

*Most - Often - Needed*

1946

RADIO  
DIAGRAMS

*and Servicing Information*

Compiled by

M. N. BEITMAN



*Supreme Publications*

PUBLISHERS OF RADIO BOOKS AND DIAGRAM MANUALS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## INDEX

Admiral Radio		Crosley (cont'd)		Espey (continued)	
3A1	7	56TW-L	26-27	642	42
4A1	8-9	66CA	28-29	651	43
5B1	10-11	66CP	28-29	652	43
6A1	12-13	66CQ	28-29	653	43
6EI	6	66TA	30-31	6511	43
6EIN	6	66TC	30-31	6514	43
		66TW	30-31	6516	43
Airline				6520	43
see Montgomery		Detrola		6521	43
		see Internation		6522	43
Allied Radio Corp.				6531	43
5A-150	16	DeWald Radio Mfg.		6532	43
5A-152	16	A500	32	6533	43
5A-154	16	A501	32		
5A-163	16	A502	32	Fada Radio	
6A-122	14	A503	32	605	44
6A-127	15	A504	33	609	44
		A505	33	652	45
Arvin		A602	32	1000	46
see Noblitt-Sp.		A603	32		
				Farnsworth	
Automatic Radio		Emerson Radio		ET-064	47
601	17	501 to 504	34	ET-065	47
602	17	505	35	ET-066	47
611	17	506	36	C-152	48
612X	18	507	37-38	C-153	48
640	17	508	39	C-158	47
660	18	509	37-38	C-159	47
670	18	510	34	C-162	48
		518	37-38	EC-260	48
Belmont Radio		519	34	EK-262	48
4B17	19	520	34	EK-263	48
6D111	20	522	37	EK-264	48
		523	35	EK-265	48
Continental Radio		120000	34		
see Admiral		120002	35	Feiler Engineering	
		120003	36	TS-2	157
Coronado		120004	37		
43-8351	50	120005	37-38	Galvin Mfg. Co.	
43-8352	50	120008	39	HS-2	81
		120029	34	5A1	77
Crosley Corp.		120030	34	5A5	79
46FA	21	819003	40-41	HS-6	77
46FB	21	Record Changer	40	HS-8	78
56FA	22-23			AS-13	80
56FB	22-23	Espey Mfg. Co.		AS-14	82
56TA	24-25	FJ-91	42	AS-15	83
56TC	24-25	FJ-91A	42	HS-15	79
56TW	24-25	FJ-97	43	45B12	78
56TA-L	26-27	621	42	65X11	81
56TC-L	26-27	641	42	65X12	81

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Galvin (continued)

65X13	81
405	80
505	82
605	83

## Gamble-Skogmo

43-8351	50
43-8352	50

## Garod Radio

5A2	51
5D	52
6AUL	52

## General Electric

100	53
101	53
103	53
105	53
321	49

## Hamilton Radio

6-501	88
6-502	88
6-503	88
6-504	88
6-504L	88
6-617	89

## Hoffman Radio Corp.

100	54
101S	54
102	54
103	54
A200	54
A301	54
A302	54
A401	54

## Howard Radio Co.

901	55
-----	----

## International Det.

554	56-57
568	58
571A	60-61
571B	60-61
571X	59
572	62
576	63
579	64
626A	65
626B	65

## Knight

see Allied Radio

## Lear, Inc.

561	66
562	66
563	66

## Majestic Radio

5A410	69
5A430	69
7S433	70
7S450	70
7S470	70
4501	69
4504	69
4702	70
4703	70

## John Meck Indust.

RC-505	67
RC-505-A	67
RC-505-B	67
RC-505-C	67
RC-505-CL	68
RC-505-DL	68

## Montgomery Ward

54BR-1501A	72
54BR-1502A	72
54BR-1503C	73
54BR-1504C	73
54BR-1505A	71
54BR-1506A	71
54WG-1801A	76
54WG-2007A	76
64BR-1051A	74
64WG-1804A	75

## Motorola

HS-2	81
5A1	77
5A5	79
HS-6	77
HS-8	78
AS-13	80
AS-14	82
AS-15	83
HS-15	79
45B12	78
65X11	81
65X12	81
65X13	81
405	80

## Motorola (cont'd)

505	82
605	83

## National Co.

NC-46	84-85
-------	-------

## Noblitt-Sparks

RE-200	87
RE-201	86
444	87
444-A	87
544	86
544-A	86

## Olympic Radio

6-501	88
6-502	88
6-503	88
6-504	88
6-504-L	88
6-617	89

## Packard-Bell Co.

5FP	90
551	90
651	91

## R.C.A. Mfg. Co.

Q22A	92-93
Q32	92-93
CV-42	97
52E	94
52HE	94
54B1	95
54B1-N	95
54B2	95
54B3	95
55AU	96
55F	97
55U	96
56X	98
56X2	98
56X3	98
56X5	99
56X10	99
56X11	100
58AV	101-102
58V	101-102
59AV1	103-104
59V1	103-104
61-1	98
61-2	98
61-3	98

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## R.C.A. (continued)

61-5	99
61-6	105
61-7	105
61-10	99
RC-507	92-93
RC-589	95
RC-594D	105
RC-604	101-102
RC-605	103-104
RC-1004E	97
RC-1011	98
RC-1017	96
RC-1023	99
RC-1023A	100
960001-1	106-115
960001-2	106-115
960001-3	106-115
Record Changer	106-115

## Sears, Roebuck

101.660-1A	116
101.662-2B	117
101.662-2D	118
101.800	119
101.801	120
132.818	121
139.150	122

## Sentinel Radio

1U-284I	123-124
1U-284NA	123-124
1U-284NI	123-124
1U-284W	123-124
1U-293I	129
1U-293T	129
1U-293W	129
1U-294I	130-131
1U-294T	130-131
1U-294W	130-131
284I	123-124
284NA	123-124
284NI	123-124
284W	123-124
285P	125-126
IU-285P	125-126
289T	127-128
293I	129
293T	129
293W	129
294I	130-131
294N	130-131
294T	130-131

Signal Tracers 157

## Sonora Radio

RDU	132
RX	133
RY	133

## Sparks-Withington

5-06	134
------	-----

## Stewart-Warner

61T16	135-136
61T26	135-136
9000-B	137-138
9002-A,B	139-140
9002-P,R	139-140
9005-A,B	141-142
9007-A	143-144
9007-F,G	143-144
9009-B	145-146
9014-E	147-148

## Stromberg-Carlson

1020	151-152
1100	149-150
1120	151-152

## Superior Instrum.

CA-11	157
-------	-----

## Trav-ler Radio

102	153
500	154
501	154
600	154
5002	153
7000	154
7001	154
7003	154
7005	154

## Truetone

see Western Auto

## Warwick Mfg. Co.

C100	155
C101	155
C104	155
C105	155
C108	156

## Wells-Gardner

37D14-600	158
-----------	-----

## Western Auto

4B19	164
5D116, -120	162
6D110	161

## Western Auto, cont.

D-2604	160
D-2610, -11	162
D-2615	161
D-2620	163
D-2661	164
D-3635	165

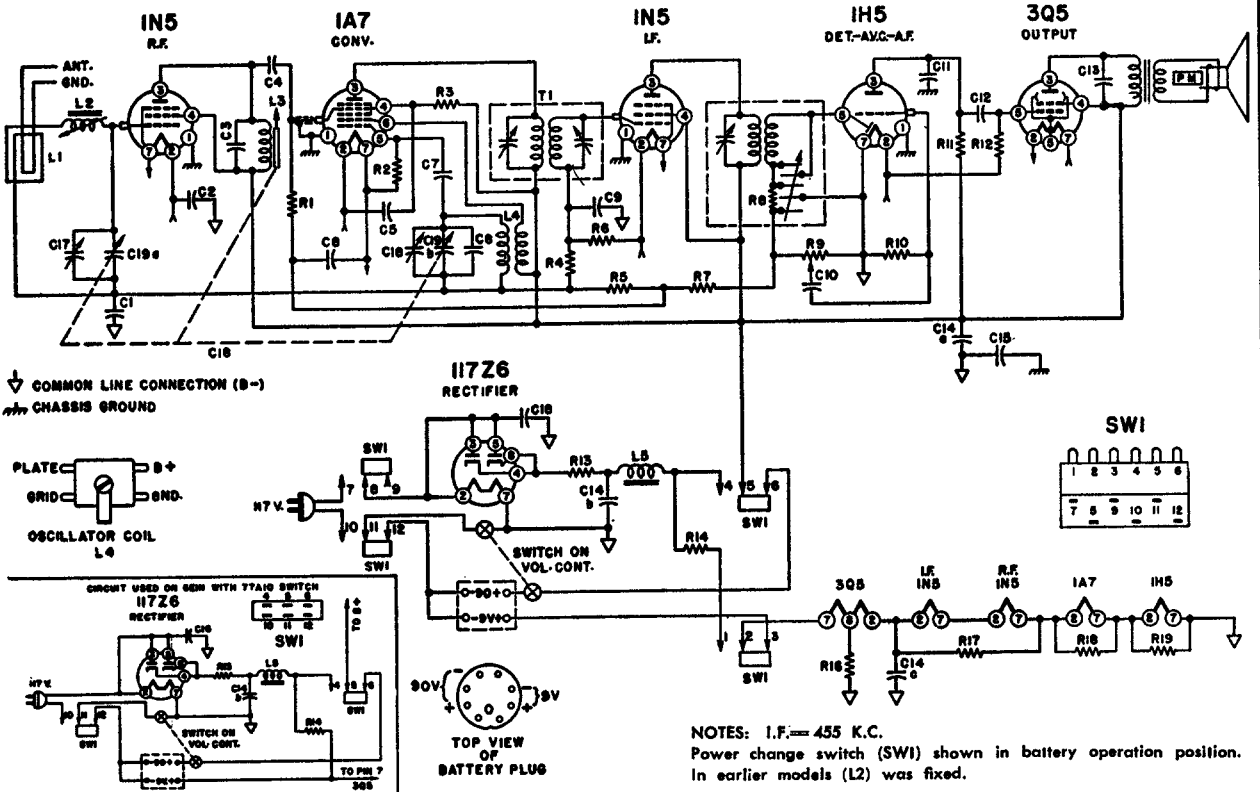
## Westinghouse Elec.

H-122	167
H-125, H-126	166
H-130	167

## Zenith Radio Corp.

4C52	168-169
4C53	168-169
4K016	168-169
4K035	168-169
5C01	170-171
5C02	172-173
5C04	172-173
5D011	170-171
5D027	170-171
5R080	172-173
5R086	172-173
6C05	174-175
6C21	176-177
6C22	178-179
6C23	180-181
6C40	182-183
6D015	174-175
6D030	174-175
6G001	182-183
6R060	180-181
6R084	176-177
6R087	178-179
8C20	184-186
8C21	187
8C40	188-189
8G005	188-189
8H032	184-186
8H033	184-186
8H050	184-186
8H051	184-186
8H052	184-186
9H079	187
9H081	187
9H082	187
9H085	187
9H088	187
11C21	190-192
12H090	190-192
12H091	190-192
12H092	190-192
12H093	190-192
12H094	190-192

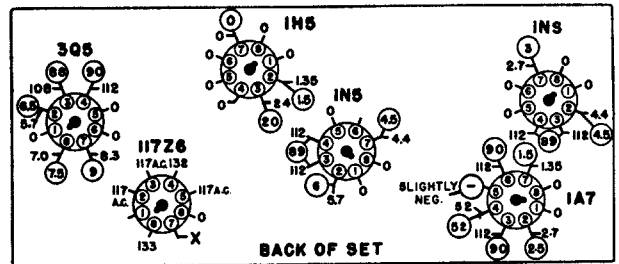
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



## VOLTAGE DATA

1. Voltage readings circled (O) are for Battery Operation.
2. All reading made between Tube Socket Terminals and Terminal No. 7 on the 117Z6 (Point (X) on Voltage Chart).
3. A.C. Voltages measured on a 117 Volt A.C. line.
4. Battery Voltages measured with a fresh battery.
5. Dial turned to low frequency end, no signal.
6. All Voltages measured with a 1000 ohm per volt meter.

## VOLTAGE CHART



## REPLACEMENT PARTS

### CONDENSERS

Symbol	Description	Part No.
C1	.05 Mfd. 200 Volt Paper	64B1-32
C2	.25 Mfd. 200 Volt Paper	64B1-28
C3	.00042 Mfd. Mica	65B1-9
C4-C11	.00025 Mfd. Mica	65B5-22
C5, C6, C9, C10, C12	.01 Mfd. 400 Volt Paper	64B1-25
C7	.00005 Mfd. Mica	65B5-11
C8	.000015 Mfd. Mica	65B5-3
C13	.002 Mfd. 600 Volt Paper	64B1-9
C14a	50 Mfd. 150 Volt } Elect.	67C7-42
C14b	30 Mfd. 150 Volt } Cond.	
C14c	100 Mfd. 25 Volt } Cond.	
C15	.2 Mfd. 400 Volt Paper	64A2-1
C16	.05 Mfd. 400 Volt Paper	64B1-22
C17	Antenna Trimmer	66A12-5
C18	Oscillator Trimmer (Part of Gang)	68B4
C19 { C19a } C19b	Condenser Gang	68B4

### RESISTORS

R1	100,000 Ohms 1/2 Watt Carbon	60B8-104
R2	220,000 Ohms 1/2 Watt Carbon	60B8-224
R3	47,000 Ohms 1/2 Watt Carbon	60B8-473
R4, R5	4.7 Megohms 1/2 Watt Carbon	60B2-475

### RESISTORS

Symbol	Description	Part No.
R6	4.7 Megohms 1/2 Watt Carbon	60B2-475
R7	3.3 Megohms 1/2 Watt Carbon	60B2-335
R8	50,000 Ohms 1/2 Watt Carbon	60B8-503
R9	1 Megohm Volume Control	75B1-100
R10	15 Megohms 1/2 Watt Carbon	60B2-156
R11	1 Megohm 1/2 Watt Carbon	60B2-105
R12	2.2 Megohms 1/2 Watt Carbon	60B2-225
R13	22 Ohms Wire Wound 1/2 watt	61A2-2
R14	2,450 Ohms Wire Wound 5 watt	61A3-5
R16	1,500 Ohms 1/2 Watt Carbon	60B8-152
R17	560 Ohms 1/2 Watt Carbon	60B8-561
R18	220 Ohms 1/2 Watt Carbon	60B8-221
R19	120 Ohms 1/2 Watt Carbon	60B8-121

### COILS & TRANSFORMERS

L2	Coil, Loop Loading, (fixed) (early)	AA114
	Coil, Loop Loading, (variable) (late)	AA115
L3	Iron Slug for plate coil	71B1-3
	Coil, Plate	70A1-30
L4	Oscillator Coil	69A7
L5	Choke Filter	74A5
T1	1st I.F. Transformer	72B9-2

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CHASSIS—6E1-6EIN

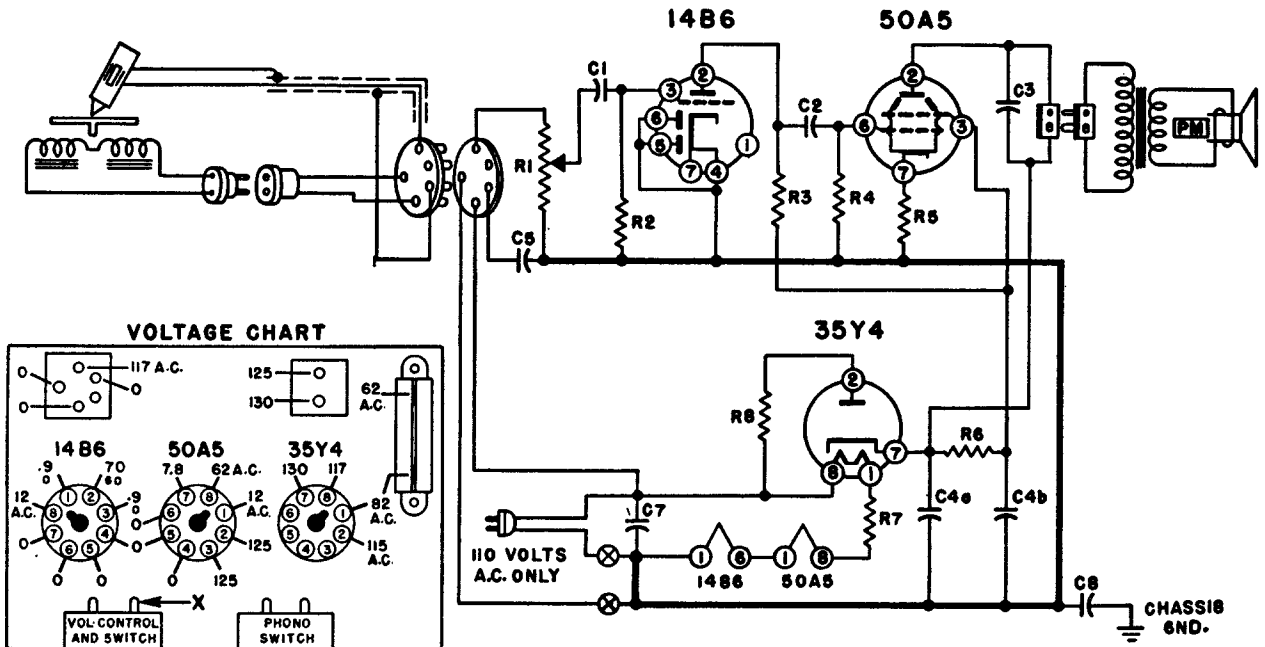
6

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## Admiral

### CHASSIS-3A1



## REPLACEMENT PARTS

PAPER CONDENSERS		
Part No.	Symbol	Description
64B1-12	C1	.005 Mfd. 600 V.D.C.
64B1-25	C2	.01 Mfd. 400 V.D.C.
64B1-24	C3	.02 Mfd. 400 V.D.C.
64B1-20	C5 & C6	.1 Mfd. 400 V.D.C.
64B1-22	C7	.05 Mfd. 400 V.D.C.

ELECTROLYTIC CONDENSERS		
Part No.	Symbol	Description
67A10	{ C4A C4B	50 Mfd. 150 V. 30 Mfd. 150 V.

RESISTORS		
Part No.	Symbol	Description
60B8-106	R2	10 Megohms 1/2 Watt
60B8-274	R3	270,000 ohms 1/2 Watt
60B8-474	R4	470,000 ohms 1/2 Watt
60B14-151	R5	150 ohms 1 Watt
60B14-152	R6	1,500 ohms 1 Watt
61A3-4	R7	130 ohms 5 Watt
60B14-330	R8	33 ohms 1 Watt

VARIABLE RESISTORS		
Part No.	Symbol	Description
75B1-9	R1	1 Megohm Volume Control & Switch

MISCELLANEOUS	
Part No.	Description
34D3-15	Cabinet (Bottom part only) for 6RP48 (Ivory Plastic)
34D3-12	Cabinet (Bottom part only) for 6RP48 (Mahogany Plastic)
34D3-13	Cover for Cabinet, for 6RP48 (Ivory Plastic)
34D3-10	Cover for Cabinet, for 6RP48 (Mahogany Plastic)
37A7-1	Cover Support (Mahogany)
37A7-2	Cover Support (Ivory)
12A3-3	Feet, Rubber
23D2-2	Grill, Speaker (Ivory)
23D2-4	Grill, Speaker (Mahogany)
33A11-1	Knob, On-Off
33A11-2	Knob, Volume
88A8-1	Plug for A.C. Motor (2 prong)
88A3-5	Plug for Phono Input (5 prong)
88A3-4	Cover for 5 prong Plug

MISCELLANEOUS (Cont'd)	
Part No.	Description
88A5-4	Plug for Speaker (2 prong)
88A5-1	Cover for Speaker Plug
88A8-2	Socket for A.C. Motor (2 prong)
87A4-4	Socket for Phono Input (5 prong)
88A5-6	Socket for Speaker (2 prong)
87A12-1	Socket, Tube
78B9-2	Speaker and Output Transformer Output Transformer. (When ordering, specify all of the numbers on the transformer and speaker.)
77A5-2	Switch, On-Off (Phono)

PHONOGRAPH PARTS	
(See Record Changer Service Manual for Detailed List.)	
G400A12	Centerpost
409A1	Crystal Cartridge
G400A23	Idler Wheel (407B3 Motor)
G400A52	Idler Wheel (407B2 Motor)
G400A53	Idler Wheel (407B1 Motor)
407B3	Motor, 60 cycle 115 volt, A.C. (Types 407B1 & 407B2 also used.)

### VOLTAGE DATA

Voltage measured from socket terminal to point marked "X". Large numerals indicate readings with vacuum tube voltmeter. Small numerals indicate readings with 1000 ohm-per-volt meter.

\* \* \*

### POWER SUPPLY

Operation on 110-120 volts, 60-cycles, alternating current only. Power consumption: 45 watts.

### RECORD CHANGER

Complete service information and parts list are covered by a separate service manual. Check record changer for model number since different record changers may be used from time to time.

RESISTORS			CONDENSERS		
SYMBOL	OHMS	WATTS	SYMBOL	CAPACITY	VOLTS
R1	1,000,000	V. C.	C1	.005 Mfd.	600
R2	10,000,000	1/2	C2	.01 Mfd.	400
R3	270,000	1/2	C3	.02 Mfd.	400
R4	470,000	1/2	C4a	50. Mfd.	150
R5	150	1	C4b	30. Mfd.	150
R6	1,500	1	C5	.1 Mfd.	400
R7	130	5	C6	.1 Mfd.	400
R8	33	1	C7	.05 Mfd.	400

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# 7

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

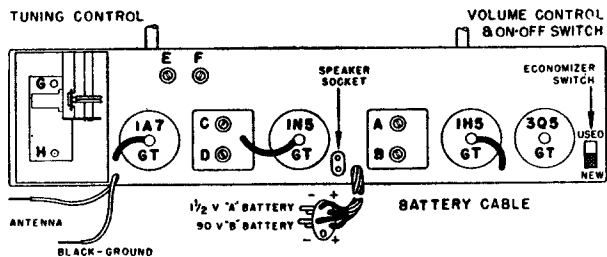
## ALIGNMENT PROCEDURE

1. IMPORTANT—Check to see that dial pointer reaches each end of dial scale when Station Selector Control is turned from one end to the other.
2. Volume control—Maximum for all adjustments.
3. Connect radio chassis to ground post of signal generator with a short heavy lead.
4. Connect output meter across voice coil of speaker.
5. Connect dummy antenna value in series with generator output lead, when needed (see below).
6. Allow chassis and signal generator to "heat up" for several minutes.
7. Use lowest Output setting of Signal Generator capable of producing adequate Output Meter indication and then proceed in the following sequence.

BAND	SIGNAL GENERATOR		Connection to Radio	Receiver Dial Setting	Trimmers Adjusted (In Order Shown)	Trimmer Function	Type of Adjustment
	Frequency Setting	Dummy Antenna					
I.F.	455 KC.	.1 mfd.	Grid of 1A7 (Cap)	High Frequency end of dial	C-D—2nd I.F.	Output I.F.	Adjust to maximum output
I.F.	455 KC.	.1 mfd.	Grid of 1A7 (Cap)	High Frequency end of dial	A-B—1st I.F.	Input I.F.	Adjust to maximum output
Broad-cast	1630 KC.	.00025 mfd. Mica	Antenna Lead	High Frequency end of dial	E-(See note below) F-(See note below)	Oscillator Antenna	Adjust to maximum output
Broad-cast	1300 KC.	.00025 mfd. Mica	Antenna Lead	1300 KC.	G H	Oscillator Antenna	Adjust to maximum output

NOTE: Before adjusting trimmers "E" and "F," make sure that each iron core is  $1\frac{1}{8}$ " or more outside of its coil form. If necessary, turn adjustments "G" and "H" to accomplish this.

### TUBE AND TRIMMER LOCATION



### CIRCUIT

Battery operated 4 Tube Superheterodyne with Single Tuning Range 535 KC. to 1630 KC. Covers standard broadcast band, using antenna and ground. Permeability tuning on Ant. and Osc. circuits. I.F. 455 KC.

### POWER SUPPLY

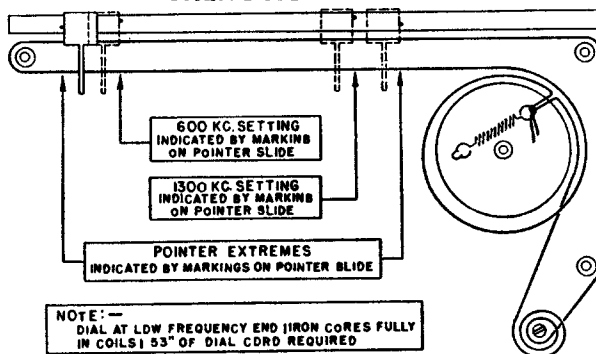
Single unit "AB" battery pack. 90 volt "B"  $1\frac{1}{2}$  volt "A." Plug in connection. Use Ensign AB48, Burgess 17G-D60, Eveready 748, General 60DL-11L, Ray-O-Vac AB-82, or Bond 0528 Battery or Equivalent.

### ECONOMIZER SWITCH

The battery economizer switch is located on the top of the chassis, right side.

Always have this Economizer Switch in the "NEW" battery position when first placing radio in operation or when installing a new battery.

### STRINGING DIAGRAM

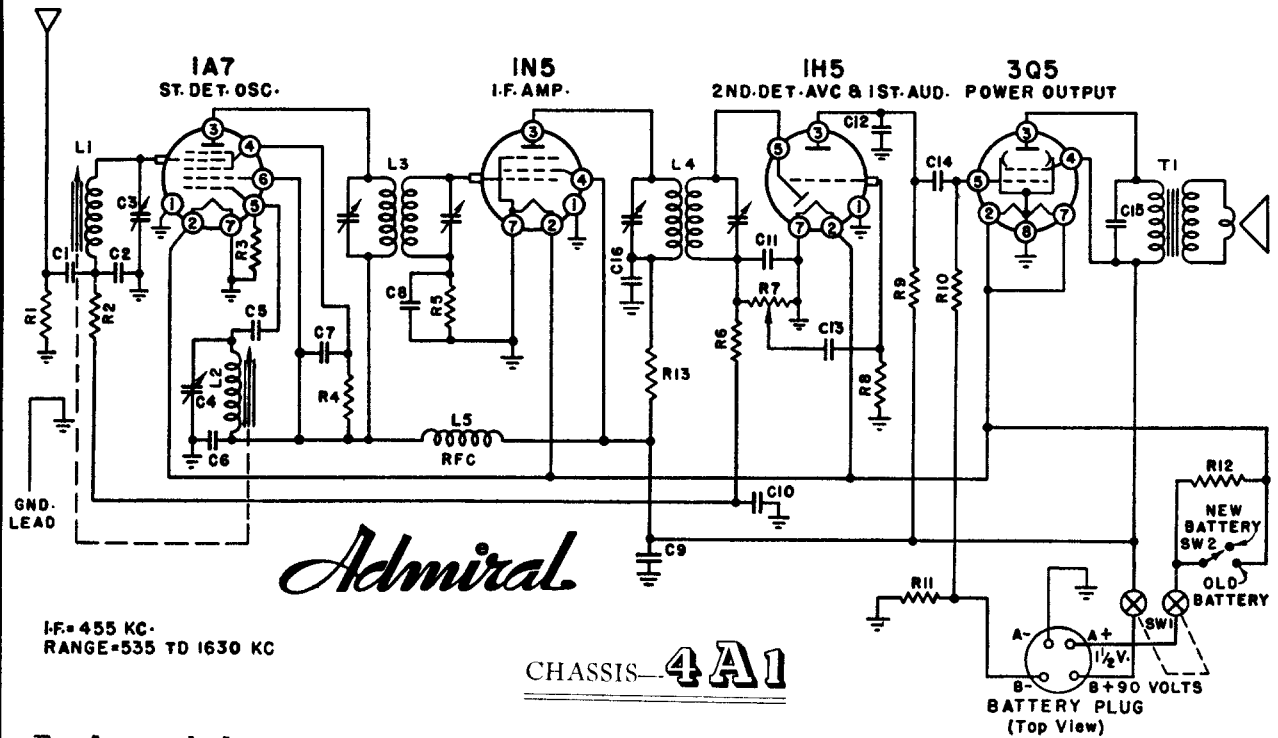


# 8

**4A1**—CHASSIS  
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*Admiral*

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## REPLACEMENT PARTS

### CONDENSERS

Symbol	Description	Part No.
C15	.002 mfd. 600 Volt	64B1-14
C1, C7	.005 mfd. 600 Volt	64B1-12
C10	.01 mfd. 400 Volt	64B1-25
C5	.05 mfd. 300 Volt	64B1-32
C11, C12	.0001 mfd.	65B7-17
C2, C6	.00025 mfd.	65B7-22
C8	.0008 mfd.	64B5-31
C9	4. mfd. 150 Volt	67A4-2
C3, C4	Dual trimmer	66A9-1
C13, C16	.01 mfd. 400 Volt	64B1-25

### RESISTORS

Symbol	Description	Part No.
R12	.75 ohm 1/4 w (wire)	61A2-1
R11	390. ohm 1/4 w	60B2-301
R13	2200 ohm 1/4 w	60B2-222
R1	15,000 ohm 1/2 w	60B8-153
R4	33,000 ohm 1/2 w	60B8-333
R3	220,000 ohm 1/2 w	60B8-224
R2	470,000 ohm 1/4 w	60B2-474
R9, R10	1,000,000 ohm 1/4 w	60B2-105
R6	2,200,000 ohm 1/4 w	60B2-225
R5, R8	4,700,000 ohm 1/4 w	60B2-475

### TRANSFORMERS and COILS

Symbol	Description	Part No.
L1	Antenna Coil	AC105-1
L2	Oscillator Coil	AB104-4
L3	1st I.F. Transformer	72B5
L4	2nd I.F. Transformer	72B6
L5	Choke Coil (RF)	AB103-1
T1	Output Transformer (specify full speaker part no. including mfg. code when ordering.)	

### MISCELLANEOUS

Description	Part No.
Background, Dial	22C5-1
Cabinet, R643-W	35C25
Cable, Battery (complete with plug)	A1026
Cap. Grid	90A1-4
Cord, Dial (5" on tuner). (5 3/4" on dial drive)	50A1-1
Drum and Hub, Tuning	A1035
Escutcheon	23A8-1
Iron Core, with wire (Osc.)	71B1-3
Iron Core, with wire (Ant.)	71B1-4
Knob	A1028
Permeability Tuner Assembly, complete	33A7-2

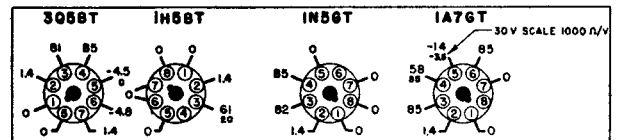
### MISCELLANEOUS

Description	Part No.
Plug, Battery 5 Prong	88A4-4
Pointer, Dial	25A9-1
Pulley, Fibre Dial	17A1-3
Scale, Glass Dial	21B13
Screw studs (for iron cores)	27A4
Shield, Tube	87A8
Shaft, Tuning	28A11-1
Shaft and pulley (Tuner)	A1040
Socket, octal tube	87A10-2
Speaker and output Transformer (specify all numbers appearing on Output Trans. as well as speaker when ordering.)	78B5
Spring, Dial Drum Cord Tension	19A1-3
Spring, Tuner slide cord tension	19A1-4
Spring, Tuner slide pressure	18A1
Spring, Tuner, front bearing takeup	19A5
Spring, Tuner, back bearing takeup	19A6
Spring, Hairpin (To hold Ant-Osc. coils)	19A3-1
Switch, SPST (Economizer) SW2	88A1-6
Terminal, Tuner slide cord	9A8-1
Washer, C	4A4-1
Washer, spring (shaft)	4A6-3-0
Washer, spring (coils)	4A6-5-0

### VOLTAGE DATA

All readings made between tube socket terminals and chassis. Voltages indicated have been obtained using a Vacuum Tube Voltmeter. A second voltage reading is shown made with a 1000 ohm per voltmeter, when use of this instrument would result in appreciably lower readings. Measured with a fresh battery, volume control full on, dial at the high frequency end, no signal.

### VOLTAGE CHART

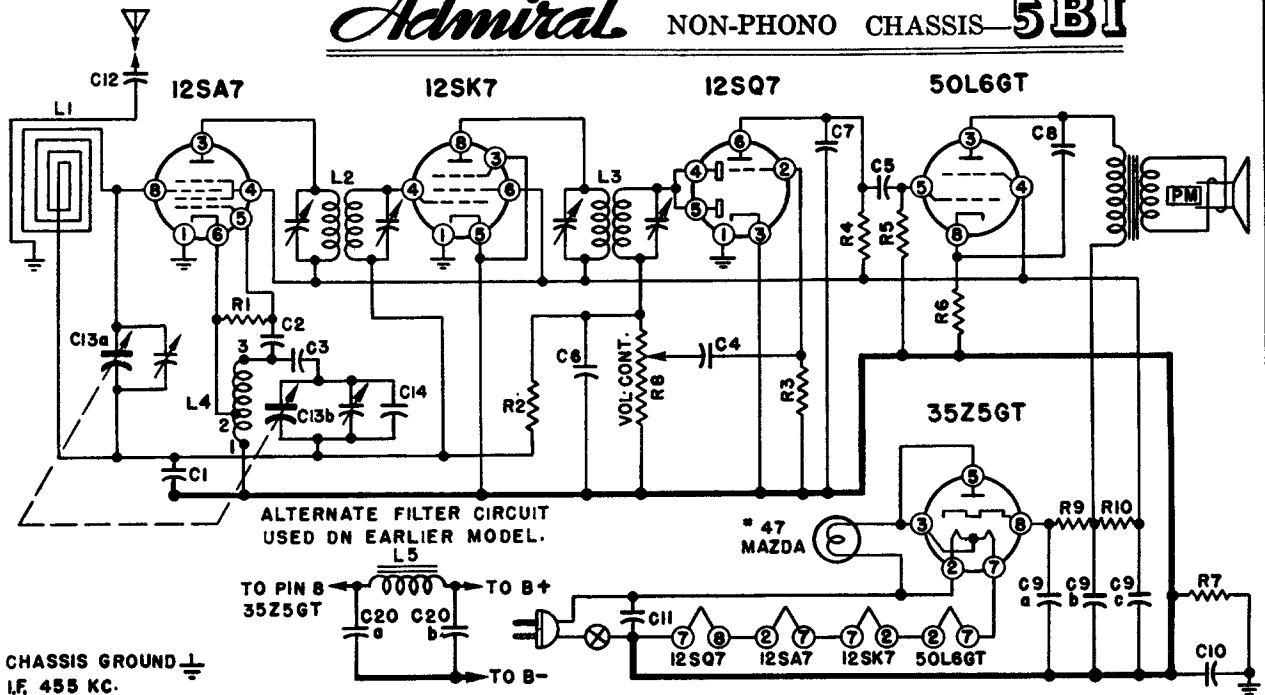


BACK OF CHASSIS



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

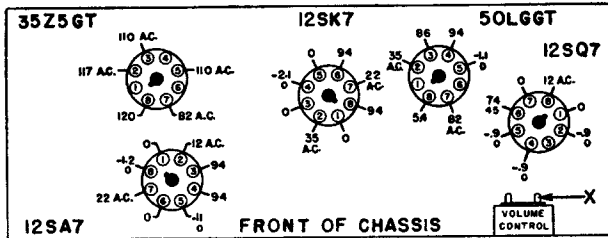
## Admiral NON-PHONO CHASSIS-5BI



NOTE: 1. In later production R9 and C9a are disconnected from pin No. 8 of the 35Z5 and a 33-ohm 1-watt resistor (R11) is connected between pin No. 8 and the junction of R9 and C9a.

2. The jumper between pins 4 and 5 on the 12SQ7 is removed and one pin is connected to the secondary of the second I.F. (L3) and the other pin is connected directly to the junction point of R2 and secondary of the 1st I.F. (2).

### VOLTAGE DATA:—



Bottom View of Chassis, Showing Voltages

- All readings made between Tube Socket Terminals and Switch Lug on volume control (Point "X" on drawing).
- Measured on a 117 Volt A.C. line.
- Volume control full on.
- Dial tuned to low frequency end, no signal.
- Voltages indicated obtained on Vacuum Tube voltmeter.
- A second voltage reading is shown made with a 1000 ohm-per-volt meter when use of this instrument would result in appreciably lower readings.

### POWER SUPPLY:—

110-120 Volts A.C. or D.C. U.L. approved.  
Frequency—50 to 60 cycles  
Power consumption—30 watts

### CONDENSERS

Symbol	Capacity	Type
C1	.1	mfd. 200 V.
C2	.00005	mfd. Mica
C3	.02	mid. 400 V.
C4	.01	mfd. 400 V.
C5	.01	mfd. 400 V.
C6	.00025	mfd. Mica
C7	.0005	mfd. Mica
C8	.02	mfd. 400 V.
C9a	.50	mfd. (Elect.) 150 V.
C9b	.30	mfd. (Elect.) 150 V.
C9c	.20	mfd. (Elect.) 150 V.
C10	.2	mfd. 400 V.
C11	.05	mfd. 400 V.
C12	.005	mfd. 600 V.
C13a	.00042	mfd. (max.) Var.
C13b	.00018	mfd. (max.) Var.
C14	.00002	mfd. Mica
C20a	.30	mfd. (Elect.) 150 V.
C20b	.50	mfd. (Elect.) 150 V.

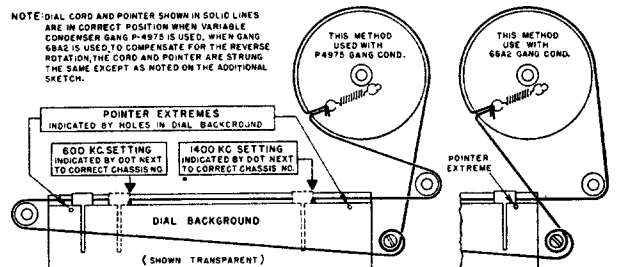
### RESISTORS

Symbol	Resistance	Type
R1	22,000 ohms	C $\frac{1}{2}$ W
R2	470,000 ohms	C $\frac{1}{2}$ W
R3	10 meg ohms	C $\frac{1}{2}$ W
R4	220,000 ohms	C $\frac{1}{2}$ W
R5	470,000 ohms	C $\frac{1}{2}$ W
R6	150 ohms	C $\frac{1}{2}$ W
R7	150,000 ohms	C $\frac{1}{2}$ W
R8	1 meg ohm	Volume Control
R9	150 ohms	C1W
R10	1,000 ohms	C1W
R11	33 ohms	C1W

### COILS

Symbol	Description
L1	Loop
L2	1st I. F. Trans.
L3	2nd I. F. Trans.
L4	Osc. Coil
L5	Choke, Filter

NOTE: DIAL CORD AND POINTER SHOWN IN SOLID LINES ARE IN CORRECT POSITION WHEN VARIABLE CONDENSER GANG P-4975 IS USED. WHEN GANG 66A2 IS USED TO COMPENSATE FOR THE REVERSE ROTATION, THE CORD AND POINTER ARE STRUNG THE SAME EXCEPT AS NOTED ON THE ADDITIONAL SKETCH.



# 10

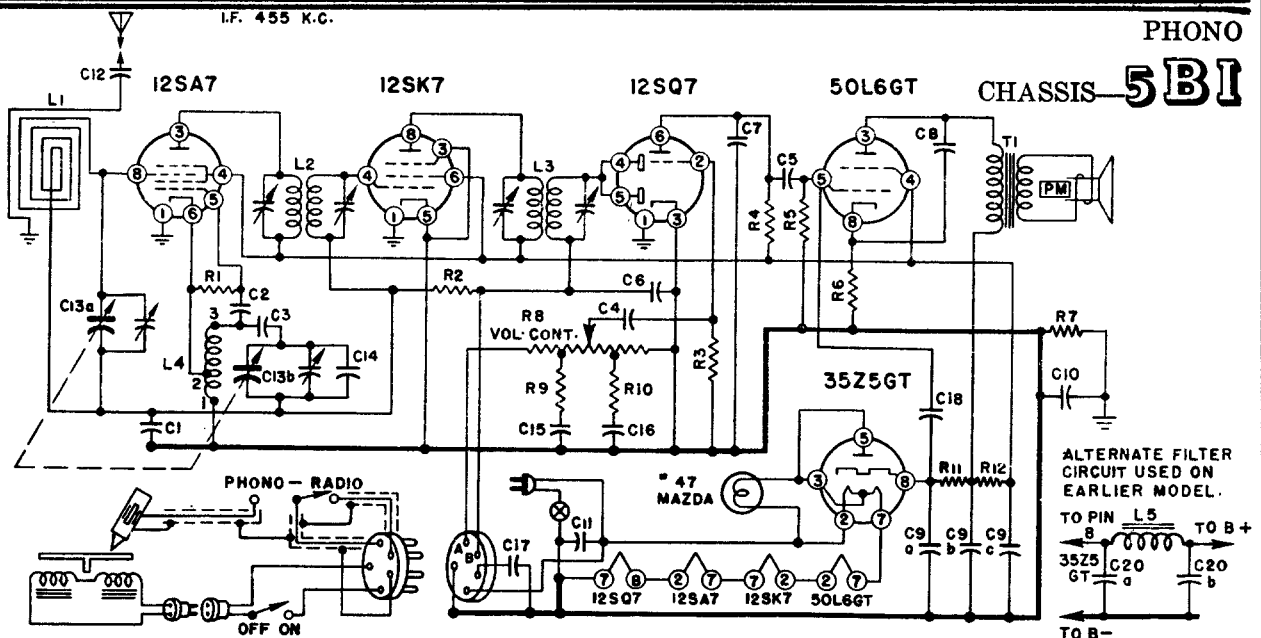
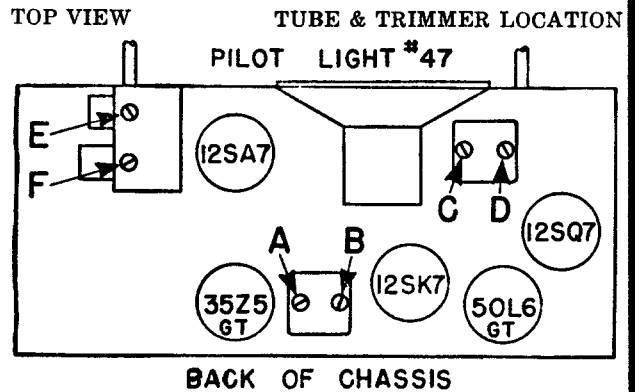
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## 5BI—CHASSIS NON-PHONO *Admiral*

Connect Signal Generator to—	Dummy Antenna Between Radio and Generator	Set Generator Frequency to—	Set Receiver Dial Frequency to—	Adjust Following Trimmers	Type of Adjustment
Tuning Condenser Antenna Stator	250 mmfd. Condenser	455 KC.	High frequency end of Dial	C—D 2nd I. F. A—B 1st I. F.	Adjust to maximum Output
Tuning Condenser Antenna Stator	250 mmfd. Condenser	1630 KC.	High frequency end of Dial	E—Osc.	Adjust to maximum Output
Loop radiator (or place pickup lead from gen. close to loop of set to obtain adequate signal).	No actual connection between set and generator.	1400 KC.	Tune in generator signal	F—Ant.	Adjust to maximum Output

### ALIGNMENT PROCEDURE

1. Be sure Radio Receiver and Signal Generator are thoroughly warmed up before starting alignment procedure.
2. Check setting of Pointer Extremes and note correct 600 K.C. and 1400 K.C. positions on Dial Background. (See Dial Diagram on reverse side.)
3. Connect Output Meter across Voice Coil.
4. Turn Receiver Volume Control full on.
5. Use lowest Output setting of Signal Generator capable of producing adequate Output Meter indication and then proceed as outlined in chart below.
6. Repeat adjustments to insure final overall maximum results.



NOTE: 1. In later production R11 and C9a are disconnected from pin No. 8 of the 35Z5 and a 33-ohm 1-watt resistor (R13) is connected between pin No. 8 and the junction of R11 and C9a. In these sets, condenser C18 was deleted.

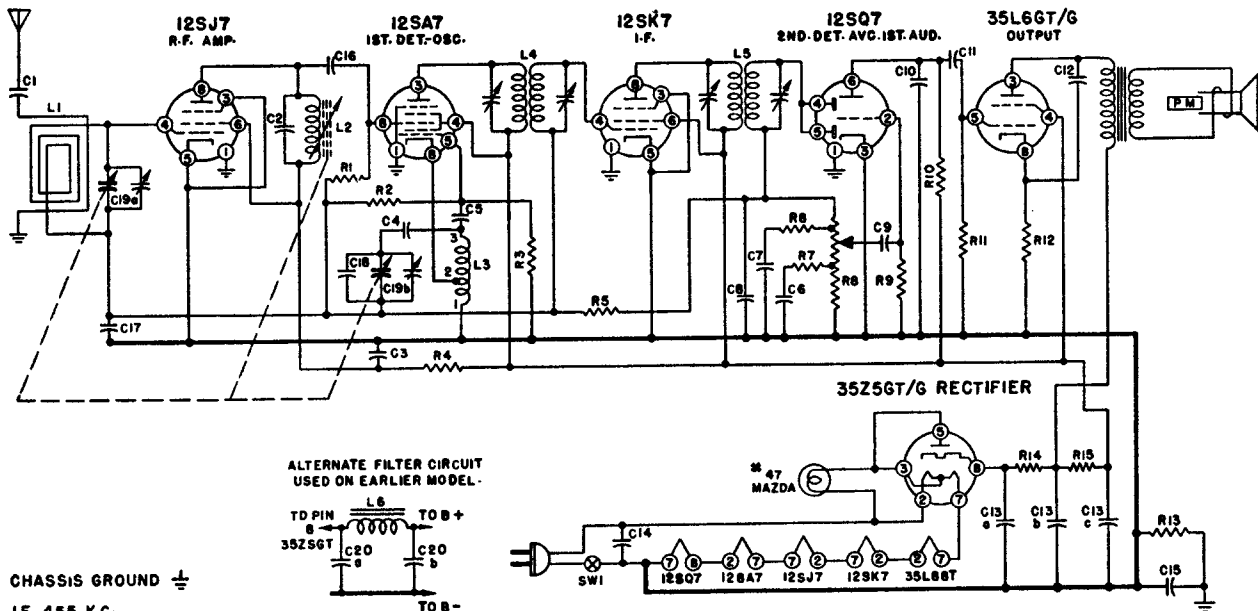
2. The jumper between pins 4 and 5 on the 12SQ7 is removed and one pin is connected to the secondary of the second I.F. (L3) and the other pin is connected directly to the junction point of R2 and the secondary of the 1st I.F. (L2).

NOTE: Connect points "A" and "B" with jumper when testing chassis with phono plug removed

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Admiral

## CHASSIS-6A1



CHASSIS GROUND  $\perp$   
I.F. 455 K.C.

NOTE: 1. In later production R14 and C13c are disconnected from pin #8 of the 35Z5 and a 33-ohm 1W resistor (R16) is connected from pin #8 to the junction of R14 and C13c. 2. The jumper between pins 4 and 5 on the 12SQ7 is removed and one pin is connected to the secondary of the second I.F. (L5) and the other pin is connected directly to the junction point of R5 and the secondary of the 1st I.F. (L4).

### CONDENSERS

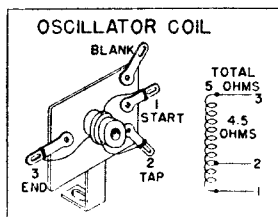
Symbol	Capacity	Type
C-1.....	.005 mfd	.....600 V.
C-2.....	.785. mmfd	.....Mico
C-3.....	.05 mfd	.....400 V.
C-4.....	.02 mfd	.....400 V.
C-5.....	.50. mmfd	.....Mica
C-6.....	250. mmfd	.....Mica
C-7.....	.01 mfd	.....400 V.
C-8.....	.01 mfd	.....400 V.
C-9.....	.01 mfd	.....400 V.
C-10.....	500. mmfd	.....Mico
C-11.....	.01 mfd	.....400 V.
C-12.....	.02 mfd	.....400 V.
C-13a.....	30. mfd	Elect.....150 V.
C-13b.....	30. mfd	Elect.....150 V.
C-13c.....	20. mfd	Elect.....150 V.
C-14.....	.05 mfd	.....400 V.
C-15.....	.2 mfd	.....400 V.
C-16.....	250. mmfd	.....Mico
C-17.....	.1 mfd	.....200 V.
C-18.....	20. mmfd	.....Mica
C-19a.....	420. mmfd	(max.)..Var.
C-19b.....	180. mmfd	(max.)..Var.
C-20a.....	30. mfd	Elect.....150 V.
C-20b.....	50. mfd	Elect.....150 V.

### COILS

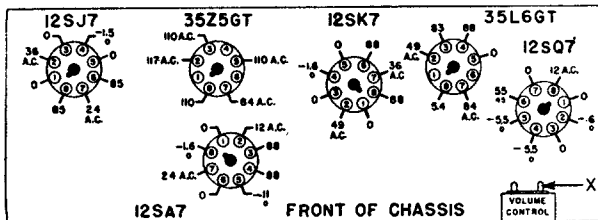
Symbol	Description
L-1.....	(Sec. 2.3 ohms).....Loop
L-2.....	(2.5 ohms).....R. F. Coil
L-3.....	.....Osc. Coil
L-4.....	.....1st I. F. Trans.
L-5.....	.....2nd I. F. Trans.
L-6.....	(325 ohms).....Choke, Filter

### RESISTORS

Symbol	Resistance	Type
R-1.....	10,000 ohms	.....C1/2W
R-2.....	10 meg ohm	.....C1/2W
R-3.....	22,000 ohms	.....C1/2W
R-4.....	100 ohms	.....C1/2W
R-5.....	1 meg ohm	.....C1/2W
R-6.....	47,000 ohms	.....C1/2W
R-7.....	27,000 ohms	.....C1/2W
R-8.....	500,000 ohm	Volume Control, (Tapped at 1/3 and 2/3 of Rotation which is 100,000 ohms and 200,000 ohms from the start, due to the taper).
R-9.....	5 meg ohm	.....C1/2W
R-10.....	270,000 ohms	.....C1/2W
R-11.....	470,000 ohms	.....C1/2W
R-12.....	150 ohms	.....C1/2W
R-13.....	150,000 ohms	.....C1/2W
R-14.....	150 ohms	.....C1W
R-15.....	1,000 ohms	.....C1W
R-16.....	33 ohms	.....C1W



### VOLTAGE DATA:—



Bottom View of Chassis, Showing Voltages.

- All readings made between Tube Socket Terminals and Switch Lug on volume control (Point "X" on drawing).
- Measured on a 117 Volt A.C. line.
- Volume control full on.
- Dial tuned to low frequency end, no signal.
- Voltages indicated obtained on Vacuum Tube voltmeter.
- A second voltage reading is shown made with a 1000 ohm-per-volt meter when use of this instrument would result in appreciably lower readings.

### CIRCUIT:—

Chassis 6A1 A.C.—D.C. 6 Tube Superheterodyne, with R.F. stage; Single tuning range, 540 Kc. to 1630 Kc., covering standard broadcast band; built-in AEROSCOPE loop antenna, with provision for connecting an external antenna.

### SPECIFICATIONS

#### POWER SUPPLY:—

110-120 Volts A.C. or D.C.  
Frequency 50-60 cycles.  
Power Consumption—30 watts.

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# 12

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## 6A1—CHASSIS

# Admiral

### DIAL DRUM POSITION

If the dial drum position is disturbed, it should be carefully re-positioned to insure correct tuning of the permeability tuned coil. When the gang condenser is fully open, the drum will be properly positioned if the center of the condenser shaft and the dial cable hole on the drum are in a straight line parallel to the chassis base. Note that the dial cable hole should be on the left side (looking at front) of the chassis.

### ALIGNMENT PROCEDURE

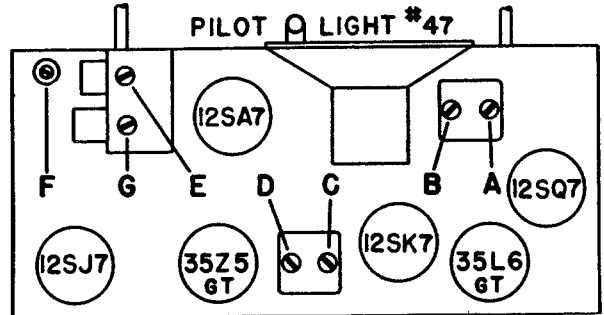
1. Be sure Radio Receiver and Signal Generator are thoroughly warmed up before starting alignment procedure.
2. Check setting of Pointer Extremes and note correct 600 K.C. and 1400 K.C. positions on Dial Background. (See Dial Diagram on reverse side.)
3. Connect Output Meter across Voice Coil.
4. Turn Receiver Volume Control full on.
5. Use lowest Output setting of Signal Generator capable of producing adequate Output Meter indication and then proceed as outlined in chart below.
6. Repeat adjustments to insure final overall maximum results.

### R. F. SLUG POSITION

If the tuned coil slug needs replacing or re-positioning, first see that the dial drum is in its proper position. Then with the threaded stud half-way through the bakelite, note that the top of the slug is flush with the top of coil form. Then re-align.

TOP VIEW

TUBE & TRIMMER LOCATION



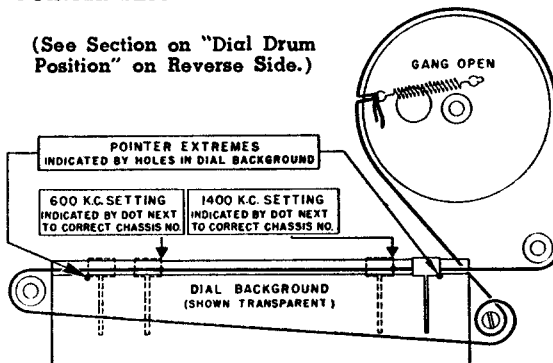
BACK OF CHASSIS

Connect Signal Generator To—	Dummy Antenna Between Radio and Generator	Set Generator Frequency To—	Set Receiver Dial Frequency To—	Adjust Following Trimmers	Type of Adjustment
12SA7 Control Grid	250 mmfd. Mica Condenser	455 KC.	High frequency end of Dial	A and B—2nd I. F. C and D—1st I. F.	Adjust to maximum Output
External Antenna Wire on Loop	250 mmfd. Mica Condenser	1630 KC.	High frequency end of Dial	E—Osc.	Adjust to maximum Output
External Antenna Wire on Loop	250 mmfd. Mica Condenser	1400 KC.	Tune in Generator signal	F—R. F. (Iron Core)	See Note Below
Loop radiator (or place pickup lead from gen. close to loop of set to obtain adequate signal).	No actual connection between set and generator.	1400 KC.	Tune in Generator signal	G—Ant.	Adjust to maximum Output

NOTE: Adjustment F is the threaded stud at the top end of the slug wire. Screw stud up or down in the bakelite for maximum output. Alignment is correct if the output is reduced when the position of the lever arm is changed slightly in either direction (up or down).

### POINTER SETTINGS AND DIAL CORD STRINGING

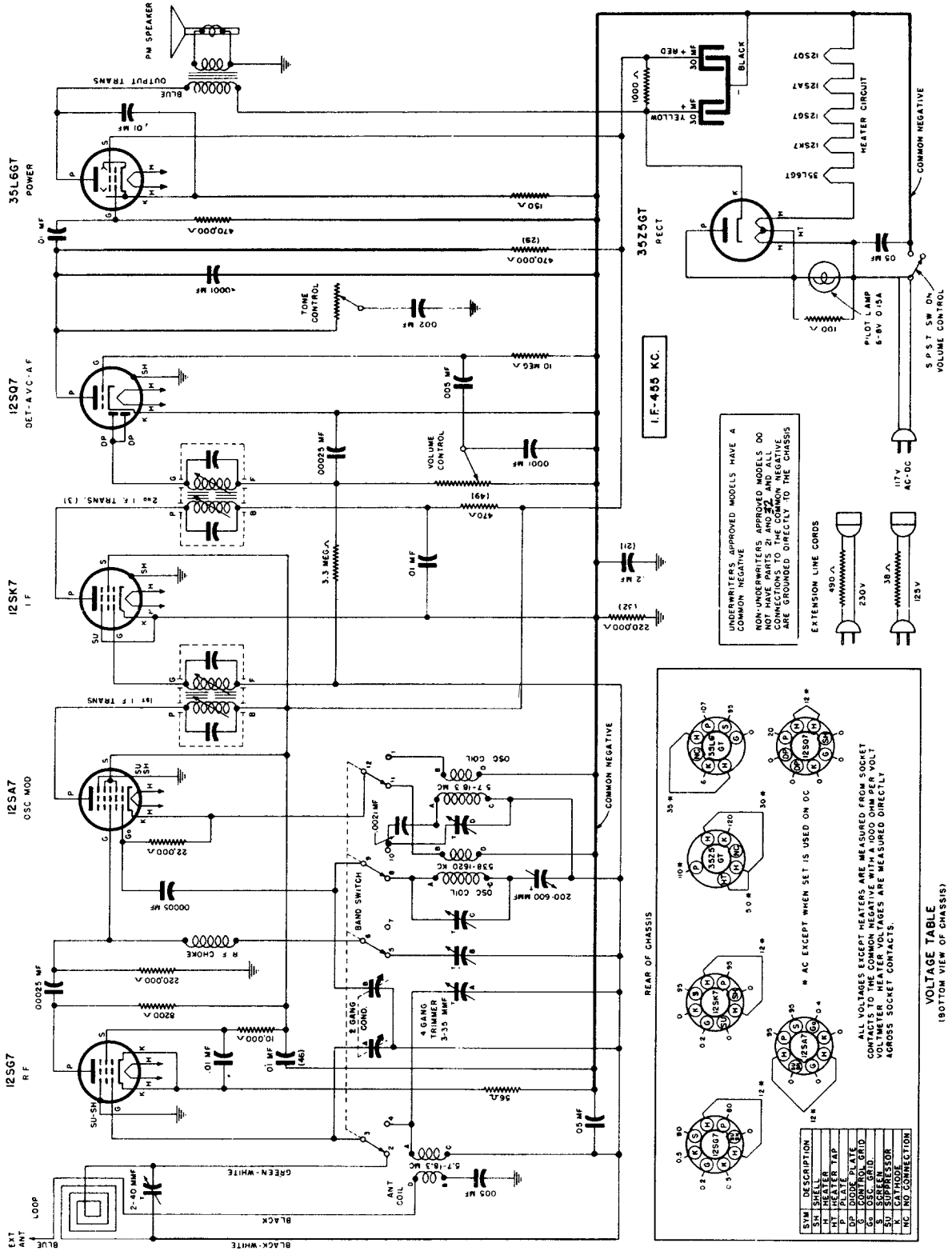
(See Section on "Dial Drum Position" on Reverse Side.)



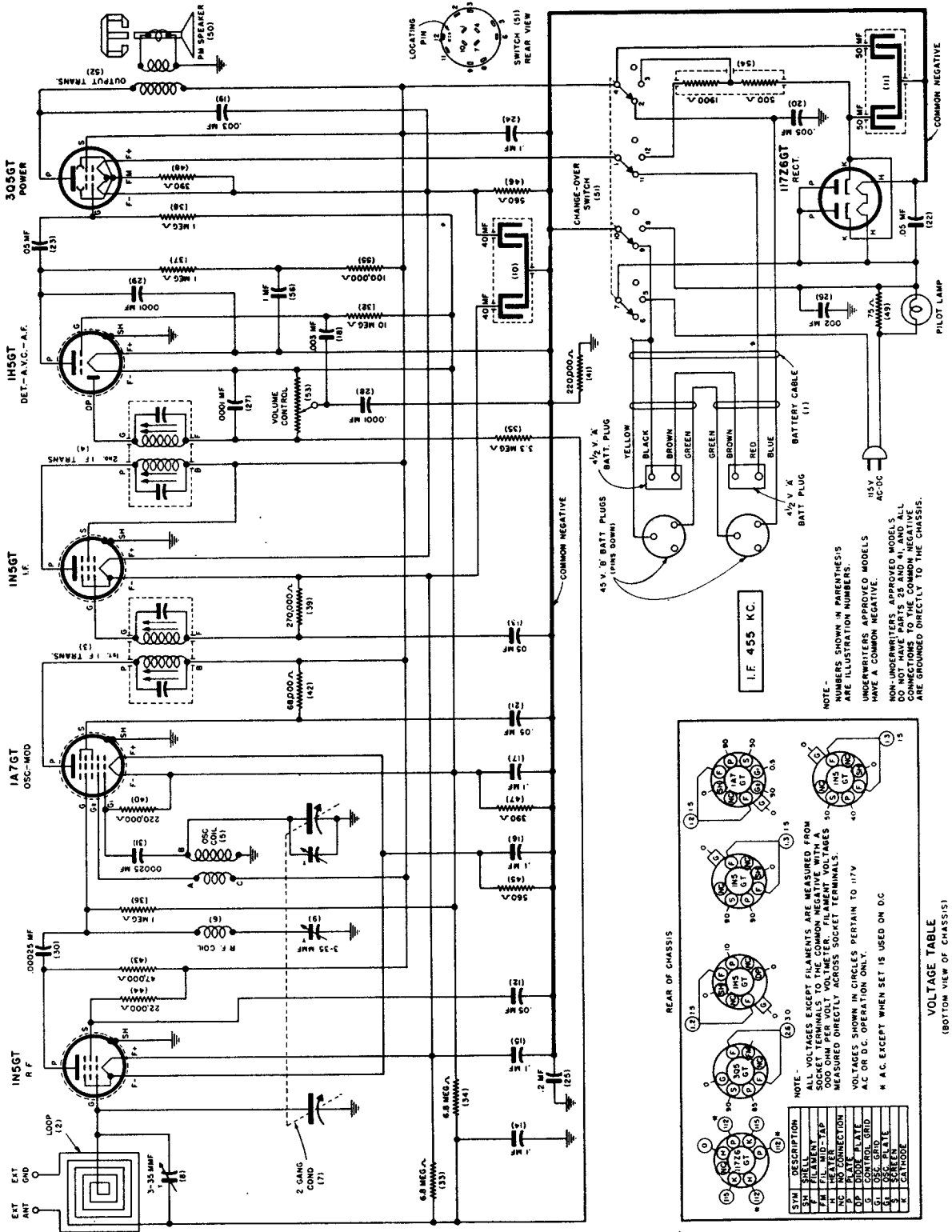
## Admiral Corporation

3800 CORTLAND STREET  
CHICAGO 47, ILL.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



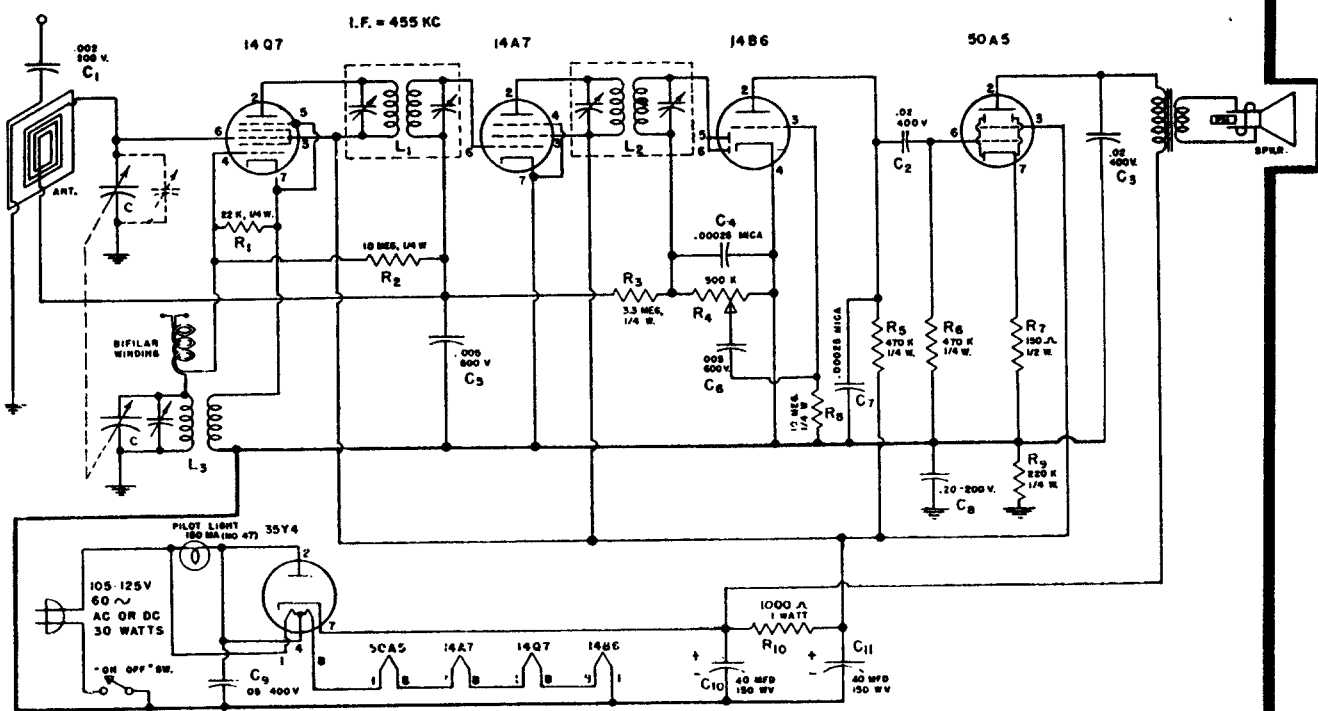
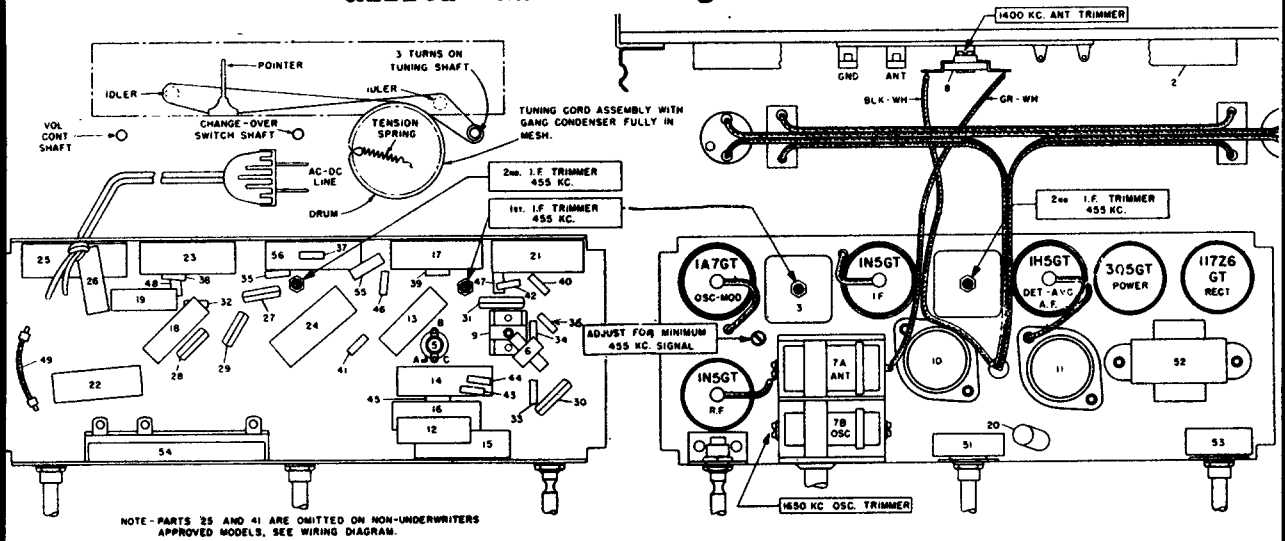
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



Allied Radio -- Knight Model 6A-127

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Allied Radio -- Knight Model 6A-127



### Alignment Procedure

#### Allied Radio Knight Models

- 5A-150
- 5A-152
- 5A-154
- 5A-163

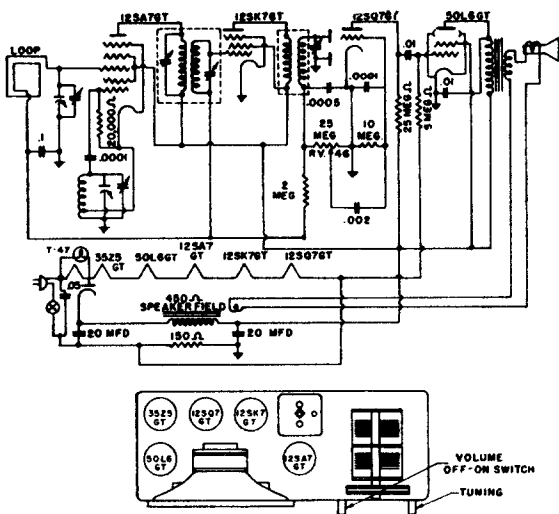
Steps	Connect output of oscillator to	Tune osc. to	Tune radio dial to	Adjust the following for max. peak output
1.	Tuning condenser stator (ant.) in series with .01 mfd.	455	Quiet point at high frequency end of dial.	1st and 2nd I. F. Transformers
2.	Antenna term. of Ant. loop in series with 100 mmf.	1720	Full clockwise (out of mesh)	Osc. trimmer
3.	Antenna term. of Ant. loop in series 100 mmf.	1500	1500	Ant. trimmer

Output meter is connected across voice coil. Receiver volume is turned to maximum.

