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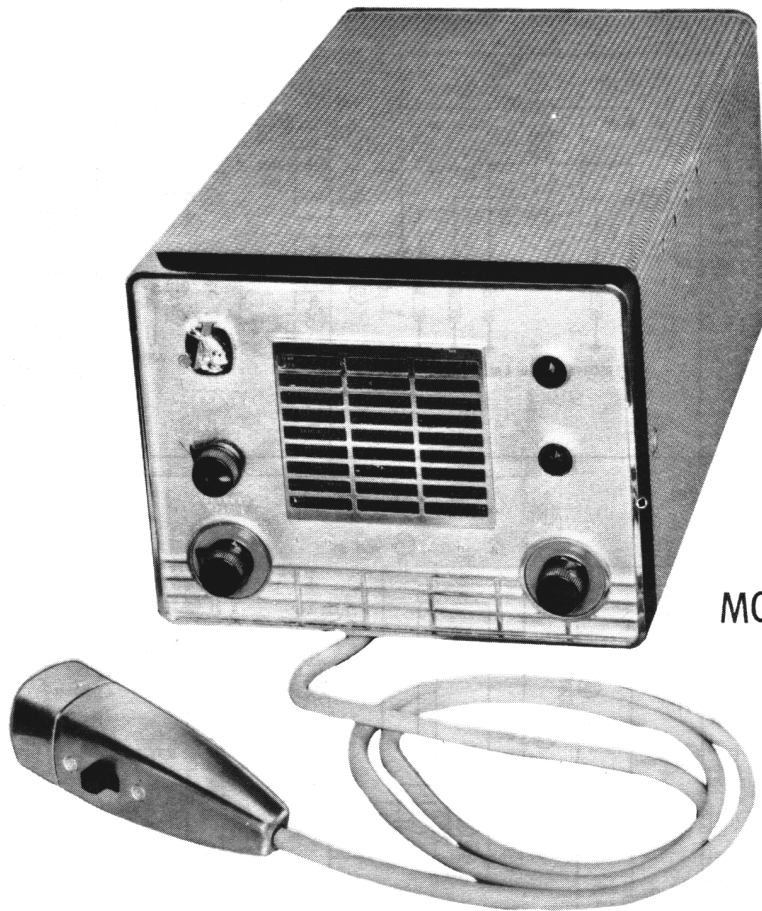
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PHOTOFACT® Folder



VIKING MODELS 242-126,
242-127, 242-128, 242-129



MODEL 242-128

VIKING MODELS 242-126,
242-127, 242-128, 242-129

TRADE NAME	Johnson Viking Models 242-126, 242-127, 242-128, 242-129
MANUFACTURER	E. F. Johnson Co., Waseca, Minnesota
TYPE SET	AC-Battery Operated 10 Tube Crystal Controlled Citizens Band Transmitter-Receiver
POWER SUPPLY	Model 242-126 : 110-120 Volts AC, 60 Cycles Model 242-127 : 110-120 Volts AC, 60 Cycles or 6 Volt Storage Battery Model 242-128 : 110-120 Volts AC, 60 Cycles or 12 Volt Storage Battery Model 242-129 : 110-120 Volts AC, 60 Cycles or 24 Volt Storage Battery
RATING	Model 242-128 : 61 Watts, .58 Amp. @117 Volts AC (Receive) 73 Watts, .68 Amp. @117 Volts AC (Transmit) 4.8 Amp. @12.6 Volts AC (Receive) 5.5 Amp. @12.6 Volts AC (Transmit)
FREQ. RANGE	Any 5 of Citizens Band Channels 1 thru 23

