

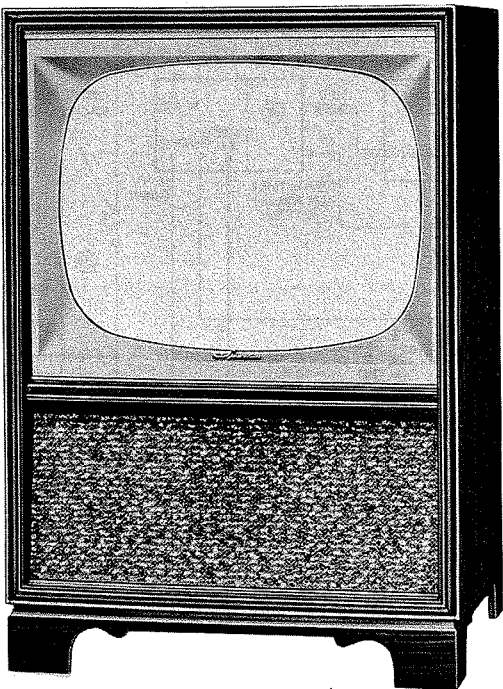


SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

- 1. Remove 10 push-on type knobs from the top.
- 2. Remove 11 wood screws holding the rear cover. Remove the rear cover.
- 3. Remove the speaker leads and ground strap to tuner and control bracket.
- 4. Using the horseshoe shape spanner wrench supplied with cabinet, remove 2 nuts from the on-off-volume and contrast controls which hold the tuner and control bracket to the cabinet.
- 5. Remove 6 bolts from the bottom holding the chassis mounting board.
- 6. Remove the chassis.



TRADE NAME	Spartan	CHASSIS
		U25-01AA, U25-02AA, U25-03AA, U25-04AA, U25-05AA, U25-06AA, U25-07AA, U25-08AA, U25-09AA, U25-10AA, U25-11AA, V25-01AA, V25-02AA, V25-03AA, V25-04AA, V25-05AA, V25-06AA, V25-07AA, V25-08AA, V25-09AA, V25-10AA, V25-11AA (25 Series)
MANUFACTURER	Spartan Div., 2131 Bueter Road, Fort Wayne 4, Indiana	
TYPE SET	Television Receiver	
TUBES	Twenty	
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 170 Watts, 1.57 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)	

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

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

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws holding the metal trim at the top of the safety glass. Tilt glass out at the top and lift up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

For adjustment of the Horizontal Oscillator, it is necessary to remove the rear cover and supply power to set. Set the Horizontal Hold at the center of its range and adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart.)

FUSES

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

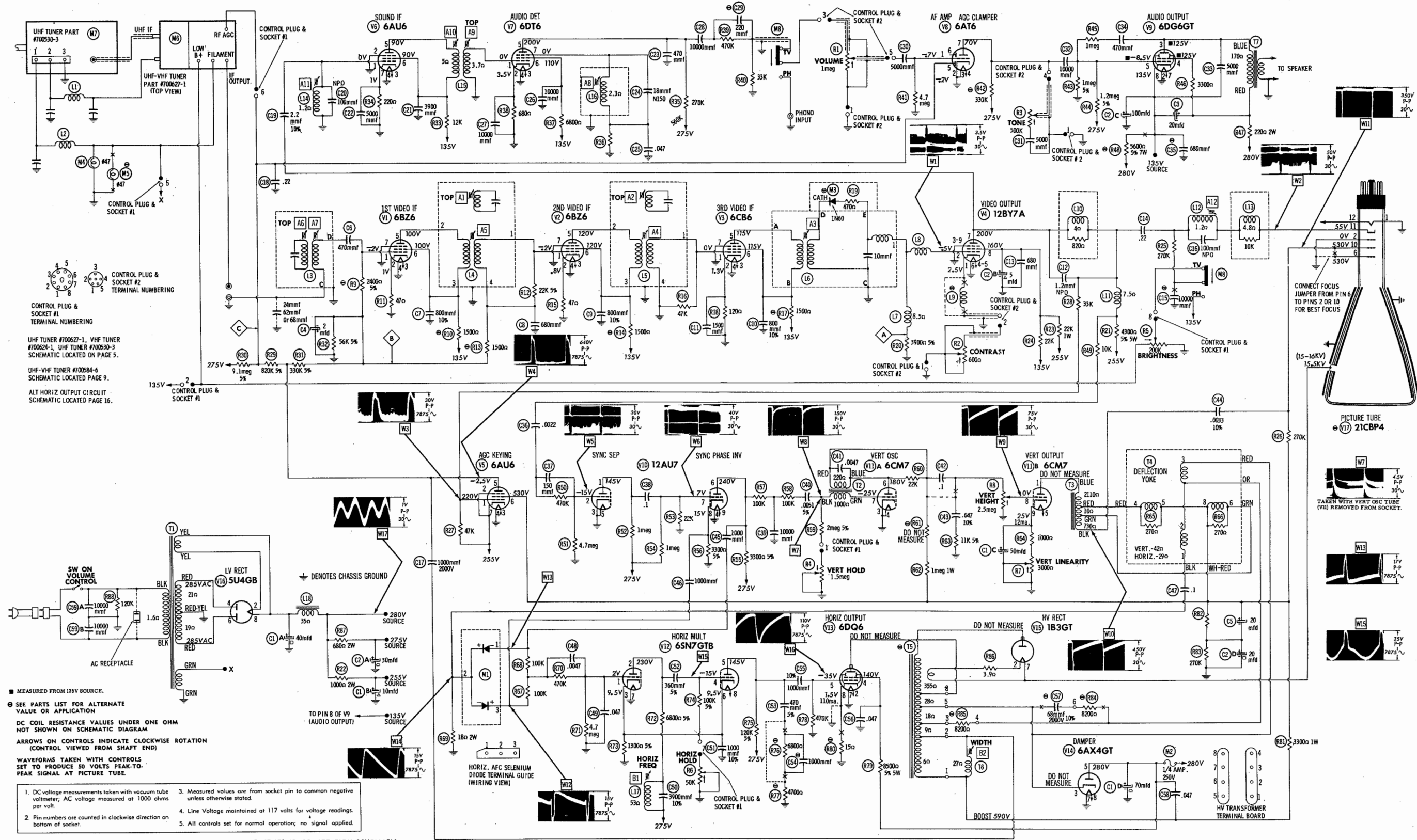
CENTERING

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

HOWARD W. SAMs & CO., INC. • Indianapolis 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 H506R

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America



SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

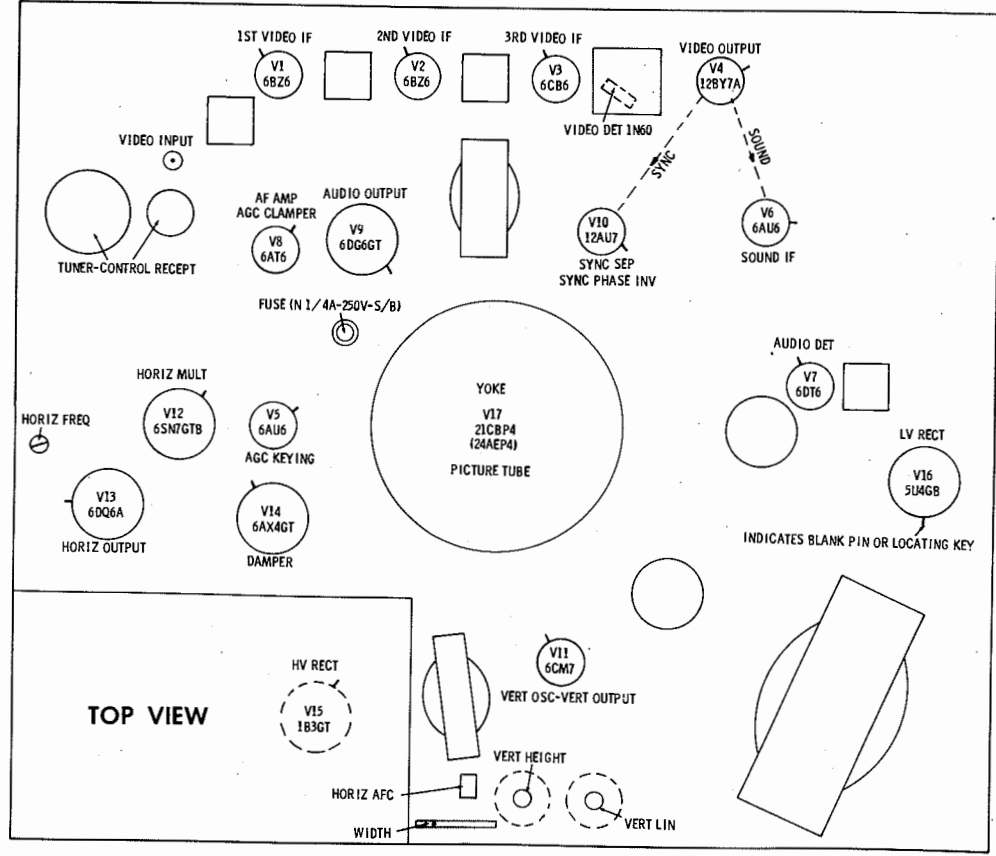
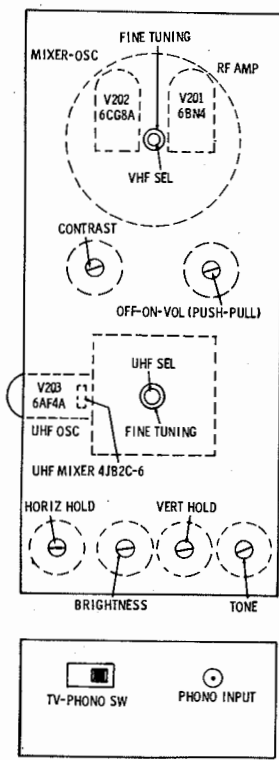
FOLDER 2

