CZ601CG100J	CCCTO-100	CN0410	10TCU-Q10
C156	330	5%	ADMM-15-331	DD-130J	CD15 F331-50	CD-15-331J	MS-333	
C157	.01		DI-10000	DD-103	BYX601ZU103M	CCD-103	GP110	10TS-S10
C158	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C159	.001		DI-1000	DD-102	JBS601YP102K	CCD-102	GP210	10TS-D10
C160	270	10%	DI-270	DD-271		CCD-271	GP327	10TS-T27
C161	6.2 NPO 5%		NPO-DI 6.2					10TCC-V02
C162	6.2 NPO 5%		NPO-DI 6.2					10TCC-V02
C163	10 N150 10%	#21S120578				*		10TCC-Q18
C164	.1	400V	DBE4PI		DMF4PI	4DP-3-104	PVC601	4PS-P10
C165	.1	400V	DBE4PI		DMF4PI	4DP-3-104	PVC601	4PS-P10
C166	.1	400V	DBE4PI		DMF4PI	4DP-3-104	PVC601	4PS-P10
C167	0.01		DD-101	DD-101	JB601YPI01K		GP310	10TS-T10
C168	.001 2KV		HVD-30-1000	DD30-102	HV202XP102M	3CCD-102		30GA-D10
C169	.001 2KV		HVD-30-1000	DD30-102	HV202XP102M	3CCD-102		30GA-D10
C170	.001 2KV		HVD-30-1000	DD30-102	HV202XP102M	3CCD-102		30GA-D10
C171	.001 2KV		HVD-30-1000	DD30-102	HV202XP102M	3CCD-102		30GA-D10
C172	68 N75 10%	#21S129652					*	
C173	.005 2KV			DD30-502	HV202U0250 P	3CCD-502		30GA-D60
C174	.01		DI-10080	DD-102	BYX601ZU103M	CCD-103	GP110	10TS-S10
C175	.01		DI-10000	DD-102	BYX601ZU103M	CCD-103	GP110	10TS-S10
C176	.15 600V		DBE6P15		DPMS6P15	6DP-5-154	PVC6015	6PS-P15
C177	.0015 1.4KV			CI-102	ACV142ZU02P		UAC210	125L-D15
C178	.025 200V 10%		DBE6S25		DPMS6S25	6DP-3-253	PVC6125	6PS-S25
C179	.01 200V 10%		DBE481	CPR-10000J	DMF231	2DP-1-103	PVC211	2PS-P10
C180	.056 200V 10%		DBE6S56		PKM4S56	4DP-5-563	PVC6056	4PS-S56
C181	.1 200V 10%		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C182	.1 200V 10%		DBE2P1		DMF2P1	2DP-3-104	PVC201	2PS-P10
C183	47 6KV N1500 10%	#21S180B76				*	6DY447	
C184	.002 2KV 10%	#21S125899						

