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Volume R-27

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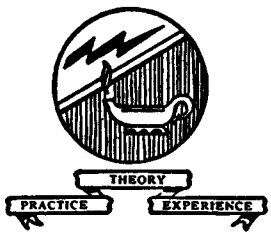

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	18	1958
	17	1957
	16	1956
	15	1955
	14	1954
	13	1953
	12	1952
	11	1951
	10	1950
	9	1949
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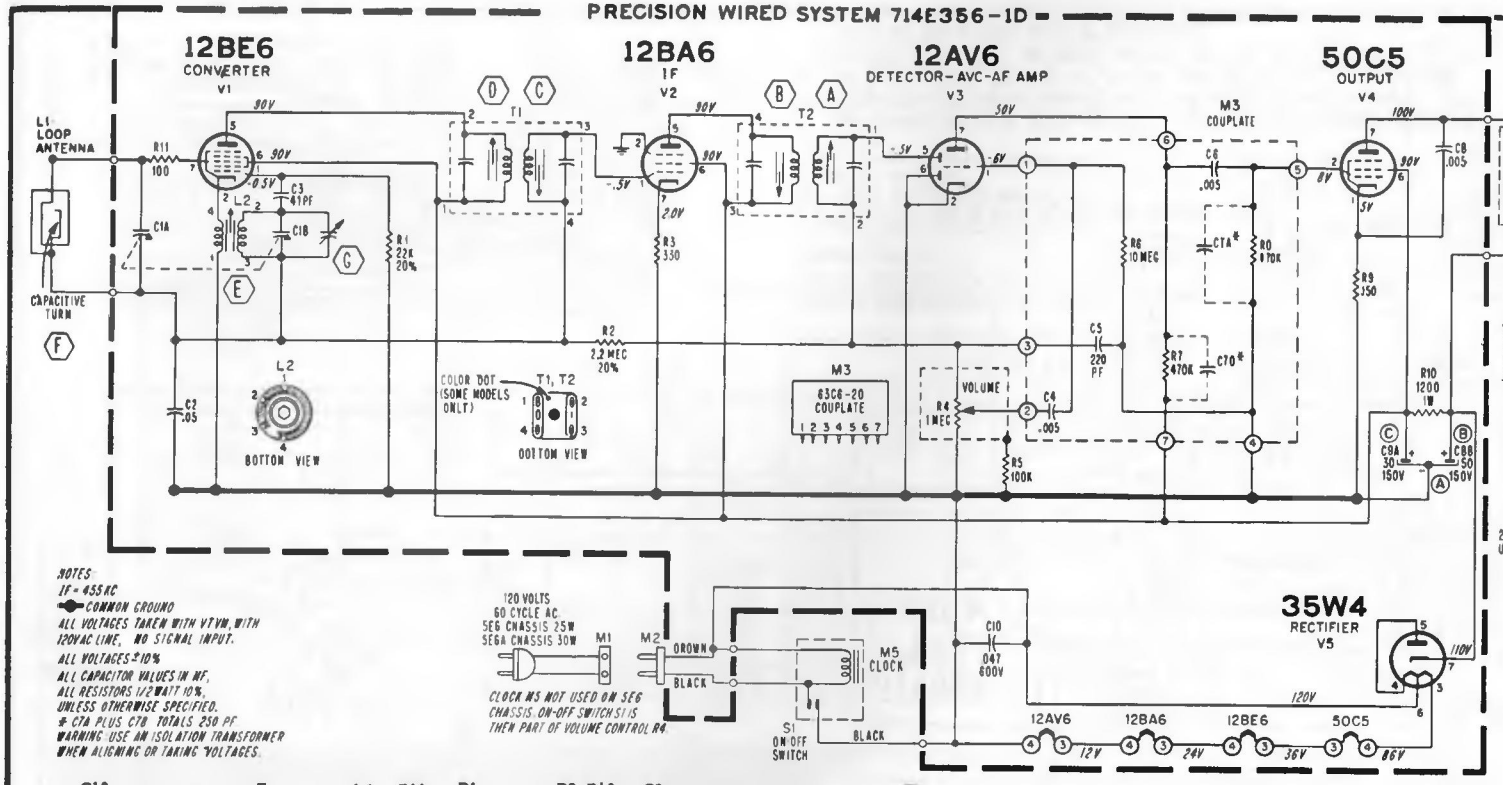
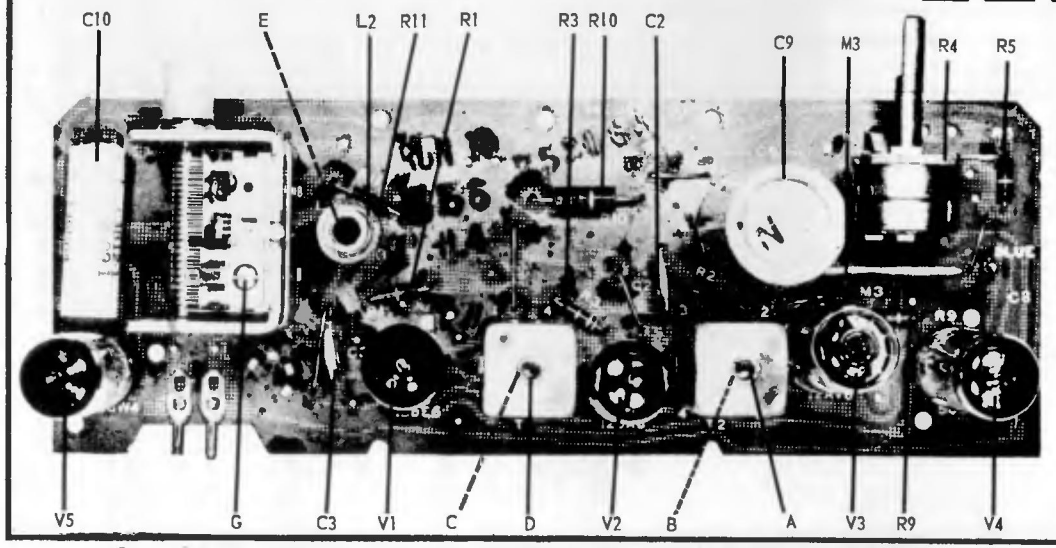
5E6 & 5E6A

CHASSIS

Models: YR503, YH713, YH717, YH723, YH727, YH731, YHC777, YHC793, YHC799, YHC801, YK803.

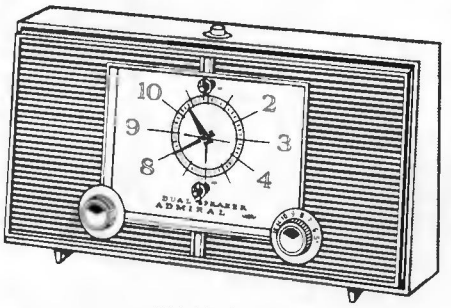
PRECISION WIRED SYSTEM 714E356-1D





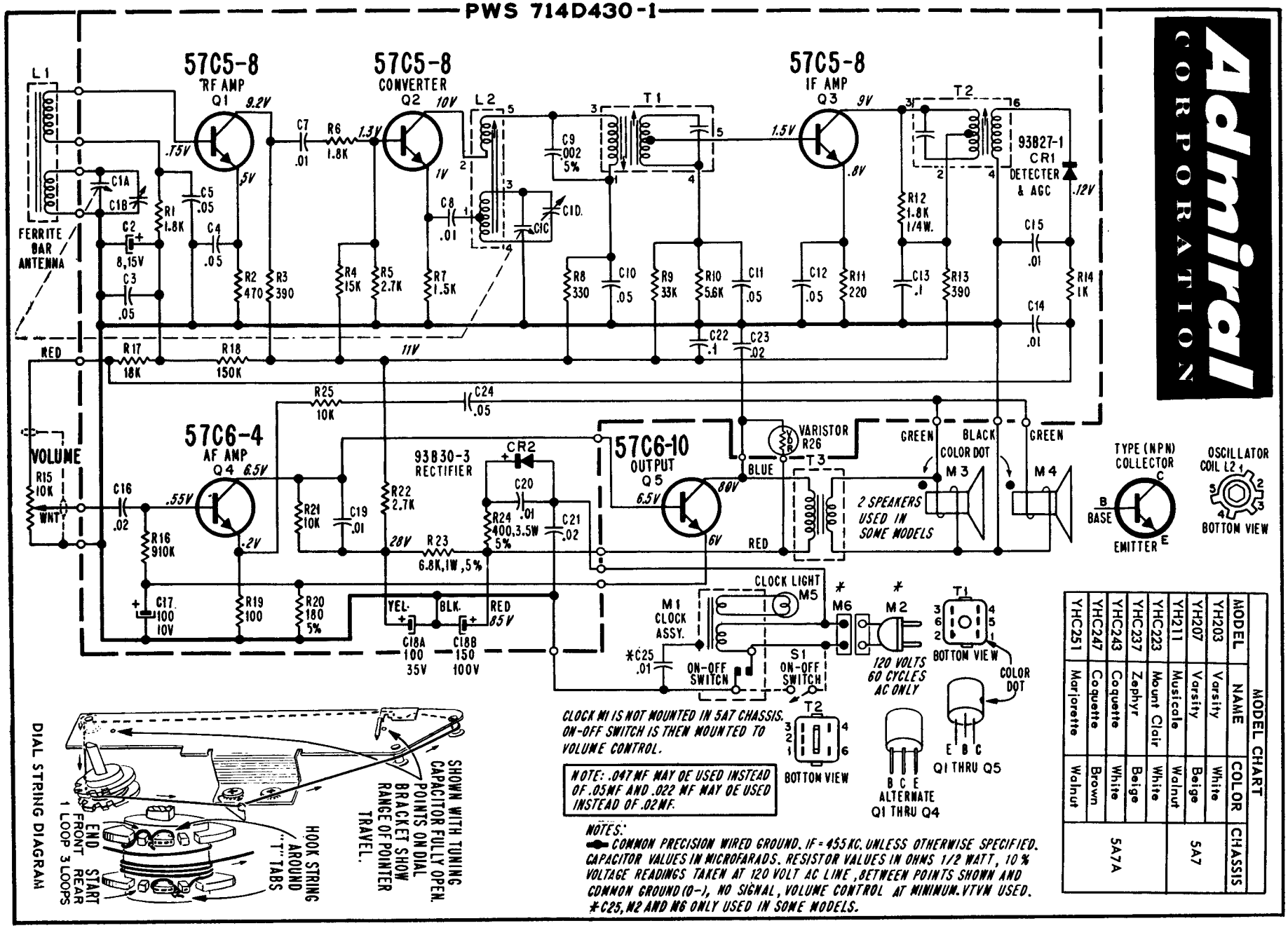
TOP VIEW OF CHASSIS SHOWING COMPONENTS AND ALIGNMENT POINTS

Note: Dashed (- - - -) lines indicate slug nearest chassis.



YHC793, 99

PWS 714D430-1



CLOCK M1 IS NOT MOUNTED IN 5A7 CHASSIS. ON-OFF SWITCH IS THEN MOUNTED TO VOLUME CONTROL.

NOTE: .047 MF MAY BE USED INSTEAD OF .05MF AND .022 MF MAY BE USED INSTEAD OF .02MF.

NOTES:
- COMMON PRECISION WIRED GROUND. IF = 455 KC. UNLESS OTHERWISE SPECIFIED. CAPACITOR VALUES IN MICROFARADS. RESISTOR VALUES IN OHMS 1/2 WATT, 10% VOLTAGE READINGS TAKEN AT 120 VOLT AC LINE, BETWEEN POINTS SHOWN AND COMMON GROUND (0-), NO SIGNAL, VOLUME CONTROL AT MINIMUM. VTVM USED.
- *C25, M2 AND M6 ONLY USED IN SOME MODELS.

MODEL CHART			
MODEL	NAME	COLOR	CHASSIS
YH203	Varsity	White	5A7
YH207	Varsity	Beige	
YH211	Musicale	Walnut	
YHC223	Mount Clair	White	
YHC237	Zephyr	Beige	
YHC243	Coquette	White	5A7A
YHC247	Coquette	Brown	
YHC251	Marjorette	Walnut	

Admiral

MODEL CHART				
MODEL	NAME	COLOR	CHANGER	CHASSIS
YHS1741	Minstrel	Black	RC7W5S-67BB	8M3
YHS1771C	Virtuoso	Block	RC7W5S-67BB or RC7W5W-67BB	

PRECISION WIRED SYSTEM 714E423-1

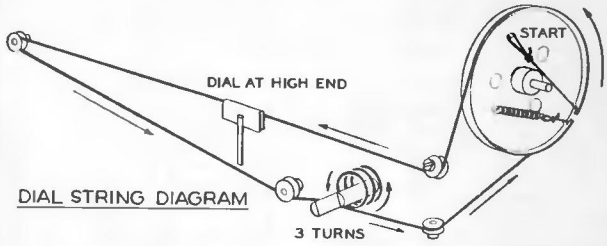
YHS 1741 SPEAKER WIRING

TOP VIEW OF CHASSIS OPENED FOR SERVICING

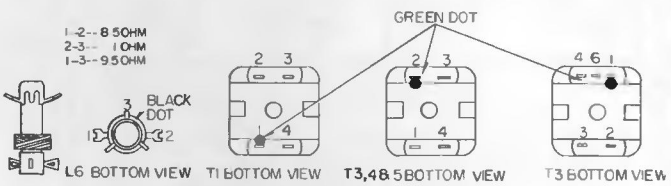
Admiral

MODEL CHART			
MODEL	NAME	COLOR	CHASSIS
YH601	Celestial	Black	6M4
YH607	Celestial	Brown	
YH611	Melodist	Walnut	
YH619	Polonaise	Cherry	
YHC621	Concerto	Black	6M4A
YHC627	Concerto	Brown	
YHC631	Caprice	Walnut	
YHC641	Reverie	Walnut	
YHC649	Lullaby	Cherry	

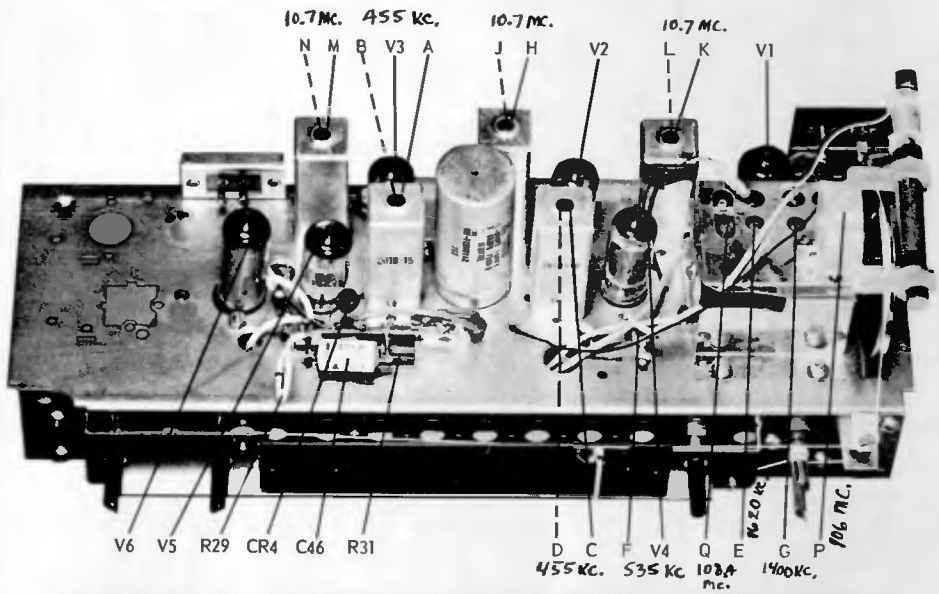
(See page 7 for schematic diagram.)

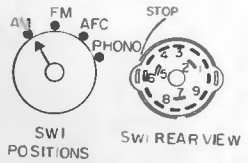


DIAL STRING DIAGRAM

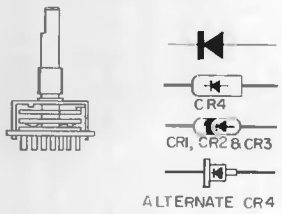


L6 BOTTOM VIEW T1 BOTTOM VIEW T3,4&5 BOTTOM VIEW T3 BOTTOM VIEW





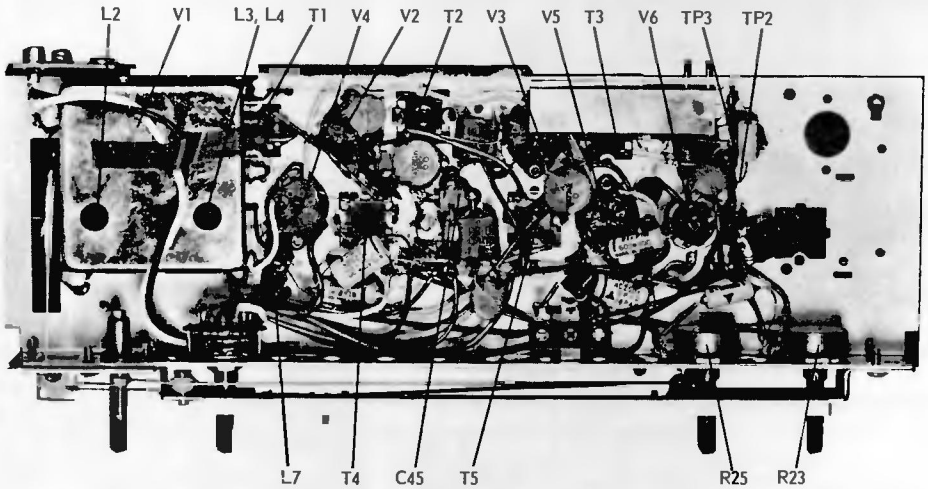
SW1 POSITIONS SW1 REAR VIEW



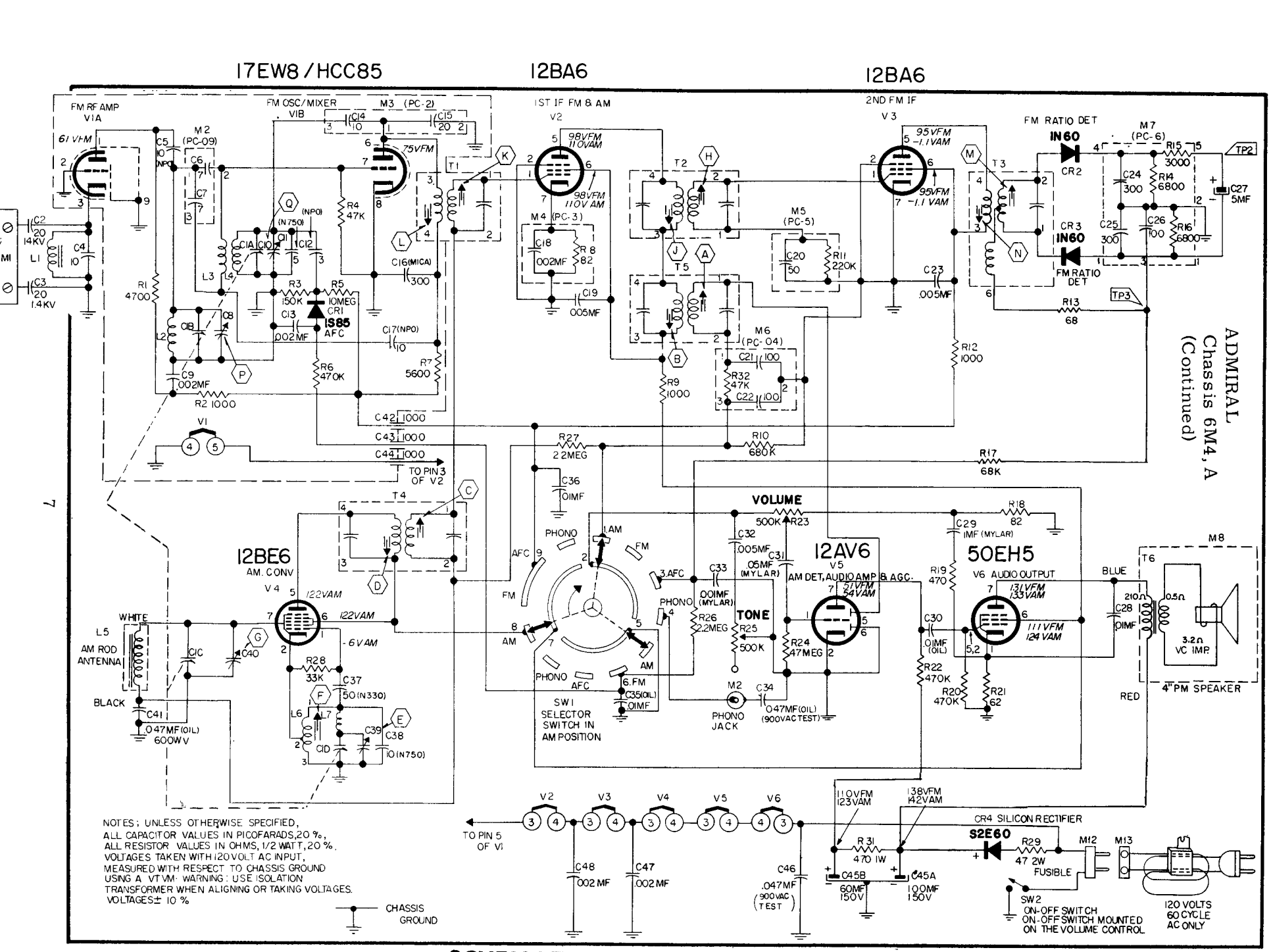
C45 BOTTOM VIEW

TOP VIEW OF CHASSIS SHOWING ALIGNMENT POINTS AND COMPONENTS

Note: Dashed (— — —) lines indicate slug nearest chassis.



BOTTOM VIEW OF CHASSIS



ADMIRAL Chassis 6M4, A (Continued)

SCHEMATIC DIAGRAM 6M4 CHASSIS

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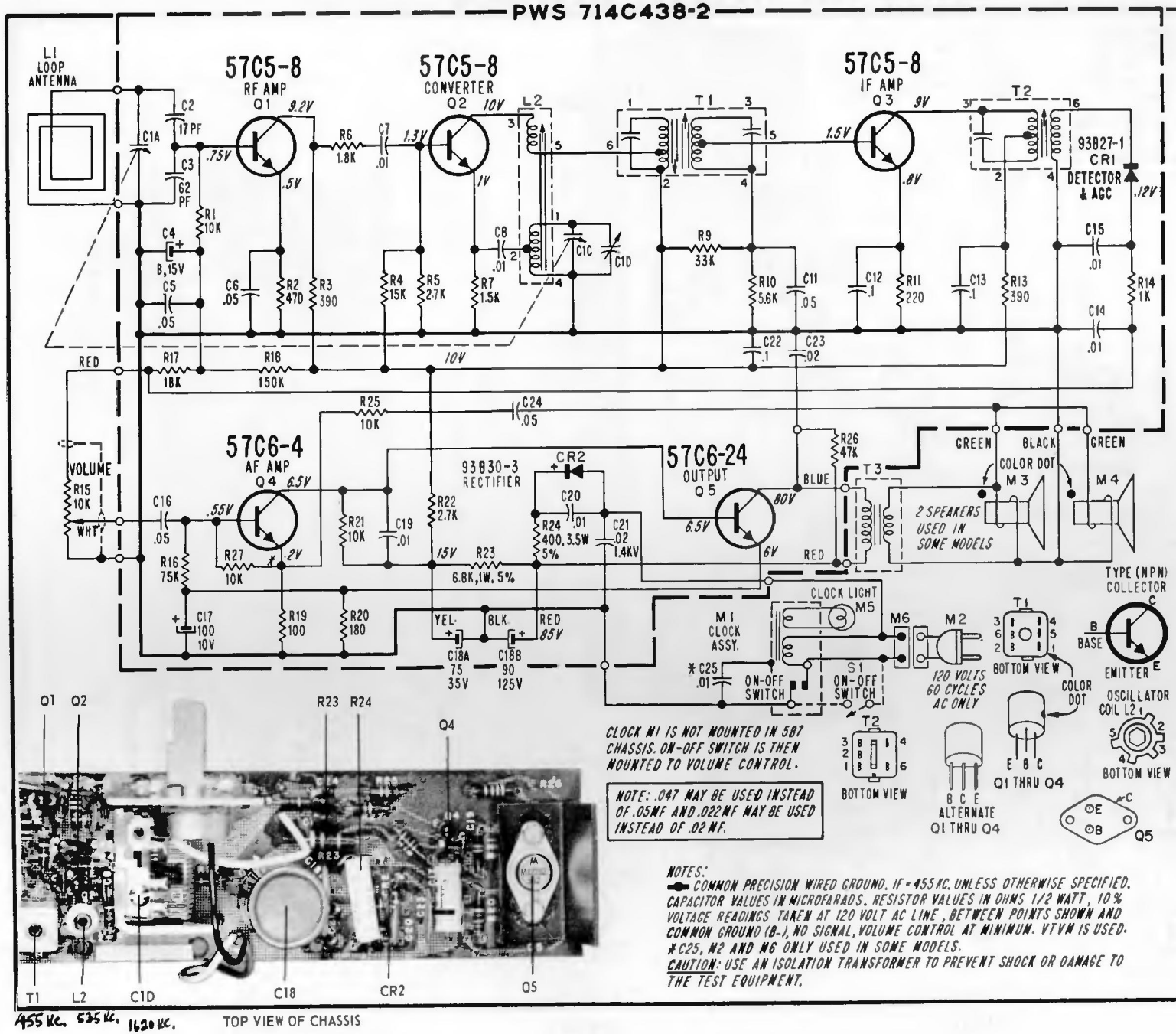
Chassis 5B7, Models: YK103, YK117, YK118, YK121
Chassis 5B7A, Models: YKC133, YKC147, YKC148, YKC151

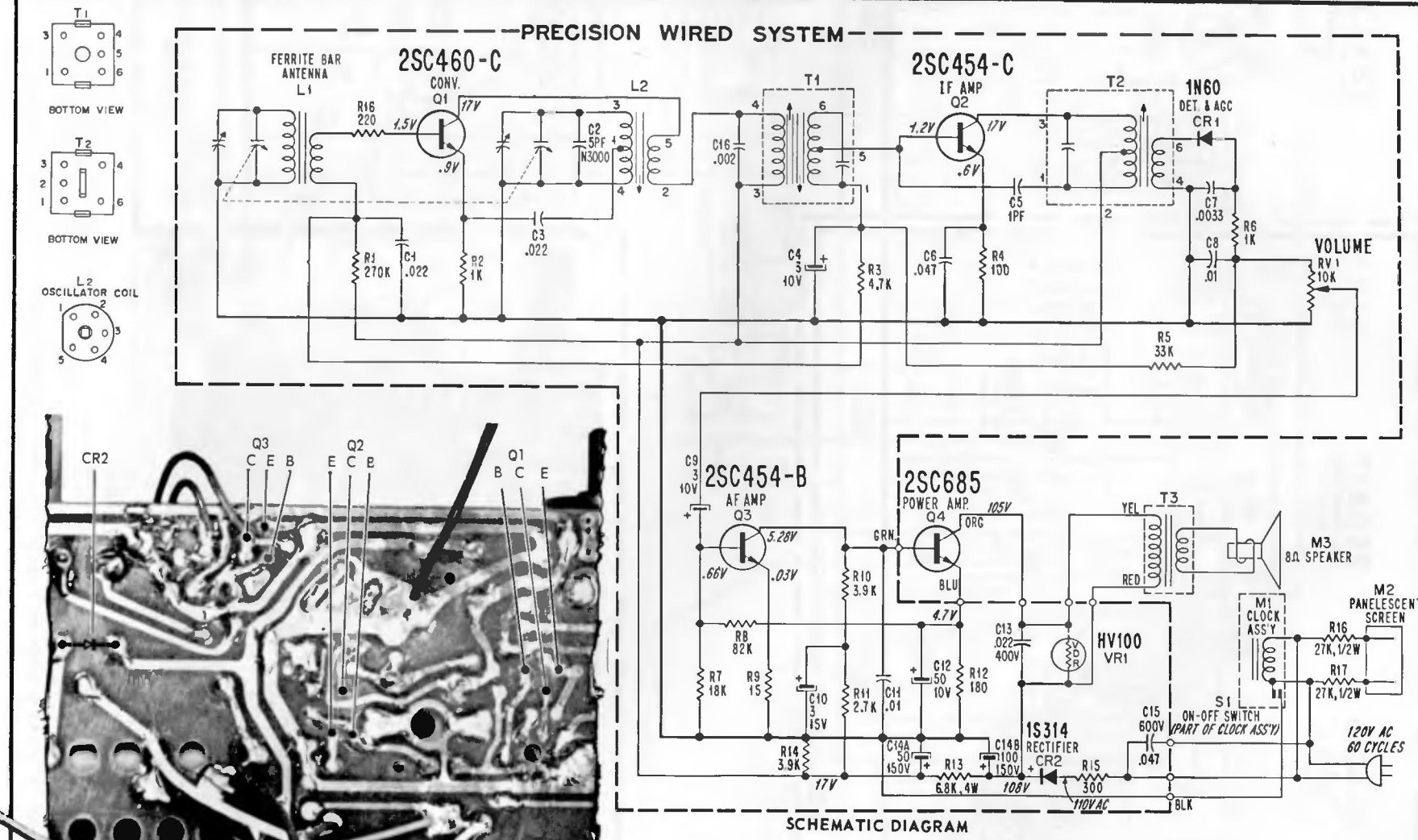
PWS 714C438-2



455 Kc. 535 Kc. 1620 Kc.

TOP VIEW OF CHASSIS

NOTES:
COMMON PRECISION WIRED GROUND. IF = 455 KC. UNLESS OTHERWISE SPECIFIED.
CAPACITOR VALUES IN MICROFARADS. RESISTOR VALUES IN OHMS 1/2 WATT, 10%
VOLTAGE READINGS TAKEN AT 120 VOLT AC LINE, BETWEEN POINTS SHOWN AND COMMON GROUND (B-), NO SIGNAL, VOLUME CONTROL AT MINIMUM. VTVM IS USED.
*C25, M2 AND M6 ONLY USED IN SOME MODELS.
CAUTION: USE AN ISOLATION TRANSFORMER TO PREVENT SHOCK OR DAMAGE TO THE TEST EQUIPMENT.



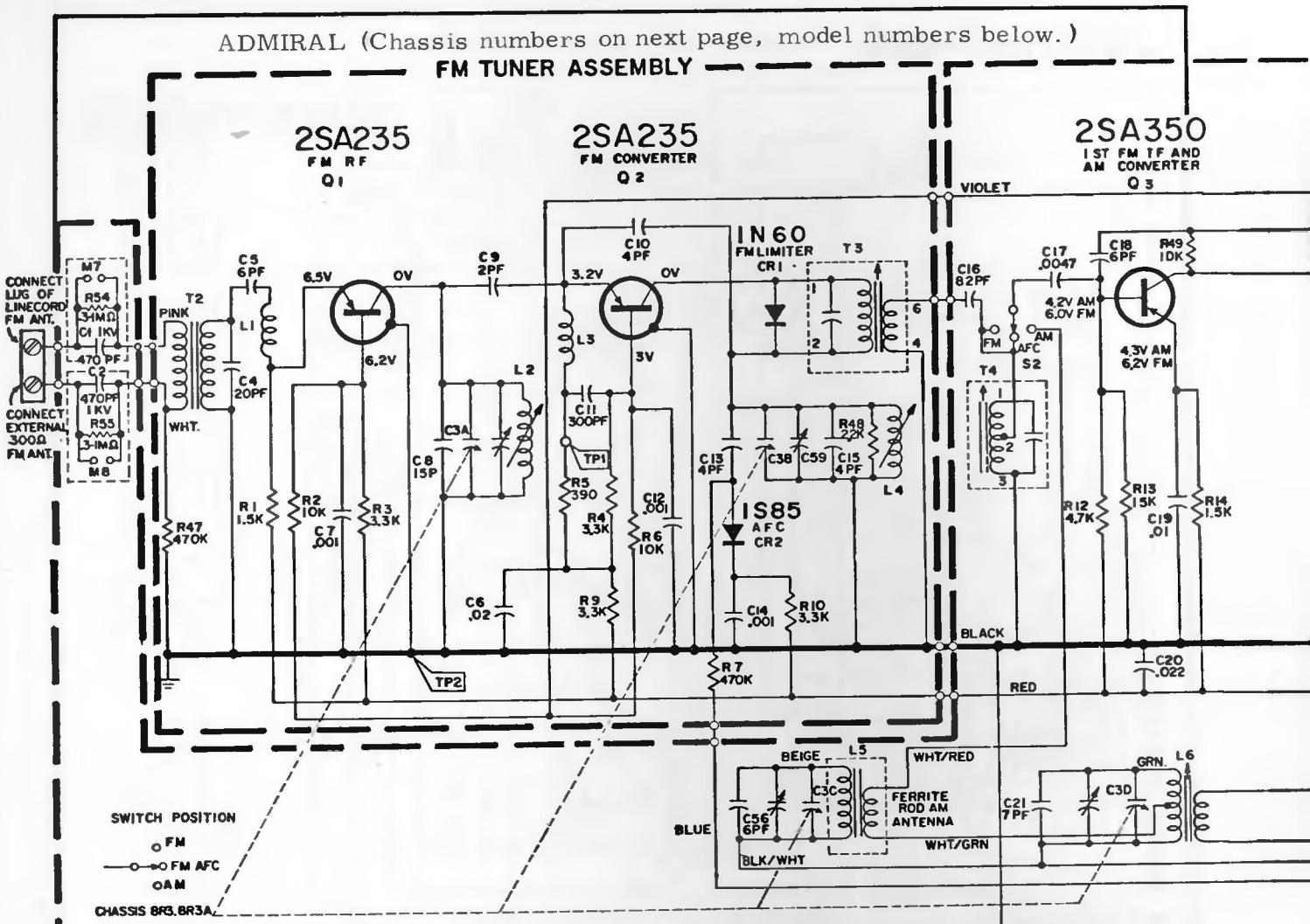
NOTES:

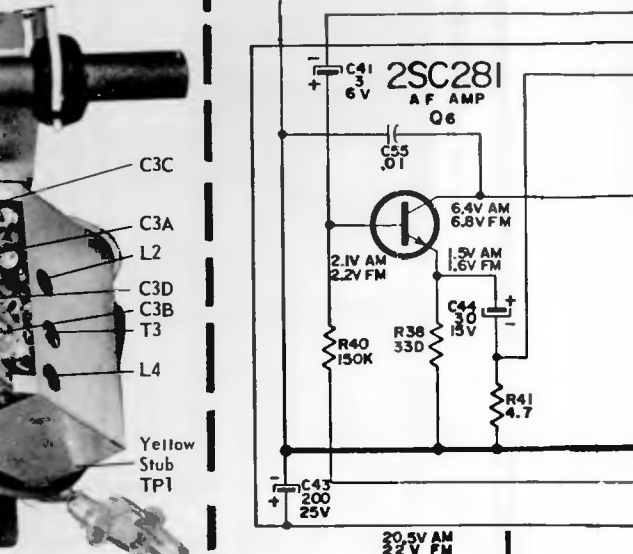
- COMMON PRECISION WIRED GROUND. IF=455KC.

UNLESS OTHEWISE SPECIFIED, CAPACITOR VALUES IN MICROFARADS. RESISTOR VALUES IN OHMS 1/4 WATT, 10%, VOLTAGE READINGS TAKEN AT 120 VOLTS AC LINE, BETWEEN POINTS SHOWN AND COMMON GROUND (B-), NO SIGNAL, VOLUME CONTROL AT MINIMUM. VTVM IS USED.

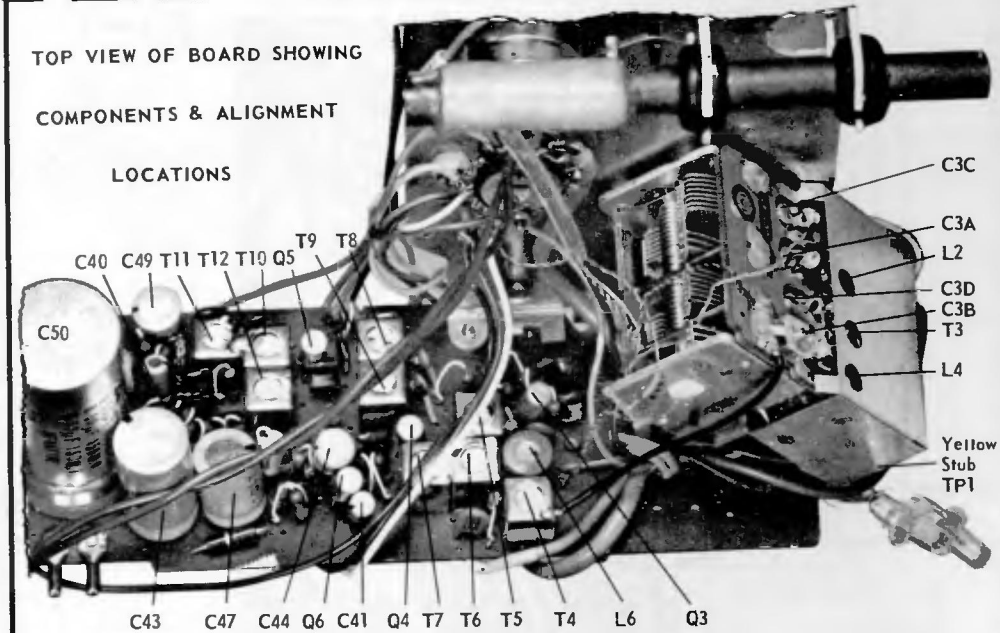
CAUTION: WHEN ALIGNING OR TAKING VOLTAGES, USE AN ISOLATION TRANSFORMER TO PREVENT SHOCK OR DAMAGE TO TEST EQUIPMENT.

ADMIRAL (Chassis numbers on next page, model numbers below.)





TOP VIEW OF BOARD SHOWING COMPONENTS & ALIGNMENT LOCATIONS

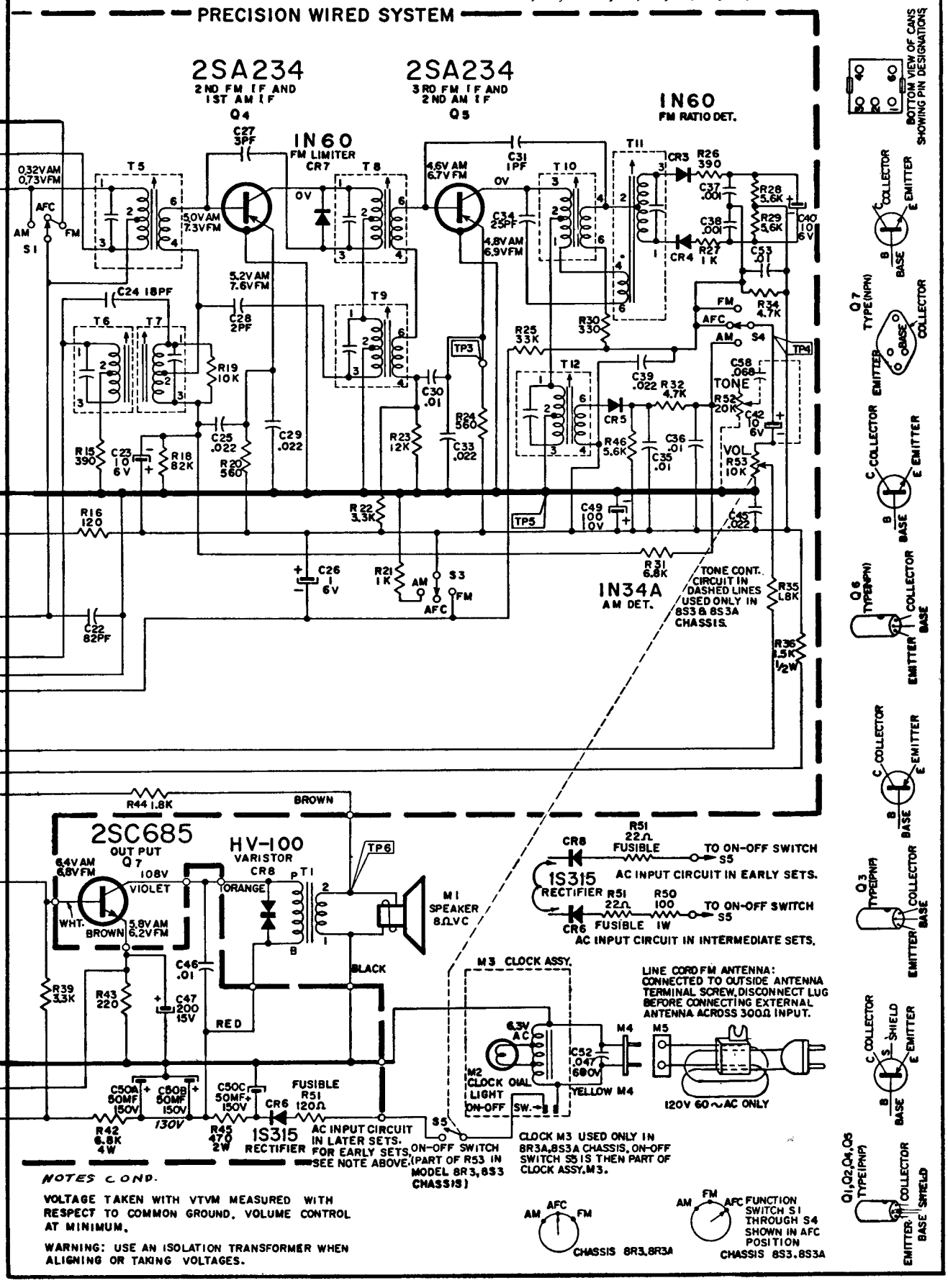


Models: Y441RA YC521, 531, 541, 551, 561RA
Y421RA Y461RA YR407, 703, 717, 718, 721, 731, 733, 741, 743
Y431RA Y471RA YRC417, 803, 817, 818, 821, 831, 833, 841, 843

Notes:
FM IF 10.7MC
AM IF 455KC

ADMIRAL Chassis numbers 8R3, A; 8S3, A, D, E, F, G; 8Y3

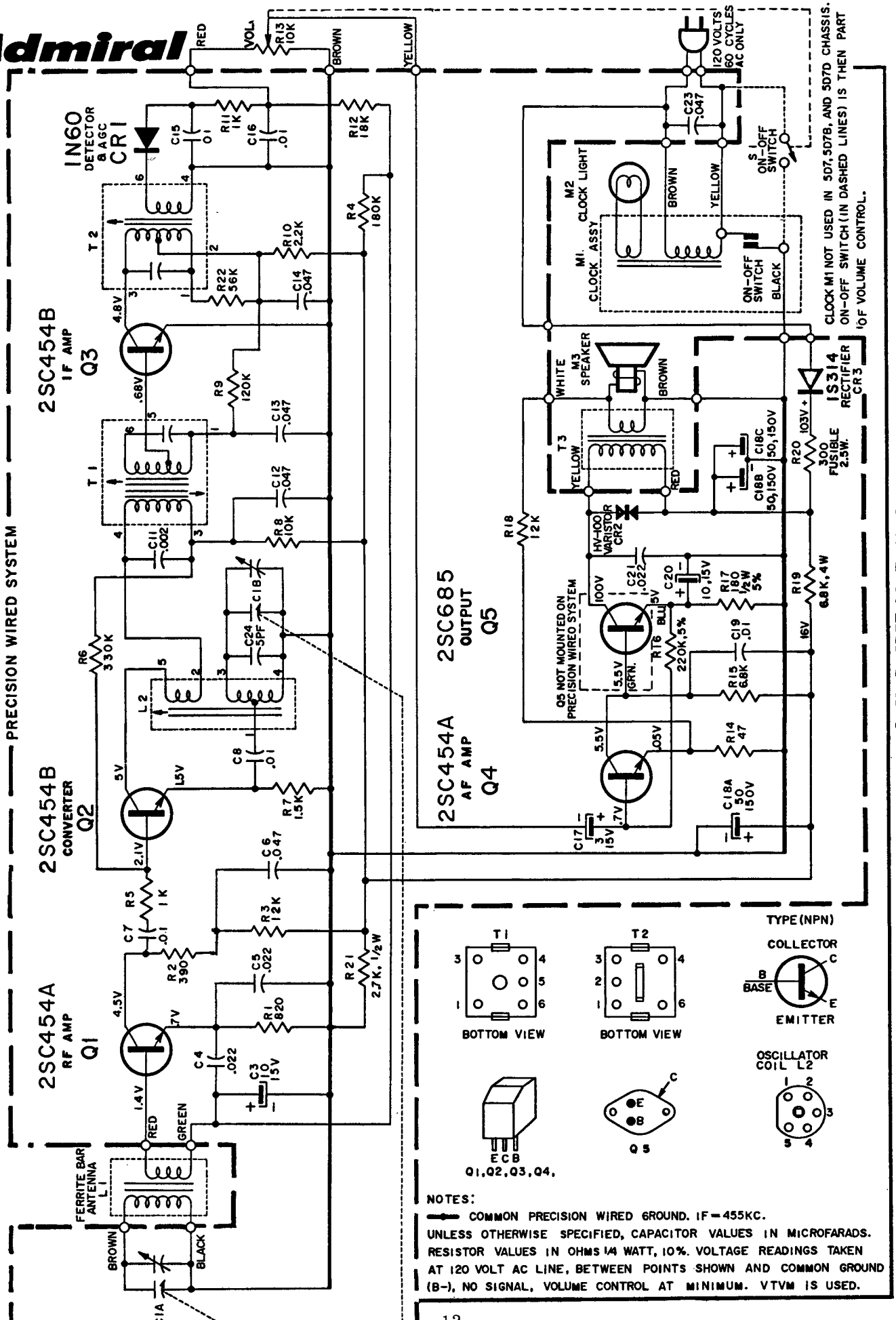
PRECISION WIRED SYSTEM



NOTES COND.

VOLTAGE TAKEN WITH VTVM MEASURED WITH RESPECT TO COMMON GROUND. VOLUME CONTROL AT MINIMUM.

WARNING: USE AN ISOLATION TRANSFORMER WHEN ALIGNING OR TAKING VOLTAGES.



5D7, 5D7A, 5D7B, 5D7C, 5D7D, 5D7E SCHEMATIC DIAGRAM

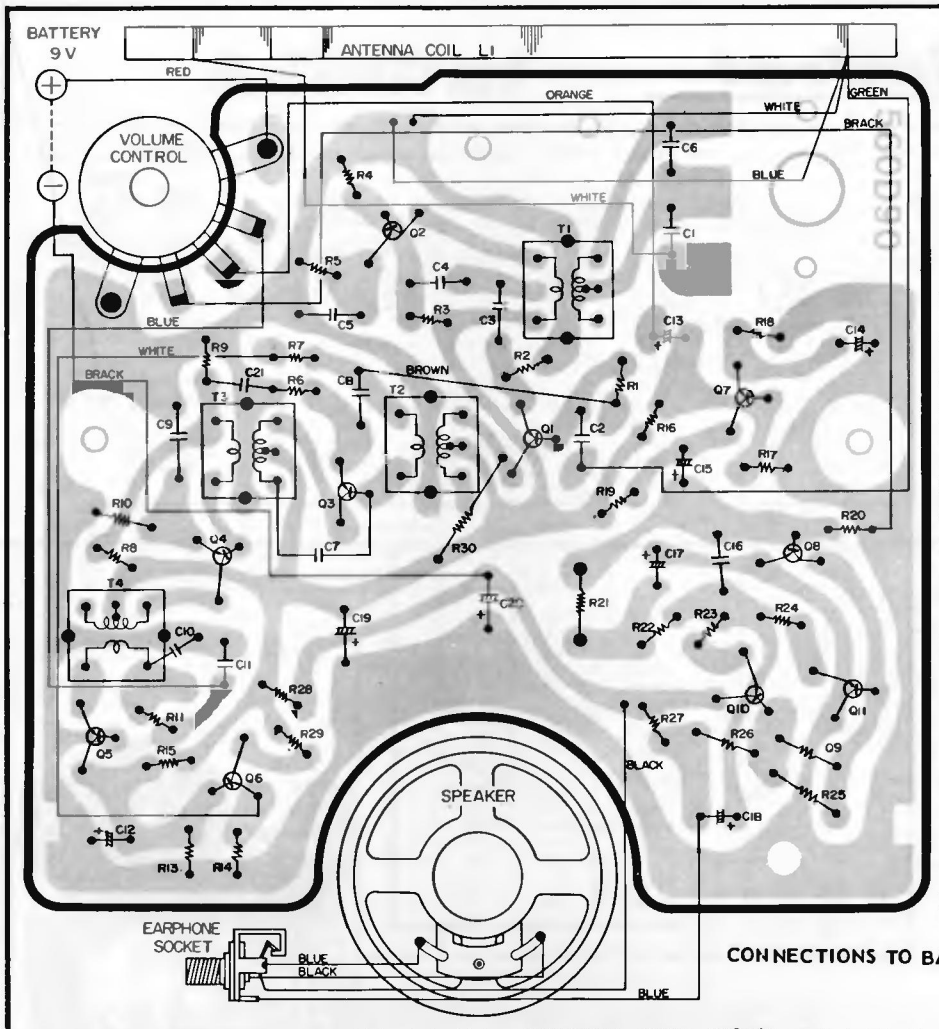
NOTES:

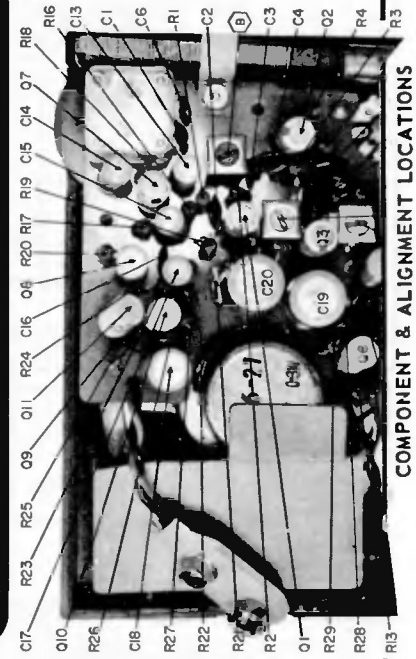
COMMON PRECISION WIRED GROUND. IF = 455KC.

UNLESS OTHERWISE SPECIFIED, CAPACITOR VALUES IN MICROFARADS. RESISTOR VALUES IN OHMS 1/4 WATT, 10%. VOLTAGE READINGS TAKEN AT 120 VOLT AC LINE, BETWEEN POINTS SHOWN AND COMMON GROUND (B-), NO SIGNAL, VOLUME CONTROL AT MINIMUM. VTVM IS USED.

Admiral

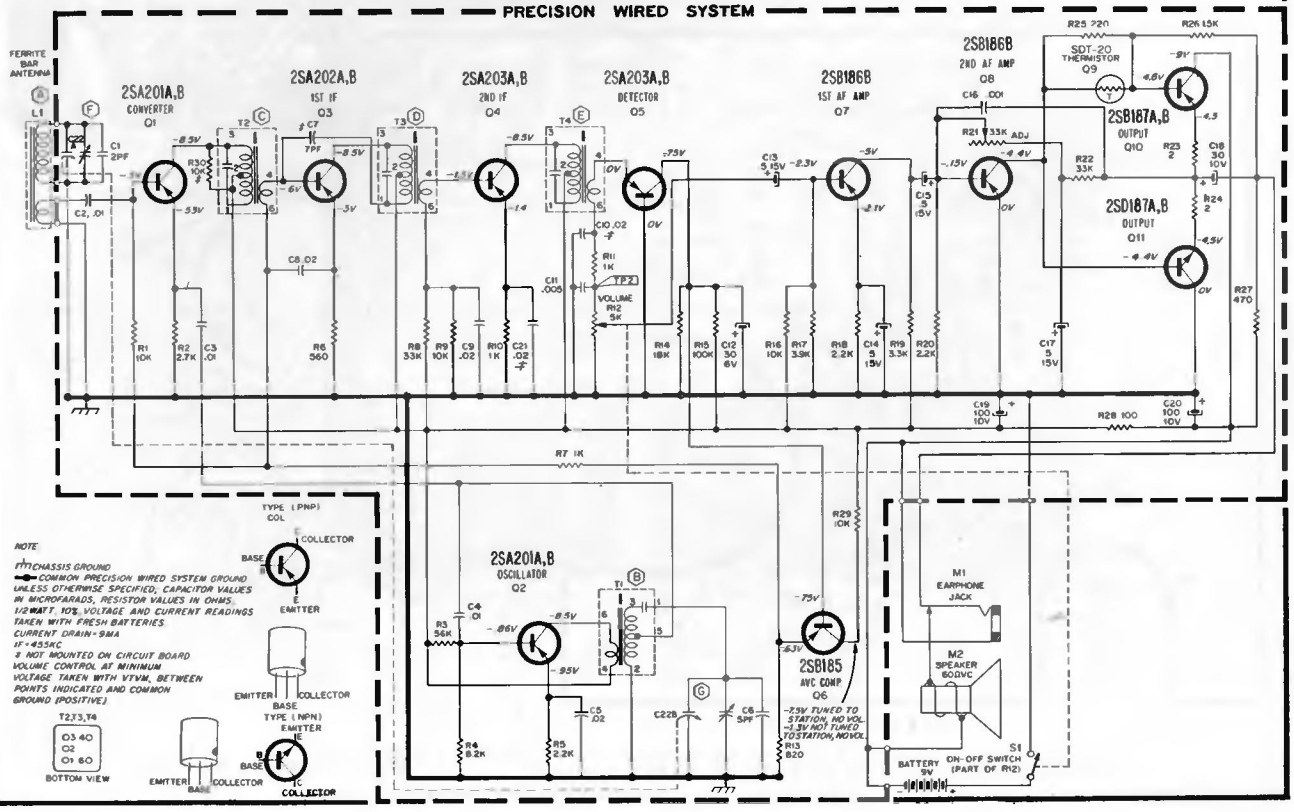
Chassis 10A3
Models: YK211GP,
YK212GP





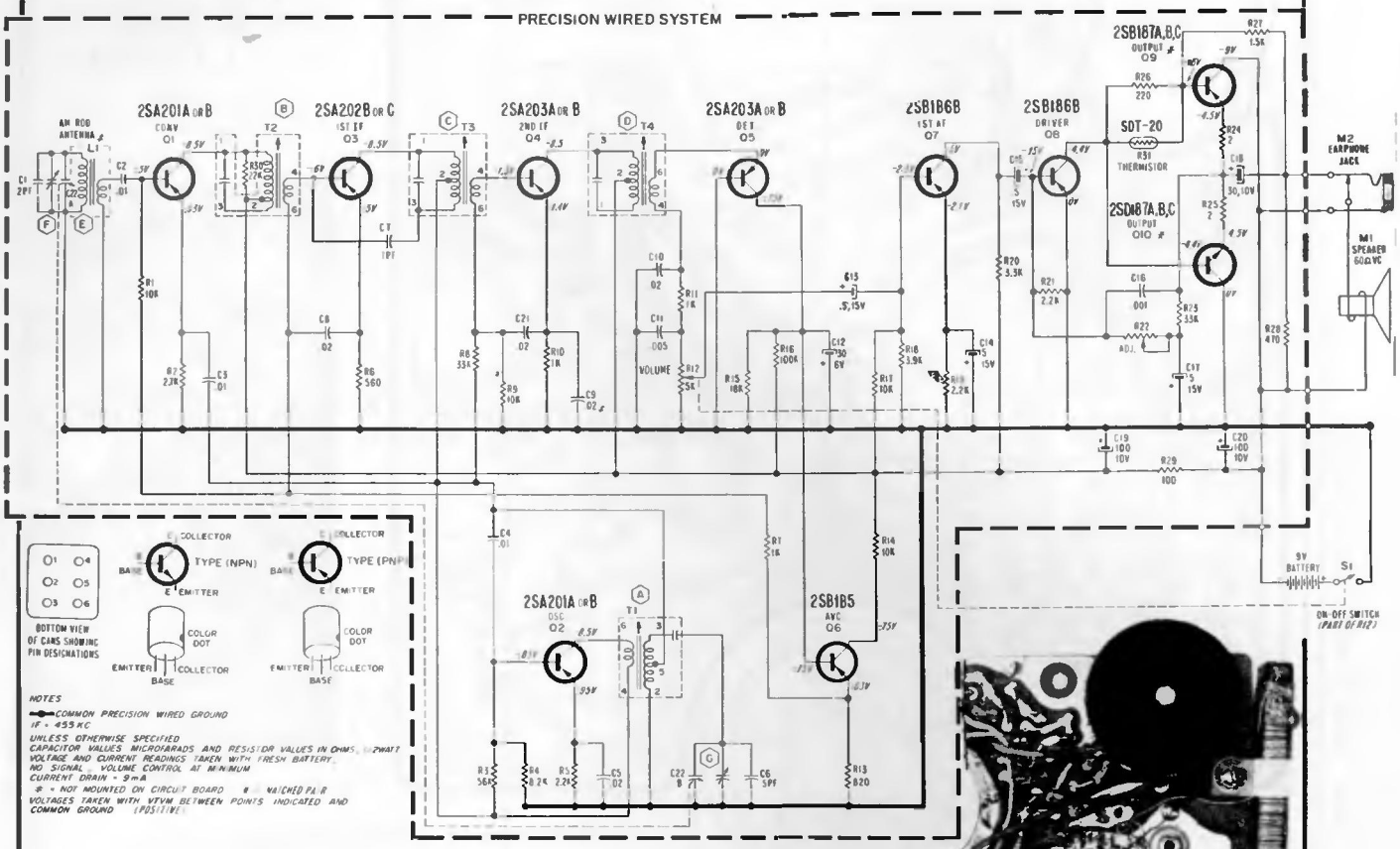
COMPONENT & ALIGNMENT LOCATIONS

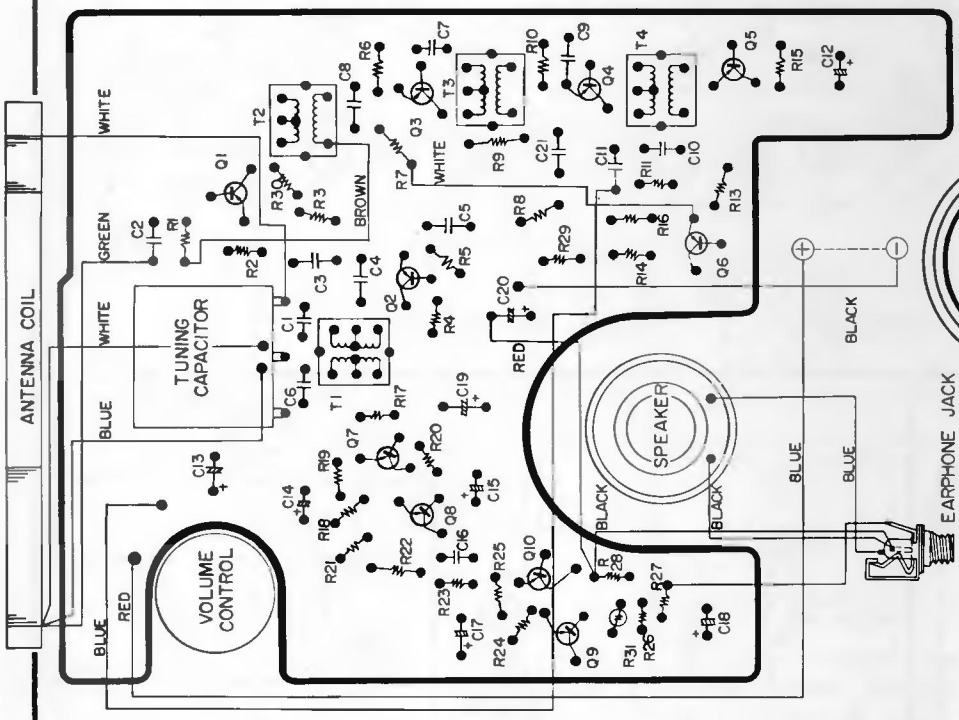
CONNECTIONS TO BACK OF BOARD & WIRING



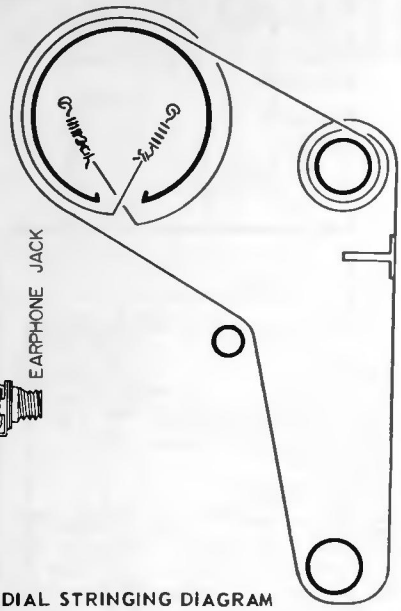
Admiral

MODEL: YK220
CHASSIS: 10B3





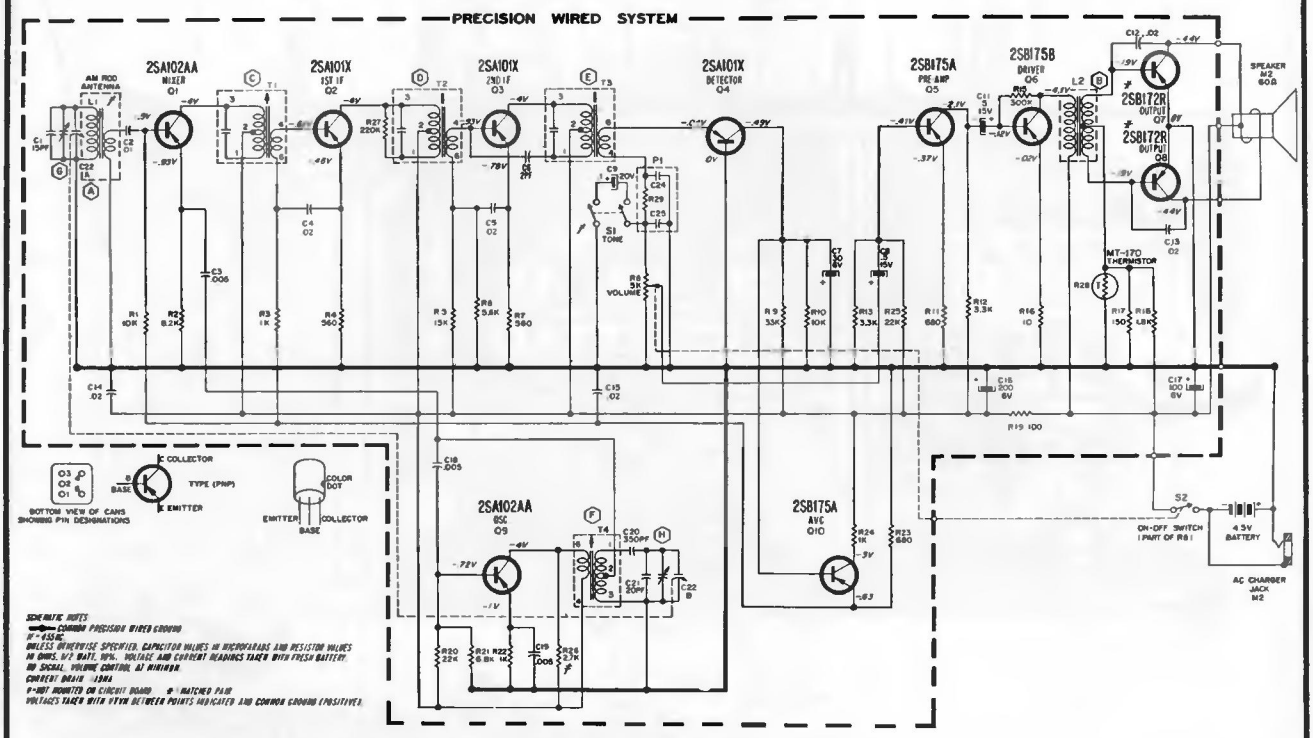
COMPONENT CONNECTIONS TO BACK OF BOARD & WIRING

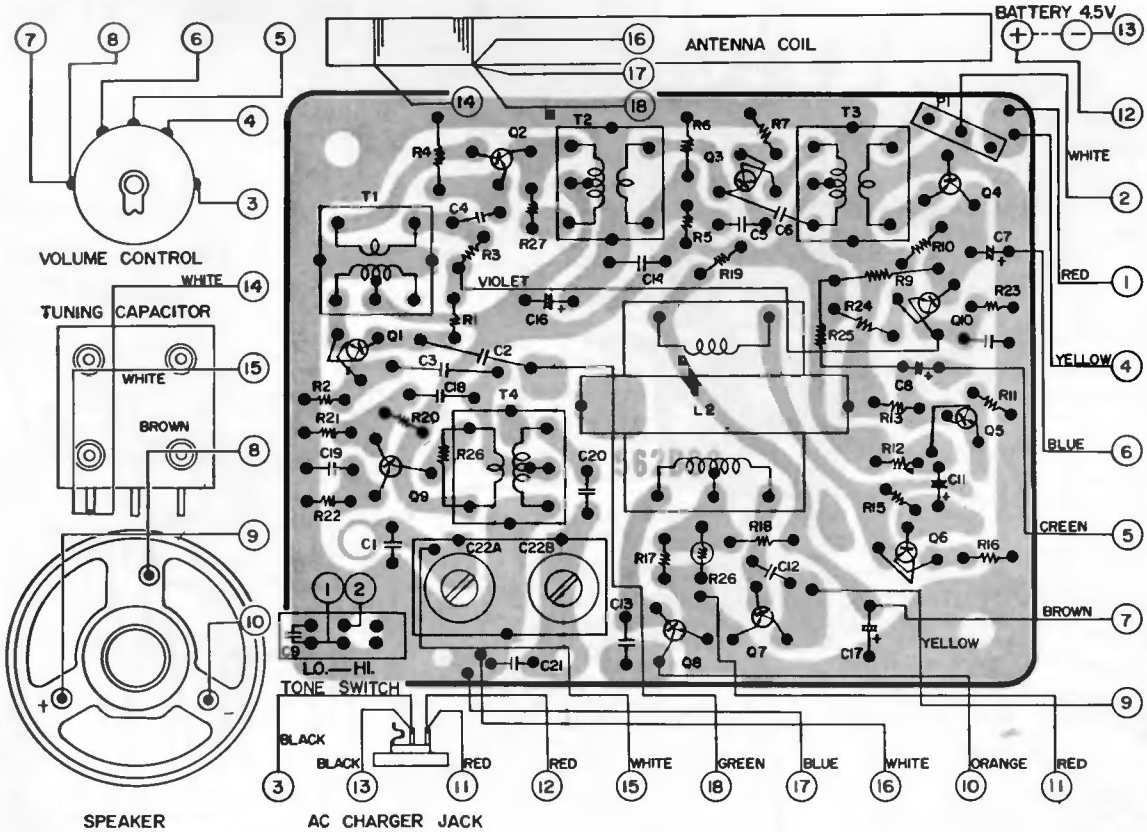


DIAL STRINGING DIAGRAM

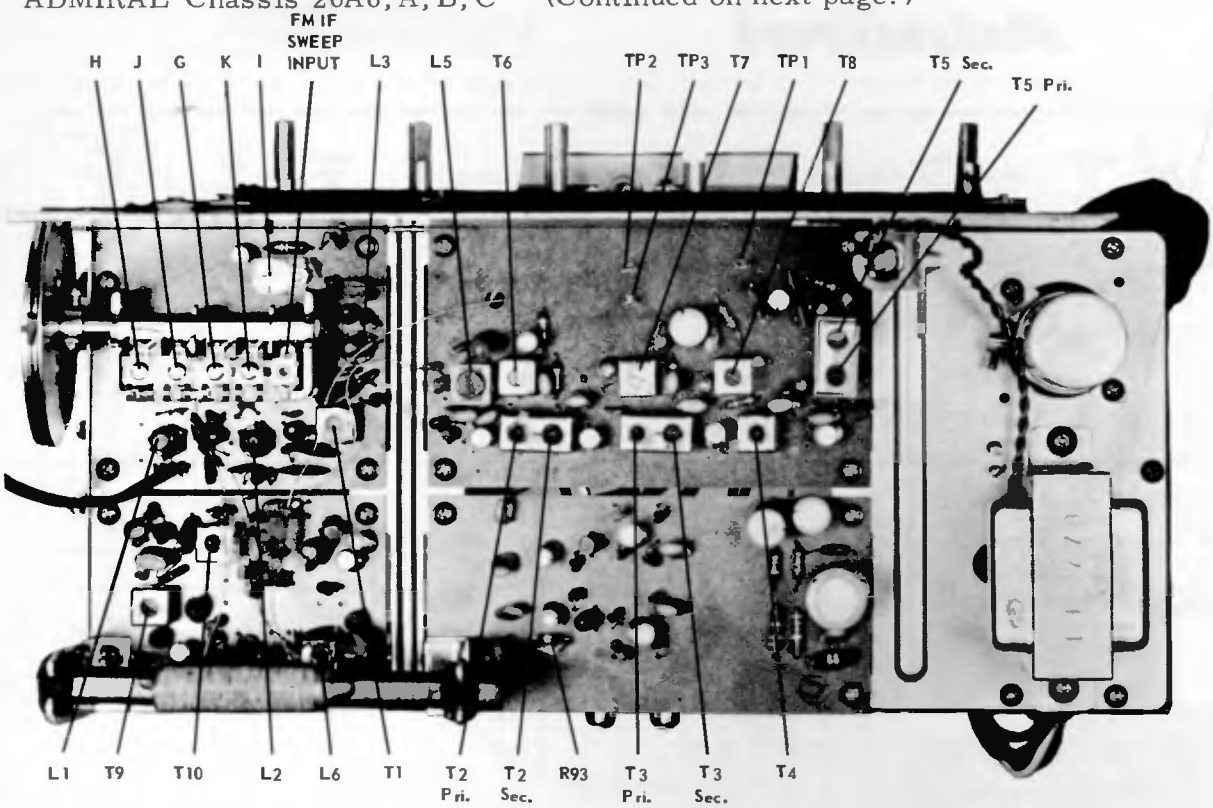
Admiral

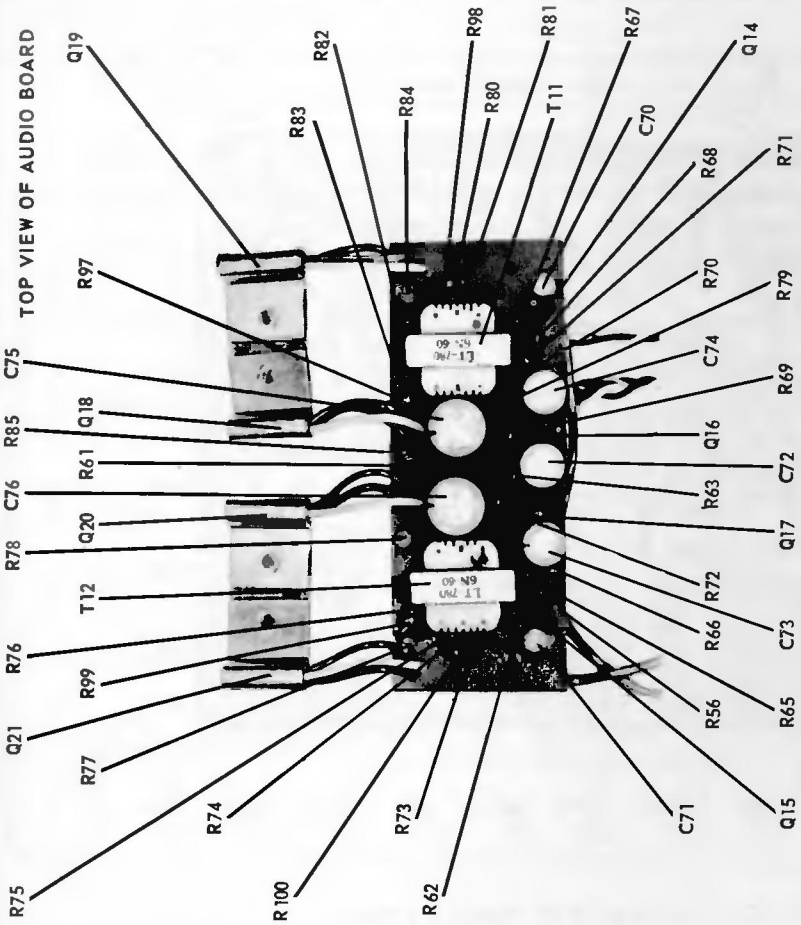
MODEL: YK237
CHASSIS: 10C3

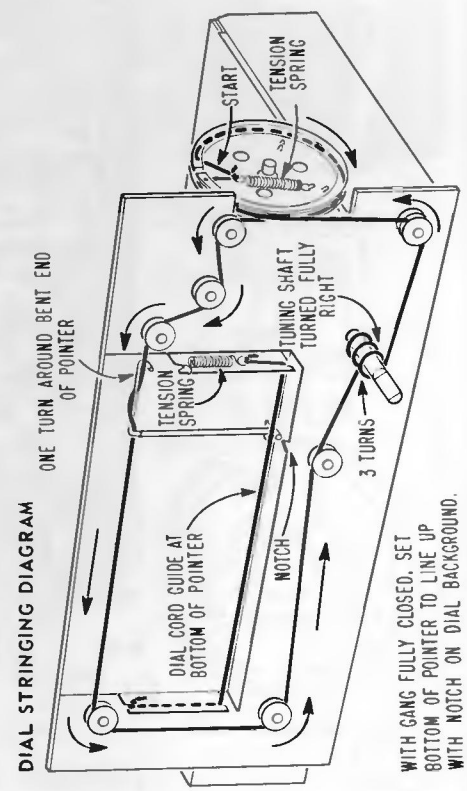




ADMIRAL Chassis 20A6, A, B, C (Continued on next page.)

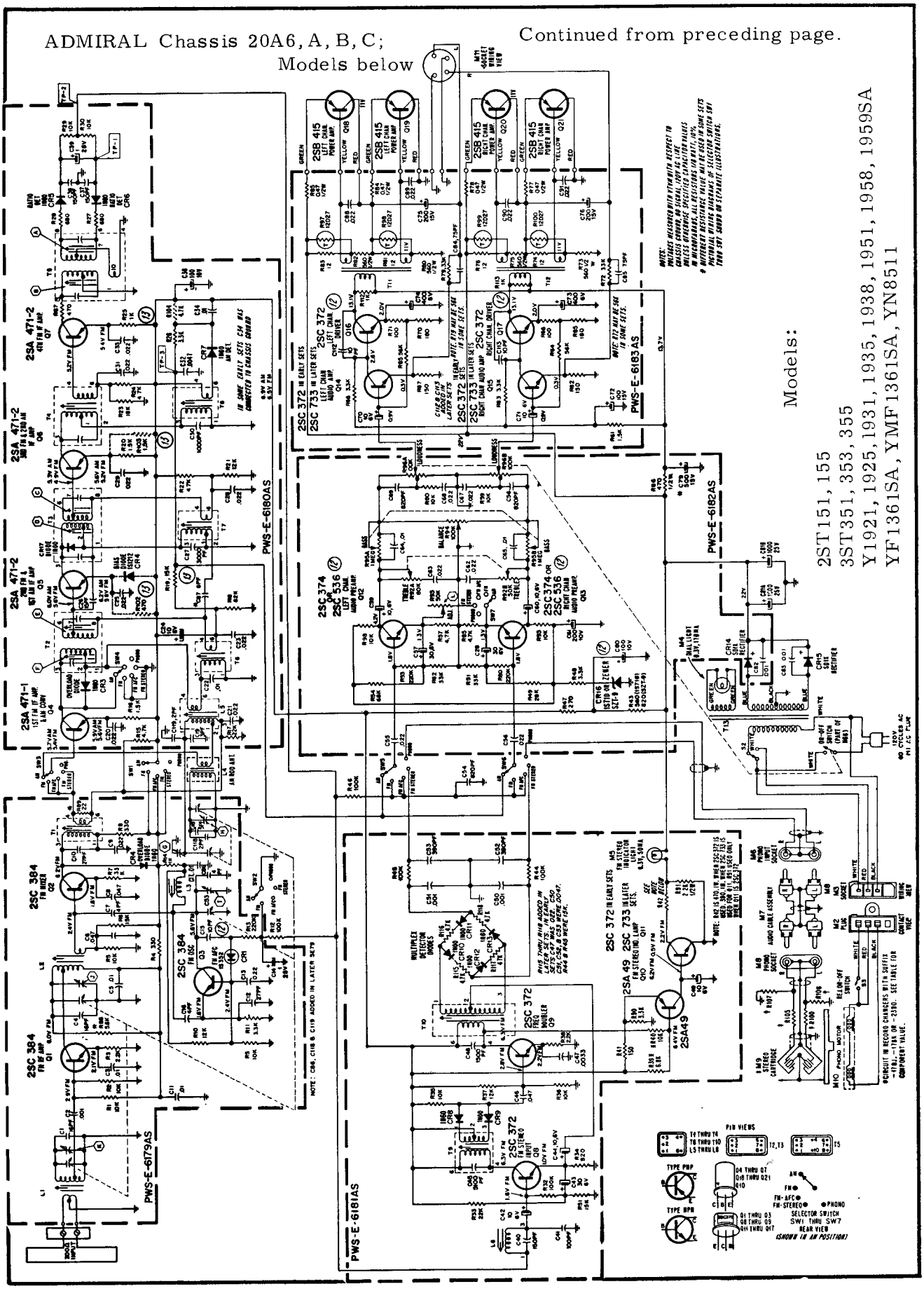


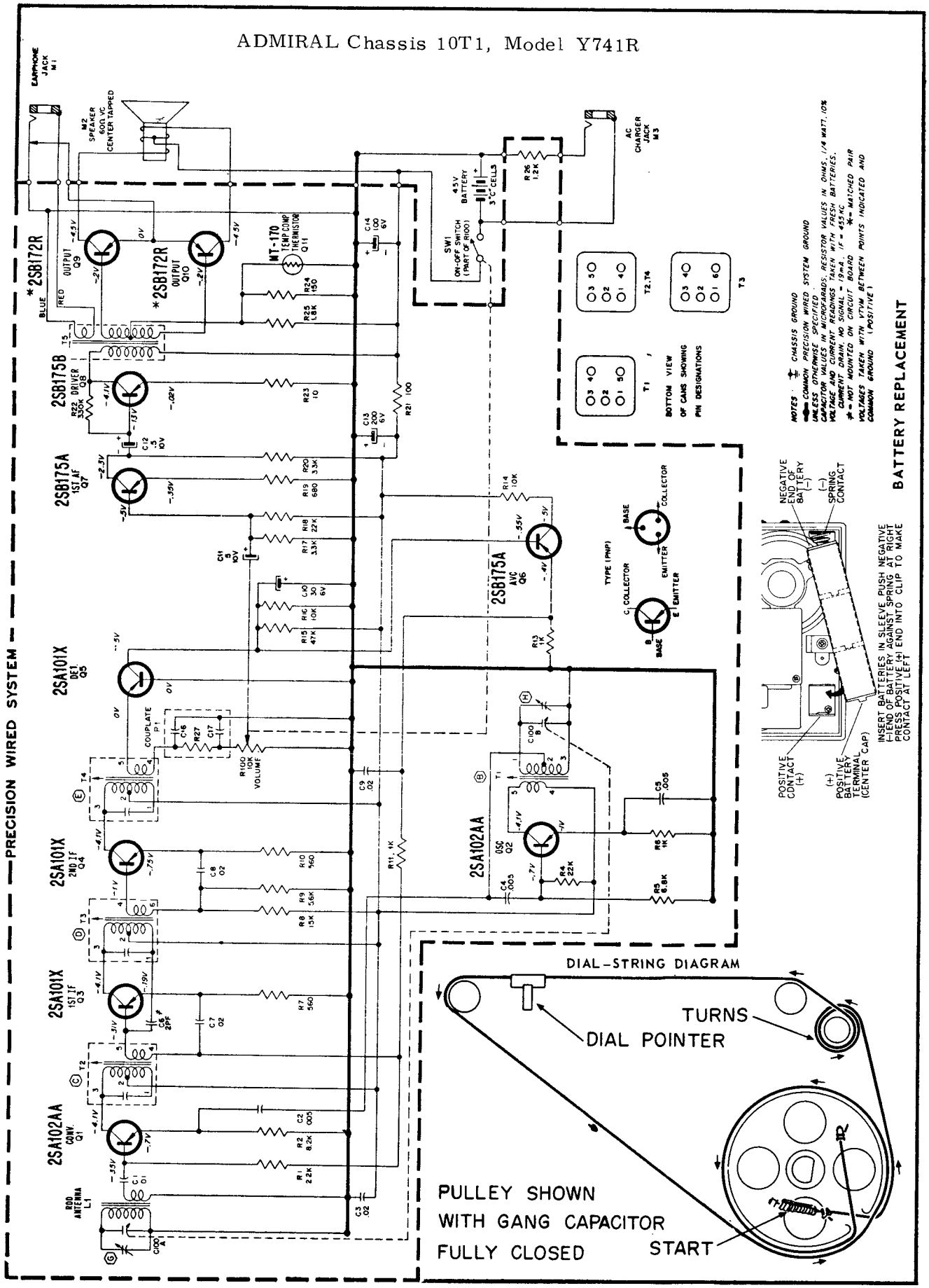




ADMIRAL Chassis 20A6, A, B, C;
Models below

Continued from preceding page.

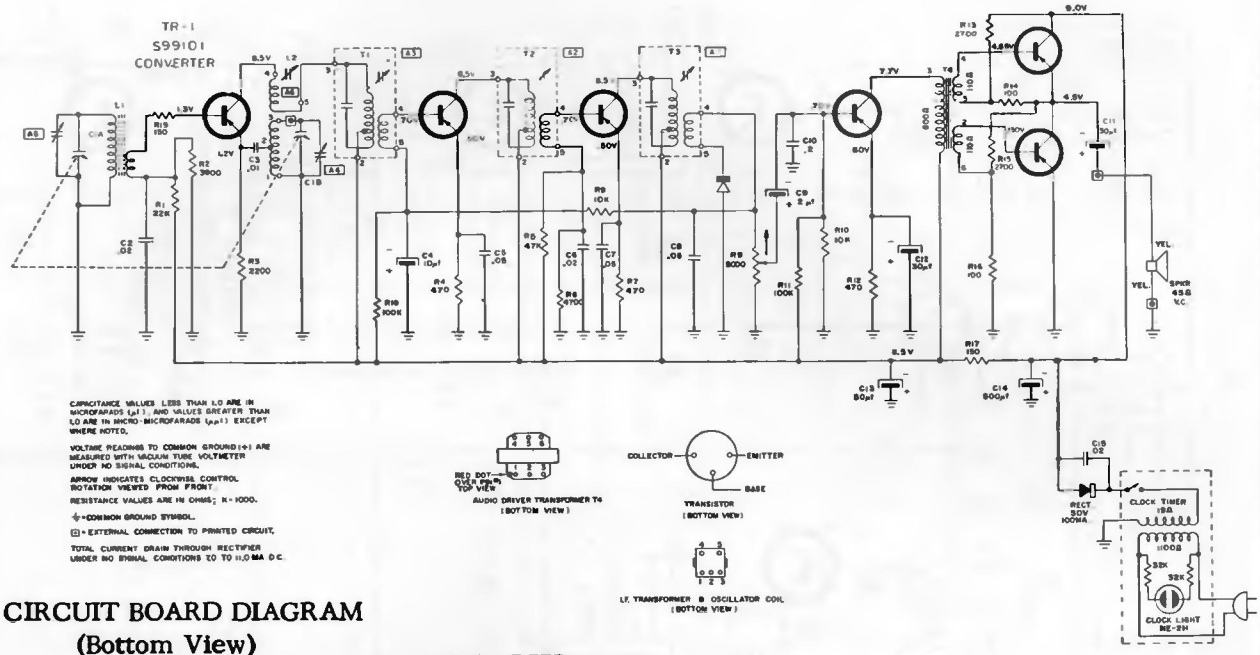



ADMIRAL Chassis 10T1, Model Y741R
PRECISION WIRED SYSTEM
EARPHONE JACK M1
M2 SPEAKER 600 YC CENTER TAPPED
AC CHARGER JACK M3
45V BATTERY 3 "C" CELLS
SW1 ON-OFF SWITCH (PART OF R100)
R26 1.2K
*2SB172R OUTPUT Q9
*2SB172R OUTPUT Q10
MT-170 TEMP COMP THERMISTOR Q11
R24 150
R25 1.8K
C14 100 6V
T5
2SB175B 1ST AF DRIVER Q8
R22 330K
R23 10
R21 100
C13 200 6V
C12 3 10V
2SB175A 1ST AF Q7
R20 3.3K
R19 680
R18 22K
R17 3.3K
C11 3 10V
R14 10K
2SB175A AVC Q6
R13 1K
C10 30 6V
R16 10K
R15 47K
2SA101X DET Q5
COUPLATE P1
C16
R27
C17
R100 VOLUME
C9 .02
T4
2SA101X 2ND IF Q4
R10 560
C8 .02
R9 3.6K
R8 15K
T3
2SA101X 1ST IF Q3
C6 25PF
C7 .02
R7 560
T2
2SA102AA CONV Q1
C2 .005
R2 8.2K
R1 2.2K
C1 .01
ROD ANTENNA L1
C100 A
C100 B
T1
2SA102AA OSC Q2
C4 .005
R4 22K
R6 1K
R5 6.8K
C5 .005
R11, 1K
T1, T2, T4
BOTTOM VIEW OF CANS SHOWING PIN DESIGNATIONS
TYPE (PNP)
BASE
COLLECTOR
EMITTER
NOTES:
CHASSIS GROUND
COMMON PRECISION WIRED SYSTEM GROUND
UNLESS OTHERWISE SPECIFIED:
CAPACITOR VALUES IN MICROFARADS, RESISTOR VALUES IN OHMS, 1/4 WATT, 10%
VOLTAGE AND CURRENT READINGS TAKEN WITH FRESH BATTERIES.
CURRENT DRAIN, NO SIGNAL = 19mA. IF = 455 KC
* = NOT MOUNTED ON CIRCUIT BOARD
** = MATCHED PAIR
VOLTAGES TAKEN WITH VTVM BETWEEN POINTS INDICATED AND COMMON GROUND (POSITIVE)
BATTERY REPLACEMENT
NEGATIVE END OF BATTERY (-)
SPRING CONTACT
POSITIVE CONTACT (+)
(+) POSITIVE BATTERY TERMINAL (CENTER CAP)
INSERT BATTERIES IN SLEEVE, PUSH NEGATIVE (-) END OF BATTERY AGAINST SPRING AT RIGHT PRESS POSITIVE (+) END INTO CLIP TO MAKE CONTACT AT LEFT
DIAL-STRING DIAGRAM
TURNS
DIAL POINTER
PULLEY SHOWN WITH GANG CAPACITOR FULLY CLOSED
START

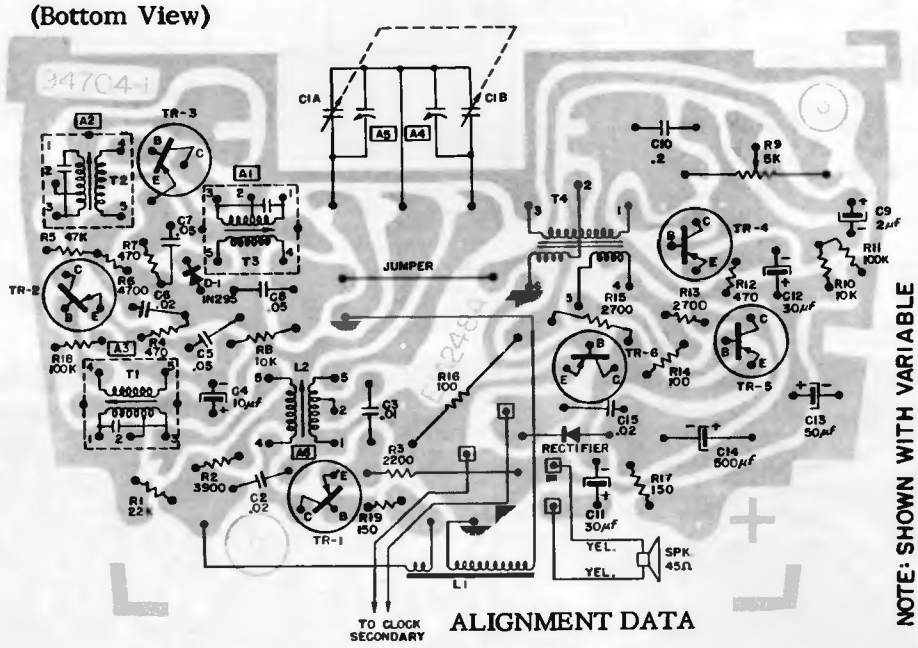
Arvin

Models 57R72, 57R75, 57R78

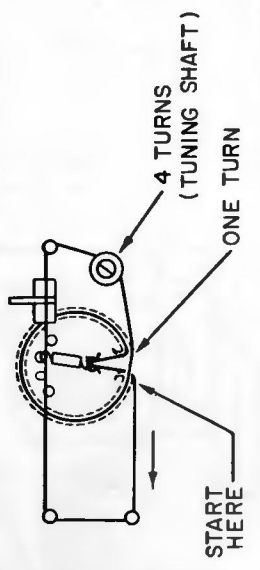
TR-2	TR-3	D-1	TR-4	TR-5 & 6
S99103	S99102	IN295	S99201	S99203
1ST I.F.	2ND I.F.	DETECTOR	AUDIO DRIVER	AUDIO OUTPUT



CIRCUIT BOARD DIAGRAM
(Bottom View)



IF.... 455 Kc

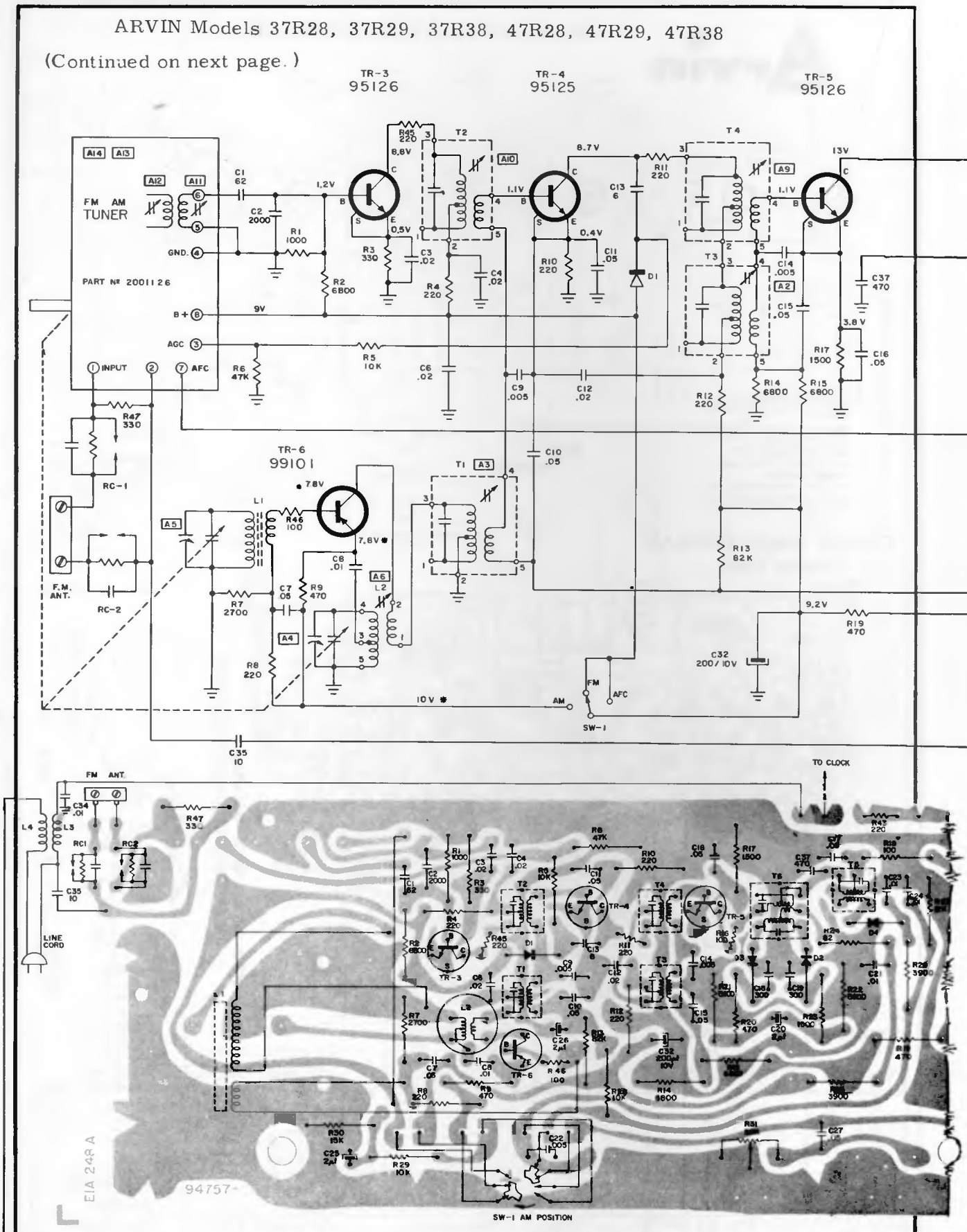


ALIGNMENT DATA

Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Trimmer Adj. in order shown for Max. Output	Functions of Trimmer
Open	455 Kc	.05 mf.	C1A	A1 (Top of T3) A2 (Top of T2) A3 (Top of T1)	I.F. I.F.
Open	1640 Kc		Test Loop	A4	Oscillator
1400 Kc	1400 Kc		Test Loop	A5	Antenna
600 Kc	600 Kc		Test Loop	A6 Check Point (LZ)	Oscillator

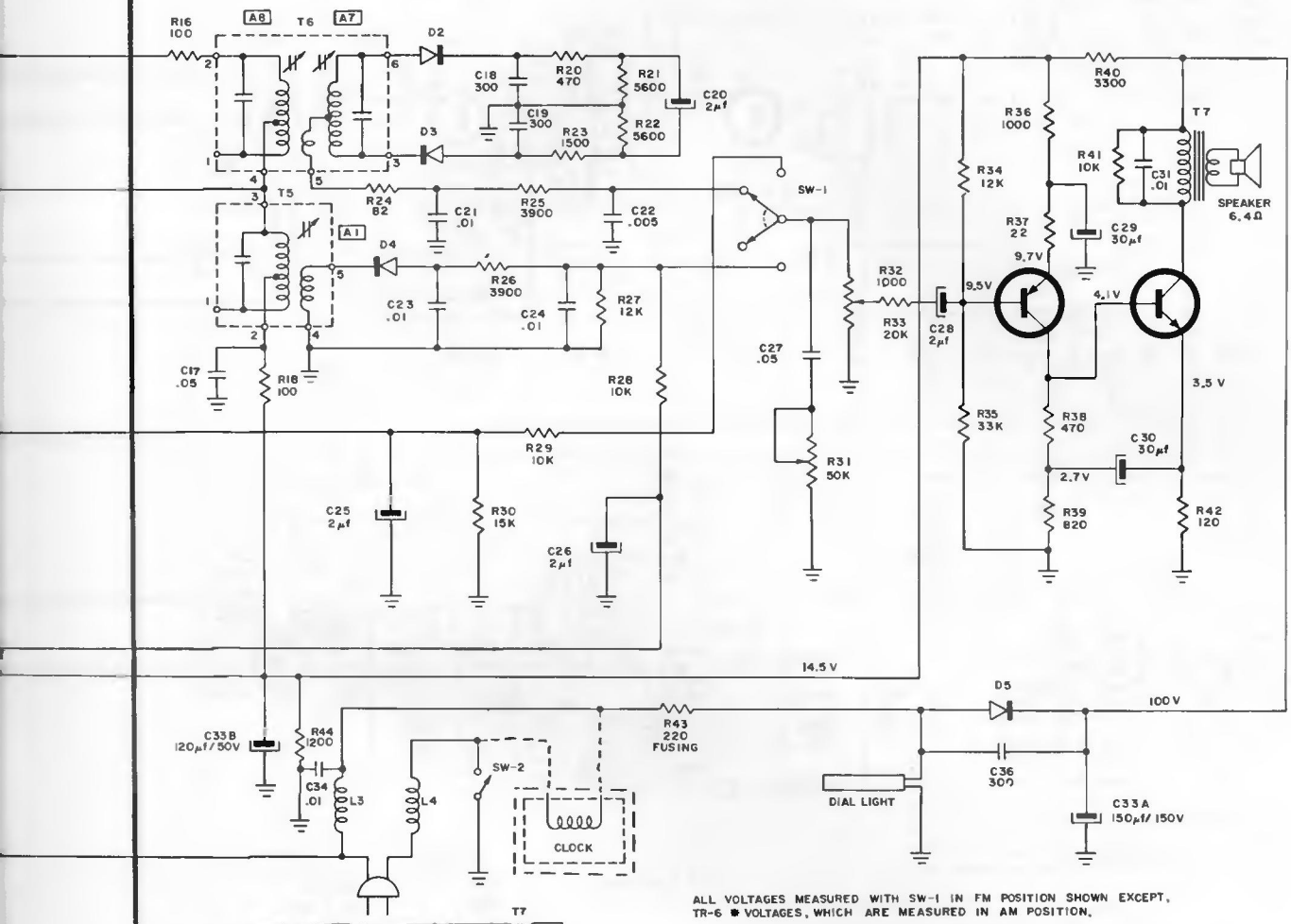
Recheck A4 at 1640 Kc after adjustment of A6.

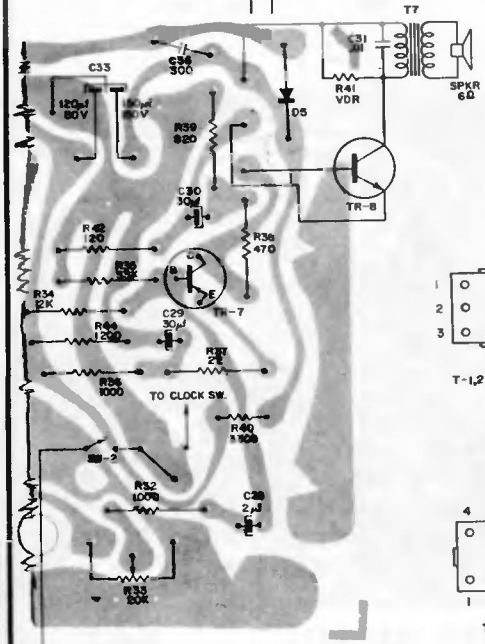
(Continued on next page.)



(Continued from preceding page.)

TR-7 99217 TR-8 99252-2





ALL VOLTAGES MEASURED WITH SW-1 IN FM POSITION SHOWN EXCEPT, TR-6 ✱ VOLTAGES, WHICH ARE MEASURED IN AM POSITION.

CAPACITANCE VALUES LESS THAN 1.0 ARE IN MICROFARDS (μf), AND VALUES GREATER THAN 1.0 ARE IN PICO-FARADS (pf) EXCEPT WHERE NOTED.

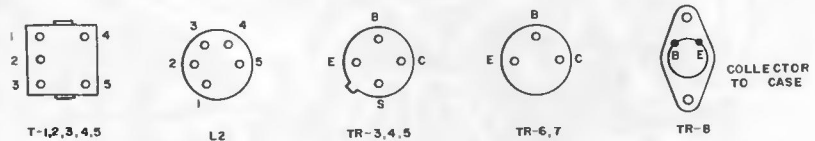
VOLTAGE READINGS TO COMMON GROUND (+) ARE MEASURED WITH VACUUM TUBE VOLTMETER UNDER NO SIGNAL CONDITIONS.

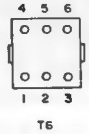
RESISTANCE VALUES ARE IN OHMS, K=1000

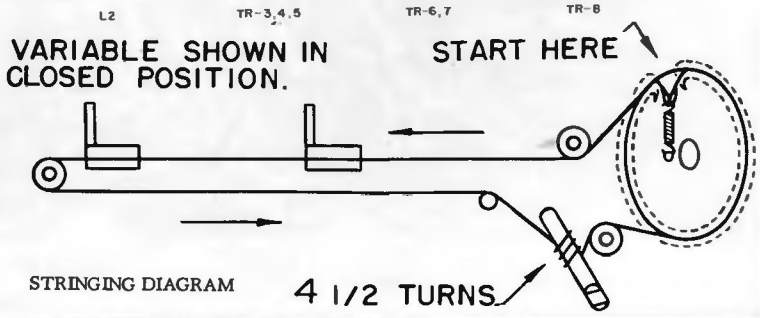
⏚ = COMMON GROUND SYMBOL.

⊡ = EXTERNAL CONNECTION TO PRINTED CIRCUIT.

Transistor basing, bottom view.





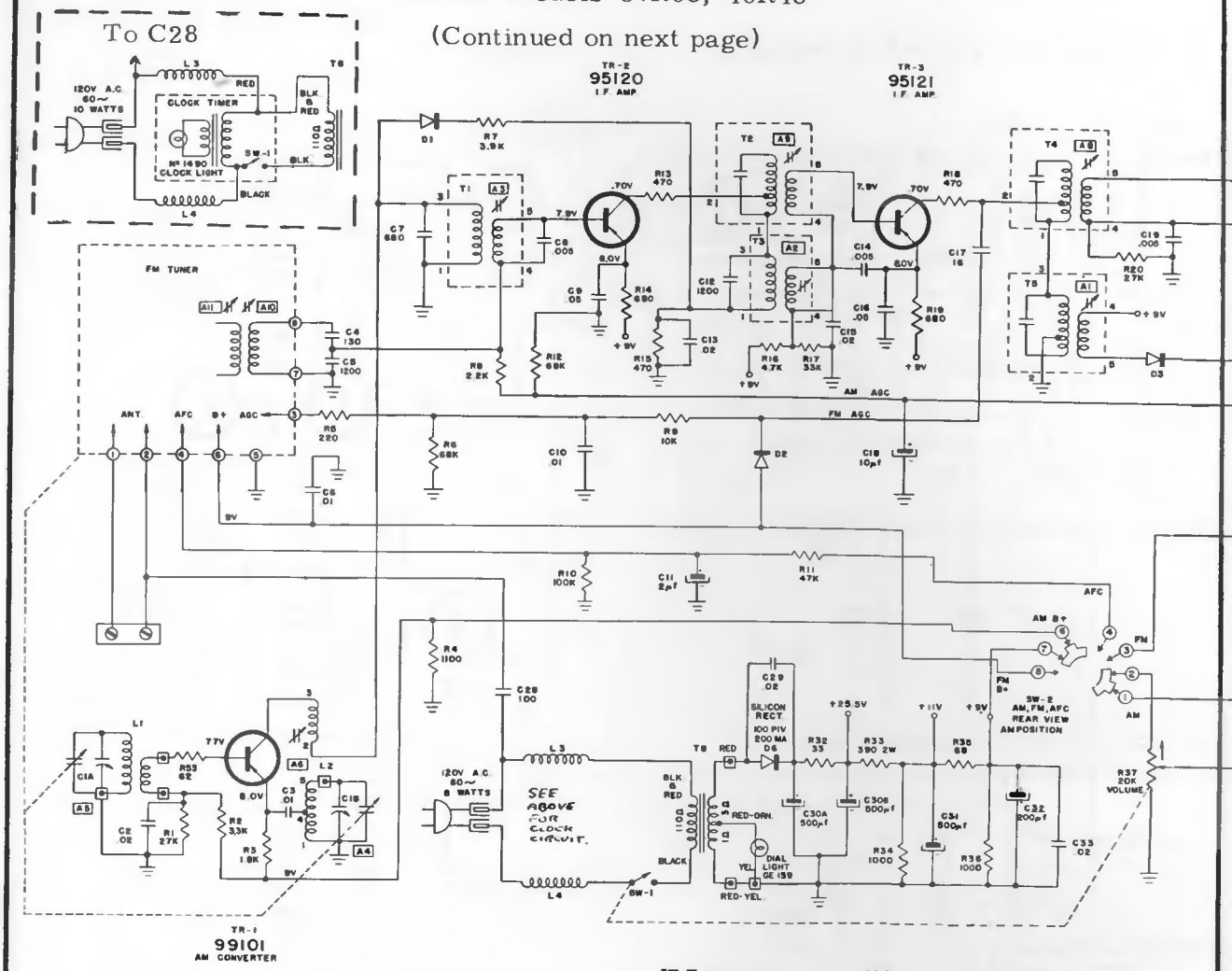


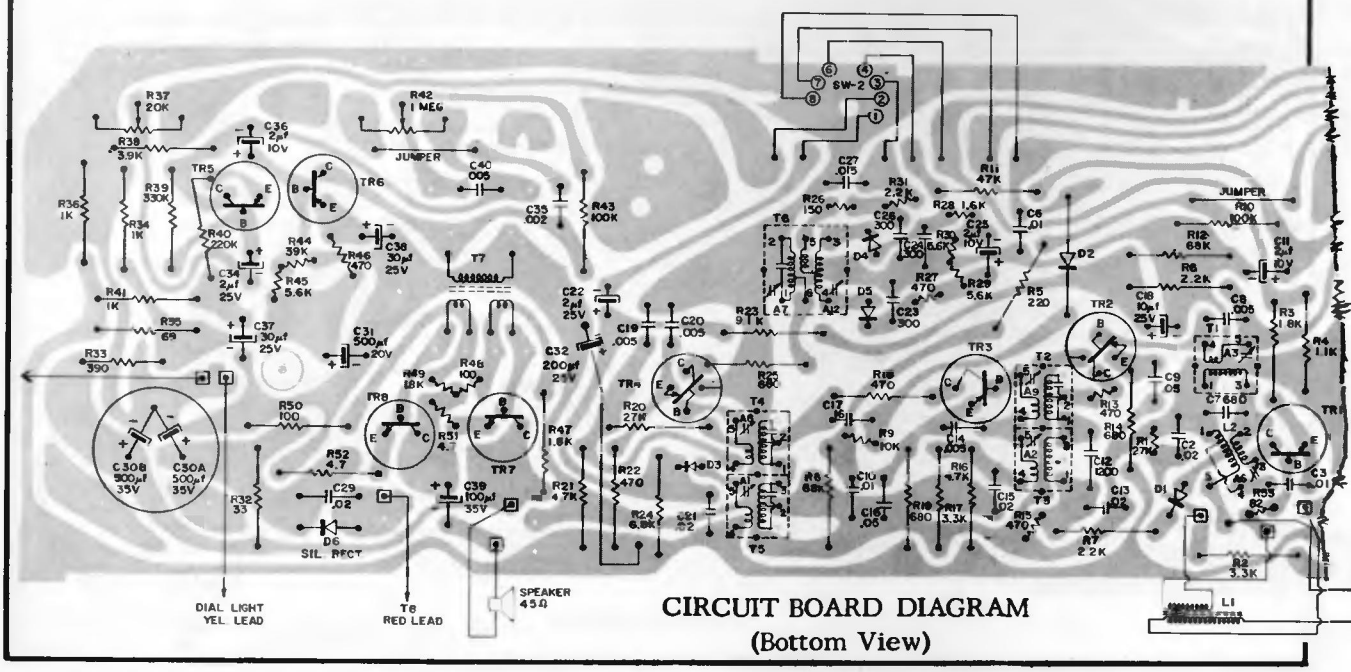
STRINGING DIAGRAM

(Continued from preceding page)

ARVIN Models 37R68, 46R48

(Continued on next page)



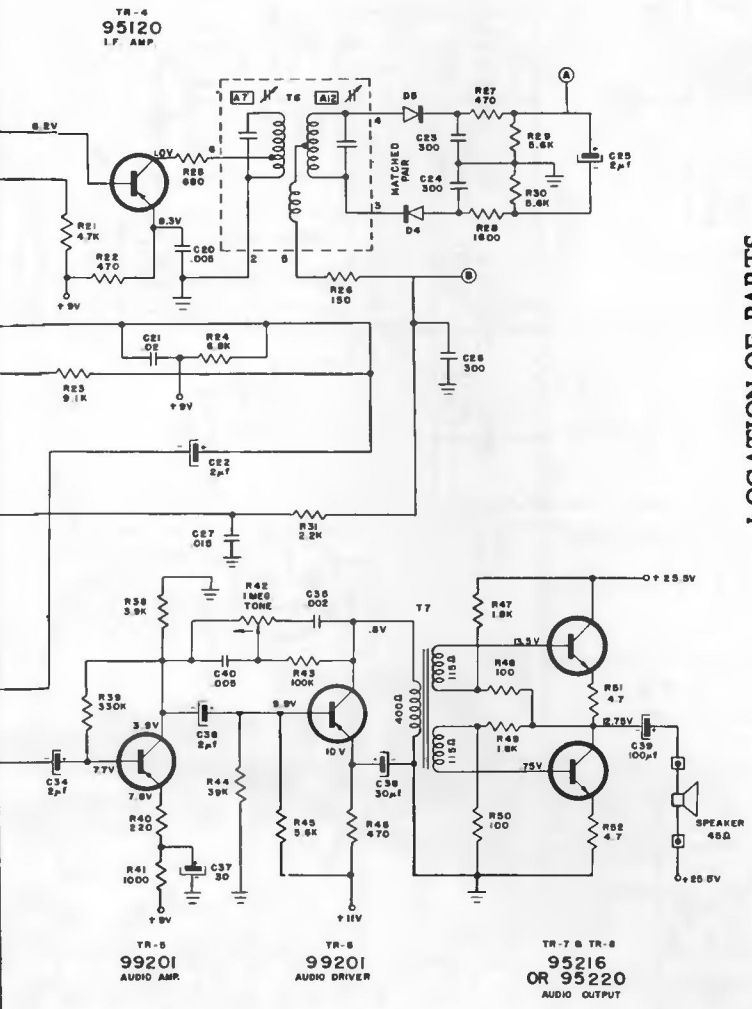


CIRCUIT BOARD DIAGRAM
(Bottom View)

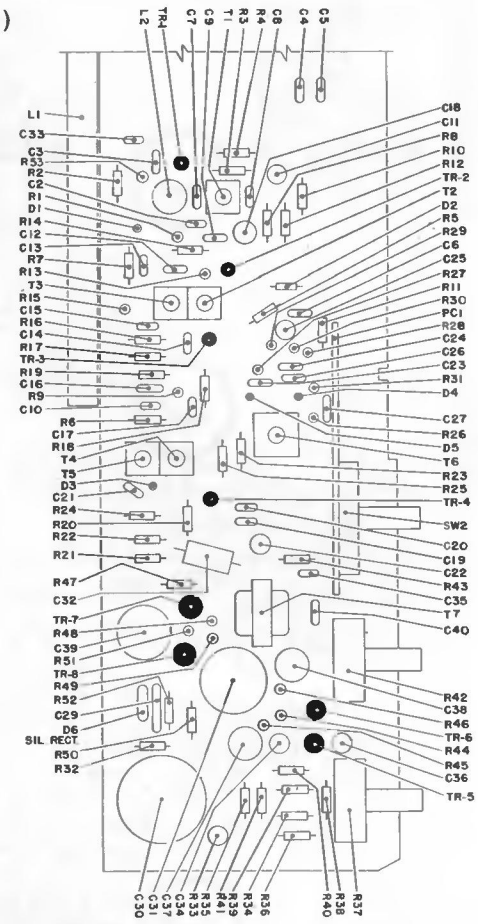
T8
Red-Yellow Lead

ARVIN Models 37R68, 46R48

(Continued from preceding page)



LOCATION OF PARTS



NOTES:

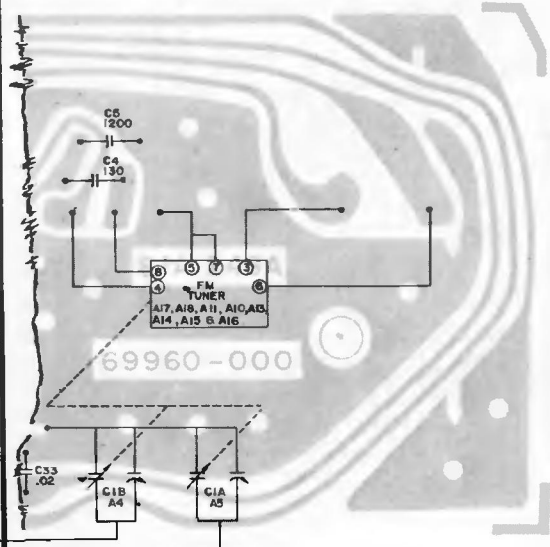
RESISTANCE VALUES ARE IN OHMS, K=1000, MEG=1,000,000

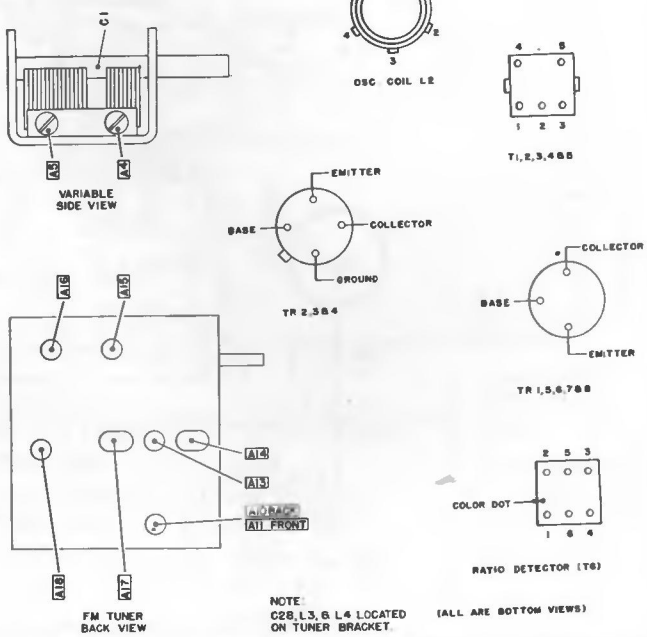
⊣⊢ = EXTERNAL CONNECTIONS TO PRINTED CIRCUIT

CAPACITANCE VALUES LESS THAN 1.0 ARE IN MICROFARADS (μf) AND VALUES GREATER THAN 1.0 ARE IN MICRO-MICROFARADS (μμf) EXCEPT WHERE NOTED.

VOLTAGE READINGS TO COMMON GROUND (-) ARE MEASURED WITH VACUUM TUBE VOLTMETER UNDER NO SIGNAL CONDITIONS.

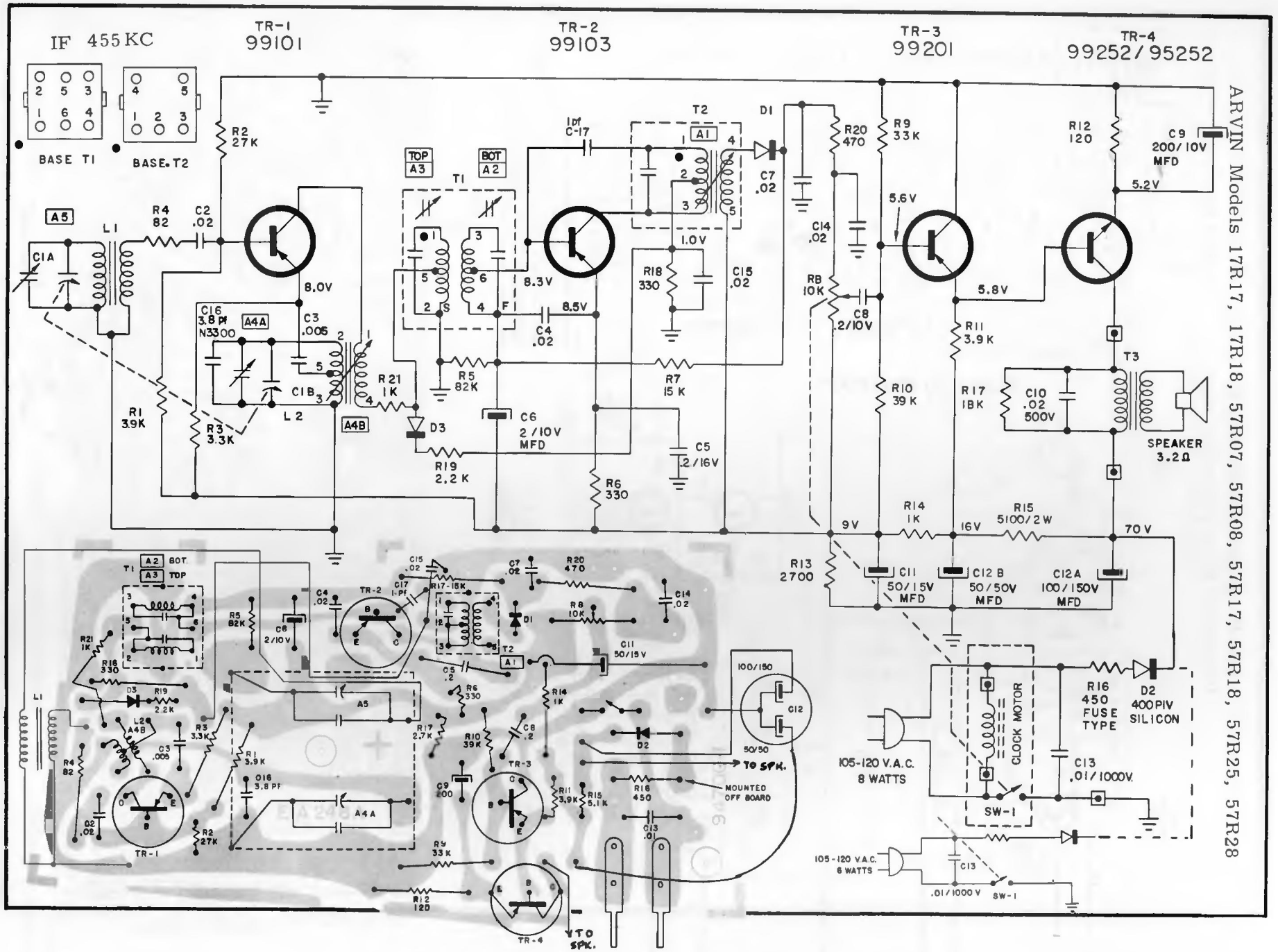
ARROW INDICATES CLOCKWISE CONTROL ROTATION VIEWED FROM FRONT.



