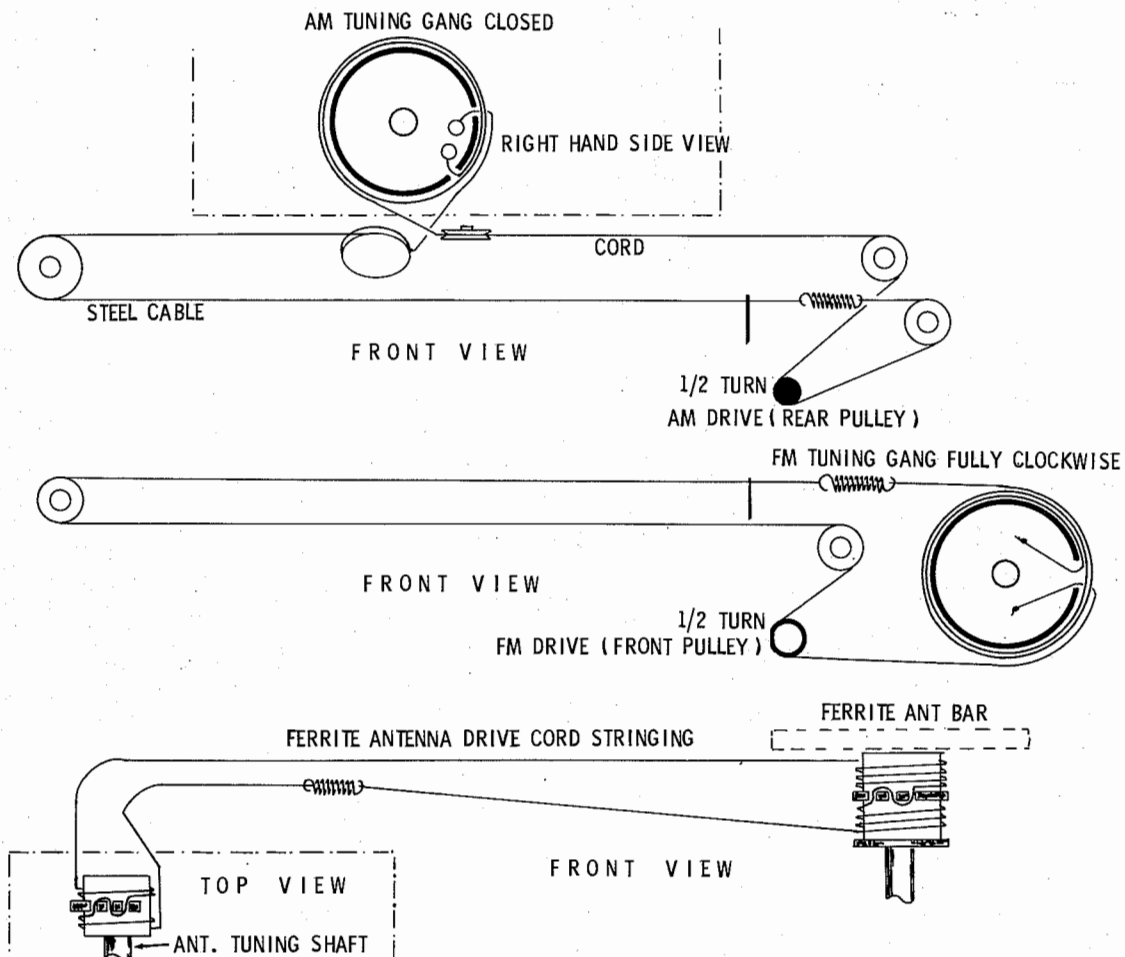




MODEL Granada 61 (20303)

TRADE NAME	Blaupunkt Models Granada 61 (20303), Sultan (20203)		
IMPORTER	N. Pickens Import Co., 64-01 Woodside Ave., Woodside 77, N. Y.		
TYPE SET	AC Operated 6 Tube FM-BC-SW Receiver		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	50 Watts, .5 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	515-1620KC	FREQ. MOD.	88-108MC SHORT WAVE 5.95 - 18.2MC