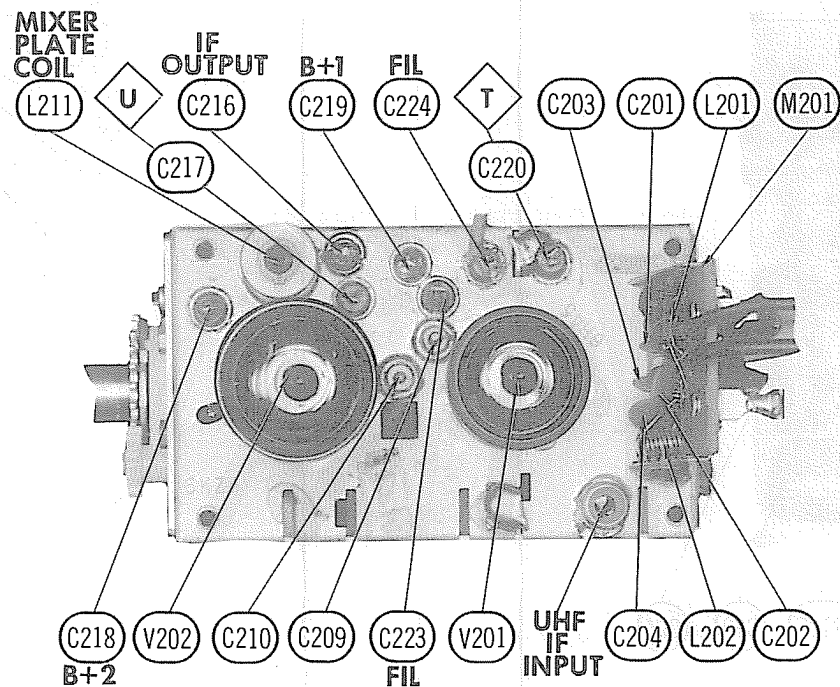
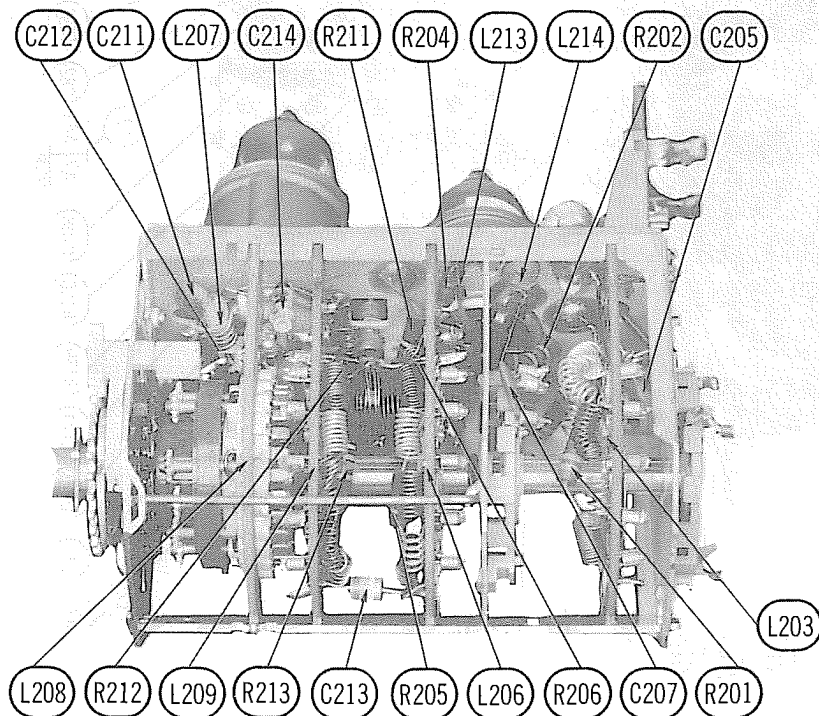


MOTOROLA CHASSIS
A22TS-/20TS-/22TS-/23TS-918A
CHASSIS - BOTTOM VIEW



Switches viewed from end opposite control knob or actuator unless otherwise indicated.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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VHF TUNER OPTT-399YA, LOPTT-399, ALOPTT-399

VHF TUNER ALIGNMENT INSTRUCTIONS

OSCILLATOR ADJUSTMENTS

The oscillator for each channel is preset by means of the fine tuning control. Adjust fine tuning for best picture and sound on each channel. If any channel cannot be properly tuned in with the fine tuning, center fine tuning on channel 13. Adjust overall oscillator adjustment and recheck all available channels.

RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection. Use 10MC sweep unless otherwise noted. Connect a variable bias to the RF AGC line at point (1). Adjust bias to obtain response curve which shows no indication of overloading.

SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Input to Point (1), low side to ground		Expand or compress appropriate coils for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
2. "	195MC	193.25MC 197.75MC	10	Across Video Det. load resistor.	Hi-Band Neutralizing Coil	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
"	See Chart	See Chart	5	Across Video Det. load resistor.	Low Band Neutralizing Coil	Increase bias to -15 volts and adjust for MINIMUM amplitude of response.
3. "	See Chart	See Chart	12 thru 2	Vert. Input to Point (1), low side to ground.		Check all channels and make compromise adjustments by expanding or compressing appropriate coils if necessary.