NOTICE

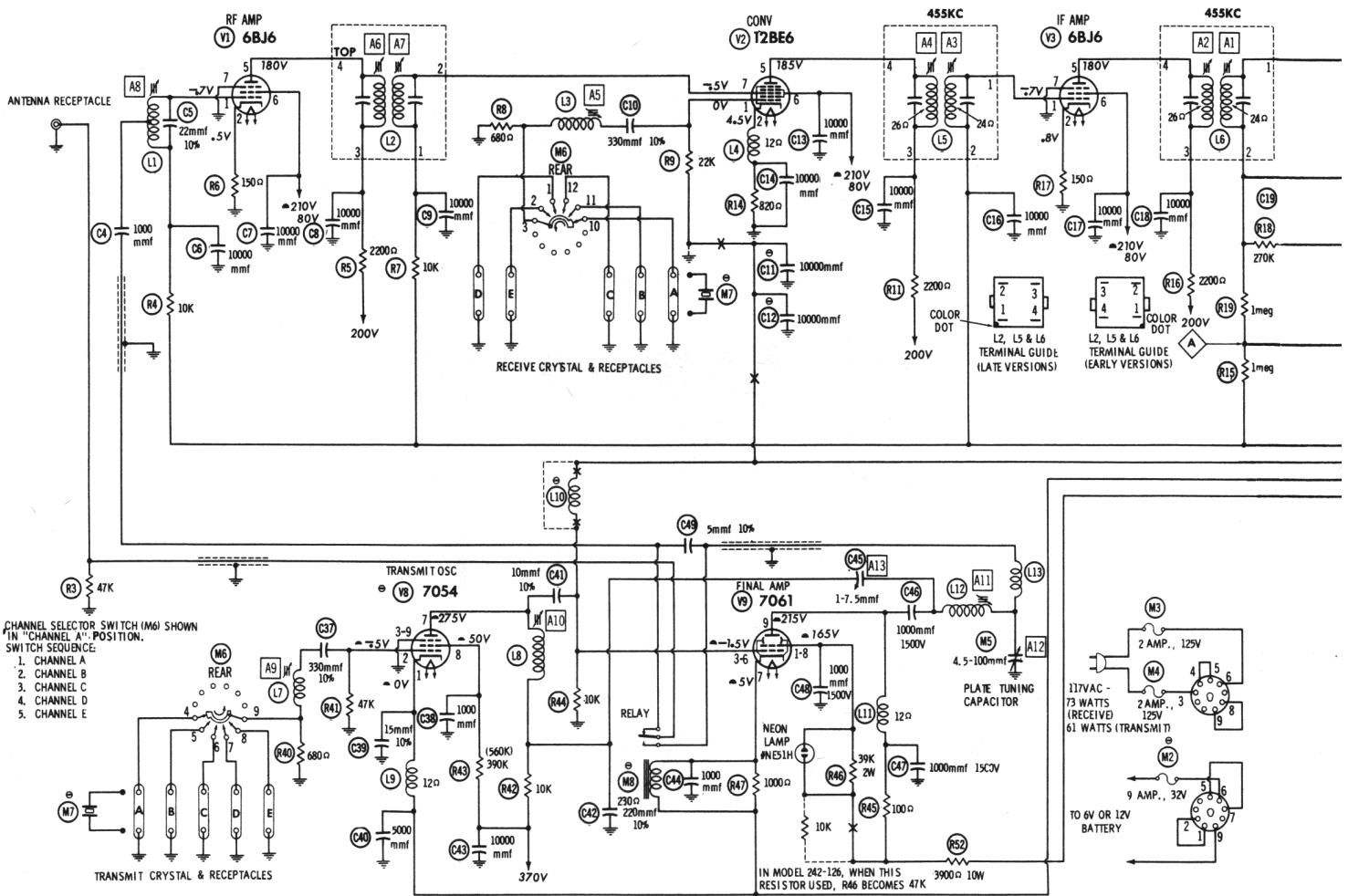
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HOWARD W. SAMs & CO., INC. Indianapolis 6, Indiana



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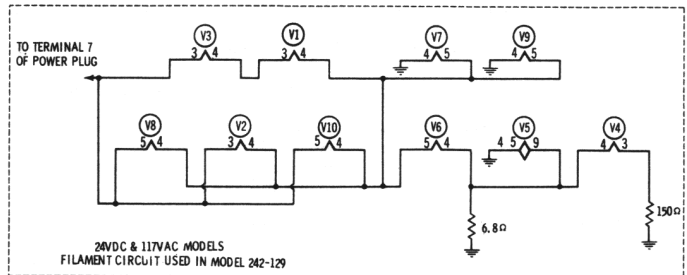


CHANNEL SELECTOR SWITCH (M6) SHOWN IN "CHANNEL A" POSITION.
 SWITCH SEQUENCE:
 1. CHANNEL A
 2. CHANNEL B
 3. CHANNEL C
 4. CHANNEL D
 5. CHANNEL E

RESISTANCE READINGS

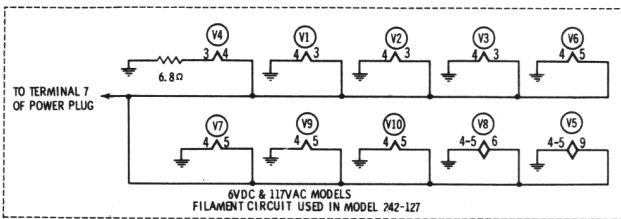
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BJ6	3.3meg	150Ω	3Ω	0Ω	↑10K	↑34K	0Ω		
V2	12BE6	32K	820Ω	.1Ω	0Ω	↑10K	↑34K	3.3meg		
V3	6BJ6	3.3meg	150Ω	.1Ω	0Ω	↑10K	↑34K	0Ω		
V4	6AL5	3meg	1.3meg	.1Ω	.1Ω	0Ω	NC	1meg		
V5	ECC82 12AU7	↑460K	4.7meg	↑NF 0Ω	0Ω	0Ω	↑240K	2meg	0Ω	1Ω
V6	6AW8A	10K	525K	↑570K	.1Ω	.1Ω	0Ω	3.3meg	9000Ω	↑160K
V7	12A85	↑8200Ω	TP	470K	0Ω	.1Ω	NC	330Ω	↑8200Ω	↑210Ω
V8	7054	↑12Ω	47K	0Ω	0Ω	.1Ω	NC	↑10K	↑390K	0Ω
V9	7061	NC	NC	10K	0Ω	.1Ω	NC	↑230Ω	↑43K	↑4200Ω
V10	12BW4	215Ω	NC	NC	.1Ω	0Ω	NC	205Ω	NC	↑