DIAL CORD STRINGING



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

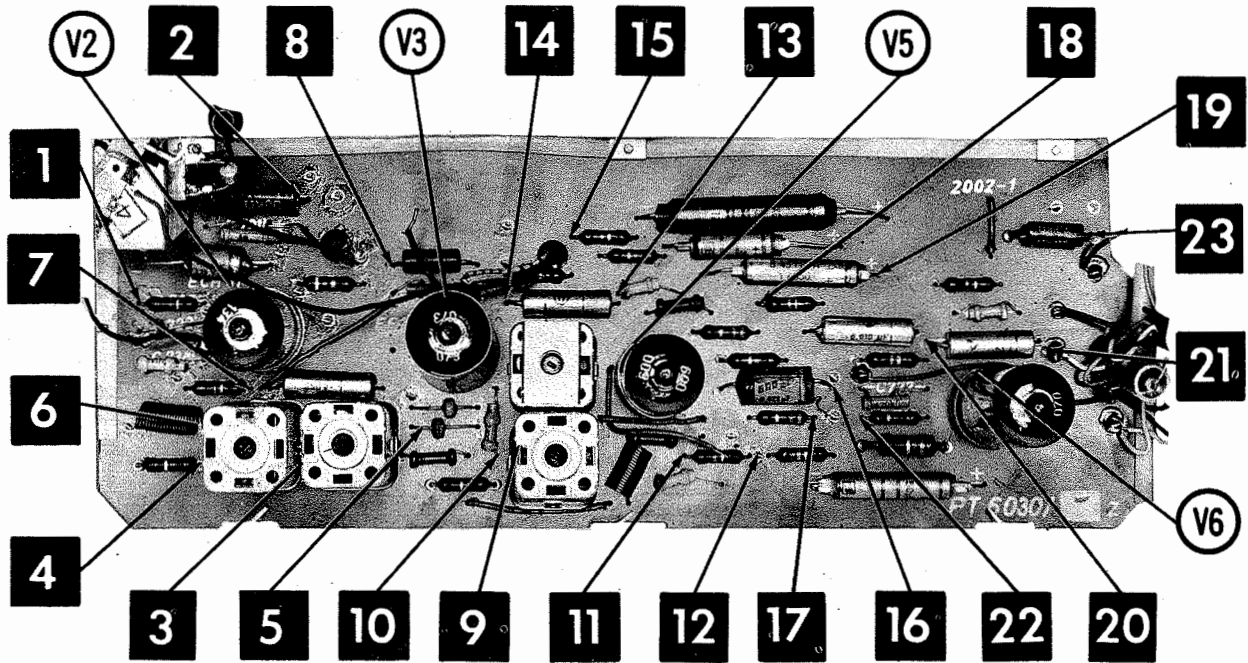
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KK746

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BLAUPUNKT MODELS Granada
61 (20303), Sultan (20203)

BLAUPUNKT MODELS Granada
61 (20303), Sultan (20203)