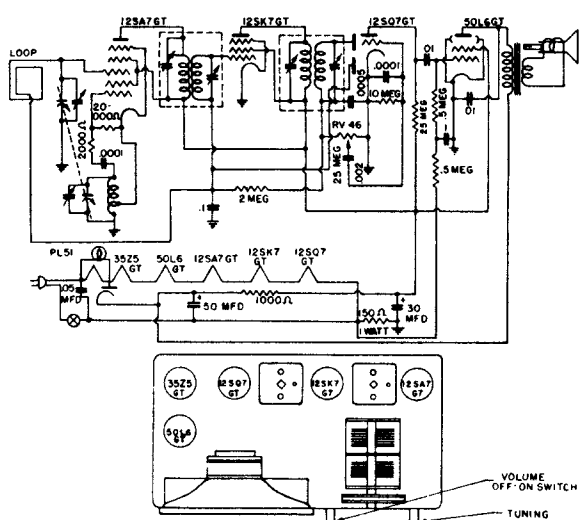
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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

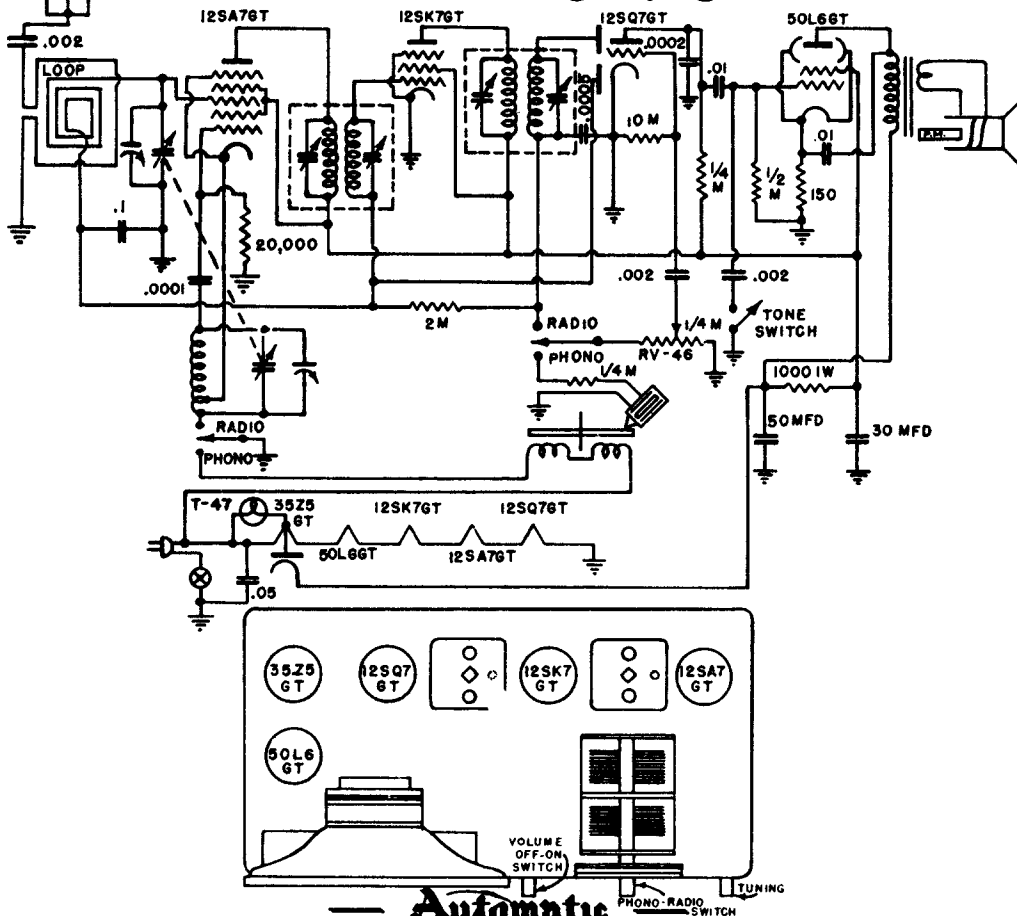
## Automatic Radio 601-602



## Automatic Radio Model 611



# MODEL NO. 640



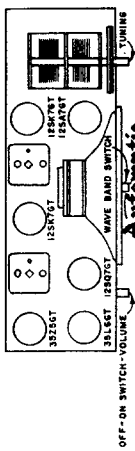
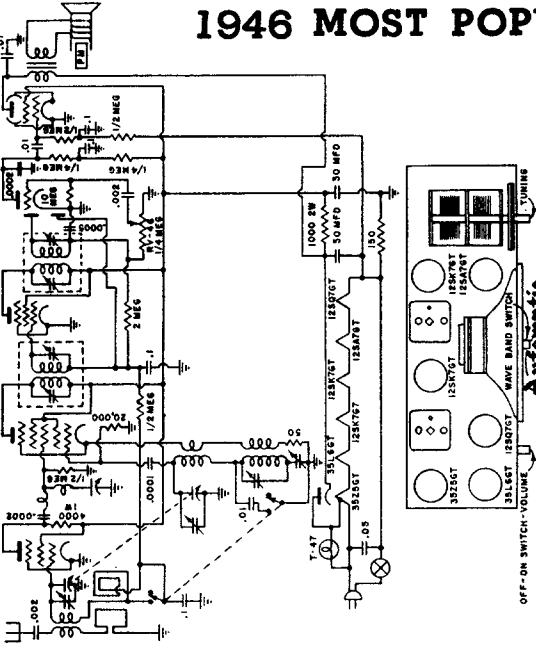
**AUTOMATIC RADIO MFG. CO., INC.**

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



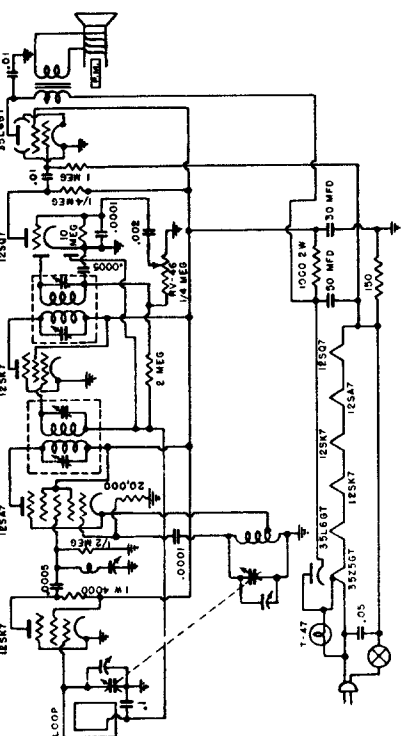
1946 MOST POPULAR SERVICE DIAGRAMS

MODEL NO. 660



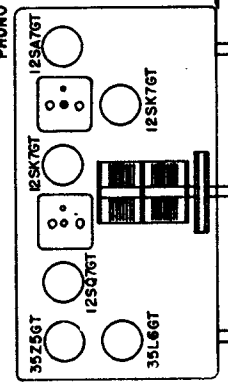
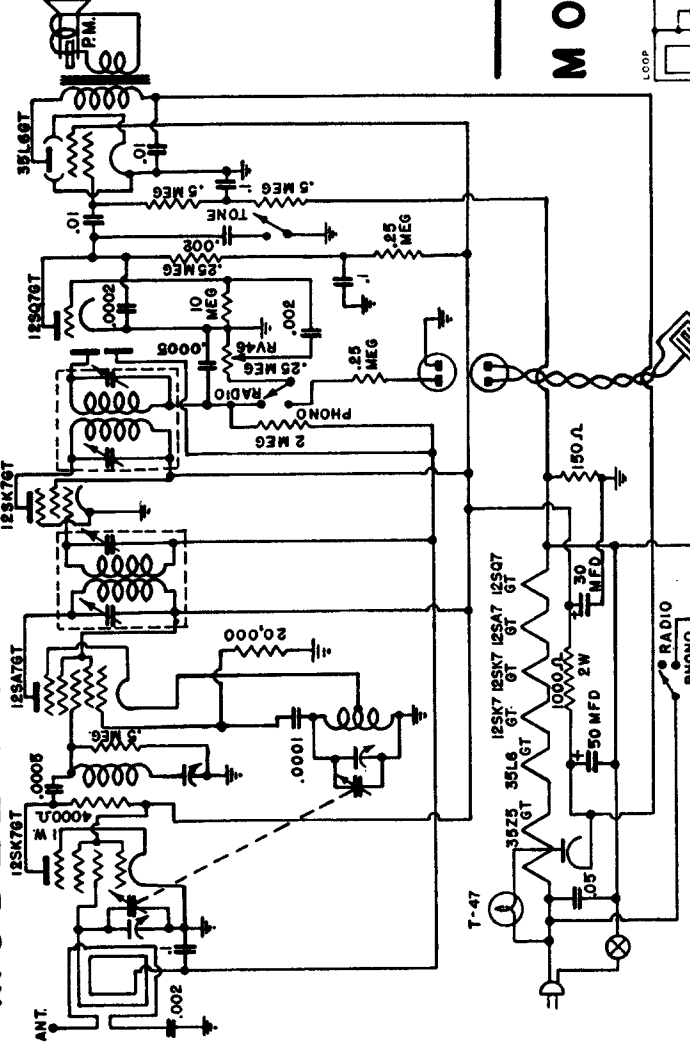
AUTOMATIC RADIO MFG. CO., INC.  
122 BROOKLINE AVE., BOSTON, 15, MASS.

MODEL NO. 612 X



Automatic  
AUTOMATIC RADIO MFG. CO., INC.  
122 BROOKLINE AVE., BOSTON, 15, MASS.

MODEL NO. 670



Automatic  
AUTOMATIC RADIO MFG. CO., INC.  
122 BROOKLINE AVE., BOSTON, 15, MASS.

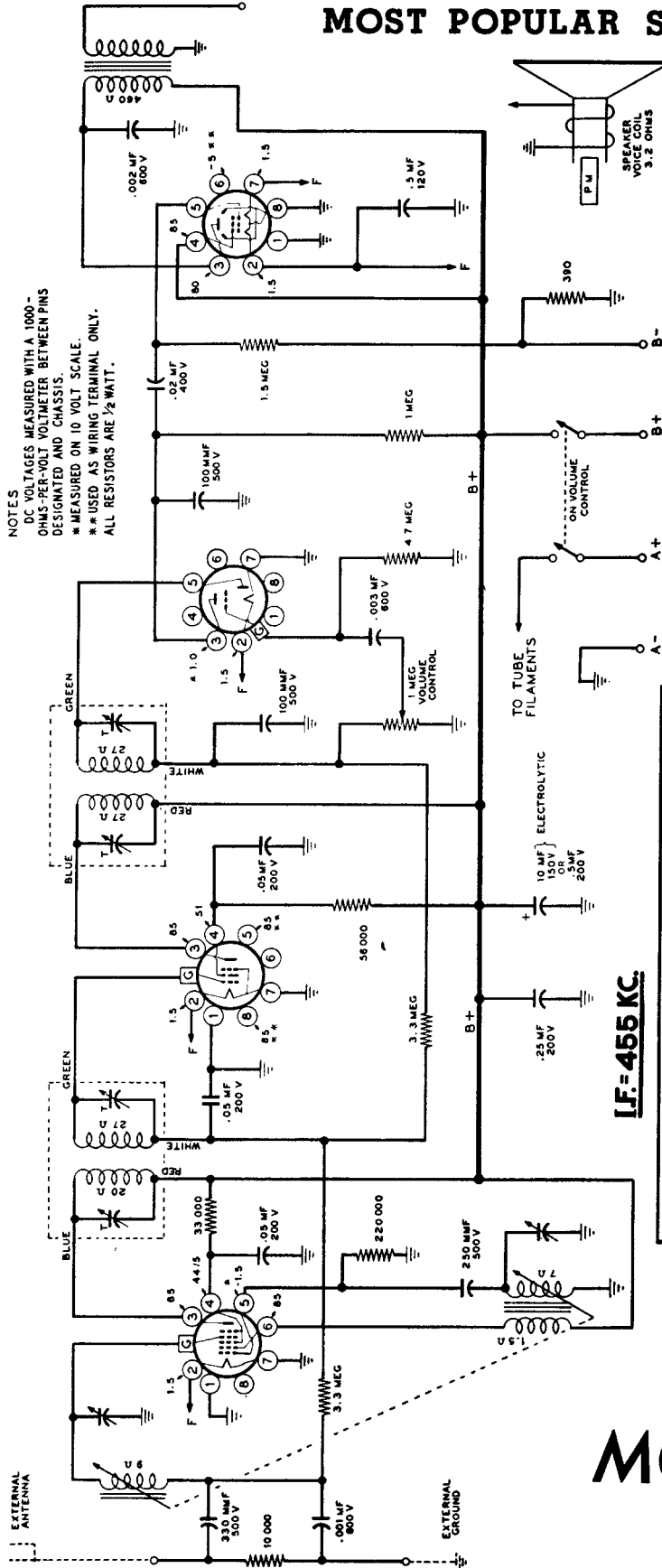
# MOST POPULAR SERVICE DIAGRAMS

**3Q5GT**  
OUTPUT

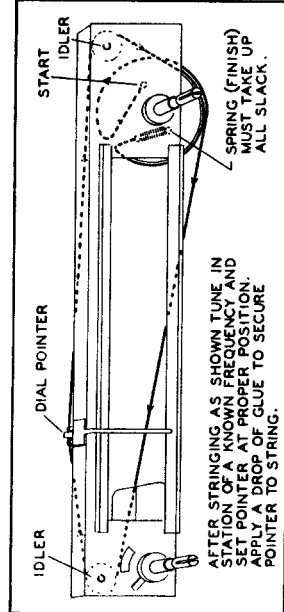
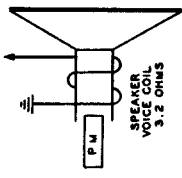
**1H5GT**  
2ND DET.  
1 AUDIO

**1N5GT**  
I.F. AMP.

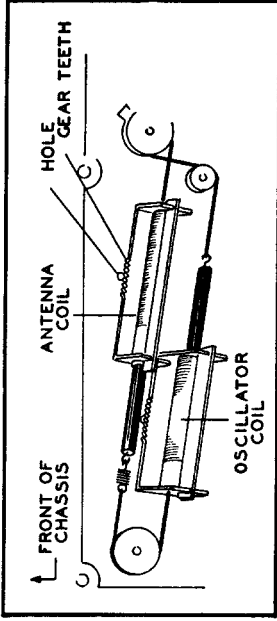
**1A7GT**  
CONVERTER



**NOTES**  
DC VOLTAGES MEASURED WITH A 1000-  
OHMS-PER-VOLT VOLTMETER BETWEEN PINS  
DESIGNATED AND CHASSIS.  
\* USED AS WIRING TERMINAL ONLY.  
\*\* USED AS WIRING TERMINAL ONLY.  
ALL RESISTORS ARE 1/2 WATT.



Replacement of Dial Pointer Drive Cord



View of Coil Assembly

The antenna coil assembly is movable left or right. When making the adjustment as required in the alignment procedure, move the coil assembly very slowly, either by hand or by pivoting one edge of a screwdriver blade in the hole and engaging the blade in the gear teeth of the coil form.

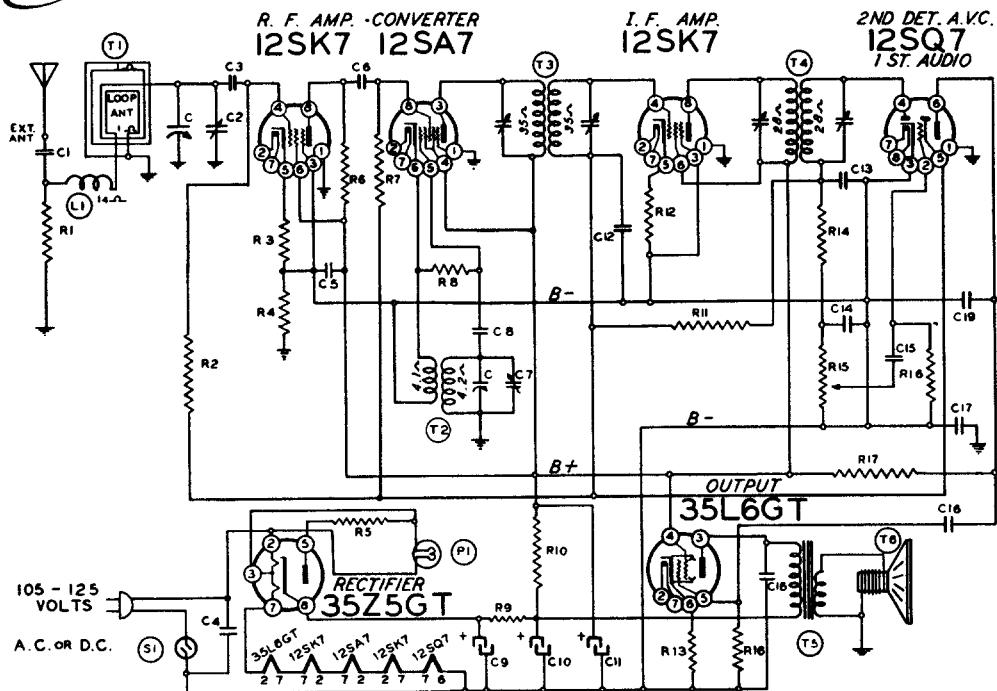
**LF = 455 KC**

*Belmont*

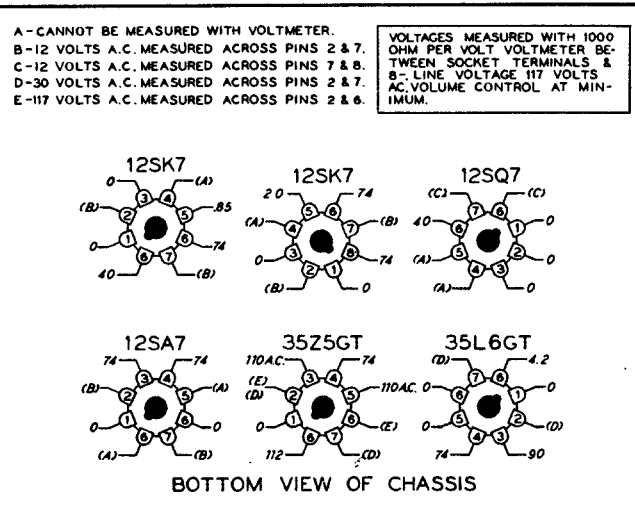
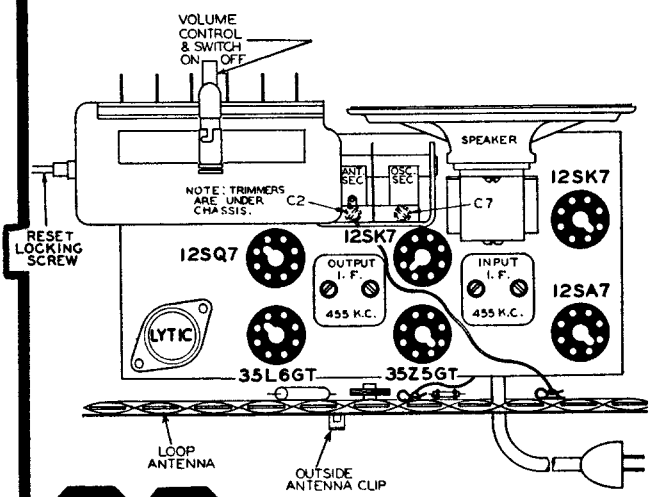
**MODEL 4B17**

**19**

# Belmont Radio MODEL 6D111



- RESISTORS**
- R1 4700 ohms, 1/2 w., ±10%
  - R2 1 megohm, 1/2 w., ±20%
  - R3 100 ohms, 1/2 w., ±10%
  - R4 150,000 ohms, 1/2 w., ±20%
  - R5 22 ohms, 1/2 w., ±10%
  - R6 4700 ohms, 1/2 w., ±20%
  - R7 100,000 ohms, 1/2 w., ±20%
  - R8 47,000 ohms, 1/2 w., ±20%
  - R9 180 ohms, 1 w., ±10%
  - R10 1200 ohms, 1 w., ±10%
  - R11 3.3 megohms, 1/2 w., ±20%
  - R12 390 ohms, 1/2 w., ±10%
  - R13 150 ohms, 1/2 w., ±10%
  - R14 47,000 ohms, 1/2 w., ±20%
  - R15 Volume control, 1 megohm
  - R16 470,000 ohms, 1/2 w., ±20%
  - R17 220,000 ohms, 1/2 w., ±20%
  - R18 4.7 megohms, 1/2 w., ±20%
- CONDENSERS**
- C 2 gang variable
  - C1 .002 x 600 volts
  - C2 Antenna trimmer on gang
  - C3 .0005 mica
  - C4 .1 x 400 volts
  - C5 .25 x 200 volts
  - C6 .0001 mica
  - C7 Oscillator trimmer on gang
  - C8 .0001 mica
  - C9 40 mfd lytic x 150 w.v.
  - C10 20 mfd lytic x 150 w.v.
  - C11 20 mfd lytic x 150 w.v.
  - C12 .05 x 200 volts
  - C13 .0001 mica
  - C14 .0001 mica
  - C15 .002 x 600 volts
  - C16 .02 x 400 volts
  - C17 .2 x 400 volts
  - C18 .004 x 600 volts
  - C19 .0001 mica
- NOTE:** C9, C10, C11 are in same unit. In 25-cycle sets, values are 60 mfd., 40 mfd., 40 mfd.



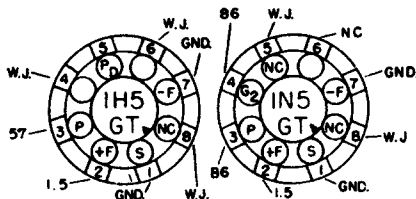
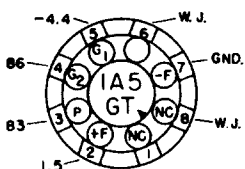
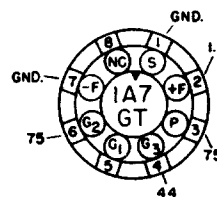
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Crosley Corp. Model 46FA, 46FB

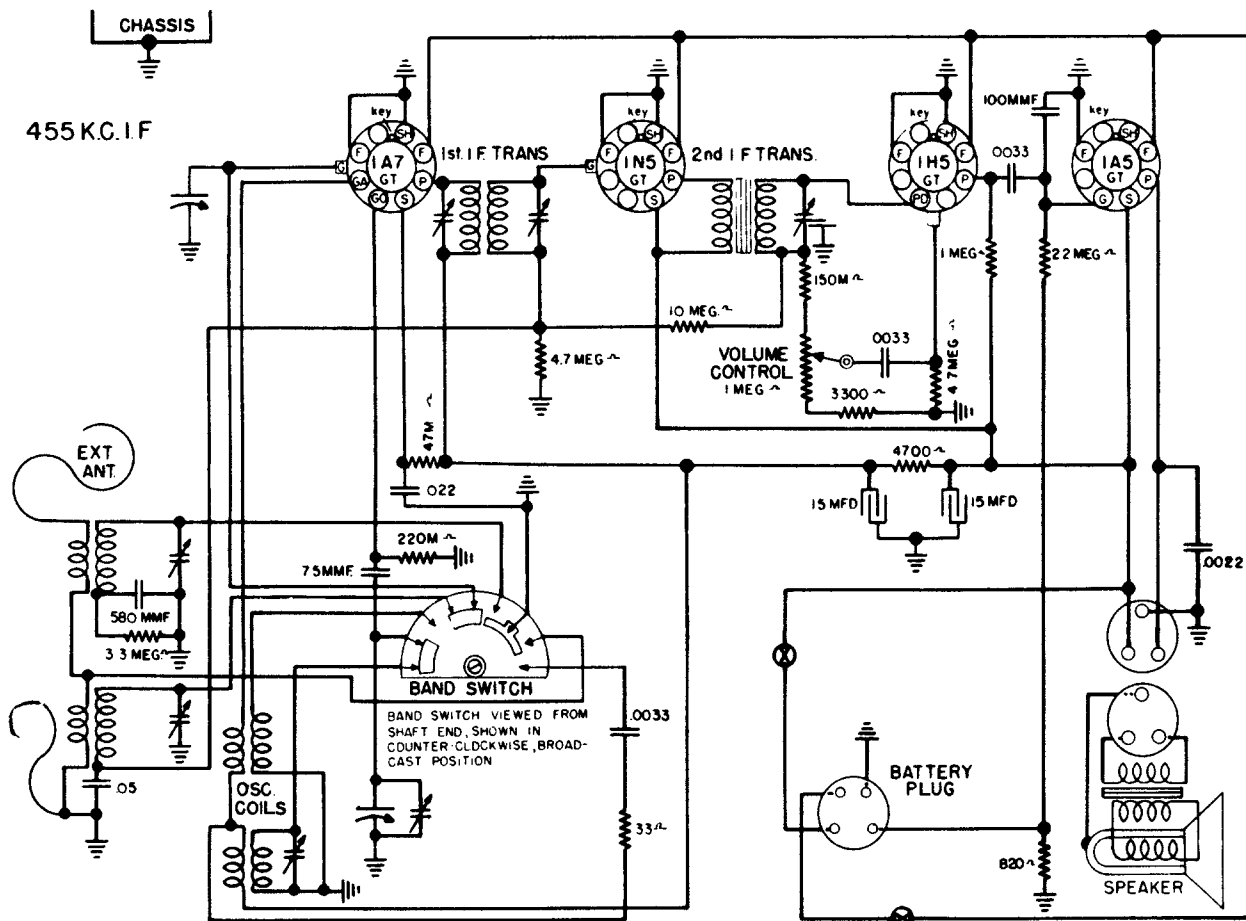
## SOCKET VOLTAGE CHART

### NOTES:-

1. THESE ARE BOTTOM VIEWS OF SOCKETS.
2. MEASURE VOLTAGES FROM SOCKET LUGS TO CHASSIS (-B, -A, GROUND).
3. THESE VOLTAGES MEASURED USING AN ELECTRONIC VOLTMETER.
4. W.J. - WIRING JUNCTION.
5. NC - NO CONNECTION.
6. SOCKET VOLTAGE TOLERANCE, 10%.

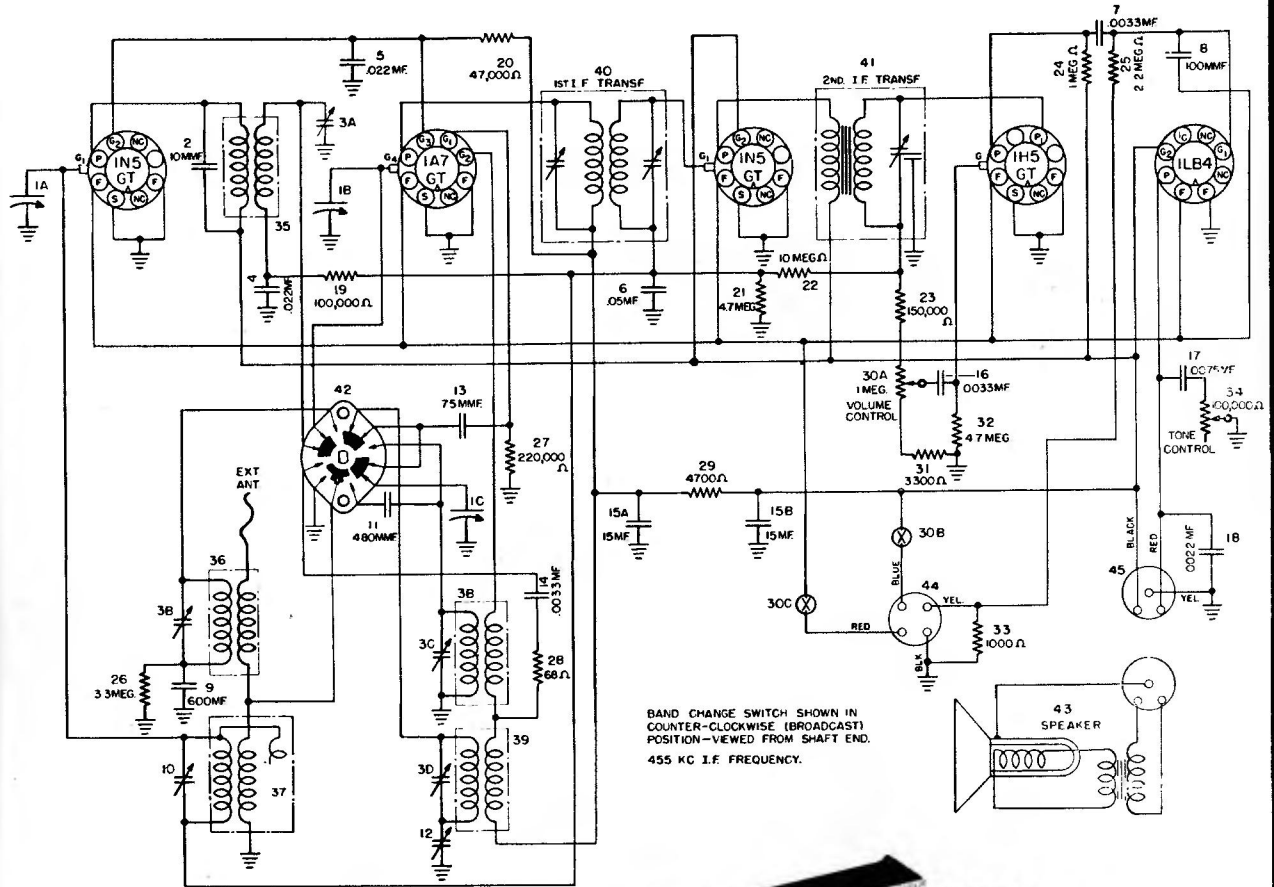


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SCHMATIC DIAGRAM— MODELS 46FA and 46FB

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



BAND CHANGE SWITCH SHOWN IN COUNTER-CLOCKWISE (BROADCAST) POSITION—VIEWED FROM SHAFT END. 455 KC I.F. FREQUENCY.

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- (H) SHORT WAVE ANT. TRIMMER (1.5 M.C.) 3B
- (E) INTERSTAGE TRIMMER (1400 KC) 3A
- (C) BROADCAST OSC. TRIMMER (1200 KC) 3D
- (G) SHORT WAVE OSC. TRIMMER (15.5 M.C.) 3C
- (F) BROADCAST ANT. TRIM (1400 KC) 1D
- (D) BROADCAST OSC. PADDER (100 KC) 12



## CROSLEY

EXT. ANT. (RED)  
EXT. GROUND (YELLOW)

BATTERY PLUG

RED — BLACK  
BLUE — YELLOW  
PIN END OF BATTERY PLUG

# 22

Speaker mounted on cabinet on Model 56FB  
CHASSIS REAR VIEW—MODELS 56FA and 56FB  
COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Crosley Corp. Model 56FA, 56FB

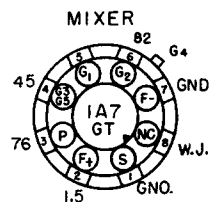
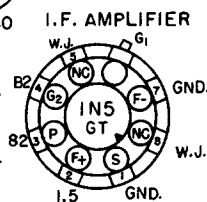
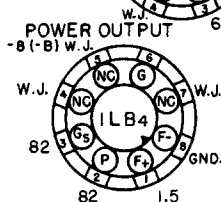
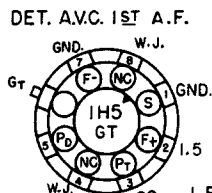
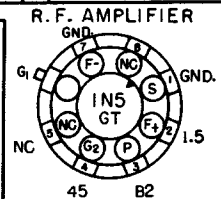
Alignment adjustment locations are shown on page 22, Chassis, Rear View—Models 56FA and 56FB

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series with	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Ant.	A	1,620	A & B
2	1,620	200 mmf.	Ant.	A	1,620	C
3	600	200 mmf.	Ant.	A	600	D
4	1,620	200 mmf.	Ant.	A	1,620	C
5	1,400	200 mmf.	Ant.	A	1,400	E & F
6	600	200 mmf.	Ant.	A	600	D
7	15,300	400 ohms	Ant.	O	15,300	G*
8	15,000	400 ohms	Ant.	O	15,000	H

### SOCKET VOLTAGE CHART

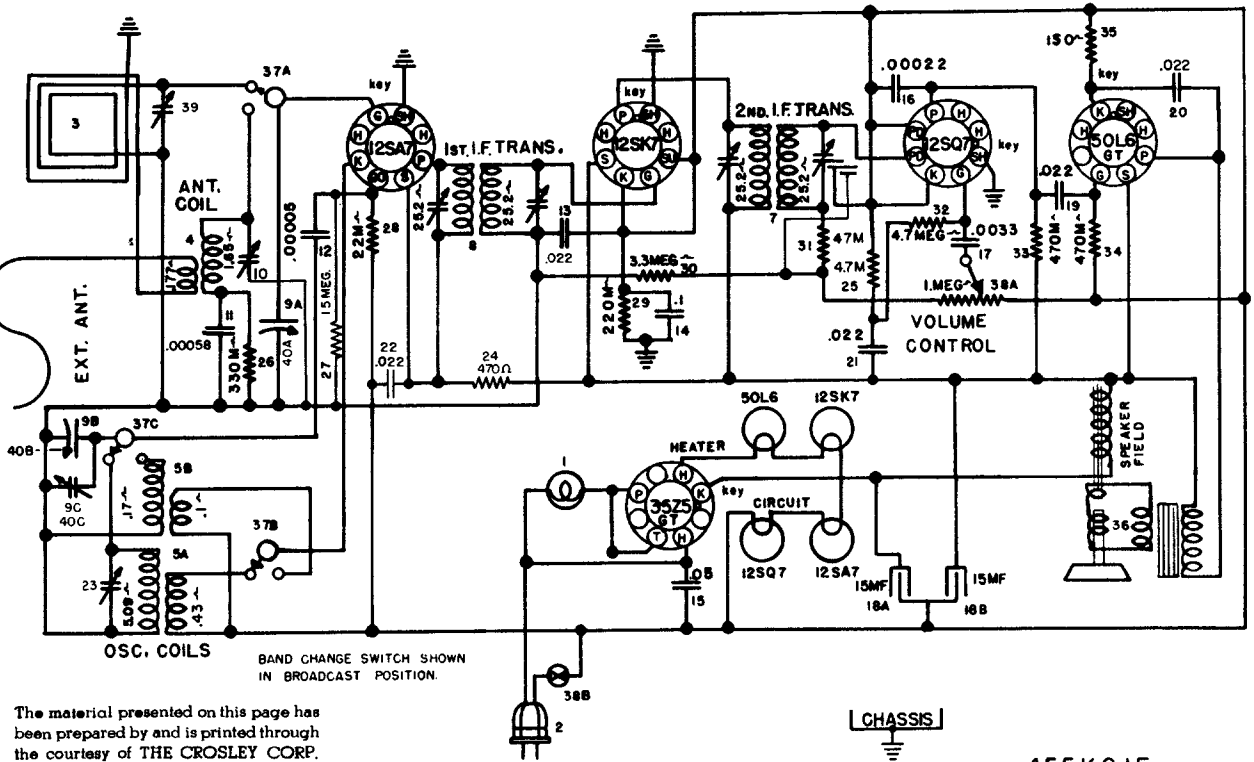
The material presented on this page has been prepared by and is printed through the courtesy of THE CROSLLEY CORP.

1. THESE ARE BOTTOM VIEWS OF SOCKETS
2. MEASURE VOLTAGE FROM SOCKET LUG TO CHASSIS (GROUND).
3. THESE VOLTAGES MEASURED USING AN ELECTRONIC VOLTMETER.
4. WJ - WIRING JUNCTION.
5. NC - NO CONNECTION.
6. SOCKET VOLTAGE TOLERANCE, 10%.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Crosley Corp. MODELS: 56TA, 56TW, 56TC



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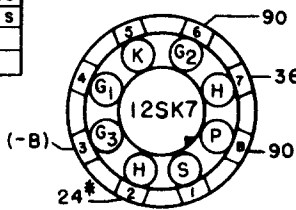
SCHMATIC DIAGRAM—MODELS 56TA, 56TW, 56TC

455 K.C.I.F.

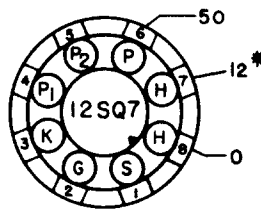
## SOCKET VOLTAGE CHART

⊕ OSCILLATOR GRID VOLTAGES		
BAND	FREQUENCY	VOLTS
AMERICAN	540 KC	-4.6
OVERSEAS	5.7 MC	-2.8

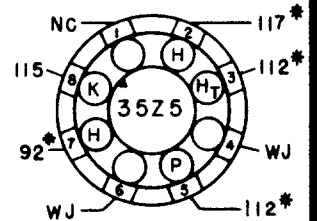
### I. F. AMPLIFIER



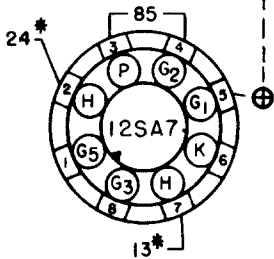
### DET-AVC-1ST. A.F.



### RECTIFIER



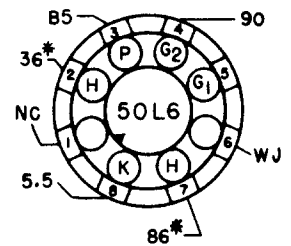
### MIXER



### NOTES:

1. THESE ARE BOTTOM VIEWS OF SOCKETS.
2. MEASURE VOLTAGES FROM SOCKET LUGS TO -B (PIN 3 ON THE 12SK7)
3. THESE VOLTAGES MEASURED USING AN ELECTRONIC VOLTMETER.
4. WJ - WIRING JUNCTION.
5. NC - NO CONNECTION.
6. \* - 60 CYCLE AC VOLTAGE.
7. SOCKET VOLTAGE TOLERANCE, 10%

### POWER OUTPUT



RESISTANCE OF SPEAKER FIELD: 450 ohms.

SPEAKER FIELD CURRENT: 60 ma.

# 24

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## ALIGNMENT PROCEDURE

1. Turn the tuning condenser to the completely closed position against the stop and set the dial pointer to the reference line at the end of the dial scale.
2. Connect the output meter across the speaker voice coil.
3. The r.f. signal input from the signal generator should be connected to the external antenna lead. Connect the signal generator ground through a 0.1 mfd. condenser to —B (pin 3 on 12SK7 tube socket).
4. Turn the volume control on full and adjust the signal generator output to produce approximately mid-scale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

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## ALIGNMENT CHART

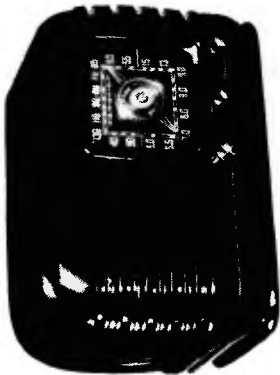
# CROSLEY

Models 56TA, 56TW, 56TC

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series with	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Ant.	A	1,620	A & B
2	15,300	400 ohms	Ant.	O	15,300	C
3	15,000	400 ohms	Ant.	O	15,000	D
4	1,400	200 mmf.	Ant.	A	1,400	E & F

**NOTE:** When aligning the short-wave oscillator trimmer (C), be sure that the circuit is aligned at the correct frequency and not at the image frequency which is 910 kilocycles lower as indicated by the receiver dial. To check: Tune in the generator frequency, then increase the generator output and tune in the image frequency. The image frequency should be weaker than the fundamental and audible 910 kilocycles lower on the receiver dial. If the image cannot be tuned in, the oscillator trimmer is adjusted to the wrong peak; i.e., the oscillator trimmer may be adjusted to the image or one of the harmonics instead of the fundamental frequency. The correct peak is the second one heard as the trimmer adjustment screw is opened from the completely closed position.

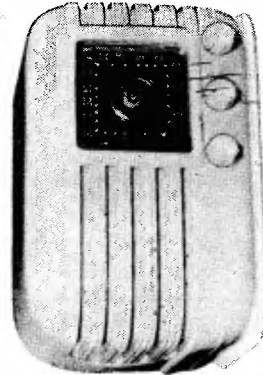
56TA



56TC



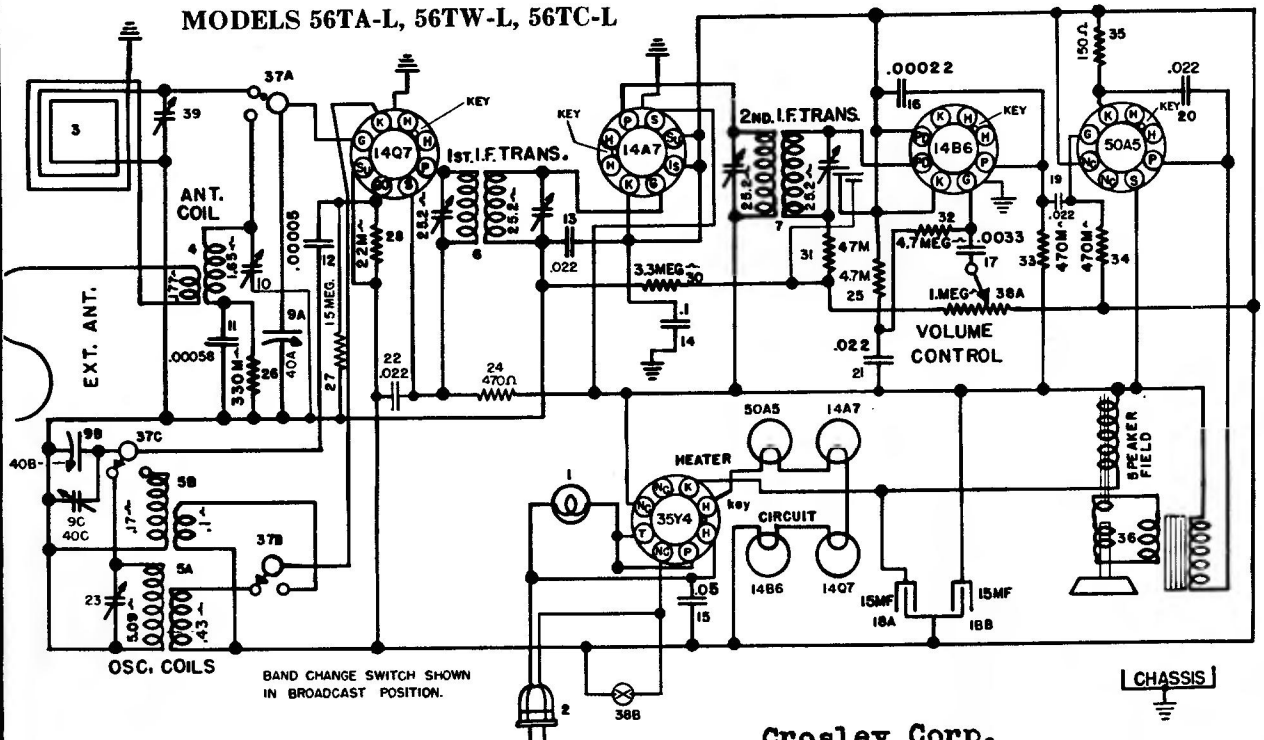
56TW





# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

MODELS 56TA-L, 56TW-L, 56TC-L



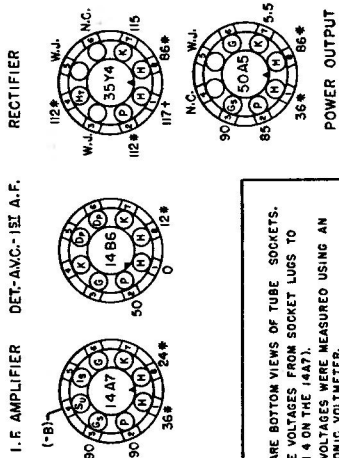
Crosley Corp.

455 K.C. I.F.

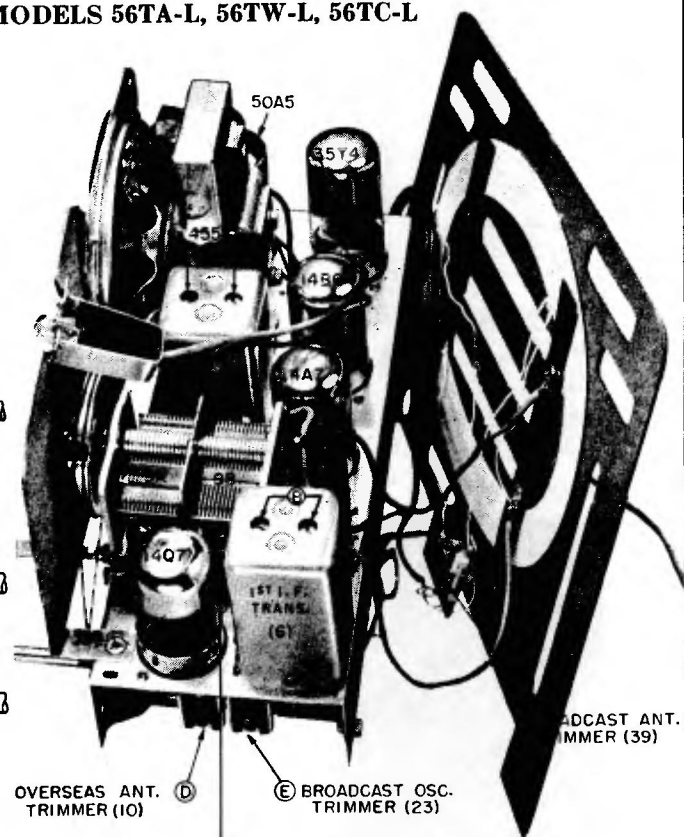
MODELS 56TA-L, 56TW-L, 56TC-L

## SOCKET VOLTAGE CHART

OSCILLATOR GRID VOLTAGES	
BAND	FREQUENCY VOLTS
AMERICAN	550 KC - 4.5
OVERSEAS	5.9 - 2.8



- NOTES:
1. THESE ARE BOTTOM VIEWS OF TUBE SOCKETS.
  2. MEASURE VOLTAGES FROM SOCKET LUGS TO -B (PIN 4 ON THE 14A7).
  3. THESE VOLTAGES WERE MEASURED USING AN ELECTRONIC VOLTMETER.
  4. W.J. - WIRING JUNCTION.
  5. N.C. - NO CONNECTION.
  6. \* - 60 CYCLE A.C. VOLTAGES.
  7. SOCKET VOLTAGE TOLERANCE, 10%.



OVERSEAS ANT. TRIMMER (10) (D)  
 BROADCAST OSC. TRIMMER (23) (E)  
 OVERSEAS OSC. TRIMMER (9C) (C)

# 26

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## ALIGNMENT PROCEDURE

1. Turn the tuning condenser to the completely closed position against the stop and set the dial pointer to the reference line at the end of the dial scale.
2. Connect the output meter across the speaker voice coil.
3. The r.f. signal input from the signal generator should be connected to the external antenna lead. Connect the signal generator ground through a 0.1 mfd. condenser to —B (pin 4 on 14A7 tube socket).
4. Turn the volume control on full and adjust the signal generator output to produce approximately mid-scale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

## ALIGNMENT CHART

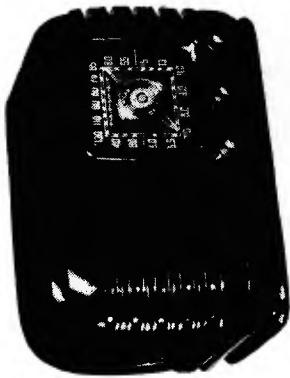
Alignment Adjustment Locations are shown on page 26.

MODELS: 56TA-L, 56TW-L, 56TC-L

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series with	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Ant.	A	1,620	A & B
2	15,300	400 ohms	Ant.	O	15,300	C
3	15,000	400 ohms	Ant.	O	15,000	D
4	1,400	200 mmf.	Ant.	A	1,400	E & F

**NOTE:** When aligning the short-wave oscillator trimmer (C), be sure that the circuit is aligned at the correct frequency and not at the image frequency which is 910 kilocycles lower as indicated by the receiver dial. To check: Tune in the generator frequency, then increase the generator output and tune in the image frequency. The image frequency should be weaker than the fundamental and audible 910 kilocycles lower on the receiver dial. If the image cannot be tuned in, the oscillator trimmer is adjusted to the wrong peak; i.e., the oscillator trimmer may be adjusted to the image or one of the harmonics instead of the fundamental frequency. The correct peak is the second one heard as the trimmer adjustment screw is opened from the completely closed position.

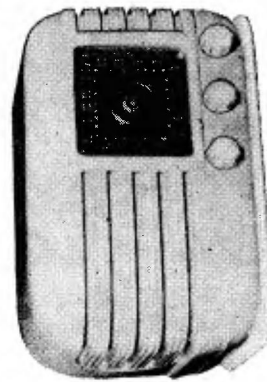
56TA-L



56TC-L

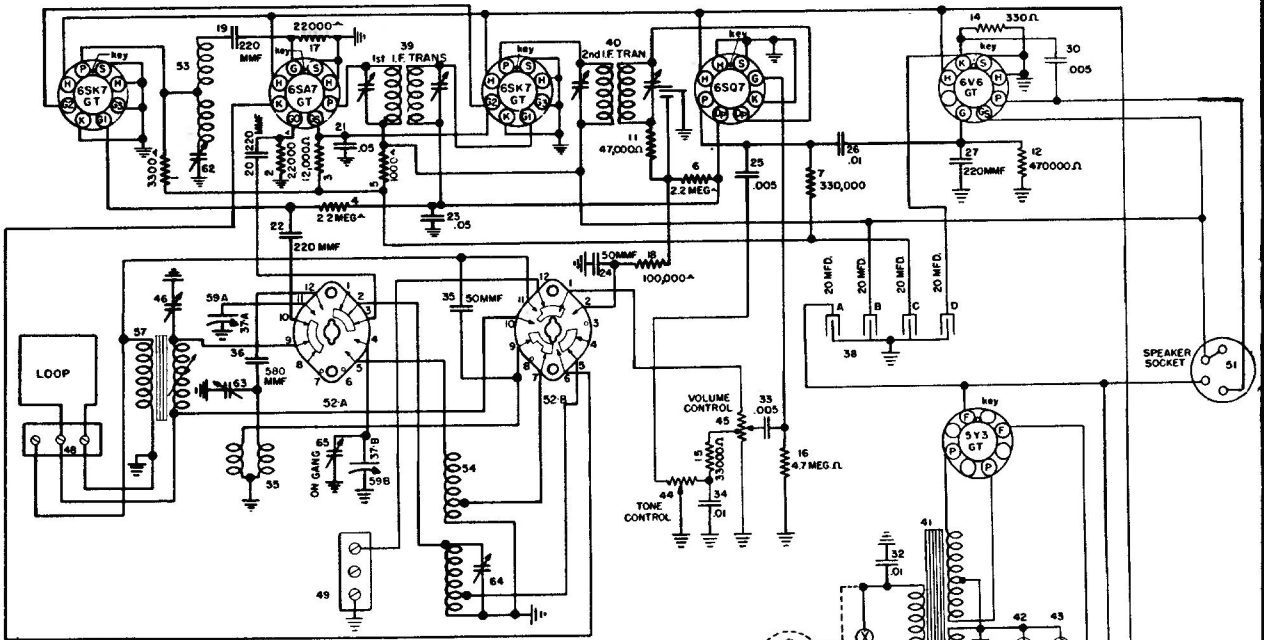


56TW-L



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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



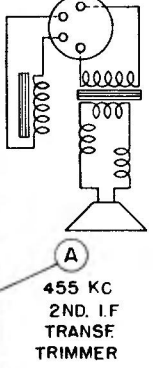
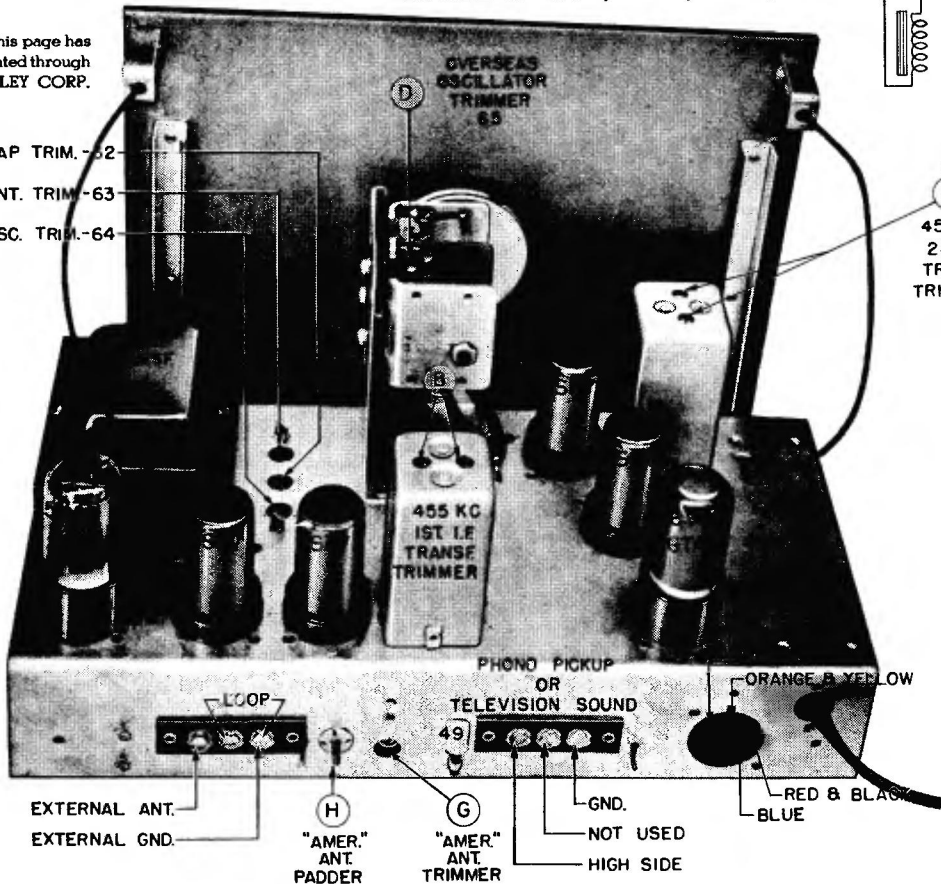
BAND SWITCH SHOWN IN PHONO POSITION  
 BAND SWITCH SEQUENCE, CLOCKWISE ROTATION, IS PHONO, BROADCAST, SHORT WAVE

## CROSLEY

MODELS 66CA, 66CP, 66CQ

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- (C) — WAVE TRAP TRIM. — 62
- (E) — "OVERSEAS" ANT. TRIM. — 63
- (F) — "AMERICAN" OSC. TRIM. — 64



- (A) — 455 KC 2ND. I.F. TRANS. TRIMMER
- (B) — EXTERNAL ANT.
- (C) — EXTERNAL GND.
- (D) — "AMER." ANT. PADDER
- (E) — "AMER" ANT. TRIMMER
- (F) — GND.
- (G) — NOT USED
- (H) — HIGH SIDE

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

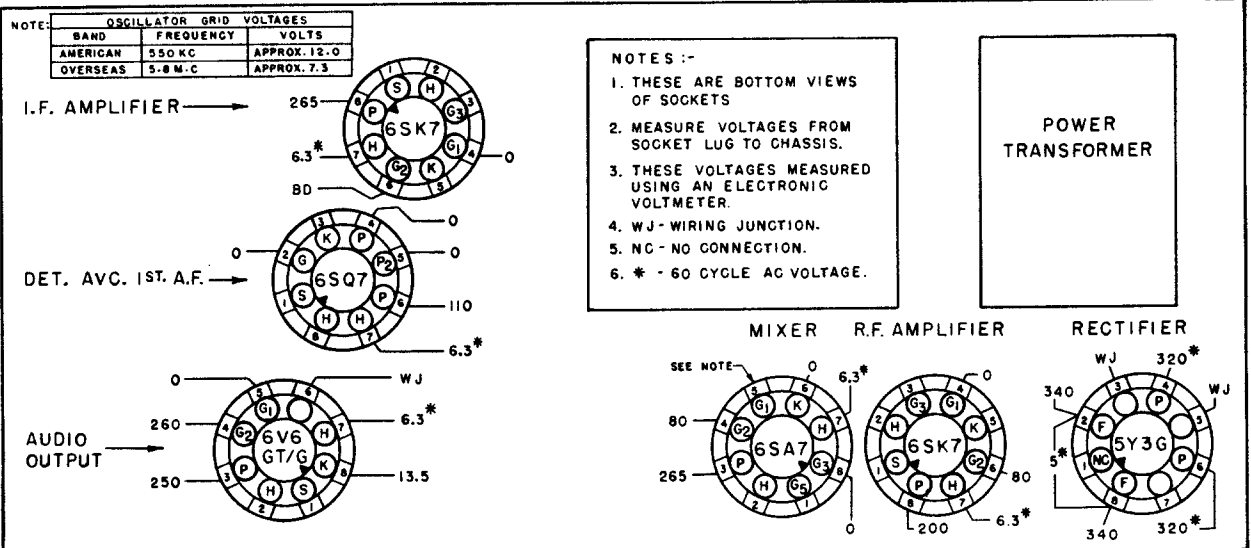
## ALIGNMENT PROCEDURE, CROSLEY CORP. MODELS 66CA, 66CP, 66CQ

1. Turn the tuning condenser to the completely closed position against the stop and set the dial pointer to the reference line at the end of the dial scale.
2. Connect the output meter across the speaker voice coil.
3. The r.f. signal input from the signal generator should be connected to the external antenna post as indicated in the alignment chart. Connect the low side (ground) of the signal generator to the chassis.
4. Turn the volume control on full and adjust the signal generator output to produce approximately mid-scale deflection of the output meter, but maintain the signal generator output as low as possible to prevent AVC action.

Alignment adjustment locations are shown on page 28 Chassis, Rear View—Models 66CA, 66CP, 66CQ

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series With	To	Band Switch	Tuning Dial	
1	455	200 mmf.	Ant.	A	1620	A & B
2	455	200 mmf.	Ant.	A	1620	C*
3	15,300	400 ohms	Ant.	O	15,300	D
4	15,000	400 ohms	Ant.	O	15,000	E
5	1620	200 mmf.	Ant.	A	1620	F
6	1400	200 mmf.	Ant.	A	1400	G
7	600	200 mmf.	Ant.	A	600	H
8	1400	200 mmf.	Ant.	A	1400	Recheck G

\*Adjust for Minimum Output (Wave Trap).



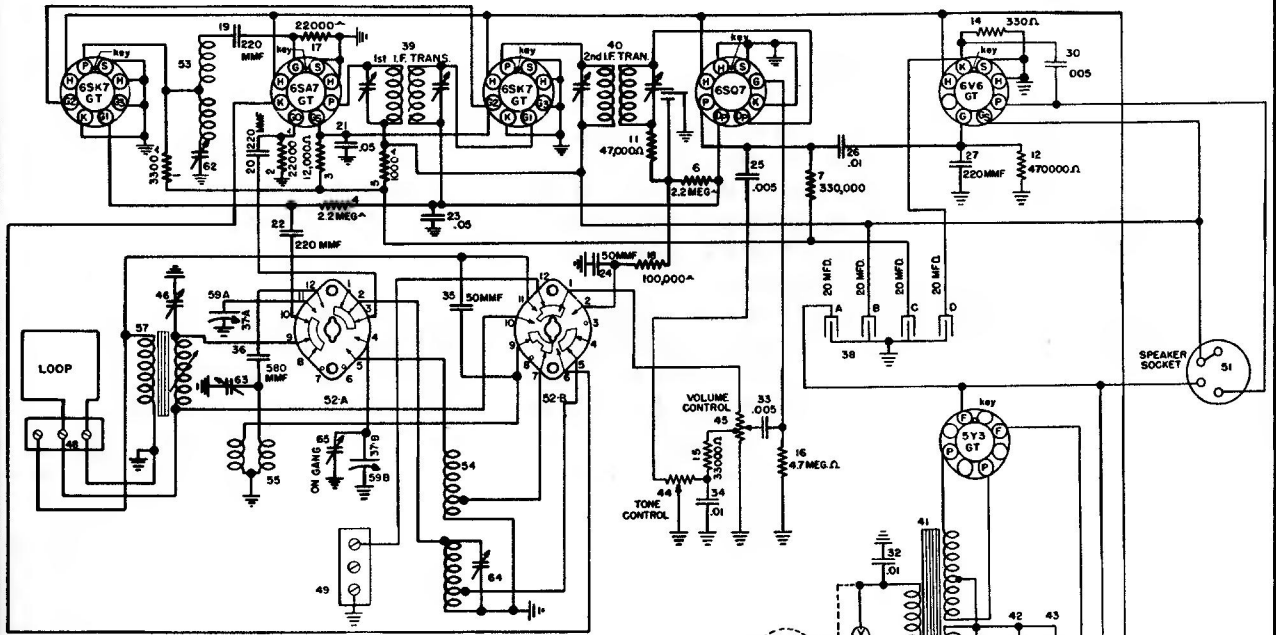
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SOCKET VOLTAGE TOLERANCE: 10%

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# 29

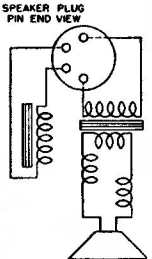
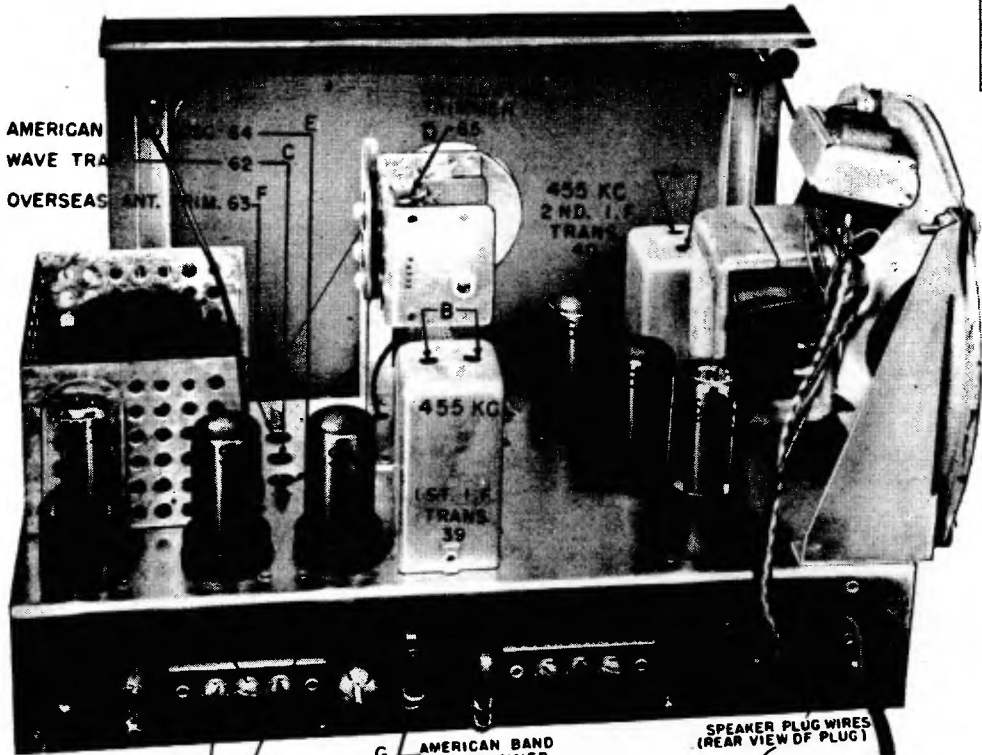
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



BAND SWITCH SHOWN IN PHONO POSITION.  
BAND SWITCH SEQUENCE, CLOCKWISE ROTATION, IS PHONO, BROADCAST, SHORT WAVE

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**Crosley Corp. MODELS 66TA, 66TW, 66TC**



EXTERNAL ANT.  
EXTERNAL GROUND

G AMERICAN BAND  
ANT. TRIMMER  
46

SPEAKER PLUG WIRES  
(REAR VIEW OF PLUG)



# 30

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## ALIGNMENT PROCEDURE

1. Turn the tuning capacitor to the completely closed position against the stop, and set the dial pointer to the reference line at the end of the dial scale.
2. Turn the tone control to the high or treble position.
3. Connect the output meter across the speaker voice coil.
4. The r.f. signal input from the signal generator should be connected to the external antenna post. Connect the signal generator ground to the chassis.
5. Turn the volume control on full, and adjust the signal generator output to produce approximately mid-scale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

## ALIGNMENT CHART

Alignment Sequence	Signal Generator Output			Position of		Adjust for Maximum Output
	Frequency in kc.	In Series with	To	Band Switch	Tuning Dial	
1	455	200 mmf	Ant.	A	1620	A & B
2	455	200 mmf	Ant.	A	1620	C*
3	15,300	400 ohms	Ant.	O	15,300	D
4	15,000	400 ohms	Ant.	O	15,000	E
5	1620	200 mmf	Ant.	A	1620	F
6	1400	200 mmf	Ant.	A	1400	G
7	600	200 mmf	Ant.	A	600	H

\*Adjust for minimum output (wavetrap).

**NOTE:** When aligning the short-wave oscillator trimmer (D), be sure that the circuit is aligned at the correct frequency and not at the image frequency which is 910 kilocycles lower as indicated by the receiver dial. To check: Tune in the generator frequency, then increase the generator output and tune in the image frequency. The image frequency should be weaker than the fundamental and audible 910 kilocycles lower on the receiver dial. If the image cannot be tuned in, the oscillator trimmer is adjusted to the wrong peak; i.e., the oscillator trimmer may be adjusted to the image or one of the harmonics instead of the fundamental frequency. The correct peak is the second one heard as the trimmer adjustment screw is opened from the completely closed position.

**FREQUENCY RANGE:** American Broadcast Band: 540 to 1600 kc. (Selector switch at A.)

Overseas Short-wave Band: 5.8 to 15 mc. (Selector switch at 0.)

**INTERMEDIATE FREQUENCY:** 455 kc.

**POWER SUPPLY:** 60 cycle a.c. only.

**VOLTAGE RATING:** 110-120 volts.

**POWER CONSUMPTION:** 60 watts maximum.

**POWER OUTPUT:** 4.5 watts minimum.

# CROSLEY

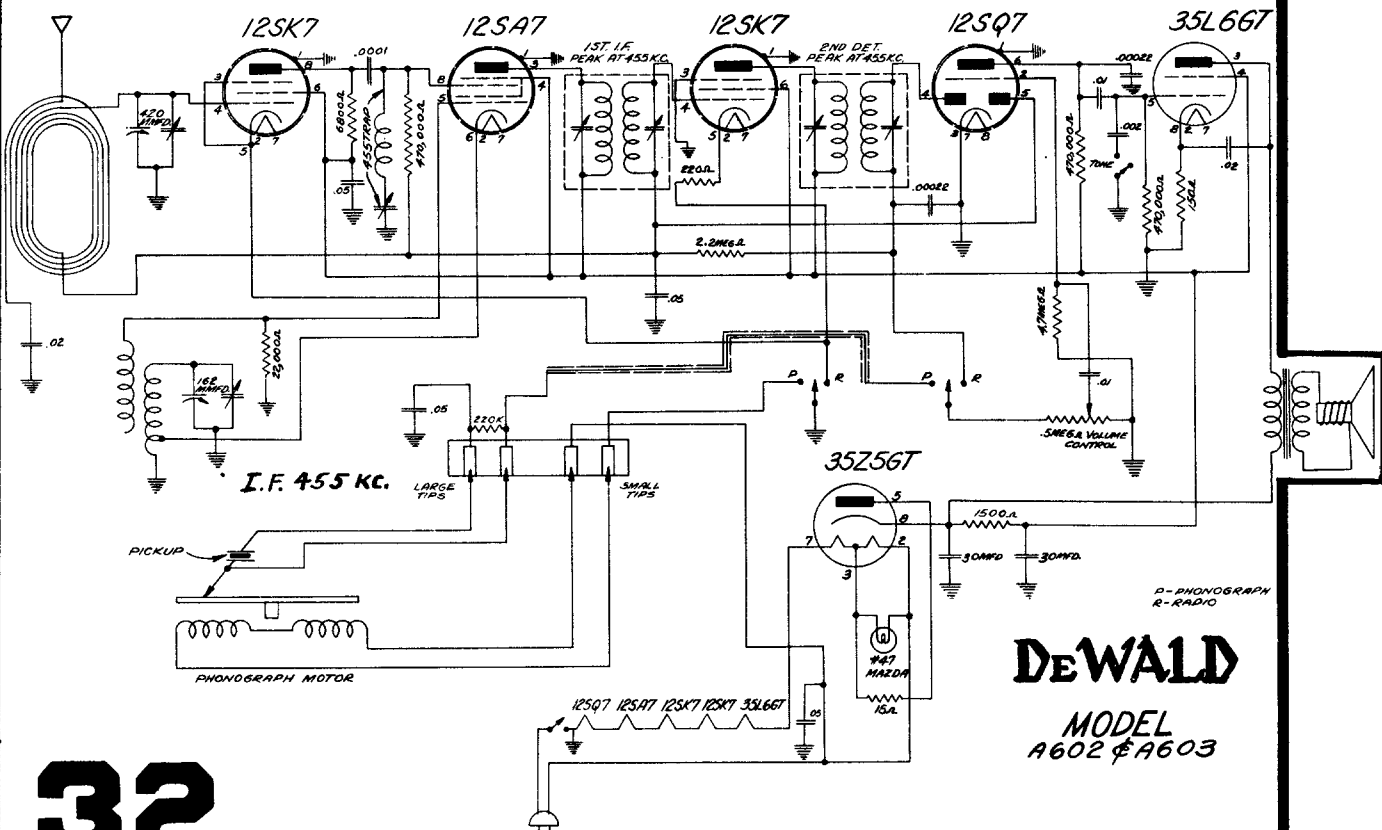
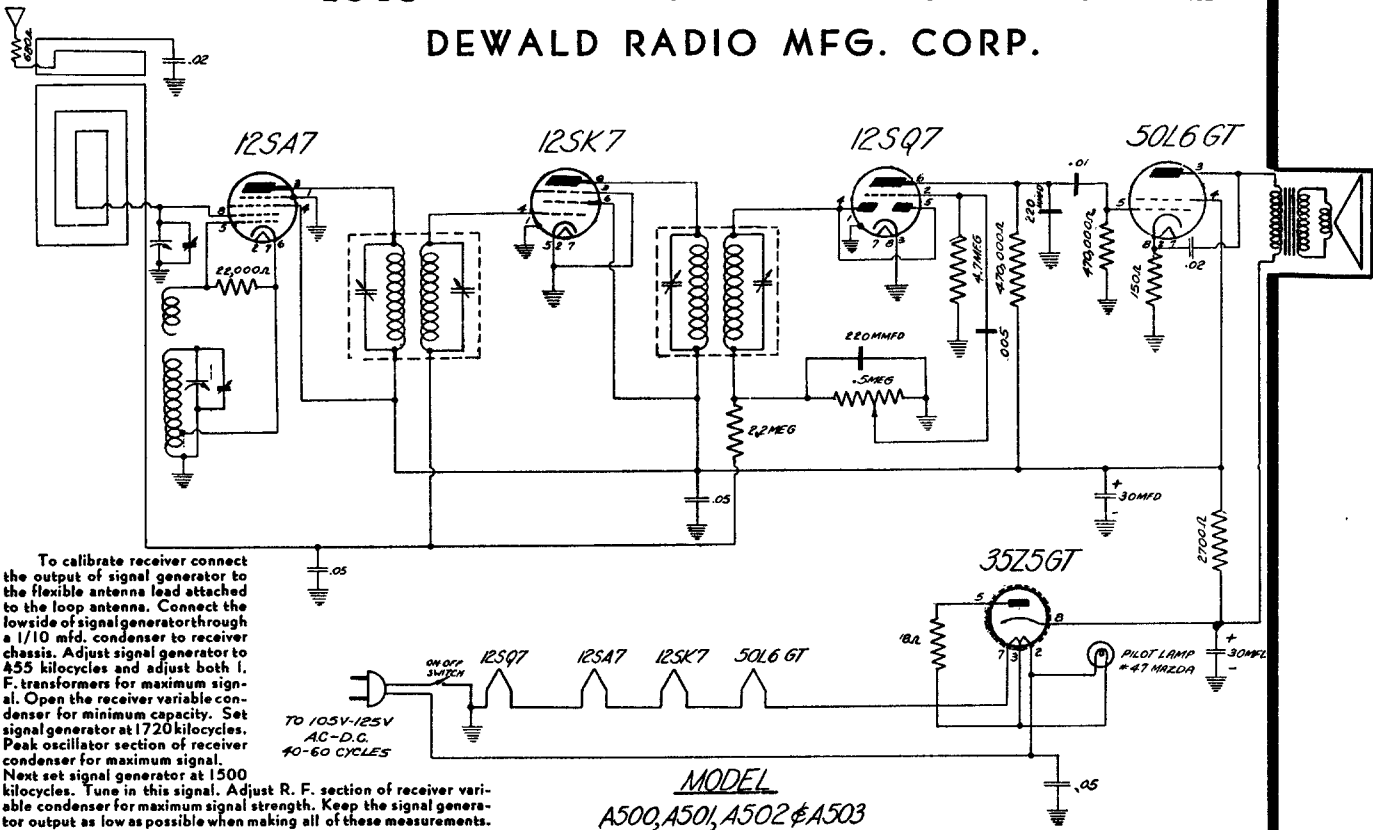
MODELS: 66TA, 66TW, 66TC

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# 31

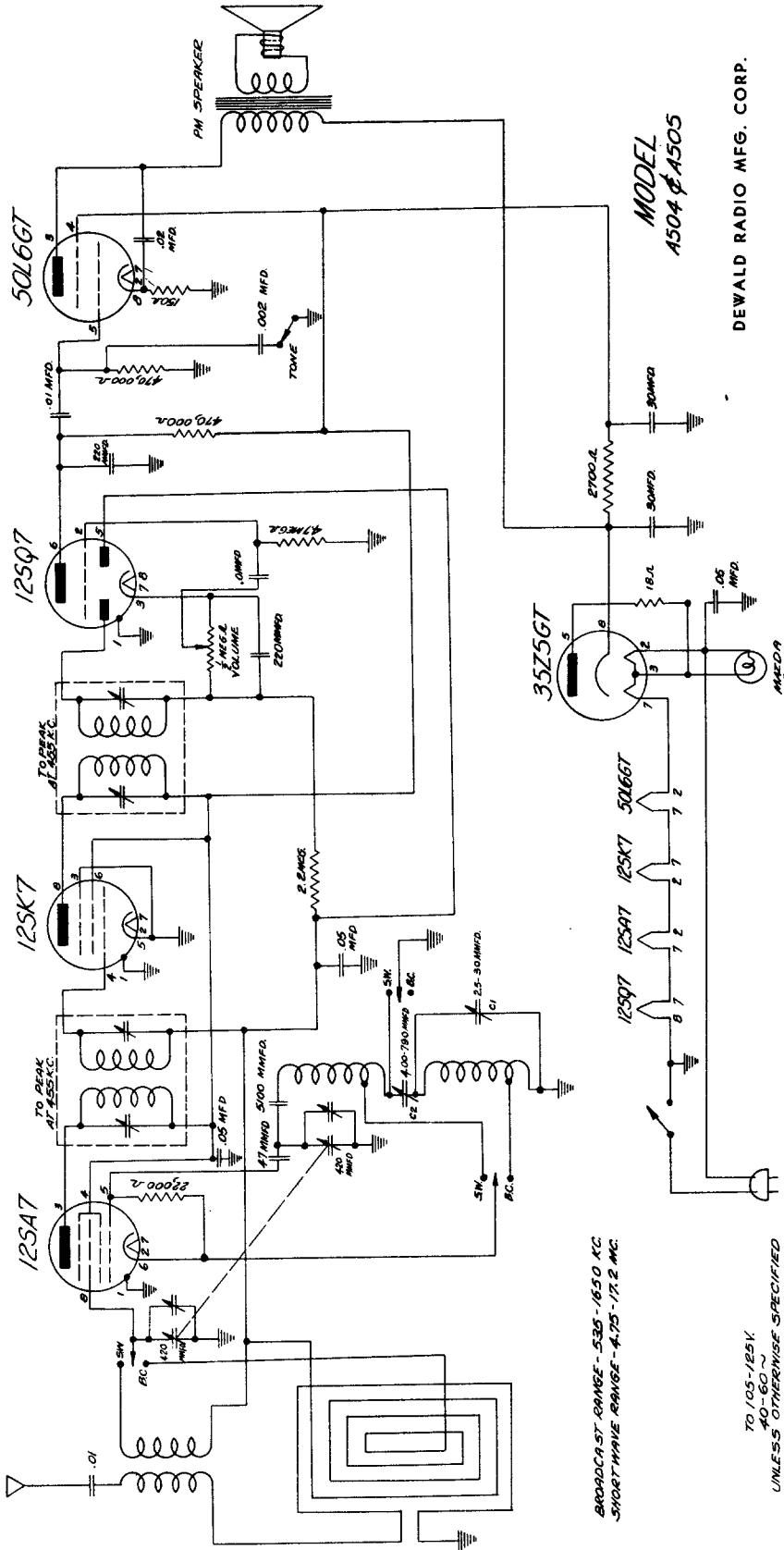
**MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS**  
**DEWALD RADIO MFG. CORP.**



**32**

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



BROADCAST RANGE - 535 - 1630 KC.  
SHORT WAVE RANGE - 4.75 - 17.2 MC.