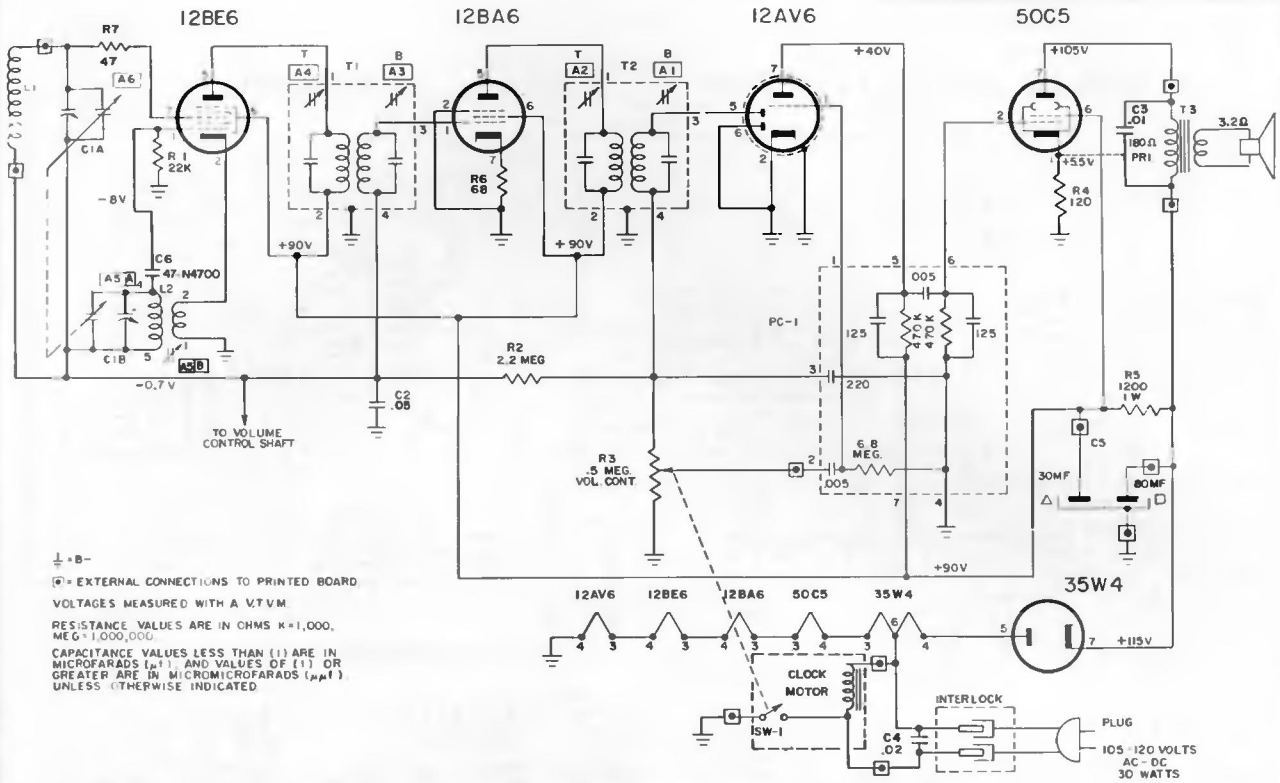


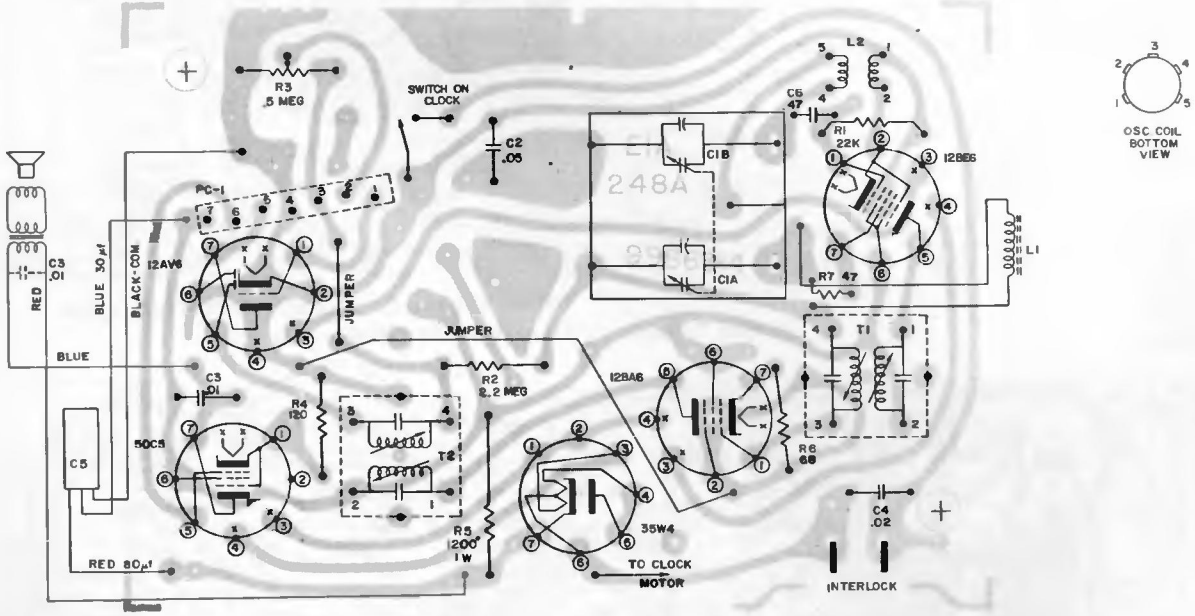
NOTE:
C28, L3, & L4 LOCATED ON TUNER BRACKET.

(ALL ARE BOTTOM VIEWS)


IF 455KC
TR-1
99101
TR-2
99103
TR-3
99201
TR-4
99252/95252
BASE T1
BASE T2
R2 27K
R4 82
C2 .02
L1
C1A
A5
C16 3.8 pf N3300
A4A
C3 .005
C1B
L2
A4B
R1 3.9K
R3 3.3K
R21 1K
R5 82K
C6 2/10V MFD
D3
R19 2.2 K
C4 .02
R6 330
C5 .2/16V
R7 15 K
T1
TOP A3
BOT A2
1pf C-17
T2
A1
D1
C7 .02
R18 330
C15 .02
R20 470
R9 33 K
R12 120
C9 200/10V MFD
C14 .02
RB 10K
C8 .2/10V
R11 3.9K
R10 39 K
R17 18K
C10 .02 500V
T3
SPEAKER 3.2Ω
8.0V
8.3V
8.5V
1.0V
5.6V
5.8V
5.2V
9V
16V
70 V
R13 2700
R14 1K
R15 5100/2 W
C11 50/15V MFD
C12 B 50/50V MFD
C12 A 100/150V MFD
R16 450 FUSE TYPE
D2 400 PIV SILICON
105-120 V.A.C. 8 WATTS
CLOCK MOTOR
SW-1
C13 .01/1000V
TO SPK.
MOUNTED OFF BOARD
R8 10K
C17 1-Pf
C18 3.8 PF
R17 2.7K
C18 .2
R16 450
R15 5.1K
R11 3.9K
R9 33K
R12 120
TR-1
TR-2
TR-3
TR-4

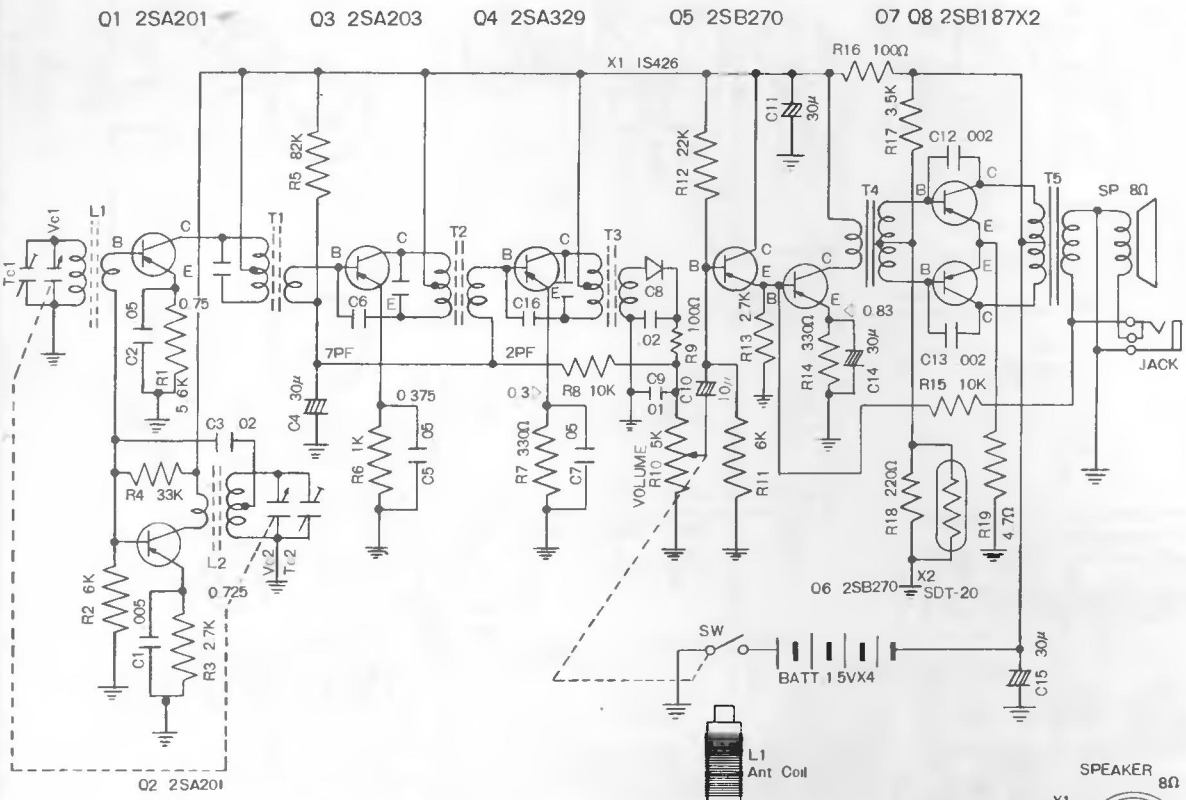
ARVIN Models 55R77, 55R87

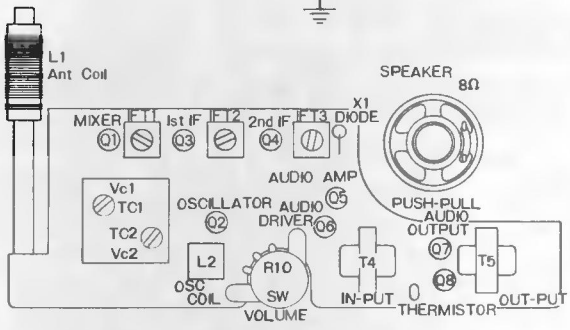




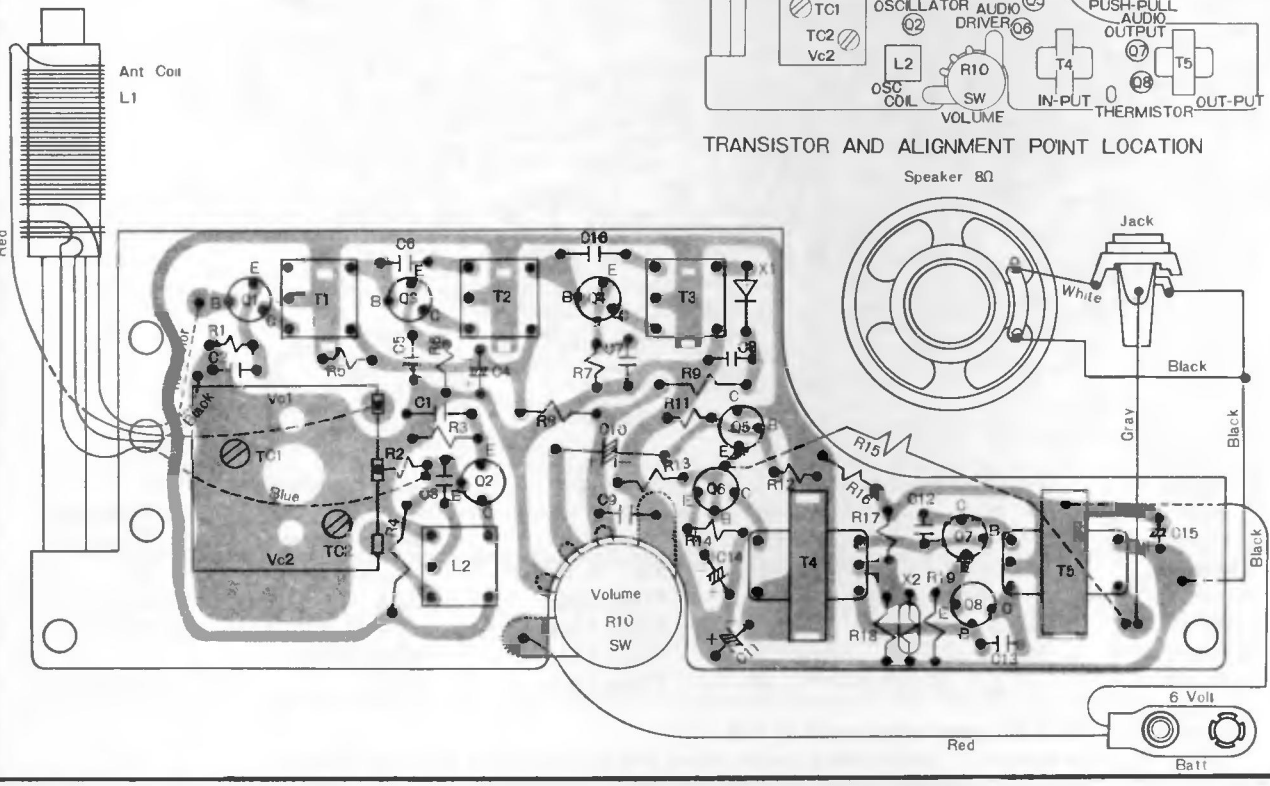
Position of Variable	Frequency of Generator	Dummy Antenna	Generator Output Connection	Adj. Trimmer for Max. Output	Trimmer Function
Open	455 Kc	.05 mfd.	Pin 7 of 12BE6	A1, A2, A3, A4	I. F.
Open	1620 Kc		*Test Loop	A5A	Oscillator
1400 Kc	1400 Kc		*Test Loop	A6	Antenna
600 Kc	600 Kc		*Test Loop	Check Point	
Closed	530 Kc		*Test Loop	A5B	Oscillator

Recheck A5A (1620 kc) after adjustment of A5B.
*Three (3) turns of wire 6" in diameter placed about one foot from the receiver antenna.

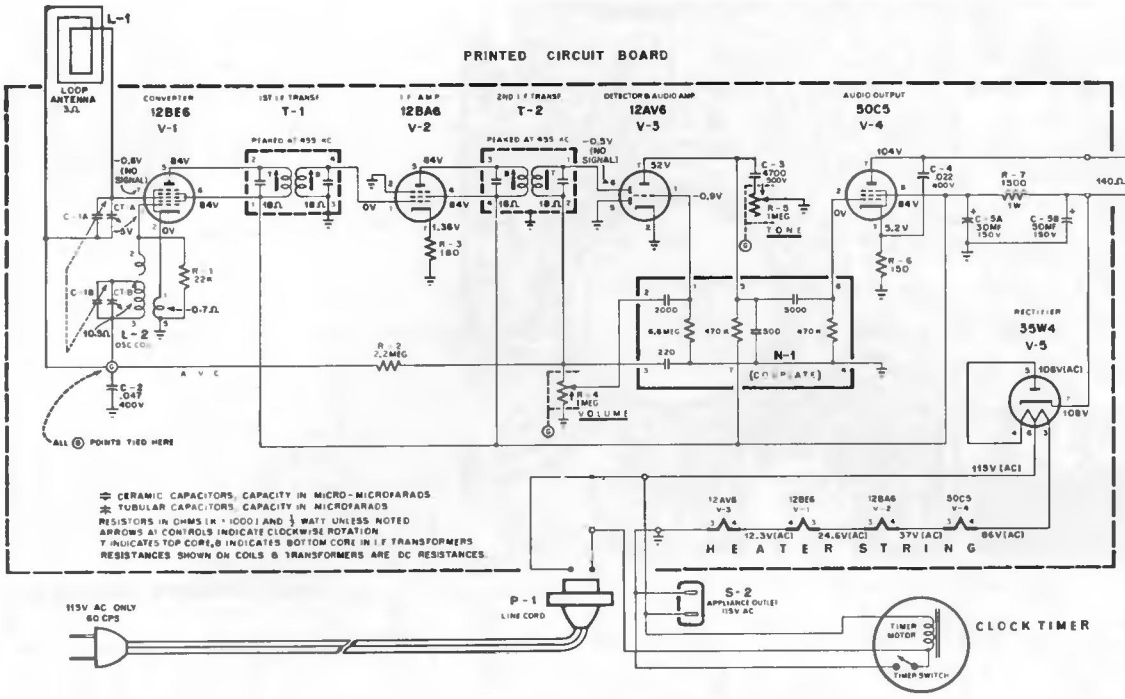


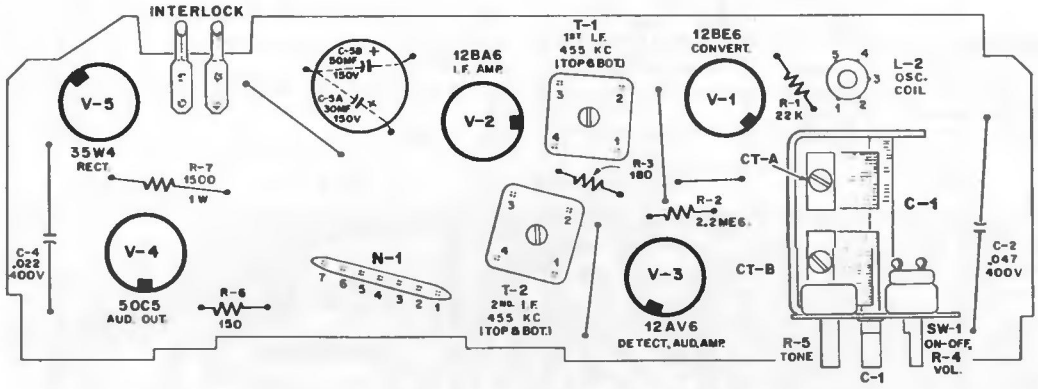


TRANSISTOR AND ALIGNMENT POINT LOCATION



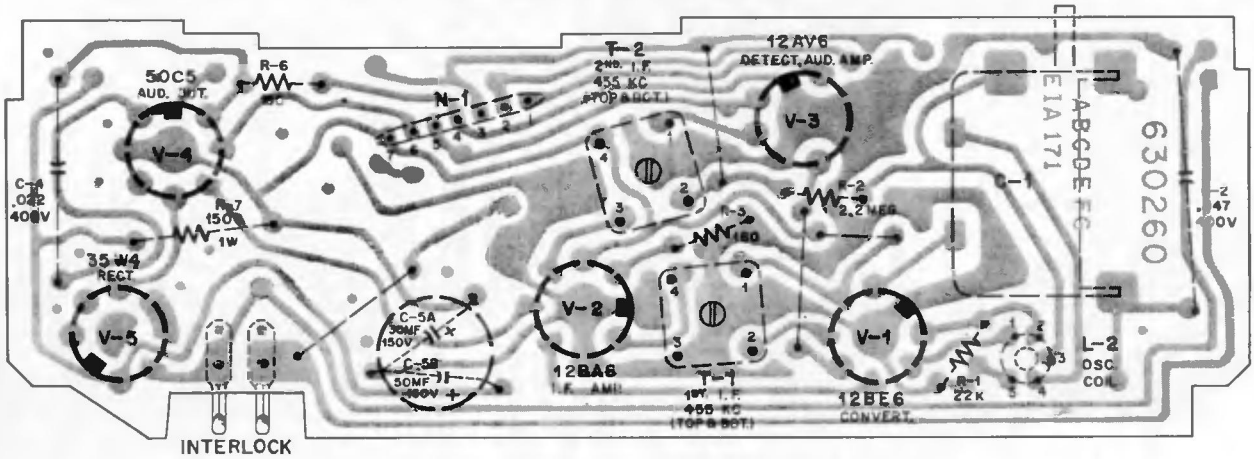
EMERSON Model 31L18, Chassis 120583



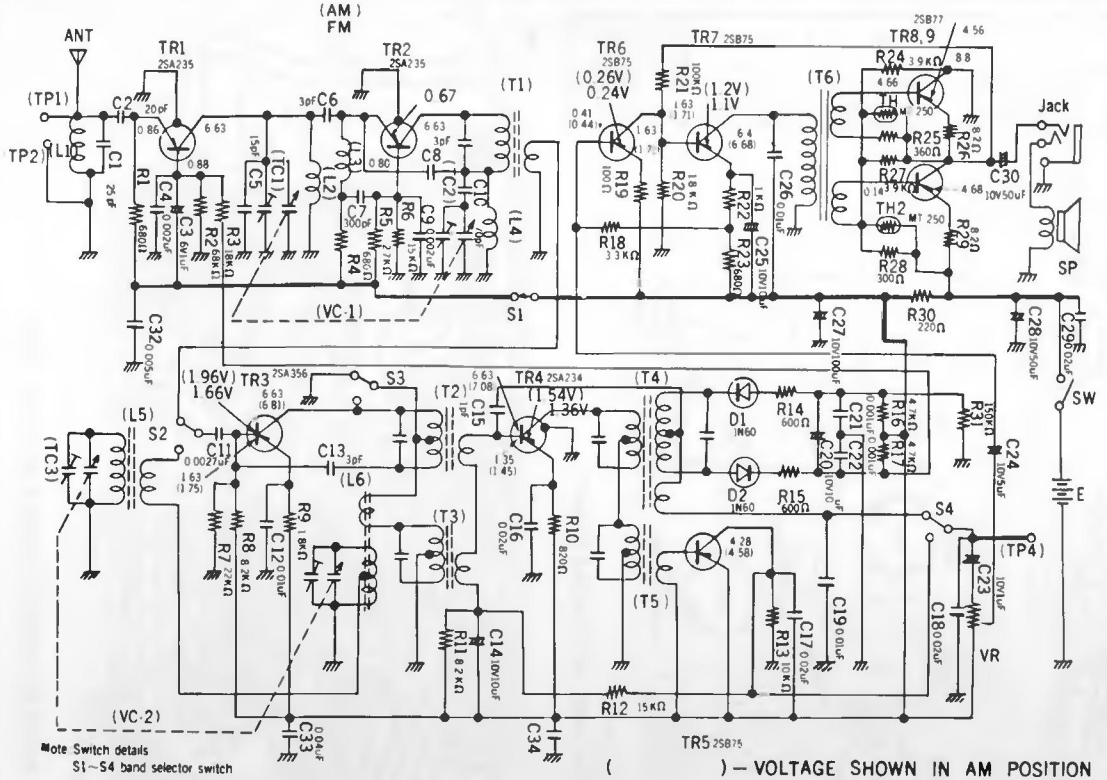


MODEL NO.	CHASSIS NO.	TIMER PART NO.	SPEAKER TYPE & SIZE
31L18	120583	471329	6 x 4" – PM

TUBE LOCATIONS AND ALIGNMENT POINTS



ETCHED PRINTED CIRCUIT CHASSIS (BOTTOM VIEW)



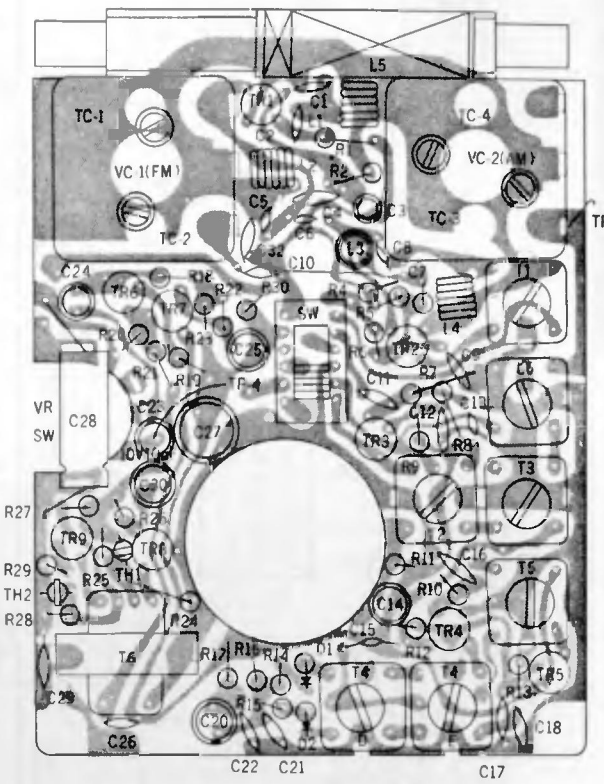
VOLTAGE AND CURRENT AT ELEMENT OF TRANSISTOR

Symbol No.	TRANSISTOR	AM				FM			
		Ve(V)	Vb(V)	Vc(V)	Ie(mA)	Ve(V)	Vb(V)	Vc(V)	Ie(mA)
TR1	2SA235					0.86	0.88	6.63	1.27
TR2	2SA234					0.67	0.80	6.63	1.0
TR3	2SA350	1.96	1.75	6.81	1.09	1.66	1.63	6.63	0.92
TR4	2SA234	1.54	1.45	7.08	1.88	1.36	1.35	6.63	1.66
TR5	2SB75			4.58				4.28	
TR6	2SB75	0.26	0.44	1.71	2.6	0.24	0.41	1.64	2.4
TR7	2SB75	1.2	1.71	6.68	1.2	1.1	1.63	6.4	1.1
TR8	2SB77	(VBE)0.15				(VBE)0.15	4.66	8.8	
TR9	2SB77	(VBE)0.15				(VBE)0.15	0.14	4.68	

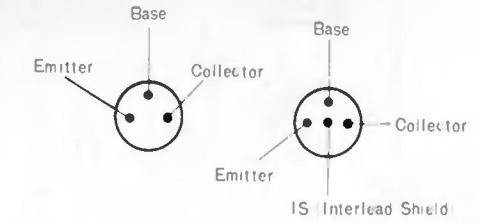
LOCAL OSCILLATOR VOLTAGES

SECTION	OSCILLATOR FREQ.	Min. Vosc(mV)	Max. Vosc(mV)
AM	975-2105 KC	150	180
FM	96.7-120.7 MC	193	235

TOP VIEW



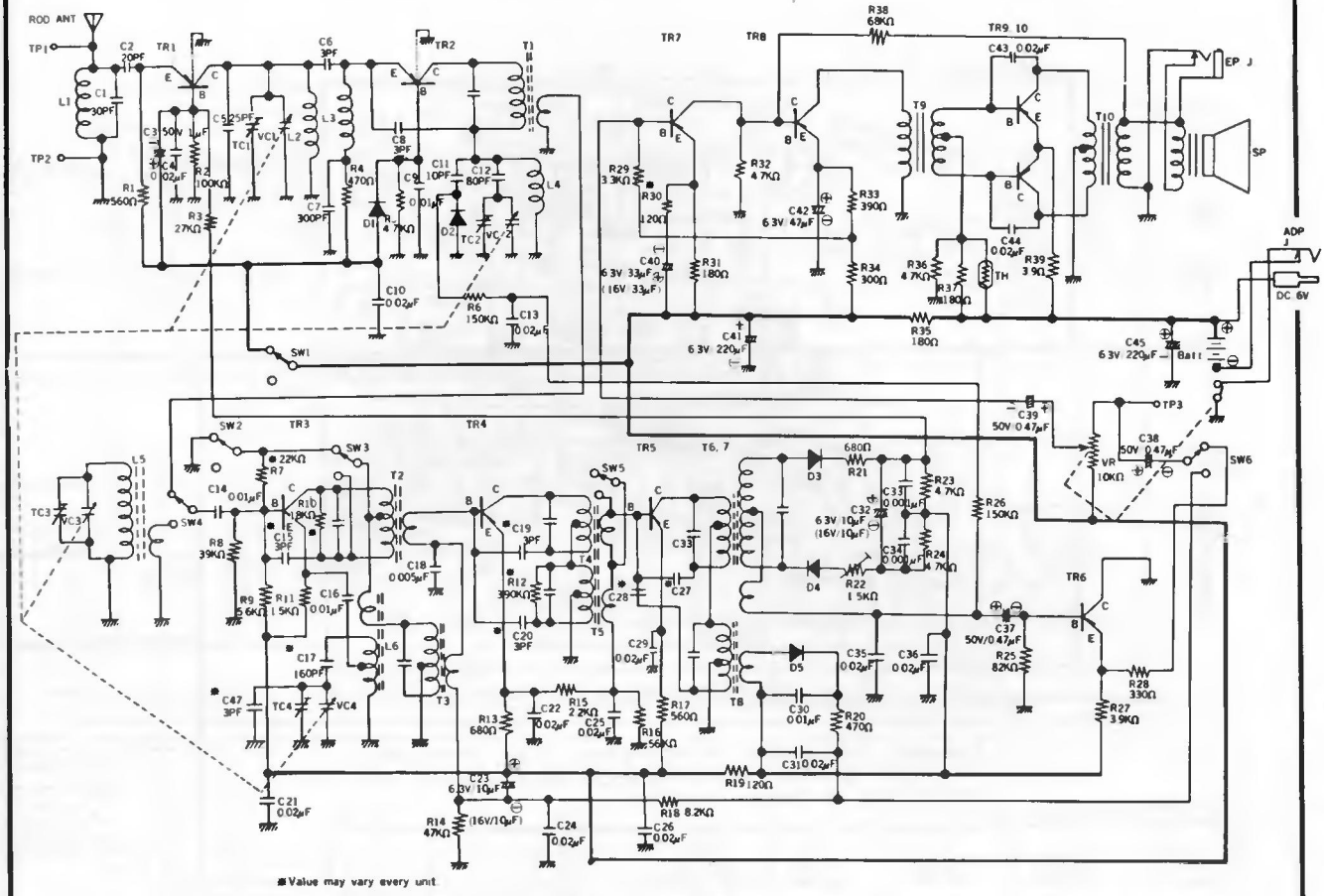
TR3,4,5,6,7,8,9 TR1,2



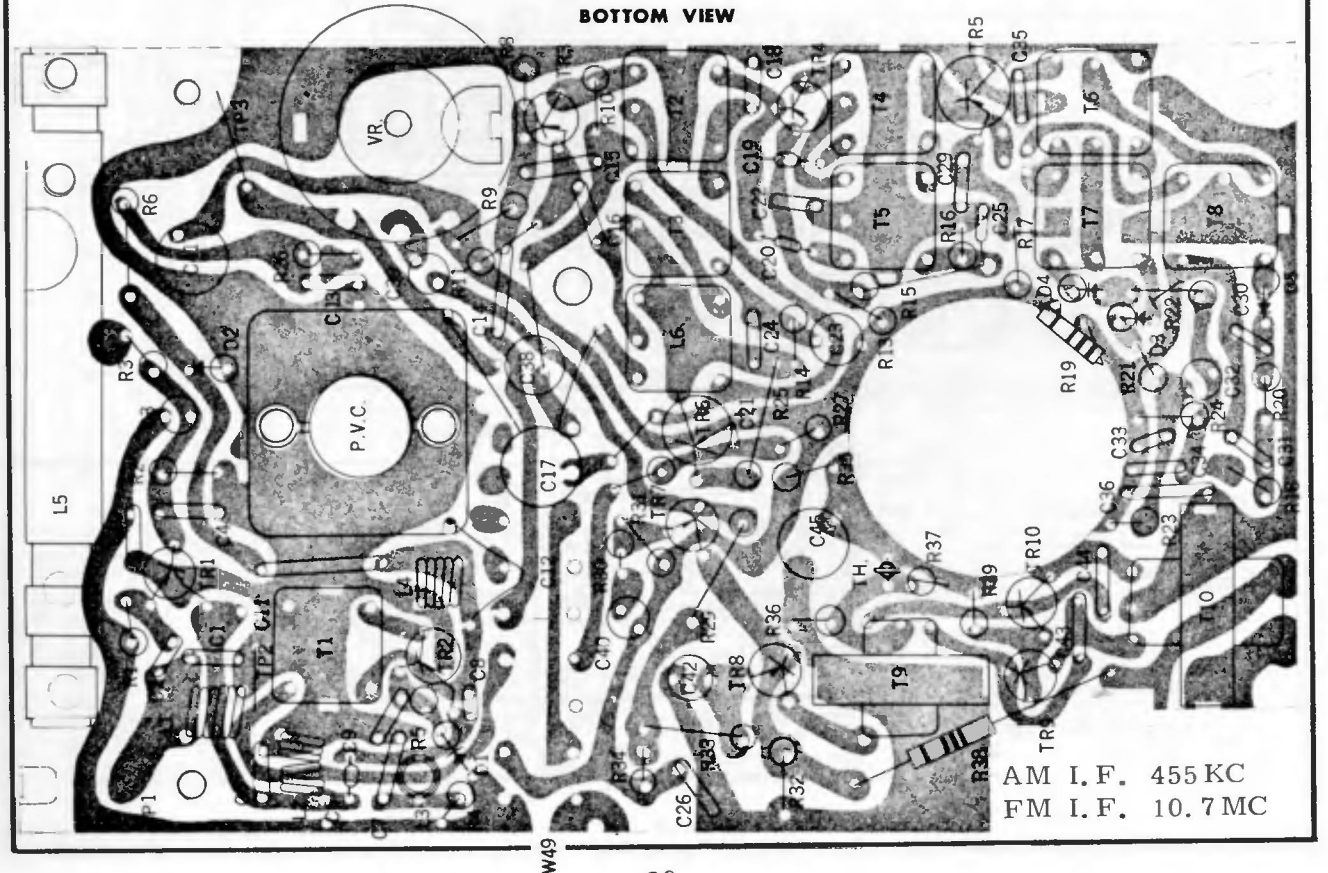
BOTTOM VIEW OF TRANSISTOR

EMERSON Model 31P68

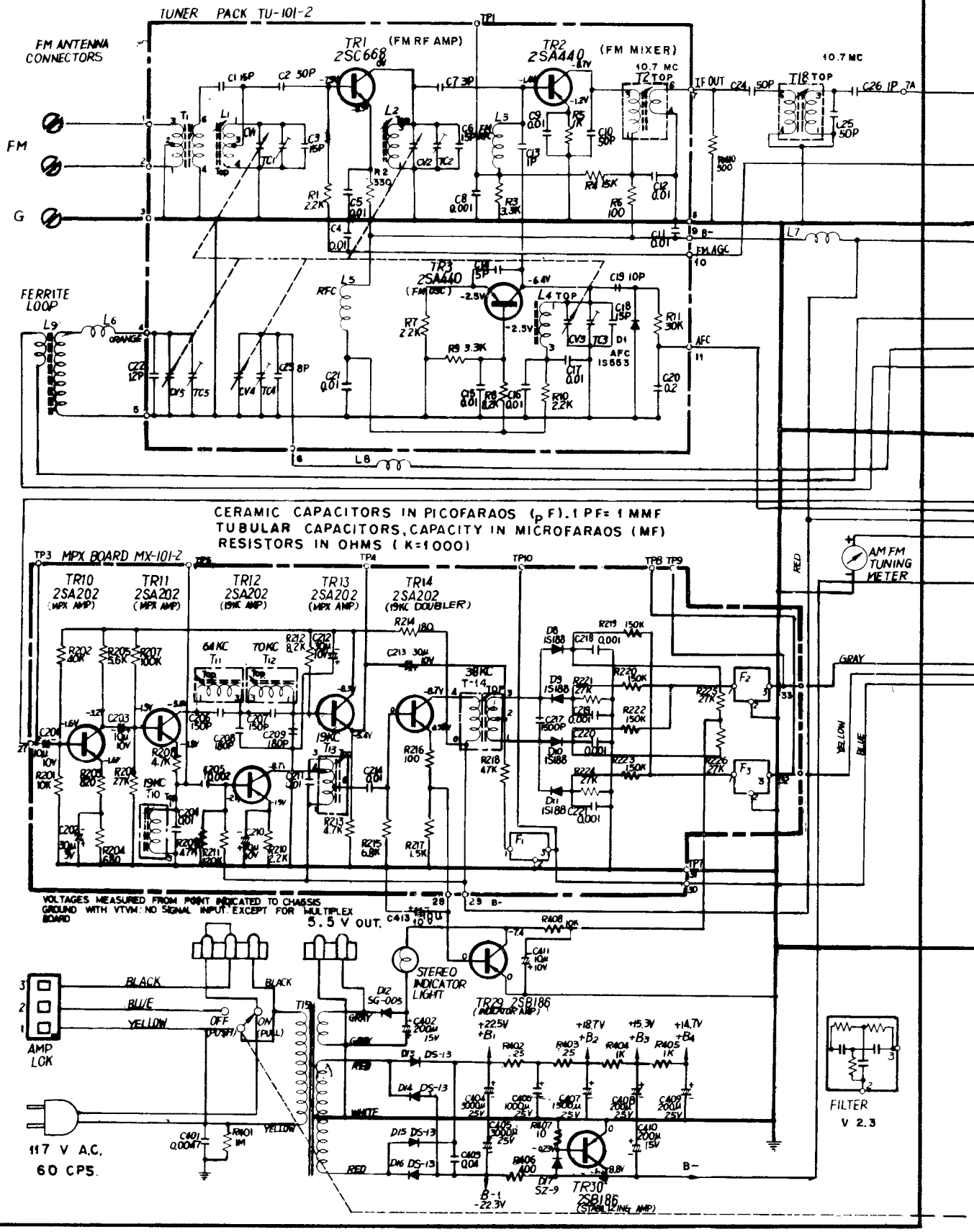
EMERSON Model 31P64



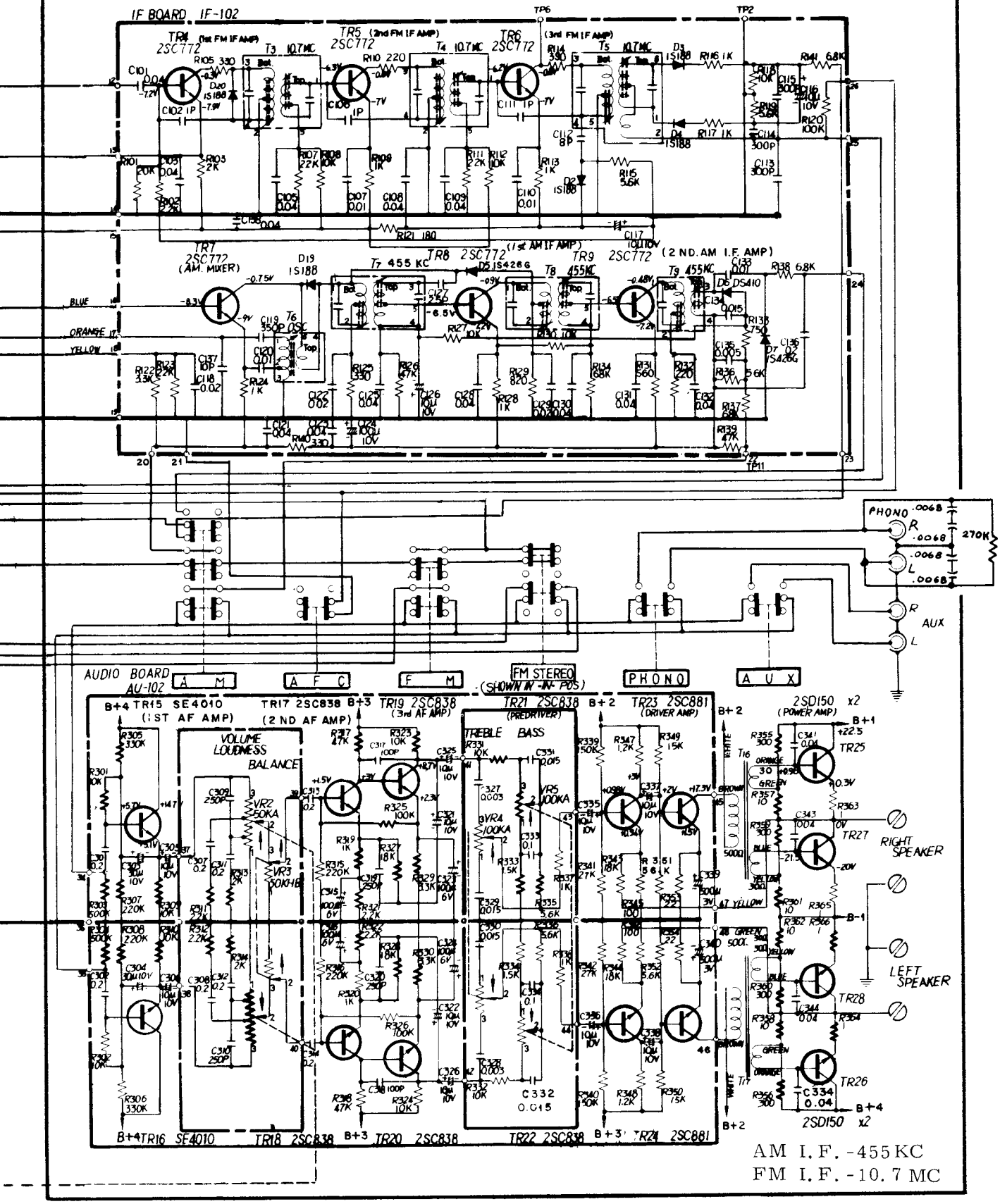
BOTTOM VIEW



 (Continued on next page.)



(Continued from preceding page.)



EMERSON Model 31P66

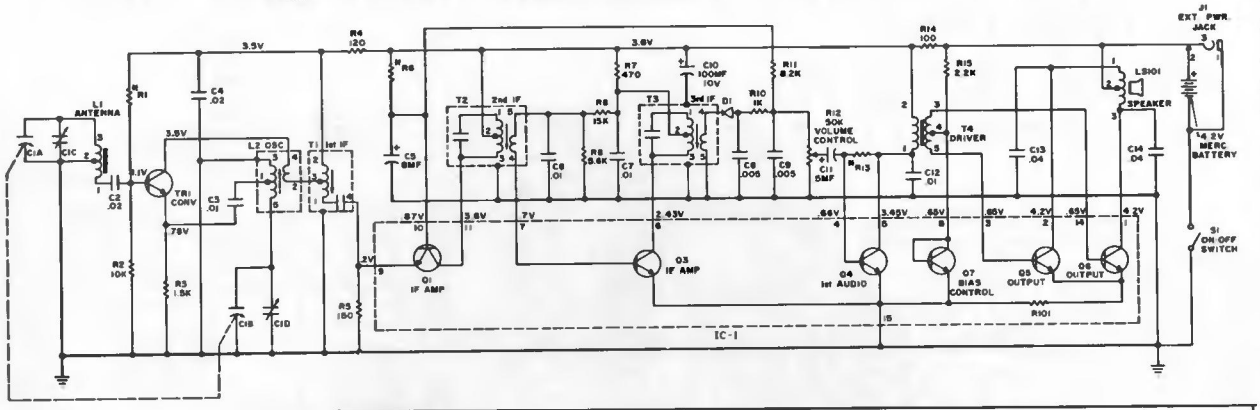
I. F. 455 KC

ALL RESISTANCE VALUES IN OHMS
ALL CAPACITANCE VALUES LESS THAN
1.0 IN MFD. VALUES ABOVE 1.0 IN MMFD
UNLESS OTHERWISE INDICATED

CHASSIS LAYOUT
(WIRING SIDE)

CHASSIS LAYOUT
(COMPONENT SIDE)

DIAL CORD ARRANGEMENT



NOTES

1. UNLESS OTHERWISE NOTED CAPACITORS MORE THAN 1 = MMF CAPACITORS LESS THAN 1 = MF RESISTORS ARE 1/2 WATT, K=1000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM
3. SEE TRANSISTOR SUBSTITUTION CHART
4. KHz = KC

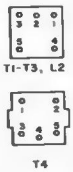
ALIGNMENT

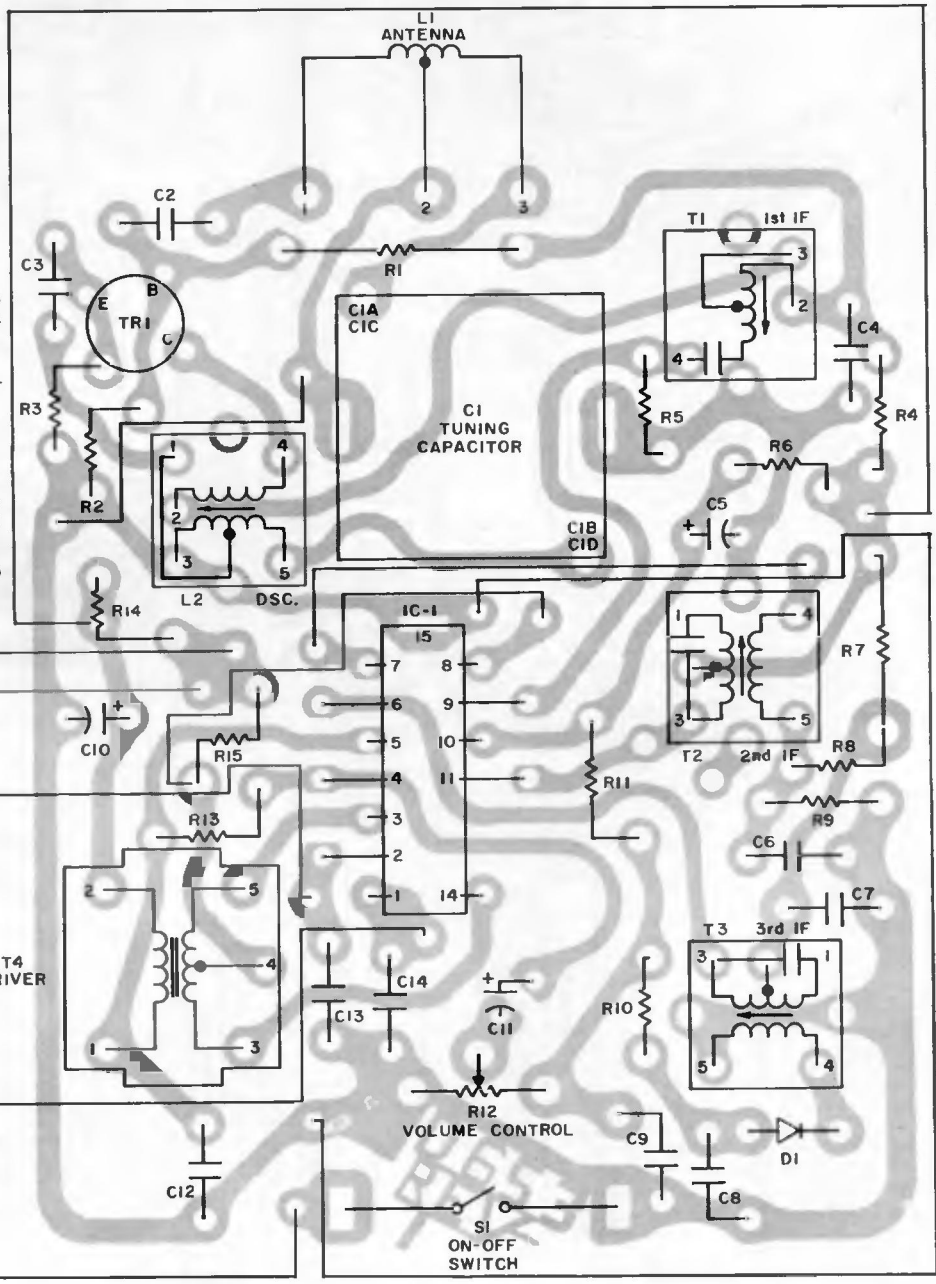
1. SET VOLUME CONTROL AT MAX. CONNECT OUTPUT METER OR SCOPE ACROSS SPEAKER. INDUCTIVELY COUPLE SIGNAL GENERATOR TO RECEIVER.
2. ADJUST T1, T2 AND T3 FOR MAX. 455KHz SIGNAL.
3. ADJUST C1D FOR MAX. 1630KHz WITH GANG OPEN.
4. ADJUST C1C FOR MAX. 1400KHz WHILE ROCKING GANG.
5. ADJUST L2 FOR MAX. 580KHz WHILE ROCKING GANG.
6. REPEAT STEPS 3, 4 AND 5 FOR MAX. SENSITIVITY.

BOTTOM VIEW OF COMPONENTS

TRANSISTORS

TRANSFORMERS

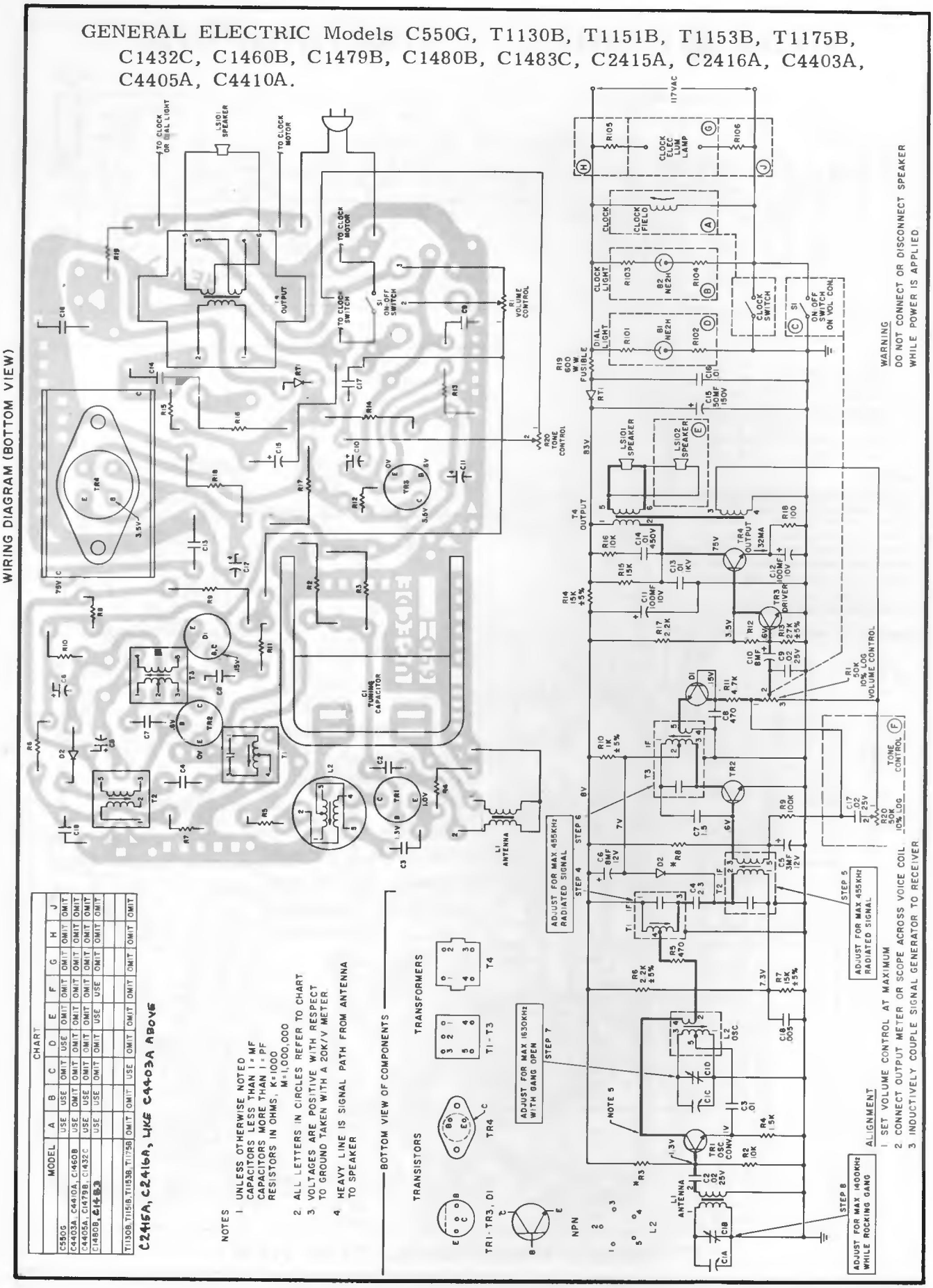




WIRING DIAGRAM (BOTTOM VIEW)

GENERAL ELECTRIC Models C550G, T1130B, T1151B, T1153B, T1175B, C1432C, C1460B, C1479B, C1480B, C1483C, C2415A, C2416A, C4403A, C4405A, C4410A.

WIRING DIAGRAM (BOTTOM VIEW)



GENERAL ELECTRIC Models T1134B, C4420A, C4421A, and C4430A.

WIRING DIAGRAM (BOTTOM VIEW)

CHART										
MODEL	A	B	C	D	E	F	G	H	J	K
C4420,21	USE	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT
C4430A	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT
T1134B	OMIT	OMIT	USE	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT	OMIT

BOTTOM VIEW OF COMPONENTS

TRANSISTORS

TRI-TR3, DI

TR4

NPN

TRANSFORMERS

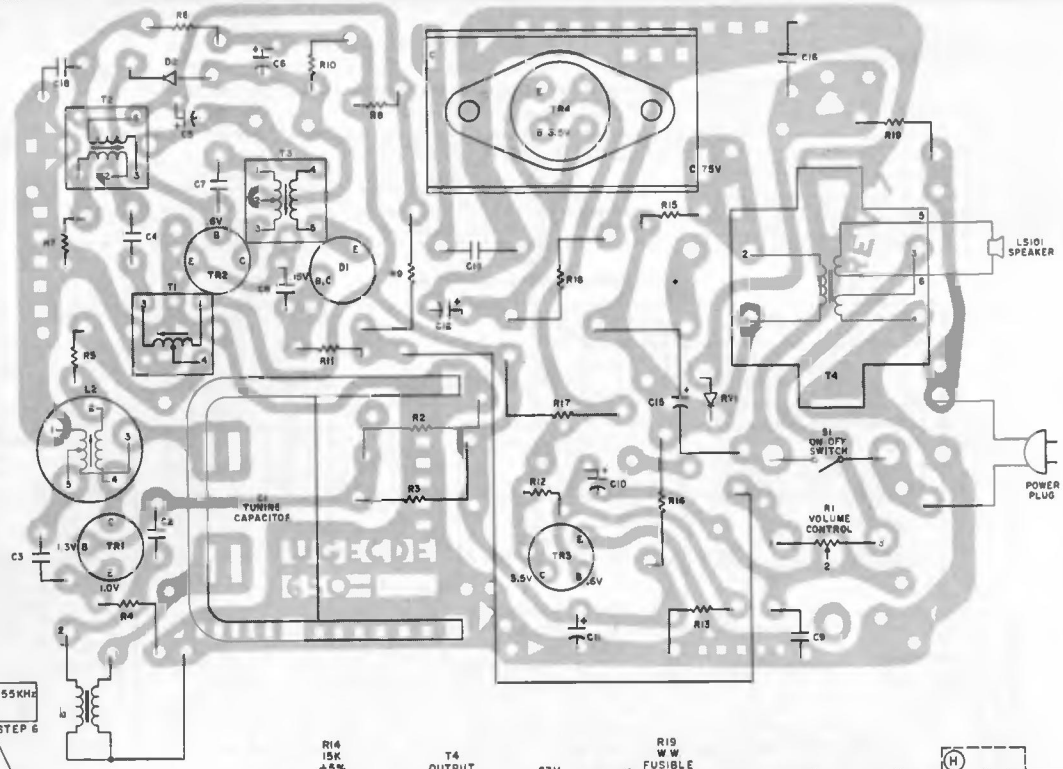
TI-T3

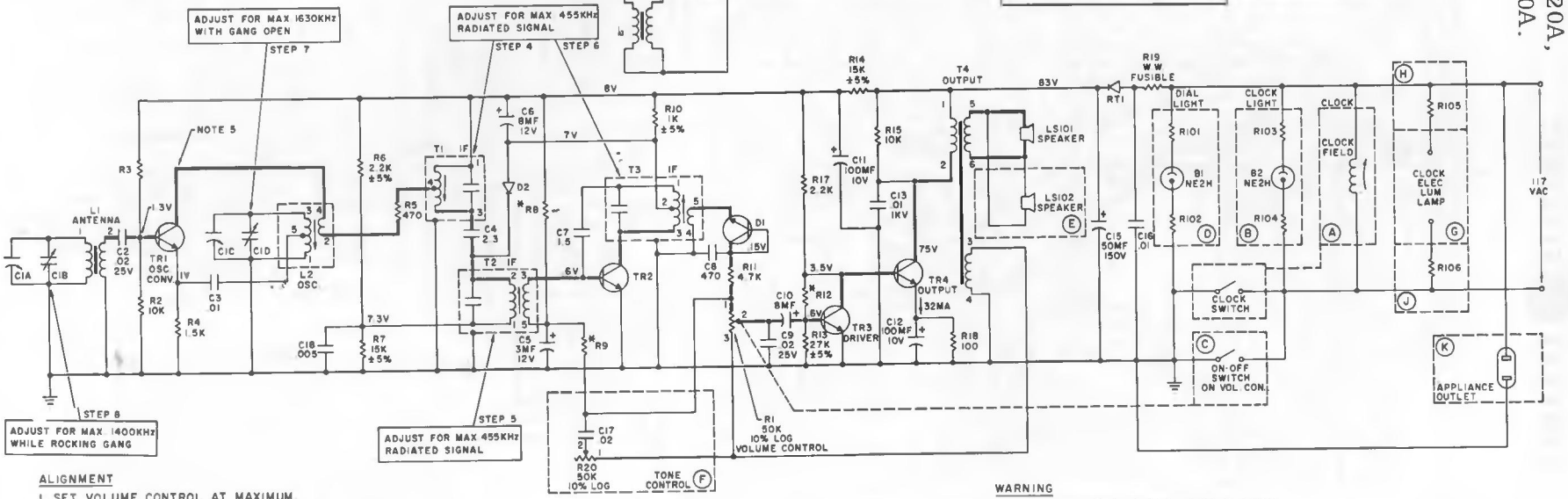
T4

L2

NOTES

1. UNLESS OTHERWISE NOTED
   CAPACITORS LESS THAN 1 = MF
   CAPACITORS MORE THAN 1 = PF
   RESISTORS IN OHMS, K=1000
   M=1,000,000
2. ALL LETTERS IN CIRCLES REFER TO CHART.
3. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND TAKEN WITH A 20K/VOLT METER.
4. HEAVY LINE IS SIGNAL PATH FROM ANTENNA TO SPEAKER.





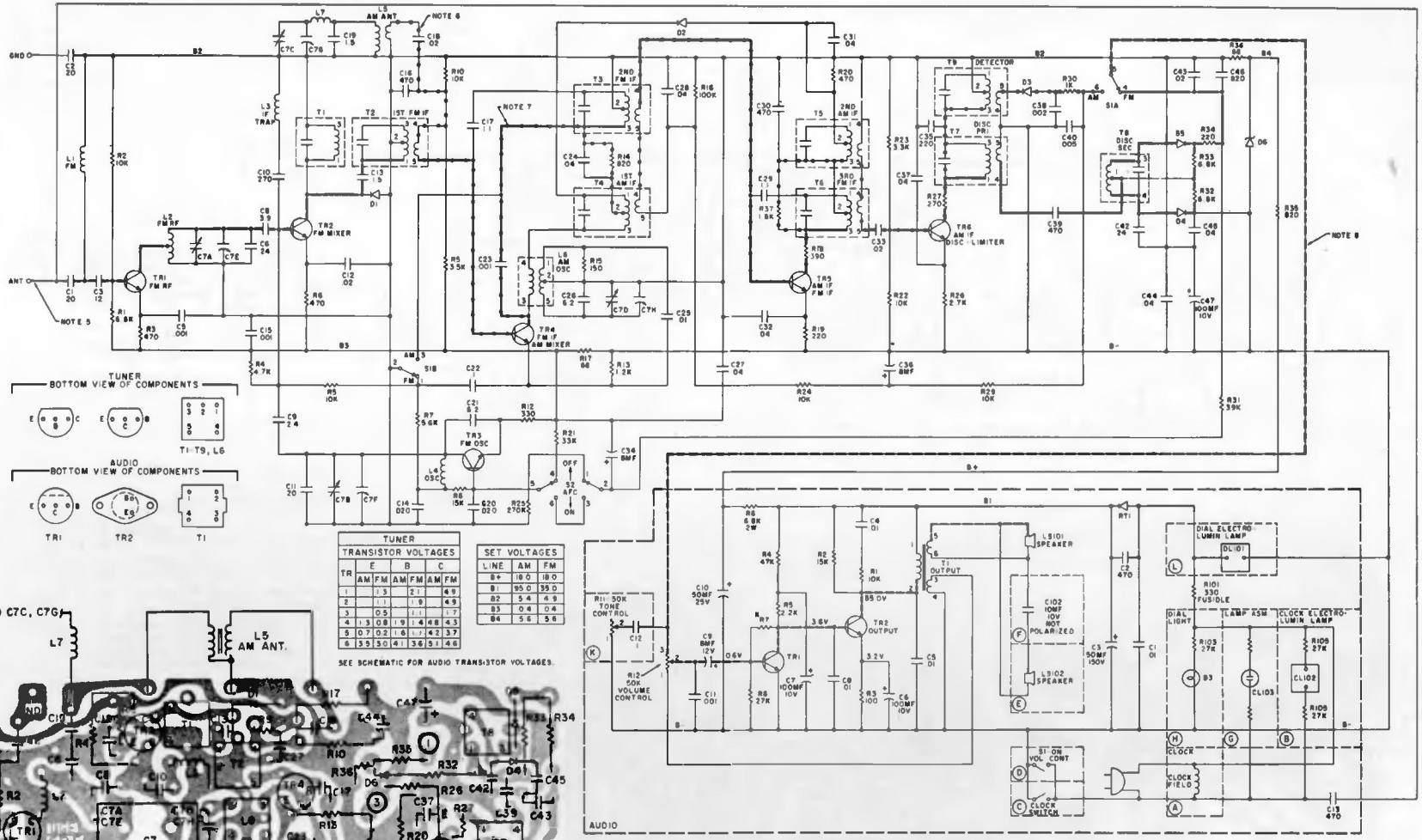
ALIGNMENT

1. SET VOLUME CONTROL AT MAXIMUM.
2. CONNECT OUTPUT METER OR SCOPE ACROSS VOICE COIL.
3. INDUCTIVELY COUPLE SIGNAL GENERATOR TO RECEIVER.

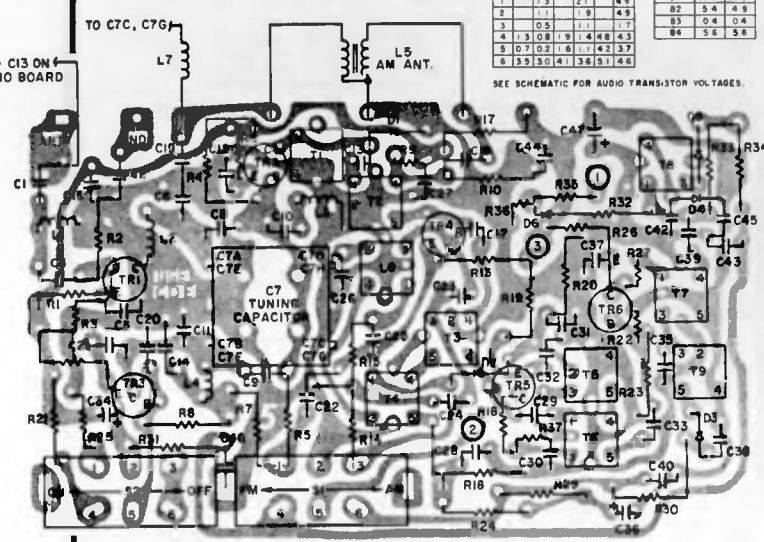
WARNING

DO NOT CONNECT OR DISCONNECT SPEAKER WHILE POWER IS APPLIED.

(For list of models see chart at right)



SCHEMATIC DIAGRAM (LATE VERSION)



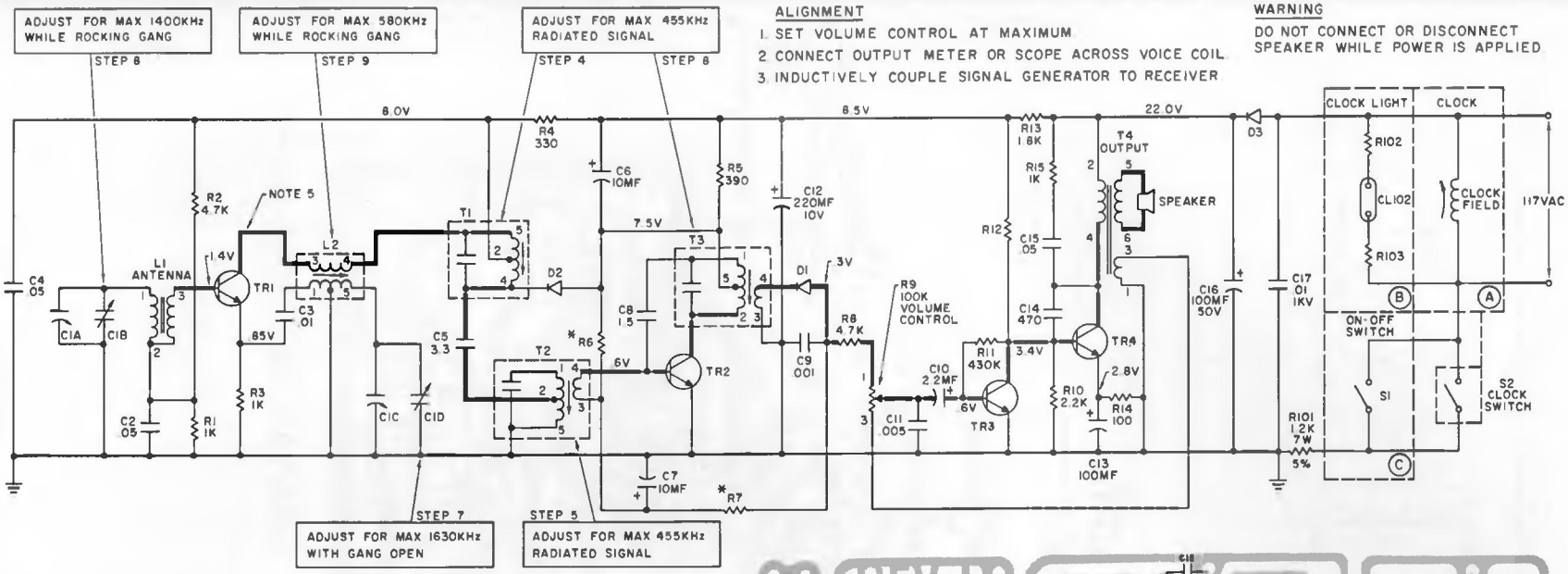
WIRING DIAGRAM (BOTTOM VIEW), LATE VERSION

NOTES

1. UNLESS OTHERWISE NOTED CAPACITORS LESS THAN 1 = MF CAPACITORS MORE THAN 1 = MMF RESISTORS IN OHMS, K=1000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO B- UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM (CONNECT NEGATIVE LEAD OF METER TO B-)
3. REFER TO TRANSISTOR SUBSTITUTION CHART
4. SI SHOWN IN FM POSITION
5. LINE SHOWN (═══) IS FM SIGNAL PATH FROM FM ANTENNA TO SIA
6. LINE SHOWN (─•─) IS AM SIGNAL PATH FROM AM ANTENNA TO SIA
7. AM-FM SIGNALS SUPERIMPOSED IN SOME AREAS (═══)
8. LINE SHOWN (═══) IS COMMON AUDIO PATH FROM SIA TO SPEAKER
9. 'X' IN MODEL CHART DESIGNATES PART USAGE OF DOTTED BLOCKS ON SCHEMATIC. CIRCLED LETTERS IN DOTTED BLOCKS REFER TO MODEL CHART
10. DO NOT CONNECT OR DISCONNECT SPEAKER WHILE POWER IS APPLIED. DO NOT APPLY POWER WITHOUT CONNECTING B+ AND B- WIRES TO TUNER

MODEL CHART

MODEL	A	B	C	D	E	F	G	H	K	L
T1265, 1280				X	X	X			X	X
T1270, 1284, 2235				X					X	
T2220, 2245				X	X				X	
T2231				X						
T2240, 2250				X	X	X			X	
T2280				X	X			X	X	
C1565, 1580	X		X						X	X
C1570, 1574	X		X				X		X	X
C2510, 2511, 2585	X		X							
C2520, 2545	X		X		X		X		X	
C2530, 2535, 2578, 2649	X		X						X	
C2550	X		X				X		X	
C2560	X		X		X		X	X	X	
C2579	X		X		X				X	
C4550	X	X	X		X				X	



BOTTOM VIEW OF COMPONENTS

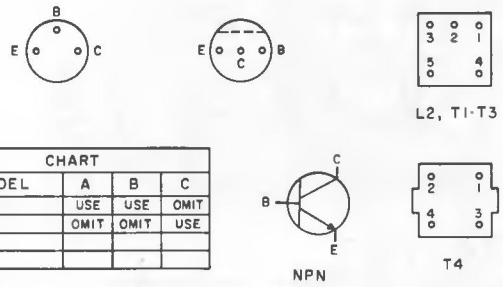
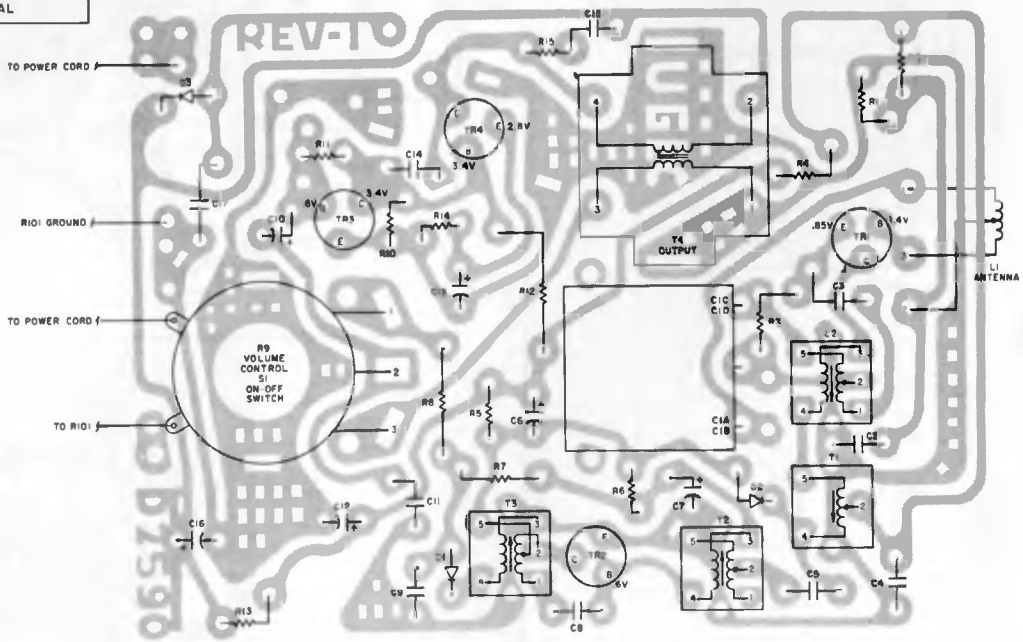


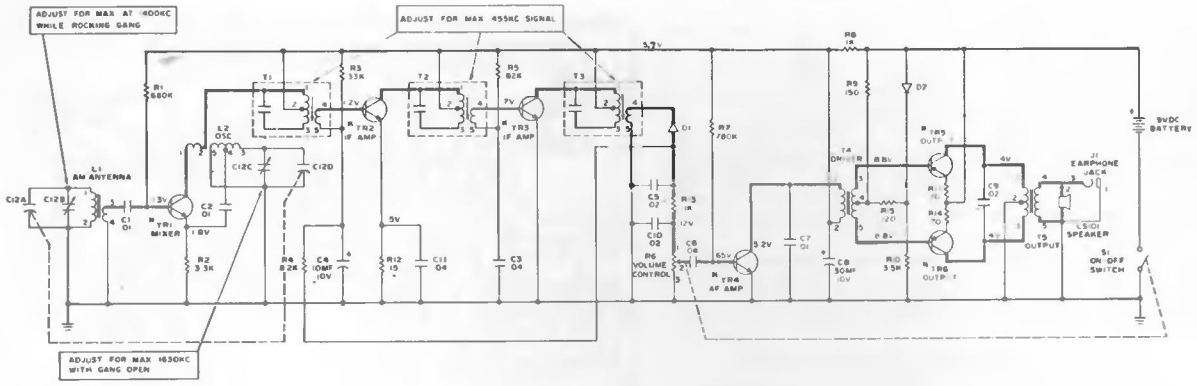
CHART			
MODEL	A	B	C
C1405A	USE	USE	OMIT
T2100A	OMIT	OMIT	USE

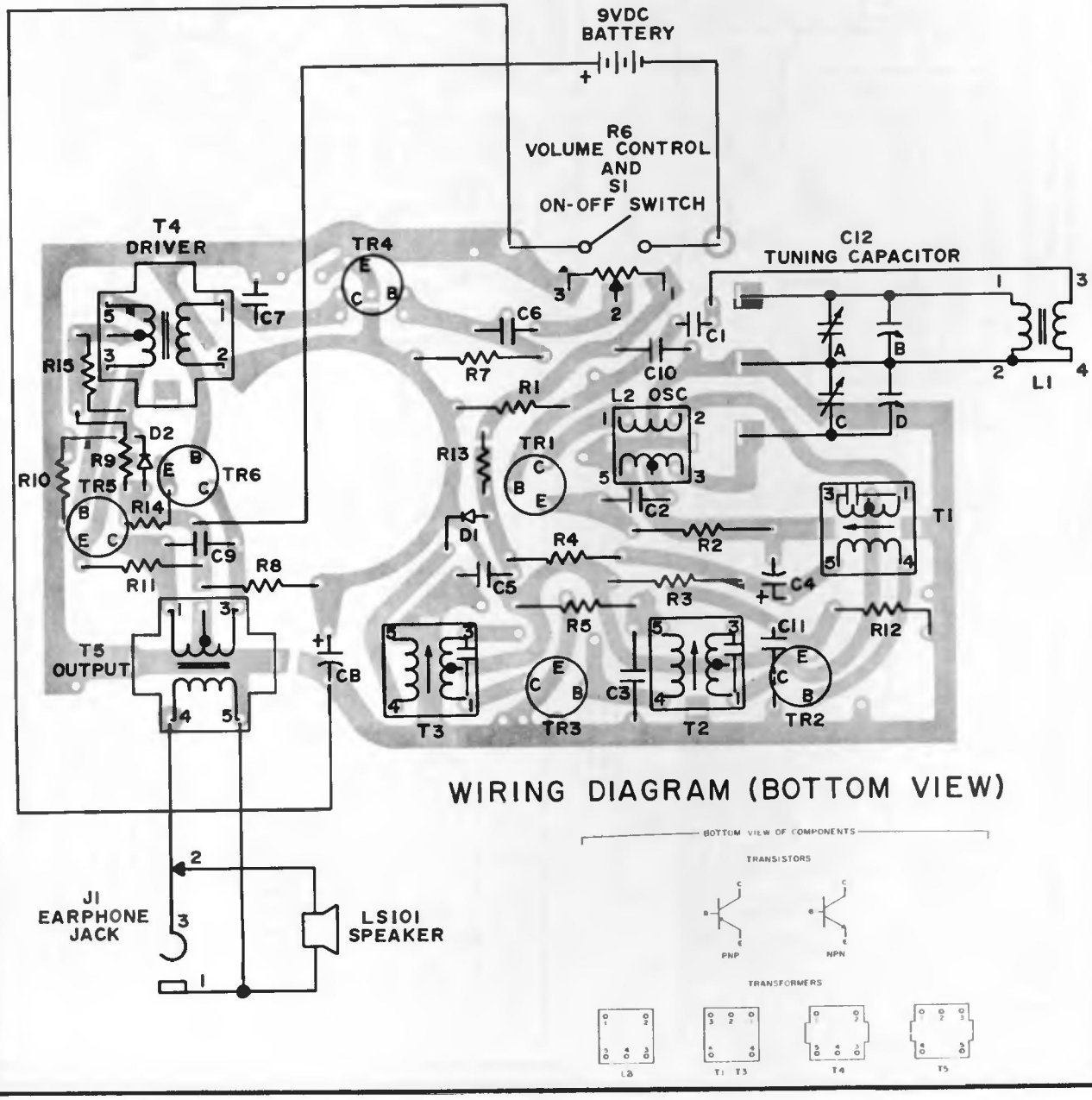
NOTES

1. UNLESS OTHERWISE NOTED
   CAPACITORS LESS THAN 1 = MF
   CAPACITORS MORE THAN 1 = PF
   RESISTORS IN OHMS, K=1000
2. ALL LETTERS IN CIRCLES REFER TO CHART.
3. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND TAKEN WITH A 20K/V METER UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM.
4. HEAVY LINE IS SIGNAL PATH FROM ANTENNA TO SPEAKER.



WIRING DIAGRAM (BOTTOM VIEW)

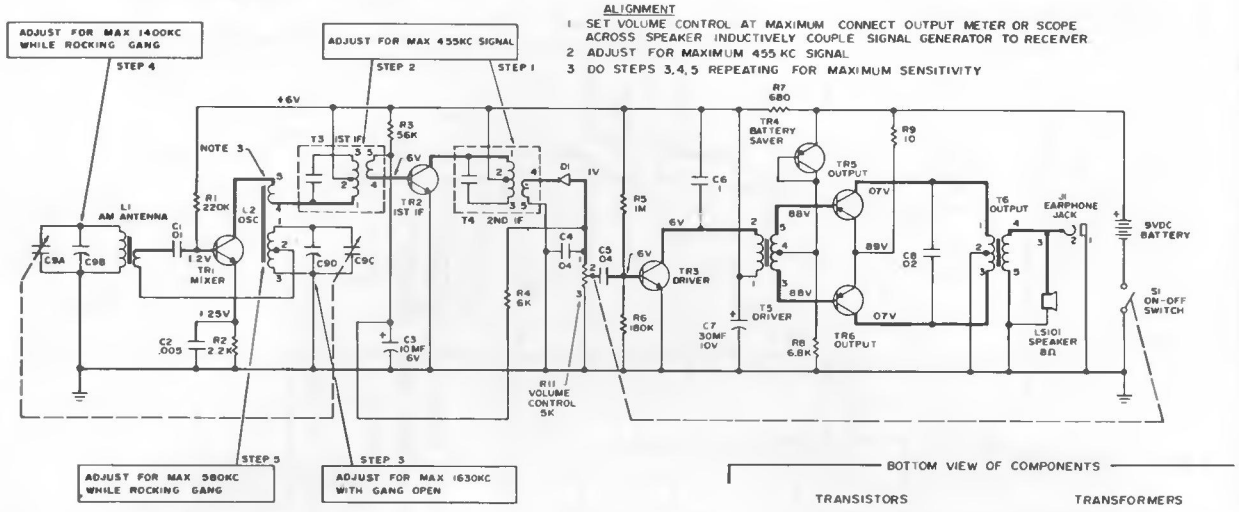


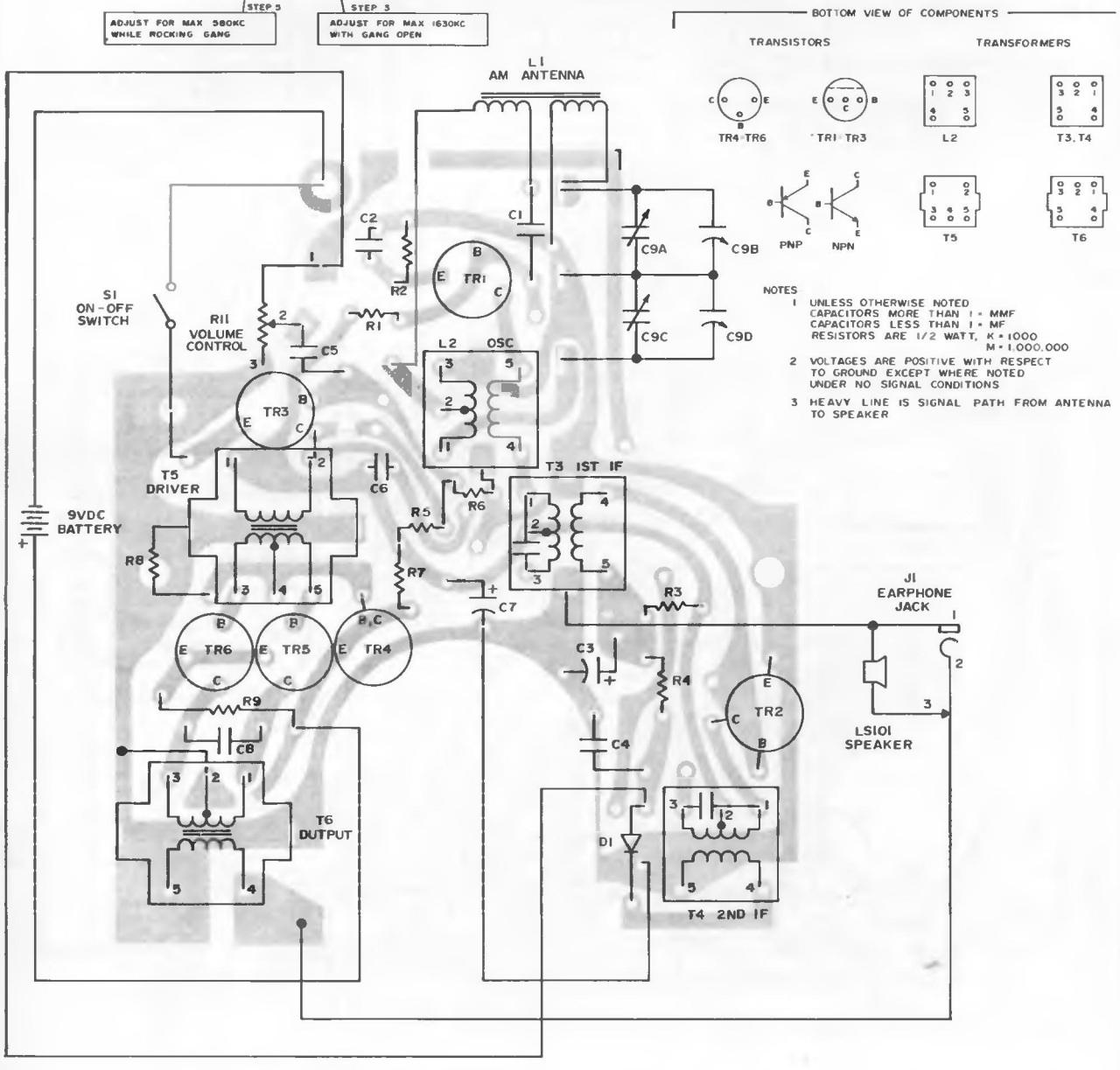


WIRING DIAGRAM (BOTTOM VIEW)

GENERAL ELECTRIC

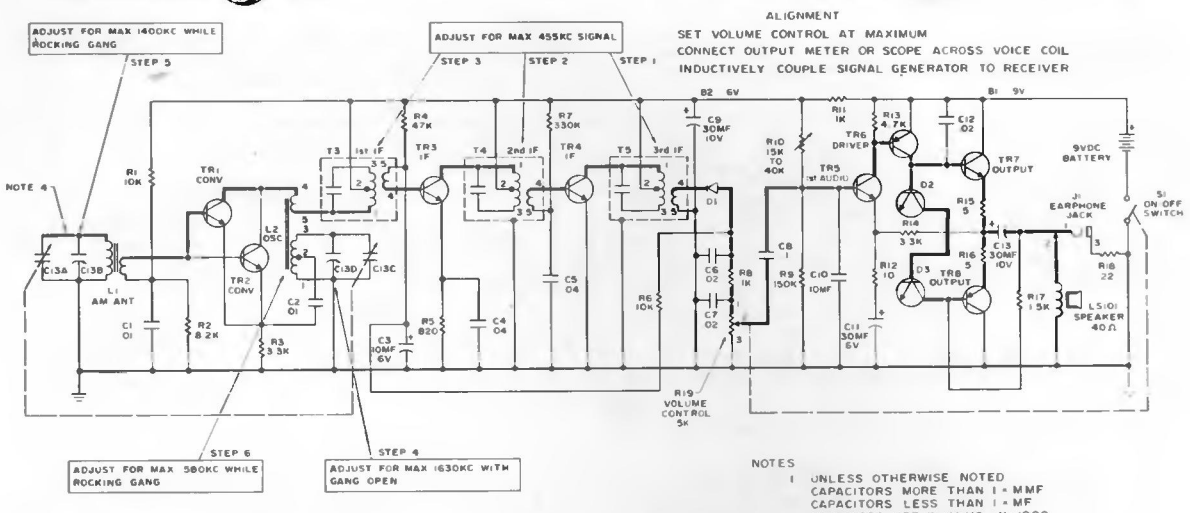
P1755A





WIRING DIAGRAM (BOTTOM VIEW)

GENERAL ELECTRIC P1760A; P1761A



NOTES

1. UNLESS OTHERWISE NOTED
   CAPACITORS MORE THAN 1 = MMF
   CAPACITORS LESS THAN 1 = MF
   RESISTORS ARE IN OHMS, K = 1000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM

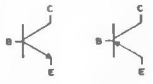
TRANSISTOR VOLTAGES

TR	C	B	E
1	6	2.7	2.15
2	6	2.7	2.15
3	6	1.0	.33
4	6	.7	0
5	8.4	5.4	4.9
6	4.8	8.4	9
7	9	4.8	4.3
8	0	3.5	4.2

BOTTOM VIEW OF COMPONENTS

TRANSISTORS

TRANSFORMERS



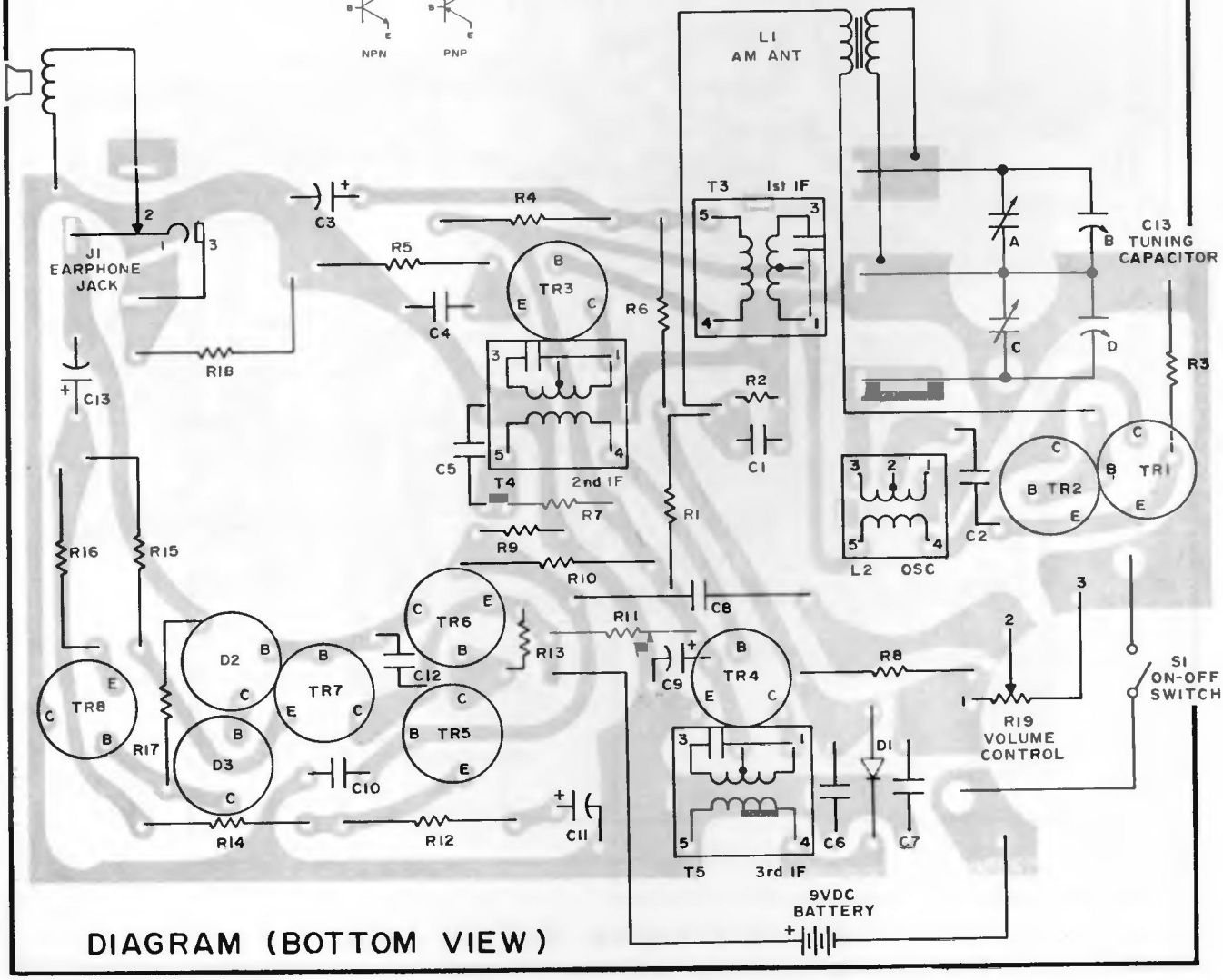


DIAGRAM (BOTTOM VIEW)

GENERAL ELECTRIC

MODELS P1780, P1781, P1782

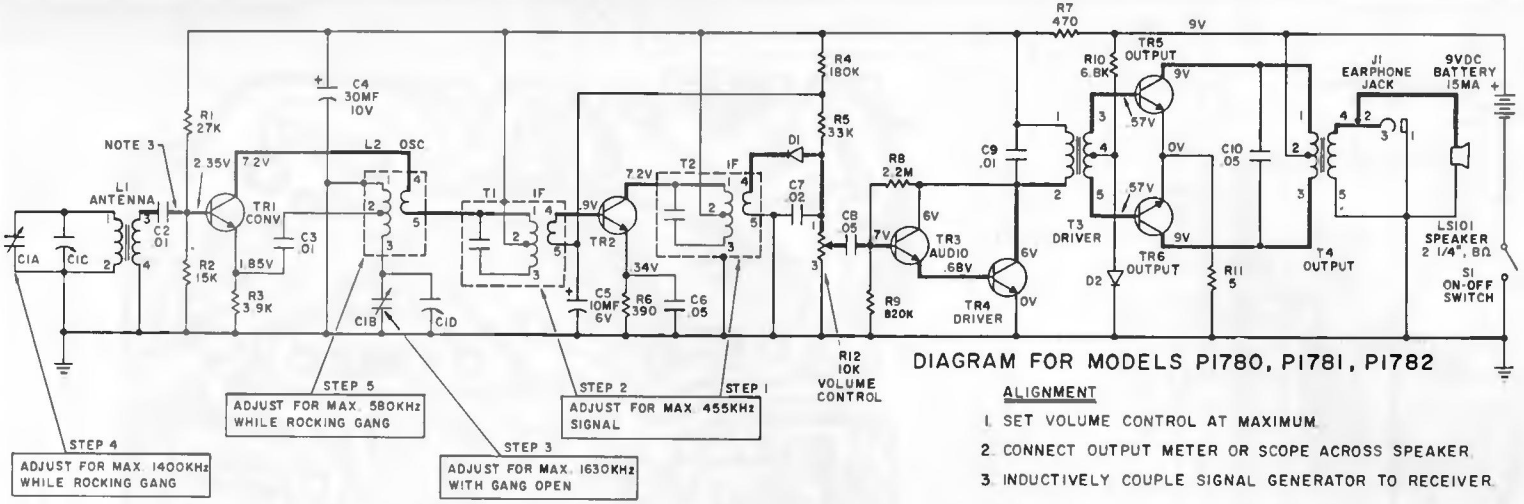
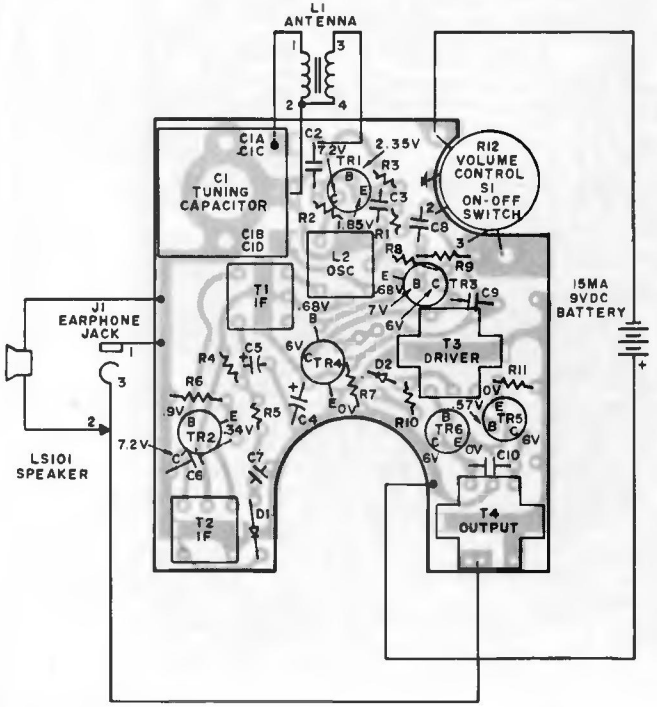


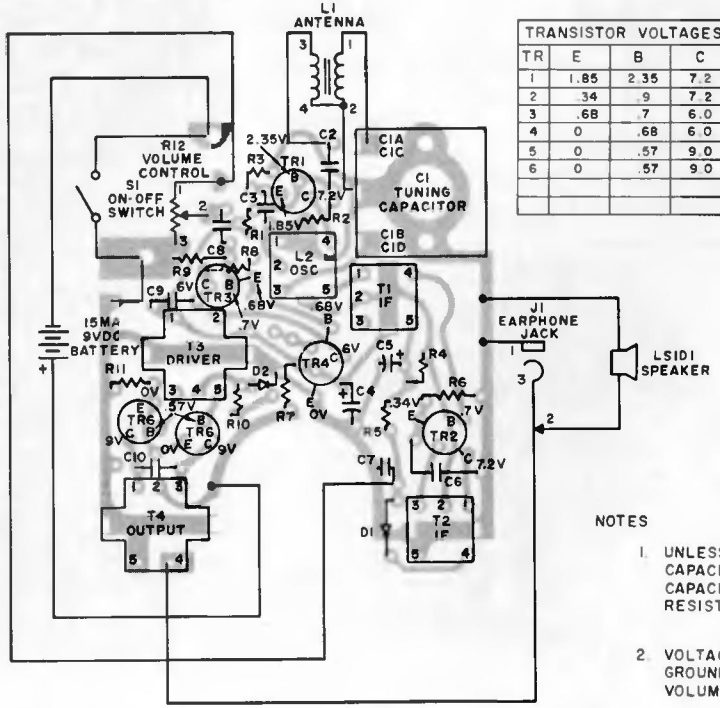
DIAGRAM FOR MODELS P1780, P1781, P1782

ALIGNMENT

1. SET VOLUME CONTROL AT MAXIMUM.
2. CONNECT OUTPUT METER OR SCOPE ACROSS SPEAKER.
3. INDUCTIVELY COUPLE SIGNAL GENERATOR TO RECEIVER.



COMPONENT LAYOUT (TOP VIEW)

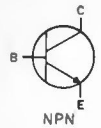


WIRING DIAGRAM (BOTTOM VIEW)

TRANSISTOR VOLTAGES			
TR	E	B	C
1	1.85	2.35	7.2
2	.34	.9	7.2
3	.68	.7	6.0
4	0	.68	6.0
5	0	.57	9.0
6	0	.57	9.0

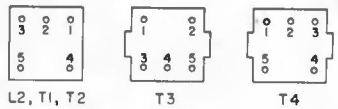
BOTTOM VIEW OF COMPONENTS

TRANSISTORS



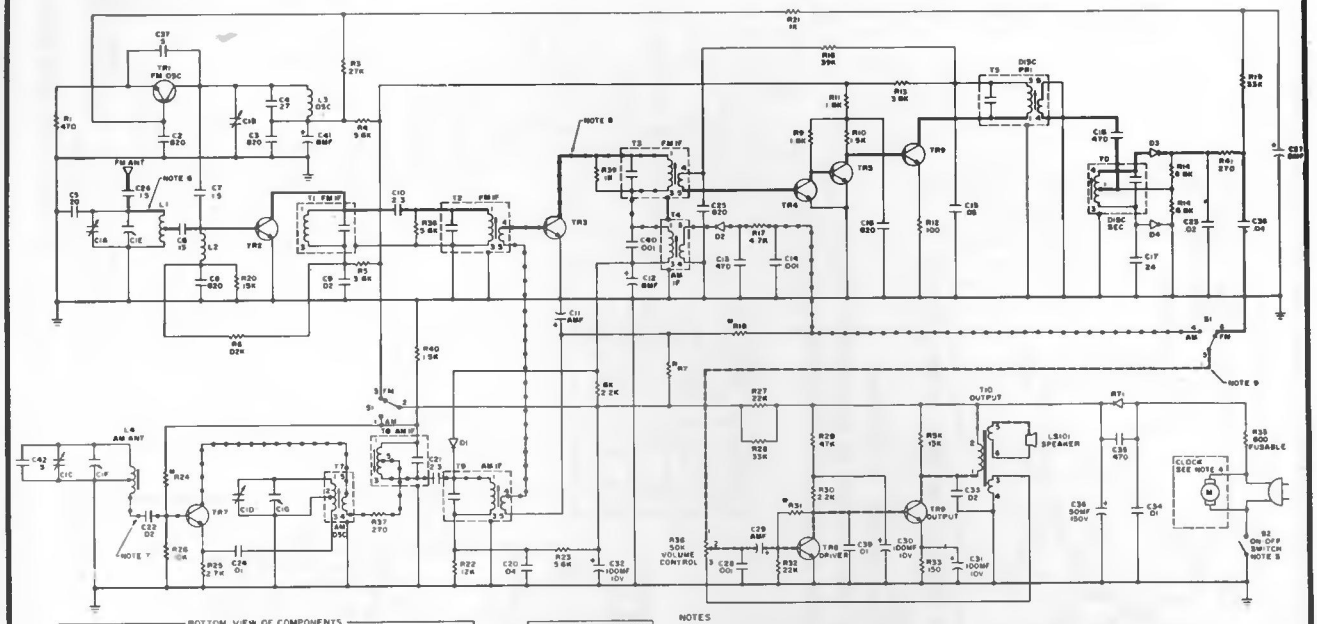
NPN

TRANSFORMERS



NOTES

1. UNLESS OTHERWISE NOTED
   CAPACITORS LESS THAN 1 = MF
   CAPACITORS MORE THAN 1 = PF
   RESISTORS IN OHMS, K=1000
   M=1,000,000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM.
3. HEAVY LINE IS SIGNAL PATH FROM ANTENNA TO SPEAKER.



BOTTOM VIEW OF COMPONENTS

TRANSISTORS

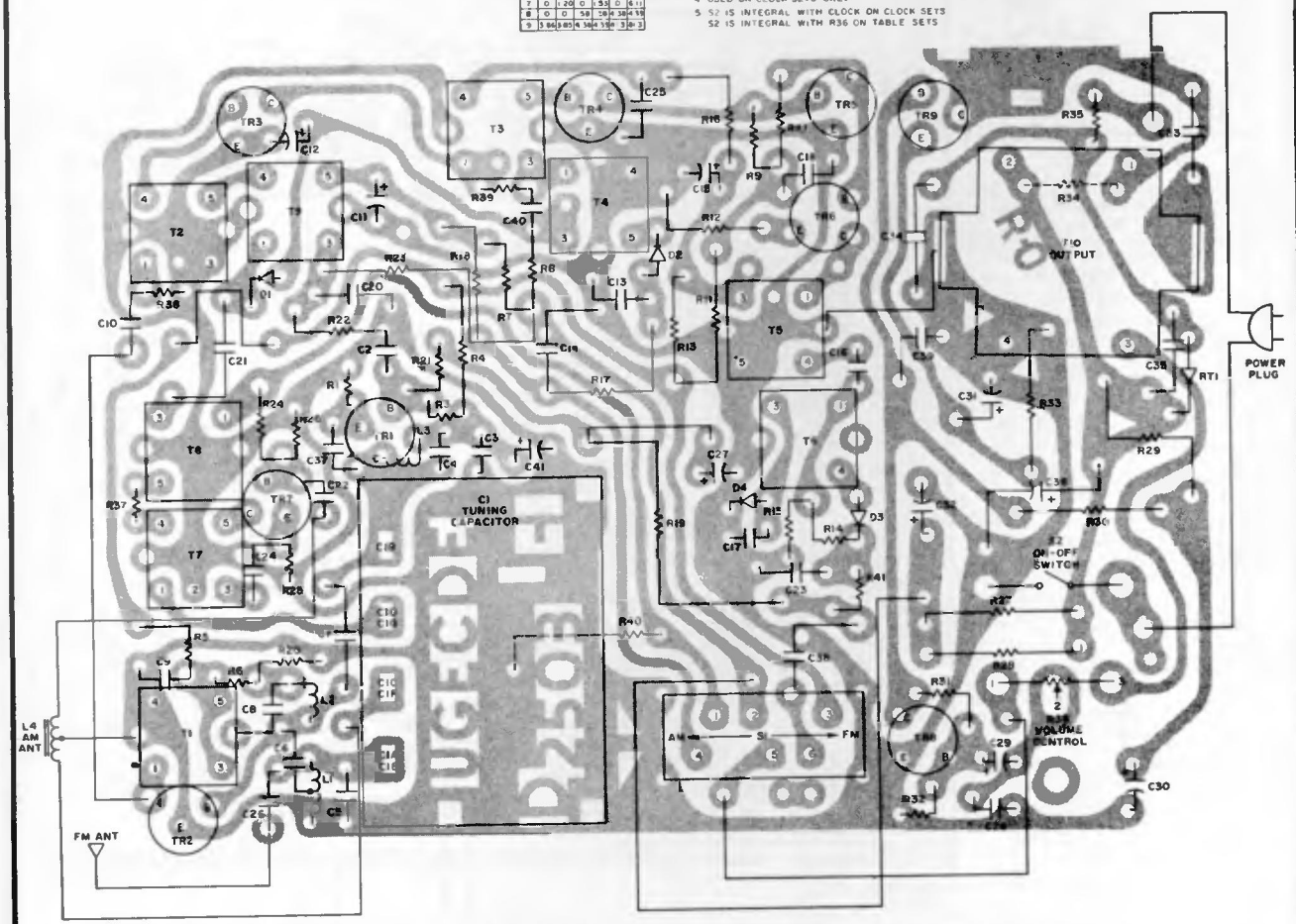
TRANSFORMERS

TRANSISTOR VOLTAGES

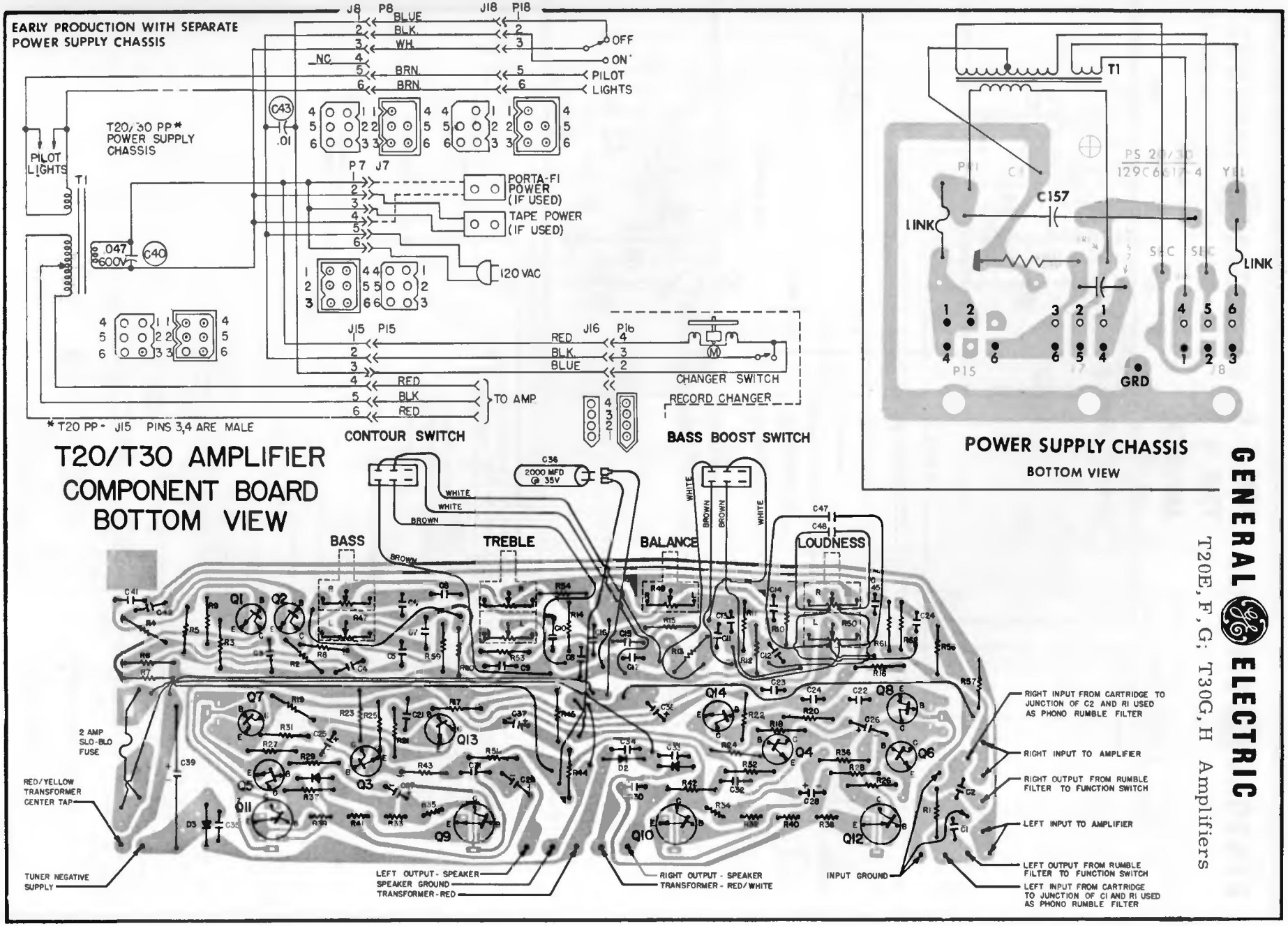
TR	E		B		C	
	FM	AM	FM	AM	FM	AM
1	51	0	87	0	2.44	0
2	0	0	67	0	5.26	0
3	0	0	73	72	5.70	5.60
4	0	0	73	0	7	0
5	0	0	7	0	8.1	0
6	1	0	61	0	2.53	0
7	0	1.20	0	1.53	0	6.11
8	0	0	58	58	4.38	4.38
9	3.86	3.85	4.36	4.35	3.8	3

NOTES

1. UNLESS OTHERWISE NOTED CAPACITORS LESS THAN 1 = MF CAPACITORS MORE THAN 1 = MMF RESISTORS IN OHMS, K=1000
2. VOLTAGES ARE POSITIVE WITH RESPECT TO GROUND UNDER NO SIGNAL CONDITIONS AND VOLUME CONTROL MINIMUM
3. REFER TO TRANSISTOR SUBSTITUTION CHART
4. USED ON CLOCK SETS ONLY
5. S2 IS INTEGRAL WITH CLOCK ON CLOCK SETS S2 IS INTEGRAL WITH R36 ON TABLE SETS
6. LINE SHOWN (▬) IS FM SIGNAL PATH FROM FM ANTENNA TO S1-6
7. LINE SHOWN (▬) IS AM SIGNAL PATH FROM AM ANTENNA TO S1-4
8. SIGNAL PATHS SUPERIMPOSED IN SOME AREAS (▬)
9. LINE SHOWN (▬) IS COMMON AUDIO PATH FROM S1-5 TO SPEAKER



WIRING DIAGRAM (BOTTOM VIEW)

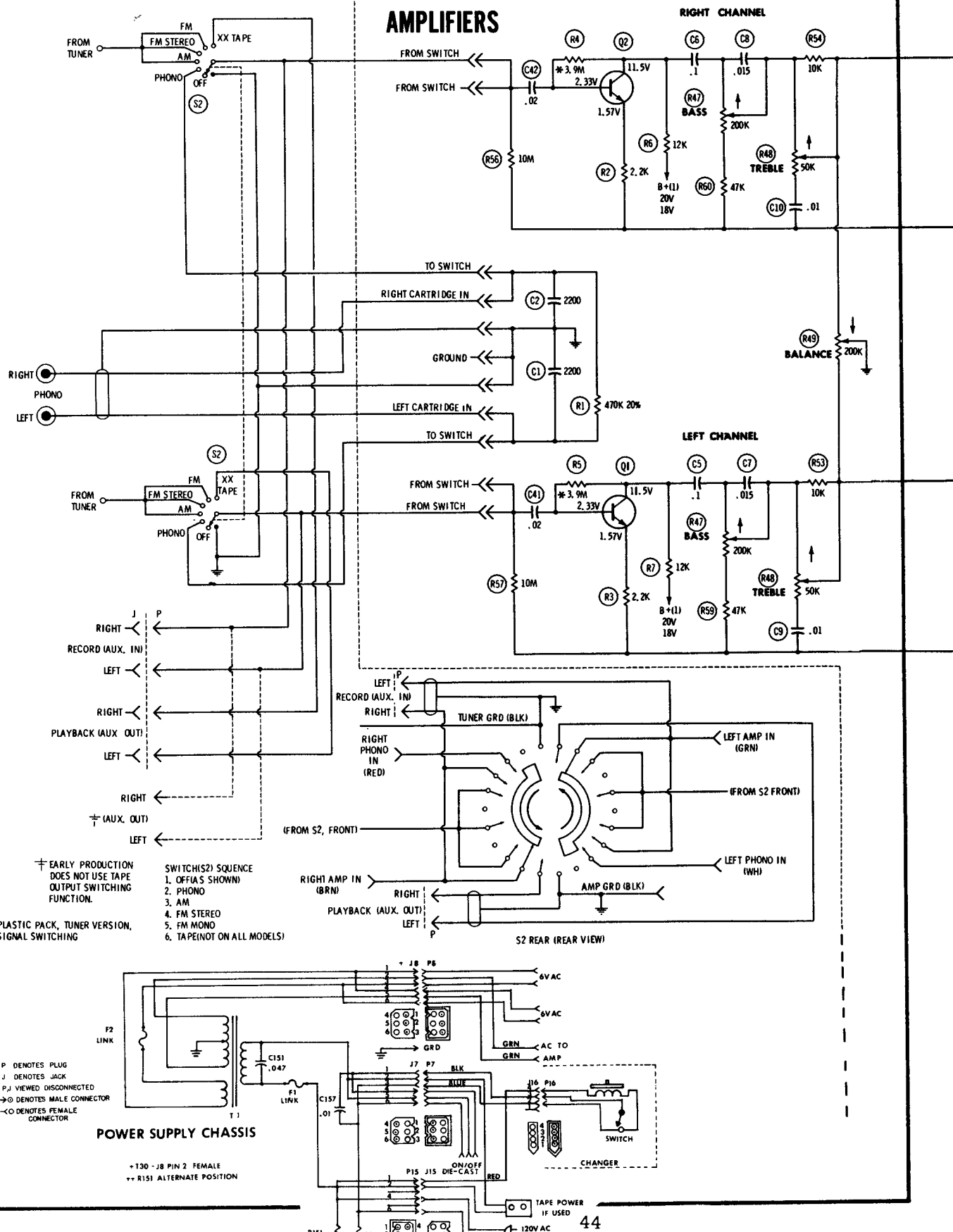


GENERAL ELECTRIC

T20E, F, G; T30G, H Amplifiers

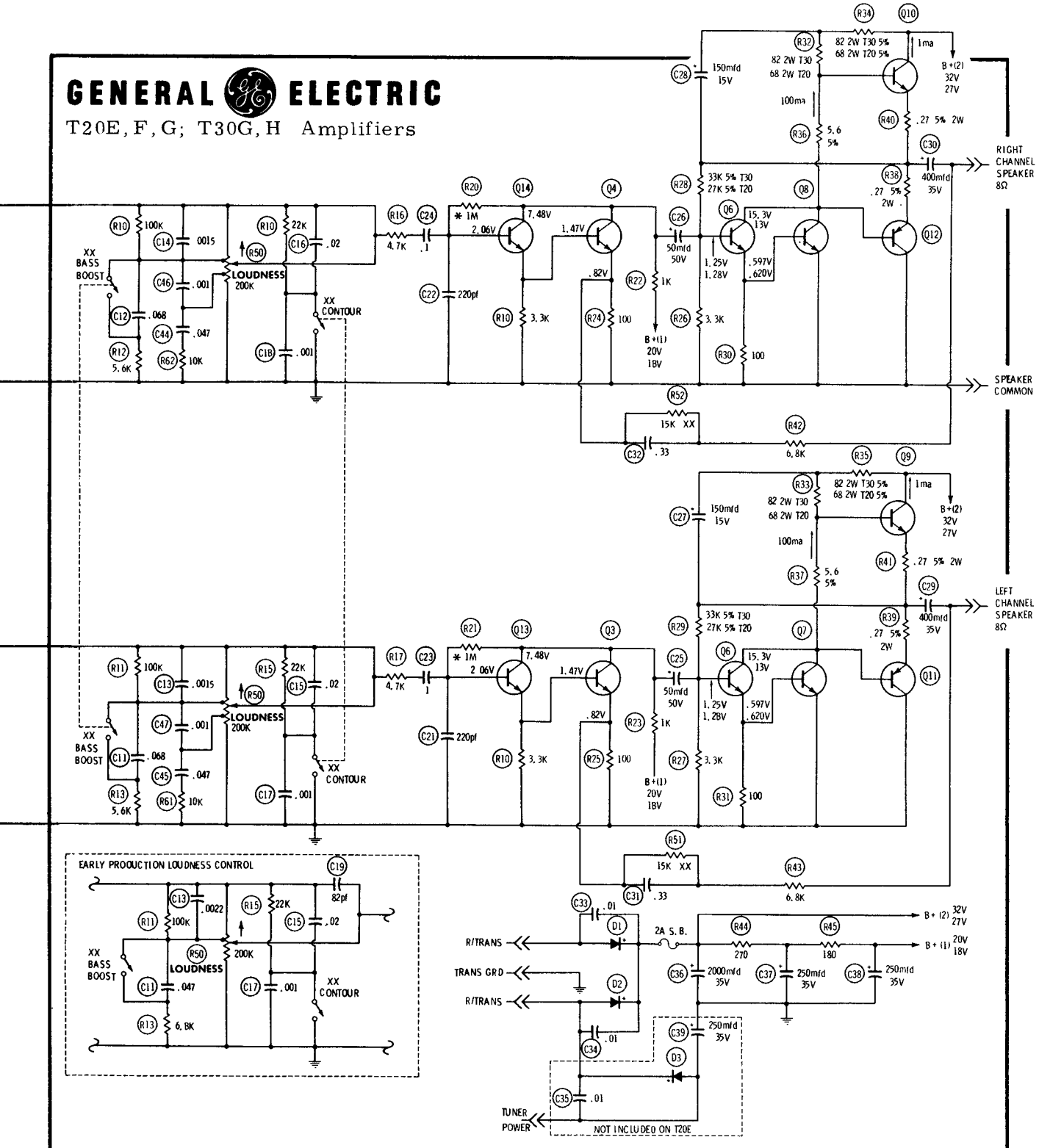
GENERAL ELECTRIC

T20E, F, G
T30G, H
AMPLIFIERS



GENERAL ELECTRIC

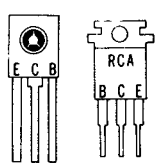
T20E, F, G; T30G, H Amplifiers



UNLESS OTHERWISE NOTED:

RESISTORS SHOWN ARE 1/2 WATT, 10%; K = 1000Ω; M = 1 MEGOHM.
CAPACITOR VALUES LESS THAN 1 IN mfd, MORE THAN 1 IN pf.
* DENOTES LOW NOISE TYPE RESISTOR.
P DENOTES PLUGS.
WHERE TWO VOLTAGES ARE SHOWN, THE UPPER READINGS ARE T30, LOWER READINGS ARE T20.
J DENOTES JACKS
MEASUREMENTS SHOWN MAY DEVIATE 10%.
ARROWS ON POTENTIOMETERS INDICATE CLOCKWISE ROTATION.

ALL VOLTAGES AND CURRENTS SHOWN ARE TYPICAL WITH NO SIGNAL APPLIED TO CIRCUIT
DC VOLTAGES MEASURED WITH 10 MEGOHM ELECTRONIC DC VOLTMETER.
LINE VOLTAGE MAINTAINED AT 120 VAC, 60 CYCLES.
XX DENOTES OMISSION ON SOME MODELS.
ARROW DENOTES TYPICAL NO SIGNAL CURRENT.
→ DENOTES MALE CONNECTOR.
← DENOTES FEMALE CONNECTOR



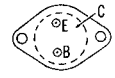
Q9, Q10

SILVER LEADS

GOLD LEADS

Q1 THRU Q6, Q13 AND Q14

Q7, Q8



Q11, Q12

GENERAL ELECTRIC TU200, TU205 AND TU210

SENSITIVITY:

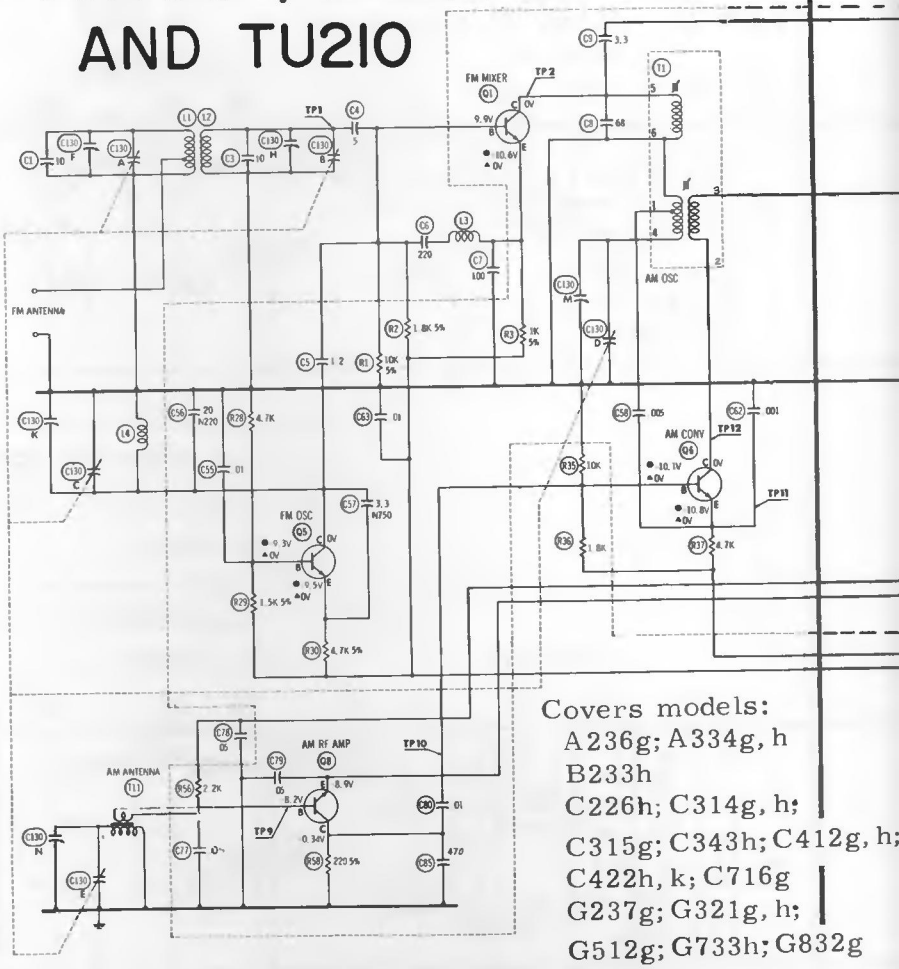
AM - 250 uv/m FM - 7 uv Antenna Voltage for 30db quieting	

TRANSISTOR COMPLIMENT:

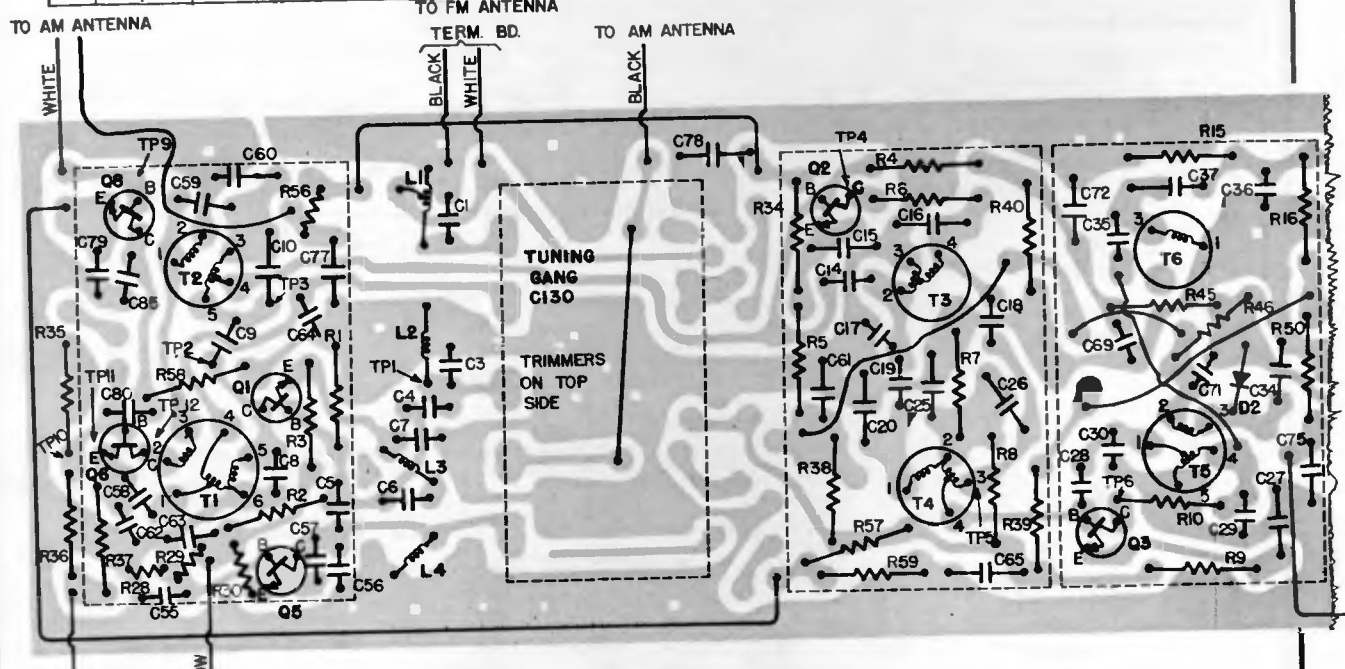
SYMBOL	DESCRIPTION
Q1	FM Mixer
Q2	1st FM IF, 1st AM IF
Q3	2nd FM IF, 2nd AM IF
Q4	3rd FM IF
Q5	FM Oscillator
Q6	AM Convertor
Q8	AM RF Amplifier
Q9,10	Voltage Regulator
Q11	Stereo Indicator Amp.
Q12	38 KC Doubler
Q13	19 KC Pilot Amplifier
Q14	Composite Stereo Amp.

