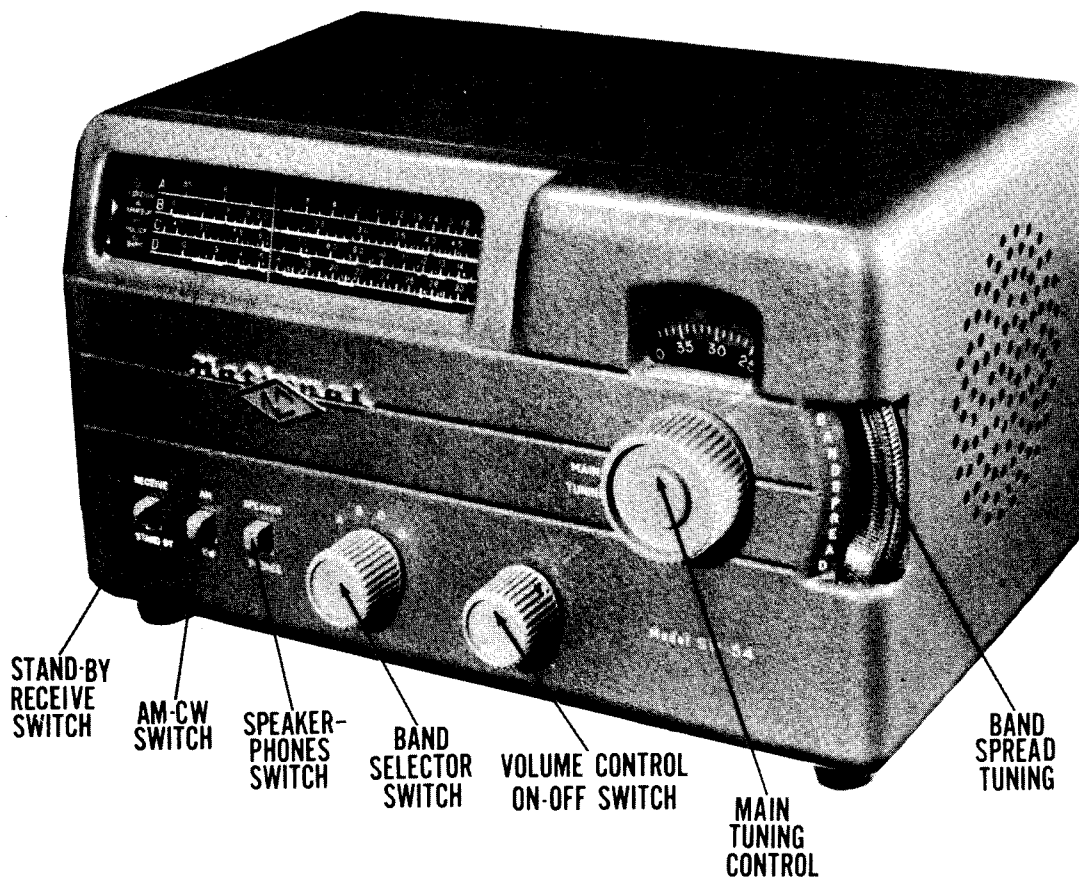




NATIONAL
MODEL SW-54



NATIONAL
MODEL SW-54

TRADE NAME National, Model SW-54
MANUFACTURER National Co., Malden, Mass.
TYPE SET AC-DC Operated Multi-Band Superheterodyne Receiver
TUBES (FIVE) Types 12BE6 Converter, 12BA6 CWO-IF Amp., 12AV6 Det.-AVC-AF, 50C5 Power Output, 25Z5GT Rectifier

POWER SUPPLY 105-130 Volts AC-DC
TUNING RANGE—Band "A" .54-1.6MC, Band "B" 1.6-4.7MC, Band "C" 4.6-14.5MC, Band "D" 12-30MC

RATING .26 Amp. @ 117 Volts AC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer turn tuning gang fully closed and set pointer even with the left hand end of the white calibration lines. Use isolation transformer if available. If not, connect a .01MFD capacitor in series with low side of signal generator and chassis.