TO 105-125K  
40-60 ~  
UNLESS OTHERWISE SPECIFIED

MODEL  
A504 & A505

DEWALD RADIO MFG. CORP.

To calibrate receiver connect the output of signal generator in series with a 200 MFD fixed condenser to the flexible antenna lead attached to the loop antenna. Connect the low side of signal generator through a 1/10 mfd. condenser to receiver chassis. The wave band switch should be in the broadcast position. Adjust signal generator to 800 kilocycles and adjust both I.F. transformers for maximum signal. Operate receiver to short wave position. Set minimum capacity of 17.2 megacycles. Peak oscillator section of receiver generator for maximum signal. Next set signal generator at 16 Megacycles. Tune in this signal. Adjust R.F. section of receiver variable condenser for maximum signal strength. The low frequency end of the dial is automatically adjusted by a fixed padder condenser. Next turn band switch to broadcast position. Rotate drive shaft until variable condenser is in minimum capacity position. Adjust signal generator to 1650 Kilocycles. Adjust the broadcast oscillator trimmer screw (C-1) until maximum signal from generator is heard. To adjust the low frequency, set the signal generator and receiver to 600 Kilocycles. Peak the broadcast padder (C-2) for maximum output. The variable condenser should be rocked during the operation. Keep the signal generator output as low as possible when making all of these measurements. It is extremely necessary in making the short wave adjustments, that the fundamental oscillator signal be tuned in and not the image frequency, which will fall below the fundamental.

The models A-504 and A-505 are superheterodyne receivers with full automatic volume control. A Loop-tenna is incorporated which makes the use of an antenna unnecessary, in most localities, for broadcast reception. These receivers will function from 105-125 volts, 40-60 cycles A.C. or D.C. power supply. A range of 585-1650 kilocycles and 4.75-17.2 megacycles (17.2-63H) is covered by these receivers.

The knob on the extreme right is the wave band switch control. When the knob is in the counterclockwise position, standard broadcast stations may be tuned in. To receive short wave stations, turn the knob to clockwise position. (Right)

**SHORT WAVE TUNING:**

On short waves the receiver is very selective and stations may be tuned in and out by a very small movement of the dial. Therefore greater care must be exercised when tuning short wave stations than broadcast stations. In order to receive broadcast stations, the dial should be turned clockwise. Short wave stations with a single division of the dial. A listing of short wave stations would be a great help when desiring to tune in any particular stations.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## EMERSON RADIO

Models 501, 502, 503, and 504.

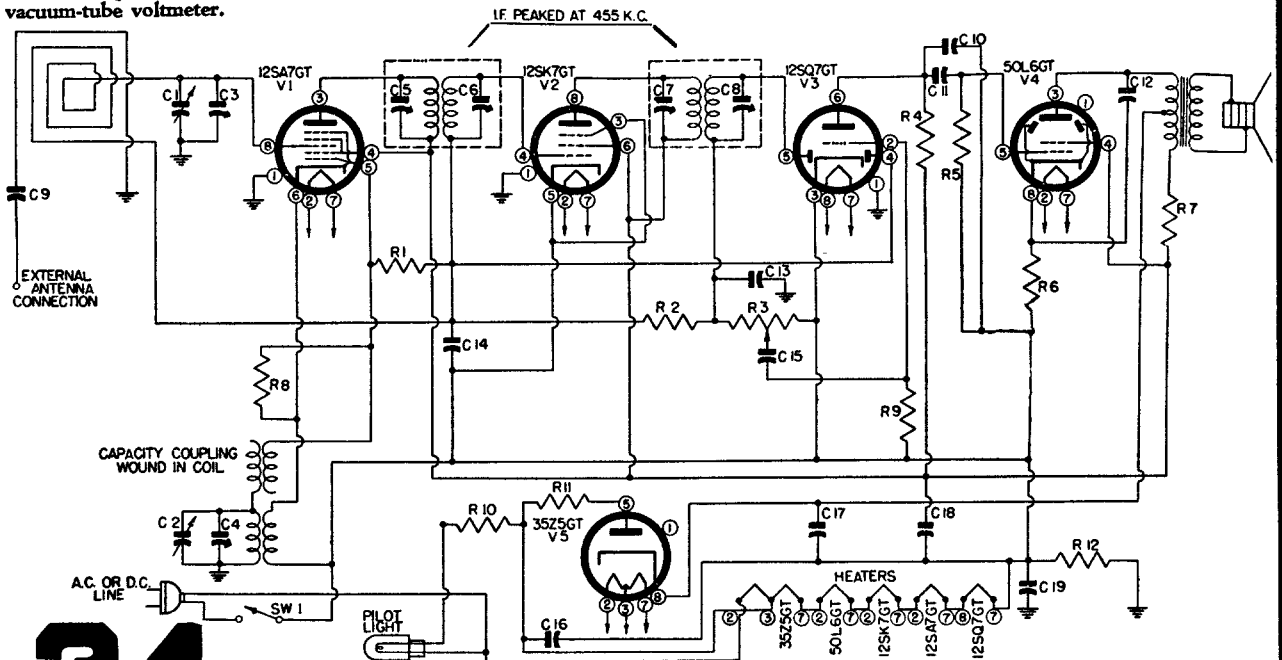
CHASSIS MODELS: 120000, 120029

Schematic Symbol	Part No.	DESCRIPTION
C1, C2	900160	Two-gang variable condenser (120029 chassis).....
C3		Trimmer, part of variable condenser.....
C4		Trimmer, part of variable condenser.....
C5, C6		Trimners, part of first i-f transformer.....
C7, C8		Trimners, part of second i-f transformer.....
C9, C15	920010	0.002 mfd., 600 volt condenser.....
C10	920170	0.001 mfd., 600 volt condenser.....
C11, C12	920020	0.02 mfd., 400 volt condenser.....
C13	910000	0.00022 mfd. mica condenser.....
C14	920040	0.1 mfd., 200 volt condenser.....
C16	920030	0.05 mfd., 400 volt condenser.....
C17, C18	925000	30-50 mfd., 150 V. dual dry-electrolytic condenser; C17—30 mfd., C18—50 mfd.
C19	920050	0.2 mfd., 200 volt condenser.....
L1	700000	Loop antenna, or.....
L1	700200	Loop antenna.....
R1, R9	397000	15 meg., 1/4 watt resistor.....
R2	321330	3.3 meg., 1/4 watt resistor.....
R3	390010	0.5 meg. volume control.....
R4, R5	321130	470,000 ohms, 1/2 watt resistor.....
R6	340290	150 ohms, 1/2 watt resistor.....
R7	370490	1000 ohms, 1 watt resistor.....
R8	310810	22,000 ohms, 1/4 watt resistor.....
R10	340010	10 ohms, 1/2 watt resistor.....
R11	397040	15 ohms, 1 watt wire-wound resistor.....
R12	321050	220,000 ohms, 1/4 watt resistor.....

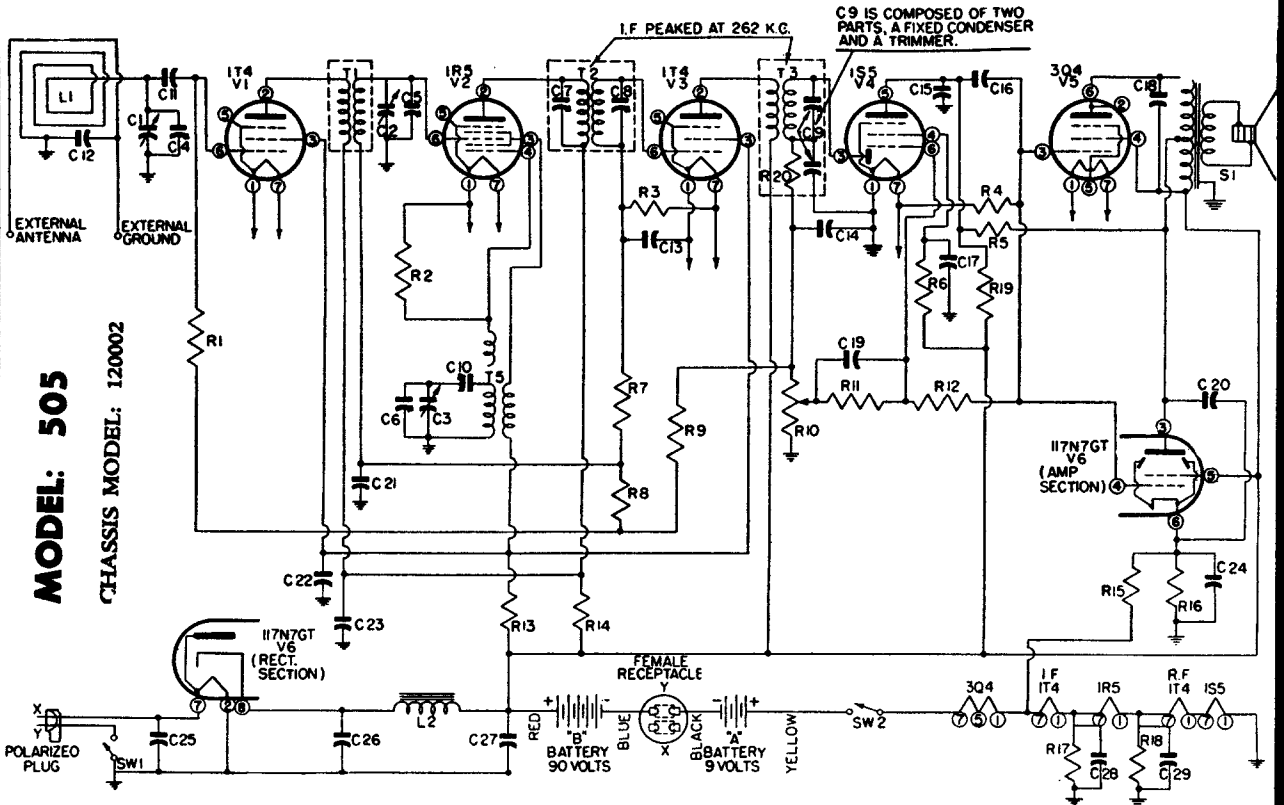
Models: 510, 519, 520,  
and Chassis: 120030,  
are similar.

TUBE	PIN NUMBER							
	1	2	3	4	5	6	7	8
12SA7			89	89	*-10			*-1.6
12SK7				*-1.6		89		89
12SQ7		*-0.7		*-1.6	-0.5	37.5		
50L6GT			110	89				6.2
35Z5GT				116		116		117

The following voltage readings are d-c measurements taken from B— (line switch) in the indicated tube-socket pin. 1000 ohms-per-volt meter should be used for all readings except those indicated by an asterisk (\*), which should be taken with a vacuum-tube voltmeter.

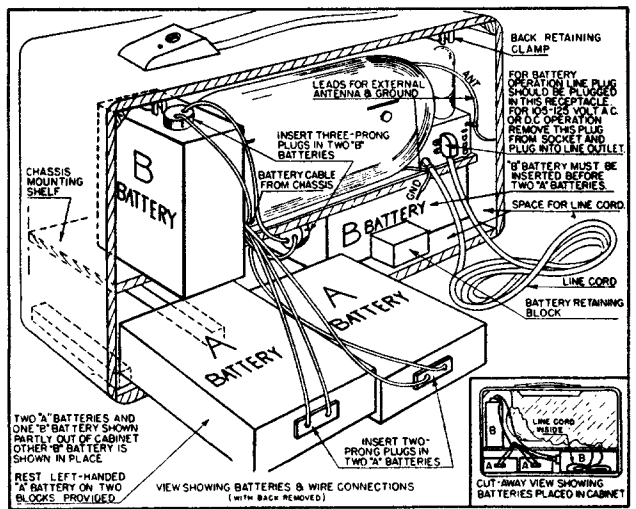


# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**MODEL: 505**  
CHASSIS MODEL: 120002

Schematic Symbol	DESCRIPTION
C1, C2, C3	Three-gang variable condenser
*C4	Trimmer part of C1
*C5	Trimmer, part of C2
*C6	Trimmer, part of C3
*C7, C8	Trimmers, part of T2
*C9	Trimmer and fixed condenser, part of T3
C10	Padding condenser
C11, C13	0.05 mfd., 200 V. condenser
C12, C18	0.002 mfd., 600 V. condenser
C14	110 mmfd., mica condenser
C15	400 mmfd., mica condenser
C16, C19, C21, C22, C29	0.02 mfd., 200 V. condenser
C17, C20	0.01 mfd., 400 V. condenser
C23	0.02 mfd., 400 V. condenser
C24	100 mfd., 25 V. electrolytic condenser
C25	0.05 mfd., 400 V. condenser
C26, C27	20-40 mfd., 135 V. dual electrolytic cond
C28	0.25 mfd., 100 V. condenser
L1	Loop antenna
L2	Filter choke
R1, R3, R5, R6, R7, R8	3.3 meg., 1/4 watt resistor
R2	100,000 ohms, 1/4 watt resistor
R4, R19	470,000 ohms, 1/4 watt resistor
R9	2.2 meg. 1/4 watt resistor
R10	Volume control, 500,000 ohms
R11	5.6 meg., 1/4 watt resistor
R12	10 meg., 1/4 watt resistor
R13	15,000 ohms, 1/2 watt resistor
R14	3,900 ohms, 1/2 watt resistor
R15	33 ohms, 1/4 watt resistor
R16	3,300 ohms, 1/4 watt resistor
R17	2,200 ohms, 1/4 watt resistor
R18	680 ohms, 1/4 watt resistor
*R20	47,000 ohms, 1/4 watt resistor, part of T4



- The color coding of the i-f transformer leads is as follows:  
Grid—green  
Grid return—black  
Plate—blue  
B+—red
- The color coding of the battery cable is as follows:  
Red—B+, 90 Volts  
Yellow—A+, 9 Volts  
Black—A—

# Emerson Radio

**MODEL: 505**  
Model 523 is similar.  
CHASSIS MODEL: 120002

# 35

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## EMERSON RADIO

**MODEL: 506**

CHASSIS MODEL: 120003

FREQUENCY RANGE: 540-1620 kc.

NUMBER OF TUBES: Six.

TYPE OF TUBES:

- 2—6SS7, r-f and a-f amplifiers
- 1—12SA7, pentagrid oscillator-modulator
- 1—12SF7, diode detector, i-f amplifier, a.v.c.
- 1—50L6GT, beam power output
- 1—35Z5GT, half-wave rectifier

POWER SUPPLY: A.C. only, 60 cycles.

VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION:

- 30 watts for the receiver.
- 20 watts for the phono motor.

- C1, C2
- C3
- C4
- C5, C28
- C6, C29
- C7, C8
- C9
- C10
- C11
- C12, C25
- C13, C17
- C14, C18, C19,
- C20, C22
- C15
- C16
- C21
- C23
- C24
- C26
- C27
- C30
- C31
- C32
- C33, C34, C35

- Two-gang variable condenser.....
- 1.6-12 mfd. trimmer.....
- Trimmer, part of C2.....
- 0.00022 mfd. mica condenser.....
- 0.00011 mfd. mica condenser.....
- Trimmers, part of T2.....
- Trimmer, part of T3.....
- Trimmer and fixed condenser, part of T3.....
- 0.02 mfd., 400 V. condenser.....
- 0.005 mfd., 400 V. condenser.....
- 0.002 mfd., 600 V. condenser.....
- 0.05 mfd., 200 V. condenser.....
- Trimmer, part of T1.....
- 8 mfd. 150 V. electrolytic condenser.....
- 0.0004 mfd. mica condenser.....
- 0.1 mfd., 200 V. condenser.....
- 0.000026 mfd. mica condenser.....
- 0.002 mfd., 600 V. condenser.....
- 0.00025 mfd. mica condenser.....
- 0.001 mfd., 600 V. condenser.....
- 0.05 mfd., 200 V. condenser.....
- 0.05 mfd., 400 V. condenser.....
- 20, 40, 80 mfd., 150 V. multiple electrolytic cond.....
- C33—40 mfd., C34—20 mfd., C35—80 mfd..

- R1
  - R2
  - R3, R5
  - R4
  - R6
  - R7
  - R8
  - R9
  - R10, R16,
  - R18, R19
  - R11, R20
  - R12
  - R13
  - R14
  - R15
  - R17
  - R21
  - R22
  - R23
- 1 meg., 1/4 watt resistor.....
  - 10,000 ohms, 1/4 watt resistor.....
  - 22,000 ohms, 1/4 watt resistor.....
  - 33,000 ohms, 1/4 watt resistor.....
  - 1,000 ohms, 1/2 watt resistor.....
  - 47,000 ohms, 1/4 watt resistor, part of T3.....
  - 10 meg., 1/4 watt resistor.....
  - 220,000 ohms, 1/4 watt resistor.....
  - 470,000 ohms, 1/4 watt resistor.....
  - 2.2 meg., 1/4 watt resistor.....
  - 47,000 ohms, 1/4 watt resistor.....
  - 150 ohms, 1/2 watt resistor.....
  - 3.3 meg., 1/4 watt resistor.....
  - 2.5 meg. volume control and switch.....
  - 100,000 ohms, 1/4 watt resistor.....
  - 15 ohms, 1/4 watt resistor.....
  - 180 ohms, 1 watt ceramic resistor.....
  - 470 ohms, 1 watt resistor.....

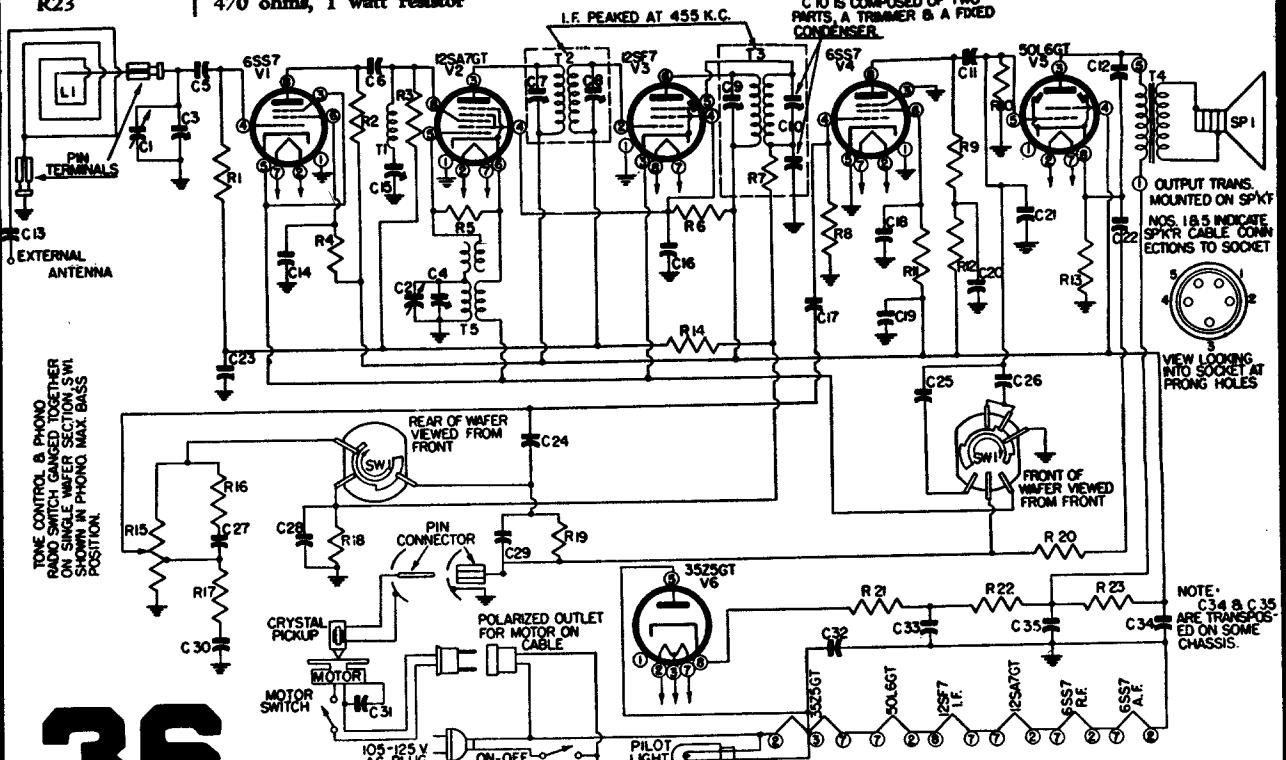
The receiver has a self-contained antenna and does not require additional antenna connections. For permanent home installations, however, if it is desired to improve reception of weak stations, an additional outdoor antenna may be used. For this purpose a lead has been brought out of the rear near the line cord.

The self-contained loop antenna has directional properties. It is important, therefore, once the station is tuned in, that the cabinet be rotated on its base back and forth through a quarter of a circle (90 degrees), and left at the position where the station is received with maximum volume.

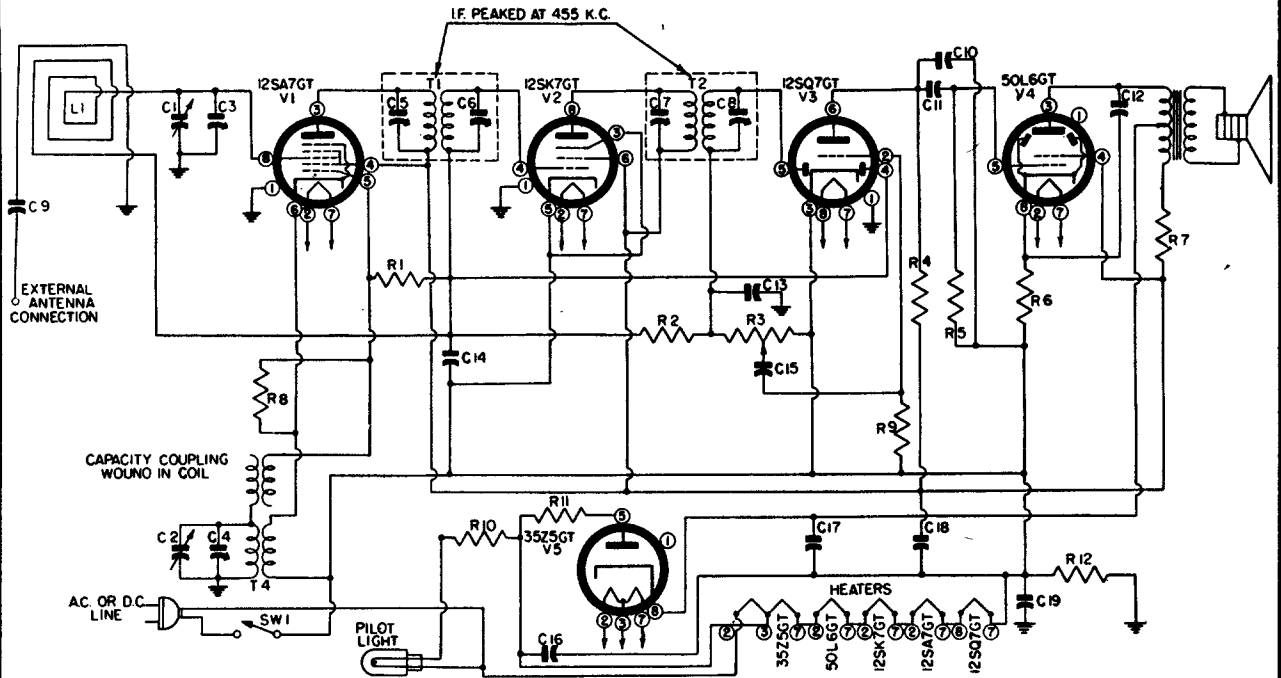
The color coding of the i-f transformer leads is as follows:

- Grid return—black
- Grid—green
- Plate—blue
- B+—red

C10 IS COMPOSED OF TWO PARTS, A TRIMMER & A FIXED CONDENSER.

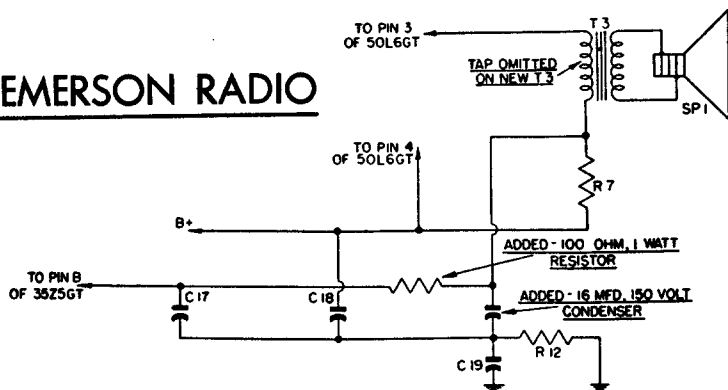


# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



Schematic Symbol	Part No.	DESCRIPTION
C1, C2	900160	Two-gang variable condenser.
*C3, C4		Trimmers, part of variable condenser.
*C5, C6, C7, C8		Trimmers, part of i-f transformers.
C9, C15	920010	0.002 mfd., 600 V. paper condenser.
C10	920240	500 mmfd., 600 V. paper condenser.
C11, C12	920020	0.02 mfd., 400 V. paper condenser.
C13	910000	220 mmfd., 600 V. mica condenser.
C14	920040	0.1 mfd., 200 V. paper condenser.
C16	920030	0.05 mfd., 400 V. paper condenser.
C17, C18	925000	Dual electrolytic condenser, 150 V.; C20—30 mfd., C21—50 mfd.
C19	920050	0.2 mfd., 200 V. paper condenser.
L1	700000	Loop antenna assembly, or
L1	700200	Loop antenna assembly.
R1, R9	397000	15 meg., ¼ watt carbon resistor.
R2	321330	3.3 meg., ¼ watt carbon resistor.
R3	390000	Volume control with line switch.
R4, R5	321130	470,000 ohms, ¼ watt carbon resistor.
R6	340290	150 ohms, ½ watt carbon resistor.
R7	370490	1000 ohms, 1 watt carbon resistor.
R8	310810	22,000 ohms, ¼ watt carbon resistor.
R10	340010	6.8 ohms, ¼ watt carbon resistor.
R11	397040	15 ohms, 1 watt wire-wound resistor.
R12	321050	220,000 ohms, ¼ watt carbon resistor.

## EMERSON RADIO



### MODELS: 507, 509, 518

(Model 522, Chassis 120004, is similar to these models).

CHASSIS MODEL: 120005

Some 120005 chassis have a modified filter circuit and untapped output transformer. The partial schematic circuit diagram at the left indicates the revision.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Emerson Radio

Models: 507, 509, 518

Chassis: 120005

### ADJUSTMENTS

An oscillator with frequencies of 455, 600, and 1425 kc. is required.

An output meter should be connected across the primary or secondary of the output transformer for observing maximum response.

Plug the receiver into the power supply outlet in such a way that the ground side of the power line is connected to the receiver B—.

Always use as weak a test signal as possible, turning down the output of the test oscillator as the alignment of the receiver progresses.

#### Location of Coils and Trimmer Adjustments

The first i-f transformer (T2) is mounted on top of the chassis deck to the right of the variable condenser. The trimmers (C6, C7) are accessible through holes in the top of the can.

The second i-f transformer (T3) is mounted on top of the chassis between the variable condenser and the speaker. The trimmers (C8, C9) are accessible through holes in the top of the can.

The trimmer for the antenna (C5) and the trimmer for the oscillator coil (C11) are located on the variable condenser. The trimmer on the front section is for the oscillator coil.

The oscillator coil (T4) is located underneath the chassis. The loop antenna acts as the antenna coil.

#### I-F Alignment

1. Rotate the variable condenser to the minimum capacity position.
2. Feed 455 kc. to the converter grid (stator of the r-f section of the variable condenser) and adjust the four i-f trimmers for maximum response.

#### R-F Alignment

1. Connect the oscillator to a coil composed of three to four turns of wire wound in a circle approximately 12" in diameter. This coil should be held parallel to and in line with the loop antenna of the receiver at a distance of 15 to 20 inches.
2. Radiate a signal at 1425 kc., set the dial indicator to 1425 kc., and adjust the trimmers on the variable condenser (C5, C11) for maximum response.
3. Radiate a 600 kc. signal and tune in the signal on the receiver. Adjust the loose outside turn of the loop antenna for maximum response. This loose turn may be moved to either side of the center. Fasten it in the position which gives maximum response.
4. Repeat steps (2) and (3) until no further improvement is evident.

FREQUENCY RANGE: 540-1620 kc.

### VOLTAGE ANALYSIS

TUBE	PIN NUMBER							
	1	2	3	4	5	6	7	8
12SA7			89	89	*-10			*-1.6
12SK7				*-1.6		89		89
12SQ7		*-0.7		*-1.6	*-0.5	37.5		
50L6			110	89				6.2
35Z5				116		116		117

The voltage readings are d-c measurements taken from B- (line switch) to the indicated tube-socket pin. A 1000 ohm-per-volt meter should be used for all readings except those indicated by an asterisk (\*), which should be taken with a vacuum-tube voltmeter (adjusted to measure d-c). These readings were obtained with a power input of 117 volts, 60 cycles a.c. Measurements made with 117 volts d.c. input will be lower than those given above. Take readings with the volume control set at minimum and the variable condenser in the closed (maximum capacity) position.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## EMERSON RADIO

**MODEL: 508**

CHASSIS MODEL: 120008

**TYPE OF TUBES:**

- 1—1R5, oscillator-modulator
- 1—1T4, i-f amplifier
- 1—1S5, 2nd detector, a.v.c., a-f amplifier
- 1—3S4, pentode output

**POWER SUPPLY:** "A" and "B" batteries.

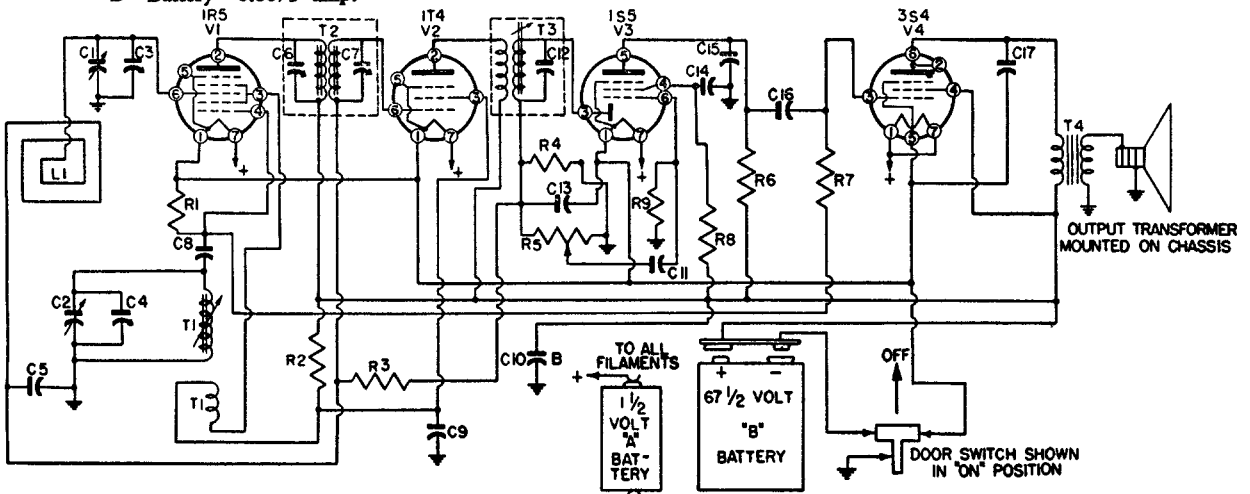
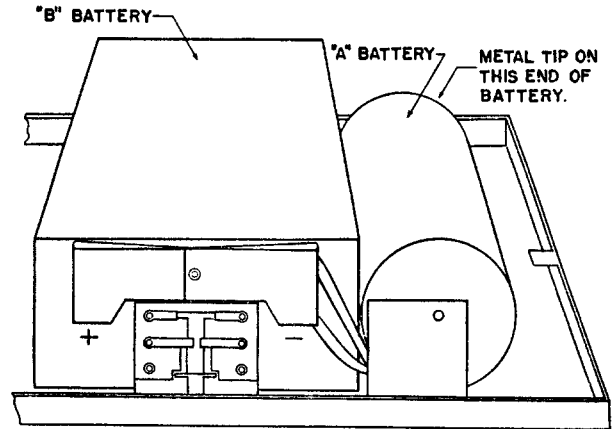
**VOLTAGE RATING:**

- "A" Battery—1.5 volts
- "B" Battery—67.5 volts

**CURRENT DRAIN:**

- "A" Battery—0.25 amp.
- "B" Battery—0.0075 amp.

BATTERIES MUST BE LOCATED EXACTLY AS ILLUSTRATED



- C1, C2 Variable condenser, or.....
- C1, C2 Variable condenser.....
- C3, C4 Trimmers, part of C1, C2.....
- C5, C9, C14 0.02 mfd., 100 V. roll-type condenser.....
- C6, C7 Trimmers, part of T2.....
- C8 0.0002 mfd. mica condenser, or.....
- C8 0.0002 mfd. ceramic condenser.....
- C10 8 mfd., 100 V. dry electrolytic condenser.....
- C11, C17 0.003 mfd., 150 V. roll-type condenser.....
- C12 Condenser, part of T3.....
- C13, C15 0.0001 mfd., ceramic condenser.....
- C16 0.001 mfd., 100 V. flat roll-type condenser.....
- L1 Loop assembly.....
- R1 100,000 ohms, 1/4 watt resistor.....
- R2 10,000 ohms, 1/4 watt resistor.....
- R3 3.3 meg., 1/4 watt resistor.....
- R4, R7 1 meg., 1/4 watt resistor.....
- R5 Volume control.....
- R6 0.47 meg., 1/4 watt resistor.....
- R8 4.7 meg., 1/4 watt resistor.....
- R9 10 meg., 1/4 watt resistor.....

**Location of Coils and Trimmer Adjustments**

The first i-f transformer (T2) is located next to the output transformer (T4). The trimmers (C6, C7) are accessible through holes in the top of the can.

The second i-f transformer (T3) is located between the 1T4 and 1S5 tubes. The single trimming core screw (C12) extends from the end of the can.

The oscillator coil (T1) is located next to the first i-f transformer. The trimmer for the oscillator (C4) is located on the smaller variable condenser section. The 600 kc oscillator core adjustment is the brass screw protruding from the end of the oscillator coil.

The loop antenna acts as the antenna coil. The trimmer for the loop (C3) is located on the larger section of the variable condenser.

TUBE	PIN NUMBER						
	1	2	3	4	5	6	7
1R5		67.5	40	*-7.0		*-0.3	1.5
1T4		67.5	40			*-0.3	1.5
1S5			*-0.35	*16.5	*39	*-0.3	1.5
3S4	1.5	65	*-7.0	67.5		65	1.5

Voltages marked (\*) are taken with vacuum-tube voltmeter.

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS RECORD CHANGER PART No. 819003

EMERSON RADIO

## AUTOMATIC OPERATION

### Loading

1. Turn the set on and the volume up and set the selector knob in the position for phonograph operation.
2. Turn the Spindle Cap (2) until it is as completely OUT OF LINE with the Spindle (3) as possible.
3. If ten-inch records are to be played, rotate the Record Support (4) to the left, and for twelve-inch record operation rotate the Record Support to the extreme right.
4. Insert a maximum of 12 ten-inch records or 10 twelve-inch records on the Spindle shoulder and Record Support.
5. Swing the Hold-Down Finger (5) so that it rests on the top record.

### Starting

To start operation, push the Starting Switch (6) to the ON position, then depress the switch button as indicated for reject.

### Reject Records

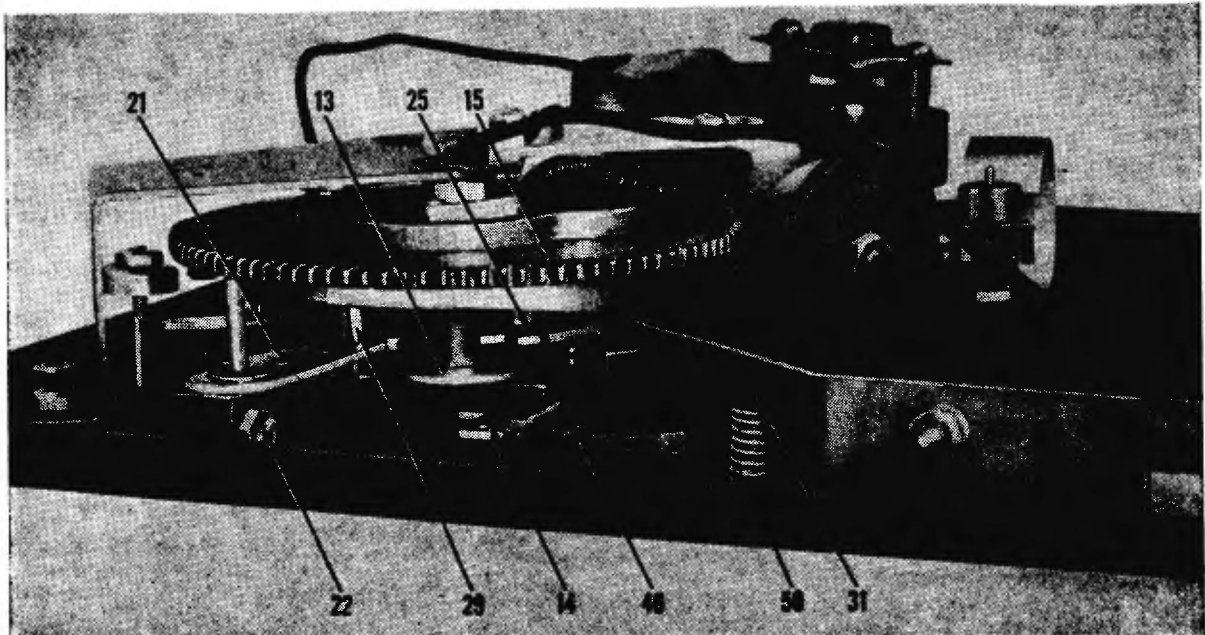
To reject a record, depress the Starting Switch button as indicated on the switch housing.

### Shut Off

1. Remove any records remaining on the Record Support.
2. Depress the Starting Switch as indicated for reject and allow the Pickup Arm (1) to reset on the record.
3. Gently lift the Pickup Arm and return it to the Rest Post (8).
4. Push the Starting Switch to the OFF position.

### Unloading

1. Rotate the Spindle Cap until it is aligned with the Spindle.
2. Turn the Hold-Down Finger aside.
3. Lift the records, tilting them slightly to clear the Record Support.



## MANUAL OPERATION

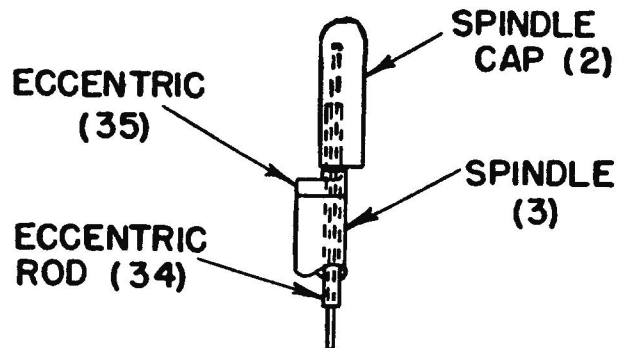
### Starting

1. Turn the set on and the volume up and set the selector knob in the position for phonograph operation.
2. Make sure the Spindle Cap is aligned with the Spindle and place the record over the Spindle and on the Turntable.
3. Push the switch to the ON position.
4. Place the Pickup Arm on the outer edge of the record to start operation.

### Shut Off

1. Allow Pickup Arm to complete its cycle and reset on the record. Gently lift the Pickup Arm and return it to the Rest Post.
2. Push the Starting Switch to the OFF position.

3. Do not overload the changer. The maximum load is either 12 ten-inch or 10 twelve-inch records. Use modern records in good condition.



SPINDLE ASSEMBLY

40

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

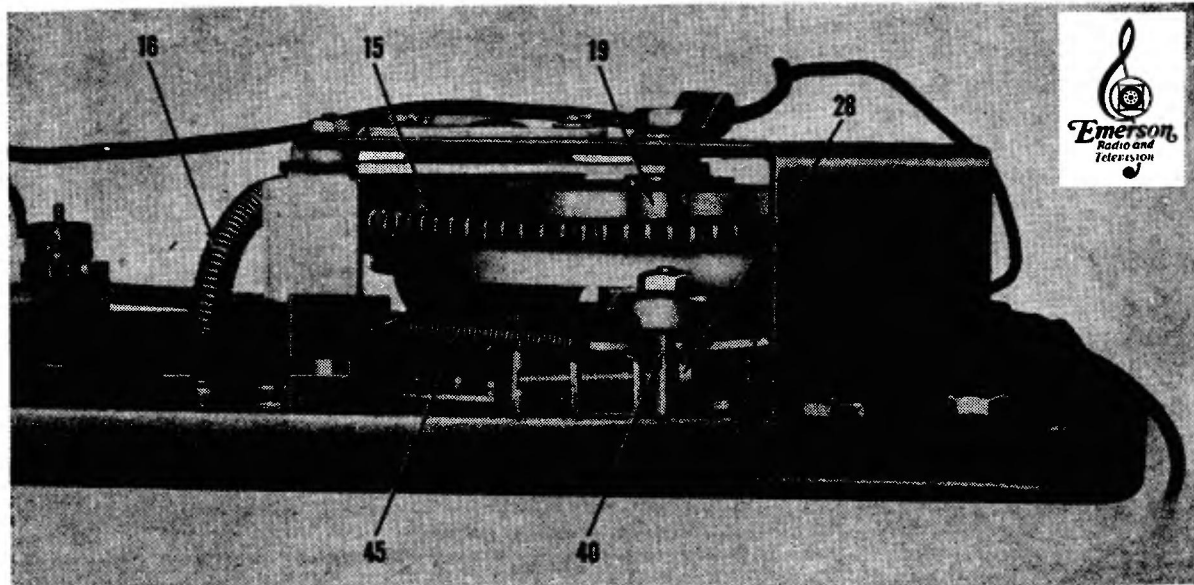
## OPERATING DESCRIPTION

This record changer is an automatic cam-type changer, featuring single-button control and eccentric-spindle record selection.

### Starting

After the Single Control Button (6) has been turned ON, thus supplying power to rotate the turntable, automatic cycling

may be started by depressing the button. This movement pushes the Trip Bar (31) forward, causing engagement with the Carrier Lever (14) and its attached cycling Drive Wheel (10). The latter thus contacts the rim of the turntable and rotates with it. This motion is transmitted through the Flexible Coupling (16) to the Worm Drive (17), which in turn drives the Main Cam (15).



### Cycling

A single revolution of the Main Cam results in complete automatic cycling of the changer. This includes selection of a record from the stack, lifting the Pickup Arm from its rest, and setting the needle on the edge of the record. Upon completion of the revolution, the Automatic Trip Cam (13) engages with the block on the Trip Lever and pulls the Carrier Lever (14) back to its original position so that the cycling Drive Wheel (10) is no longer engaged with the turntable rim.

### Record Feed

The lower side of the Main Cam (15) controls record selection. Motion of the Feed Cam Roller (19) about the cam results in a backward and forward movement of the Feed Sector Lever (18), thus engaging the Record Feed Pinion (20). This in turn causes the Eccentric (35) to first rotate to the proper position for record selection and to then return, allowing the record to drop over the Spindle.

### Pick-Up Arm Movement

The upper side of the Main Cam (15) controls Pick-Up Arm (1) movement. LIFT is imparted by motion of the Lift Pin along the vertical edge of the cam as the latter rotates. DIRECTION is controlled by engagement of the Main Cam with the Sweep Lever Pinion (29). The Sweep Lever (21) is attached to the Pick-Up Arm by means of a clamp (22) around the Pick-Up Arm Pivot Sleeve (23). A boss projecting from the upper side of the Main Cam displaces the Stop Lever (25) at

the end of the change cycle, thus permitting the Pick-Up Arm to proceed across the record.

### Positive Trip Action

As the Pick-Up Arm approaches the Spindle, the Sweep Lever (21) hits the Positive Trip Screw (28) mounted on the Trip Lever. This action reengages the drive wheel with the turntable rim and starts a new cycle.

### Ten-Inch or Twelve-Inch Operation

Adjusting the Record Support (4) to the ten-inch or twelve-inch position lowers the Selector Rod (40) a definite degree. The length of the extension of this rod determines the positioning of the Stop Lever (25). The latter is the means of regulating the distance the Sweep Lever (21) and its attached Pick-Up Arm travel before the arm is lowered to the edge of the record.

### Positive Trip

The tripping point of the changer may be readjusted by positioning of the Positive Trip Screw (28). Turn the screw clockwise to delay tripping and counter-clockwise to trip earlier in the playing cycle.

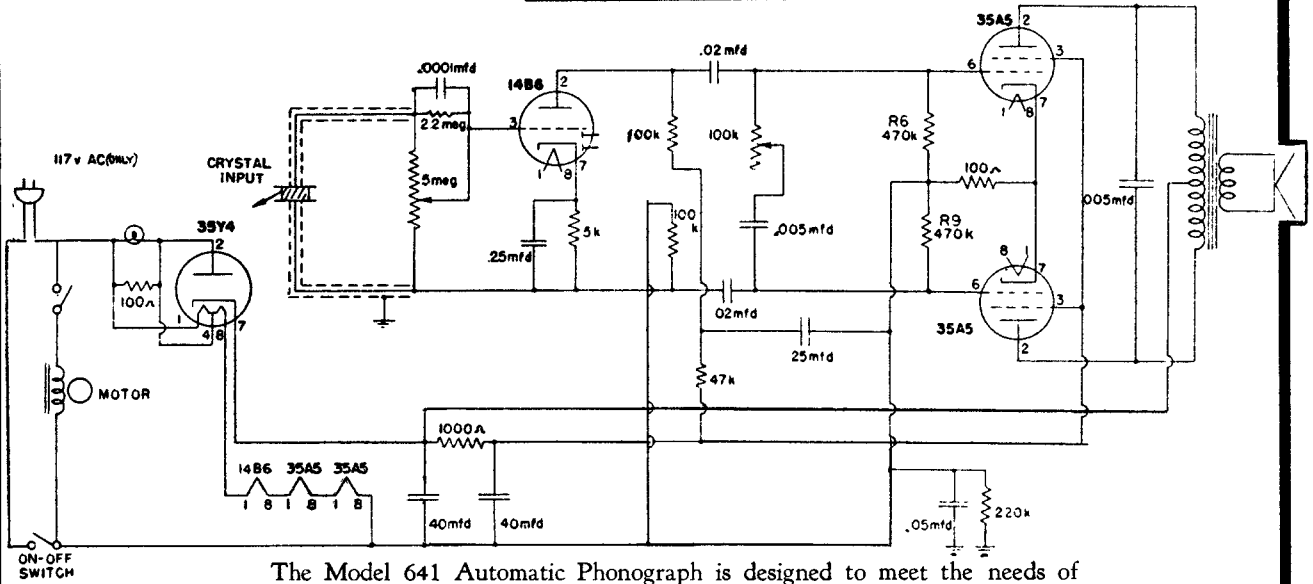
### Pick-Up Arm Drop Point

An external strain exerted on the Pick-Up Arm may alter the drop point. To adjust, loosen the screw on the Sweep Lever Clamp (22) slightly and reposition the Pick-Up Arm with respect to the Sweep Lever (21).



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Espey Manufacturing Co. Models 641, 642, Amplifier FJ-91A

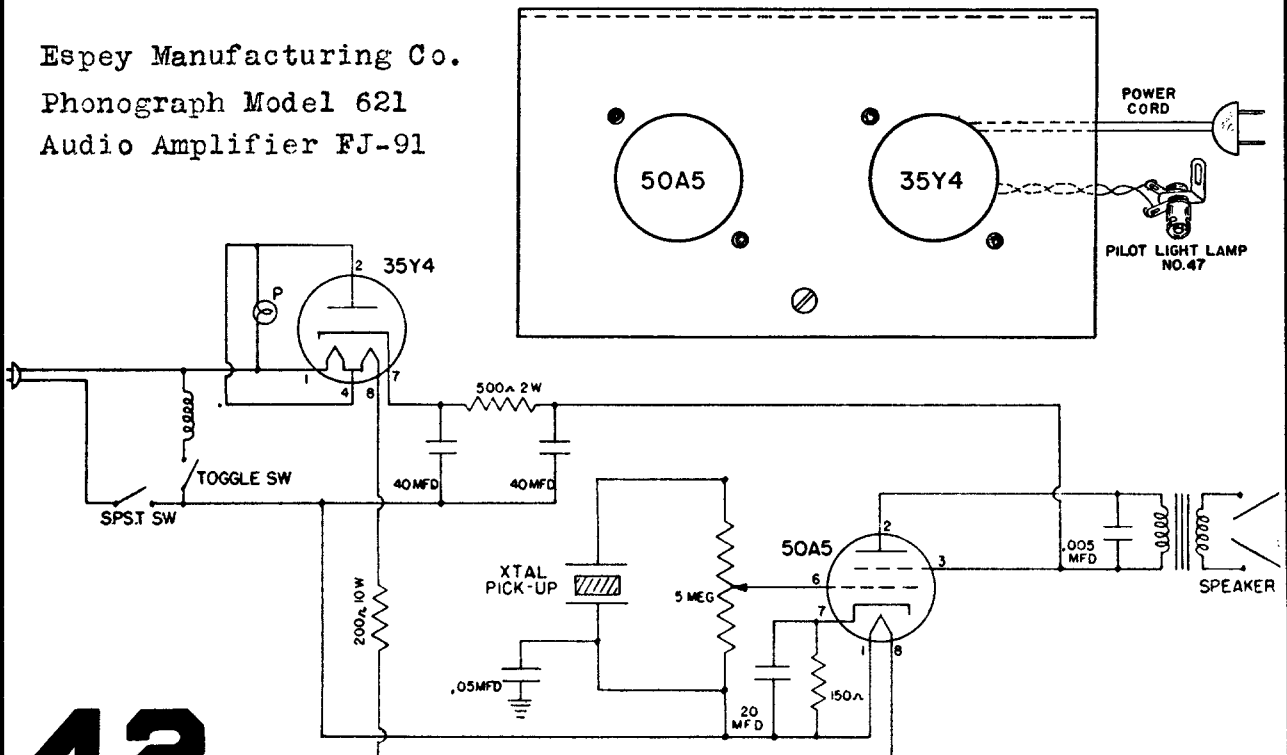


The Model 641 Automatic Phonograph is designed to meet the needs of music lovers for a phonograph that is automatic, portable, and complete in itself. The record changer is manufactured by the J. P. Seeburg Corp. It is the most sturdy, foolproof record changer of its type. The changer will play both 10" and 12" records automatically or manually. The tone arm is a feather-light crystal pick up.

The Model 642 Phonograph (non-automatic) incorporates the same features as the Model 641 except that records must be changed manually after each side is played.

The Type FJ-91A Push-Pull Amplifier (used in Models 641 and 642) employs four of the latest type loctal base tubes in a circuit designed to give high fidelity reproduction with more than enough volume to fill a large size room.

Espey Manufacturing Co.  
Phonograph Model 621  
Audio Amplifier FJ-91

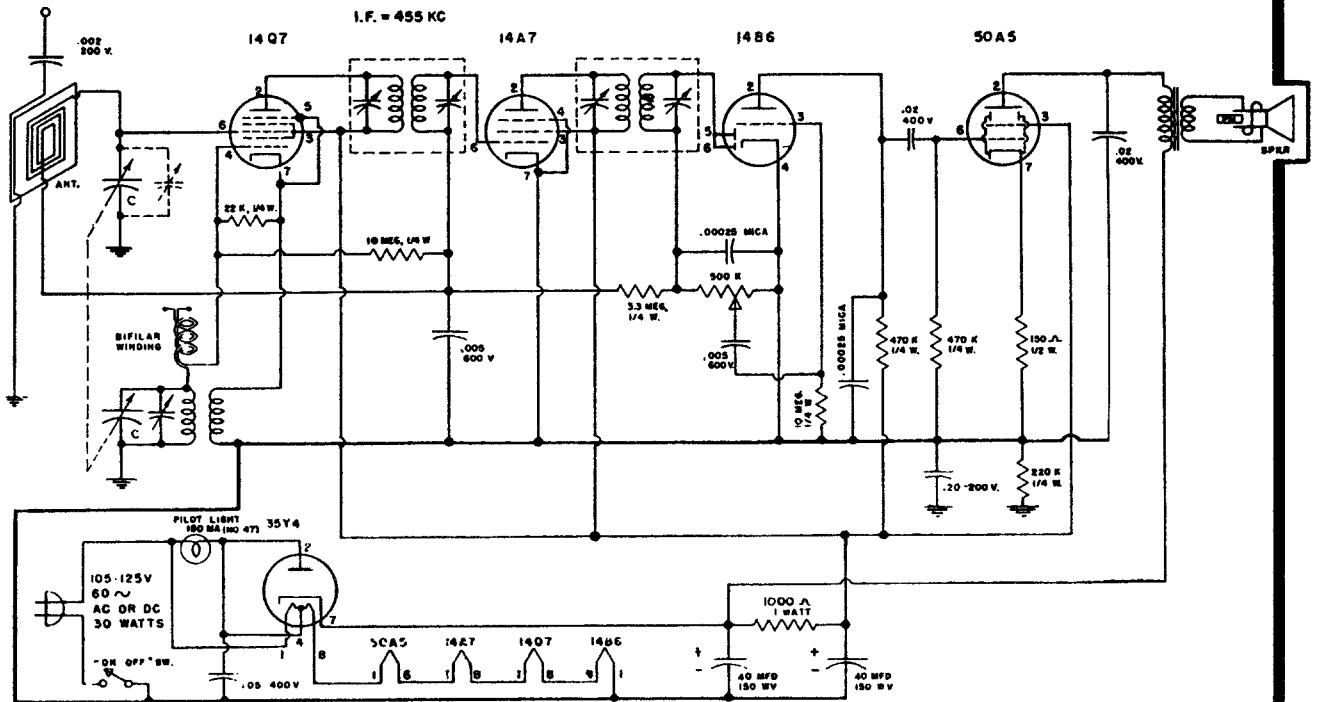


# 42

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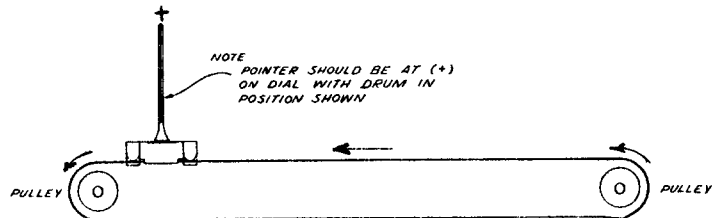
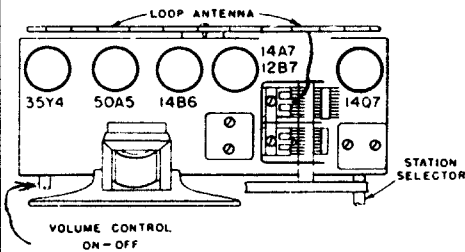
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Espey Manufacturing Company, Inc.



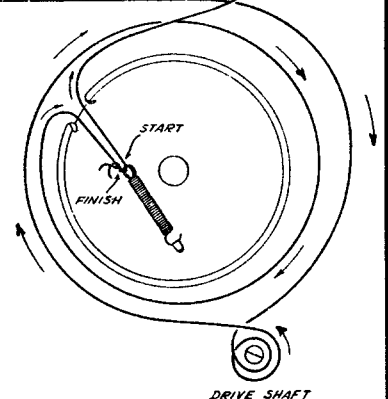
Chassis Model Fj-97 is used in the following complete set Model Nos.:

651	6521	6514	6531
652	6522	6516	6532
653	6511	6520	6533



DRAWING SHOWS POSITION OF DIAL DRUM WHEN CONDENSERS ARE FULLY MESHED.

ARROWS SHOW DIRECTION OF STRING WINDING.



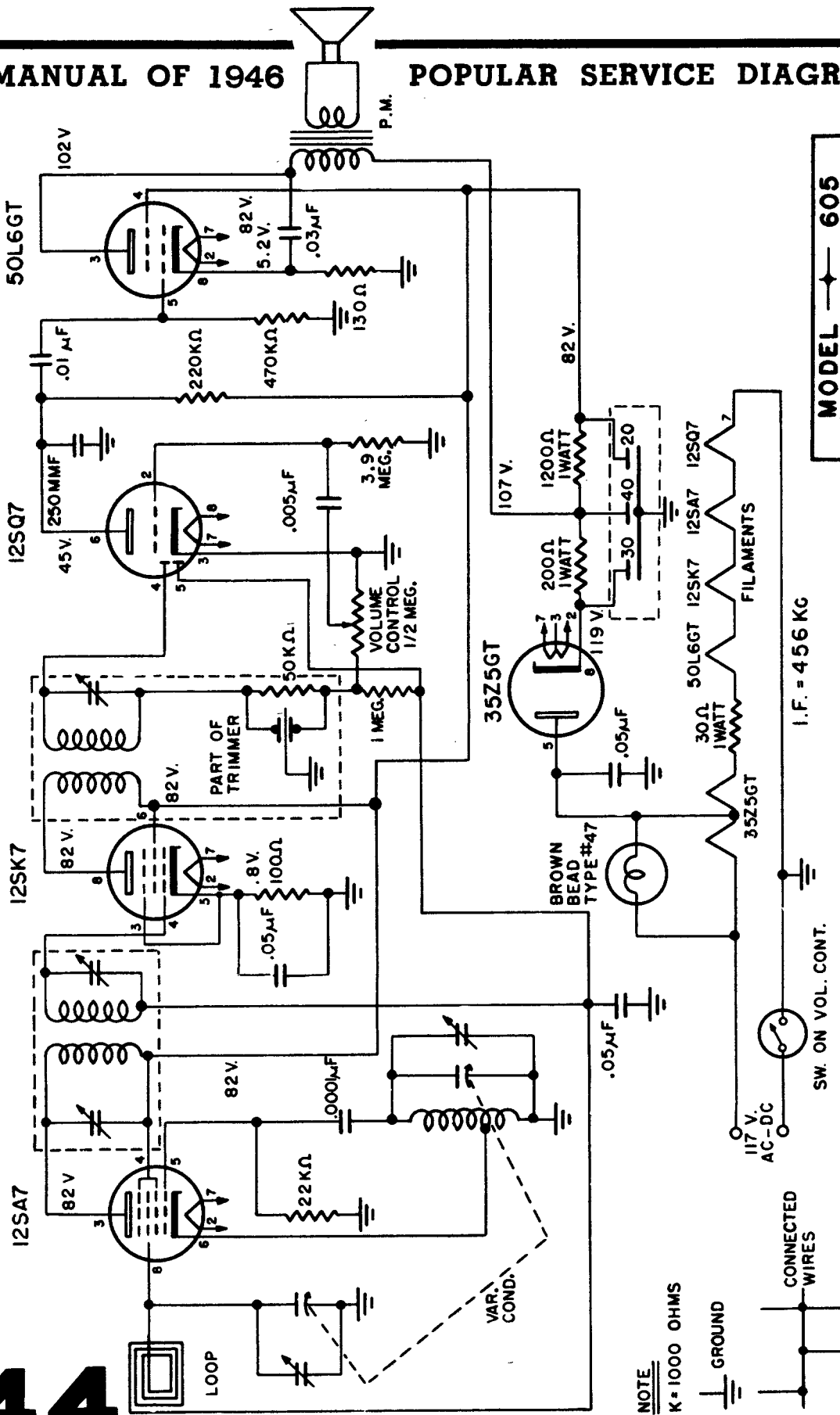
## Alignment Procedure

Steps	Connect output of oscillator to	Tune osc. to	Tune radio dial to	Adjust the following for max. peak output
1.	Tuning condenser stator (ant.) in series with .01 mfd.	455	Quiet point at high frequency end of dial.	1st and 2nd I. F. Transformers
2.	Antenna term. of Ant. loop in series with 100 mmf.	1720	Full clockwise (out of mesh)	Osc. trimmer
3.	Antenna term. of Ant. loop in series 100 mmf.	1500	1500	Ant. trimmer

Output meter is connected across voice coil. Receiver volume is turned to maximum.

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43

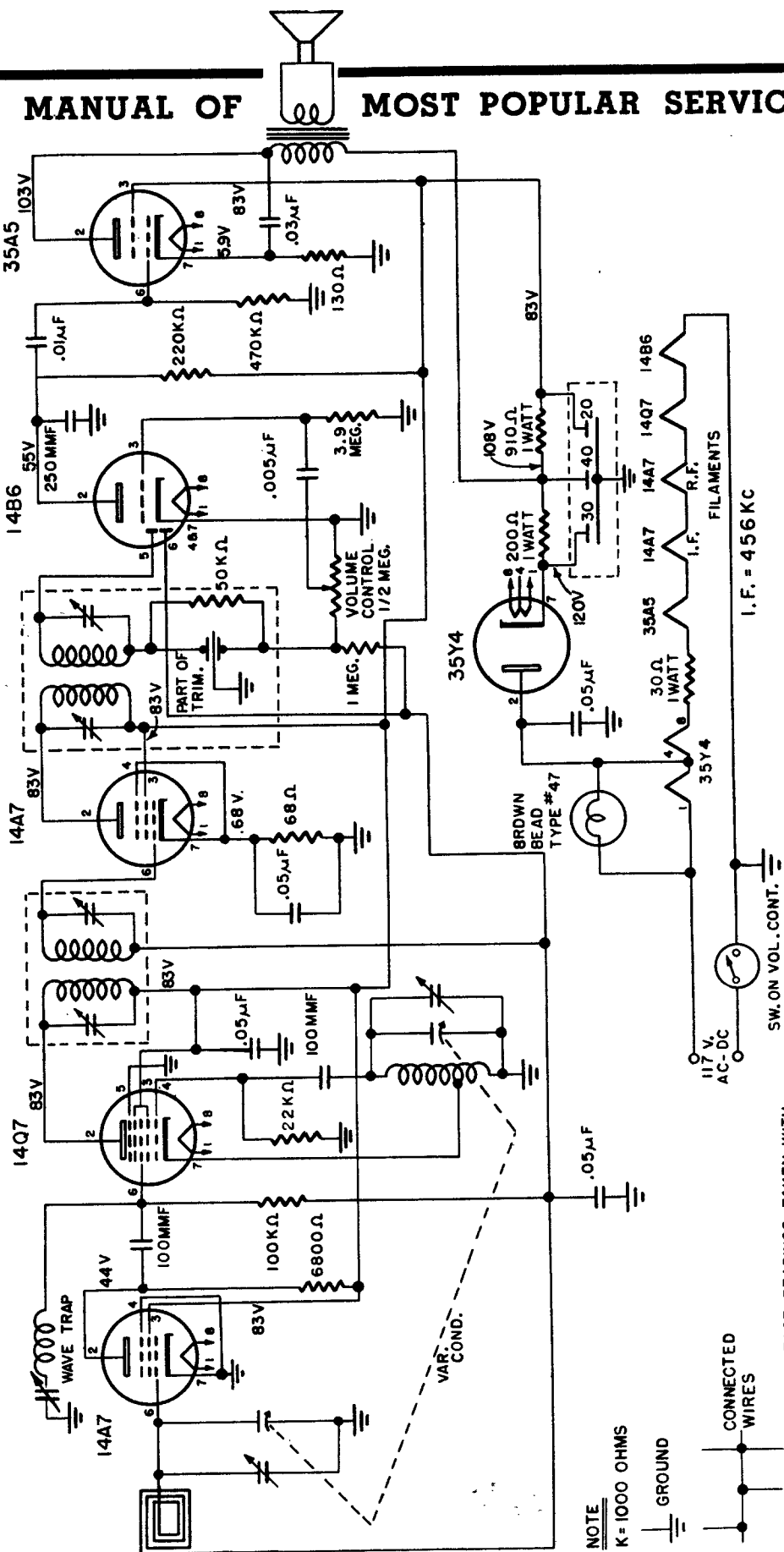


**MODEL** — **605**  
**SCHEMATIC**  
 FADA RADIO & ELECTRIC CO. INC.  
 LONG ISLAND CITY, N.Y. U.S.A.

Fada Radio Model 605  
 Circuit is similar to 605.

VOLTAGE READINGS TAKEN WITH  
 20,000 OHMS PER VOLT METER  
 117 VOLT 60 CYCLE LINE.  
 TUNING RANGE 528-1680 KC

**NOTE.**  
 K = 1000 OHMS  
 GROUND  
 CONNECTED WIRES  
 SW. ON VOL. CONT. I.F. = 456 KC

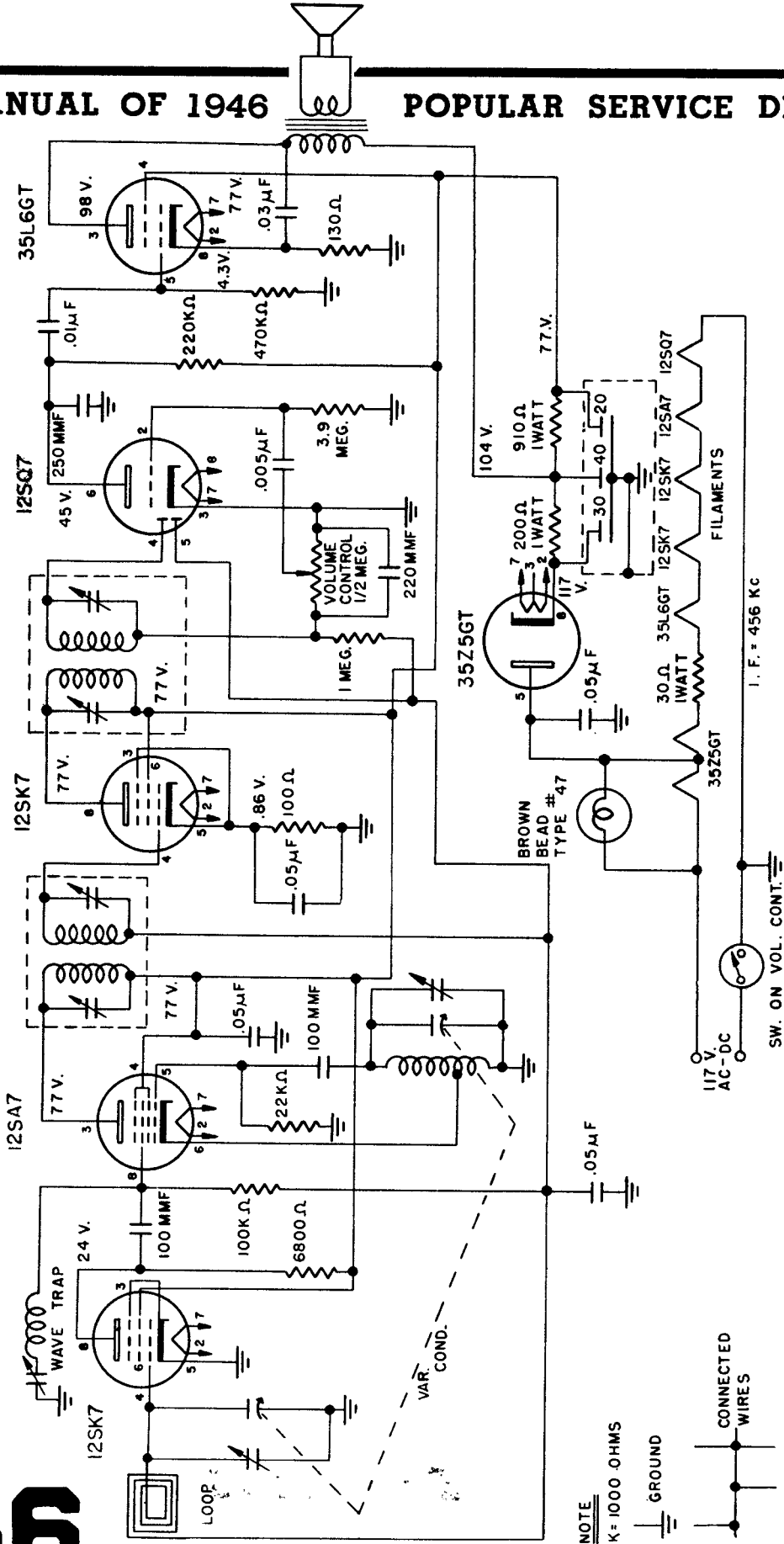


**MODEL 652**  
**SCHEMATIC**  
FADA RADIO & ELECTRIC CO., INC.  
LONG ISLAND CITY, N.Y. U.S.A.

VOLTAGE READINGS TAKEN WITH  
20,000 OHMS PER VOLT METER  
117 VOLT 60 CYCLE LINE  
TUNING RANGE 528 - 1680 KC

Power supply (25-60 cycles AC) 95-125V AC-DC  
Power consumption 30 Watts  
Frequency Range 1680-530 KC

46



MODEL 1000  
SCHEMATIC  
FADA RADIO & ELECTRIC CO., INC.  
LONG ISLAND CITY, N.Y. U.S.A.