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	58K	47Ω	.1Ω	0Ω	■ 1500Ω	■ 1500Ω	0Ω		
V2	6BZ6	57K	47Ω	.1Ω	0Ω	■ 1500Ω	■ 1500Ω	0Ω		
V3	6CB6	.1Ω	120Ω	.1Ω	0Ω	■ 1500Ω	■ 1500Ω	0Ω		
V4	12BY7A	160Ω	3900Ω	0Ω	.1Ω	.1Ω	0Ω	† 5300Ω	■ 11K	0Ω
V5	6AU6	† 20K	† 1000Ω	.1Ω	0Ω	350K	† 3300Ω	† 1000Ω		
V6	6AU6	1.2Ω	0Ω	.1Ω	0Ω	■ 12K	■ 12K	220Ω		
V7	6DT6	3.7Ω	680Ω	.1Ω	0Ω	† 270K	■ 6800Ω	560K		
V8	6AT6	4.7meg	0Ω	0Ω	.1Ω	1.1meg	NC	† 330K		
V9	6DG6GT	TP	0Ω	† 390Ω	† 3500Ω	500K	TP	.1Ω	20K(MIN)	
V10	12AU7	† 1meg	4.7meg	0Ω	0Ω	0Ω	† 4000Ω	22K	3300Ω	.1Ω
V11	6CM7	† 5000Ω	NC	0Ω	0Ω	.1Ω	† 1.8meg	• 2.5meg	• 1.4meg	• 1800Ω
V12	6SN7GTB	500K	† 7500Ω	1300Ω	• 110K	† 120K	1300Ω	0Ω	.1Ω	
V13	6DQ6	NC	.1Ω	TP	† 8500Ω	470K	TP	0Ω	15Ω	TOP CAP † 28Ω
V14	6AX4GT	TP	NC	† 370K	NC	† 0Ω	NC	0Ω	.1Ω	
V15	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP † 383Ω
V16	5U4GB	NC	† 20K	TP	21Ω	NC	19Ω	TP	† 20K	
V17	21CBP4	0Ω	0Ω	Pin 6 † 270K	Pin 10 † 270K	Pin 11 • 290K	Pin 12 .1Ω			
V201	6BN4	0Ω	1.1meg	0Ω	.1Ω	■ 470Ω	0Ω	1.1meg		
V202	6CG8A	10K	■ 5600Ω	0Ω	0Ω	.1Ω	■ 1000Ω	■ 10K	0Ω	230K
V203	6AF4A	■ *820Ω	*22K	.1Ω	.2Ω	*.1Ω	*22K	■ *820Ω		

THIS READING MAY VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.
THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
MEASURED FROM 135V SOURCE.
MEASURED FROM 280V SOURCE.
MEASURED FROM PIN 3 OF V14.
MEASURED IN "UHF" POSITION.
NC NO CONNECTION.
TP TIE POINT.

TUBE PLACEMENT CHART



SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

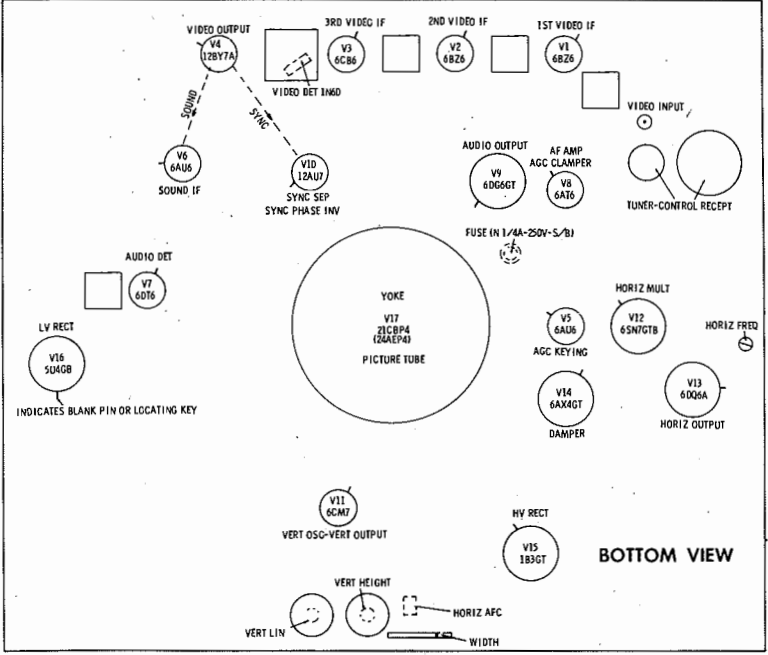
TUBE FAILURE CHECK CHART

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

POWER SUPPLY FAILURE No raster, no sound V16	LOSS OF PICTURE OR SOUND No pic, no sound, has raster V1, V2, V3, Diode (M3), V4, V9 No pic, no sound, has snow V201, V202, V1, (V203 UHF only) No pic, has sound, has raster V4, V17 Has pic, no sound V8, V7, V8, V9 Overloaded picture V5
SWEEP FAILURE No raster, has sound Fuse (M2), Rectifier (M1), V12, V13, V14, V15, V17 No vertical deflection V11 Poor vert. linearity or foldover V11 Poor horiz. linearity or foldover V12, V13, V14 Narrow picture V12, V13, V14, V16 Vert. off freq. V11 Horiz. off freq. V12	SYNC FAILURE No vert. sync V10 No horiz. sync V10, M1 No vert. or horiz. sync V10

FOLDER 2

TUBE PLACEMENT CHART



ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point Δ . Positive to chassis.
Connect the negative lead of a 3 volt bias supply to point ∇ . Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Detune Mixer Plate Coil by turning core fully counterclockwise.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. .001mfd	High side to pin 1 (grid) of 6BZ6 (V1). Low side to chassis.	43.5MC	47.25MC	Any non-interfering channel	Vert. Amp. thru 10K to point \odot . Low side to chassis. (Across Video Det. Load)	A1, A2	Adjust to place marker in trap notch. If two points are found to do this, use the one with slug farthest counterclockwise.
2. "	"	"	42.25MC	"	"	A3, A4, A5	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust A3 for maximum gain, A4 to position 45.75MC marker and A5 to place 42.25MC marker. Recheck step 1.
3. Direct	Place a thin insulated metal strip between the mixer-osc. tube (V202), and tube shield. Connect the high side of sweep generator to the metal strip. Low side to chassis.	"	41.25MC	"	"	A6	Adjust to place marker in trap notch. If two points are found to do this, use one with slug farthest counterclockwise.
4. "	"	"	41.25MC 42.25MC 45.0MC 45.75MC	"	"	A7 & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Adjust Mixer Plate coil for maximum gain with 45.75MC marker at 50%. Adjust A7 for maximum gain and proper tilt. Due to interaction it may be necessary to repeat adjustment. Recheck step 3.

SOUND IF ALIGNMENT

Turn the Contrast control fully clockwise and A8 fully counterclockwise.
Tune in a strong TV signal (preferably with a tone signal or music). Adjust A8 just past the point of maximum sound and MINIMUM distortion.
Reduce the signal strength by disconnecting the antenna or connecting an adjustable attenuator between the antenna leads and the receiver antenna terminals so that with the Volume control set fully clockwise the sound is at a low level. Tune the Fine Tuning thru undistorted sound.
Set the Fine Tuning to the verge of distortion.
Adjust A9, A10 and A11 for MINIMUM distortion.
Readjust the Fine Tuning during adjustments of A9, A10 and A11 to keep it at the verge of distortion.

4.5MC TRAP ALIGNMENT

Tune in a TV station and turn the Fine Tuning slowly clockwise until 4.5MC beat interference becomes visible in the picture. Adjust A12 until the horizontal scanning lines are smooth and continuous.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 6, 16, 19.

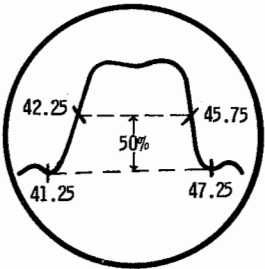
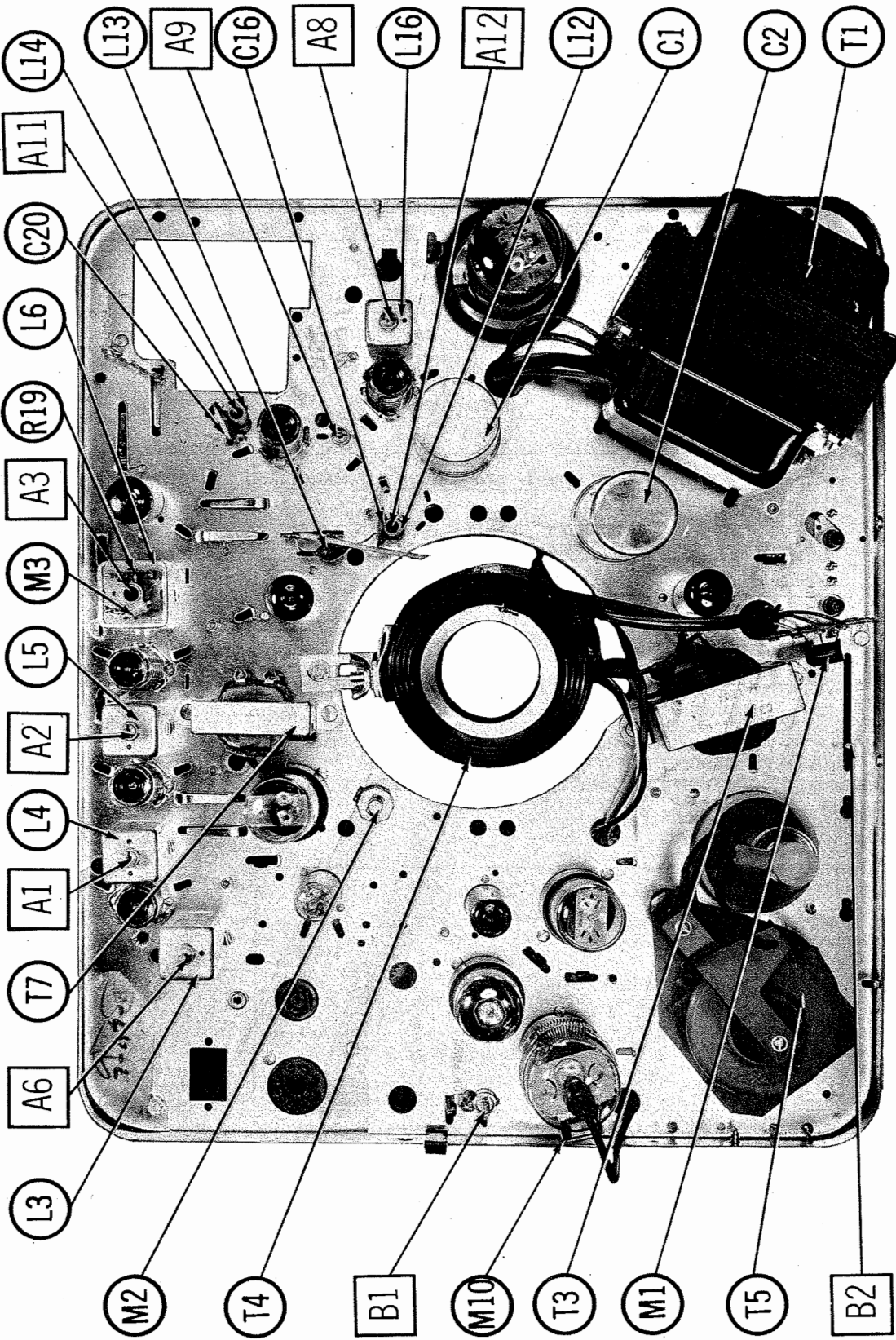