ALL MEASUREMENTS MADE IN "RECEIVER" POSITION UNLESS OTHERWISE DESIGNATED.
 † THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
 ▲ MEASURED IN "TRANSMIT" POSITION. NC NO CONNECTION
 † MEASURED FROM PIN 9 OF V10. TP TIE POINT

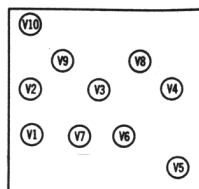
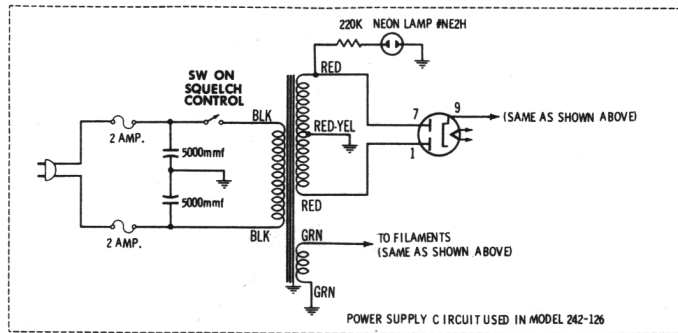
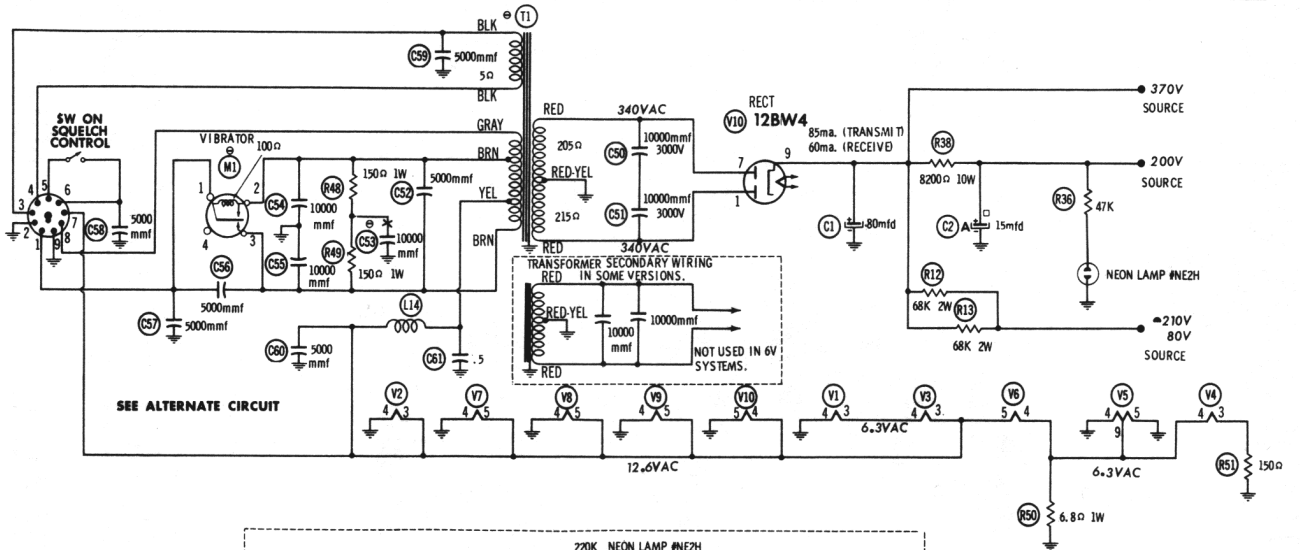
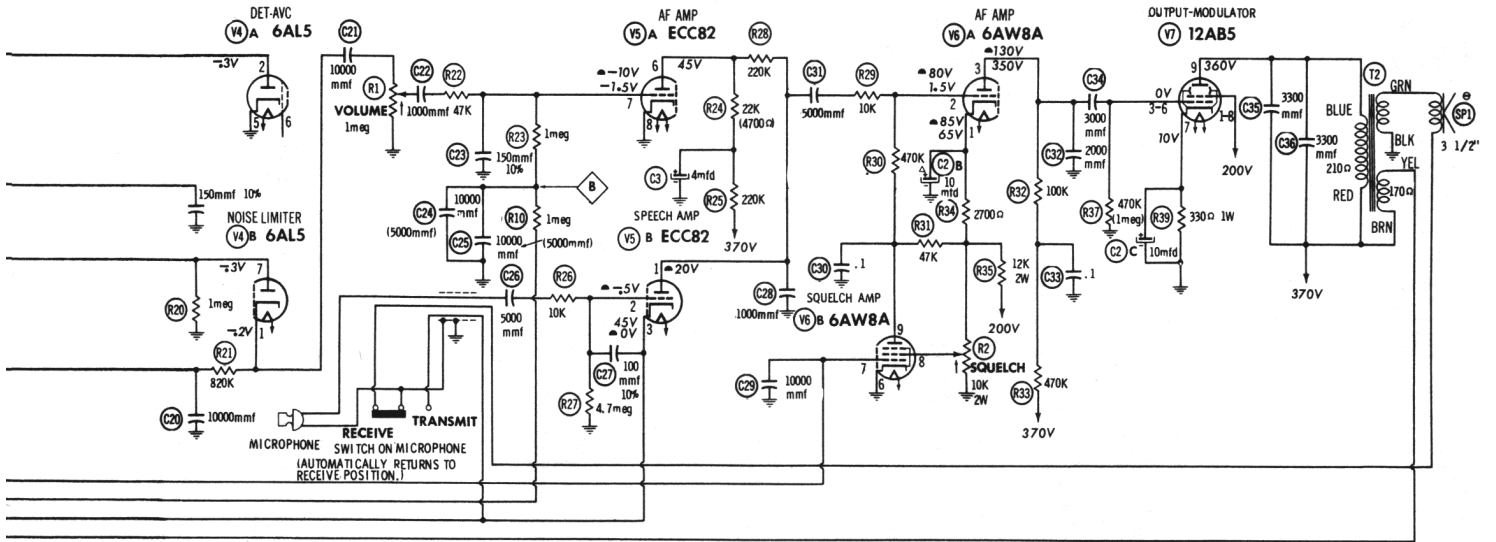