Power supply (25-60 cycles AC) 95-125V AC-DC  
Power consumption 30 Watts  
Frequency Range 1680-528 KC

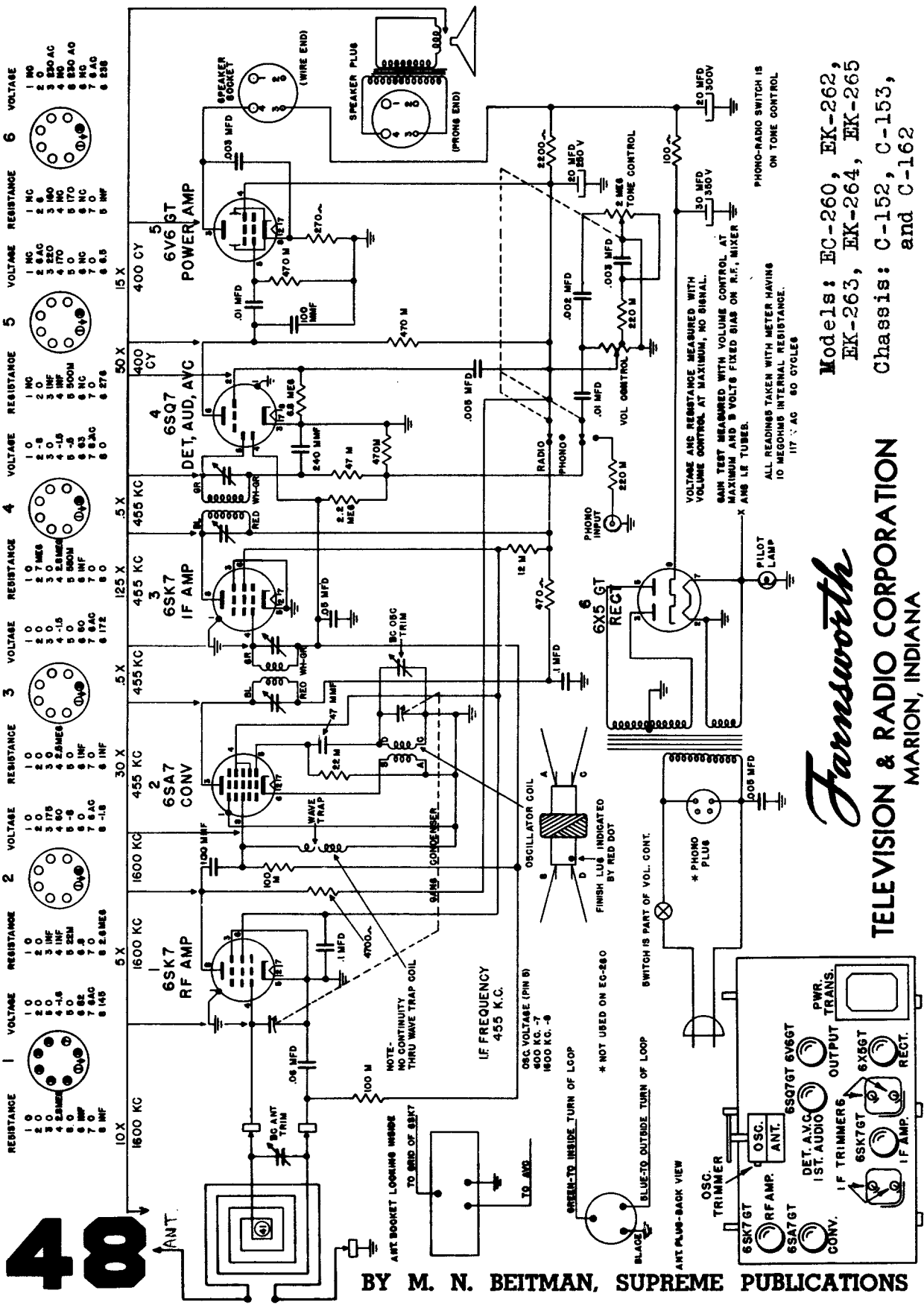
VOLTAGE READINGS TAKEN WITH  
20,000 OHMS PER VOLT METER  
NO SIGNAL CONDITION  
117 VOLT 60 CYCLE LINE  
TUNING RANGE 528 - 1680 KC

NOTE  
K = 1000 OHMS  
GROUND  
CONNECTED WIRES



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

# 48



**Farnsworth**  
**TELEVISION & RADIO CORPORATION**  
 MARION, INDIANA

Models: EC-260, EK-262,  
 EK-263, EK-264, EK-265  
 Chassis: C-152, C-153,  
 and C-162

BY M. N. BEITMAN, SUPREME PUBLICATIONS

General Electric  
Model 321

CONDITIONS OF TEST

MEASURED AT 117 VOLTS LINE ON A 20,000 OHMS PER VOLT METER.  
READINGS TAKEN BETWEEN TUBE PIN TERMINALS AND B-BUS.

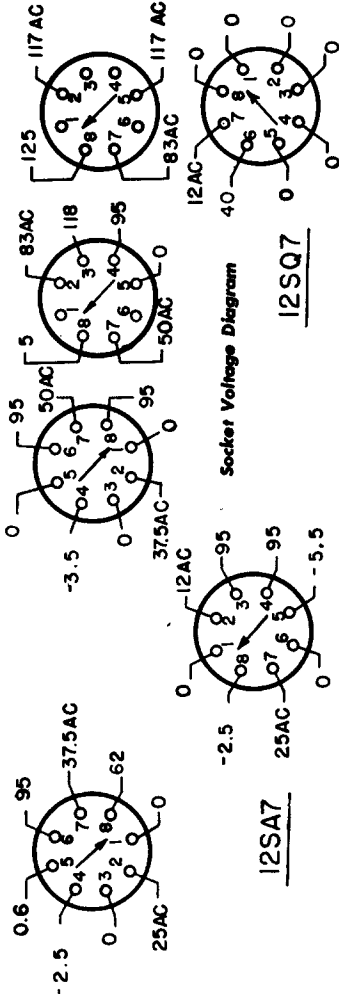
NO SIGNAL INPUT

35Z56T

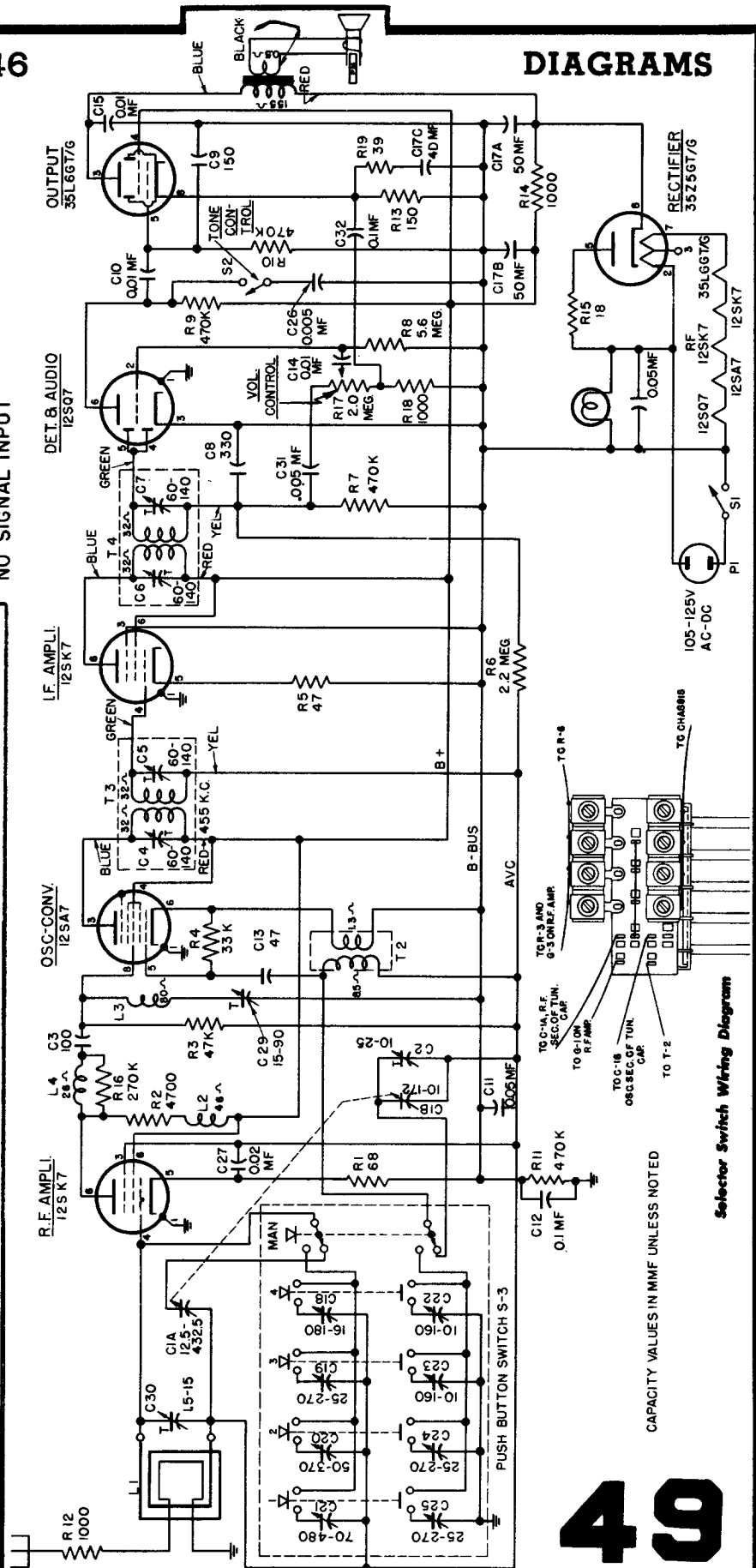
35L6GT

12SK7

12SK7



Socket Voltage Diagram



CAPACITY VALUES IN MMF UNLESS NOTED

Selector Switch Wiring Diagram



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

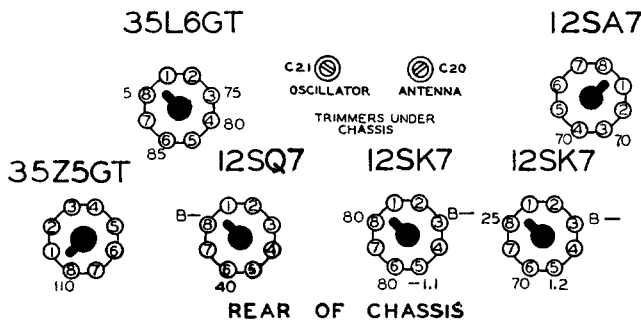
## ALIGNMENT PROCEDURE

- Volume control—Maximum all adjustments.
- Connect B— of radio chassis to ground post of signal generator through .1 Mfd. condenser.

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Rad.o	Variable Condenser Setting	Trimmers Adjusted to Maximum
I. F.	455 Kc.	.1 MFD.	Grid of 12SK7 2nd I. F.	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 MFD.	Grid of 12SA7 Converter	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
BROAD- CAST BAND	1720 Kc.	.1 mmf.	Grid of 12SA7	Rotor full open (Plates out of mesh)	Osc. trimmer C21
	1400 Kc.	200 mmf.	External Antenna and B—	Set Dial at 1400 K. C.	Ant. trimmer C20 See voltage chart view

The loop antenna should be connected to the radio and in its proper position when making all adjustments.

**BOTTOM VIEW OF CHASSIS**  
MEASUREMENTS TAKEN WITH A HIGH RESISTANCE  
VOLTMETER FROM "B—" TO DESIGNATED POINTS.



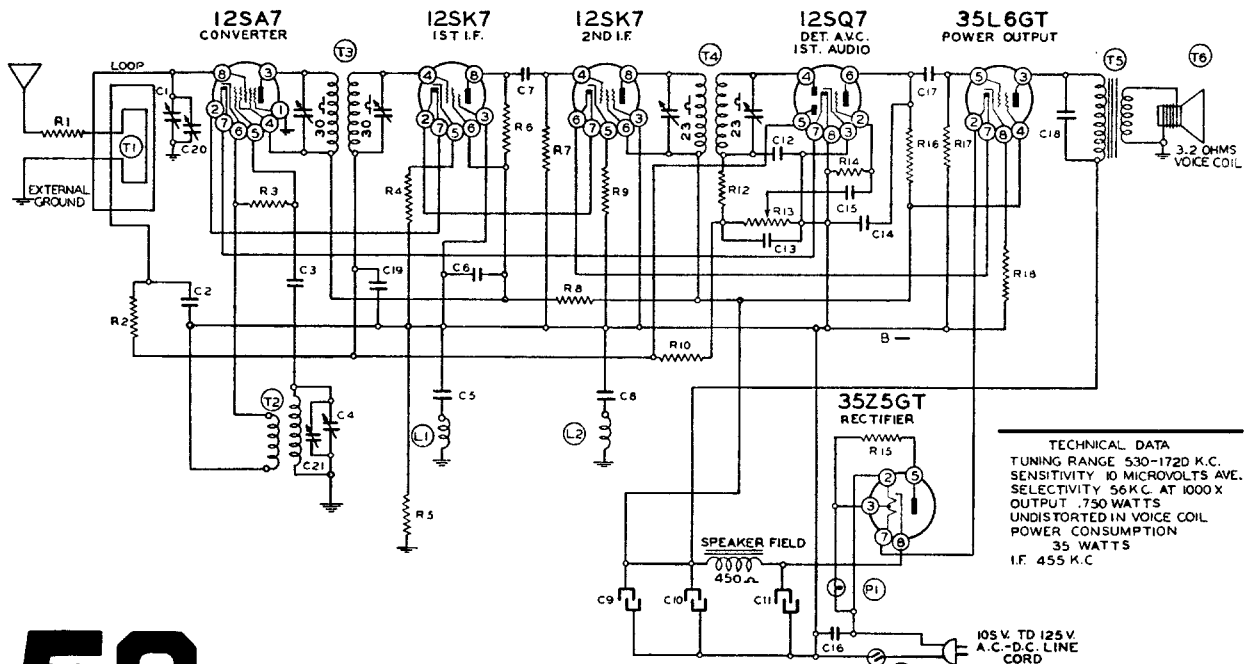
**Coronado Models**  
43-8351 & 43-8352

### CONDENSERS

- |                       |   |   |
|-----------------------|---|---|
| C1, C4, C20, C21      | Two Gang Condenser Complete with Tuner Assembly and Ant. and Osc. Trimmers          | 1 |
| C8, C17, C18          | .02 x 400 Volt Tubular Condenser  | 3 |
| C15                   | .002 x 600 Volt Tubular Condenser   | 1 |
| C2, C19               | .05 x 200 Volt Tubular Condenser  | 2 |
| C6                    | .1 x 200 Volt Tubular Condenser   | 1 |
| C5                    | .2 x 400 Volt Tubular Condenser   | 1 |
| C16                   | .1 x 400 Volt Tubular Condenser   | 1 |
| C9, C10, C11          | Electrolytic Filter Condenser. 20 Mfd. x 150 V.; 20 Mfd. x 150 V.; 40 Mfd. x 150 V. | 1 |
| C3, C7, C12, C13, C14 | .0001 Mica Type Condenser—20%   | 5 |

### RESISTORS

- |         |                                      |   |
|---------|--------------------------------------|---|
| R13, S1 | Volume Control and Switch (1 Megohm) | 1 |
| R6      | 10M Ohm—1/2 Watt Resistor—10%        | 1 |
| R10     | 3 Megohm—1/2 Watt Resistor—20%       | 1 |
| R3      | 20M Ohm—1/2 Watt Resistor—20%        | 1 |
| R18     | 150 Ohm—1/2 Watt Resistor—10%        | 1 |
| R11     | 200 Ohm—1 Watt Resistor—10%          | 1 |
| R15     | 25 Ohm—1/2 Watt Resistor—10%         | 1 |
| R17     | 1 Megohm—1/2 Watt Resistor—20%       | 1 |
| R14     | 5 Megohm—1/2 Watt Resistor—25%       | 1 |
| R12     | 100M Ohm—1/2 Watt Resistor—20%       | 1 |
| R16     | 200M Ohm—1/2 Watt Resistor—20%       | 1 |
| R4      | 100 Ohm—1/2 Watt Resistor—10%        | 1 |
| R7      | 500M Ohm—1/2 Watt Resistor—20%       | 1 |
| R9      | 200 Ohm—1/2 Watt Resistor—10%        | 1 |
| R1, R8  | 1M Ohm—1/2 Watt Resistor—10%         | 2 |
| R2, R5  | 150M Ohm—1/2 Watt Resistor—20%       | 2 |



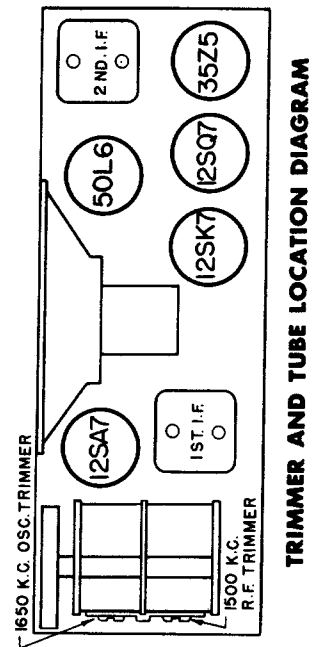
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

# GAROD RADIO

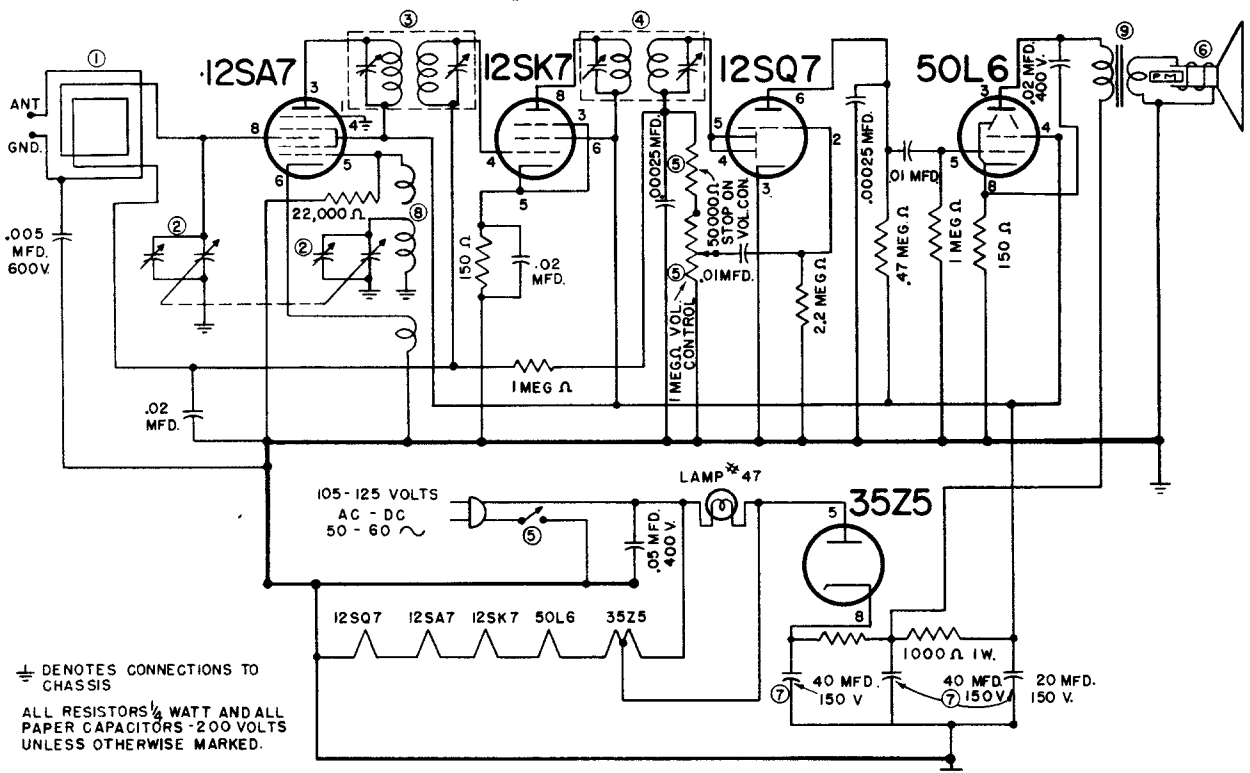
## MODEL 5A2

**ALIGNMENT:** Should it become necessary at any time to check the alignment of this receiver, proceed as follows:

- (1) Set the Signal Generator to 455 KC and connect to the stator lug on the rear section of the Variable Capacitor. Connect the Signal Generator Ground lead to the chassis. Connect a suitable output meter across the Speaker Voice Coil Connections. Turn the Volume Control to the maximum position. Turn the Variable Capacitor to the extreme clockwise position.
- (2) Adjust the trimmers located at the top of the first and second I. F. Transformers for maximum output as indicated on the Output Meter.
- (3) Loosely couple the Signal Generator lead to the Loop and set to 1650 KC.
- (4) With the Variable Capacitor set at the extreme clockwise position, tune in the 1650 KC signal by means of the Oscillator Trimmer on the Variable Capacitor (front section).
- (5) Set the Signal Generator to 1500 KC and turn the Tuning Control so that this frequency is indicated on the dial. Adjust the Antenna Trimmer on the Variable Capacitor (rear section) for maximum output. No other adjustments are necessary.



TRIMMER AND TUBE LOCATION DIAGRAM



⊕ DENOTES CONNECTIONS TO CHASSIS  
 ALL RESISTORS 1/2 WATT AND ALL PAPER CAPACITORS - 200 VOLTS UNLESS OTHERWISE MARKED.

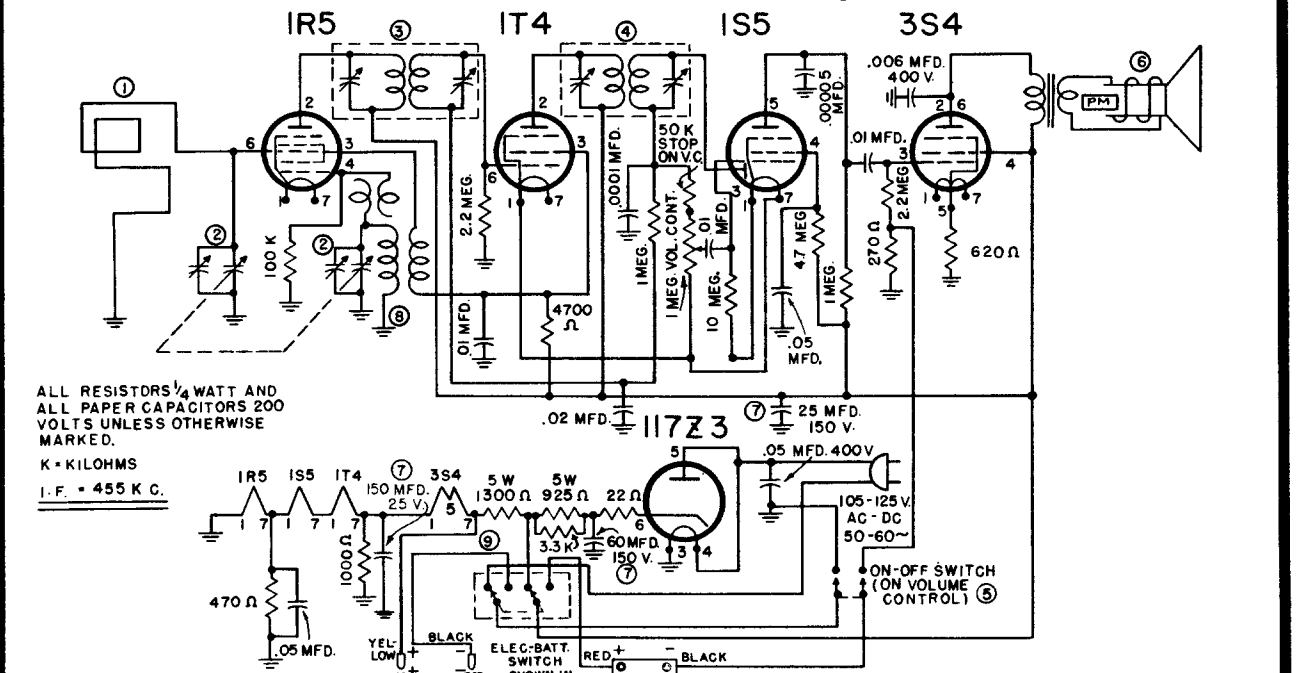
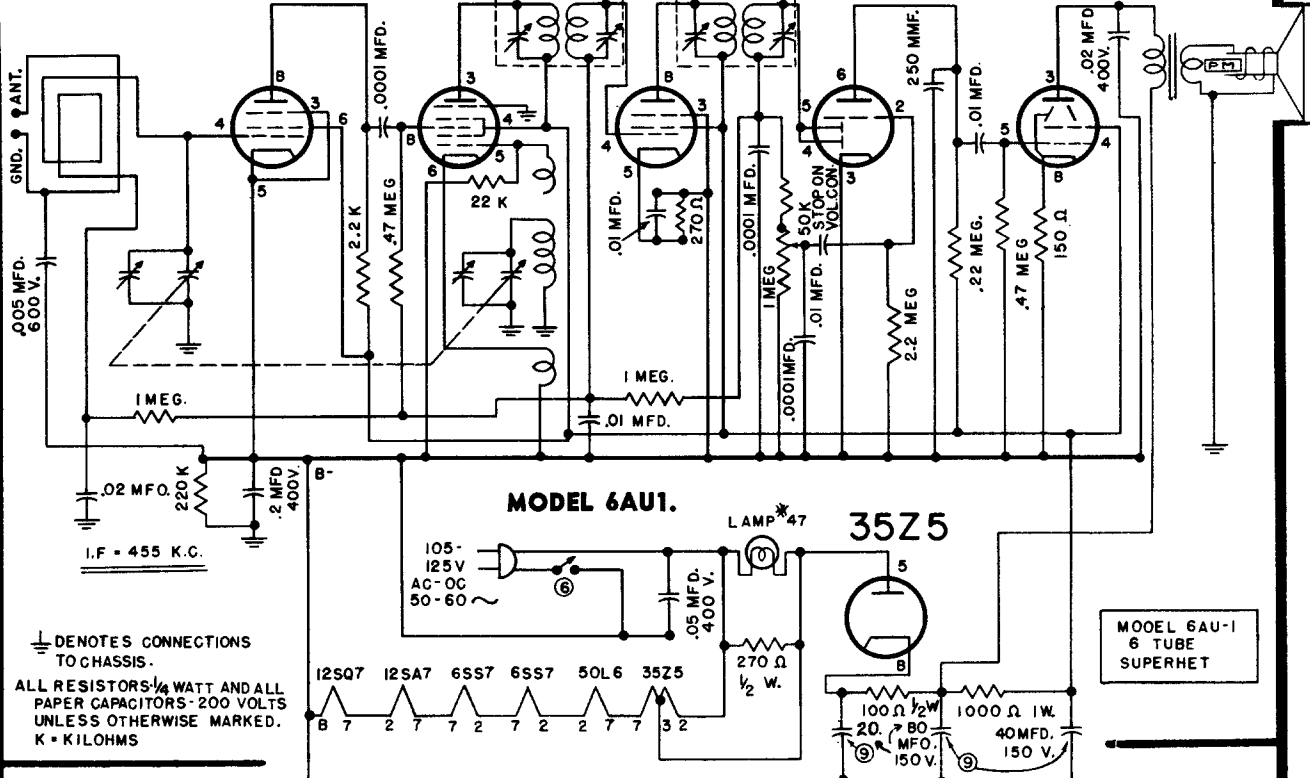
- |                               |   |
|-------------------------------|---|
| ① 1.403 LOOP ASSEMBLY         | ⑤ 8.200-1 VOLUME CONTROL & SWITCH         |
| ② 2.163 2GANG VARIABLE COND.  | ⑥ 30,300 P.M. 5" SPEAKER                  |
| ③ 1.259 1ST. I.F. TRANSFORMER | ⑦ 5.400-8 ELECTROLYTIC CAP. 40-40-20 MFD. |
| ④ 1.409 2ND. I.F. TRANSFORMER | ⑧ 1.402 OSCILLATOR COIL                   |
|                               | ⑨ 9.200 OUTPUT TRANSFORMER                |

I. F. - 455 K.C.

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

6SS7 12SA7 6SS7 12SQ7 50L6



**MODEL 5D**

BATTERY TRAY  
5-1/2 V. CELLS IN SERIES SIZE 'D'

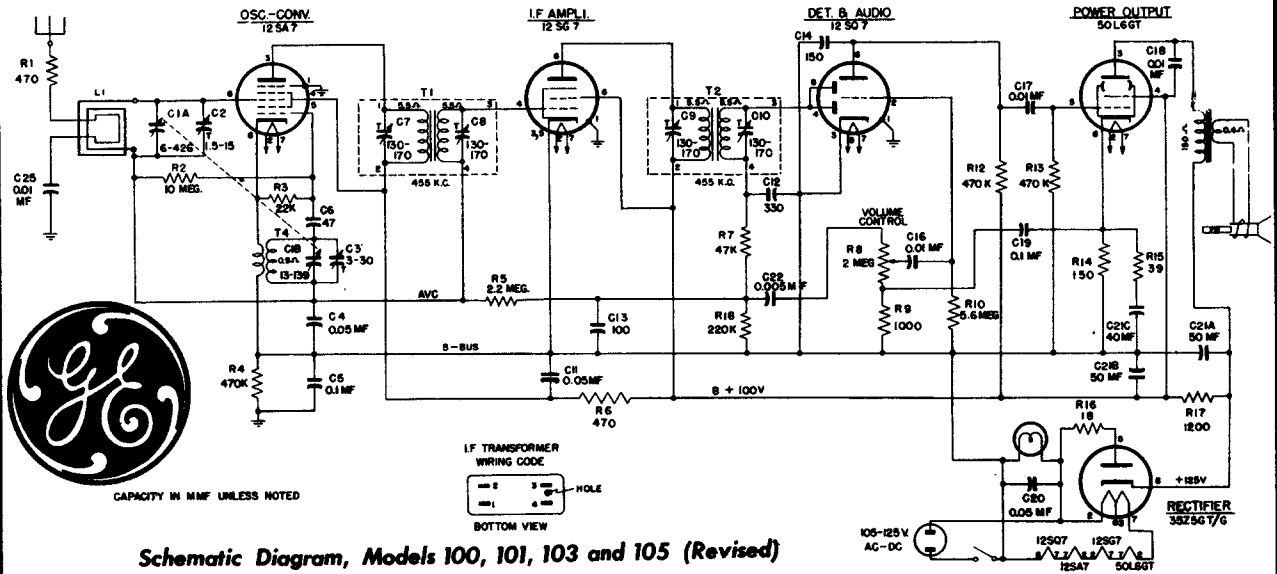
**GAROD RADIO CORPORATION  
BROOKLYN 1, NEW YORK**

- ① 1.437 LOOP ANTENNA
- ② 2.203 2 GANG VARIABLE CONDENSER
- ③ 1.412 1ST I.F. TRANSFORMER
- ④ 1.413 2ND I.F. TRANSFORMER
- ⑤ 8.200-2 VOLUME CONTROL & SWITCH
- ⑥ 30.313 4" P.M. SPEAKER
- ⑦ 5.400-3 ELECTROLYTIC CAP. 60-25-150 MFD.
- ⑧ 1.414 OSCILLATOR COIL
- ⑨ 11.207 ELECTRIC-BATTERY SWITCH

**52**

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**Schematic Diagram, Models 100, 101, 103 and 105 (Revised)**

Stage gain measurements by vacuum tube voltmeter or similar measuring devices may be used to check circuit performance and isolate trouble. The gain values listed may have tolerances of 20%. Readings taken with low signal input so that AVC is not effective.

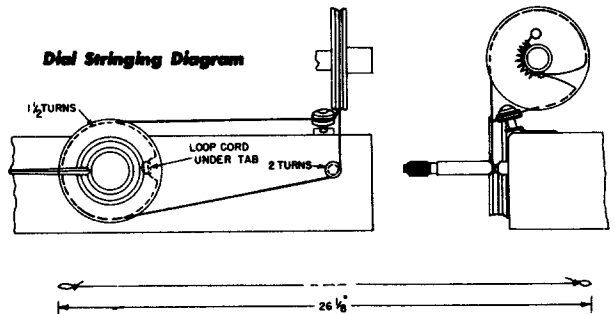
**(1) R-F Stage Gains.**

- Antenna post to 12SA7 grid..... 4 @ 1000 kc
- 12SA7 grid to 12SQ7 grid..... 30 @ 455 kc
- 12SQ7 grid to 12SQ7 diode plate..... 150 @ 455 kc

**(2) Audio Gain.**

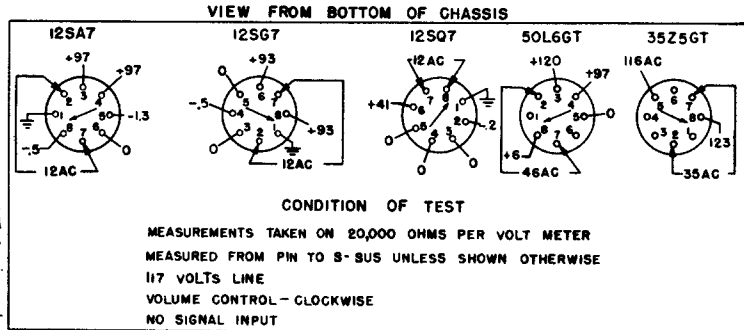
0.06 volt at 400 cycles across volume control (R8) with control set at maximum will give approximately 1/2-watt output across speaker voice coil.

**Dial Stringing Diagram**



**ALIGNMENT CHART**

Connect test oscillator to	Test o.c. Pointer setting on radio	Adjustment for maximum output
12SQ7 grid in series with 0.05 mf. cap.	455 kc 1,500 kc	2nd I-F Trans. Trimmers
12SA7 grid in series with 0.05 mf. cap.	455 kc 1,500 kc	1st and 2nd I-F Trans. Trimmers
Ant. Post in series with 50 mf.	1,500 kc 1,500 kc	C3 (Osc.)
Ant. Post in series with 50 mf.	1,500 kc 1,500 kc	C2 (R-F)



**MODELS 100, 101, 103 AND 105**

Production changes were made to all Models 100, 101, 103 and 105 radios having serial Nos. 5000 and over.

**(SCHEMATIC DIAGRAM)**—A corrected schematic is printed. Changes were made as follows:

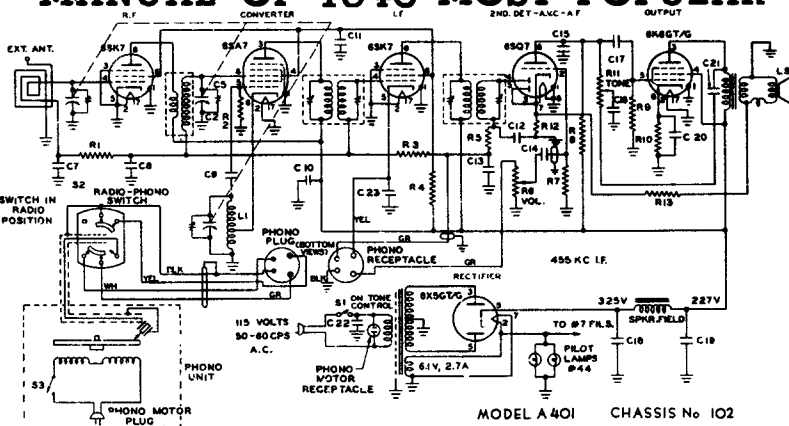
(1) C18 connects between the output plate and screen instead of between plate and ground.

(2) The plate and screen filter (C11, R6) is moved from the IF amplifier circuit to the converter plate and screen circuit.

(3) The filament connections (Pins 2 and 7) to the 12SA7 converter tube are interchanged.

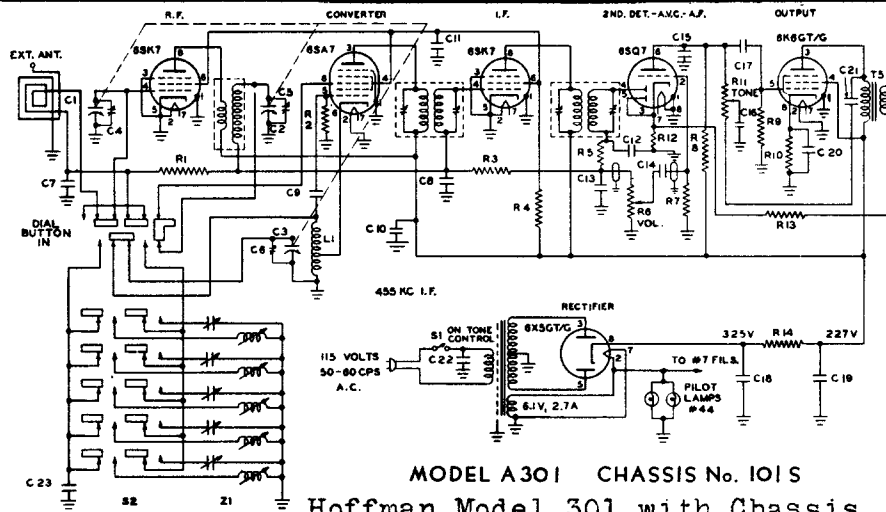
**GENERAL ELECTRIC**

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



C7, C8	.05 Mfd, 200 Volt, Tubular Paper	4100
C9, C12, C13, C15	100 Mmf - 20%, Mica	4000
C10, C11, C23	.05 Mfd, 400 Volt, Tubular Paper	4101
C14, C16	.005 Mfd, 600 Volt, Tubular Paper	4102
C17	.01 Mfd, 600 Volt, Tubular Paper	4103
C18-C19-C20	Dry Electrolytic Capacitor (20-20-20 Mfd 450-450-25 Volt)	4200
C21	.001 Mfd, 600 Volt, Tubular Paper	4104
C22	.01 Mfd, 600 Volt, Tubular Paper (Metal Can)	4105
L1	Oscillator Coil	5200
L5	Loudspeaker, 4" x 6" (1500-Ohm Field)	9000
R1, R8	22 Megohm ± 20%, 1/2 Watt	4500
R2	22,000 Ohm ± 20%, 1/2 Watt	4501
R3	2.2 Megohm - 20%, 1/2 Watt	4502
R4	10,000 Ohm - 10%, 2 Watt	4503
R5	47,000 Ohm - 20%, 1/2 Watt	4504
R6	.5 Megohm Potentiometer (Volume)	4804
R7	10 Megohm - 20%, 1/2 Watt	4505
R9	.47 Megohm - 20%, 1/2 Watt	4506
R10	560 Ohm - 10%, 1/2 Watt	4507
R11	.25 Megohm Potentiometer With Switch (Tone)	4805
R12	47 Ohm - 20%, 1/2 Watt	4508
R13	330 Ohm - 20%, 1/2 Watt	4509

MODEL A 401 CHASSIS No. 102



MODEL A 301 CHASSIS No. 101S

Hoffman Model 301 with Chassis 101S is electrically identical to Chassis 100, except for the speaker used and the use of a 1500 ohm resistor instead of the 1500 ohm speaker field winding.

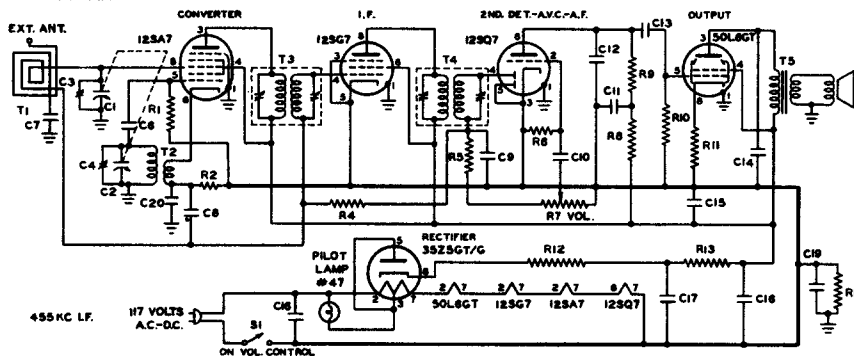
**Hoffman**  
RADIO CORP.

LOS ANGELES, CALIFORNIA

SYMBOL	DESCRIPTION	HOFFMAN NO.
C1-C2-C3	Three-Section Variable (388-388-180 Mmf.)	4401
C4, C5, C6	Trimmers: Part of Variable Capacitor	
C7, C8	.05 Mfd, 200 Volt, Tubular Paper	4100
C9, C12, C13, C15	100 Mmf - 20%, Mica	4000
C10-C11	.05 Mfd, 400 Volt, Tubular Paper	4101
C14, C16	.005 Mfd, 600 Volt, Tubular Paper	4102
C17	.01 Mfd, 600 Volt, Tubular Paper	4103
C18-C19-C20	Dry Electrolytic Capacitor (20-20-20 Mfd 450-450-25 Volt)	4200
C21	.001 Mfd, 600 Volt, Tubular Paper	4104
C22	.01 Mfd, 600 Volt, Tubular Paper (Metal Can)	4105
C23	500 Mmf 5%, Silver Mica	4000
L1	Oscillator Coil	5200
L5	Loudspeaker, 5" P.M.	9000
R1, R8	22 Megohm - 20%, 1/2 Watt	4500
R2	22,000 Ohm 20%, 1/2 Watt	4501
R3	2.2 Megohm - 20%, 1/2 Watt	4502
R4	10,000 Ohm - 10%, 2 Watt	4503
R5	47,000 Ohm - 20%, 1/2 Watt	4504
R6	.5 Megohm Potentiometer (Volume)	4804
R7	10 Megohm 20%, 1/2 Watt	4505
R9	.47 Megohm - 20%, 1/2 Watt	4506
R10	560 Ohm - 10%, 1/2 Watt	4507
R11	.25 Megohm Potentiometer With Switch (Tone)	4805
R12	47 Ohm - 20%, 1/2 Watt	4508
R13	330 Ohm - 20%, 1/2 Watt	4509
R14	1500 Ohm - 5%, 6 1/2 Watt	4510

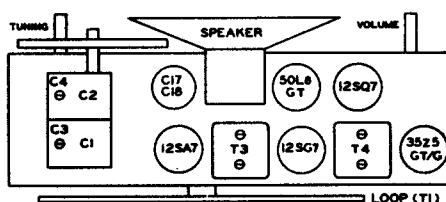
**Hoffman**  
RADIO CORP.

LOS ANGELES, CALIFORNIA



MODEL A 200  
CHASSIS NO. 103

MODEL A 302  
CHASSIS NO. 103



SYMBOL	DESCRIPTION	HOFFMAN NO.
C1-C2	Two-Section Variable (388-180 Mmf.)	4401
C3, C4	Trimmers: Part of Variable Cond.	
C5	100 Mmf. ± 20%, Mica	4000
C6	.005 Mfd., 600 Volt, Tubular Paper	4102
C7, C8, C10, C13, C15	.05 Mfd., 200 Volt, Tubular Paper	4100
C9, C12	270 Mmf. ± 20%, Mica	4001
C14	.02 Mfd., 400 Volt, Tubular Paper	4106
C16	.01 Mfd., 600 Volt, Tubular Paper	4103
C17-C18	Dry Electrolytic (30-50 Mfd/150V)	4201
C19, C20	.1 Mfd, 200 Volt, Tubular Paper	4111
L5	5" PM Loudspeaker	9000
R1	22,000 Ohm ± 20%, 1/2 Watt	4501
R2	68 Ohm ± 20%, 1/2 Watt	4524
R3	2.2 Megohm ± 20%, 1/2 Watt	4502
R4	47,000 Ohm ± 20%, 1/2 Watt	4504
R5	10 Megohm ± 20%, 1/2 Watt	4505
R6	.5 Megohm Pot. with Switch (Volume)	4802
R7	.1 Megohm ± 20%, 1/2 Watt	4511
R8	22 Megohm ± 20%, 1/2 Watt	4500
R9, R14	47 Megohm ± 20%, 1/2 Watt	4506
R10	150 Ohm ± 20%, 1/2 Watt	4510
R11	47 Ohm, ± 20%, 1/2 Watt	4508
R12	500 Ohm ± 10%, 5 Watt, W.W.	4700
S1	On-Off Switch (On Volume Control)	
T1	Antenna Loop	5207
T2	Oscillator Coil	5208
T3	Input I.F. Transformer (455 K.C.)	5205
T4	Output I.F. Transformer (455 K.C.)	5206
T5	Audio Output Transformer	5101

**54**

**Hoffman**  
RADIO CORP.  
LOS ANGELES, CALIFORNIA

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## HOWARD RADIO COMPANY

MODEL - 901

### SOCKET VOLTAGE READINGS:

All voltages taken from the back of the AC switch to the socket contacts with a 20,000 ohm per volt D.C. meter and the line voltage fixed at 117 volts A.C.

TUBE	FUNCTION	CATH-ODE	SCR. GRID	PLATE	OSC. PLATE
12SA7	Mixer		92	92	92
12SK7	I.F. Amp.	3	92	92	
12SQ7	Det.			44	
50L6GT	Output	5.8	92	85	

### ALIGNMENT INFORMATION

Each 455 KC I. F. coil has an Iron Core adjustment protruding from the top and the bottom of the I. F. can.

Look beneath the chassis to reach the lower I. F. adjustments.

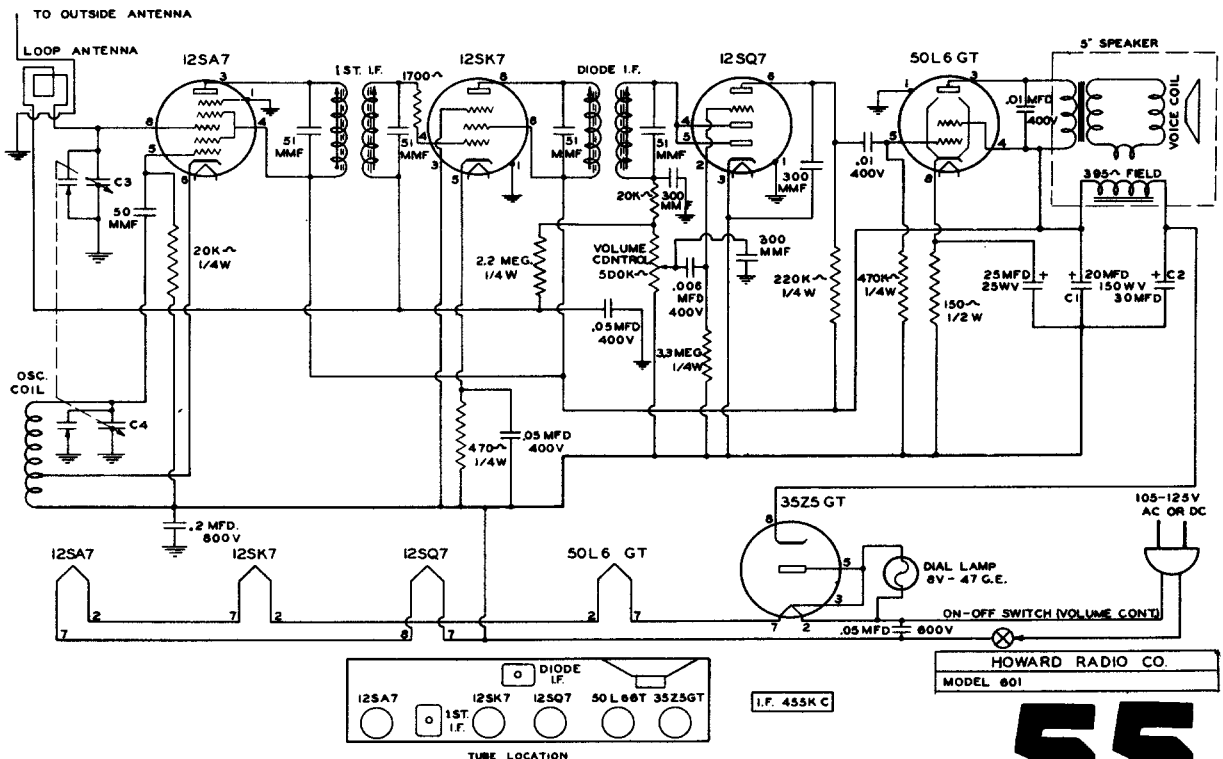
Repeat the I. F. alignment operation several times to insure accuracy.

Add or remove resistance in the cathode circuit of the 12SK7 tube as the I. F. gain indicates.

The wire lead running from the loop aerial between the I. F. coils and the gang is important in its placement. Dress this wire tightly to the chassis.

Set dial at 1400 KC. and adjust oscillator trimmer which is located on back of variable condenser, then peak antenna stage trimmer on front section of condenser to 1400 KC. No adjustment is required at the low frequency end.

The filter condenser has a common negative, but note it does not return to ground and is insulated from the chassis.



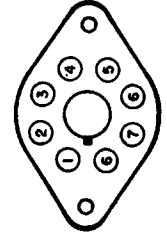
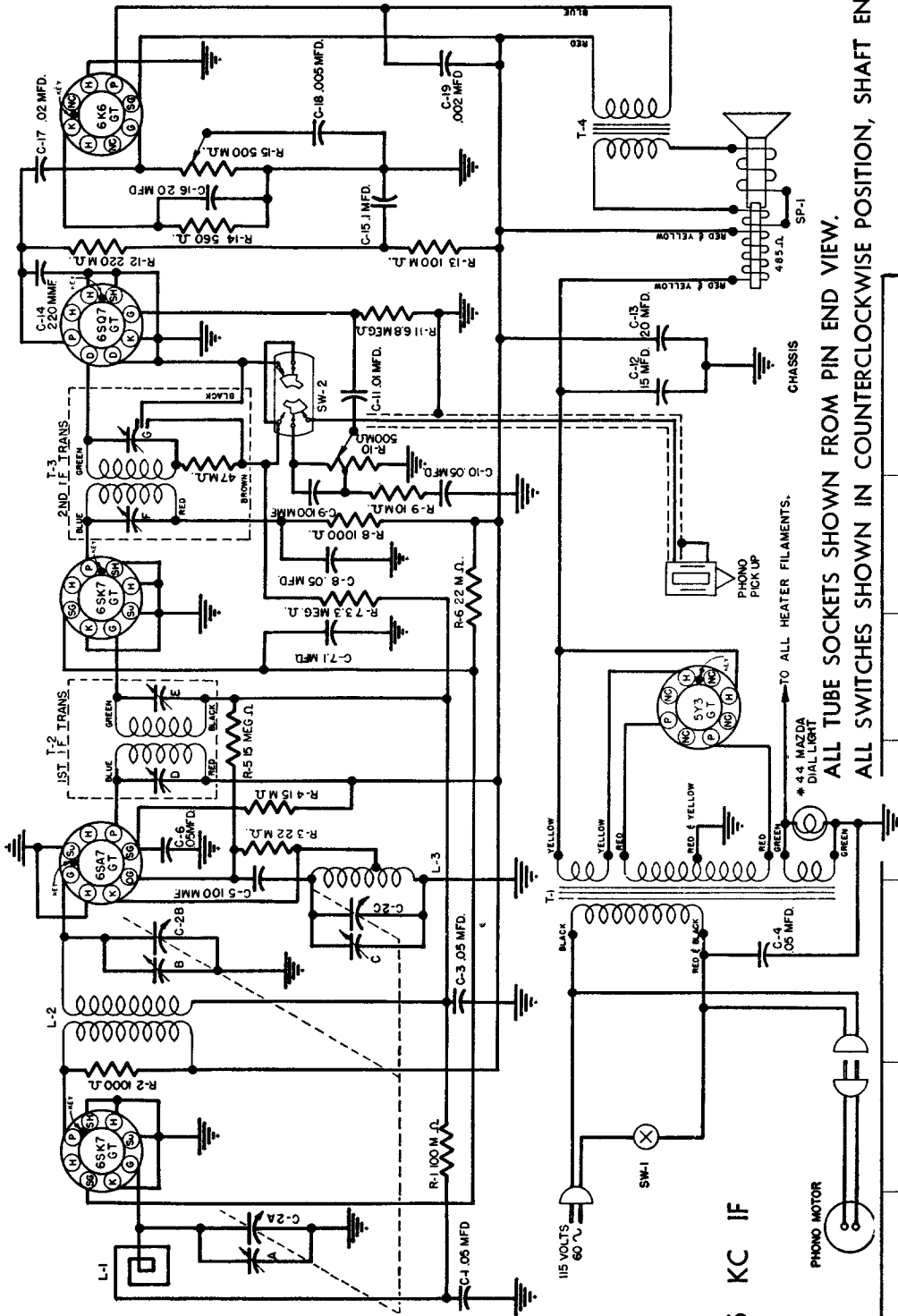
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# 55

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

International Detrola Corp. \*\* Chassis Model 554

(See page 57 for additional material).



# 56

Chassis Model 554

(RMA PRODUCTION SOURCE CODE No. 2136)

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455 KC IF

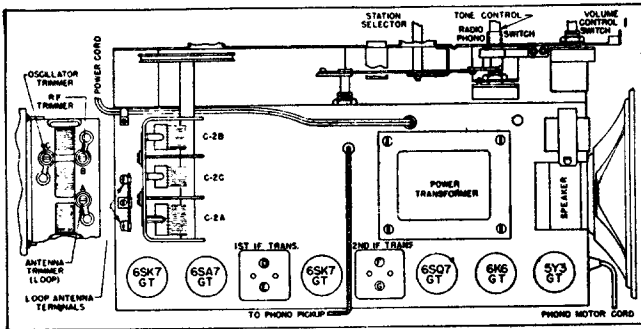
CONNECT GEN-ERATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	BAND	SET DIAL AT	TRIMMERS	PURPOSE
6SA7GT grid	.1 mfd	455 kc.	Broadcast	HF end	D E F G	Align IF
6SK7GT RF grid	.1 mfd	1620 kc.	Broadcast	HF end	C	Set limit of band
6SK7GT RF grid	.1 mfd	1400 kc.	Broadcast	1400 kc.	B	Align RF
RMA loop	Through loop	1400 kc.	Broadcast	1400 kc.	A	Align antenna

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

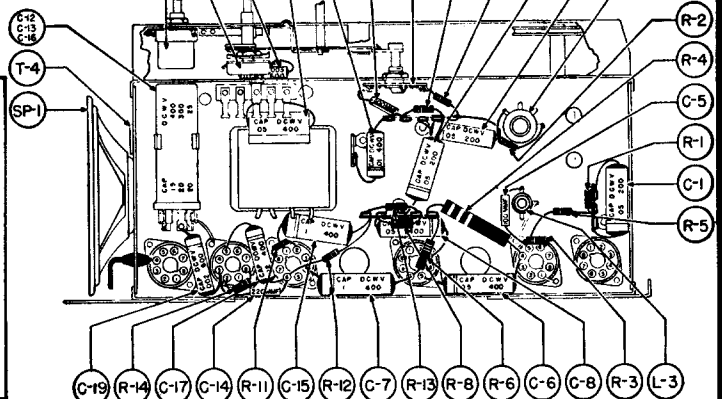
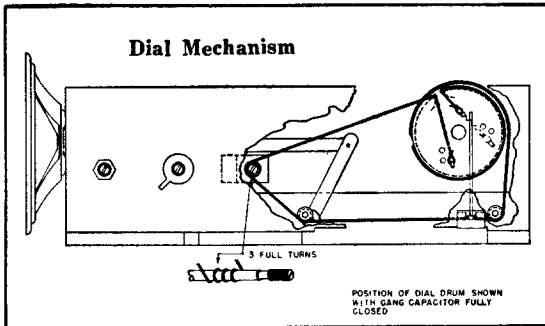
International Detrola Corp.  
(Schematic on page 56).

Chassis Model 554

Parts Layout  
Chassis Model 554



Tube Layout



SOCKET VOLTAGES

TUBE	POSITION	1	2	3	4	5	6	7	8
6SK7GT	RF Amplifier	0	0	0	0	0	93	6.3 AC	270
6SA7GT	Converter	0	6.3 AC	270	113	-7.5	0	0	0
6SK7GT	IF Amplifier	0	0	0	0	0	93	6.3 AC	260
6SQ7GT	Detector—AVC—1st Audio	0	0	0	0	0	88	6.3 AC	0
6K6GT	Power Output	0	0	250	270	0	175	6.3 AC	19
5Y3GT	Rectifier	0	310	0	290 AC	0	290 AC	0	310

## SERVICE PARTS LIST

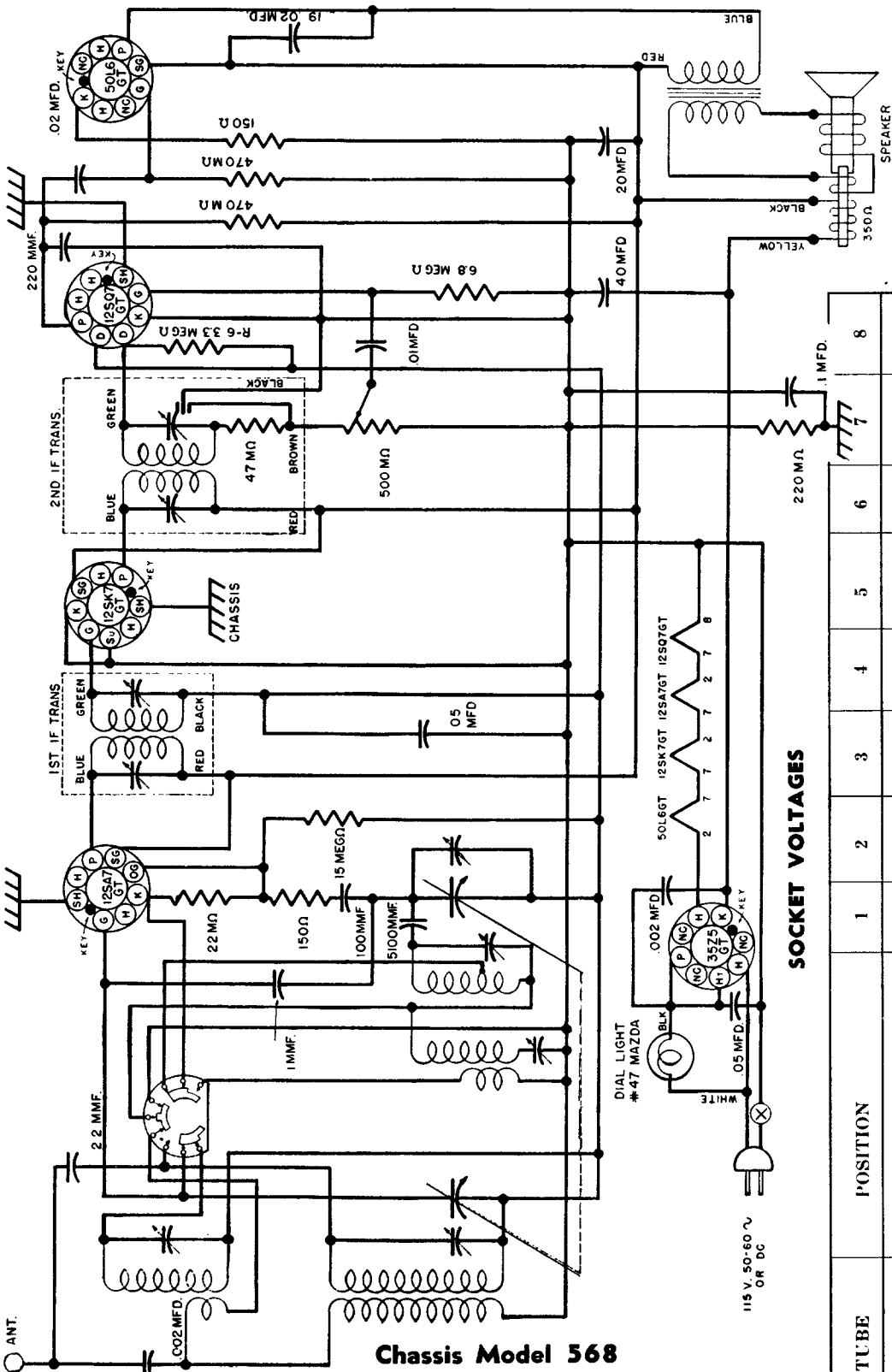
Symbol	Part No.	Description	Symbol	Part No.	Description
C-4	BC31B503	Cap., Molded, .05 mfd., 400 v.	A-2163	Cable, Dial	
C-1, 3, 10	BD210503	Cap., Paper, .05 mfd., 200 v.	A-3123	Clamp, Cable	
C-11	BD410103	Cap., Paper, .01 mfd., 400 v.	A-9285	Lamp, Pilot, Mazda No. 44	
C-7, 15	BD410104	Cap., Paper, .1 mfd., 400 v.	A-51160-3	Cord, Power, 6 ft.	
C-17	BD410203	Cap., Paper, .02 mfd., 400 v.	A-51163	Clip, Spring	
C-6, 8	BD410503	Cap., Paper, .05 mfd., 400 v.	C-12, 13	A-51356	Cap., Electro., 15-20-20 mfd.
C-19	BD610202	Cap., Paper, .002 mfd., 600 v.	C-2	C-51501-1	Capacitor, Variable, 3-section
C-18	BD610502	Cap., Paper, .005 mfd., 600 v.	T-1	C-51502	Transformer, Power
C-5, 9	BM78A101	Cap., Mica, 100 mmf.	L-2	B-51511	Coil, Assembly, RF
C-14	BM78A221	Cap., Mica, 220 mmf.	SP-1	C-51512	Speaker, 5" Dynamic, 485 ohm
R-14	BR16E561	Resistor, 560 ohm, 1 w.	L-3	B-51522	Coil Assembly, Osc.
R-2, 8	BR17B102	Resistor, 1000 ohm, 1/2 w.		A-51531	Shaft, Drive
R-9	BR17B103	Resistor, 10M ohm, 1/2 w.	T-2	B-51416-2	Trans. Assembly, 1st IF
R-1, 13	BR17B104	Resistor, 100M ohm, 1/2 w.	T-3	B-51417-2	Trans. Assembly, 2nd IF
R-5	BR17B156	Resistor, 15 meg., 1/2 w.	SW-2	B-55500-1	Switch (Radio-Phono)
R-3	BR17B223	Resistor, 22M ohm, 1/2 w.	R-15	B-55550-1	Potentiometer, 500M ohm
R-12	BR17B224	Resistor, 220M ohm, 1/2 w.	R-10	B-55575-1	Potentiometer & Switch, 500M ohm
R-7	BR17B335	Resistor, 3.3 meg., 1/2 w.			
R-11	BR17B685	Resistor, 6.8 meg., 1/2 w.			
R-6	BR17E223	Resistor, 22M ohm, 1 w.			
R-4	BR17G153	Resistor, 15M ohm, 2 w.			

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57



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



455 KC IF

### SOCKET VOLTAGES

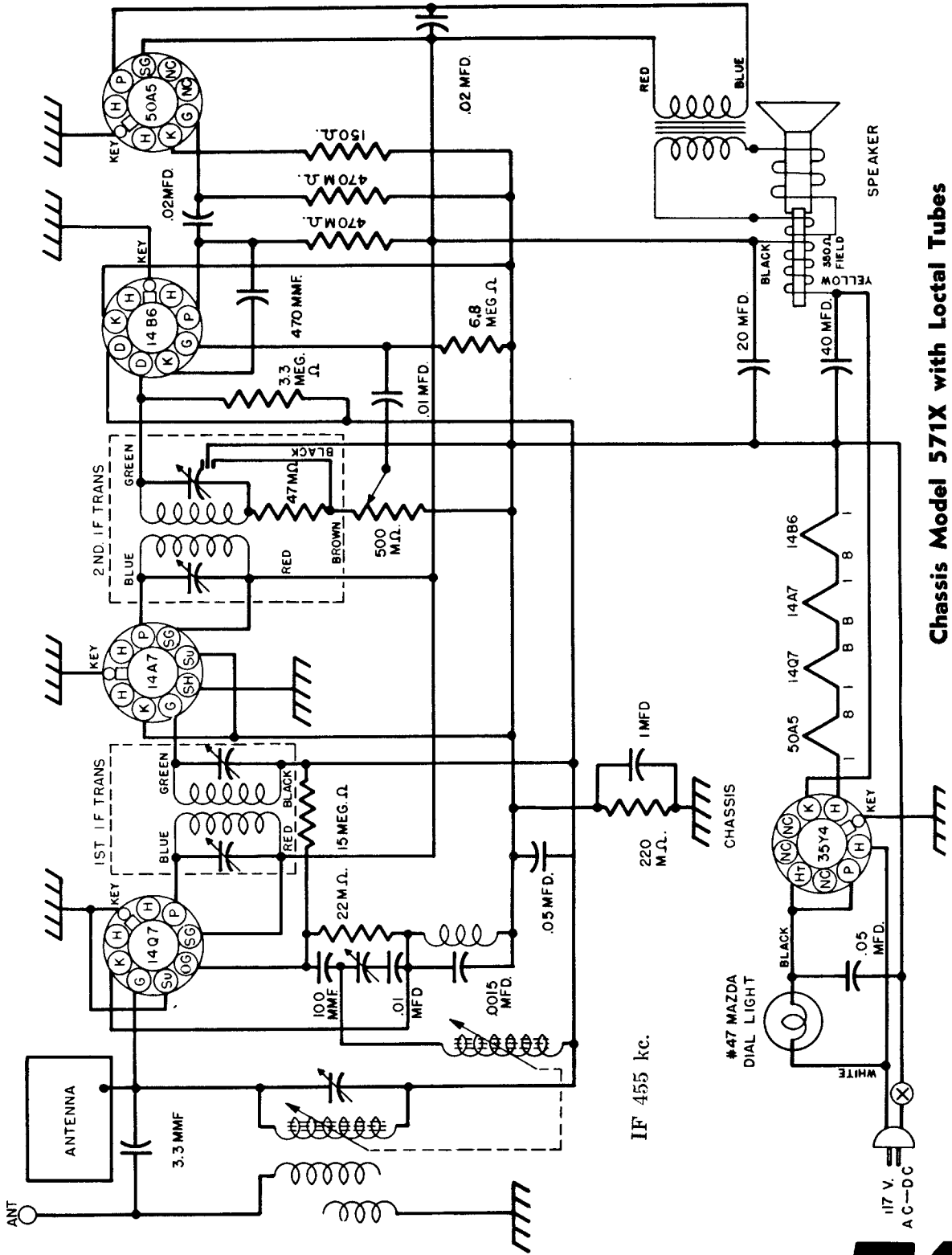
TUBE	POSITION	1	2	3	4	5	6	8
12SA7GT	Oscillator and Mixer	0	37.5 AC	99	99	-4.2	0	24.5 AC 0
12SK7GT	IF Amplifier	0	24.5 AC	0	0	0	99	12.5 AC 99
12SQ7GT	2nd Det.—1st Audio	0	0	0	0	0	16	12.5 AC 0
50L6GT	Power Output	0	85 AC	91.5	99	0	0	37.5 AC 5.9
35Z5GT	Rectifier	0	117 AC	112 AC	0	112 AC	0	85 AC 112

# 58

**Chassis Model 568**  
**International Detrola Corp.**  
 (RMA PRODUCTION SOURCE CODE No. 2135)

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



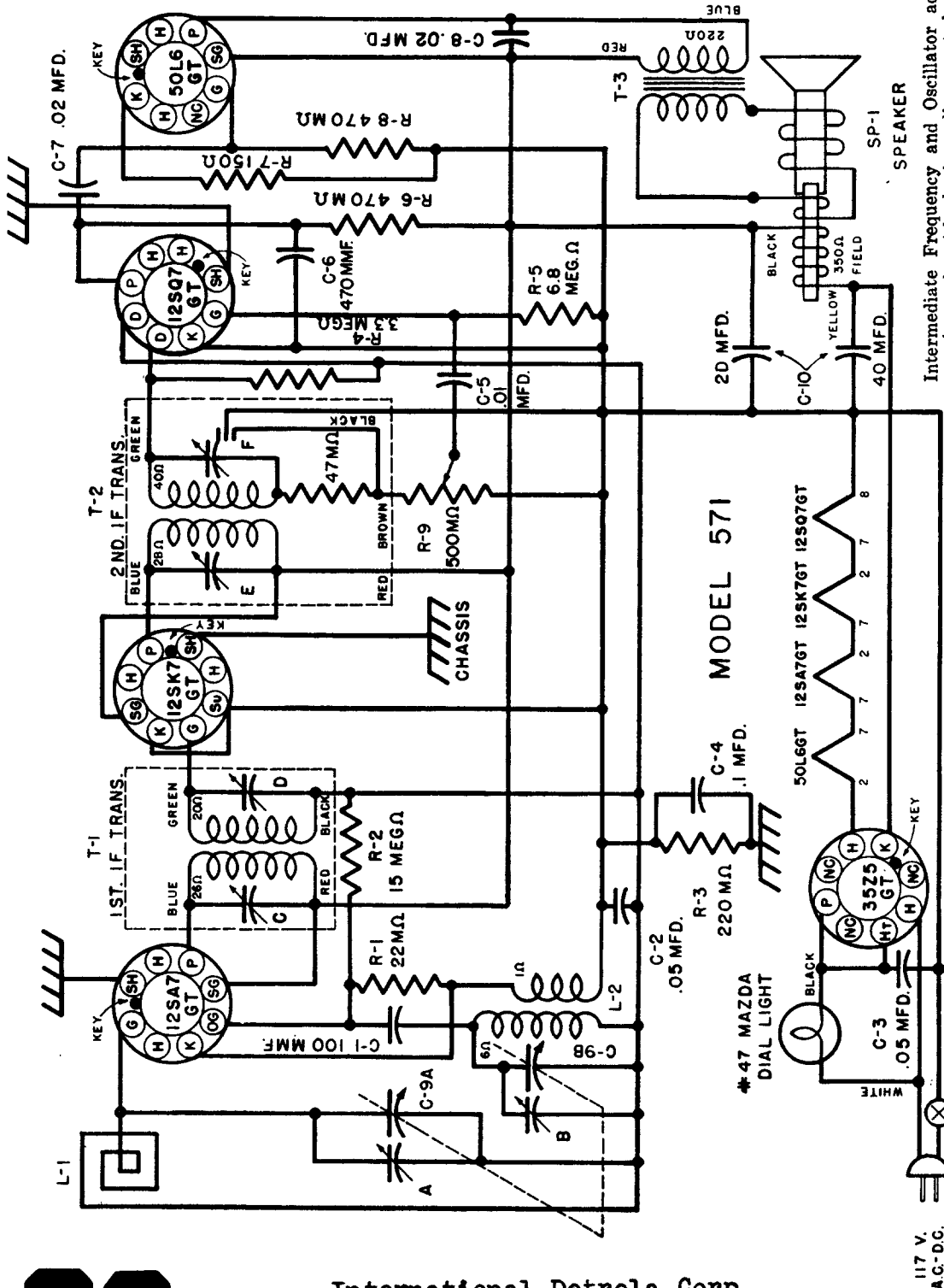
**Chassis Model 571X with Loctal Tubes**  
**(RMA PRODUCTION SOURCE CODE No. 213)**

**International Detrola Corp.**

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Chassis Models 571A and 571B

(RMA PRODUCTION SOURCE CODE No. 2135)



Intermediate Frequency and Oscillator adjustments may be made with the loop disconnected provided a resistor of 10,000 to 50,000 ohms is substituted to close the 12SA7GT grid circuit. The loop alignment must be done with the loop and chassis mounted in operating position in the cabinet. A single turn loosely coupled to loop may be substituted for RMA loop.

117 V.  
A.C.-D.C.

455 KC IF

ALL TUBE SOCKETS SHOWN FROM PIN END VIEW.

60

International Detrola Corp.