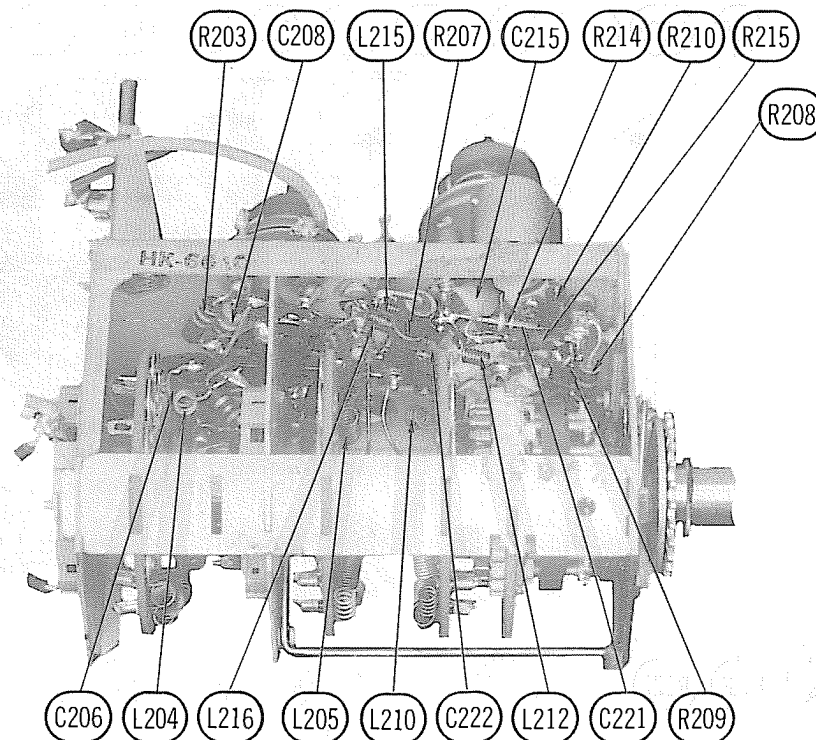
FM Trap (on Antenna Input Assembly) may be adjusted to eliminate interference.

CHANNEL & FREQUENCY CHART

SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	
57MC	55.25MC 59.75MC	2	85MC	83.25MC 87.75MC	6	195MC	193.25MC 197.75MC	10	<p>FIG. 201</p>
63MC	61.25MC 65.75MC	3	177MC	175.25MC 179.75MC	7	201MC	199.25MC 203.75MC	11	
69MC	67.25MC 71.75MC	4	183MC	181.25MC 185.75MC	8	207MC	205.25MC 209.75MC	12	
75MC	73.25MC 77.75MC	5	189MC	187.25MC 191.75MC	9	213MC	211.25MC 215.75MC	13	

UHF TUNER ALIGNMENT INSTRUCTIONS

UHF TUNER #HTT627 — Tune UHF Channel Selector to the lowest UHF channel (low end of dial) operating in the area. Adjust UHF Low Channel Oscillator Trimmer for best picture and sound. Tune to the highest UHF channel (high end of dial) in the area and adjust UHF High Channel Oscillator Trimmer for best picture and sound. Repeat above steps until no further improvement can be made.



MOTOROLA CHASSIS
A221S-/201S-/221S-/231S-918A

FOLDER 2

ALIGNMENT INSTRUCTIONS

Use an isolation transformer and maintain voltage at 117 volts. Allow a 20-minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A1 thru A20 GENERAL CEMENT #0606, 8606L, 8869 ... WALSCO #2543, 2544, 2588
Mixer Plate Coil .. GENERAL CEMENT #9296, 9297, 9300 WALSCO #2510, 2546, 2547

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 generator output for a useable indication. Note: Response may vary slightly from that shown. Remove horizontal output tube. Connect a variable bias supply to the IF AGC line (point ④) and adjust to obtain a response curve which shown no sign of overload. Ground point ③, off pin 7 of V4. Disable oscillator section of Mixer-Osc. tube. Set channel selector to any non-interfering channel.

	INDICATOR	GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	ADJUST	REMARKS
1.	Connect DC probe of a VTVM thru a 47K resistor to point ③. Common to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.		39.75MC 41.25MC 47.25MC	A1 A2, R25 A3, R24	Adjust for MINIMUM.
2.	Connect vertical input of a scope to point ④. Low side to ground.	Connect high side to ungrounded tube shield over Mixer-Osc. Low side to ground.	44MC (10MC Sweep)	39.75MC 41.25MC 42.17MC 44.00MC 45.75MC 47.25MC	A4, A5, A6, A7, Mixer Plate Coil	Adjust for maximum gain and symmetry of response with markers as shown in Figure 1.

4.5 MC TRAP ALIGNMENT

Tune in a strong TV signal and set the Contrast at maximum. Adjust the Fine Tuning until a beat pattern is visible on the screen. Adjust A12 for MINIMUM beat interference.