SPECIFICATIONS

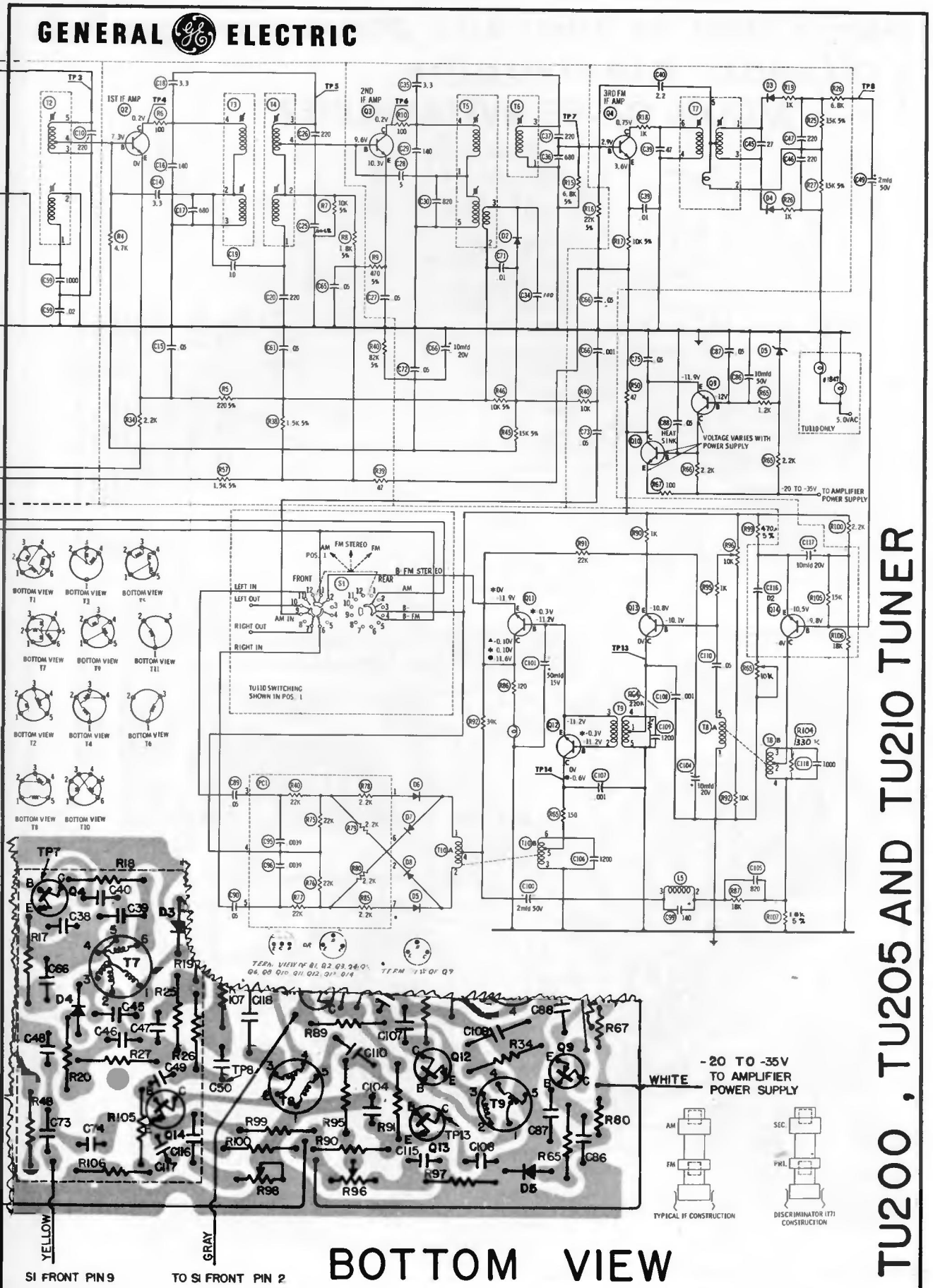
INPUT VOLTAGE RATING:	-22 Volts to -35 Volts @ 50ma
TUNING RANGE:	AM - 530 KC to 1630 KC FM - 88 MC to 108 MC
INTERMEDIATE FREQUENCIES:	AM - 455 KC FM - 10.7 MC
DIODES:	D1 - FM AGC D2,D3 - Discriminator D4 - AM Detector D5 - Voltage Regulator Zener D8,D9,D10,D11 - Stereo Detector
FM STEREO SEPARATION:	25db Minimum @ 1 KC
FM STEREO FREQUENCY:	50 cps to 15 KC



Covers models:
A236g; A334g, h
B233h
C226h; C314g, h;
C315g; C343h; C412g, h;
C422h, k; C716g
G237g; G321g, h;
G512g; G733h; G832g

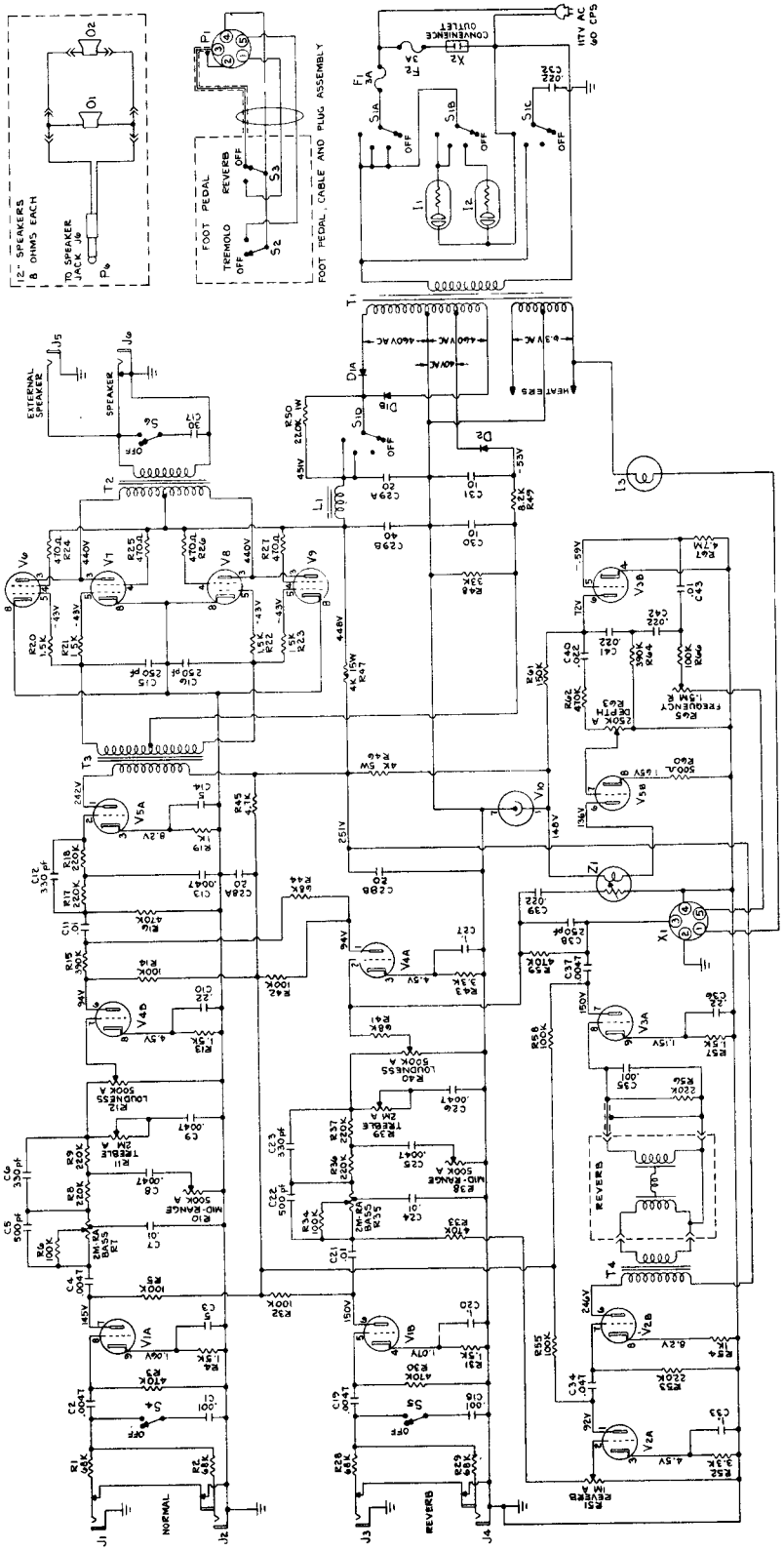


TUNER COMPONENT LAYOUT


GENERAL ELECTRIC
TU200 , TU205 AND TU210 TUNER
BOTTOM VIEW
1ST IF AMP
2ND IF AMP
3RD FM IF AMP
FM STEREO
AM
FRONT
REAR
LEFT IN
LEFT OUT
RIGHT OUT
RIGHT IN
AM IN
TU110 SWITCHING SHOWN IN POS. 1
VOLTAGE VARIES WITH POWER SUPPLY
HEAT SINK
TU110 ONLY
-20 TO -35V TO AMPLIFIER POWER SUPPLY
WHITE
-20 TO -35V TO AMPLIFIER POWER SUPPLY
YELLOW
SI FRONT PIN 9
GRAY
TO SI FRONT PIN 2
TYPICAL IF CONSTRUCTION
DISCRIMINATOR (T7) CONSTRUCTION

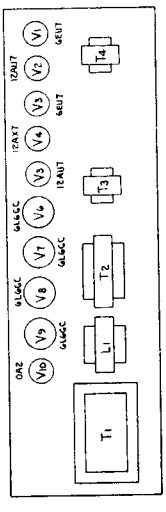
Gibson Electronics

MODEL GA-95 RVT AMPLIFIER

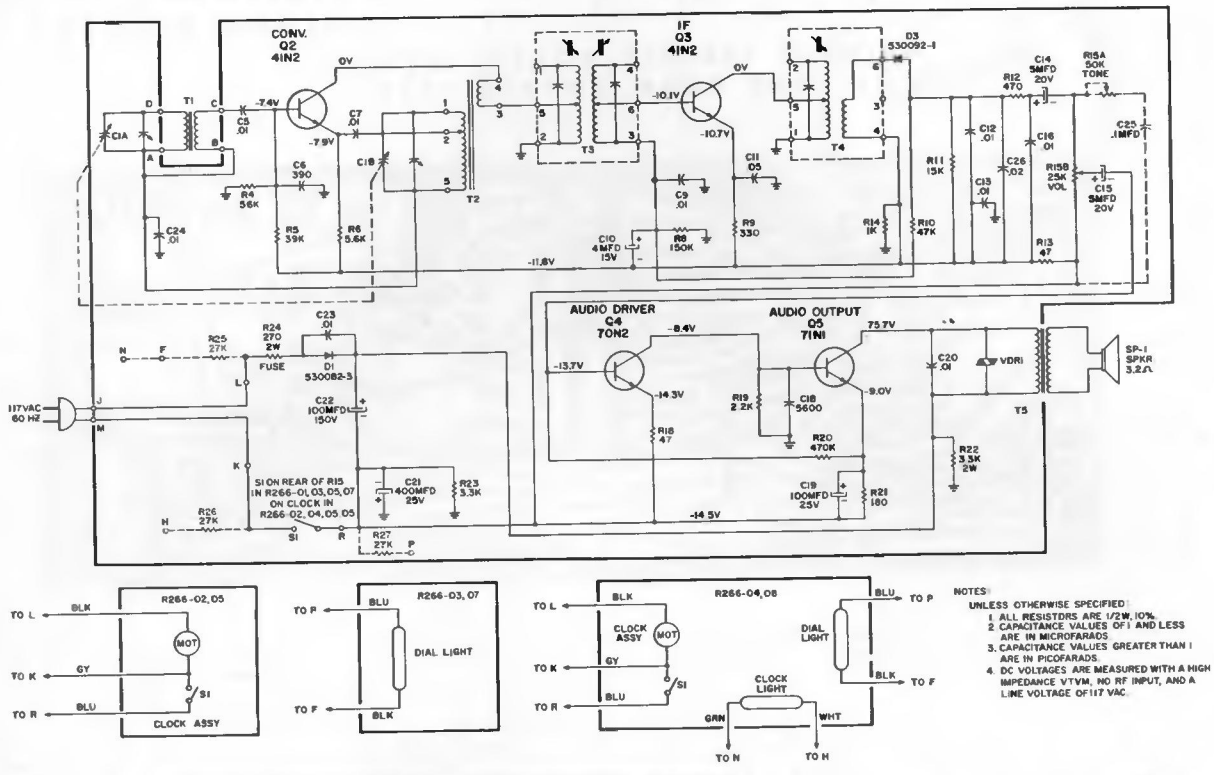


Parts list:

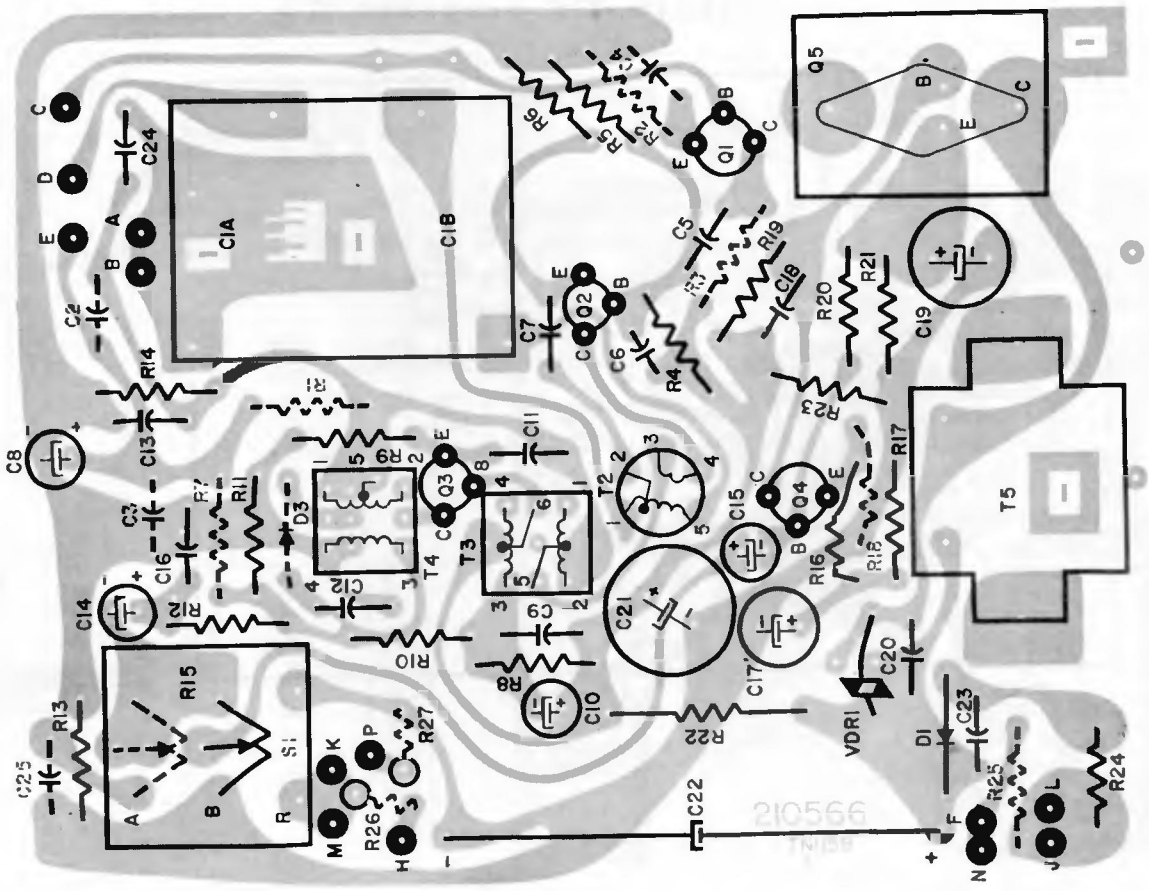
T1	Power Transformer	TF-103P	D1A,D1B	Diode - 1200 PIV	DI-57
T2	Output Transformer	TF-503-D	D2	Diode - 200 PIV	DI-405
T3	PP Driver Transformer	TF-1001D			
T4	Reverb Transformer	TF-854D0	X1	Foot Pedal Socket	CN-78P06-S
			X2	Convenience Outlet	CN-303
L1	Filter Choke	TF-1000C	R39	Control - 2 meg audio w/switch	CBA-4005-1
			R10,R12,R18,R40	Control - 500K audio	CBA-4007
S1A,B,C,D	Switch	SW-78A-1	RL3	Control - 250K audio	CBA-4008
S2	Switch SPST	SW-82A03	R11	Control - 2 meg audio	CBA-811-3702-1
S3	Switch SPDT	SW-82A22	R61	Control - 1 meg audio	CBA-811-3709-1
RL,S5	Switches DPDT Slide	SW-129	R65	Control - 1.5 meg, RA	CBA-811-3711-1
I1	Pilot Light (Red)	PL-37R	R7,R35	Control - 2 meg, RA	CBA-813-222-1
I2	Pilot Light (Amber)	PL-38A			
I3	Pilot Light (Red) w/clip	PL-34R	C1,C2	Speakers - 12" 8 ohms each	S-20011



Magnavox R266 SERIES AM RADIO CHASSIS

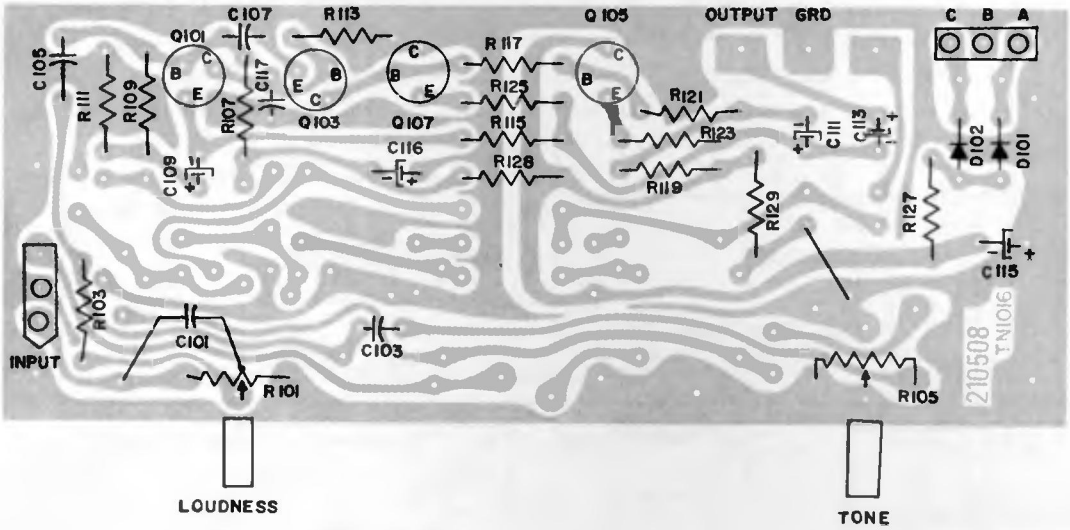


CIRCUIT BOARD LAYOUT
(VIEWED FROM COPPER SIDE)

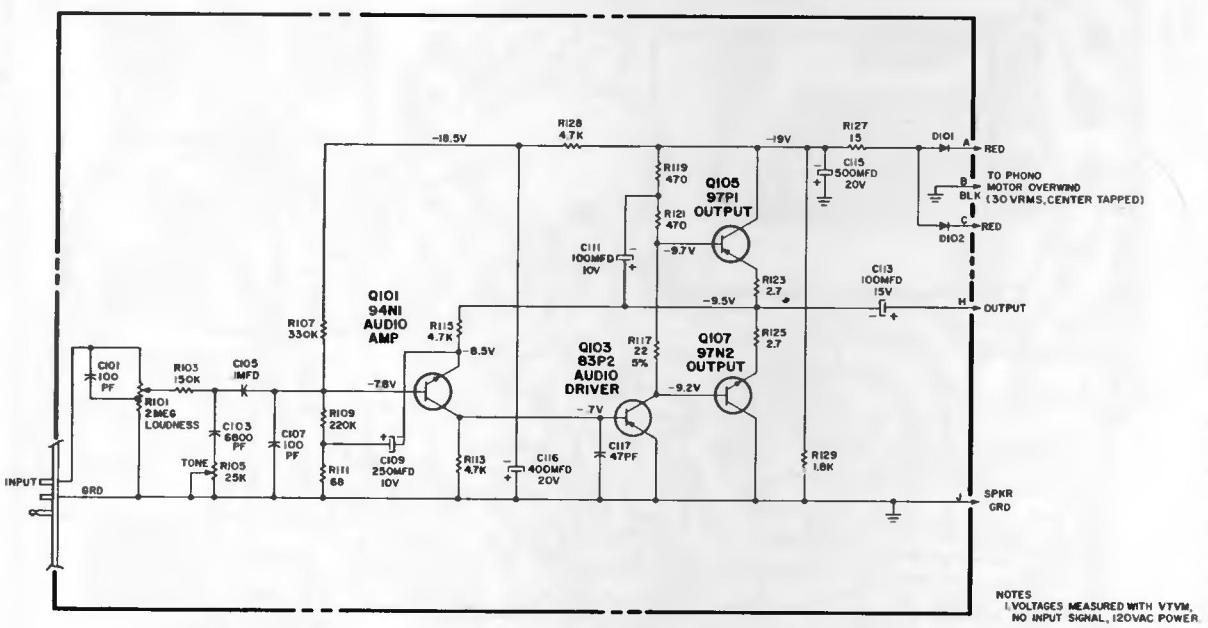


Intermediate Frequency 455 KHz

PRINTED CIRCUIT BOARD LAYOUT
(VIEWED FROM COPPER SIDE)

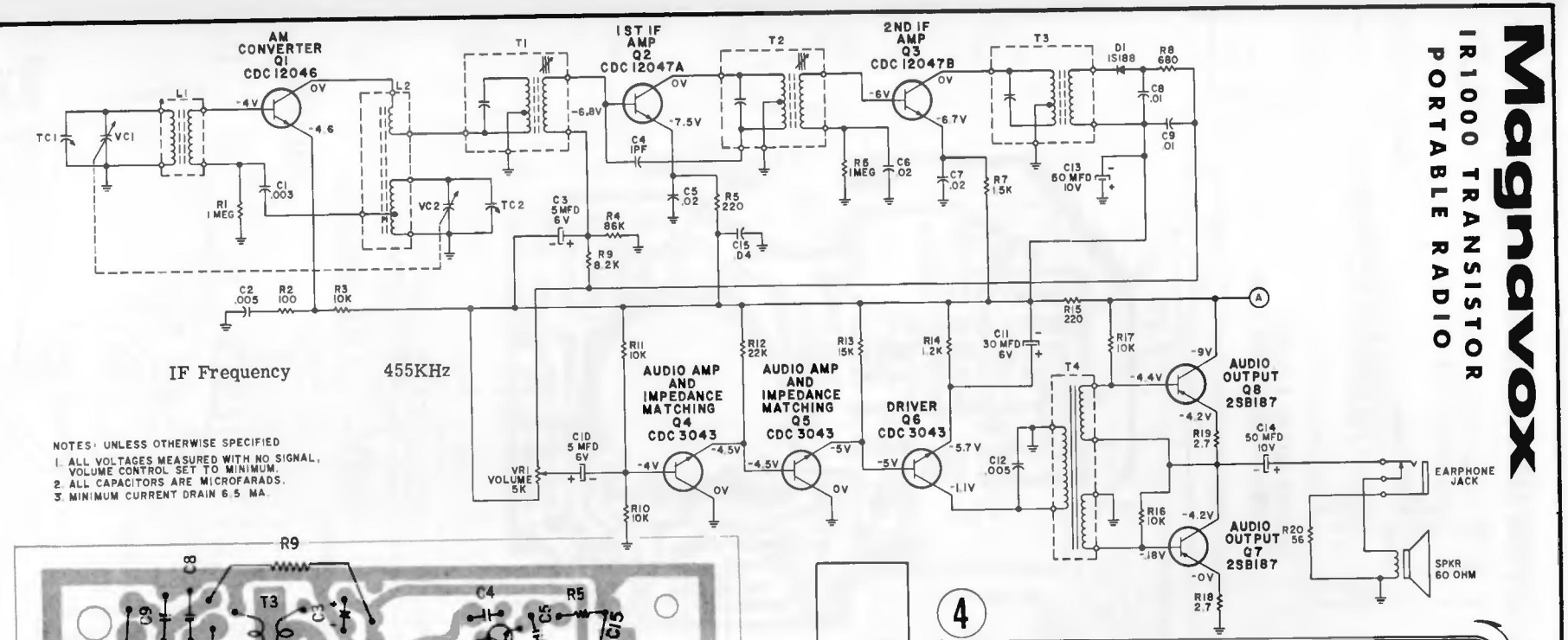


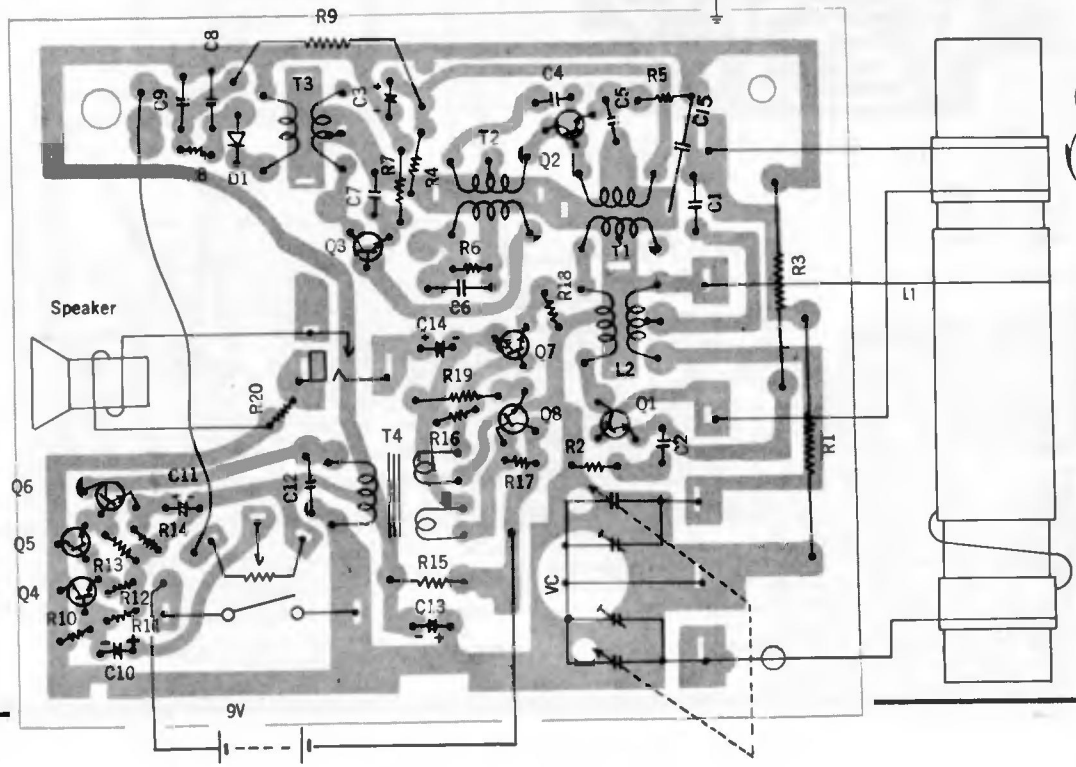
SCHEMATIC DIAGRAM

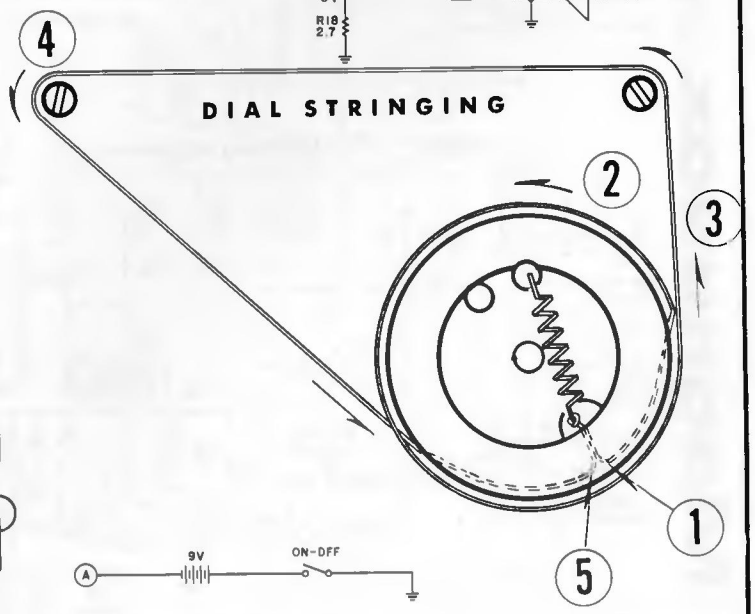


Magnavox

IR1000 TRANSISTOR PORTABLE RADIO

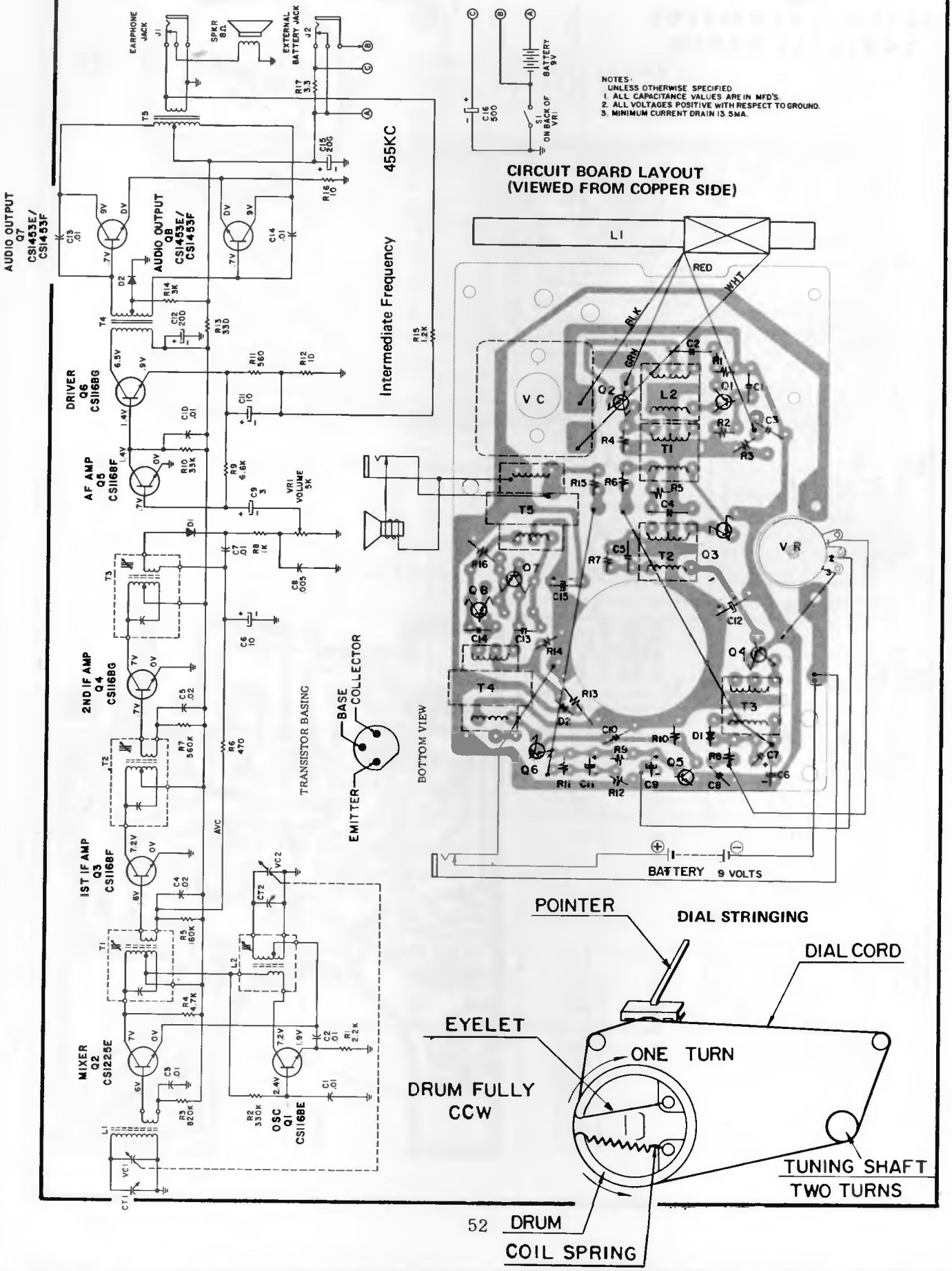






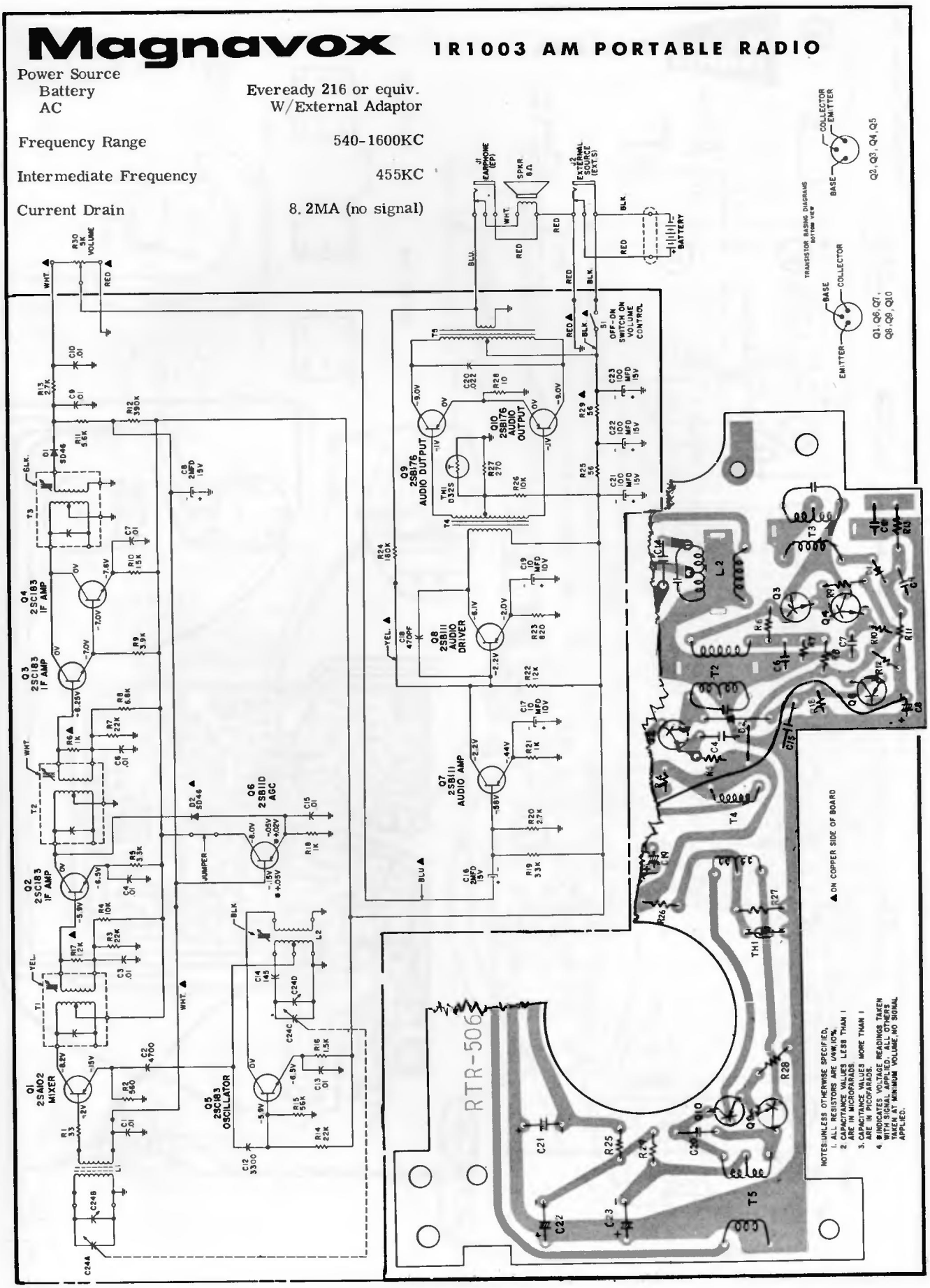
Magnavox

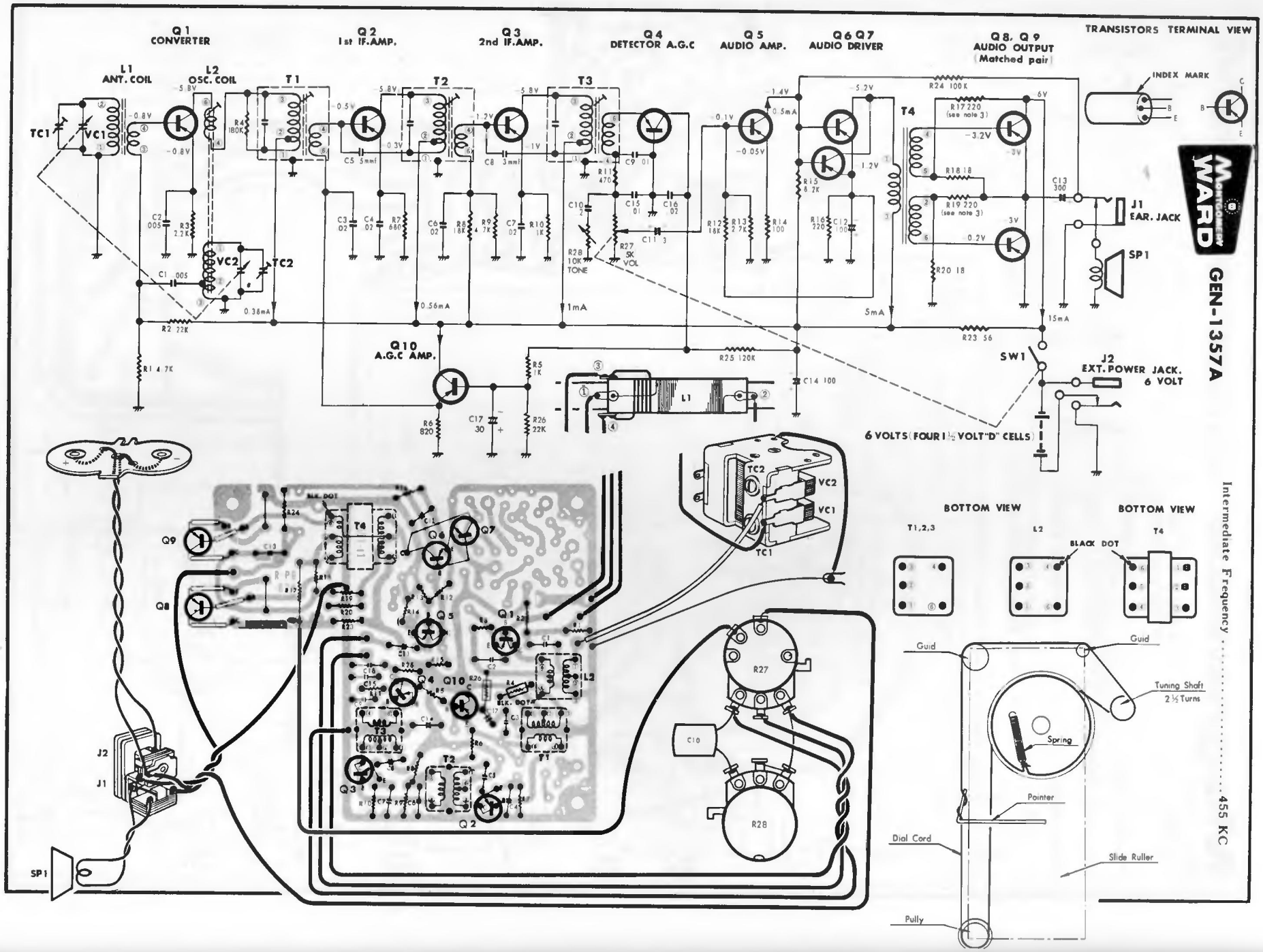
1R1002 AM SOLID-STATE RADIO



Magnavox 1R1003 AM PORTABLE RADIO

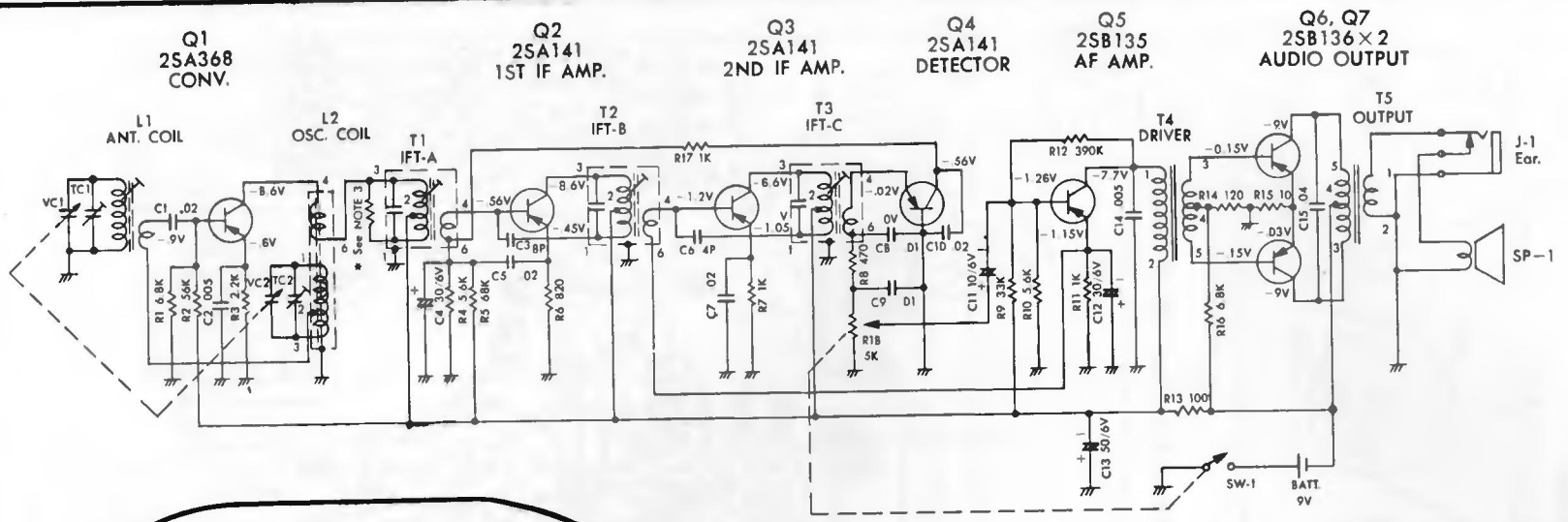
Power Source	
Battery	Eveready 216 or equiv.
AC	W/External Adaptor
Frequency Range	540-1600KC
Intermediate Frequency	455KC
Current Drain	8.2MA (no signal)

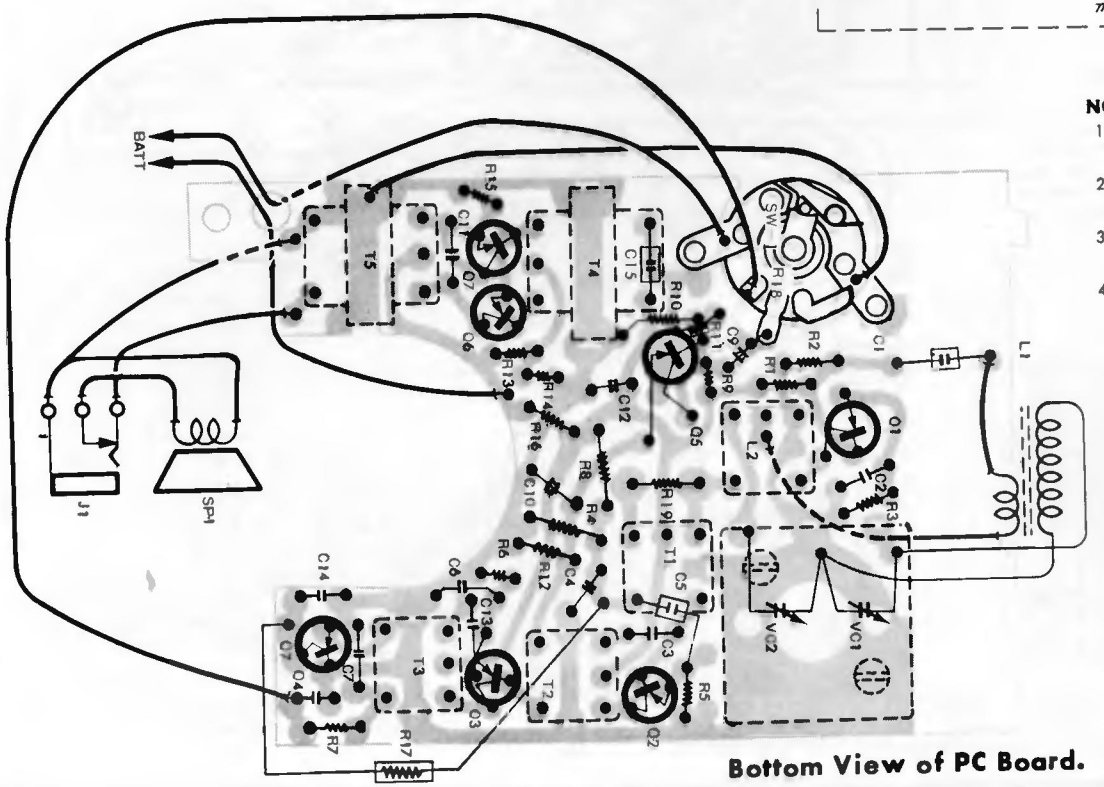



Q1 CONVERTER
Q2 1st IF.AMP.
Q3 2nd IF.AMP.
Q4 DETECTOR A.G.C
Q5 AUDIO AMP.
Q6 Q7 AUDIO DRIVER
Q8, Q9 AUDIO OUTPUT (Matched pair)
TRANSISTORS TERMINAL VIEW
L1 ANT. COIL
L2 OSC. COIL
T1
T2
T3
T4
TC1
VC1
TC2
VC2
Q10 A.G.C AMP.
INDEX MARK
J1 EAR. JACK
SP1
SW1
J2 EXT. POWER JACK. 6 VOLT
6 VOLTS (FOUR 1½ VOLT "D" CELLS)
GEN-1357A
BOTTOM VIEW
T1,2,3
L2
BLACK DOT
T4
Guid
Tuning Shaft 2½ Turns
Spring
Pointer
Dial Cord
Slide Ruller
Pully
Intermediate Frequency .....455 KC

MONTGOMERY WARD

MODEL GEN-1119A



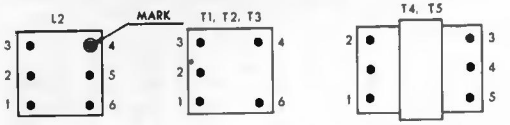


Bottom View of PC Board.

NOTE

1. All capacitance values are in Mfd unless otherwise specified. P = Mmfd.
2. All resistonce values are in ahms unless otherwise specified. K = 1000 ohms.
3. The following componenl moy have alternative values within the range shown. Rb from 100K ahm through 250K ohm.
4. Curent drain: Approx 8 mA

BOTTOM VIEW



TRANSISTOR CONNECTION

Q1 ~ Q7

IF 455 KC

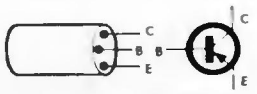
MONTGOMERY WARD

Model: GEN-1129A

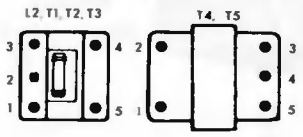
IF 455 KC

TRANSISTOR CONNECTION

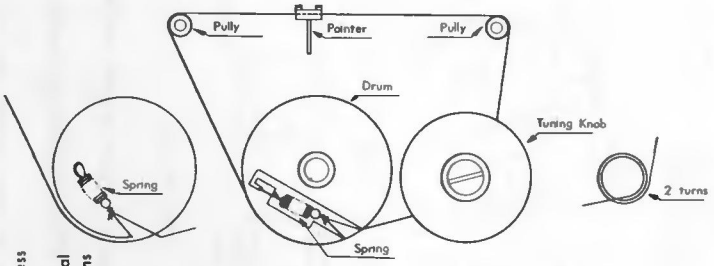
Q1 ~ 8



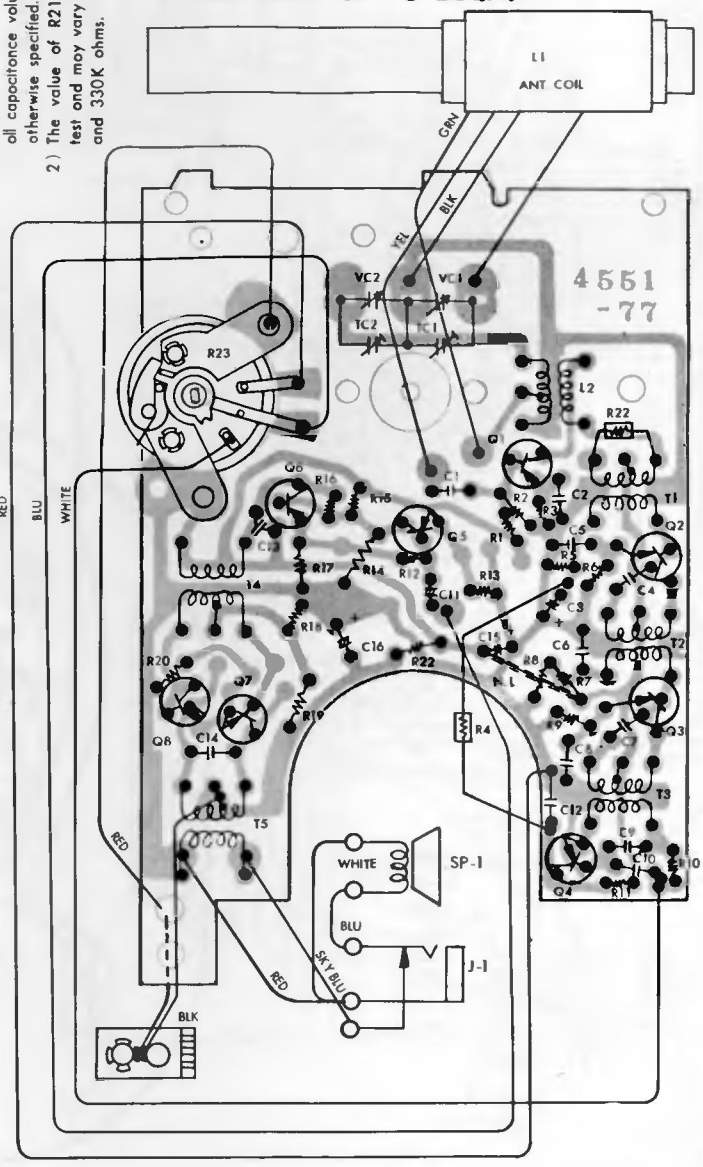
BOTTOM VIEW



Dial Cord Stringing.

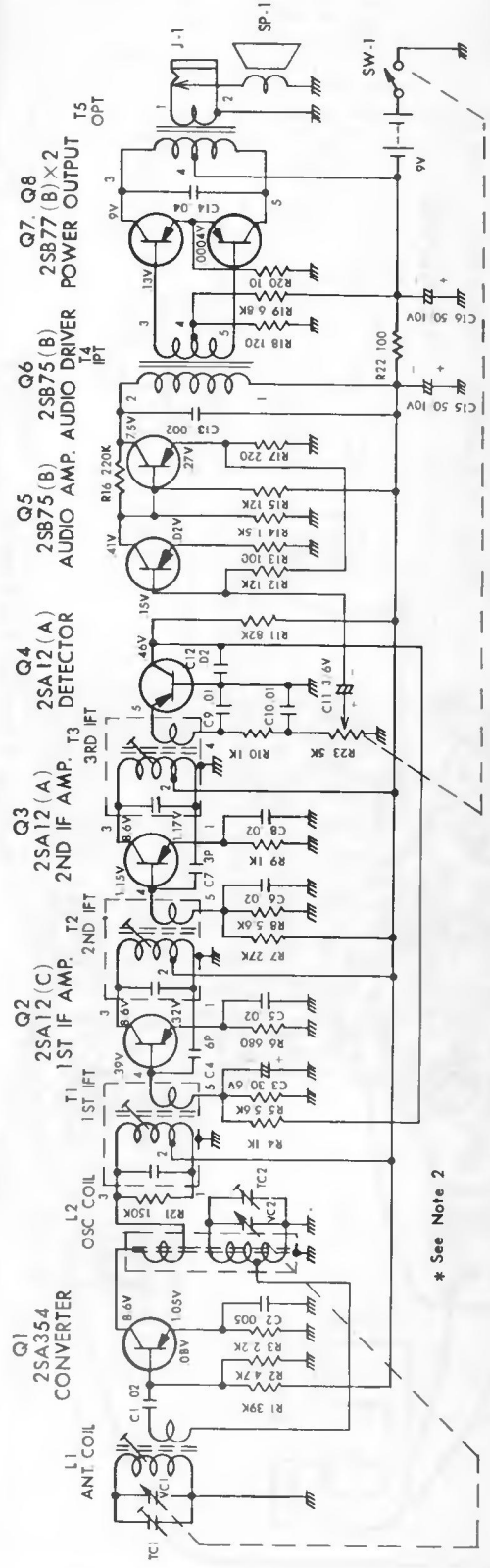


Bottom View of PC Board.



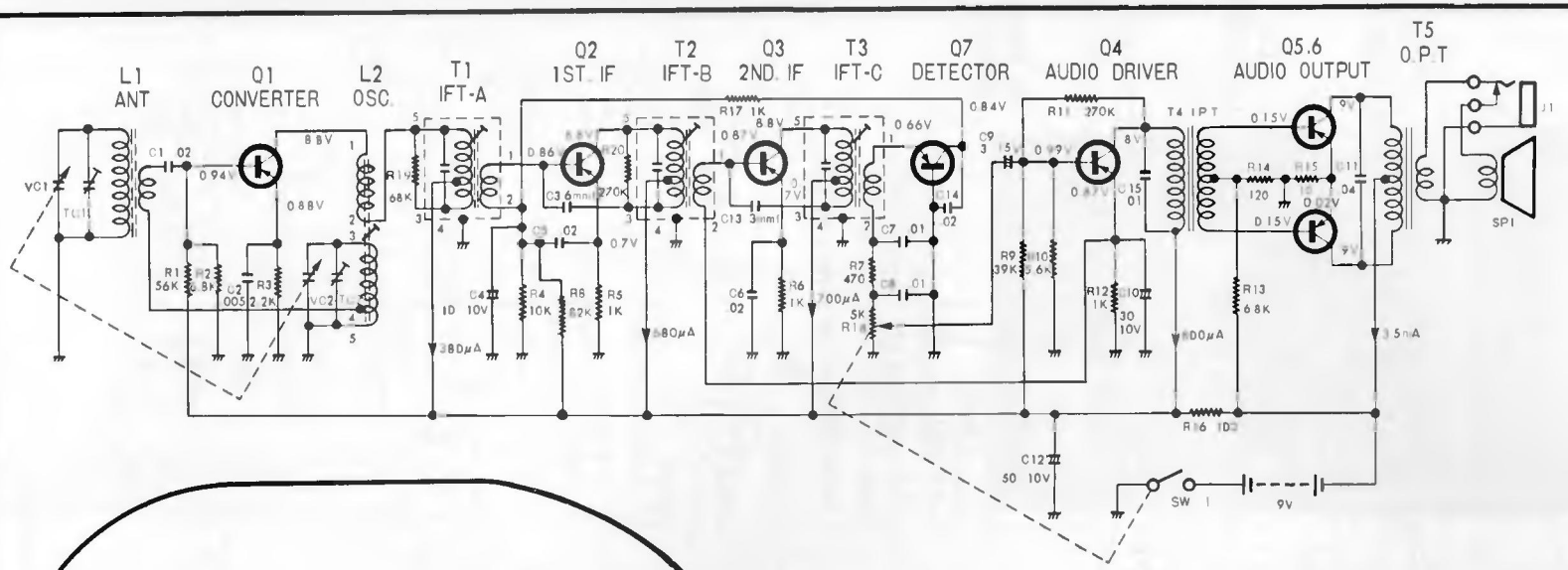
NOTES

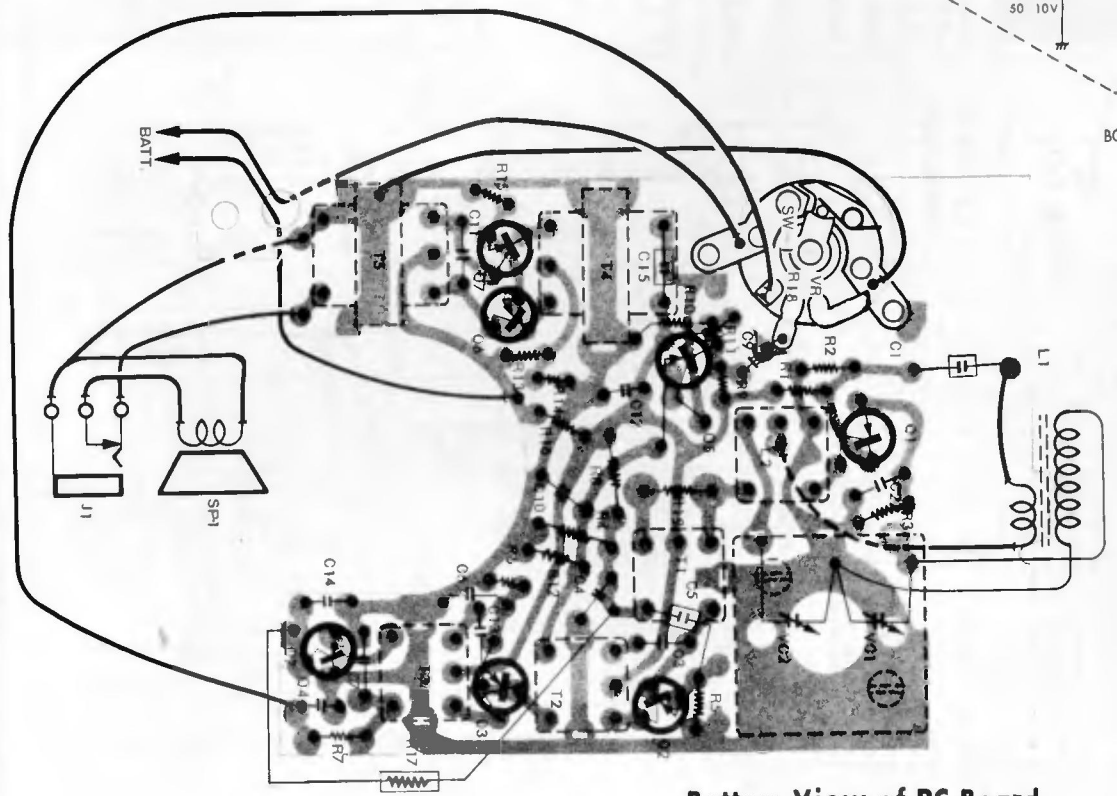
1) All resistance values are in ohms, all capacitance values are in MF unless otherwise specified.
2) The value of R21 is chosen in final test and may vary between 100K ohms and 330K ohms.



Montgomery WARD

MODELS
GEN-1158A GEN-1158B
GEN-1158C



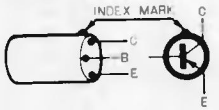


Bottom View of PC Board.

BOTTOM VIEW
L2

BOTTOM VIEW
T1 2 3

BOTTOM AND SIDE VIEW
01.2.3.4.5.6.7



NOTES:

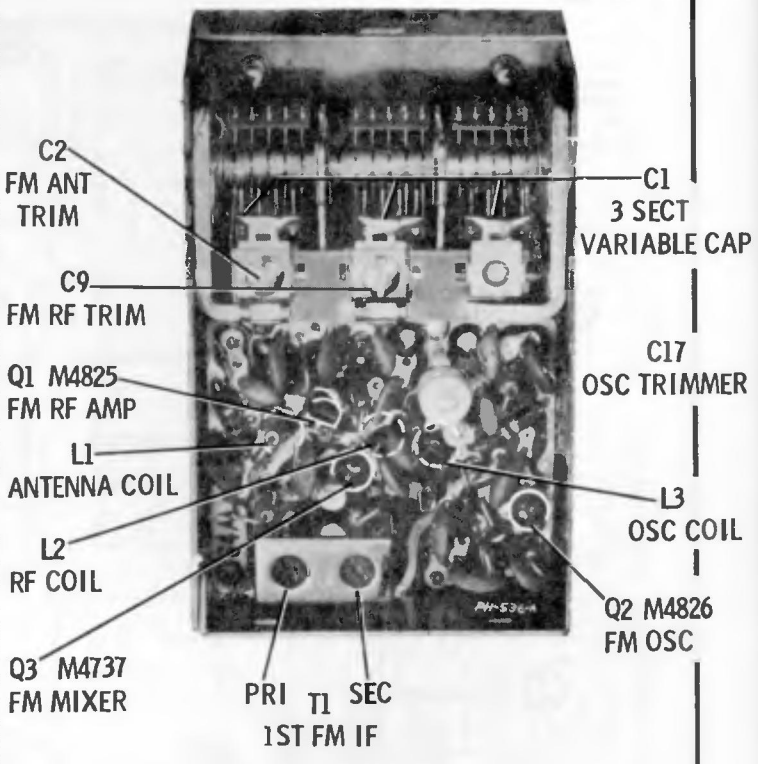
1) All resistance values are in ohms; all capacitance values are in MF unless otherwise specified.
2) Voltage measurements made with V.T.V.M. from indicated points to ground and with volume control at minimum, no signal input. Current measurement made at indicated points under the same conditions.
3) The following components may have alternate values within the ranges shown.
   R1 : from 47K ohm to 56K ohm
   R13 : from 6.8K ohm to 12K ohm
   R19 : from 82K ohm to 270K ohm
   R20 : from 180K ohm to ohm

IF 455 KC

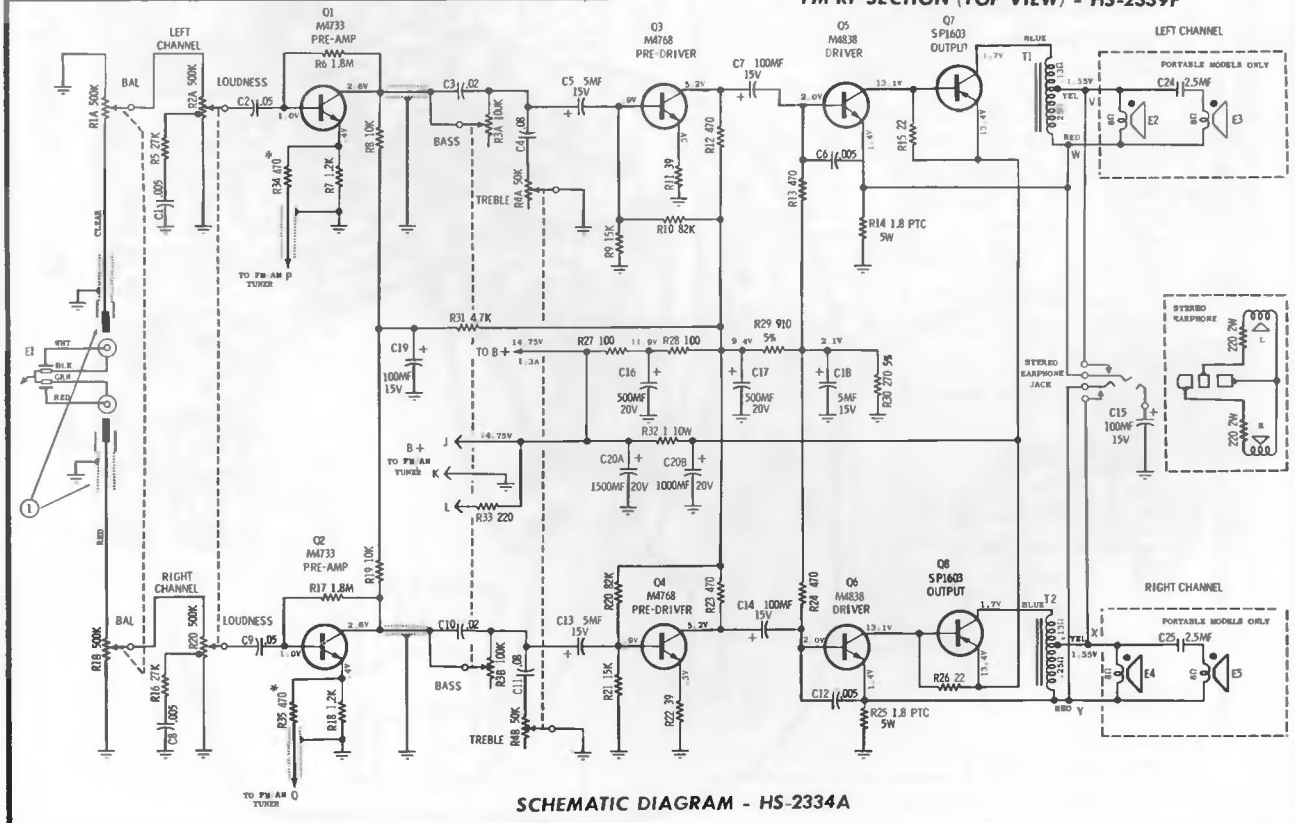
MOTOROLA MODELS PP207C, PP209C, PK403C, SK455C, SK456C, SK457C CHASSIS HS-2334A, HS-2339F, HS-2349C

(Continued on next two pages.)

MODEL NUMBER	PP 207C	PP 209C	PK 403C	SK 455C	SK 456C	SK 457C
CHANNELS	2	2	2	2	2	2
WATTS-MUSIC POWER OUTPUT	5	5	5	5	5	5
MOTOROLA 4-SPEED AUTOMATIC RECORD CHANGER	M 113RC	M 114RC	VM 124RC	VM 124RC	VM 119RC	VM 119RC
CARTRIDGE	Cer.	Cer.	Cer.	Cer.	Cer.	Cer.
STYLII	Saph.	Dia.	Dia.	Dia.	Dia.	Dia.
CHANGER COMPARTMENT LIGHT						
RECORD STORAGE			Yes	Yes	Yes	Yes
OUTPUT STAGE	S.E.	S.E.	S.E.	S.E.	S.E.	S.E.
LOUDNESS CONTROL	Yes	Yes	Yes	Yes	Yes	Yes
TONE CONTROL						
BASS AND TREBLE CONTROL	Yes	Yes	Yes	Yes	Yes	Yes
BALANCE CONTROL	Yes	Yes	Yes	Yes	Yes	Yes
TRANSFORMER POWER SUPPLY	Yes	Yes	Yes	Yes	Yes	Yes
ON-OFF INDICATOR				Yes	Yes	Yes
STEREO HEADPHONE JACK			Yes	Yes	Yes	Yes
TAPE INPUT AND OUTPUT JACKS				Yes	Yes	Yes
NOISE FILTER						
LDC/DIST. SWITCH				Yes	Yes	Yes
EXTENDED BASS						
FM MUTE						
NUMBER OF TRANSISTORS	8	8	8	21	21	21
45 R.P.M. SPINDLE AND STORAGE	Yes	Yes	Yes	Yes	Yes	Yes
TUNER CHASSIS				HS 2339F	HS 2339F	HS 2339F
AMPLIFIER CHASSIS	HS 2349C	HS 2349C	HS 2234	HS 2334	HS 2334	HS 2334
MODEL NUMBER	PP 207C	PP 209C	PK 403C	SK 455C	SK 456C	SK 457C



FM RF SECTION (TOP VIEW) - HS-2339F

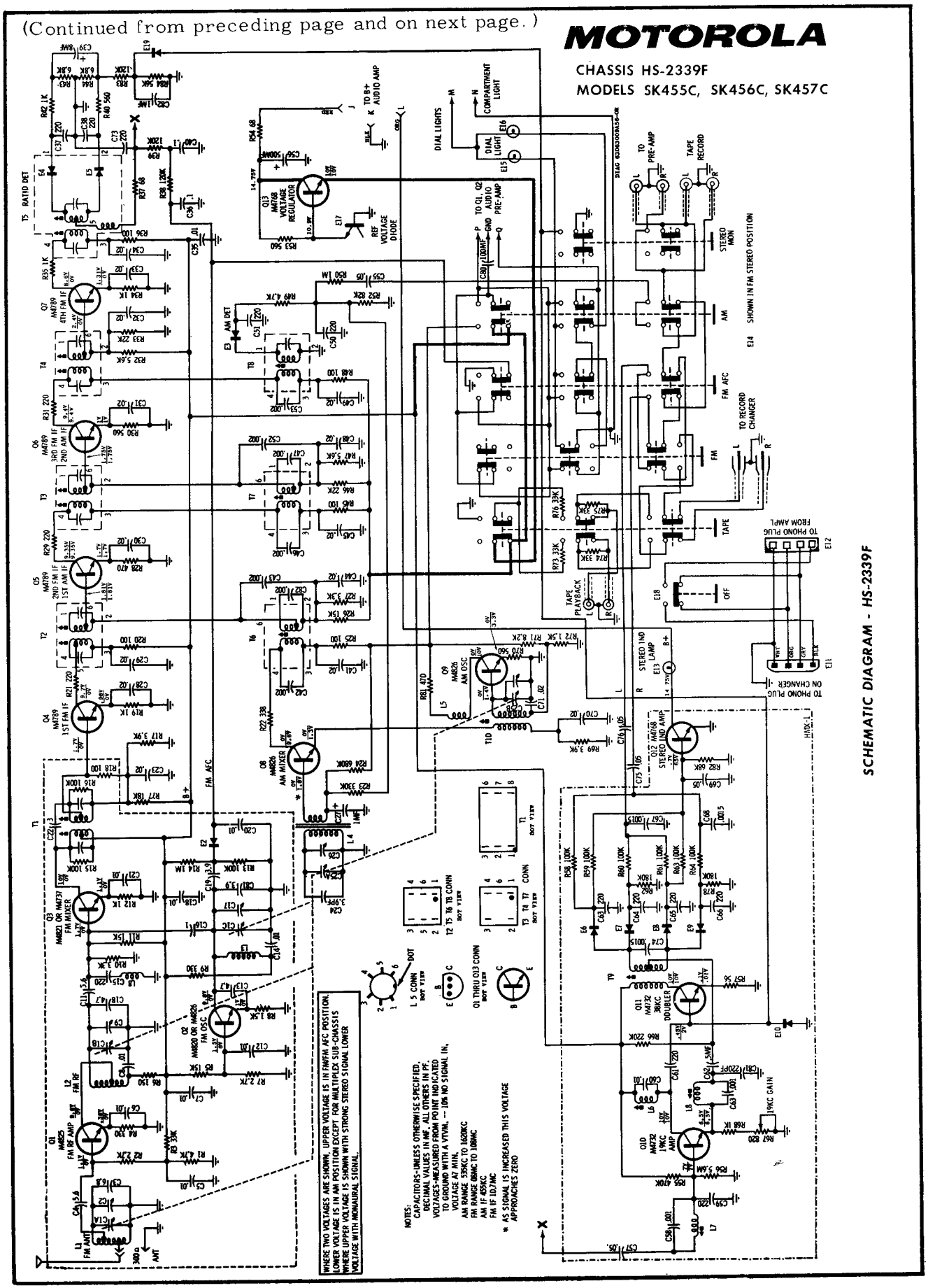


SCHEMATIC DIAGRAM - HS-2334A

(Continued from preceding page and on next page.)

MOTOROLA

CHASSIS HS-2339F
MODELS SK455C, SK456C, SK457C

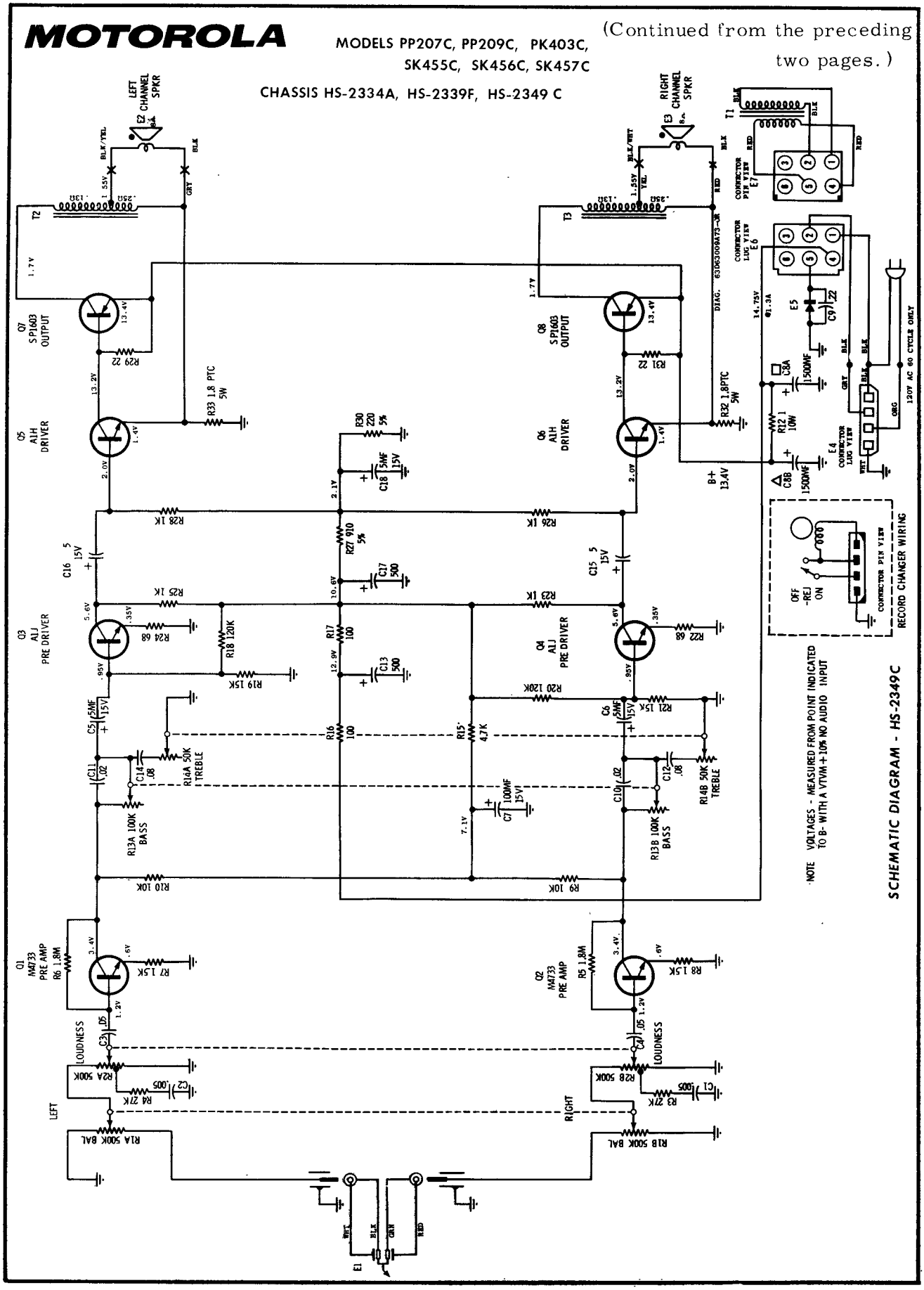


MOTOROLA

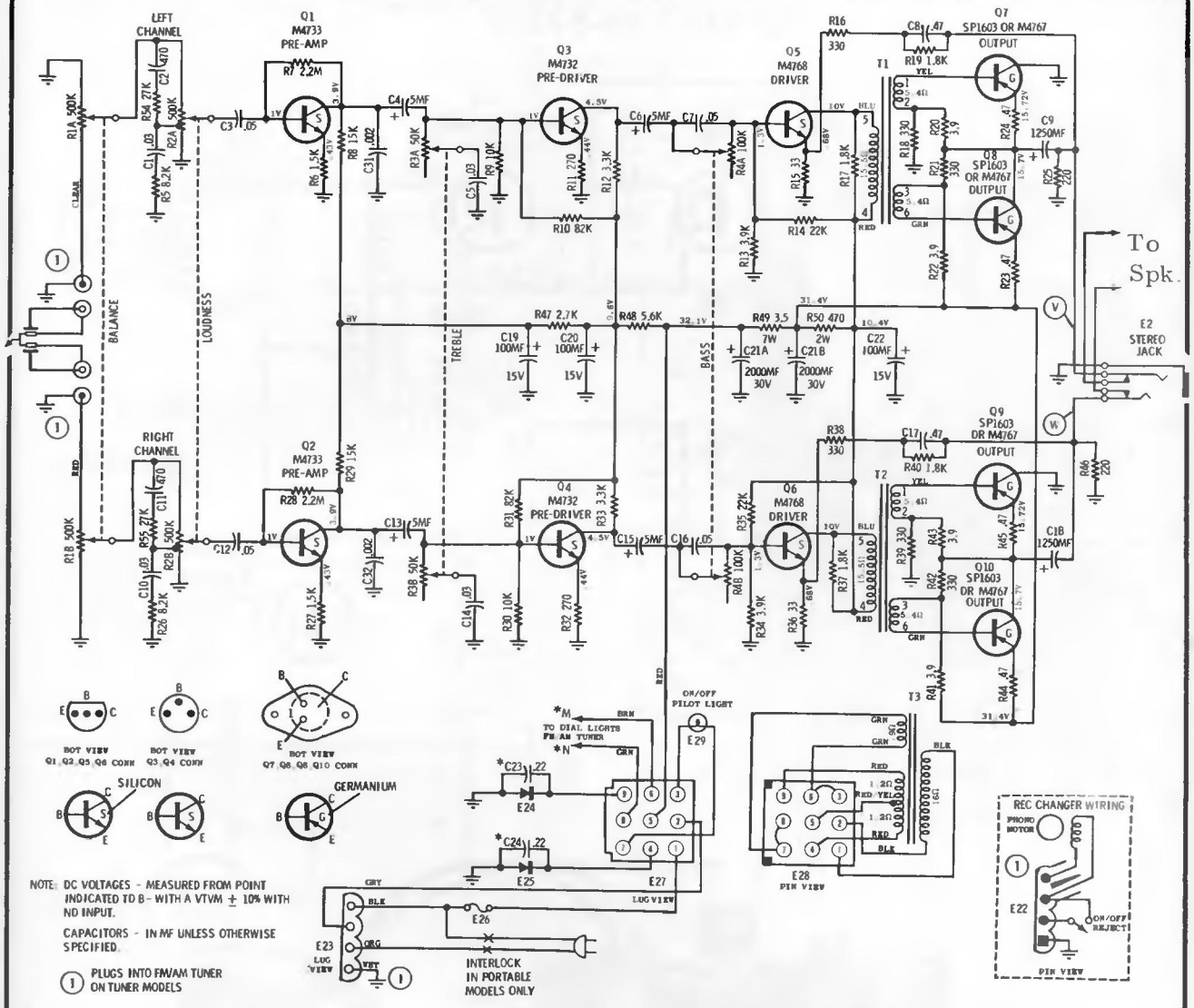
MODELS PP207C, PP209C, PK403C,
SK455C, SK456C, SK457C

CHASSIS HS-2334A, HS-2339F, HS-2349 C

(Continued from the preceding two pages.)



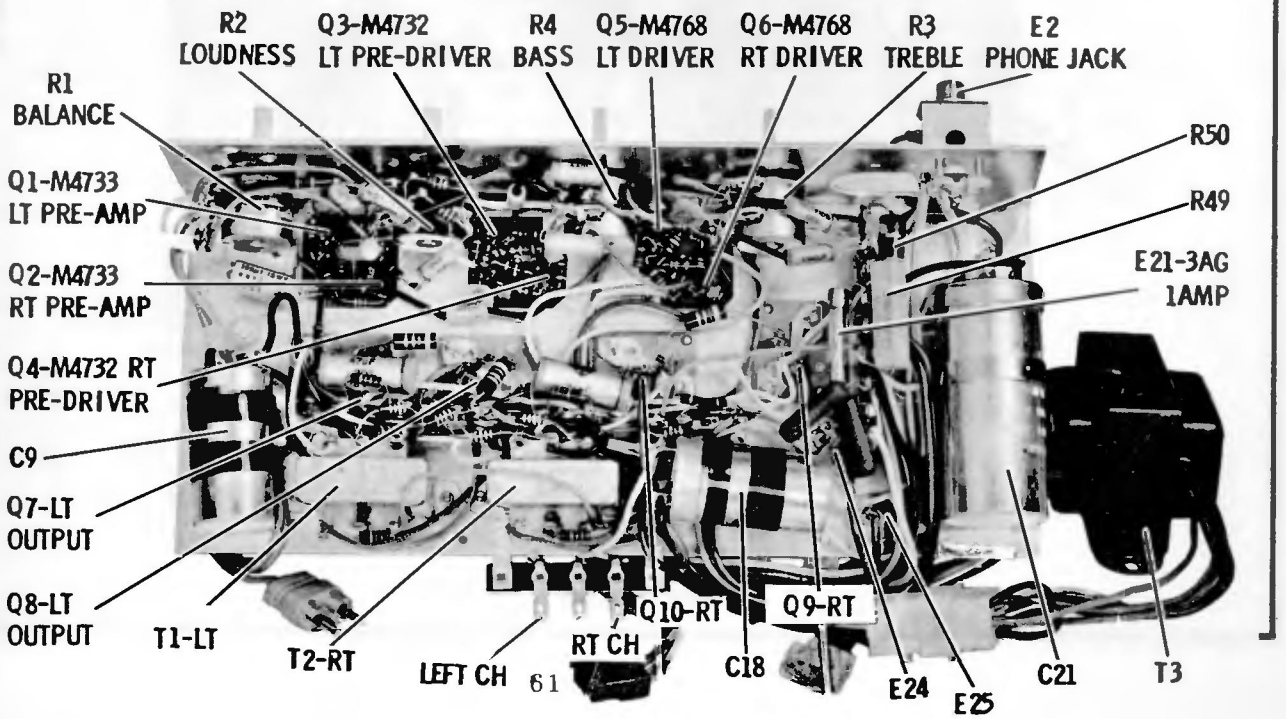
MOTOROLA CHASSIS HS-62250; MODEL PK15C



NOTE: DC VOLTAGES - MEASURED FROM POINT INDICATED TO B- WITH A VTVM ± 10% WITH NO INPUT.

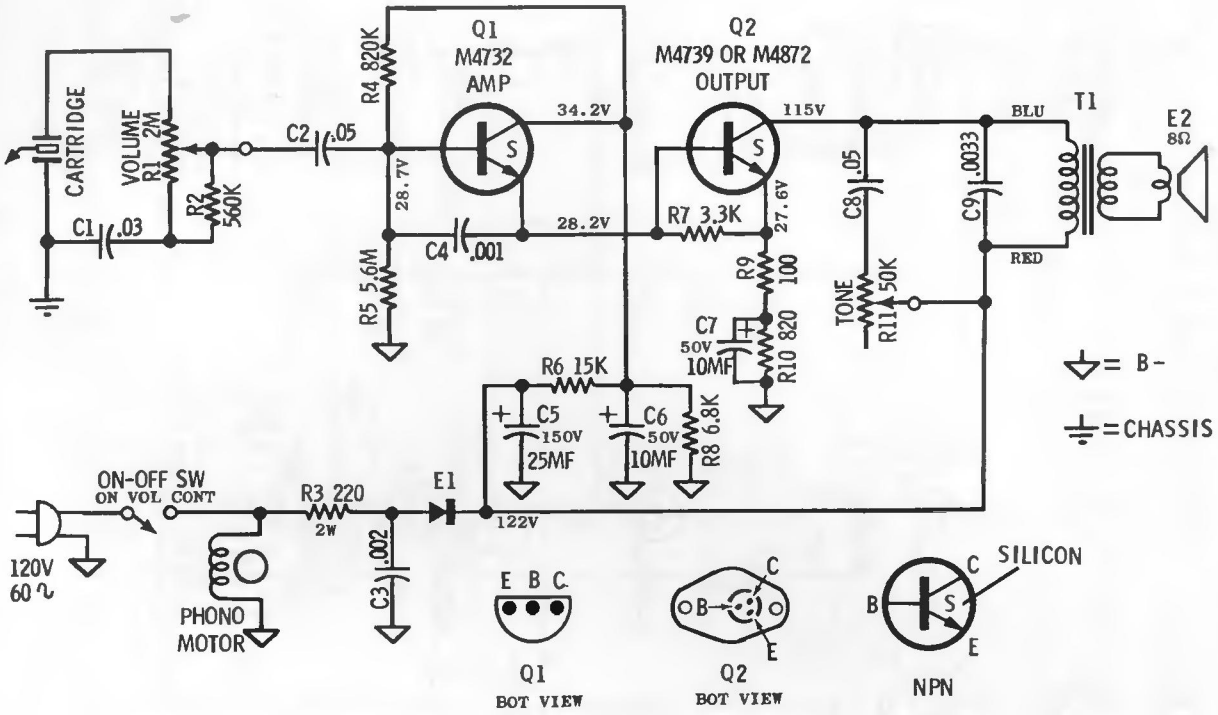
CAPACITORS - IN MF UNLESS OTHERWISE SPECIFIED.

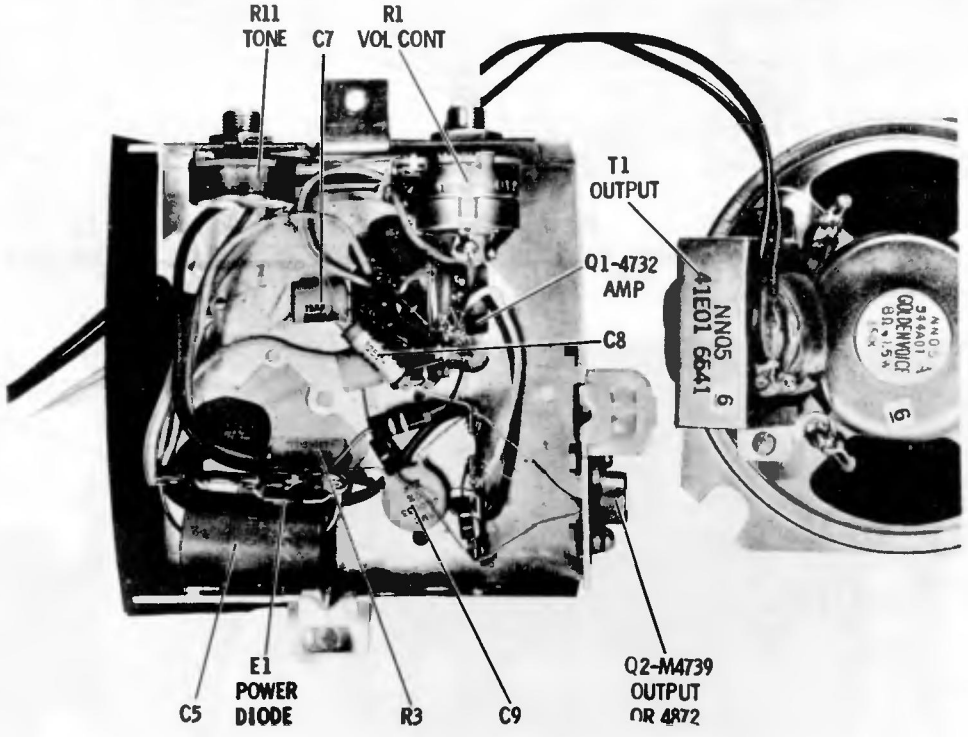
(1) PLUGS INTO FM/AM TUNER ON TUNER MODELS



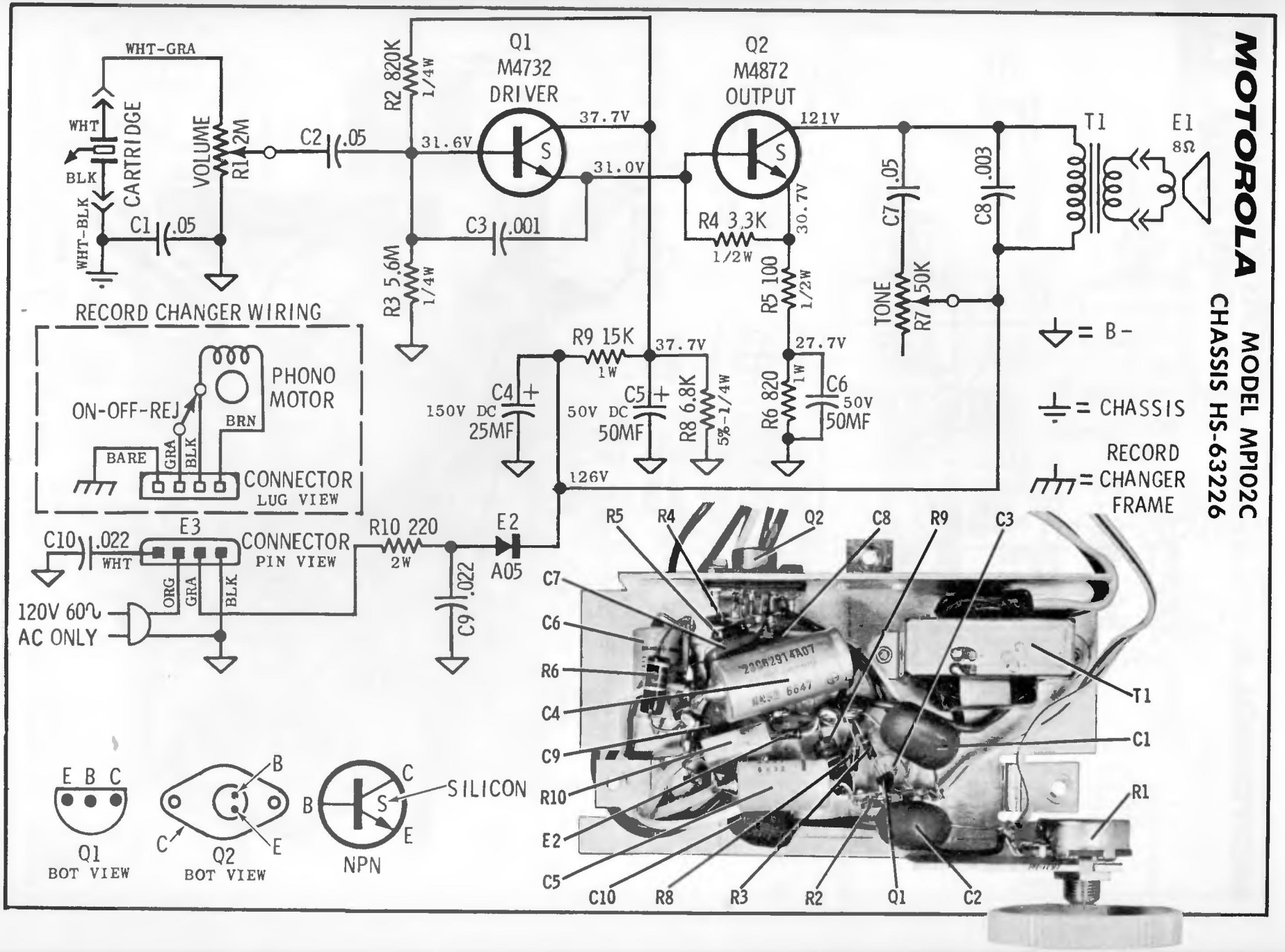
MOTOROLA

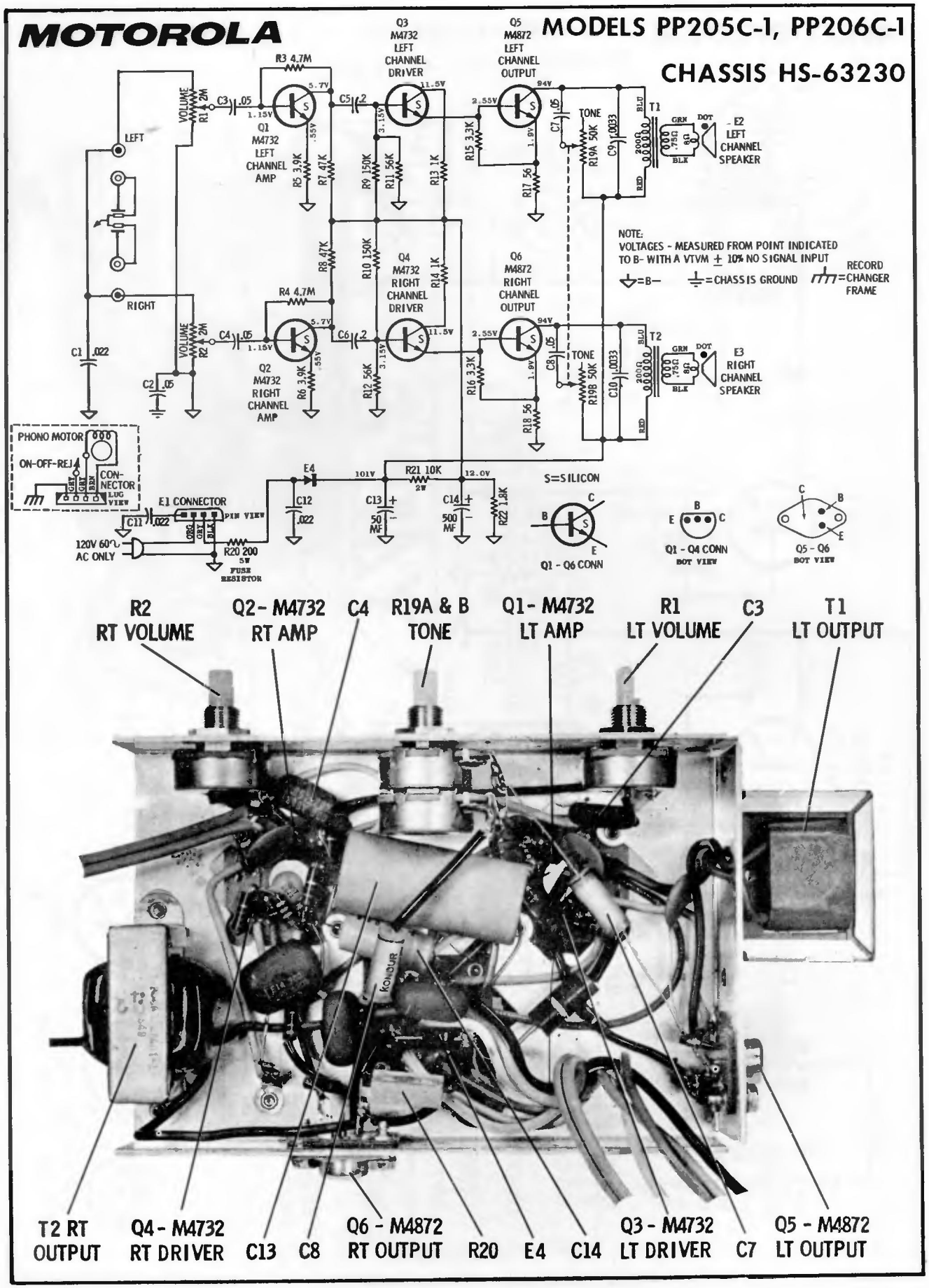
MODEL MP10C
CHASSIS HS-63213





PARTS LOCATION


MOTOROLA
MODEL MP102C
CHASSIS HS-63226
WHT-GRA
WHT
BLK
WHT-BLK
CARTRIDGE
VOLUME
R1 2M
C1 .05
C2 .05
R2 820K 1/4W
R3 5.6M 1/4W
C3 .001
Q1
M4732
DRIVER
31.6V
37.7V
31.0V
Q2
M4872
OUTPUT
121V
30.7V
R4 3.3K 1/2W
R5 100 1/2W
27.7V
C7 .05
C8 .003
T1
E1
8Ω
TONE
R7 50K
= B-
= CHASSIS
RECORD CHANGER FRAME
RECORD CHANGER WIRING
PHONO MOTOR
ON-OFF-REJ
BRN
BARE
GRA
BLK
CONNECTOR
LUG VIEW
R9 15K 1W
37.7V
C4 + 150V DC 25MF
C5 + 50V DC 50MF
R8 6.8K 5%-1/4W
R6 820 1W
C6 50V 50MF
126V
E3
C10 .022 WHT
ORG
GRA
BLK
CONNECTOR
PIN VIEW
R10 220 2W
E2
A05
C9 .022
120V 60~
AC ONLY
R5
R4
Q2
C8
R9
C3
C7
C6
R6
C4
C9
R10
E2
C5
C10
R8
R3
R2
Q1
C2
T1
C1
R1
E B C
Q1
BOT VIEW
B
C
E
Q2
BOT VIEW
B
C
E
NPN
SILICON


MOTOROLA
MODELS PP205C-1, PP206C-1
CHASSIS HS-63230
Q3 M4732 LEFT CHANNEL DRIVER
Q5 M4872 LEFT CHANNEL OUTPUT
R3 4.7M
VOLUME R1 2M
C3 .05
C5 .2
Q1 M4732 LEFT CHANNEL AMP
R5 3.9K
R7 47K
R9 150K
R11 56K
R13 1K
R15 3.3K
R17 56
C7 .05
TONE R19A 50K
C9 .0033
T1
E2 LEFT CHANNEL SPEAKER
LEFT
RIGHT
NOTE:
VOLTAGES - MEASURED FROM POINT INDICATED TO B- WITH A VTVM ± 10% NO SIGNAL INPUT
=B-
=CHASSIS GROUND
RECORD CHANGER FRAME
R4 4.7M
C4 .05
C6 .2
Q2 M4732 RIGHT CHANNEL AMP
R6 3.9K
R8 47K
R10 150K
R12 56K
Q4 M4732 RIGHT CHANNEL DRIVER
R14 1K
R16 3.3K
R18 56
Q6 M4872 RIGHT CHANNEL OUTPUT
C8 .05
TONE R19B 50K
C10 .0033
T2
E3 RIGHT CHANNEL SPEAKER
C1 .022
C2 .05
PHONO MOTOR
ON-OFF-REJ
CONNECTOR
E1 CONNECTOR
C11 .022
120V 60~ AC ONLY
R20 200 5W FUSE RESISTOR
E4
C12 .022
C13 50 MF
C14 500 MF
R21 10K 2W
R22 1.8K
S=SILICON
Q1 - Q6 CONN
Q1 - Q4 CONN
BOT VIEW
Q5 - Q6
BOT VIEW
R2 RT VOLUME
Q2 - M4732 RT AMP
C4
R19A & B TONE
Q1 - M4732 LT AMP
R1 LT VOLUME
C3
T1 LT OUTPUT
T2 RT OUTPUT
Q4 - M4732 RT DRIVER
C13
C8
Q6 - M4872 RT OUTPUT
R20
E4
C14
Q3 - M4732 LT DRIVER
C7
Q5 - M4872 LT OUTPUT

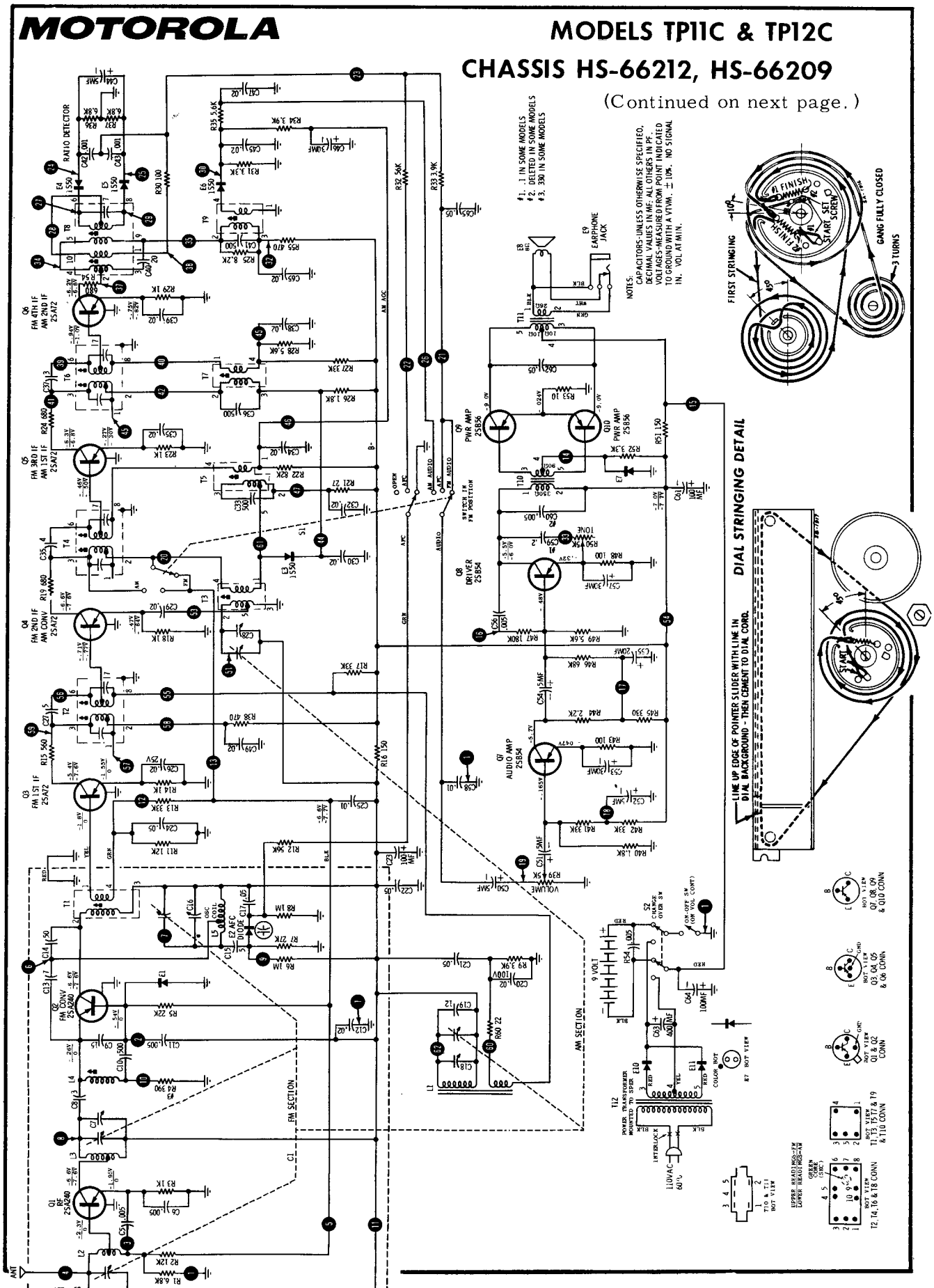
MOTOROLA
CHASSIS HS-67216
MODELS: XC15C, XC16C, XC24D, XC25D, XT4C, XT10D
ALIGNMENT POINTS
T2 TOP BOT
T1 TOP BOT
L2 RF CORE
L3 OSC CORE
L4
NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH A VTVM ± 10%.
WHEN TWO VOLTAGES ARE SHOWN:
UPPER V - WITH NO SIGNAL INPUT.
LOWER V - WITH STRONG SIGNAL INPUT.
VOLT AT MIN
AM RANGE - 535KC TO 1605KC, AM IF 455KC.
ON BOTTOM OF BOARD
(ON HEAT SINK)
(ON MODELS WITH SOLID STATE DIAL LIGHT ONLY)
(ON VOL CONT)
CLOCK WIRING (CLOCK MODELS ONLY)
CLOCK MOTOR
LUMINESCENT PANEL (USED IN CLOCK MODELS ONLY)
TUNING DIAL LUMINESCENT PANEL (ON MODELS WITH SOLID STATE DIAL LIGHT ONLY)
TONE
VOLUME
HEAT SINK
IF 455 KC
BOTTOM VIEW
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)
BM-0 © 1966

MOTOROLA

MODELS TP11C & TP12C

CHASSIS HS-66212, HS-66209

(Continued on next page.)

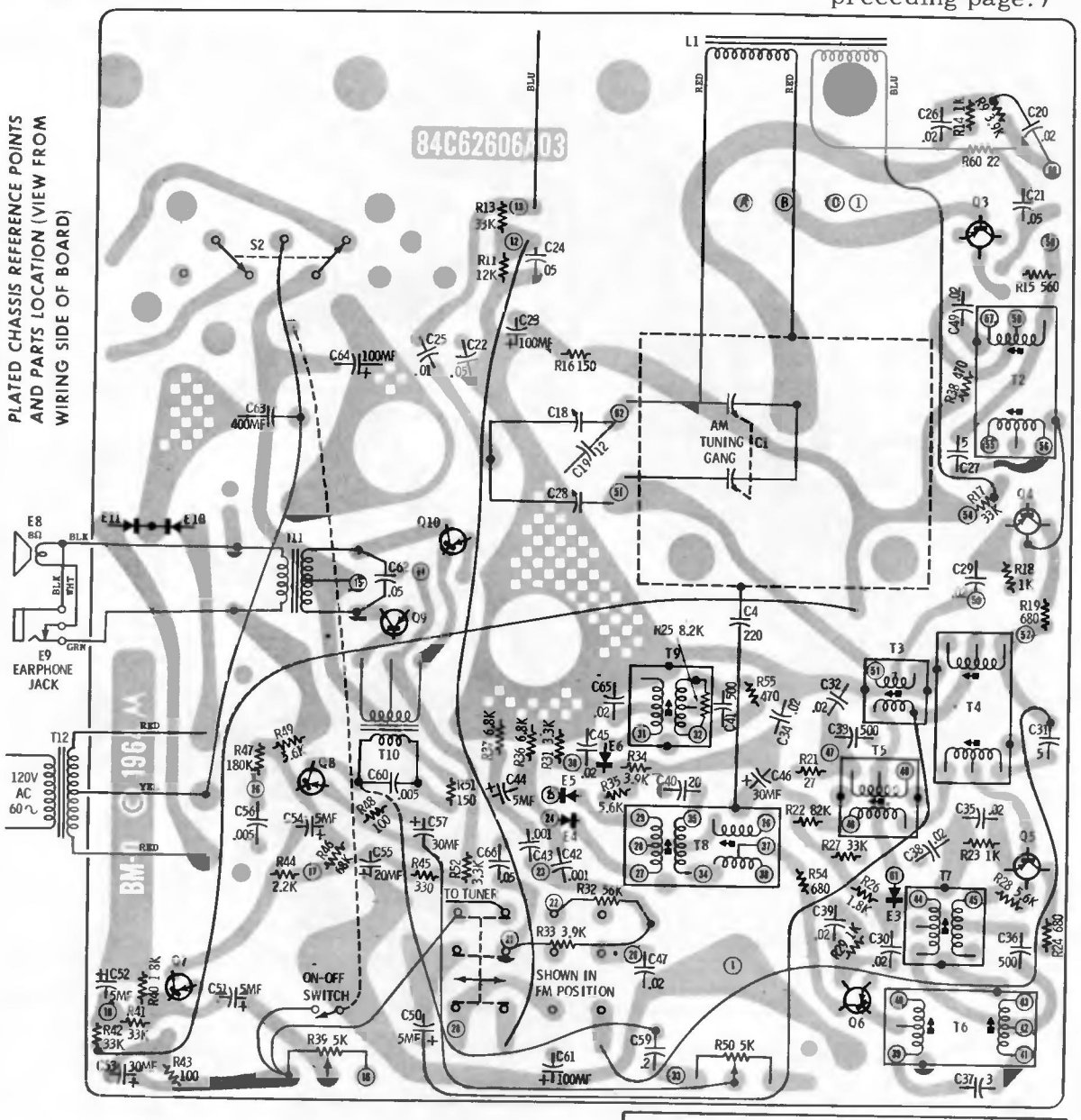


(Continued from preceding page.)

MODELS TP11C & TP12C

BOTTOM VIEW

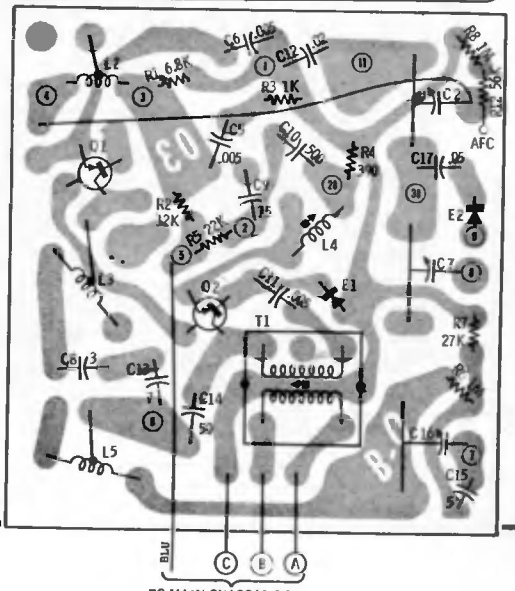
PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION (VIEW FROM WIRING SIDE OF BOARD)



ALIGNMENT POINTS

1. RATIO DET 10.7MC
2.
3. IF 10.7MC
4.
5. IF 10.7MC
6.
7. IF 10.7MC
8.
9. IF 10.7MC
10. OSC TRIM 108.5MC
11. OSC COIL 87.5MC
12. RF TRIM 106MC
13. ANT TRIM 106MC
14. RF COIL (PRI) 90MC
15. ANT COIL 90MC
16. RF CORE (SEC) 98MC
17. IF 455KC
18. IF 455KC
19. IF 455KC
20. OSC TRIM 1620KC
21. ANT TRIM 1400KC
22. OSC CORE 532KC

FM TUNER BOARD REFERENCE POINTS BOTTOM VIEW



MOTOROLA MODEL TP10D

CHASSIS HS-66227

(Continued on next page.)

CHASSIS REMOVAL

1. Remove 3 cabinet back mounting screws; 2 are located at top of cabinet (under carrying handle), the other screw is located on bottom of cabinet.

2. Remove the earphone jack mounting nut (a special tool is available - order Part Number 66A646211).

3. Separate cabinet back from front escutcheon far enough to gain access to chassis, then unsolder yellow lead from monopole FM antenna.

4. To remove chassis completely, first remove control knobs from front of radio.

5. Remove 6 chassis and 1 dial background mounting screws.

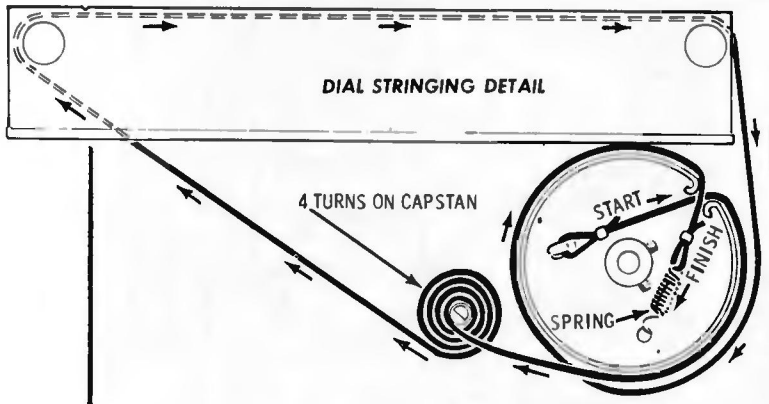
6. If necessary, unsolder speaker leads, then remove chassis from escutcheon.

TUNING RANGE

FM - 88 to 108Mc (FM IF - 10.7Mc).

AM - 535 to 1620Kc (AM IF - 455Kc).

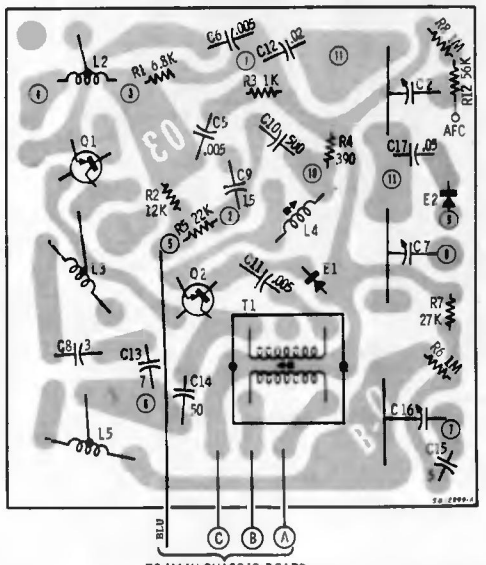
(Continued from preceding page.)



1. GANG FULLY OPEN (LARGE PULLEY CW). INSTALL STRING.
2. CLOSE GANG (LARGE PULLEY CCW) AND FASTEN POINTER SLIDE TO STRING WITH POINTER DIRECTLY OVER ZERO (0) ON LOG SCALE.