FIG. 1



SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)
MEIA DOL SSSVCH

FOLDER 2

TUNER PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amplifier	6BN4	
V202	Mixer-Osc.	6CG8A	
V203	UHF Osc.	6AF4A	

FIXED CAPACITORS

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

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	SPARTAN PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	1.2		250221-115	NPO-S1 1.0	TCZ-1		TCO-1		5TCCB-VI	
C202			250188-10							
C203	1.0		250221-114	NPO-S1 1.0	TCZ-1		TCO-1		5TCCB-VI	
C204			250188-10							
C205	47		250175-21		TCN-47		TC7-47			N750 5%
C206	.62		250221-1001							5%
C207	10		250088-140							N1500 5%
C208	2.3-4		250220-2							
C209	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C210	470		250175-8	BPD-00047	DD-471	L10T47	ED-470	UC-5347	5GA-T47	
C211	1000		250272-1	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C212	800		250266-1							
C213	120		250262-1	BPD-00012	DD-121	L10T12	ED-120	UC-5312	5GA-T12	
C214	30		250263-1							
C215	15		250264-1	NPO-DI 15	DD-150	L10Q15	ED-15		5TCC-Q15	10%
C216	15		250265-1		TCZ-15		TCO-15			5%
C217	5		250274-1		TCZ-4R7		TCO-5			NPO 5%
C218	2-8		260145-1							
C219	47		250273-1							
C220	800		250266-1							
C221	800		250266-1							
C222	2-6		260144-1							
C223	1000		250272-1	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	N750
C224	51		250267-1							
C225	2-6		260144-1							
C226	1.0		250268-1	NPO-S1 1.0	TCZ-1	BYA6DI	TCO-1	DC521	5TCCB-VI	
C227	1000		250271-1	BPD-001	DD-102	BYA6DI	ED-1000	DC521	5HK-DI	
C228	30		250263-1							
C229	10		250270-1		TCN-10		TC7-10			N750 5%
C230	10		250269-1							N900
C231	800		250266-1							

RESISTORS

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

ITEM No.	RATING		SPARTAN PART No.	NOTES
	OHMS	WATT		
R201	100K		230104-86	
R202	22K		230104-78	
R203	820Ω	1	230104-61	
R204	4700Ω		230104-70	
R205	470Ω	1	230105-62	Note 1
R206	10K		230104-74	
R207	220K		230104-90	
R208	1000Ω		230104-62	
R209	10K		230104-74	
R210	10K		230104-74	
R211	5600Ω		230104-71	
R212	2200Ω		230104-66	

Note 1. VHF tuner #700624 uses 1000Ω 1W (Part #230105-62) in this application.

COILS (RF-IF)

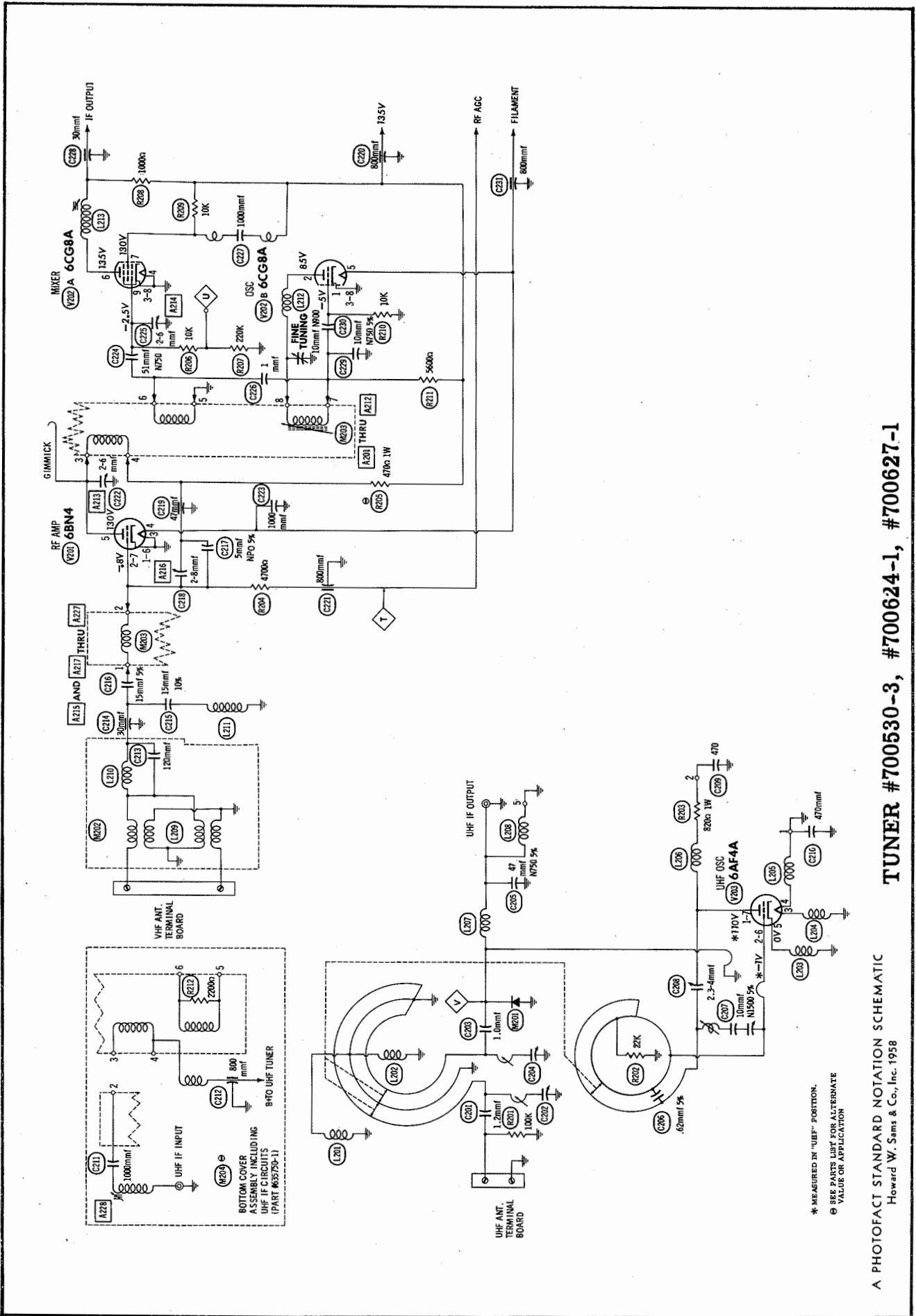
ITEM No.	USE	SPARTAN PART No.	NOTES
L201	RF Choke	360574-30	
L202	RF Choke	360574-30	
L203	Cathode Choke	360522-7	
L204	Fil. Choke	360574-8	
L205	Fil. Choke	360574-8	
L206	RF Choke	360574-8	
L207	RF Choke	360574-12	
L208	RF Choke	360574-50	
L209	VHF Ant. Trans.	360744-1	
L210	IF Trap	360740-1	
L211	IF Trap	360741-1	
L212	Osc. Coil	360742-1	
L213	Mixer Plate Coil	360743-1	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		SPARTAN PART No.	CBS PART No.	SYLVANIA PART No.	
M201		530036-1	1N82A	1N82A	UHF Mixer (Clip-in)

MISCELLANEOUS

ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M202	Ant. Network	460921-1	Includes L209, L210, C213
M203	Rotor Assy.	160283-1	Complete, includes shaft
M204	Rear Cover Assy.	635750-1	Includes coils, caps and contacts
			UHF-VHF tuner part #700627
	Rear Cover Assy.	635749-1	VHF tuner part #700624
	Extension Contact	635751-1	UHF connections on rotor
	Osc. Slug	110375-1	12 used
	Spring Contact	635748-1	Stator (7 used)



SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)
TUNER #700624-1, #700627-3, #700530-3, #700624-1, #700627-1