OUND IF ALIGNMENT

Tune in a station and adjust A8 for maximum sound. Reduce signal strength at the antenna terminals until distortion appears. Continue to reduce signal while aligning for undistorted output by adjusting A9, A10, and A11.

CHROMA BANDPASS ALIGNMENT

Remove V11 (Horiz. Output), V9 (Sync Sep. - Vert. Mult), V6 (AGC Keying-Horiz. Osc.). Disconnect convergence panel plug. Connect a clip lead from point ⑤, off pin 1 of V8 to ground. Connect a -45VDC Bias supply to point ⑥, pin 9 of V16 (Burst Amp. - Chroma Sync Amp.). Connect a clip lead from point ⑦, off pin 8 to V15 (Chroma Demodulator) to ground. Connect a .1mfd disc capacitor from point ⑧, pin 3 of V15 to ground. Disable oscillator section of V202 (Mixer-Oscillator) in tuner. Adjust Color Killer control maximum clockwise. Adjust Color Intensity control maximum counterclockwise. Adjust Noise Gate control maximum counterclockwise. Adjust Picture Peaking control maximum clockwise. Adjust Contrast control maximum clockwise. The following alignment will require the use of an RF Modulator (RCA WG304A or equivalent).

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	High side of sweep gen. to the video sweep input of RF modulator, high side of signal generator (set at 45.75MC) to picture carrier input, output of RF modulator to Mixer Grid test point on tuner, low side to ground.	3MC (0-5MC Sweep)	3.1MC 3.58MC 4.1MC		Vert. input thru demodulator probe to point ⑨, pin 3 of V14, Chroma Bandpass Follower, low side to ground.	A13, A14,	Adjust for response curve similar to Fig. 2.
4.	"	"	"		Vert. input thru demodulator probe to point ⑩, off pin 7 of V15, Chroma Demodulator, low side to ground.	A15, A16	Reset Color Intensity control to mid-position, then adjust A15 and A16 for response curve similar to Fig. 3.

DEMODULATOR TRAP ADJUSTMENT AND COLOR AFC ALIGNMENT

Connect a Color Bar generator to the antenna terminals. Turn the Color Intensity control fully counterclockwise. Connect a clip lead from point ⑪, pin 3 of V15 (Chroma Demodulator) to ground. This alignment requires the use of a trap detector. (See Fig. 4.)

SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
5.			Connect input of Trap detector to pin 1 of V15 (Chroma Demodulator), DC probe to output of Trap detector, common to ground.	A17	Adjust for MINIMUM.
6.			Connect high side of VTVM thru 5.6meg resistor to point ⑫, pin 9 of V15 (Chroma Demodulator), low side to point ⑬, pin 1 of V5, Color Killer.	A18	Remove clip lead from point ⑭. Connect clip lead to point ⑮ at junction of L32 and M8 (3.58MC Crystal). Connect clip lead from point ⑯, pin 8, V16 (Burst Amp.) and ground. Adjust for maximum.
7.			"	A19	Remove clip lead from point ⑰. Starting with core at chassis end of coil adjust to second -3VDC reading.
8.			"	A18, A19	Advance Color Intensity control until color is just visible on picture tube. If color cannot be obtained, remove clip lead from point ⑱ and connect to point pin 2 of V16 (Chroma Sync Amp.). Adjust A18 until color bars tend to float slowly across the screen or stand still. Adjust A18 and A19 until color bars tend to float or stand still and -3VDC reading is obtained simultaneously.
9.			Connect high side of VTVM to point ⑲, off pin 2 of V16, low side to ground.	A20	Remove all clip leads and set Color Intensity control to MINIMUM. Start with core at furthest point from chassis and adjust for maximum deflection at both ends of Hue control rotation.

Connect the Vertical Input of a Scope to Point ⑲ (Red grid of CRT). Check for proper waveform with color bar generator being used. See waveform on schematic for pattern obtained from a standard N.T.S.C. signal. Check the range of the Hue control. The bars should move 30° either side of proper signal. If necessary, retouch A20 for proper range of control.