26VDC & 117VAC MODELS
 FILAMENT CIRCUIT USED IN MODEL 242-129

- 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.



6VDC & 117VAC MODELS
 FILAMENT CIRCUIT USED IN MODEL 242-127



TUBE LAYOUT (BOTTOM VIEW)

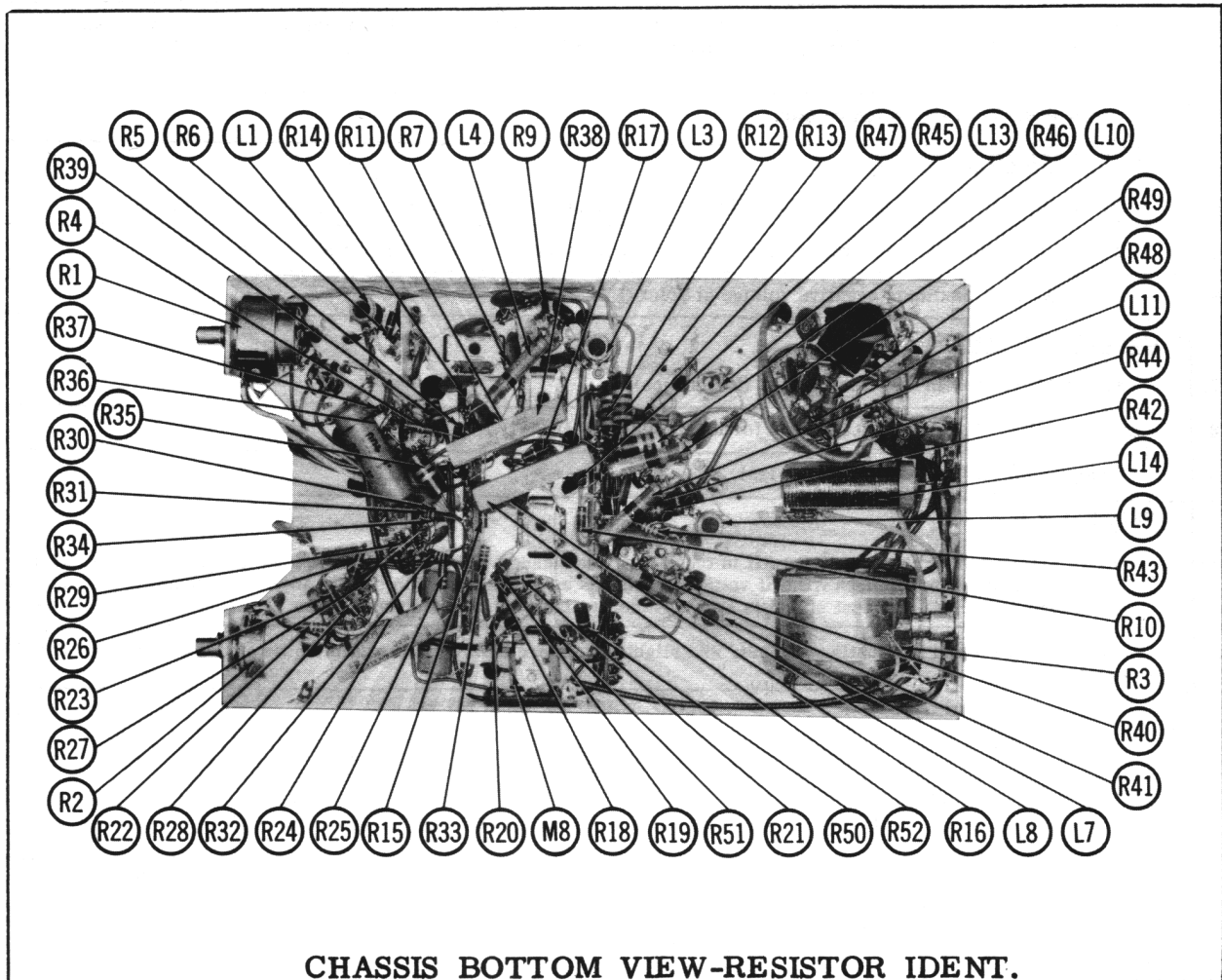
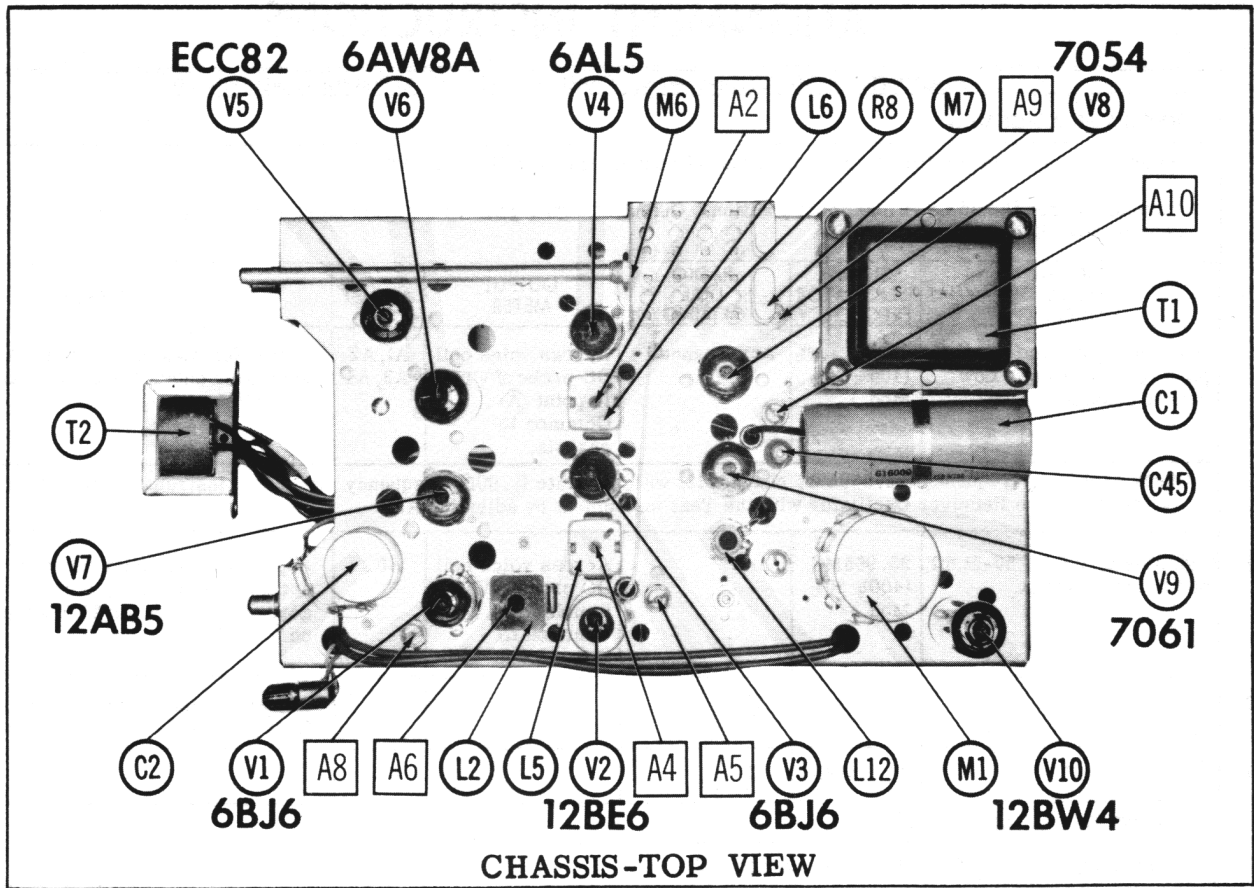
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

**VIKING MODELS 242-126,
242-127, 242-128, 242-129**



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

RECEIVER ALIGNMENT

Insert receiver crystals for channels 1, 12 and 22 sockets (marked R1, R12, R22)

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 1 (grid) of Conv. Low side to chassis.	455KC \pm .1% (400% 30% Mod.)	Any Channel	Across voice coil. DC probe of VTVM to point \diamond . Common to chassis.	A1, A2, A3, A4	Adjust for maximum output. Adjust generator output for 1.5V maximum on VTVM.
Check oscillator frequency (26.650MC, channel 12) with accurate (\pm .001%) frequency measuring instrument—Zero Beat (within 100%) the Receiver Oscillator with the Test instrument by adjusting A5.						
2.	High side thru 6db, 50-51.5 Ω pad to antenna jack.	26.965MC (400% 30% Mod.)	1	Across voice coil DC probe of VTVM to point \diamond . Common to chassis.	A6	Adjust for maximum output on second peak inward. Adjust generator output for 2V maximum on VTVM.
3.	"	27.225MC	22	"	A7	Adjust for maximum output on first peak in from core fully out.
4.	"	27.105MC	12	"	A8	"

TRANSMITTER ALIGNMENT

Insert crystal in Channel 12 socket (marked T12).