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400vMod.)	A	1.6MC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	300Ω	High side to left hand "A" terminal, (connect link). Low side to chassis.	1.6MC	"	"	"	A5, A6	Adjust for maximum output.
3.	"	"	4.5MC	B	4.5MC	"	A7, A8	"
4.	"	"	14MC	C	14MC	"	A9, A10	"
5.	"	"	30MC	D	30MC	"	A11, A12	"

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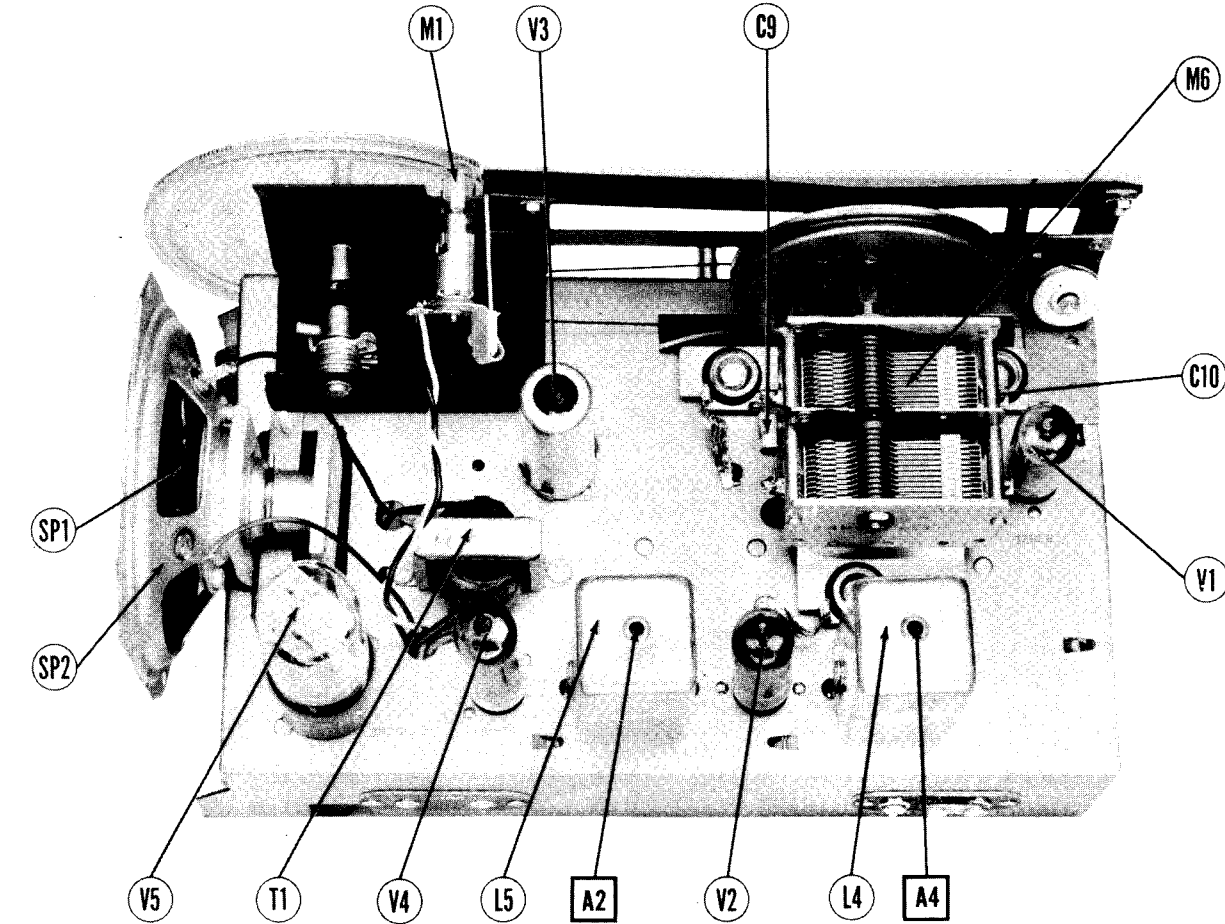
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PARTS LIST AND DESCRIPTIONS TUBES (SYLVANIA or Equivalent)