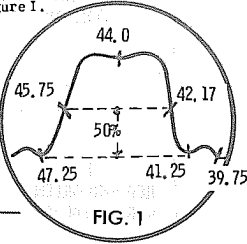


FIG. 1

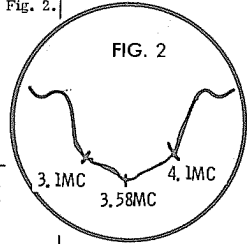


FIG. 2

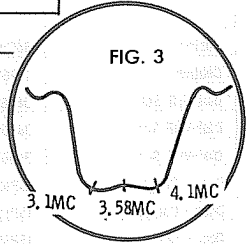


FIG. 3

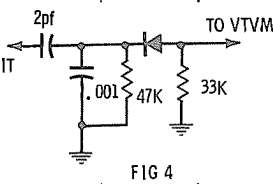
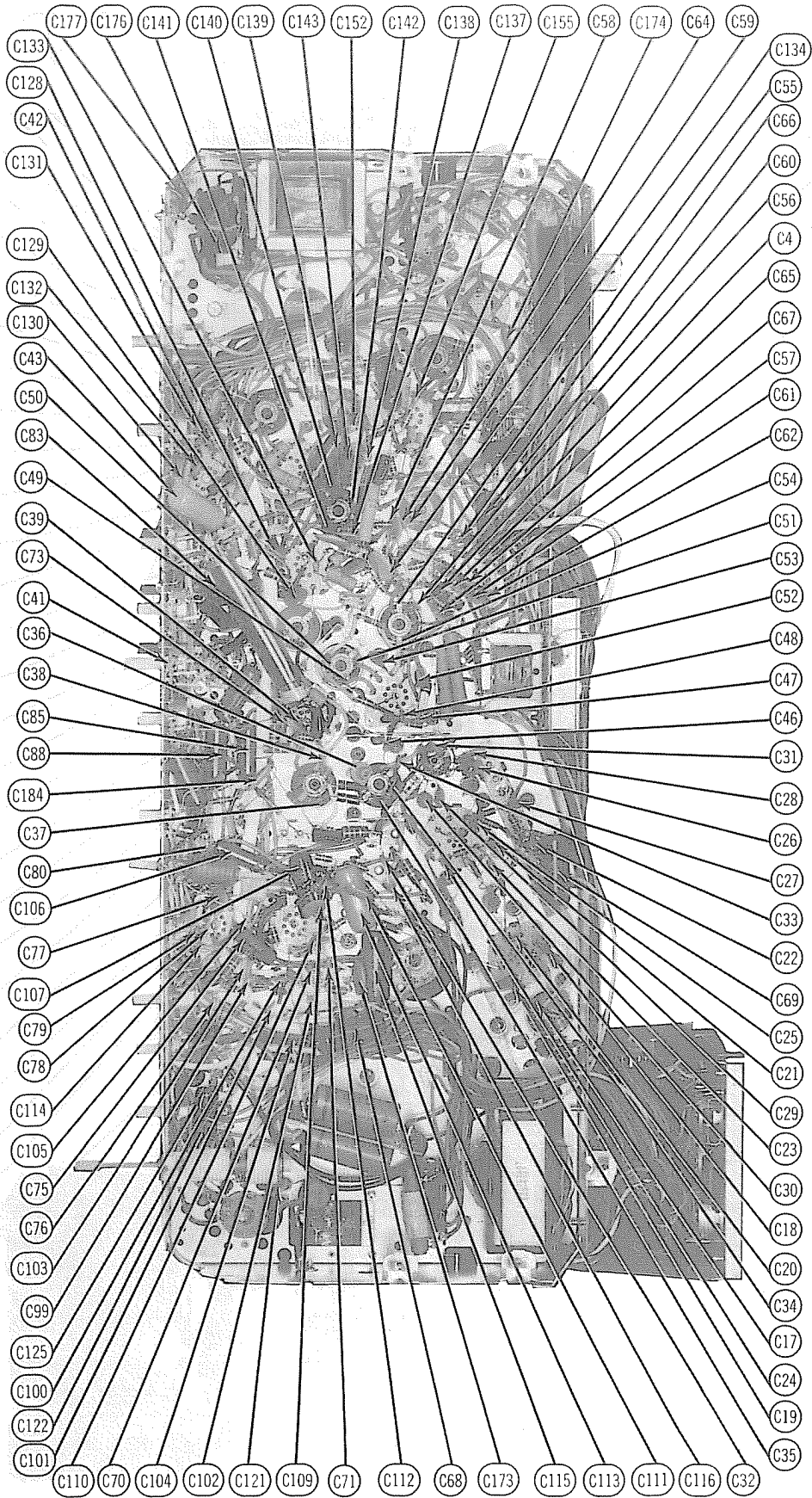


FIG 4



CHASSIS - BOTTOM VIEW

MOTOROLA CHASSIS
A22TS-/20TS-/22TS-/23TS-918A

FOLDER 2

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Tune in a TV station and adjust all controls for normal operation. Allow a 15-minute warmup. Adjust the Horizontal Hold coil, L47, until picture is in proper sync and remains in sync when switching from channel to channel.