1. Connect a 50-51.5 Ω non-inductive dummy load in series with a 0-500MA RF milliammeter to the Antenna Jack.
2. Set Channel Switch to Channel 12 (Position C). Connect DC probe of VTVM to Point \diamond , common to chassis. Connect DC VTVM across R45 (100 Ω). (Each volt will indicate 10MA of V9 plate current). CAUTION: Meter is above ground potential.
3. Press Push-To-Talk switch on Mic.

OSCILLATOR ADJUSTMENT

4. Check Transmitter Frequency of 27.105MC with an accurate (.001%) frequency measuring instrument.
5. Zero Beat within 100% the Transmitter Oscillator with the test instrument by adjusting A9.
6. Adjust A10 for maximum negative voltage at point \diamond .

OUTPUT ADJUSTMENT

7. Adjust A11 for Dip in V9 plate current (Resonance).
8. Adjust A12 for 2.4V (24MA) (or less for maximum output).
9. Readjust A11 and A12, adjusting A11 last.

NEUTRALIZING

10. Note meter reading at point \diamond as A11 is tuned thru resonance. If voltage increases as A11 is backed out, adjust A13 clockwise slowly and recheck A11. If voltage increases as A11 is turned into coil, adjust A13 counterclockwise slowly and recheck A11. Adjustment of A13 is correct when voltage increases equally or not at all on each side of resonance.
11. Repeat Steps 7 and 8 adjusting A11 last, and slightly counterclockwise for maximum output with 24MA (or less) V9 plate current.

PARTS LIST AND DESCRIPTIONS

TUBES

GENERAL ELECTRIC		RAYTHEON		SYLVANIA	
ITEM No.	USE	ITEM No.	USE	ITEM No.	TYPE
V1	RF Amplifier	V6	AF Amp. - Squelch Amp.	6AW8A	
V2	Converter	V7	Output-Modulator	12AB6	
V3	IF Amplifier	V8	Trans. Oscillator	7054 (12BY7A) *	
V4	Det.-AVC - Noise Limiter	V9	Final Amplifier	7061	
V5	AF Amp. - Speech Amp.	V10	Rectifier	12BW4	

* Used in Models 242-127

ELECTROLYTIC CAPACITORS

REPLACEMENT DATA					
ITEM No.	RATING	JOHNSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	NOTES
C1	80	22.1298-1	PBS1780	TC80	TD-80-450 TVA-1716
C2A	15	22.1541	AFB3-22	FB328	TMT-3282 TYL-3580
C2B	10				
C2C	25				
C3	4	22.1654	PBS1600	BR435	TD-4-450 TVA-1601

FIXED CAPACITORS (cont)

REPLACEMENT DATA						
ITEM No.	RATING	REMARKS	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	SPRAGUE PART No.
C46	1000 1500V		HVD-15-1000	DD30-102	3CCD-102	20GA-D1
C47	1000 1500V		HVD-15-1000	DD30-102	3CCD-102	20GA-D1
C48	1000 1500V		HVD-15-1000	DD30-102	3CCD-102	20GA-D1
C49	5 10K	Note 2	1469-000005	TCZ-4R7	C-M-19B-050K	MS-55
C50	10000 3000V					30GA-S10
C51	10000 3000V					30GA-S10
C52	5000		BPD-005	DD-502	CCD-502	5HK-D50
C53	10000		BPD-01	DD-103	CCD-103	5HK-S10
C54	10000		BPD-01	DD-103	CCD-103	5HK-S10
C55	10000		BPD-01	DD-103	CCD-103	5HK-S10
C56	5000		BPD-005	DD-502	CCD-502	5HK-D50
C57	5000		BPD-005	DD-502	CCD-502	5HK-D50
C58	5000		BPD-005	DD-502	CCD-502	5HK-D50
C59	5000		BPD-005	DD-502	CCD-502	5HK-D50
C60	5000		BPD-005	DD-502	CCD-502	5HK-D50
C61	.5 400V		P488N-5	4DP4P5	4DP-6-504	4TM-P50

Note 1. Not used in some versions.
 Note 2. Not used in 6 volt versions.
 † Alternate Values.
 ‡ Viking Part Number.