A PHOTOFAC T STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Allow a 20 minute warm-up period for the receiver and test equipment.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 2.5 volt bias supply to point \diamond . Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1. Two 120 Ω Carbon Resistors	Across antenna terminals with 120 Ω in each lead.	185MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point \diamond . Low side to chassis.	A201, A202	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201.
2. "	"	"	"	"	Vert. Amp. thru detector (Fig. 202), to plate of 1st. IF tube. Low side to chassis.	A203	Adjust A203 to obtain MINIMUM response on the scope.
3. "	"	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 10K to point \diamond . Low side to chassis.	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
		207MC	205.25MC 209.75MC	12		A205	
		201MC	199.25MC 203.75MC	11		A206	
		195MC	193.25MC 197.75MC	10		A207	
		189MC	187.25MC 191.75MC	9		A208	
		183MC	181.25MC 185.75MC	8		A209	
		177MC	175.25MC 179.75MC	7		A210	
		85MC	83.25MC 87.75MC	6		A211	
		79MC	77.25MC 81.75MC	5		A212	
		69MC	67.25MC 71.75MC	4		A213	
		63MC	61.25MC 65.75MC	3		A214	
		57MC	55.25MC 59.75MC	2		A215	

OSCILLATOR ALIGNMENT

Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading. (Approximately 1.5 volts).
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

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

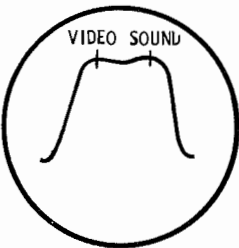


FIG. 201

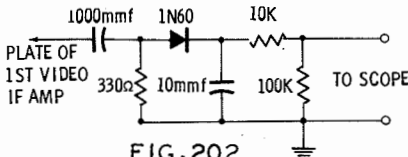


FIG. 202

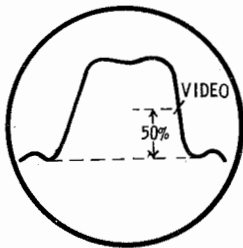


FIG. 203

TUNER ALIGNMENT INSTRUCTIONS (cont)

UHF IF ALIGNMENT

Connect bias as under "VHF Oscillator Alignment".
Set the Local-Distant switch to "Local" position and contrast control fully counter clockwise.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
14. 1000 Ω Carbon Resistor	High side to point \diamond . Low side to tuner chassis.	43.0MC (10MC Swp)	42.25MC 45.75MC	UHF	Vert. Amp. thru 10K across video detector load.	A228	Adjust for response curve similar to Fig. 205 with MINIMUM tilt.

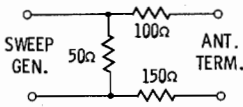


FIG 201

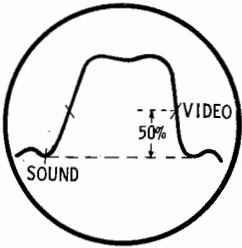


FIG. 202

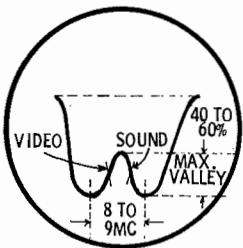


FIG. 203

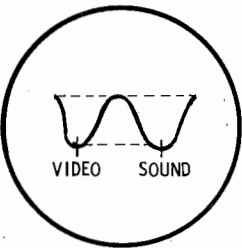


FIG. 204

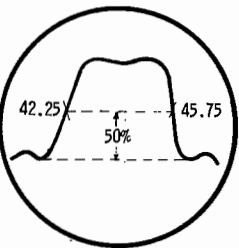
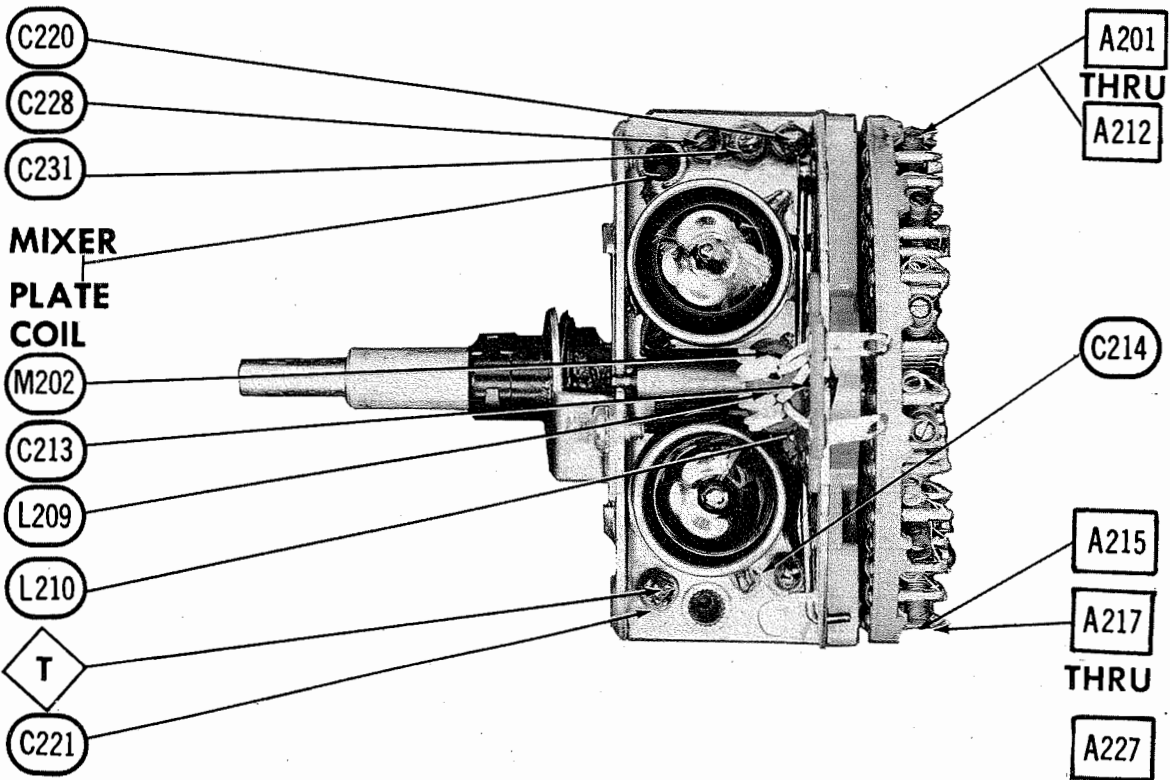