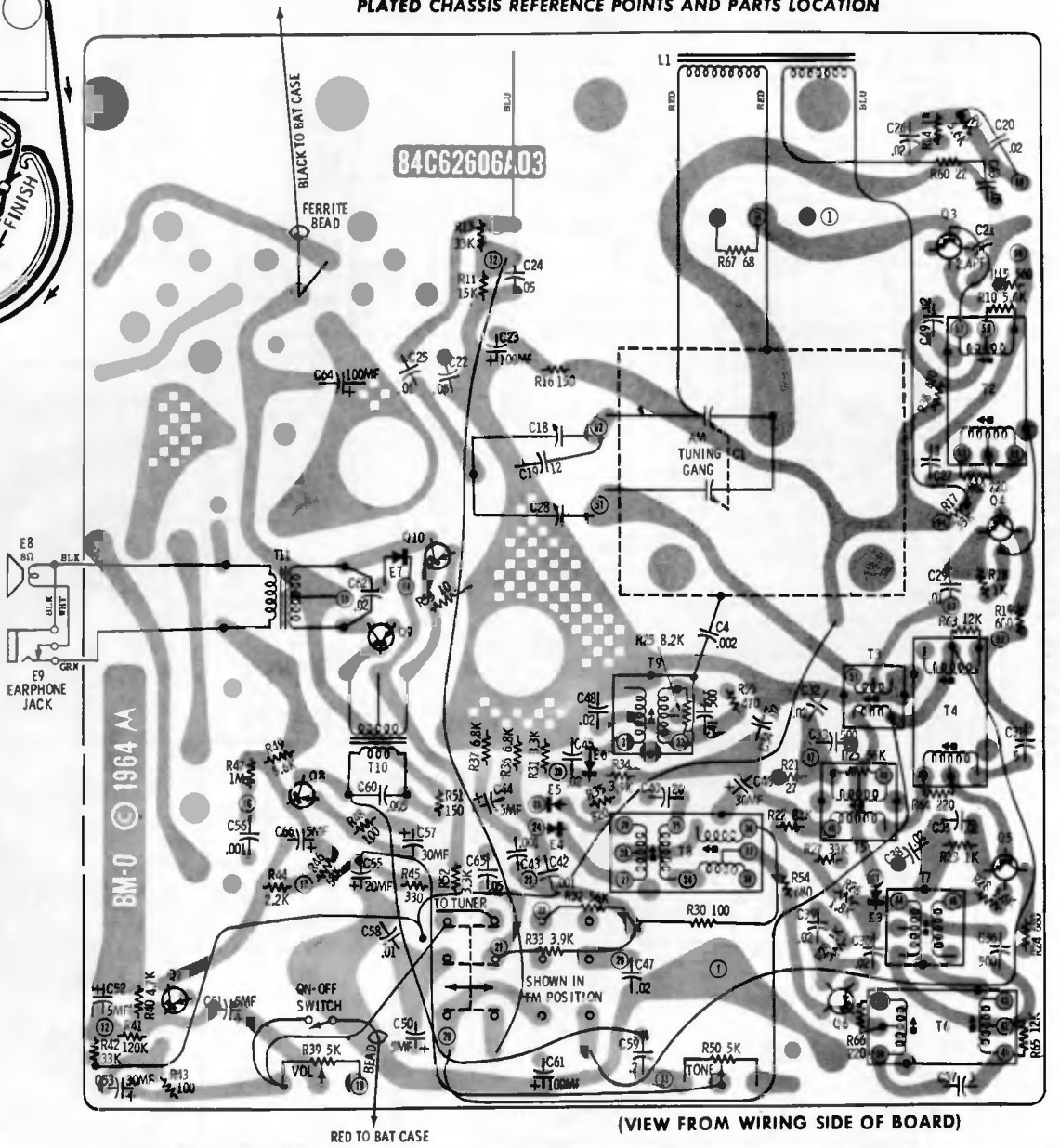
BOTTOM VIEW

PARTS LOCATION - FM TUNER



BOTTOM VIEW

PLATED CHASSIS REFERENCE POINTS AND PARTS LOCATION

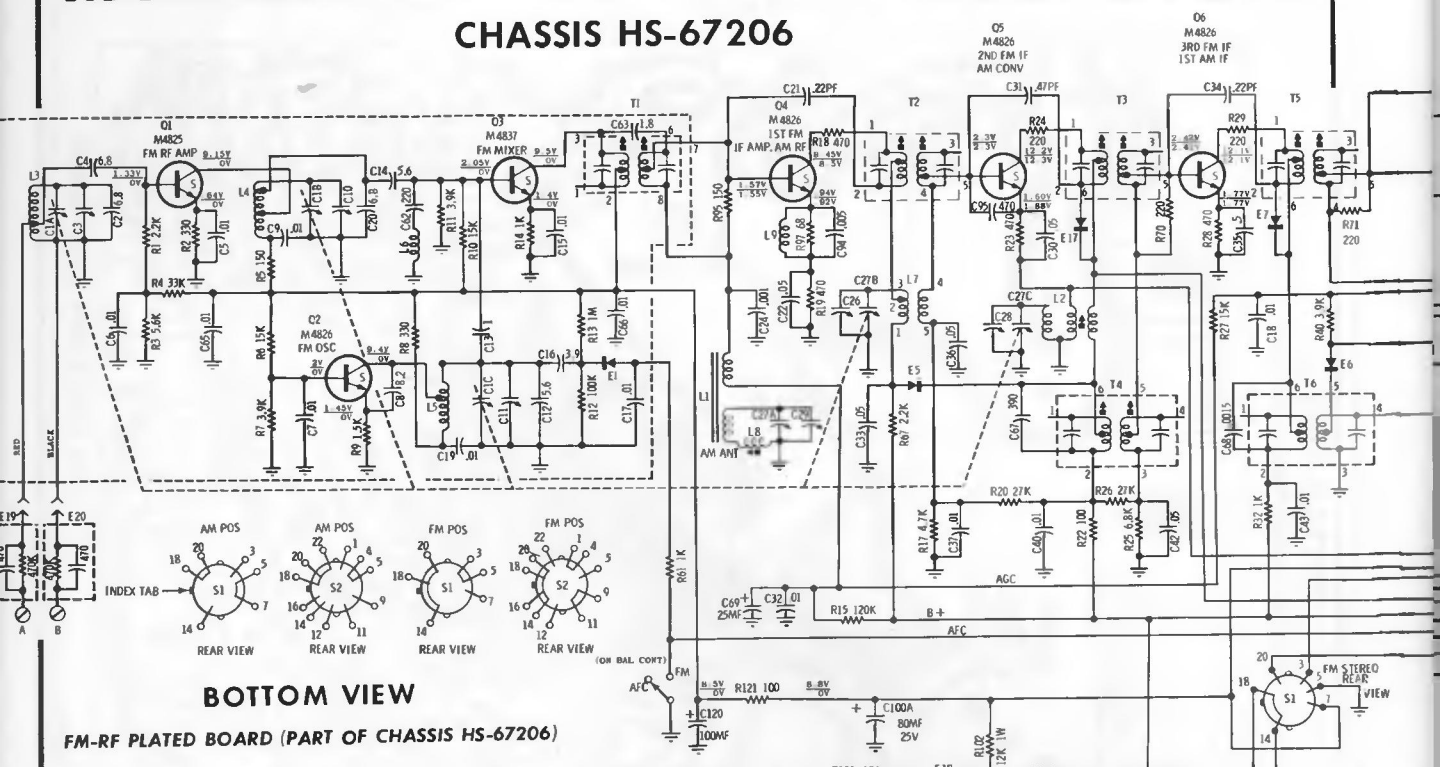


(VIEW FROM WIRING SIDE OF BOARD)

MOTOROLA MODEL TT22C

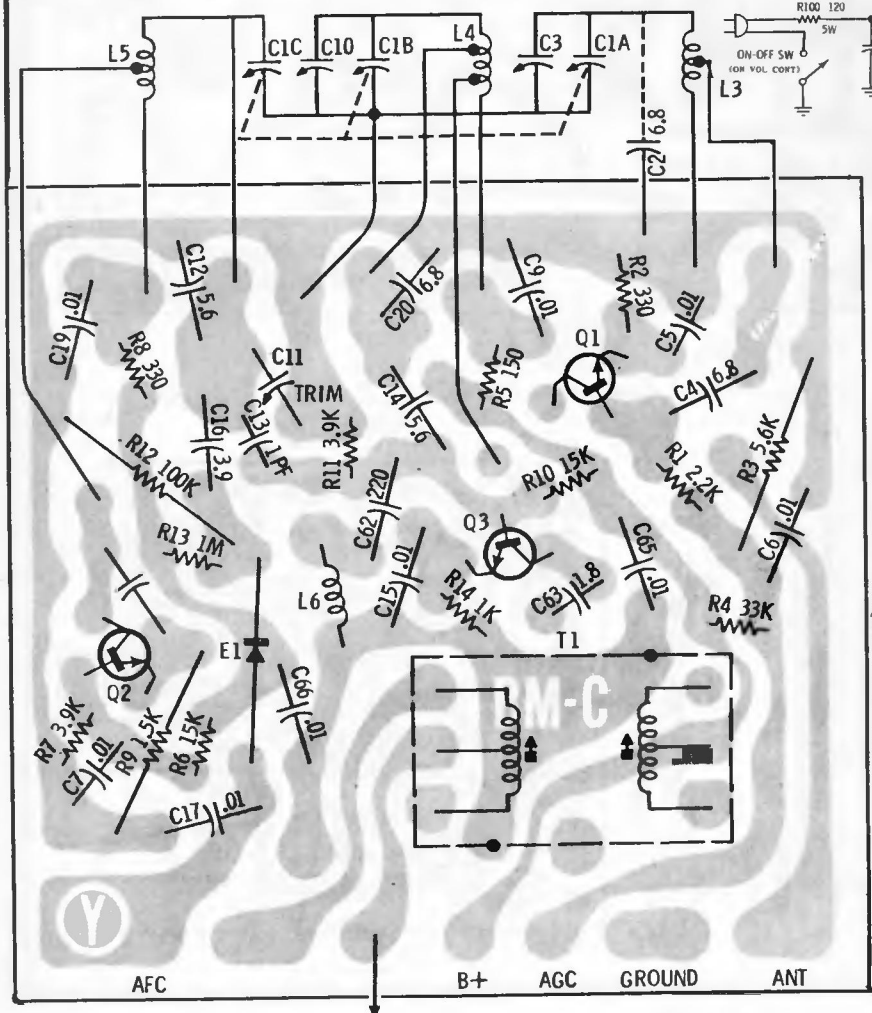
CHASSIS HS-67206

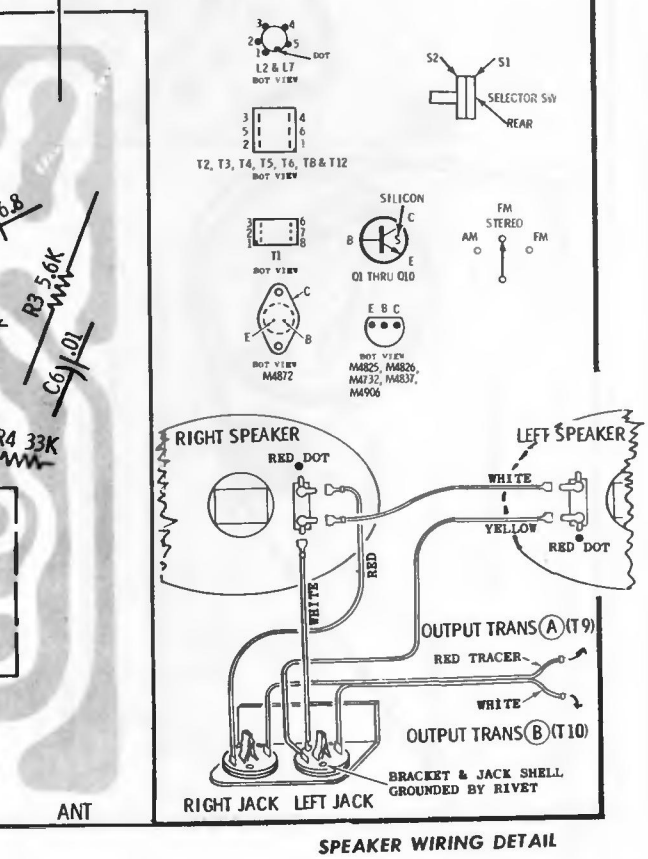
(Continued on next page.)



BOTTOM VIEW

FM-RF PLATED BOARD (PART OF CHASSIS HS-67206)

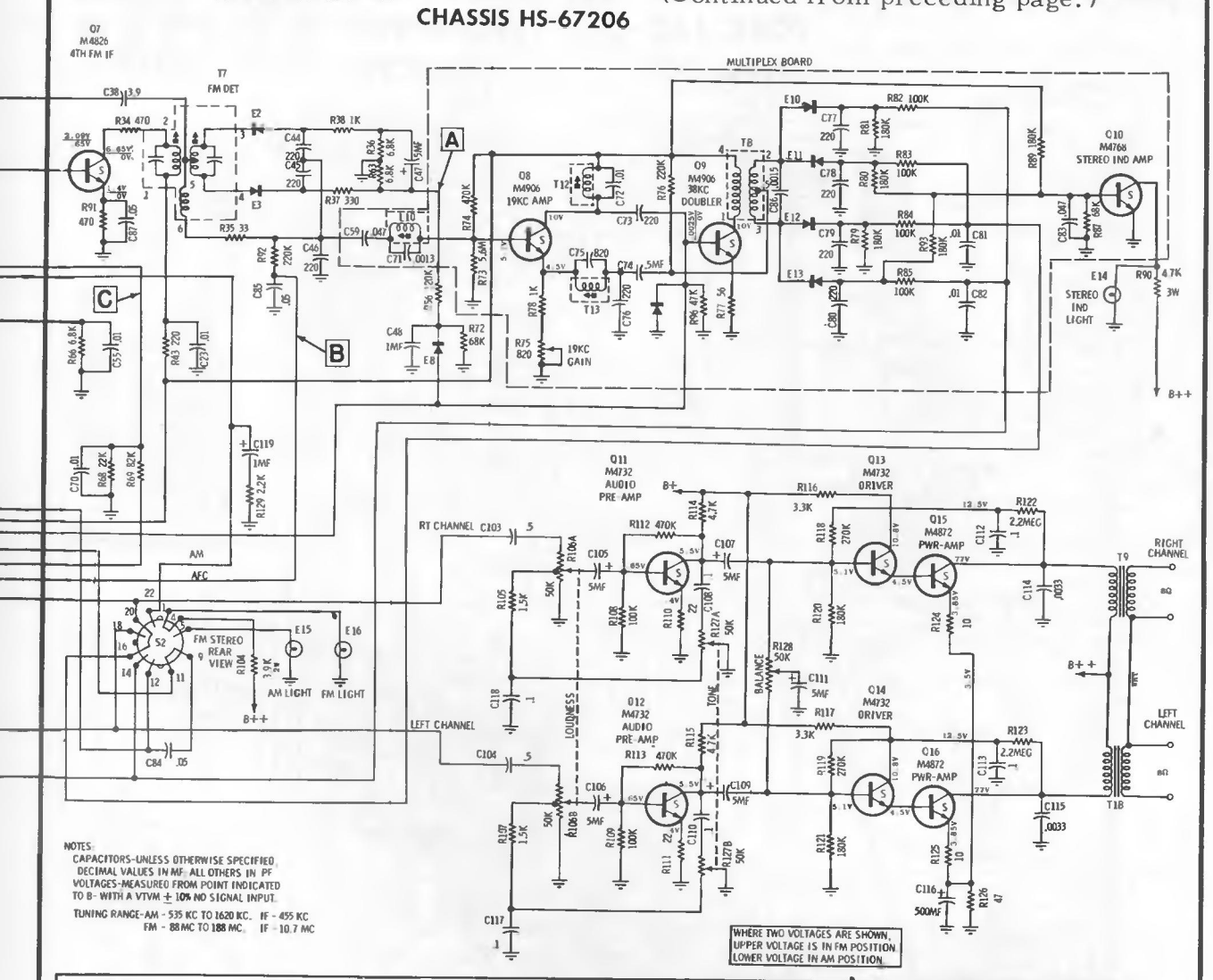


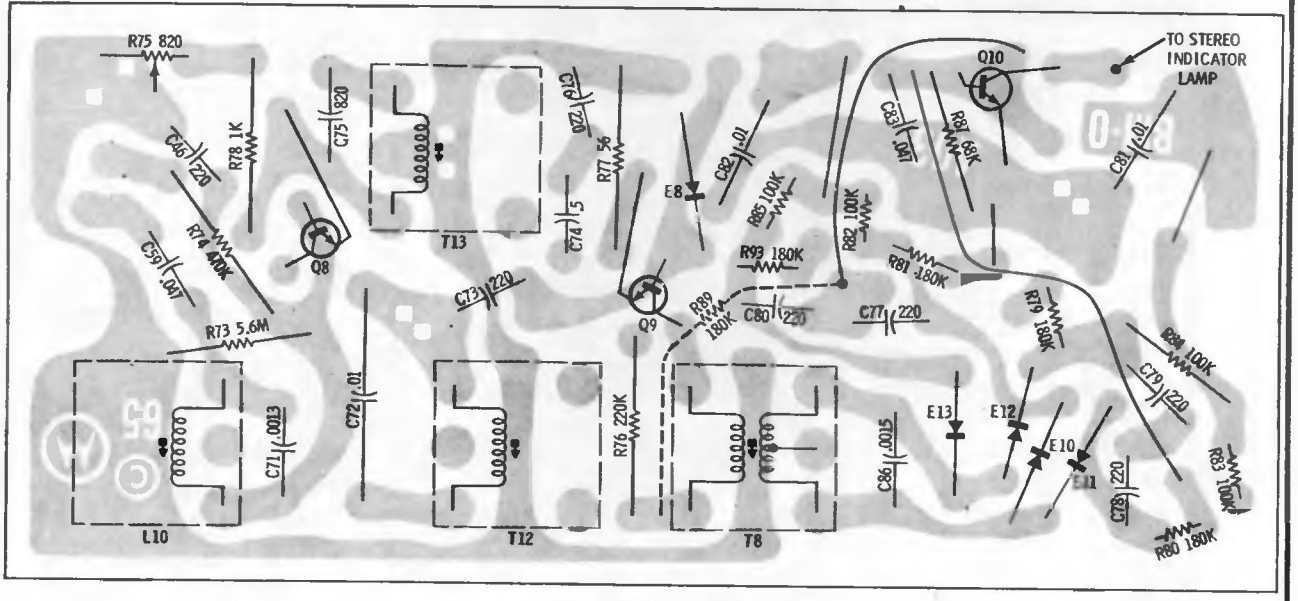


SPEAKER WIRING DETAIL

MOTOROLA **MODEL TT22C**
CHASSIS HS-67206

(Continued from preceding page.)





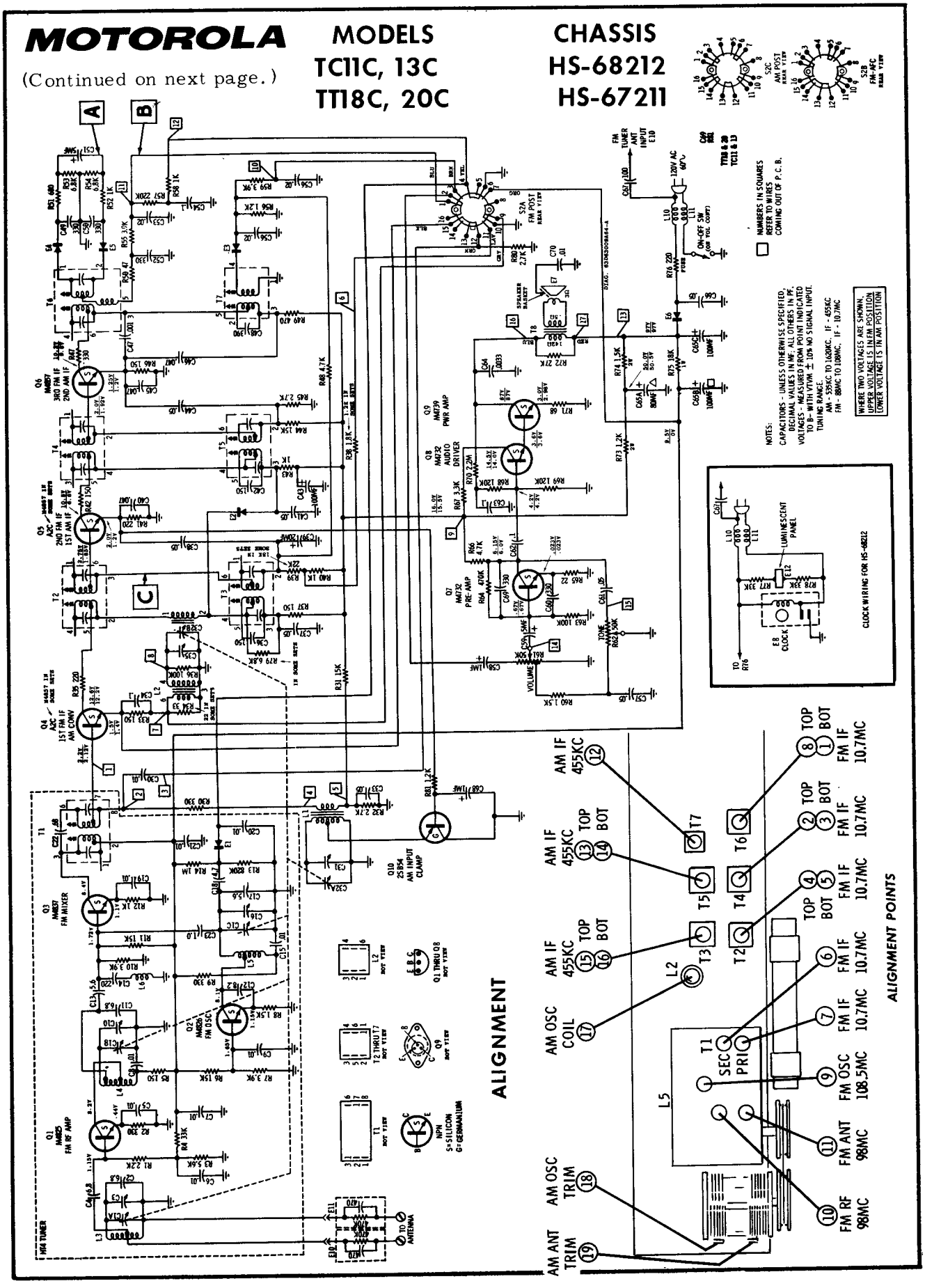
BOTTOM VIEW
MULTIPLEX CIRCUIT BOARD (PART OF HS-67206)

MOTOROLA

(Continued on next page.)

MODELS
TC11C, 13C
TT18C, 20C

CHASSIS
HS-68212
HS-67211



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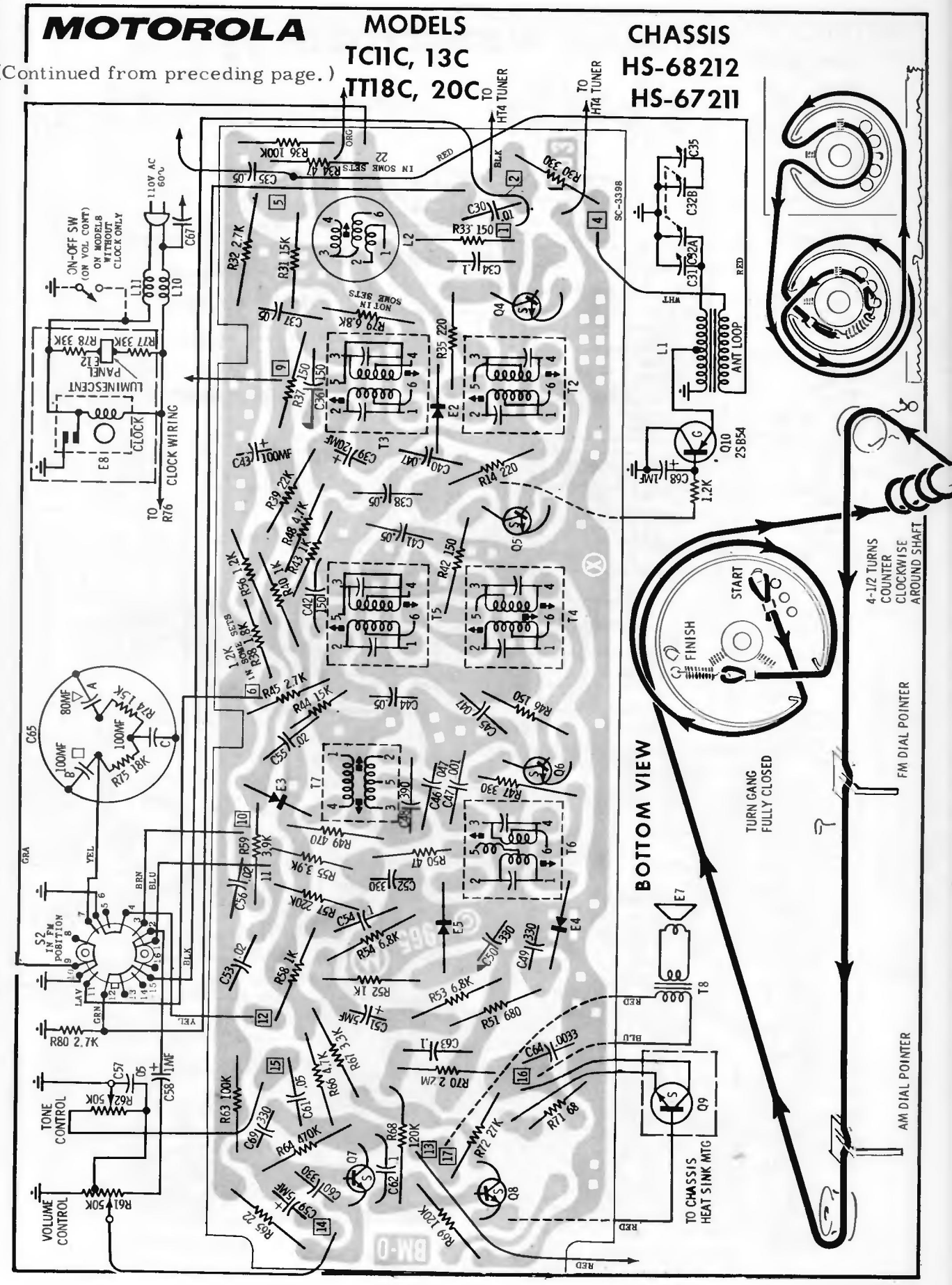
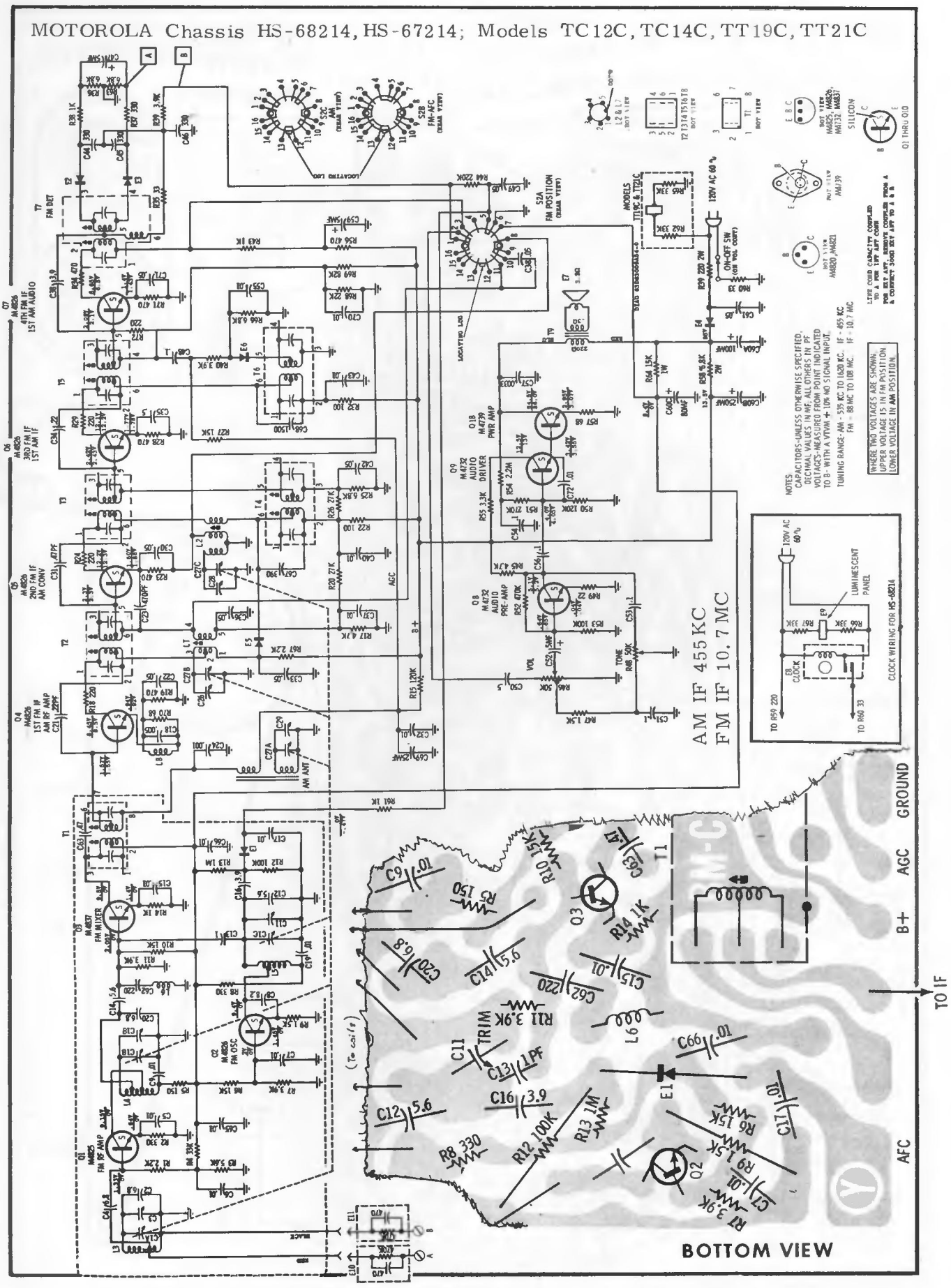
MOTOROLA

MODELS TC11C, 13C TT18C, 20C

CHASSIS HS-68212 HS-67211

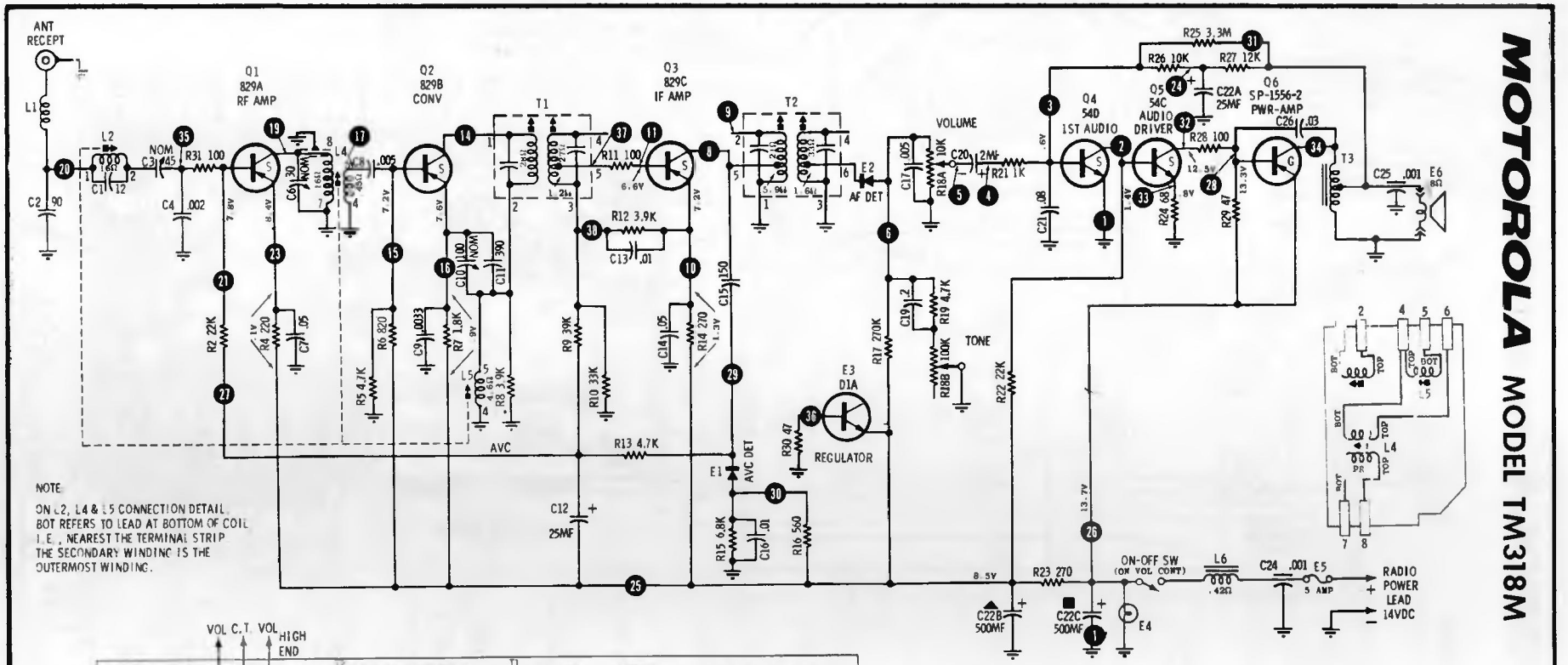


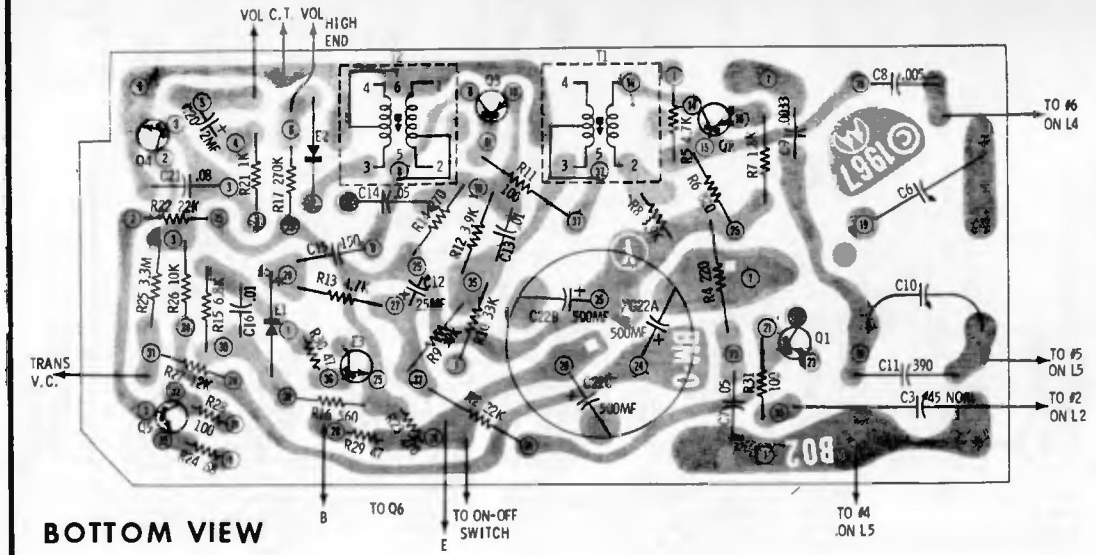
MOTOROLA Chassis HS-68214, HS-67214; Models TC12C, TC14C, TT19C, TT21C



MOTOROLA MODEL TP1D
AM IF 455 KC
FM IF 10.7 MC
NOTES:
CAPACITORS-UNLESS OTHERWISE SPECIFIED DECIMAL VALUES IN MF, ALL OTHER IN PF.
VOLTAGES-MEASURED FROM POINT INDICATED TO GROUND WITH VTVM ±10% NO SIGNAL IN.
INPUT VOLTAGE- 9V
TUNING RANGE-
FM 88MC TO 108MC IF 10.7MC
AM 540KC TO 1600KC IF 455KC
ZERO SIGNAL CURRENT-APPROX 11MA
E1 SHOWN IN FM POSITION
DIAL STRINGING DETAIL
2 TURNS
START
FINISH
GANG CLOSED
POINTER
NOTE: REMOVE DIAL BACKGROUND BEFORE RESTRINGING.
WITH GANG FULLY CLOSED SET POINTER AT NOTCH ON DIAL BACKGROUND.
PARTS LOCATION
E6
L6
CHASSIS MTG SCREW
C1
E1
L3
Q1
L2
Q2
C23
L5
L7
Q3
L4
T1
CHASSIS MTG SCREW
T5
T9
C25
Q10
Q9
R38
E5
T8
Q8
C35
T2
Q5
T3
T6
C38
Q7
C32
T.P.
Q6
BATTERY
CHASSIS MTG SCREW
T4
T7

MOTOROLA MODEL TM318M





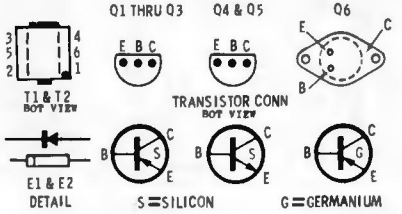
NOTES:

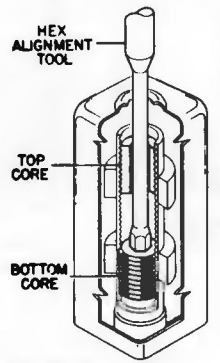
CAPACITORS - UNLESS OTHERWISE SPECIFIED, VALUES LESS THAN 1 IN MF, ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO ⏚ WITH VTVM ± 10%, NO SIGNAL IN

INPUT VOLTAGE - 14V DC.

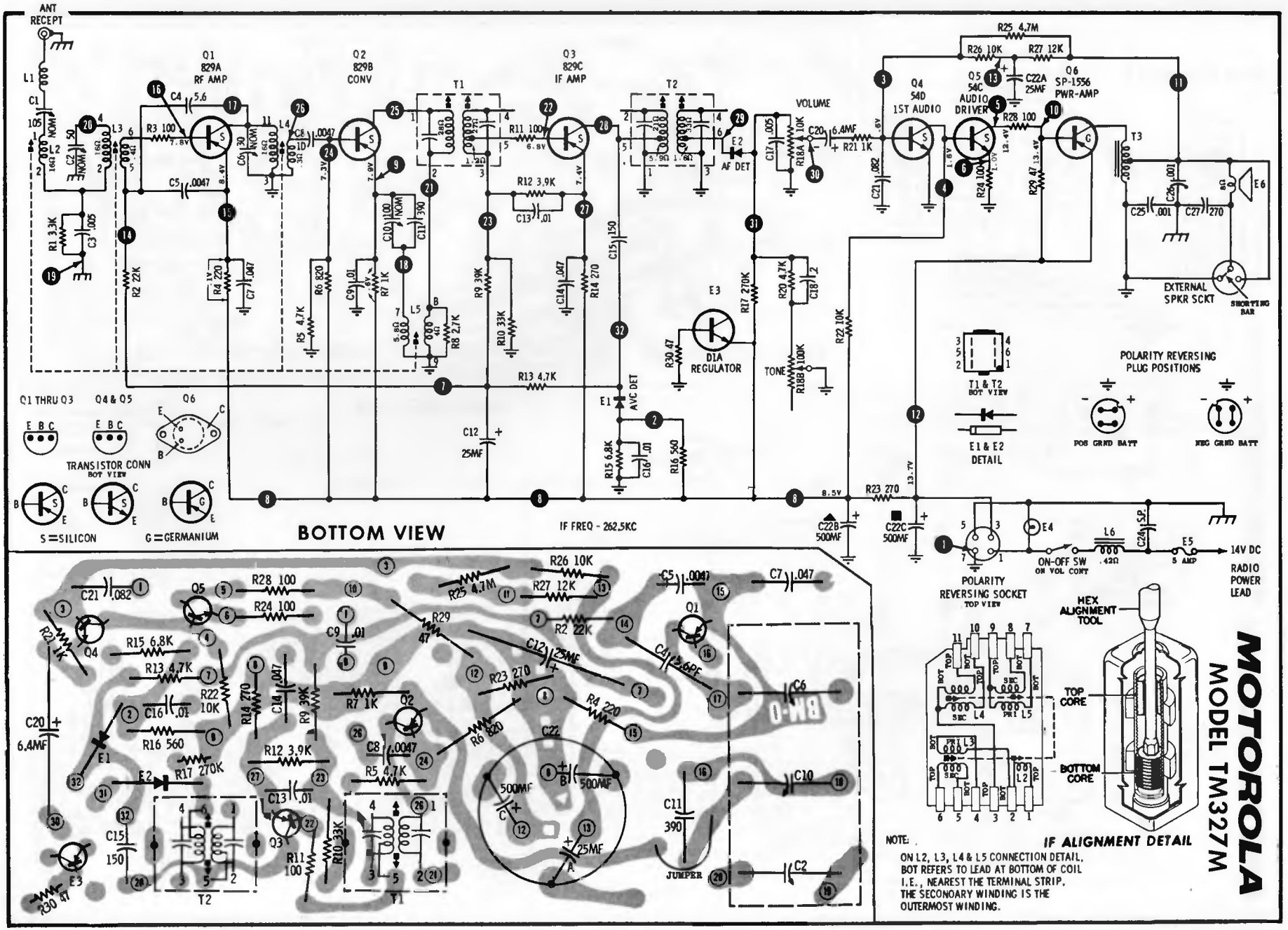
TUNING RANGE - 540KC TO 1610KC

IF FREQ - 262.5KC



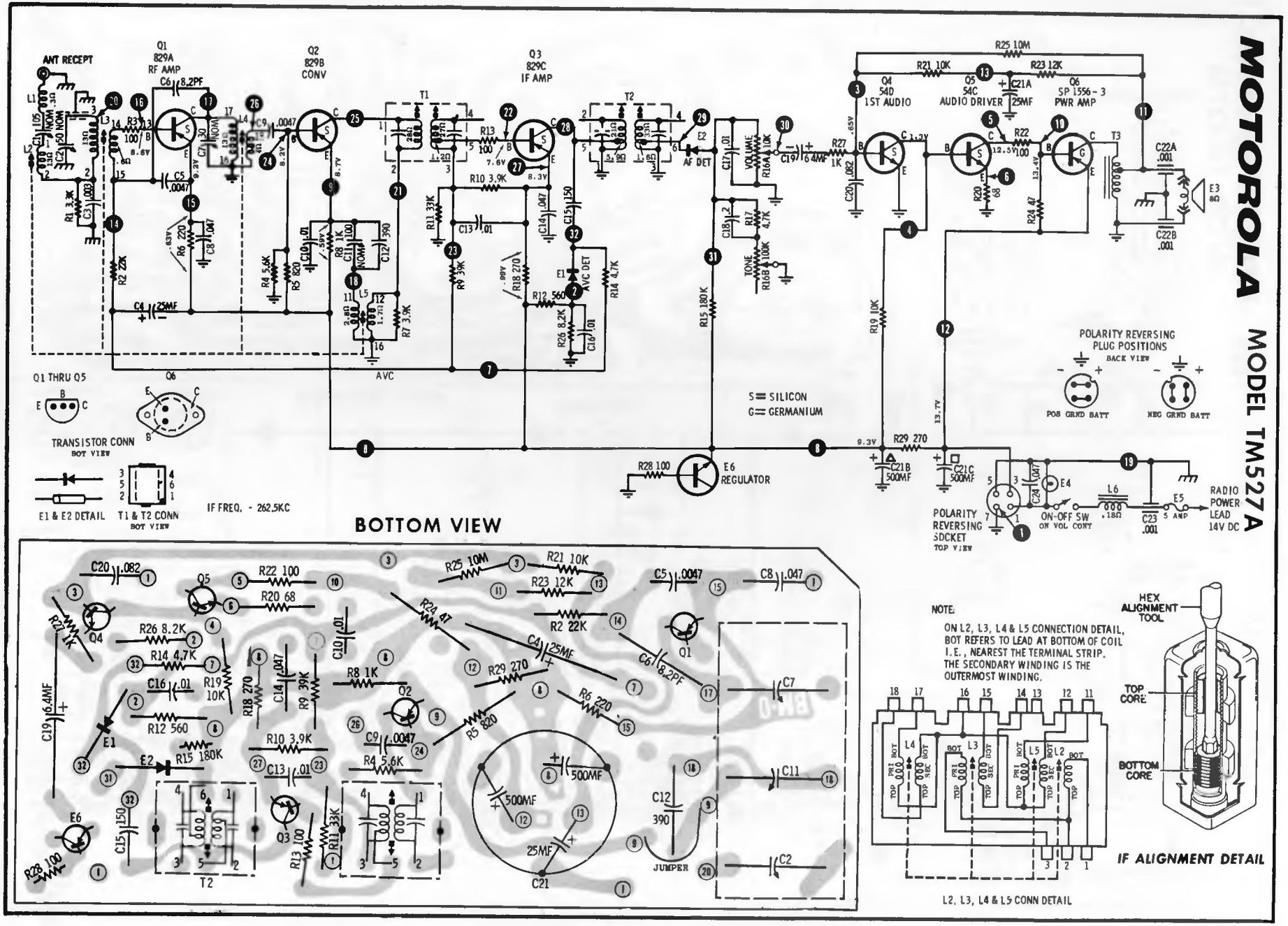


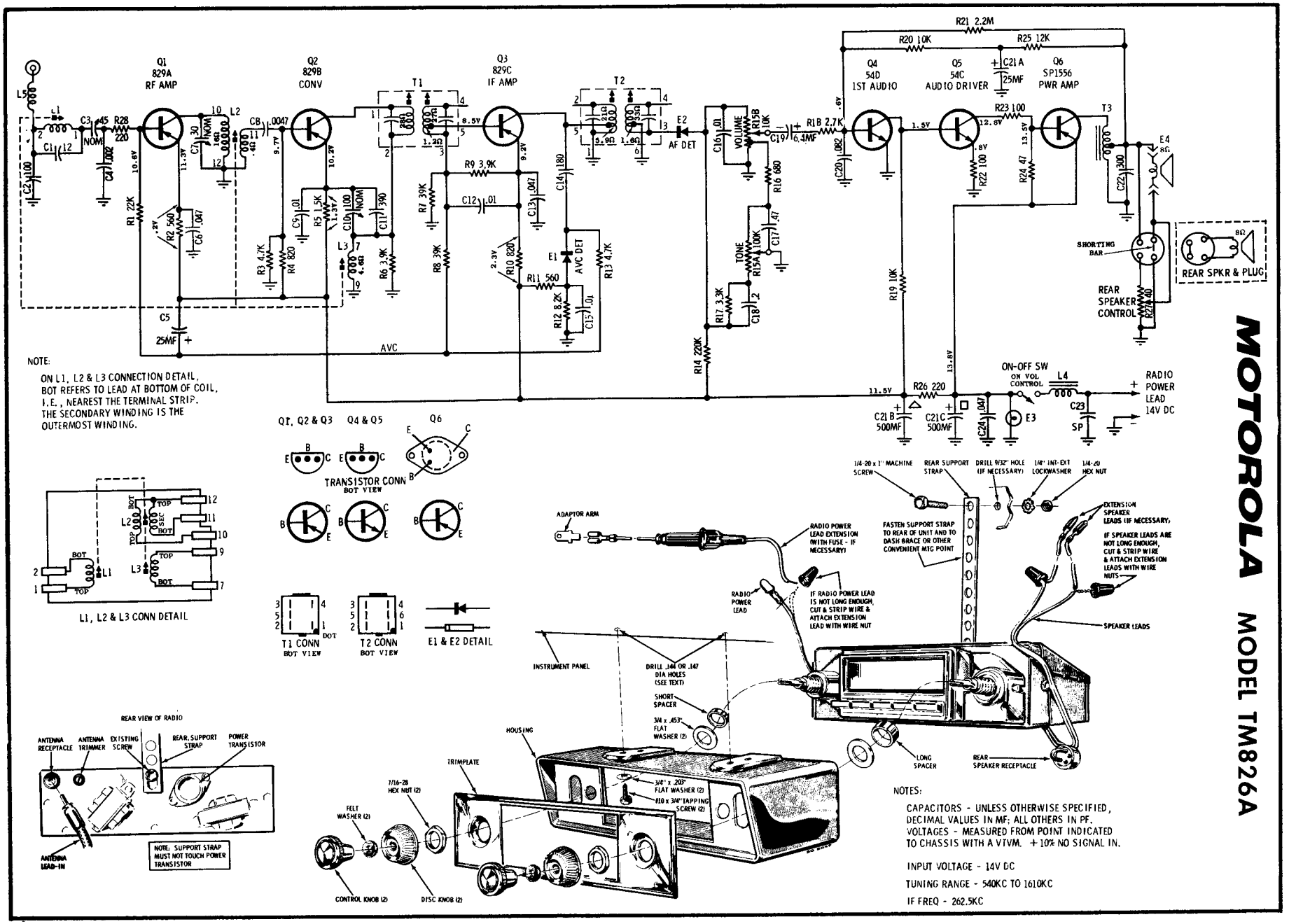
IF ALIGNMENT DETAIL



NOTE:
ON L2, L3, L4 & L5 CONNECTION DETAIL, BOT REFERS TO LEAD AT BOTTOM OF COIL I.E., NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.

MOTOROLA MODEL TM527A





NOTE:

ON L1, L2 & L3 CONNECTION DETAIL, BOT REFERS TO LEAD AT BOTTOM OF COIL, I.E., NEAREST THE TERMINAL STRIP. THE SECONDARY WINDING IS THE OUTERMOST WINDING.

NOTES:

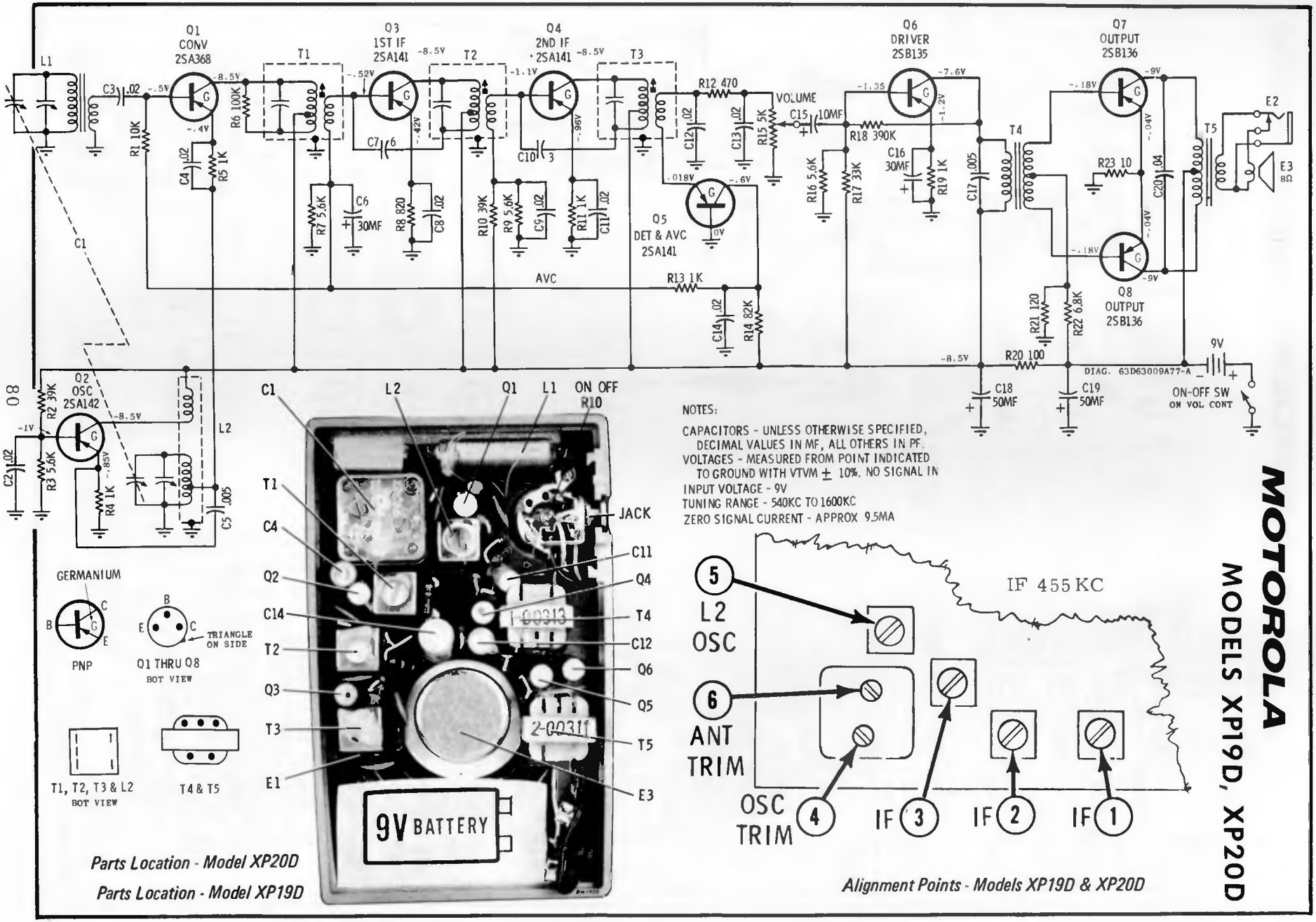
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF; ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO CHASSIS WITH A VTVM. ±10% NO SIGNAL IN.

INPUT VOLTAGE - 14V DC

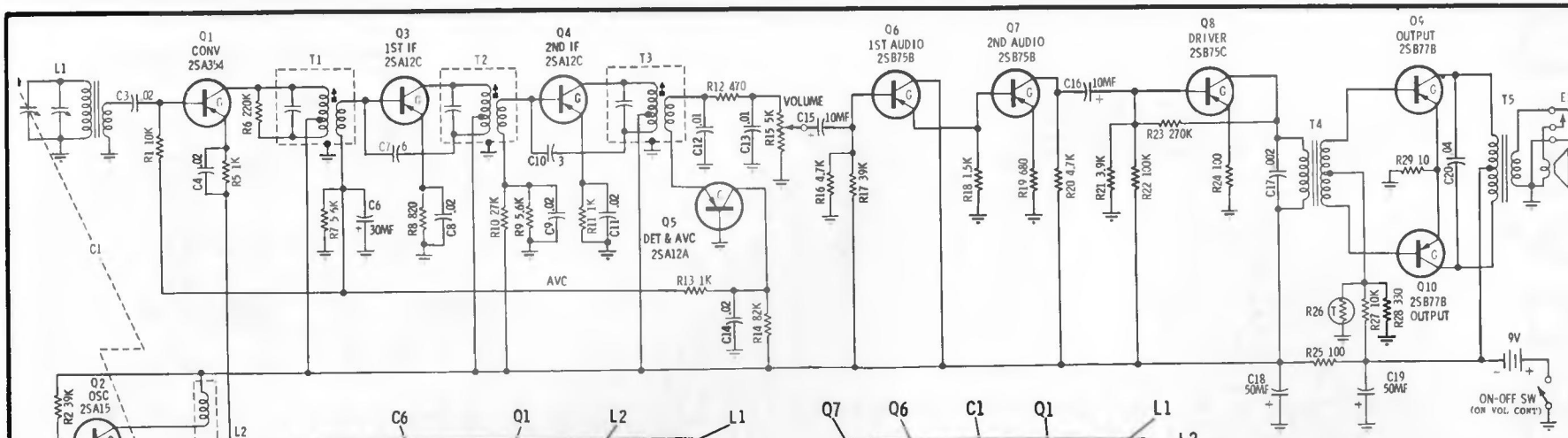
TUNING RANGE - 540KC TO 1610KC

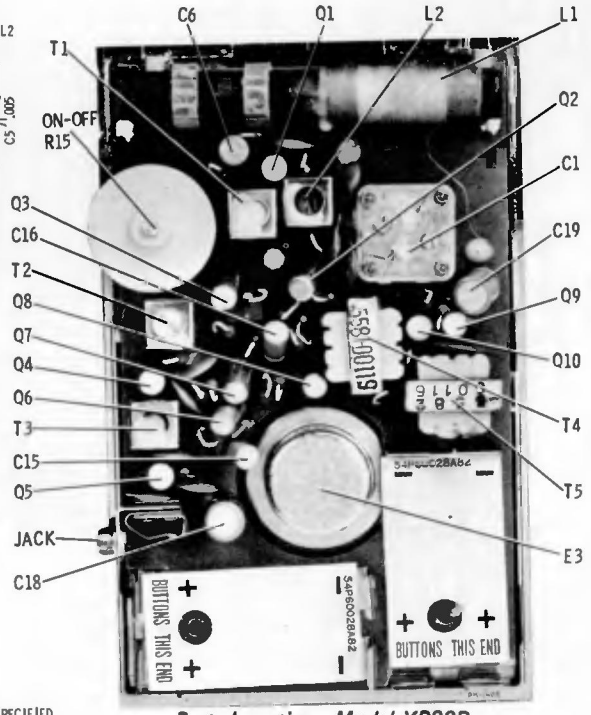
IF FREQ - 262.5KC

MOTOROLA MODEL TM826A

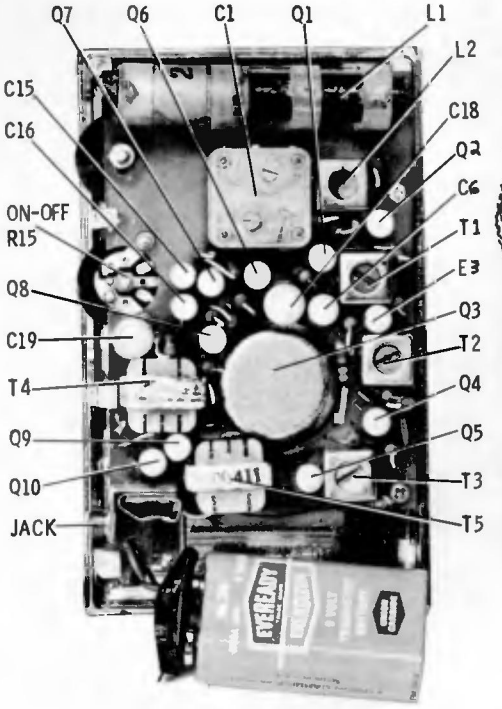

Q1 CONV 2SA368
Q2 OSC 2SA142
Q3 1ST IF 2SA141
Q4 2ND IF 2SA141
Q5 DET & AVC 2SA141
Q6 DRIVER 2SB135
Q7 OUTPUT 2SB136
Q8 OUTPUT 2SB136
T1
T2
T3
T4
T5
L1
L2
C1
R1 10K
R2 39K
R3 5.6K
R4 1K
R5 1K
R6 100K
R7 5.6K
R8 820
R9 5.6K
R10 39K
R11 1K
R12 470
R13 1K
R14 82K
R15 5K
R16 5.6K
R17 33K
R18 390K
R19 1K
R20 100
R21 120
R22 6.8K
R23 10
VOLUME
AVC
9V
ON-OFF SW
ON VOL CONT
DIAG. 63D63009A77-A
NOTES:
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH VTVM ± 10%. NO SIGNAL IN
INPUT VOLTAGE - 9V
TUNING RANGE - 540KC TO 1600KC
ZERO SIGNAL CURRENT - APPROX 9.5MA
GERMANIUM
PNP
Q1 THRU Q8
BOT VIEW
TRIANGLE ON SIDE
T1, T2, T3 & L2
BOT VIEW
T4 & T5
9V BATTERY
IF 455 KC
L2 OSC
ANT TRIM
OSC TRIM
IF
Parts Location - Model XP20D
Parts Location - Model XP19D
Alignment Points - Models XP19D & XP20D
MOTOROLA
MODELS XP19D, XP20D

MOTOROLA MODELS XP22D, XP23D

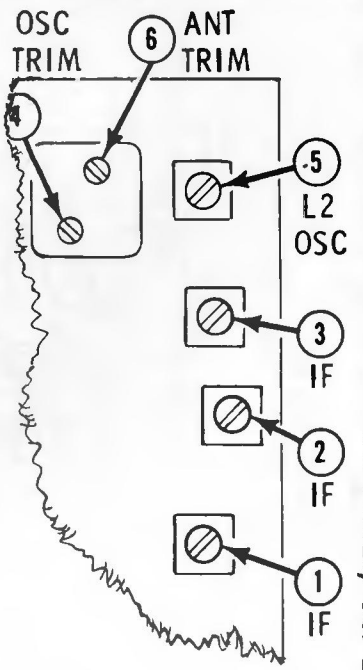




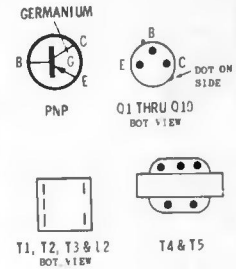
Parts Location - Model XP23D



Parts Location - Model XP22D



Alignment Points - Model XP22D



NOTES:

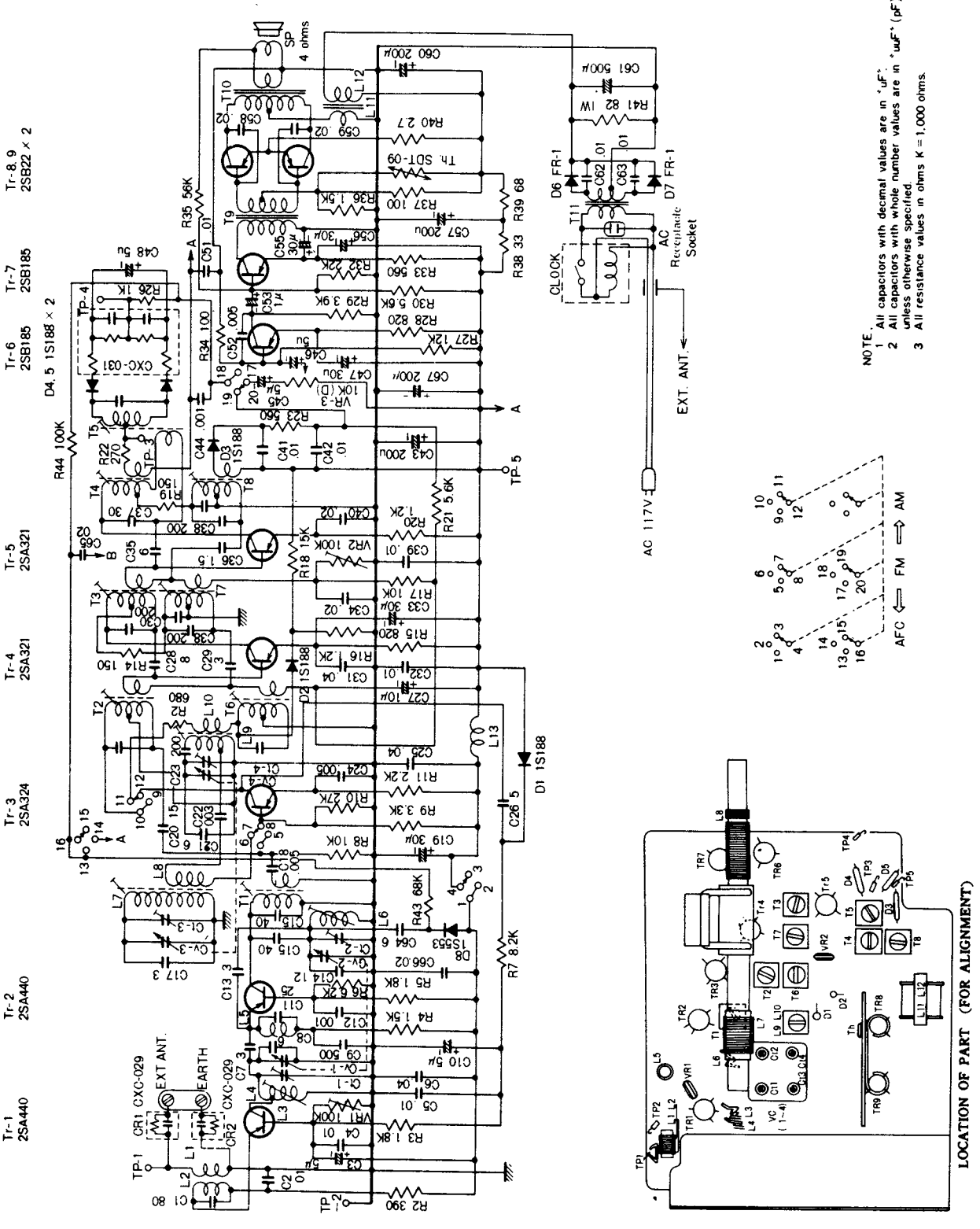
CAPACITORS - UNLESS OTHERWISE SPECIFIED, DECIMAL VALUES IN MF, ALL OTHERS IN PF.
VOLTAGES - MEASURED FROM POINT INDICATED TO GROUND WITH VTVM ± 10% NO SIGNAL IN
INPUT VOLTAGE - 9V
TUNING RANGE - 540KC TO 1600KC
ZERO SIGNAL CURRENT - APPROX 9.3MA

IF 455 KC

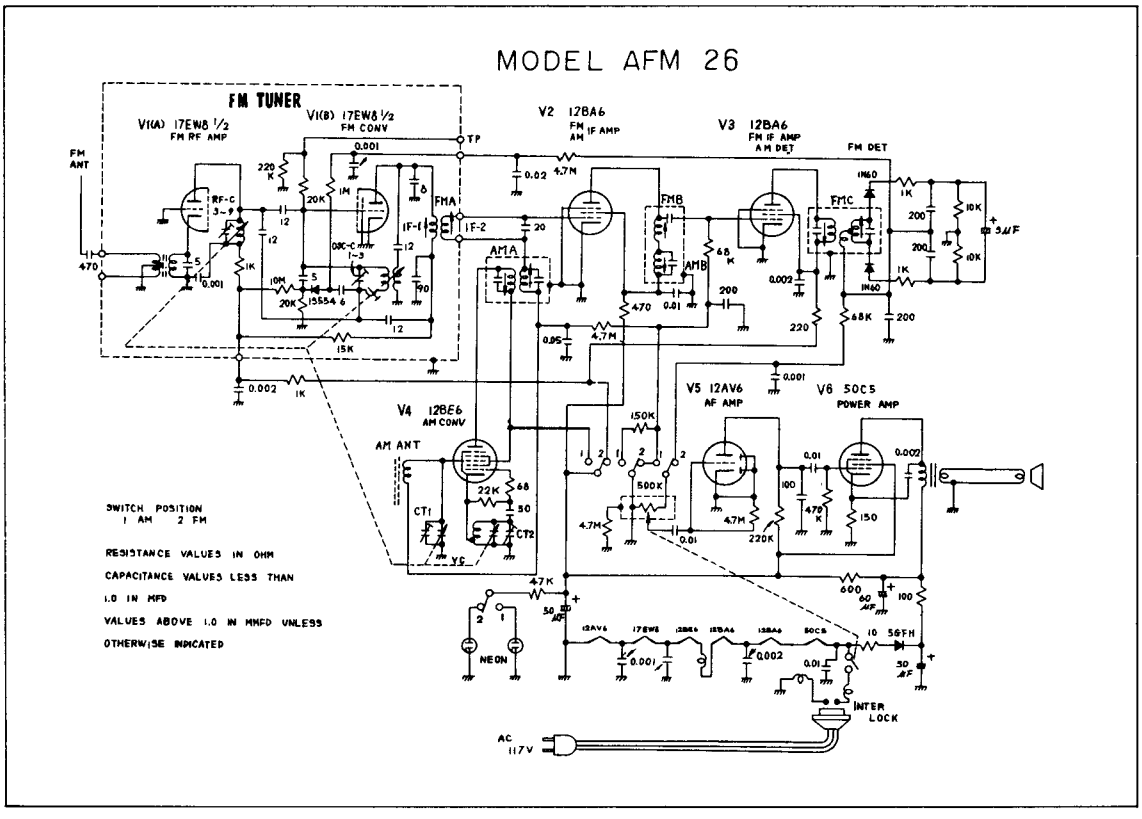
Olympic

Models:
AFM 32, 33
CF 34, 35

AM IF 455 KC
FM IF 10.7 MC



Olympic MODEL AFM 26

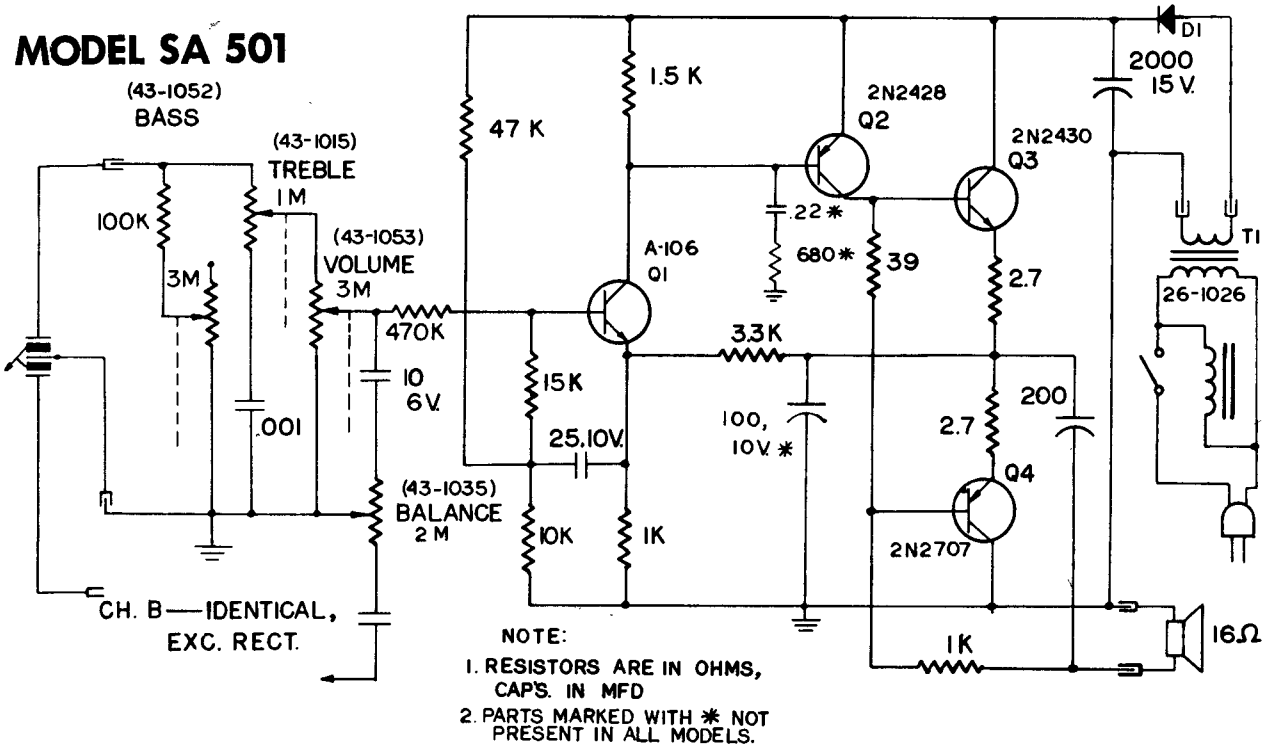


	STEP	Connect high side signal generator to	Set signal generator to	Turn pointer to	Read output on	Adjust the following (keep signal from signal generator as low as possible)
	Before aligning close variable cendenser fully counter-clockwise (plates fully closed) and adjust pointer to coincide with the beginning of dial scale					
AM	1	R F. Section of variable condenser or pin 7 of the 12BE6	455 KC	Extreme right hand position (condenser fully open)	Output meter across speaker voice-coil	AMA (Slug on top of chassis. Slug on underside of chassis for maximum reading)
	2	Tube in series with a 0.1 MFD., 400 volt condenser				AMB (Slug on underside of chassis for maximum reading)
	3	Use radiated signal (connect both sides of signal generator to radiation loop)	1400 KC	1400 KC on dial		CT2 (Oscillator trimmer for maximum output)
	4					CT1 (Antenna trimmer for maximum output)
	5		600 KC	600 KC on dial		Check that 600KC resonanec corresponds with 600KC point on dial
FM	1	R F. section of the "TP" on FM Tuner	10.7 MC	Extreme right hand position (condenser fully open)	Connect oscilloscope across condenser (200MMFD) of FM DET maximum view of S curve	FMA (Slug on IF-1 of tuner. Slug on IF-2 of tuner for maximum)
	2	"TP" in series with a 0.1 MFD 1400 volt condenser				FMB (Slug on top of chassis for maximum)
	3					FMC (Slug on top of chassis. Slug on underside of chassis for maximum reading)
	4	Connect high side signal generator to Antenna screw.	108 MC	108 MC	Output meter across speaker voice-coil	OSC-C (oscillator trimer for maximum output)
	5		98 MC	98 MC		RF-C (FM.RF. Amp trimmer for maximum output)
	6		90 MC	90 MC		Check that 90MC resonance corresponds with 90MC point on dial.

NOTE: This Chassis is connected to one side of the power line. On AC operation an isolation transformer should be used to prevent shock hazard. To protect the signal generator, if no isolation transformer available or if the radio is operated on DC, connect a 0.1 μF capacitor between the high side of the signal generator and the radio. The output of the signal generator be no higher than necessary to obtain a usable output reading. Connect signal generator ground to chassis.

Olympic

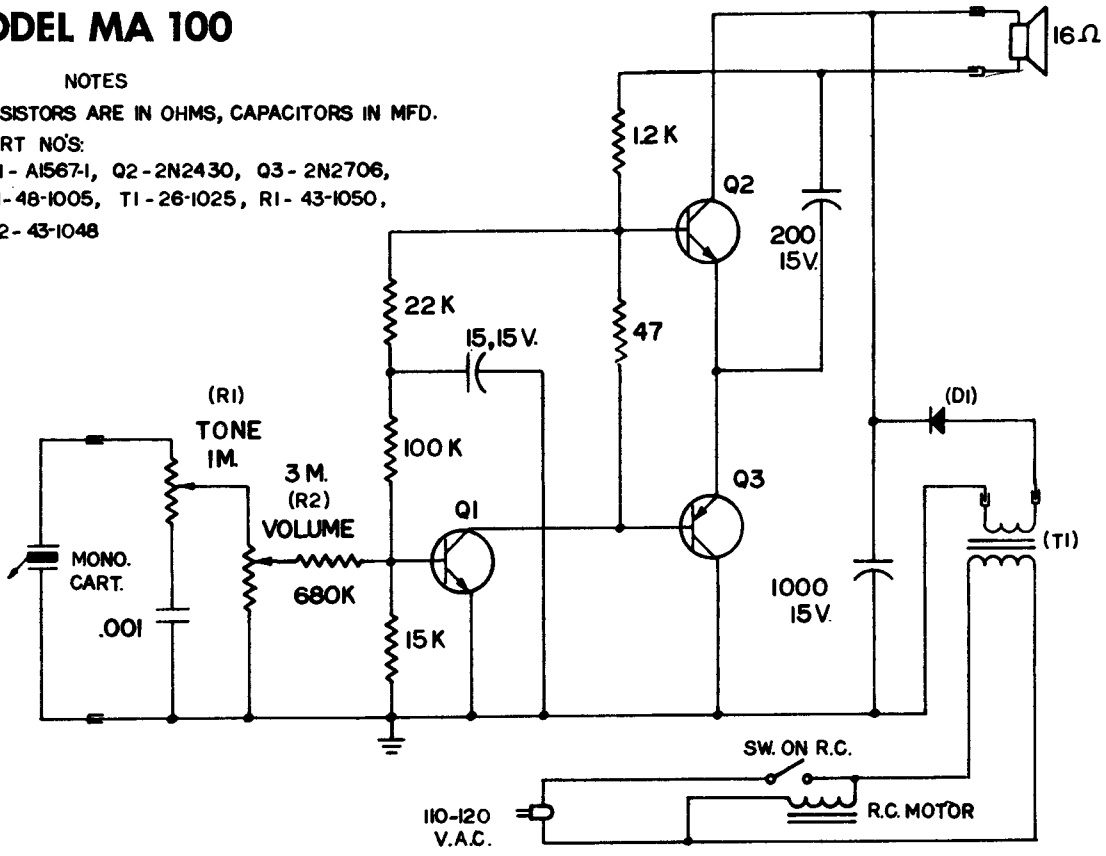
MODEL SA 501



NOTE:
1. RESISTORS ARE IN OHMS, CAPS. IN MFD
2. PARTS MARKED WITH * NOT PRESENT IN ALL MODELS.

MODEL MA 100

NOTES
1. RESISTORS ARE IN OHMS, CAPACITORS IN MFD.
2. PART NO'S:
   Q1 - A1567-1, Q2 - 2N2430, Q3 - 2N2706,
   D1 - 48-1005, T1 - 26-1025, R1 - 43-1050,
   R2 - 43-1048



PHILCO

MODEL P670TBE

TURNTABLE SPEED: 33 1/3 rpm —45 rpm
POWER OUTPUT: 2 peak music watts
POWER SUPPLY: 9 VDC with 6 "D" cells or 120 V.A.C. operation with built-in supply.

IF 455 KC

TRANSISTOR COMPLEMENT

Q1	2SA52	AM Conv.
Q2	2SA49	1st AM IF
Q3	2SA53	2nd AM IF
Q4	2SB54	Pre-amp
Q5	2SB54	Driver
Q6	2SB365	Output
Q7	2SB365	Output

TRANSISTOR BASING BOTTOM VIEW

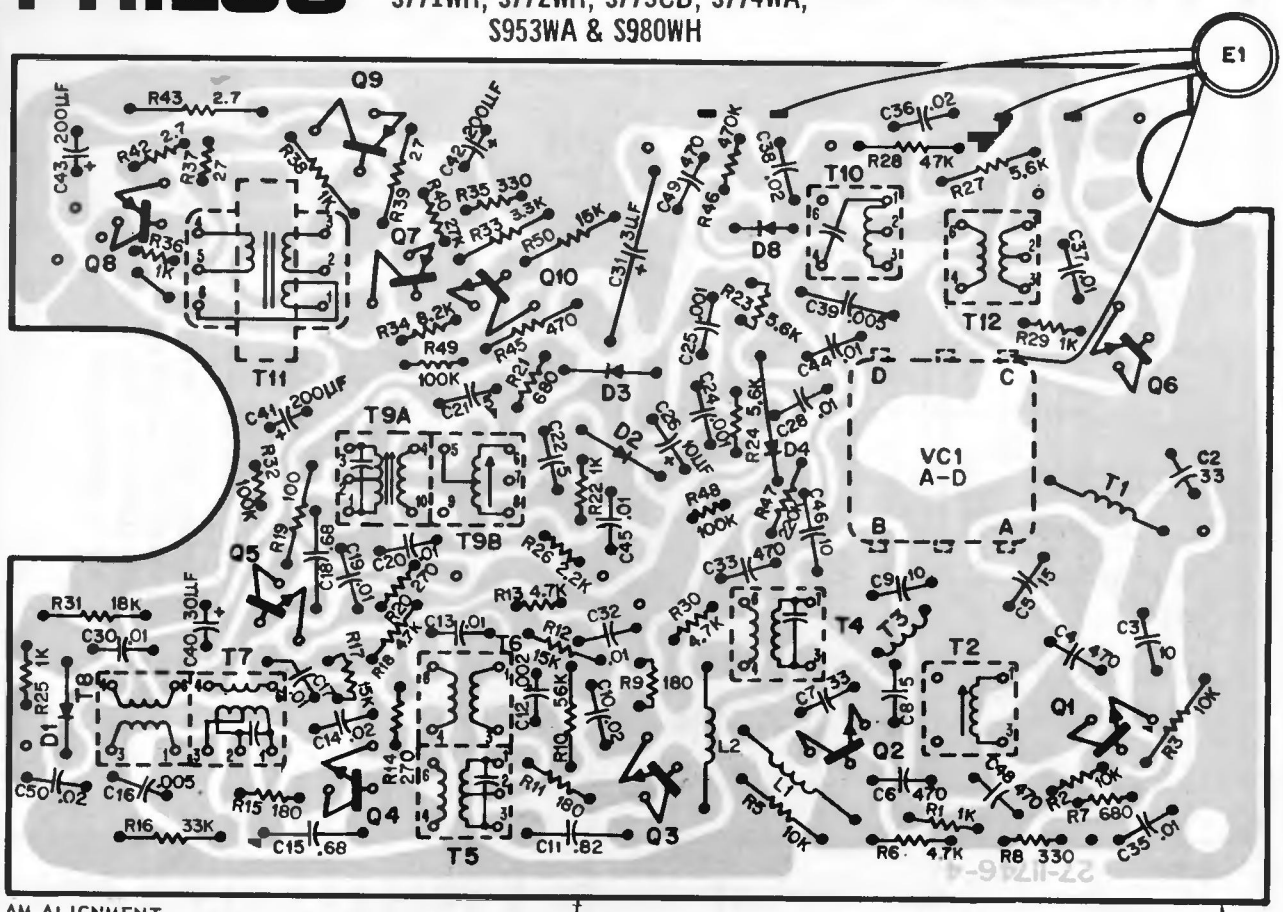
NOTES:
- ALL VOLTAGES MEASURED WITH 20K MODEL 175 VTVM, NO SIGNAL APPLIED, VOLUME AT MINIMUM, S2 IN THE AM POSITION & S4 IN THE A.C. POSITION.
- ALL CURRENTS TAKEN IN THE A.C. POSITION WITH NO SIGNAL APPLIED
- SOURCE VOLTAGE - 9 V
- MOTOR VOLTAGE (NO LOAD) - 8.7 V
- CURRENT DRAIN: AM 13 MA; PHONO (SCRATCH LOAD)
- ALL RESISTORS MARKED WITH AN * ARE PRINTED ON TOP OF THE AUDIO P.W. PANEL

BOTTOM VIEW COMPONENTS—AUDIO PANEL

PHILCO

AM-FM TRANSISTOR RADIO MODELS S771WH, S772WH, S773CB, S774WA, S953WA & S980WH

(Continued on next page.)



AM ALIGNMENT

SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	RADIATING LOOP (SEE NOTE 1)	455 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT IN ORDER GIVEN.	T8, T6 & T10
2	SAME AS STEP 1	1650 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	C1D AM OSC.
3	SAME AS STEP 1	1400 KHZ	1400 KHZ	ADJUST FOR MAX. OUTPUT.	C1C ANT. TRIM.
4	SAME AS STEP 1	600 KHZ	600 KHZ	ADJUST FOR MAX. OUTPUT. ROCK TUNING GANG DURING ADJUSTMENT.	T12 AM OSC.
5	REPEAT STEPS 2, 3 & 4 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				

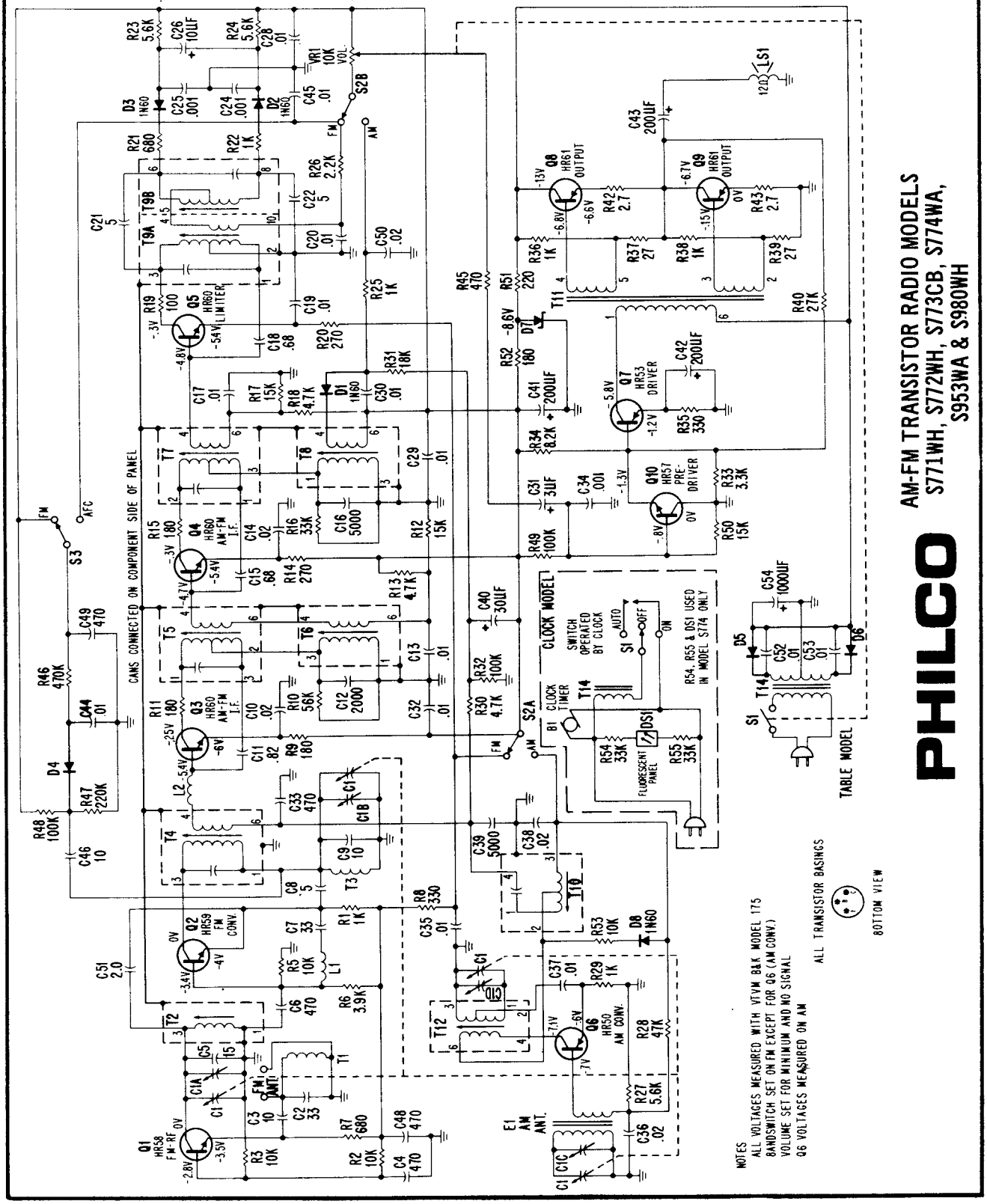
FM ALIGNMENT

SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	COLLECTOR OF Q1 THRU .01 MF CAPACITOR	10.7 MHZ ±75 KHZ SWEEP	TUNING GANG FULLY OPEN	ADJUST FOR MAXIMUM OUTPUT IN ORDER GIVEN. REDUCE GENERATOR OUTPUT AS NECESS.	T9A, T7, T5 & T4
2	SAME AS STEP 1	10.7 MHZ 30% AM	TUNING GANG FULLY OPEN	ADJUST FOR MINIMUM OUTPUT (A NULL BETWEEN TWO PEAKS)	T9B
3	REPEAT STEPS 1 AND 2 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
4	CONNECT TO ANTENNA TERMINAL THRU 47 OHM RESISTOR	87.5 MHZ ±75 KHZ	TUNING GANG FULLY CLOSED	ADJUST FOR MAX. OUTPUT.	T3 (SEE NOTE "A") FM OSC.
5	SAME AS STEP 4	108.5 MHZ ±75 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	C1B FM OSC.

(FM Alignment continued on next page.)

(FM Alignment continued.)

6	REPEAT STEPS 4 AND 5 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
7	SAME AS STEP 4	90 MHZ ±75 KHZ	90 MHZ	ADJUST FOR MAX. OUTPUT.	T2
8	SAME AS STEP 4	105 MHZ ±75 KHZ	105 MHZ	ADJUST FOR MAX. OUTPUT.	C1A
9	REPEAT STEPS 7 AND 8 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				



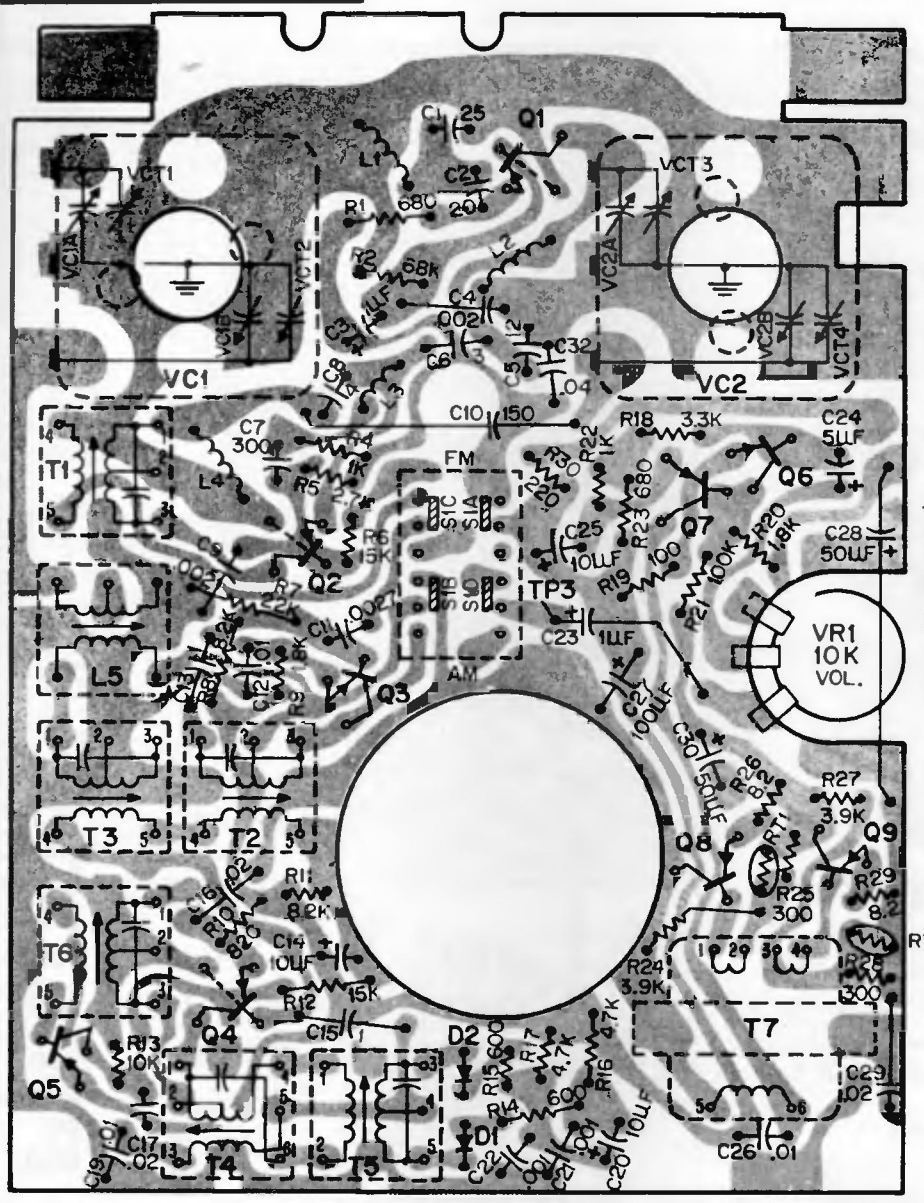
(Continued from preceding page.)

PHILCO

AM-FM TRANSISTOR PORTABLE RADIO MODEL ST-919

(Continued on next page.)

Bottom View Perma Circuit for Components—Model ST-919



FM Alignment

RADIO					
SIGNAL GENERATDR			DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
STEP	CONNECTION TO RADIO	DIAL SETTING			
1	TP1 (RF INPUT) INPUT IMP. 75Ω	10.7MHz ± 75KHZ SWEEP	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT AND BEST SYMMETERY IN ORDER GIVEN.	T1, T2, T4, T5
2	SAME AS STEP 1	86MH7 400HZ @ 75KHZ DEV.	TUNING GANG FULLY CLOSED	ADJUST FOR MAX. OUTPUT.	L4
3	SAME AS STEP 1	110MHz 400HZ @	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	VCT4

FM Alignment continued

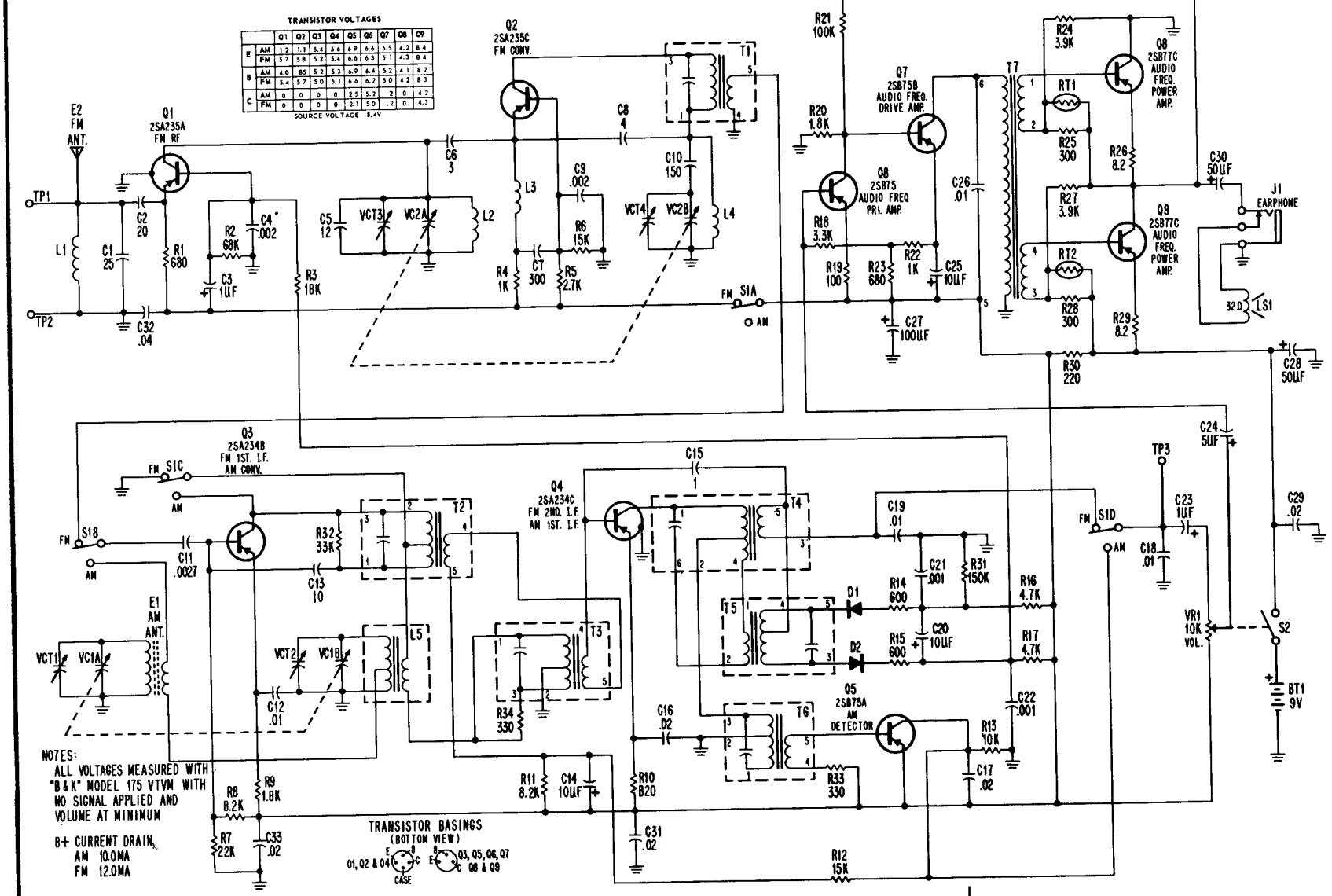
AM ALIGNMENT

SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	TEST LOOP – LOOSE COUPLED	455KHZ 400HZ @ 30% MOD.	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT IN ORDER GIVEN.	T3–1ST IF T6–2ND IF
2	SAME AS STEP 1	525KHZ 400HZ @ 30% MOD.	TUNING GANG FULLY CLOSED	ADJUST FOR MAX. OUTPUT.	L5–OSC. COIL
3	SAME AS STEP 1	1650KHZ 400HZ @ 30% MOD.	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	VCT_2
4	SAME AS STEP 1	600KHZ 400HZ @ 30% MOD.	600KHZ	ADJUST FOR MAX. OUTPUT (MOVE COIL ON CORE)	E1–ANT. COIL
5	SAME AS STEP 1		1400KHZ	ADJUST FOR MAX. OUTPUT	VCT1

PHILCO

AM-FM TRANSISTOR PORTABLE RADIO MODEL ST-919

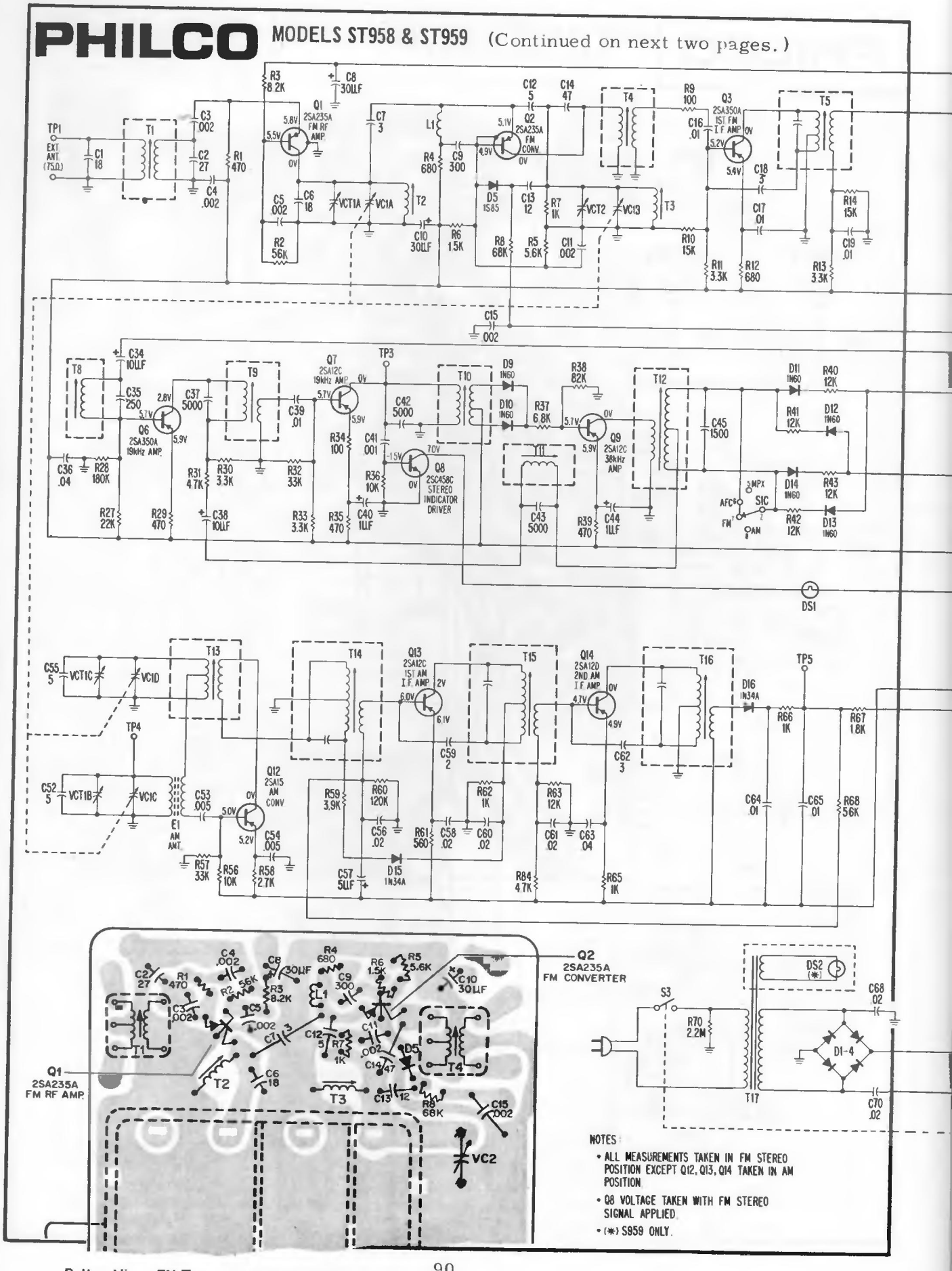
(Continued from preceding page.)



4	REPEAT 2 & 3 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
5	SAME AS STEP 1	90MHZ 400HZ @ 75KHZ DEV.	90MHZ	ADJUST FOR MAX. OUTPUT.	L2
6	SAME AS STEP 1	106MHZ	106MHZ	ADJUST FOR MAX. OUTPUT.	VCT3

← FM Alignment Cont.

PHILCO MODELS ST958 & ST959 (Continued on next two pages.)

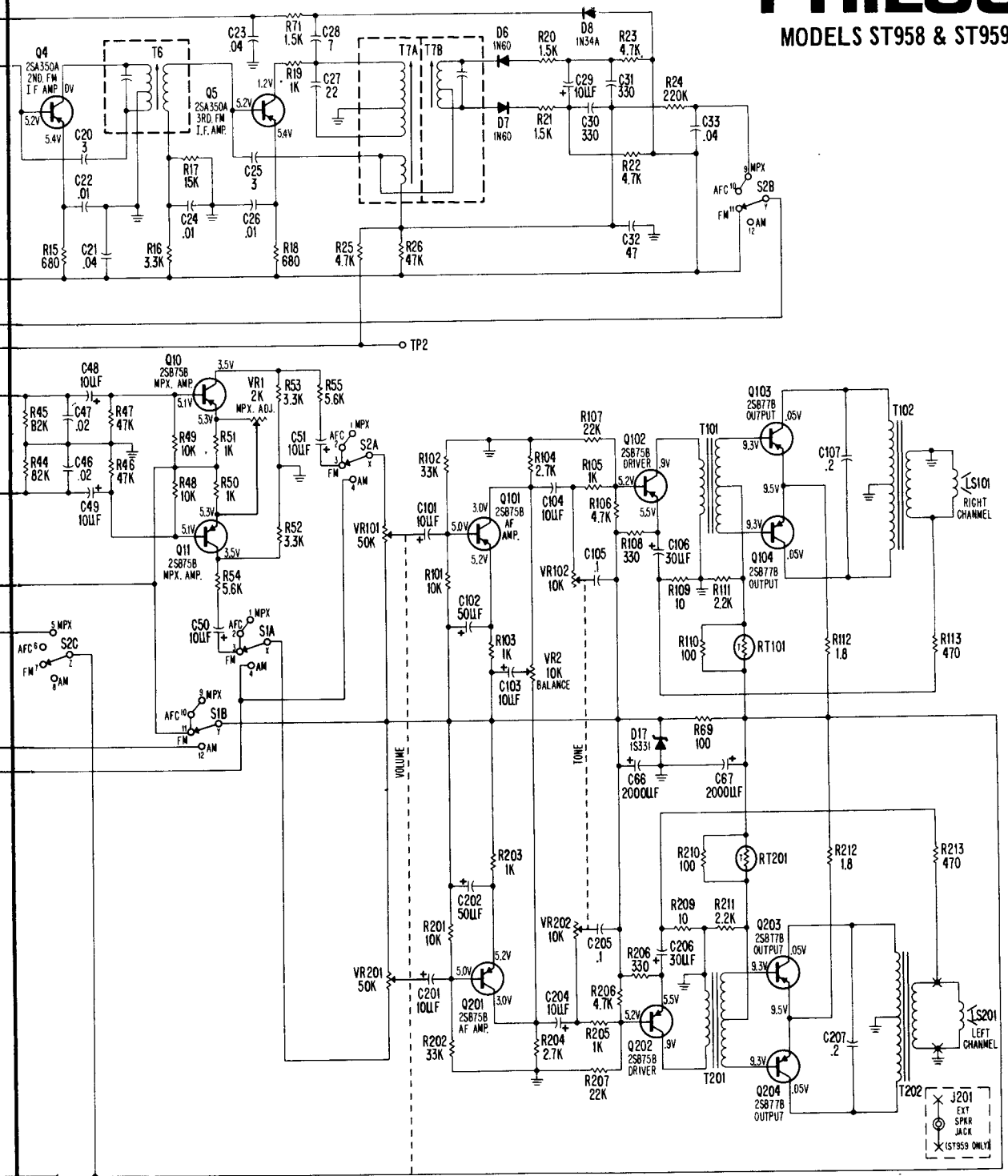


Bottom View–FM Tuner–ST958 and ST959

(Continued on next page and from preceding page.)

PHILCO

MODELS ST958 & ST959



SPEAKERS:

ST958: Two 4'' round, 8 ohms, contained in cabinet.

ST959: Two 4 x 6, 8 ohms, one in cabinet, one extension speaker

POWER: 120 volts alternating current (AC) only.

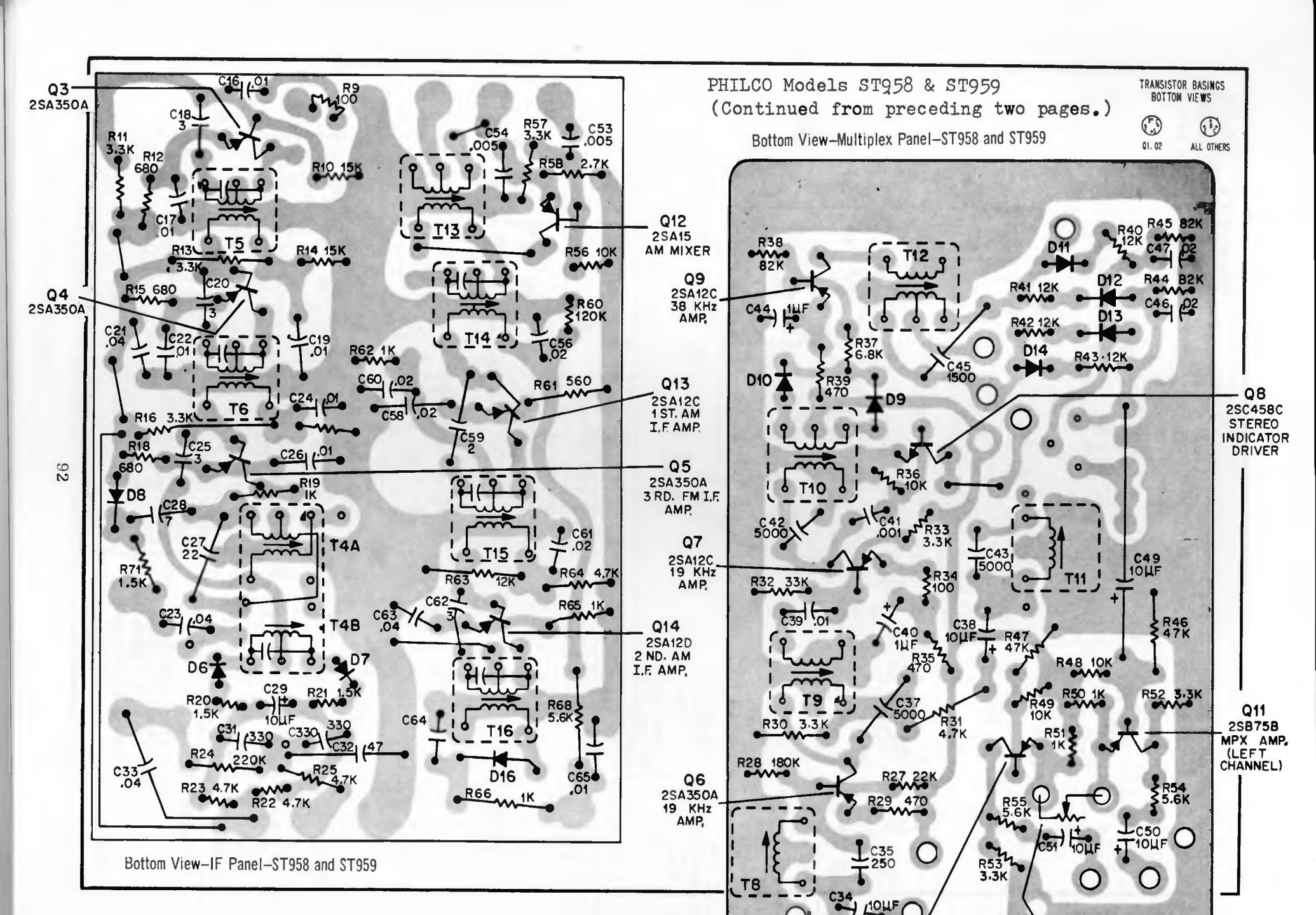
ANTENNA: AM: Self contained magnecore

FM: AC drive cord antenna with provision for external antenna connections.

CIRCUIT: 22 transistors, 13 diodes and 2 thermistors in a superheterodyne FM-AM receiver.

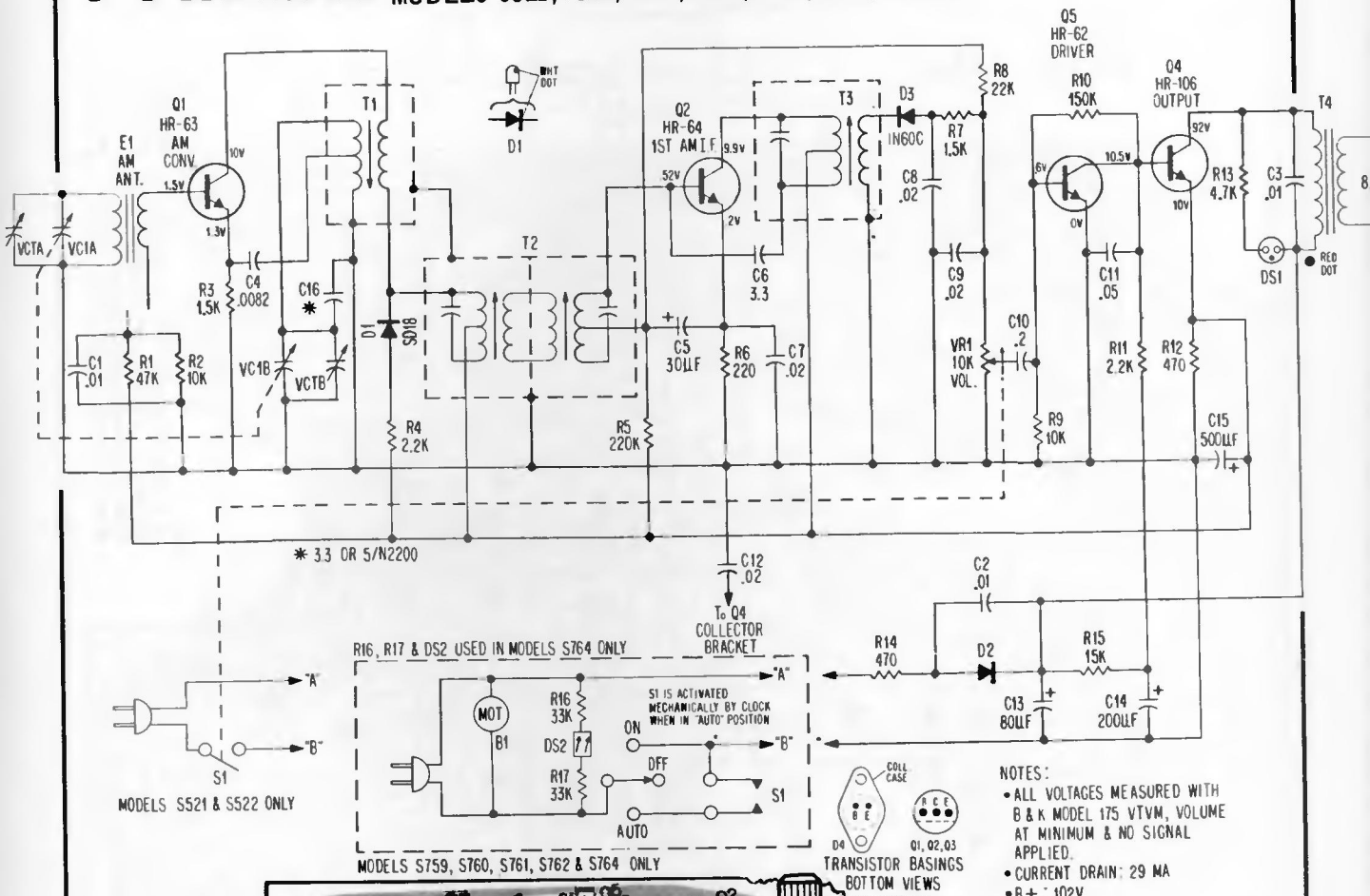
FREQUENCY COVERAGE: FM-88MHz to 108MHz
AM-540MHz to 1620MHz
LW-150KHz to 350KHz

INTERMEDIATE FREQUENCY: AM - 455KHz
FM - 10.7MHz

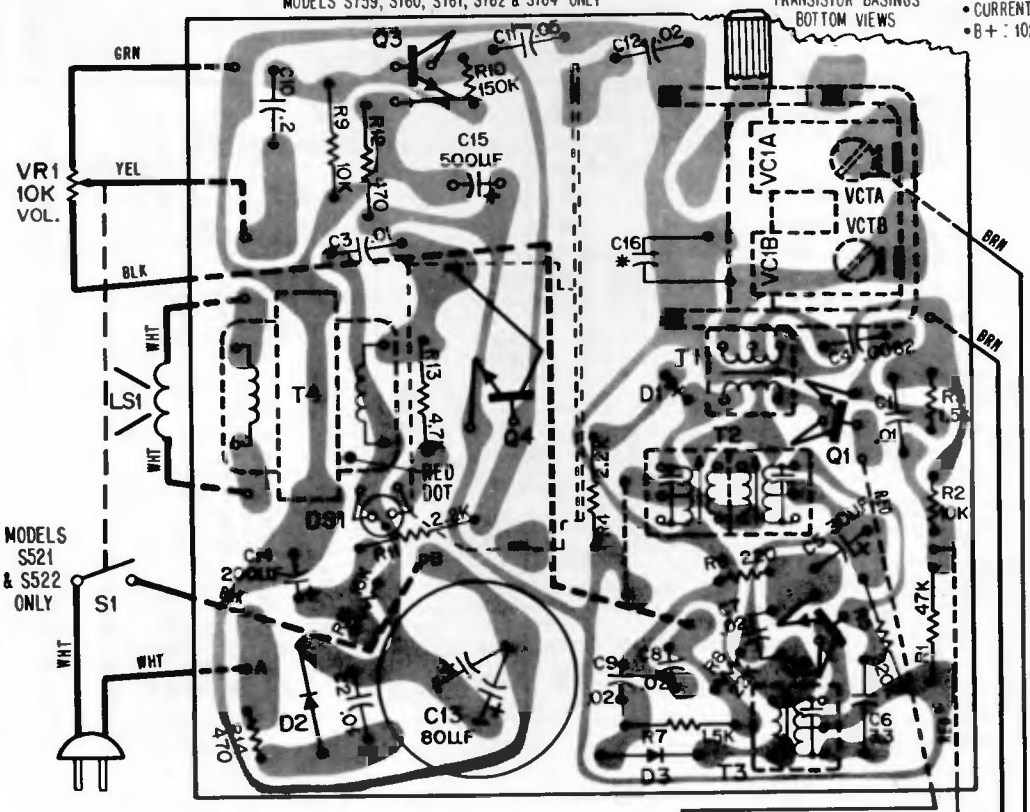

TRANSISTOR BASINGS
BOTTOM VIEWS
Q1, Q2
ALL OTHERS
Bottom View–Multiplex Panel–ST958 and ST959
Bottom View–IF Panel–ST958 and ST959
Q3
2SA350A
Q4
2SA350A
Q5
2SA350A
3 RD. FM I.F. AMP.
Q6
2SA350A
19 KHz AMP.
Q7
2SA12C
19 KHz AMP.
Q8
2SC458C
STEREO INDICATOR DRIVER
Q9
2SA12C
38 KHz AMP.
Q11
2SB75B
MPX AMP. (LEFT CHANNEL)
Q12
2SA15
AM MIXER
Q13
2SA12C
1 ST. AM I.F. AMP.
Q14
2SA12D
2 ND. AM I.F. AMP.
T4A
T4B
T5
T6
T8
T9
T10
T11
T12
T13
T14
T15
T16
D6
D7
D8
D9
D10
D11
D12
D13
D14
D16

PHILCO

CLOCK/TABLE AM TRANSISTOR RADIO
MODELS S521, S522, S759, S760, S761, S762, & S764



NOTES:
- ALL VOLTAGES MEASURED WITH B & K MODEL 175 VTVM, VOLUME AT MINIMUM & NO SIGNAL APPLIED.
- CURRENT DRAIN: 29 MA
- B+ : 102V

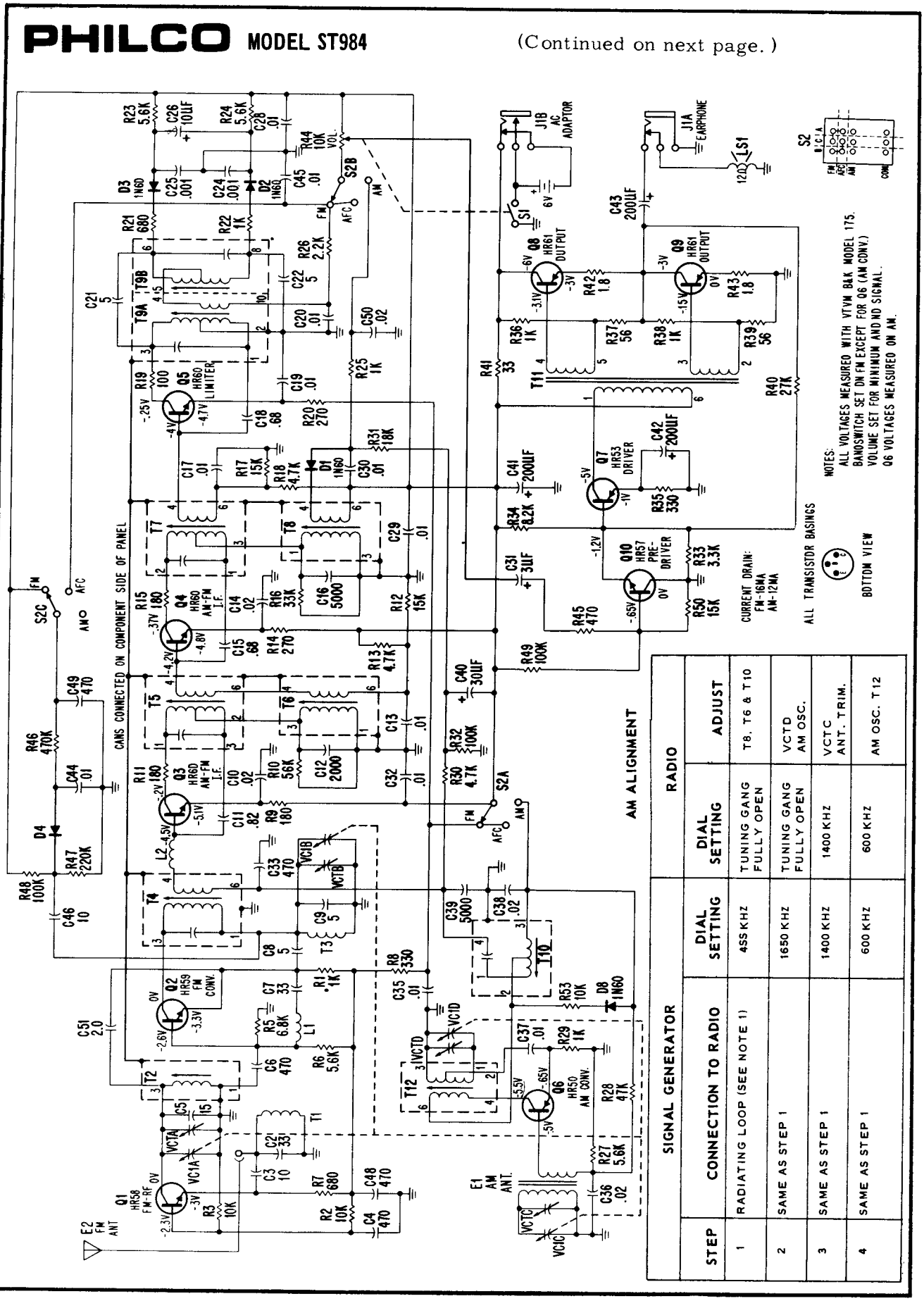


CIRCUIT: Four transistor superheterodyne.
FREQUENCY COVERAGE: 535 KC to 1605 KC
INTERMEDIATE FREQUENCY: 455 KC
ANTENNA: Self contained magnecore.
POWER OUTPUT: 1.4 watts max.
SPEAKER: 4 inches, 8 ohms
POWER: 120 Volts alternating current (AC) only.

