

MOTOROLA INC.

MODELS 58R11, 58R12,
58R13, 58R14, 58R15,
58R16, CHASSIS HS-116

SERVICE NOTE

The chassis of this receiver is connected directly to the power line. When operating chassis outside of its cabinet (from an AC power line) use

an isolating transformer between power line and receiver to reduce possibility of electrical shock.

ALIGNMENT

Maximum performance can only be obtained if extreme care is exercised during alignment. Follow the procedure carefully.

chassis. Set receiver volume control to maximum. For greatest accuracy, keep output of receiver at approximately .05 watt (.05 watt = .40 volt on output meter) throughout alignment by reducing generator output (not receiver volume control) as stages are brought into alignment.

A low range output meter should be connected to the speaker voice coil terminal and receiver

ALIGNMENT PROCEDURE

Refer to Figure 1 for location of all alignment trimmers and cores.

STEP	DIAL SET TO	DUMMY	SIG. GEN. CONNECTED TO	SIG. GEN. SET AT	ADJUST TRIMMER OR CORE	REMARKS
1.	IF ALIGNMENT Gang fully opened	.1 mf	Converter Grid & chassis*	455 Kc	1,2,3 & 4	Adjust for maximum.
2.	RF ALIGNMENT Gang fully opened	.1 mf	Converter Grid & Chassis*	1620 Kc	5	This sets oscillator to dial scale.
3.	1400 Kc	None	Radiation loop**	1400 Kc	6	Tune signal in on receiver, then adjust loop trimmer (6) for maximum.

* A convenient point for this connection is the stator lug of the loop section of the tuning capacitor.

** Connect output of signal generator to a 5" diameter, 3 turn loop and bring loop close enough to receiver loop to obtain output of 50 milliwatts (.40) on output meter. Vary distance between loops to maintain this output during alignment. Minimum distance between loops should never be less than 12".