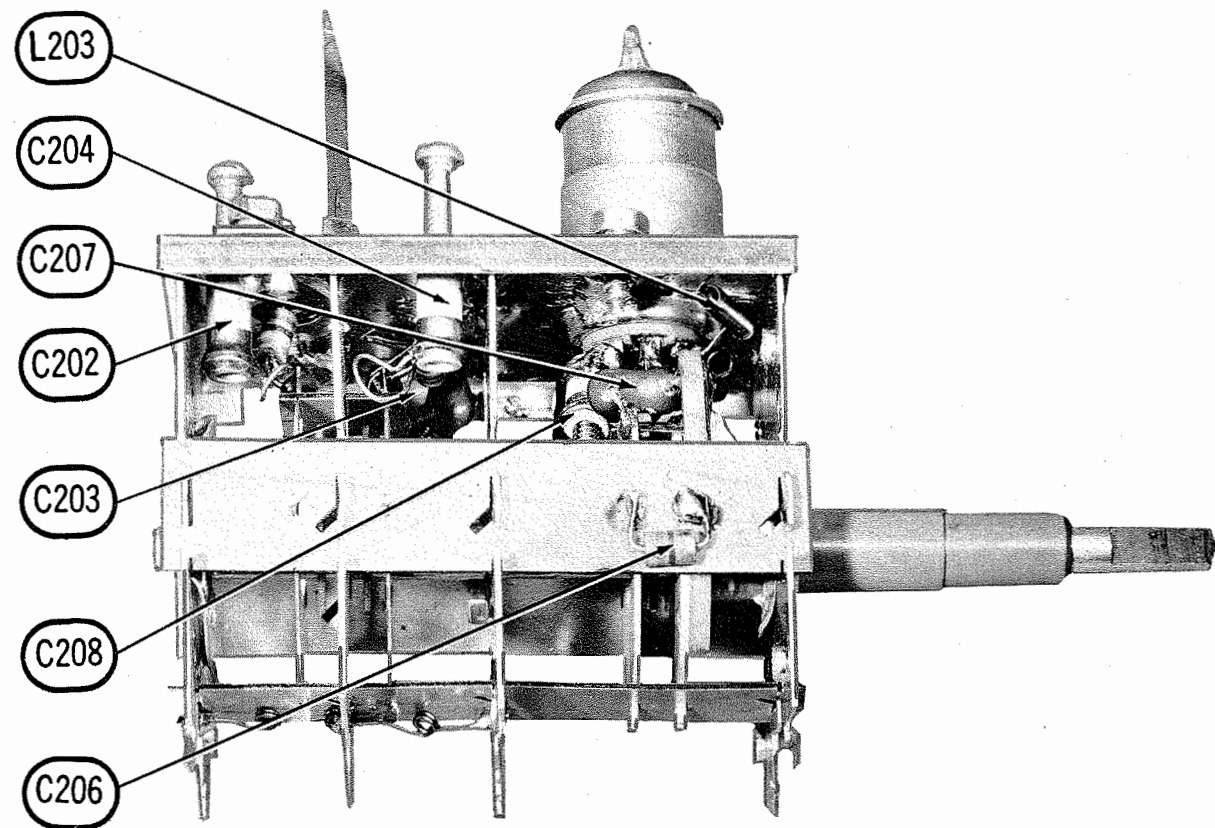
FIG. 205



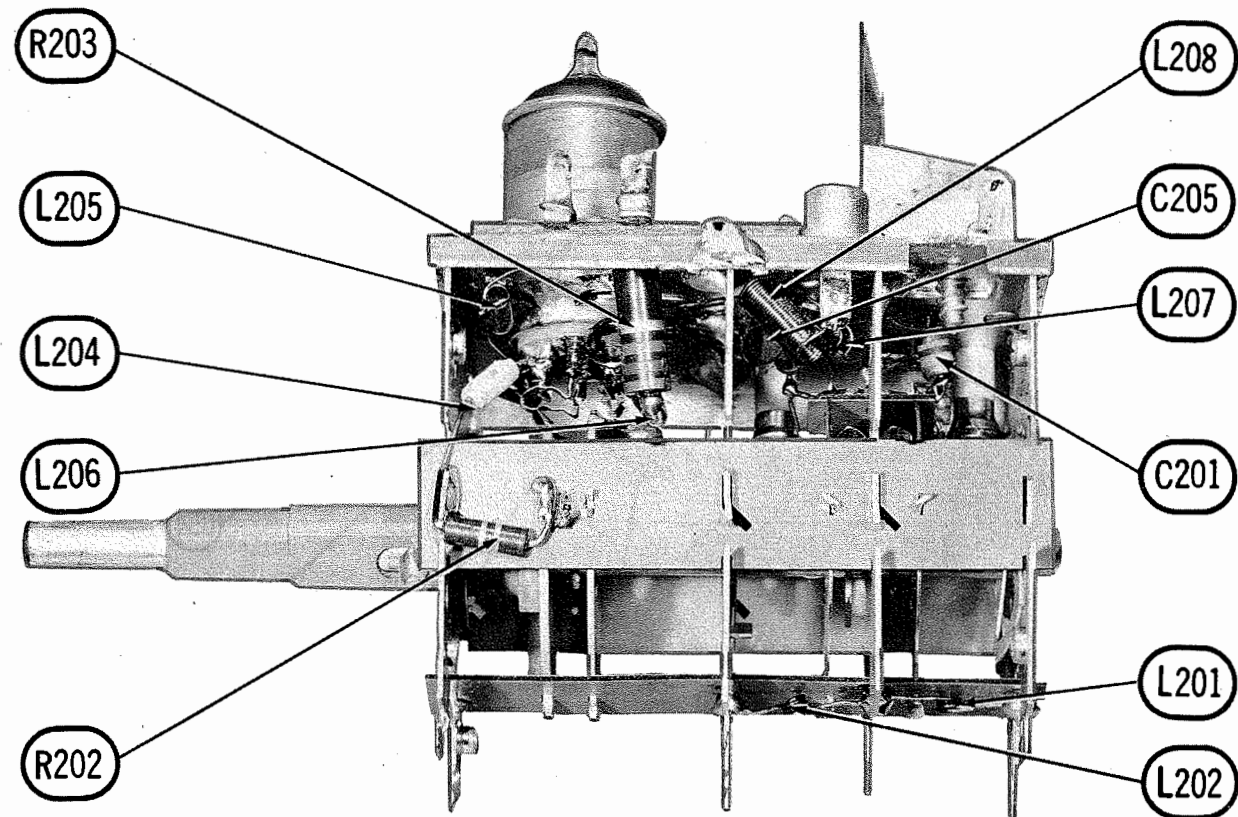
RF TUNER—TOP VIEW

SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

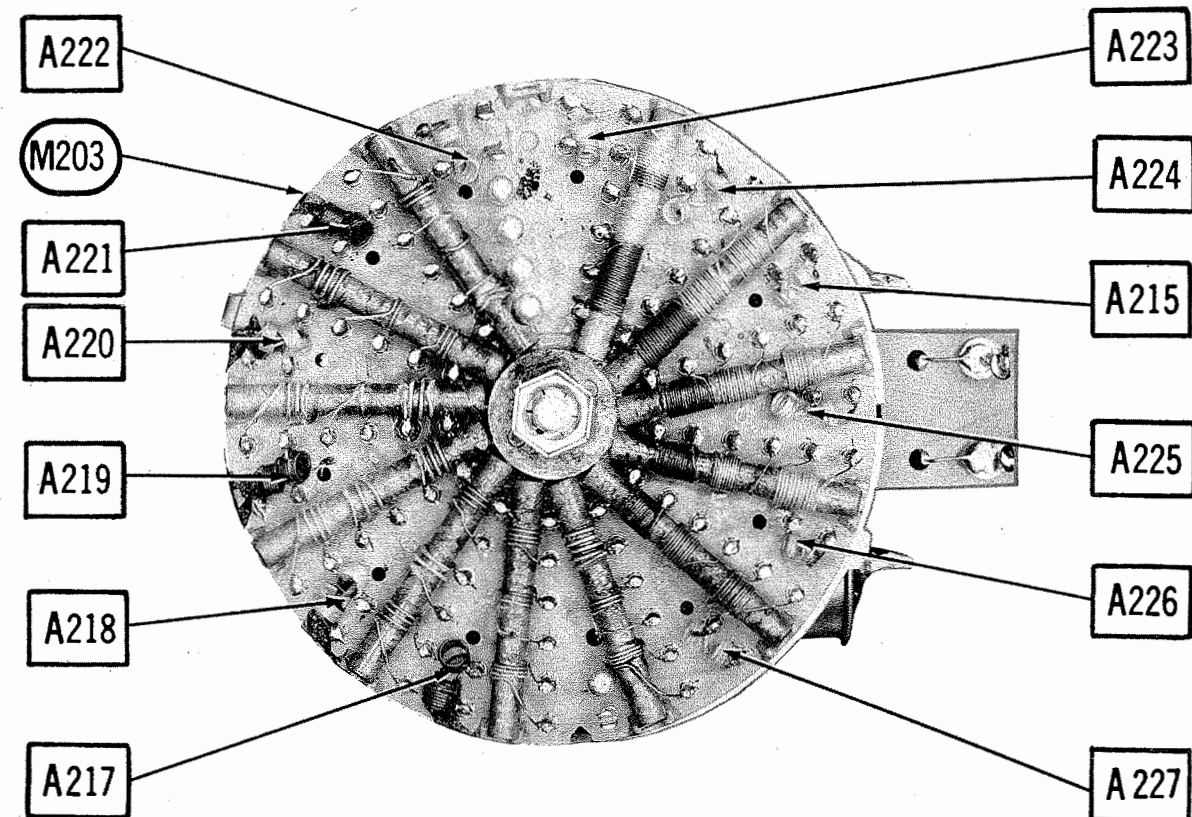
FOLDER 2



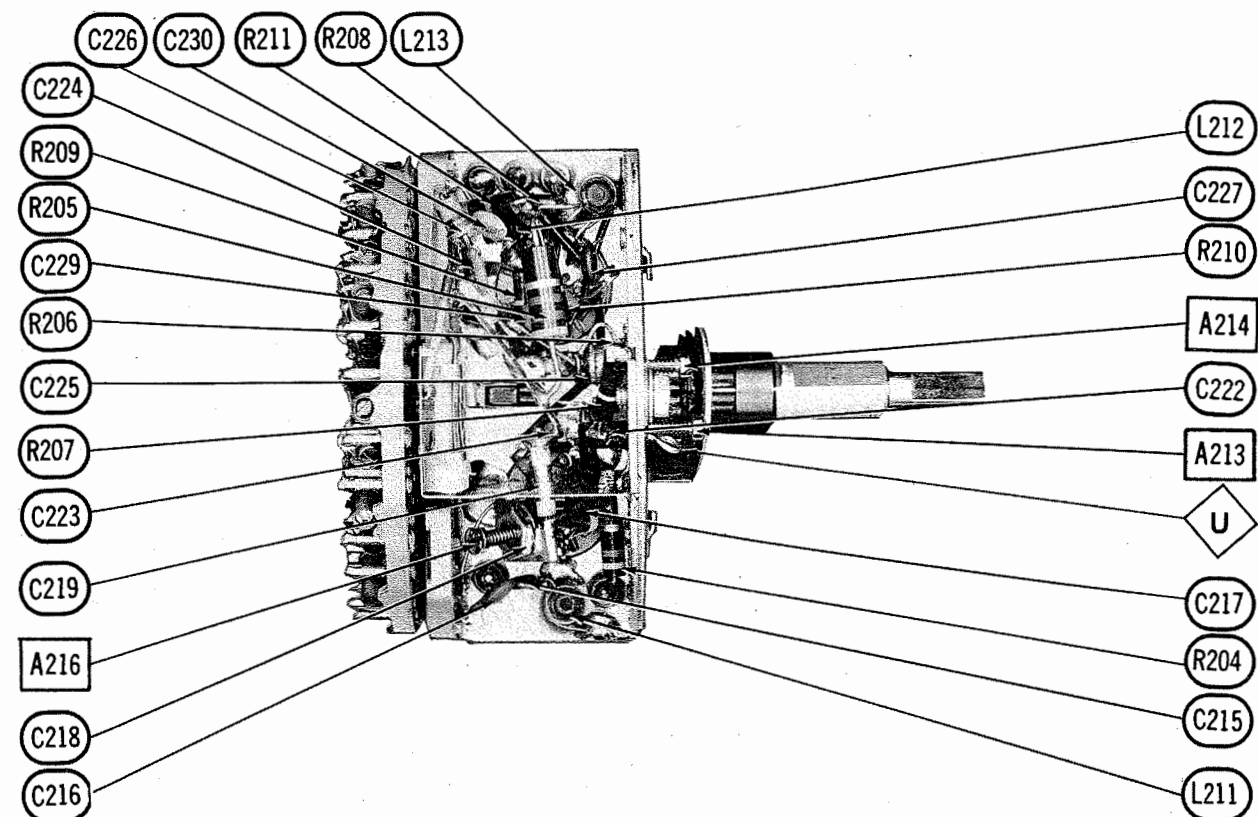
UHF TUNER-LEFT SIDE



UHF TUNER-RIGHT SIDE



RF TUNER ROTARY ASSEMBLY

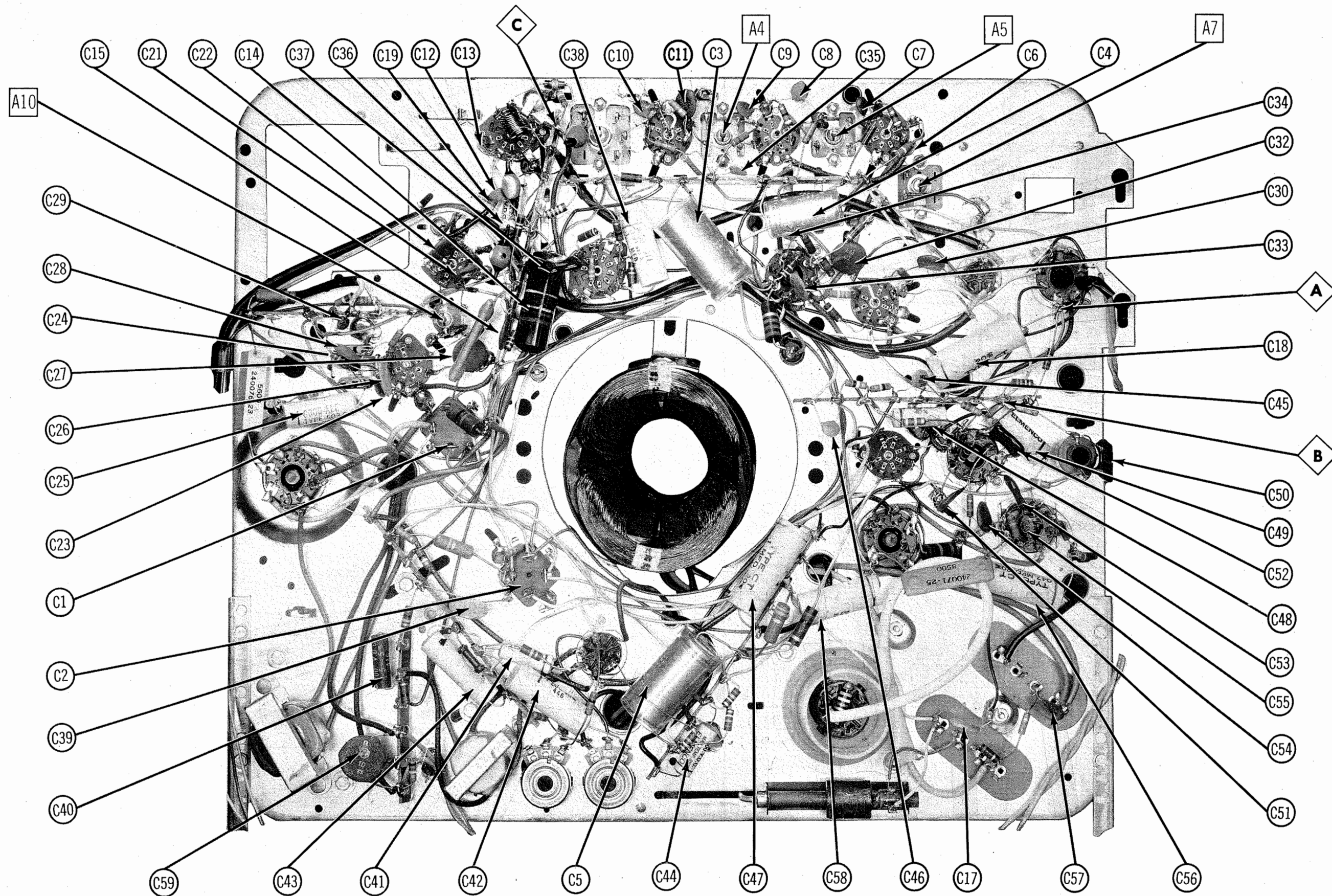


RF TUNER BOTTOM VIEW

SET 407 FOLDER 2

SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

FOLDER 2



CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS FOR TUNER #700584-6

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

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 1.5 volt bias supply to point \diamond . Positive to chassis.