* 3.3 OR 5/N2200

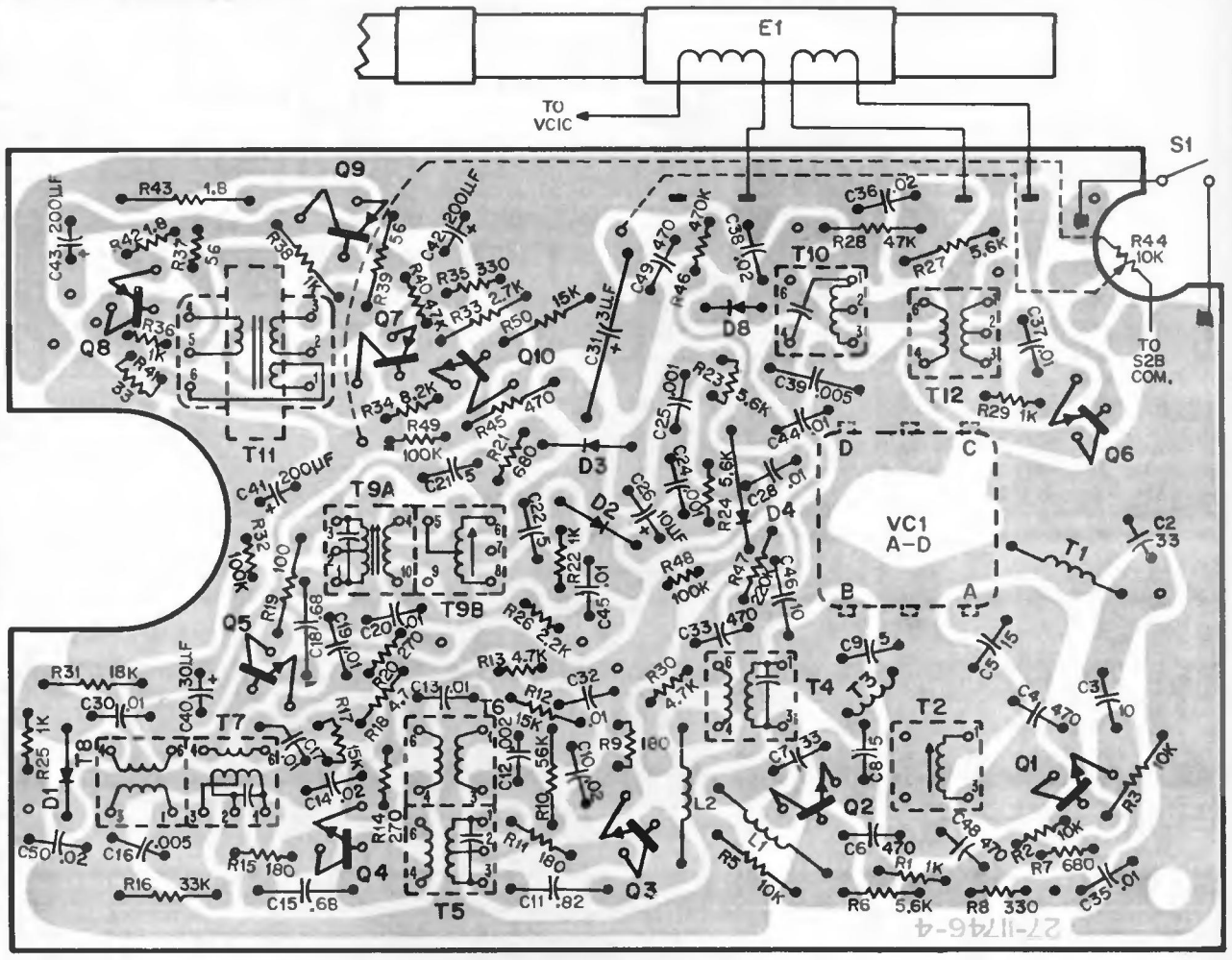
PHILCO MODEL ST984

(Continued on next page.)



SIGNAL GENERATOR			RADIO	
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	ADJUST
1	RADIATING LOOP (SEE NOTE 1)	455 KHZ	TUNING GANG FULLY OPEN	T8, T6 & T10
2	SAME AS STEP 1	1650 KHZ	TUNING GANG FULLY OPEN	VCTD AM OSC.
3	SAME AS STEP 1	1400 KHZ	1400 KHZ	VCTC ANT. TRIM.
4	SAME AS STEP 1	600 KHZ	600 KHZ	AM OSC. T12

(Continued from preceding page.)



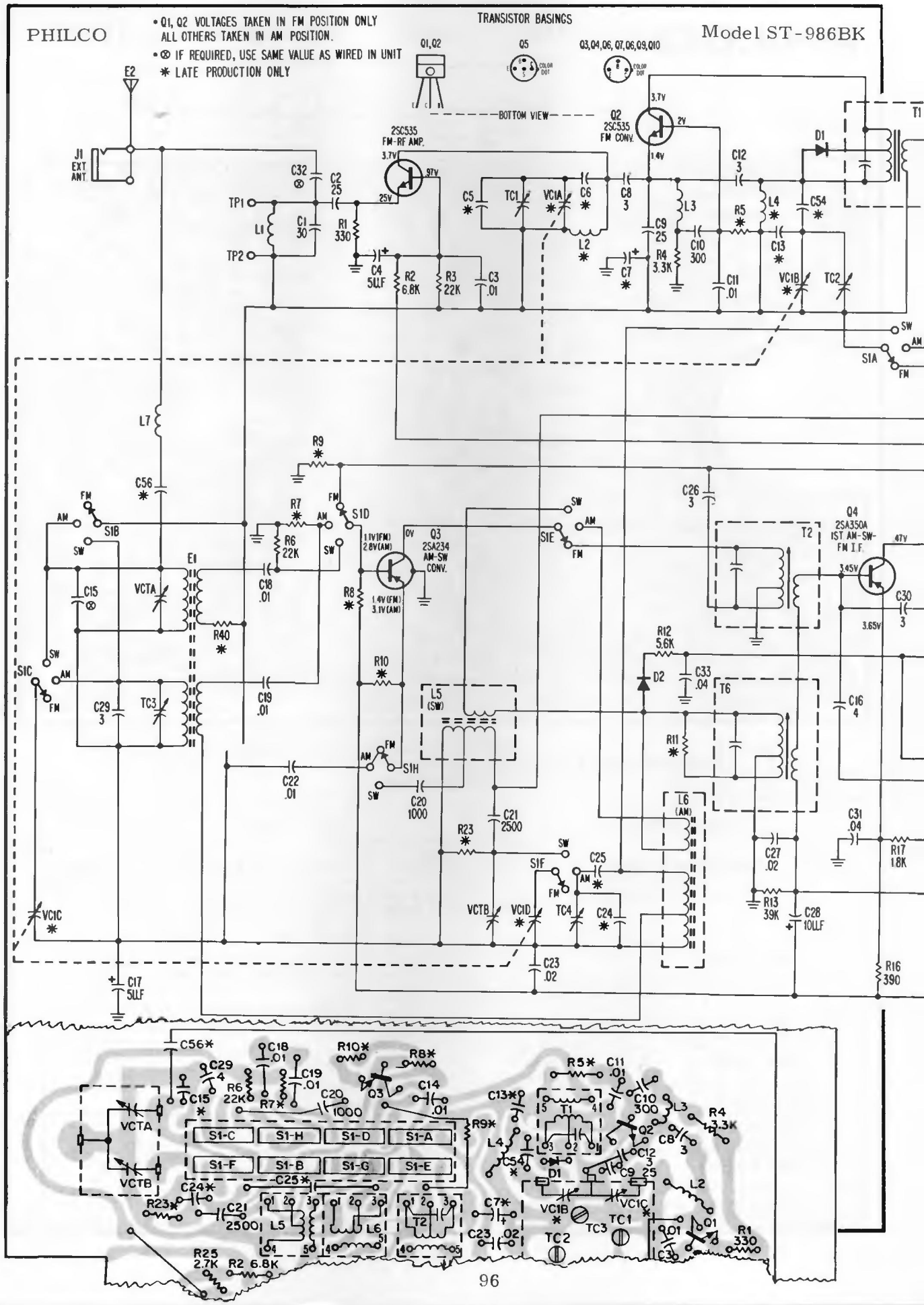
Bottom View–Perma Circuit Panel Component Layout–Model ST984

INTERMEDIATE FREQUENCY: AM, 455 KHz
FM, 10.7 MHz

FM ALIGNMENT

SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	COLLECTOR OF Q1 THRU .01 MF CAPACITOR	10.7 MHZ ±75 KHZ SWEEP	TUNING GANG FULLY OPEN	ADJUST FOR MAXIMUM OUTPUT IN ORDER GIVEN. REDUCE GENERATOR OUTPUT AS NECESS.	T9A, T7, T5 & T4
2	SAME AS STEP 1	10.7 MHZ 30% AM	TUNING GANG FULLY OPEN	ADJUST FOR MINIMUM OUTPUT (A NULL BETWEEN TWO PEAKS)	T9B
3	REPEAT STEPS 1 AND 2 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
4	CONNECT TO ANTENNA TERMINAL THRU 47 OHM RESISTOR	87.5 MHZ ±75 KHZ	TUNING GANG FULLY CLOSED	ADJUST FOR MAX. OUTPUT.	T3 (SEE NOTE "A") FM OSC.
5	SAME AS STEP 4	108.5 MHZ ±75 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	VCTB FC OSC.
6	REPEAT STEPS 4 AND 5 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
7	SAME AS STEP 4	90 MHZ ±75 KHZ	90 MHZ	ADJUST FOR MAX. OUTPUT.	T2
8	SAME AS STEP 4	105 MHZ ±75 KHZ	105 MHZ	ADJUST FOR MAX. OUTPUT.	VCTA
9	REPEAT STEPS 7 AND 8 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				

(Continued on next page.)



PHILCO MODEL ST-986BK (Continued from preceding page.)

CIRCUIT: 10 transistors, 5 diodes and 1 thermistor in a superheterodyne FM-AM-SW receiver covering 3 bands.

SPEAKER: 3½ inch 8 ohms voice coil, jack provided for optional private listening unit (Part number 429-0919-19).

ANTENNA: AM-SW, self-contained magnecore. FM-SW, telescopic adjustable monopole. External antenna jack provided for use with an antenna other than the monopole.

BATTERY: 3 "D" cells provide a 4.5-volt supply with a jack provided for optional external power supply (Philco part no. 423-1009-4).

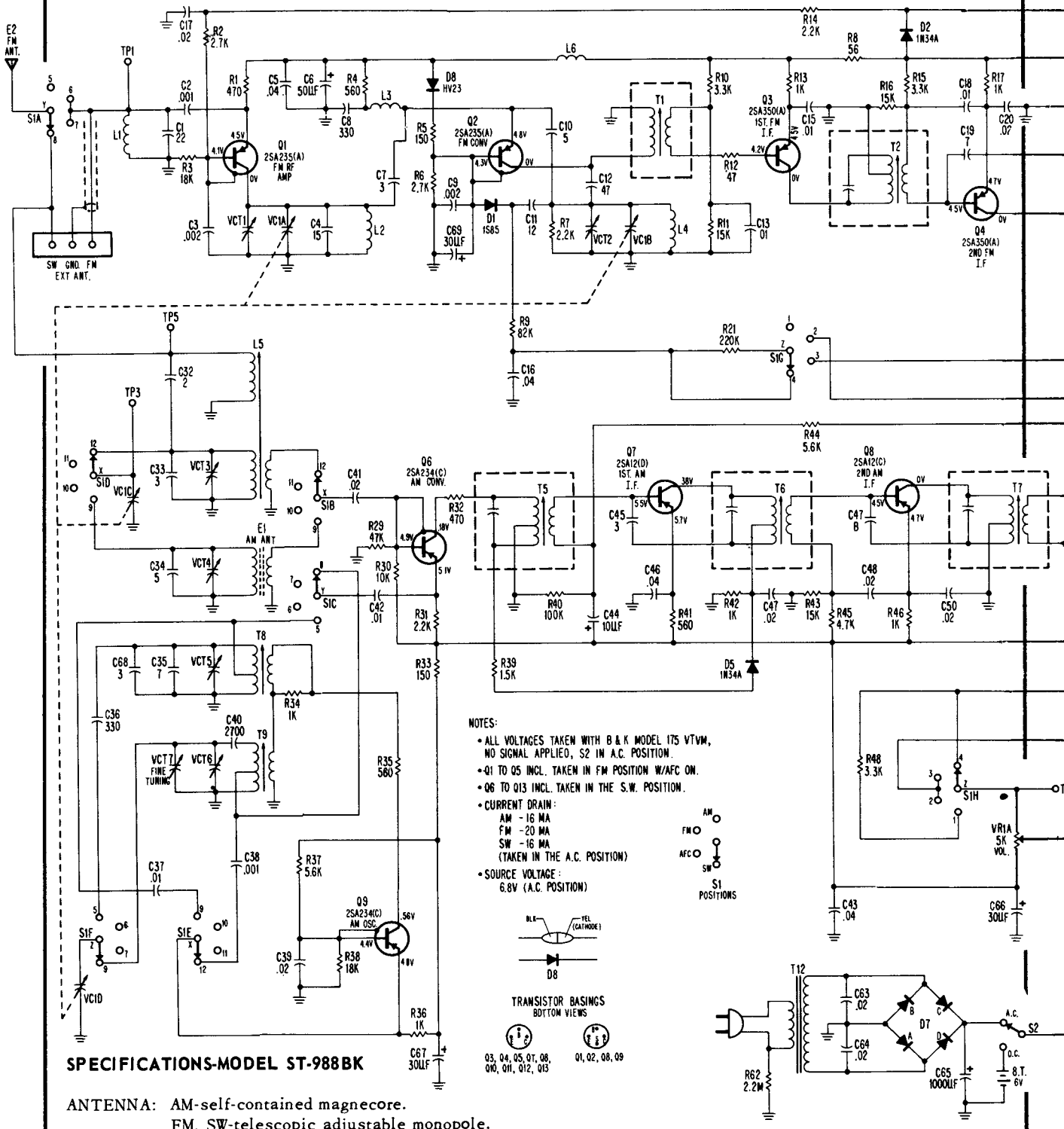
FREQUENCY RANGE: FM, 88MHz to 108MHz
SW, 4.5MHz to 12MHz
AM, 540KHz to 1600KHz

INTERMEDIATE FREQUENCY: FM, 10.7MHz
SW, 460KHz
AM, 460KHz

Bottom View Component–Model ST-986

PHILCO MODEL ST-988BK

(Continued on next page.)



SPECIFICATIONS-MODEL ST-988BK

ANTENNA: AM-self-contained magnecore.
FM, SW-telescopic adjustable monopole.
Terminal panel provided for FM and SW antennas.

CIRCUIT: 13 transistors, 8 diodes and 1 thermistor in a superheterodyne FM-AM-SW receiver.

FREQUENCY COVERAGE: FM-88MHz to 108MHz
AM-540KHz to 1620KHz
SW-6MHz to 18MHz

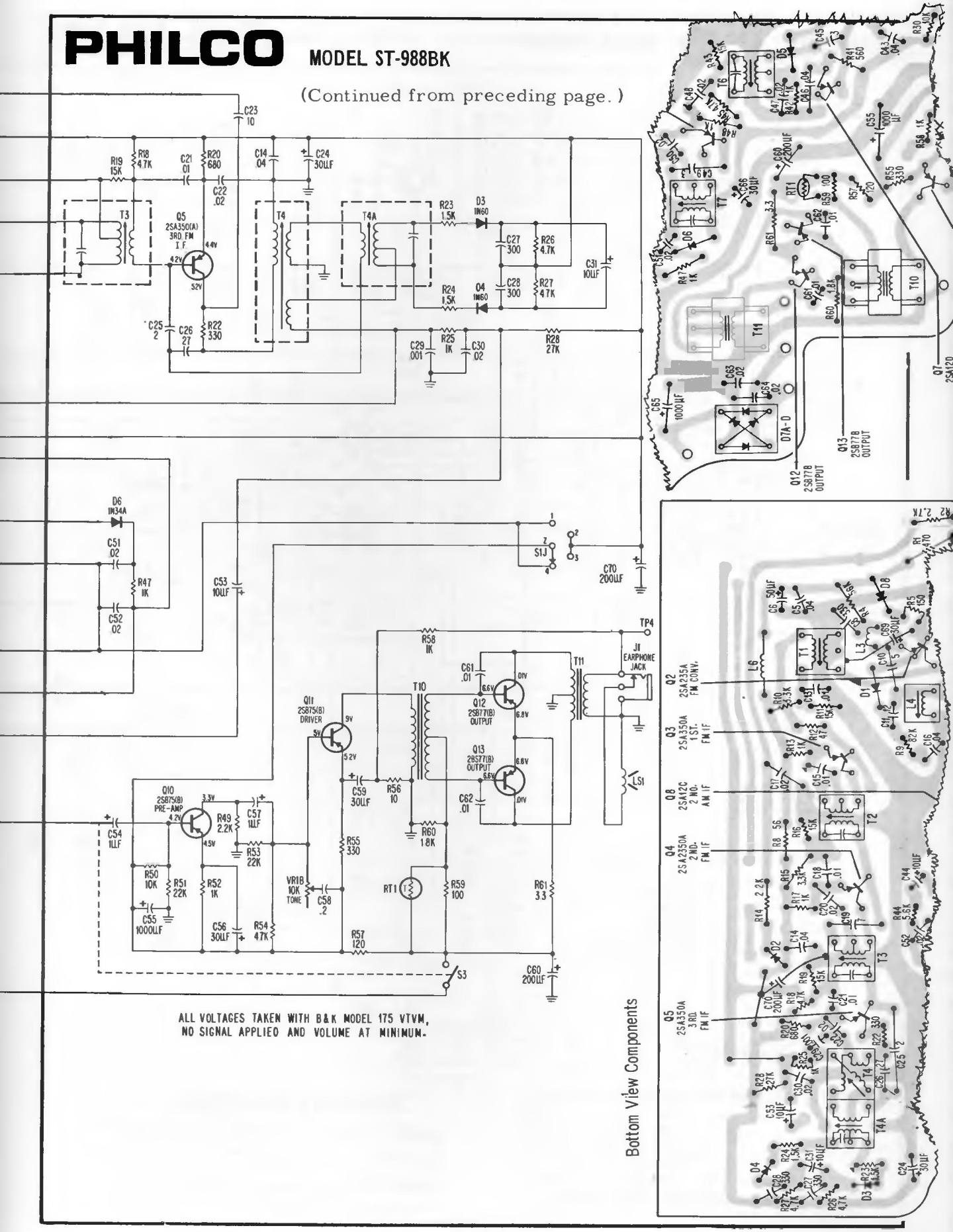
INTERMEDIATE FREQUENCY: AM-455KHz
FM-10.7MHz

POWER SUPPLY: 4 "C" cells in a 6 volt supply with a built-in A.C. power supply for optional A.C. operation.

SPEAKER: 4 inches, 8 ohms, jack provided for optional private listening unit (Philco Part No. 326-8007-1).

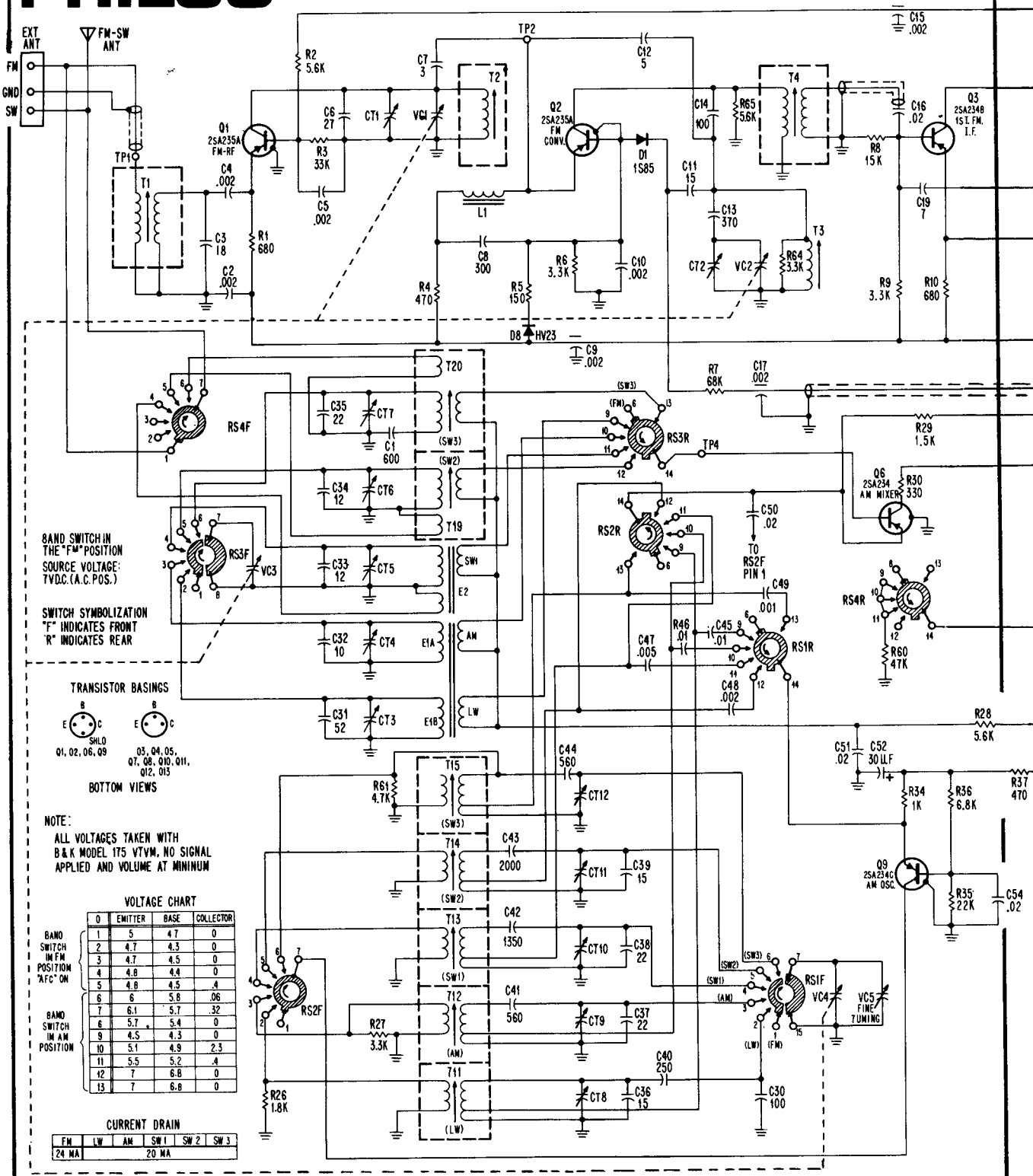
PHILCO MODEL ST-988BK

(Continued from preceding page.)



PHILCO MODEL ST989BK

(Continued on next two pages.)



		EMITTER	BASE	COLLECTOR
BAND SWITCH IN FM POSITION "AFC" ON	1	5	4.7	0
	2	4.7	4.3	0
	3	4.7	4.5	0
	4	4.8	4.4	0
	5	4.8	4.5	.4
BAND SWITCH IN AM POSITION	6	6	5.8	.06
	7	6.1	5.7	.32
	8	5.7	5.4	0
	9	4.5	4.3	0
	10	5.1	4.9	2.3
	11	5.5	5.2	.4
	12	7	6.8	0
	13	7	6.8	0

FREQUENCY COVERAGE: FM-88MHz to 108MHz
AM-540KHz to 1620KHz
LW-150KHz to 350KHz
SW1-1.5MHz to 4.5MHz
SW2-3MHz to 9MHz
SW3-9MHz to 22MHz

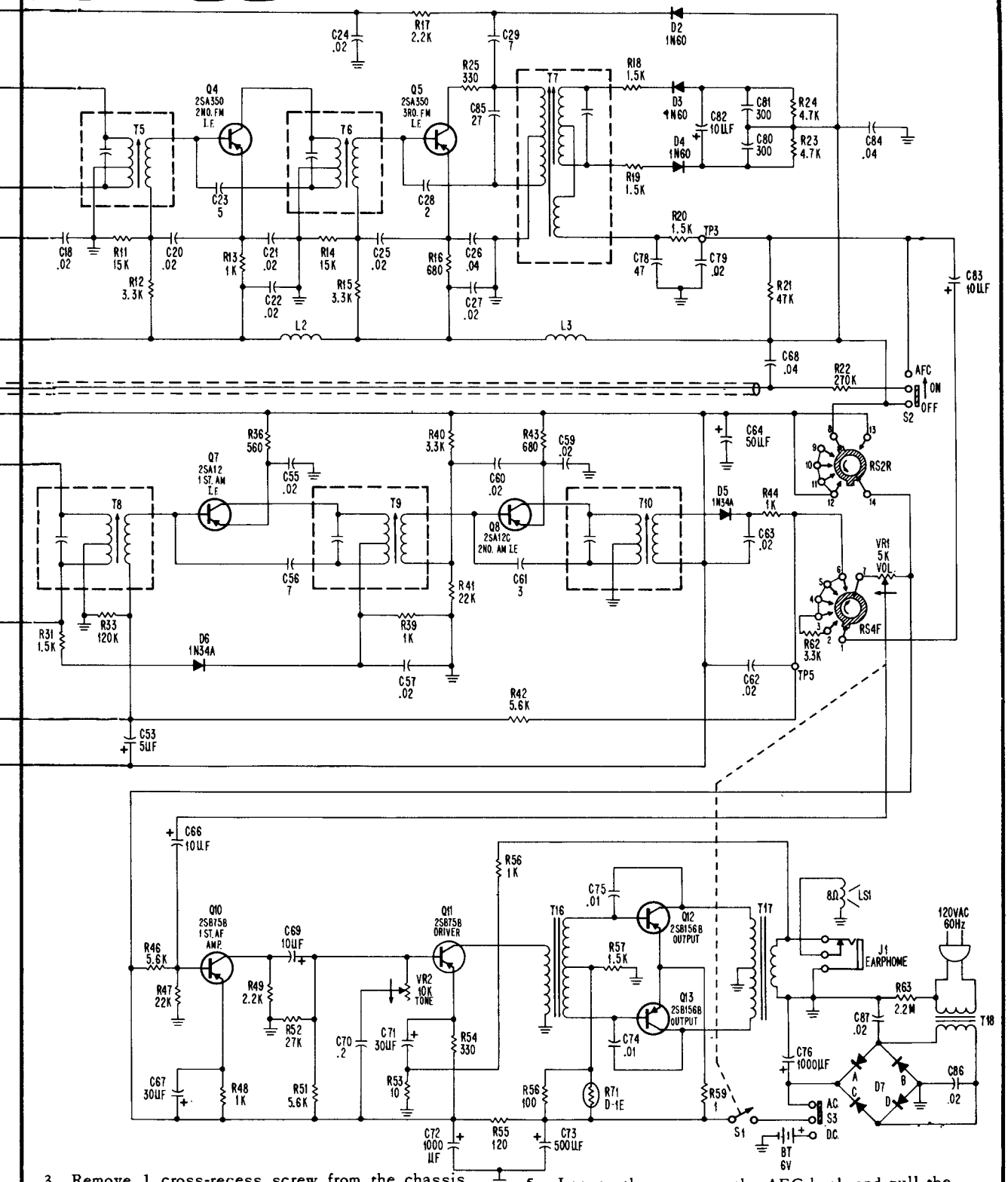
INTERMEDIATE FREQUENCY: AM - 455KHz
FM - 10.7MHz

DISASSEMBLY INSTRUCTIONS

1. Remove 2 cross-recess screws from the rear of the cabinet and unsnap the battery compartment lid.
2. Carefully pull the line cord box out of the unit. Also remove the battery case.

PHILCO MODEL ST989BK

Continued on next page and from preceding page



3. Remove 1 cross-recess screw from the chassis next to the power transformer and 1 cross-recess screw from the front of the tuner mounting bracket.
4. Remove 3 nuts, 2 on the left hand side of the chassis and 1 between the rotary switch bracket and the P.W. Panel.
5. Loosen the screw on the AFC knob and pull the knob off.
6. Remove J1 and S3 from the jack panel on the right-hand side. Do not remove the panel itself.
7. Lift the chassis on the right side slightly and pull to the right to clear the rotary switch shaft from the side of cabinet. Lift the chassis straight up to clear cabinet.

(Continued from preceding two pages.)

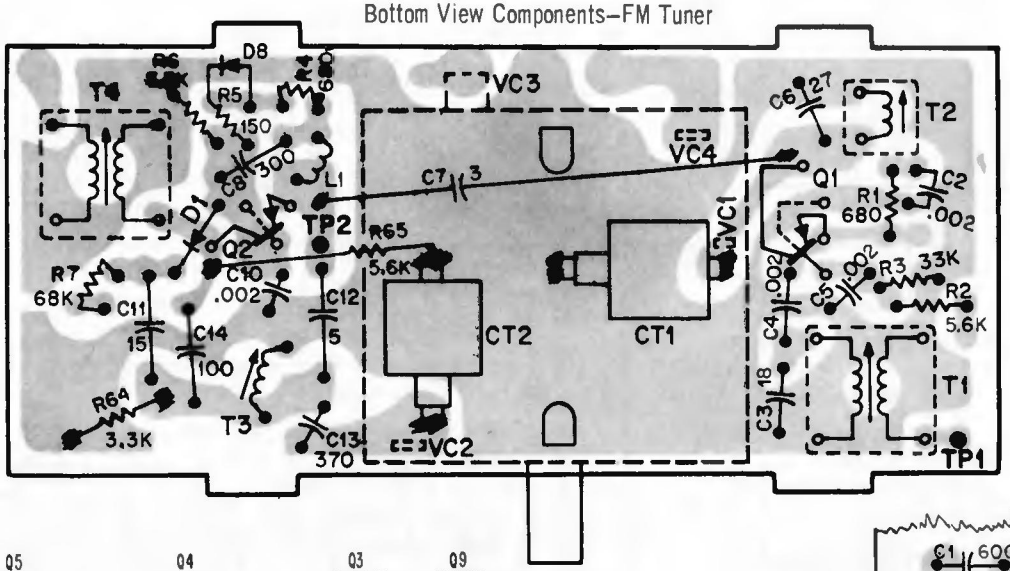
ANTENNA: AM-LW-SW1, self contained magnecore
SW2, SW3, FM, telescopic adjustable monopole
Terminal panel provided for external FM and SW antennas

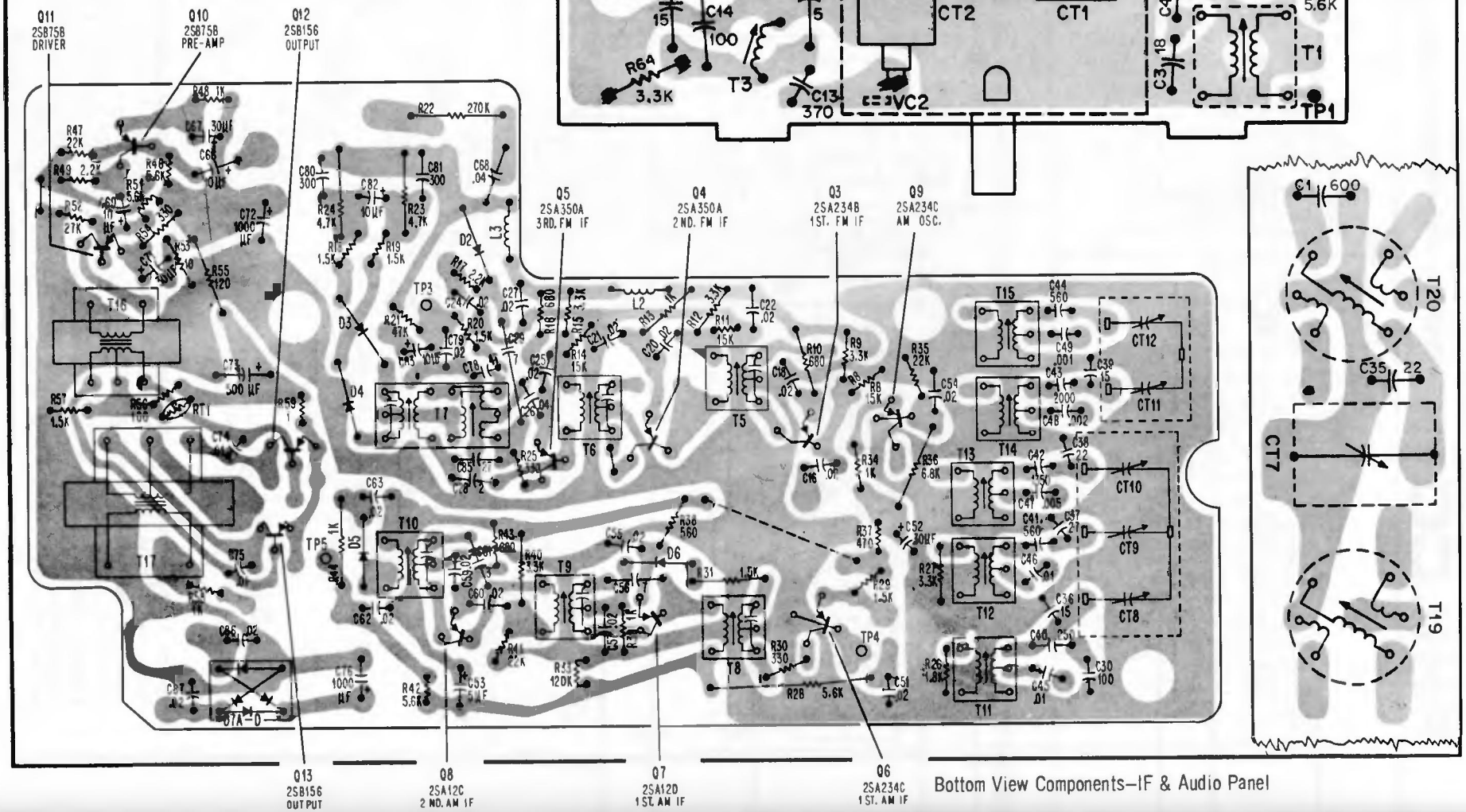
FREQUENCY COVERAGE: FM-88MHz to 108MHz
AM-540KHz to 1620KHz
LW-150KHz to 350KHz
SW1-1.5MHz to 4.5MHz
SW2-3MHz to 9MHz
SW3-9MHz to 22MHz

INTERMEDIATE FREQUENCY: AM - 455KHz
FM - 10.7MHz

PHILCO
MODEL ST989BK

Bottom View Components—FM Tuner





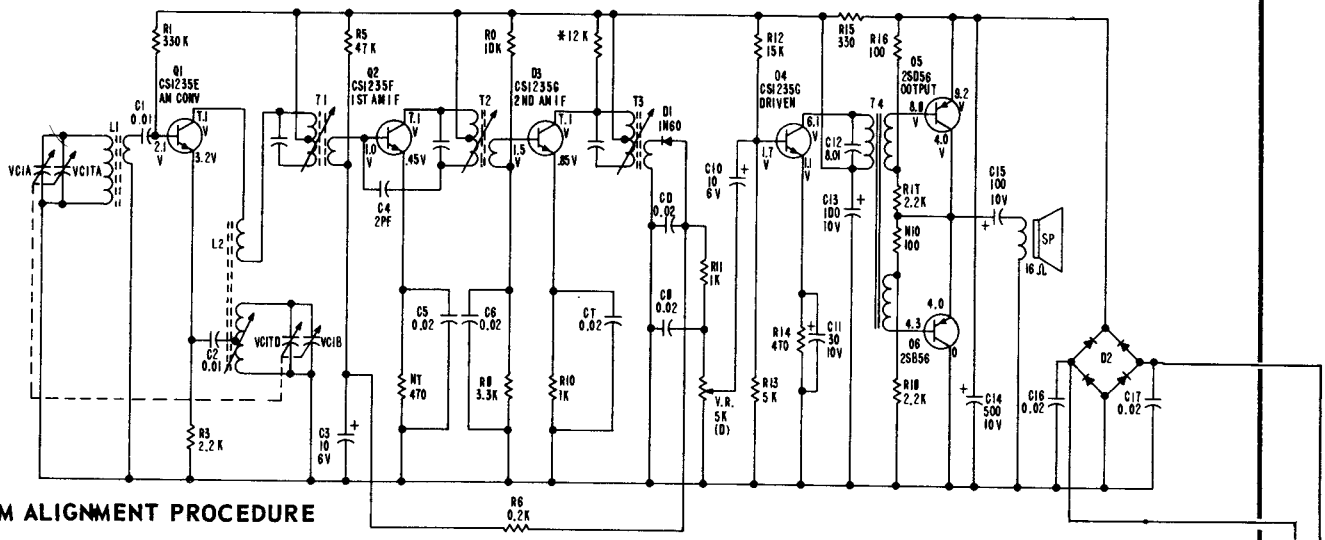
Bottom View Components—IF & Audio Panel

Bottom View Components—SW Ant. Panel

PHILCO

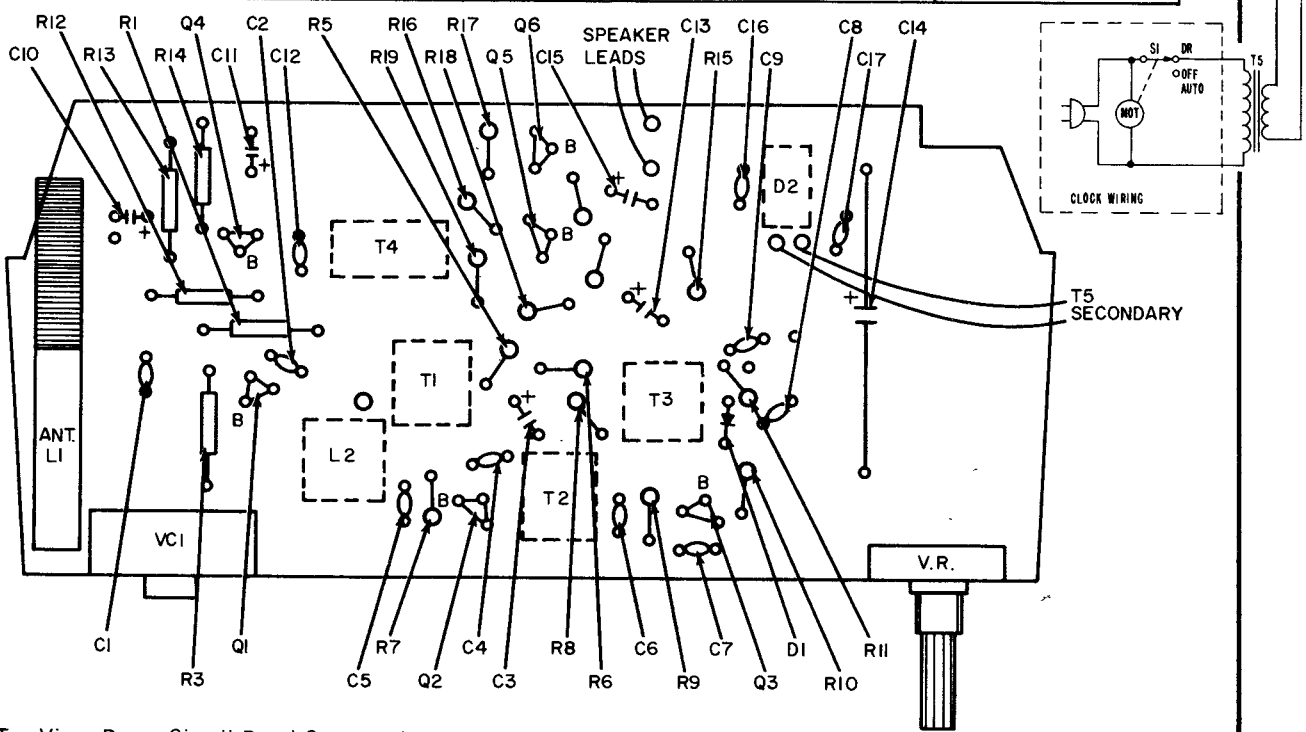
TABLE/CLOCK AM RADIO
MODEL S-790BR

NOTES:
1. ALL VOLTAGES MEASURED WITH B+K MODEL 175 VTVM, VOLUME AT MINIMUM AND NO SIGNAL APPLIED.
2. CURRENT DRAIN 8.5 MA.
3. B+ 8.2 VDC
* USED AS REQUIRED



AM ALIGNMENT PROCEDURE

SIGNAL GENERATOR			RADIO		
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	USE RADIATING LOOP (SEE NOTE BELOW)	455KHz	GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT IN ORDER GIVEN.	T1 1ST IF T2 2ND IF T3 3RD IF
2	SAME AS STEP 1	1620KHz	GANG OPEN	ADJUST FOR MAX. OUTPUT.	VC1TB OSC. TRIMMER
3	SAME AS STEP 1	1400KHz	1400KHz	ADJUST FOR MAX. OUTPUT.	VC1TA ANT. TRIMMER
4	SAME AS STEP 1	580KHz	580KHz	ADJUST FOR MAX. OUTPUT. ROCK GANG WHILE MAKING ADJUSTMENT	L2 OSC. COIL

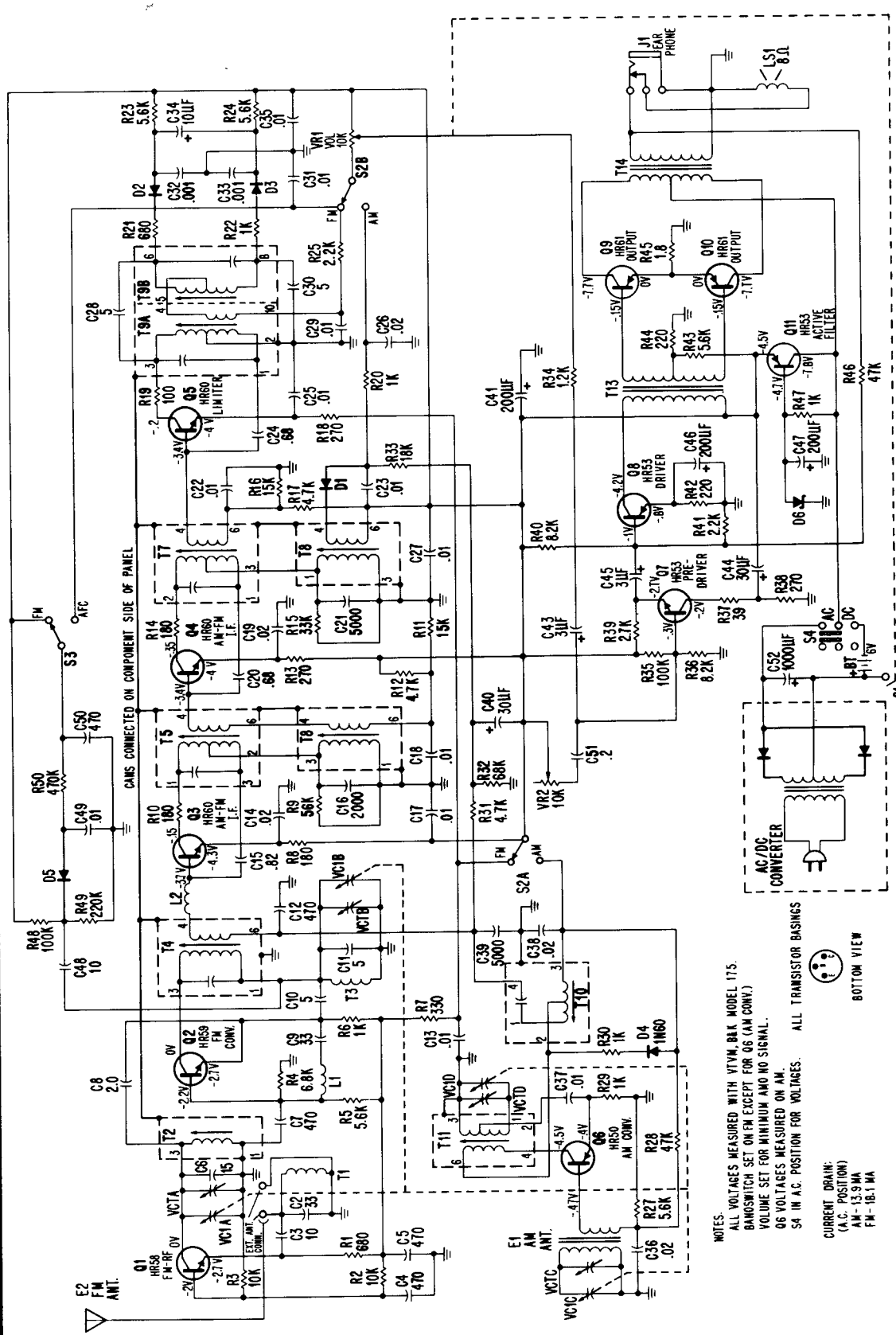


Top View–Perma Circuit Panel Components

PHILCO

AM/FM RADIO
MODELS ST997 AND ST998

(Continued on next page.)



CIRCUIT: 11 transistors, 6 diodes in an AM-FM superheterodyne circuit.

FREQUENCY COVERAGE: AM, 520 KHz to 1620 KHz
FM, 88 MHz to 108 MHz

INTERMEDIATE FREQUENCY: AM, 455 KHz
FM, 10.7 MHz

POWER: AC, 117 volts, 60Hz through AC/DC converter, part no. 76-14128-1.

DC, ST998–4 type "D" cells (Eveready types 920 or 1050) in a 6-volt supply.

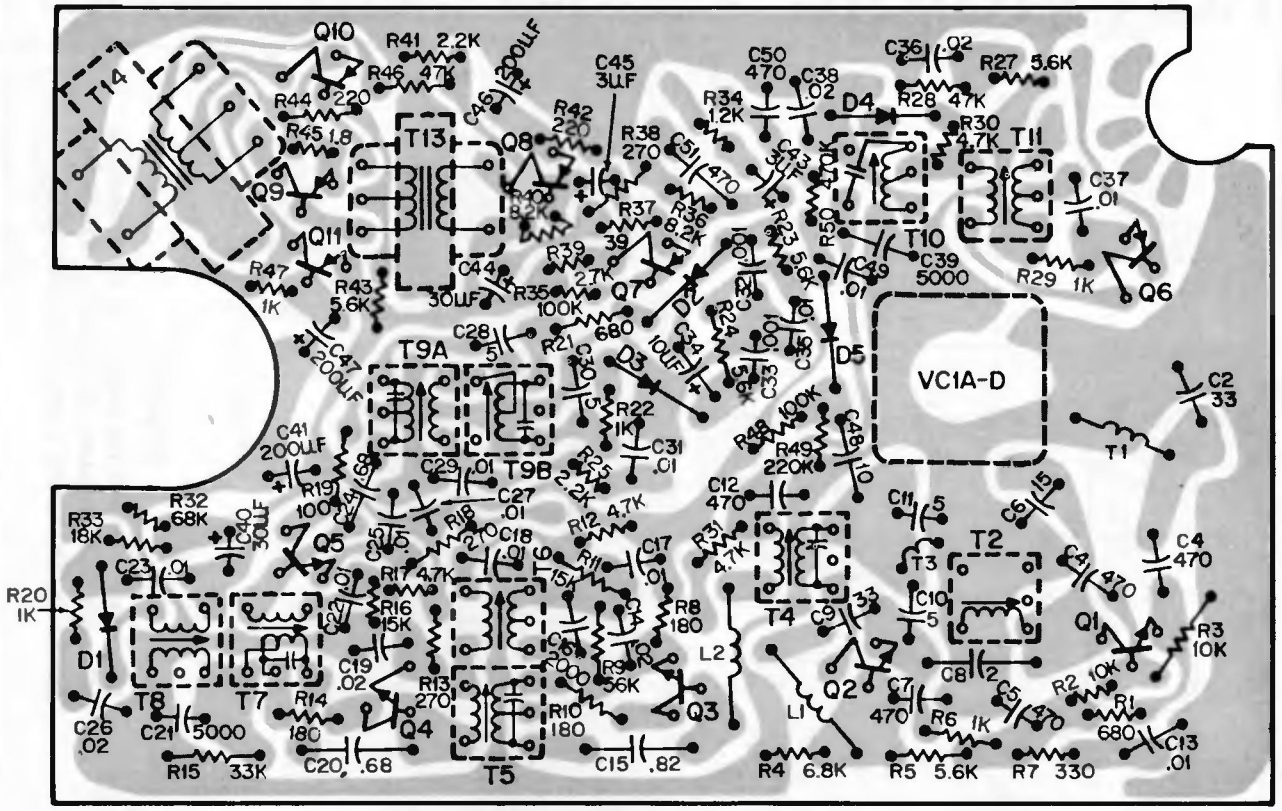
ST997–4 type "C" cells (Eveready type 1035) in a 6-volt supply

PHILCO

AM/FM RADIO
MODELS ST997 AND ST998

(Continued from preceding page.)

Bottom View—Perma-Circuit Panel—Models ST997 and ST998



AM ALIGNMENT

STEP	SIGNAL GENERATOR: CONNECTION TO RADIO	SIGNAL GENERATOR: DIAL SETTING	RADIO: DIAL SETTING	RADIO: SPECIAL INSTRUCTIONS	RADIO: ADJUST
1	RADIATING LOOP (SEE NOTE 1)	455 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT IN ORDER GIVEN.	T8, T6 & T10
2	SAME AS STEP 1	1650 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	VC TD AM OSC.
3	SAME AS STEP 1	1400 KHZ	1400 KHZ	ADJUST FOR MAX. OUTPUT.	VC TC ANT. TRIM.
4	SAME AS STEP 1	600 KHZ	600 KHZ	ADJUST FOR MAX. OUTPUT. ROCK TUNING GANG DURING ADJUSTMENT.	T11 AM OSC.

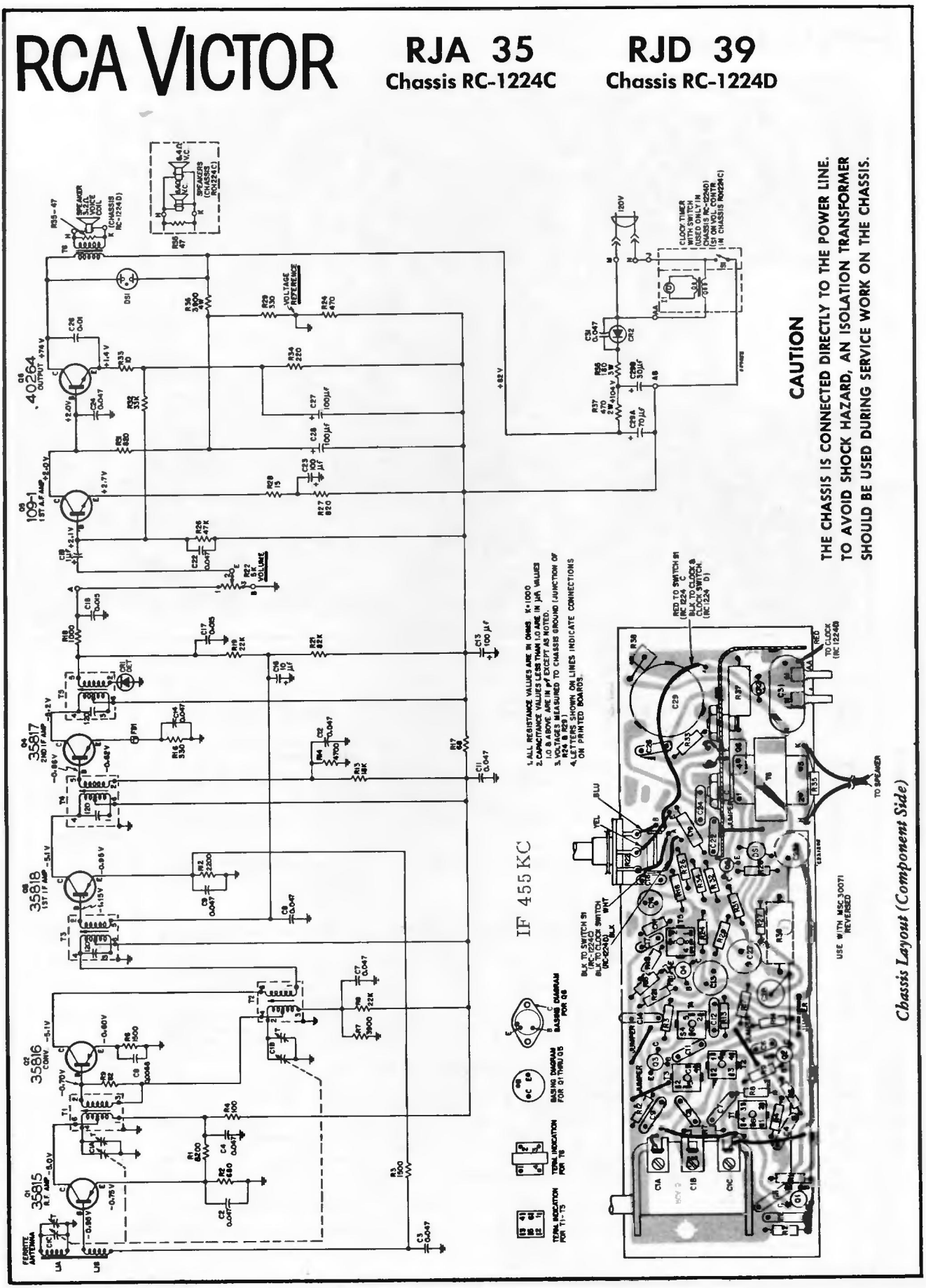
FM ALIGNMENT

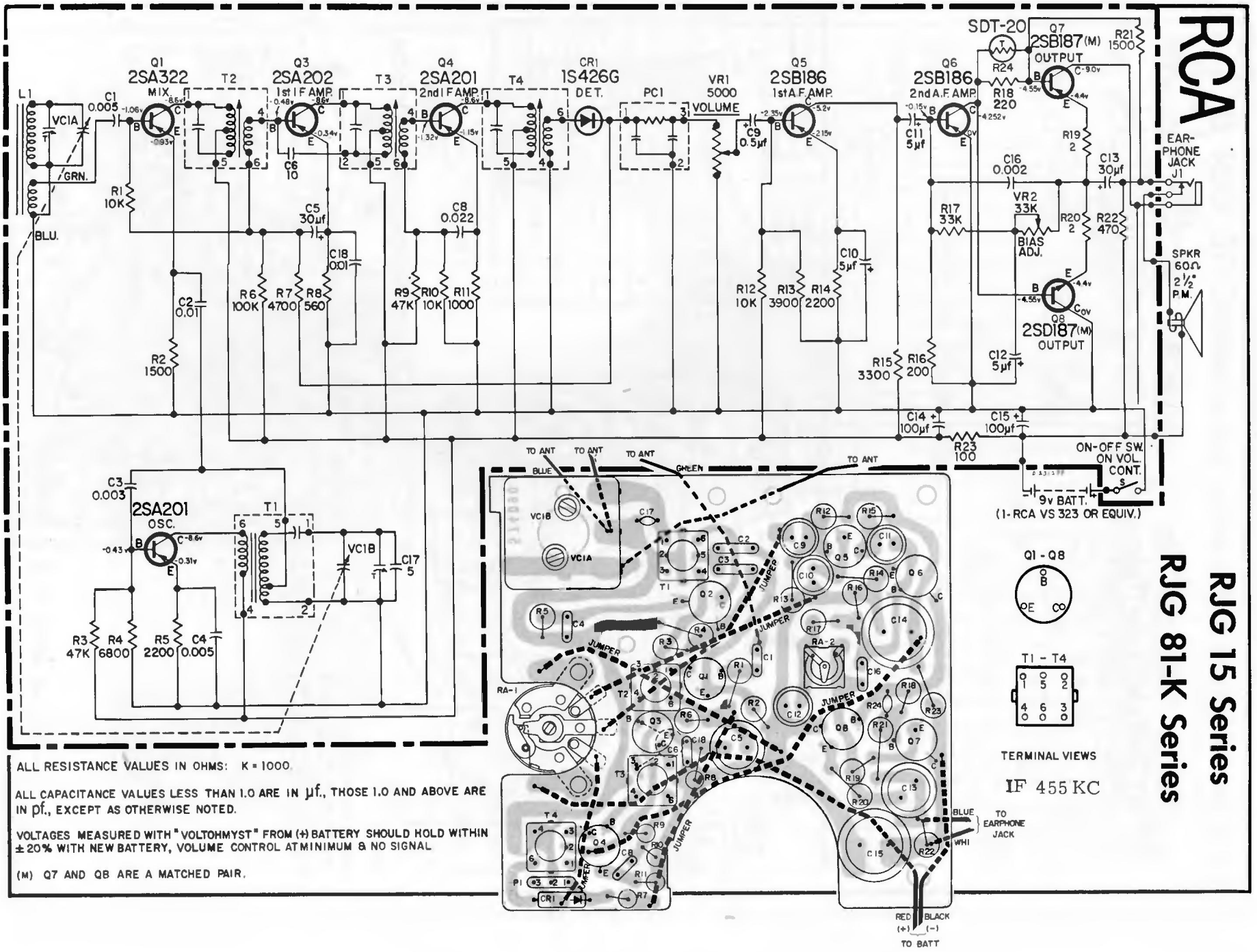
STEP	CONNECTION TO RADIO	DIAL SETTING	DIAL SETTING	SPECIAL INSTRUCTIONS	ADJUST
1	COLLECTOR OF Q1 THRU .01 MF CAPACITOR	10.7 MHZ ±75 KHZ SWEEP	TUNING GANG FULLY OPEN	ADJUST FOR MAXIMUM OUTPUT IN ORDER GIVEN. REDUCE GENERATOR OUTPUT AS NECESS.	T9A, T7, T5 & T4
2	SAME AS STEP 1	10.7 MHZ 30% AM	TUNING GANG FULLY OPEN	ADJUST FOR MINIMUM OUTPUT (A NULL BETWEEN TWO PEAKS)	T9B
3	REPEAT STEPS 1 AND 2 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
4	CONNECT TO ANTENNA TERMINAL THRU 47 OHM RESISTOR	87.5 MHZ ±75 KHZ	TUNING GANG FULLY CLOSED	ADJUST FOR MAX. OUTPUT.	T3 (SEE NOTE "A") FM OSC.
5	SAME AS STEP 4	108.5 MHZ ±75 KHZ	TUNING GANG FULLY OPEN	ADJUST FOR MAX. OUTPUT.	VC TB FM OSC.
6	REPEAT STEPS 4 AND 5 UNTIL NO FURTHER IMPROVEMENT IS OBTAINED.				
7	SAME AS STEP 4	90 MHZ ±75 KHZ	90 MHZ	ADJUST FOR MAX. OUTPUT.	T2
8	SAME AS STEP 4	105 MHZ ±75 KHZ	105 MHZ	ADJUST FOR MAX. OUTPUT.	VC TA

RCA VICTOR

RJA 35
Chassis RC-1224C

RJD 39
Chassis RC-1224D





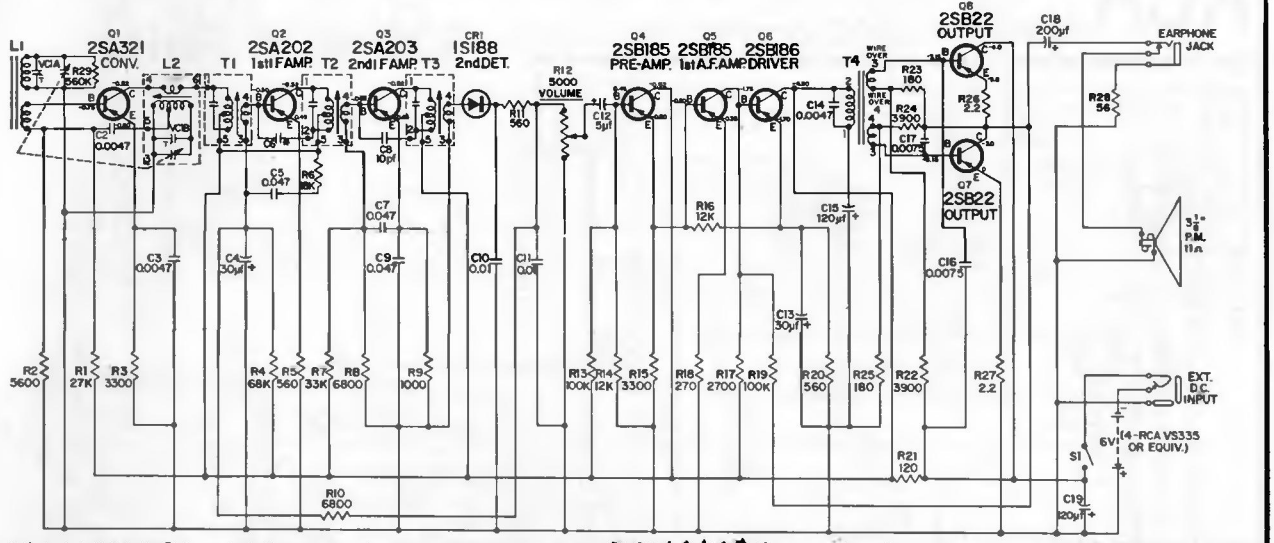
ALL RESISTANCE VALUES IN OHMS: K = 1000.

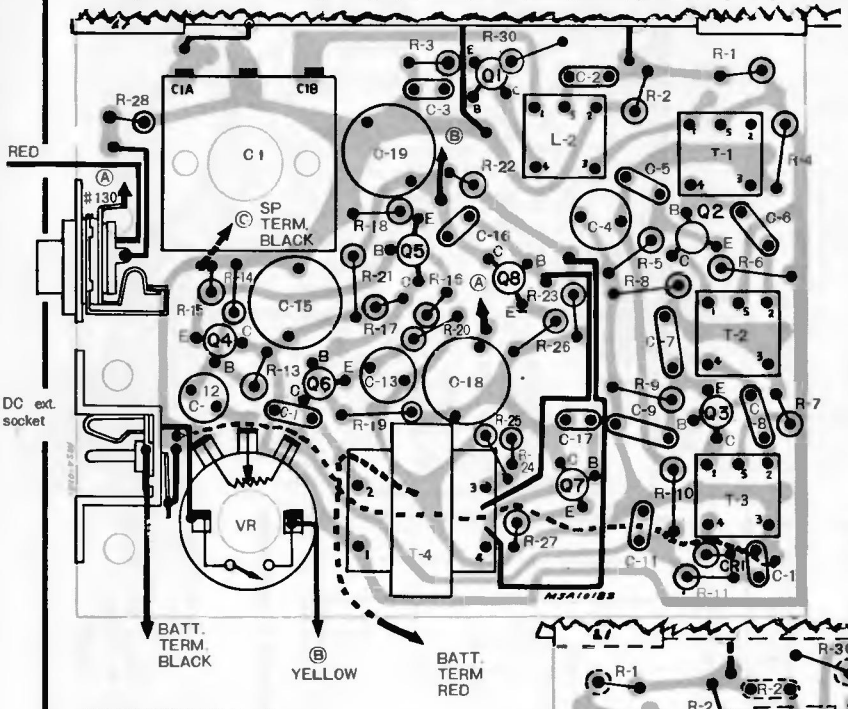
ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN µf., THOSE 1.0 AND ABOVE ARE IN pf., EXCEPT AS OTHERWISE NOTED.

VOLTAGES MEASURED WITH "VOLTOHMYST" FROM (+) BATTERY SHOULD HOLD WITHIN ±20% WITH NEW BATTERY, VOLUME CONTROL AT MINIMUM & NO SIGNAL

(M) Q7 AND Q8 ARE A MATCHED PAIR.

RCA VICTOR Models RJG 25 Series, RJG 86 Series



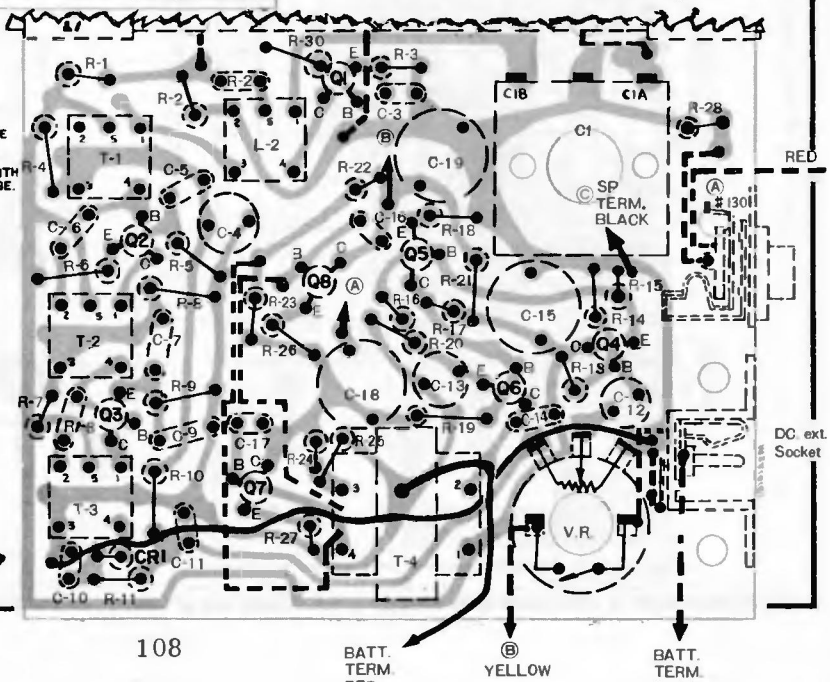


Step	Signal Gen. Output	Dial Pointer Setting	Adjust for Max. Output
1	455 kc	Gang open	T3 (3rd IF)
2			T2 (2nd IF)
3			T1 (1st IF)
4	Repeat Steps 1, 2, and 3		
5	520 kc	Gang closed	L2 (Osc. coil)
6	1650 kc	Gang open	C1B-T (Osc. trim.)
7	1400 kc	1400 kc (rock gang)	C1A-T (Ant. trim.)
8	Repeat Steps 5, 6, and 7		

Connect Signal Generator to— Loop of wire placed near antenna for radiated signal

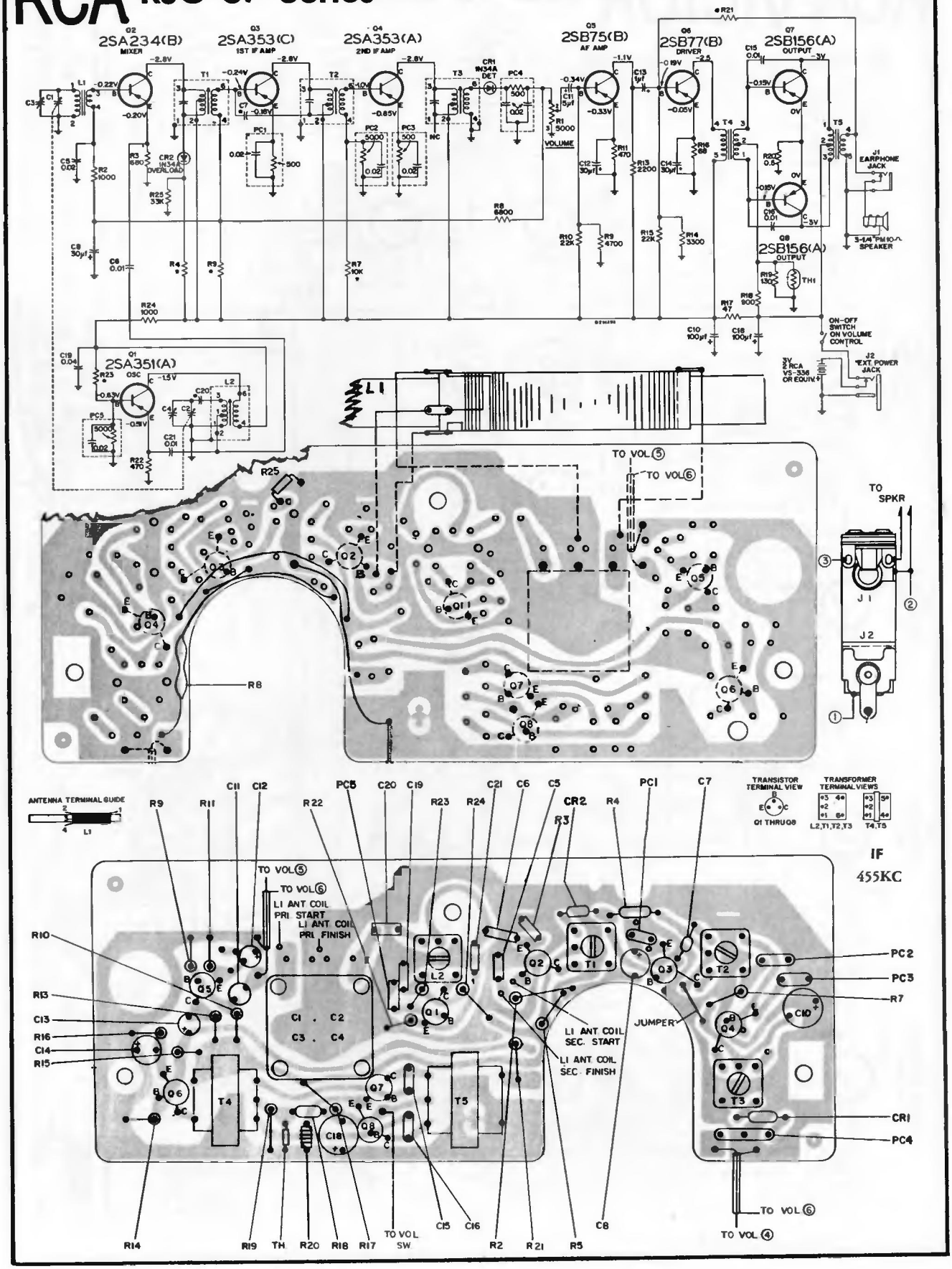
1. RESISTANCE VALUES ARE IN OHMS: K = 1000.
2. CAPACITANCE VALUES LESS THAN 1.0 ARE IN µf., VALUES 1.0 AND ABOVE ARE IN pf., EXCEPT AS OTHERWISE NOTED.
3. VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" TO CHASSIS GROUND WITH NO SIGNAL AND SHOULD HOLD WITHIN ± 20% AT RATED SUPPLY VOLTAGE.

TERMINAL VIEWS

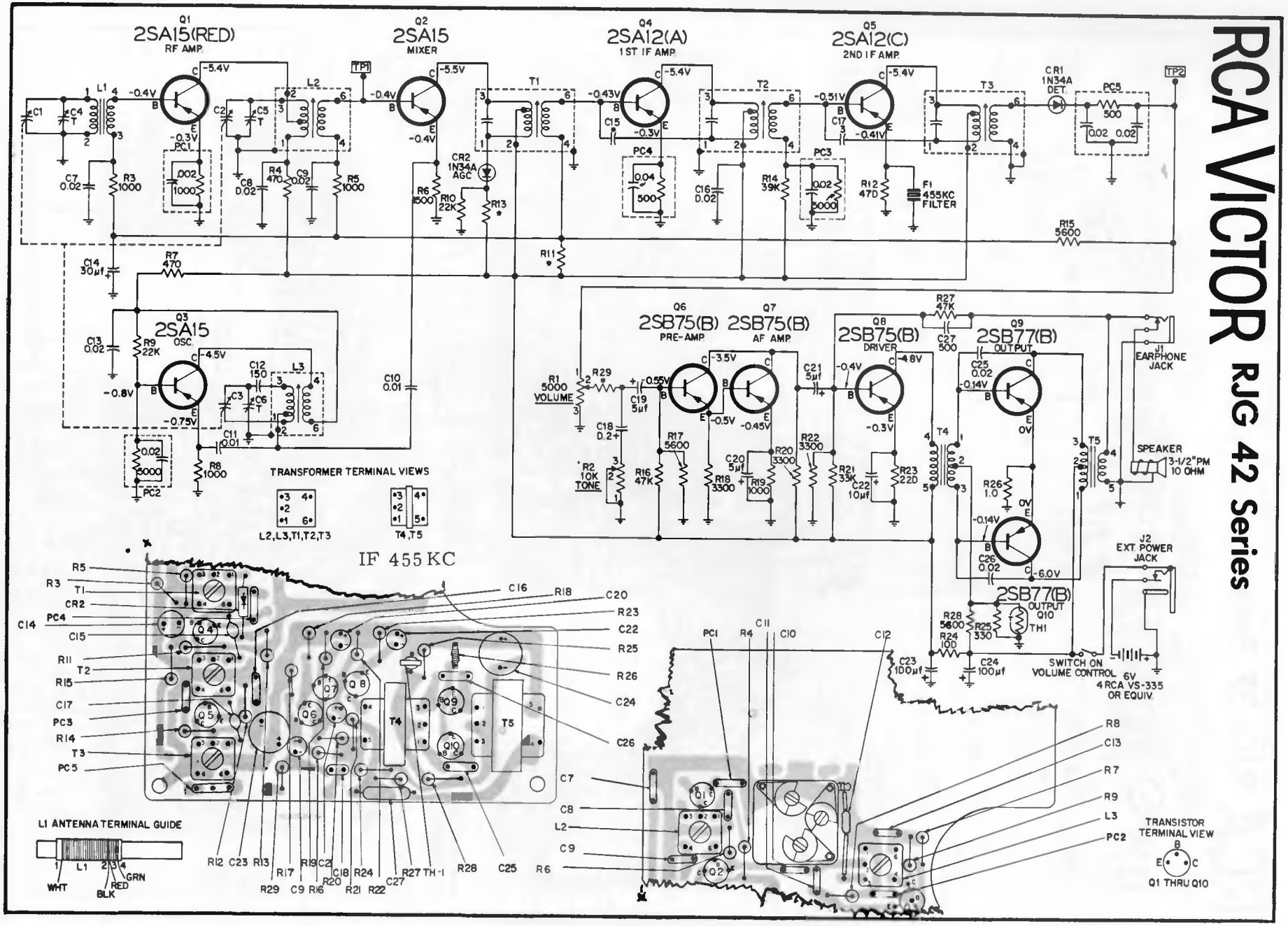


Chassis Layout—Wiring Side →

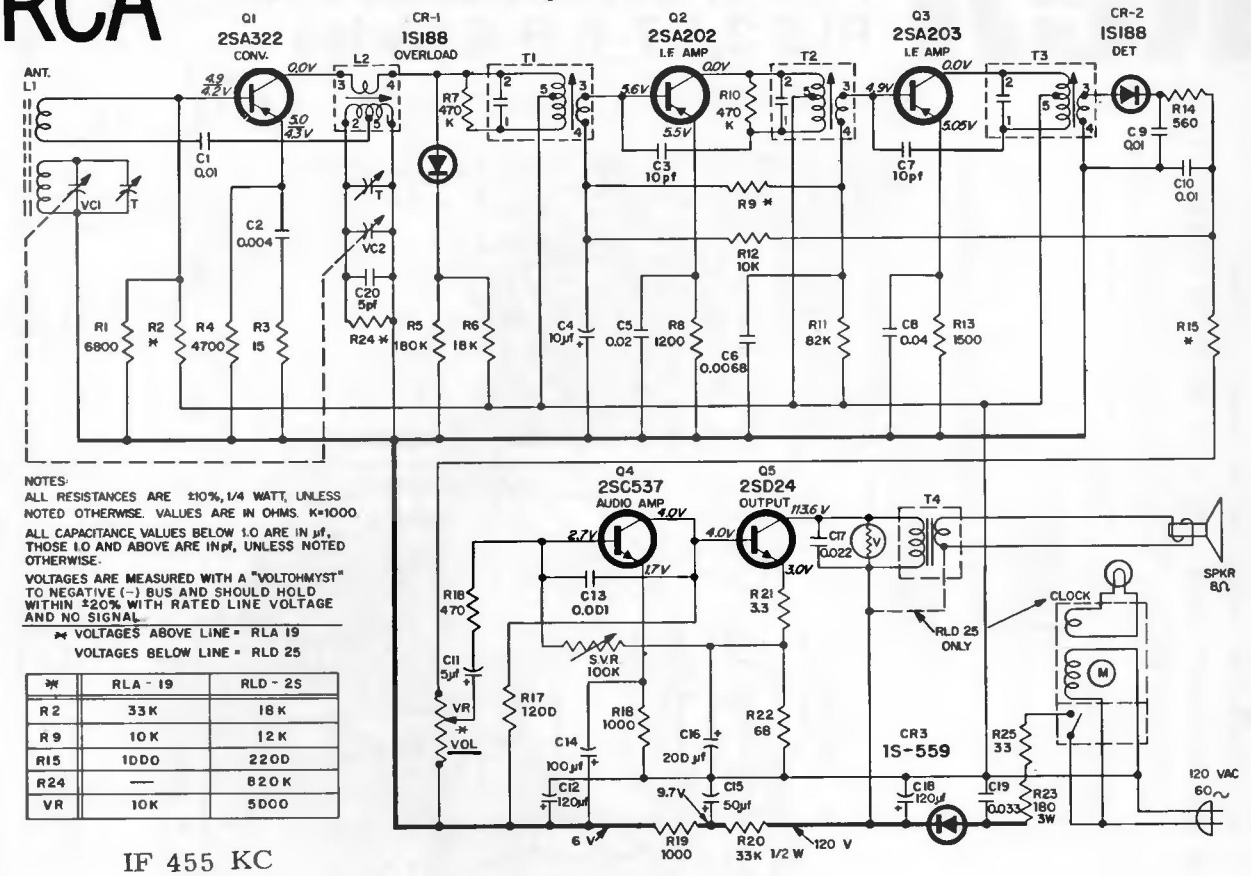
RCA RJG 37 Series



RCA VICTOR RJG 42 Series



RCA Models RLA 19, RLD 25



NOTES:

ALL RESISTANCES ARE ±10%, 1/4 WATT, UNLESS NOTED OTHERWISE. VALUES ARE IN OHMS. K=1000.

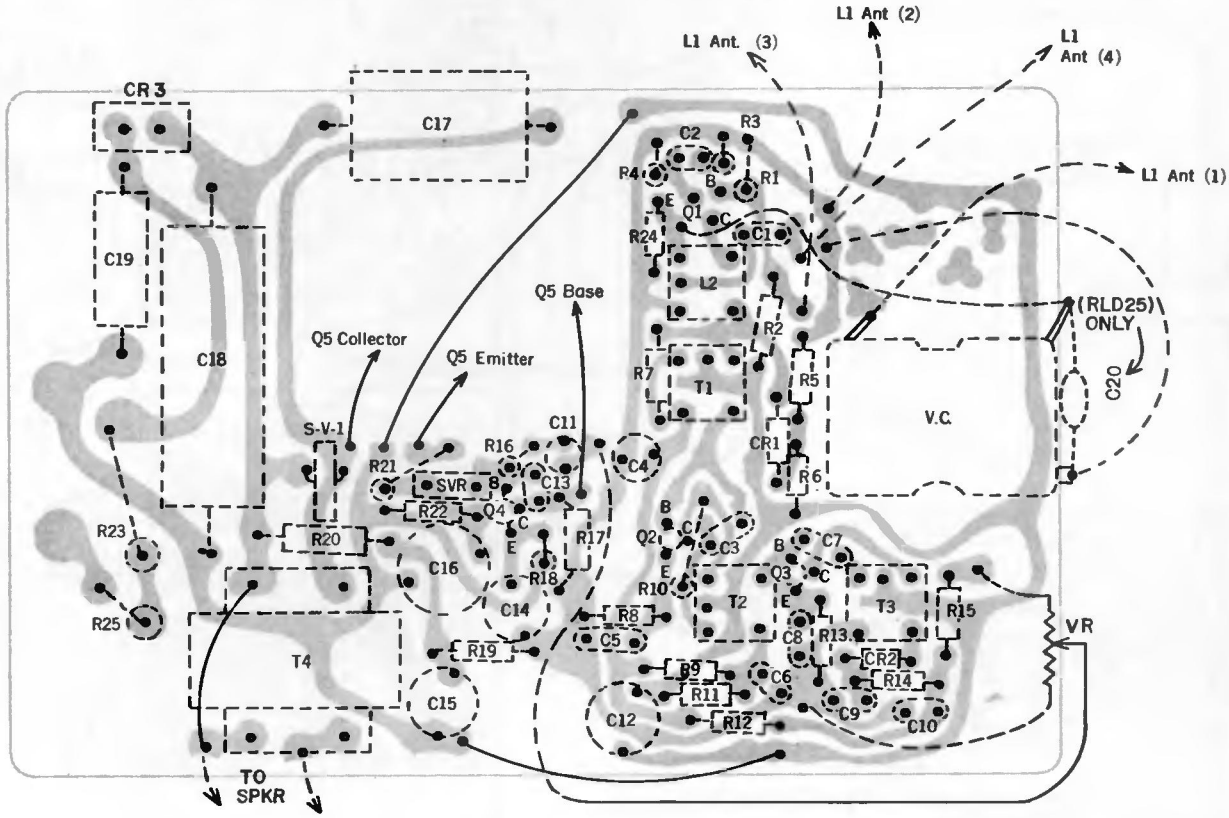
ALL CAPACITANCE VALUES BELOW 1.0 ARE IN µf, THOSE 1.0 AND ABOVE ARE IN pf, UNLESS NOTED OTHERWISE.

VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" TO NEGATIVE (−) BUS AND SHOULD HOLD WITHIN ±20% WITH RATED LINE VOLTAGE AND NO SIGNAL.

* VOLTAGES ABOVE LINE = RLA 19
VOLTAGES BELOW LINE = RLD 25

*	RLA - 19	RLD - 25
R2	33K	18K
R9	10K	12K
R15	1000	2200
R24	—	820K
VR	10K	5000

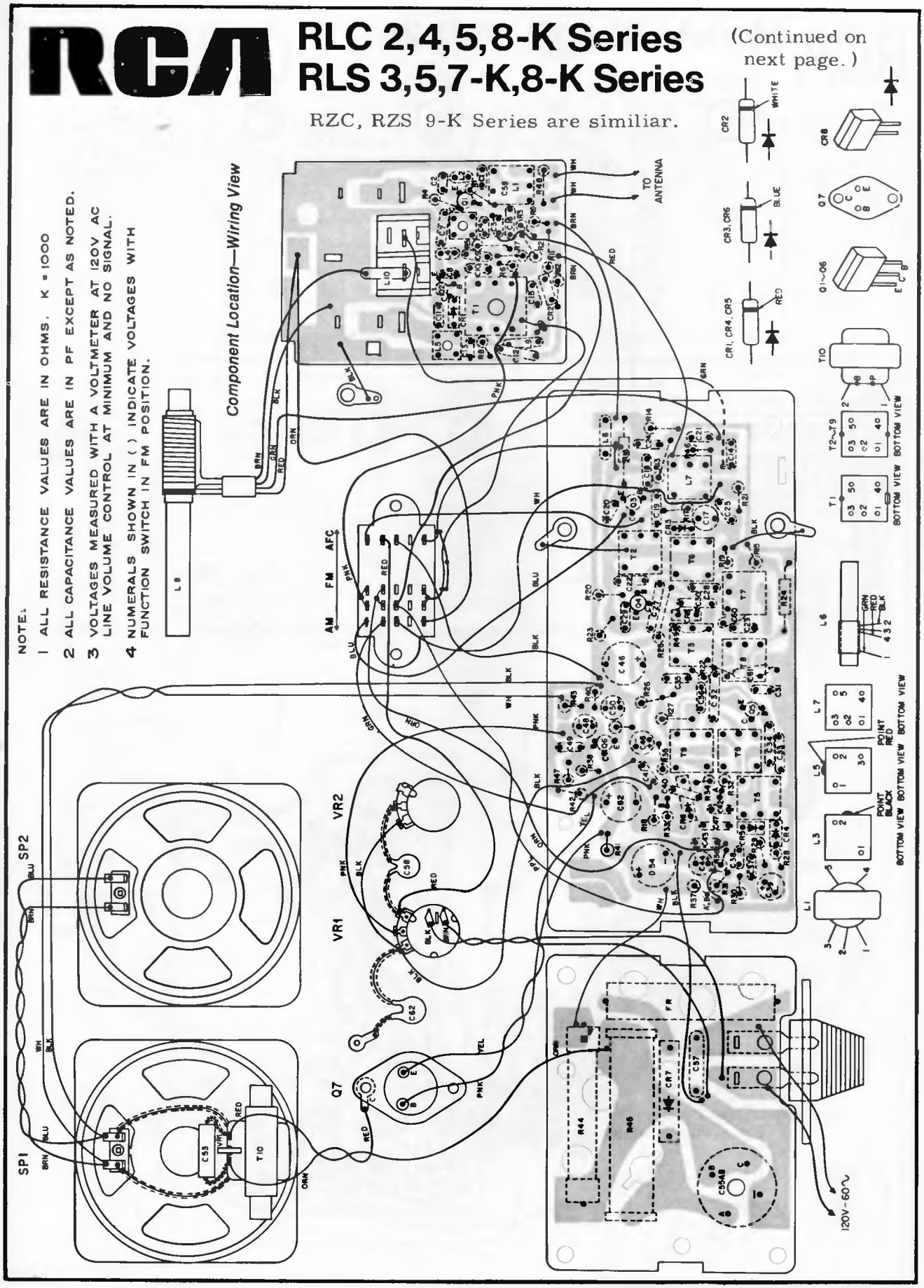
IF 455 KC



RLC 2,4,5,8-K Series
RLS 3,5,7-K,8-K Series

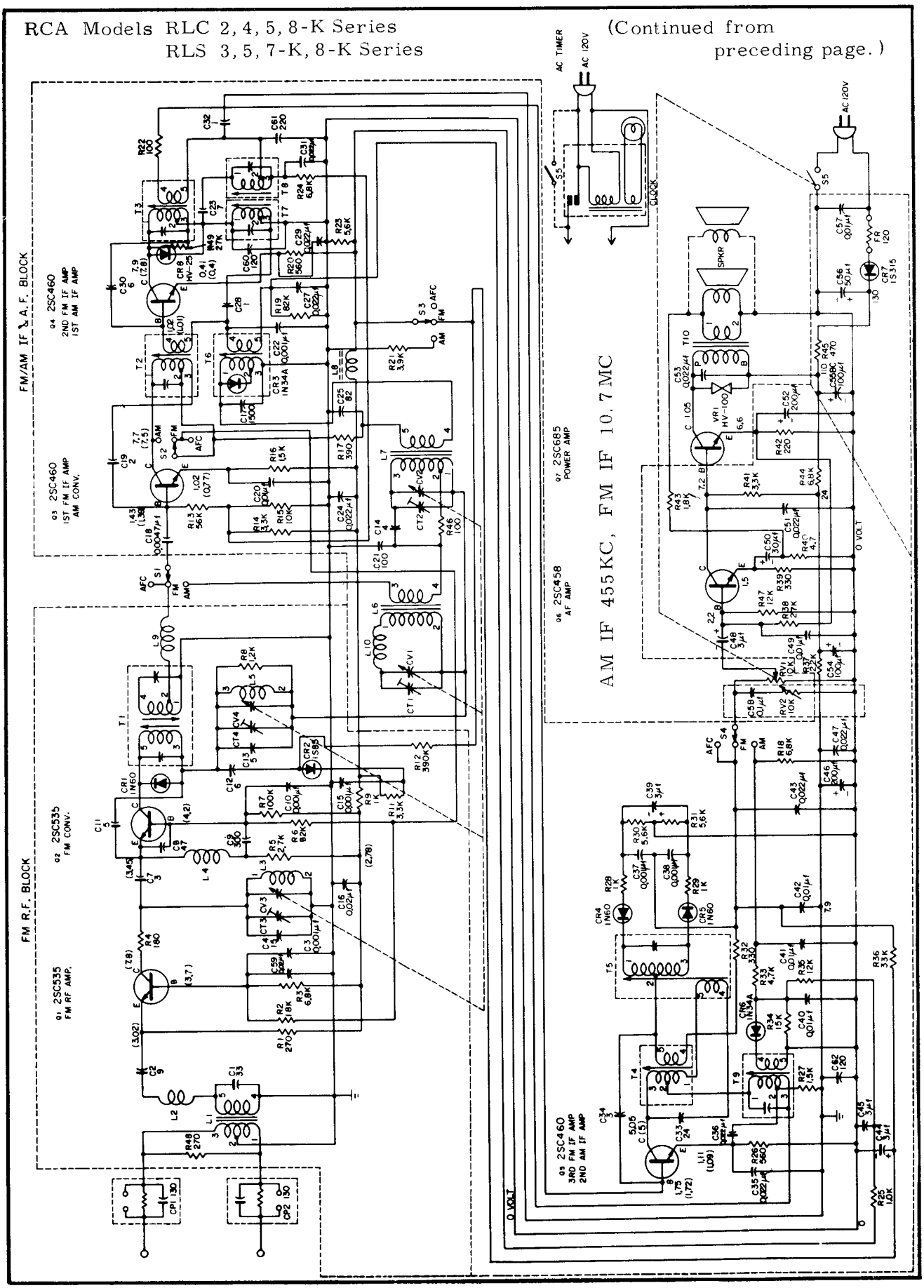
RZC, RZS 9-K Series are similiar.

(Continued on next page.)

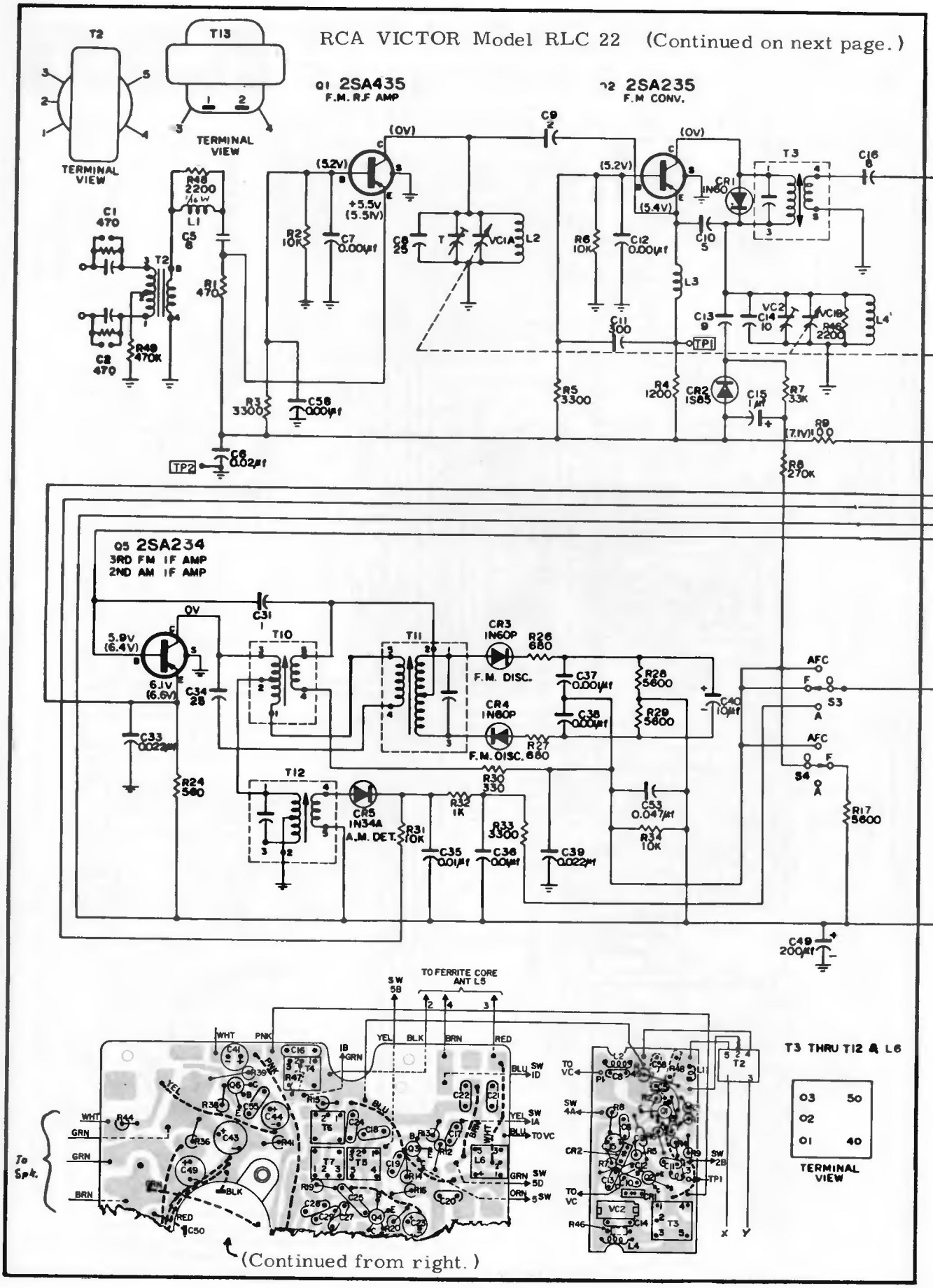


RCA Models RLC 2, 4, 5, 8-K Series
RLS 3, 5, 7-K, 8-K Series

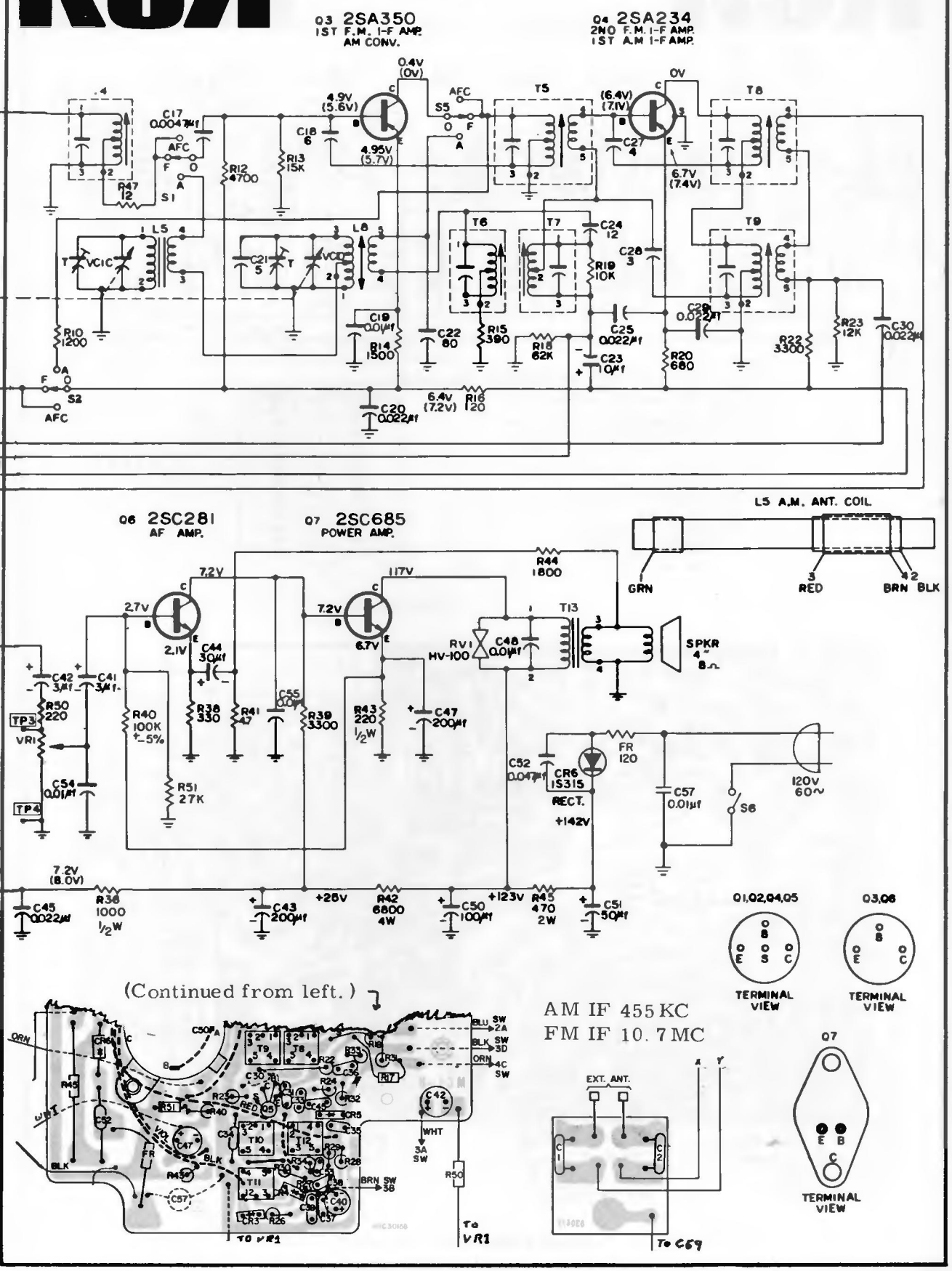
(Continued from preceding page.)



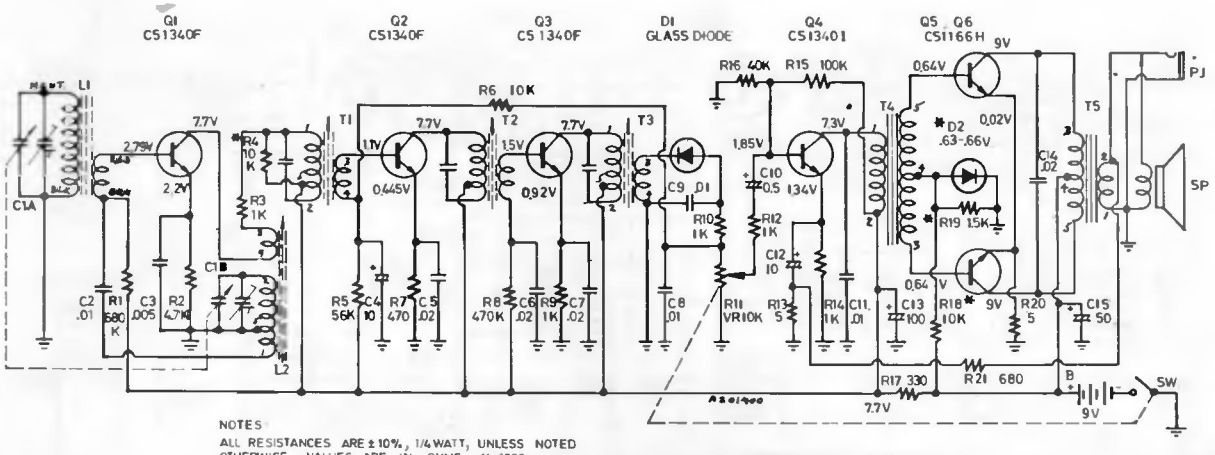
RCA VICTOR Model RLC 22 (Continued on next page.)



RCA Model RLC 22 (Continued from preceding page.)



RCA Model RLG 11



NOTES

ALL RESISTANCES ARE ± 10%, 1/4 WATT, UNLESS NOTED OTHERWISE. VALUES ARE IN OHMS. K=1000

ALL CAPACITANCE VALUES ARE IN uf, UNLESS NOTED OTHERWISE

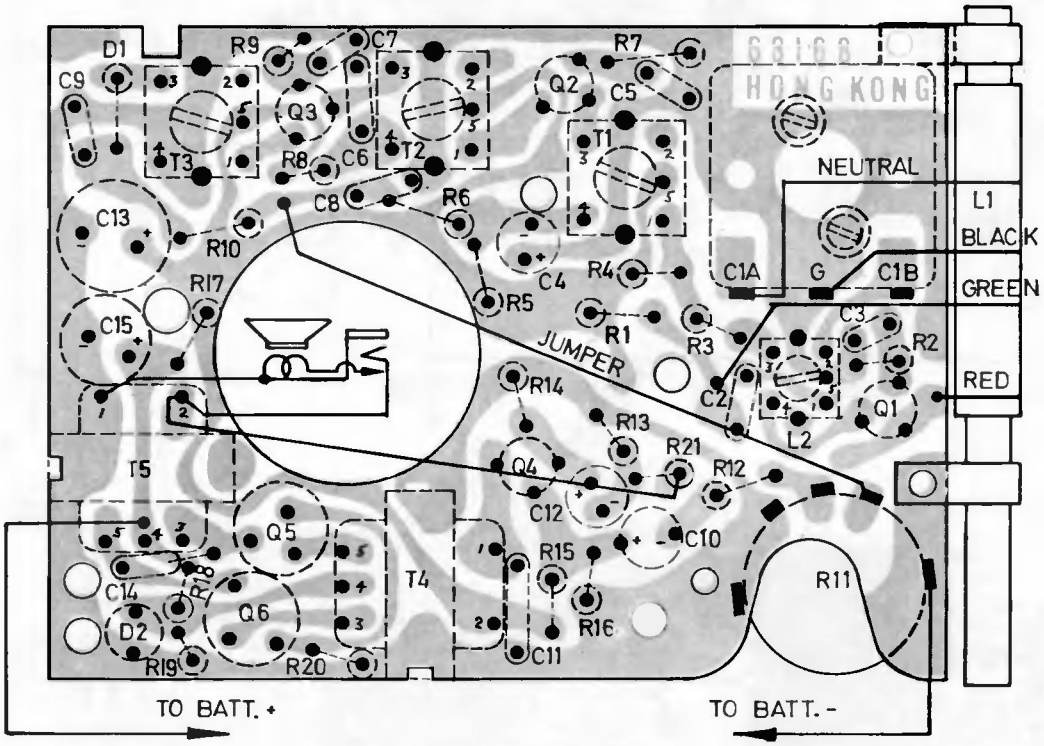
VOTAGES ARE MEASURED WITH A "TRIPLETT" FROM (–) BATTERY AND SHOULD HOLD WITHIN ± 20% WITH A NEW BATTERY, VOLUME CONTROL AT MINIMUM AND NO SIGNAL.

*R4, R18, R19 AND D2 MAY CHANGE TO FOLLOWING VALUES ON SOME SETS

- R4 10K, 6K, OR 4.7K
- R18 10K OR 6K
- R19 1.5K, 1K, OR NONE
- D2 0.6-0.63 VOLTS, TYPE 6063, OR 0.63-0.66 VOLTS, TYPE 6366, OR 0.66-0.70 VOLTS, TYPE 6670.

POWER OUTPUT Vs CURRENT	
mW	mA
0	8
25	19
50	24.2
75	29
100	32.5
125	36
150	39
175	42
200	45
250	48.5
300	56

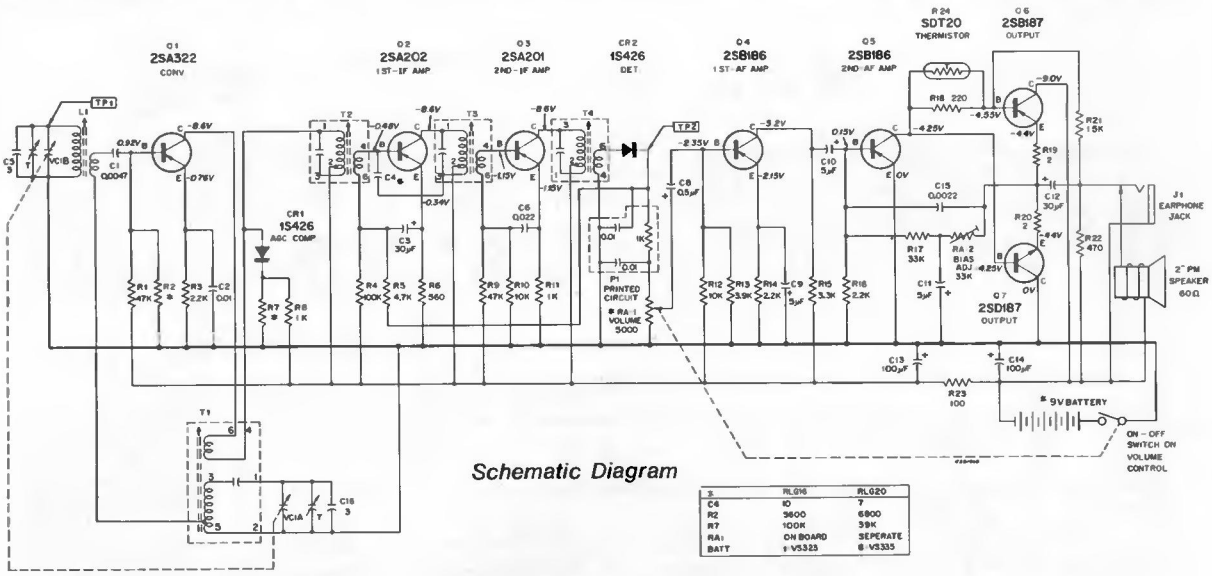
IF 455 KC



Chassis Layout

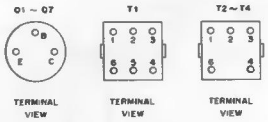
RCA

RLG 16 Series, RLG 20 Series



Schematic Diagram

	RLG16	RLG20
C4	10	7
R2	3600	6800
R7	100R	39K
RA1	ON BOARD	SEPERATE
BATT	6-V5323	6-V5335

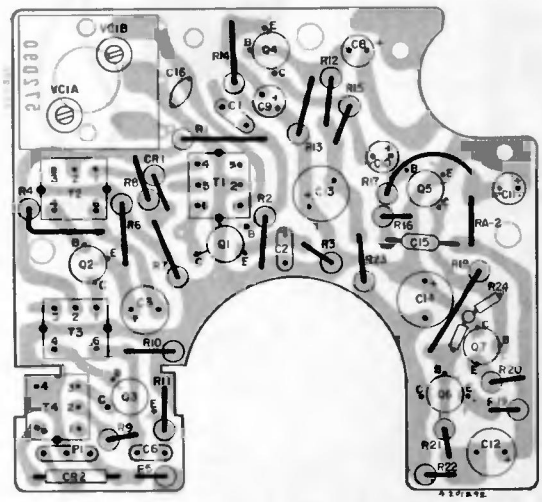


VOLTAGES MEASURED WITH "VOLTOMYST" FROM (+) BATTERY. SHOULD HOLD WITHIN ± 20% WITH NEW BATTERY. VOLUME CONTROL AT MINIMUM AND NO SIGNAL

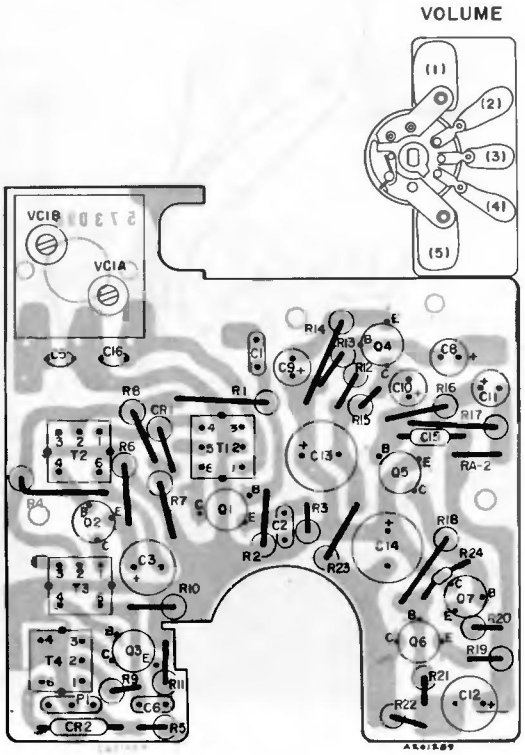
ALL RESISTANCE VALUES IN OHMS K=1000
ALL CAPACITANCE VALUES LESS THAN 1.0 ARE IN μF, THOSE ABOVE 1.0 ARE IN pF EXCEPT AS NOTED

Q6 AND Q7 ARE A MATCHED PAIR

IF 455 KC



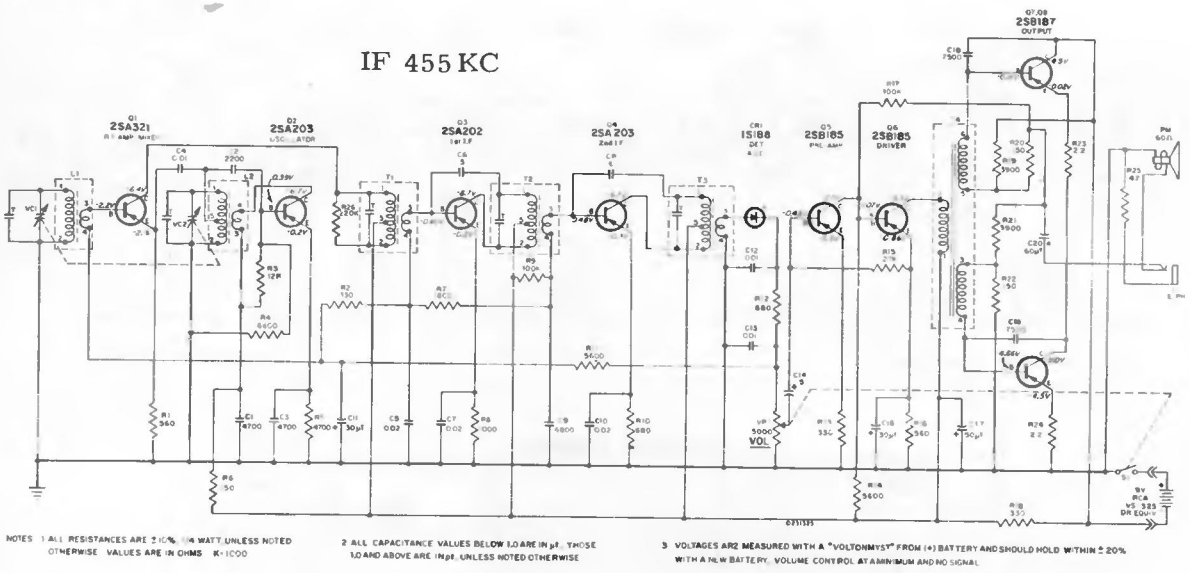
RLG 16



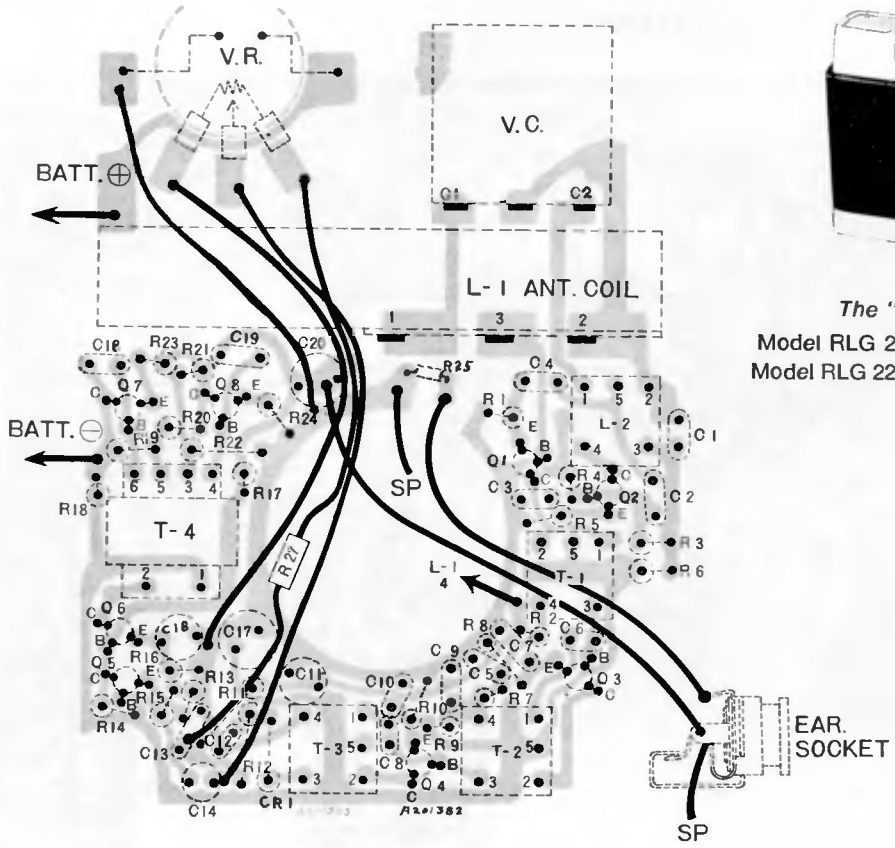
Component Location

RLG 20

RLG 22 Series



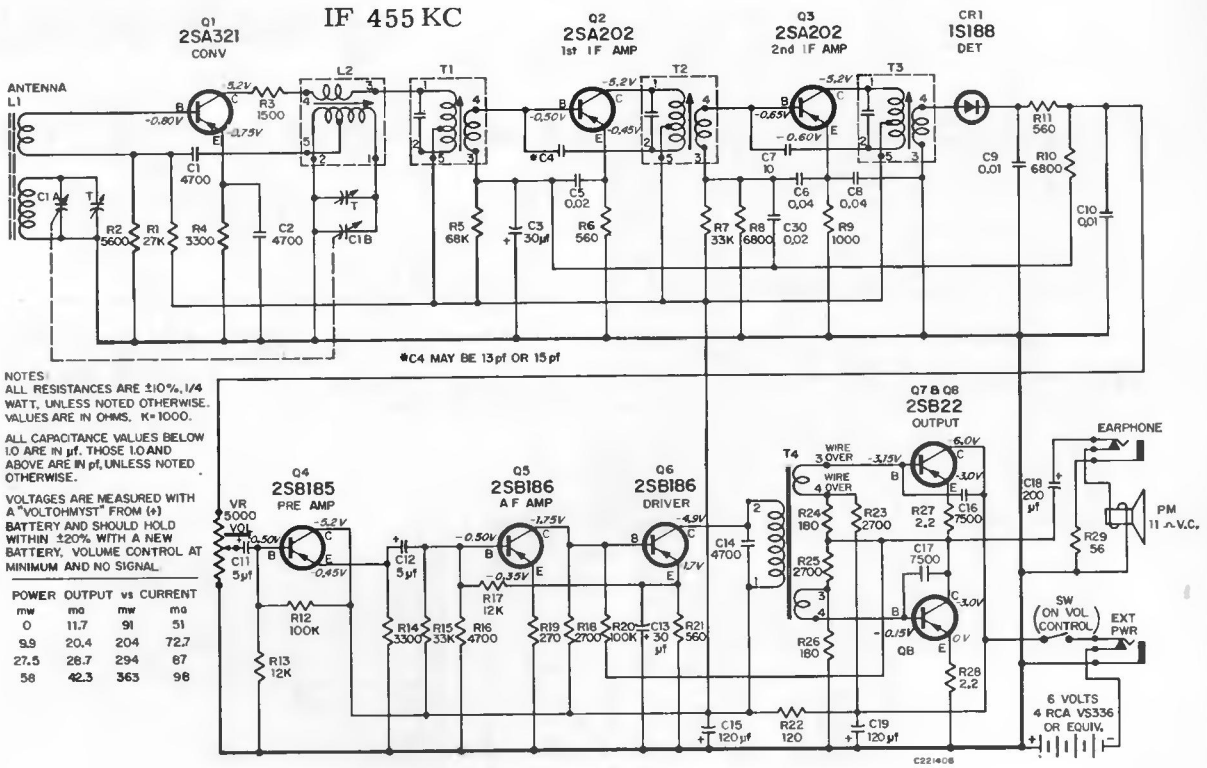
Schematic Diagram



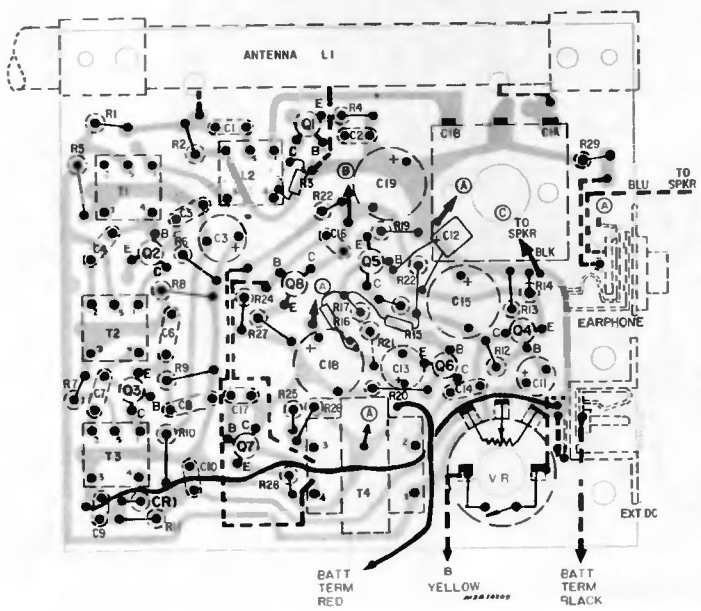
Component Location (Wiring View)

The "Rogue"
Model RLG 22A—Blue/White
Model RLG 22N—Maple/White

RCA RLG 23 Series



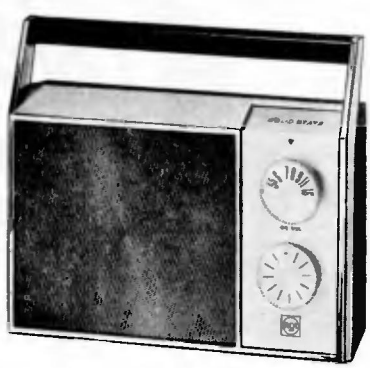
Schematic Diagram



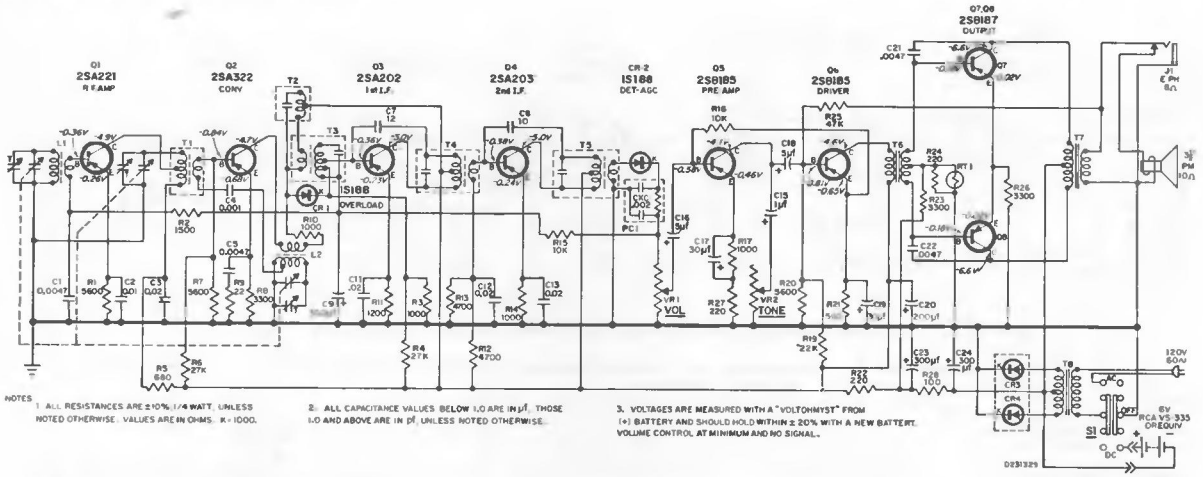
Component Locations (Wiring View)

The "Herald"

Model RLG 23A—Blue

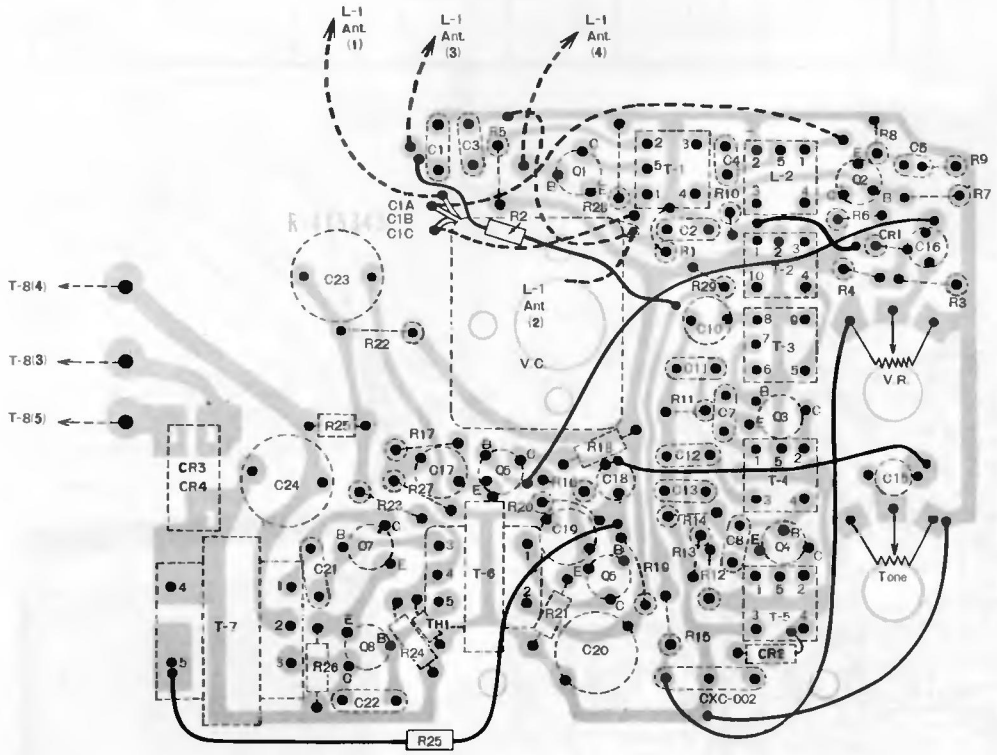


RCA Model RLG 34



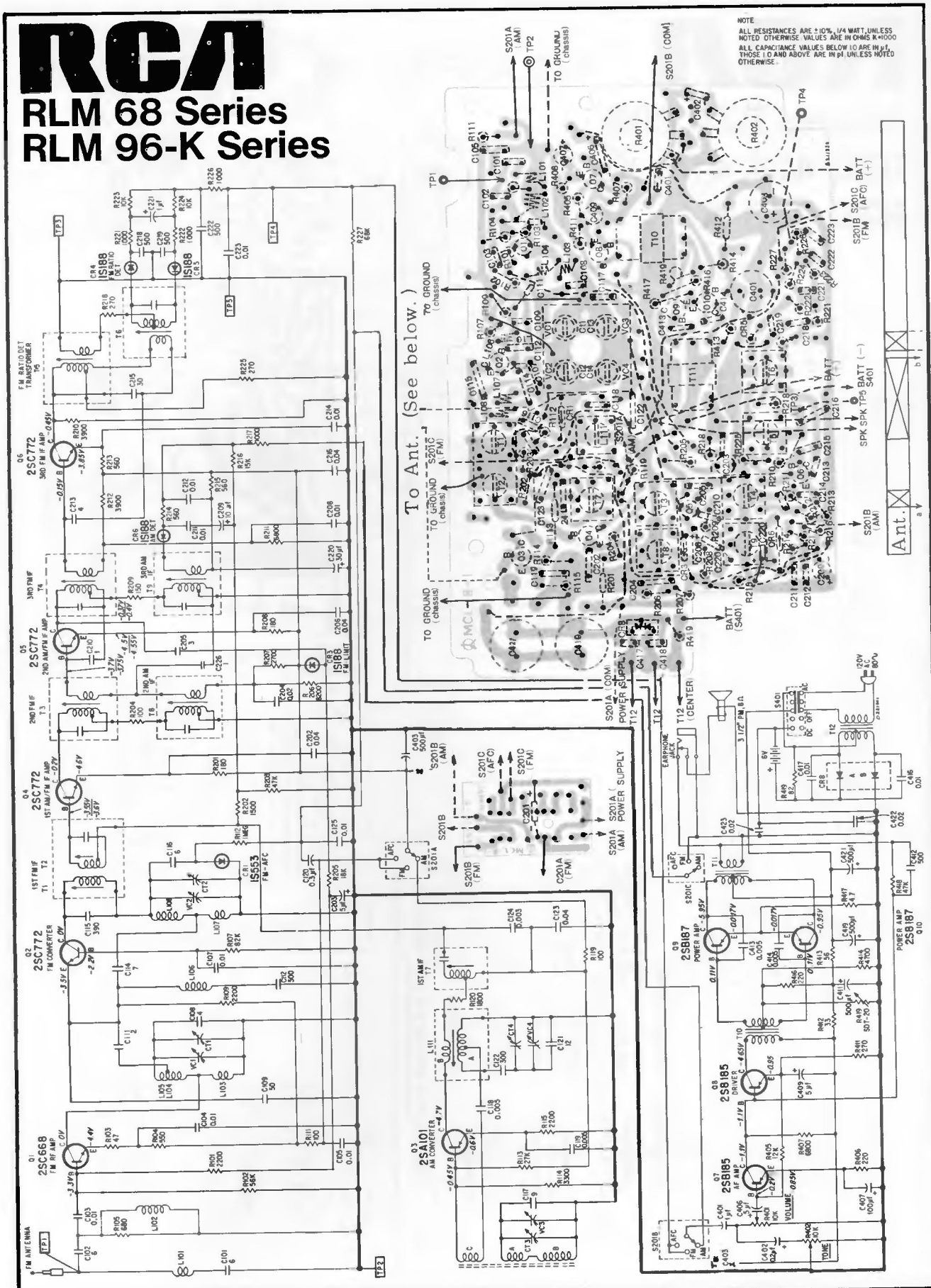
Schematic Diagram

IF 455 KC



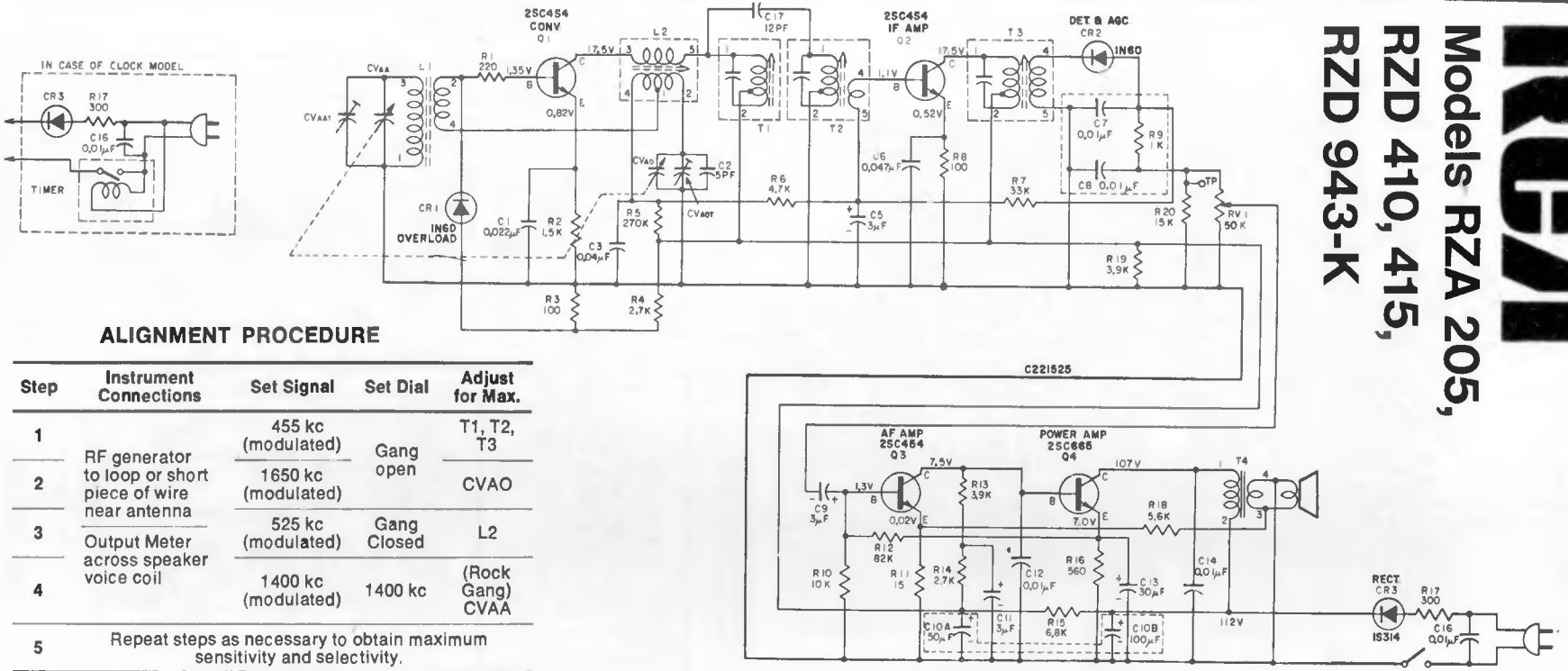
Circuit Board (Wiring Side)

RCA
RLM 68 Series
RLM 96-K Series



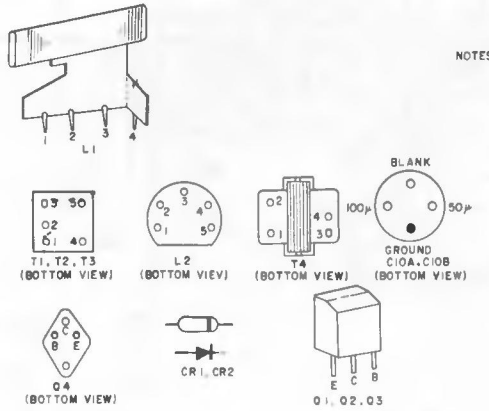
RCA

Models RZA 205, RZD 410, 415, RZD 943-K



ALIGNMENT PROCEDURE

Step	Instrument Connections	Set Signal	Set Dial	Adjust for Max.
1	RF generator to loop or short piece of wire near antenna	455 kc (modulated)	Gang open	T1, T2, T3
2		1650 kc (modulated)		CVAO
3	Output Meter across speaker voice coil	525 kc (modulated)	Gang Closed	L2
4		1400 kc (modulated)	1400 kc	(Rock Gang) CVAA
5	Repeat steps as necessary to obtain maximum sensitivity and selectivity.			