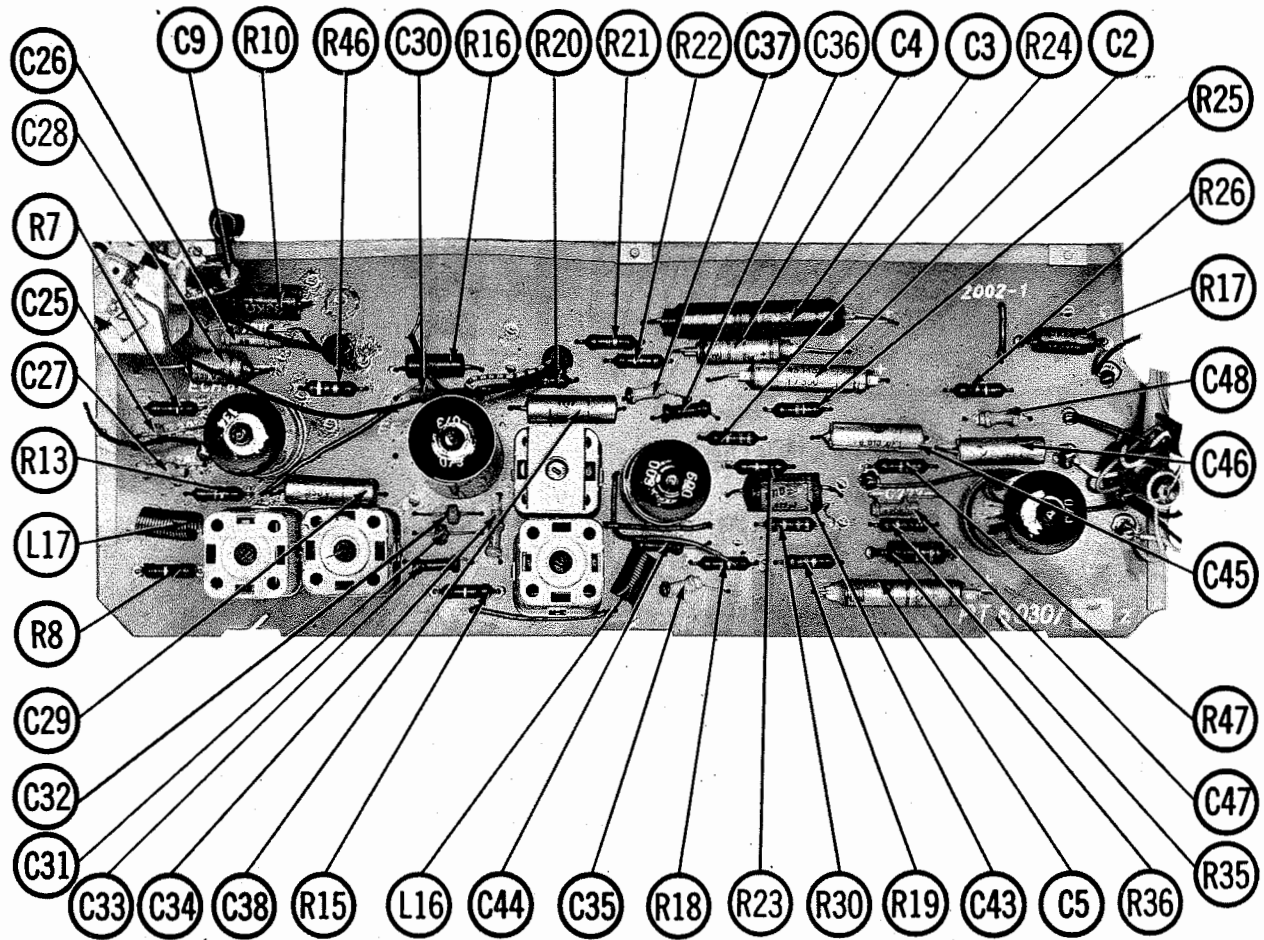
SET 552 FOLDER 4



A Howard W. Sams CIRCUITRACE[®] Photo

PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED



PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC				RAYTHEON				SYLVANIA			
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85	V4	Tuning Indicator	EM64	V5	Ratio Detector	EABC80	V6	Output	EL64
V2	1st FM IF Amplifier-AM Mixer-AM Osc.	ECH81	V5	AM Det. -AFC-AF Amp.		V6	Output				
V3	2nd FM-1st IF Amp.	EF89									

ELECTROLYTIC CAPACITORS

ITEM No.	CAP.	VOLTS	REPLACEMENT DATA				REMARKS	SPRAGUE PART No.	NOTES
			BLAUPUNKT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	PIRAMID PART No.			
C1A	.50	350		A0390	FPI37	TMS-630	TYL-1622		
C2	B .50	350		PR81680	BR5035	TD-50-350	TYA-1713		
C3	1	350		PR81700	BR145	TD-2-350	TYA-1700		
C4	3	350		PR81600	BR435	TD-4-350	TYA-1601		
C5	2	30		PTT88	NLW2-50	MLV2-50	TE-1301		
C6	5	12		PR87405	BBR4-150	MLV50-12	TE-1133		
C6	4	12NP					TYVANS-1150*		

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

Note 1. Not used in Model Sultan (20203).

FIXED CAPACITORS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENC0 PART No.	MALLOY PART No.	
C7	10 N150 5%					10TCP-Q10	
C8	10 N150 5%					10TCP-Q10	
C9	4.7 N750 5%					10TCL-V5	
C10	200					10TS-D27	
C11	.0027					10TS-D27	
C12	51 N150 5%					10TCP-Q15	
C13	3-15						
C14	15 N150 5%						
C15	6-25						
C18	10-40						
C17	47						
C18	1 N750						
C19	3-12						
C20	.0051						
C21	450						
C22	470						
C23	6-25						
C24	47						

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

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

ITEM No.	RATING	REMARKS	REPLACEMENT DATA		REMARKS
			WORKMAN TV PART No.	IRC PART No.	
R4	1000Ω				
R5	10K				
R6	39K				
R7	100Ω				
R8	1000Ω				
R9	27K				
R10	33K 2W				
R11	470Ω				
R12	27K				
R13	100K				
R14	1.8meg				
R15	1000Ω				
R16	47K 1W				
R17	2200Ω 1W				
R18	150K				
R19	330K				
R20	1meg				
R21	15K				
R22	33K				
R23	10meg				
R24	4700Ω				
R25	220K				

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA			REMARKS	NOTES
		BLAUPUNKT PART No.	Miller Part No.	Stancor Part No.		
L1	Ant. Matching					
L2	SW Ant.					
L3	RF Choke					
L4	460KC IF					
L5	BC Ant.					
L6	Loopstick					
L7A	SW Osc.					
L7B	RF Choke					
L8	BC Osc.					
L9	2nd FM IF					
L10	1st AM IF					
L11	Ratio Del.					
L12	2nd AM IF					
L13	Tone Choke					
L14	Tone Choke					
L15	Tone Choke					
L16	FIL. Choke					
L17	FIL. Choke					
L18	FIL. Choke					
L19	Line Choke					
L20	Line Choke					

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		BLAUPUNKT PART No.	Merit Part No.	Stancor Part No.	Thorderson Part No.	
T1	117V @ .5A					
	220V @ 2.6A					
	140A AC					