CONTROLS

REPLACEMENT DATA						
ITEM No.	RATING	JOHNSON PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	SPRAGUE PART No.	
R1A	1meg	22.1647	B-70	Q13-137	U53	Volume
R2A	10K Shaft	22.1648	Not Req.	RS-2	Not Req.	Squelch
R2B	10K Shaft			A48S-10K	DS-36	Power Off-On
R2C	Switch			Not Req.	US-30	

RESISTORS

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

REPLACEMENT DATA						
ITEM No.	RATING	JOHNSON PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	SPRAGUE PART No.	
R3	47K					
R4	10K					
R5	22000					
R6	1500					
R7	10K					
R8	6800					
R9	22K					
R10	1meg					
R11	22000					
R12	68K 2W					
R13	68K 2W					
R14	8200					
R15	1meg					
R16	22000					
R17	1500					
R18	2700					
R19	1meg					
R20	1meg					
R21	820K					
R22	47K					
R23	1meg					
R24	22K					
R25	220K					
R26	10K					
R27	4.7meg					

* Alternate Value.

FIXED CAPACITORS

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

REPLACEMENT DATA						
ITEM No.	RATING	JOHNSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	SPRAGUE PART No.
C4	1000		BPD-001	DD-102	CCD-102	5HK-D10
C5	22 10K		1469-000022	TCZ-22	CM-19B-220K	MS-422
C6	10000		BPD-01	DD-103	CCD-103	5HK-S10
C7	10000		BPD-01	DD-103	CCD-103	5HK-S10
C8	10000		BPD-01	DD-103	CCD-103	5HK-S10
C9	10000		BPD-01	DD-103	CCD-103	5HK-S10
C10	330 10K		1469-000033	5R5T33	CM-19B-331K	MS-333
C11	10000	Note 1	BPD-01	DD-103	CCD-103	5HK-S10
C12	10000	Note 1	BPD-01	DD-103	CCD-103	5HK-S10
C13	10000		BPD-01	DD-103	CCD-103	5HK-S10
C14	10000		BPD-01	DD-103	CCD-103	5HK-S10
C15	10000		BPD-01	DD-103	CCD-103	5HK-S10
C16	10000		BPD-01	DD-103	CCD-103	5HK-S10
C17	10000		BPD-01	DD-103	CCD-103	5HK-S10
C18	10000		BPD-01	DD-103	CCD-103	5HK-S10
C19	150 10K		1469-000015	TCZ-150	CM-19B-151K	MS-315
C20	10000		BPD-01	DD-103	CCD-103	5HK-S10
C21	10000		BPD-01	DD-103	CCD-103	5HK-S10
C22	1000		BPD-001	DD-103	CCD-102	5HK-D10
C23	150 10K		1469-000015	TCZ-150	CM-19B-151K	MS-315
C24	10000		BPD-01	DD-103	CCD-103	5HK-S10
C25	10000		BPD-01	DD-103	CCD-103	5HK-S10
C26	5000		BPD-005	DD-502	CCD-502	5HK-D50
C27	100 10K		1469-000100	TCZ-100	CM-19B-101K	MS-31
C28	1000		BPD-001	DD-102	CCD-102	5HK-D10
C29	10000		BPD-01	DD-103	CCD-103	5HK-S10
C30	1.400V		P488N-1	4DP4P1	4DP-3-104	4TM-P10
C31	3000		BPD-005	DD-502	CCD-502	5HK-D50
C32	2000		BPD-002	DD-202	CCD-202	5HK-D20
C33	1.400V		P466N-1	4DP4P1	4DP-3-104	4TM-P10
C34	3000		D1-3000	DD-302	CCD-302	5HK-D30
C35	3300		BPD-0033	DD-332	CCD-332	5HK-D33
C36	3300		BPD-0033	DD-332	CCD-332	5HK-D33
C37	330 10K		1469-000033	5R5T33	CM-19B-331K	MS-333
C38	1000		BPD-001	DD-102	CCD-102	5HK-D10
C39	15 10K		1469-000015	TCZ-15	CM-19B-150K	MS-415
C40	5000		BPD-005	DD-502	CCD-502	5HK-D50
C41	10 10K		1469-000010	TCZ-10	CM-19B-100K	MS-41
C42	220 10K		1469-000022	TCZ-22	CM-19B-221K	CNO-322
C43	10000		BPD-01	DD-103	CCD-103	5HK-S10
C44	1000		BPD-001	DD-102	CCD-102	5HK-D10
C45	1-7.5	#22.1514		82 ⁿ -7		

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		JOHNSON PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Ant.	23.1175-21				① IRC Part #CL-1 ② Not used in some versions.
L2	RF	22.1623				
L3	Osc. Grid	23.1175-15	TV-118	6171-A	RTC-8609	
L4	RF Choke(20uh)	22.1549 ①	TV-192	6152	RTC-8584	
L5	Input IF	22.1556	BC-352	12-C1	RTC-8832	
L6	Output IF	22.1557	BC-353	12-C2	RTC-8833	
L7	Osc. Grid	23.1175-17	TV-118	6171-A	RTC-8609	
L8	RF Choke(20uh)	22.1549 ①	TV-192	6152	RTC-8584	
L9	Osc. Plate	23.1175-17	TV-118	6171-A	RTC-8609	
L10	RF Choke(20 uh)	22.1549 ①	TV-192	6152	RTC-8584	
L11	RF Choke (20uh)	23.1175-24	TV-192	6152	RTC-8584	
L12	Final Plate	23.1175-23				
L13	Ant.	16.1456				
L14	Hash Choke (4uh)		TV-118		RTC-9609	