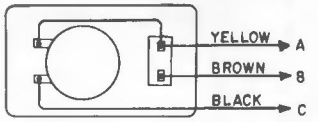


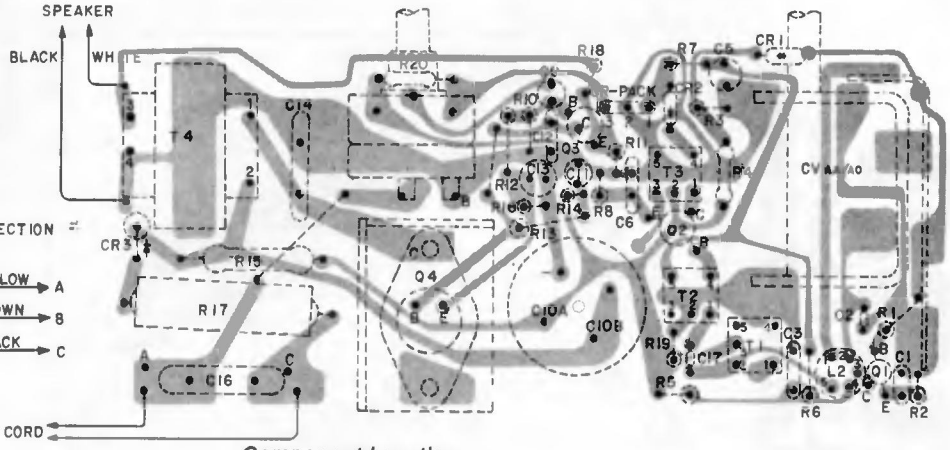
NOTES

ALL RESISTANCE VALUES IN OHM (K = 1000)

VOLTAGE MEASURED WITH VOLTOHMIST FROM GROUND LINE AT 120V AC (VOLUME CONTROL AT MINIMUM NO SIGNAL)

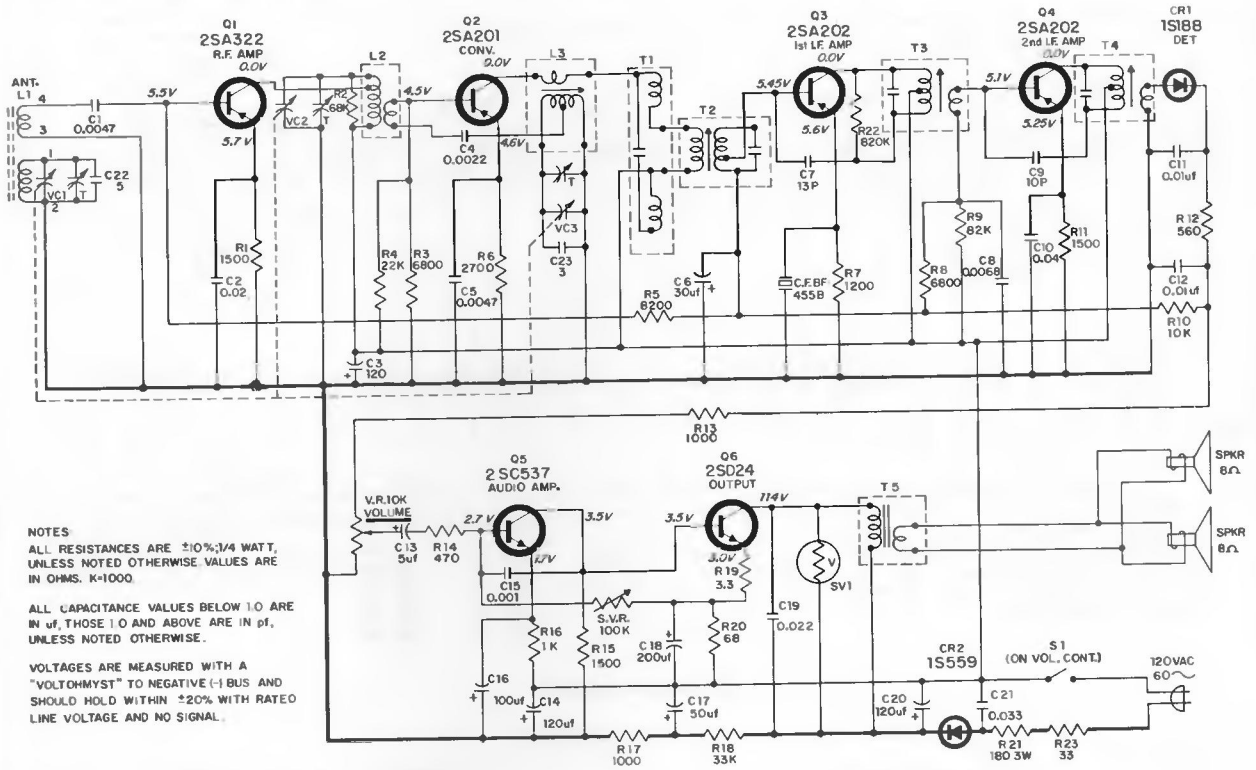
IN CASE OF CLOCK MODEL CONNECTION





Component Locations

RCA Model RZA 215

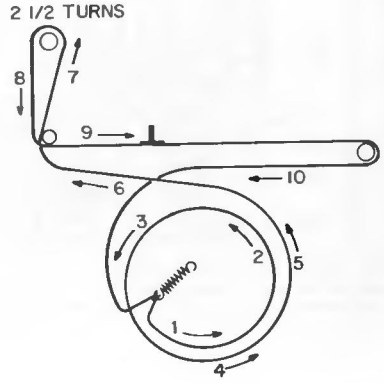


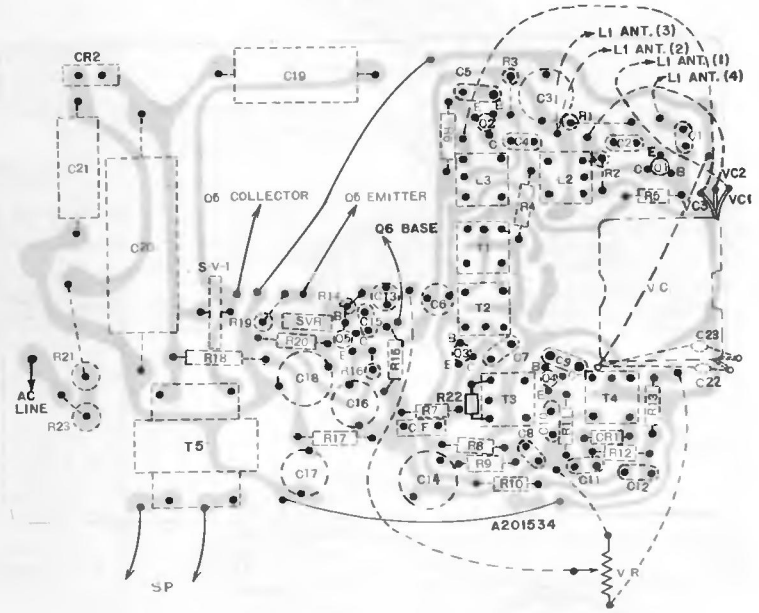
NOTES:
ALL RESISTANCES ARE ±10%;1/4 WATT, UNLESS NOTED OTHERWISE. VALUES ARE IN OHMS. K=1000.

ALL CAPACITANCE VALUES BELOW 1.0 ARE IN uf, THOSE 1.0 AND ABOVE ARE IN pf, UNLESS NOTED OTHERWISE.

VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" TO NEGATIVE (-) BUS AND SHOULD HOLD WITHIN ±20% WITH RATED LINE VOLTAGE AND NO SIGNAL.

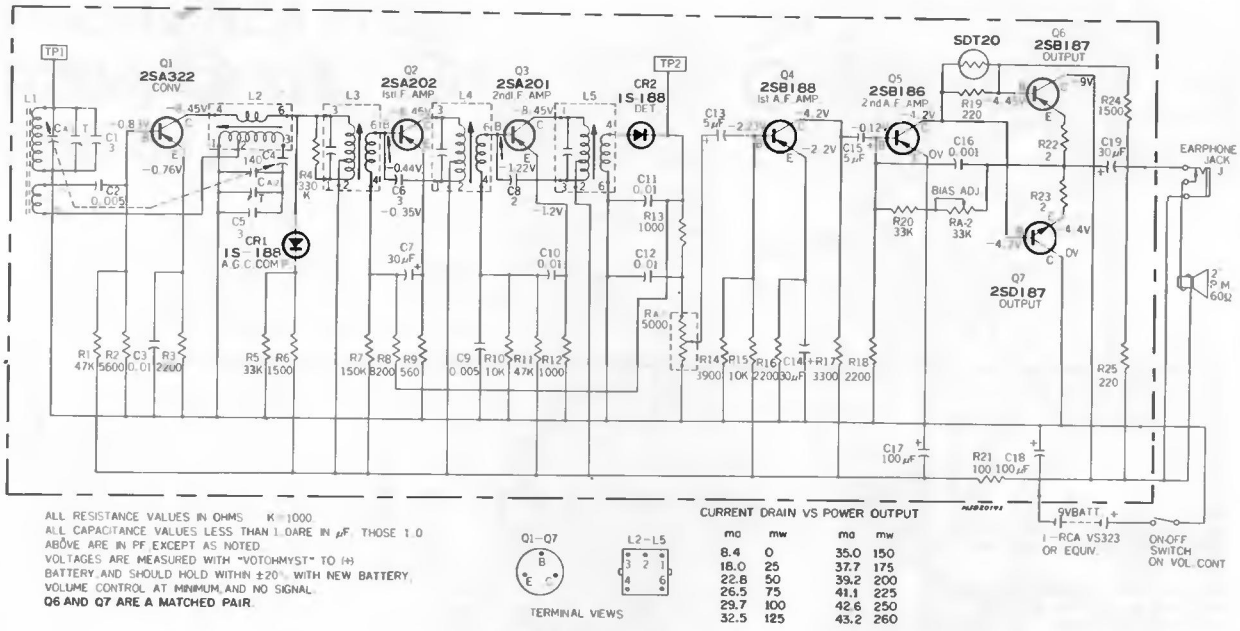
Step	Instrument Connections	Set Signal	Set Dial	Adjust for Max.
1	RF Generator to loop or short piece of wire near antenna.	455 kc (Modulated)	Gang Open	T3, T2, T1 (IF's)
2		520 kc (Modulated)	Gang Closed	L3 (Osc. Coil)
3		1650 kc (Modulated)	Gang Open	VC3-T (Osc. Trim)
4	Output meter across speaker voice coil.	600 kc	600 kc	L2 (RF Coil)
5		1400 kc (Modulated)	1400 kc (Rock Gang)	VC1-T (Ant. Trim)
6				VC2-T (RF Trim)
7	Repeat above as necessary to obtain maximum sensitivity and selectivity.			



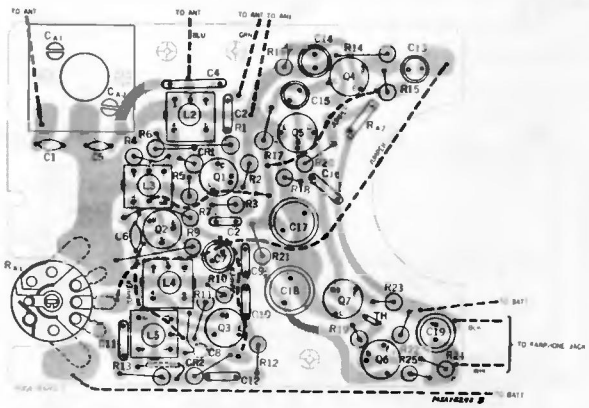


Component Location (Wiring View)

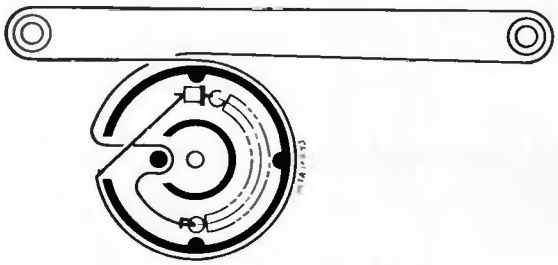
Models RZG 111, 120



Schematic Diagram



Chassis Layout (Component View)



Dial Cord Arrangement—RZG 120

ALIGNMENT PROCEDURE

Instruments Required

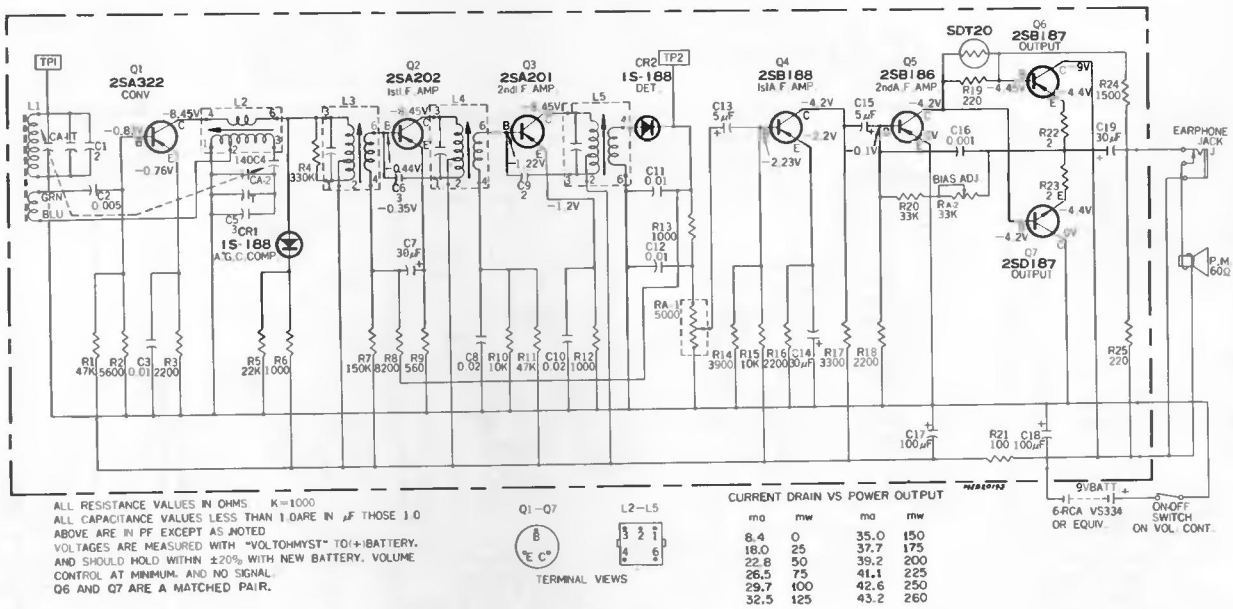
1. RF Signal Generator (RCA WR-50B or equivalent)
2. Electronic Voltmeter (RCA WV-500A or equivalent)

General

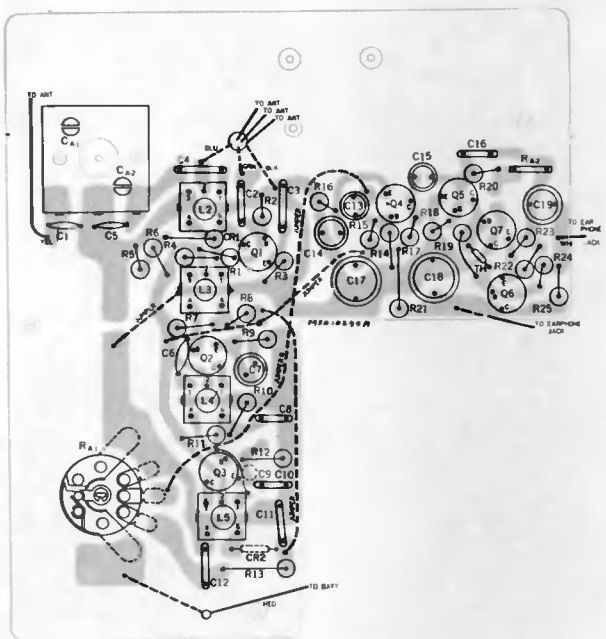
1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator.)
2. Loudness control at maximum.
3. Standard modulation is 400 cycles at 30% amplitude.

Step	Instrument Connections	Set Signal	Set Dial	Adjust for Max.
1	RF Generator—Connected to TP1 or short piece of wire near antenna E.V.M.—connected to TP 2	455 kc	Gang Closed	L3 (1st IF)
2				L4 (2nd IF)
3				L5 (3rd IF)
4		Repeat Steps 1 through 3 to obtain maximum sensitivity		
5		525 kc	Gang Closed	L2 (Osc. coil)
6		1650 kc	Gang Open	CA 2 T (Osc. trim)
7		1400 kc	1400 kc Rock gang	CA 1 T (Ant. trim)
8	Repeat Steps 5 through 8 to obtain best tracking and selectivity			

RCA Model RZG 125



Schematic Diagram



Component Locations (Component View)

ALIGNMENT PROCEDURE

Instruments Required

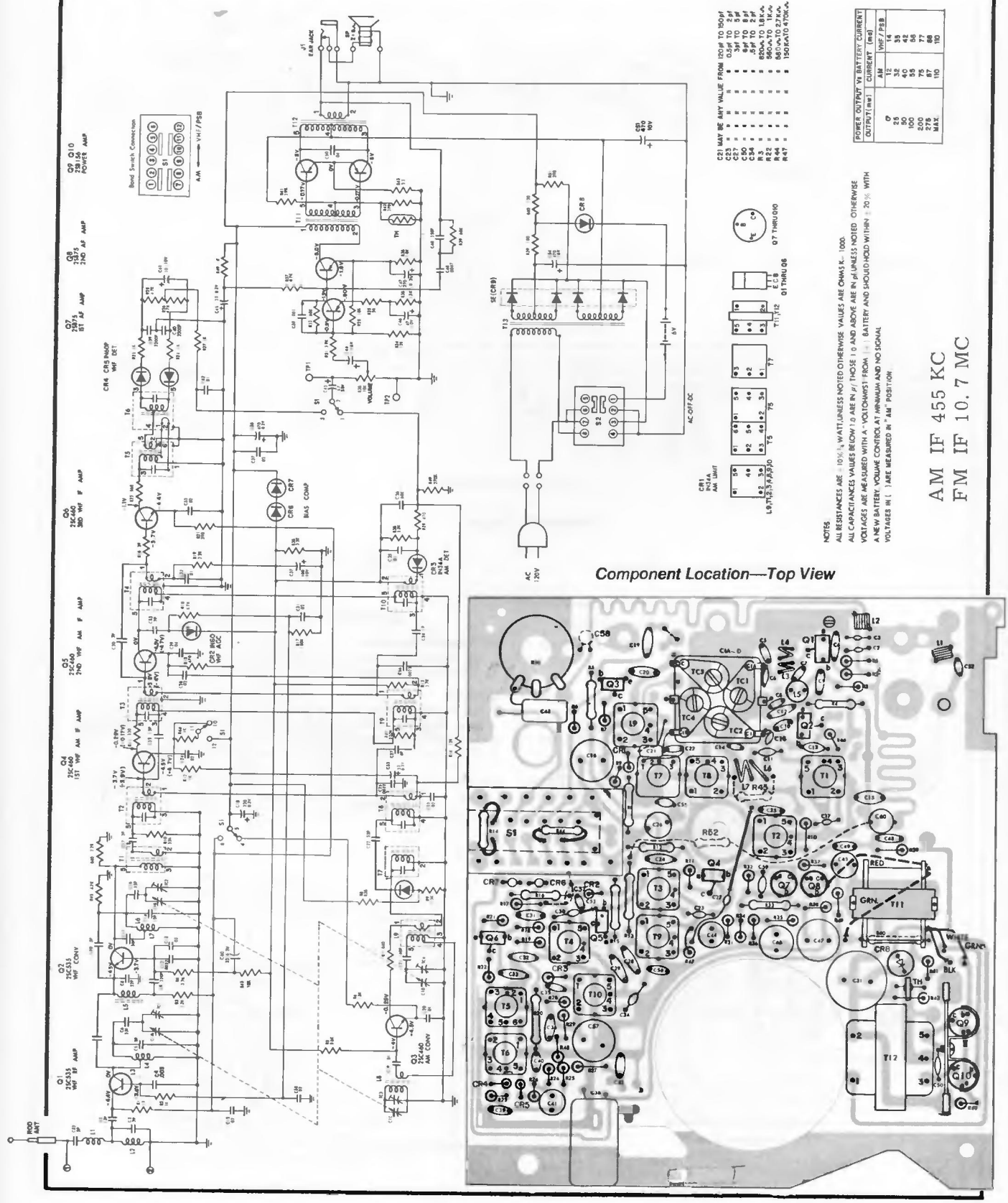
1. RF Signal Generator (RCA WR-50B or equivalent)
2. Electronic Voltmeter (RCA WV-500A or equivalent)

General

1. Signal input must be as low as possible to avoid overload and clipping. (Use highest sensitivity of output indicator.)
2. Loudness control at maximum.
3. Standard modulation is 400 cycles at 30% amplitude.

Step	Instrument Connections	Set Signal	Set Dial	Adjust for Max.
1	RF Generator—Connected to TP1 or short piece of wire near antenna E.V.M.—connected to TP 2	455 kc	Gang Closed	L3 (1st IF)
2				L4 (2nd IF)
3				L5 (3rd IF)
4		Repeat Steps 1 through 3 to obtain maximum sensitivity		
5		525 kc	Gang Closed	L2 (Osc. coil)
6		1650 kc	Gang Open	CA 2 T (Osc. trim)
7		1400 kc	1400 kc Rocg gang	CA 1 T (Ant. trim)
8	Repeat Steps 5 through 8 to obtain best tracking and selectivity			

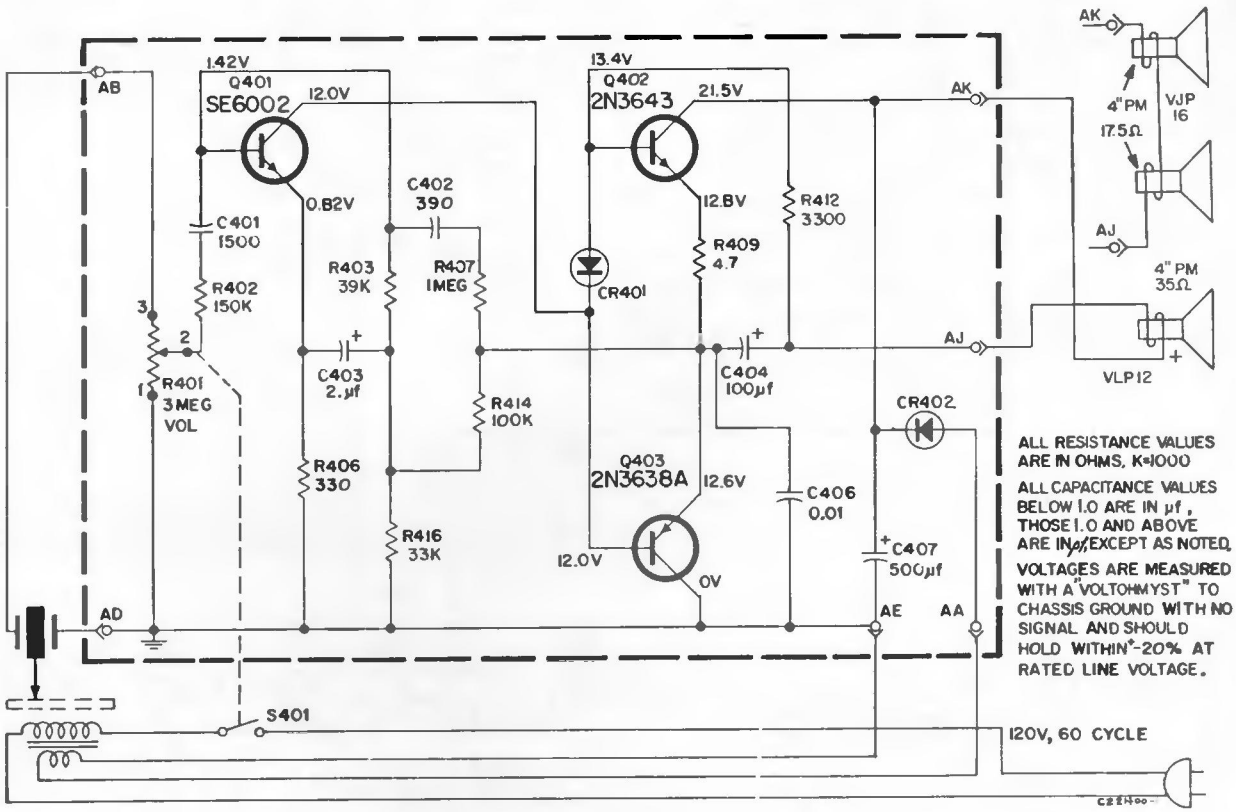
RCA Model RZM 990-K

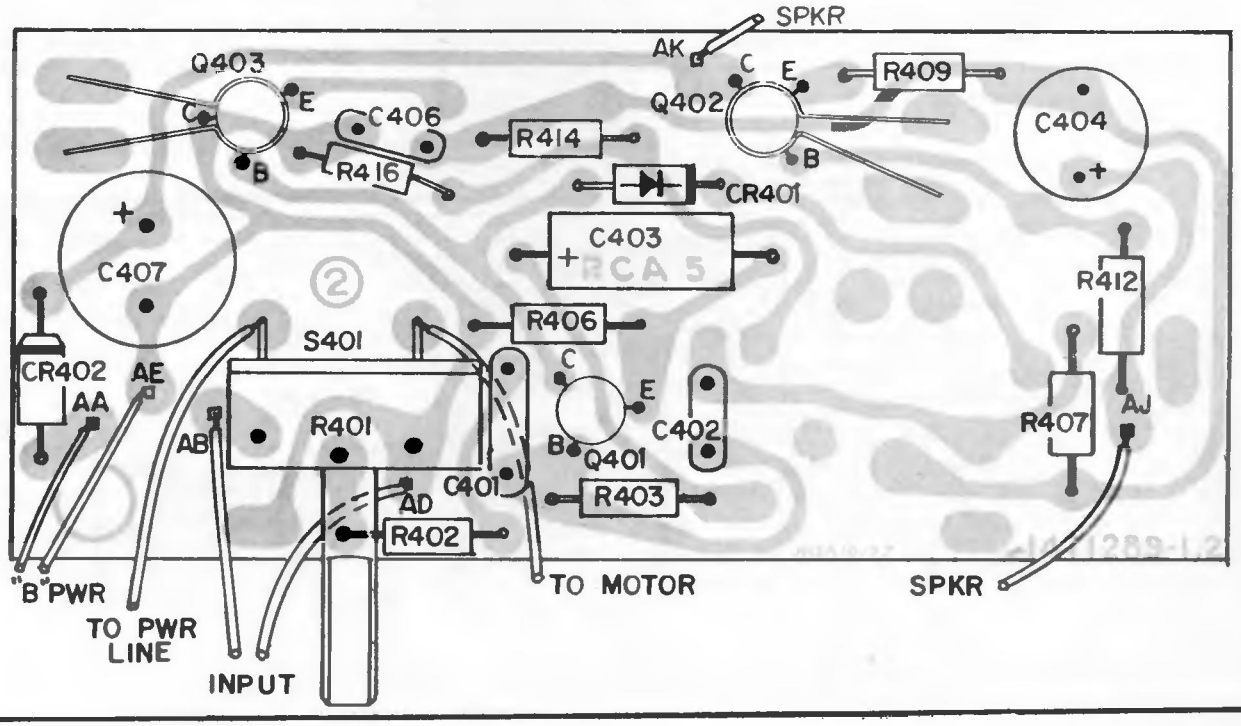


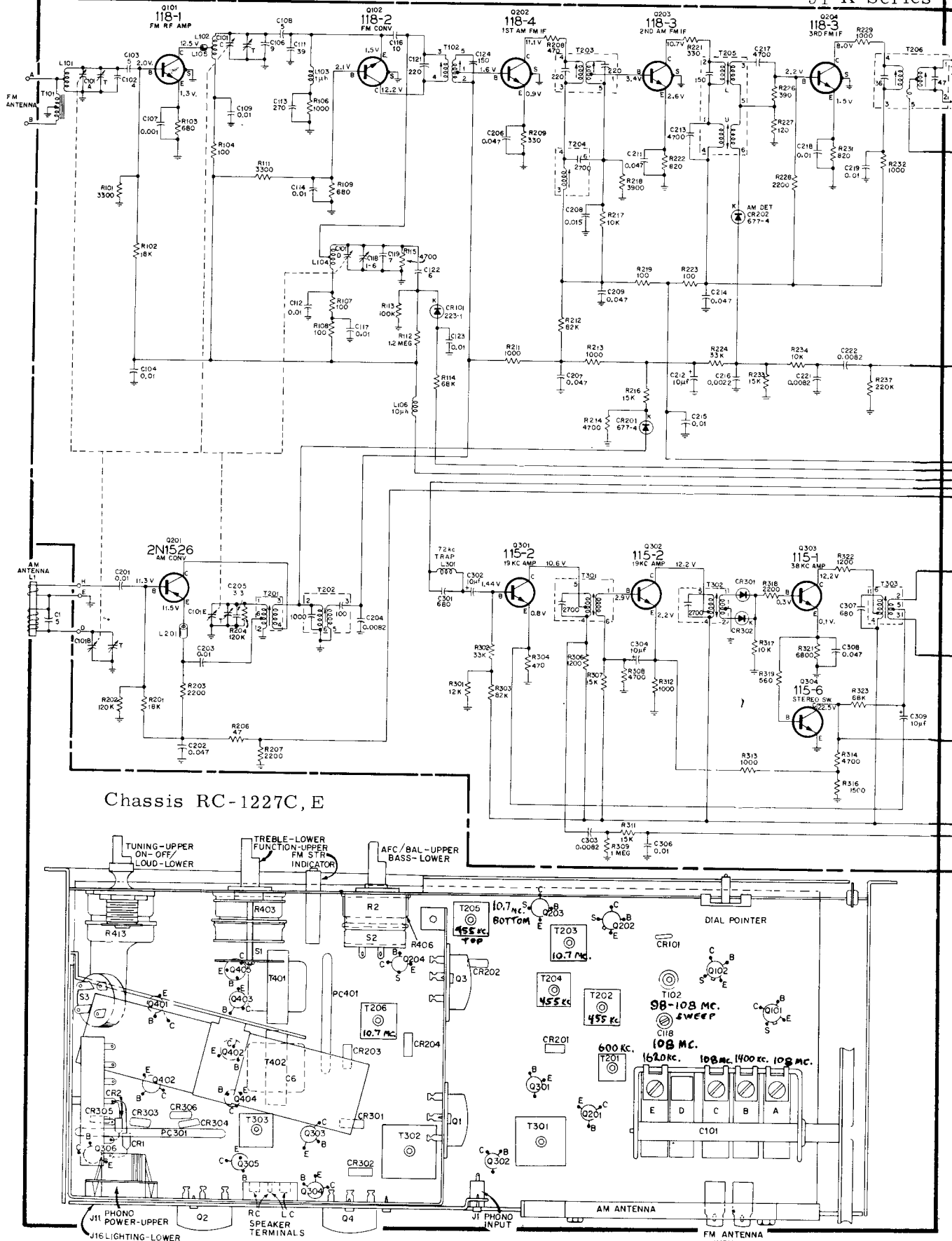
RCA Models

VJP 12 Series,
VJP 16 Series,
VJP 88-K Series,
VLP 12 Series,
VMP 12 Series

Chassis RS-225B,
RS-250A

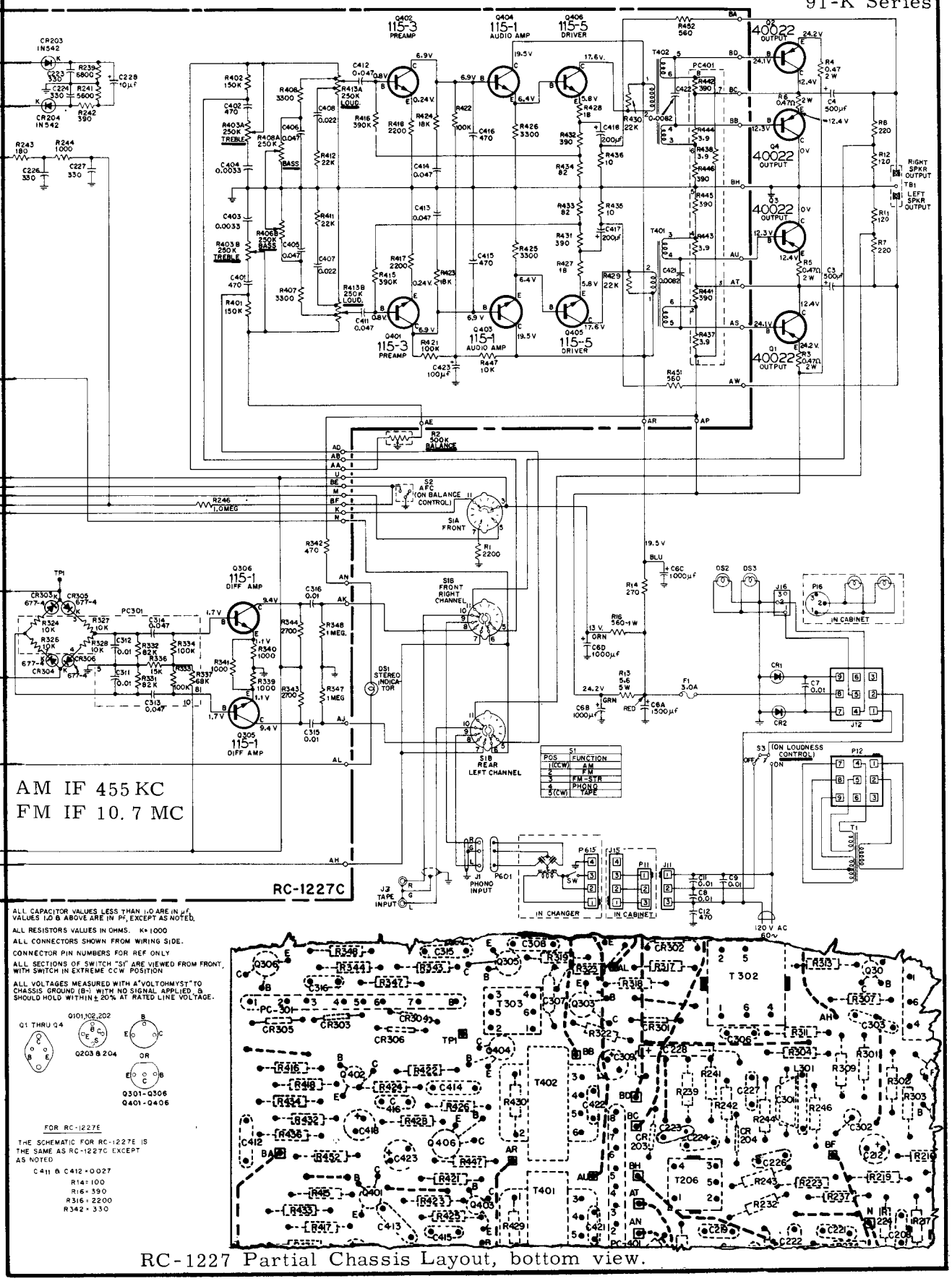






Chassis RC-1227C, E

(Continued on next page.)

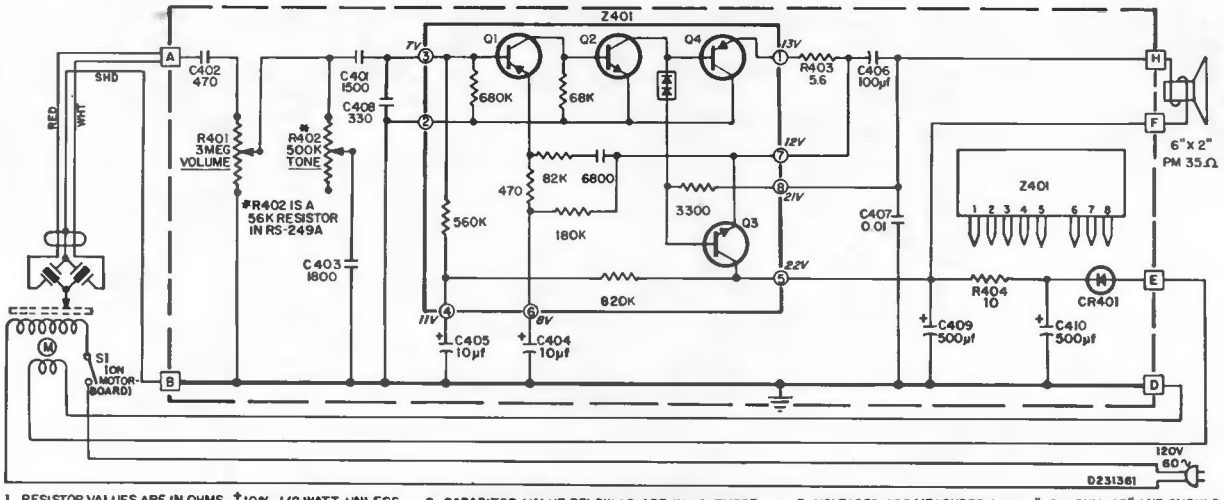


RC-1227 Partial Chassis Layout, bottom view.

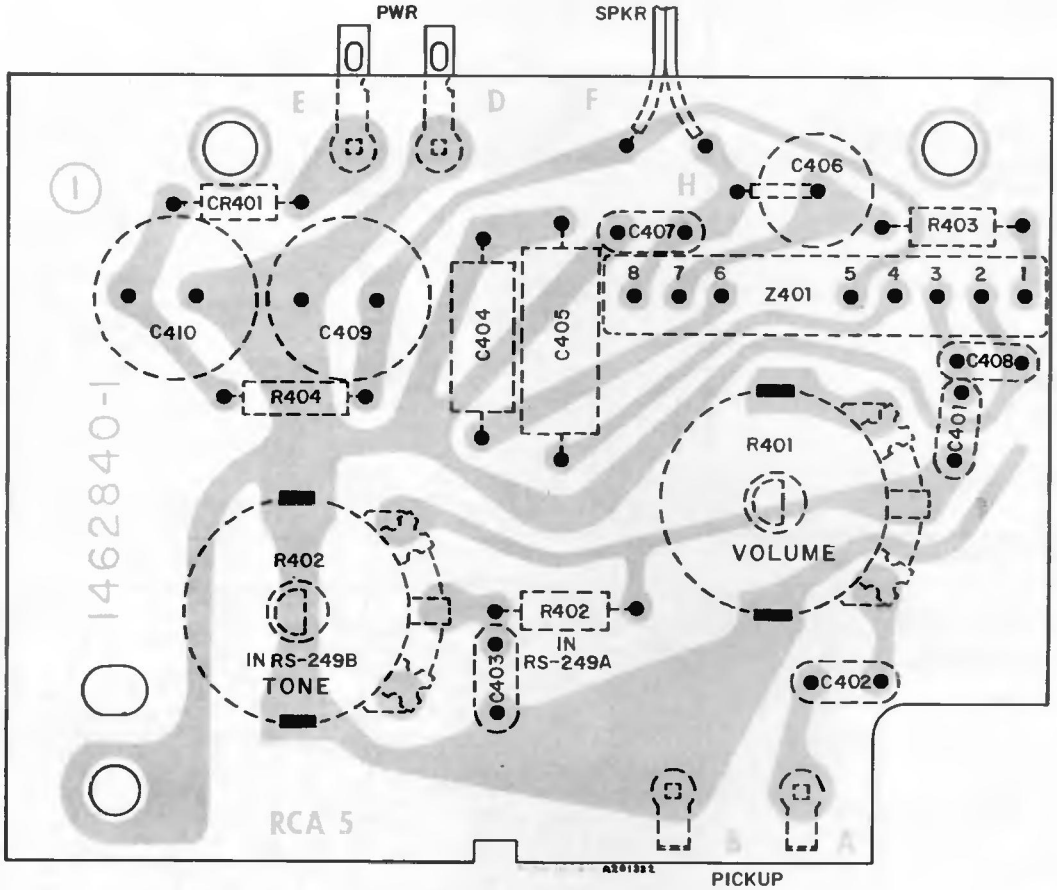
(Continued from preceding page.)

VLP 20 Series VMP 20 Series

Amplifier Chassis RS-249A



1. RESISTOR VALUES ARE IN OHMS, ±10%, 1/2 WATT UNLESS NOTED OTHERWISE. K = 1000
2. CAPACITOR VALUE BELOW 1.0 ARE IN µf, THOSE 1.0 AND ABOVE ARE IN pf UNLESS OTHERWISE NOTED
3. VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" AND SHOULD HOLD WITHIN ± 20% WITH NO SIGNAL APPLIED AT RATED LINE VOLTAGE

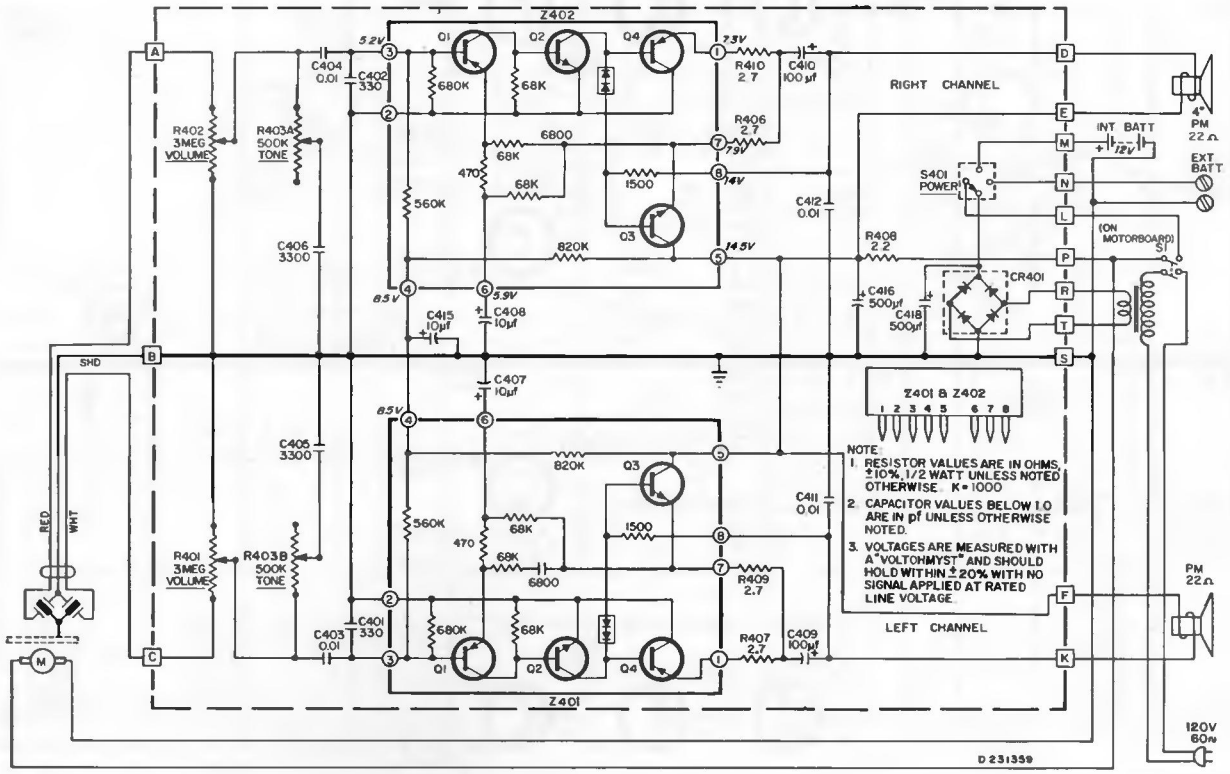


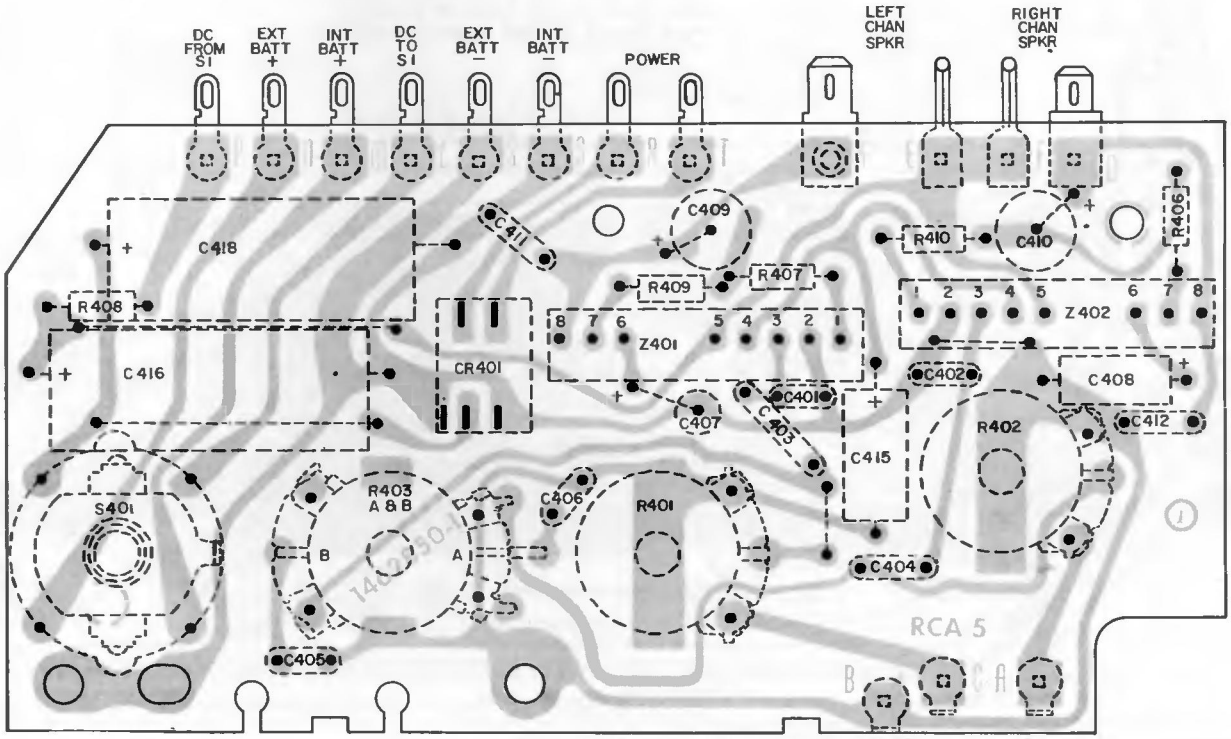
Component Locations (Wiring Side)

RCA

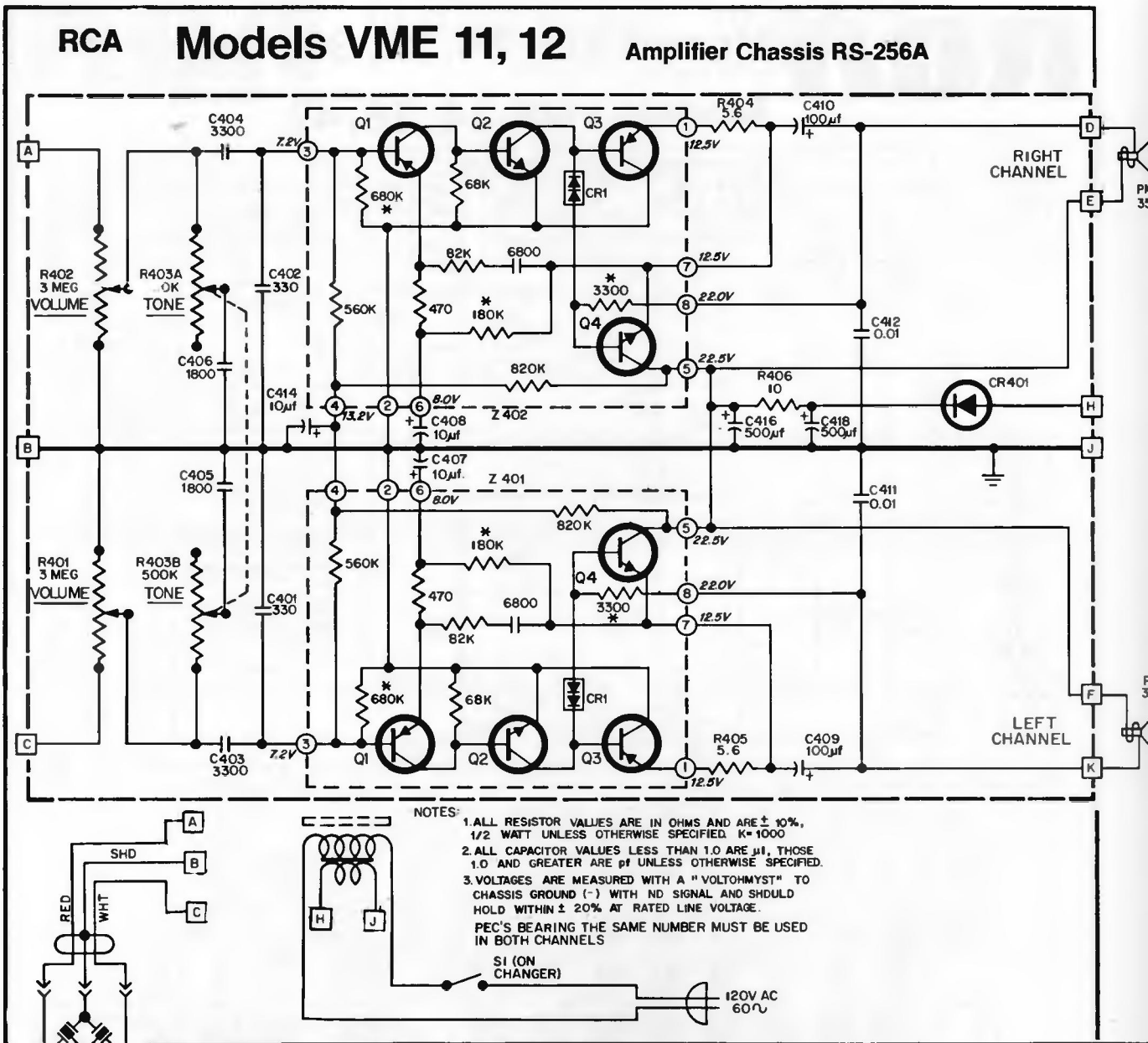
Models VLP 34, 36, 39
Models VMP 34, 38, 47

Amplifier Chassis
RS-243A
RS-245A





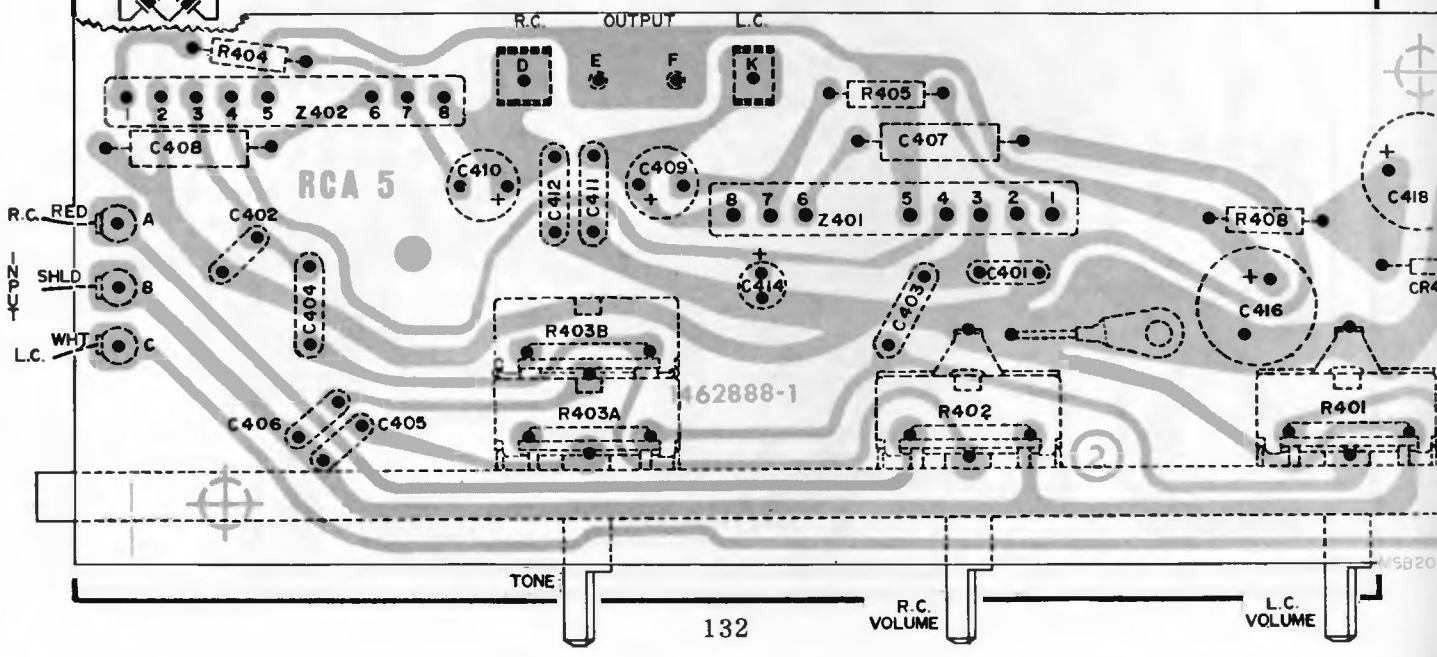
RCA Models VME 11, 12 Amplifier Chassis RS-256A



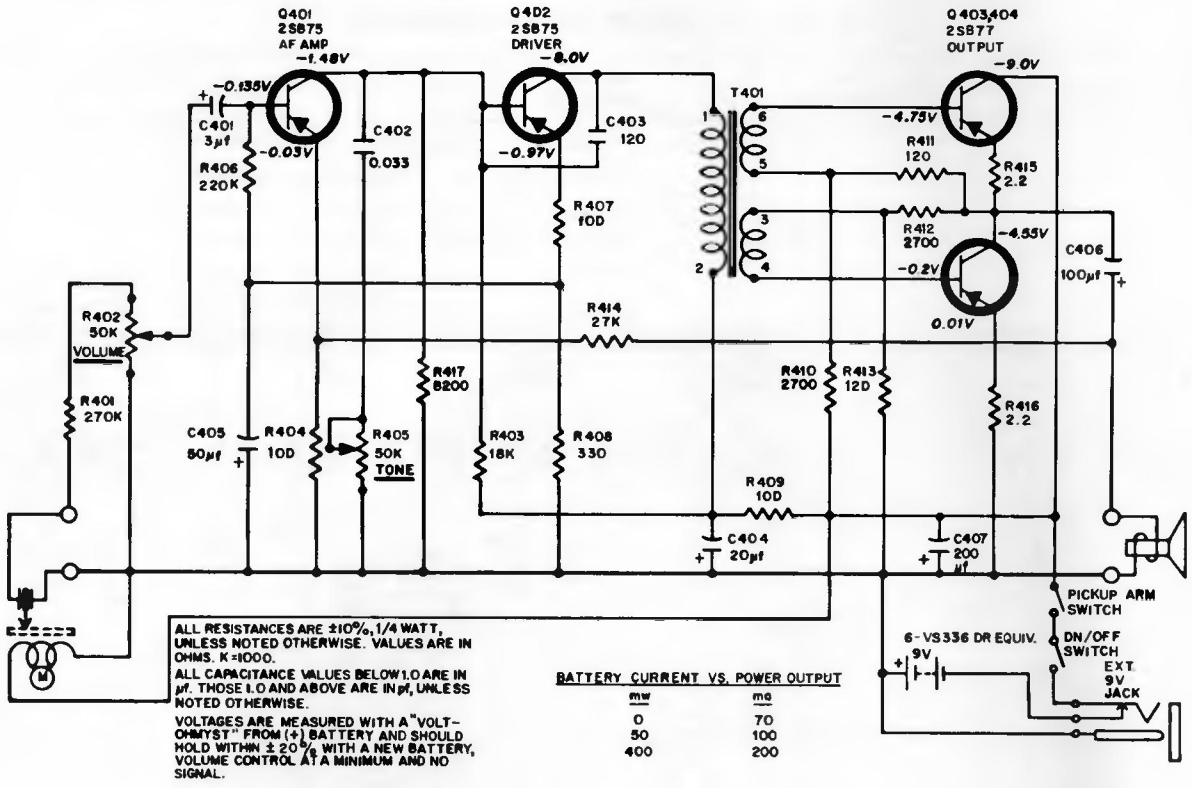
NOTES:

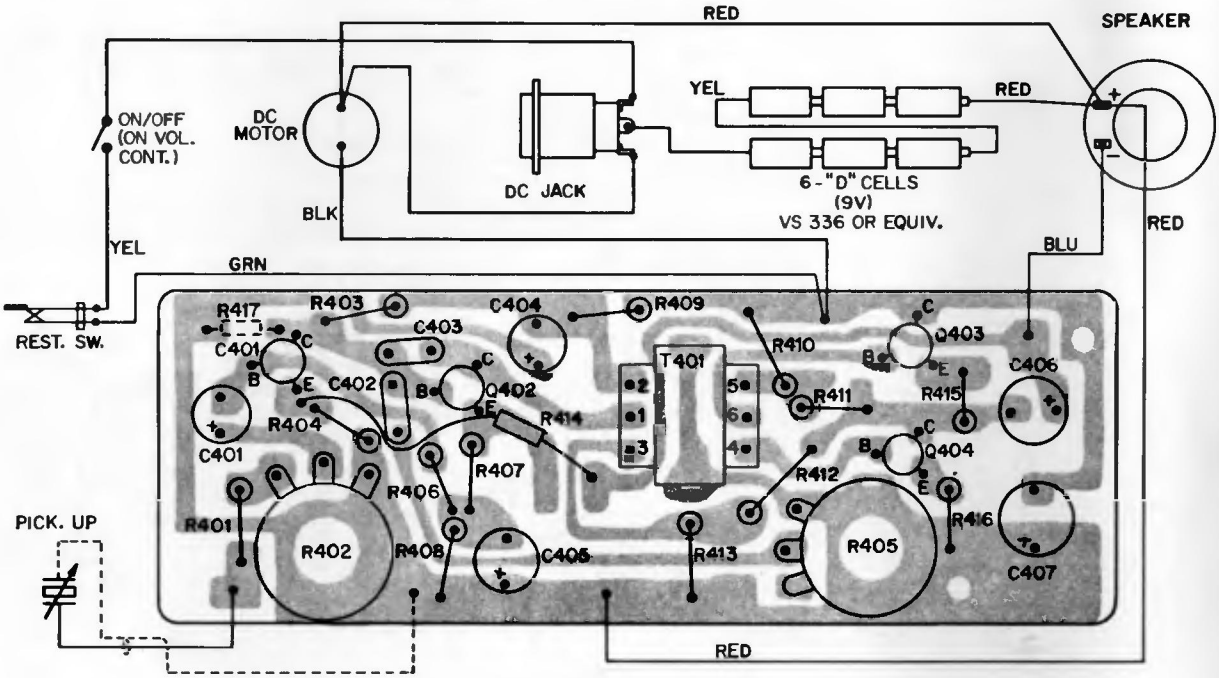
1. ALL RESISTOR VALUES ARE IN OHMS AND ARE ± 10%, 1/2 WATT UNLESS OTHERWISE SPECIFIED. K= 1000
2. ALL CAPACITOR VALUES LESS THAN 1.0 ARE µf, THOSE 1.0 AND GREATER ARE pf UNLESS OTHERWISE SPECIFIED.
3. VOLTAGES ARE MEASURED WITH A "VOLTOHMYST" TO CHASSIS GROUND (-) WITH NO SIGNAL AND SHOULD HOLD WITHIN ± 20% AT RATED LINE VOLTAGE.

PEC'S BEARING THE SAME NUMBER MUST BE USED IN BOTH CHANNELS



RCA Model VMP 14





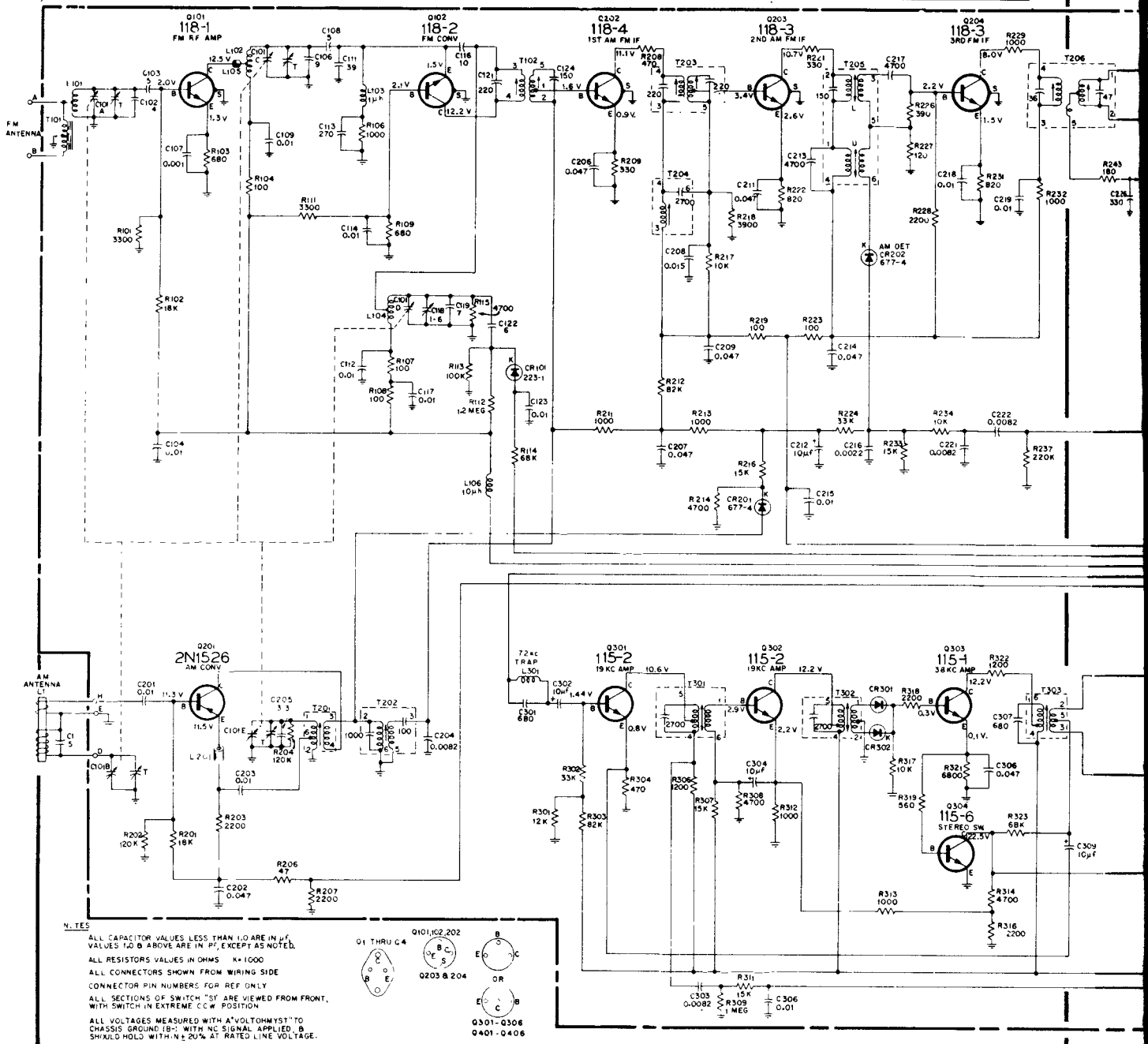
Chassis Layout

Models VMT 1, 2 Series

Radio Chassis RC-1227K

MODEL TO CHASSIS CROSS REFERENCE

MODEL	TUNER, AMPLIFIER	RECORD CHANGER	Speakers
VMT 10	RC1227K	RP-232-5	2— 9" x 6", 2—3½" Tweeters
VMT 13	RC1227K	RP-232-5	2— 9" x 6", 2—3½" Tweeters
VMT 14	RC1227K	RP-232-5	2— 9" x 6", 2—3½" Tweeters
VMT 15	RC1227K	RP-232-5	2— 9" x 6", 2—3½" Tweeters
VMT 25	RC1227K	RP-232-9	2—12" x 8", 2—3½" Middlers, 2—3½" Tweeters
VMT 27	RC1227K	RP-232-9	2—12" x 8", 2—3½" Middlers, 2—3½" Tweeters



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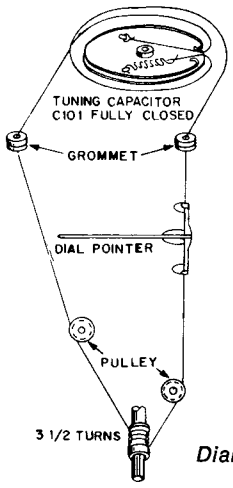


Dial Cord Arrangement

RCA Models VMT 1, 2 Series

Chassis RC-1227K

AUDIO FREQUENCY RESPONSE

VMT 10, 13, 14, 15 ..... 60-20,000 cycles/sec
VMT 25, 27 ..... 50-20,000 cycles/sec

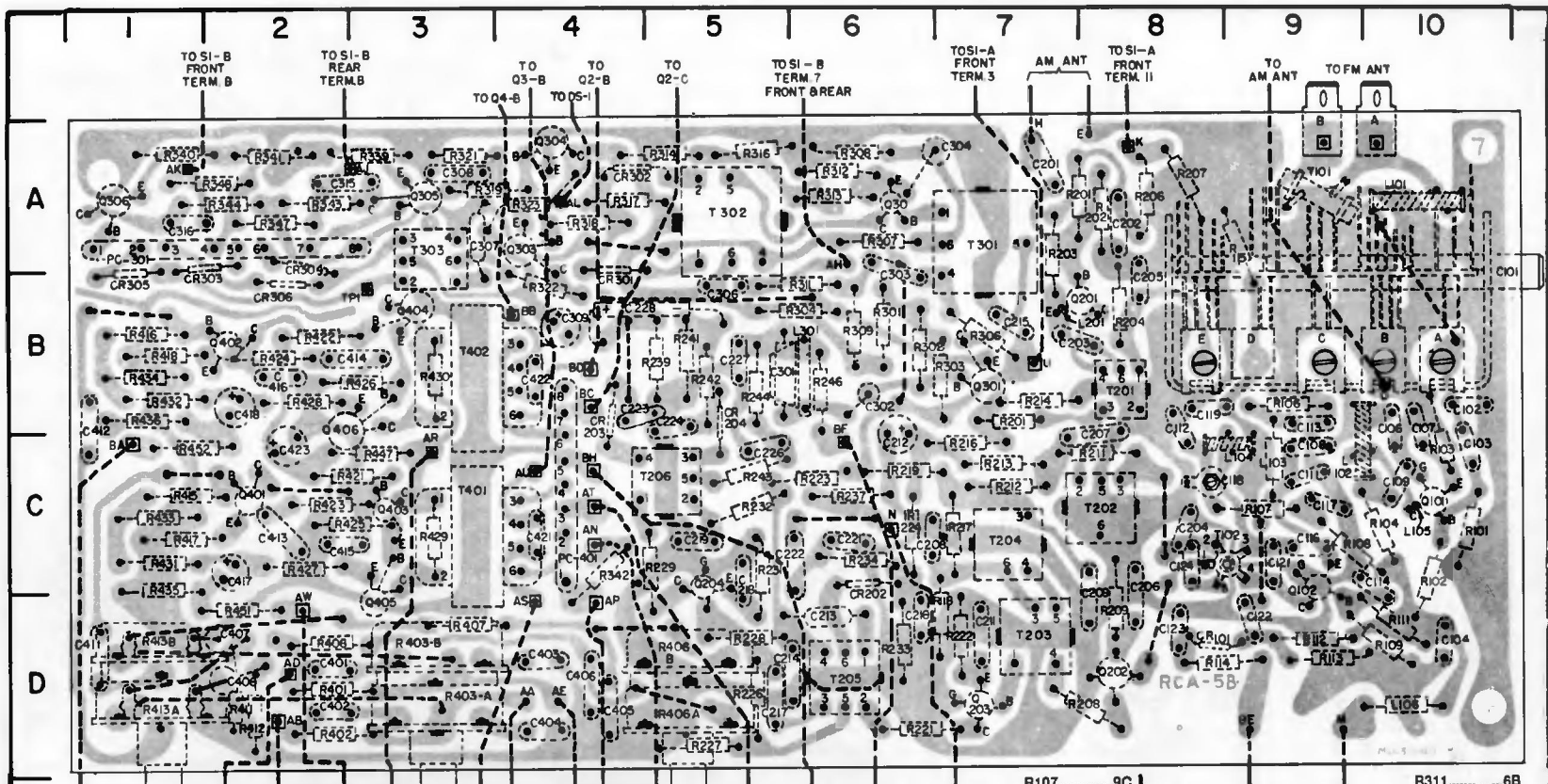
(Continued from preceding page and on next page.)

POWER SUPPLY RATING

VMT 10, 13, 14, 15, 25, 27 ..... 12 volts, 60 cycles
Power Consumption ..... 55 watts

FREQUENCIES	Tuning	IF
AM	540-1620 kc/s	455 kc/s
FM	88-108 mc/s	10.7 mc/s

RCA VMT 1, 2 Series Chassis RC-1227K (Continued from preceding two pages.



C101....9B
C102....10B
C103....10C
C104....10D
C106....10B
C107....10B
C108....9C
C109....10C
C111....9C
C112....8C
C113....9B
C114....9C
C116....9C
C117....9C
C118....8C
C119....8B

C121....9C
C122....9D
C123....8D
C124....8C

C201....7A
C202....6A
C203....7B
C204....8C
C206....8B
C206....8C
C207....8C
C208....6C
C209....8D
C211....7D
C212....6C

C213....6D
C214....5D
C215....7B
C216....6D
C217....5D
C218....5C
C219....5C
C221....6C
C222....5C
C223....4B
C224....5B
C226....5C
C227....5B
C228....5B

C301....5B

C302....6B
C303....6B
C304....6A
C306....5B
C307....3A
C308....3A
C309....4B
C315....2A
C316....1A

C401....2D
C402....2D
C403....4D
C404....4D
C405....4D
C408....4D

C407....2D
C408....2D
C411....1D
C412....1B
C413....2C
C414....2B
C415....2C
C418....2B
C417....2C
C418....2B

C421....4C
C422....4B
C423....2C

CR101....8D

CR201....7B
CR202....6C
CR203....4B
CR204....5B

CR301....4A
CR302....4A
CR303....1A
CR304....2A
CR305....1B
CR306....2B

L101....10A
L102....9C
L103....9C
L104....8C

L105....10C
L106....10D

L201....7B

L301....6B

PC301....2A

PC401....4C

Q101....10C
Q102....9C

Q201....7B
Q202....6D
Q203....7D
Q204....5C

Q301....7B
Q302....6A

Q303....4A
Q304....4A
Q305....3A
Q306....1A

Q401....2C
Q402....2B
Q403....3C
Q404....3B
Q405....3D
Q406....2B

R101....10C
R102....10C
R103....10C
R104....10C
R106....9B

R107....9C
R108....9C
R109....10D
R111....10D
R112....9D
R113....9D
R114....8D
R115....9A

R201....7B
R202....6A
R203....7A
R204....8B
R206....6A
R207....6A
R208....7D
R209....8D
R211....8C
R212....7C
R213....7C

R214....7B
R216....7C
R217....7C
R218....6D
R219....6C
R221....6D
R222....7D
R223....6C
R224....6C
R226....5D
R227....5D
R228....5D
R229....4C
R231....5C
R232....5C
R233....6D
R234....6C

R237....6C
R239....5B
R241....5B
R242....5B
R243....5C
R244....5B
R246....6B

R301....6B
R302....6B
R303....6B
R304....6B
R306....7B
R307....6A
R308....6A
R309....6B

R311....6B
R312....6A
R313....6A
R314....5A
R316....5A
R317....4A
R318....4A
R319....3A
R321....3A
R322....4B
R323....4A
R339....3A
R340....1A
R341....2A
R342....4C
R343....2A
R344....2A
R347....2A
R348....2A
R401....2D

R402....2D
R403....3D
R406....5D
R407....3D
R408....2D
R411....2D
R412....2D
R413....1D
R415....1C
R416....1B
R417....1C
R416....1B
R421....2C
R422....2B
R423....2C
R424....2B
R425....2C
R426....3B
R427....2C
R428....2B
R429....3C
R430....3B
R431....1C
R432....1B
R433....1C
R434....1B
R435....1C
R436....1B
R447....2C
R451....2D
R452....1C

T101....9A
T102....8C

T201....8B
T202....8C
T203....7D
T204....7C
T205....6D
T206....5C

T301....7A
T302....5A
T303....3A

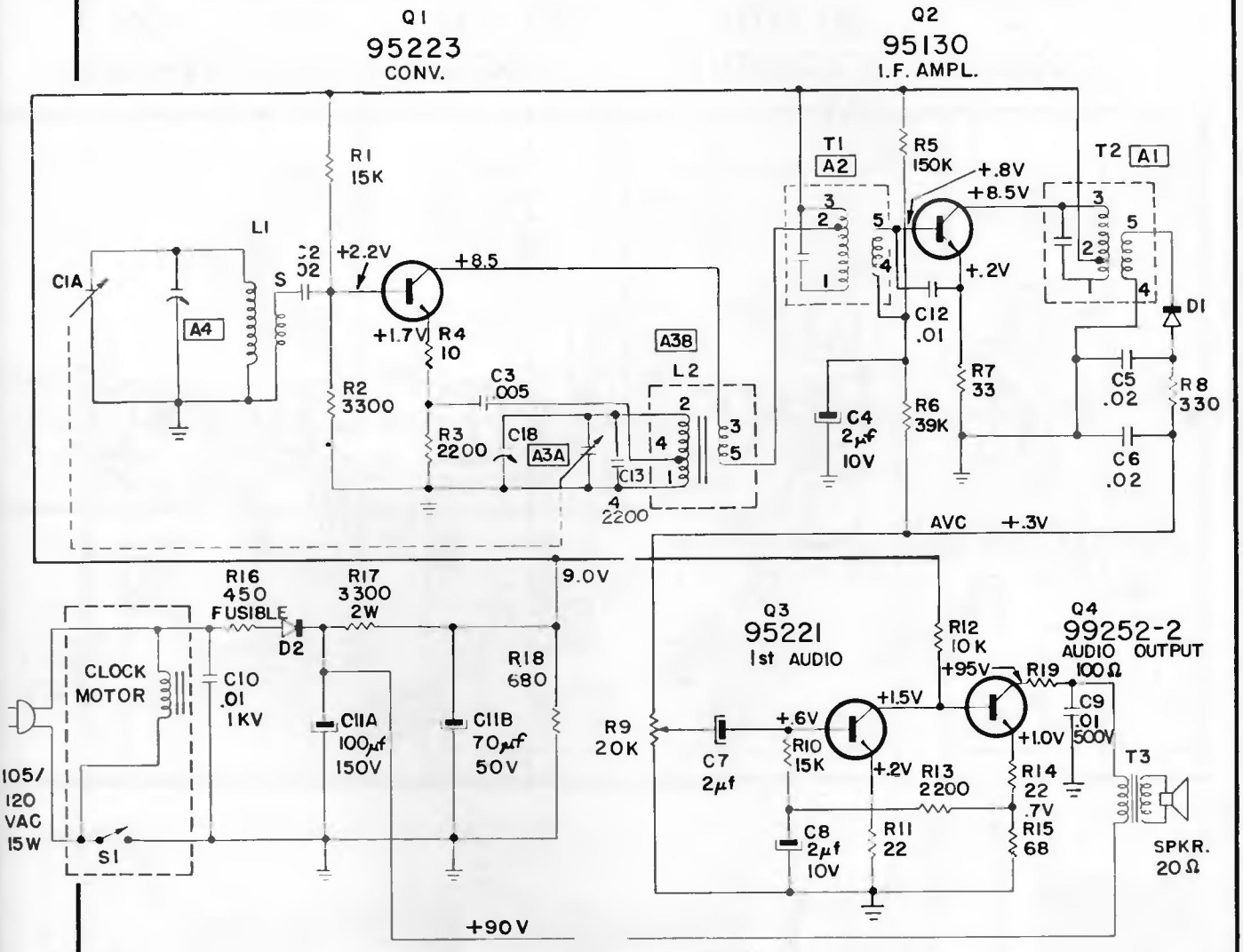
T401....3C
T402....3B

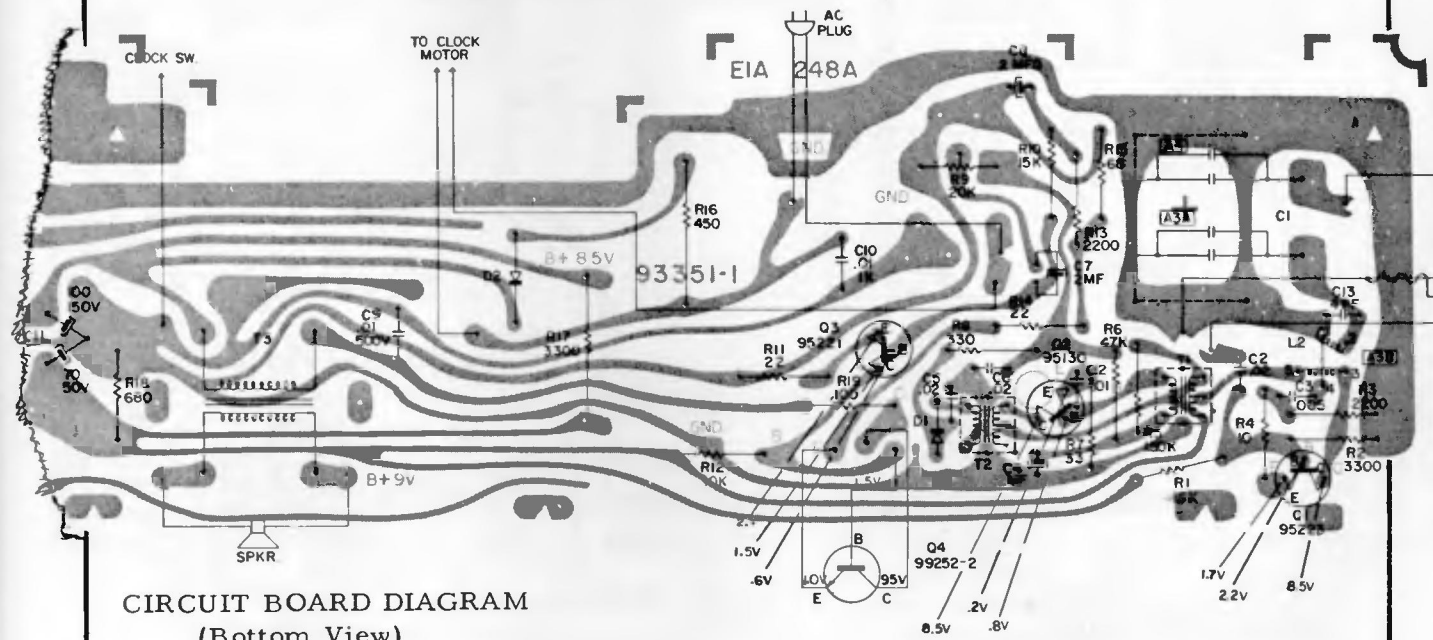
Terminals

A....9A
B....9A
D....10B
E....6A
H....7A
K....8A
M....9D
N....6C
U....7B
AA....4D
AB....2D
AD....2D
AE....4D
AH....6B
AJ....2A
AK....1A
AL....4A
AN....4C
AP....4D
AR....3C
AS....4D
AT....4C
AU....4C
AW....2D
BA....1C
BB....4B
BC....4B
BD....4B
BE....9D
BF....6C
BH....4C
TP1....3B

Component Location Guide

SEARS | Silvertone CHASSIS 132.42701
MODEL 2063, 2064, 2065



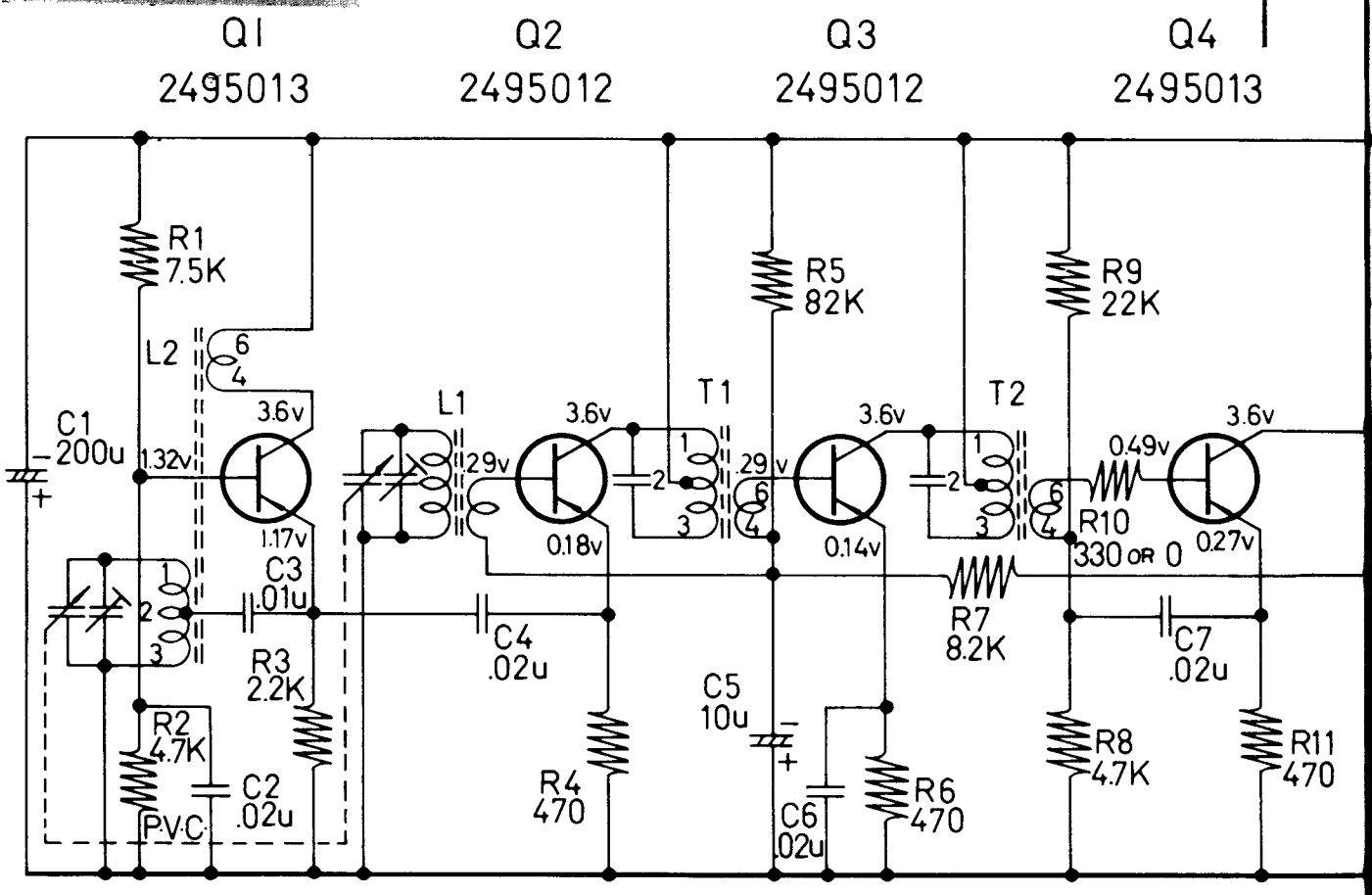


CIRCUIT BOARD DIAGRAM
(Bottom View)

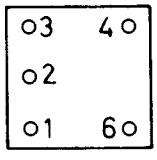
SEARS

CHASSIS 132.41501
MODELS 2230, 2231, 2232

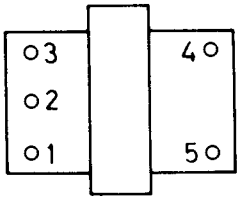
(Continued on next page.)



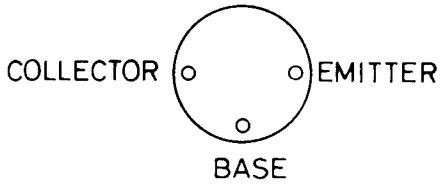
L2, T1, T2, T3



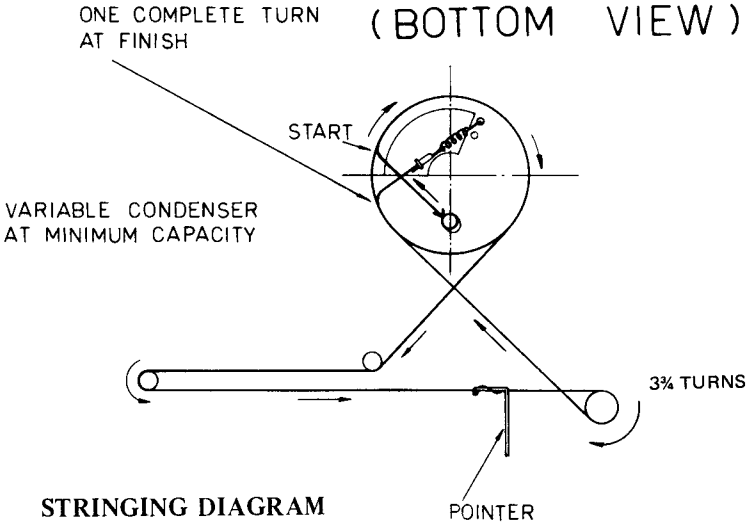
T4, T5



Q1 Q8



(BOTTOM VIEW)



STRINGING DIAGRAM

IF 455 KC

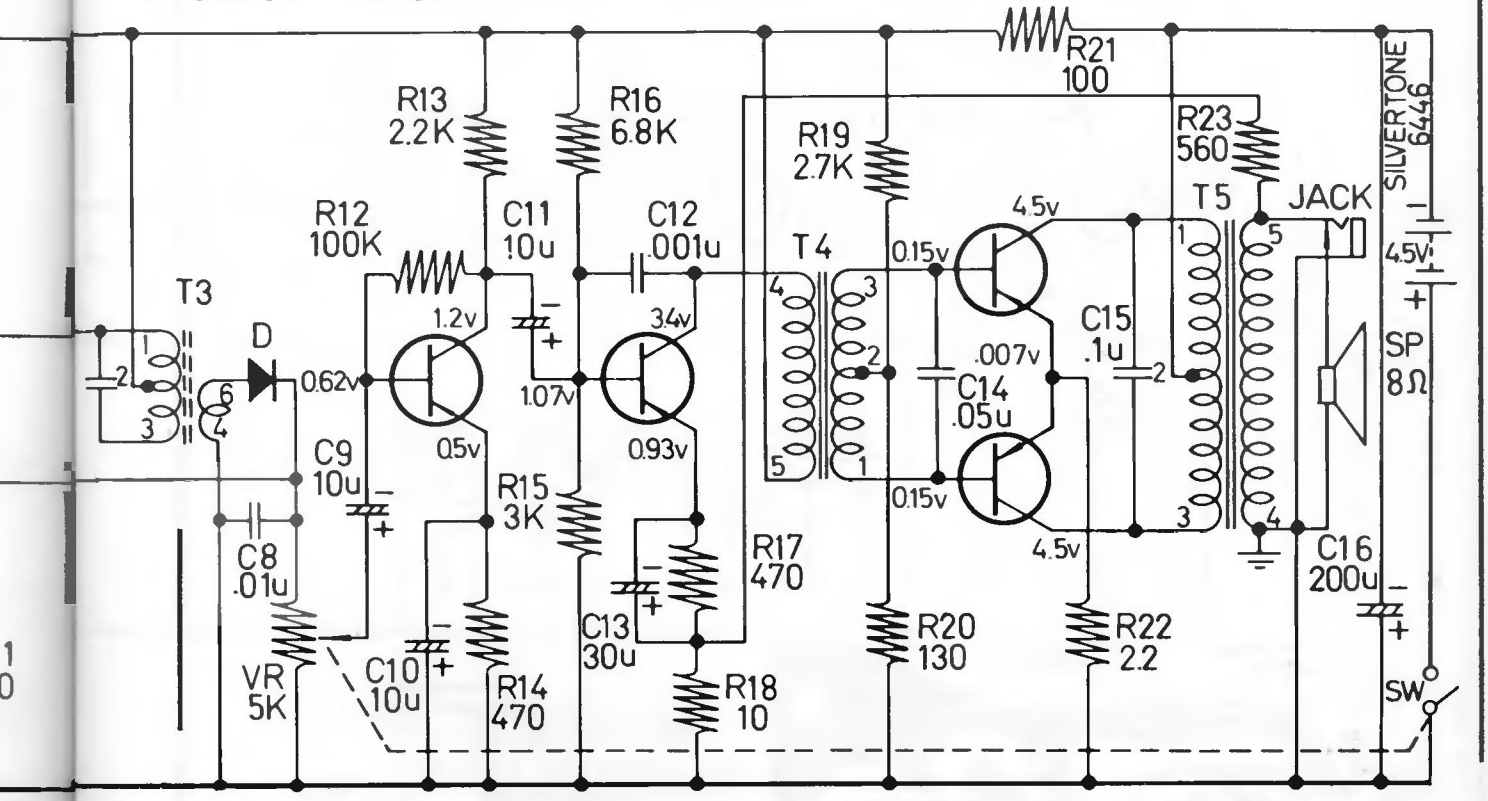
Silvertone

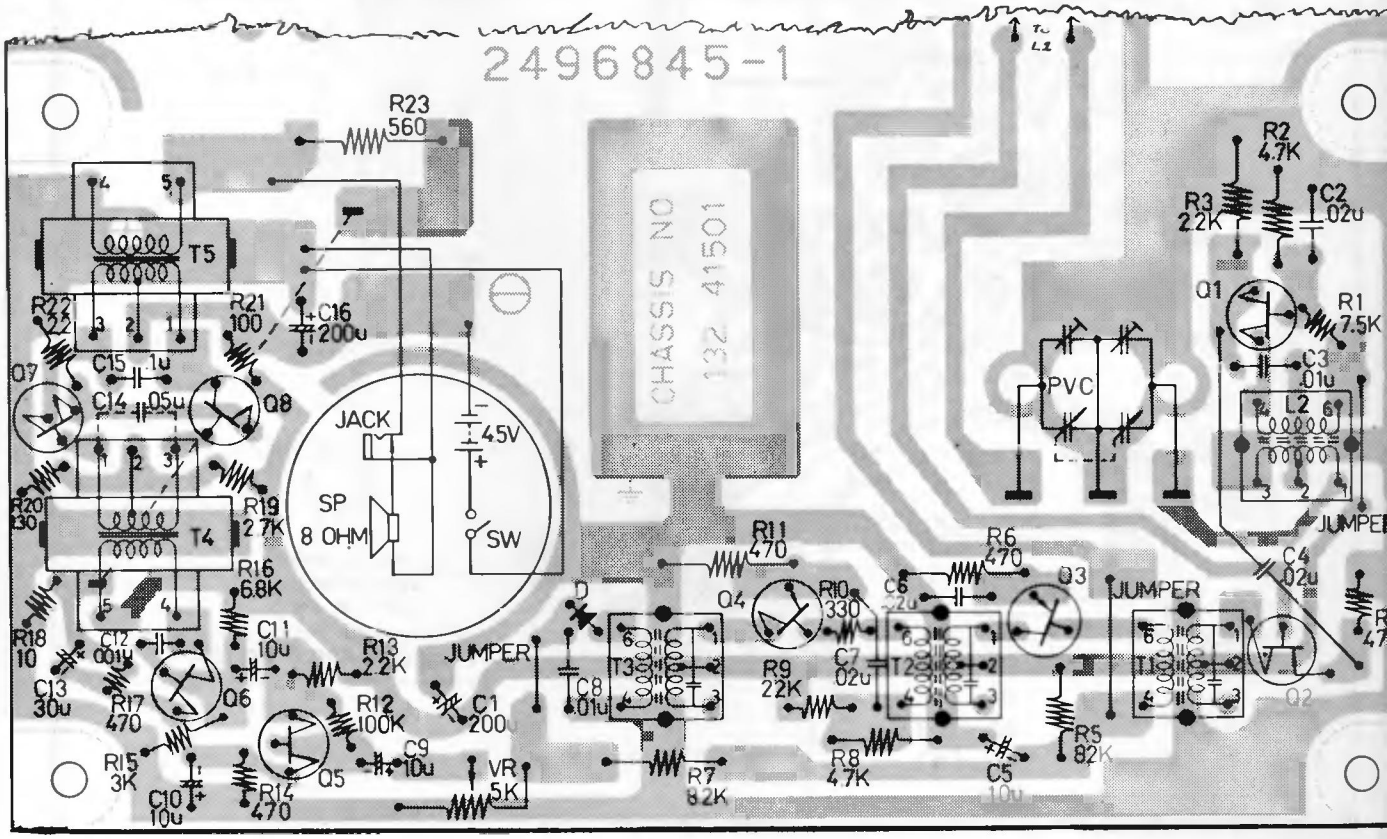
RADIO CHASSIS NO. **132.41501**

USED IN RADIO MODEL
2230
2231
2232

(Continued from preceding page.)

D	Q5	Q6	Q7, Q8
2495083	2495014	2495014	2497473





CIRCUIT BOARD DIAGRAM
(Bottom View)

SEARS

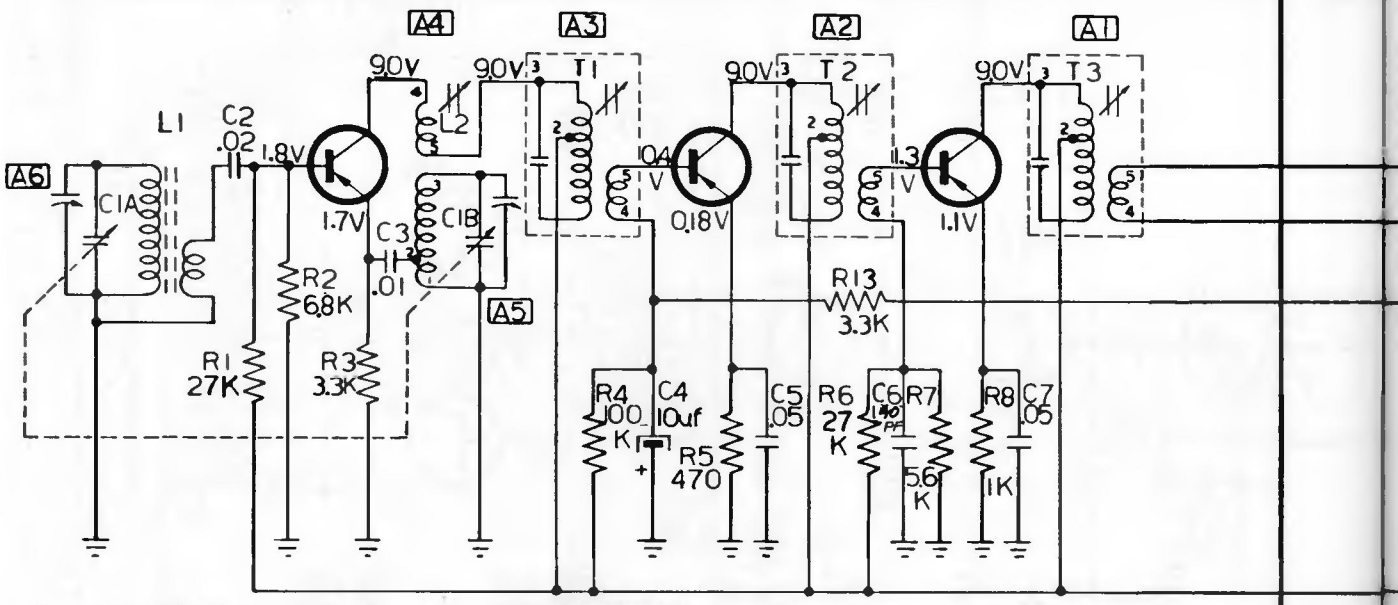
Silvertone

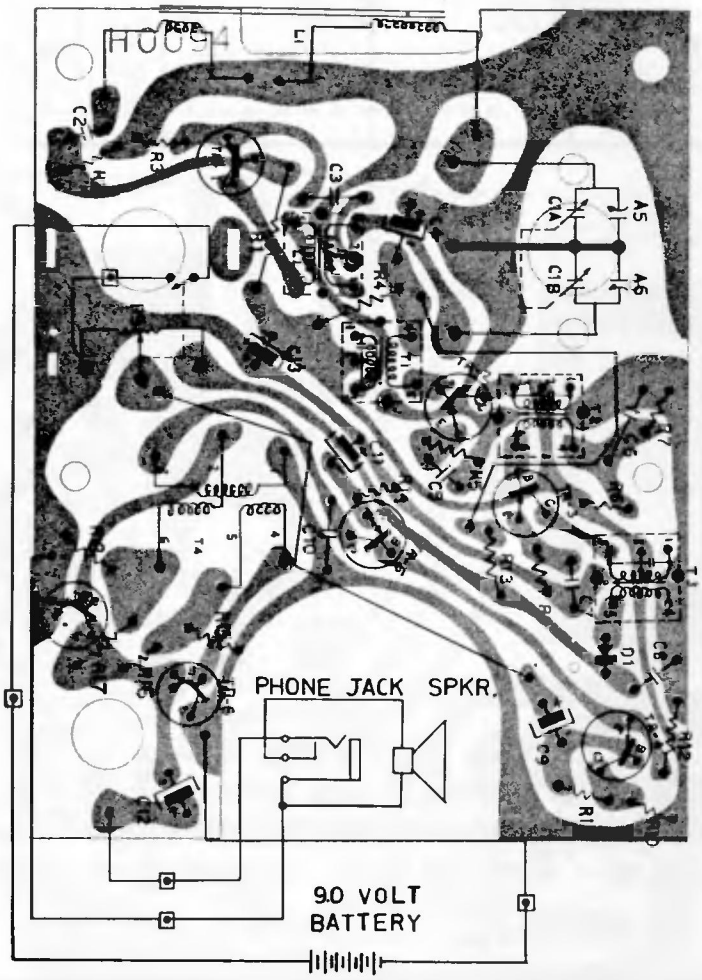
RADIO CHASSIS NO. **132.42301** (Continued on next page.)

TR-1
2SA29-1
CONVERTER

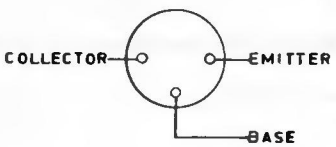
TR-2
2SA29-2
FIRST I.F.

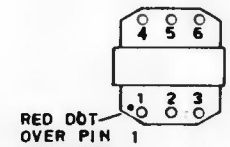
TR-3
2SA29-3
SECOND I.F.





TRANSISTOR
(BOTTOM VIEW)





AUDIO DRIVER TRANSFORMER T4
(BOTTOM VIEW)

I.F. TRANSFORMER & OSCILLATOR COIL
(BOTTOM VIEW)

USED IN RADIO MODEL
2203

CIRCUIT BOARD DIAGRAM (BOTTOM VIEW)

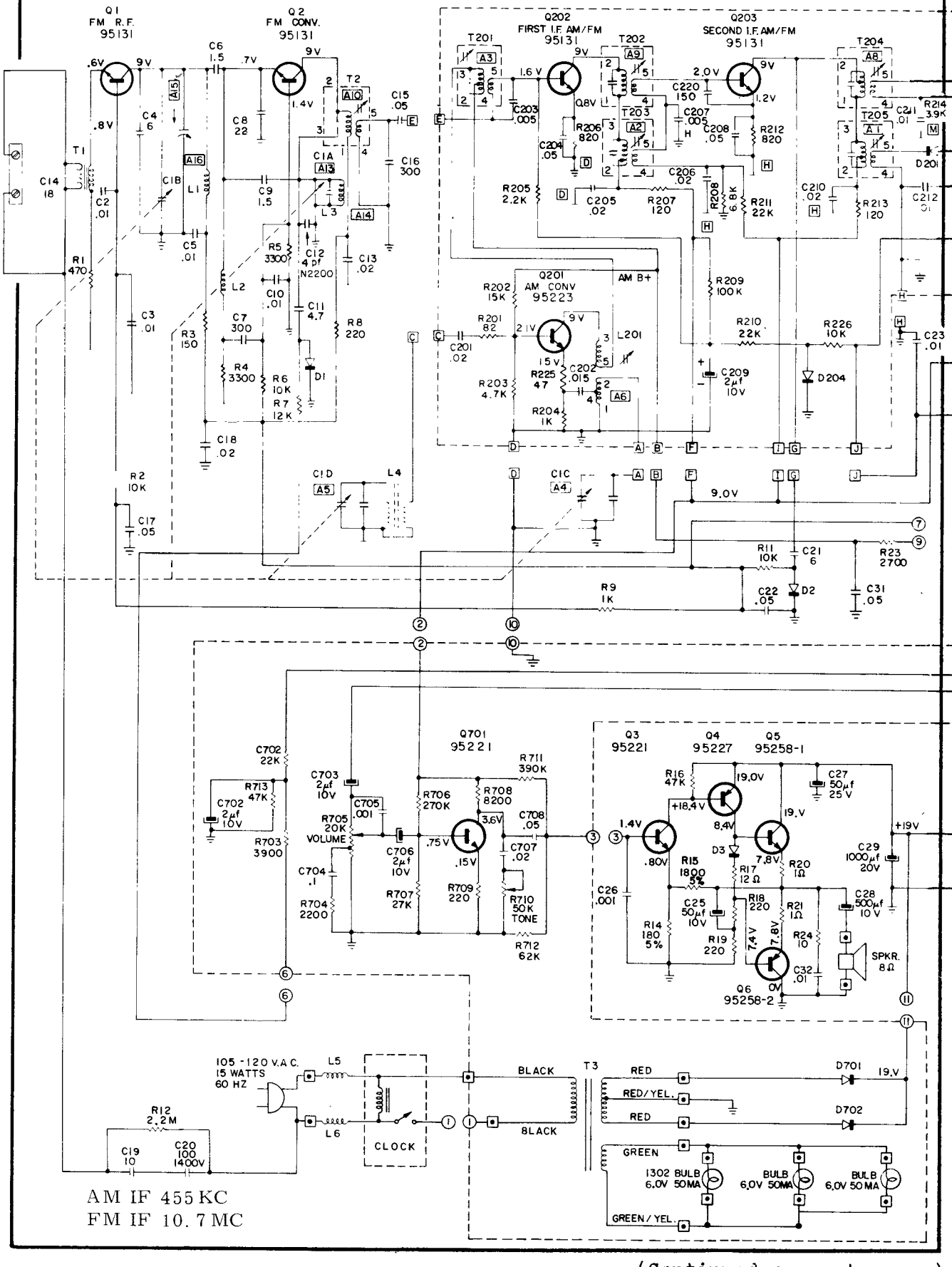
SEARS CHASSIS 132.42301 (Continued from preceding page.)
MODEL 2203

	Position of Variable	Frequency of Generator	Dummy Antenna
	Open	455 kHz	.05 mf.
	Closed	530 kHz	
	Open	1640 kHz	
	1400 kHz	1400 kHz	
	600 kHz	600 kHz	

⏚ = COMMON GROUND SYMBOL.
⊡ = EXTERNAL CONNECTION TO PRINTED CIRCUIT.
RESISTANCE VALUES ARE IN OHMS: K=1000.
CAPACITANCE VALUES LESS THAN 1.0 ARE MICROFARADS (uf), AND VALUES GREATER THAN 1.0 ARE IN MICRO-MICROFARADS (pF) EXCEPT WHERE NOTED.
VOLTAGE READINGS TO COMMON GROUND ARE MEASURED WITH VACUUM TUBE VOLTMETER UNDER NO SIGNAL CONDITIONS WITH TUNING CAPACITOR CLOSED AND VOLUME CONTROL AT MINIMUM VOLUME POSITION. TOTAL BATTERY CURRENT DRAIN UNDER NO SIGNAL CONDITIONS, 8 TO 15 MA.

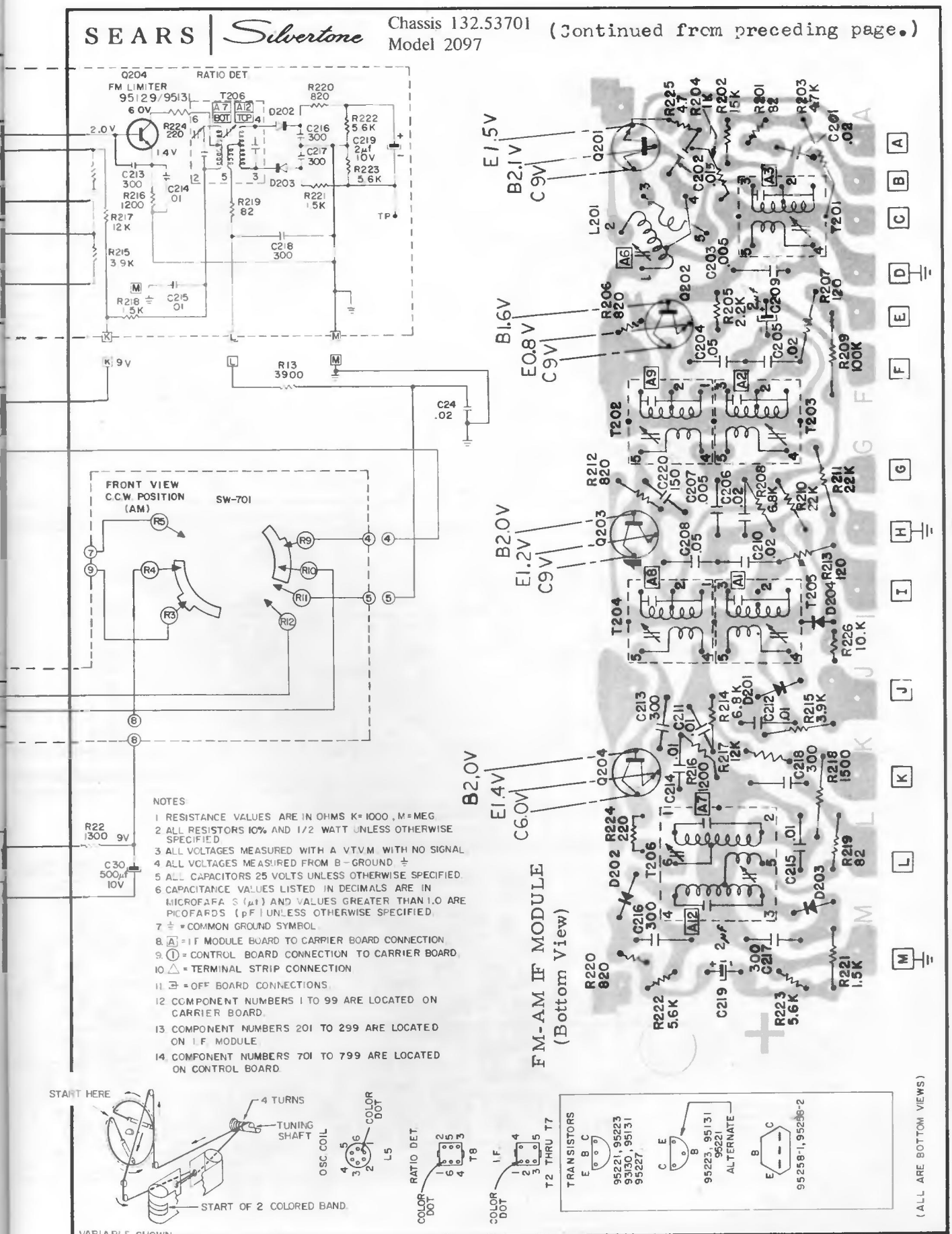
LOCATION OF PARTS

SEARS | Silvertone RADIO CHASSIS NO. 132.53701 MODEL 2097



AM IF 455 KC
FM IF 10.7 MC

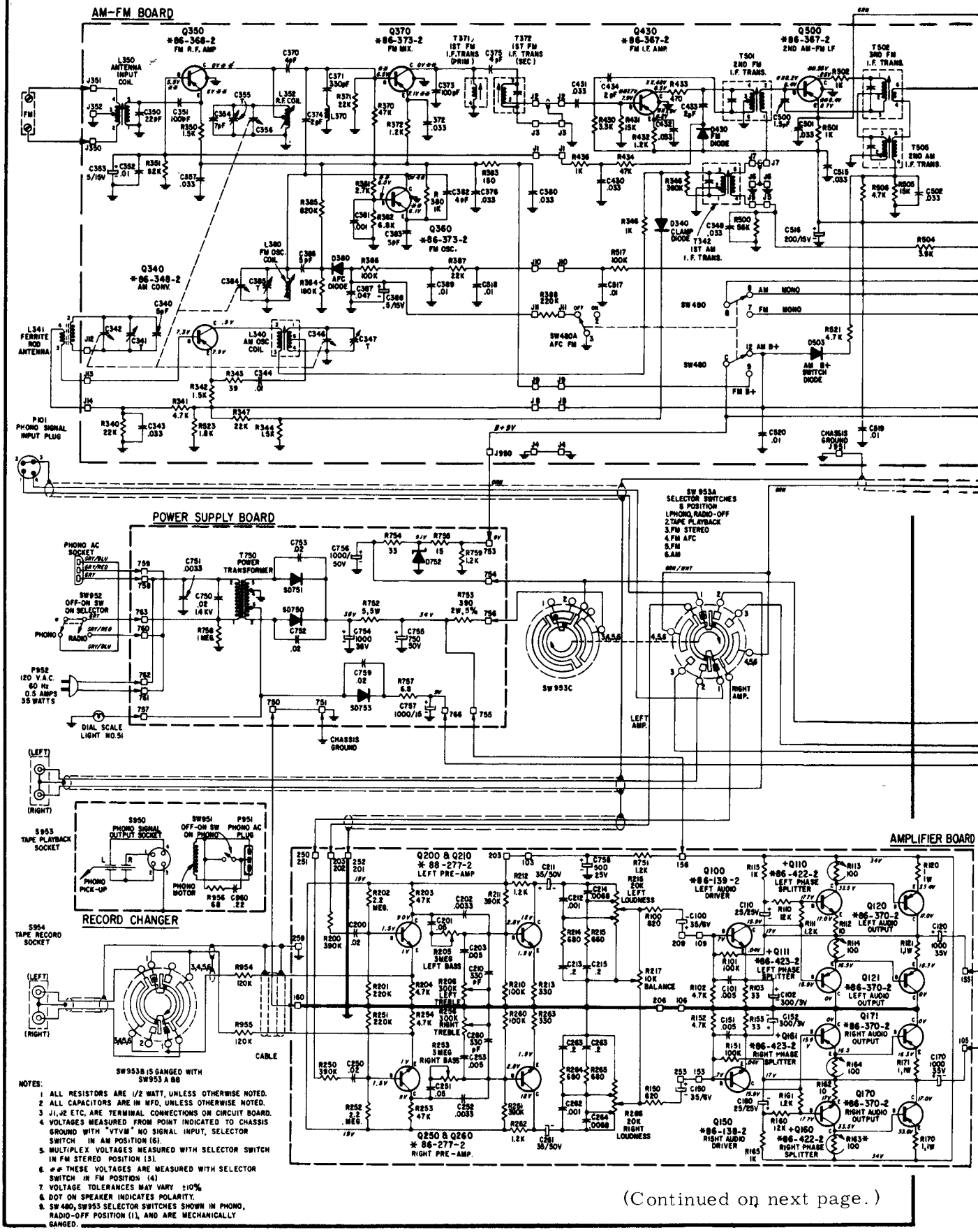
(Continued on next page.)