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA				SPRAGUE PART No.
			AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENC0 PART No.	MALLOY PART No.	
C25	1 NPO .0047					10TCC-V10	
C26	.0027					5HK-D47	
C27	.047 125V					10TS-D27	
C28	.01 350V					2TM-S47	
C29	.01 350V					4TM-S10	
C30	.0047					5HK-D47	
C31	1 N075					4TM-S10	
C32	.0047					5HK-D47	
C33	.0027					10TCC-Q47	
C34	47 N750					5HK-D47	
C35	.01 350V					10TCC-Q47	
C36	.01 350V					4TM-S10	
C37	.01 350V					4TM-S10	
C38	47 N750					4TM-S10	
C39	.01 350V					4TM-S10	
C40	220					4TM-S10	
C41	.01 350V					4TM-S10	
C42	.01 350V					4TM-S10	
C43	.022 250V					4TM-S10	
C44	.0047					4TM-S10	
C45	.01 350V					4TM-S10	
C46	.0047 350V					4TM-S10	
C47	470 10%					4TM-S10	
C48	10 N150					4TM-S10	
C49	.022 350V					4TM-S10	
C50	.1 125V 10%					4TM-S10	
C51	.047 350V 10%					4TM-S10	
C52	.27 125V 10%					4TM-S10	
C53	.047 125V 10%					4TM-S10	

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

Note 1. Shielded Unit.

CONTROLS

ITEM No.	RATING	REMARKS	REPLACEMENT DATA			INSTALLATION NOTES
			BLAUPUNKT PART No.	CENTRALAB PART No.	CTS-IRC PART No.	
R1A	1.3meg Tap					Volume
R2	Shat					Base
R3	1meg					T-treble

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA			NOTES
		BLAUPUNKT PART No.	Merit Part No.	Stancor Part No.	
T2	4700Ω				
	SEC. 1				
	3-4Ω				
	SEC. 2				
	470Ω				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		BLAUPUNKT PART No.	QUAM PART No.	
SP1	7"x10" PM 3-4Ω			
SP2	4" PM 3-4Ω			
SP3	4" PM 3-4Ω			

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA			NOTES
		BLAUPUNKT PART No.	RCA PART No.	SARKES TAZIAN PART No.	
M1	.075A				

* 4 Required. Add 7.5Ω surge limiter in each HV transformer leads.

FUSES

ITEM No.	RATING	REPLACEMENT DATA			NOTES
		BLAUPUNKT PART No.	LITTELFUSE PART No.	BUSS PART No.	
M2	3AG				
	9/10A				
	250V S/B				
	313.800				
	(3AG 9/10A 250V S/B)				

MISCELLANEOUS

ITEM No.	PART NAME	BLAUPUNKT PART No.	NOTES
M4	AM, 2 Gang		
M5	Function Selector (Pushbutton Type) Includes H.F.I., Solo, Sonor, Off-PU-TR-AM-SW- & FM		

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors Power Cord Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7 1/2 Ft. Length)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.
Set Short Wave Bandspread Pointer to "0".
Suggested Alignment Tools: A1 thru A4.....GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538
A5, A6, A7, A10, A11, A19, A20.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A8, A9, A12, A13, A15, A23, A24.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A16, A17, A18, A21, A22.....GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	460KC (400% 30% AM)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	High side thru .01mfd to AM external antenna terminal. Low side to chassis.	"	600KC	"	A5	Adjust for MINIMUM output.
3.	"	6MC	(SW) 6MC	"	A6, A7	Adjust for maximum output.
4.	"	18MC	18MC	"	A8, A9	"
5.	"	550KC	(AM) 550KC	"	A10, A11	"
6.	"	1500KC	1500KC	"	A12, A13	Adjust for maximum output. Repeat Steps 3 thru 6.
7.	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550KC	(AM & F Ant.) 550KC	"	A14	Adjusted for maximum output by moving coil along ferrite core.
8.	"	1500KC	1500KC	"	A15	Adjust for maximum output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR IN FM POSITION

Connect two matched 100K (+ 1%) resistors in series from point \diamond to chassis. The junction of these two resistors is alignment point \odot as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	High side to an ungrounded tube shield over FM Conv. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point \diamond . Common to chassis.	A16, A17, A18, A19, A20	Adjust for maximum deflection.
10.	"	"	"	DC probe to point \odot . Common to point \diamond .	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