Turn Brightness control to MINIMUM. If necessary, adjust Master G-1 Screen control to extinguish raster. Connect a VTVM, through a 30KV or higher voltage probe, to picture tube anode. Adjust Horizontal Bias control, R15, for 27KV on picture tube anode.

Adjust Focus, Horizontal Centering, Horizontal Size, Vertical Centering, Vertical Size, and Vertical Linearity controls.

AGC AND NOISE GATE

Tune in the strongest available TV station. Turn the AGC control, R14, fully counterclockwise until the picture becomes unstable (rolls, tears, bends, etc.). Then turn clockwise until picture returns to normal. Check all available channels. If any channel is unstable, continue turning control clockwise until the picture is normal on all channels.

Turn Noise Gate control, R13, clockwise until the picture becomes unstable. Then turn control counterclockwise until the picture just returns to normal. Check all available channels. If any are unstable, continue turning control counterclockwise until the picture is normal on all channels.

PURITY ADJUSTMENTS

Connect a crosshatch generator to antenna terminals and fine tune for best picture. Check adjustment of Vertical Size and Linearity, Vertical Centering, Horizontal Centering, and Focus (center of screen) to obtain a pattern of proper focus, size, and location. Demagnetize receiver, using degaussing coil around front and all sides of CRT, or use built-in degausser. Perform Step 1 of the "Convergence Adjustments". Set Contrast control to MINIMUM, Brightness control to normal level, and Tint control to its mechanical center.

Turn Blue and Green screen controls to MINIMUM and Red screen control to maximum. Loosen Deflection Yoke retaining screw and move yoke as far back as possible without hitting the convergence yoke assembly. Adjust the tabs on the Purify ring and rotate the assembly to place the Red area at the center of the screen. Move the Deflection Yoke forward and position for best overall Red screen. Check purity of Blue and Green.

VIDEO PEAKING

The Video Peaking control, R12, should normally be set in maximum clockwise position for optimum video response. If high frequency background noise is visible on screen, turn video peaking control counterclockwise to eliminate the background noise.

COLOR KILLER

Set Color Killer control, R9, fully counterclockwise. Tune in a color signal and adjust Color Killer control clockwise until color just appears on the screen and is normal. Switch to a black and white signal and adjust for colorless noise.

BACKGROUND ADJUSTMENTS

Set Red, Blue, and Green Drive controls and Tint control to midposition. Set Master G-1 control, R5B, to MINIMUM (maximum counterclockwise). Tune receiver to a blank channel. (For noise free raster, set tuner between channels.) Set Contrast control to MINIMUM and all screen controls to maximum. Adjust Brightness control until raster is just visible. (Adjust Master G-1 control, if necessary, to see raster.) Observe color of raster and reduce screen controls of predominant colors. The screen control of the weakest color should be left at maximum. Adjust remaining two (2) screen controls to produce a gray raster. Set Brightness control to maximum position and Contrast control at MINIMUM. Starting with Master G-1 control in its maximum counterclockwise position, slowly rotate control in a clockwise direction until picture just starts to go out of focus, then turn control back approximately 45°. Reduce Brightness control to normal level. Touch up Red, Blue, and Green Drive controls to produce a normal white raster, and touch up screen controls if necessary.

DYNAMIC PINCUSHION ADJUSTMENTS

Connect a crosshatch generator to the antenna terminals. Adjust set for a normal crosshatch pattern. Adjust Bottom Amplitude Pincushion control, R22, to MINIMUM (maximum clockwise), then adjust Top Tilt coil, L51, for the straightest possible line near the top of the screen. Readjust Bottom Amplitude Pincushion control, R22, for the straightest possible line near the bottom of the screen.