TRANSFORMER (POWER)

ITEM No.	RATING	REPLACEMENT DATA				NOTES
		JOHNSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T1	PRI. 1 117V * ⑥ SEC. 1 68A (AC Only) VCT ⑦ ⑧ 2.6A (117V Operation)	22.1560 ①				① Part #22.1620 used in 6V operation. * Not used on DC operation.
	PRI. 2 12.6VCT ③ 2.6A (117V Operation)					
	SEC. 2 3A SEC. 3 3A SEC. 4 3A					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA				NOTES
		JOHNSON PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	
T2	PRI. 1 4200Ω SEC. 3-4Ω PRI. 2 4200Ω	22.1616				

SPEAKER

ITEM No.	TYPE	REPLACEMENT DATA		NOTES
		JOHNSON PART No.	QUAM PART No.	
SP1	FIELD V. C. IMP. 3-4Ω PM 3-4Ω	22-1612*	3A070T	* Alternate Part #22.1612-2

VIBRATOR

ITEM No.	TYPE	INPUT VOLTS/FREQUENCY	REPLACEMENT DATA			NOTES
			JOHNSON PART No.	CORNELL-DUBILIER PART No.	MALORY PART No.	
M1	Interrupter	12.6 115%	22-1570-1*	6301*	G1601*	6301* * 12 Volt
	Interrupter	6 115%	22-1570-2*	5301*	1601*	5301* * 6 Volt

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA				
			JOHNSON PART No.	HOLDER	FUSE	BUSS PART No.	
M2	SFE	9A	22.1590-4 ①		307009 (SFE 9A 32V)	SFE 9	HHH
		32V	22.1590-1 ②		307004 (SFE 4A 32V)	SFE 4	HRF
		4A			311020 (SFE 20A 32V)	SFE 20	HHJ
M3	SFE	20A	22.1257 ④		312002 (3AG 2A 125V)	AGC 2	
		32V			312002 (3AG 2A 125V)	AGC 2	
M4	3AG	125V	22.1257 ④				
		2A					
		125V					

① 12 Volt Operation. ② 24 Volt Operation. ③ 6 Volt Operation. ④ AC Operation.

MISCELLANEOUS

ITEM No.	PART NAME	JOHNSON PART No.	NOTES
M6	Switch	22.1615	Channel Selector (Rotary Wafer Type)
M7	Crystal	250-901	Channel 1 (Matched Pair, Receive-Transmit)
	Crystal	250-902	Channel 2 (Matched Pair, Receive-Transmit)
	Crystal	250-903	Channel 3 (Matched Pair, Receive-Transmit)
	Crystal	250-904	Channel 4 (Matched Pair, Receive-Transmit)
	Crystal	250-905	Channel 5 (Matched Pair, Receive-Transmit)
	Crystal	250-906	Channel 6 (Matched Pair, Receive-Transmit)
	Crystal	250-907	Channel 7 (Matched Pair, Receive-Transmit)
	Crystal	250-908	Channel 8 (Matched Pair, Receive-Transmit)
	Crystal	250-909	Channel 9 (Matched Pair, Receive-Transmit)
	Crystal	250-910	Channel 10 (Matched Pair, Receive-Transmit)
	Crystal	250-911	Channel 11 (Matched Pair, Receive-Transmit)
	Crystal	250-912	Channel 12 (Matched Pair, Receive-Transmit)
	Crystal	250-913	Channel 13 (Matched Pair, Receive-Transmit)
	Crystal	250-914	Channel 14 (Matched Pair, Receive-Transmit)
	Crystal	250-915	Channel 15 (Matched Pair, Receive-Transmit)
	Crystal	250-916	Channel 16 (Matched Pair, Receive-Transmit)
	Crystal	250-917	Channel 17 (Matched Pair, Receive-Transmit)
	Crystal	250-918	Channel 18 (Matched Pair, Receive-Transmit)
	Crystal	250-919	Channel 19 (Matched Pair, Receive-Transmit)
	Crystal	250-920	Channel 20 (Matched Pair, Receive-Transmit)
	Crystal	250-921	Channel 21 (Matched Pair, Receive-Transmit)
	Crystal	250-922	Channel 22 (Matched Pair, Receive-Transmit)
	Crystal	250-923	Channel 23 (Matched Pair, Receive-Transmit)
M8	Relay	22-1656 *	Antenna Switching (SPDT, 2900 Coil)
	Microphone	22-1627-2	

* Early versions used a 23000Ω relay, replace with Part #22-1656.

CABINETS & CABINET PARTS

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

NAME	PART NO.	DESCRIPTION
Knob Cabinet	22.920	
	23.1380-2	

WIRING DATA

General-use Unshielded Hook-up Wire Use BELDEN No. 8550 (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)