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

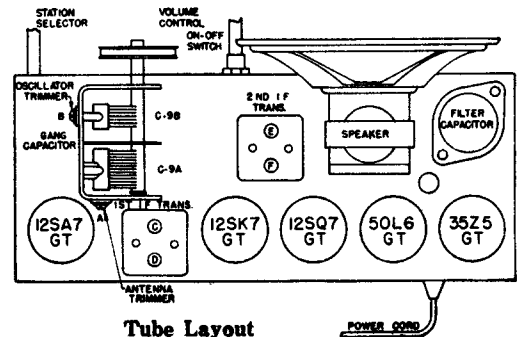
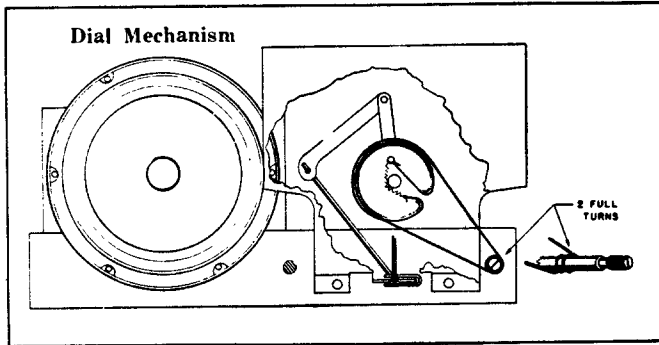
## ALIGNMENT PROCEDURE Chassis Models 571A and 571B International Detrola

GENERATOR	CONNECTION AT RADIO	DUMMY ANTENNA	DIAL	TO TUNE TRIMMERS	REMARKS
1F 455 kc.	12SA7GT grid	.1 mfd.	HF end	1F trimmers C D E F	Tune to max.
1620 kc.	Through loop	RMA loop	HF end	Osc. trimmer B	Set limit of band
1400 kc.	Through loop	RMA loop	1400 kc.	Ant. trimmer A	Tune to max

### SOCKET VOLTAGES

TUBE	POSITION	1	2	3	4	5	6	7	8
12SA7GT	Osc. and Mixer	0	37.5 AC	99	99	-4.2	0	24.5 AC	0
12SK7GT	IF Amplifier	0	24.5 AC	0	0	0	99	12.5 AC	99
12SQ7GT	2nd Det.—1st Audio	0	0	0	0	0	16	12.5 AC	0
50L6GT	Power Output	0	85 AC	91.5	99	0	0	37.5 AC	5.9
35Z5GT	Rectifier	0	117 AC	112 AC	0	112 AC	0	85 AC	112

**NOTE:** All DC voltages measured with a 1000 ohm per volt meter from ON-OFF switch (—B) to socket contact indicated. All AC voltages are measured from ON-OFF switch (—B) to socket contact indicated.



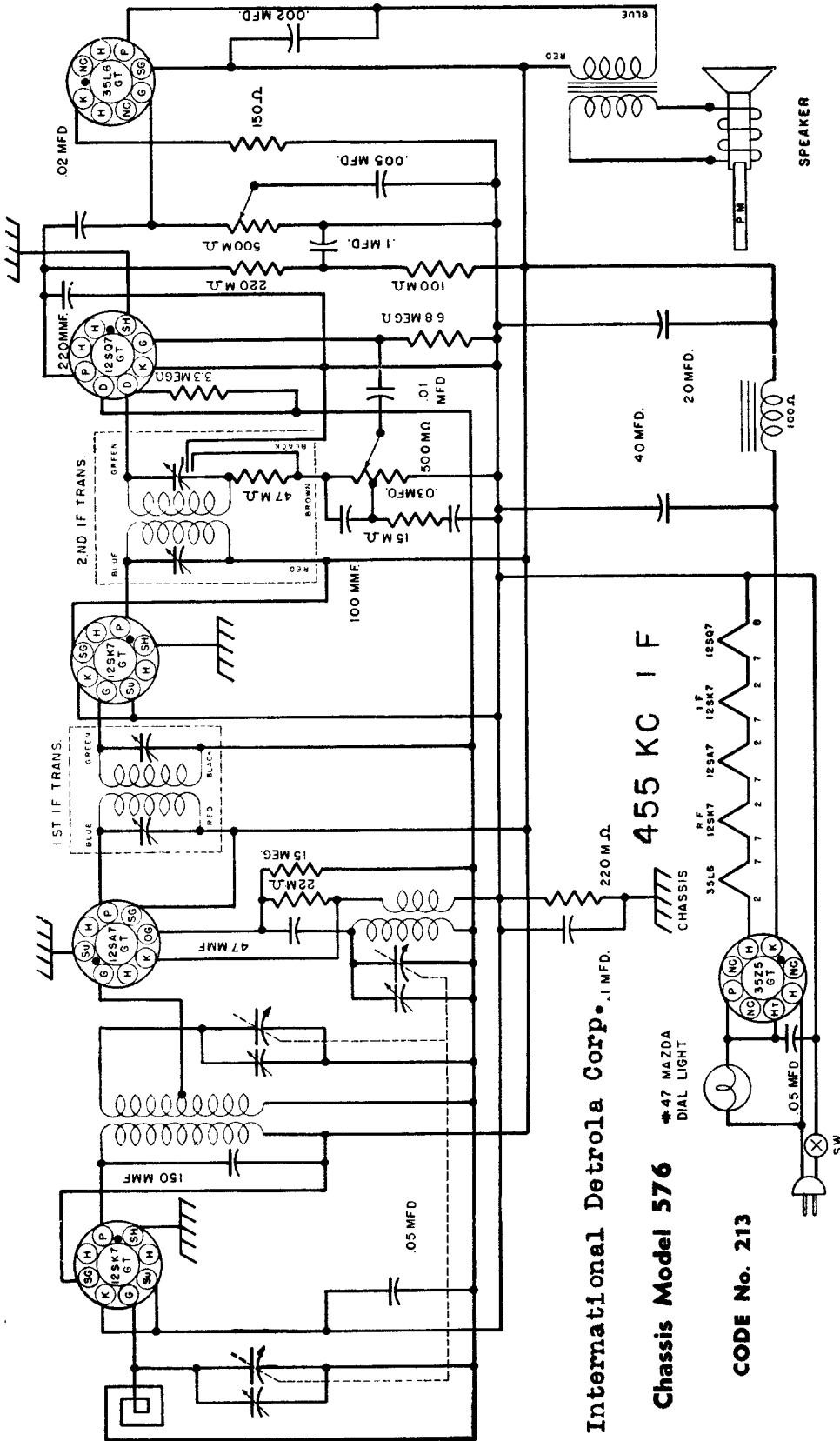
Tube Layout

### SERVICE PARTS LIST

Symbol	Part No.	Description	Symbol	Part No.	Description
C-1	BM78A101	Cap., Mica, 100 mmf.	T-2	B-51011	Trans., Assembly, 2nd IF
C-2	BD210503	Cap., Paper, .05 mfd., 200 v.	SP-1	C-51014	Speaker, 5" Dynamic, 350 ohm.
C-3	BC31B503	Cap., Mold., Paper, .05 mfd.	A-2163	A-2163	Cable, Drive
C-4	BD410104	Cap., Paper, .1 mfd., 400 v.	A-6158	A-6158	Lamp, Pilot No. 47 Mazda 6.3 v.
C-5	BD410103	Cap., Paper, .01 mfd., 400 v.	A-51160-1	A-51160-1	Cord, AC-DC Line, 6 ft.
C-6	BM78A471	Cap., Mica, 470 mmf.	B-51162-1	B-51162-1	Shaft, Drive
C-7, 8	BD410203	Cap., Paper, .02 mfd., 400 v.	A-51163	A-51163	Clip, Spring
C-9	C-51155-1	Cap., Variable, 2 Section	B-51177	B-51177	Bracket Assembly, Dial
C-10	A-8948	Cap., Electro., 40-20 mfd., 150 v.	A-51202	A-51202	Link, Insulating
L-1	B-51243	Loop, Antenna	B-51204-1	B-51204-1	Pointer
L-2	B-51159	Coil, Osc. Assembly	A-51206	A-51206	Arm, Dial Drive
R-1	BR17B223	Resistor, 22M ohm 1/3 w.	A-51237-1	A-51237-1	Paper Back, Dial
R-2	BR17B156	Resistor, 15 meg. 1/3 w.	D-51240-1	D-51240-1	Cabinet (571-1)
R-3	BR17B224	Resistor, 220M ohm 1/3 w.	A-51241-2	A-51241-2	Knob
R-4	BR17B335	Resistor, 3.3 meg. 1/3 w.	C-51242-1	C-51242-1	Dial, Glass Indicator
R-5	BR17B685	Resistor, 6.8 meg. 1/3 w.			
R-6, 8	BR17B474	Resistor, 470M ohm 1/3 w.			
R-7	BR16C151	Resistor, 150 ohm. 1/2 w.			
R-9	B-9051-1	Control, Vol. & Sw. 500M ohm.			
T-1	B-51010	Trans., Assembly, 1st IF			



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

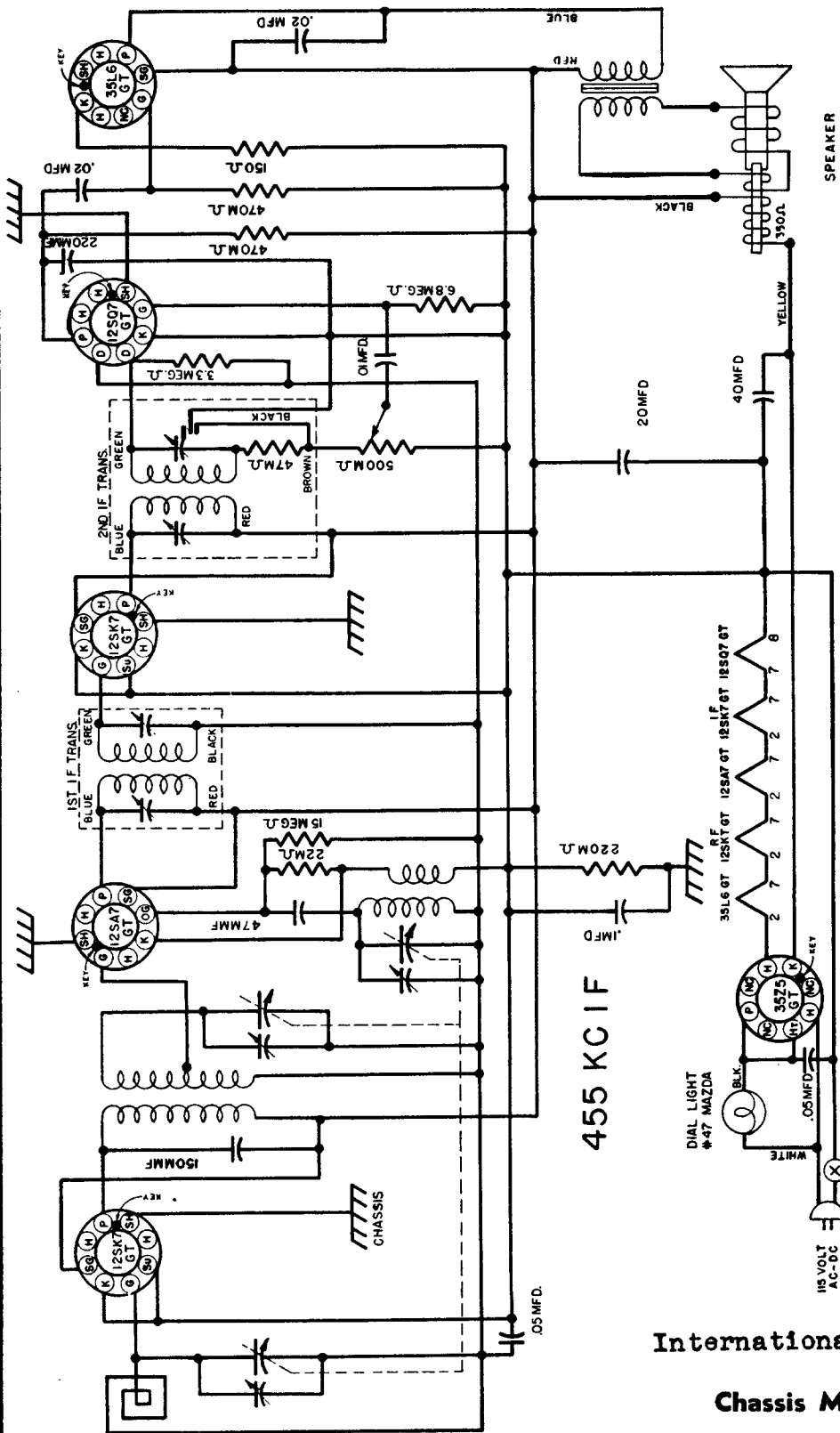


\*47 MAZDA  
DIAL LIGHT

455 KC IF

GENERATOR	CONNECTION AT RADIO	DUMMY ANTENNA	DIAL	TO TUNE TRIMMERS	REMARKS
IF 455 kc.	12SA7GT grid	.1 mfd.	HF end	IF trimmers D E F G	Tune to max.
1620 kc.	Through loop	RMA loop	HF end	Osc. trimmer C	Set limit of band
1400 kc.	Through loop	RMA loop	1400 kc.	RF trimmer B	Tune to max.
1400 kc.	Through loop	RMA loop	1400 kc.	Ant. Trimmer A	Tune to max.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



## ALIGNMENT PROCEDURE

CONNECT TEST OSCILLATOR TO	DUMMY ANTENNA	INPUT SIGNAL FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
12SA7GT grid	.1 mfd.	455 kc.	HF end	D E F G	Align IF
12SK7GT RF grid	.1 mfd.	1620 kc.	HF end	C	Set limit of band
12SK7GT RF grid	.1 mfd.	1400 kc.	1400 kc.	B	Align RF
RMA loop	Through loop	1400 kc.	1400 kc.	A	Align antenna

International Detrola Corp.

Chassis Model 579

(RMA PRODUCTION SOURCE CODE No. 213)

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

International Detrola Corp.

## AUTOMATIC RECORD CHANGER AND AMPLIFIER MODELS 626A and 626B

(RMA PRODUCTION SOURCE CODE No. 213)

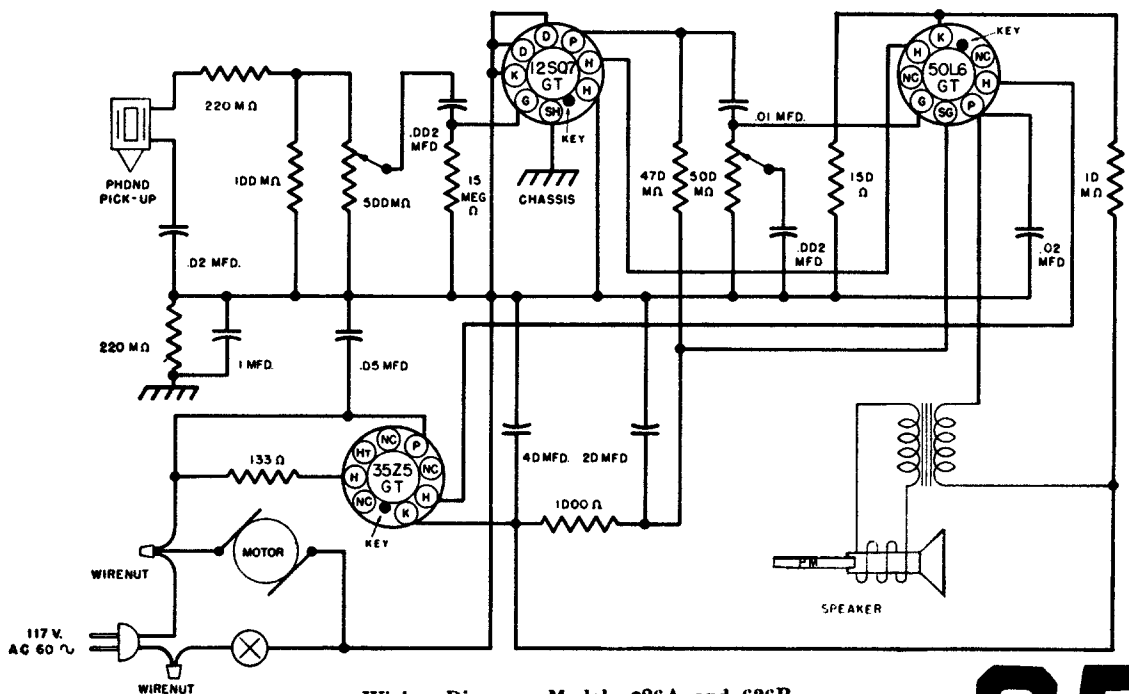
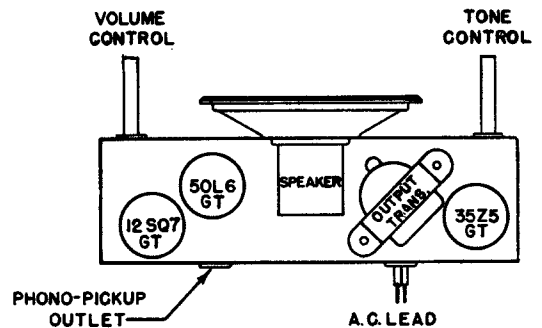
### SOCKET VOLTAGES

TUBE	POSITION	1	2	3	4	5	6	7	8
12SQ7GT	AF Amplifier	0	0	0	0	0	40	12 AC	0
50L6GT	Power Output	0	54 AC	118	125	0	0	12 AC	9.0
35Z5GT	Rectifier	0	85 AC	0	0	117 AC	125	54 AC	127

**NOTE:** All DC voltages measured with a 1000 ohm-per-volt meter from B- to socket contact indicated. All voltages are positive DC unless otherwise marked.  
Volume control full on. Zero input.  
Tone control in clockwise position.  
Line voltage 117 volts AC.

### TUBE COMPLEMENT

- 1—12SQ7GT AF Amplifier tube
- 1—50L6GT Power Output tube
- 1—35Z5GT Rectifier tube

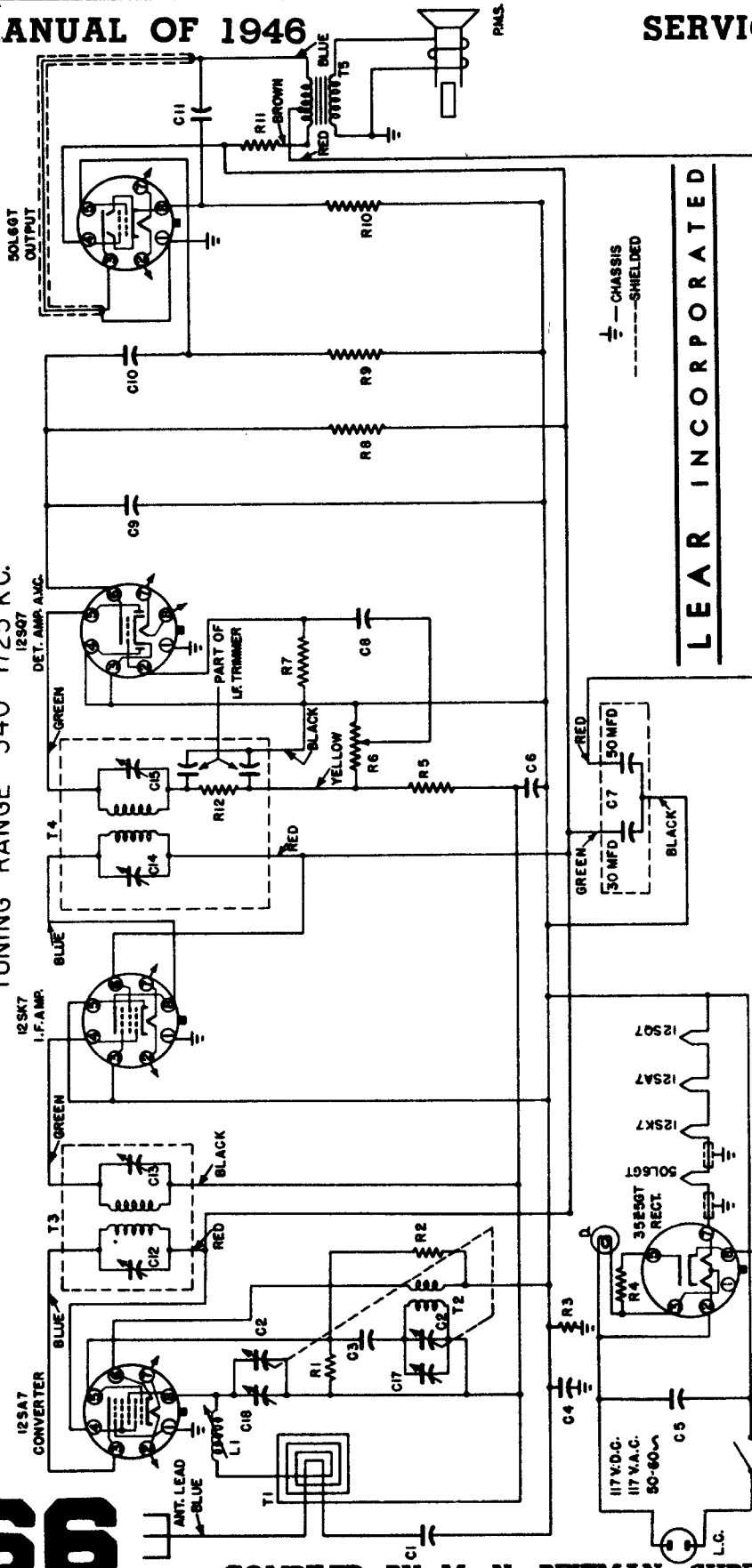


Wiring Diagram Models 626A and 626B



LEAR SUPERHETERODYNE MODELS 561, 562, 563  
 INTERMEDIATE FREQUENCY 455 KC.  
 TUNING RANGE 540-1725 KC.

**66**



LEAR INCORPORATED

DWG. SYM.	PART NO.	DESCRIPTION
T1	952370	LOOP ANTENNA ASSEMBLY
T2	965015	OSCILLATOR COIL
T3	953350	NO.1 I.F. TRANSFORMER
T4	953381	" 2 "
T5	952331	OUTPUT
L1	A52697	ANT. LOAD COIL
C1	C56565	.001 MFD. 200V. PAPER CAPACITOR
C2	A52452	2 GANG VARIABLE
C3	956055	47 MFD. MICA
C4	C56631	0.1 MFD. 400V. PAPER
C5	C56656	.05 " 600V. "
C6	C56800	" 200V. "
C7	952326	30-50 MFD. 150V. ELECTROLYTIC
C8	C56596	.02 MFD. 200V. PAPER CAPACITOR
C9	956059	220 MFD. MICA
C10	C56589	.004 MFD. 200V. PAPER
C11	C56828	.05 " 400V. "
C12, C13	NO.1 I.F. TRIMMERS (PART OF ASS'Y.)	
C14, C15	NO.2 " ( " " )	
C16	ART. TRIMMER ON VARIABLE CAPACITOR OSC. "	
R1	955496	15 MES. 1/2W. CARBON RESISTOR
R2	955479	22,000 OHM " "
R3	955485	220,000 " " "
R4	955460	15 " " "
R5	955481	2.2 MES. " " "
R6	R6, S1	600,000 OHM VOL. CONTROL & LINE SW.
R7	955494	6.6 MES. 1/2W. CARBON RESISTOR
R8	955497	470,000 OHM " " "
R9	955487	470,000 " " "
R10	955486	150 " " "
R11	955674	1200 " 1W. " "
R12	D53450	47,000 " 1/2W. " "
P.M.S.	A53091	5" PERMANENT MAGNET SPEAKER
L.C.	A70535	LINE CORD
D.L.	A70535	DIAL LIGHT, TYPE 47

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

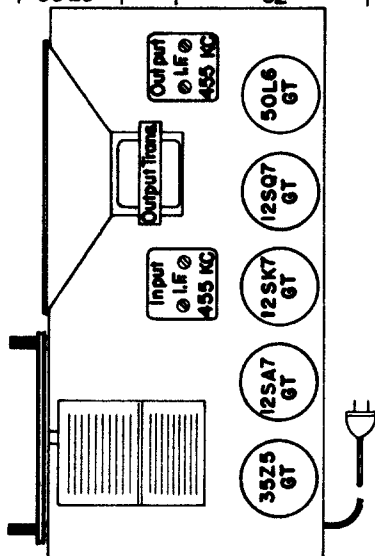
JOHN MECK INDUSTRIES, Inc., Plymouth, Indiana

**I.F. ALIGNMENT:** The step-by-step routine given below should be carefully followed after reading the preceding instructions:

1. The modulated oscillator must be tuned to 455 K.C.
2. Connect the high side of the oscillator output to the lug on the R.F. section of the gang condenser. The low side of the oscillator is connected to the chassis through a .01 condenser.
3. Set the gang condenser of the radio to 1720 on the dial and turn the volume control on full.
4. Adjust the four I.F. trimmers tuning each carefully to get the maximum deflection of the output meter. Reduce the oscillator output if the output meter goes off scale.
5. Repeat all four adjustments since the adjustment of each I.F. trimmer may effect the others to a certain extent.

**VOLTAGE TABLE - Use high resistance voltmeter of 1000 ohms per volt**

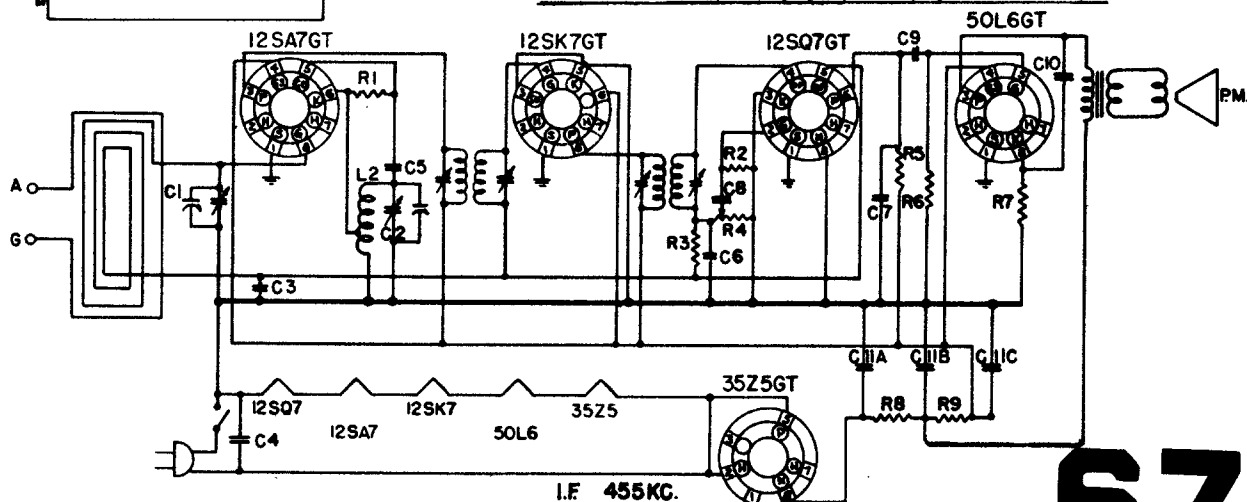
Type tube	1	2	3	4	5	6	7	8
12SA7	0	24AC	78	78	-7 to -12	0	12AC	-.65 to -1.2
12SK7	0	36AC	0	-.8 to -1.2	0	78	24AC	78
12SQ7	0	-.9 to -1.2	0	0	-.8 to -1.2	55	12AC	0
50L6	0	-	95	78	0	--	36AC	4 to 5
35Z5	-	82	--	78	115 AC	100	115 AC	110



Circuit Symbol	Part Number	Description
C1, C2	CV-10002	Condenser-Variable, with pulley
C1, C2	CV-10002-A	Condenser-Variable, with pulley
C1, C2	CV-10002-B	Condenser-Variable, with pulley
C1, C2	CV-10002-C	Condenser-Variable, with pulley
C3, C4, C10	CP-14503	Condenser-Paper, 0.05mfd. 400V
C5	CM-15500	Condenser-Mica, 0.00005mfd.
C6, C7	CM-15251	Condenser-Mica, 0.00025mfd.
C8, C9	CP-14103	Condenser-Paper, 0.01mfd. 400V
C11A, C11B, C11C	CL-10001	Condenser-Electrolytic 20/20/20 mfd 150V
R1	RC-32002	Resistor-Carbon, 20,000 ohms 1/2 watt
R2	RC-31005	Resistor-Carbon, 10 megohms 1/2 watt
R3	RC-32004	Resistor-Carbon, 2 megohms 1/2 watt
R4	VC-10103	Control-Volume, with switch, 1 megohm
R5	RC-32503	Resistor-Carbon, 250,000 ohms 1/2 watt
R6	RC-35003	Resistor-Carbon, 500,000 ohms 1/2 watt
R7	RC-31500	Resistor-Carbon, 150 ohms 1/2 watt
R8	RC-32000	Resistor-Carbon, 200 ohms 1/2 watt
R9	RC-31001	Resistor-Carbon, 1000 ohms 1/2 watt

## CIRCUIT DIAGRAM

MODELS RC-5C5; RC-5C5-A; RC-5C5-B and RC-5C5-C

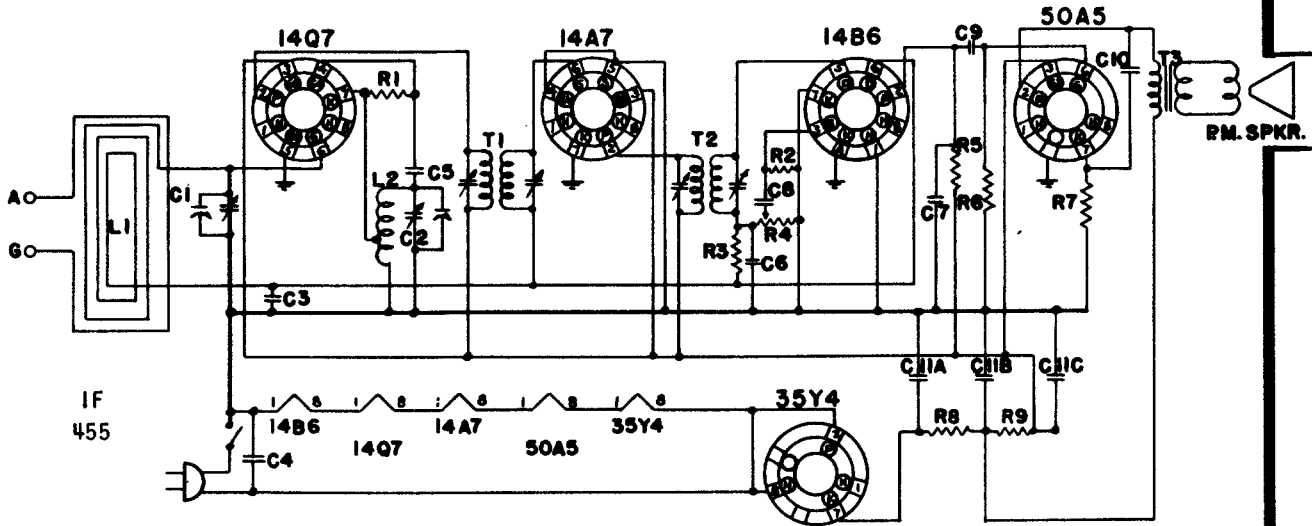


I.F. 455 KC.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

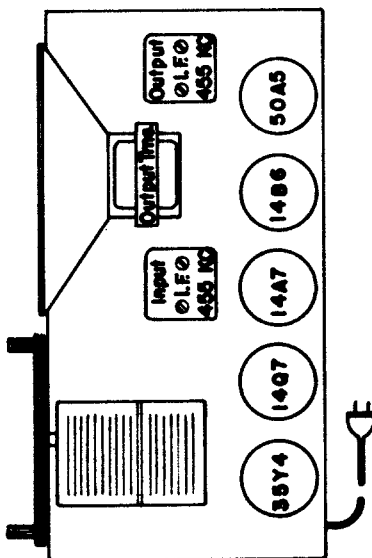
JOHN MECK INDUSTRIES, Inc., Plymouth, Indiana

CIRCUIT DIAGRAM  
CHASSIS RC-5C5-CL or RC-5C5-DL



VOLTAGE TABLE - Use high resistance voltmeter of 1000 ohms per volt

Type tube	1	2	3	4	5	6	7	8
14Q7	24AC	78	78	-7 to -12	0	-.65 to -1.2	0	12AC
14A7	36AC	78	78	0	0	-.8 to -1.2	0	24AC
14B6	0	55	-.9 to -1.2	0	-.8 to -1.2	0	0	12AC
50A5	82AC	95	78	--	---	0	4 to 5	36AC
35Y4	115AC	115AC	78	--	100	--	110	82AC



Circuit Symbol	Part Number	Description	Model
C1, C2	CV-10002-C	Condenser-Variable, with pulley	RC-5C5-CL
C1, C2	CV-10002-D	Condenser-Variable, with pulley	RC-5C5-DL
C3, C4, C10	CP-14503	Condenser-Paper, 0.05mfd. 400V	A11
C5	CM-15500	Condenser-Mica, 0.00005mfd.	A11
C6, C7	CM-15251	Condenser-Mica, 0.00025mfd.	A11
C8, C9	CP-14103	Condenser-Paper, 0.01mfd. 400V	A11
C11A, C11B, C11C	CL-10001	Condenser-Electrolytic 20/20/20 mfd 150V	A11
R1	RC-32002	Resistor-Carbon, 20,000 ohms 1/2 watt	A11
R2	RC-31005	Resistor-Carbon, 10 megohms 1/2 watt	A11
R3	RC-32004	Resistor-Carbon, 2 megohms 1/2 watt	A11
R4	VC-10105	Control-Volume, with switch, 1 megohm	A11
R5	RC-32503	Resistor-Carbon, 250,000 ohms 1/2 watt	A11
R6	RC-35003	Resistor-Carbon, 500,000 ohms 1/2 watt	A11
R7	RC-31500	Resistor-Carbon, 150 ohms 1/2 watt	A11
R8	RC-32000	Resistor-Carbon, 200 ohms 1/2 watt	A11
R9	RC-31001	Resistor-Carbon, 1000 ohms 1/2 watt	A11
L1	AL-10000-D	Antenna-Loop,	RC-5C5-DL
L1	A1-10001-C	Antenna-Loop	RC-5C5-CL
L2	TRC-10000	Coil-Oscillator	RC-5C5-DL
L2	TRC-10000-C	Coil-Oscillator	RC-5C5-CL
T1	TS-10000	Transformer-1st I.F.	A11
T2	TS-10001	Transformer-2nd I.F.	A11
T3	TO-10000	Transformer-Output	A11
SPKR	SR-10001	Speaker-P.M. 4" round, with T3	A11

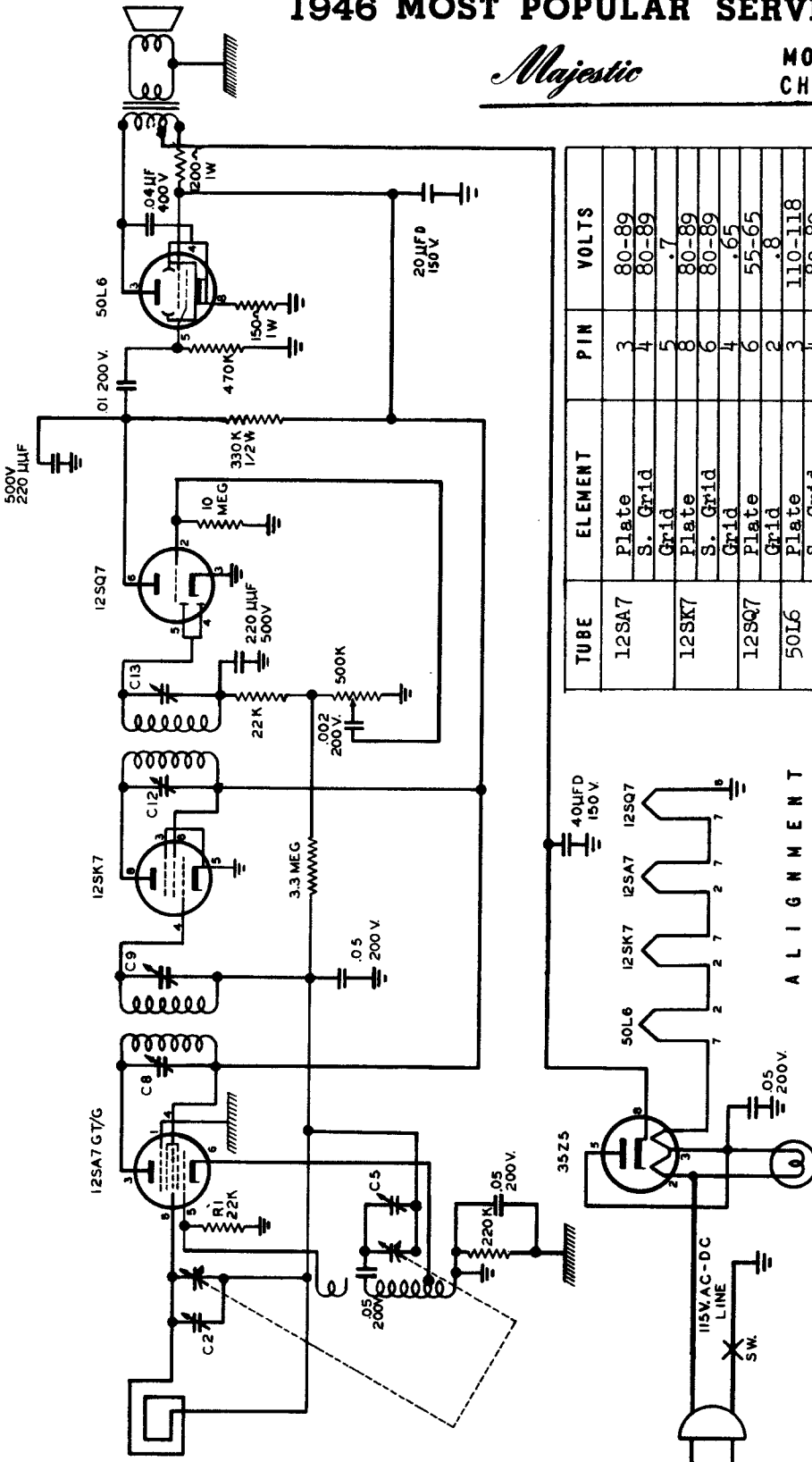
# 68

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# 1946 MOST POPULAR SERVICE DIAGRAMS

*Majestic*

MODELS 5A410, 5A430  
CHASSIS 4501, 4504



TUBE	ELEMENT	PIN	VOLTS
12SA7	Plate	3	80-89
	S. Grid	4	80-89
	Grid	5	.7
12SK7	Plate	8	80-89
	S. Grid	6	80-89
	Grid	4	.65
12SQ7	Plate	6	55-65
	Grid	2	.8
50L6	Plate	3	110-118
	S. Grid	4	80-89

### ALIGNMENT

STEP	DUMMY ANT.	TEST OSC. CONNECTION	TEST OSC. FREQUENCY	RECEIVER DIAL	ADJUST	REMARKS
1	.01 mfd.	12SA7 grid (pin No.5)	455 kc. modulated	Any quiet spot	C13, C12, C9, C8 for max. output	Repeat in reverse order
2	-----	Loop*	1500 kc. modulated	150	C5 for maximum output	
3	-----	Loop*	1500 kc. modulated	150	C2 for maximum output	Rock gang while adjusting
4	REPEAT COMPLETE ALIGNMENT PROCEDURE CAREFULLY					

\* Make a two or three turn loop about 12 inches in diameter. Connect to output terminals of the signal generator. Place this loop in a plane parallel to the receiver loop antenna and about a foot away from the receiver loop.

*Majestic*

MODELS 5A410, 5A430  
CHASSIS 4501, 4504

BEITMAN, SUPREME PUBLICATIONS

**69**

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Step	Dummy Antenna	Test Oscillator Connection	Test Oscillator Frequency	Receiver Switch	Receiver Dial	Adjust for Maximum
1	.01 mfd	6SA7 grid	455 kc	B.C.	Any quiet spot	C18, C17 C14, C12
2	Loop	-	1500 kc	B.C.	150	C4, C7
3	Loop	-	600 kc	B.C.	60	C8
4	400 ohms	Receiver antenna post	17 mc	S.W.	17	C2, C5

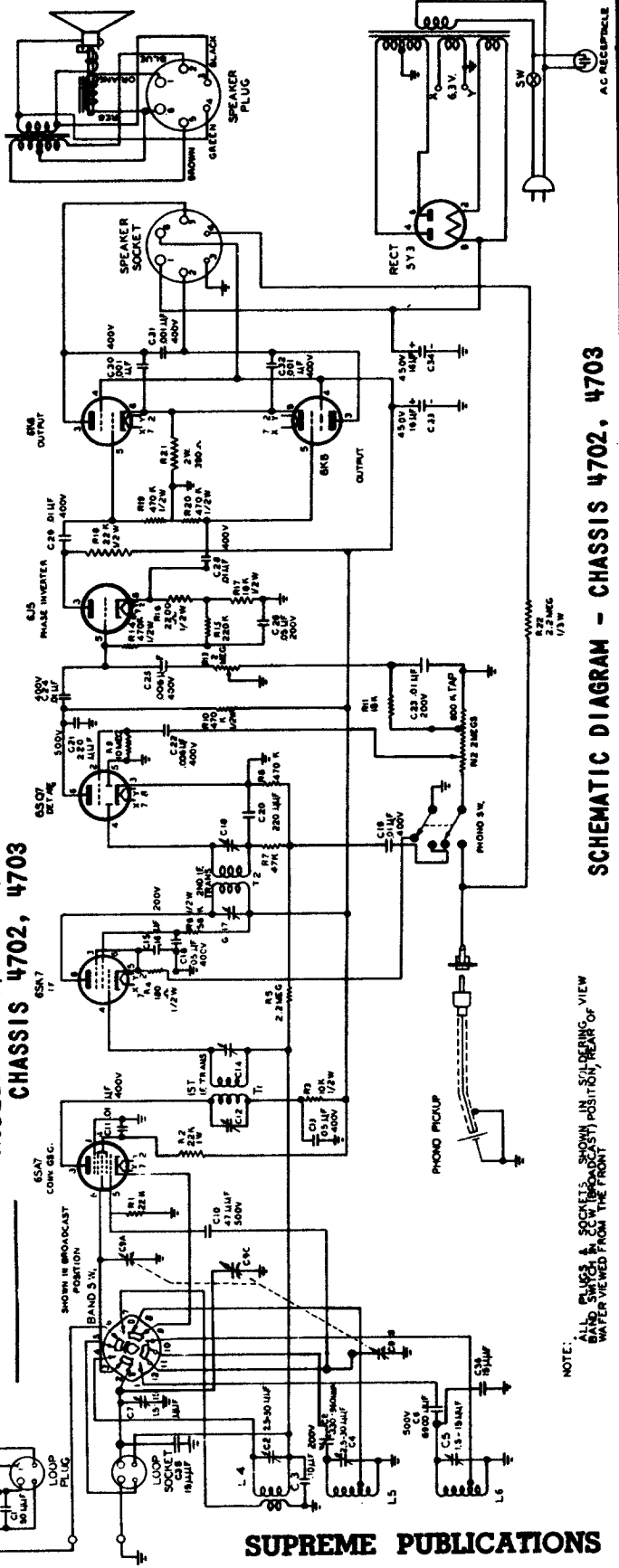
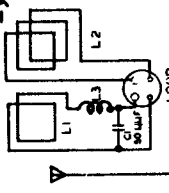
Note #1 - Rock gang while making this adjustment.

Plate	Screen	Grid
6SA7	85-98	0
6SK7	106-122	2.1 - 2.5
6SQ7	72-84	0
6J5 (Ph. Inv.)	208-220	6.0 - 7.5
6X6 (Out)	280-285	22.5 - 24

All voltages measured to ground with 1,000 ohm per volt meter.

Majestic

MODELS 7S433, 7S450, 7S470  
CHASSIS 4702, 4703



NOTE: ALL PLUGS & SOCKETS SHOWN IN SOLID LINE VIEW. BAND SWITCH & SW. (BROADCAST) POSITION, REAR OF UNIT VIEWED FROM THE FRONT.

SCHEMATIC DIAGRAM - CHASSIS 4702, 4703

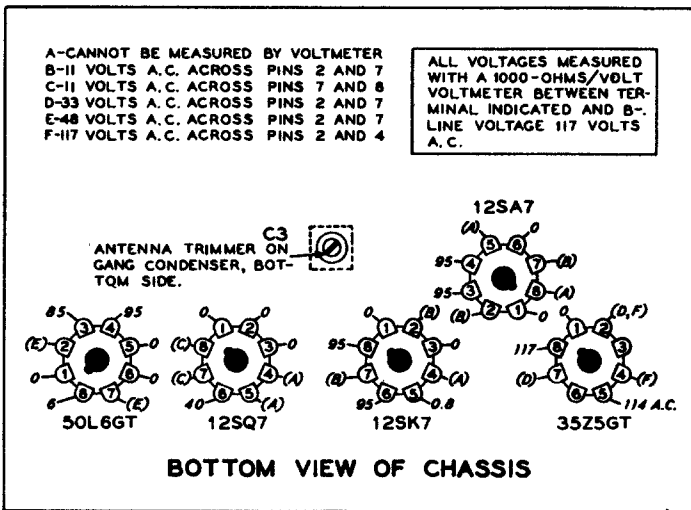
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## MONTGOMERY WARD

### MODEL 54BR-1505A MODEL 54BR-1506A

- Volume control setting—Maximum (extreme clockwise) for all adjustments.
- Connect ground lead of signal generator to B- of radio chassis through a 0.1 mfd. condenser.
- The loop antenna should be connected to the radio and in its proper position when making all adjustments.

ALIGNMENT	Signal Generator Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmer Adjusted to Maximum
I. F.	455 Kc.	.1 mfd.	Grid of 12SK7 I. F.	Rotor full open (Plates out of mesh)	Two trimmers on top of Output I. F.
	455 Kc.	.1 mfd.	Grid of 12SA7 Mixer	Rotor full open (Plates out of mesh)	Two trimmers on top of Input I. F.
BROADCAST	1600 Kc.	200 mmf.	Grid of 12SA7	Rotor full open (Plates out of mesh)	B.C. Osc. trimmer C2 on Gang
	1400 Kc.	200 mmf.	External Antenna and B-	Set Dial at 1400 K. C.	B.C. Ant. trimmer C3 under Gang

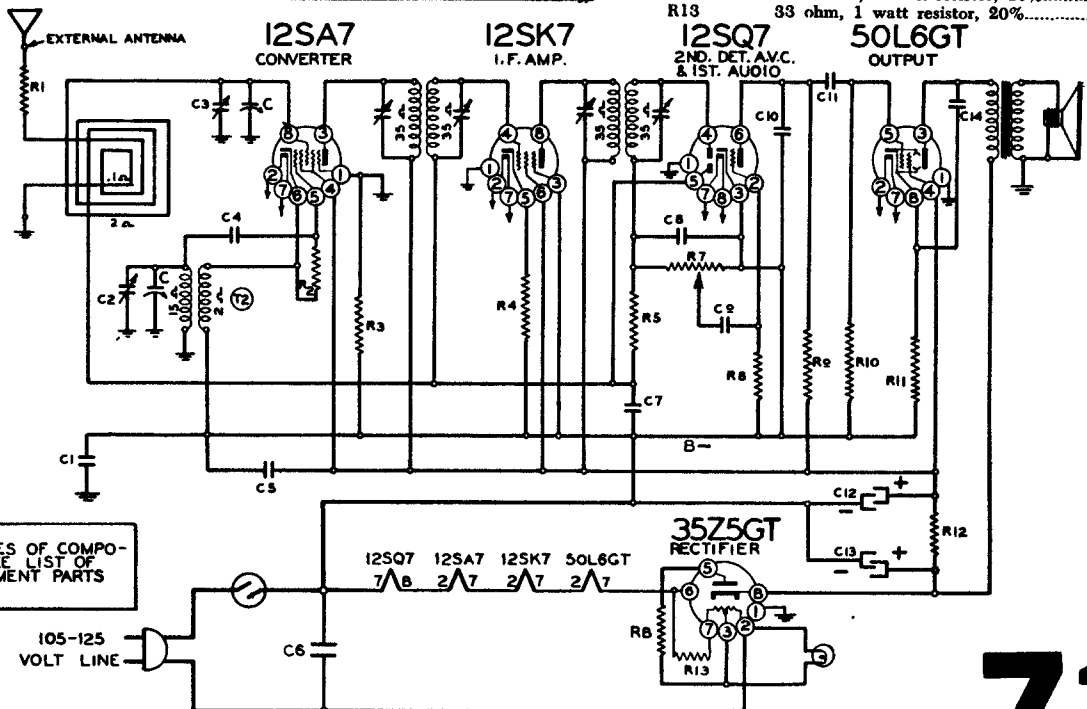


#### CONDENSERS

C1	.2 x 400 volt tubular condenser.....
C4	.0002 mica type condenser, 20%.....
C5, C7	.05 x 200 volt tubular condenser.....
C6	.1 x 400 volt tubular condenser.....
C8	.0001 mica type condenser, 20%.....
C9	.002 x 600 volt tubular condenser.....
C10	.00025 mica type condenser, 20%.....
C11	.004 x 600 volt tubular condenser.....
C12, C13	Electrolytic filter condenser, 50 to 60 cycles, 20 mfd.-40 mfd. x 150 volts
C12, C13	Electrolytic filter condenser, 25 cycles, 40 mfd.-60 mfd. x 150 volts.....
C14	.02 x 400 volt tubular condenser.....

#### RESISTORS\*

R1	1,000 ohm, 1/2 watt resistor, 20%.....
R2	47,000 ohm, 1/2 watt resistor, 10%.....
R3	220,000 ohm, 1/2 watt resistor, 20%.....
R4	47 ohm, 1/2 watt resistor, 10%.....
R5	3.3 megohm, 1/2 watt resistor, 20%.....
R6	22 ohm, 1/2 watt resistor, 10%.....
R8	4.7 megohm, 1/2 watt resistor, 20%.....
R9	470,000 ohm, 1/2 watt resistor, 20%.....
R10	680,000 ohm, 1/2 watt resistor, 20%.....
R11	150 ohm, 1/2 watt resistor, 10%.....
R12	1200 ohm, 1 watt resistor, 10%.....
R13	33 ohm, 1 watt resistor, 20%.....



FOR VALUES OF COMPONENTS SEE LIST OF REPLACEMENT PARTS

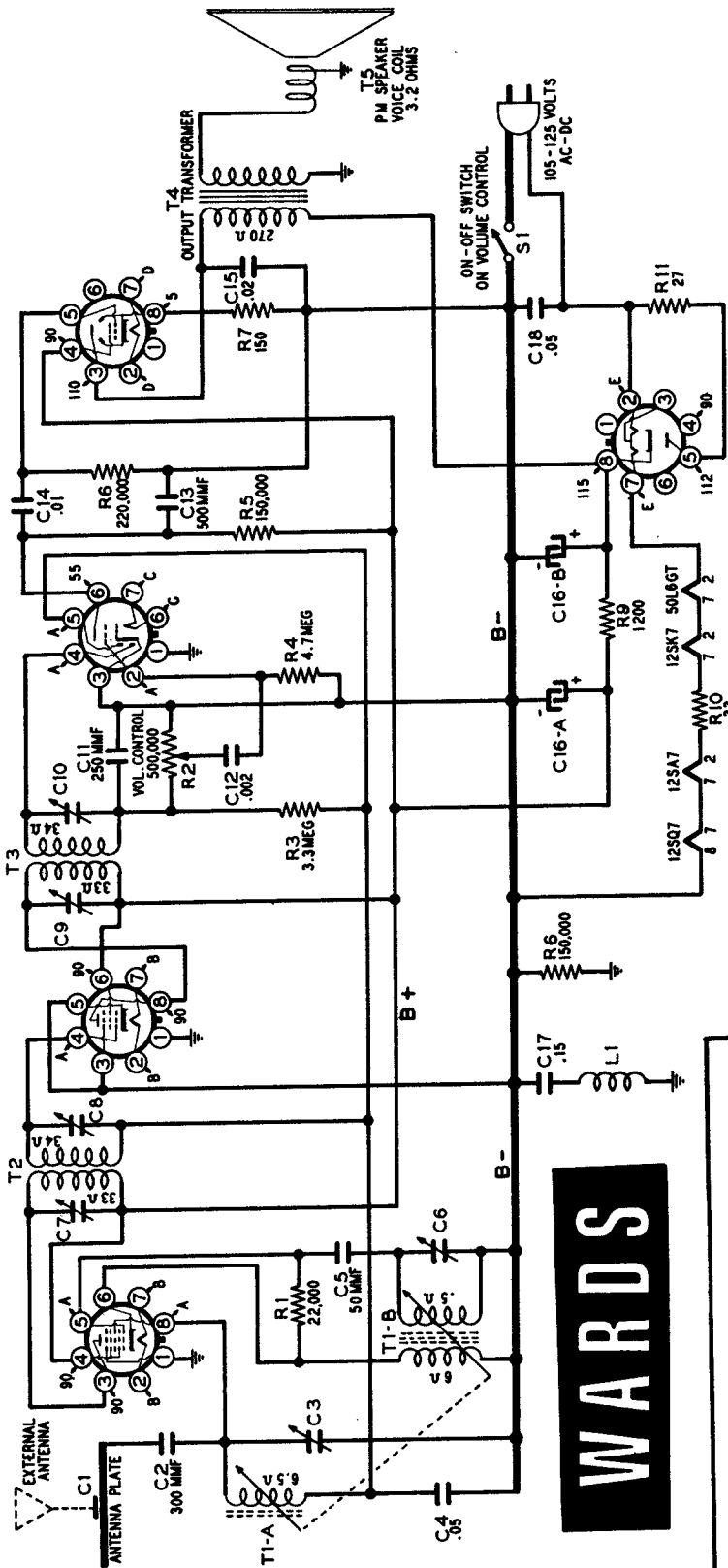
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

50L6GT  
OUTPUT

12SQ7  
2ND DET., A.V.C.  
& 1ST AUDIO

12SK7  
I.F. AMP.

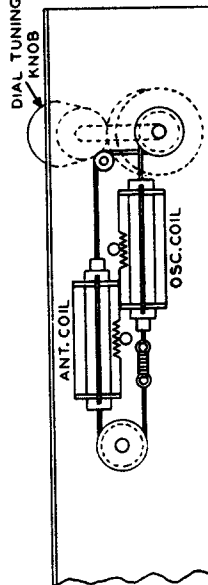
12SA7  
CONVERTER



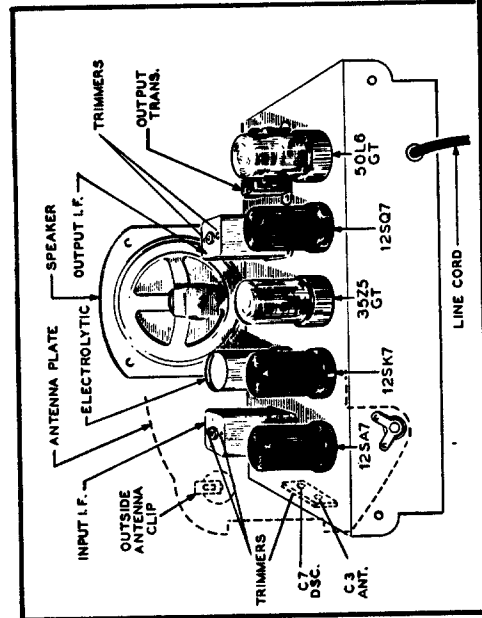
35Z5GT  
RECTIFIER

MODELS 54BR-1501A, 1502A

**NOTES**  
 FIGURES AND LETTERS OPPOSITE SOCKET PIN NUMBERS ARE VOLTAGE READINGS TAKEN WITH A 5000-OHMS-PER-VOLT METER BETWEEN SOCKET TERMINALS AND B+. LINE VOLTAGE 117 V. AC.  
 A - CANNOT BE MEASURED WITH VOLTMETER.  
 B - 12 VOLTS AC BETWEEN PINS 2 AND 7  
 C - 12 VOLTS AC BETWEEN PINS 7 AND 8  
 D - 45 VOLTS AC BETWEEN PINS 2 AND 7  
 E - 32 VOLTS AC BETWEEN PINS 2 AND 7  
 RESISTOR AND COIL VALUES SHOWN IN OHMS. CAPACITOR VALUES SHOWN IN MFD UNLESS OTHERWISE INDICATED.



View of Tuning Coil Assembly



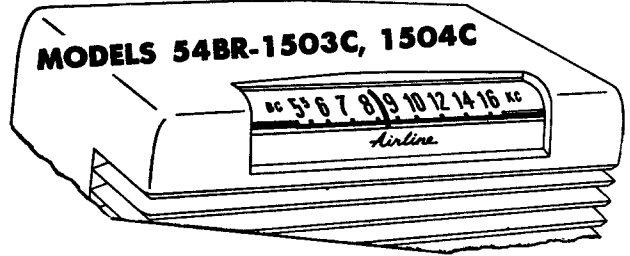
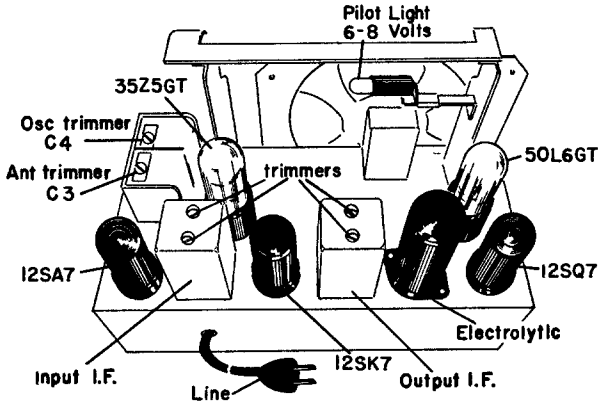
**WARDS**

**72**

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

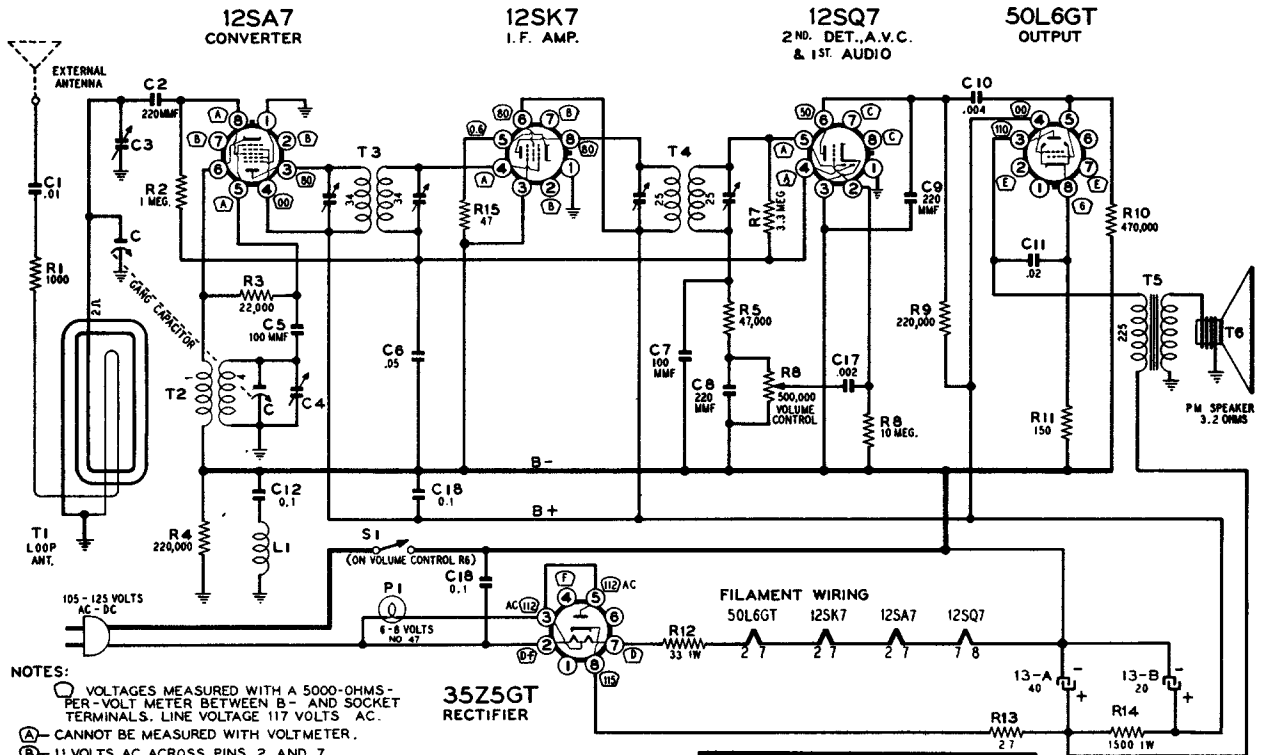
## MONTGOMERY WARD



Replace a defective metal 12SK7 tube with another metal tube. Replace a glass 12SK7 tube with a metal tube or with an exact duplicate of the tube now in the set.

### SIGNAL GENERATOR

Frequency	Coupling Capacitor	Connection to Radio	Ground Connection	TUNER SETTING	ADJUST TRIMMERS TO MAXIMUM OUTPUT in order shown
455 kc	0.1 mf	Grid (pin 4) of 12SK7	Pin 3 of 12SK7 (B- of set)	Capacitor full open (plates out of mesh)	2 trimmers on output IF can
455 kc	0.1 mf	Grid (pin 8) of 12SA7	Pin 3 of 12SK7 (B- of set)	Capacitor full open (plates out of mesh)	2 trimmers on input IF can
1630 kc	0.1 mf	Grid (pin 8) of 12SA7	Pin 3 of 12SK7 (B- of set)	Capacitor full open (plates out of mesh)	Oscillator trimmer C4 on gang
1400 kc	200 mmf	External antenna clip	Pin 3 of 12SK7 (B- of set)	Set dial pointer at 1400 kc	Antenna trimmer C3 on gang



#### NOTES:

- (A) VOLTAGES MEASURED WITH A 5000-OHMS-PER-VOLT METER BETWEEN B- AND SOCKET TERMINALS. LINE VOLTAGE 117 VOLTS AC.
  - (B) CANNOT BE MEASURED WITH VOLTMETER.
  - (C) 11 VOLTS AC ACROSS PINS 2 AND 7.
  - (D) 11 VOLTS AC ACROSS PINS 7 AND 8.
  - (E) 35 VOLTS AC ACROSS PINS 2 AND 7.
  - (F) 49 VOLTS AC ACROSS PINS 2 AND 7.
  - (G) 117 VOLTS AC ACROSS PINS 2 AND 4.
- WHERE NO READING IS INDICATED VOLTAGE IS ZERO.

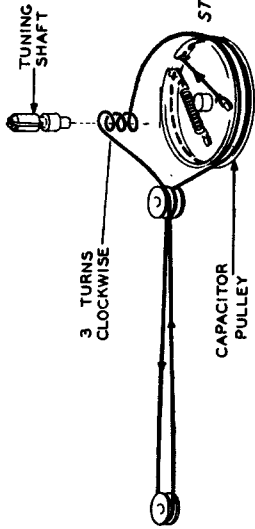
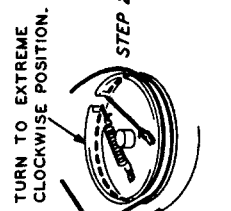
35Z5GT RECTIFIER

CAPACITOR VALUES IN MFD UNLESS OTHERWISE INDICATED.  
RESISTOR AND COIL VALUES IN OHMS.  
WHERE VALUE OF COIL IS NOT SHOWN, RESISTANCE IS LESS THAN ONE OHM.

# WARDS 73

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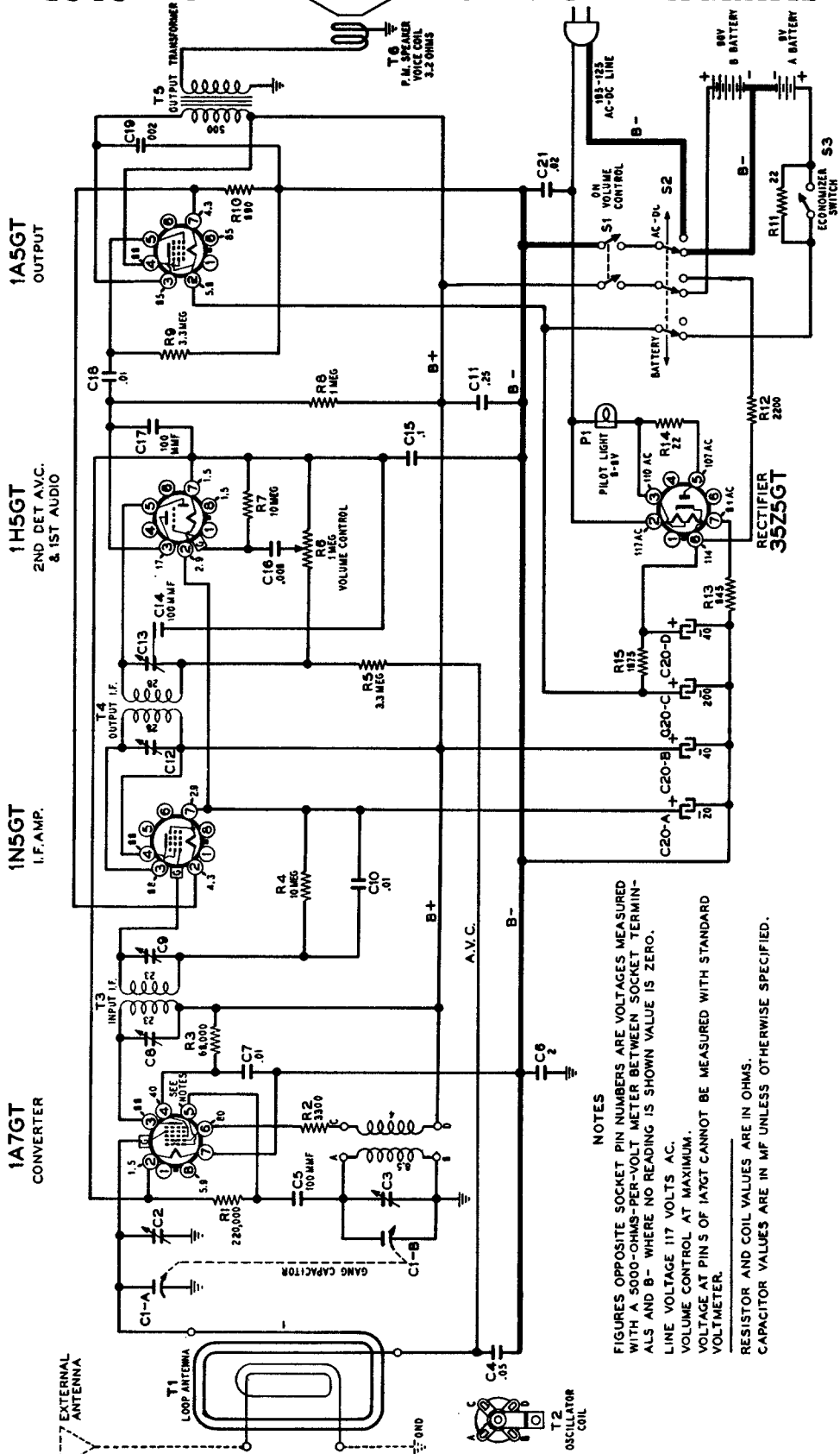




**WARDS**

**MODEL 64BR-1051A**

**74**

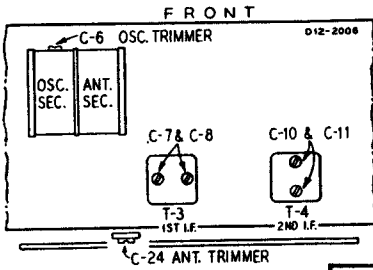


**NOTES**  
 FIGURES OPPOSITE SOCKET PIN NUMBERS ARE VOLTAGES MEASURED WITH A 5000-OHMS-PER-VOLT METER BETWEEN SOCKET TERMINALS AND B- WHERE NO READING IS SHOWN VALUE IS ZERO.  
 LINE VOLTAGE 117 VOLTS AC.  
 VOLUME CONTROL AT MAXIMUM.  
 VOLTAGE AT PIN 5 OF 1A7GT CANNOT BE MEASURED WITH STANDARD VOLTMETER.  
 RESISTOR AND COIL VALUES ARE IN OHMS.  
 CAPACITOR VALUES ARE IN MF UNLESS OTHERWISE SPECIFIED.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

MONTGOMERY WARD  
CHICAGO, U. S. A.

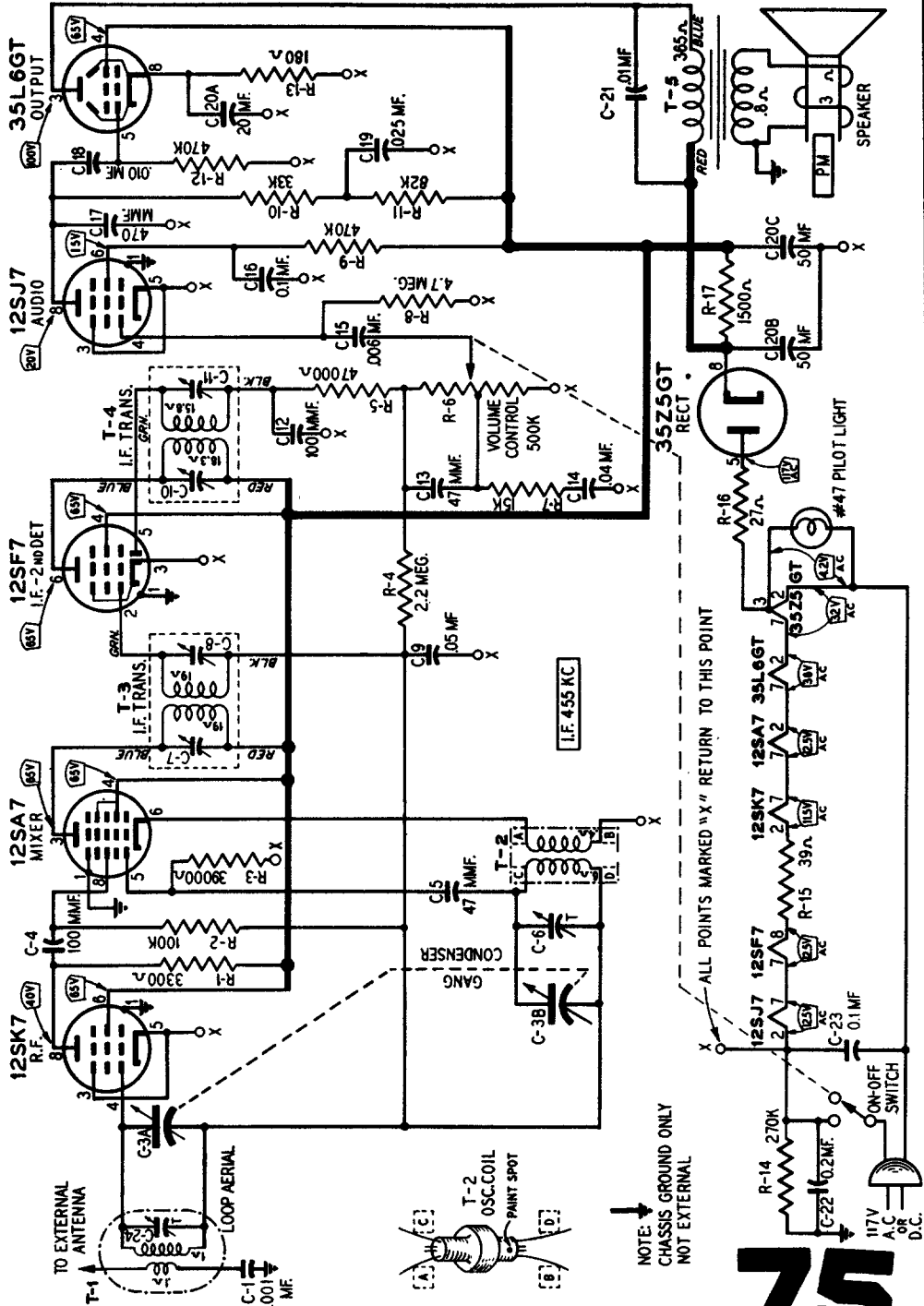
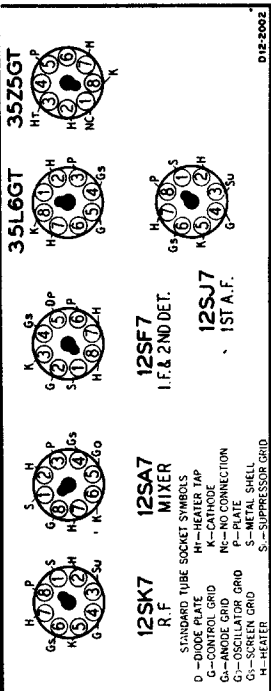
MODEL 64 WG-1804A



Socket voltages are shown on the schematic diagram at the tube socket terminals. All voltages except those for the heater and dial lamp are between the socket terminal and "X" point.