NATIONAL
MODEL SW-54

CHASSIS—TOP VIEW



CAPACITORS

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

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		NATIONAL PART No.	AEROVOX PART No.	CENTRALAB PART No.	CONELL DUBNER PART No.	
C1A	60 150	Q252-1	PRS150/80-40-20		UP84415C	Filter
C1B	40 150		PRS150/4			Filter
C1C	5 15					Filter
C1D	5 15					Output Cathode
C2	0.1 400	D827-5	P488-01	D6-103	PTE481	Ant. Isolation
C3	10 200	D827D-426	SI10NPO	TCZ-10	SW5Q1	Fixed Trimmer
C4	0.2 200	D827-51	P488-02	DF-203	PTE482	AVC Filter
C5	470 500	J665-55	1489-0005	D6-102	SR5T5	Fixed Padder
C6	1000 500	J665-70	1468-001	D6-102	1W5D1	Fixed Padder
C7	3000 500	J666-30	1467-003	D6-302	1W5D3	Fixed Trimmer
C8	21 3000	D825D-410				Osc. Coupling
C9	3 100	J695-4	SI10NPO	TCZ-100	SR5T1	Decoupling
C10	100 200	J695-6	P488-02	DF-203	PTE482	Decoupling
C11	0.2 200	D827-51	P488-02	DF-203	PTE482	Decoupling
C12	0.2 200	D827-51	P488-02	DF-203	PTE482	Decoupling
C13	0.1 120	D827-51	P488-02	DF-203	PTE482	Decoupling
C14	0.25 200	D827-15	P488-25	D6-103	GPT2P25	IF Amp. Decoupling
C15	0.005 200	D827-50	P688-005	D6-502	PTE6D5	Audio Coupling
C16	0.005 200	D827-50	P688-005	D6-502	PTE6D5	Audio Coupling
C17	470 500	J665-56	1469-0005	D6-471	SR5T5	Output Plate
C18	0.2 600	D827-44	P488-02	DF-203	PTE6S2	Rectifier Plate
C19	1 400	D827-12	P488-1	DF-104	SR5T5	RF Bypass
C20	470 500	J665-56	1469-0005	D6-471	SR5T5	Fl. Isolation
C21	0.2 600	D827-44	P688-02	DF-203	PTE6S2	Diode RF Filter
C22A	100 600	Q262-1 *	1468-0001	PC-50 *	SW5T1	Diode RF Filter
C22B	100 600	Q262-1 *	1468-0001	PC-50 *	SW5T1	Diode RF Filter

* Items C22A, C22B, R17 are combined in one unit and used with 2nd IF Transformer Part No. Q243-2.

CONTROLS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES AND INSTALLATION NOTES
		NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R1A	500KΩ	K347-6	Q13-133	AM-60-Z	B-60-S	Volume Control
R1B	500KΩ	Not Req	Not Req	FS-3	Not Req	Attach to R1A Per Instructions
R1C	Switch	Not Req	Not Req	SWB	Not Req	Attach to R1A Per Instructions

RESISTORS

ITEM No.	RATING	REPLACEMENT DATA				IDENTIFICATION CODES
		NATIONAL PART No.	IRC PART No.	CLAROSTAT PART No.	CENTRALAB PART No.	
R2	470	J569-9	BTS-22K			Parasitic Suppressor
R3	22KΩ	J569-41	BTS-560			Osc. Grid
R4	470	J569-9	BTS-100			Parasitic Suppressor
R5	500Ω	J569-13	BTS-470K			Decoupling
R6	100Ω	J569-85	BTS-2.2Meg			CWO-IF Amp. Cathode
R7	2.2Meg	J569-57	BTS-470K			AVC Network
R8	470KΩ	J569-73	BTS-10Meg			AF Amp. Grid
R9	10Meg	J569-53	BTS-220K			AF Amp. Plate
R10	220KΩ	J569-57	BTS-470K			Output Grid
R11	470KΩ	J569-15	BTS-150			Output Cathode
R12	150Ω	J571-39	BTA-15K			Voltage Divider
R13	15KΩ	J571-25	BTA-1000			Filter
R14	1000Ω	J569-19	BTS-330			Filament Shunt
R15	330Ω	J569-22	BTS-47K			Output XFMR Shunt
R16	22Ω	Q262-1 *				Diode Filter
R17	47KΩ	Q262-1 *				Diode Filter

* Items R17, C22A, and C22B are combined into one unit and used when the 2nd IF XFMR Part No. is Q243-2.