Connect variable bias to IF AGC line. Adjust bias to obtain response curve which shows no indication of overloading.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
Two 120 Ω Carbon Resistors	Across antenna terminals with 120 Ω in each lead.	213MC	211.25MC	13	Vert. Amp. thru 47K across video detector load.	A201	Adjust to place sound marker in trap notch as in Fig. 201. Video marker should fall at 50%.
		207MC	205.25MC	12		A202	
		201MC	199.25MC	11		A203	
		195MC	193.25MC	10		A204	
		189MC	187.25MC	9		A205	
		183MC	181.25MC	8		A206	
		177MC	175.25MC	7		A207	
		85MC	83.25MC	6		A208	
		79MC	77.25MC	5		A209	
		69MC	67.25MC	4		A210	
		63MC	61.25MC	3		A211	
		57MC	55.25MC	2		A212	
			59.75MC				

VHF RF AND MIXER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

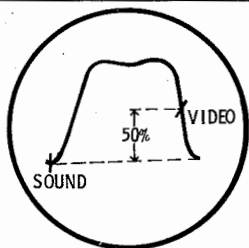
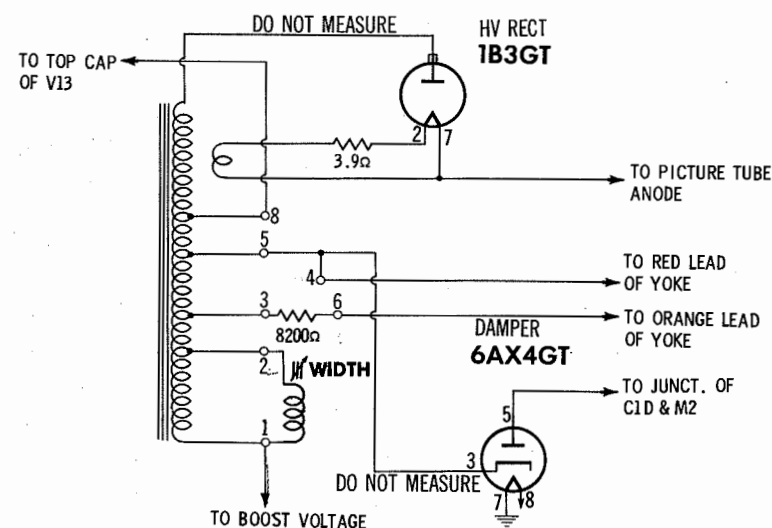