The readings were taken with a 1000 ohm-per-volt meter and all plate and screen voltages read on a 500 volt scale. Conditions of measurement are:

Line voltage.....117 volts AC  
Volume control.....maximum  
Signal input.....none



NOTE: CHASSIS GROUND ONLY NOT EXTERNAL

75

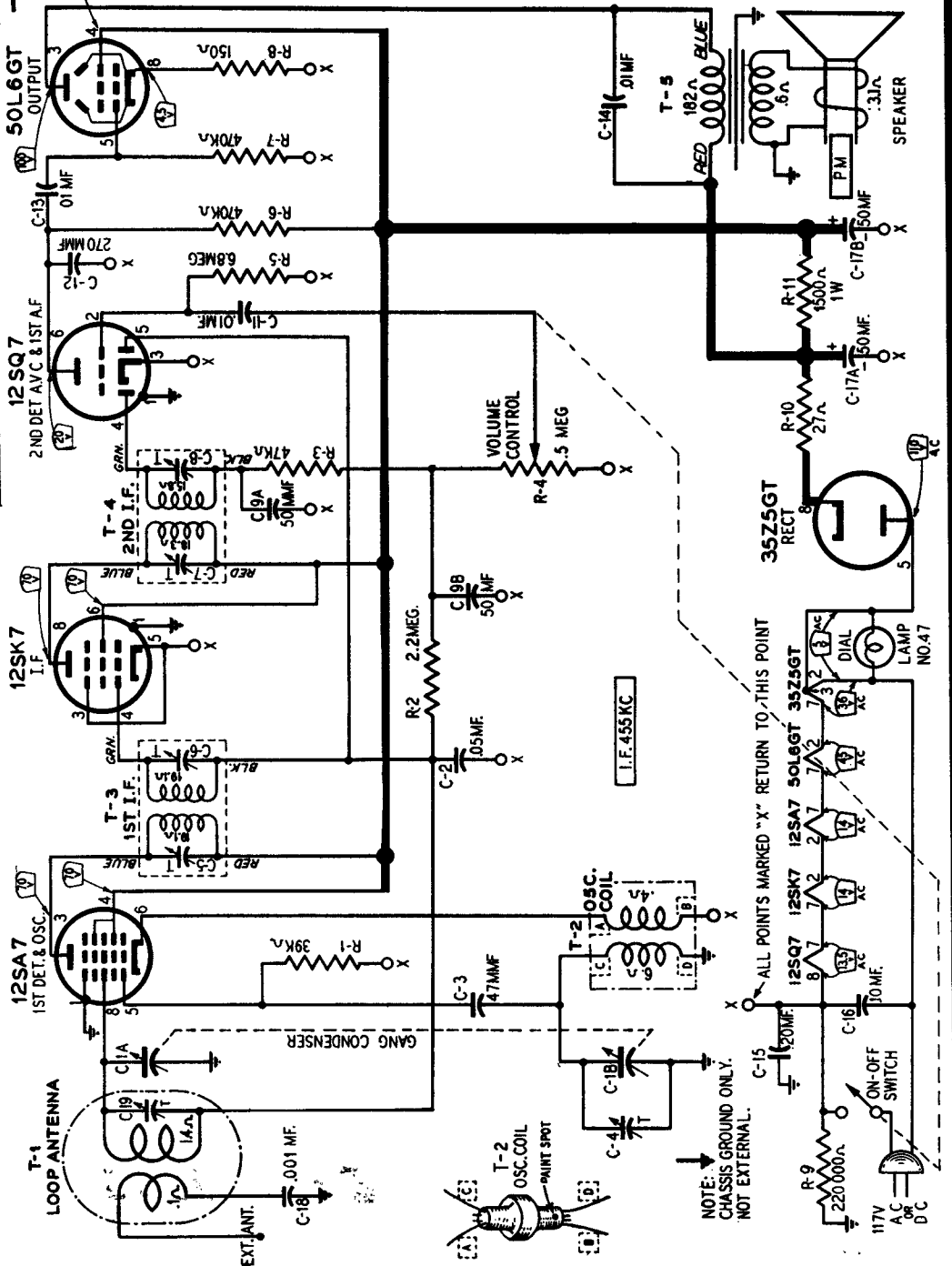
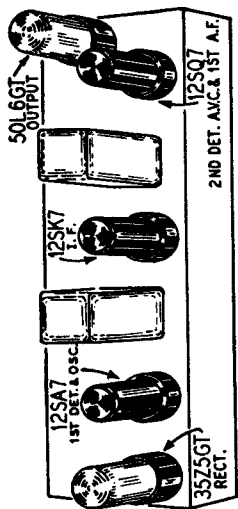
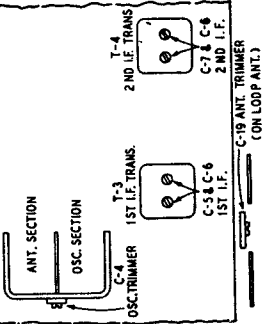
# WARDS

## MODEL 54 WG-1801A

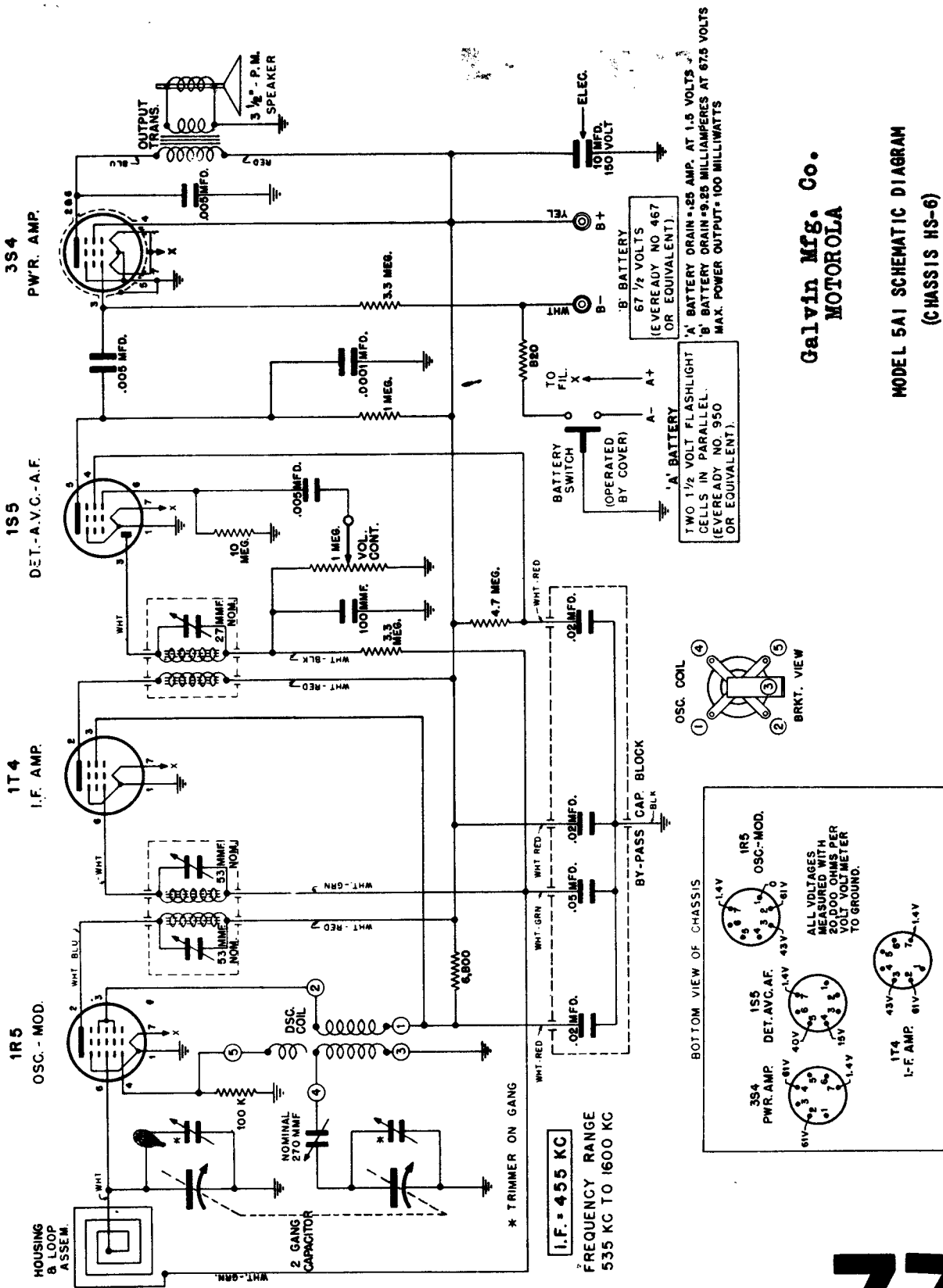
Model 54 WG-2007, a four tube (plus rectifier tube) A.C. receiver with a single record player, has the chassis similar to Model 54 WG-1801 described on this page.

### TUBE SOCKET VOLTAGES

Socket voltages are shown on the schematic diagram at the tube socket terminals. All voltages except those for the heater and dial lamp are between the socket terminal and "X" point.

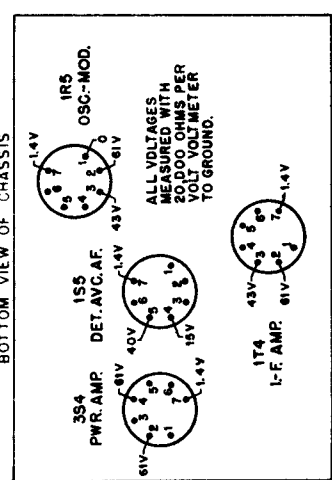
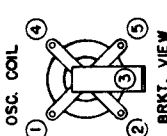


# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

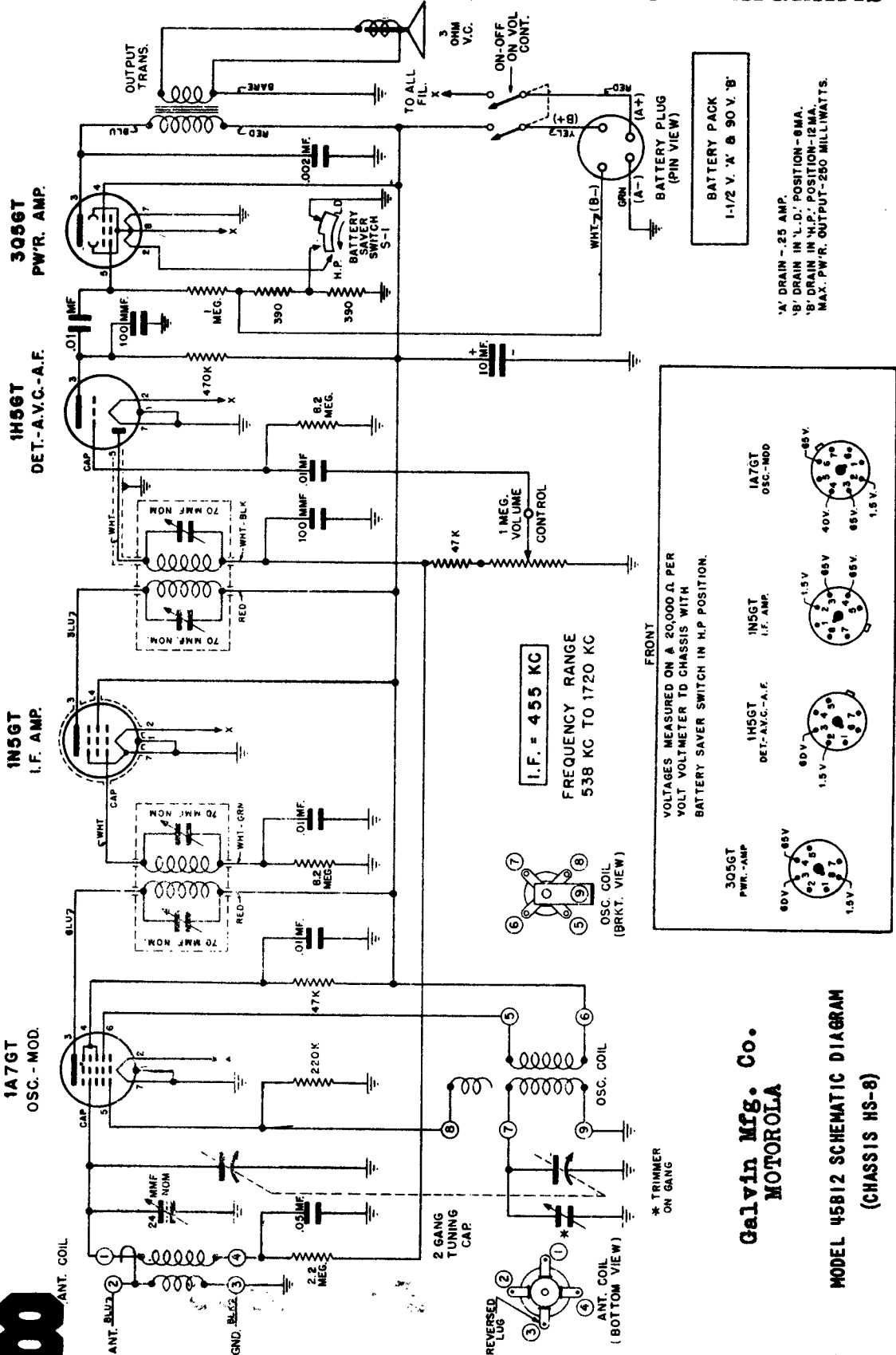


**Galvin Mfg. Co.  
MOTOROLA**

**MODEL 5A1 SCHEMATIC DIAGRAM  
(CHASSIS HS-6)**



MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



I.F. = 455 KC  
FREQUENCY RANGE  
538 KC TO 1720 KC

VOLTAGES MEASURED ON A 20,000 Ω PER  
VOLT VOLTMETER TO CHASSIS WITH  
BATTERY SAVER SWITCH IN H.P. POSITION.

FRONT

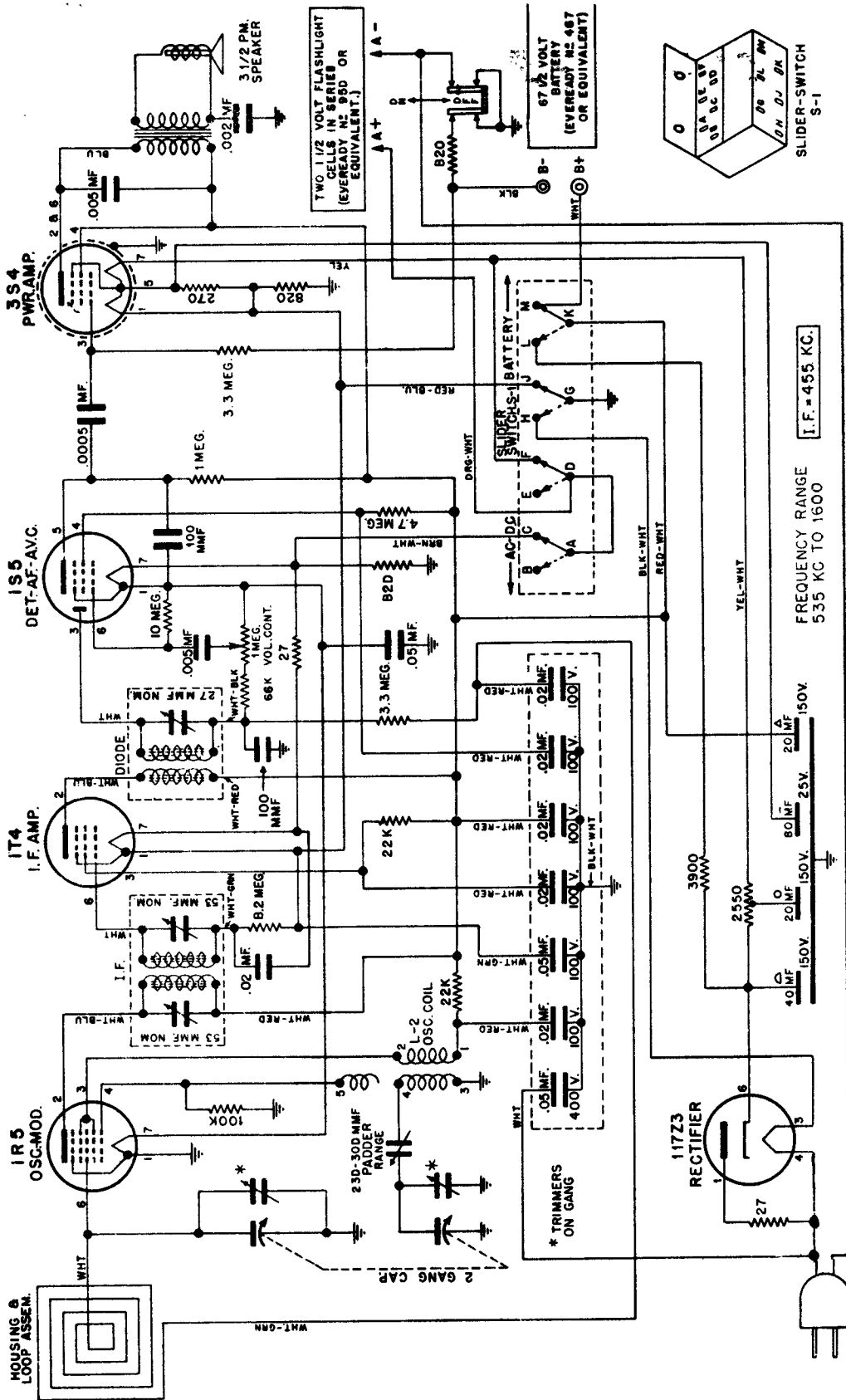
BOTTOM VIEW OF CHASSIS

Galvin Mfg. Co.  
MOTOROLA

MODEL 45B12 SCHEMATIC DIAGRAM  
(CHASSIS HS-8)

\* TRIMMER  
ON GANG

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



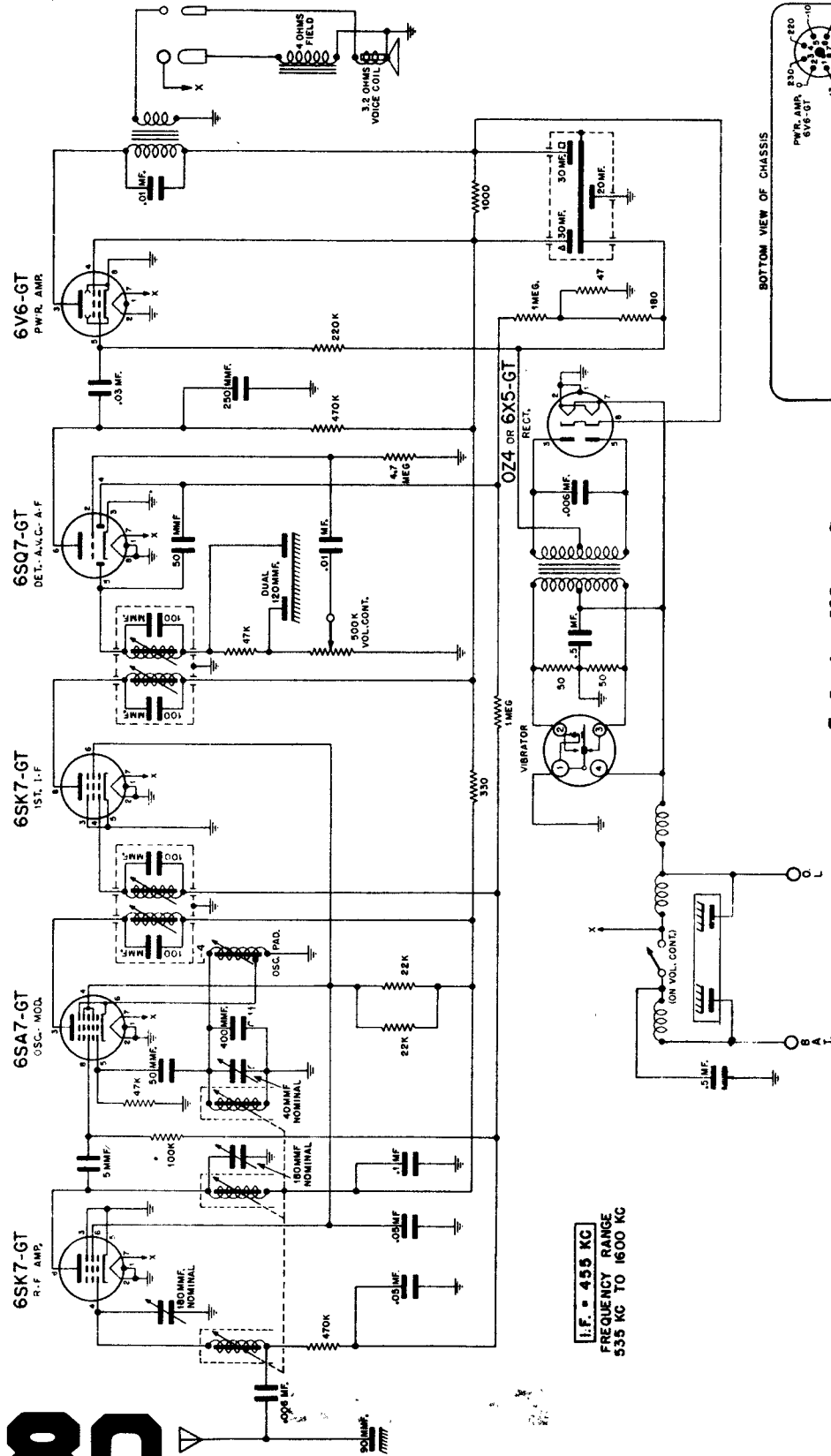
"A" BATTERY DRAIN = 150 MA AT 2.8 VOLTS.  
 "B" BATTERY DRAIN = 9.2 MA AT 67.5 VOLTS.  
 ⏏ = RECEIVER CHASSIS.  
 ⏏ = POWER SUPPLY CHASSIS  
 FLOATING.

Galvin Mfg. Co.  
**MOTOROLA**

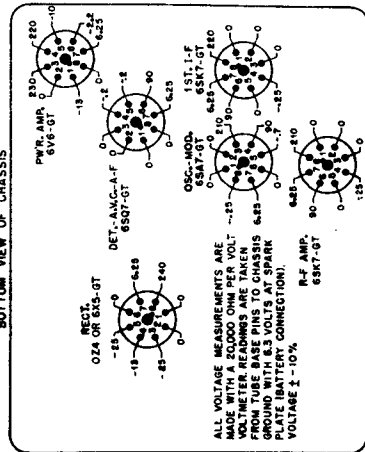
MODEL 5A5 SCHEMATIC DIAGRAM  
 (CHASSIS HS-15)



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**i.f. = 455 KC**  
**FREQUENCY RANGE**  
**555 KC TO 1600 KC**



**Galvin Mfg. Co.**  
**MOTOROLA**

**MODEL 405 (CHASSIS AS-13)**  
**SCHEMATIC DIAGRAM**

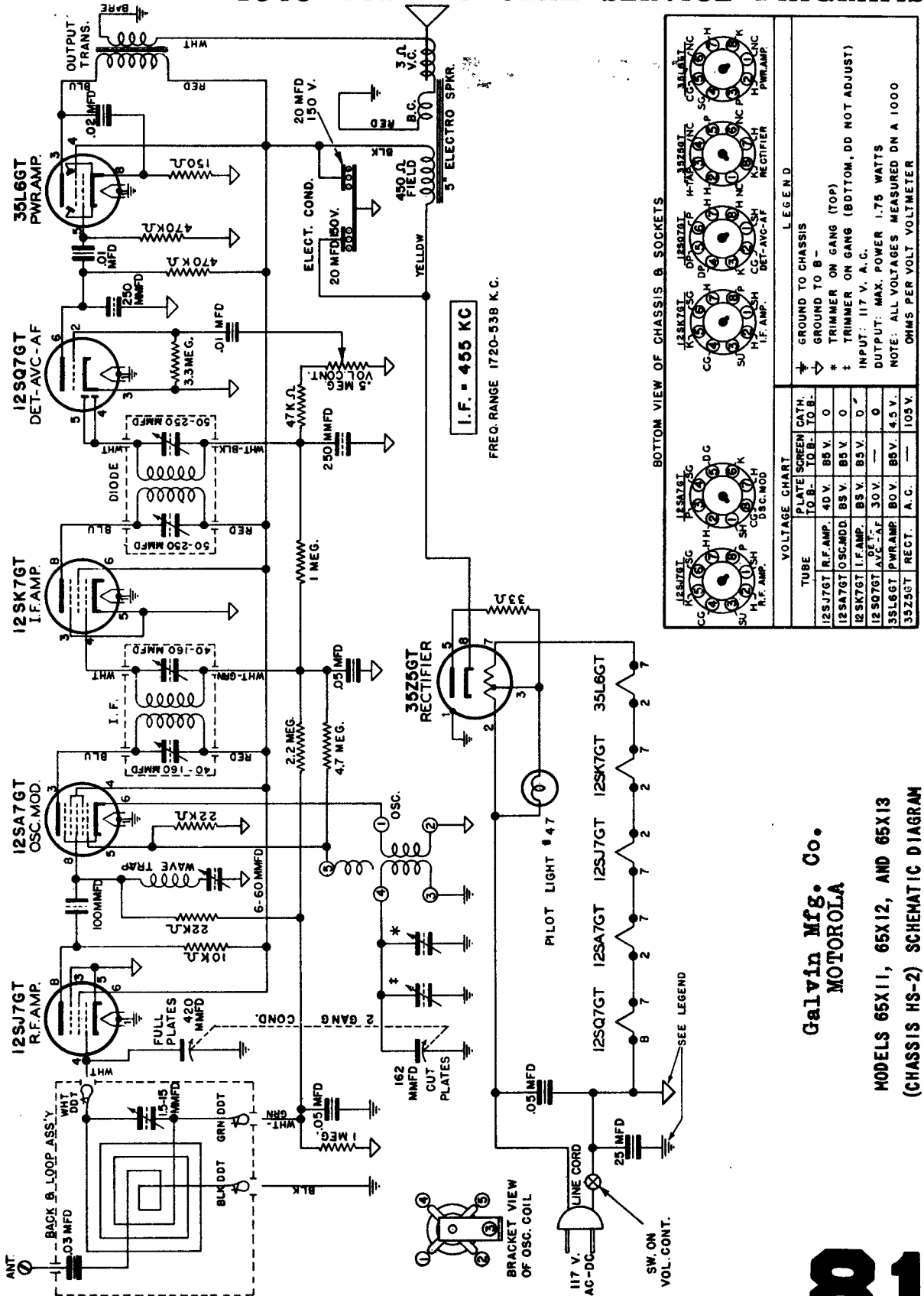
NOTE - ALL RESISTORS ARE INDICATED IN OHMS.  
 K - ONE THOUSAND (1000) OHMS



**MODEL 405**

# 80

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**BOTTOM VIEW OF CHASSIS B. SOCKETS**

**VOLTAGE CHART**

TUBE	PLATE	SCREEN	CATH.
	TO R.	TO B.	TO B.
12SJ7GT	R.F. AMP. 40 V.	85 V.	0
12SA7GT	OSC. MOD. 85 V.	85 V.	0
12SK7GT	I.F. AMP. 85 V.	85 V.	0
12SQ7GT	DET.-AVC-AF 30 V.	—	0
35L6GT	PWR. AMP. 80 V.	85 V.	4.5 V.
35Z5GT	RECT.	A.C.	105 V.

**LEGEND**

- ⚡ GROUND TO CHASSIS
- ⬇️ GROUND TO B-
- \* TRIMMER ON GANG (TOP)
- † TRIMMER ON GANG (BOTTOM, DD NOT ADJUST)
- INPUT: 117 V. A.C.
- OUTPUT: MAX. POWER 1.75 WATTS
- NOTE: ALL VOLTAGES MEASURED ON A 1000 OHMS PER VOLT VOLTMETER

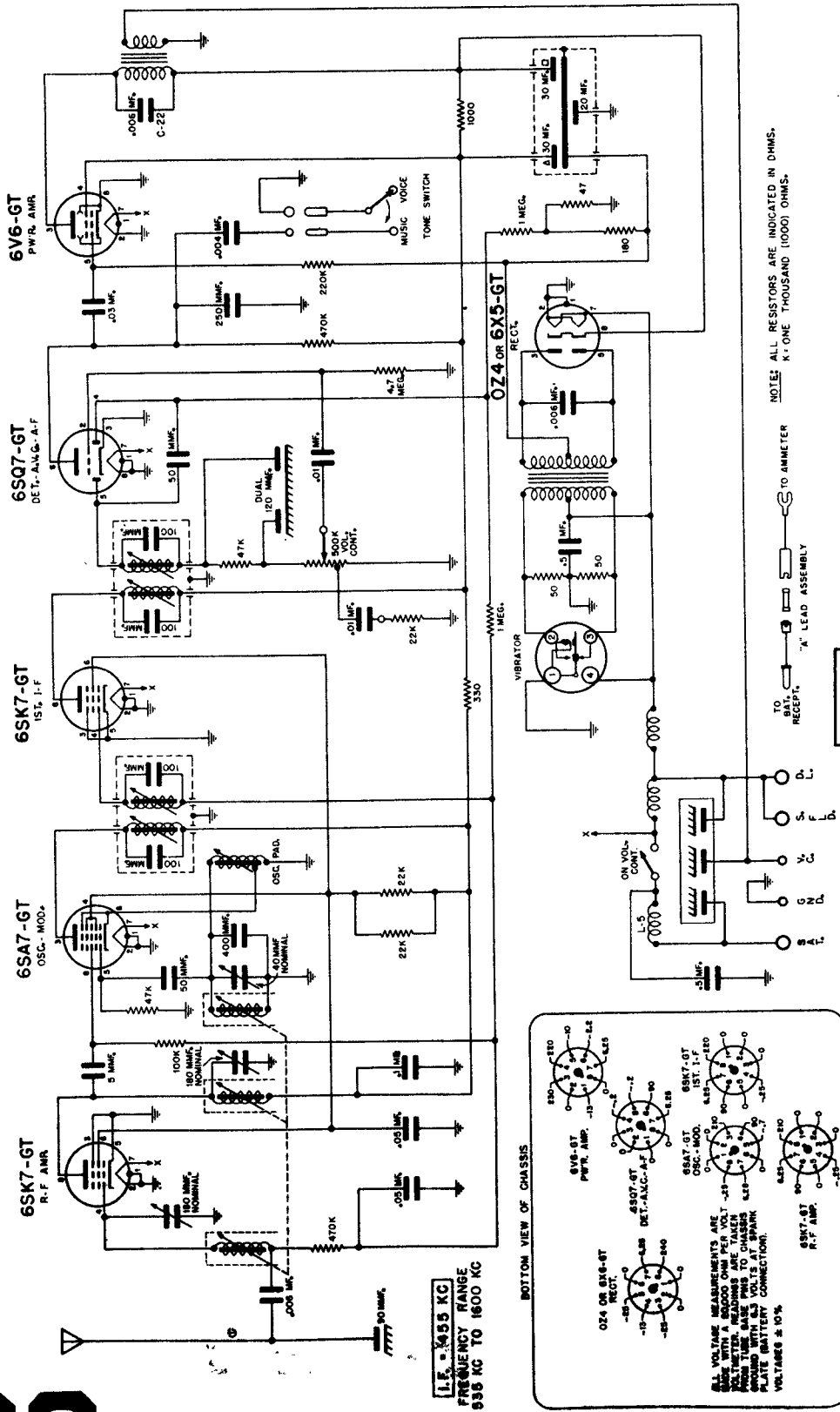
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**Galvin Mfg. Co.**  
**MOTOROLA**

MODELS 65X11, 65X12, AND 65X13  
(CHASSIS HS-2) SCHEMATIC DIAGRAM



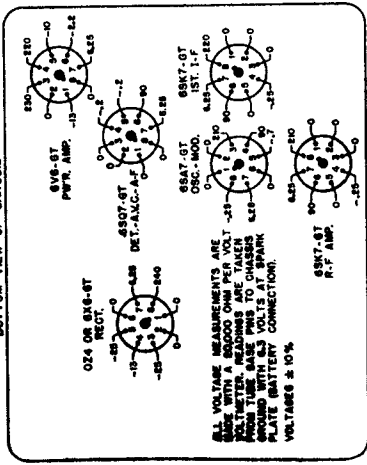
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



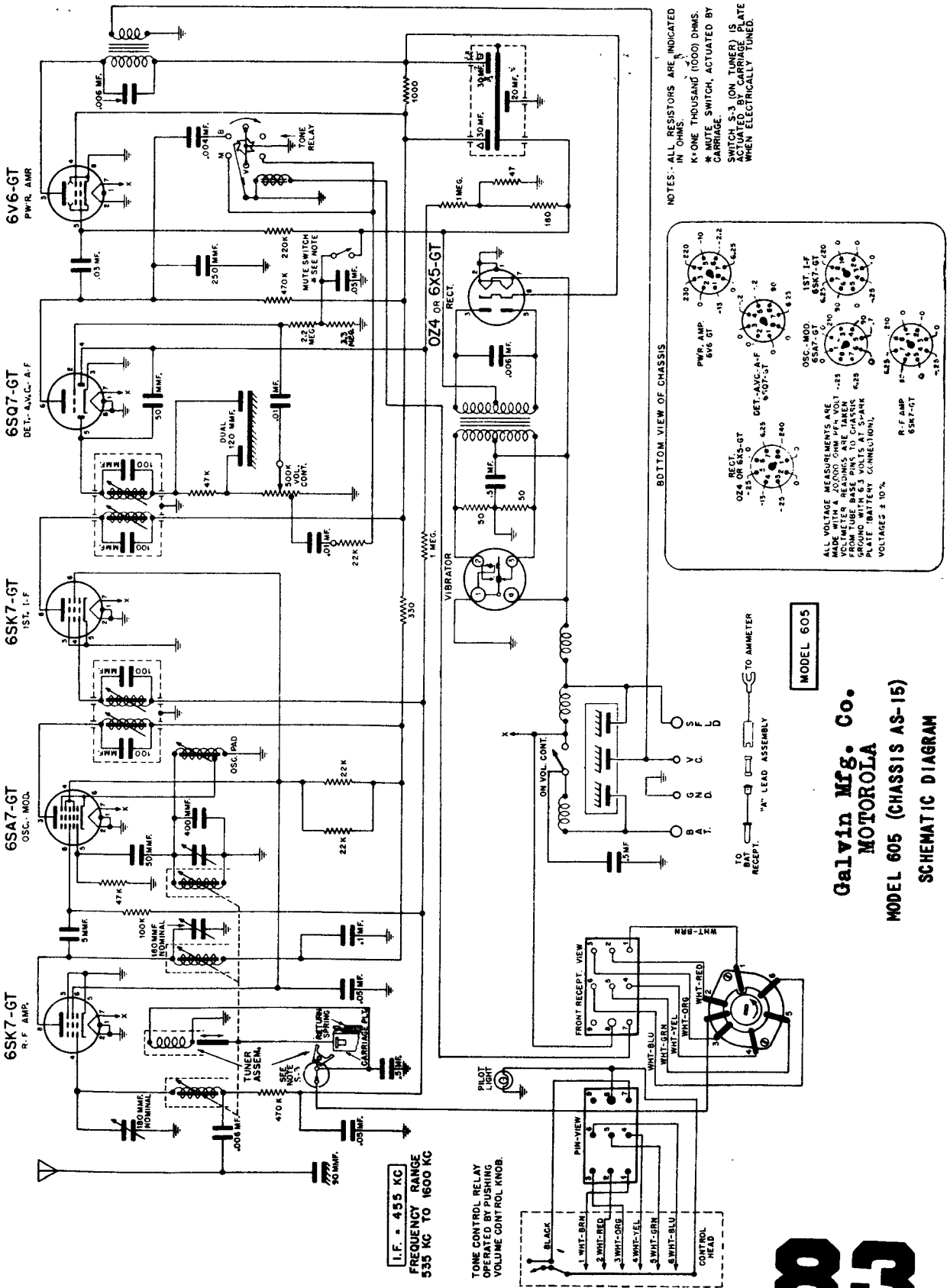
MODEL 505

NOTE: ALL RESISTORS ARE INDICATED IN OHMS.  
K - ONE THOUSAND (1000) OHMS.

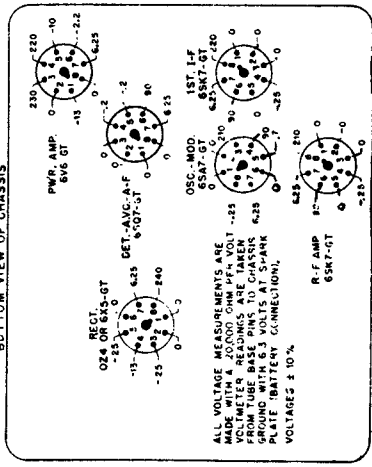
TO BATT. RECEPT. TO AMMETER  
"A" LEAD ASSEMBLY



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



NOTES: ALL RESISTORS ARE INDICATED IN OHMS.  
 \* ONE THOUSAND (1000) OHMS.  
 \* MUTE SWITCH, ACTUATED BY SWITCH S-3 (ON TUNER) IS PLATE C.D. CARRIAGE WHEN ELECTRICALLY TUNED.



I.F. = 455 KC  
 FREQUENCY RANGE  
 535 KC TO 1600 KC

TONE CONTROL RELAY  
 OPERATED BY PUSHING  
 VOLUME CONTROL KNOB.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

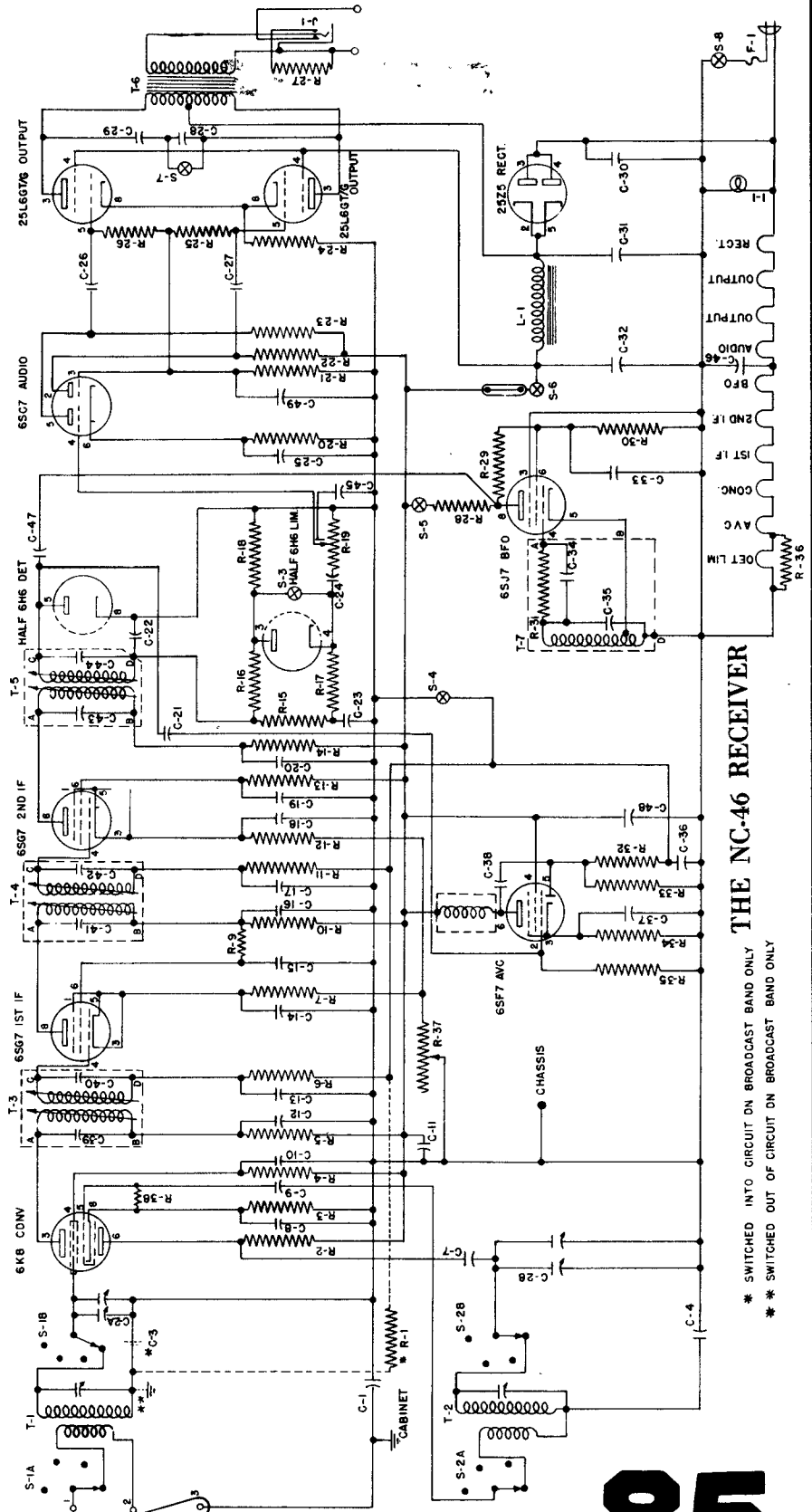
NATIONAL COMPANY INC., MALDEN, MASS. THE NC-46 RECEIVER

Symbol	Type	Rating	Symbol	Type	Rating
<b>CAPACITORS</b>			C46	Paper	0.1 mfd., 400 VDCW
C1	Paper	0.1 mfd., 400 VDCW	C47	Bakelite	1 mmf., 400 VDCW
C2A	Air	365 mmf. max.	C48	Paper	0.1 mfd., 400 VDCW
C2B	Air	365 mmf. max.	C49	Ceramic	270 mmf., 500 VDCW
C3	Paper	0.01 mfd., 400 VDCW	Note #1. Capacitor ratings differ for each coil range and definite ratings cannot be listed.		
C4	Mica	See Note #1	<b>RESISTORS</b>		
C5	Air	See Note #1	R1	Fixed	470,000 Ohms, 1/2 w
C6	Air	See Note #1	R2	Fixed	10,000 Ohms, 1/2 w
C7	Mica	0.0047 mfd., 500 VDCW	R3	Fixed	220 Ohms, 1/2 w
C8	Paper	0.1 mfd., 400 VDCW	R4	Fixed	1,000 Ohms, 1/2 w
C9	Mica	100 mmf., 500 VDCW	R5	Fixed	1,000 Ohms, 1/2 w
C10	Paper	0.1 mfd., 400 VDCW	R6	Fixed	470,000 Ohms, 1/2 w
C11	Paper	1 mfd., 200 VDCW	R7	Fixed	560 Ohms, 1/2 w
C12	Paper	0.1 mfd., 400 VDCW	R8	Not Used	
C13	Paper	0.01 mfd., 400 VDCW	R9	Fixed	22,000 Ohms, 1/2 w
C14	Paper	0.1 mfd., 400 VDCW	R10	Fixed	1,000 Ohms, 1/2 w
C15	Paper	0.01 mfd., 400 VDCW	R11	Fixed	470,000 Ohms, 1/2 w
C16	Paper	0.1 mfd., 400 VDCW	R12	Fixed	560 Ohms, 1/2 w
C17	Paper	0.01 mfd., 400 VDCW	R13	Fixed	22,000 Ohms, 1/2 w
C18	Paper	0.1 mfd., 400 VDCW	R14	Fixed	2,200 Ohms, 1/2 w
C19	Paper	0.01 mfd., 400 VDCW	R15	Fixed	1,000,000 Ohms, 1/2 w
C20	Paper	0.1 mfd., 400 VDCW	R16	Fixed	470,000 Ohms, 1/2 w
C21	Ceramic	50 mmf., 500 VDCW	R17	Fixed	1,000,000 Ohms, 1/2 w
C22	Mica	270 mmf., 500 VDCW	R18	Fixed	470,000 Ohms, 1/2 w
C23	Paper	0.1 mfd., 400 VDCW	R19	Variable	500,000 Ohms, 1 w
C24	Paper	0.01 mfd., 400 VDCW	R20	Fixed	3,900 Ohms, 1/2 w
C25	Electrol	25 mfd., 50 VDCW	R21	Fixed	270,000 Ohms, 1/2 w
C26	Paper	0.01 mfd., 400 VDCW	R22	Fixed	270,000 Ohms, 1/2 w
C27	Paper	0.01 mfd., 400 VDCW	R23	Fixed	270,000 Ohms, 1/2 w
C28	Paper	0.02 mfd., 400 VDCW	R24	Fixed	68 Ohms, 1/2 w
C29	Paper	0.1 mfd., 400 VDCW	R25	Fixed	270,000 Ohms, 1/2 w
C30	Paper	0.1 mfd., 400 VDCW	R26	Fixed	270,000 Ohms, 1/2 w
C31	Electrol	40 mfd., 200 VDCW	R27	Fixed W.W,	5 Ohms, 5 w
C32	Electrol	40 mfd., 200 VDCW	R28	Fixed	100,000 Ohms, 1/2 w
C33	Paper	0.1 mfd., 400 VDCW	R29	Fixed	100,000 Ohms, 1/2 w
C34	Mica	270 mmf., 500 VDCW	R30	Fixed	100,000 Ohms, 1/2 w
C35	Mica	270 mmf., 500 VDCW	R31	Fixed	50,000 Ohms, 1/2 w
C36	Paper	0.1 mfd., 400 VDCW	R32	Fixed	470,000 Ohms, 1/2 w
C37	Paper	0.1 mfd., 400 VDCW	R33	Fixed	470,000 Ohms, 1/2 w
C38	Mica	0.001 mfd., 500 VDCW	R34	Fixed	22,000 Ohms, 1/2 w
C39	Mica	510 mmf., 500 VDCW	R35	Fixed	2,200,000 Ohms, 1/2 w
C40	Mica	510 mmf., 500 VDCW	R36	Fixed	100 Ohms, 1/2 w
C41	Mica	510 mmf., 500 VDCW	R37	Variable	10,000 Ohms, 1 1/2 w
C42	Mica	510 mmf., 500 VDCW	R38	Fixed	22,000 Ohms, 1/2 w
C43	Mica	510 mmf., 500 VDCW	R39	Fixed	33,000 Ohms, 1/2 w
C44	Mica	510 mmf., 500 VDCW			
C45	Paper	0.01 mfd., 400 VDCW			

Band A	11.5	-	30.0 MC
Band B	4.4	-	12.0 MC
Band C	1.55	-	4.6 MC
Band D	0.54	-	1.6 MC

The following bands in the short wave ranges are tunable by the handsread capacitor and are spread as follows:  
 3.5 - 4.0 MC 65 Divisions  
 7.0 - 7.3 MC 50 Divisions  
 14.0 - 14.4 MC 56 Divisions  
 28.0 - 30.0 MC 40 Divisions

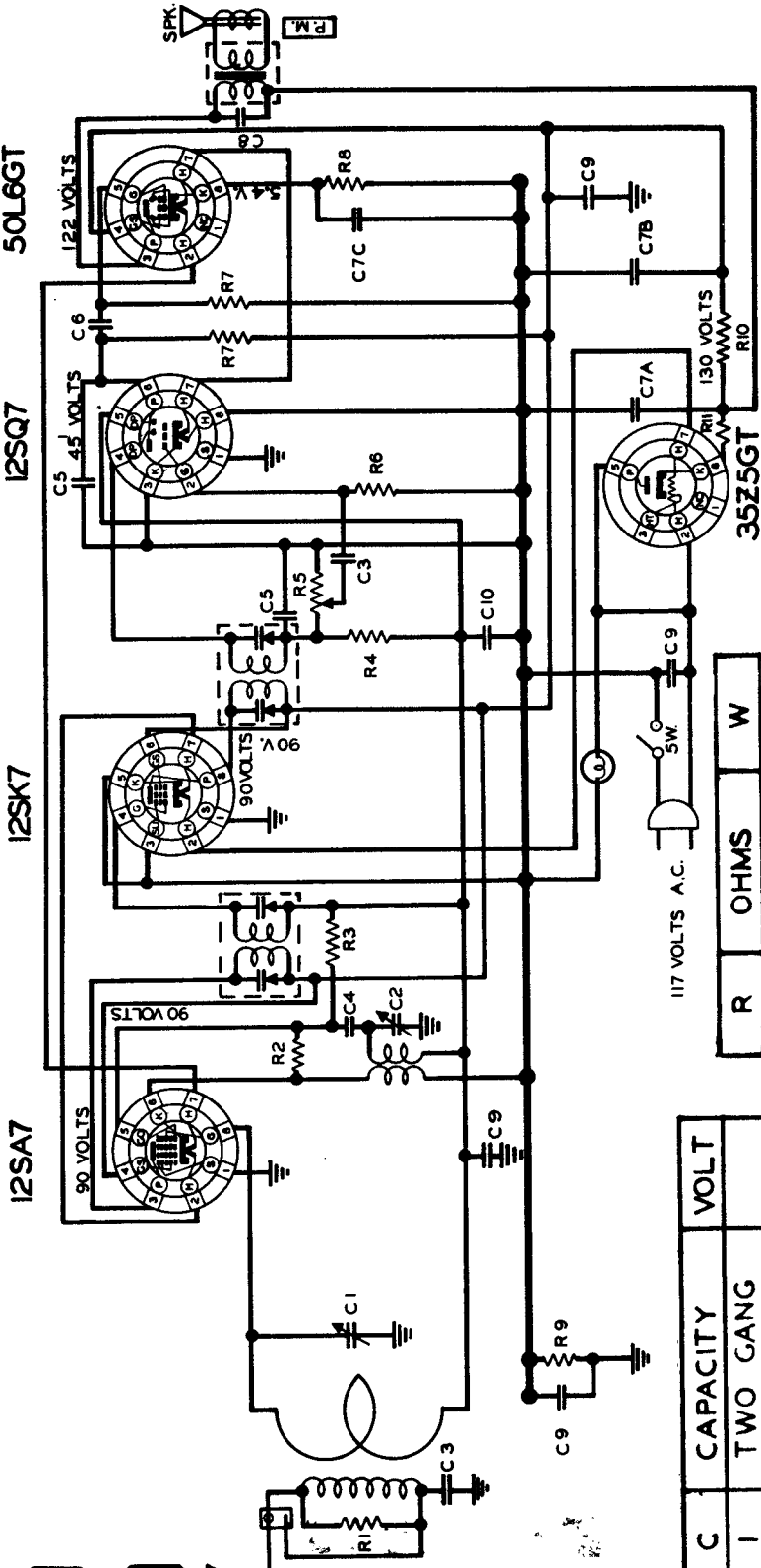
# NATIONAL MODEL NC-46 RECEIVER



THE NC-46 RECEIVER

\* SWITCHED INTO CIRCUIT ON BROADCAST BAND ONLY  
 \*\* SWITCHED OUT OF CIRCUIT ON BROADCAST BAND ONLY

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



Noblitt-Sparks Industries, Inc.

ARVIN RADIOS

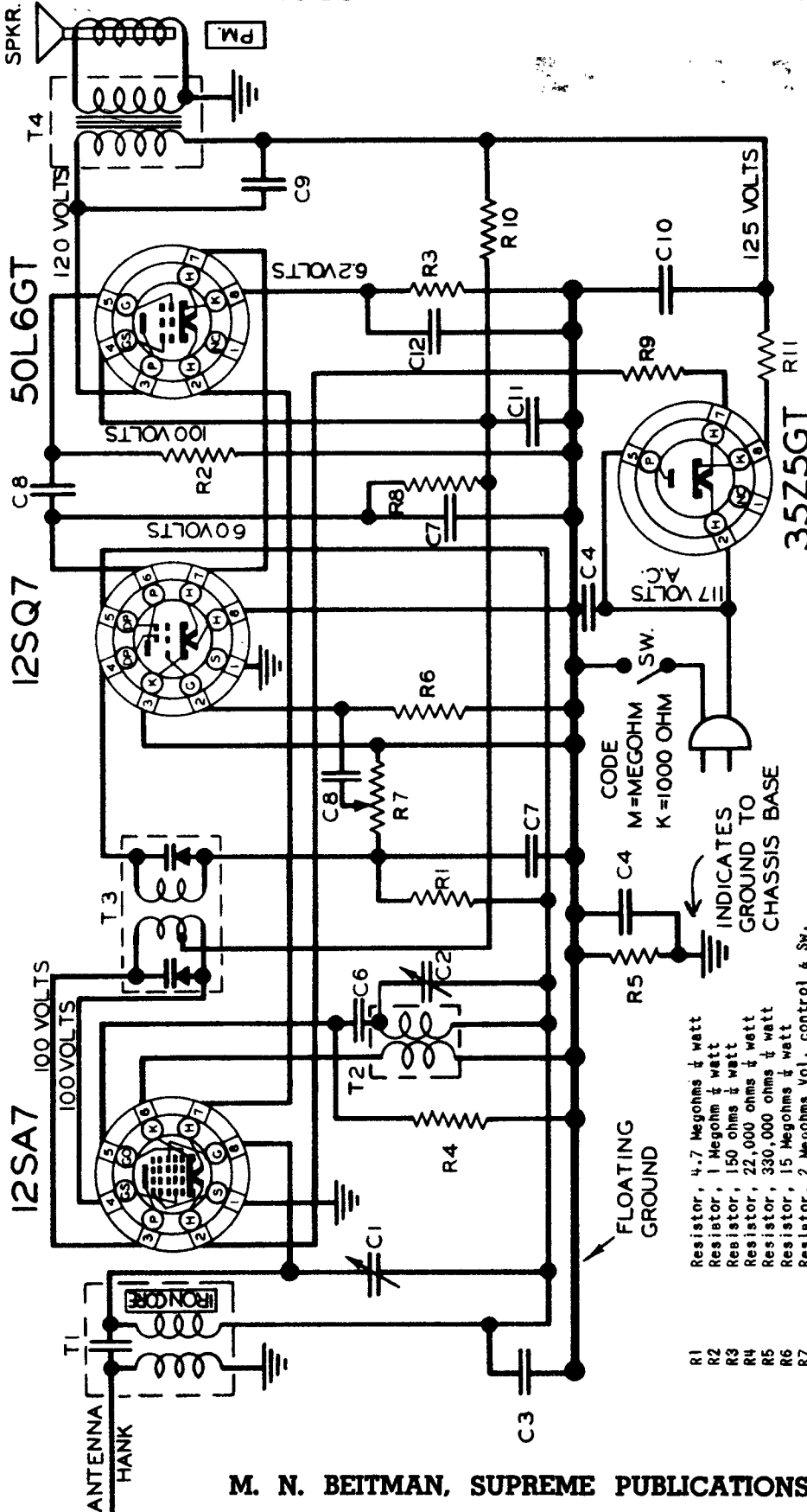
MODELS 544, 544A

Chassis RE-201

R	OHMS	W
1	10 K	1/4
2	22 K	1/4
3	15 MEG	1/4
4	2.2 MEG	1/4
5	1 MEG	V.C.
6	4.7 MEG	1/4
7	470 K	1/4
8	150	1/4
9	330 K	1/4
10	1500	1
11	15	1/4

C	CAPACITY	VOLT
1	TWO GANG	
2	VARIABLE	
3	.01	400
4	.00005	500
5	.0005	500
6	.002	500
7A	40	150
7B	20	150
7C	20	25
8	.03	400
9	.05	400
10	.05	200

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

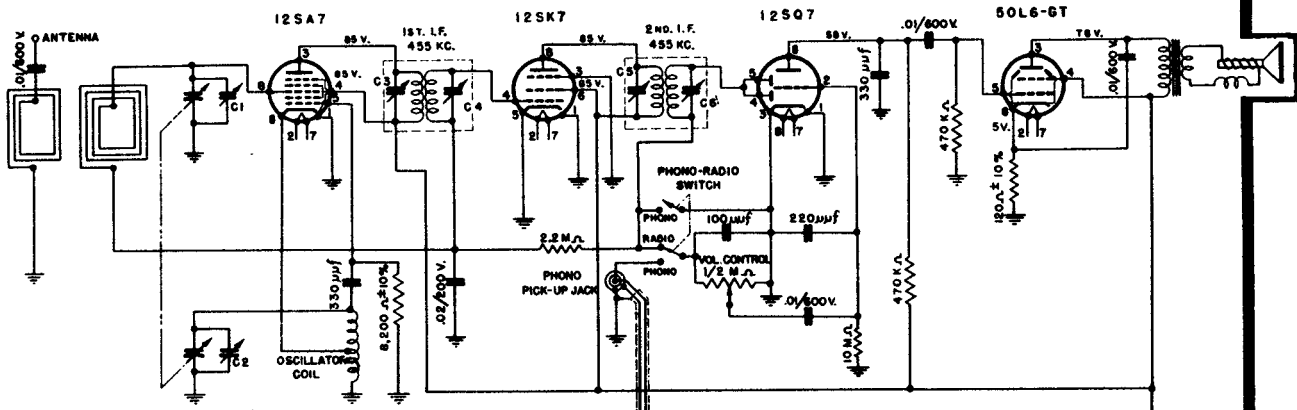


TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO FLOATING GROUND AND ARE TAKEN WITH NO SIGNAL. A.C. LINE VOLTAGE AT I17 VOLTS. WHERE NO READING IS GIVEN THE VOLTAGE IS ZERO OR TOO LOW TO READ.

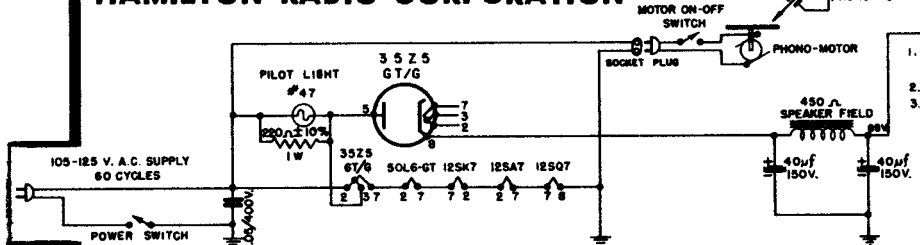
ARVIN RADIOS - MODELS 444 & 444A  
 CHASSIS RE-200-4 TUBE AC-DC  
 MANUFACTURED BY NOBLITT-SPARKS INDUSTRIES, INC., COLUMBUS, IND.

- R1 Resistor, 4.7 Megohms 1/2 watt
- R2 Resistor, 1 Megohm 1/2 watt
- R3 Resistor, 150 ohms 1/2 watt
- R4 Resistor, 22,000 ohms 1/2 watt
- R5 Resistor, 330,000 ohms 1/2 watt
- R6 Resistor, 15 Megohms 1/2 watt
- R7 Resistor, 470,000 ohms 1/2 watt
- R8 Resistor, 47 ohms 1 watt
- R9 Resistor, 2,200 ohms 1 watt
- R10 Resistor, 15 ohms 1/2 watt
- R11 Condenser, variable
- C1 Condenser, .05 mfd, 200 volt
- C2 Condenser, .05 mfd, 400 volt
- C3 Condenser, .00005 mfd, 500 volt
- C4 Condenser, .0001 mfd, 500 volt
- C5 Condenser, .002 mfd, 500 volt
- C6 Condenser, .01 mfd, 400 volt
- C7 Condenser, .40 mfd, 150 volt
- C8 Condenser, 20 mfd, 150 volt
- C9 Condenser, 20 mfd, 25 volt
- C10 Condenser, .005 mfd, 400 volt
- C11
- C12
- C5

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



## HAMILTON RADIO CORPORATION

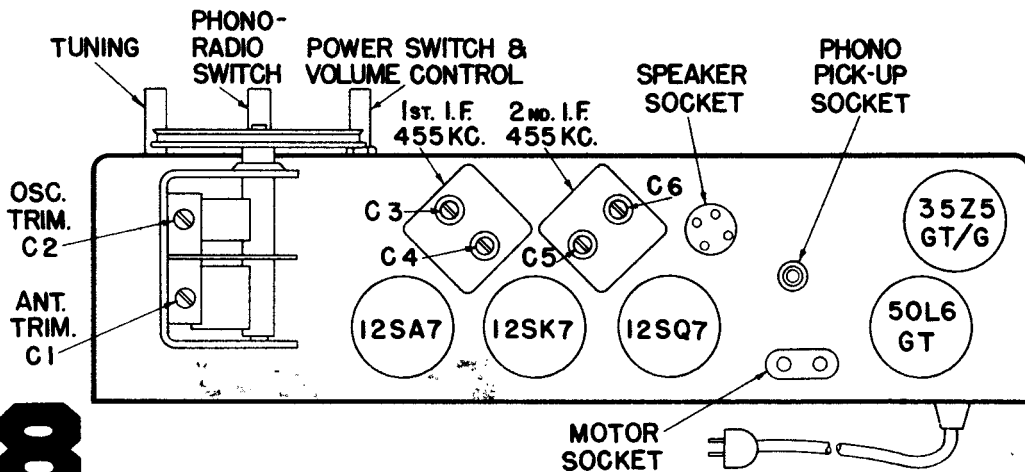


1. ALL RESISTORS  $\pm 20\%$  TOLERANCE,  $\frac{1}{2}$  WATT, UNLESS OTHERWISE SPECIFIED.
2. ALL MICA CONDENSERS  $\pm 20\%$  TOLERANCE.
3. ALL VOLTAGES MEASURED TO CHASSIS (B-) WITH 20,000 OHMS-PER-VOLT METER, WITH VOLUME CONTROL FULL ON.

OLYMPIC RADIO  
 Models 6-504 & 6-504L.  
 Models 6-501, 6-502, &  
 6-503 are similar.

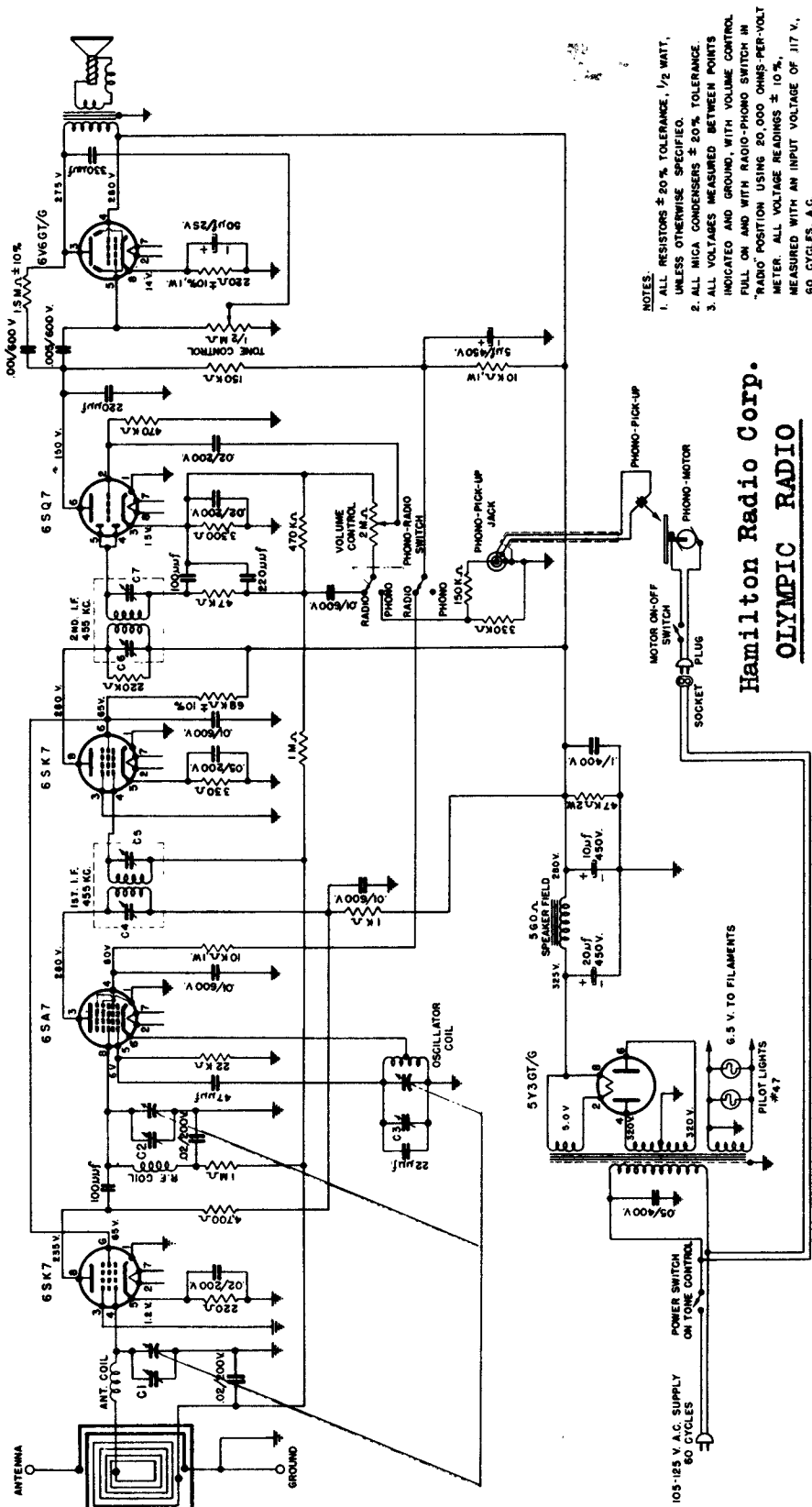
### ALIGNMENT PROCEDURE CHART

CONNECT HIGH SIDE OF SIGNAL GENERATOR TO -	SET SIGNAL GENERATOR TO -	TURN RECEIVER DIAL TO -	ADJUST THE FOLLOWING FOR MAXIMUM (KEEP SIGNAL FROM SIGNAL GENERAT. AS LOW AS POSSIBLE.)
ANTENNA SECTION TUNING CONDENSER IN SERIES WITH .1 MFD. COND.	455 KC.	FULL CLOCKWISE POSITION. (CONDENSER PLATES FULLY OPEN.)	C6, C5, C4, C3 AND REPEAT IN SAME ORDER (1ST. AND 2ND. I.F. TRANSFORMERS.)
ANTENNA TERMINAL OF ANTENNA LOOP IN SERIES WITH 50 MMFD. COND.	1700 KC.	1700 KC. (170 ON DIAL)	C2 (OSCILLATOR)
	1400 KC.	MAXIMUM SIGNAL (APPROX. 140 ON DIAL)	C1 (ANTENNA)
REPEAT STEPS 2 AND 3			



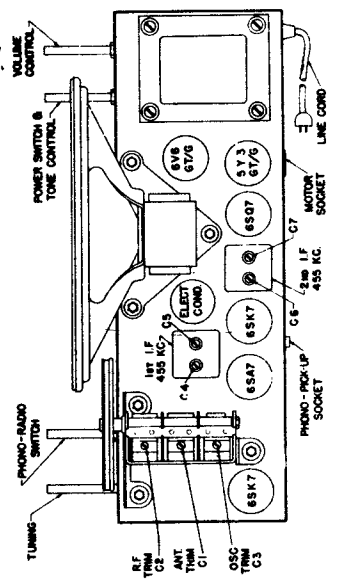
# 88

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



- NOTES:**
1. ALL RESISTORS ± 20% TOLERANCE, 1/2 WATT, UNLESS OTHERWISE SPECIFIED.
  2. ALL MICA CONDENSERS ± 20% TOLERANCE.
  3. ALL VOLTAGES MEASURED BETWEEN POINTS INDICATED AND GROUND, WITH VOLUME CONTROL FULL ON AND WITH RADIO-PHONO SWITCH IN "RADIO" POSITION USING 20,000 OHMS-PER-VOLT METER. ALL VOLTAGE READINGS ± 10%, 117 V, 60 CYCLES, A.C.

**Hamilton Radio Corp.**  
**OLYMPIC RADIO**  
**Model 6-617**



**ALIGNMENT PROCEDURE CHART**

ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)

STEP	CONNECT HIGH SIDE OF SET SIGNAL GENERATOR TO -	TURN POINTER TO -	ADJUST THE FOLLOWING FOR MAXIMUM OUTPUT. (KEEP SIGNAL FROM SIGNAL GENERATOR AS LOW AS POSSIBLE.)
1	R.F. SECTION OF THE VARIABLE CONDENSER.	EXTREME RIGHTHAND POSITION (CONDENSER PLATES FULLY OPEN).	C7, C6, C5, C4 AND REPEAT IN SAME ORDER (1st. AND 2nd. I.F. TRANSFORMERS.)
2	ANTENNA TERMINAL OF ANTENNA LOOP IN SERIES WITH 50 MMFD. COND.	1400 KC. CALIBRATION POINT	C3, C2, C1.
3		RESONANCE	CHECK THAT POINTER EDGE AT RESONANCE COINCIDES WITH 600 KC. CALIBRATION POINT. IF DEVIATION IS TOO LARGE REPEAT STEP 2.

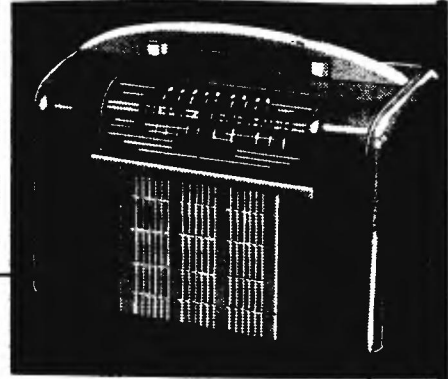
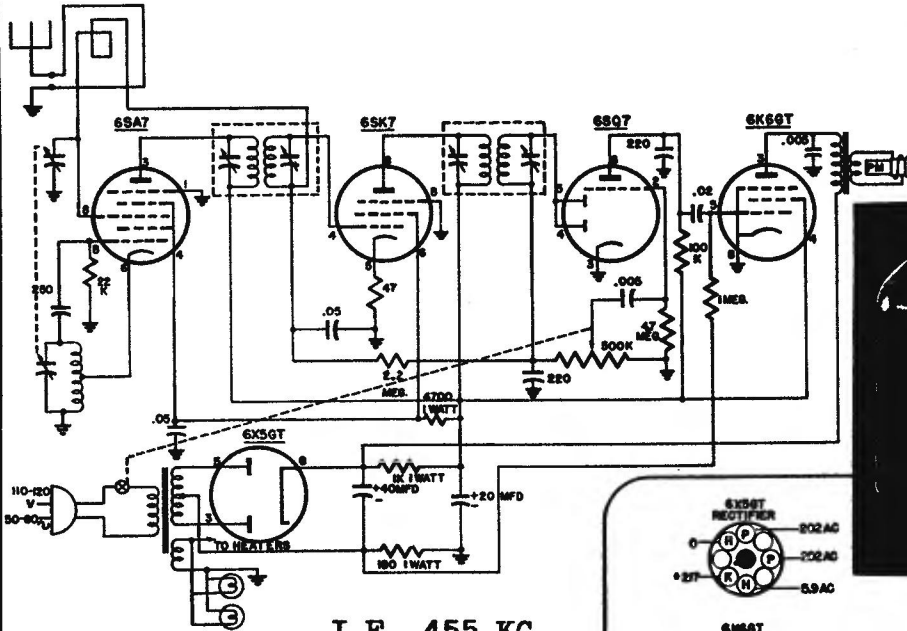


# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

*Packard-Bell*

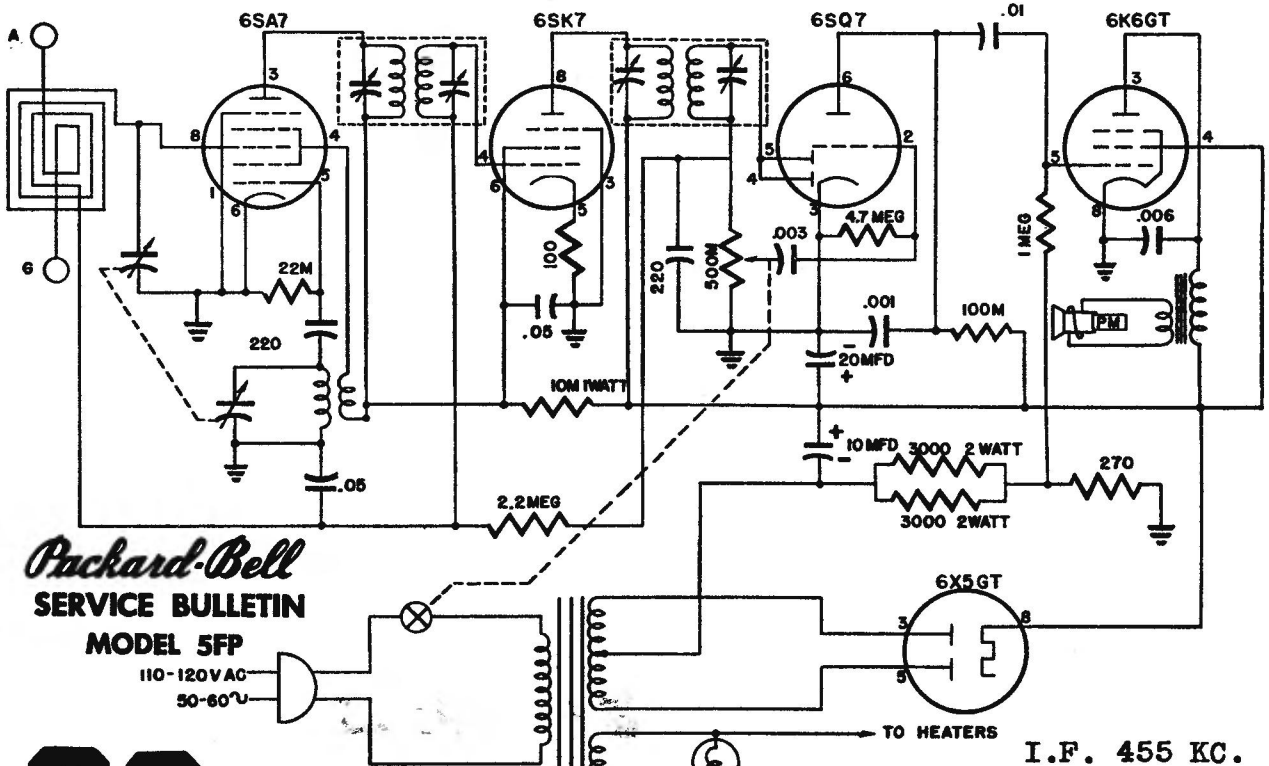
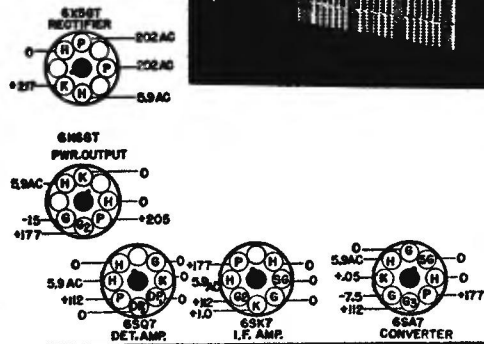
**SERVICE BULLETIN**

**MODEL 551**



**I.F. 455 KC.**

All D.C. voltages measured with a vacuum tube voltmeter from socket contacts to chassis. A.C. voltages measured with a 1000 ohm per volt A.C. meter from socket contacts to chassis. Volume control fully advanced. No signal. 117 A.C. line voltage. All voltages shown are positive D.C. unless otherwise noted.