PARTS LIST AND DESCRIPTIONS (Continued) **TRANSFORMER (AUDIO OUTPUT)**

ITEM No.	RATING		REPLACEMENT DATA		INSTALLATION NOTES
	IMPEDANCE	DC RES.	NATIONAL PART No.	CHICAGO PART No.	
T1	1-9KΩ	30 100Ω	A-3330Q	A-3025	① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS		REPLACEMENT DATA		INSTALLATION NOTES
	FIELD	V. C. IMP.	NATIONAL PART No.	JENSEN PART No.	
SP1	PM	30	Q374-1	ST113	
SP2	CONE DIA.	V. C. DIA.		Mod. P4-X	
	4"	9/16"		4A1	

COILS (RF-IF)

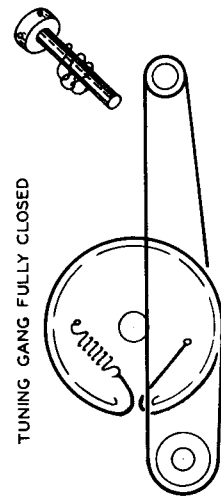
ITEM No.	USE	DC RES.		REPLACEMENT DATA		NOTES
		PRI.	SEC.	NATIONAL PART No.	HEISSNER PART No.	
L1A	Ant. Coil	290	3Ω	SA-7973		"A" Band
L1B	Ant. Coil	90	8Ω			"B" Band
L1C	Ant. Coil	90	10			"C" Band
L2	Ant. Coil	10	0Ω	SA-7971		"A" Band
L3A	Osc. Coil	2.4Ω		SA-7981		"B" Band
L3B	Osc. Coil	10				"C" Band
L3C	Osc. Coil	1				"D" Band
L3D	Osc. Coil	0Ω		Q242-1		Includes 2-87MMF Caps.
L4A	Input IF	20Ω		Q243-1		Alternate
L5A	Output IF	20Ω		Q242-2		Includes 2-110MMF Caps.
L5B	Output IF			Q243-2		Alternate

DIAL LIGHTS

ITEM No.	BASE TYPE	VOLTS	AMPS.	BEAD COLOR	REPLACEMENT DATA		NOTES
					NATIONAL PART No.		
M1	Bayonet	6-8	.15	Brown	F-136-II		Type number 47.

MISCELLANEOUS

ITEM No.	PART NAME	NATIONAL PART No.	NOTES
M2	Switch	SA-7972	Band
M3	Switch	SA-7976	Stand By- Receive
M4	Switch	SA-7977	AM-CW Phones
M5	2 Gang Var. Cap.	SA-7976	Speaker-12-44MMF
M6	Trimmer	K-5777-2	(12-44MMF, 12-44MMF)
	Dial Scale	D832-5	A5, A6, A7, A8, A9, A10, A11, A12
	Cabinet	Q233-1	
	Dial Pointer	SA-7979	
		Q240-1	