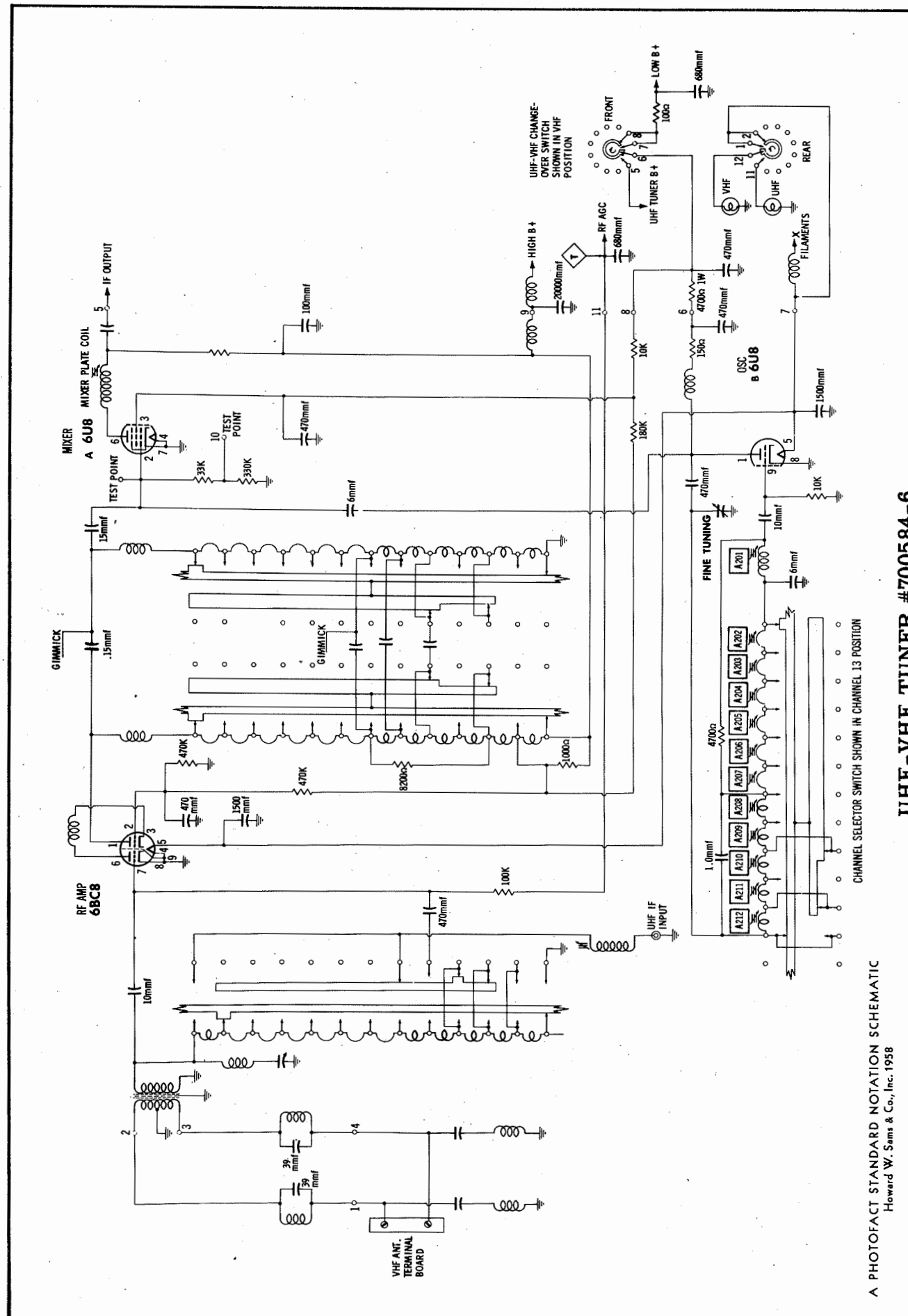
FIG. 201



HORIZ OUTPUT TRANSFORMER PART #360700-1 USED IN SOME VERSIONS

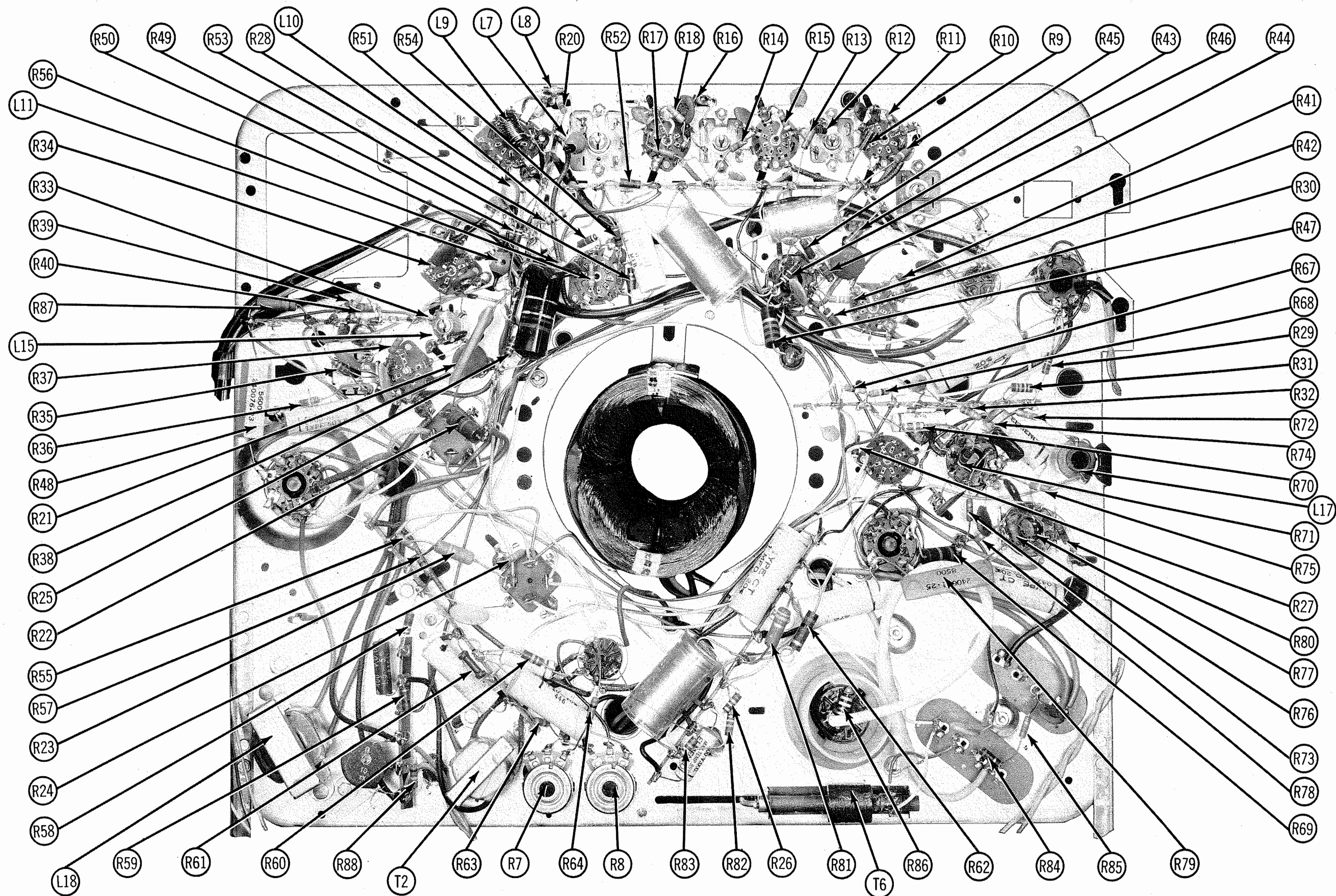
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

ALTERNATE HORIZONTAL SWEEP CIRCUIT



SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)
9-485002# RENUL FHA-FHU

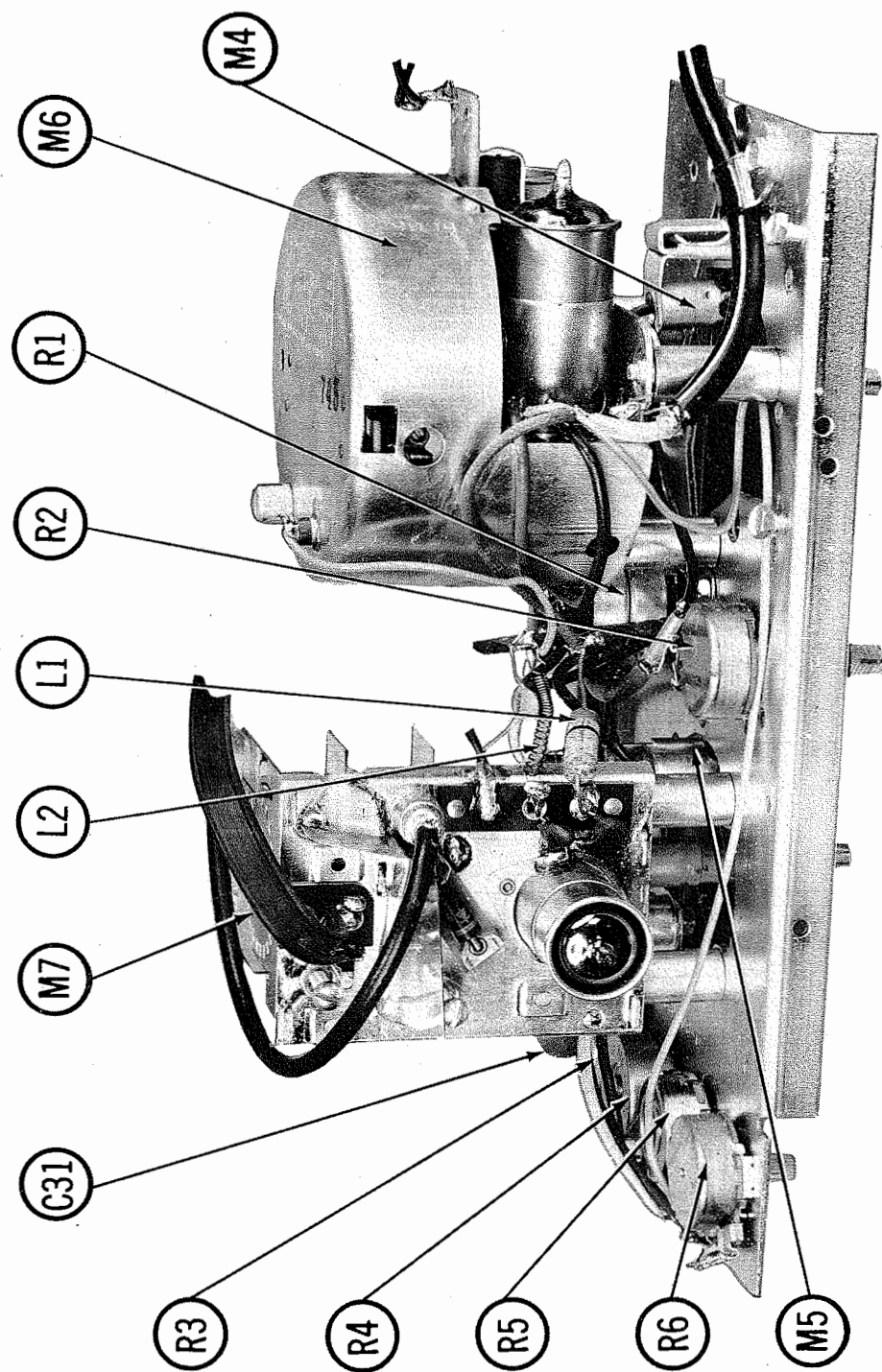
FOLDER 2



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

FOLDER 2



TUNER & CONTROL BRACKET



CABINET-REAR VIEW

SPARTAN CHASSIS U25-01AA thru U25-11AA,
V25-01AA thru V25-11AA (25 Series)

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Set the Horizontal Hold control to the center of its range. Adjust the Horizontal Frequency slug (B1) until the picture synchronizes horizontally. Keep turning B1 in the same direction until the picture just falls out of sync. Reverse the direction of rotation until the picture just falls in sync. Rotate the Horizontal Hold control to both extreme ends of rotation. The picture should either stay in sync at both ends of ro-

tation or should fall out of sync by an equal number of bars at each end. If either of these conditions fail to occur, repeat procedure.

Adjust the Width slug for a picture SLIGHTLY wider than necessary to fill the picture mask horizontally.

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES	ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6		V9	Audio Output	6DG6GT	
V2	2nd. Video IF Amp.	6BZ6		V10	Sync Sep.-Sync Phase Inv.	12AU7	
V3	3rd. Video IF Amp.	6CB6		V11	Vert. Osc.-Vert. Output	6CM7	
V4	Video Output	12BY7A		V12	Horiz. Mult.	6SN7GTB	
V5	AGC Keying	6AU6		V13	Horiz. Output	6DQ8A	
V6	Sound IF Amp.	6AU6		V14	Damper	6AX4GT	
V7	Audio Det.	6DT6		V15	RV Rect.	1B3GT	
V8	AF Amp.-AGC Clamper	6AT6		V16	LV Rect.	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA	NOTES
V17	21CBP4/ 21CBP4A 24AEP4	21CBP4-A ① 21CBP4A ② 24AEP4 ③

ELECTROLYTIC CAPACITORS

ITEM No.	RATING	REPLACEMENT DATA	NOTES
C1A	40 350	270021-52	RE1008
C1B	40 350	270021-52	RE1008
C1C	50 50	270021-52	RE1008
C1D	70 350	270021-52	RE1008
C2A	30 350	270021-52	RE1008
C2B	30 350	270021-52	RE1008
C2C	100 200	270021-52	RE1008
C2D	100 350	270021-52	RE1008
C3	20 350	270027-20	PR5450V20
C4	2 50	270027-22	PR550V2
C5	20 350	270027-20	PR5450V20

* Non-catalog item.