**I.F. 455 KC.**

*Packard-Bell*  
**SERVICE BULLETIN**

**MODEL 5FP**

110-120 VAC  
50-60V

**90**

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

*Packard-Bell*

MODEL 651

## ALIGNMENT CHART

STEP	CONNECT TEST OSC. TO	TEST OSC. SETTING	POINTER SETTING	ADJUST FOR MAXIMUM OUTPUT
1	Mixer grid & Grd. .01 Mfd. Dummy Load	455 KC	550 KC	Trimmers No. F, G, H & I
2	Mixer grid & Grd. .01 Mfd. Dummy Load	455 KC	550 KC	Trimmer No. A Minimum Output
3	Standard Test Loop*	1750 KC	1750 KC	Trimmer No. C to 1750 KC
4	Standard Test Loop*	600 KC	600 KC	Trimmer No. D to 600 KC
5	Standard Test Loop*	Repeat Steps 3 and 4		
6	S.W. Antenna thru 400 ohms	16.2 MC	16.2 MC	Trimmer No. B to 16.2 MC
7	S.W. Antenna thru 400 ohms	15.0 MC	15.0 MC	Trimmer No. K

\*REMARKS: Hazeltine Test Loop No. 1150.

## D.C. RESISTANCE MEASUREMENTS

1st I.F. Coil

primary . . . 14.5 ohms  
secondary . . . 14.5 ohms

2nd I.F. Coil

primary . . . 14.5 ohms  
secondary . . . 15 ohms

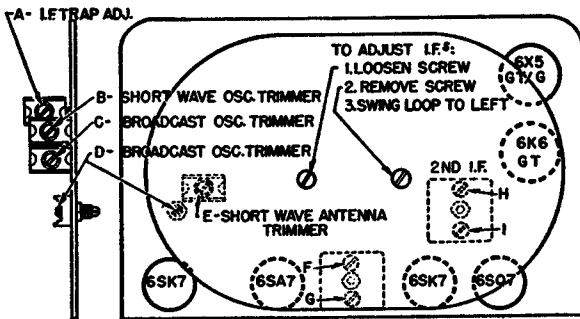
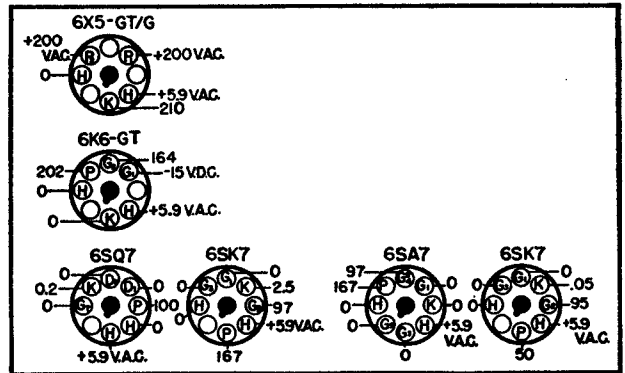
Oscillator Coil: (Short Wave and Standard Broadcast wound on same form.)

Short Wave:

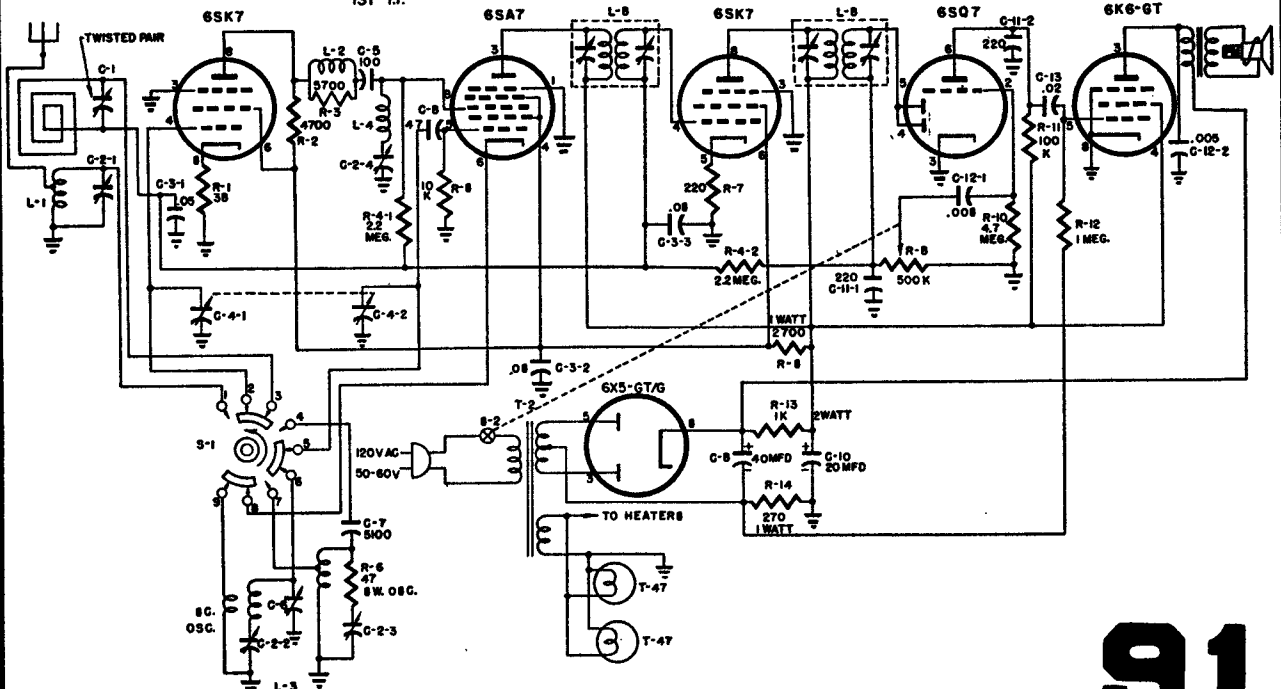
Start to finish . . . 2 ohms  
Start to tap . . . 1 ohm

Broadcast:

Primary . . . 2 ohms  
Secondary . . . 8 ohms

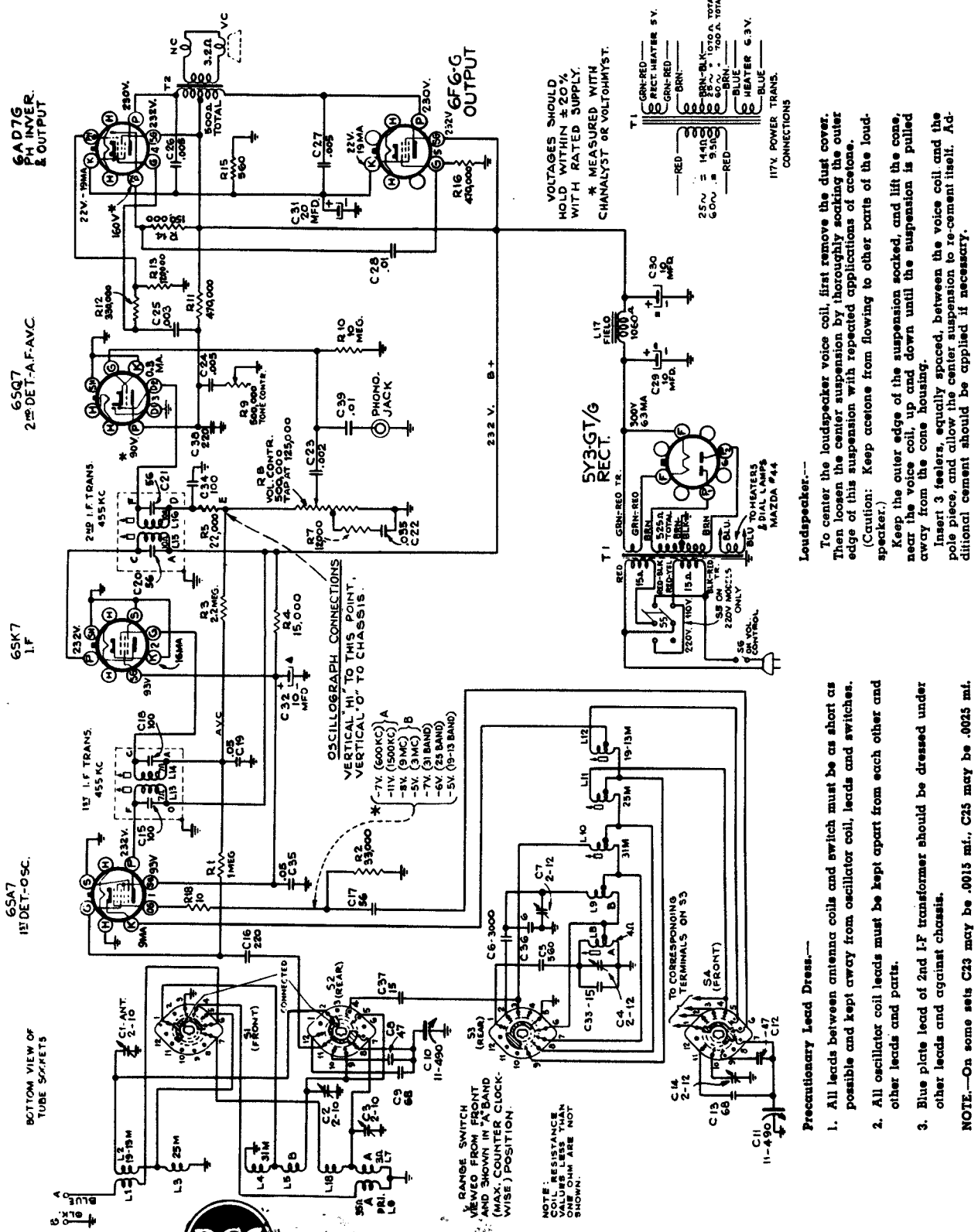


## VOLTAGE CHART



COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

**Pointer for Calibration Scale.**—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed.

**Dial-Indicator Adjustment.**—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the 540 kc mark (the first mark on "A" band to the left of "550"), and gang condenser fully meshed. The indicator has a spring clip for attachment to the cable.

**Spread-Band Alignment.**—The most satisfactory method of aligning or checking the spread-band ranges is on actual reception of short-wave stations of known frequency, by adjusting the magnetite-core oscillator coil for each spread-band so that these stations come in at the correct points on the dial.

In exceptional cases, when the set is being serviced in a location where the noise level is high enough to prevent reception of short-wave stations, a test-oscillator may be used for alignment, but an extremely high degree of accuracy is required in the frequency settings of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials. The frequency settings of the test-oscillator may be checked by one or both of the following methods:

1. Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by zero-beating the test-oscillator against short-wave stations of known frequency.
2. Use harmonics of the standard-broadcast range of a test-oscillator, first checking the frequency settings on this range by means of a crystal-controlled oscillator, or by zero-beating against standard broadcast stations.

When a test oscillator is employed for spread-band alignment, a final check should be made on actual reception of short-wave stations of known frequency, and the magnetite-core oscillator coil for each band should be retouched so that the stations come in at the correct points on the dial.

## RCA MODELS 022A & 032

Chassis No. RC-507—Mfr. No. 274

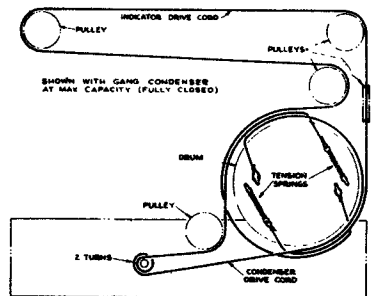
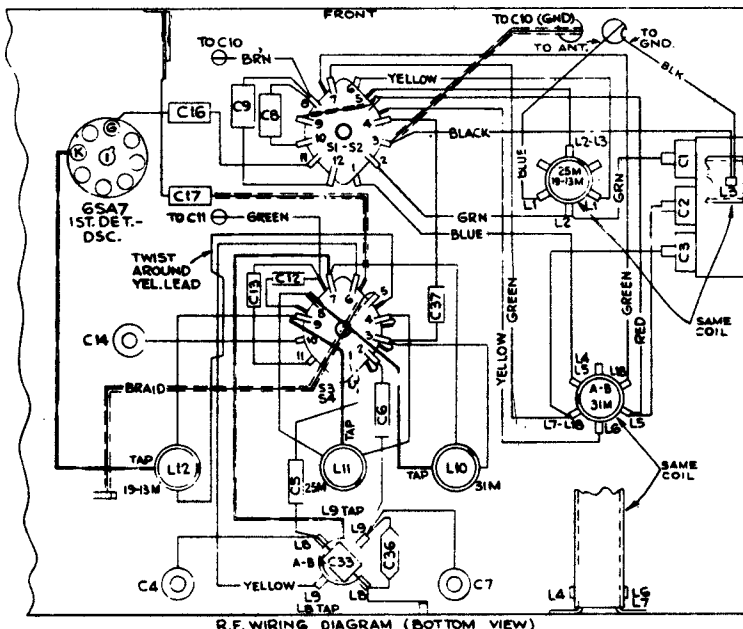
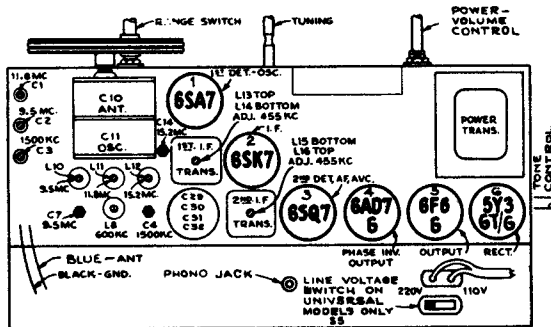
Steps	Connect the high side of the test-osc. to—	Tune test-osc. to—	Range switch	Turn radio dial to—	Adjust the following for max. peak output
1	6SK7 I-F grid in series with .01 mfd.	455 kc	A	Quiet Point near 180°	L15 and L16 2nd I-F Trans.
2	6SA7 1st Det. grid in series with .01 mfd.				L13 and L14 1st I-F Trans.
3	Ant. lead in series with 300 ohms	11.8 mc	25 M	138.5°	L11 (osc.)** C1 (ant.)
4		15.2 mc		17°	C14 (osc.)*
5	Ant. lead in series with 300 ohms	Repeat steps 3 and 4			
6		15.2 mc	19-13 M	156°	L12 (osc.)**
7	Ant. lead in series with 200 mmf.	9.5 mc	31 M	158°	L10 (osc.)** C2 (ant.)
8		9.5 mc	B	11.5°	C7 (osc.)***
9	Ant. lead in series with 200 mmf.	1,500 kc	A	28°	C4 (osc.) C3 (ant.)
10		600 kc		150°	L8 (osc.) (Rock gang)
11	Repeat steps 9 and 10				

\* Use minimum capacity peak if two can be obtained. Check image to determine that C14 has been adjusted to the correct peak by tuning receiver to approximately 14.25 mc (29°) where a weaker signal should be received.

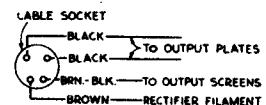
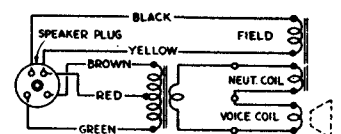
\*\* If two peaks can be obtained use the one obtained when the core screw is farthest out (counter-clockwise).

\*\*\* Peak at minimum capacity if two peaks can be obtained.

NOTE: Oscillator tracks above signal on all bands.



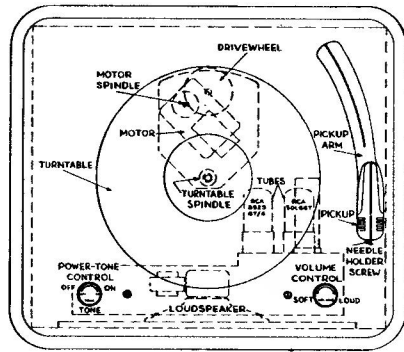
Dial-Indicator and Drive Mechanism



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## RCA VICTOR

### VICTROLA Phonograph Models—52E and 52HE Series



#### POWER SUPPLY

105-125 volts, 60 cycle..... 40 watts

**IMPORTANT**—Do not plug chassis into a d.c. power supply.

#### POWER OUTPUT RATING

Undistorted..... 0.8 watts (approx.)  
Maximum..... 1.2 watts (approx.)

#### SERVICE HINTS

##### To Remove Turntable:

Remove spring clip from turntable spindle and lift turntable straight up.

##### Irregular Turntable Speed:

- (1) Oil or grease on rubber tire of turntable drive wheel or on motor spindle. Remove turntable and clean spindle, drive wheel tire, and inside edge of turntable with naphtha or carbon-tetrachloride.
- (2) Insufficient tension in drive wheel tension spring.
- (3) Friction between drive wheel plate and motor mounting plate.
- (4) Lack of lubrication.

#### LUBRICATION

##### Motor

The bearings of the motors furnished in these instruments are lubricated at the factory and should require no further lubrication for a period of at least one year. When lubrication is required, apply a few drops of any good grade of S.A.E. #10 oil to the bearing felts.

##### Turntable Spindle

When lubrication is required, apply one or two drops of Gargoyle 600W to the bearing.

##### Drive Wheel

Apply one or two drops of any good grade of S.A.E. #10 oil to the bearing.

#### CAUTION:

Exercise extreme care to prevent getting any oil on the rubber tire or on the motor shaft. Oil on these parts will cause slippage with resultant irregular turntable speed.

#### 60 TO 50 CYCLE CONVERSION

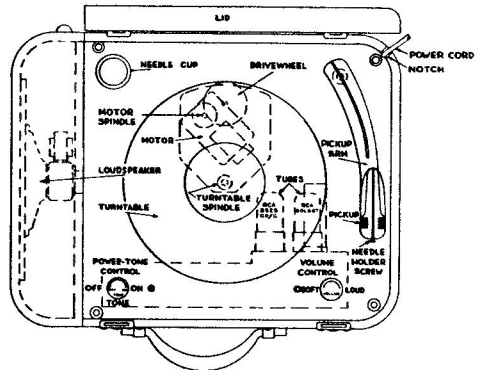
A spring sleeve or bushing is used to increase the diameter of the motor drive spindle, to compensate for the slower speed of the motor when used on a 50 cycle line.

Spring sleeves and bushings are available as follows:

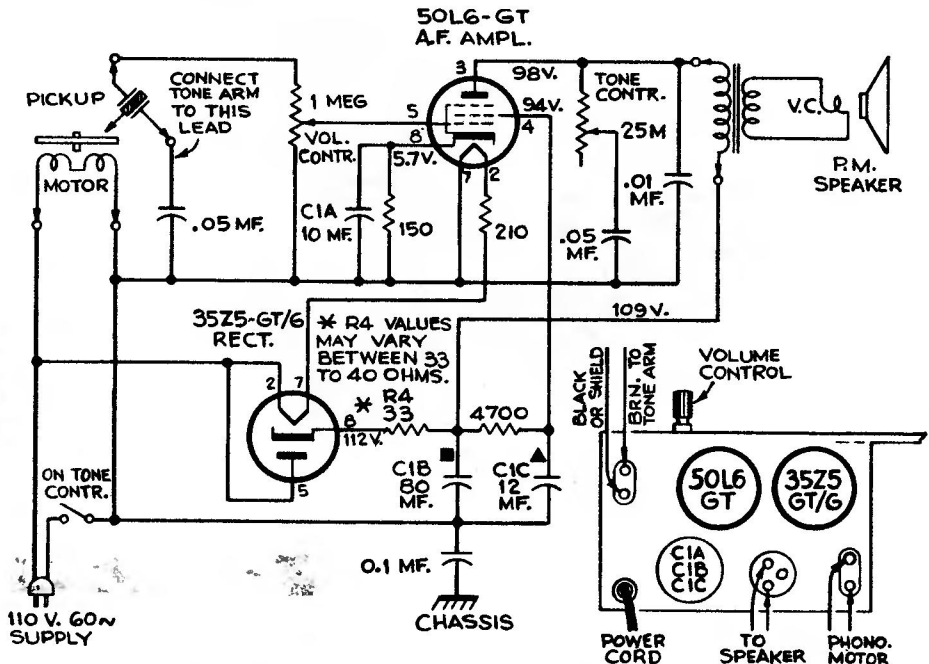
For motors marked "M-1", use Stock No. 71275.

For motors marked "M-3", use Stock No. 71276.

For motors marked "M-4", use Stock No. 71277.



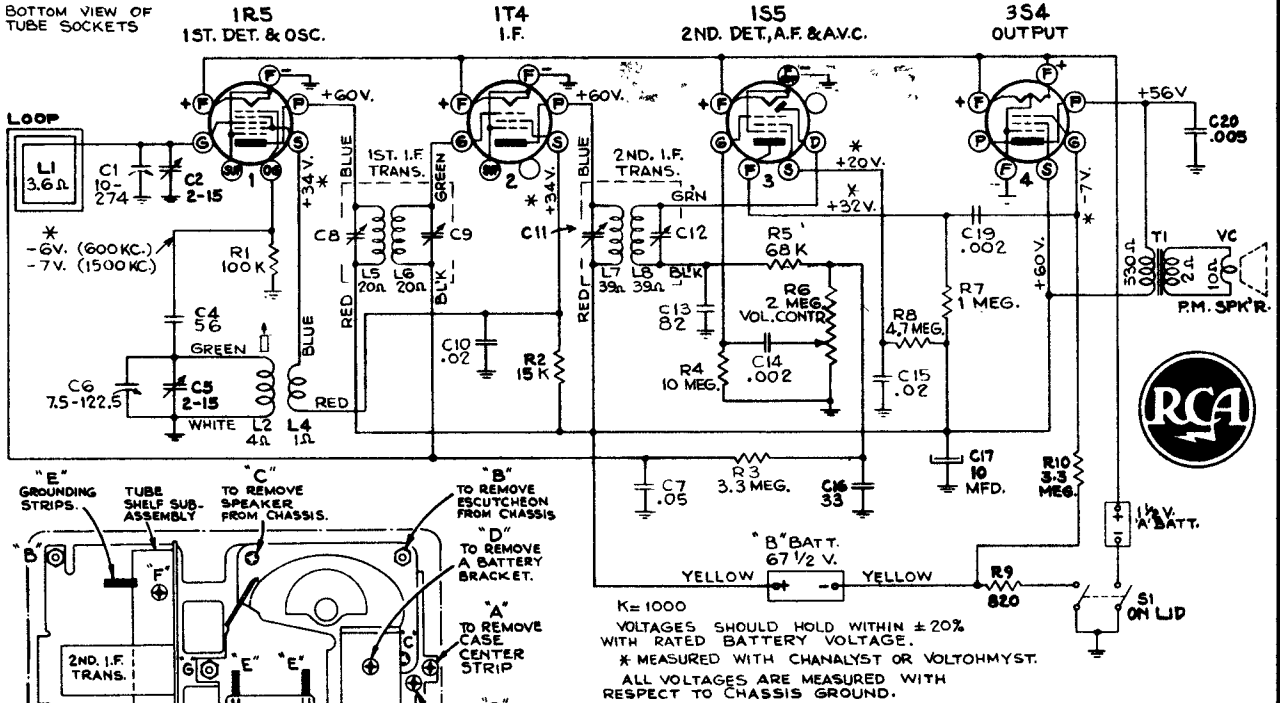
Model 52E



# 94

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

BOTTOM VIEW OF  
TUBE SOCKETS



## 54B1, 54B1-N, 54B2, 54B3

Chassis No. RC589; Mfr. No. 274

### Alignment Procedure

**Test Oscillator.**—Connect test oscillator as indicated in chart keeping the output as low as possible to avoid A V C action.

**Output Meter.**—Connect meter from top lug of T1 (plate of 3S4) to ground. Turn volume control to maximum position.

Fig. 1 shows the modifications necessary to convert the center strip portion of a case into a convenient shield to be used as a substitute for the regular case center strip in the RF, Osc. alignment.

Steps	Connect the high side of test osc. to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output—
1	Connection lug of C2, located on rear of gang in series with .01 mf.	455 kc	Quiet point near 1,600 kc	C11, C12 2nd I-F trans.
2		455 kc	Quiet point near 1,600 kc	C8, C9 1st I-F trans.
3		1,600 kc	1,600 kc	C5 (osc.)
4	*Antenna coupling loop thru 200 mmf. capacitor	1,500 kc	1,500 kc	C2 (ant.)
5		800 kc	800 kc	L2 (osc.)
6	Repeat steps 4 and 5 for final adjustments.			

\* Steps 3, 4 and 5 require a coupling loop from the signal generator to feed a signal into the receiver loop located in the lid. This loop should be approximately one turn of 6 x 3 1/2 inches coupled to the signal generator through a 200 mmf. capacitor, and loosely coupled to the receiver loop antenna at about 13/4 inches distance, so as not to disturb the receiver loop inductance. Ground test oscillator through .1 mf. capacitor to receiver chassis.

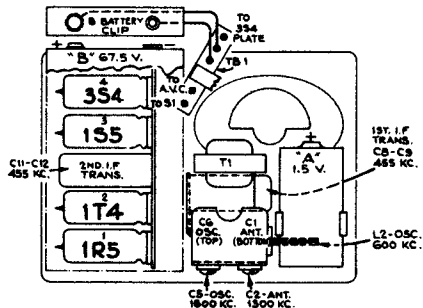
Tools required:

1. One Phillips No. 1 screwdriver.
2. One small neutralizing alignment tool.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

### CRITICAL LEAD DRESS

1. Dress blue, green and black leads of second I-F transformer as direct as possible. If excess lead exists, dress down side of socket and flat against chassis to transformer opening.
2. Cross the green and the black leads inside the first I-F transformer can, keeping the green lead to the outside. Keep the blue and the green leads separated as far as possible throughout their length.
3. Dress audio coupling capacitor (C14: .002 mf.) and the lead to the volume control up and underneath the shelf supporting the output transformer.
4. Dress the three capacitors pyramided behind the speaker, parallel to the complete assembly and with enough room behind the battery holder to allow the holder to move when a battery is installed or removed.
5. Dress the "B" battery leads behind the gang frame and over the top of the output transformer.
6. Observe the outside foil connections on all paper capacitors, also the polarity of the electrolytic capacitor (C17).
7. Keep blue and red leads of output transformer above the mounting shelf.



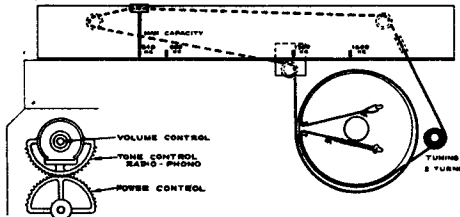
# 95

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

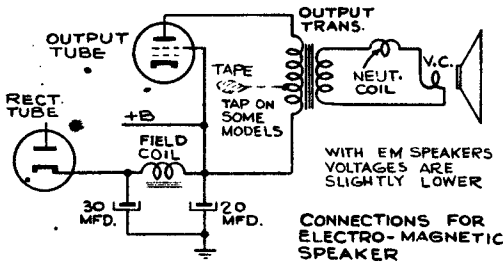
## RCA VICTOR

### 55U, 55AU

Chassis No. RC1017; Mfr. No. 274



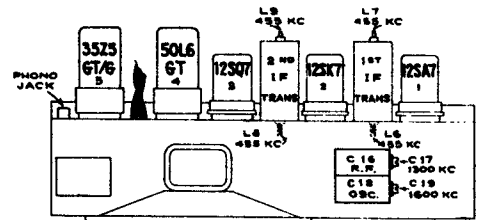
**Dial Pointer Adjustment.**—Rotate tuning condenser fully counter-clockwise plates (fully meshed). Adjust indicator pointer to left (max. cap.) mark on dial back plate.



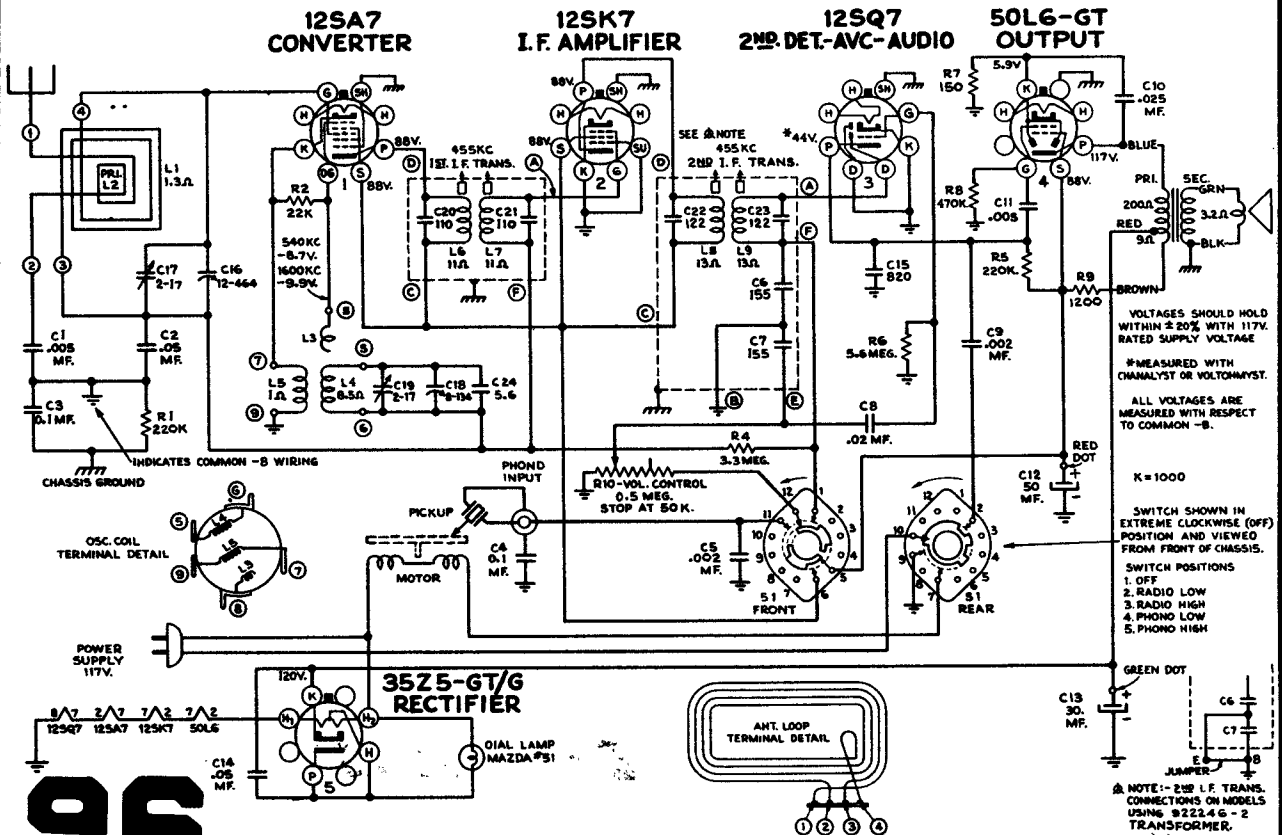
**Test Oscillator.**—Connect high side of test oscillator as shown in chart. Connect low side through a .01 mf capacitor to common "—B". Keep the output signal as low as possible to avoid a.v.c. action.

**Output Meter.**—Connect meter across speaker voice coil. Turn volume control clockwise to radio maximum high position (3) for alignment.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	I.F. grid, in series with .01 mfd.	455 kc	Quiet point 1,600 kc end of dial	L8 and L9 2nd I.F. transformer
2	1st Det. grid in series with .01 mfd.			L6 and L7 1st I.F. transformer
<b>NOTE.—ANTENNA LOOP MUST BE IN CABINET</b>				
3	Antenna terminal in series with 220 mmfd.	1600 kc	Gang at minimum	C19 (osc.)
4	Radiated signal 1300 kc		Signal Frequency	C17 (ant.)
5	Repeat steps 3 and 4.			



**Power Supply.**—Although this model employs an ac-dc chassis, it is not suitable for use on d.c., as this would damage the motor. Reversal of plug in outlet receptacle may reduce hum.



# 96

# RCA VICTOR

## 55F and CV-42 Electrifier

Chassis No. RC-1004E; Mfr. No. 274

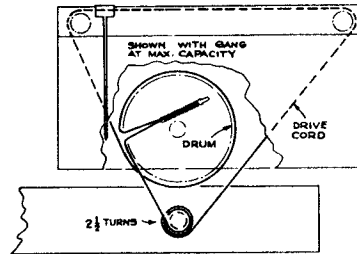
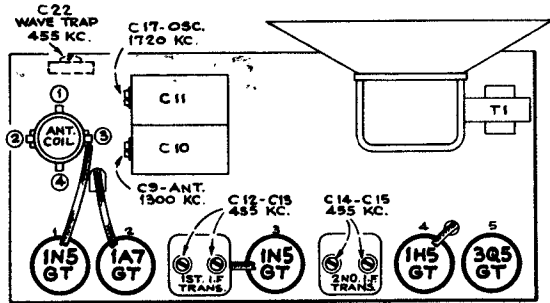
### Alignment Procedure

**Cathode Ray Alignment** is the preferable method. Connections for the oscillograph are shown in the diagram.

**Output Meter Alignment**—If this method is used, connect the meter across the voice coil and turn the receiver volume control to maximum.

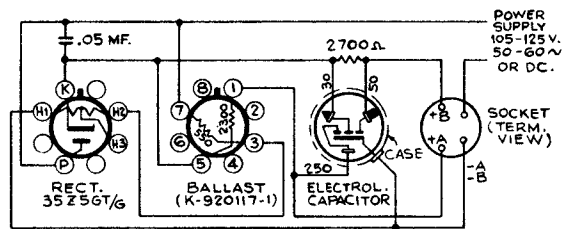
**Test Oscillator**—For all alignment operations, connect the low side of the test oscillator to the receiver chassis, and keep the output as low as possible to avoid AVC action.

**Pre-Setting Dial**—With gang condenser in full mesh, the pointer should be set at the left-hand end dial calibration mark.

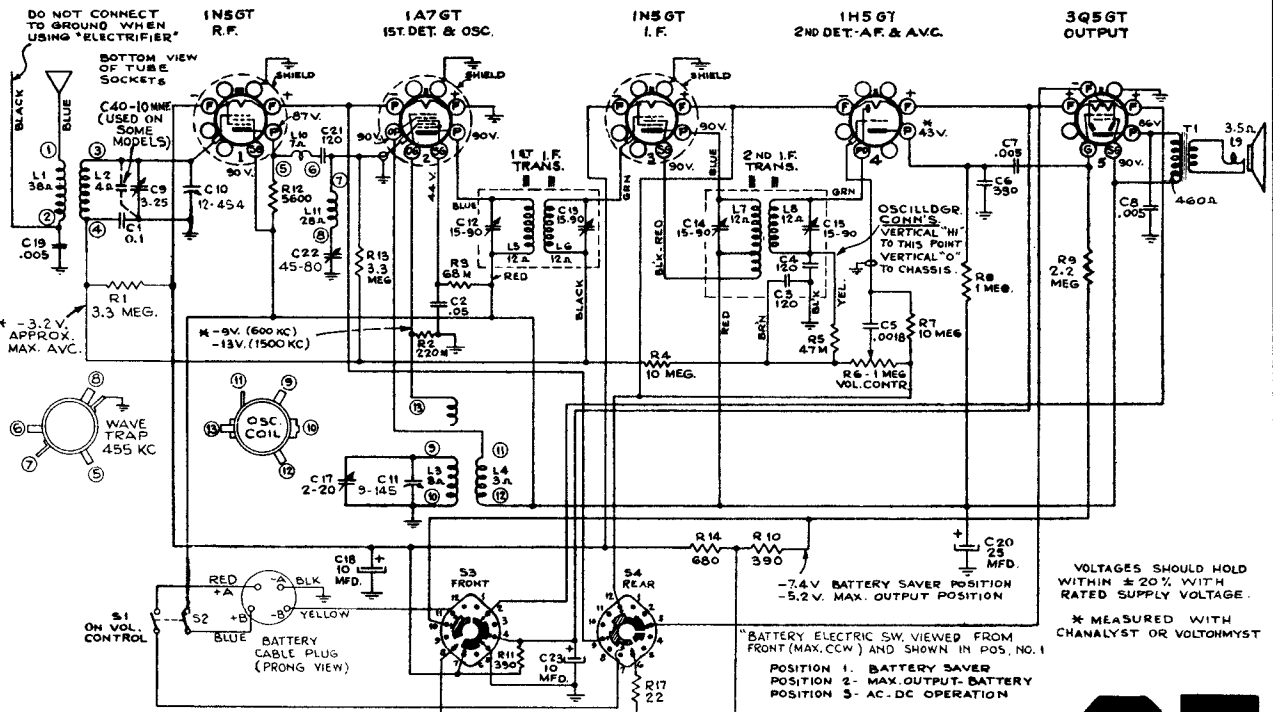


Dial Cord Assembly

Step	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I-F grid in series with .01 mfd.	455 kc	Quiet point between 550 and 750 kc	C14, C15. (2nd I-F Trans.)
2	1A7GT grid in series with .01 mfd.			C12, C13 (1st I-F Trans.)
3	Antenna terminal in series with 200 mmfd.	1,720 kc	Tuning condenser rotor plates all out	C17 (osc.)
4		1,300 kc	1,300 kc signal	C9 (ant.)
5		455 kc	Quiet point between 550 and 750 kc	Adjust C22 for minimum output on strong 455 kc signal



Electrifier Schematic



NOTE: FOR BATTERY OPERATION TAP LUG FOR ELECTRIFIER OPERATION, CONNECT LUG TO CHASSIS.

\* BATTERY ELECTRIC SW VIEWED FROM FRONT (MAX. CCW) AND SHOWN IN POS. NO. 1

POSITION 1. BATTERY SAVER POSITION 2. MAX. OUTPUT. BATTERY POSITION 3. AC-DC OPERATION

VOLTAGES SHOULD HOLD WITHIN  $\pm 20\%$  WITH RATED SUPPLY VOLTAGE.

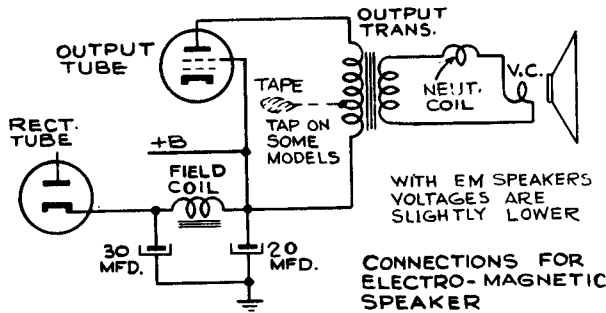
\* MEASURED WITH CHANALYST OR VOLTOHMIST



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## RCA VICTOR 56X, 56X2, 56X3

Chassis No. RC-1011—Mfr. No. 274

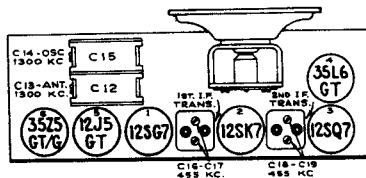


**Test Oscillator.**—Connect high side of test oscillator as shown in chart. Connect low side through a .01 mf capacitor to common “-B.” Keep the output signal as low as possible to avoid AVC action.

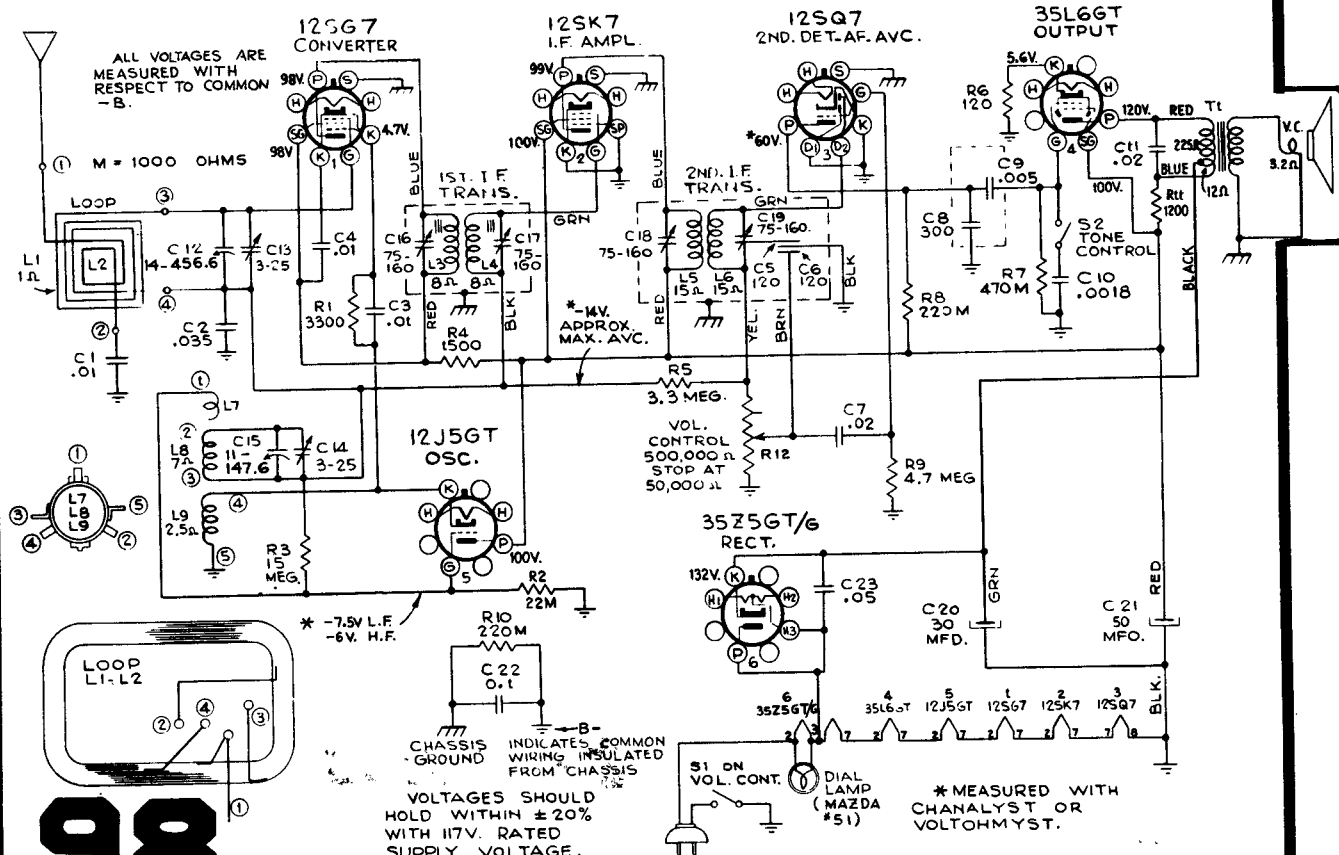
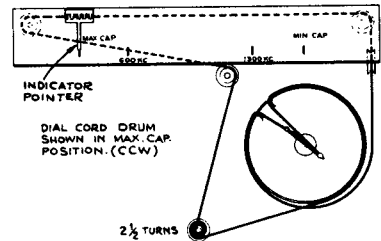
**Output Meter.**—Connect leads between speaker voice coil and chassis. Turn volume control to maximum clockwise, tone control to maximum highs (clockwise).

**Dial Pointer Adjustment.**—Rotate tuning condenser fully counter-clockwise (plates closed). Adjust indicator pointer to left (max. Cap.) mark on dial back plate.

Steps	Connect the high side of test-oscillator to—	Tune test-osc. to—	Turn radio dial to—	Adjust the following for max. peak output
1	Stator of C-12 in series with .01 mfd.	455 kc	Quiet-point 1,800 kc end of dial	C18 and C19 2nd I-F transformer
2				C18 and C17 1st I-F transformer
3	Ant. lead in series with 200 mmd.	1,300 kc	1,300 kc	C14 (osc.) C13 (ant.)
4	Repeat step 3.			



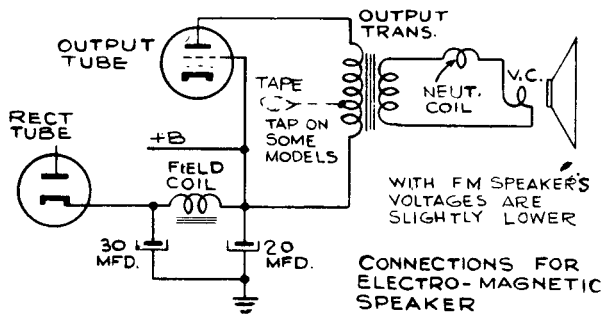
Radiola Models 61-1, 61-2, 61-3 are similar to models illustrated.



# 98

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



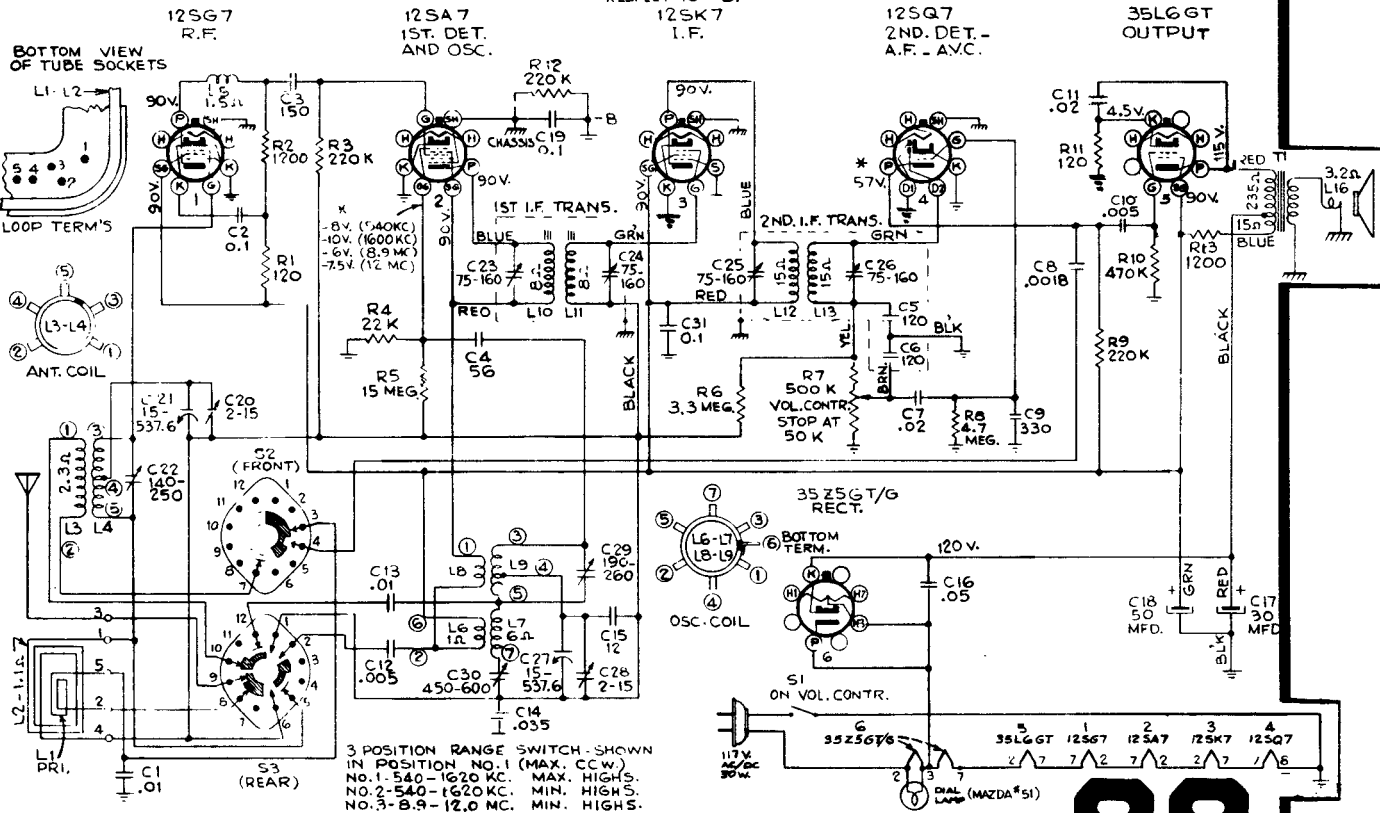
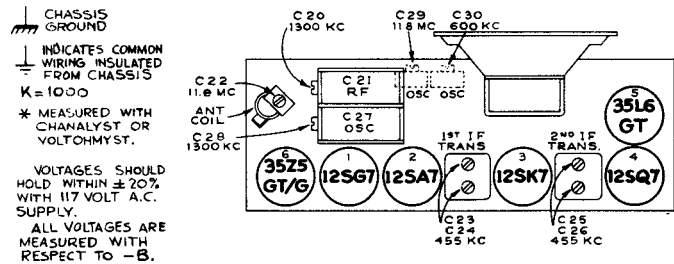
Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	Pin #8 of 12SA7	455 kc	Quiet Point at 1,600 kc end of dial	C25, C26 2nd I-F trans.
2	in series with 0.1 mfd.			C23, C24 1st I-F trans.
3		600 kc	600 kc "A" Band	C30 (osc.) Rock gang
4	Ant. terminal in series with 220 mmf.	1300 kc	1300 kc "A" Band	C28 (osc.) C20 R-F
5		Repeat 3 Rocking gang		
6		Repeat 3, 4 and 5 for exact cal.		
7	Ant. terminal in series with 0.1 mfd.	11.8 mc	11.8 mc	C29 (osc.)* Rock gang
8	Ant. terminal in series with 47 mmf.	11.8 mc	11.8 mc	C22 (R-F) Rock gang
9	Repeat steps 7 and 8			

\* Use minimum capacity peak if two can be obtained. Check for selection of correct peak by tuning receiver to approximately 10.9 mc where a weaker signal should be received.

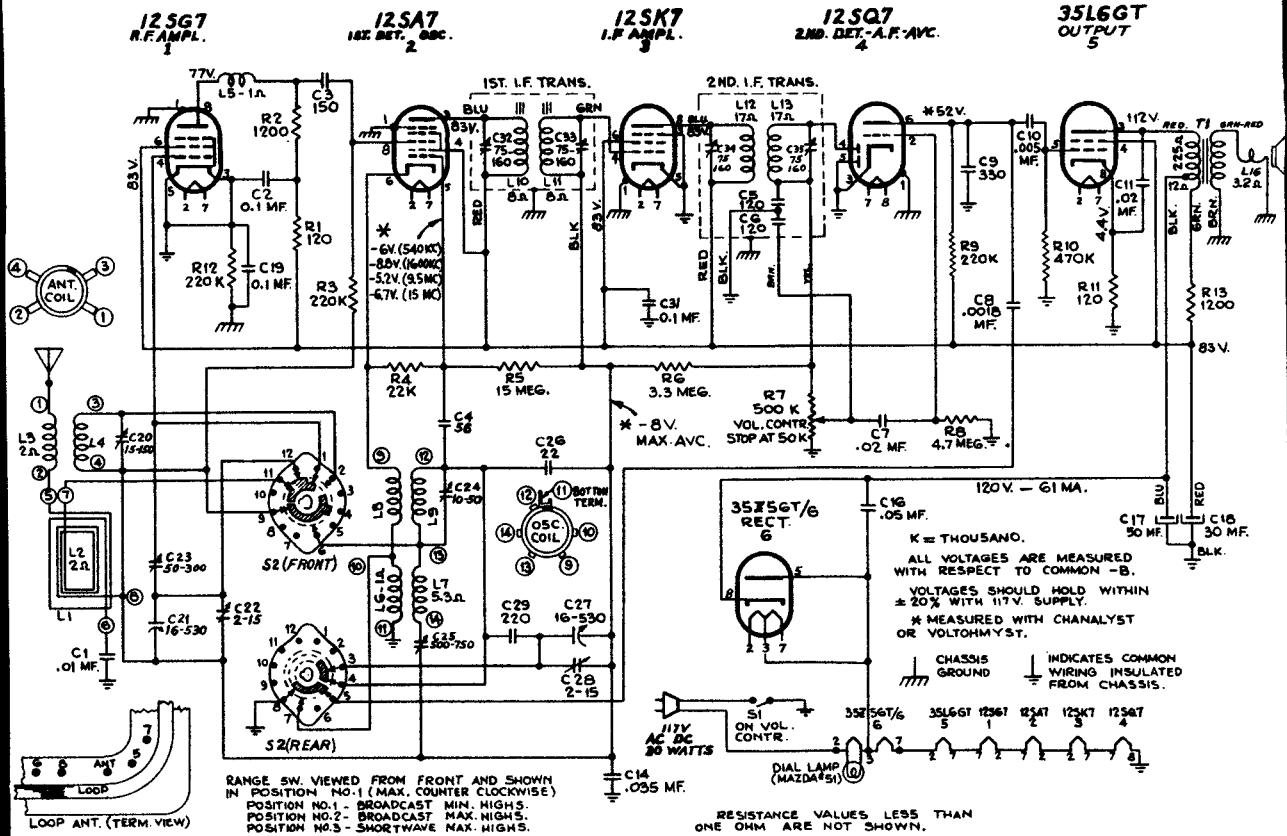
## RCA VICTOR 56X5

Chassis No. RC-1023—Mfr. No. 274

R.C.A. Victor  
Model 56X10  
and Radiola  
Models 61-5, 61-10  
are similar to  
Model 56X5.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



On some models, electrolytic capacitor (C17, C18) may be 20 Mfd./30 Mfd. The AVC bypass capacitor, (C14) may be .030 Mf.

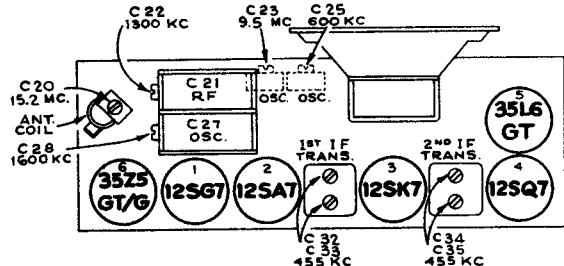
Steps	Connect high side of the test oscillator to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output
1	I.F. grid in series with .01 mfd.	455 kc	'A' Band Quiet point at 1600 kc end of dial	C34, C35 2nd I-F trans.
2	12SA7 grid in series with .01 mfd.			C32, C33 1st I-F trans.
3		600 kc	'A' Band rock gang near 600 kc	C25 (BC trimmer)
4	Antenna terminal on loop in series with 220 mmf.	1600 kc	1600 kc	C28 (Osc.)
5		600 kc	Rock gang near 600 kc	Recheck C25
6		1300 kc	1300 kc	C22 (r.f.)
7		15.2 mc.	'C' Band rock gang near 15.2 mc.	C20 (ant.) on top of S.W. ant. coil
8	Antenna terminal on loop in series with 22 mmf.	15.2 mc.	15.2 mc. center of "M"—"19M"	C24 (Osc.) <sup>e</sup>
9		9.5 mc.	9.5 mc.	C23 (r.f.)
10		15.2 mc.	15.2 mc.	Recheck C20

\*Use minimum capacity peak, if two peaks can be obtained.  
Note.—Oscillator tracks 455 kc above signal on both bands.

## RCA VICTOR

### 56X11

Chassis No. RC-1023A; Mfr. No. 274



### Alignment Procedure

**Test Oscillator.**—For all alignment operations, keep the output as low as possible to avoid a.v.c. action.

**Output Meter Alignment.**—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

**Calibration Scale.**—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the dial backing plate for quick reference during alignment.

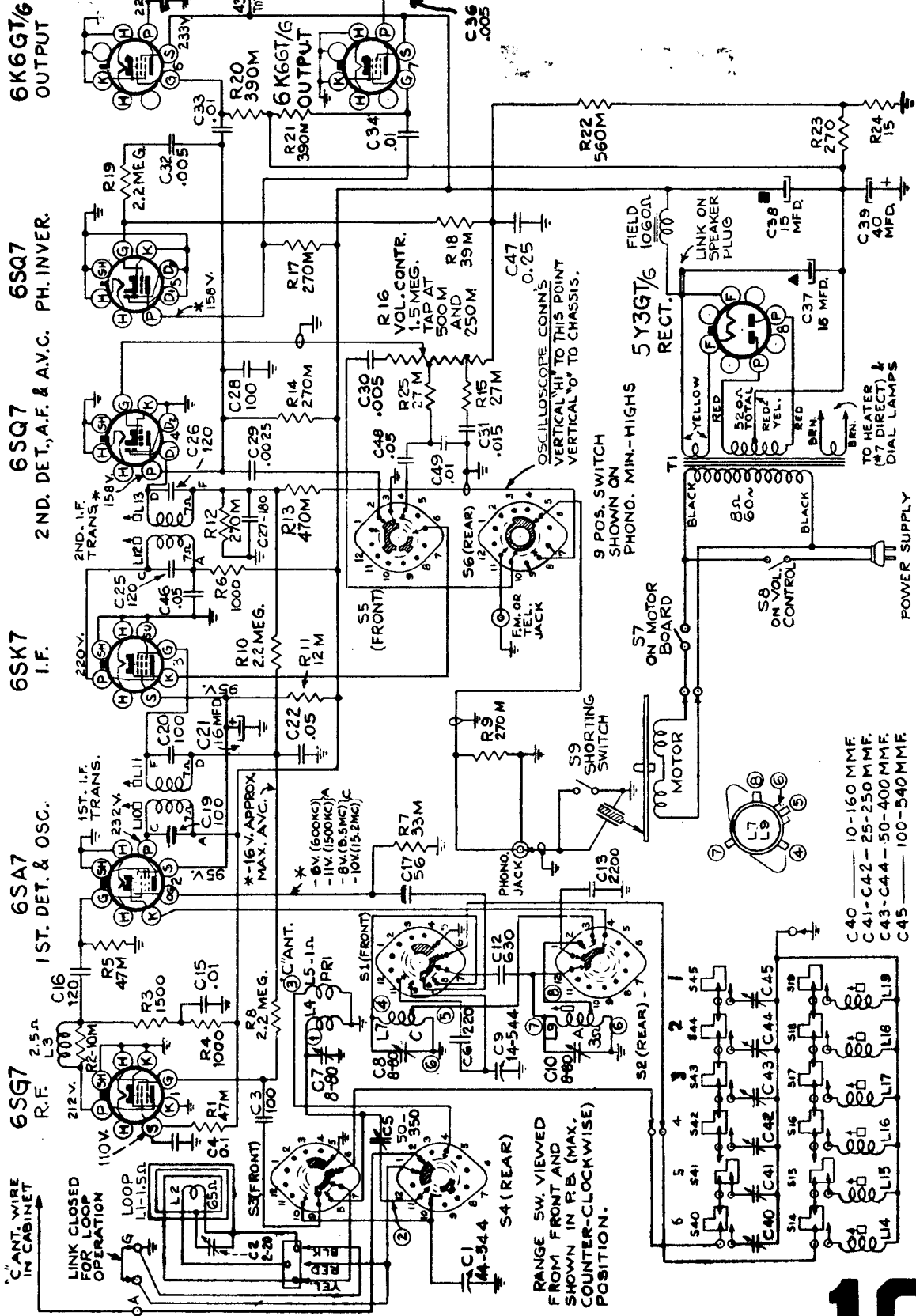
**Power Supply Polarity.**—For operation on d-c, the power plug must be inserted in the outlet for correct polarity. If the set does not function, reverse the plug. On a-c, reversal of the plug may reduce hum.

# 100



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# POPULAR SERVICE DIAGRAMS



COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

R.C.A. Victrola 58V, 58AV, Chassis RC-604

- C40 — 10-160 MME.
- C41-C42 — 25-250 MME.
- C43-C44 — 50-400 MME.
- C45 — 100-540 MME.

\* MEASURED WITH CHANNELYST OR VOLTOHMYST.

M = 1000

VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC. SUPPLY.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

**Cathode-Ray Alignment** is the preferable method. Connections for the oscilloscope are shown in the schematic diagram.

**Output Meter Alignment.**—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

**Calibration Scale.**—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the full size scale printed in this service note can be used for reference.

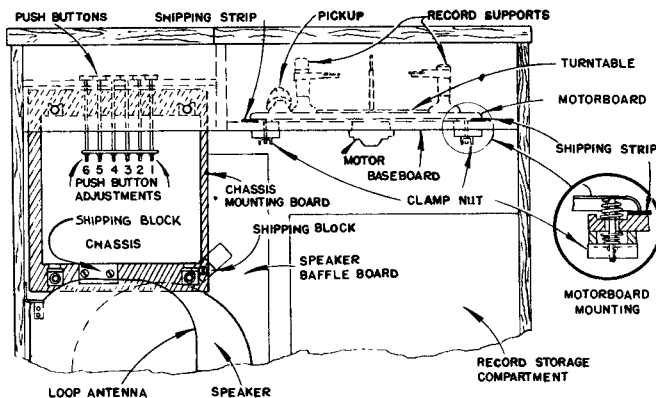
## Using Tuning Dial.—

1. Remove glass dial from the cabinet.
2. With gang in full mesh, the dial pointer should be set to a point 1/4 inch to left of reference mark at left hand end of the dial backing plate.
3. Support the glass dial over the pointer with spacers so that the extreme left scale graduation coincides with the pointer. Use scotch tape to hold the glass dial in place.

**"C" Band Reception.**—For best reception on "C" band with an outside antenna, adjust the trimmer screw of C5 on the antenna coil. Turn screw carefully with an insulated screwdriver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band. If returning to internal antenna at any time, close the link on the center terminal and readjust "C" band antenna trimmer (C5) for best reception on 31-meter band.

Steps	Connect test-osc. output to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" band	L13-L12 (2nd I-F trans.)
2	1st Det. grid in series with .01 mfd.		540 kc	L11-L10 (1st I-F trans.)
3	A-Terminal in series with 47 mmfd. (link closed)	15.2 mc	"C" band	C8 (osc.)*
4		9.5 mc	15.2 mc	C7 (ant.)
5	Yellow loop lead in series with 200 mmfd. (link closed)	Repeat steps 3 and 4		C5 (ant.) (Rock gang)
6		1,500 kc	"A" band	C10 (osc.)
7	600 kc	"A" band	600 kc	L9 (osc.)
8	Repeat steps 6 and 7.			
9	Install and connect chassis in cabinet with antenna link closed. Tune in a radiated oscillator signal at 1,500 kc. and peak the "A" band trimmer C2 (on loop). Rock in L9 for peak output at 600 kc.			

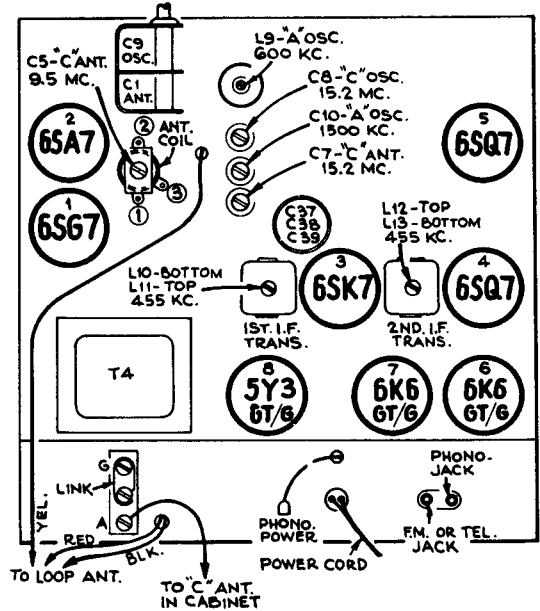
\*Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc. above signal on all bands.



## Critical Lead Dress:

1. Bus from "C" oscillator coil to range switch must be held to length and dressed close to coil.
2. C30 (audio coupling capacitor to volume control) should be dressed close to front apron.
3. A.C. cord and motor leads must be dressed away from phono and F.M. jack.
4. Excess trans. leads to be dressed between trans. and rectifier socket.
5. Keep R5, C16 bus (in grid circuit of 6SA7 tube) as short as possible.
6. Dress C28 (in plate circuit of 1st A.F.) close to socket.
7. Keep R21 (grid resistor) and C34 (coupling capacitor of output tube) close to socket.
8. Keep R25, C48 (in tone compensating circuit) close to front apron.
9. Dress green lead from osc. coil to trimmer close to oscillator coil.
10. Dress red A.C. leads away from I.F. trans. and 6SQ7 socket.
11. RF choke in plate of 6SG7 must be dressed toward back apron.

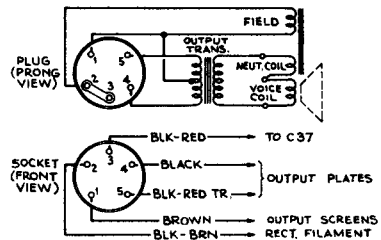
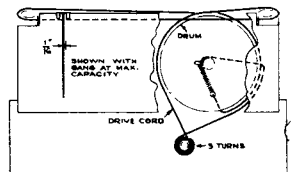
For Information on Automatic Mechanism refer to Service Data for Model 960001-1 Mechanism.



## TUBE AND TRIMMER LOCATIONS

### CATHODE CURRENTS

- (1) 6SG7 — 10.5 MA.
- (2) 6SA7 — 9.9 MA.
- (3) 6SK7 — 16.0 MA.
- (4) 6SQ7 — 0.3 MA.
- (5) 6SQ7 — 0.3 MA.
- (6) 6K6GT — 22.0 MA.
- (7) 6K6GT — 22.0 MA.
- (8) TOTAL RECT. — 81.0 MA.



## SPEAKER CONNECTIONS

# VICTROLA 58V, 58AV

## Radio-Phonograph Combination

Chassis No. RC-604



# RCA

# 102

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

**Cathode-Ray Alignment** is the preferable method. Connections for the oscillograph are shown in the schematic diagram.

**Output Meter Alignment.**—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

**Calibration Scale.**—The glass tuning dial may be easily removed from the cabinet and temporarily attached to the chassis for quick reference during alignment. In the event that only the chassis is returned for service, and the cabinet with its tuning dial is left in the customer's home, the full size calibration scale printed in this service note can be used for reference.

## Using Tuning Dial.—

1. Remove the dial glass from the cabinet.
2. With gang at full mesh the pointer should be set to a point (1/16) inch to the left of the reference mark at the left hand end of the dial backing plate.
3. Place the glass dial under the pointer so that the extreme left scale graduations coincide with the pointer. Use scotch tape to hold the glass dial in place.

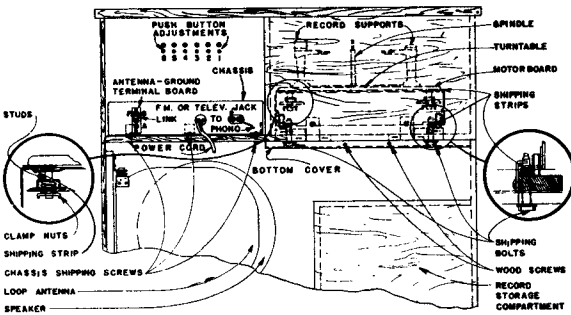
## Using Dial Scale Printed In This Service Note.—

Follow the procedure above, substituting the dial scale printed in this service note for the glass dial in the cabinet.

**"C" Band Reception.**—For best reception on "C" band with an outside antenna, adjust the trimmer screw of C4 on the antenna coil. Turn screw carefully with an insulated screwdriver (RCA Stock No. 31031) while the receiver is tuned to a station in the 31-meter band. If returning to internal antenna at any time, close the link on the center terminal and readjust "C" band antenna trimmer (C4) for best reception on 31-meter band.

Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust the following for maximum peak output—
1	I-F grid in series with .01 mfd.	455 kc	"A" Band 540 kc	L12, L11 (2nd I-F Trans.)
2	1st Det. grid in series with .01 mfd.			L10, L9 (1st I-F Trans.)
3	Yellow loop lead in series with 200 mmf. (link closed)	1,500 kc	"A" Band 1,500 kc	C9 (osc.)
4		600 kc	"A" Band 600 kc	L8 (osc.)
5	Repeat steps 3 and 4			
6	Aut. terminal in series with 47 mmf. (link closed)	6.1 mc	"B" Band 6.1 mc	C8 (osc.)* C2 (ant.)*
7		15.2 mc	"C" Band 15.2 mc	C7 (osc.)* C6 (ant.)*
8		9.5 mc	"C" Band 9.5 mc	C4 (ant.)*
9	Repeat steps 7 and 8			
10	Install and connect chassis in cabinet, with link closed. Tune in a radiated oscillator signal at 1,500 kc and peak the "A" band ant. trimmer C3 (on loop). Rock in L8 for peak output at 600 kc.			

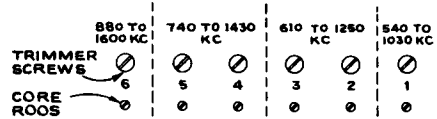
\*Use minimum capacity peak if two peaks can be obtained. Oscillator tracks 455 kc above signal on all bands.