NOTES

1. RESISTANCE VALUES ARE IN OHMS K=1000, M=MEG.
2. ALL RESISTORS 10% AND 1/2 WATT UNLESS OTHERWISE SPECIFIED.
3. ALL VOLTAGES MEASURED WITH A V.T.V.M. WITH NO SIGNAL.
4. ALL VOLTAGES MEASURED FROM B – GROUND ⏚.
5. ALL CAPACITORS 25 VOLTS UNLESS OTHERWISE SPECIFIED.
6. CAPACITANCE VALUES LISTED IN DECIMALS ARE IN MICROFARADS (µf) AND VALUES GREATER THAN 1.0 ARE PICOFARDS (pF) UNLESS OTHERWISE SPECIFIED.
7. ⏚ = COMMON GROUND SYMBOL.
8. [A] = I.F. MODULE BOARD TO CARRIER BOARD CONNECTION.
9. (1) = CONTROL BOARD CONNECTION TO CARRIER BOARD.
10. △ = TERMINAL STRIP CONNECTION.
11. ⊐ = OFF BOARD CONNECTIONS.
12. COMPONENT NUMBERS 1 TO 99 ARE LOCATED ON CARRIER BOARD.
13. COMPONENT NUMBERS 201 TO 299 ARE LOCATED ON I.F. MODULE.
14. COMPONENT NUMBERS 701 TO 799 ARE LOCATED ON CONTROL BOARD.

STRINGING DIAGRAM



(Continued on next page.)

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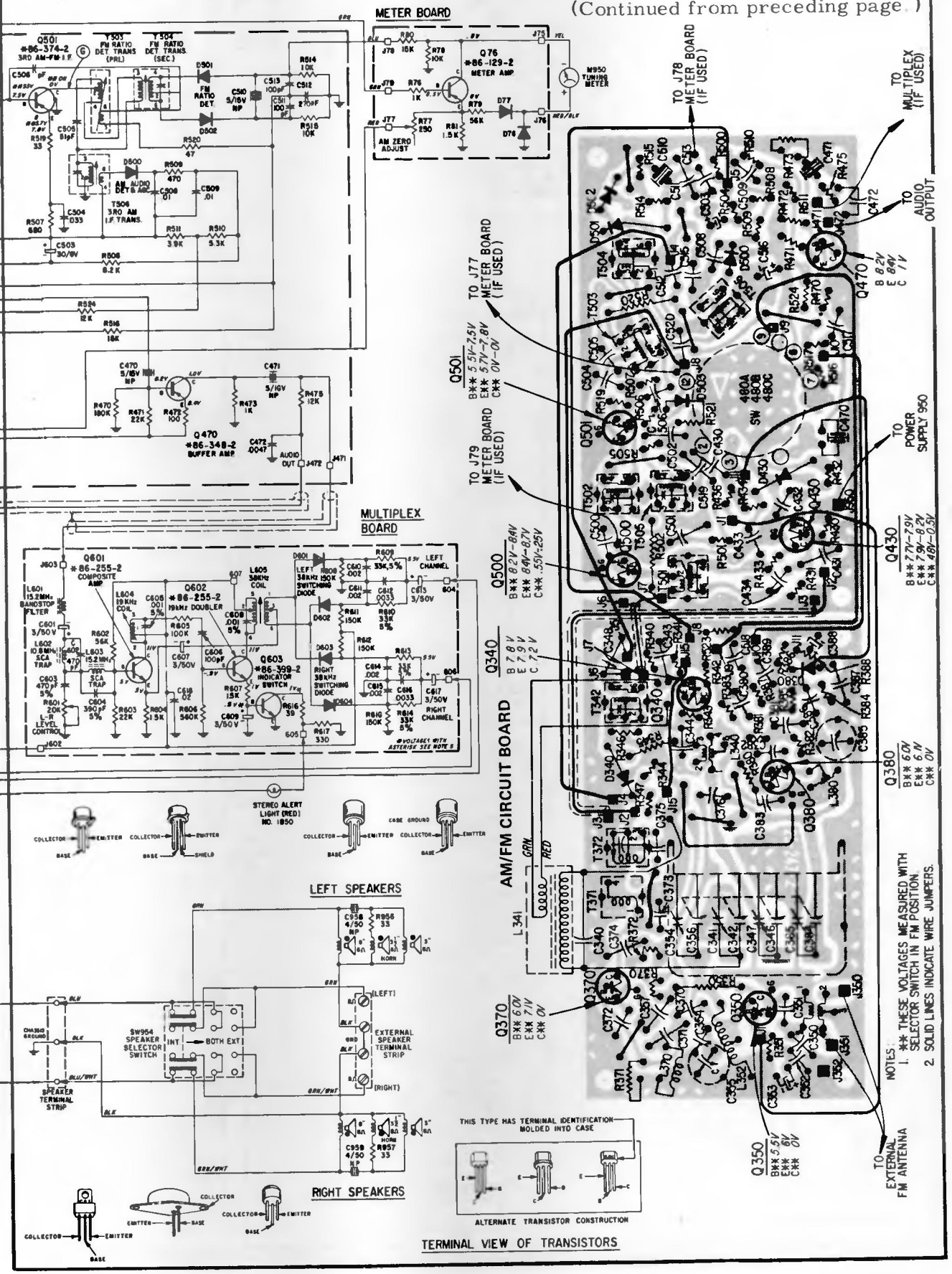
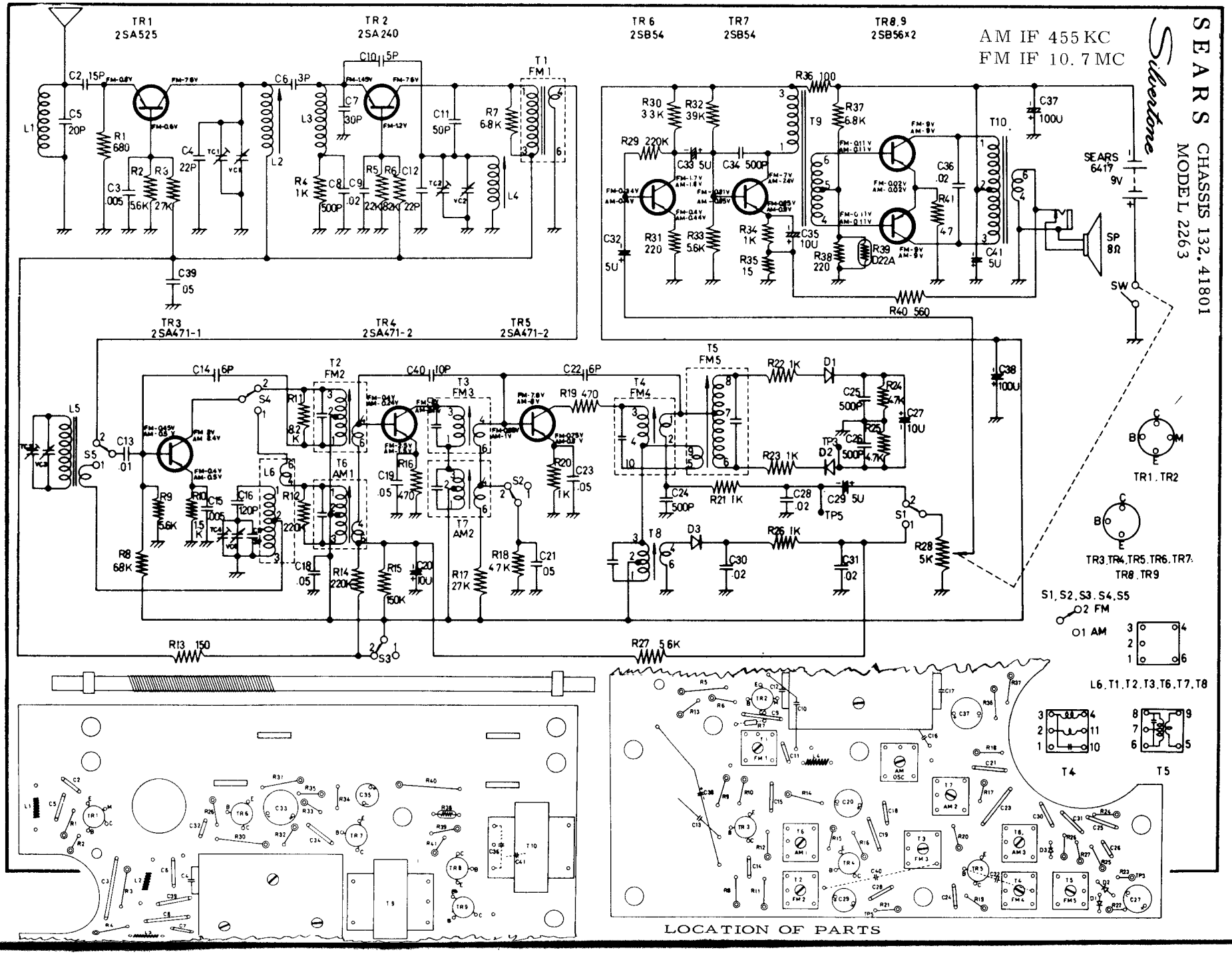


SEARS CHASSIS 132.41801
MODEL 2263

Silvertone

AM IF 455 KC
FM IF 10.7 MC

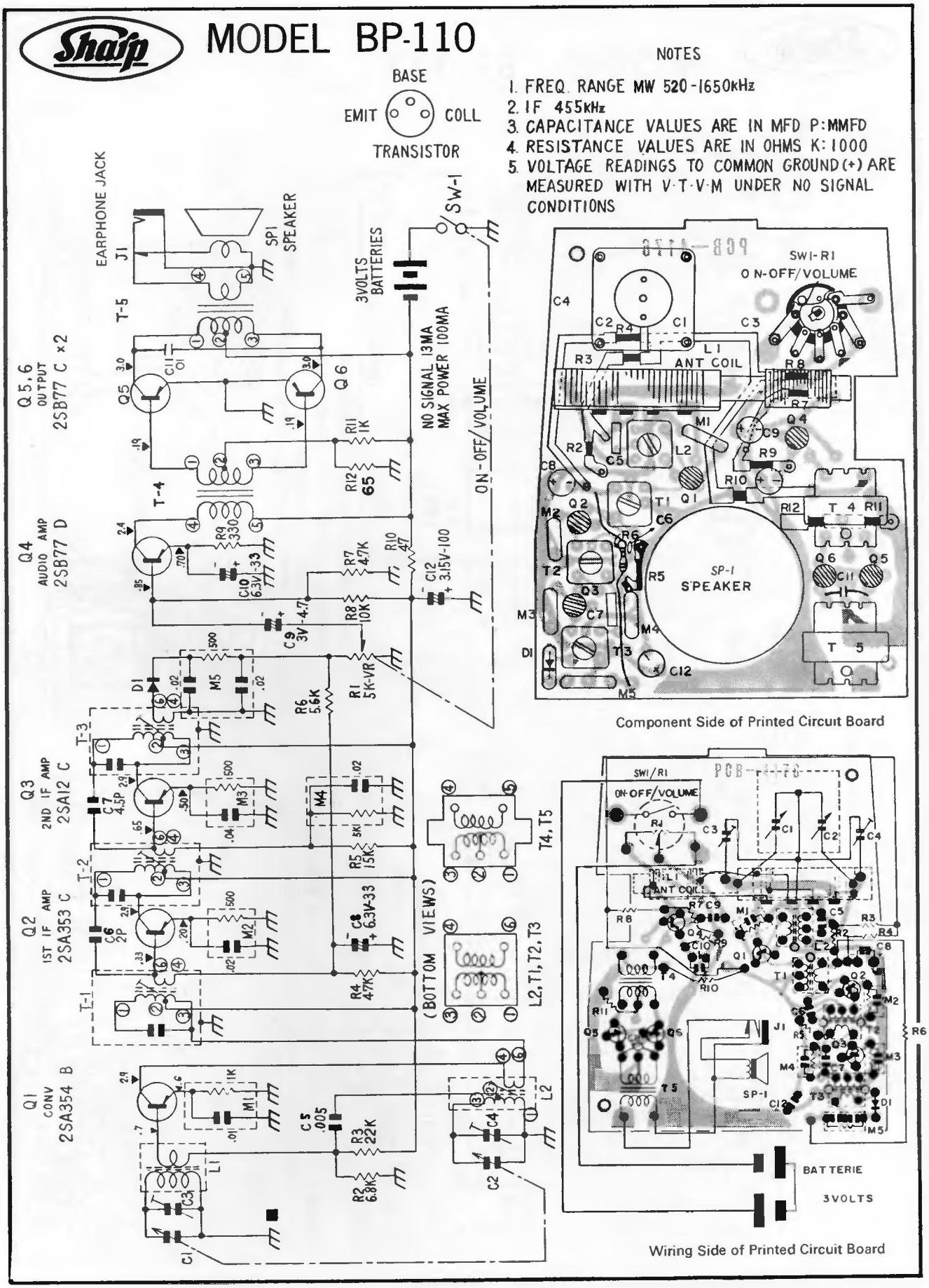


LOCATION OF PARTS

Sharp MODEL BP-110

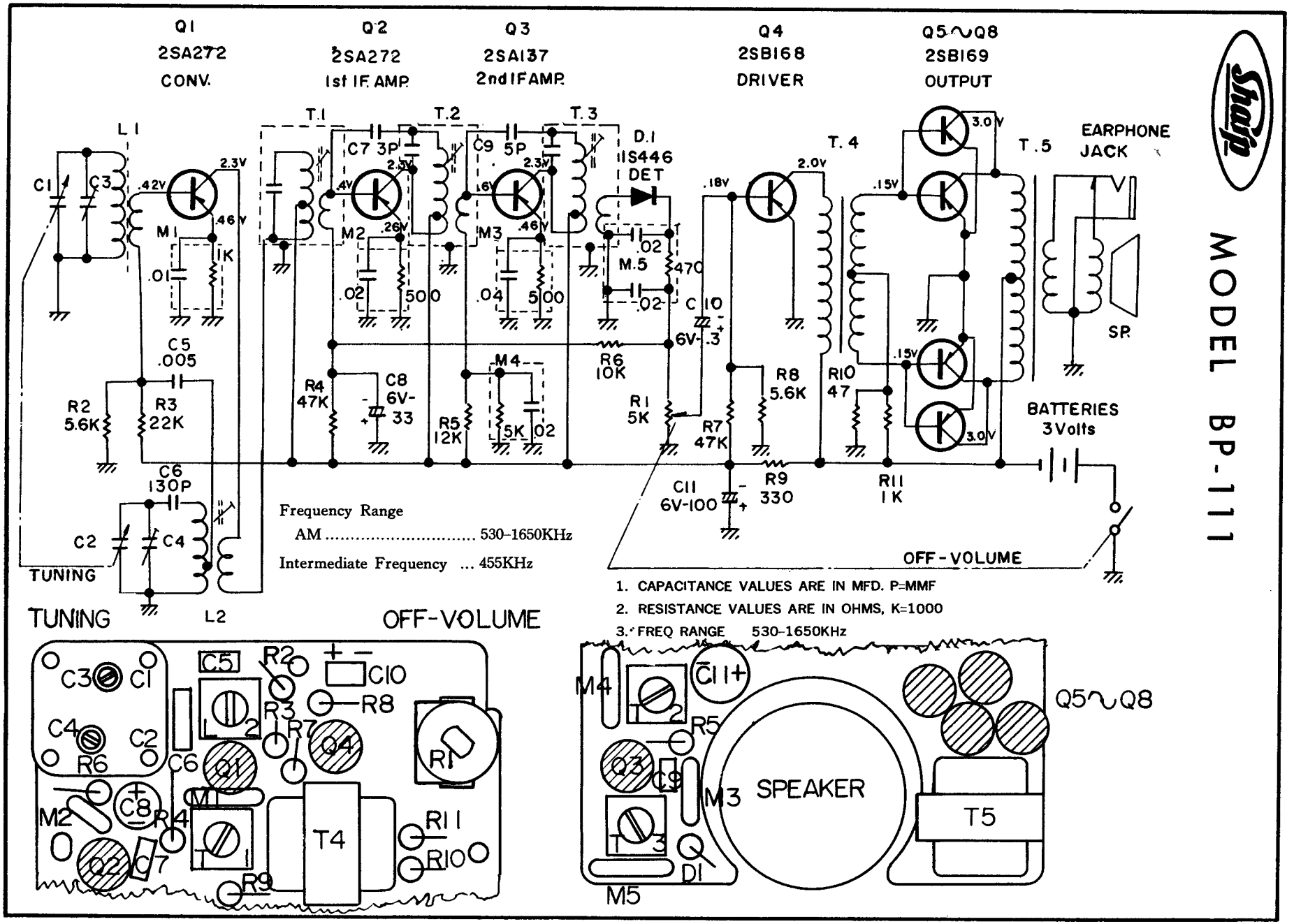
NOTES

1. FREQ. RANGE MW 520-1650kHz
2. IF 455kHz
3. CAPACITANCE VALUES ARE IN MFD P:MMFD
4. RESISTANCE VALUES ARE IN OHMS K:1000
5. VOLTAGE READINGS TO COMMON GROUND (+) ARE MEASURED WITH V·T·V·M UNDER NO SIGNAL CONDITIONS

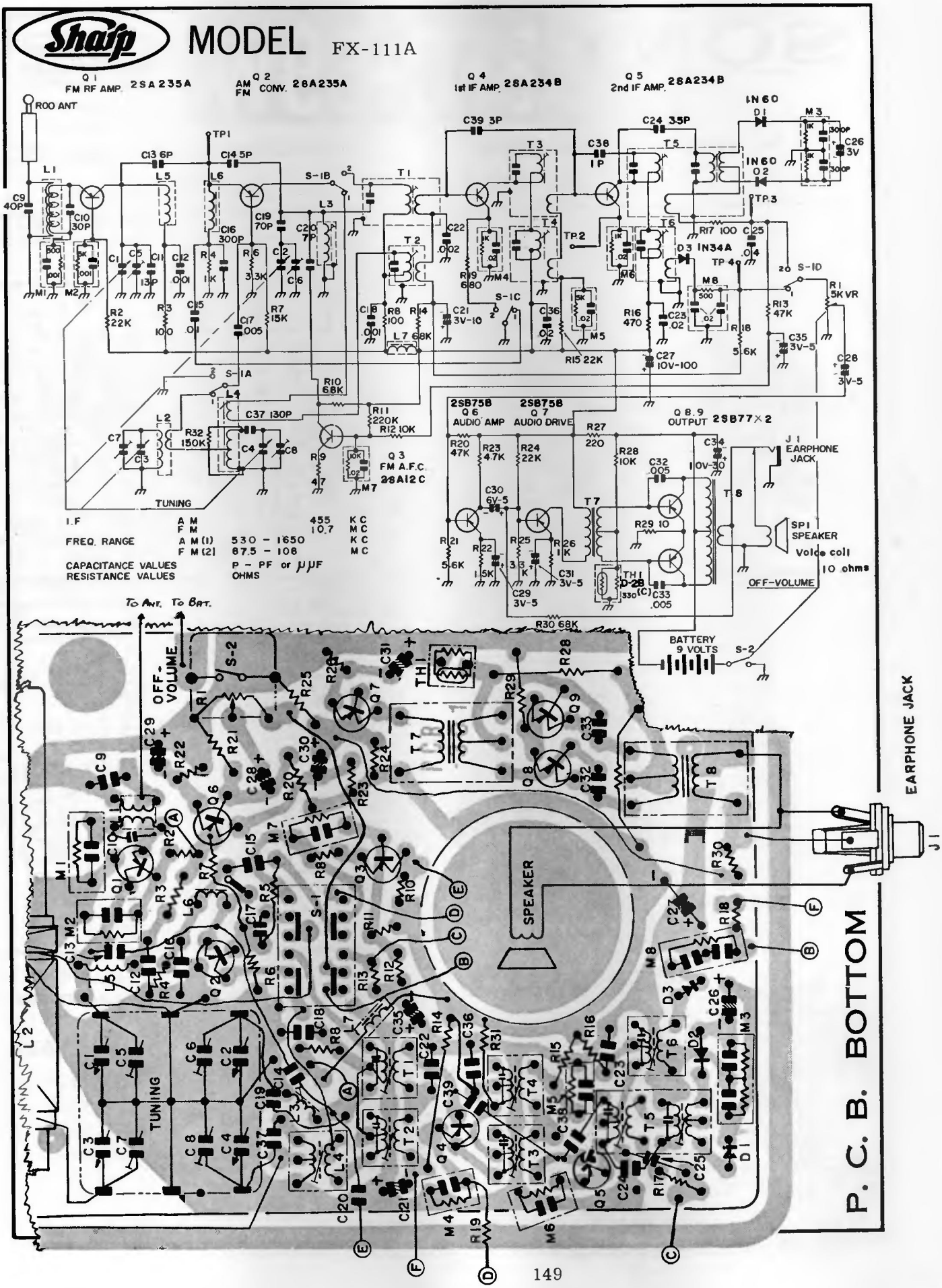


Component Side of Printed Circuit Board

Wiring Side of Printed Circuit Board



COMPONENT SIDE OF PRINTED CIRCUIT BOARD

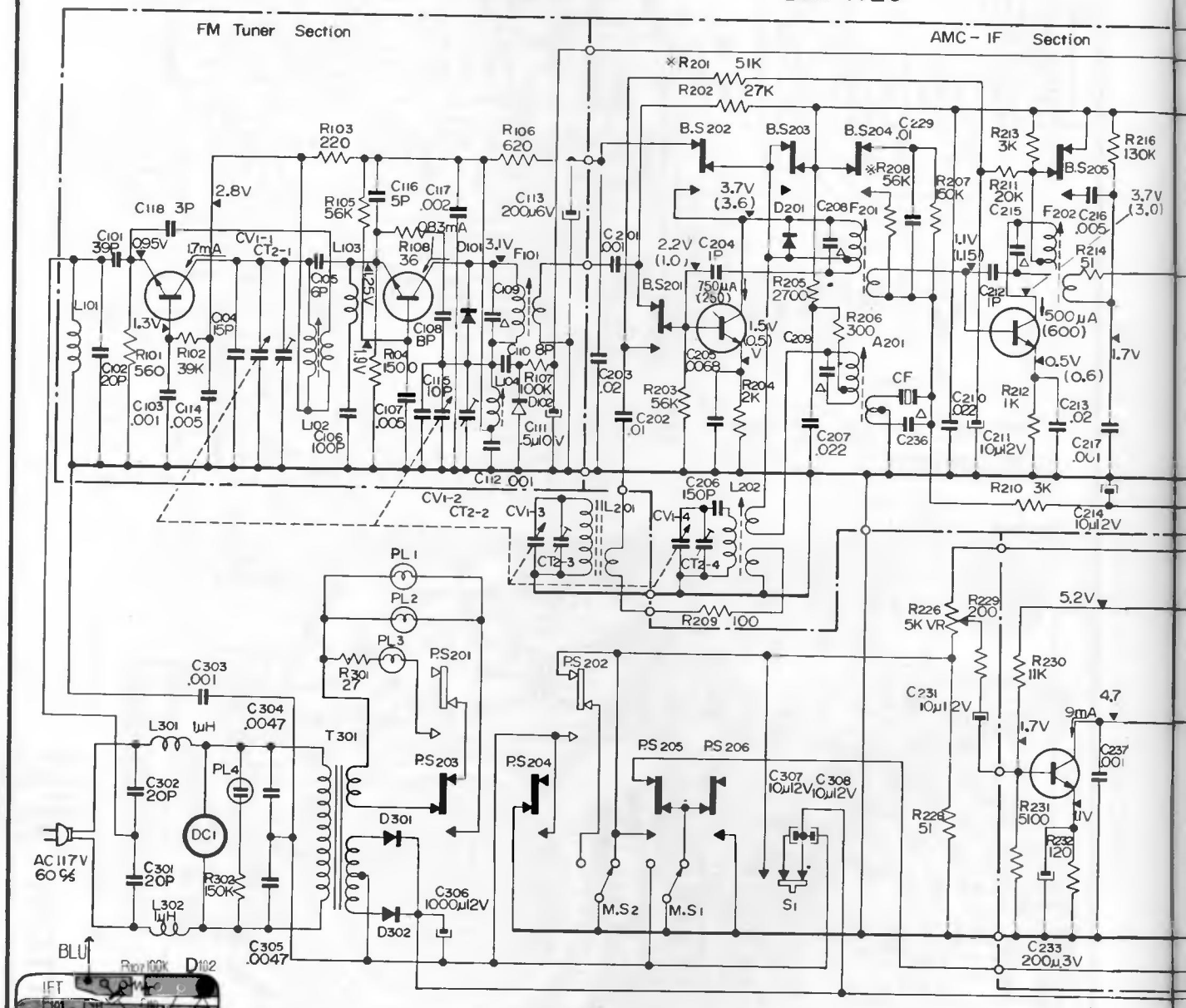

Sharp
MODEL FX-111A
Q1 FM RF AMP. 2SA235A
Q2 AM/FM CONV. 2SA235A
Q4 1st IF AMP. 2SA234B
Q5 2nd IF AMP. 2SA234B
R00 ANT
TP1
C13 6P
C14 5P
L1
L5
L6
S-1B
T1
C39 3P
C24 35P
C38 1P
T3
T5
IN60 D1
IN60 D2
C26 3V
TP3
C9 40P
C10 30P
C19 70P
C20 7P
L3
C16 300P
T2
T4
TP2
C22 .002
T6
R17 100
C25 .04
D3 IN34A
TP4
S-1D
M8
R1 5K VR
R13 47K
C35 3V-5
C28 3V-5
R16 470
C23 .02
R18 5.6K
C27 10V-100
R15 22K
C36 .02
M5
C18 .001
R8 100
R14
C21 3V-10
L7 68K
R9 680
M4
S-1C
R2 22K
R3 100
C15 .01
C17 .005
R7 15K
C1
C5
C11
C12 .001
R4 1K
R6 3.3K
C2
C6
M1
M2
S-1A
L4
C37 130P
R10 68K
R11 220K
R12 10K
L2
C7
C3
R32 150K
C4
C8
R9 4.7
Q3 FM A.F.C 2SA12C
M7
TUNING
2SB75B Q6 AUDIO AMP
2SB75B Q7 AUDIO DRIVE
Q8,9 OUTPUT 2SB77 X 2
R20 47K
R23 4.7K
R24 22K
R27 220
R28 10K
C34
J1 EARPHONE JACK
C32 .005
10V-30
C30 6V-5
T7
T8
R29 10
SP1 SPEAKER
Voice coil 10 ohms
R21 5.6K
R22 1.5K
R25 3K
R26 1K
C31 3V-5
TH1 D-28
330(C)
C33 .005
OFF-VOLUME
C29 3V-5
R30 68K
BATTERY 9 VOLTS
S-2
I.F
AM 455 KC
FM 10.7 MC
FREQ. RANGE
AM (1) 530 - 1650 KC
FM (2) 87.5 - 108 MC
CAPACITANCE VALUES P - PF or μμF
RESISTANCE VALUES OHMS
To Ant.
To Bat.
OFF-VOLUME
S-2
SPEAKER
EARPHONE JACK
J1
P. C. B. BOTTOM
TUNING

SONY 8FC-69W

(Continued on next page.)

X101 2SC629 X102 2SC629 X201 2SC403A X202 2SC403A

D101 IT26 D102 IT240 D201 IT26



D301 SDIZ D302 SDIZ

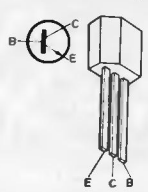
X204 2SC633

Mounting Diagram

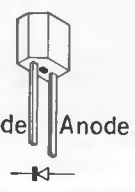
FM Tuner Section (FMC)

—Conductor Side—

X101 2SC629
X102 2SC629



D102 IT-240

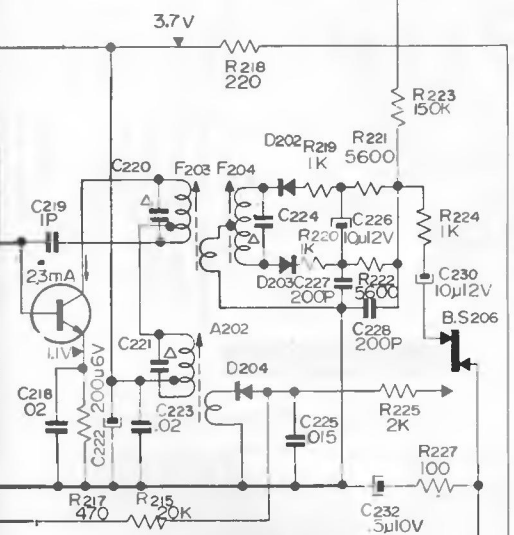


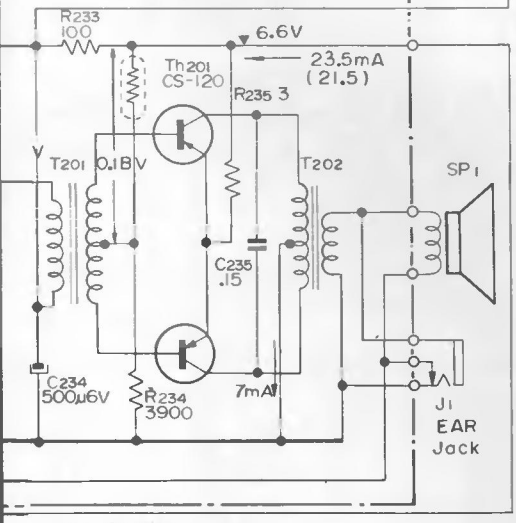
SONY 8FC-69W

(Continued from preceding page.)

X203 2SC403A

D204 1T23 D202,203 1T26



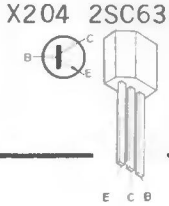


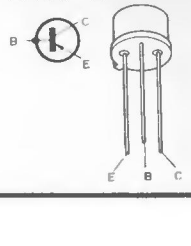
AF Section

X205, 206 2SB383

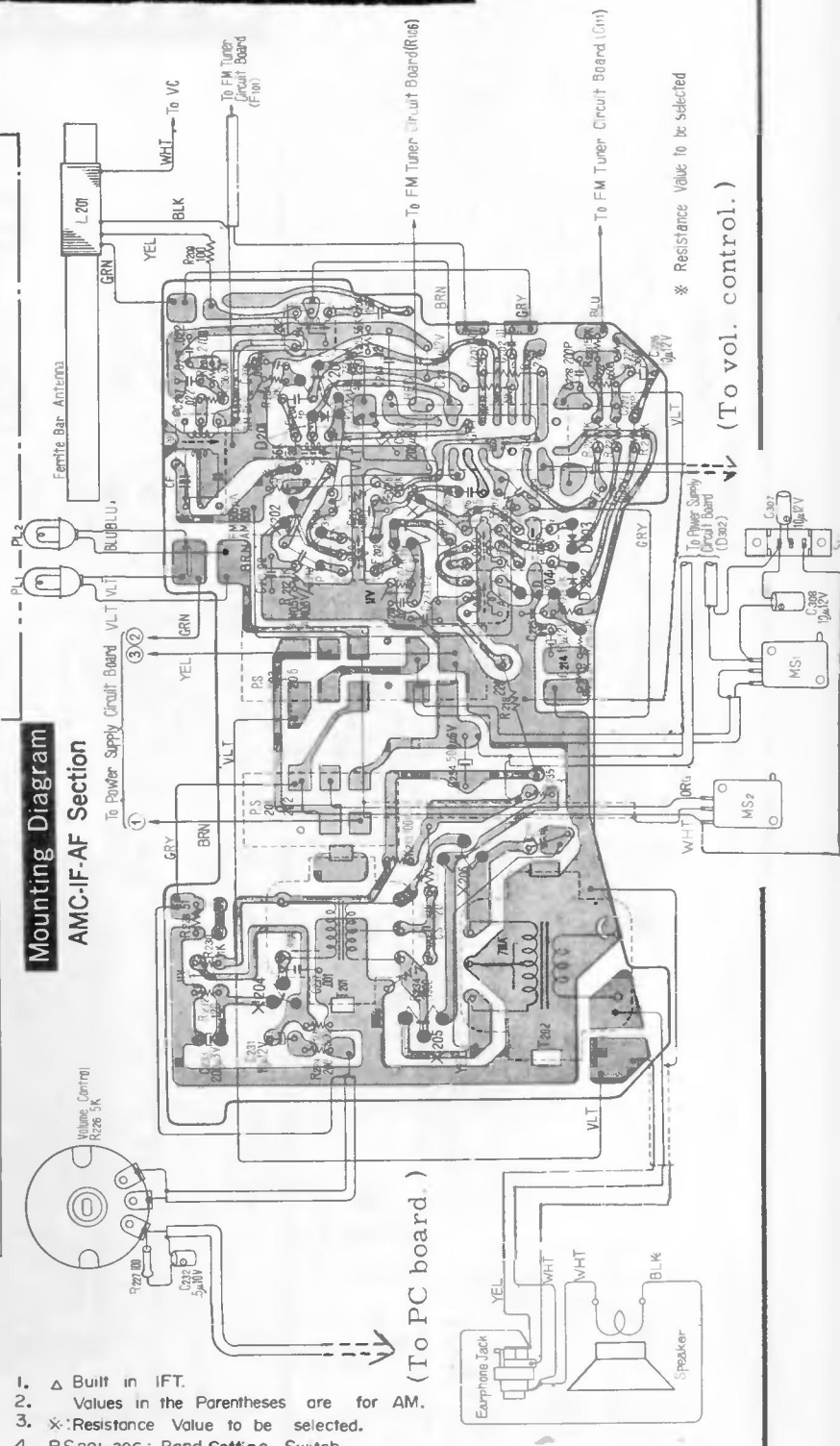
X201 2SC403
X202 2SC403
X203 2SC403
X204 2SC633

X205 2SB383
X206 2SB383





Mounting Diagram AMC-IF-AF Section



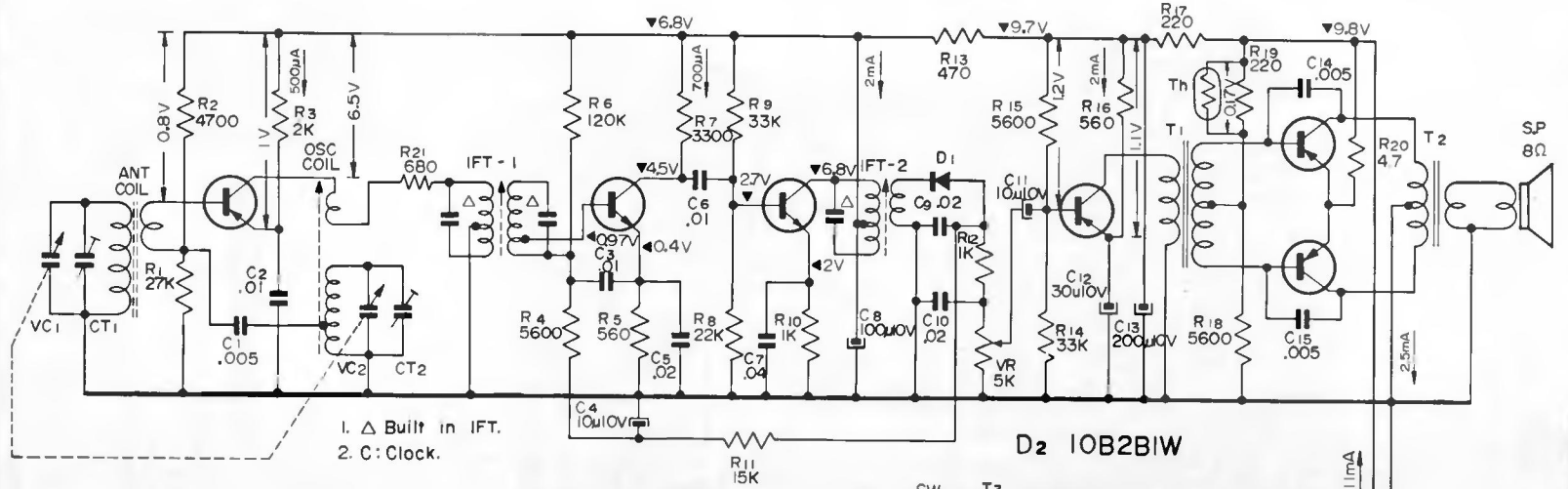
1. △ Built in IFT.
2. Values in the Parentheses are for AM.
3. ※: Resistance Value to be selected.
4. B.S201-206 : Band Setting Switch.
5. FM ▶ Band Setting Switch shown is set to FM position.
   AM ▶
6. P.S201-202 : Automatic Switch.
7. P.S203-206 : Manual Switch.

Intermediate Frequency: FM 10.7 Mc AM 455 Kc

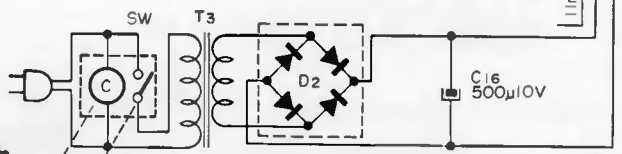
SONY 6RC-23

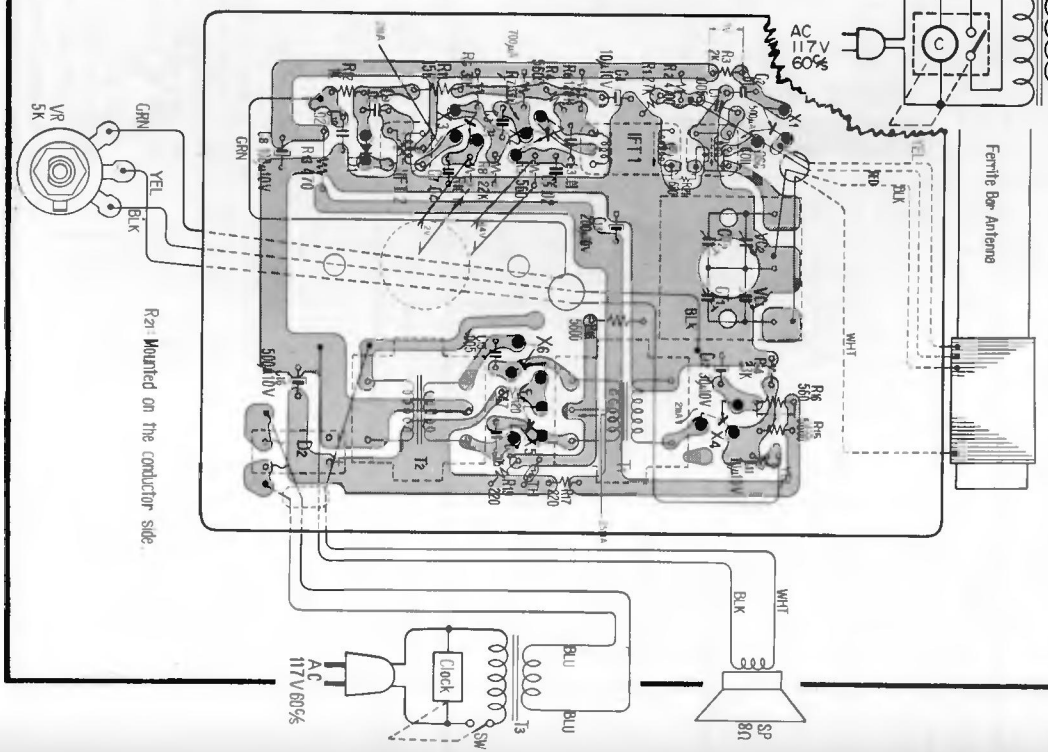
X1 2SA201 X2 2SC537 X3 2SC537 X4 2SB186 X5,6 2SB187

D1 IS426G Th 23D27



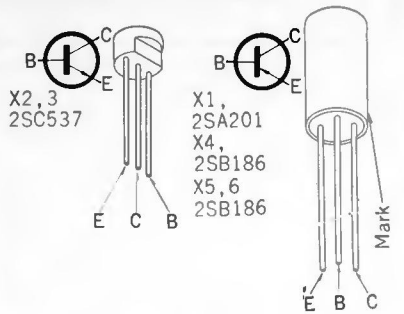
D2 10B2B1W





—Conductor Side—

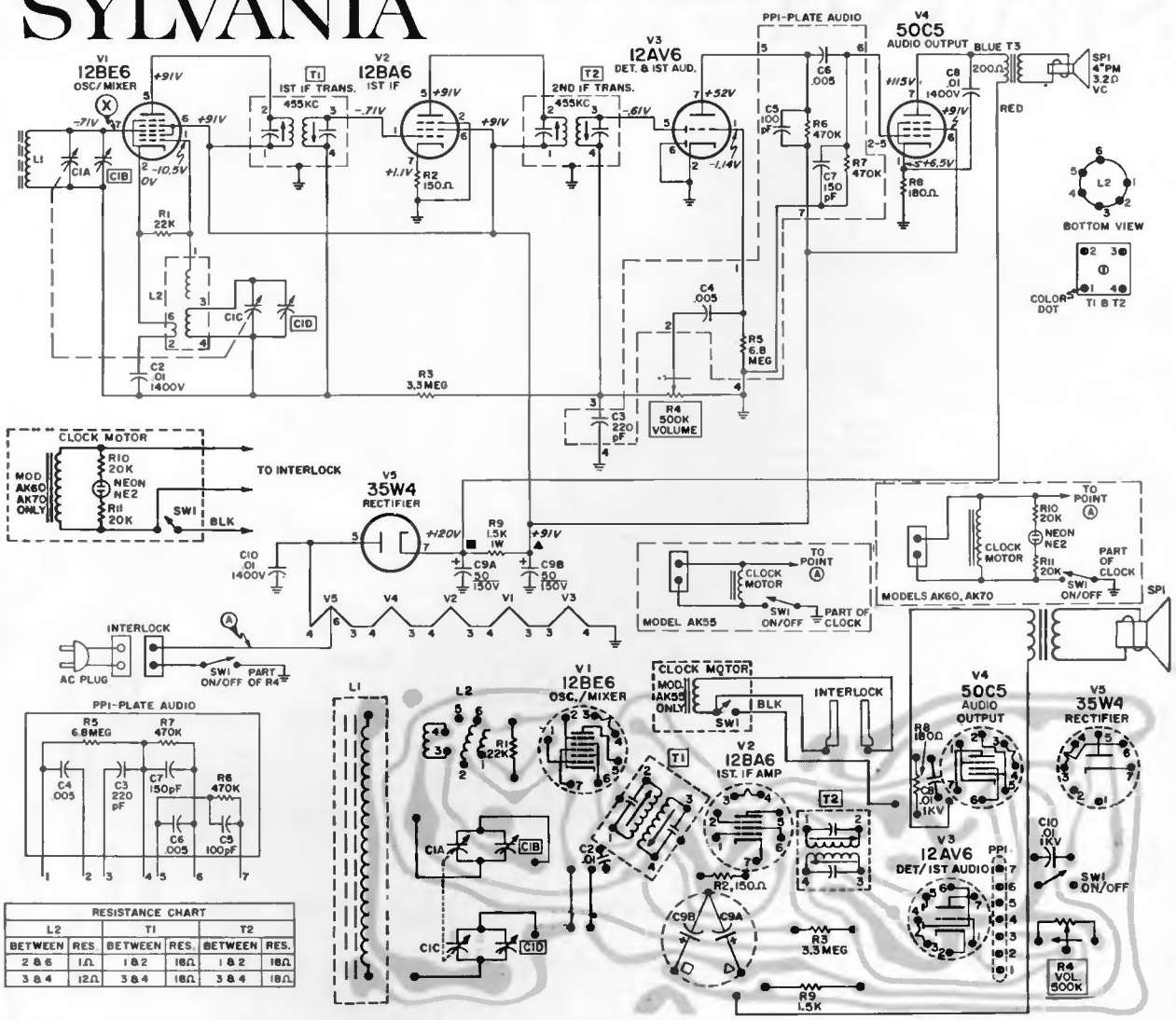
Mounting Diagram



Antenna System:	Built-in Ferrite Bar Antenna
Intermediate Frequency:	455 Kc
Maximum Sensitivity: (at 50mW output)	100 µV/m
Selectivity:	20 dB at 10 Kc off resonance, at 1,400 Kc
Power Output:	300 mW (undistorted) 450 mW (maximum)
Speaker:	2½" (60mm) PM dynamic, impedance 8Ω
Power Requirement:	AC 110~120V, 60 c/s, 5 W

SYLVANIA

MODELS: AK55, AK60, AK70, AT50 Chassis U50-3, 4, 6



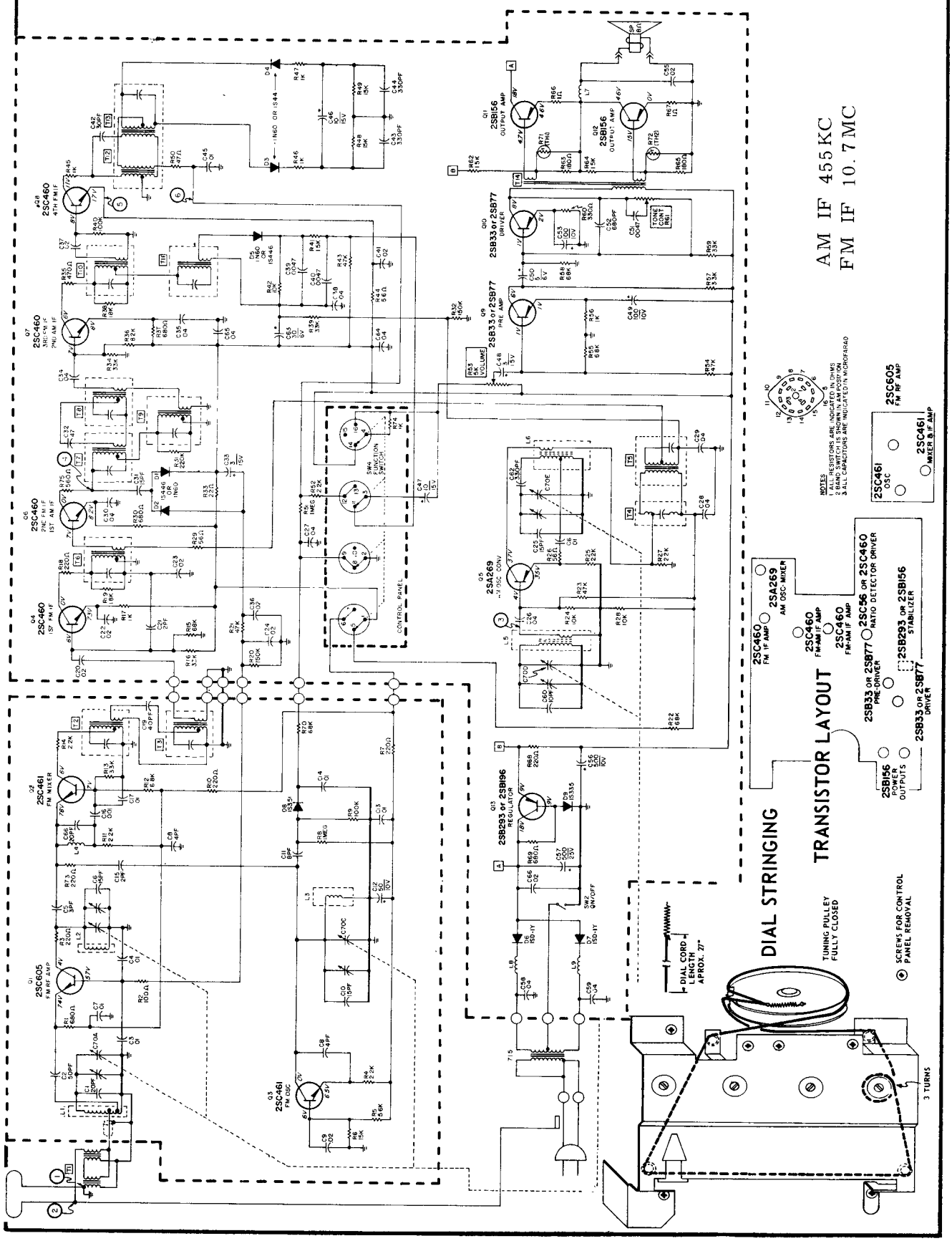
BOTTOM VIEW

RESISTANCE CHART					
L2		T1		T2	
BETWEEN	RES.	BETWEEN	RES.	BETWEEN	RES.
2 & 6	1Ω	1 & 2	18Ω	1 & 2	18Ω
3 & 4	12Ω	3 & 4	18Ω	3 & 4	18Ω

STEP	TUNING CAPACITOR SETTING	TEST EQUIPMENT HOOK-UP	GENERATOR FREQUENCY	ADJUSTMENT POINT	ADJUST FOR
1	Fully open	SIGNAL GENERATOR - "Hot" lead thru a 200pF capacitor to test point (X). Ground lead to chassis AC VOLTMETER - Across speaker voice coil.	455 KC 400 CPS 30% MOD.	T2 Bottom Core T2 Top Core T1 Bottom Core T1 Top Core	Maximum Meter Reading
2	Same as Step 1	SIGNAL GENERATOR - Radiate signal to receiver thru a loop of several turns of wire. AC VOLTMETER - Same as Step 1.	1625 KC 400 CPS. 30% MOD.	C1D Trimmer	Maximum Meter Reading
3	1400 KC	Same as Step 2	Set generator to a frequency corresponding to receiver tuning capacitor setting (until signal is heard thru receiver speaker).	C1B Trimmer	Maximum Meter Reading

SYLVANIA

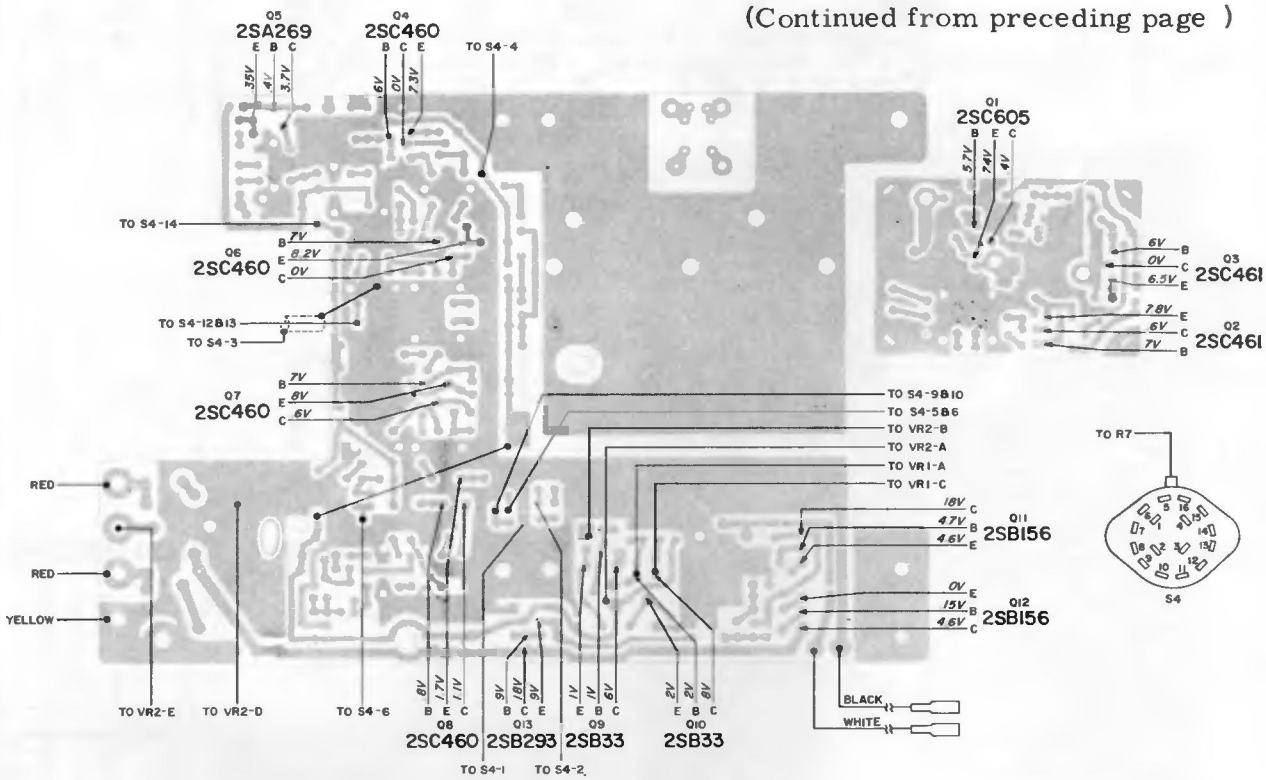
MODELS: BT44, BT46, BK54, BK56 (Continued on next page.)



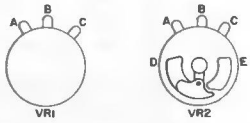
SYLVANIA

MODELS: BT44, BT46 , BK54, BK56

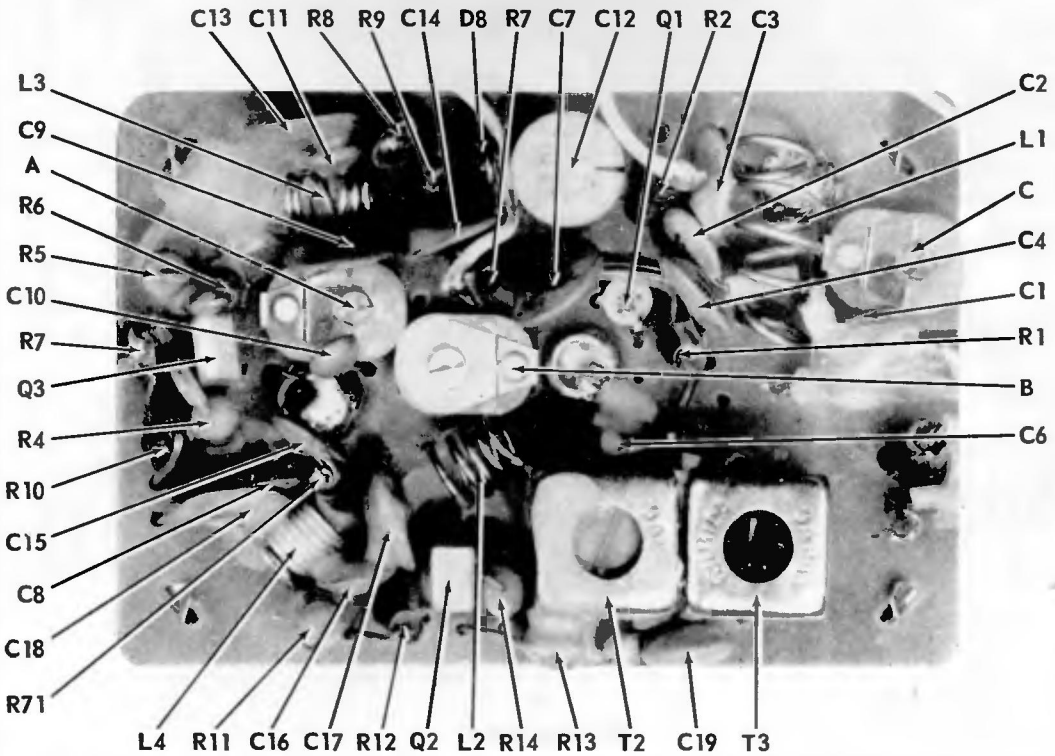
(Continued from preceding page)



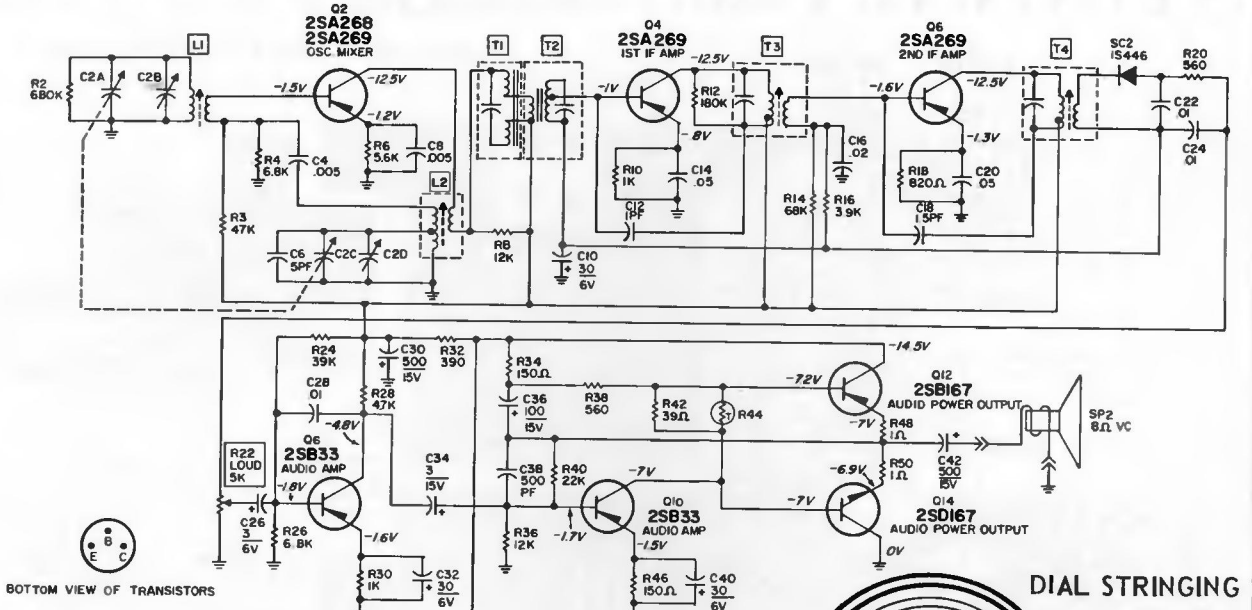
PRINTED PANEL ASSEMBLY BOTTOM VIEW

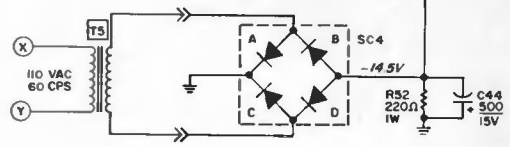


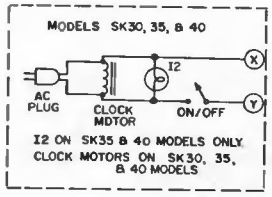
TOP PARTS LAYOUT - RF BOARD



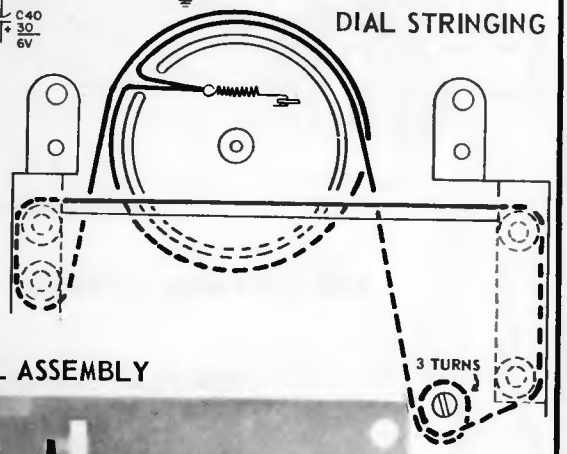
SYLVANIA Models SK30, SK35, SK40, ST10; Chassis 354-1, 355-1, 358-1, 359-1



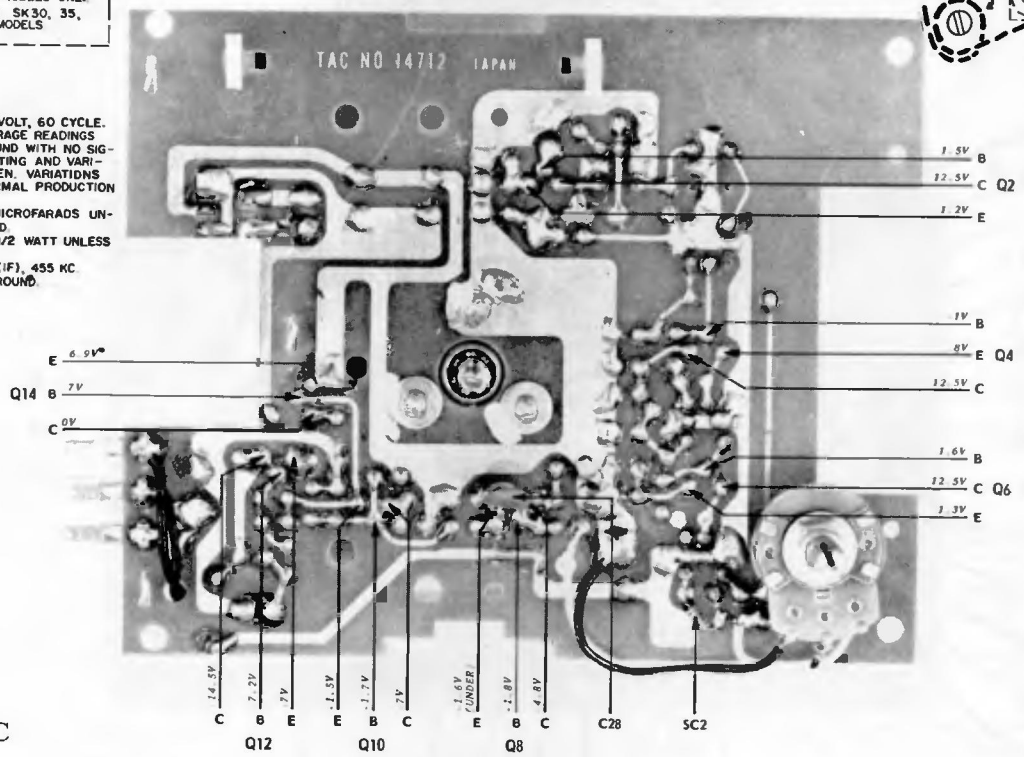




DIAL STRINGING



PRINTED PANEL ASSEMBLY



SCHEMATIC NOTES

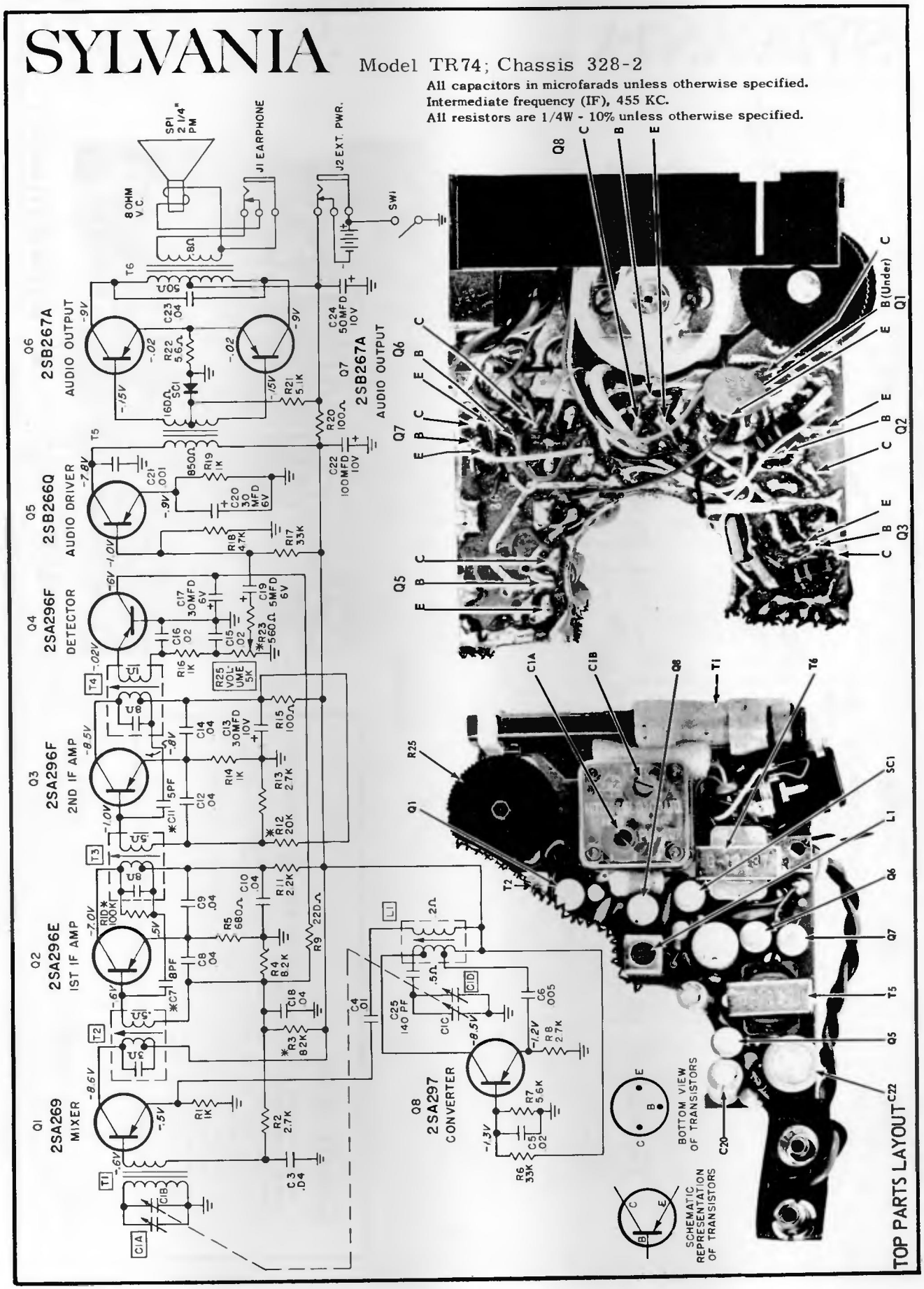
1. LINE VOLTAGE SET AT 120 VOLT, 60 CYCLE.
2. VOLTAGES SHOWN ARE AVERAGE READINGS MEASURED TO CHASSIS GROUND WITH NO SIGNAL, MINIMUM VOLUME SETTING AND VARIABLE CAPACITOR FULLY OPEN. VARIATIONS MAY BE NOTED DUE TO NORMAL PRODUCTION TOLERANCES.
3. ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
4. ALL RESISTORS ARE 10%, 1/2 WATT UNLESS OTHERWISE SPECIFIED.
5. INTERMEDIATE FREQUENCY (IF), 455 KC.
6. ⏚ DESIGNATES CHASSIS GROUND.

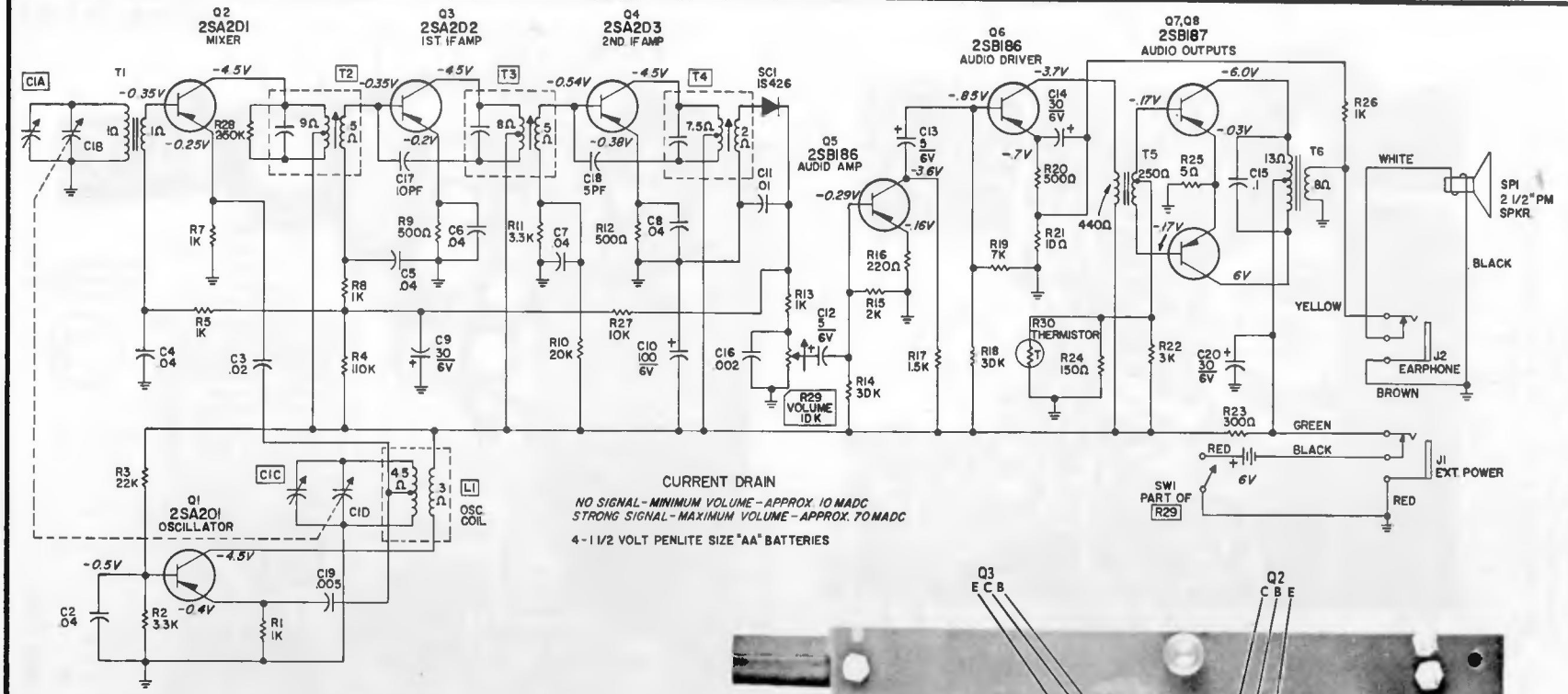
IF 455 KC

SYLVANIA

Model TR74; Chassis 328-2

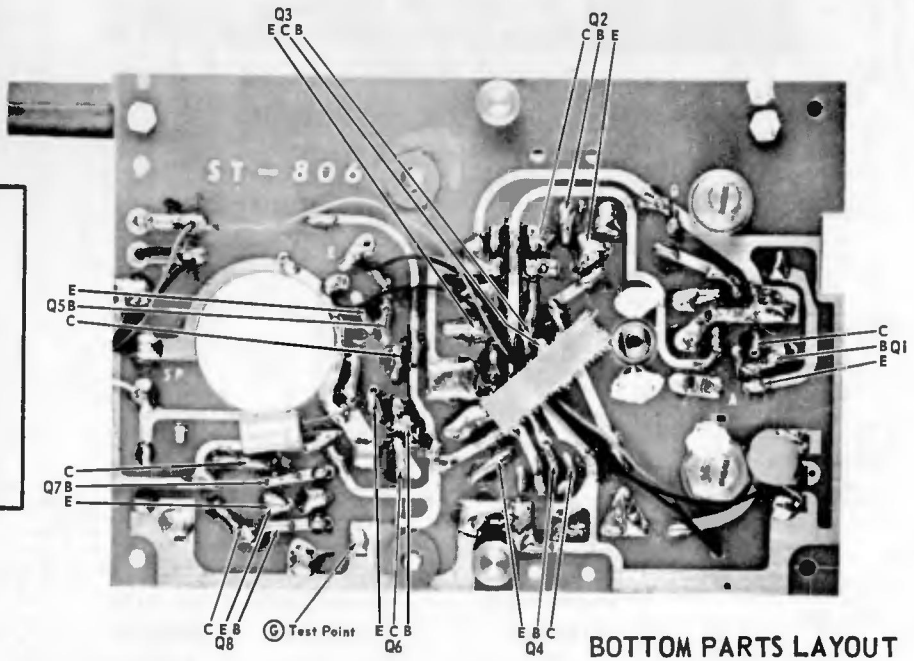
All capacitors in microfarads unless otherwise specified.
Intermediate frequency (IF), 455 KC.
All resistors are 1/4W - 10% unless otherwise specified.



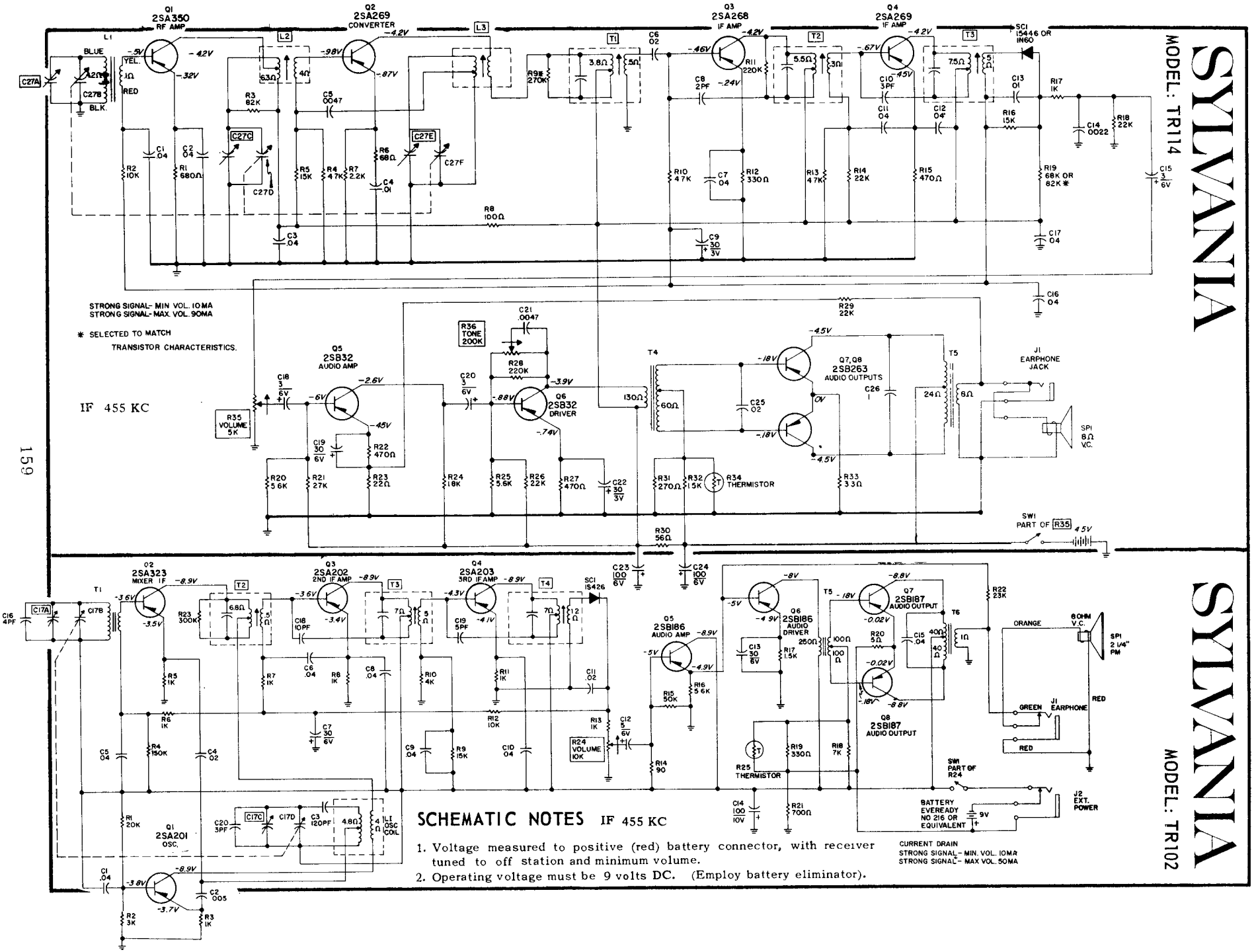


SCHEMATIC NOTES

1. Voltage measured to chassis ground, test point (G), with receiver tuned to off station and full volume.
2. Operating voltage must be 6 volts DC. (Employ battery eliminator).
3. Voltages shown are average readings. Variations may be noted due to normal production tolerance (±10%).
4. All voltage readings taken with RCA Volt-Ohmyst (WV - 97A).
5. All capacitors in microfarads unless otherwise specified.
6. Intermediate frequency (IF), 455 KC.
7. Resistance readings taken with components in circuit.



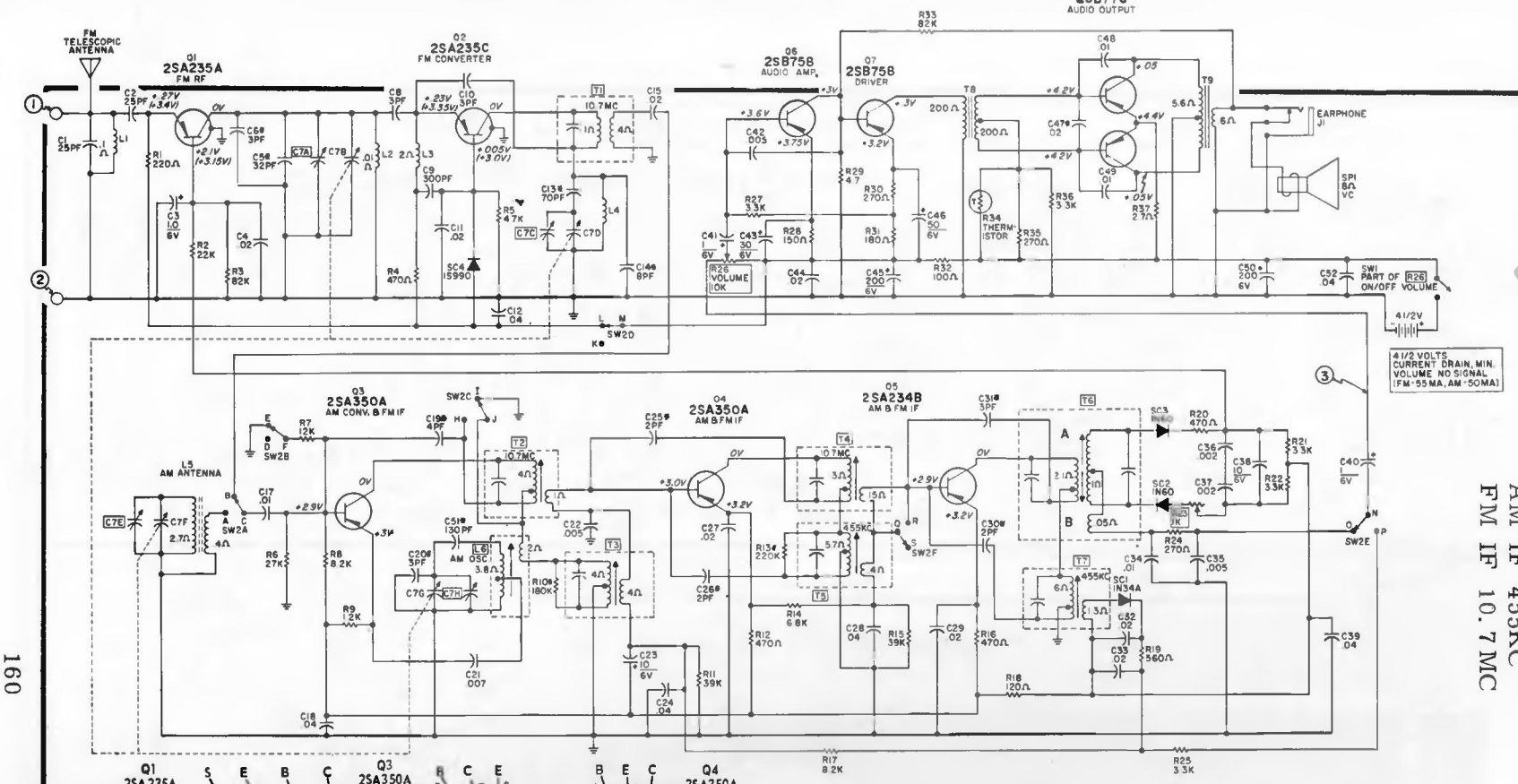
BOTTOM PARTS LAYOUT

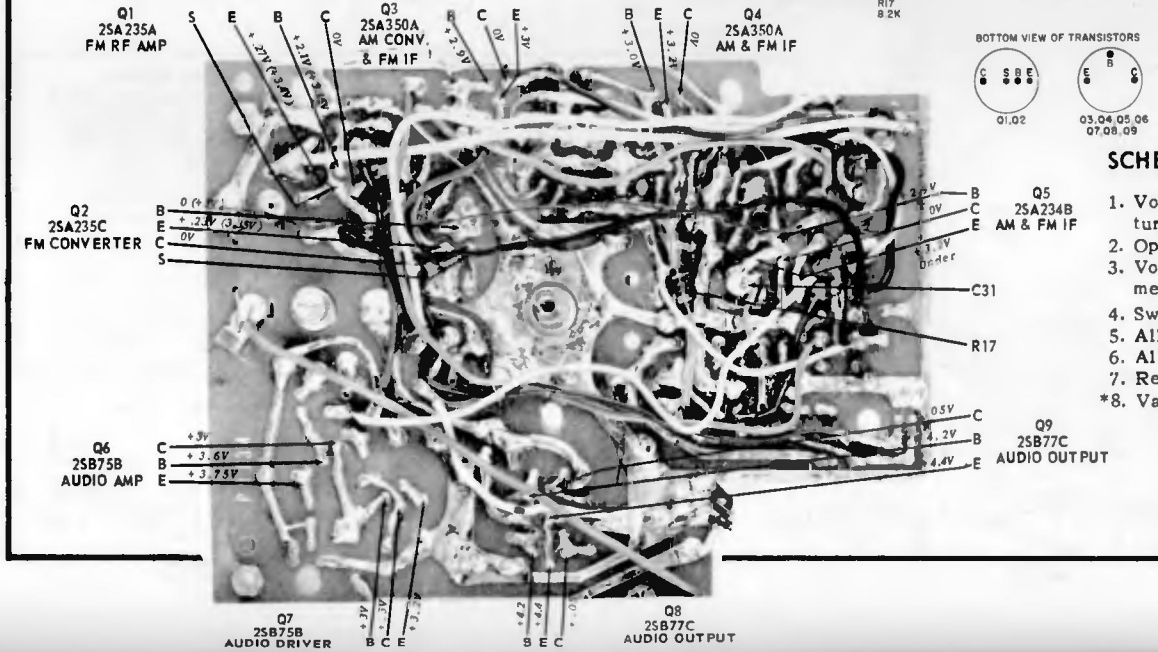

SYLVANIA
MODEL: TR114
Q1 2SA350 RF AMP
Q2 2SA269 CONVERTER
Q3 2SA268 IF AMP
Q4 2SA269 IF AMP
SC1 15446 OR IN60
L1
L2
L3
T1
T2
T3
C27A
C27B
C27C
C27D
C27E
C27F
BLUE
YEL.
RED
BLK.
R1 680Ω
R2 10K
R3 82K
R4 47K
R5 15K
R6 68Ω
R7 2.2K
R8 100Ω
R9 270K
R10 47K
R11 220K
R12 330Ω
R13 47K
R14 22K
R15 470Ω
R16 15K
R17 1K
R18 22K
R19 68K OR 82K *
C1 .04
C2 .04
C3 .04
C4 .01
C5 .0047
C6 .02
C7 .04
C8 2PF
C9 30 3V
C10 3PF
C11 .04
C12 .04
C13 .01
C14 .0022
C15 3 6V
C16 .04
C17 .04
STRONG SIGNAL- MIN VOL. 10MA
STRONG SIGNAL- MAX. VOL. 90MA
* SELECTED TO MATCH TRANSISTOR CHARACTERISTICS.
IF 455 KC
Q5 2SB32 AUDIO AMP
Q6 2SB32 DRIVER
Q7, Q8 2SB263 AUDIO OUTPUTS
R35 VOLUME 5K
R36 TONE 200K
R20 5.6K
R21 27K
R22 470Ω
R23 22Ω
R24 18K
R25 5.6K
R26 22K
R27 470Ω
R28 220K
R29 22K
R30 56Ω
R31 270Ω
R32 15K
R33 33Ω
R34 THERMISTOR
C18 3 6V
C19 30 6V
C20 3 6V
C21 .0047
C22 30 3V
C25 .02
C26 1
T4
T5
J1 EARPHONE JACK
SPI 8Ω VC.
SW1 PART OF R35
4.5V
SYLVANIA
MODEL: TR102
Q2 2SA323 MIXER IF
Q3 2SA202 2ND IF AMP
Q4 2SA203 3RD IF AMP
SC1 IS426
Q5 2SB186 AUDIO AMP
Q6 2SB186 AUDIO DRIVER
Q7 2SB187 AUDIO OUTPUT
Q8 2SB187 AUDIO OUTPUT
Q1 2SA201 OSC.
T1
T2
T3
T4
T5
T6
C16 4PF
C17A
C17B
C17C
C17D
C1 .04
C2 .005
C3 120PF
C4 .02
C5 .04
C6 .04
C7 30 6V
C8 .04
C9 .04
C10 .04
C11 .02
C12 5 6V
C13 30 6V
C14 100 10V
C15 .04
C16 100 6V
C17 100 6V
C18 10PF
C19 5PF
C20 3PF
R1 20K
R2 3K
R3 1K
R4 150K
R5 1K
R6 1K
R7 1K
R8 1K
R9 15K
R10 4K
R11 1K
R12 10K
R13 1K
R14 90
R15 50K
R16 5.6K
R17 1.5K
R18 7K
R19 330Ω
R20 5Ω
R21 700Ω
R22 23K
R23 300K
R24 VOLUME 10K
R25 THERMISTOR
ORANGE
GREEN
RED
RED
6 OHM V.C.
SPI 2 1/4" PM
J1 EARPHONE
J2 EXT. POWER
SW1 PART OF R24
BATTERY EVEREADY NO 216 OR EQUIVALENT
9V
SCHEMATIC NOTES IF 455 KC
1. Voltage measured to positive (red) battery connector, with receiver tuned to off station and minimum volume.
2. Operating voltage must be 9 volts DC. (Employ battery eliminator).
CURRENT DRAIN
STRONG SIGNAL- MIN. VOL. 10MA
STRONG SIGNAL- MAX VOL. 50MA

SYLVANIA

MODEL: TR122

AM IF 455KC
FM IF 10.7MC

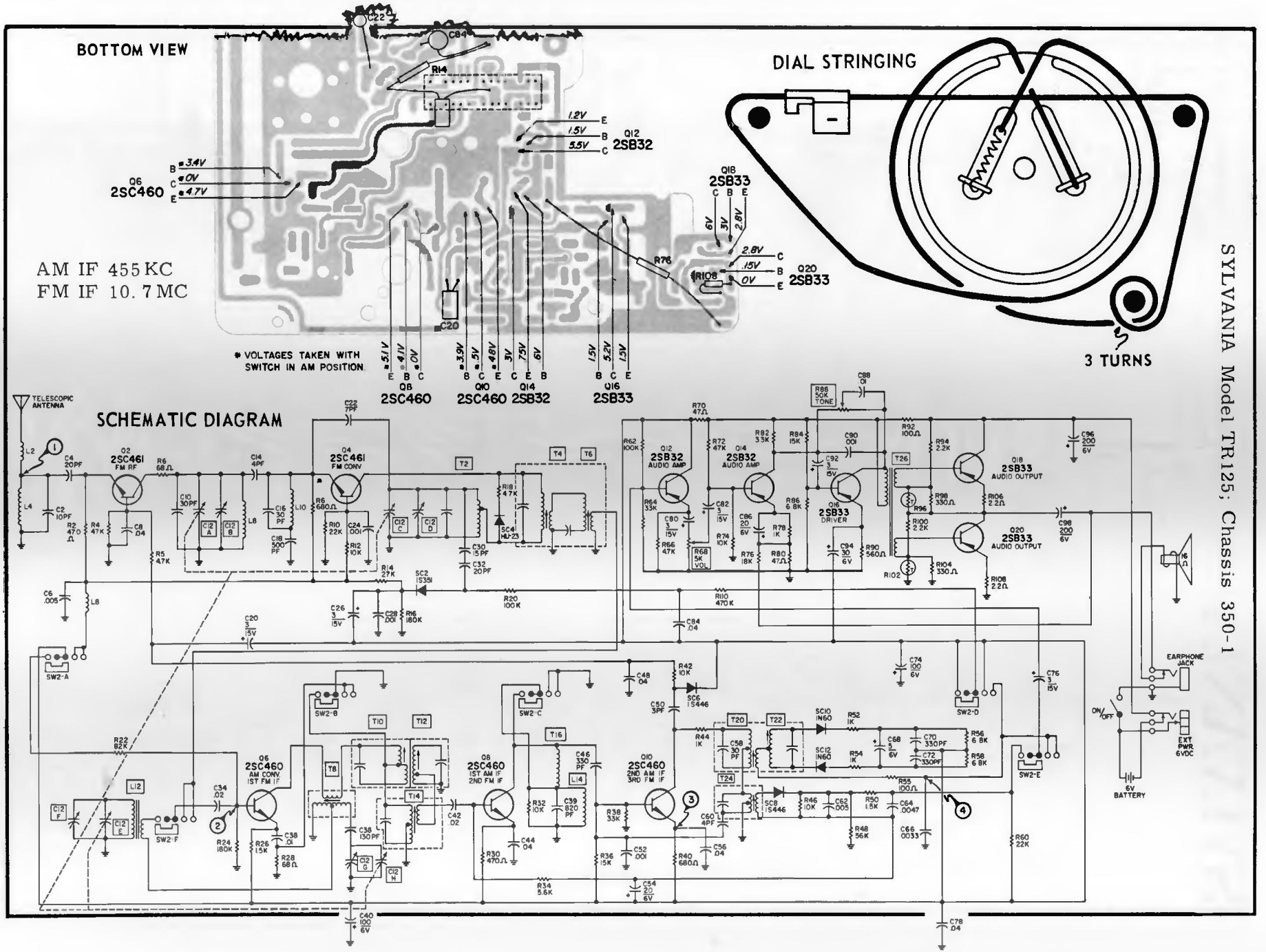




SCHEMATIC NOTES

1. Voltages measured to chassis ground, test point (2), with receiver turned to off station and minimum volume.
2. Operating voltage must be 4.5 volts DC. (Employ battery eliminator).
3. Voltages shown are average readings. Voltages in brackets are measured with switch in FM position.
4. Switch SW2 is shown in the FM position.
5. All capacitors in microfarads unless otherwise specified.
6. All resistors are 1/4W - 10% unless otherwise specified.
7. Resistance readings taken with components in circuit.

*8. Values selected to match transistor characteristics.


BOTTOM VIEW
DIAL STRINGING
3 TURNS
AM IF 455 KC
FM IF 10.7 MC
* VOLTAGES TAKEN WITH SWITCH IN AM POSITION
Q6 2SC460
Q8 2SC460
Q10 2SC460
Q12 2SB32
Q14 2SB32
Q16 2SB33
Q18 2SB33
Q20 2SB33
SCHEMATIC DIAGRAM
TELESCOPIC ANTENNA
Q2 2SC461 FM RF
Q4 2SC461 FM CONV
Q6 2SC460 AM CONV 1ST FM IF
Q8 2SC460 1ST AM IF 2ND FM IF
Q10 2SC460 2ND AM IF 3RD FM IF
Q12 2SB32 AUDIO AMP
Q14 2SB32 AUDIO AMP
Q16 2SB33 DRIVER
Q18 2SB33 AUDIO OUTPUT
Q20 2SB33 AUDIO OUTPUT
EARPHONE JACK
ON/OFF
EXT PWR 6VDC
6V BATTERY

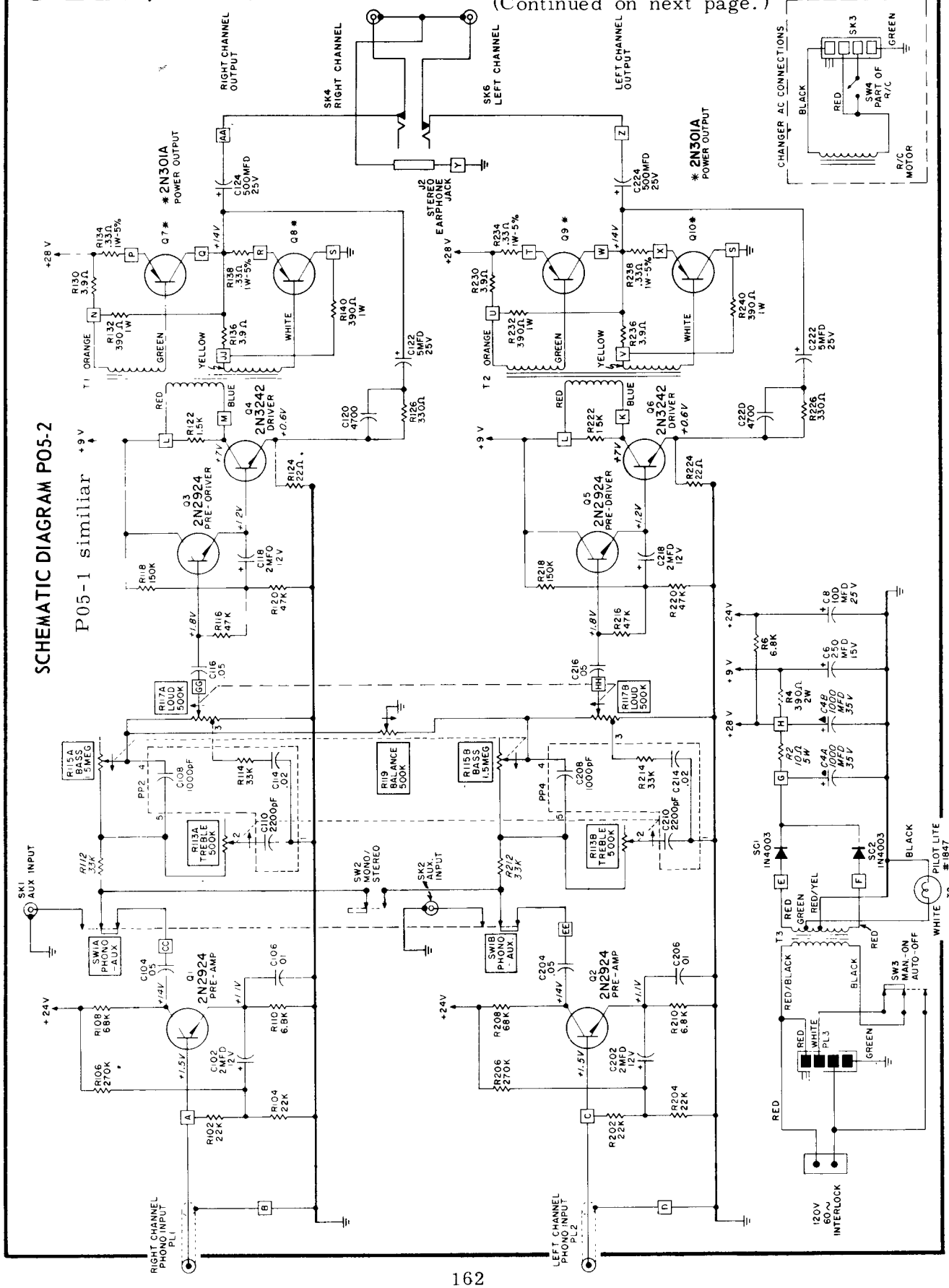
SYLVANIA

Models: Exponent 4/20, 4/30 Series; Chassis P05-1, -2

(Continued on next page.)

SCHEMATIC DIAGRAM P05-2

P05-1 similiar

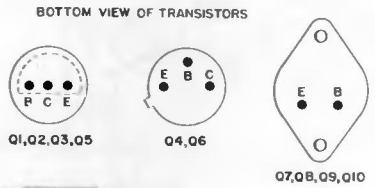


(Continued from preceding page.)

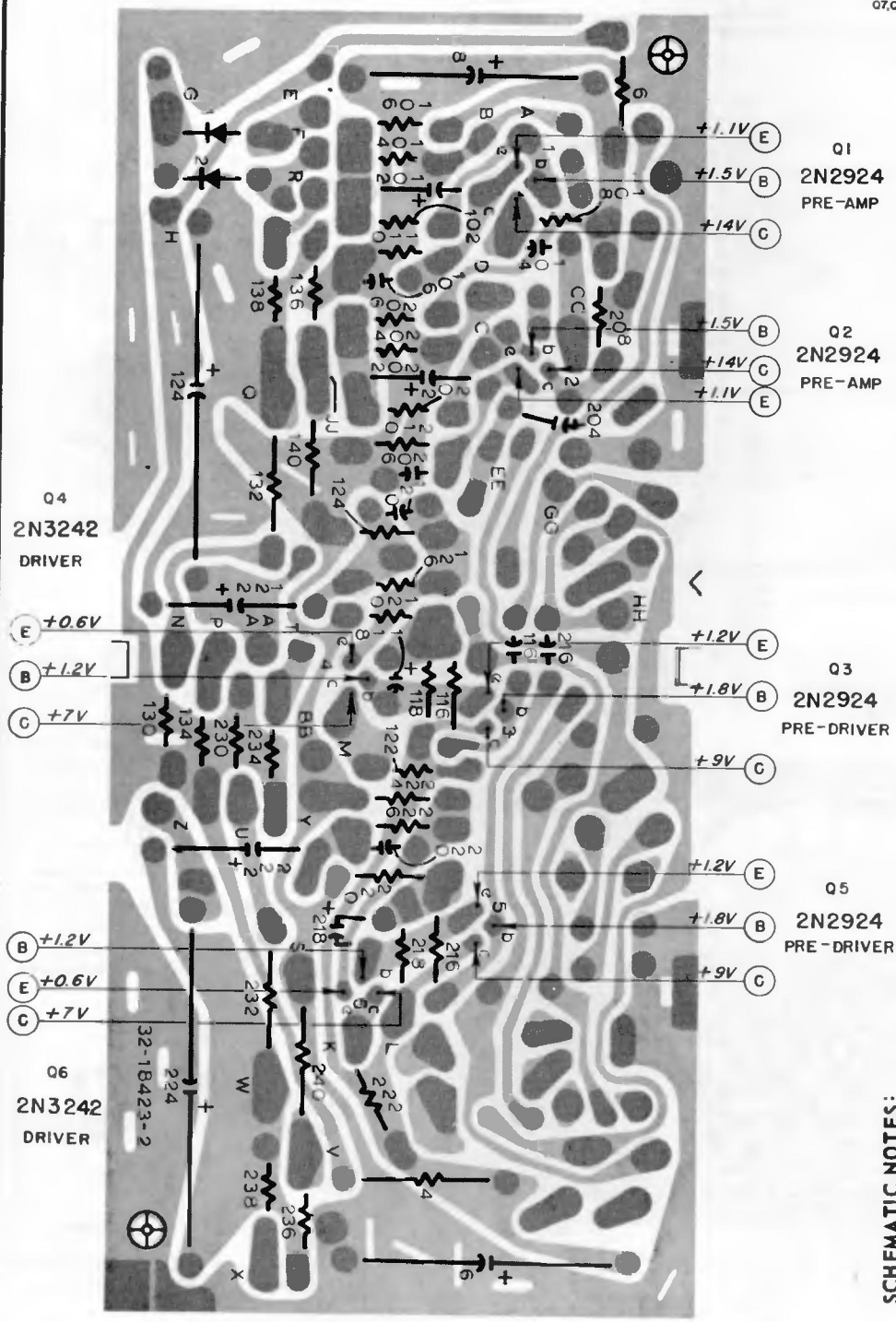
NOTE:

1. Voltage measurements are average readings measured to chassis ground with no signal input. Variations may be noted due to normal production tolerances.
2. See schematic diagram on page 5 for voltage readings on power output transistors (Q7,Q8,Q9,Q10).

BOTTOM VIEW OF TRANSISTORS



PRINTED BOARD PARTS LAYOUT



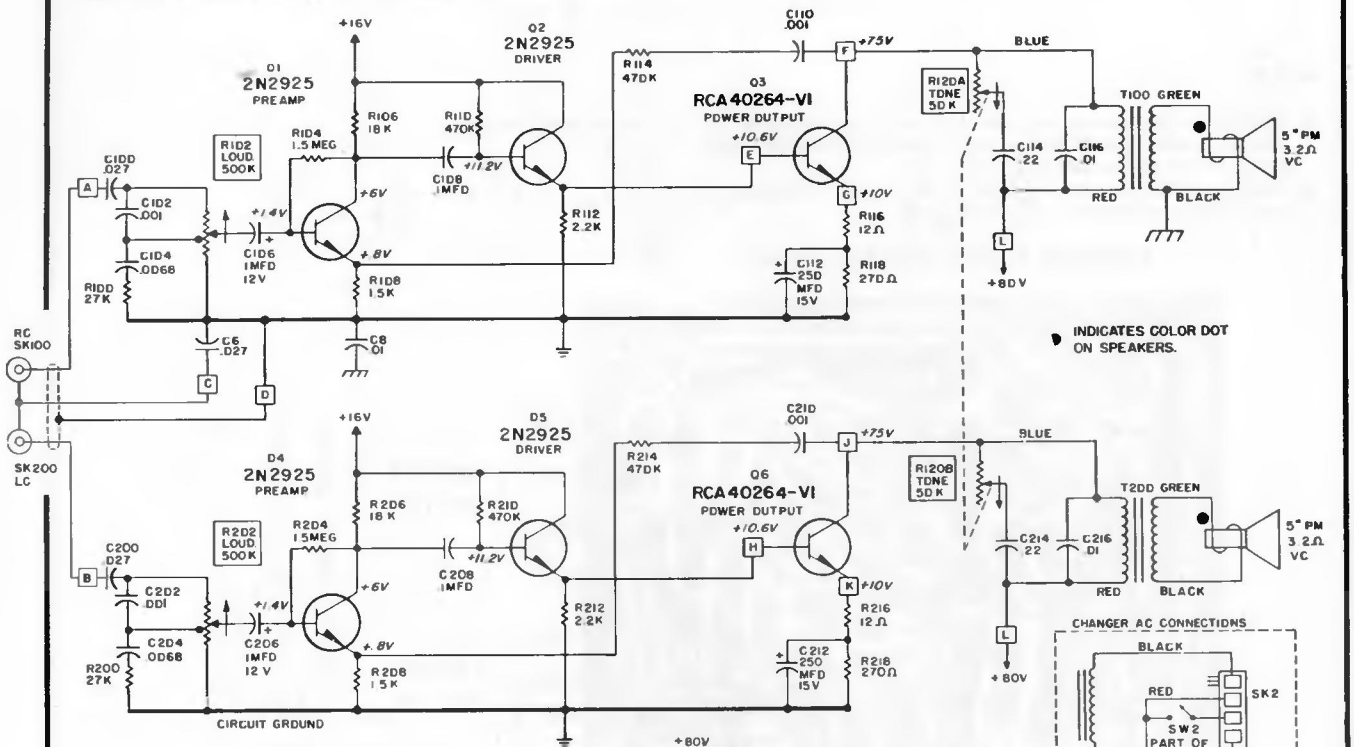
5. All resistors are 1/2W, 10% unless otherwise specified.
6. Designates chassis ground.
7. Indicates color dot on speakers for correct phasing.
8. R113, R115, R117 are dual ganged controls.
9. ✱ Indicates replace in matched pairs.
10. Arrows on controls indicates clockwise rotation.

SCHEMATIC NOTES:

1. Voltage measurements are average reading measured to chassis with no signal input. Variations may be noted due to normal production tolerances.
2. AC power source 120 volt, 60 cycle.
3. Capacitance in MFD unless otherwise specified.
4. Resistors and capacitors not on printed circuit board are shown in italics.

SYLVANIA

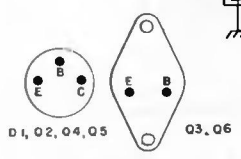
MODEL: 45P80
CHASSIS: P02-5



INDICATES COLOR DOT ON SPEAKERS.

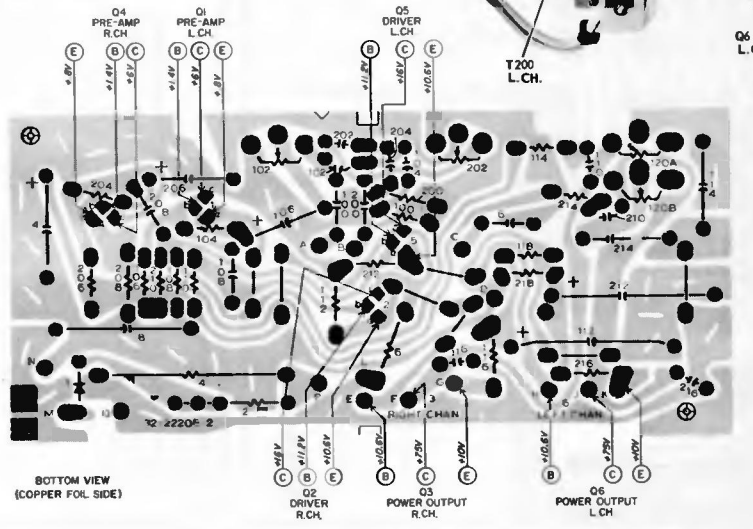
NOTE
1 ALL RESISTORS 1/2W 10% UNLESS OTHERWISE SPECIFIED
2 ALL CAPACITORS IN MFD UNLESS OTHERWISE SPECIFIED
3 ALL DC VOLTAGES MEASURED WITH A DC VTVM

* LATER PRODUCTION INCORPORATES DUAL PLUG ASM.



BOTTOM VIEW OF TRANSISTORS

PRINTED BOARD

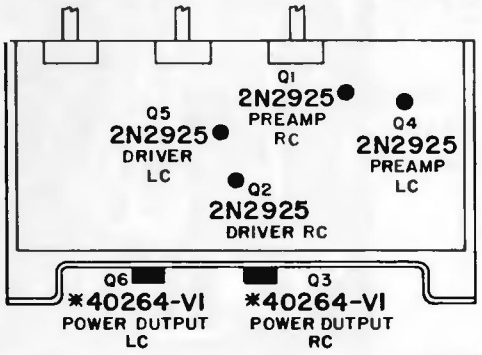


BOTTOM VIEW (COPPER FOIL SIDE)

TRANSISTOR LAYOUT

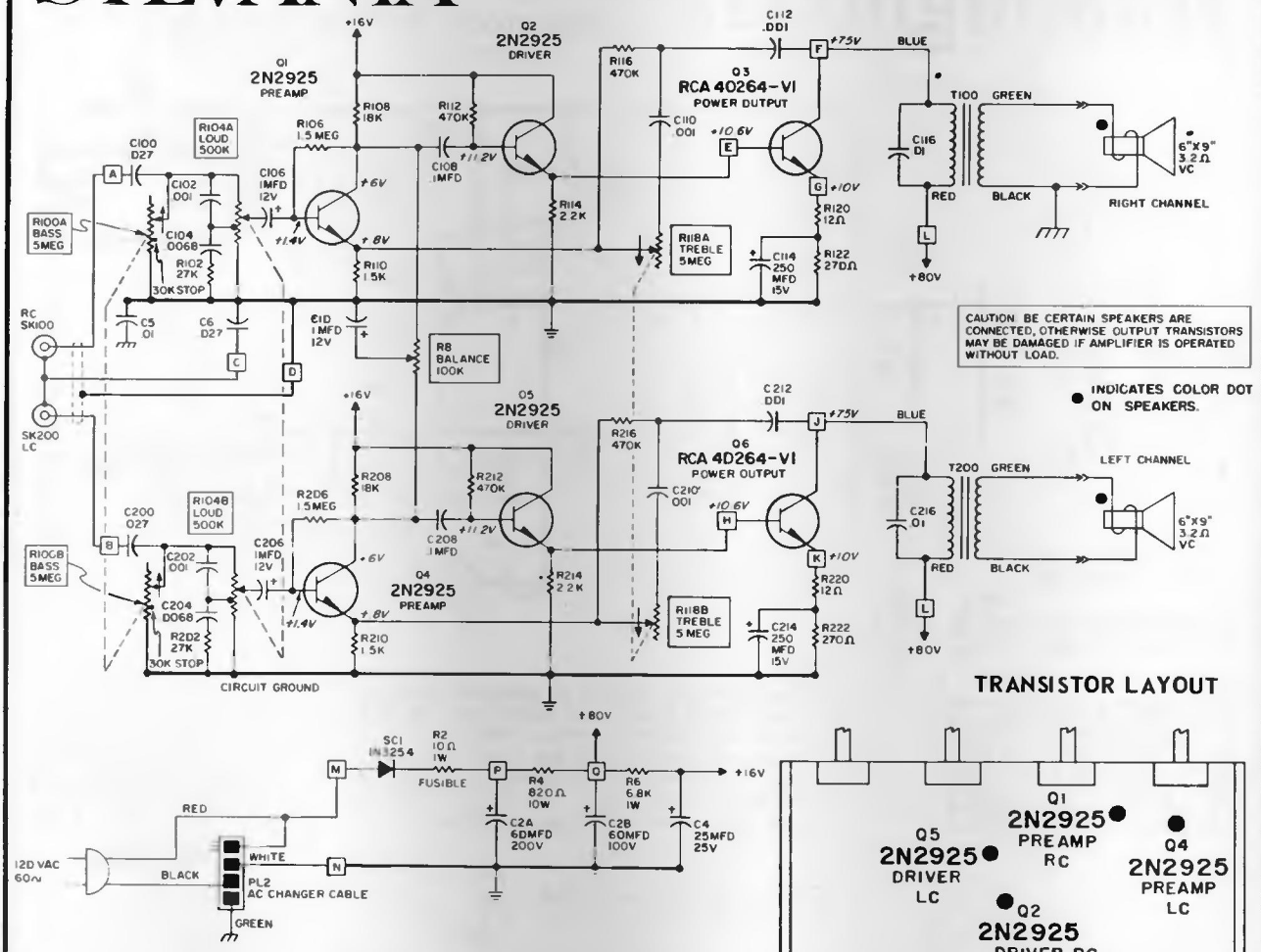
NOTE: REPLACE WITH ORIGINAL TYPE TRANSISTORS ONLY (OR EQUIVALENT)

*DENOTES RCA NUMBER

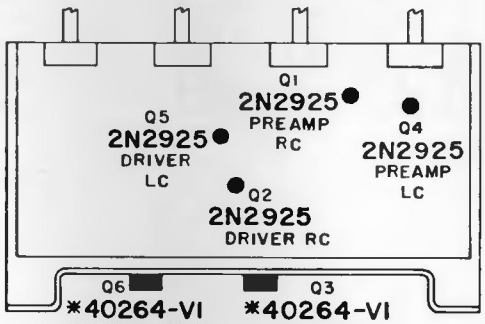


SYLVANIA

MODEL: 45P84
CHASSIS: P03-5



TRANSISTOR LAYOUT

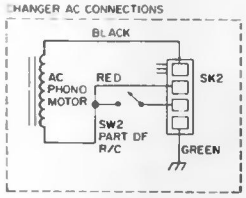


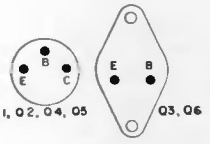
*DENOTES RCA NUMBER

NOTE
1. ALL RESISTORS 1/2W 10% UNLESS OTHERWISE SPECIFIED
2. ALL CAPACITORS IN MFD UNLESS OTHERWISE SPECIFIED
3. ALL DC VOLTAGES MEASURED WITH A DC VTVM

NOTE:

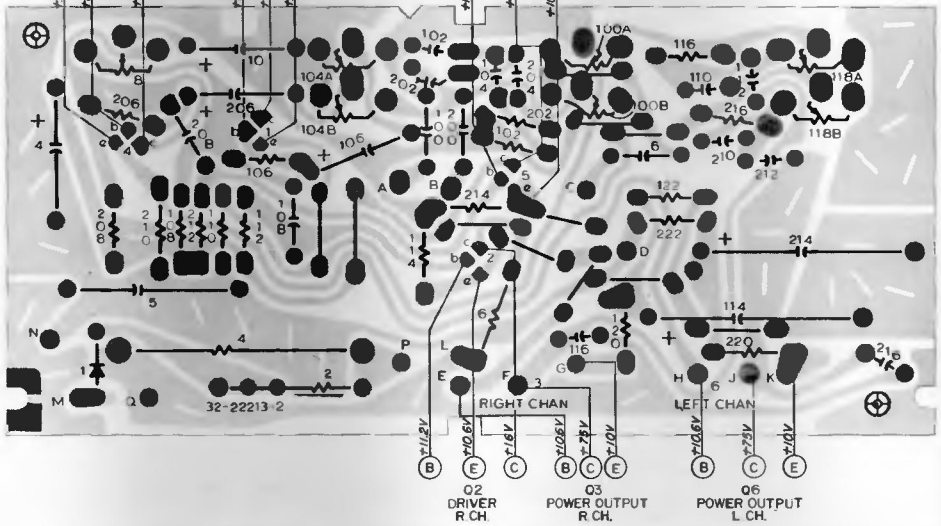
Voltage measurements are average readings to circuit ground with no signal input. Variations may be noted due to normal production tolerances.





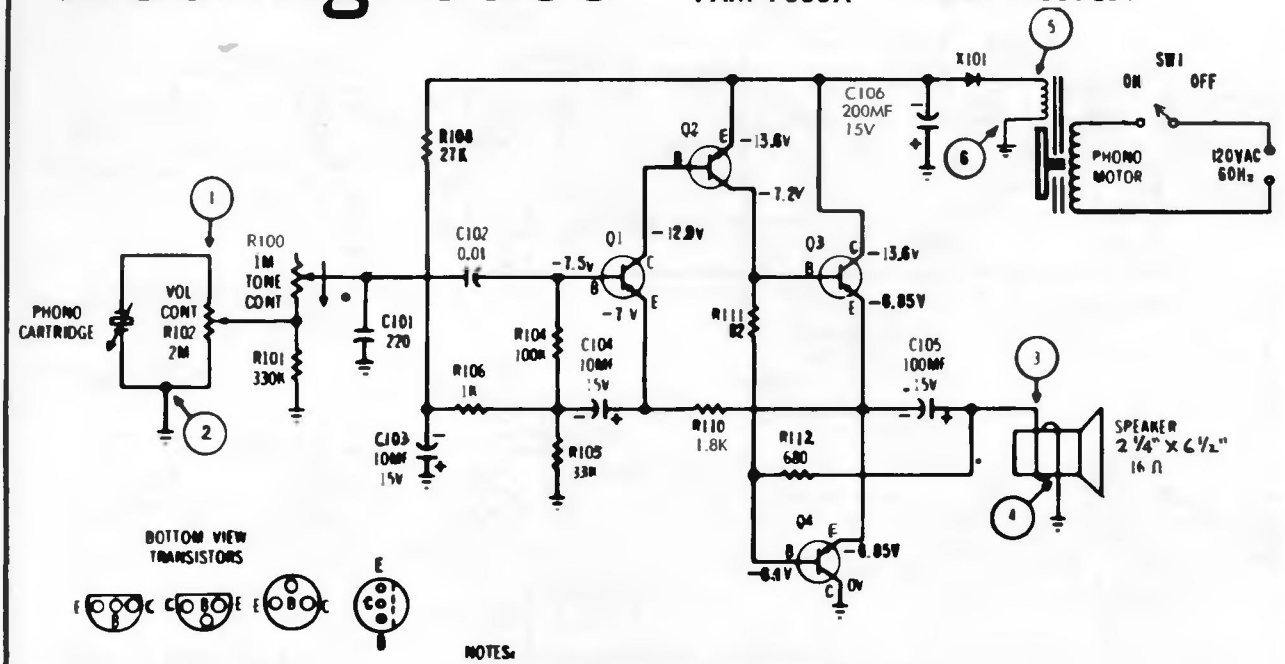
BOTTOM VIEW OF TRANSISTORS

BOTTOM VIEW (COPPER FOIL SIDE)



Westinghouse

PAM 7000A CHASSIS V4005C01



BOTTOM VIEW TRANSISTORS

TRANSISTOR COMPLEMENT			
	FUNCTION	TYPE	W PART NO.
Q1	INPUT	PNP	297V083C01
Q2	DRIVER	NPN	297V083C02
Q3	OUTPUT	PNP	297V083C03
Q4	OUTPUT	NPN	297V083C04

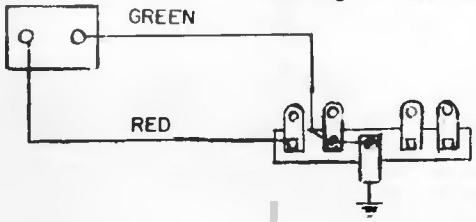
NOTES:

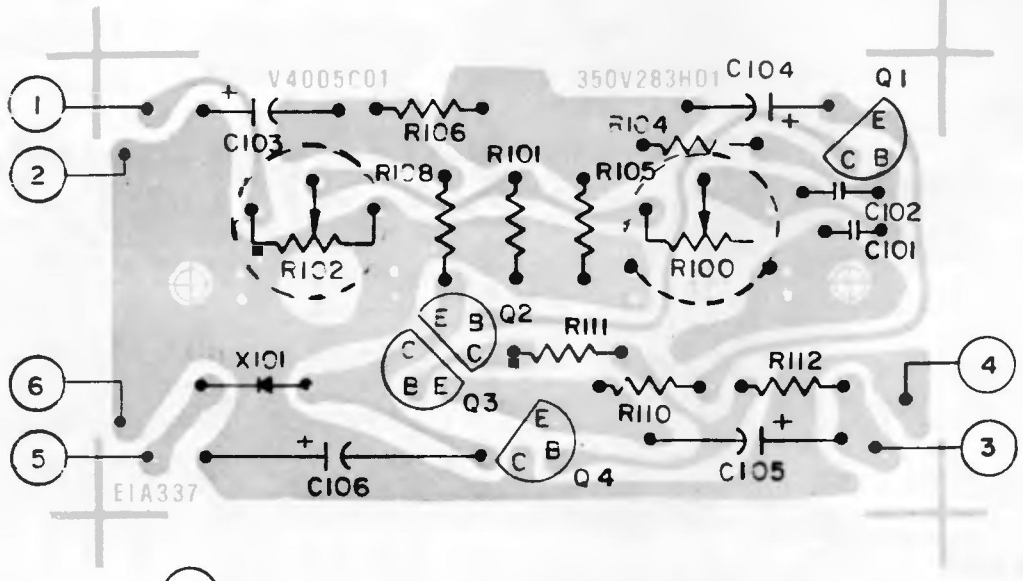
1. UNLESS OTHERWISE INDICATED ALL CAPACITANCE VALUES LESS THAN 1 ARE IN MF AND VALUES GREATER THAN 1 ARE IN PF, ALL RESISTANCE VALUES ARE IN OHMS, 1/2 WATT.
2. VOLTAGE MEASUREMENTS MADE WITH A VTVM FROM POINTS INDICATED TO GROUND, VOLUME CONTROL AT MINIMUM, LINE VOLTAGE AT 120VAC.