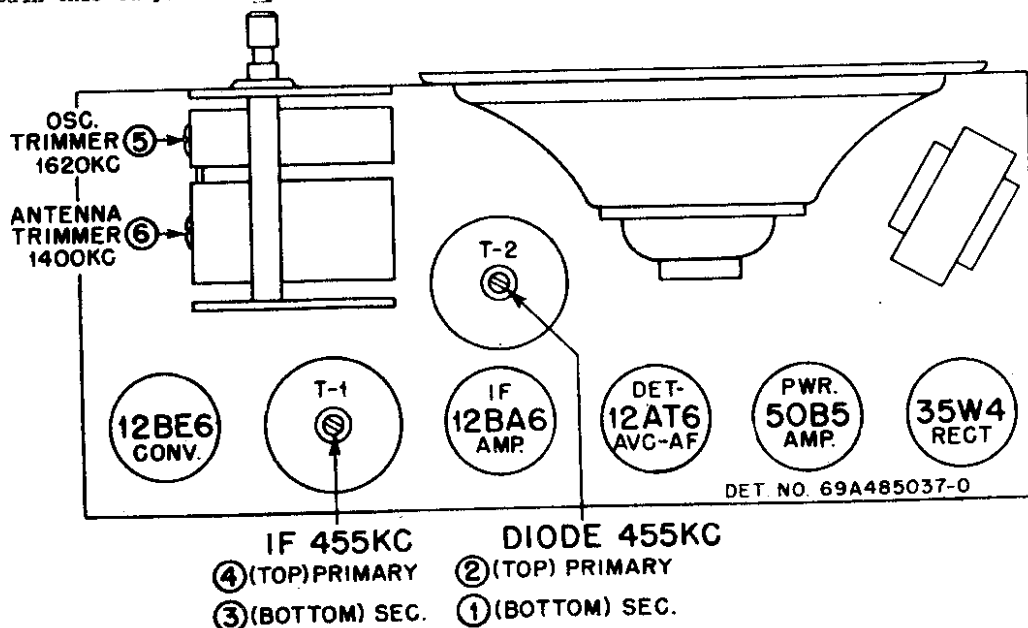


FIGURE 1. CHASSIS HS-116 TUBE & TRIMMER LOCATIONS

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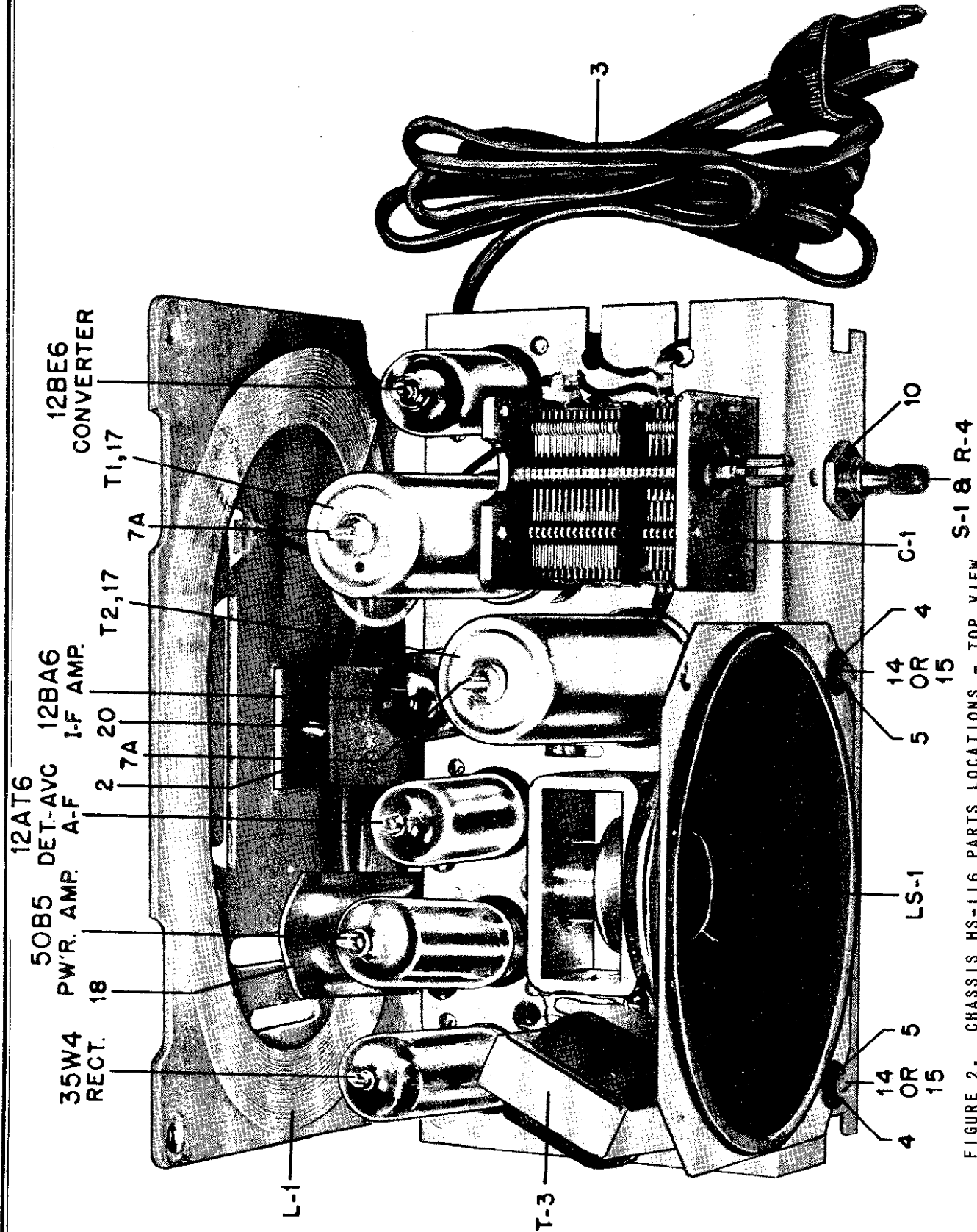