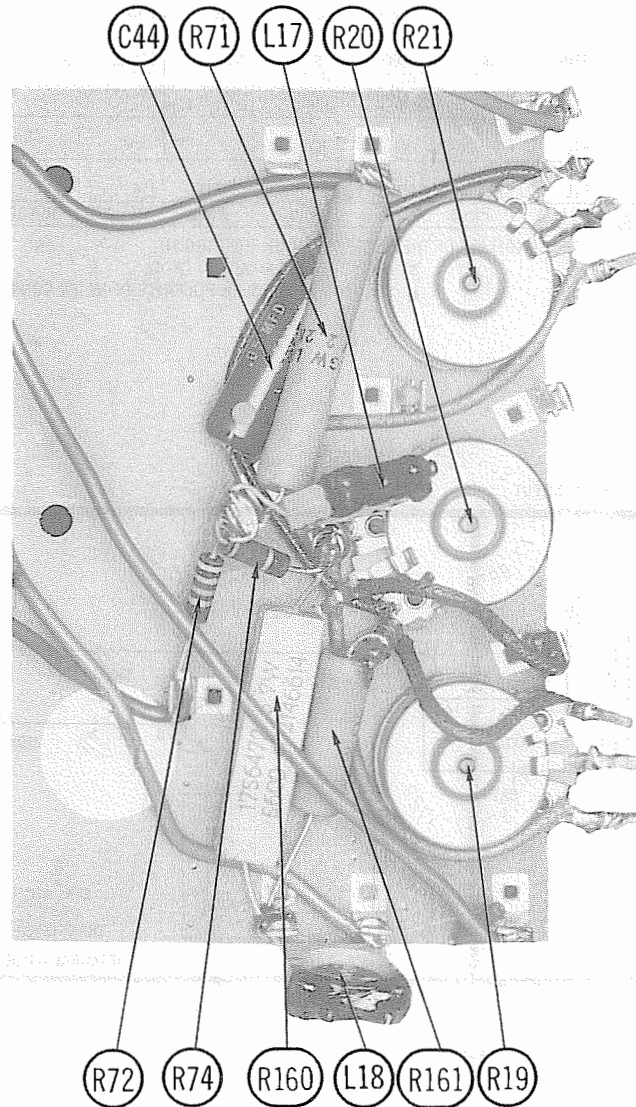
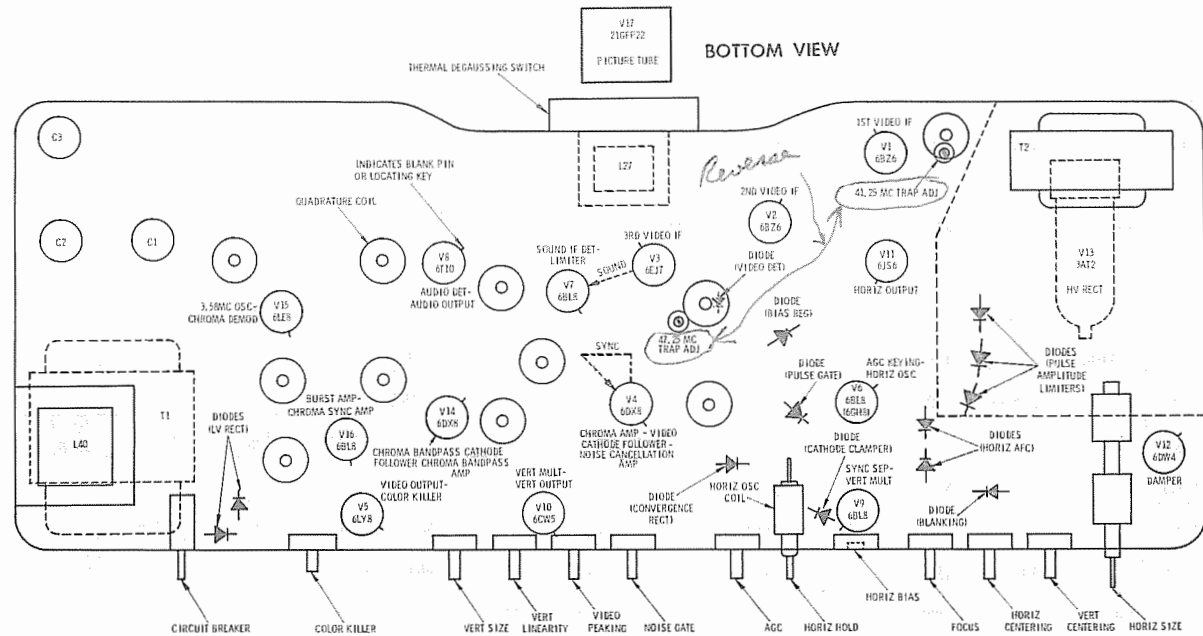
Adjust Horizontal Pincushion Adjust control, R23, for straightest possible line on left side of picture. Observe right side of screen. Make compromise adjustment of the Horizontal Pincushion Adjust control if necessary.