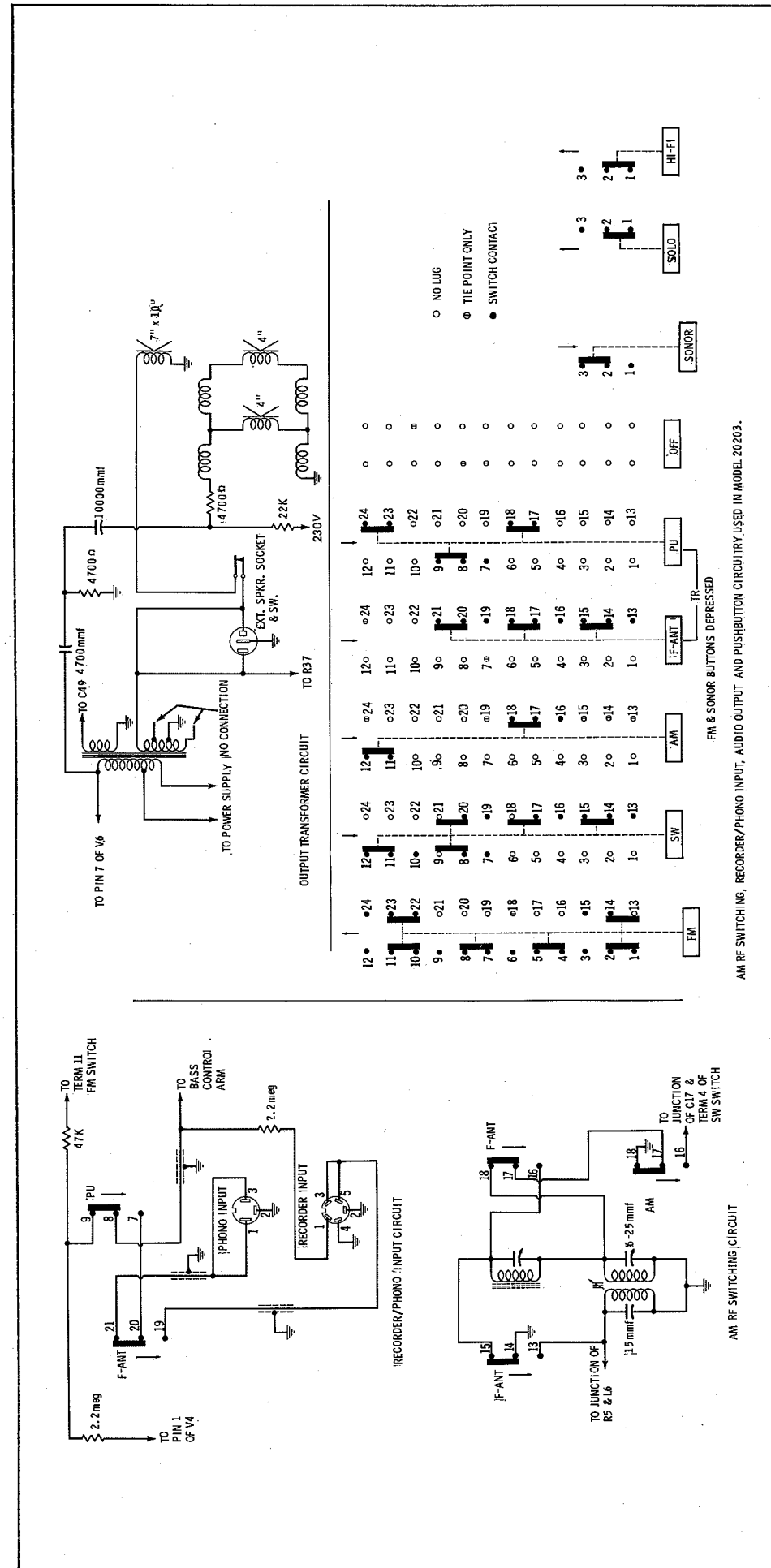
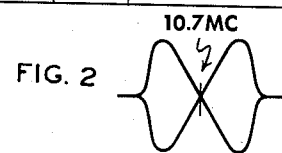
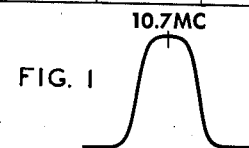
FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR IN FM POSITION