FIGURE 2. CHASSIS HS-116 PARTS LOCATIONS - TOP VIEW

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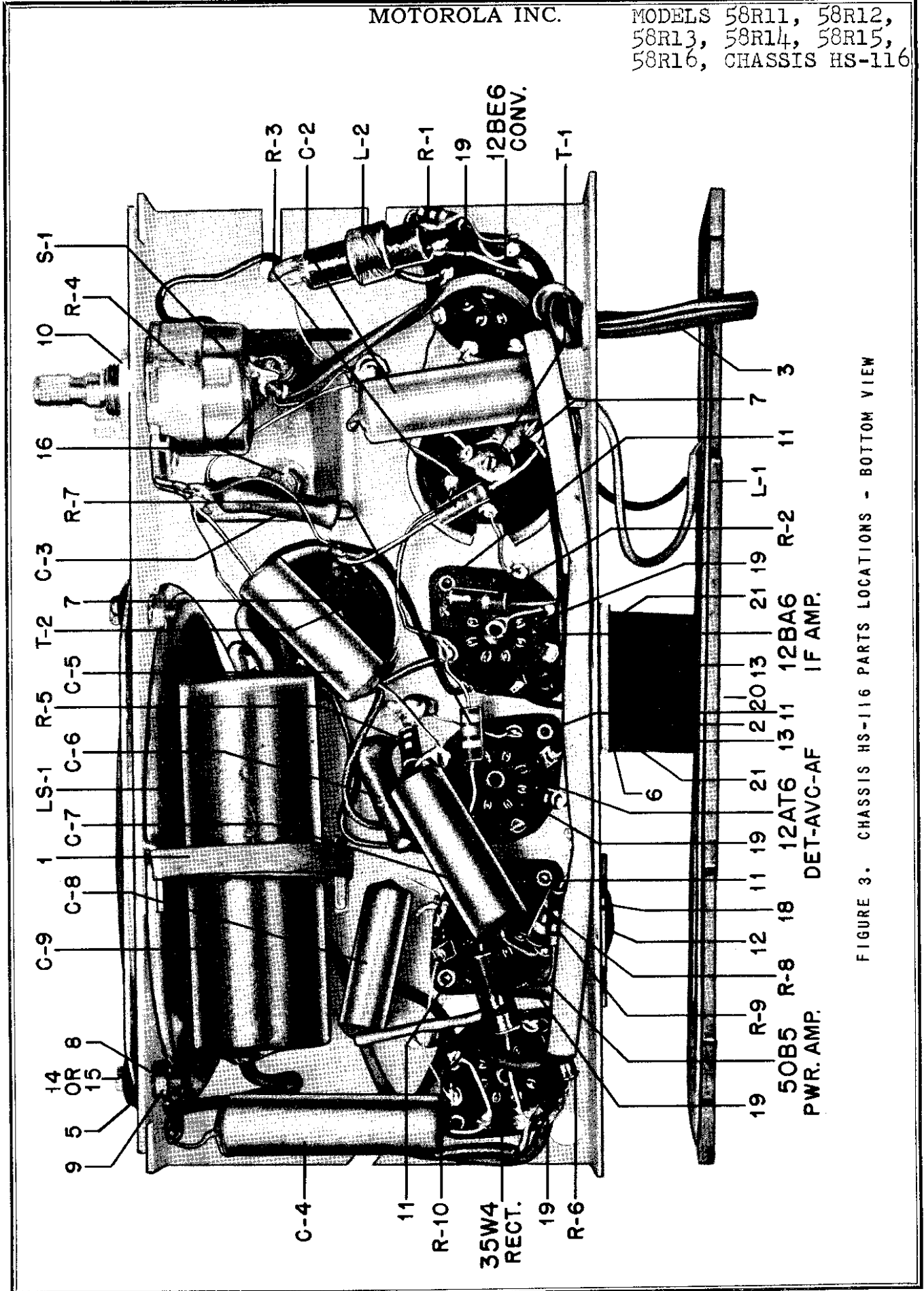


FIGURE 3. CHASSIS HS-116 PARTS LOCATIONS - BOTTOM VIEW

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NOTE: A VTVM WAS USED TO TAKE VOLTAGE MEASUREMENTS. VOLUME CONTROL SET AT MINIMUM & NO SIGNAL TUNED IN. MEASUREMENTS TAKEN FROM TUBE SOCKET TERMINALS TO CHASSIS. ALL VOLTAGE MEASUREMENTS TAKEN WITH 117 V. AC INPUT TO SET. ALL VOLTAGE MEASUREMENTS DC UNLESS OTHERWISE SPECIFIED. VOLTAGE MEASUREMENTS $\pm 10\%$. RESISTANCE MEASUREMENTS $\pm 20\%$.