• DIRECTION OF ARROW INDICATES MAXIMUM TREBLE.

○ DENOTES CONNECTIONS ON PC BOARD.

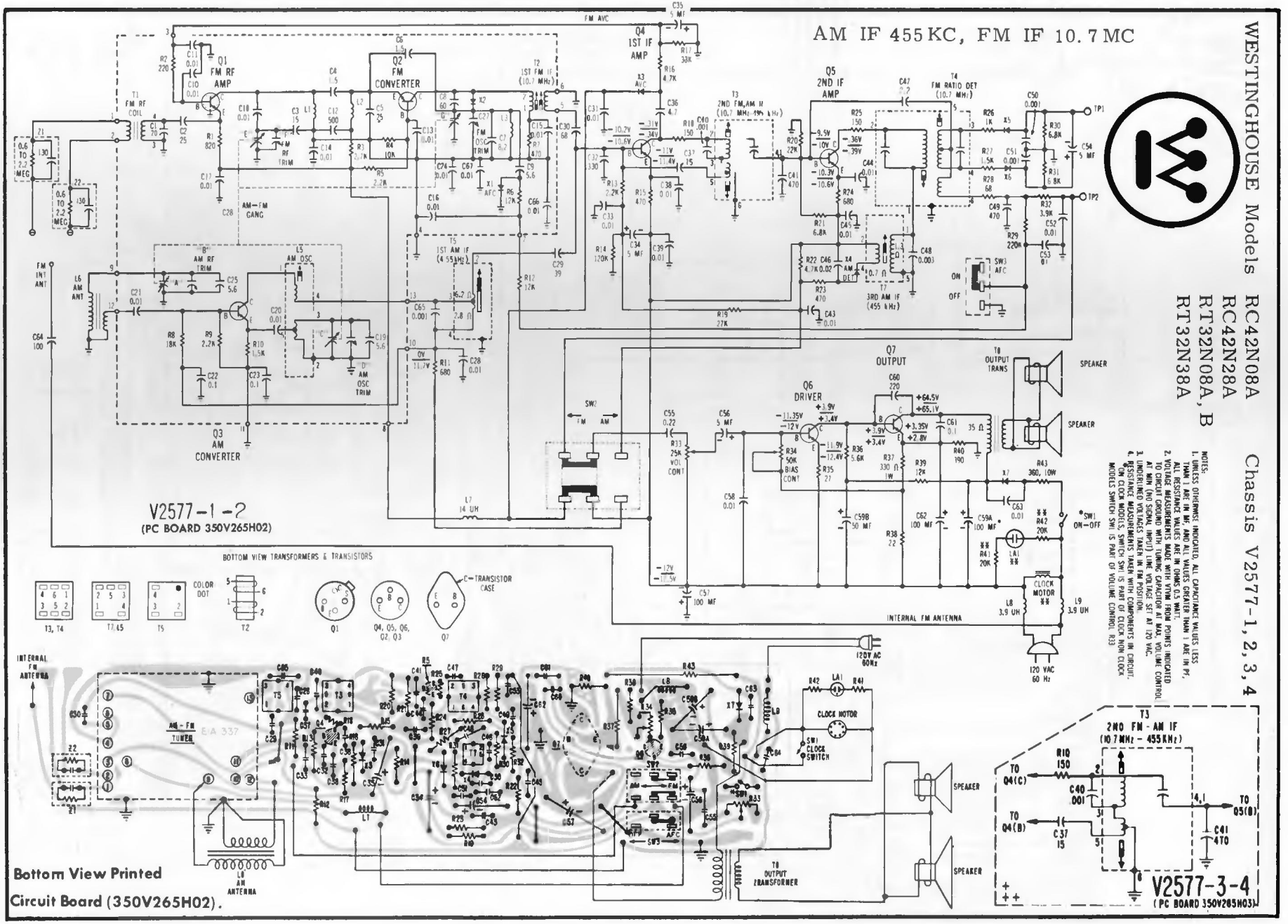
Cartridge Wiring



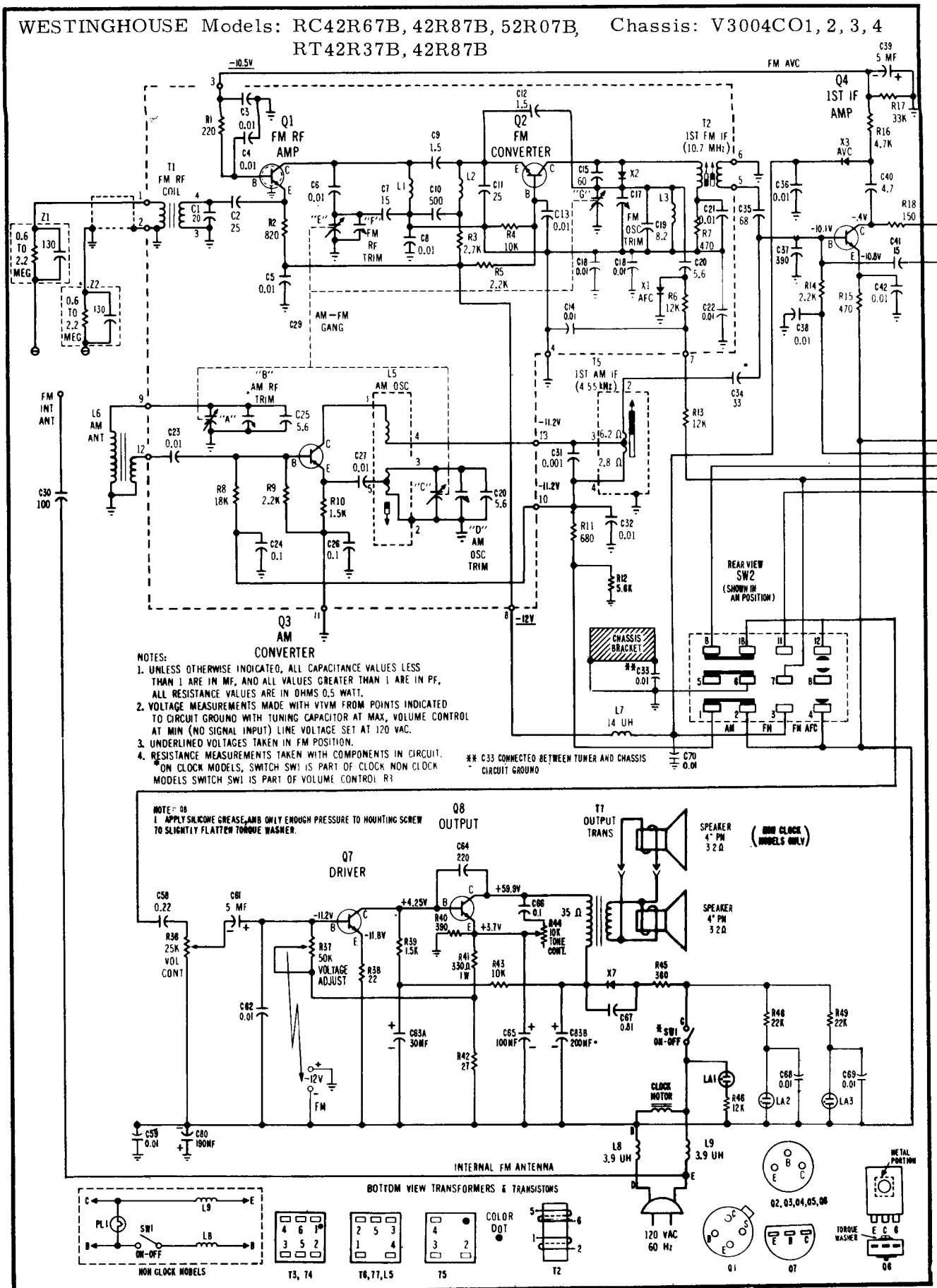


○ DENOTES CONNECTIONS ON SCHEMATIC

WESTINGHOUSE Models RC42N08A RC42N28A RT32N08A, B RT32N38A Chassis V2577-1, 2, 3, 4



WESTINGHOUSE Models: RC42R67B, 42R87B, 52R07B, RT42R37B, 42R87B Chassis: V3004CO1, 2, 3, 4



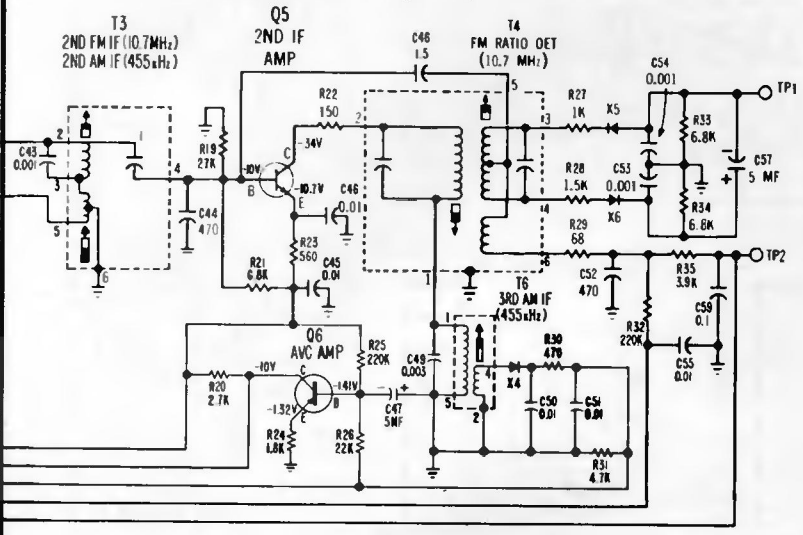
(Continued on next page.)

Westinghouse

Models: RC42R67B, 42R87B, 52R07B,
RT42R37B, 42R87B;

Chassis V3004C01, 2, 3, 4

(Continued from preceding page.)



AM IF 455 KC
FM IF 10.7 MC

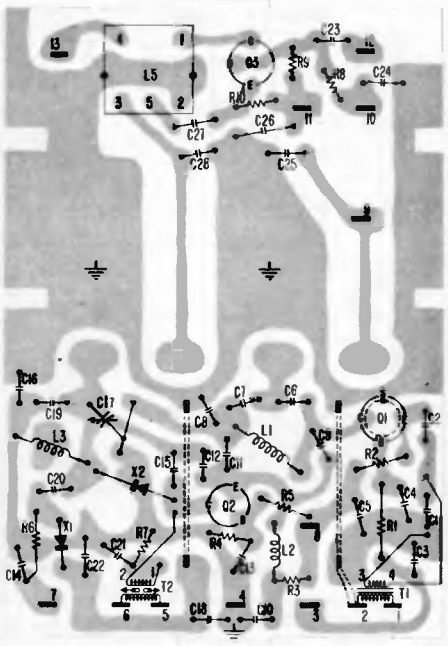


Figure 7 — Bottom View Tuner

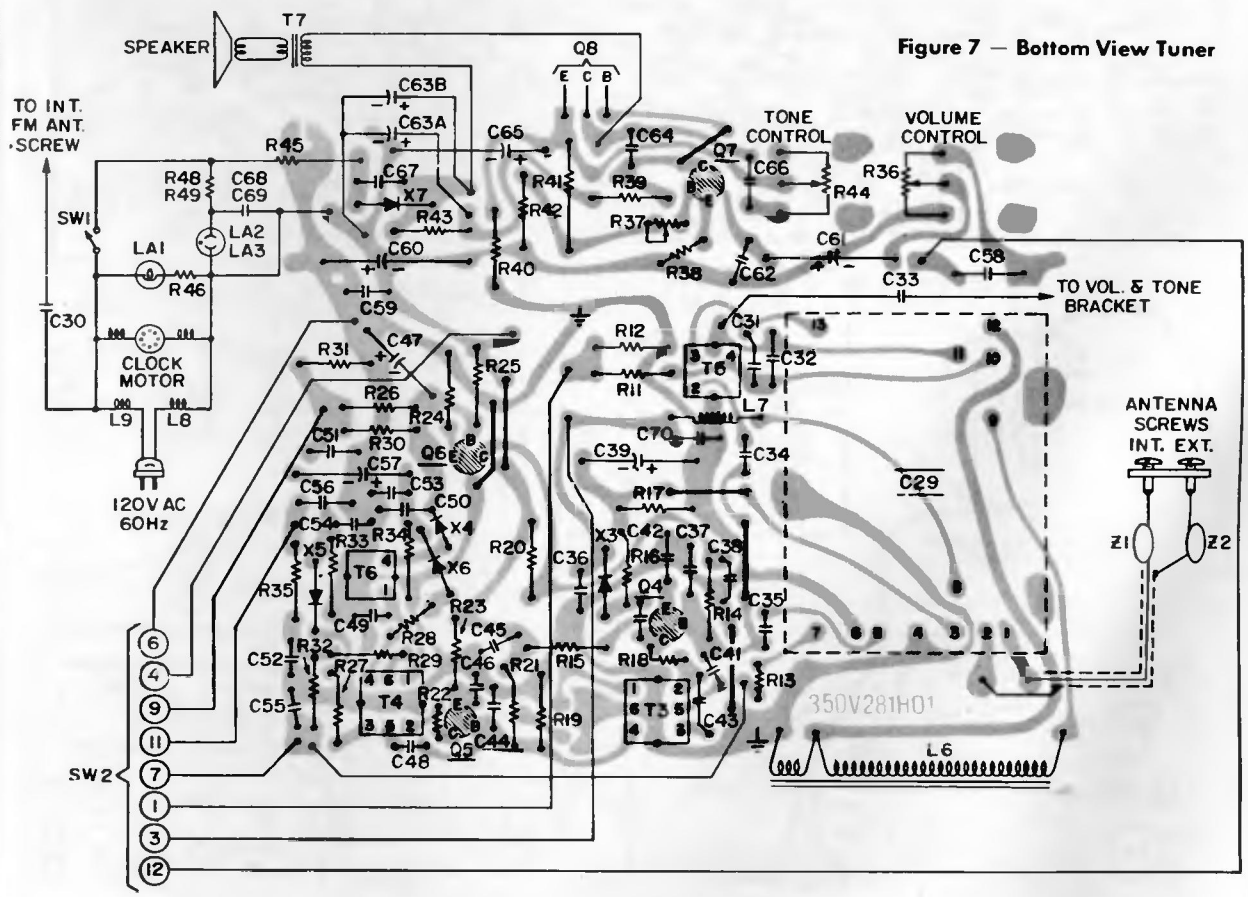
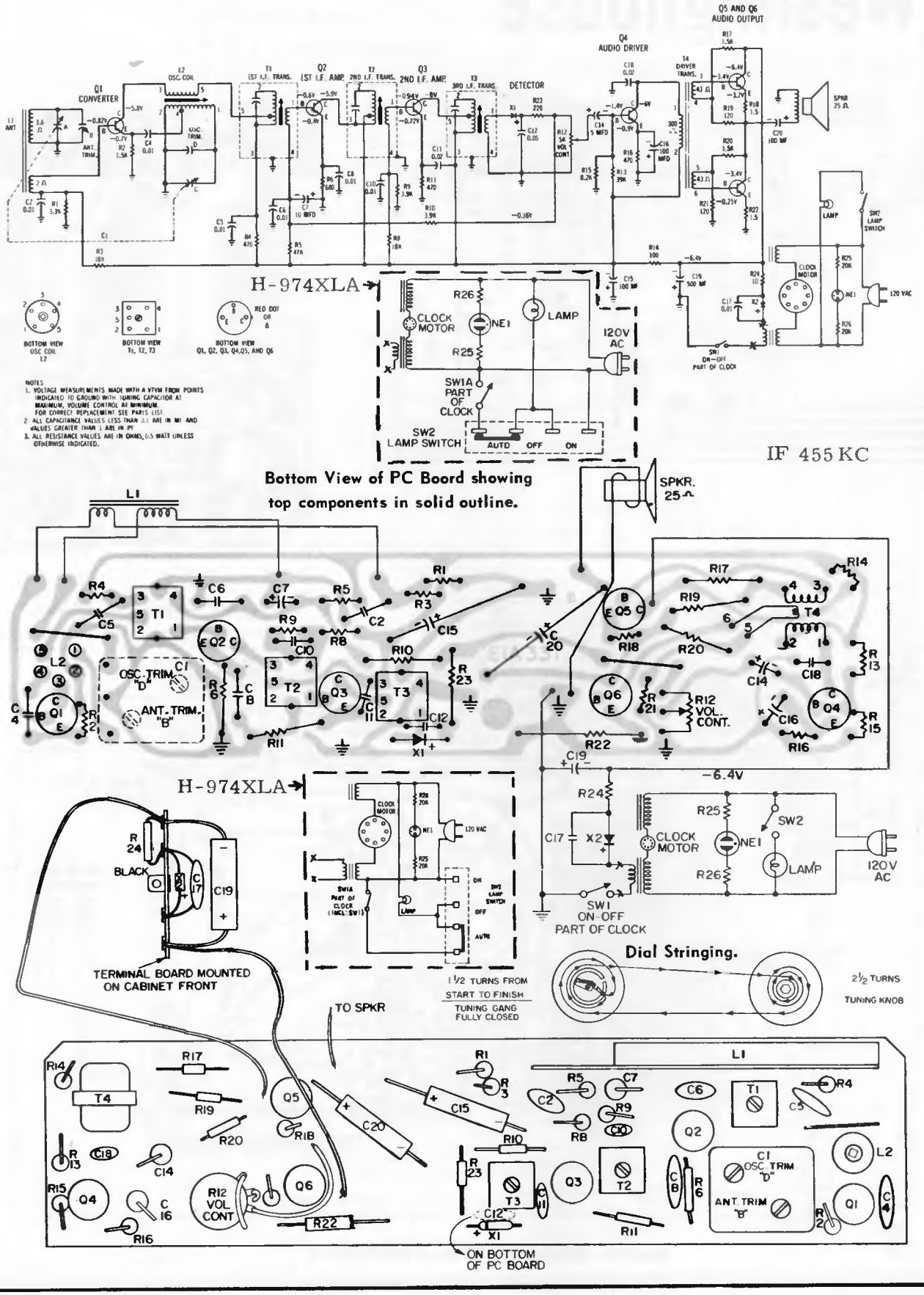


Figure 9 — Bottom View PC Board 350V281H01

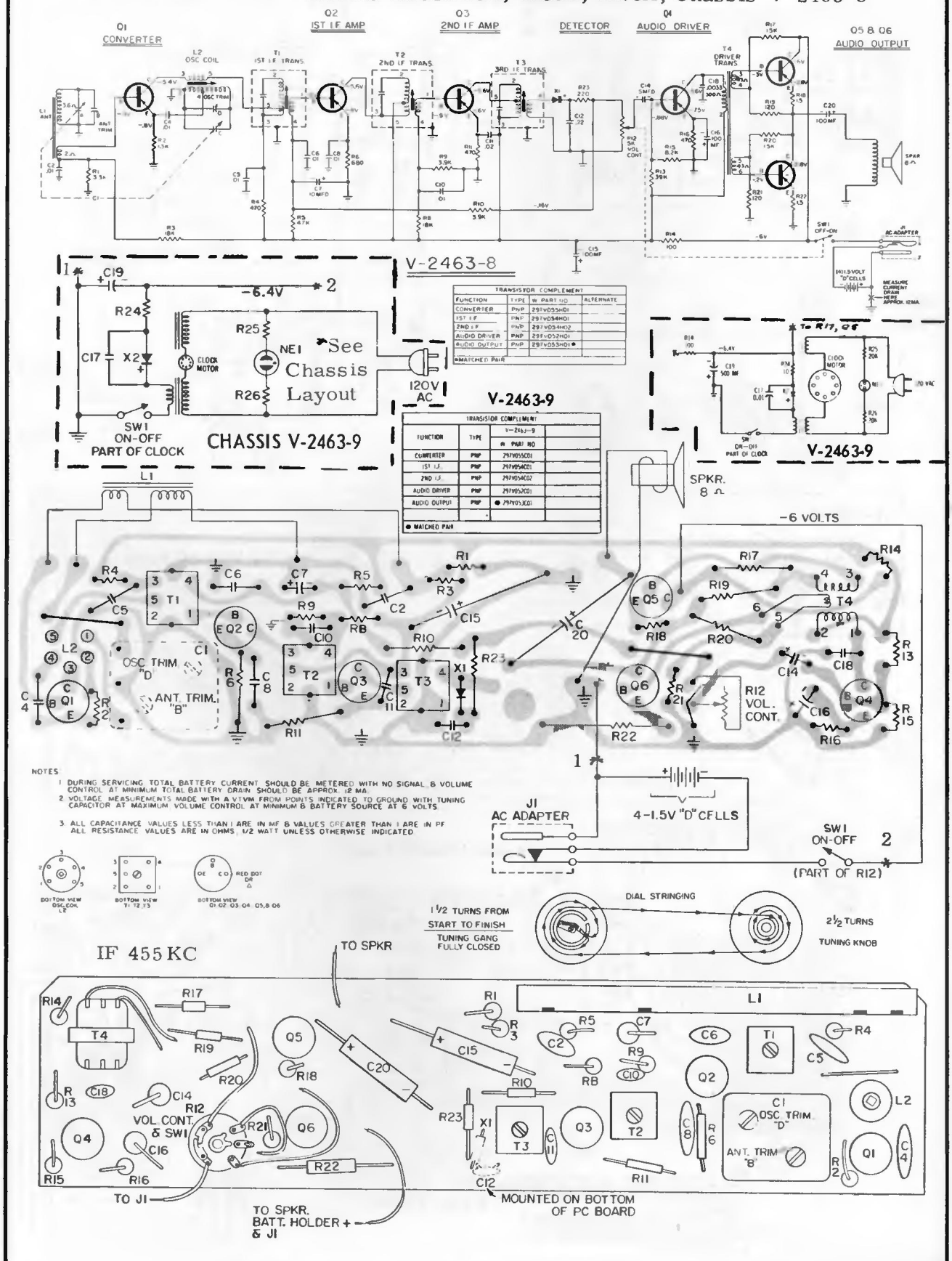
WESTINGHOUSE Models H-972XLB, H-974XLA; Chassis V-2463-5



Bottom View of PC Boord showing top components in solid outline.

Dial Stringing.

WESTINGHOUSE Models RLA1160A, 1161A; Chassis V-2463-9
Models RS31M08A, M38A, M78A; Chassis V-2463-8



NOTES:

1. DURING SERVICING, TOTAL BATTERY CURRENT SHOULD BE METERED WITH NO SIGNAL & VOLUME CONTROL AT MINIMUM. TOTAL BATTERY DRAIN SHOULD BE APPROX. 12 MA.
2. VOLTAGE MEASUREMENTS MADE WITH A VTVM FROM POINTS INDICATED TO GROUND WITH TUNING CAPACITOR AT MAXIMUM, VOLUME CONTROL AT MINIMUM & BATTERY SOURCE AT 6 VOLTS.
3. ALL CAPACITANCE VALUES LESS THAN 1 ARE IN MF & VALUES GREATER THAN 1 ARE IN PF. ALL RESISTANCE VALUES ARE IN OHMS, 1/2 WATT UNLESS OTHERWISE INDICATED.

BOTTOM VIEW OSC. COIL L2 | BOTTOM VIEW T1, T2, T3 | BOTTOM VIEW Q1, Q2, Q3, Q4, Q5 & Q6 (RED DOT OR △)

TRANSISTOR COMPLEMENT

FUNCTION	TYPE	W. PART NO.	ALTERNATE
CONVERTER	PNP	297V055H01	
1ST I.F.	PNP	297V054H01	
2ND I.F.	PNP	297V054H02	
AUDIO DRIVER	PNP	297V052H01	
AUDIO OUTPUT	PNP	297V053H01*	

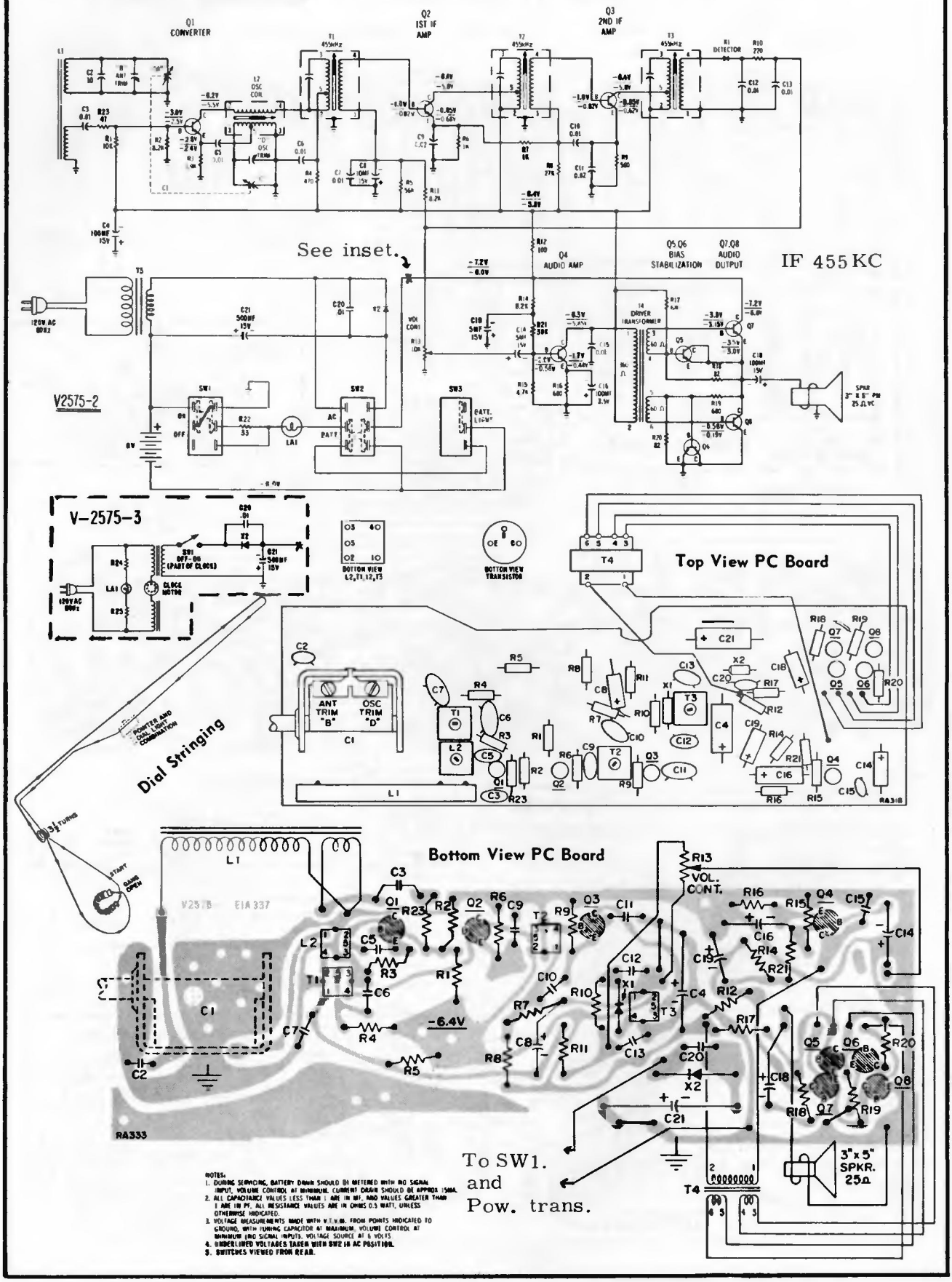
*MATCHED PAIR

TRANSISTOR COMPLEMENT — V-2463-9

FUNCTION	TYPE	W. PART NO.
CONVERTER	PNP	297V055C01
1ST I.F.	PNP	297V054C01
2ND I.F.	PNP	297V054C02
AUDIO DRIVER	PNP	297V052C01
AUDIO OUTPUT	PNP	● 297V053C01

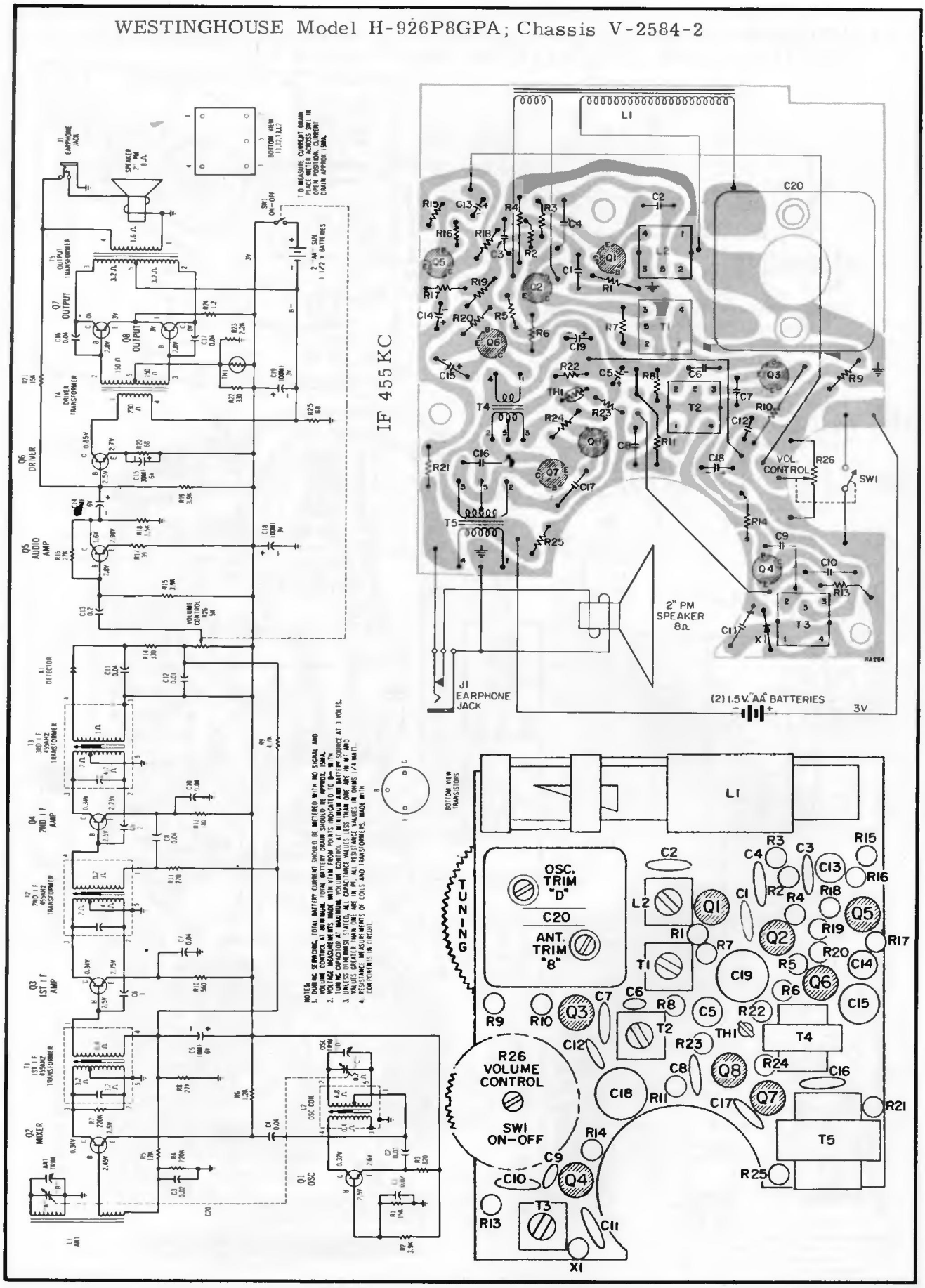
● MATCHED PAIR

WESTINGHOUSE Models RC31P78A, RT41P58A; Chassis V-2575-3, V-2575-2

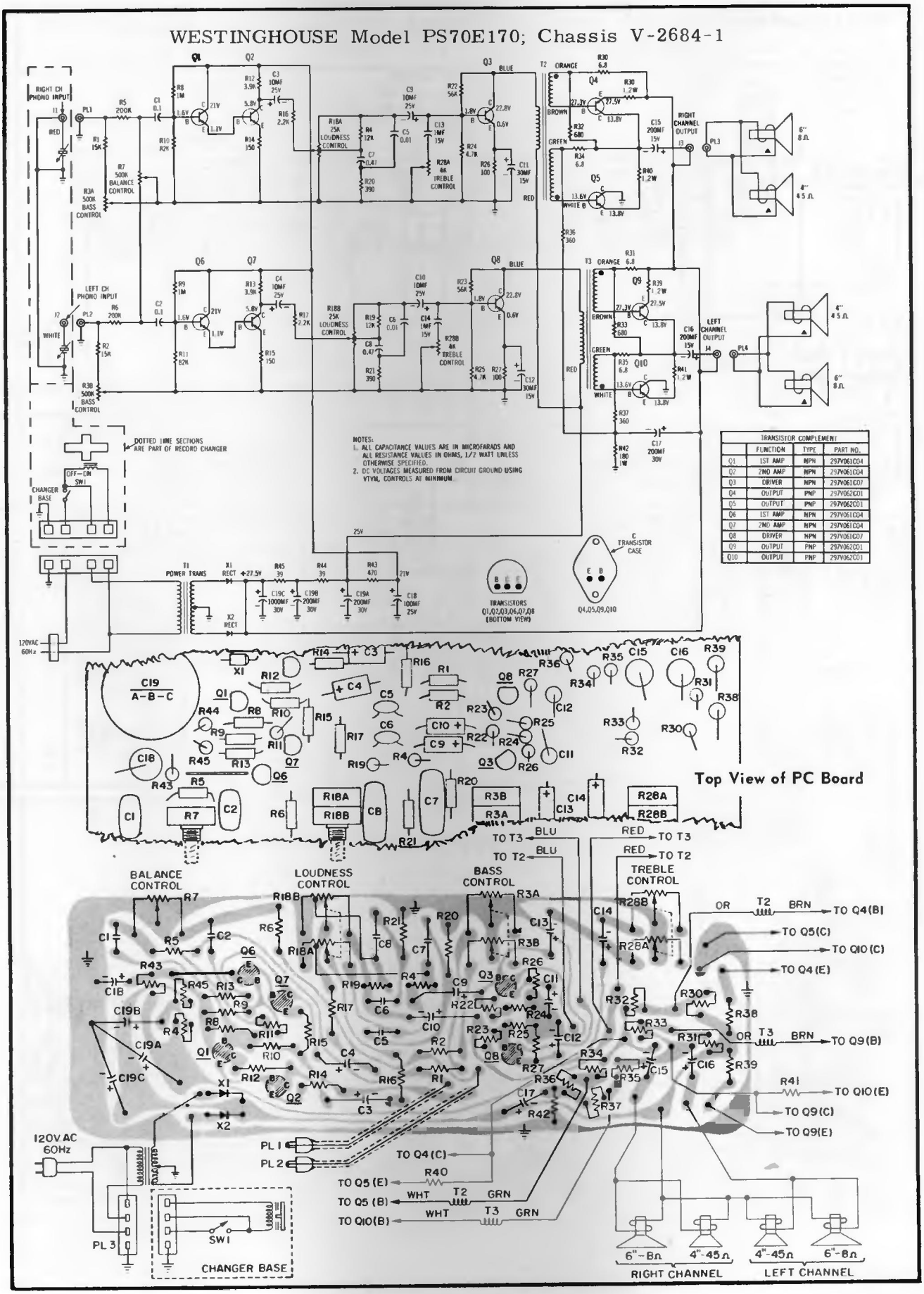


WESTINGHOUSE Models RLA1010A, 1010B, 1011A, 1011B, 1020A, 1020B, 1021A, 1021B, 1100B, 1110B, 1120A, RTA3010A, 3010B; Chassis V-2576

WESTINGHOUSE Model H-926P8GPA; Chassis V-2584-2



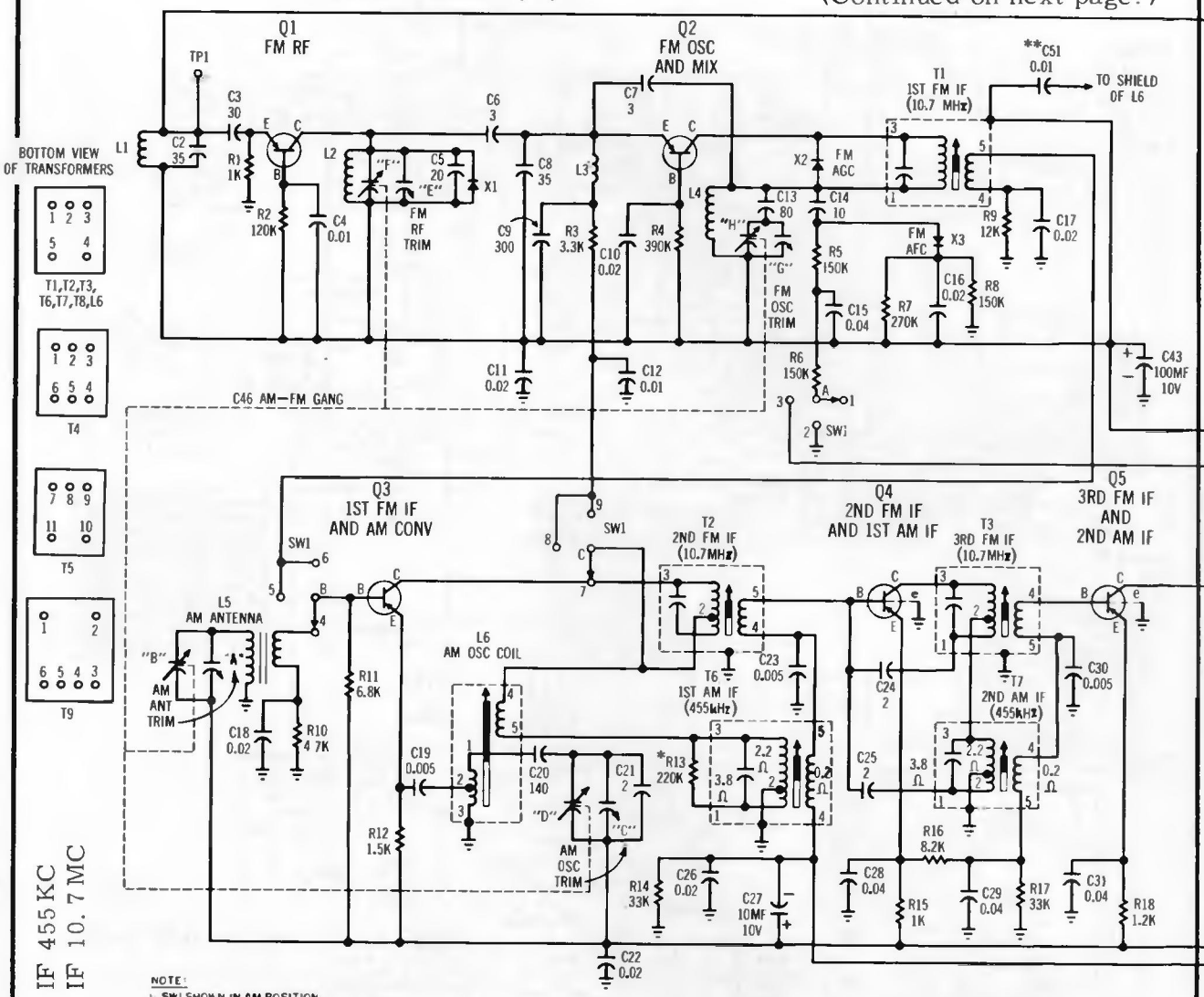
WESTINGHOUSE Model PS70E170; Chassis V-2684-1



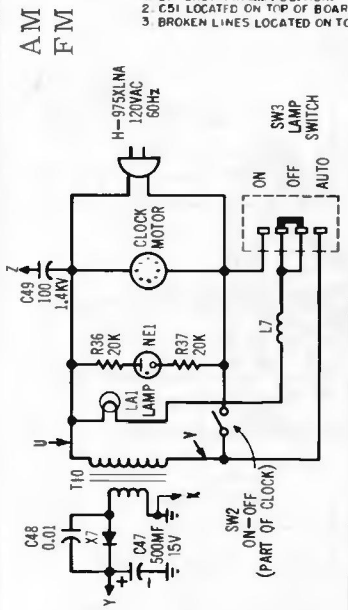
TRANSISTOR COMPLEMENT			
	FUNCTION	TYPE	PART NO.
Q1	1ST AMP	NPN	297V061C04
Q2	2ND AMP	NPN	297V061C04
Q3	DRIVER	NPN	297V061C07
Q4	OUTPUT	PNP	297V062C01
Q5	OUTPUT	PNP	297V062C01
Q6	1ST AMP	NPN	297V061C04
Q7	2ND AMP	NPN	297V061C04
Q8	DRIVER	NPN	297V061C07
Q9	OUTPUT	PNP	297V062C01
Q10	OUTPUT	PNP	297V062C01

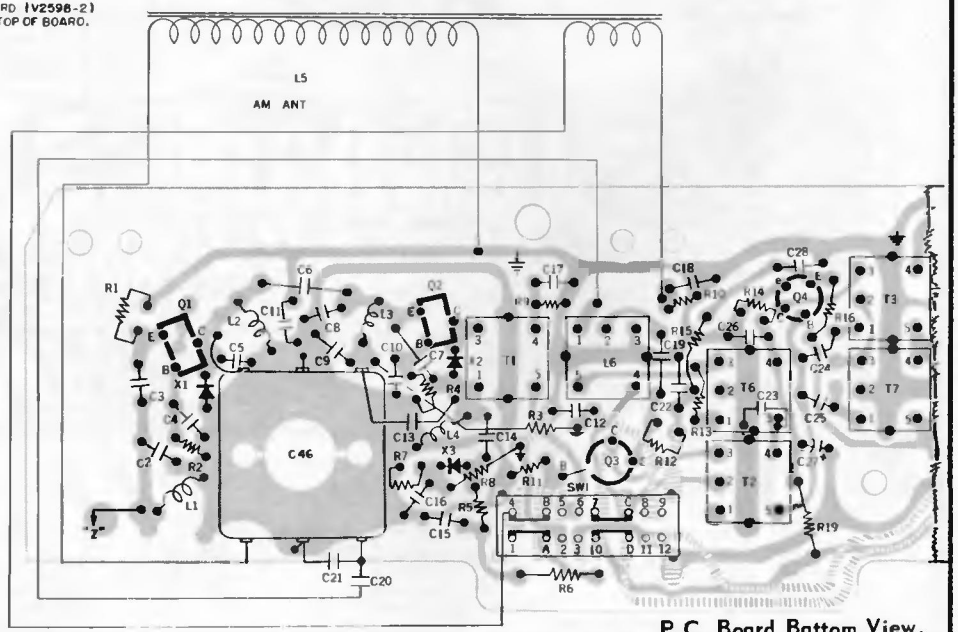
WESTINGHOUSE Models CR705A, H-975XLNA, RLF-1090A, RTF-3040A; Chassis V-2598-1, 2, 3

(Continued on next page.)



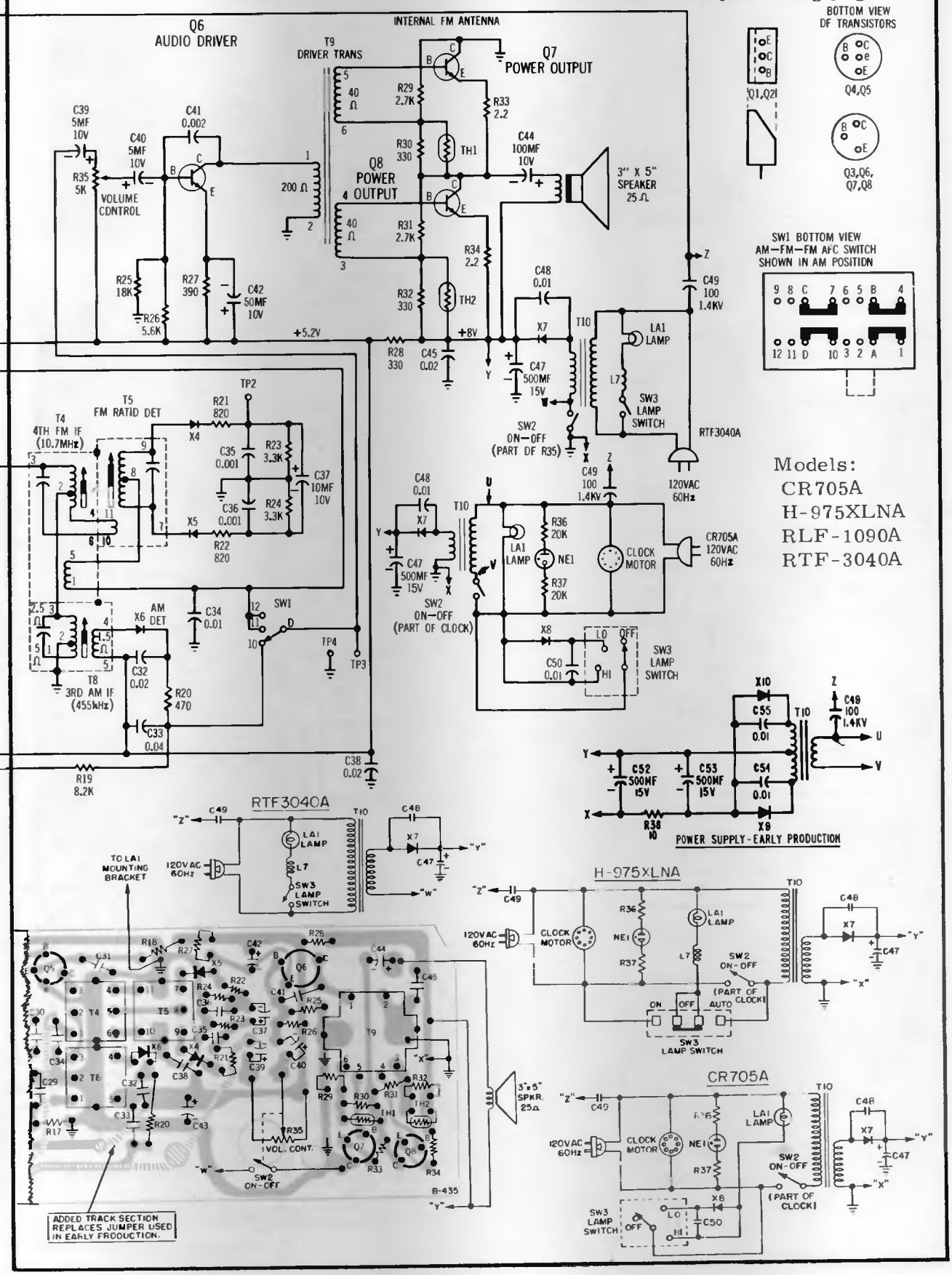
NOTE:
1. SW1 SHOWN IN AM POSITION.
2. C51 LOCATED ON TOP OF BOARD (V2598-2)
3. BROKEN LINES LOCATED ON TOP OF BOARD.



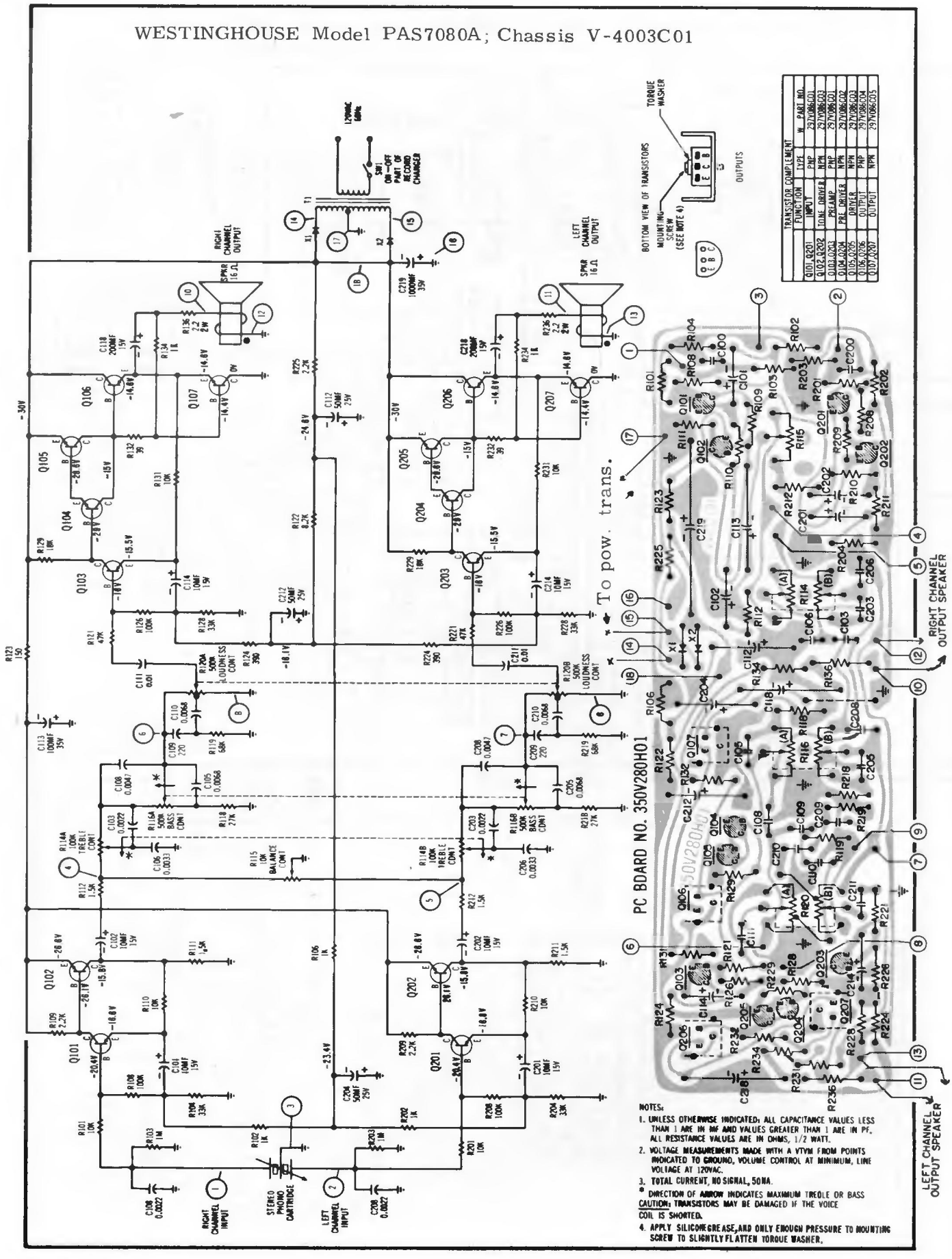


P.C. Board Bottom View.

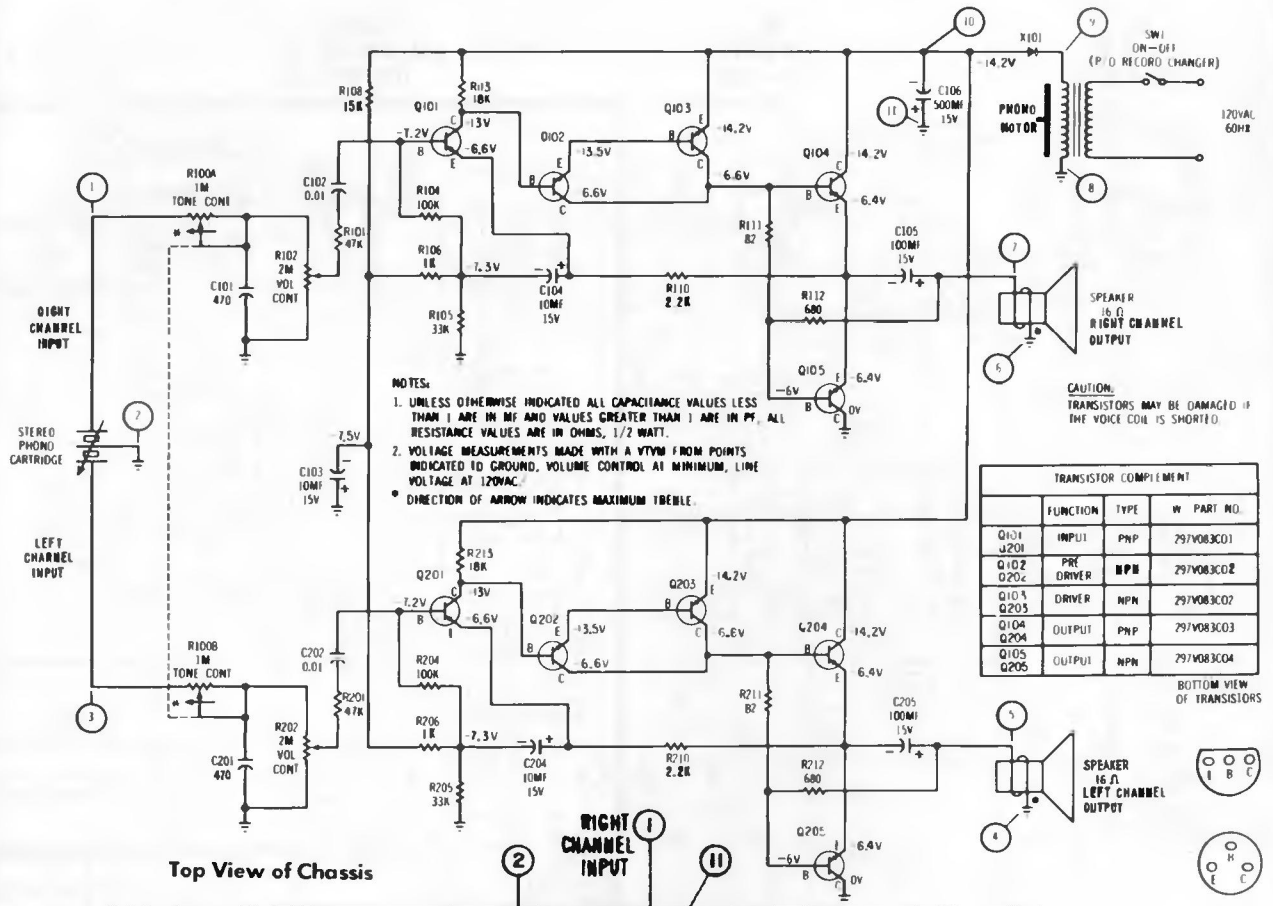
WESTINGHOUSE Models CR705A, H-975XLNA, RLF-1090A, RTF-3040A;
Chassis V-2598-1, 2, 3 (Continued from preceding page.)



WESTINGHOUSE Model PAS7080A; Chassis V-4003C01

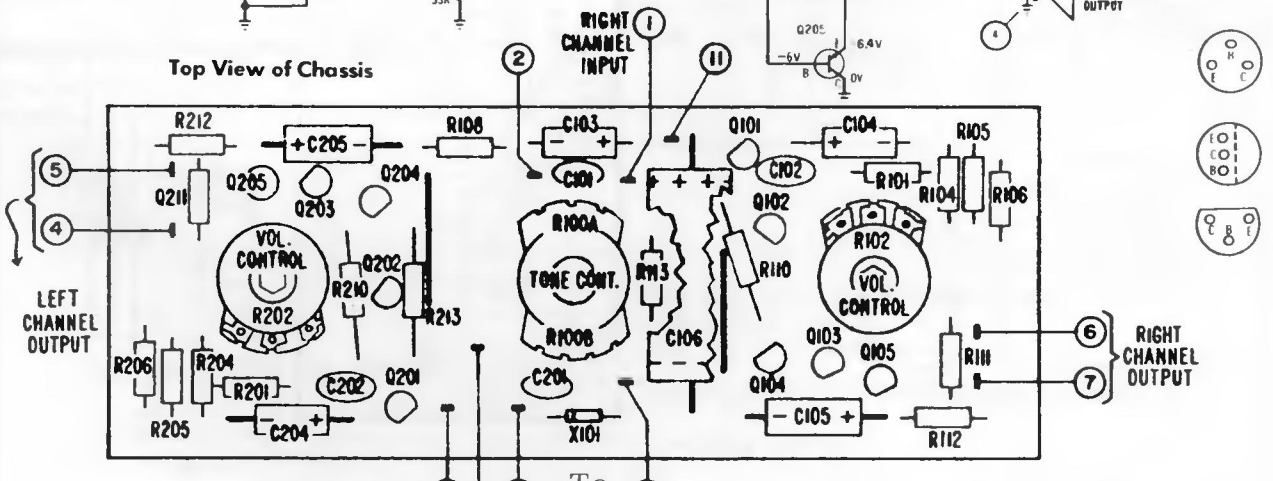


WESTINGHOUSE Model PAS7020A; Chassis V-4002C01

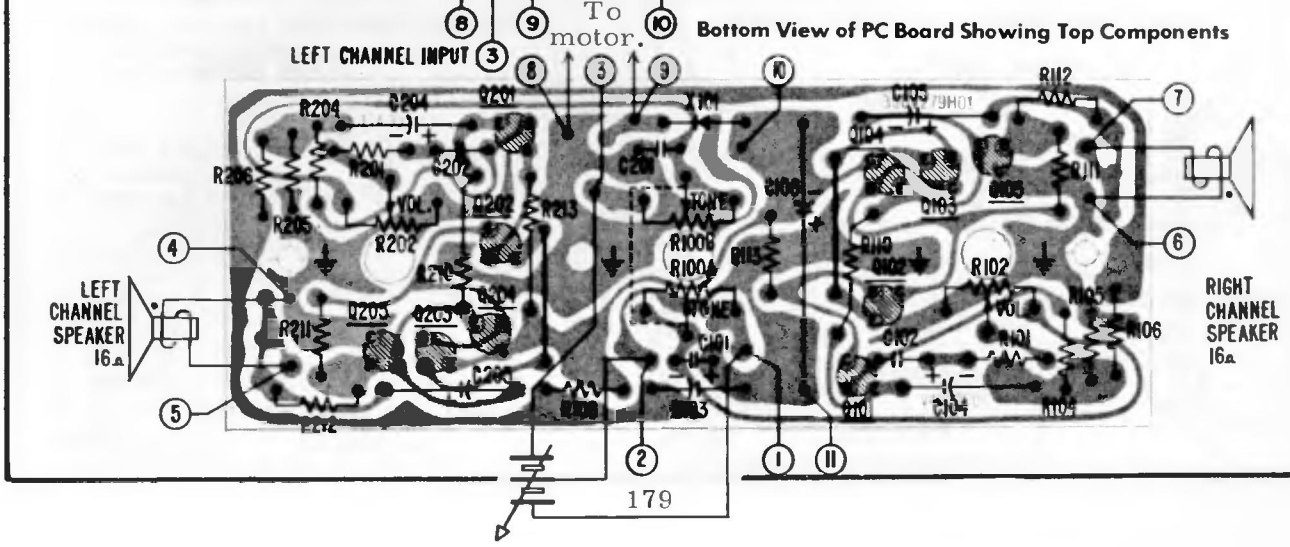


TRANSISTOR COMPLEMENT			
	FUNCTION	TYPE	W PART NO.
Q101 Q201	INPUT	PNP	297V083C01
Q102 Q202	PRE DRIVER	NPN	297V083C02
Q103 Q203	DRIVER	NPN	297V083C02
Q104 Q204	OUTPUT	PNP	297V083C03
Q105 Q205	OUTPUT	NPN	297V083C04

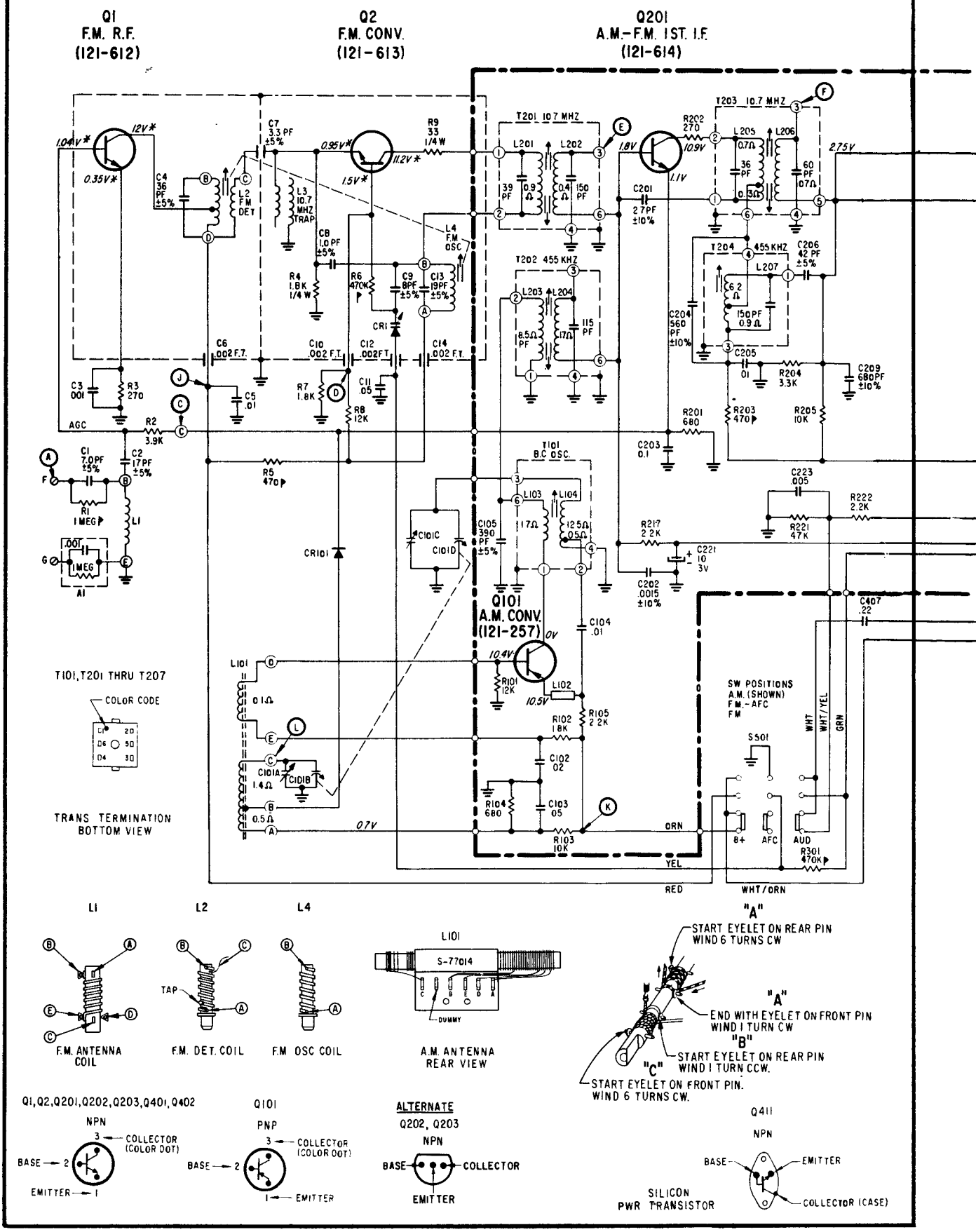
Top View of Chassis



Bottom View of PC Board Showing Top Components



ZENITH Chassis 9ZT15, Models Z430, Z434, T2546 (Continued across page)

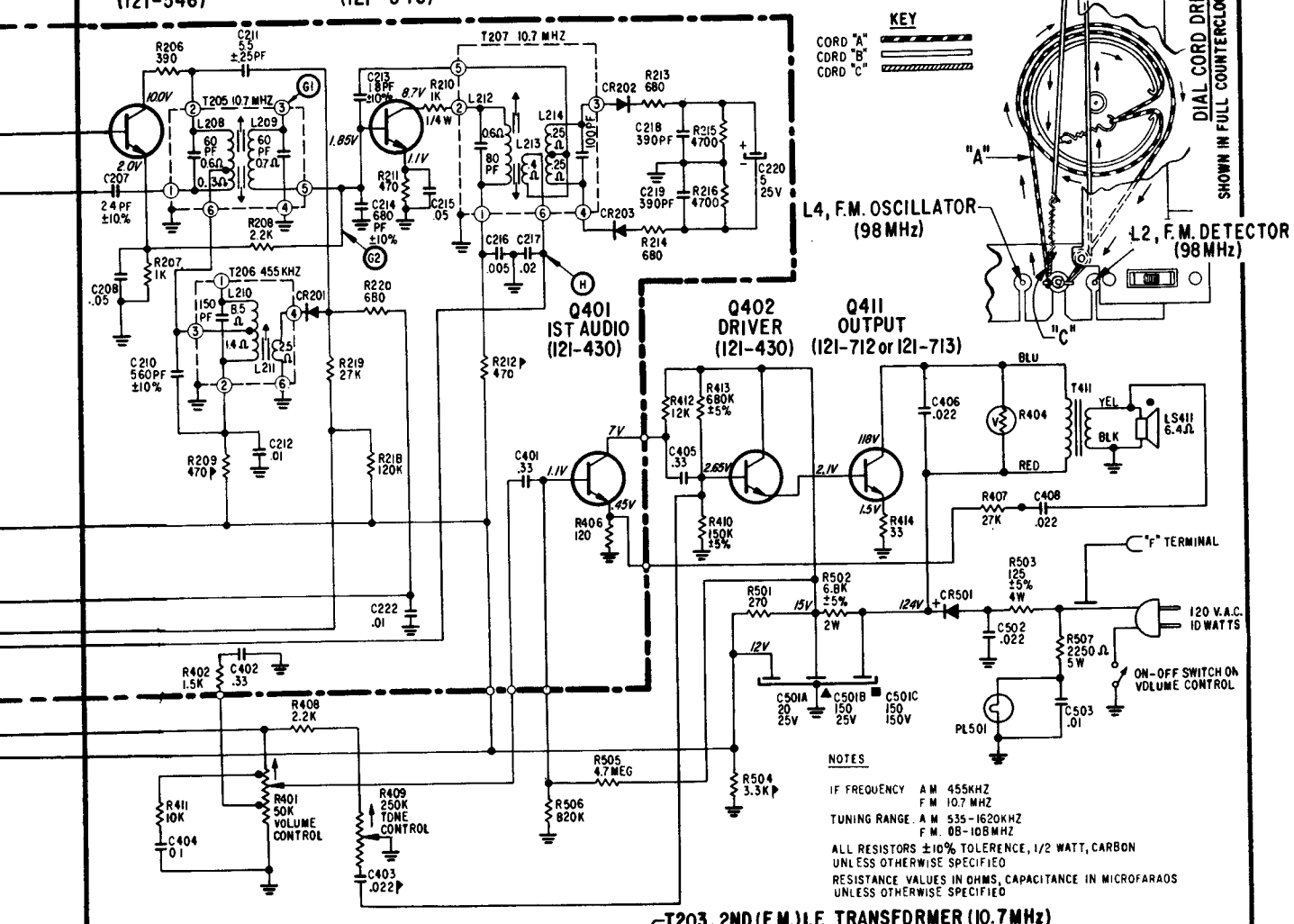


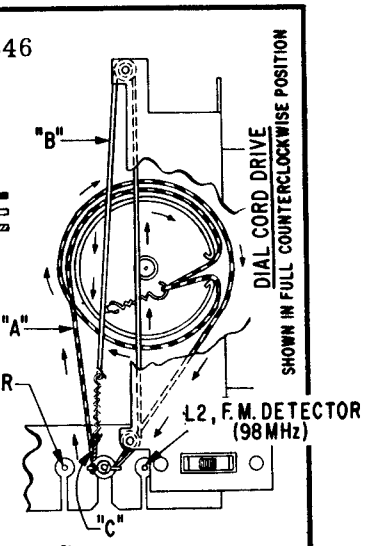
ZENITH Chassis 9ZT15, Models Z430, Z434, T2546

(Continued from page 180)

Q202
A.M.-F.M. 2ND. I.F.
(121-546)

Q203
F.M. 3RD. I.F.
(121-546)





NOTES

IF FREQUENCY A.M. 455KHZ
F.M. 10.7 MHZ

TUNING RANGE A.M. 535-1620KHZ
F.M. 88-108 MHZ

ALL RESISTORS ±10% TOLERENCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED

RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED

T203, 2ND (F.M.) I.F. TRANSFORMER (10.7MHz)
L205, PRIMARY TOP
L206, SECONDARY BOTTOM

T101 (L103), A.M. OSC. COIL (600 KHz)

T204, (L207), 2ND (A.M.) I.F. TRANSFORMER (455KHz)

T202, IST A.M. I.F. TRANSFORMER (455 KHz)
L203, PRIMARY TOP
L204, SECONDARY BOTTOM

VOLUME CONTROL

T206 (L210) 3RD (A.M.) I.F. TRANSFORMER (455KHz)

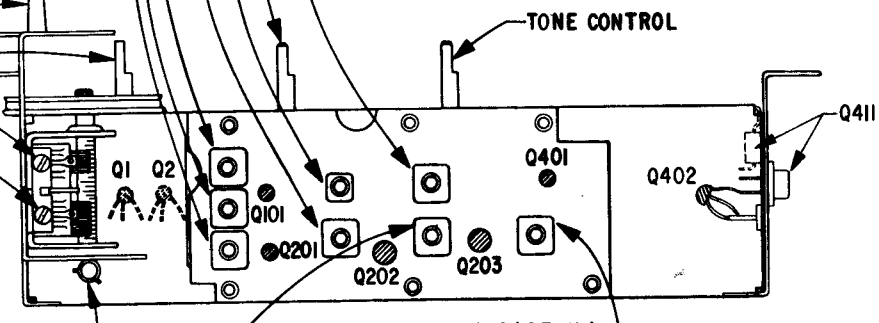
T201, IST (F.M.) I.F. TRANSFORMER (10.7MHz)
L201, PRIMARY TOP
L202, SECONDARY BOTTOM

TONE CONTROL

BANDSWITCH TUNING

C101C, A.M. OSC. TRIMMER (1600 KHz)

C101A, A.M. ANT. TRIMMER (1400 KHz)



○ TEST POINTS

A	F.M. ANT. INPUT
C	REVERSE AGC
D	IST. F.M. IF INPUT
E	2ND. F.M. IF INPUT
F	3RD. F.M. IF INPUT
G1	RATIO DETECTOR INPUT
G2	3RD. F.M. OUTPUT
H	F.M. DETECTOR OUTPUT
J	F.M. B+
K	A.M. B+
L	A.M. R.F. & IF INPUT

L1, F.M. ANTENNA COIL

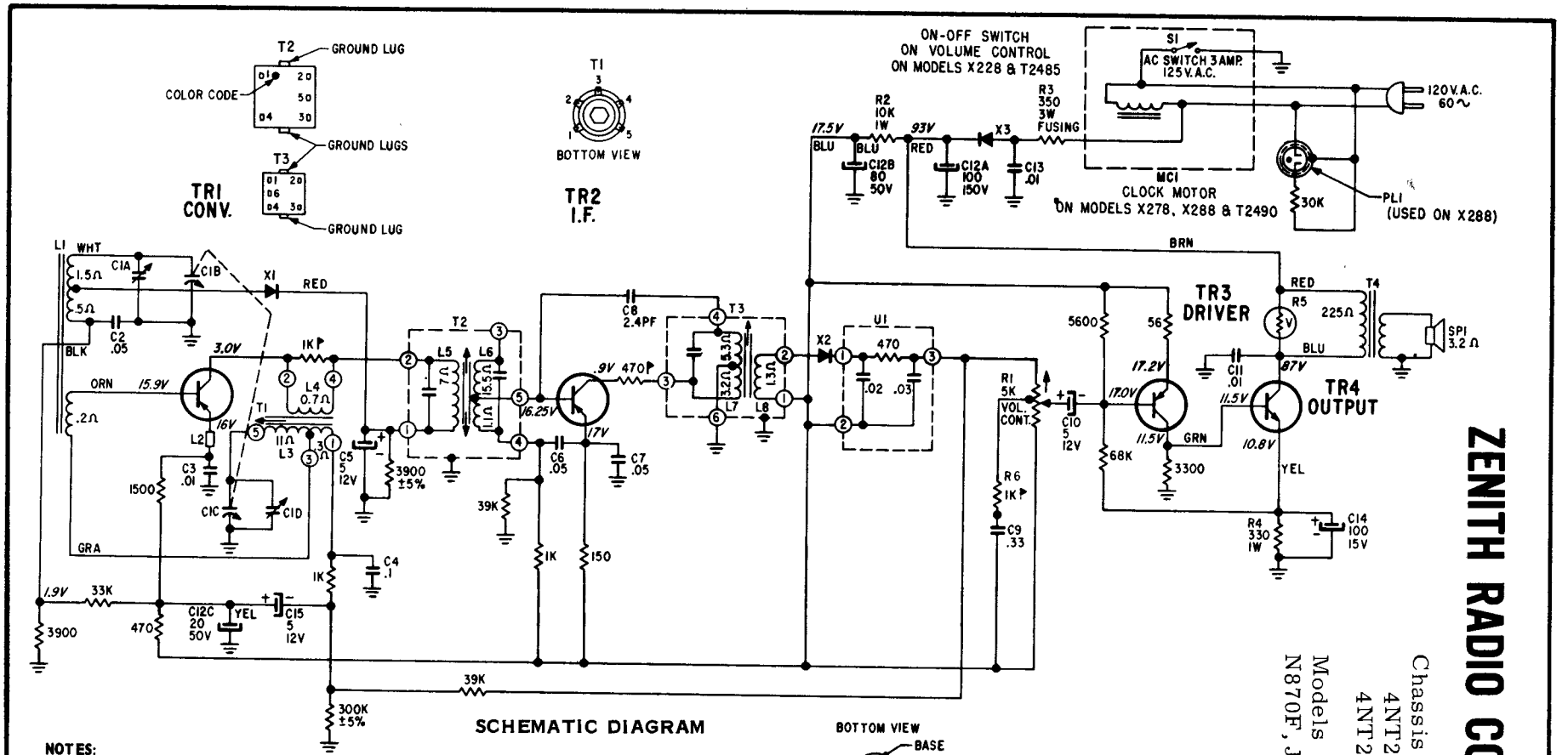
T205, 3RD (F.M.) I.F. TRANS. (10.7MHz)
L208, PRIMARY TOP
L209, SECONDARY BOTTOM

T207, F.M. RATIO DETECTOR (10.7MHz)

ZENITH RADIO CORPORATION

Chassis 4NT23Z2, 4NT23Z9,
4NT24Z2, 4NT24Z9,
4NT25Z2, 4NT25Z9,

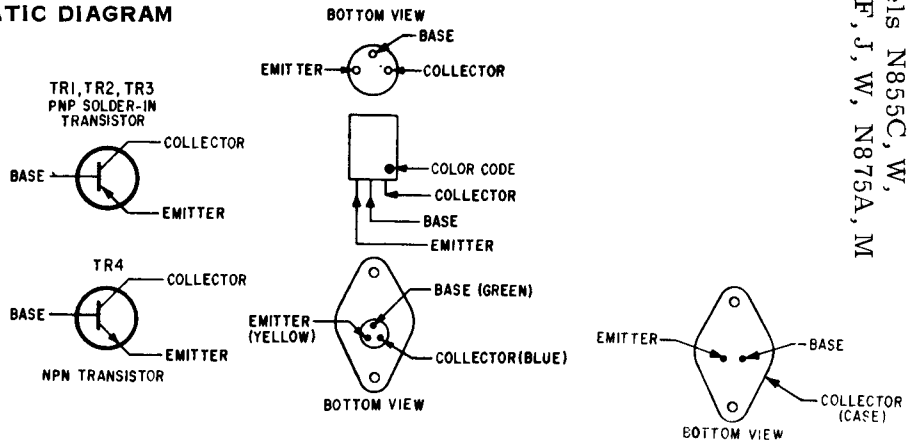
Models N855C, W,
N870F, J, W, N875A, M



SCHEMATIC DIAGRAM

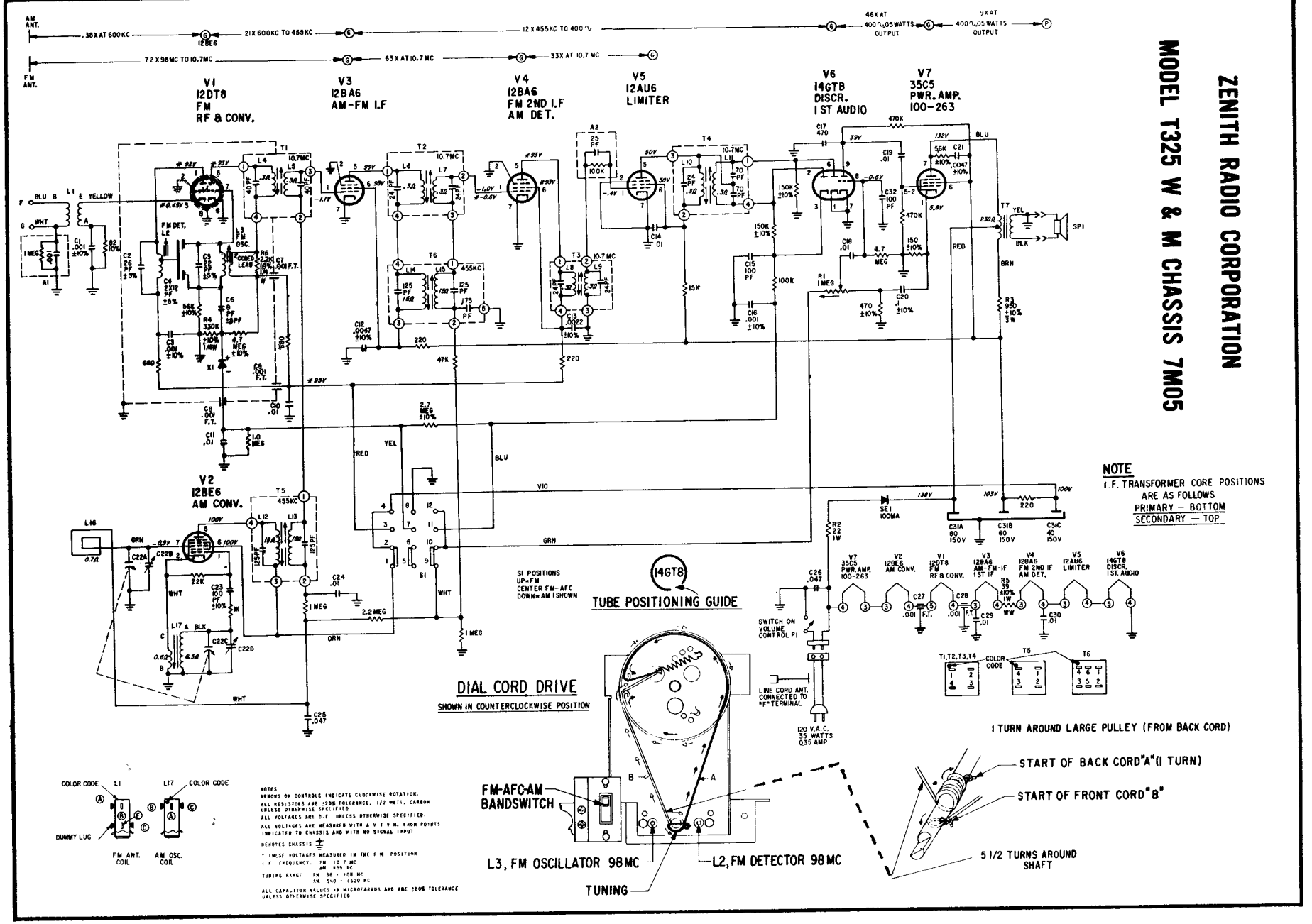
NOTES:

1. I.F. FREQUENCY 455 KC
   TUNING RANGE 535 – 1620 KC
2. ALL RESISTORS ± 10% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
3. RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
4. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
5. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER.
6. VIEWED FROM THE FRONT, ARROW ON VOLUME CONTROL INDICATES CLOCKWISE ROTATION.
7. DENOTES CHASSIS
8. FOR CAPACITOR TOLERANCES SEE LEGEND.
9. ▶ INDICATES ± 20% TOLERANCE.



ZENITH RADIO CORPORATION

MODEL T325 W & M CHASSIS 7M05



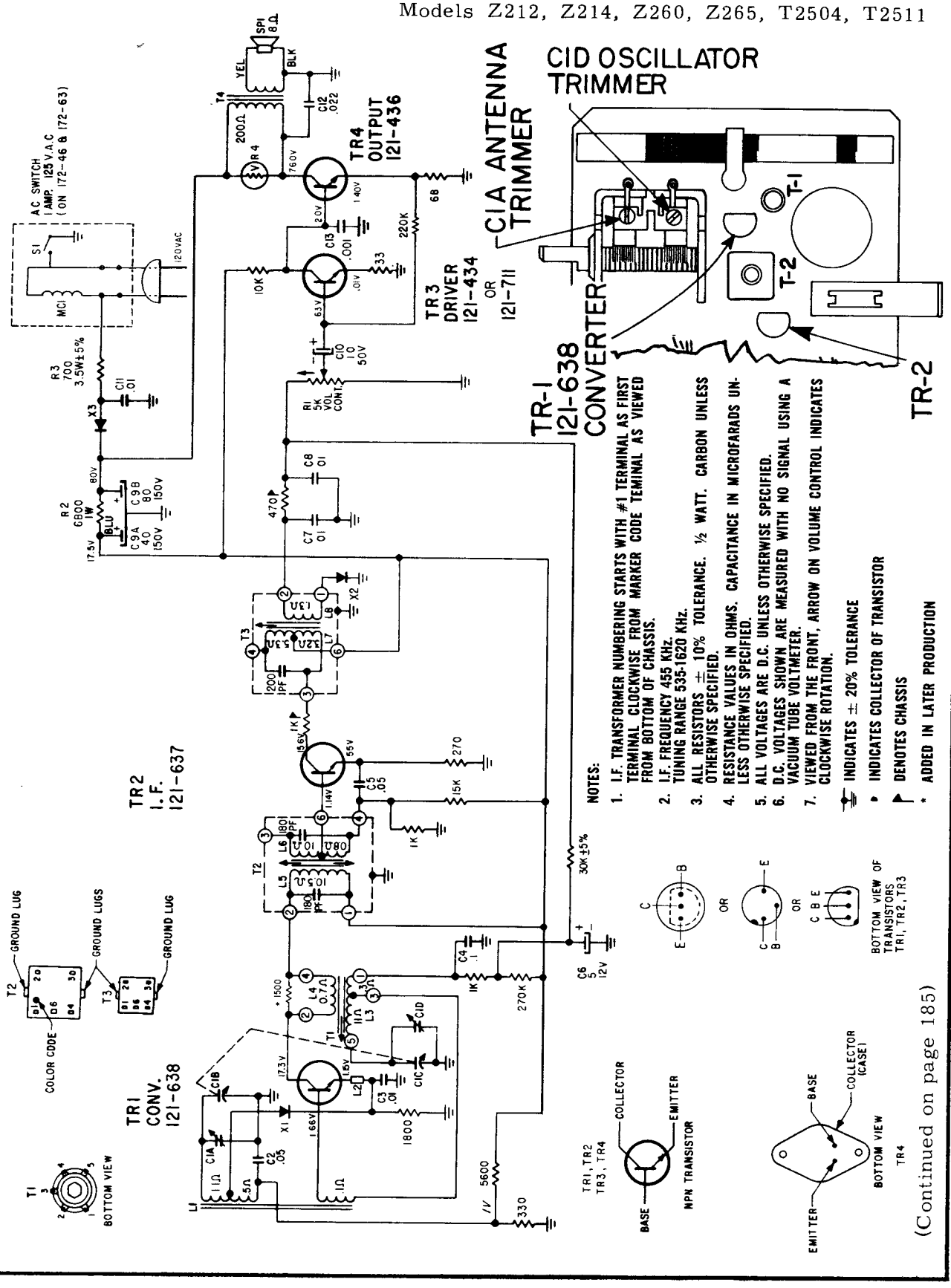
NOTE

I.F. TRANSFORMER CORE POSITIONS ARE AS FOLLOWS
PRIMARY — BOTTOM
SECONDARY — TOP

ZENITH RADIO CORPORATION

Chassis 4ZT28, 4ZT29,

Models Z212, Z214, Z260, Z265, T2504, T2511



NOTES:

1. I.F. TRANSFORMER NUMBERING STARTS WITH #1 TERMINAL AS FIRST TERMINAL CLOCKWISE FROM MARKER CODE TEMINAL AS VIEWED FROM BOTTOM OF CHASSIS.
2. I.F. FREQUENCY 455 KHz. TUNING RANGE 535-1620 KHz.
3. ALL RESISTORS ± 10% TOLERANCE. ½ WATT. CARBON UNLESS OTHERWISE SPECIFIED.
4. RESISTANCE VALUES IN OHMS. CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
5. ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED.
6. D.C. VOLTAGES SHOWN ARE MEASURED WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER.
7. VIEWED FROM THE FRONT, ARROW ON VOLUME CONTROL INDICATES CLOCKWISE ROTATION.

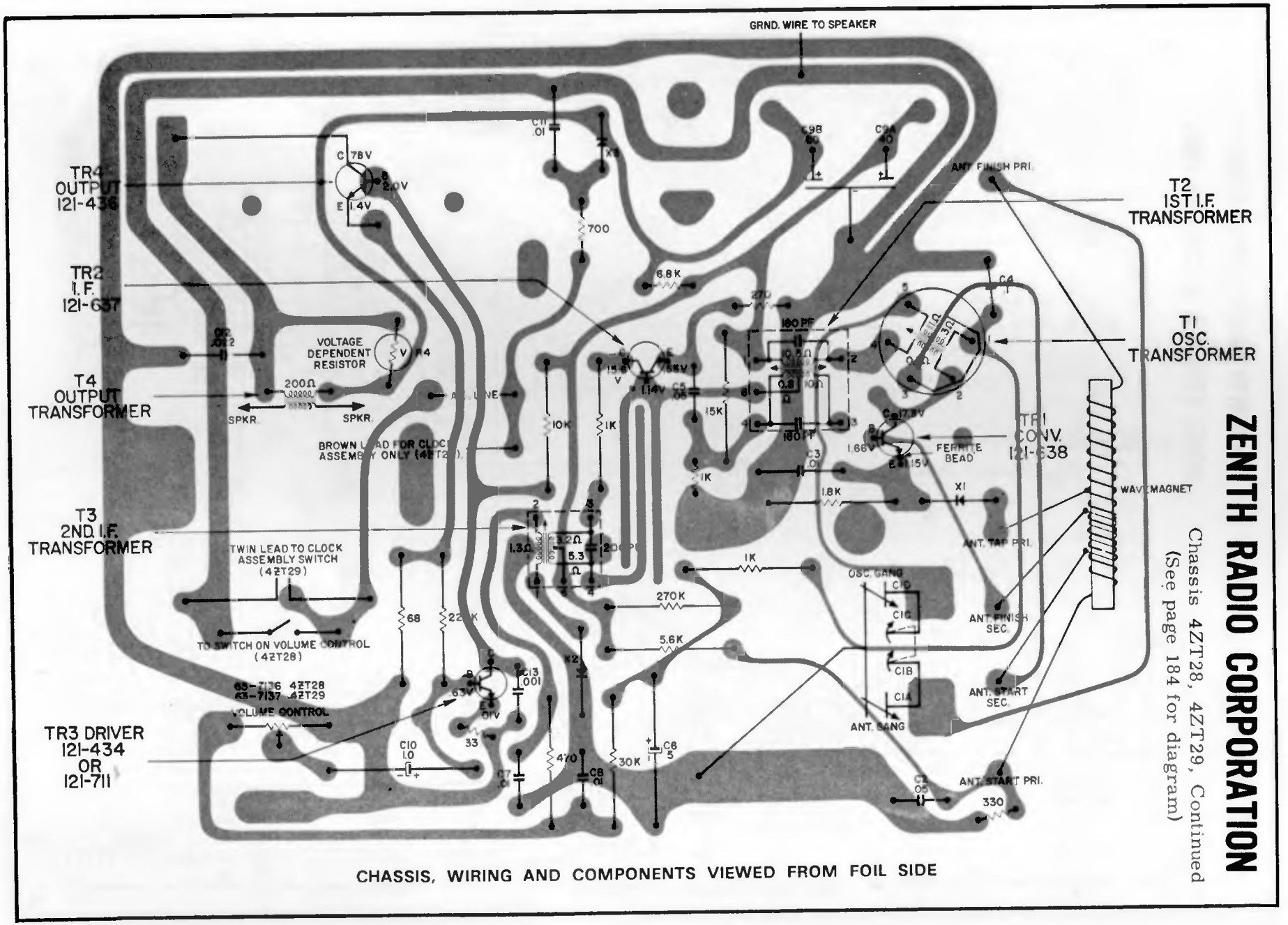
⏚ INDICATES ± 20% TOLERANCE

• INDICATES COLLECTOR OF TRANSISTOR

▶ DENOTES CHASSIS

* ADDED IN LATER PRODUCTION

(Continued on page 185)

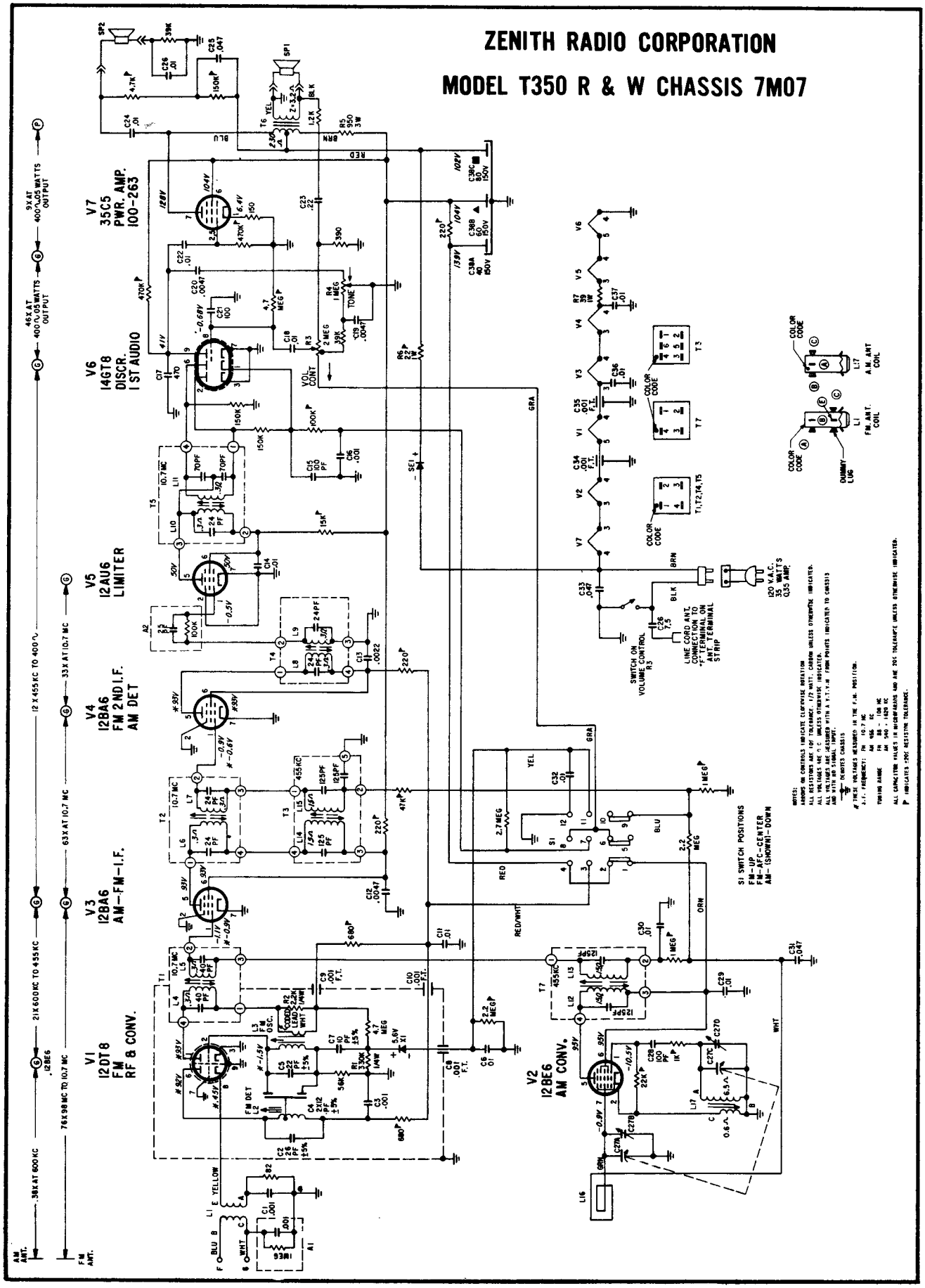


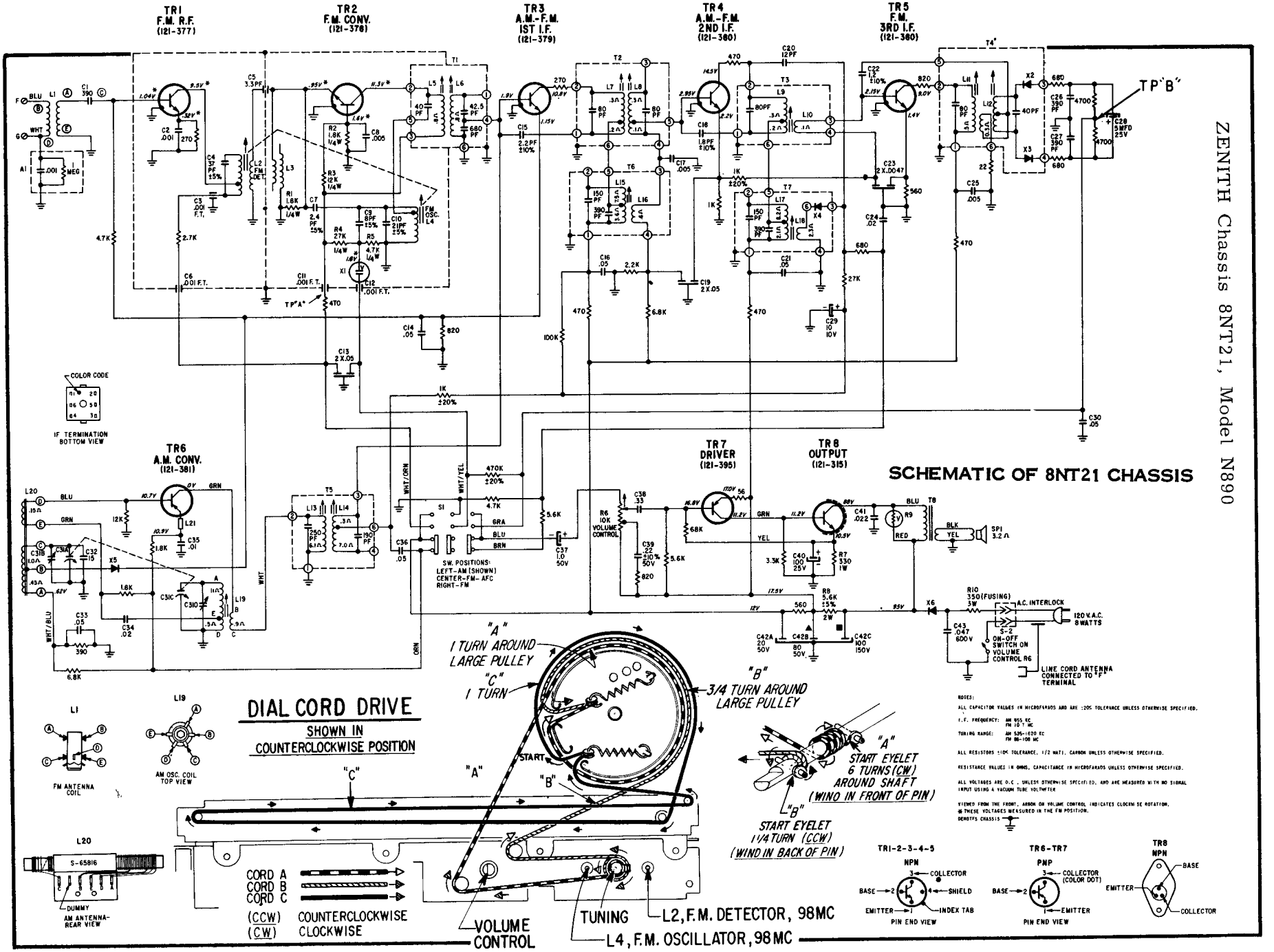
CHASSIS, WIRING AND COMPONENTS VIEWED FROM FOIL SIDE

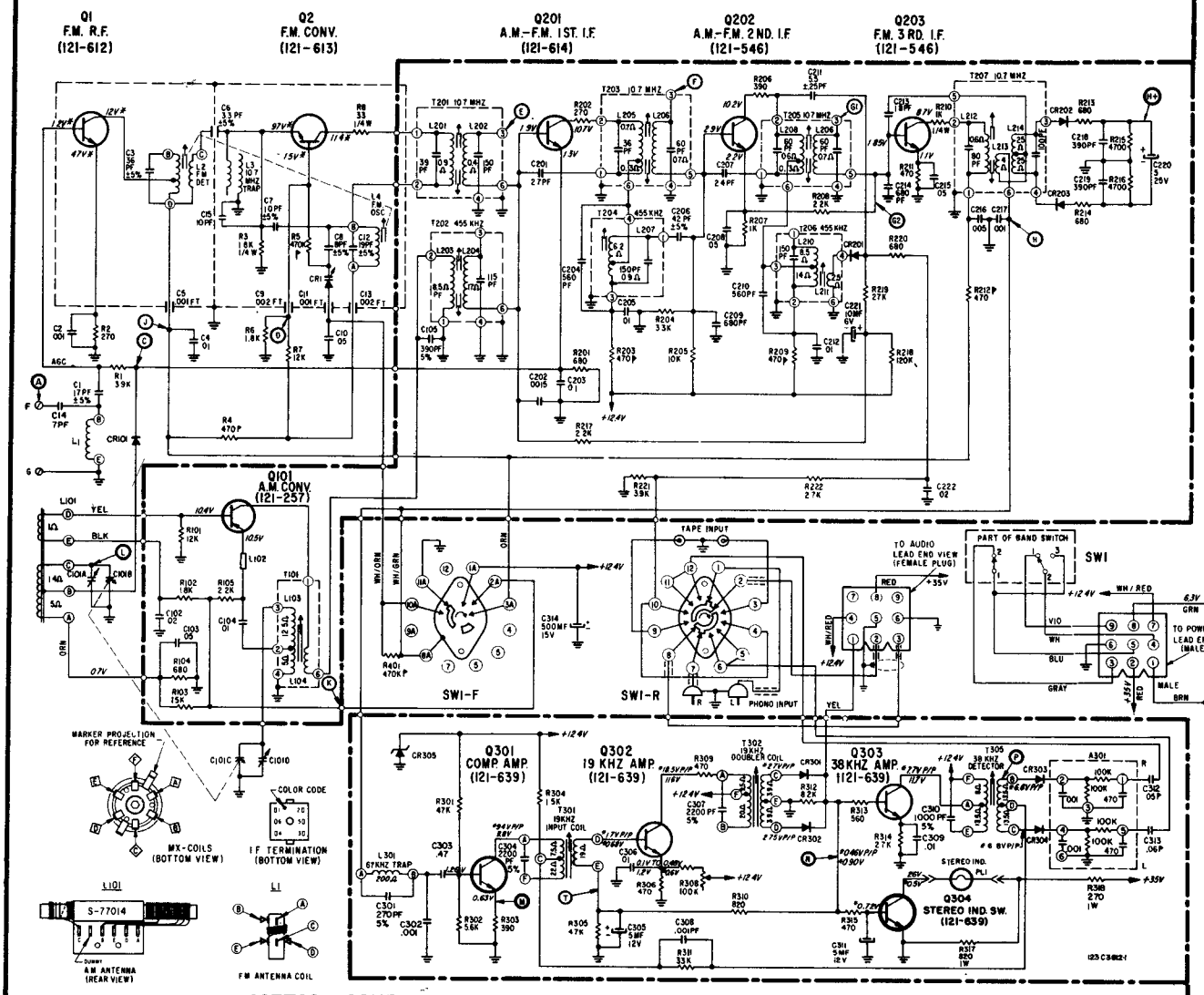
ZENITH RADIO CORPORATION

Chassis 4ZT28, 4ZT29, Continued

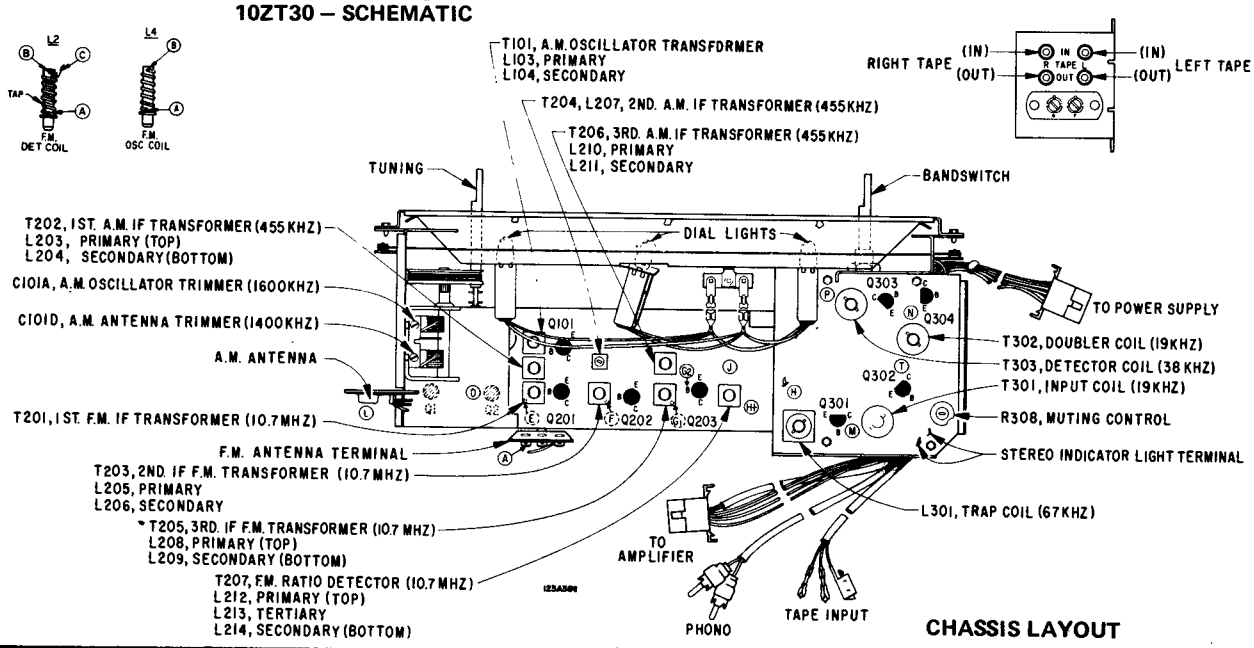
(See page 184 for diagram)


ZENITH RADIO CORPORATION
MODEL T350 R & W CHASSIS 7M07
V1 12DT8 FM RF & CONV.
V2 12BE6 AM CONV.
V3 12BA6 AM-FM-I.F.
V4 12BA6 FM 2ND I.F. AM DET
V5 12AU6 LIMITER
V6 14GT8 DISCR. 1ST AUDIO
V7 35C5 PWR. AMP. 100-263
SP1
SP2
S1 SWITCH POSITIONS
FM-UP
FM REF.-CENTER
AM-(SHOWN)-DOWN
SWITCH ON VOLUME CONTROL R3
LINE CORD ANT. CONNECTION TO "F" TERMINAL ON STRIP
120 V.A.C. 35 WATTS .035 AMP.
FM ANT.
AM ANT.
FM ANT. COIL
AM ANT COIL
DUMMY LUG
COLOR CODE
T1,T2,T4,T5
T3
T7
L17
L16
L1
NOTES:
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION
ALL RESISTORS ARE 1/2 TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE INDICATED.
ALL VOLTAGES ARE MEASURED WITH A 1 MEG VTVM FROM POINTS INDICATED TO CHASSIS AND WITH NO SIGNAL INPUT.
DENOTES CHASSIS
THESE VOLTAGES MEASURED IN THE F.M. POSITION.
I.F. FREQUENCY: FM 10.7 MC
AM 455 KC
TUNING RANGE: FM 88 - 108 MC
AM 540 - 1600 KC
ALL CAPACITOR VALUES IN MICROFARADS AND ARE 20% TOLERANCE UNLESS OTHERWISE INDICATED.
P INDICATES 20% RESISTOR TOLERANCE.


TR1
F.M. R.F.
(121-377)
TR2
F.M. CONV.
(121-378)
TR3
A.M.-F.M.
IST I.F.
(121-379)
TR4
A.M.-F.M.
2ND I.F.
(121-380)
TR5
F.M.
3RD I.F.
(121-380)
TR6
A.M. CONV.
(121-381)
TR7
DRIVER
(121-395)
TR8
OUTPUT
(121-315)
SCHEMATIC OF 8NT21 CHASSIS
TP"A"
TP"B"
COLOR CODE
IF TERMINATION
BOTTOM VIEW
SW. POSITIONS:
LEFT-AM (SHOWN)
CENTER-FM-AFC
RIGHT-FM
SPI
3.2Ω
A.C. INTERLOCK
120 V.A.C.
8 WATTS
S-2
ON-OFF
SWITCH ON
VOLUME
CONTROL R6
LINE CORD ANTENNA
CONNECTED TO "F"
TERMINAL
DIAL CORD DRIVE
SHOWN IN
COUNTERCLOCKWISE POSITION
"A"
1 TURN AROUND
LARGE PULLEY
"C"
1 TURN
"B"
3/4 TURN AROUND
LARGE PULLEY
START
"A"
START EYELET
6 TURNS (CW)
AROUND SHAFT
(WIND IN FRONT OF PIN)
"B"
START EYELET
1 1/4 TURN (CCW)
(WIND IN BACK OF PIN)
FM ANTENNA
COIL
AM OSC. COIL
TOP VIEW
DUMMY
AM ANTENNA-
REAR VIEW
CORD A
CORD B
CORD C
(CCW) COUNTERCLOCKWISE
(CW) CLOCKWISE
VOLUME
CONTROL
TUNING
L2, F.M. DETECTOR, 98MC
L4, F.M. OSCILLATOR, 98MC
TR1-2-3-4-5
NPN
TR6-TR7
PNP
TR8
NPN
PIN END VIEW
INDEX TAB
NOTES:
ALL CAPACITOR VALUES IN MICROFARADS AND ARE ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.
I.F. FREQUENCY: AM 955 KC
FM 10.7 MC
TUNING RANGE: AM 535-1620 KC
FM 88-108 MC
ALL RESISTORS ±10% TOLERANCE, 1/2 WATT, CARBON UNLESS OTHERWISE SPECIFIED.
RESISTANCE VALUES IN OHMS, CAPACITANCE IN MICROFARADS UNLESS OTHERWISE SPECIFIED.
ALL VOLTAGES ARE D.C., UNLESS OTHERWISE SPECIFIED, AND ARE MEASURED WITH NO SIGNAL INPUT USING A VACUUM TUBE VOLTMETER
VIEWED FROM THE FRONT, ARROW ON VOLUME CONTROL INDICATES CLOCKWISE ROTATION.
THESE VOLTAGES MEASURED IN THE FM POSITION.
DENOTES CHASSIS

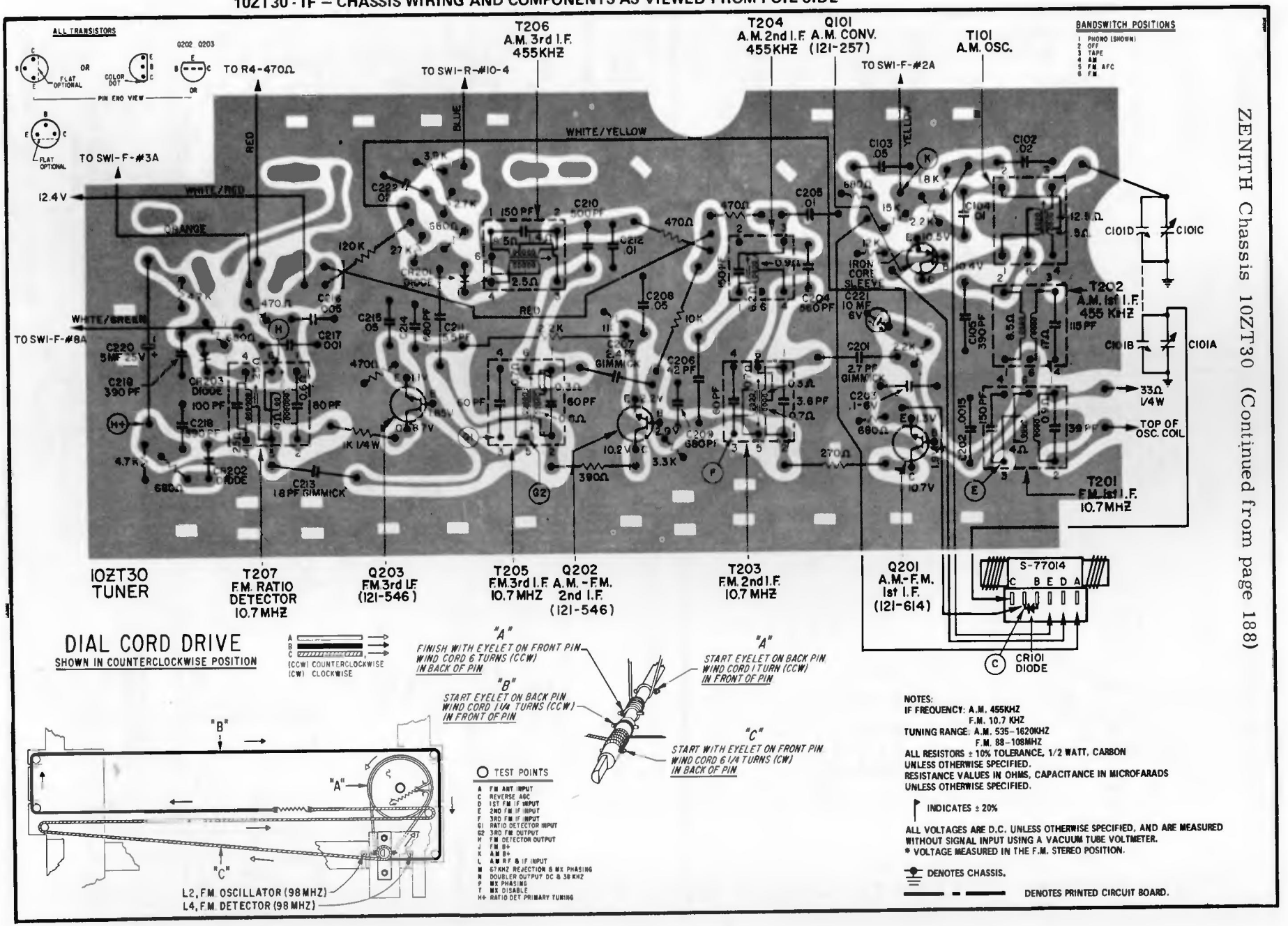


10ZT30 – SCHEMATIC

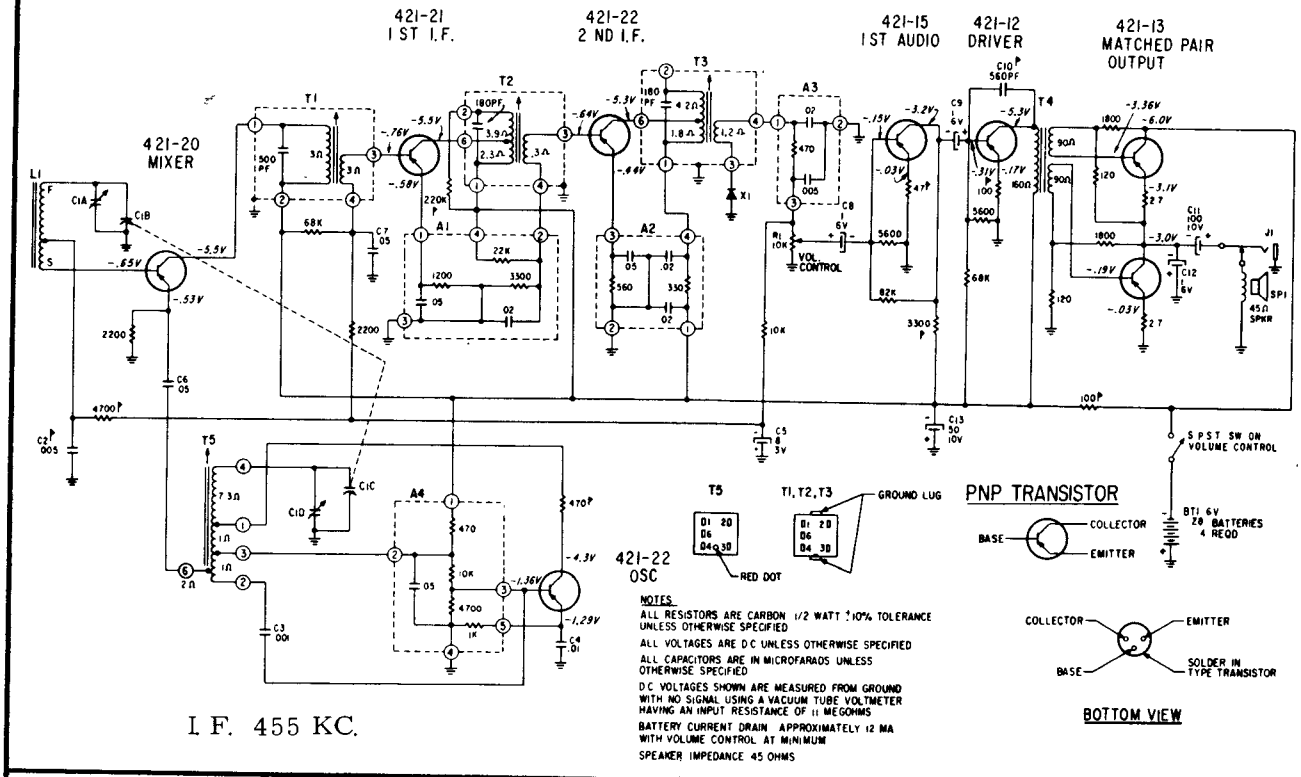


CHASSIS LAYOUT

10ZT30 - IF – CHASSIS WIRING AND COMPONENTS AS VIEWED FROM FOIL SIDE



ZENITH Chassis 8NT46Z9, Models "Royal 270"



NOTES

ALL RESISTORS ARE CARBON 1/2 WATT ±10% TOLERANCE UNLESS OTHERWISE SPECIFIED

ALL VOLTAGES ARE D.C. UNLESS OTHERWISE SPECIFIED

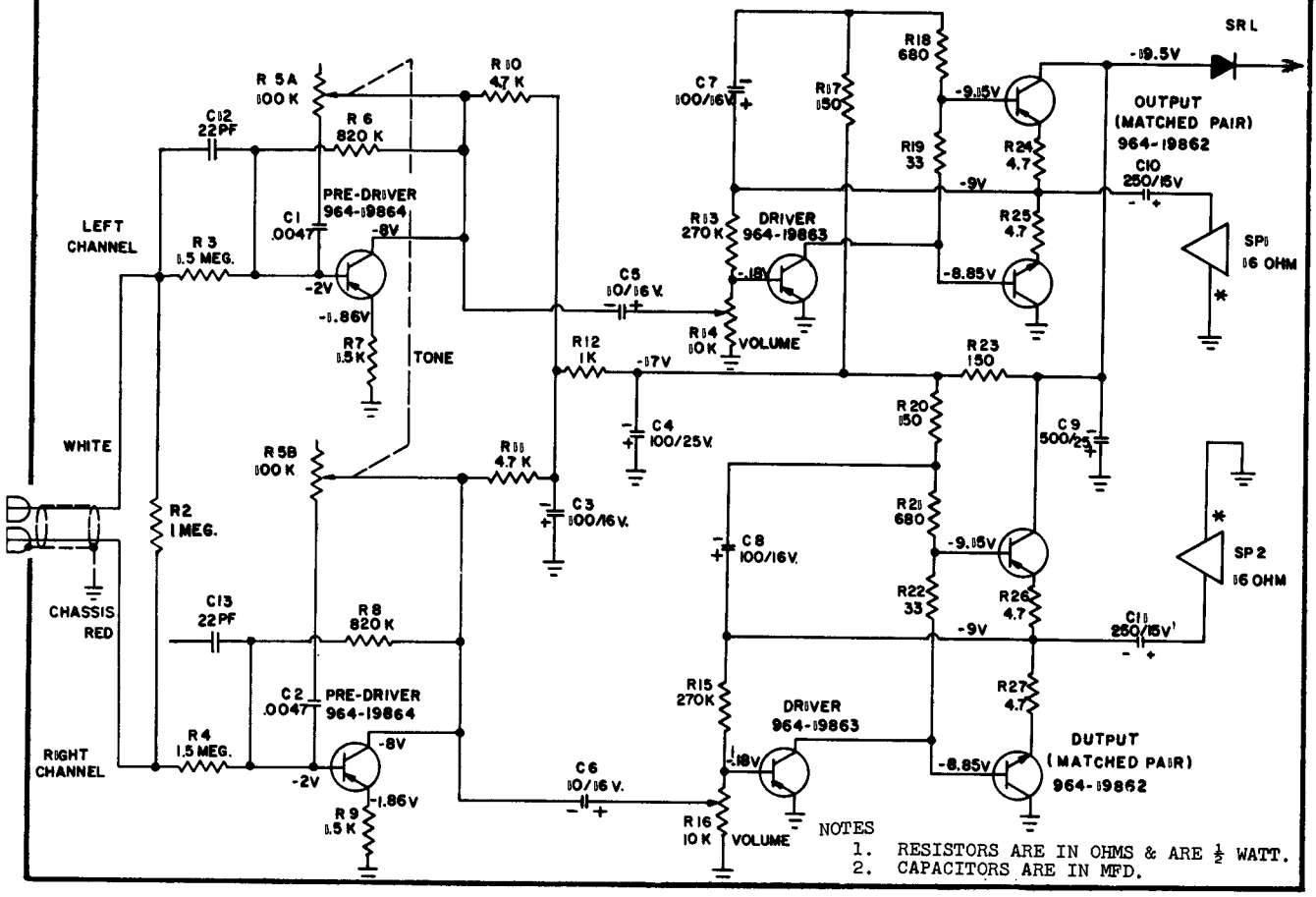
ALL CAPACITORS ARE IN MICROFARADS UNLESS OTHERWISE SPECIFIED

D.C. VOLTAGES SHOWN ARE MEASURED FROM GROUND WITH NO SIGNAL USING A VACUUM TUBE VOLTMETER HAVING AN INPUT RESISTANCE OF 11 MEGOHMS

BATTERY CURRENT DRAIN APPROXIMATELY 12 MA WITH VOLUME CONTROL AT MINIMUM

SPEAKER IMPEDANCE 45 OHMS

ZENITH Models X540G-1, 540L-1, X547P-1, 547X-1



NOTES

1. RESISTORS ARE IN OHMS & ARE ½ WATT.
2. CAPACITORS ARE IN MFD.

To PWR. TRANS

Index

(INDEX continued)