CONVERGENCE ADJUSTMENTS

Tune Receiver to a White Crosshatch and adjust for best picture. Recheck center of screen Focus, Picture Size, Linearity and Centering; correct if necessary.

VERTICAL DYNAMIC CONVERGENCE			
Step	Control	Use to Converge (or Straighten)	Remarks
1.			Perform center dot convergence using the disc magnets and the Blue Lateral magnet.
2.	R-G Vertical Tilt	Red and Green Vert. lines at Top of screen.	If desired turn Blue screen to MINIMUM to obtain a Red-Green raster. Touch up both controls for best convergence from top to bottom along vertical center line (Figs. 1 & 2).
3.	R-G Vertical Amp.	Red and Green Vert. lines at Bottom of screen.	Note: If range of controls is inadequate, move R-G Range switch to alternate position.
4.	R-G Vert. Diff. Tilt	Red and Green Horiz. lines at Top of screen.	Touch up both controls for best convergence of Horizontal lines along vertical center line (Figs. 3 & 4). If Horizontal lines in the center of screen are misconverged, repeat steps 4 and 5 for equally spaced Horizontal lines from top to bottom of screen.
5.	R-G Vert. Diff. Amp.	Red and Green Horiz. lines at Bottom of screen.	Readjust Disc magnets if necessary. Readjust R-G Vertical Amp. and Tilt controls (Steps 2 & 3) for center vertical lines, if necessary.
6.	Blue Vertical Amp.	Blue Horiz. lines at Top and Bottom of screen.	Turn up Blue screen control. Adjust to produce displacement in same direction of the Blue Horizontal lines at top and bottom of screen (Fig. 5).
7.	Blue Vertical Tilt	Blue Horiz. lines at Top and Bottom of screen.	Adjust to produce equal displacement in the same direction of the Blue Horizontal lines with respect to Red and Green from top to bottom of screen (Fig. 6). Alternately repeat Steps 6 & 7 for satisfactory convergence of the Blue Horizontal lines from top to bottom of screen along the center of screen for equal displacement to permit convergence with the Disc magnets. Note: If range of controls is inadequate, move Blue Vertical Reverse switch to alternate position.
8.	Right side R-G Vert. lines	Vert. lines Right side	Turn Blue screen to MINIMUM to obtain a Red-Green raster. Adjust to converge vertical lines from center to right side of screen (Fig. 7).
9.	Left side R-G Vert. lines	Vert. lines Left side	Adjust to converge vertical lines from center to left side of screen (Fig. 8).
10.	R-G Horizontal lines	Red and Green Horiz. lines at Right and Left side of screen.	Adjust to converge Horizontal Red and Green lines at the right and left side of screen (Fig. 9). Repeat steps 8, 9 and 10 for best overall convergence or for equal spacing of lines which can be corrected with the Disc magnets.
11.	R-G Horiz. Diff. Tilt	Red and Green Horiz. lines at center of screen.	Adjust to converge Red and Green lines in center of screen (Fig. 10).
12.	Blue Horiz. Amp. Blue Horiz. Tilt	Blue Horiz. line in center of screen.	Turn up Blue screen control. Adjust Blue Horizontal Amp. control to maximum. Adjust Blue Horiz. Tilt until the droop in the Blue line is in the center of screen (Fig. 11).
13.	Blue Horiz. Phase	Blue Horiz. line in center of screen.	Adjust until the droop in the Blue line is forced upward (Fig. 12).
14.	Blue Horiz. Amp.	Blue Horiz. line in center of screen.	Adjust to converge on Red-Green Horizontal center line (Fig. 13). Repeat Steps 12, 13 and 14 if necessary to get a satisfactory convergence along a center horizontal line or to get equal displacement to permit correction with the Disc magnets.

TUBE PLACEMENT CHART



MOTOROLA CHASSIS
A22TS-/20TS-/22TS-/23TS-918A

FOLDER 2