= RESISTANCE READINGS.
= VOLTAGE READINGS.
GND. = GROUND CONNECTIONS TO CHASSIS.
NC = NO CONNECTION.
* = MAY VARY DEPENDING ON CONDITION OF ELECTROLYTIC CAPACITOR.
= TIE POINT.
K = ONE THOUSAND (1000) OHMS.

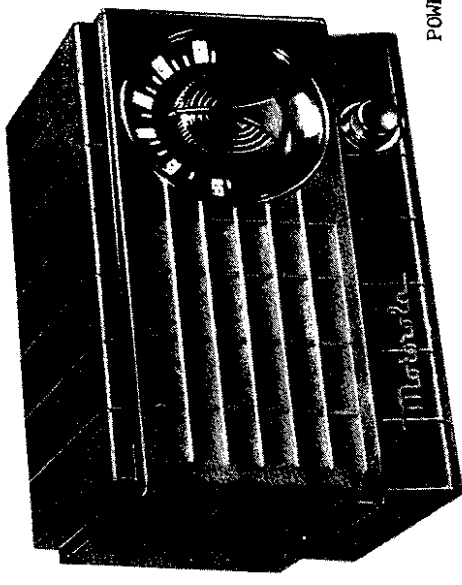
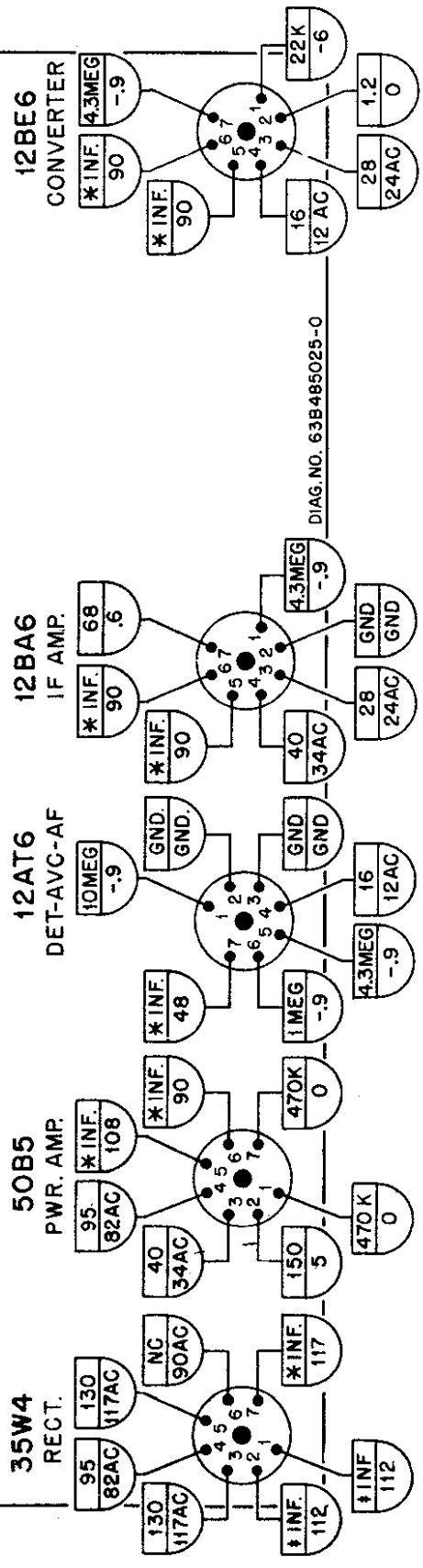
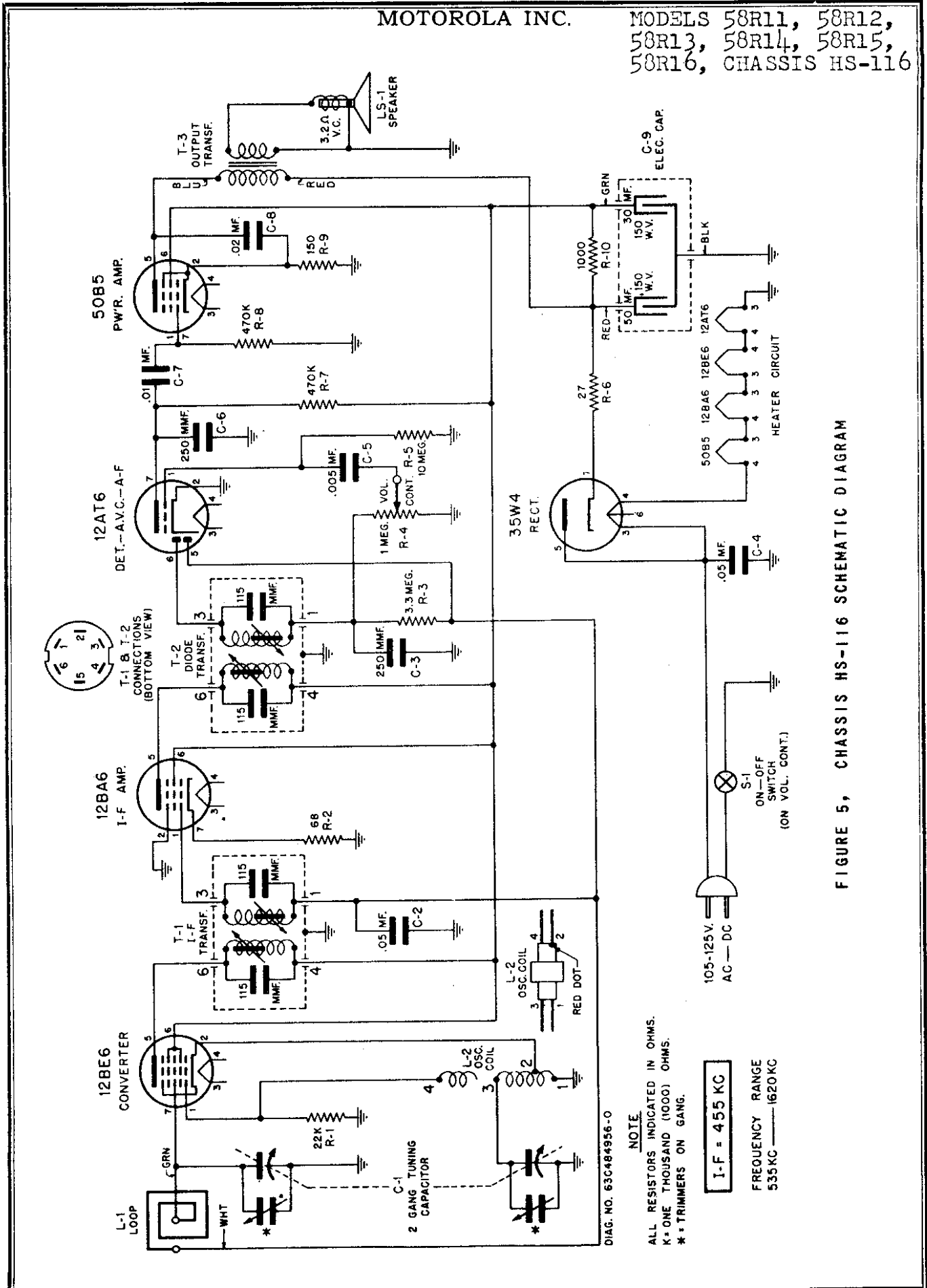