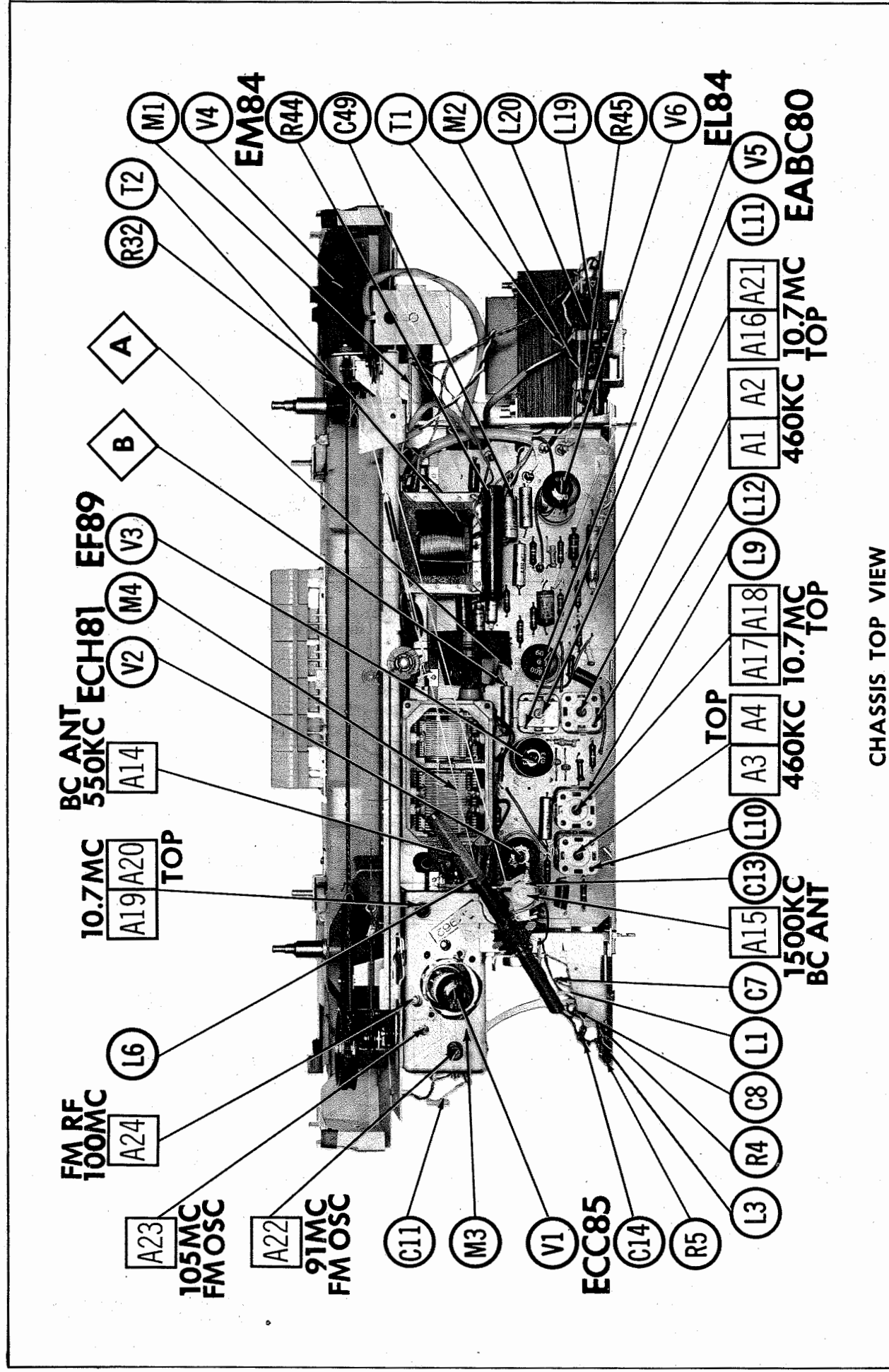
Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
9.	High side to an ungrounded tube shield over FM Conv. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point \diamond . Low side to chassis.	A16, A17, A18, A19, A20	Disconnect stabilizing capacitor C4. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C4.
10.	"	"	"	Vert. amp. to point \odot . Low side to chassis	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT — SELECTOR IN FM POSITION

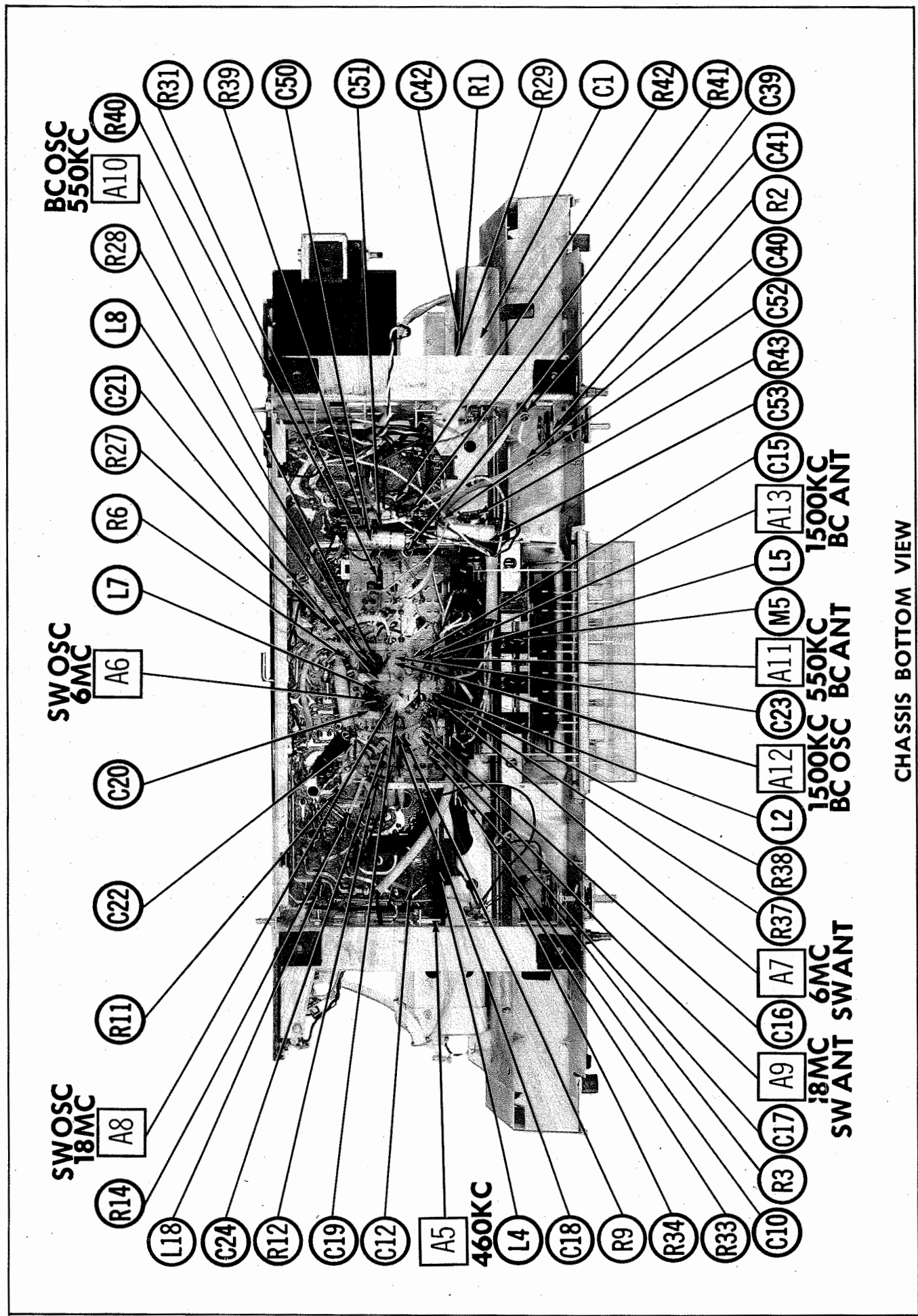
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	Across FM antenna terminals with 120 Ω in each lead.	91MC (Unmod.)	(FM) 91MC	DC probe to point \diamond . Common to chassis.	A22	Adjust for maximum deflection.
12.	"	105MC	105MC	"	A23	"
13.	"	100MC	100MC	"	A24	Adjust for maximum deflection. Repeat Steps 11, 12 and 13.