FIXED CAPACITORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
C6	470	250216-6	BPD-00047
C7	800	250218-14	BPD-00068
C8	800	250218-14	BPD-00068
C9	800	250218-14	BPD-00068
C10	800	250218-14	BPD-00068
C11	1500	250218-18	BPD-00068
C12	12	250226-310	BPD-00068
C13	680	250218-4	BPD-00068
C14	22	250211-15	BPD-00068
C15	10000	250218-19	BPD-00068
C16	100	250175-59	NPO-DI 100
C17	1000	250175-27	NPO-DI 1000
C18	2.2	250202-15	P288N-22
C19	2.2	250221-118	TCZ-2R2
C20	100	250175-59	NPO-DI 100
C21	3900	250175-31	DD-392
C22	5000	250175-1	DD-502
C23	470	250218-6	BPD-00047
C24	18	250175-54	BPD-00047
C25	0.47	250202-11	P488N-047
C26	10000	250218-19	BPD-00068
C27	10000	250218-19	BPD-00068
C28	10000	250175-2	BPD-00068
C29	220	250175-30	DI-220
C30	5000	250175-30	BPD-00068
C31	5000	250175-30	BPD-00068
C32	10000	250175-30	BPD-00068
C33	5000	250175-30	BPD-00068
C34	470	250218-6	BPD-00047
C35	680	250218-4	BPD-00068
C36	0.0022	250211-3	P488N-0022
C37	150	250229-534	1468-00015
C38	1	250211-13	P488N-1
C39	10000	250218-19	BPD-00068
C40	0.0051	250218-13	P488N-0047
C41	0.0047	250211-5	P488N-1
C42	1	250211-13	P488N-1
C43	0.047	250212-7	P488N-0047
C44	0.0033	250201-4	P488N-0033
C45	1000	250218-8	BPD-00068
C46	1000	250218-8	BPD-00068
C47	1	250201-13	P488N-1
C48	0.0047	250212-4	P488N-0047
C49	0.047	250212-5	P488N-0047
C50	3900	250228-468	1468-00036
C51	1000	250218-8	1468-00047
C52	360	250229-343	1468-00047
C53	470	250229-346	1468-00047
C54	1000	250236-6	BPD-00068
C55	1000	250218-8	P488N-0047
C56	0.47	250211-1	DF-503
C57	68	250175-22	P488N-047
C58	0.047	250211-1	DF-503
C59A	10000	250219-3	BPD-2X01

① Not used in some versions.

② Ch. U/V25-07AA use 100mmf in this application (Part #250218-22).

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA	NOTES
R1A	Imeg	220135-1	Volume
R2A	500K	220126-56	Contrast
R3A	500K	220132-4	Tone
R4A	1.5meg	220132-13	Vert. Hold

PARTS LIST AND DESCRIPTIONS
CONTROLS (cont)

ITEM No.	RATING	REPLACEMENT DATA	INSTALLATION NOTES
R5A	200K	220132-2	Brightness
R6A	50K	220132-1	Horiz. Hold
R7A	3000Ω	220146-5	Vert. Lln.
R8A	2.5meg	220146-2	Vert. Height

RESISTORS

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

ITEM No.	RATING	REPLACEMENT DATA	NOTES
R9	2400Ω 5%	230094-168	Note 1
R10	1500Ω	230104-46	Note 2
R11	47Ω	230104-191	Note 2
R12	22K 5%	230104-82	Note 2
R13	1500Ω	230104-46	Note 2
R14	1500Ω	230104-82	Note 2
R15	47Ω	230104-51	Note 2
R16	47K	230104-58	Note 2
R17	1500Ω	230094-173	Note 2
R18	120Ω	240073-1	Note 2
R19	470Ω	230106-62	Note 2
R20	3900Ω 5%	230105-78	Note 2
R21	4300Ω 5%	230104-78	Note 2
R22	1000Ω	230106-62	Note 2
R23	22K	230105-78	Note 2
R24	22K	230104-78	Note 2
R25	270K	230104-91	Note 2
R26	270K	230104-91	Note 2
R27	47K	230104-82	Note 2
R28	33K	230104-80	Note 2
R29	820K 5%	230094-229	Note 2
R30	9.1meg 5%	230094-254	Note 2
R31	330K 5%	230094-219	Note 2
R32	56K 5%	230094-201	Note 2
R33	12K	230104-75	Note 2
R34	220Ω	230104-54	Note 2
R35	270K	230104-91	Note 2
R36	560K	230104-95	Note 2
R37	680Ω	230104-72	Note 2
R38	680Ω	230104-60	Note 2
R39	470K	230104-94	Note 2
R40	33K	230104-80	Note 2
R41	4.7meg	230104-106	Note 2
R42	330K	230104-94	Note 2
R43	1meg 5%	230094-231	Note 2
R44	1.2meg 5%	230094-233	Note 2
R45	1meg	230104-98	Note 2
R46	3300Ω	230104-68	Note 2
R47	240Ω	230106-55	Note 2
R48	5600Ω 5%	240076-23	Note 2

Note 1. Ch. U/V25-01AA, -02AA, -03AA, -04AA, -05AA, -06AA, -07AA use 3600Ω 5% (Part #230094-172).

Ch. U/V25-08AA, -09AA, -10AA use 3000Ω 5% (Part #230094-170).

Note 2. Some versions may use 1000Ω in this application (Part #230104-62).

Note 3. Some versions may use 270K in this application (Part #230104-91).

Note 4. Not used in some versions.

Note 5. Temperature Compensating. Do not measure.

Note 6. Some versions use 12K in this application (Part #230104-75).

Note 7. Some versions use 2700Ω in this application (Part #230104-67).

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA	NOTES
T1	117VAC ① 1.57A	580VCT ② 240A	300093-1

① Use original mounting brackets.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA	NOTES
T2	Vert. Osc.	320282-2	
T3	Vert. Output	320278-1	
T4A	Yoke-Horiz. (21MH)	360817-1	
T5	(90°)-Vert. (45MH)	DF612 ①	
T6	Rear Cover & Centering Device	360738-1	
T7	Horiz. Output	360700-2	
T8	Alt. Horiz. Output	360700-1	
T9	Width Coil (7-22MH)	360699-1	

① Use original yoke damping network and original rear cover and centering device.

② When replacing horizontal output (Magnaovx Part #360700-1), refer to alternate horizontal output circuit.

③ Drill new mounting hole.

* HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Holdorson Replacement Connections	Merit Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordorson Replacement Connections	Triad Replacement Connections
8			8	8		8
5			5	5		5
3			3	3		3
2			2	2		2
1			1	1		1
Connect Width	2 & 1		2 & 1	2 & 1		2 & 1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA	NOTES
T7	3100Ω	320279-1	① Drill new mounting hole.

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA	NOTES
SP1	8"	583765	8A31Z8
SP2	8"	583885	8A4Z5.6
SP3	4"	583779-1	4A07
SP4	4"	583779-1	4A07

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA	NOTES
L1	RF Choke	19-1000	1 Microhenry, IRC Part #CLA
L2	RF Choke	19-1000	1 Microhenry
L3	1st. Video IF	360654-1	Includes 41.25MC Trap
L4	2nd. Video IF	360644-1	Includes 47.25MC Trap
L5	3rd. Video IF	360644-1	Includes 47.25MC Trap
L6	4th. Video IF	360643-1	Complete assy.
L7	Shunt Peaking Coil	360622-16	278 Microhenries
L8	RF Choke	360443-23	1.65 Microhenries ①
L9	Cathode Choke	360620-1	75 Microhenries, wound on 8200Ω resistor
L10	Series Peaking Coil	360622-14	235 Microhenries
L11	Shunt Peaking Coil	360622-9	100 Microhenries, wound on 10K resistor
L12	4.5MC Trap	360714-1	
L13	Series Peaking Coil	360622-13	
L14	1st. Sound IF	360714-1	
L15	2nd. Sound IF	360715-1	
L16	Quadrature Coil	360716-1	

① Not used in Ch. U/V25-01AA, -02AA, -03AA, -08AA, -09AA.

* Parallel with 10K resistor.

* Remove C24 (10mmf).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.	REPLACEMENT DATA	NOTES
L17	53Ω	360579-1	

FILTER CHOKE

ITEM No.	RATINGS	REPLACEMENT DATA	NOTES
L18	CURRENT (Measured) DC RES. INDUCTANCE (0 CURRENT 1000 Hz)	SPARTAN PART No. FEDERAL PART No. GENERAL ELECTRIC PART No. INTERNATIONAL PART No. SARKES TAZIAN PART No.	NOTES

① Drill new mounting hole.

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA	NOTES
M1	CURRENT (Measured)	SPARTAN PART No. FEDERAL PART No. GENERAL ELECTRIC PART No. INTERNATIONAL PART No. SARKES TAZIAN PART No.	NOTES

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA	NOTES
M2	N	1/4A 250V S/B	180590-3	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA	NOTES
M3	1N80 *	1N80	Video Det. (Pigtail) * Some versions may use a 1N64 in this application.

MISCELLANEOUS

ITEM No.	PART NAME	SPARTAN PART No.	NOTES
M4	Lamp		Channel Indicator #47
M5	Lamp		Channel Indicator #47, UHF only
M6	Tuner	700627-1	UHF-VHF, Ch. U25-08AA, -09AA, -10AA, -11AA
M7	Tuner	700584-6	UHF-VHF, Ch. U/V25-01AA, -02AA, -03AA, -04AA, -05AA, -06AA, -07AA
M8	Tuner	700624-1	VHF, Ch. U25-08AA, -09AA, -10AA, -11AA
M9	Switch	700530-3	UHF, Ch. U25-01AA thru U25-11AA
M10	Centering Device	160229-1	Phono-TV, Slide Type
	Trap	360738-1	Includes yoke rear cover
		360492-8	Snivets (UHF only)

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8865 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8485 (Flat) or 8484 (Round) - 4 Conductor 8485 (Flat) - 5 Conductor 8488 (Round) - 8 Conductor

SPARTAN CHASSIS U25-01AA thru U25-11AA, V25-01AA thru V25-11AA (25 Series)