FIGURE 4. CHASSIS HS-116 VOLTAGE & RESISTANCE DIAGRAM

POWER SUPPLY - Operates from 105-125 volts AC or DC, 50 to 60 cycles, 35 watts

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NOTE:
ALL RESISTORS INDICATED IN OHMS.
K = ONE THOUSAND (1000) OHMS.
* = TRIMMERS ON GANG.

I-F = 455 KC
FREQUENCY RANGE
535 KC — 1620 KC

FIGURE 5, CHASSIS HS-116 SCHEMATIC DIAGRAM

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Part No.	Description	Part No.	Description
CHASSIS PARTS - ELECTRICAL			
CAPACITORS			
C-1	19B478128 Variable: 2 gang	9	2S7010 Nut; #5 - 40 x 1/4 hex; steel; cad plated (speaker mtg - use with 3S7327 mtg screw only)
C-2	8S9821 Paper: .05 mf 200V	10	2S7051 Nut: 3/8-32 x 9/16 hex; steel; cad plated; Palnut (vol. cont. mtg)
C-3	21K77375 Ceramic: 250 mmf	11	5S7771 Rivet: .088 x 3/16; steel; nickel plated (tube socket mtg)
C-4	8S9816 Paper: .05 mf 400V	12	5S7707 Rivet: .122 x 5/32; steel; nickel plated (electrostatic shield mtg and output transformer mtg)
C-5	8S9813 Paper: .005 mf 600V	13	5S7703 Rivet: .122 x 7/32; steel; nickel plated (antenna bracket mtg)
C-6	21K77375 Ceramic: 250 mmf	14	3S3387 Screw: #5 x 3/8 PKA plain hex head sheet metal screw; black parkerized (speaker mtg-late production sets only)
C-7	8S9809 Paper: .01 mf 400V	15	3S7327 Screw: 5-40 x 3/8 plain hex head machine screw; cad pl (speaker mtg-used in early production sets)
C-8	8S9802 Paper: .02 mf 400V	16	3S7247 Screw: 6-32 x 3/16; slotted hex head machine screw; steel cad plated; lock-screw (gang mtg)
C-9	23B478135 Electrolytic: 50-80 mf 150V	17	24B70107 Shield, coil: for IF and diode transformers
COILS			
L-1	24B478139 Loop Antenna: includes panel	18	26A478117 Shield, electrostatic
L-2	24A478129 BC Oscillator	19	9A472534 Socket, tube: miniature
SPEAKER			
LS-1	50C478138 Speaker: 4" PM; 3.2 ohm VC	20	46A478145 Stud, tri-mount (antenna mtg)
TRANSFORMERS			
T-1,2	24B478123 IF & Diode, 455 Kc: complete with tuning cores but less shield	21	14A11493 Washer, fibre: insulating (antenna bracket mtg)
T-3	25B478121 Output Transformer	CABINET PARTS	
RESISTORS			
Note: All resistors are insulated carbon type, 20%, 1/2W, unless otherwise specified.			
R-1	6R6028 22,000	101	16B478098 Cabinet, plastic: brown (58R11)
R-2	6R6007 68	102	16K484338 Cabinet, plastic: white (58R12)
R-3	6R2118 3.3 meg	103	16K484340 Cabinet, plastic: red (58R13)
R-4	18A478122 Volume control: 1 meg; with SPST switch	104	16K485161 Cabinet, plastic: grey (58R14)
R-5	6R2109 10 meg	105	16K485162 Cabinet, plastic: green (58R15)
R-6	6R5663 27 10%	106	16K485163 Cabinet, plastic: yellow (58R16)
R-7	6R6032 470,000	107	36B478147 Knob, tuning (58R11)
R-8	6R6032 470,000	108	36A478148 Knob, volume control (58R11)
R-9	6R3992 150	109	36K484377 Knob, tuning: ivory (58R12 & 58R13)
R-10	6R3953 1,000 1 watt	110	36K484375 Knob, volume control: ivory (58R12 & 58R13)
CHASSIS PARTS - MECHANICAL			
1	37A27142 Band, rubber (capacitor mtg)	111	36K485157 Knob, tuning: gold (58R14, 58R15 & 58R16)
2	7A478118 Bracket, loop mtg	112	36K485156 Knob, volume control: gold (58R14, 58R15 & 58R16)
3	30K478137 Cord, line, and plug: 6 ft long	113	36A25507 Plug, split: copper oxide finish (mounts loop panel to cabinet)
4	5S7948 Eyelet, speaker mtg	114	3S476083 Screw: 6-32 x 5/16 slotted hex head; steel, cad plated; lock screw (chassis mounting)
5	5A484268 Grommet, speaker mtg; rubber	115	11M478113 Tape, aluminum foil: 3-1/2" wide x 7" long (heat shield)
6	14A478119 Insulator, loop mtg		
7	1X71048 Iron Core & Clip Assembly (IF & Diode trans. bottom core)		
7A	1X71047 Iron Core & Palnut Assembly (IF & diode trans. top core)		
8	4S7686 Lockwasher: #5 ext (speaker mtg - use with 3S7324 mounting screw only)		