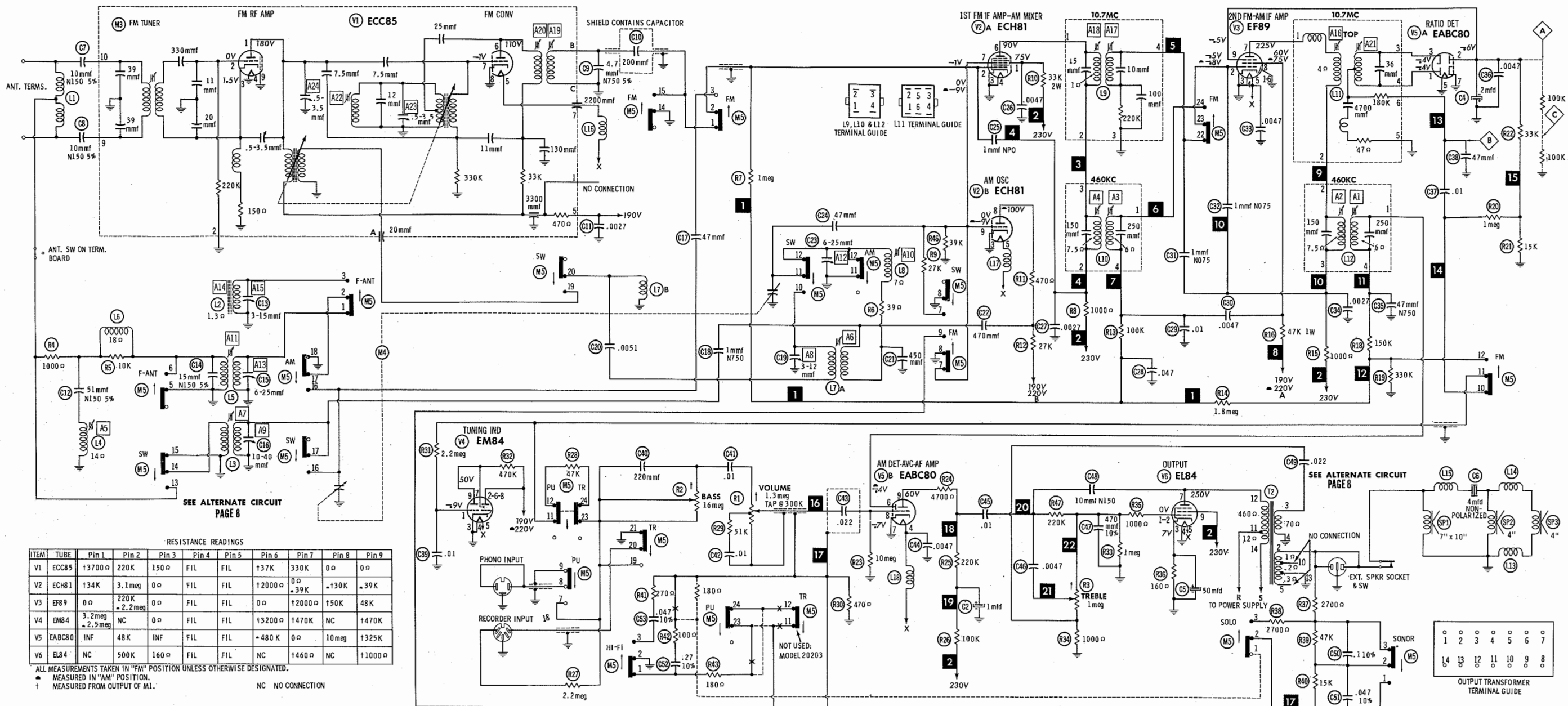


CHASSIS TOP VIEW
 BLAUPUNKT MODELS Granada
 61(20303), Sultan (20203)