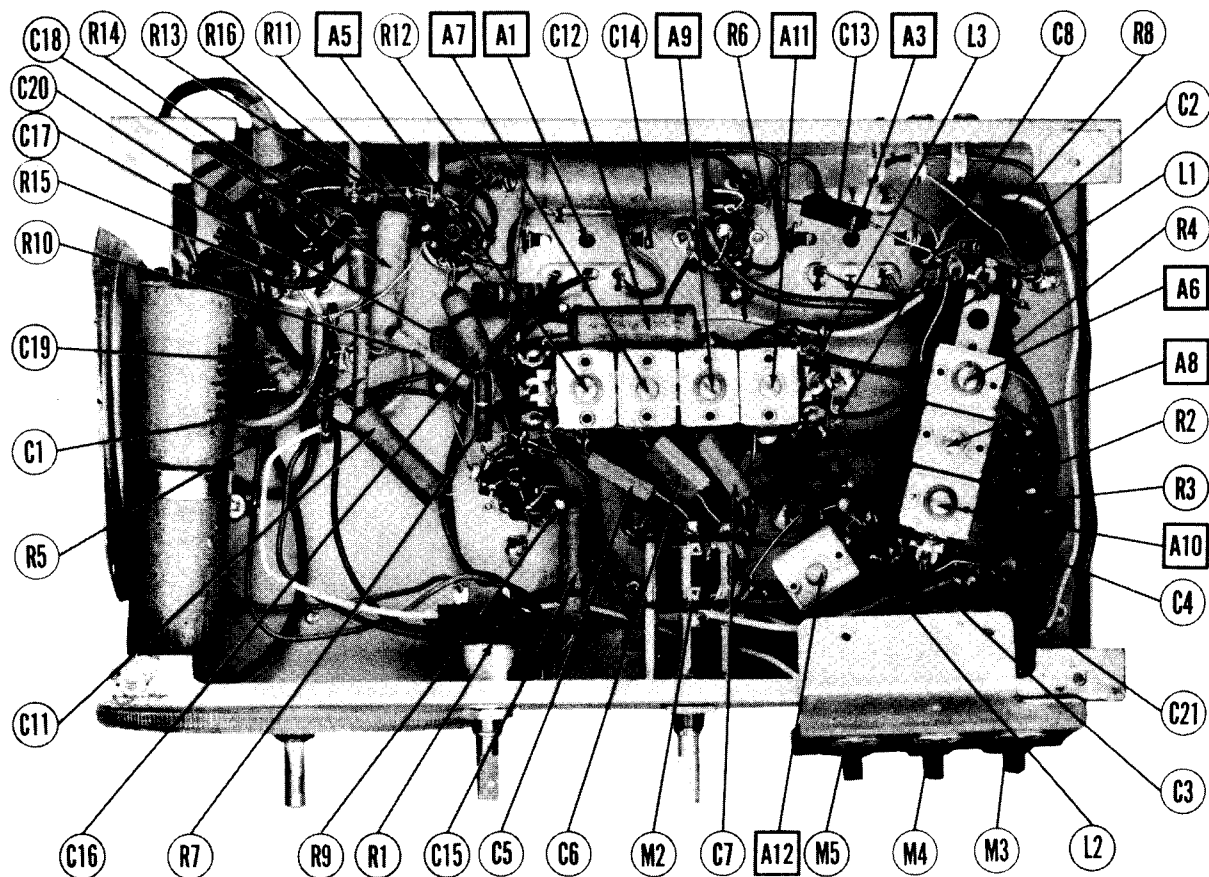
TUNING GANG FULLY CLOSED

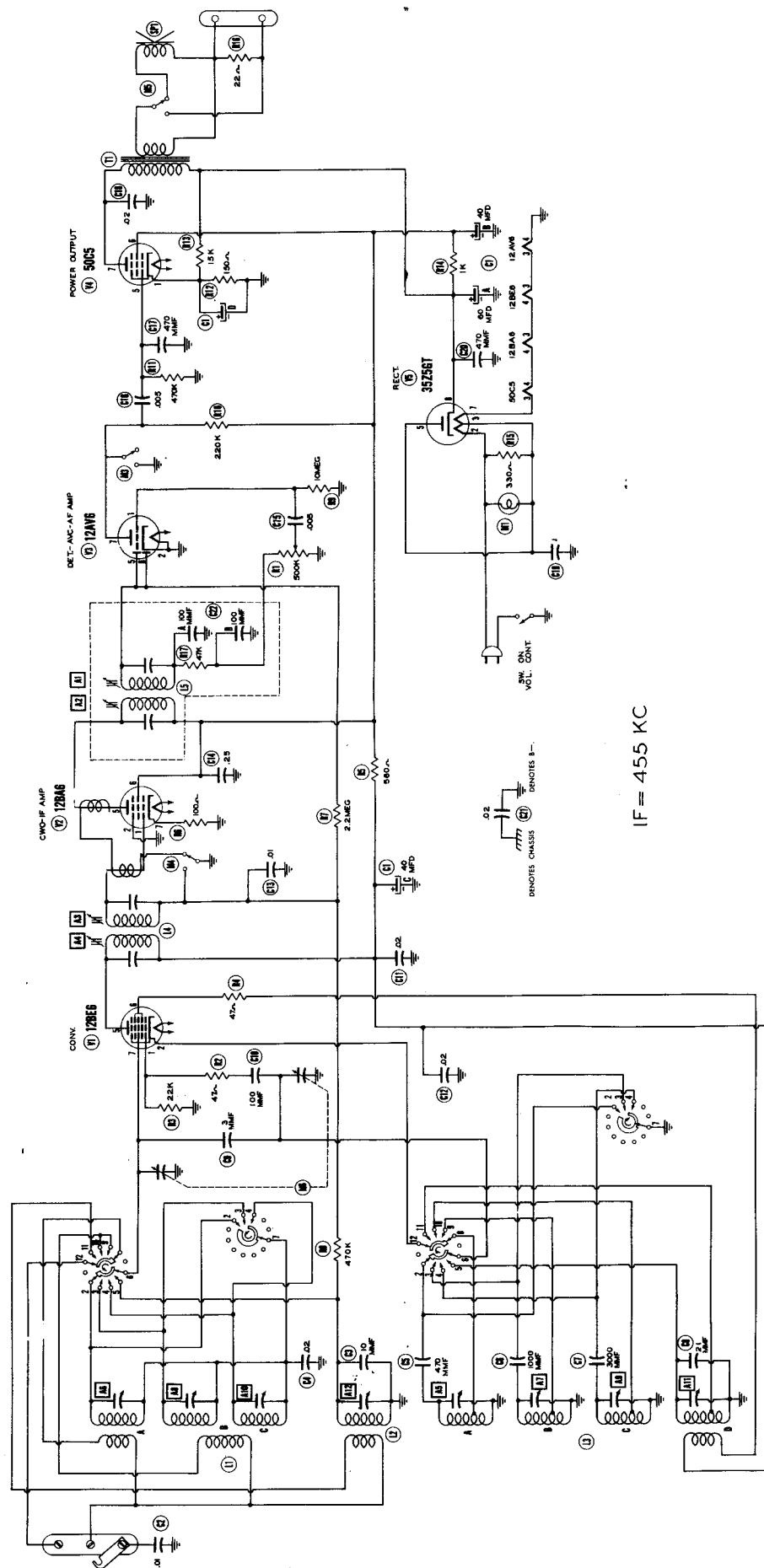
1. Length of cord .38" including clip at one end and loop in other. Measure 16 3/4" from clip end and mark this point. Loop cord at mark and push thru hole in shaft. Bring ends of cord thru loop as shown and pull taut keeping marked point over hole.

2. Wind clip end of cord 6 1/2 turns around shaft and with tuning capacitor at maximum hook clip to large pulley. Turn capacitor to minimum allowing other end of cord to wind itself around shaft.
3. Pass cord around small pulley. Fasten spring to end of cord and clip to hole in pulley providing correct tension.

DIAL CORD DRIVE

CHASSIS—BOTTOM VIEW





IF = 455 KC

VOLTAGE READINGS		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BE6	1-5.1VDC	0V	0V	0V	0V	0V	0V	0V
V2	12AF6	0V	0V	0V	0V	0V	0V	0V	0V
V3	12AF6	0V	0V	0V	0V	0V	0V	0V	0V
V4	5005	1.3VDC	0V	0V	0V	0V	0V	0V	0V
V5	35Z5GT	0V	0V	0V	0V	0V	0V	0V	0V

RESISTANCE READINGS		Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	12BE6	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K
V2	12AF6	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K
V3	12AF6	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K
V4	5005	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K
V5	35Z5GT	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K	11.8K

ALL MEASUREMENTS TAKEN IN BAND X POSITION.
STAND BY RECEIVER IN RECEIVE POSITION.
SPEAKER PRIMER IN SPEAKER POSITION.
THE COOPERATION OF THE MANUFACTURER OF THIS
RECEIVER MAKES IT POSSIBLE TO BRING YOU THIS SERVICE

1. DC Voltage measurements are at 20,000 ohms per volt; AC Voltages measured at 1,000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of $\pm 10\%$ in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.