FOLDER 4



CHASSIS BOTTOM VIEW



RESISTANCE READINGS

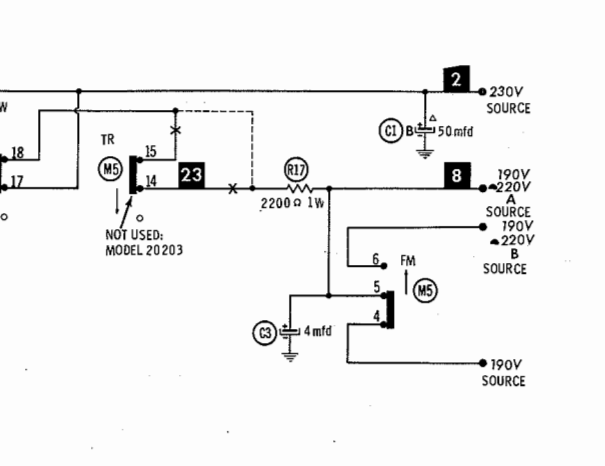
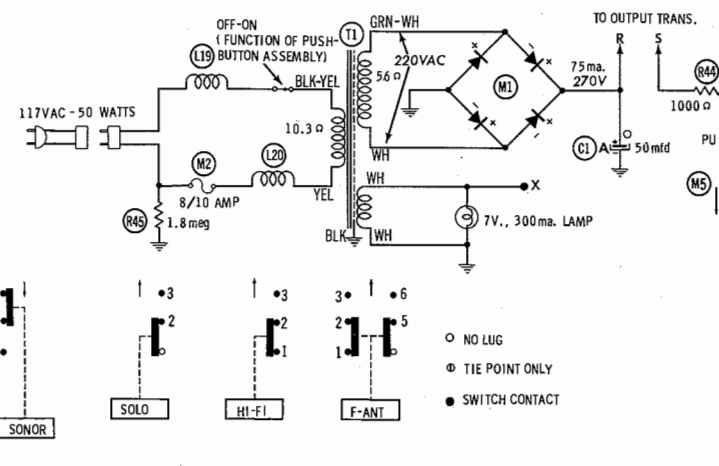
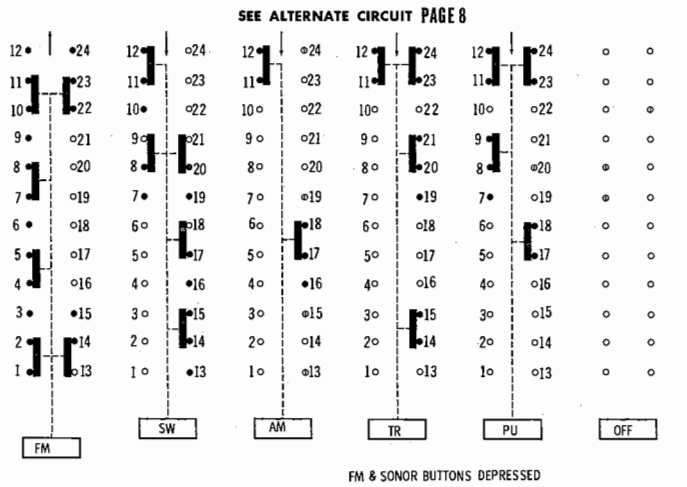
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	13700 Ω	220K	150 Ω	FIL	FIL	137K	330K	0 Ω	0 Ω
V2	ECH81	134K	3.1 meg	0 Ω	FIL	FIL	12000 Ω	0 Ω	130K	39K
V3	EF89	0 Ω	220K	2.2 meg	0 Ω	FIL	FIL	0 Ω	12000 Ω	150K
V4	EM84	3.2 meg	2.5 meg	0 Ω	FIL	FIL	13200 Ω	1470K	NC	1470K
V5	EABC80	INF	48K	INF	FIL	FIL	480K	0 Ω	10 meg	1325K
V6	EL84	NC	500K	160 Ω	FIL	FIL	1460 Ω	NC	11000 Ω	

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
 * MEASURED IN "AM" POSITION.
 † MEASURED FROM OUTPUT OF M1. NC NO CONNECTION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
 ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

- DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
- Socket connections are shown as bottom views.
- Measured values are from socket pin to common ground.
- Line voltage maintained at 117 volts for voltage readings.
- Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
- Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFAC STANDARD NOTATION SCHEMATIC with **CIRCUITRACE**
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BLAUPUNKT MODELS Granada 61 (20303), Sultan (20203)