## Critical Lead Dress

1. Push button, R.F. and oscillator leads should be separated as much as possible to reduce degeneration on push button reception.
2. R.F. choke in plate circuit of 6SG7 should be dressed towards the back apron.
3. Dress green push button lead under clamp and away from "C" band series capacitor.
4. Dress heater leads away from grids and diodes.
5. Dress phono. cables up and away from all wiring.
6. Dress all excess leads from transformer back towards transformer.
7. Keep output plate leads short and dressed close to chassis.
8. Dress green lead from 6SA7 screen to electrolytic down close to chassis.
9. Dress "C" band coil lead from oscillator coil to range switch down toward green lead.
10. Keep yellow loop lead clear of all wiring.
11. Dress ground bus of large electrolytic away from mounting lug.
12. Remove all excess slack from pilot light assembly and dress it close to chassis base away from volume control.
13. Dress oscillator grid capacitor (56 mmf.) up and away from the screen and plate of 6SA7 socket.
14. A-C leads to "off-on" switch should be kept away from tone control cable to reduce hum.
15. Peaking coil should be dressed away from R-F grid resistor to reduce degeneration in R-F stage.
16. Dress oscillator push button lead in weld clamp on front apron away from 220 mmf. series condenser.
17. Keep all leads away from Phono.-FM jack to prevent audio oscillation and hum. Dress underneath the shield provided.

## Push Button Adjustment



The push buttons connect to separate magnetite-core oscillator coils and separate loop circuit trimmers which must be adjusted for the desired stations. Use an insulated screwdriver or alignment tool such as RCA Stock No. 31031. Allow about five minutes warm-up period before making adjustments.

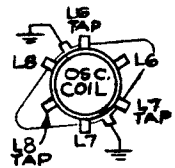
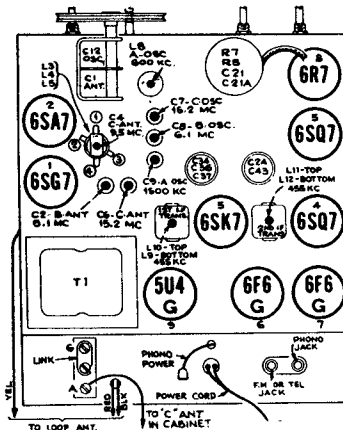
The procedure is as follows:

1. Make a list of the desired stations, arranged in order from low to high frequencies.
2. Turn the range switch to the broadcast position and manually tune in the first station on the list.
3. Turn range switch to push-button position and press in the left-hand button.
4. Adjust core rod No. 1 to receive the first station. To secure the best adjustment, rotate the loop for least pickup, and adjust core rod No. 1 for peak output.
5. Adjust trimmer screw No. 1 for peak output on the first station.
6. Proceed in the same manner to adjust for the remaining stations.
7. Repeat adjustments for best results.

On the 880 to 1,600 kc push-button, the higher frequency stations may be received with core rod No. 6 either in or out (oscillator frequency either 455 kc below or 455 kc above the station frequency). The adjustment with this core in its out position (oscillator frequency 455 kc above the station frequency) is the correct one.

**NOTE:** Clockwise adjustment of cores and trimmers tunes the circuits to lower frequencies.

**SERVICE HINT:**—If unable to reach 550-540 KC on No. 1 push button—Connect a Stock No. 33111 Capacitor-Ceramic-33 mmf across L19 (between switch contact which connects to high side of L19, and switch frame).



# VICTROLA 59V1, 59AV1

## Radio-Phonograph Combination

### Chassis No. RC 605

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# 103

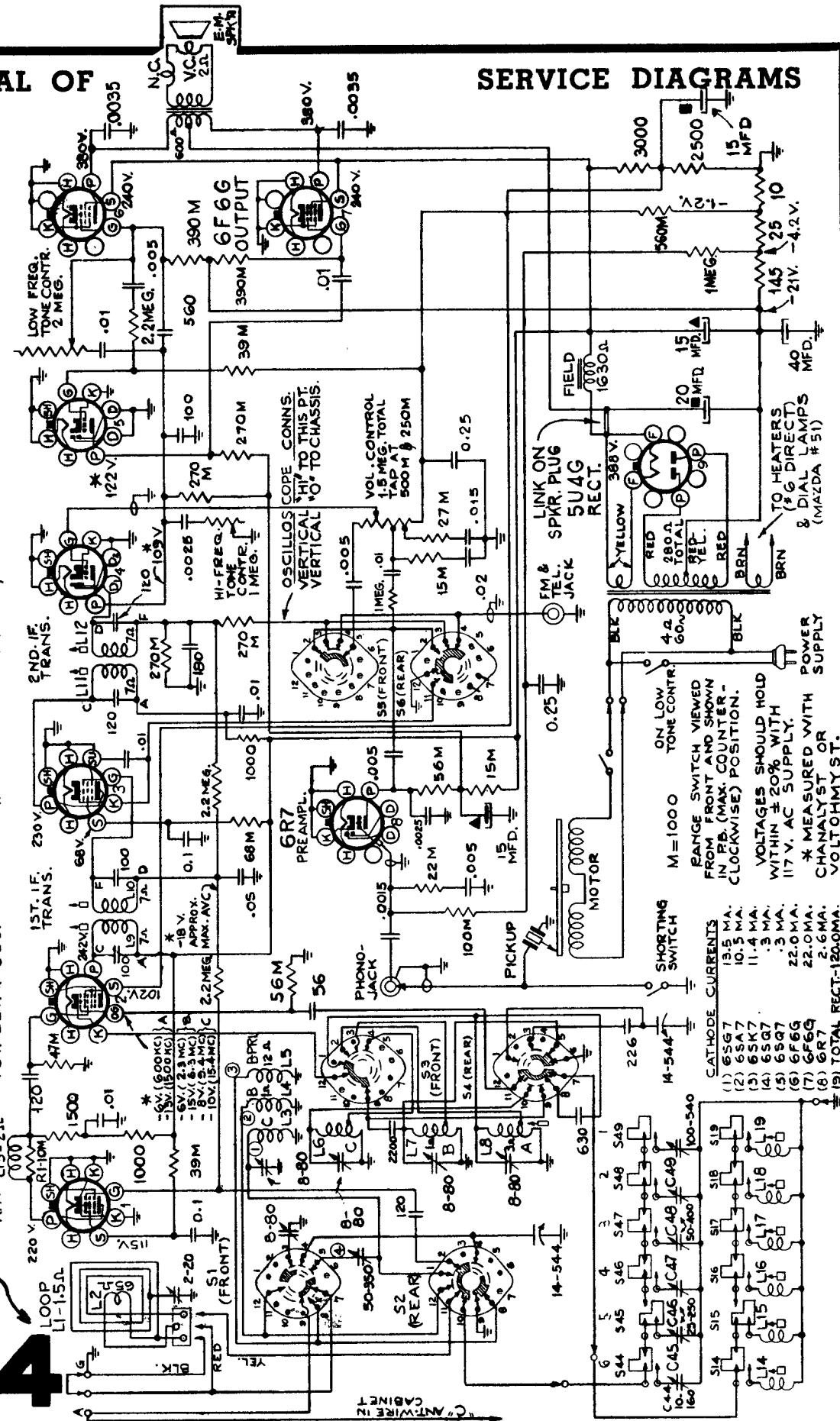
FOR INFORMATION ON AUTOMATIC CHANGER  
REFER TO SERVICE DATA FOR MODEL 960001-2  
MECHANISM.

SCHEMATIC DIAGRAM—MODELS 59V1, 59AV1

## MANUAL OF

## SERVICE DIAGRAMS

6SG7 R.F. L13-2A  
6SA7 1ST. DET. & OSC.  
6SK7 I.F.  
6SQ7 2ND. DET., A.F. & A.V.C. PH. INVER.  
6SQ7 6F6G OUTPUT



- CATHODE CURRENTS
- (1) 6SG7 13.5 MA.
  - (2) 6SA7 10.5 MA.
  - (3) 6SK7 11.4 MA.
  - (4) 6SQ7 3.3 MA.
  - (5) 6SQ7 22.0 MA.
  - (6) 6F6G 22.0 MA.
  - (7) 6F6G 2.6 MA.
  - (8) 6R7 2.6 MA.
  - (9) TOTAL RECT-120.0 MA.

M = 1000  
ON LOW TONE CONTR.  
RANGE SWITCH VIEWED FROM FRONT AND SHOWN IN P.B. (MAX. COUNTER - CLOCKWISE) POSITION.  
VOLTAGES SHOULD HOLD WITHIN ± 20% WITH 117 V. AC SUPPLY.  
\* MEASURED WITH POWER CHANALYST OR VOLTOHM Y ST.

LINK CLOSED FOR LOOP OPER.

6SG7 R.F. L13-2A

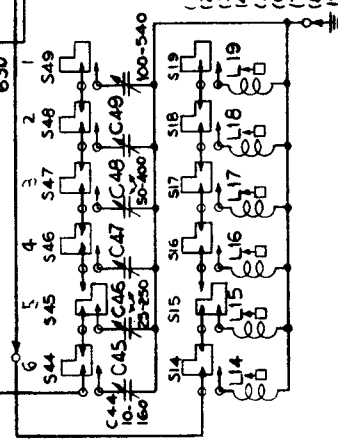
6SA7 1ST. DET. & OSC.

6SK7 I.F.

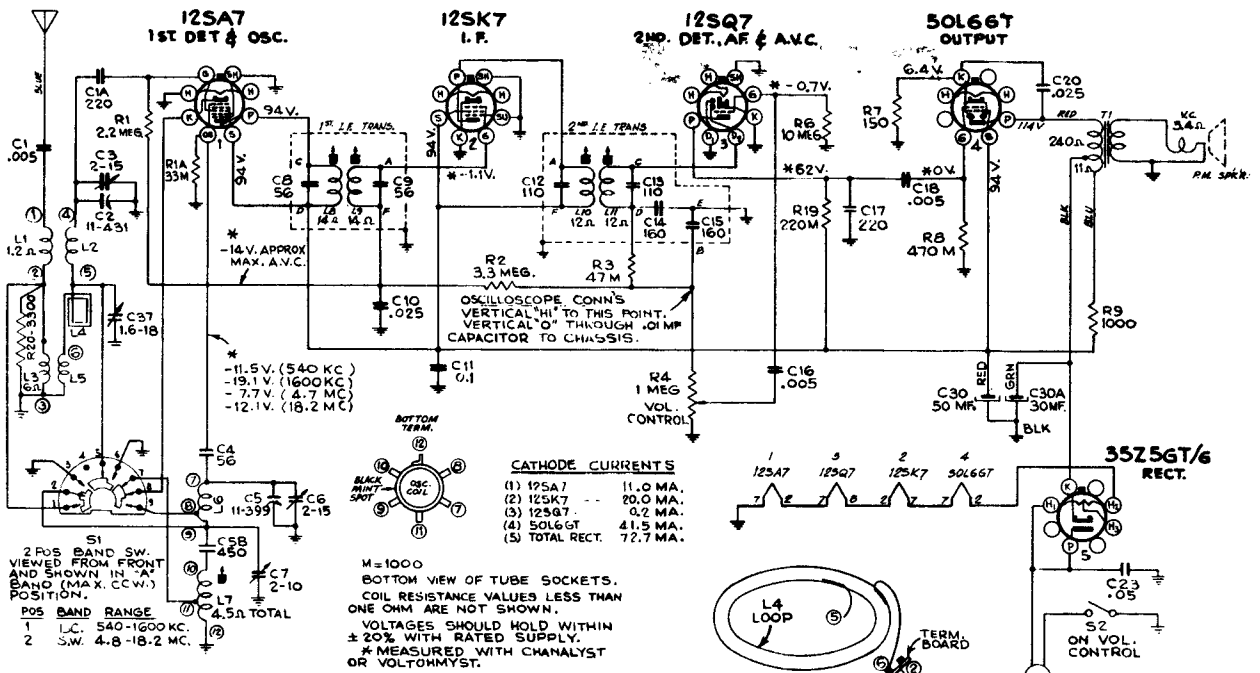
6SQ7 2ND. DET., A.F. & A.V.C. PH. INVER.

6F6G OUTPUT

C ANTENNA CABINET



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**Test-Oscillator.**—For all alignment operations, connect the low side of the test-oscillator through a .01 mfd. capacitor to the receiver chassis, and keep the oscillator output as low as possible to avoid a-v-c action.

Steps	Connect high side of test osc. to—	Tune test osc. to—	Turn radio dial to—	Adjust following for max. output—
1	12SK7 I-F grid through 0.1 mfd. capacitor			L11-L10 (2nd I-F Trans.)
2	Stator of gang cond. C2 (rear) through 0.1 mid.	455 kc	B. C.; 1600 kc quiet point	L9-L8* (1st I-F Trans.)
3	Antenna lead through 300 ohm resistor	18.2 mc	S. W.; gang condenser open	C8 (osc.)**
4		15.2 mc	S. W.; maximum signal rock gang	C3 (ant.)***
5		800 kc	B. C.; 800 kc	L7 (osc.)
6	Antenna lead through 200 mmf. capacitor	1300 kc	B. C.; rock gang at 1300 kc	C37 (ant.) C7 (osc.)
7		800 kc	B. C.; rock gang at 800 kc	L7 (osc.)
8	Repeat steps 6 and 7			

\* Do not readjust L10 or L11 when test oscillator is connected to C2.

\*\* Use minimum capacity peak if two peaks can be obtained.

\*\*\* Image signal of lesser amplitude should occur at 14.3 mc.

**NOTE.**—Oscillator tracks above signals on both bands.

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# Radiola

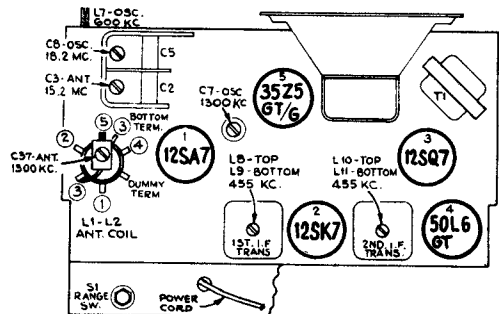
## 61-6 and 61-7

Chassis No. RC-594D

### RADIO CORPORATION OF AMERICA

Cathode-Ray Alignment is the preferable method. Connections for the oscilloscope are shown in the schematic drawing.

Output Meter Alignment.—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.



Tube and Trimmer Locations

# 105



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## RCA VICTOR

### Model Nos. 960001-1, 960001-2, 960001-3

#### Automatic Record Changer



#### Features

1. This record changer is a two post drop type, non-intermixing mechanism designed to play automatically a series of twelve 10-inch or ten 12-inch records of the standard 78 RPM type.
2. The mechanism uses a light weight, low noise, crystal pickup cartridge, equipped with a long life sapphire point.
3. The tone arm is automatically returned to the rest position and the power removed from the drive motor, after the mechanism has finished playing the last selection of the stack.
4. The changer is equipped with an eccentric and closed circle tripping device.
5. A pickup shorting switch is incorporated which shorts out the pickup during record change cycle. This prevents noise from gears, cams and other moving parts from being amplified through the reproducing system.
6. The mechanical linkage between record support posts makes possible a single and simple operation on the part of the operator to change from 10 to 12-inch records or vice versa.
7. The changer can be used on either a 50 or 60 cycle power supply by the use of the proper spring sleeve slipped over the shaft of the drive motor.
8. All gears and cams are disconnected while the records are being played. This removes the load on the motor and eliminates excessive friction and noise from moving parts which otherwise have a tendency to produce wow or rumble.

#### Automatic Operation

1. Lift and turn the selector arm #1 in the front right-hand corner of the changer panel to a position engaging the slots in the selector sleeve. In so doing the arrows and numbers designating record size should be pointing toward the turntable spindle.
2. Load the records to be played on the separator arms with the desired selections upward and in the proper sequence. The last record should be on top.
3. Move control knob to "reject" position and release it. The changer will play the selections in the entire stack at which time the control knob will return to "off" position automatically.
4. Lift and turn the selector arm to facilitate the removal of records on turntable.

**Note:** To stop mechanism before the selections in the entire stack have been played, move the control knob to "off" position, remove records on selector arms and lift and move the tone arm to rest position.

Model	Cartridge
960001-1 .....	39851
960001-2 .....	70332
960001-3 .....	39851

96000-2 and 96000-3 have an additional pickup shorting switch which contacts roller on tone arm lever (17) and shorts out pickup while tone arm is in the rest position.

#### Manual Operation

Old, odd sized and home recording records should be played in "Manual" position.

1. Lift and turn selector arm until selector arms point outward as for unloading records.
2. Place records to be played on turntable and move control knob to "Manual" position.
3. Place pickup on record.
4. When selection is finished playing, return the tone arm to rest position and move control knob to "off" position.

**Note:** Do not move control knob to "off" position before placing tone arm in rest position, or cycling will result. If this should occur do not handle tone arm. Place control knob in automatic position and allow cycle to continue until tone arm comes to rest before continuing with manual operation.

#### Cautions

1. Never use force to stop or rotate turntable or any other part of the mechanism.
2. Do not play a chipped or cracked record as damage to sapphire may result.
3. Warped records may slide upon one another while playing and cause unsatisfactory reproduction.
4. Do not attempt to handle tone arm while mechanism is in cycle.
5. Do not allow records to remain on selector arms when not in use, particularly in warm climate.
6. Do not allow oil or grease to come in contact with the rubber tire on drive idler or any other rubber parts.
7. Do not attempt to move the tone arm horizontally when in the rest position, unless control knob is in the manual position.

#### Lubrication

1. **GREASE**—Gears, all cams on large gear, tapered end of tone arm latch and tone arm lever with LUBRIPLATE #105 (Lubriplate Corp., 3211 South Wood St., Chicago).
2. **OIL**—All shafts before inserting into bearing and all moving parts, except those to be greased, with AIRCRAFT INSTRUMENT AND MACHINE GUN OIL, SPEC. 2-27E (Delta Oil Products, Milwaukee, Wis.).

**Note:** Keep grease and oil away from rubber parts such as drive idler, bumpers, etc.

Do not oil or grease clutch engagement lever.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Continued, RCA Victor  
Automatic Record Changer  
Models 960001-1, -2, -3.

## Functions of Main Parts

### I. Motor

The function of the motor is to serve as a power source for the changer. Power is transmitted from motor to turntable through the rubber-tired idler wheel.

### II. Control slide and associate parts

A. General function is to provide a single knob control for the various operations shown on the escutcheon plate through its interaction with the changer mechanism.

B. The power switch is mechanically operated by the control slide through a linkage to correspond to the various positions on the escutcheon plate.

#### C. Manual Reject Slide (27), fig. (3)

1. Manual position—With the control slide in the "manual" position the formed end of the reject slide (27) fig. (16) engages the clutch engagement lever (33) and holds it in an up position so that the trip mechanism is inoperative.

2. Reject position—The short formed end of the reject slide (27), near the mid-section, contacts part of trip lever (28) and trips the mechanism.

#### D. Tone Arm Latch (14), fig. (3)

1. Functions as a positive lock, fig. (12), for the tone arm whenever the latter is moved to the outside of the panel in all positions of the control slide other than "manual".

2. Also functions as a partial lock, fig. (12), or detent, for the tone arm lever (17) while the control slide is in "manual".

#### E. Manual Lock Out (4), fig. (3)

Function is to engage and retain the tone arm locator (16), fig. (15), in its outermost position while the control slide is set in the "manual" position.

#### F. 10 and 12-Inch Set Lever (19), fig. (3)

Function is to index the tone arm properly for 10 or 12-inch records, fig. (19).

### III. Spindle Housing, Gear Assembly, and Associated Parts

These two main castings are assembled with other component parts into a major sub-assembly, which includes a spindle and pinion. The assembly operates only in a counter-clockwise direction (viewed from bottom side) and provides a clutching and driving action for all automatic operation.

#### A. Pinion Gear (37), fig. (5)

1. Operates as part of the clutch.
2. Operates as a gear to drive the main gear through a change cycle.
3. Serves as a vertical stop for the spindle to which it is pinned.

#### B. Clutch Engagement Lever (33), fig. (5)

1. Function is to engage projection on pinion gear to start change cycle.

#### C. Trip Lever Assembly (28), fig. (4)

1. Function is to hold the clutch engagement lever (33), fig. (4) in a position such that it clears the pinion gear (37), fig. (5), except when tripping for cycling.

### IV. Selector Arm and Blades

1. Function is to support the records and, together with the selector blades, to separate the lowest record of the stack and allow it to drop to the turntable during the change cycle.

### V. Tone Arm Lever and Associated Parts

#### A. Tone Arm Lever (17), fig. (3)

Controls the horizontal movement of the tone arm.

#### B. Tone Arm Locator Lever (16), fig. (3)

Function is to control the tone arm lever in determining landing position of the pickup, fig. (8).

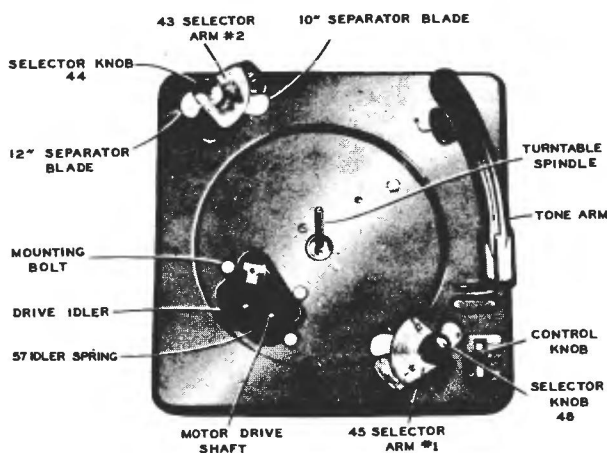


FIG. 1

#### C. Booster Spring (67), fig. (3)

A small piece of round spring wire which provides a limited amount of spring tension inward, tending to push the pickup into the starting groove.

### VI. Tone Arm Lift Pin (51), fig. (24)

Function is to control vertical motion of tone arm.

### VII. Selector or Support Arm Gears (35), (36), fig. (3)

Function is to transmit energy from drive mechanism to selector arm and knives.

### VIII. Trip Plate (Knurled) (30), fig. (3)

Contacts trip dog (31), fig. (4), for eccentric tripping.

### IX. Trip Shoe (29), fig. (3)

Functions as part of the closed circle tripping device.

### X. Segments (23), (25) and Tie Plate (24), fig. (3)

Constitute the mechanical linkage between separator arms.

### XI. Drive Gear Stop Lever (34), fig. (6)

Functions to stop and position drive gear after cycling.

### XII. Tone Arm Retard Lever (26), fig. (4)

Stabilizes horizontal movement of tone arm while in cycle.

## Miscellaneous Service Hints

### I. Rumble

- A. Remove turntable by lifting straight up and inspect the drive mechanism for a defective idler wheel. (Rough rubber tire or very sloppy bearing.)
- B. Inspect the mounting of the changer to determine whether or not the mounting clamp nuts have been loosened.
- C. Check and replace any microphonic tubes in the reproducing system.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

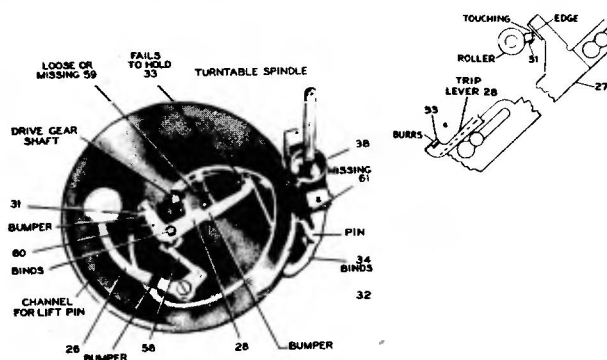
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Automatic Record Changer  
Models 960001-1, -2, -3.

## 2. "Wow" or Speed Variation

- A. Make certain the turntable is free to rotate and not rubbing on motor board or portion of drive mechanism.
- B. With the mechanism out of cycle remove the turntable by lifting straight up. The spindle being disengaged from all portions of the drive mechanism should rotate freely when turned by hand.
- C. Check for badly worn idler as described in item (1A).
- D. Check for presence of grease on rubber tire of drive idler and the inner rim of the turntable. (Naphtha or carbon tetrachloride will remove harmful grease.)
- E. Bent turntable spindle.
- F. Insufficient tension of drive idler spring (57), fig. (1).

## 3. Continuous Tripping (see sketches below)

- A. Trip lever (28) fails to hold clutch engagement lever (33).
  - a. Loose or missing trip lever spring (59).
  - b. Bind in trip lever bearing.
  - c. Formed edge on manual reject slide (27) touching trip dog (31) (bend away).
- B. Bind in stop lever (34), fig. (2).
- C. Missing stop lever spring (61).
- D. Control knob fails to return to automatic position due to bind in control slide, and associated parts. Missing spring (64), fig. (3).



## 4. Feedback or Howl

This condition is caused by sound from the speaker getting back into the input of the amplifier.

- A. Inspect motor board mounting to determine whether the clamp nuts have been loosened.
- B. Make certain no portion of the mechanism is touching the cabinet. The mechanism should be free floating on mounting springs.
- C. Check and replace any microphonic tube in reproducing system.

## 5. Failure to Trip (see sketches below)

- A. Pickup jumping grooves due to improper pickup pressure, or foreign material clogging up sapphire guard.

STOP-(ON 25)

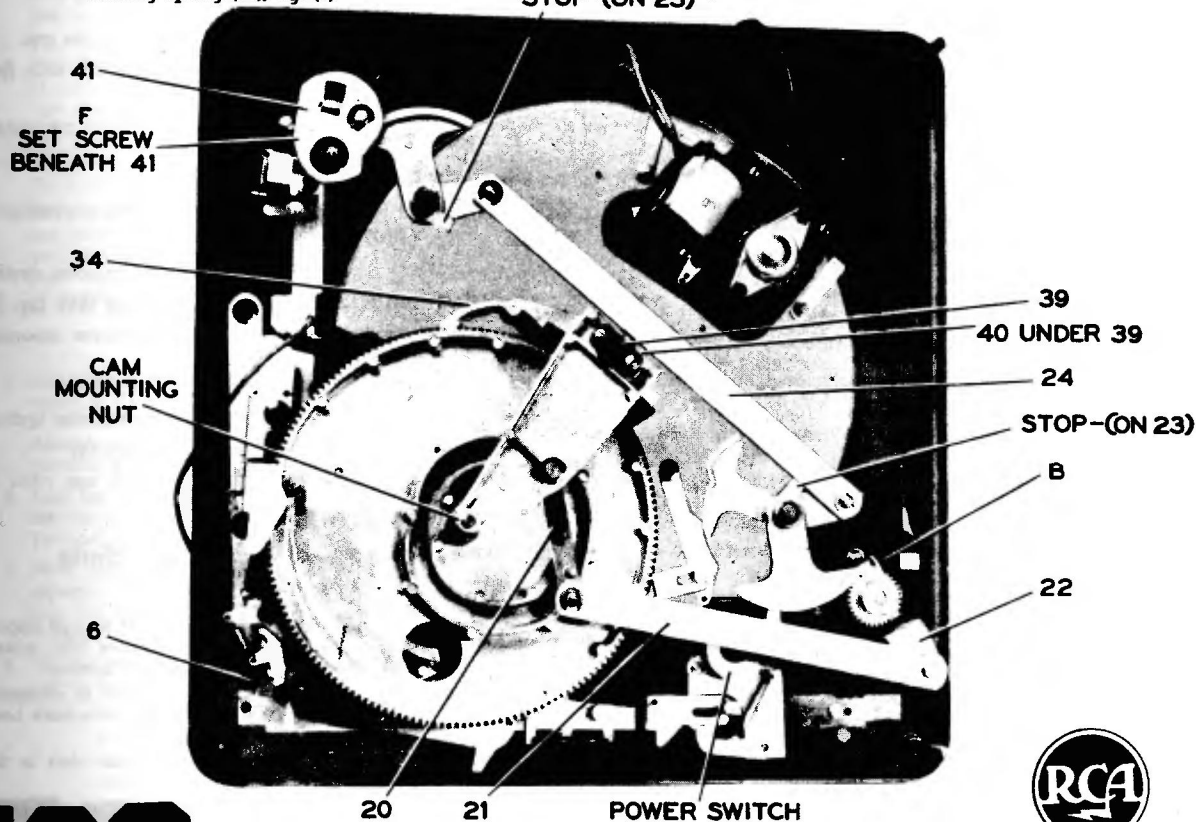


FIG. 2

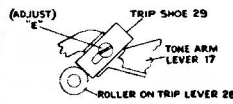
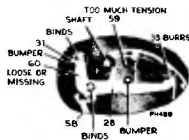
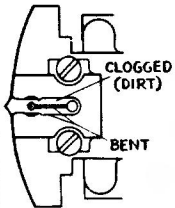
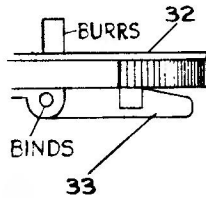
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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

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Automatic Record Changer  
Models 960001-1, -2, -3.

- B. Bind in trip dog (31), bearing or missing spring (60).
- C. Tripping adjustments improperly set.
- D. Trip lever spring (59) having too much tension.
- E. Burrs on trip lever (28).
- F. Bind in trip lever bearing.
- G. Bind in tone arm bearing.
- H. Clutch engagement lever (33) bent or binding. (It should be free to drop under its own weight when disengaged from trip lever.)



## 6. Insufficient power to complete cycle.

- A. Grease or oil on inner rim of turntable and rubber tire idler.
- B. Insufficient tension of spring (57), fig. (1), on drive idler.
- C. Defective drive motor.
- D. Binding in series of levers, pivots, etc.
  - a. Drive link assembly (20), fig. (2).
  - b. Selector arm shaft assembly, fig. (1).
  - c. Drive gear (32), fig. (4), shaft.
  - d. Poor gear mesh due to misalignment or defective teeth.
  - e. Bent record separator blades causing a jam, fig. (1).

## 7. Records do not drop properly.

- A. Separator arms improperly timed. (See timing adjustments.)
- B. Bent separator blades.
- C. Bent turntable spindle.

## 8. Improper pickup landing (adjacent sketches)

- A. Landing adjustment improperly set.
- B. Bind in tone arm bearing.
- C. Bind of slide (18) and lever (19) on studs.
- D. Missing spring (65) or (66).
- E. Bent or improperly shaped lever (16).
- F. Missing or loose spring (68).

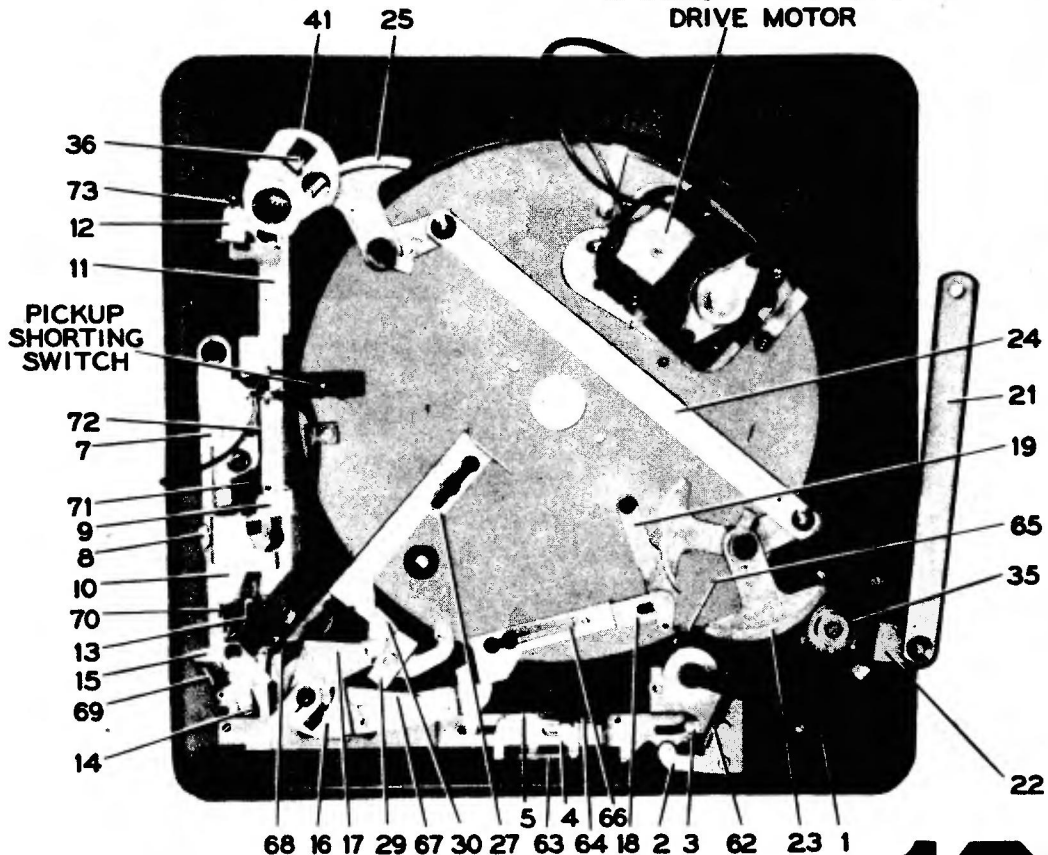
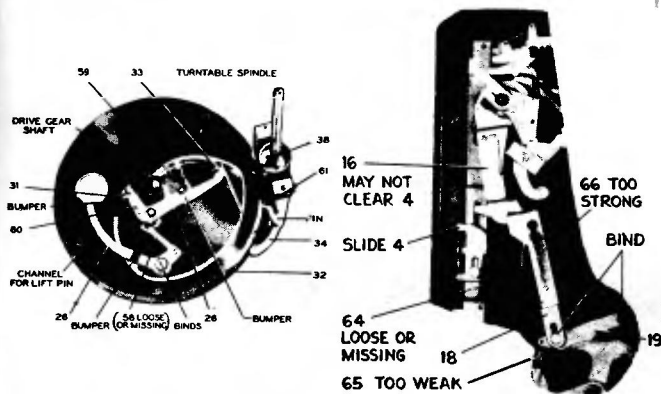
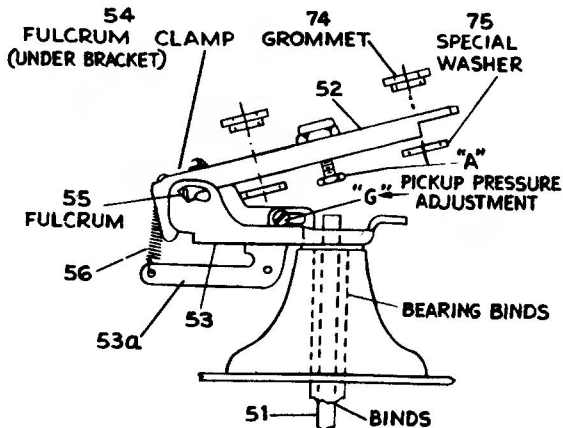
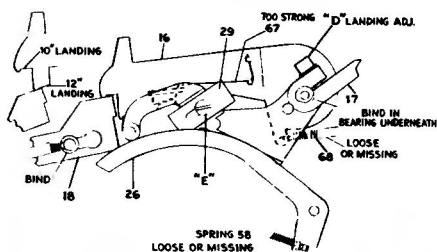


FIG. 3

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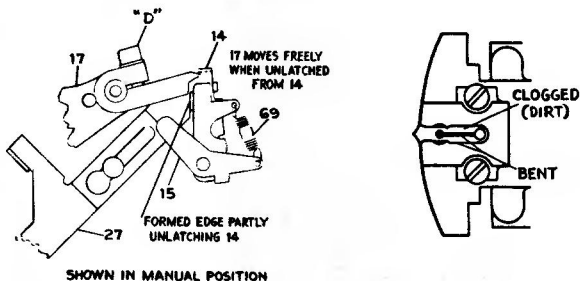
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Models 960001-1, -2, -3.

- G. Spring (66) having more tension than spring (65).
- H. Spring (67) out of position causing false edge on lever (16).
- I. Tone arm fails to move in because of bind in slide (4), or missing spring (64) keeping lever (16) latched.



## 9. Repeating grooves (see sketches below)

- A. Insufficient pickup pressure.
- B. Bind in tone arm pivot.  
Place control knob in "manual" position and move tone arm in toward spindle and back. After the end of the tone arm lever (17) (functioning as a detent) leaves latch (14) the tone arm should have free and smooth action.  
(If latch (14) is too positive, bend formed edge on manual reject slide (27) which contacts latch (14).)
- C. Check for bind in tone arm lift pin (51).



- D. Sapphire shield filled with foreign material, preventing sapphire from setting into grooves.
- E. Bent sapphire mounting thereby allowing sapphire guard to ride on record.

## 10. Premature tripping.

- A. Defective record.
- B. Trip shoe (29), fig. (3), improperly set.
- C. Trip lever spring (59), fig. (4), insufficient tension.
- D. Bind in trip dog (31), fig. (4), pivot.

## 11. Noise coming from speaker during record change cycle.

Pickup shorting switch failing to short out pickup.

## 12. No output.

- A. Defective crystal cartridge.
- B. Broken or bent sapphire mounting.
- C. Broken or shorted pickup cable.
- D. Pickup shorting switch making contact.
- E. Inoperative reproducing system.

## 13. Distorted output.

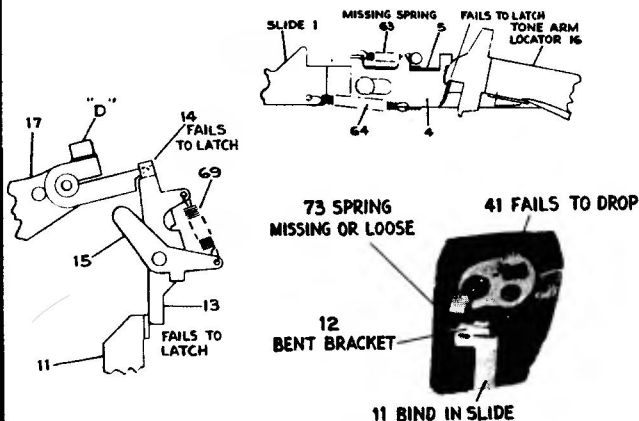
- A. Defective pickup cartridge.
- B. Bent or loose sapphire mounting, allowing sapphire to ride irregular in groove.
- C. Sapphire guard filled with foreign material such as dust and lint which accumulates on the records while in storage.  
(Remove with small brush.)

## 14. Tone arm fails to go to rest position at the finish of the last selection (see sketches below)

- A. Control knob fails to return automatically to "off" position.
  1. Cam (41) fails to drop down, thereby preventing stud on stop bracket (12) from contacting it.
  2. Missing stop bracket spring (73).
  3. Missing stud on bracket (12).
  4. Bind in shut off dog (8), fig. (3), and trip (9).
  5. Formed edge on slide (11) not locking tone arm latch (13).
  6. Tone arm latch (14) bent thereby not locking tone arm and allowing it to be pushed in by lever (16).

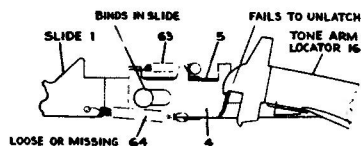
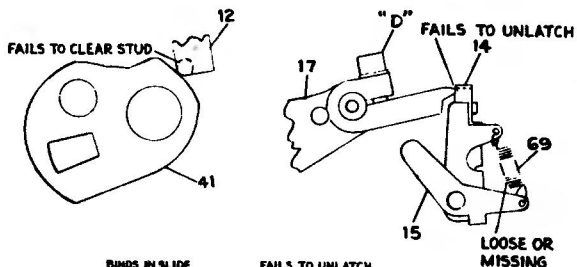
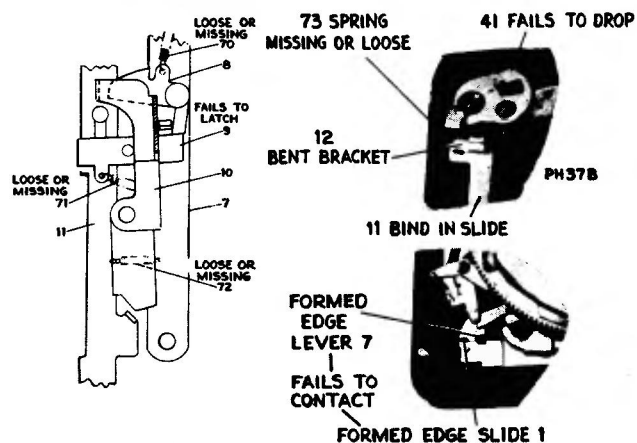
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Automatic Record Changer  
Models 960001-1, -2, -3.



## 15. Turntable fails to stop at the end of the last selection (see sketches below)

- A. Defective motor switch.
- B. Bind in levers actuating drive motor power switch, fig. (2).
- C. Control lever fails to move automatically to "off" position as described in 14A—one to five.
- D. Small formed edge on lever (7) may fail to contact formed edge on slide (1) thereby not pulling slide (1) and not moving control to "off" position.



## 16. Pickup fails to move in for landing (see sketches below)

- A. Tone arm locator (16) lever fails to unlatch from slide (4).
- B. Tone arm lever (17) fails to unlatch from tone arm latch (14).
- C. Missing spring (69).
- D. Bent shut off slide bracket (12) which may allow cam (41) to contact at incorrect time.
- E. Weak or missing spring (73), fig. (3), thus allowing slide (11) to move in and lock latch (13).

## 17. Power is removed from motor as pickup lands on record.

- A. Shut off slide bracket (12), fig. (3), may be bent.
- B. Low tension or missing spring (73), fig. (3).

## Removing Main Assemblies

### Removing Turntable

To remove turntable, lift straight up with a rotary motion.

### Removing Separator Arms

To remove separator arm, loosen set screws and lift off.

### Removing 12 in. Separator Blade

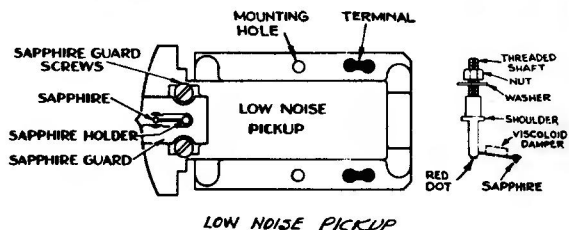
Remove Separator arm and by the use of a small screw driver remove the small screw up inside the separator sleeve (see fig. (21)). This removes the knob and 12 in. blade. The 10 in. blade is not removable.

### Removing Sub-assembly

To remove the large gear sub-assembly, remove the turntable and remove the two small screws on either side of the turntable spindle. Also remove the large nut holding the gear shaft. The entire gear bracket, etc., can be removed easily.

### Removing Tone Arm

To remove the tone arm from the mounting bracket, it is necessary to remove the two screws located under the pivot end of the tone arm. These screws are more accessible if the bracket and shaft are removed by loosening bolt "D" as indicated in fig. (16).



Note: Stock #39851 has red dot on bottom of sapphire holder, 13.5 mil. dia. sapphire mounting wire, but no viscoloid damper. Stock #70332 has viscoloid damper on sapphire mounting wire.

### Replacement of Sapphire

Caution: Never bend the sapphire support wire. The nut on the sapphire holder assembly is locked by a light cement (such as Glyptal). Extreme care should be used when loosening the nut so that the twisting motion does not break the crystal.

Remove the two screws holding the sapphire guard in place and remove guard. Remove the small nut and washer on the threaded shaft of the sapphire holder and push the shaft through the hole in the mounting until the sapphire holder assembly comes free.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Automatic Cycle of Operation

Function	Explanation
Lift and turn selector arm as required for 10- or 12-inch records. Place stack of records on arms.	<ol style="list-style-type: none"> <li>1. The rotation of selector arm #1 moves selector arm #2 through the mechanical linkage of gear (35), fig. (19), segment (23), tie plate (24), segment (25) and gear (36).</li> <li>2. Portion of segment (23), fig. (19), slides against set lever (19) thereby determining the point of contact of slide (18), fig. (8), with tone arm locator (16), which in turn governs the pickup landing position.</li> </ol>
Push control lever to reject position and release.	<ol style="list-style-type: none"> <li>1. Control slide (1), fig. (3), actuates manual reject slide (27) through coupling link (6), fig. (2).</li> <li>2. Manual reject slide (27), fig. (3), pushes against stud above small roller on trip lever (28), fig. (4).</li> <li>3. The action of trip lever (28), fig. (4), unlatches clutch engagement lever (33) allowing it to drop and engage projection on pinion gear (37), fig. (5). This engagement between lever (33) and pinion gear (37) causes the teeth of drive gear (32) to engage the teeth of pinion gear (37) starting cycle.</li> </ol>
Drive gear (32) rotates.	<ol style="list-style-type: none"> <li>1. Gear (32), fig. (6), rotates with stop lever (34), leaving notch and at the same time pickup shorting switch leaving raised portion of gear causing it to close, shorting out the pickup.</li> <li>2. Roller on drive link (20), fig. (19), follows channel in drive cam.</li> <li>3. Energy is transferred from drive link (20) to separator arm #1 through drive link (21), arm (22) and sleeve (47), fig. (17).</li> <li>4. Separator arm #1 connected to gear (35), fig. (19), starts rotating.</li> <li>5. Separator arm #2 mechanically linked through gear (35), segment (23), tie plate (24), segment (25) and gear (36) follows in rotation.</li> </ol>
Tone arm moves out.	<ol style="list-style-type: none"> <li>1. As the channel cut in rotating gear (32), fig. (9), moves, lift pin (51) raises contacting adjustment screw "A", fig. (24), on tone arm and raising tone arm.</li> <li>2. Roller located on end of tone arm lever (17), fig. (8), comes in contact with portion of cam on gear (32), fig. (4), and is pushed outward and against tone arm locator lever (16), fig. (8), which is held under tension of spring (68).</li> <li>3. Tone arm is locked by tone arm latch (14), fig. (7), and held from being pushed in by locator lever (16), fig. (8).</li> <li>4. As drive gear continues to rotate, clutch engagement lever (33), fig. (5), is returned to normal position by sliding against edge of tone arm lever (17), fig. (8), as gear supporting it passes by.</li> </ol>
Separator arms rotate and drop record to turntable.	<ol style="list-style-type: none"> <li>1. Blades separate lower record from stack and support the stack while the record is being dropped.</li> <li>2. Record drops.</li> <li>3. Tone arm lever (17) is unlatched from latch (14), fig. (7), due to latch (15) making a momentary contact with raised portion of gear.</li> </ol>
Tone arm moves in.	<ol style="list-style-type: none"> <li>1. Tone arm lever (17), fig. (8), which is connected to tone arm is being moved in by locator lever (16) which is working under the tension of spring (68). During this motion tone arm lever (17) is stabilized by tone arm retard lever (26) until locator lever (16) engages slide (18) to determine 10- or 12-inch landing position.</li> <li>2. Pickup is lowered to the record by lift pin (51), fig. (9), moving into channel in gear.</li> <li>3. An instant before rotating gear comes to the rest position and stop lever (34), fig. (4), engages notch in gear (32), the pickup shorting switch is opened due to the blade coming in contact with raised portion of gear.</li> <li>4. As pickup is landing and gear is returning to normal position the stud located on underside of gear (32) pushes shut-off bracket (10), fig. (13), outward. The action at this point is not transferred since shut-off dog (8), fig. (10), and shut-off trip (9) are not latched thereby allowing shut-off bracket (10) to slip by over the curved portion of the shut-off dog (8). If shut-off</li> </ol>

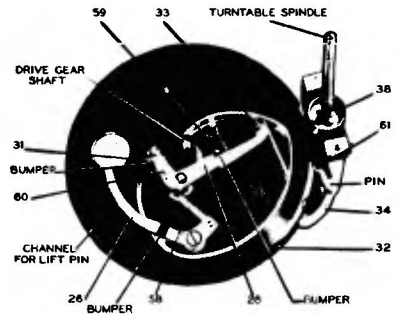


FIG. 4

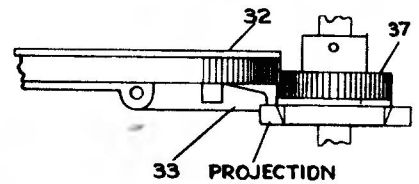


FIG. 5

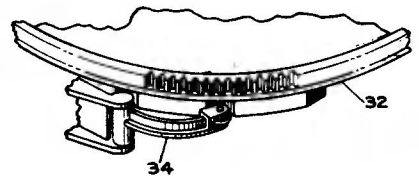


FIG. 6

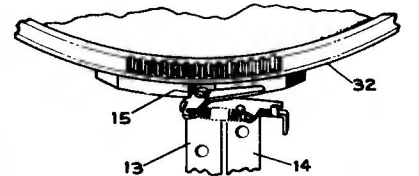


FIG. 7

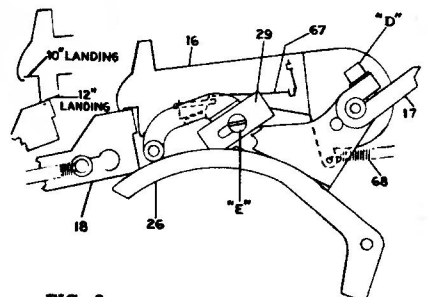


FIG. 8

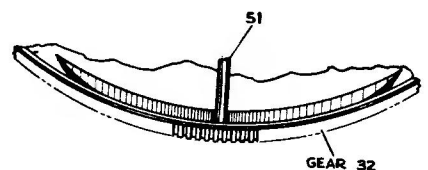


FIG. 9

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

bracket (10) should contact straight edge of shut-off dog (8) as it does when latched to shut-off trip (9), shut-off lever (7) would pull slide (1), fig. (3), and remove power from drive motor.  
 5. The instant pickup lands, feed-in spring (67), fig. (8), pushes pickup into starting groove.

## Record plays.

1. Pickup moves toward center of record and into trip groove.
2. In the case of an eccentric groove the tone arm lever (17), fig. (3), moves in and the trip plate (30), fig. (4), engages trip dog (31) moving trip lever (28) and starting cycle.
3. In the case of a record with a closed circle trip the trip shoe (29), fig. (23), pushes against roller on trip lever (28), fig. (4), thus starting cycle.

## Mechanism plays entire stack automatically.

Separating and dropping records, tripping, etc.

## Last record has dropped and record plays.

1. Up to this time shut-off cam (41), fig. (21), located on bottom end of selector arm #2 has been held up by weight of records on selector arm applying pressure on the small raised portion of shut-off selector bracket (50), fig. (20), which is protruding through selector arm.
2. Pickup moves into trip, and drive gear (32), fig. (4), starts rotating.
3. Since cam (41), fig. (11), has dropped and is rotating with selector arm #2 its surface contacts stud on shut-off slide bracket (12). This transmits energy to shut-off slide (11), fig. (14), which permits shut-off dog (8) and shut-off trip (9) to latch.
4. Shut-off slide (11), fig. (12), locks tone arm latch (13) during the time, portion of the rotating drive gear is contacting tone arm latch (15), fig. (7), and tending to unlatch it. The tone arm remaining latched, prevents it from being pushed in by locator lever (16), fig. (8).
5. Tone arm is lowered to rest as lift pin (51), fig. (9), goes into channel in gear (32).
6. As gear (32) comes to rest stud, fig. (13), located on underside of gear (32) contacts and pushes shut-off bracket (10) outward. Since shut-off dog (8), fig. (14), and shut-off trip (9) are latched, shut-off bracket (10) contacts flat surface of shut-off dog (8) pushing shut-off lever (7) outward.
7. Shut-off lever (7) in its outward movement contacts lip on slide (1), fig. (3), pulling control knob to "off" position, cutting off the power to the drive motor. During this action, shut-off dog (8), fig. (14), and shut-off trip (9) are unlatched.

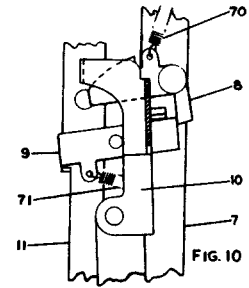


FIG. 10

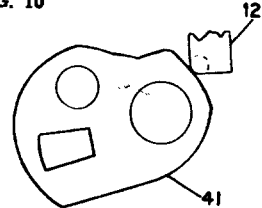


FIG. 11

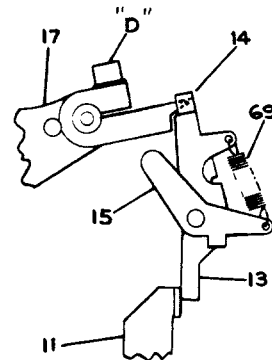


FIG. 12

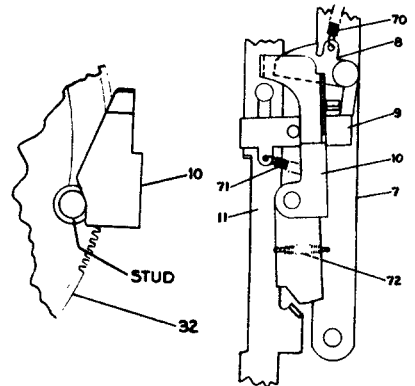


FIG. 13

FIG. 14

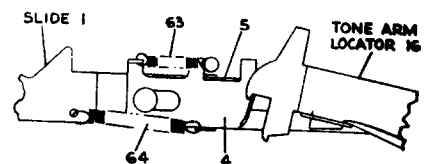


FIG. 15

## Manual Cycle

Function	Explanation
Push control knob to manual.	<ol style="list-style-type: none"> <li>1. Slide (1), fig. (3), supporting-control knob moves and positions "manual" lock-out slides (4) and (5), fig. (15), so as to have slide (4) engage and hold tone arm locator (16) and prevent it from pushing tone arm lever (17), fig. (8), in for pickup landing.</li> <li>2. Slide (1), fig. (3), also energizing manual reject slide (27), fig. (16), so as to have the lip on slide (27) push against tone arm latch (14), moving the point of contact on tone arm lever (17) to the very edge. This permits tone arm lever (17) to slip by when tone arm is moved manually.</li> <li>3. The movement of manual reject slide (27) has so positioned the slide so as to lock the clutch engagement lever (33) and prevent it from engaging offset in pinion gear (37), fig. (5), when trip lever (28), fig. (16), is moved.</li> </ol>

Allen wrenches required for adjustments. 3/32 in. between flats, for Allen wrenches required for adjustments on set screws #10 and 12, stock #22111.

5/32 in. between flats, for 5/16 in. set screws, stock #22113.

3/16 in. between flats, for 3/8 in. set screws, stock #26581.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Continued, RCA Victor Automatic Record Changer Models 960001-1, -2, -3.

4. All portions of the cycling mechanism are locked during manual operation and remain stationary with the pickup shorting switch in the off position at all times, excepting Models -2 and -3 which have an additional switch, shorting out pickup when tone arm is in the rest position.

Note: When operating manually the tone arm should always be returned to rest position before moving control knob to the off position. If this procedure is not followed the trip lever (28) may not hold the clutch engagement lever (33) allowing it to drop and start cycle.

### Check on Timing Adjustments

A quick check for correct timing of mechanism can be made by:

1. Have mechanism out of cycle.
2. Lift and turn separator arm #1 to 10 in. position and place a 10 in. record on arms.
3. The 10 in. separator blade should have a definite relation to record as illustrated in fig. (18) when segment (23) is against tie plate (24) as illustrated in fig. (19). If so, selector arm #1 is correctly timed.
4. If the 10 in. blades of both arms have the same distance from the record, remove record and lift and turn selector arm #1 counterclockwise as far as it will go (viewed from top).
5. Segment (25) should be against tie plate (24) when the teeth of segment (25) and gear (36) are meshed as shown in fig. (22). If this exists, timing of selector arm #2 is correct.

### Timing Adjustments for Record Separators

1. Make certain mechanism is out of cycle and all parts in their proper place by comparing the mechanism with sketches and photographs.
2. Remove "C" washer on bearing of segment (23), fig. (19), and disengage the teeth of segment (23) and selector arm gear (35).

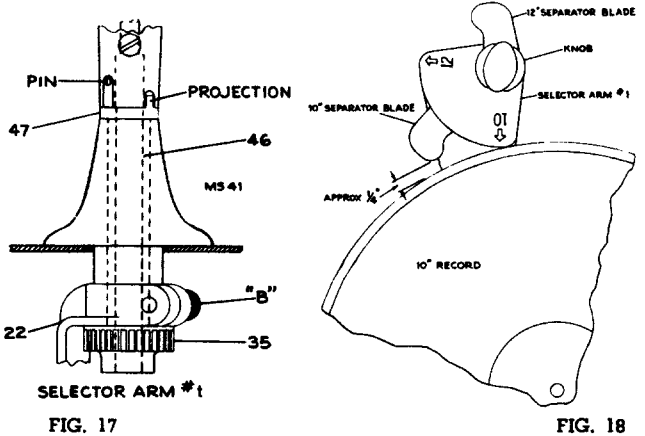


FIG. 17

FIG. 18

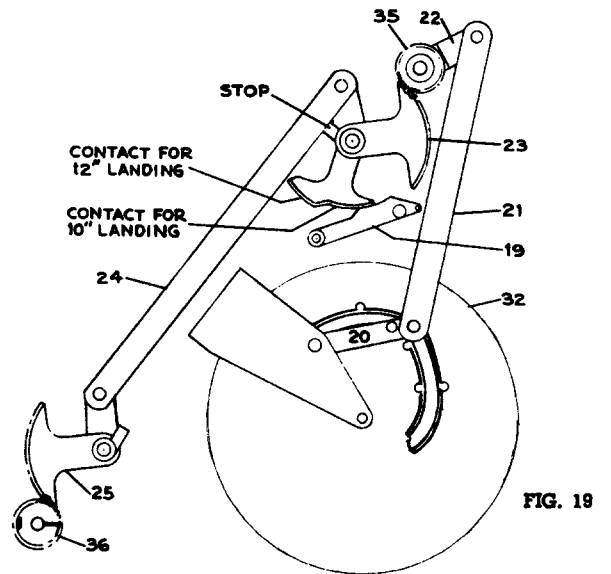


FIG. 19

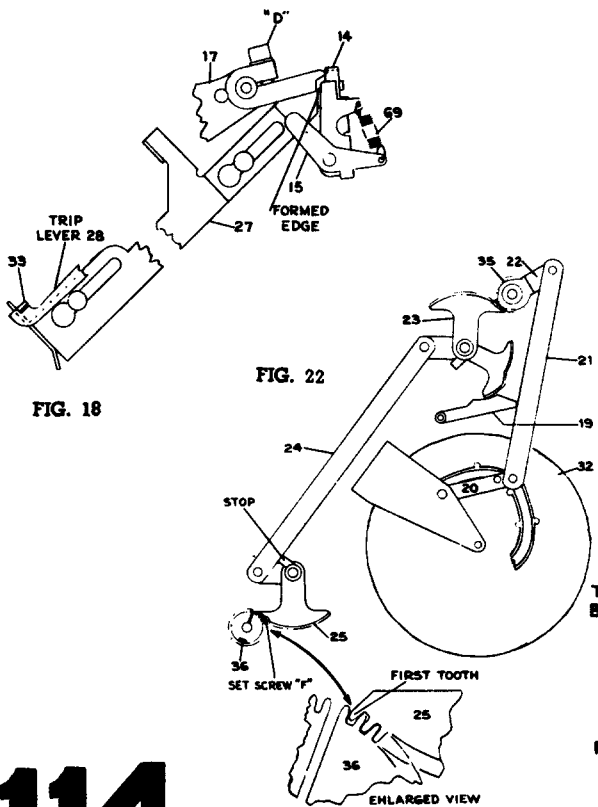


FIG. 22

FIG. 23

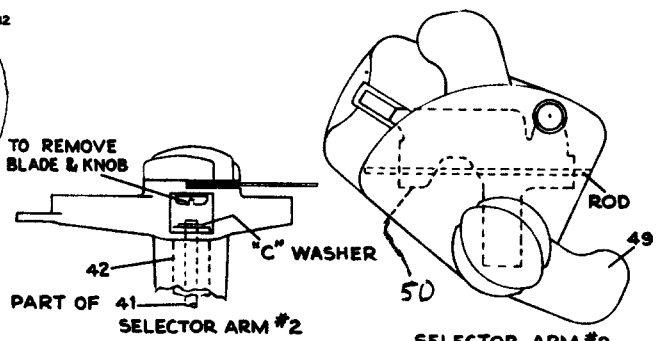


FIG. 21

FIG. 20

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Continued, RCA Victor Automatic Record Changer Models 960001-1, -2, -3.

3. Selector arm #1, fig. (17), should be in place with the pin of selector shaft engaged in the large slot of selector arm and the small projection of selector arm sleeve (47) engaged in the small slot of the selector arm. Arm (22), fig. (19), should also be in place and connected to the drive link (20) and drive link connecting rod (21).
  4. Loosen set screw "B", fig. (17), and wedge some object such as a screw driver in the clamp of arm (22) so as to allow free movement of selector arm sleeve (47).
  5. Place 10-inch record on selector arms and turn selector arm #1, fig. (18), until the 10-inch blade is approximately  $\frac{1}{4}$  inch from the edge of the record.
  6. Tighten set screw "B", fig. (17).
  7. Rotate the disengaged segment (23), fig. (19), clockwise until tie plate (24) comes against stop on segment (23). Hold in this position while engaging teeth of segment (23) and teeth of gear (35).
  8. Replace "C" washer on segment (23).
  9. Remove "C" washer on rod (41), fig. (21) (under selector arm #2) and remove cam and rod (41).
  10. Remove "C" washer on bearing of segment (25), fig. (22), and disengage teeth of segment (25) and gear (36).
  11. Lift and rotate selector arm #1, fig. (22), counter-clockwise until stop on segment (25) is against tie plate (24).
  12. Engage teeth of segment (25) and gear (36) so as to have the first tooth of segment gear (25) engage the gear (36) between the first and second tooth next to slot as shown in sketch, fig. (22). Replace "C" washer or bearing of segment (25).
  13. Loosen set screw "F" and rotate selector arm #2 until ten-inch separator blade is the same distance from the edge of the record as selector arm #1, fig. (18).
  14. Tighten set screw "F", fig. (22).
- Note: Do not try to position separator arm #2 by loosening small set screws on arm proper. The factory has countersunk the shaft, seating the set screws.
15. Replace cam (41), fig. (21), with the end going up through hole in plate (50), fig. (20). Insert "C" washer, fig. (21), to hold in place.

### Tripping Adjustment

No eccentric tripping adjustment is necessary. It is automatically adjusted when landing adjustment is made.

For closed circle trip, loosen set screw "E", fig. (23), and set trip shoe (29) so as to contact roller on trip lever (28) when the sapphire is approximately  $1\frac{1}{8}$ " from side of turntable spindle.

### Tone Arm Height Adjustment

1. The height of the tone arm while in the rest position is that which will allow the bottom edge of the tone arm and cartridge to clear the turntable surface by  $\frac{1}{16}$ ". The height is adjusted by bending the formed edge on lower half of tone arm bracket fig. (24).
2. Tone arm height adjustment screw "A", fig. (24), should be so adjusted to allow a clearance of  $\frac{1}{16}$  inch between tone arm and record on selector arm while mechanism is in cycle.

### Pickup Pressure Adjustment

By the use of a pocket postal scale hooked on the sapphire end of the tone arm, loosen set screw "G", fig. (24), and move slide until tension of spring (56) allows 1 to  $1\frac{1}{4}$  oz. pickup force for model 960001-2 and  $1\frac{1}{2}$  to  $1\frac{3}{4}$  oz. for models 960001-1 and 960001-3.

### Landing Adjustment

1. With the power removed from the mechanism, place a 10-inch record on the turntable and turn the selector arm to 10-inch position.
2. Push selector knob to reject and release.
3. Push down on the small section of lever (50), fig. (20), which protrudes through selector arm #2 and rotate turntable by hand until the pickup is about to land.
4. Loosen set screw "D", fig. (25).
5. Hold tone arm lever (17) against tone arm locator (16) with just enough force so as not to have tone arm locator (16) move away from slide (18).
6. While holding the position as stated in "5," move pickup to the landing point on the record. Leave very little vertical play in tone arm bearing but just enough to have free motion of tone arm. Tighten set screw "D".
7. Apply power to mechanism and test by playing through a stack of records.

Note: Twelve-inch record landing will automatically be adjusted while adjusting 10-inch landing.

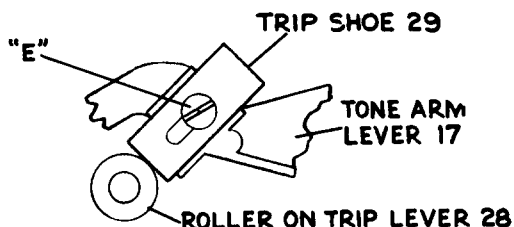


FIG. 23

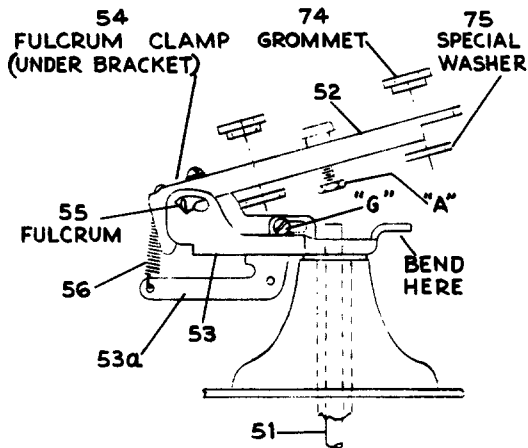


FIG. 24

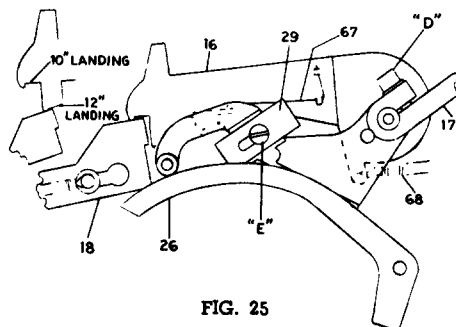


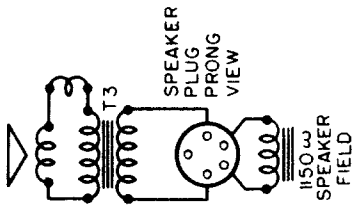
FIG. 25

## Sears, Roebuck & Co. Chassis 101.660-1A

<u>POSITION OF VARIABLE</u>	<u>GENERATOR FREQUENCY</u>	<u>DUMMY ANTENNA</u>	<u>GENERATOR CONNECTION</u>
Closed	455 kc	.1 mfd	6SA7 Grid
Fully open	1620 kc	.00005 mfd.	Ant. Clip
1410 kc	1410 kc	.00005 mfd.	Ant. Clip
600 kc(rock)	600 kc	.00005 mfd.	Ant. Clip
Fully open	1620 kc	.00005 mfd.	Ant. Clip

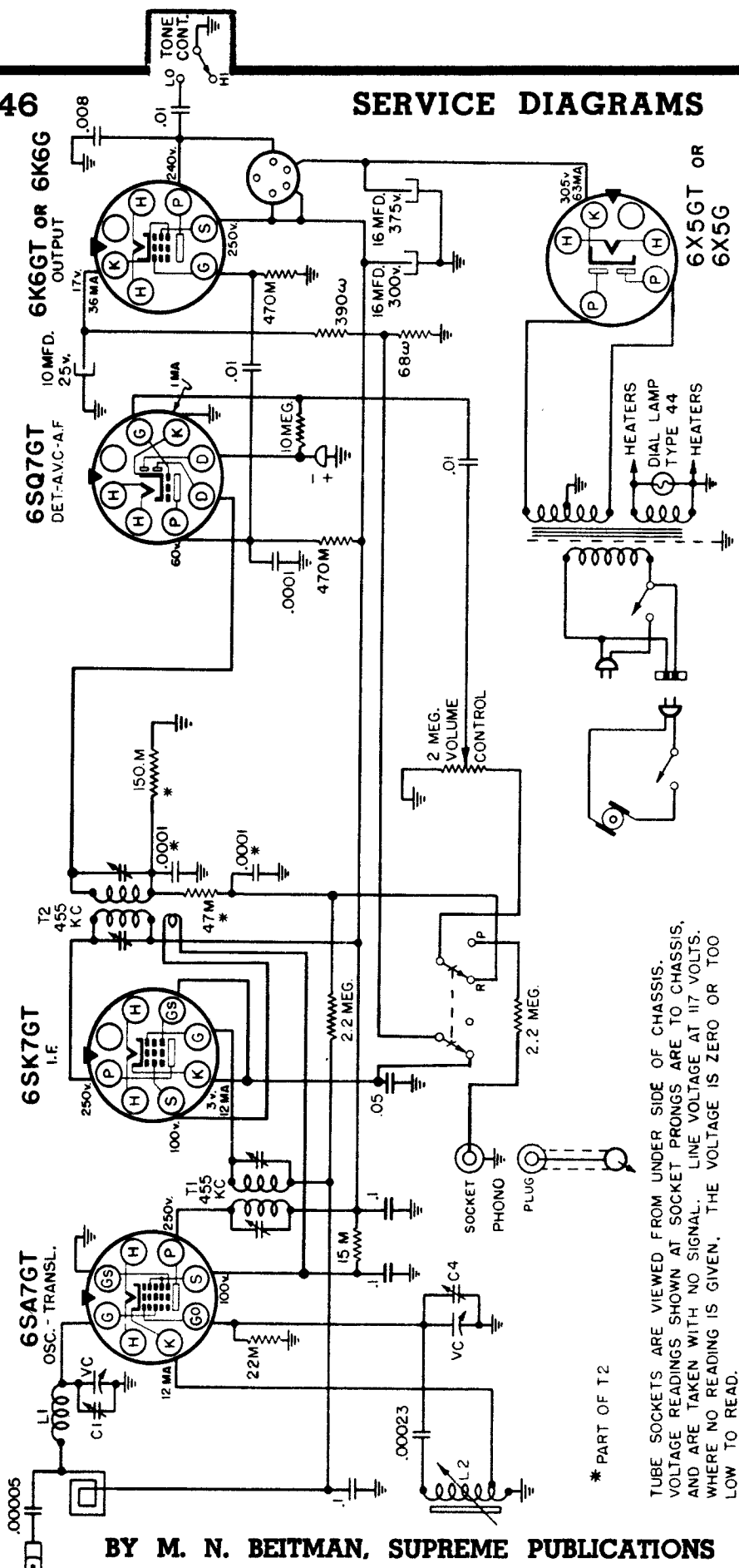
TRIMMERS  
ADJUSTED  
(IN ORDER  
SHOWN)

<u>TRIMMER FUNCTION</u>
T2, T1
C4
C1
L2
C4
IF
Oscillator
Translator
Padder
Oscillator



## MANUAL OF 1946

## SERVICE DIAGRAMS

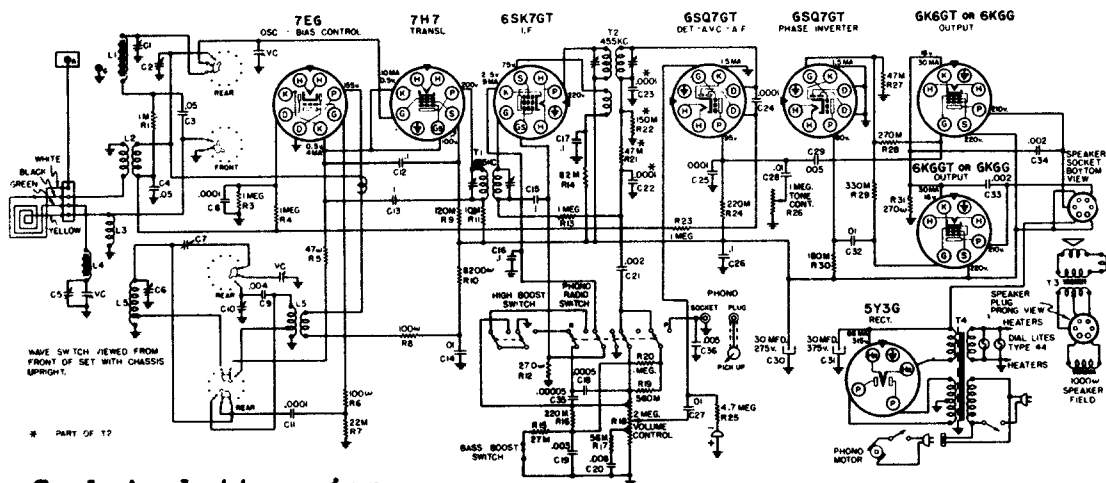


\* PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. LINE VOLTAGE AT 117 VOLTS. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

SEARS, ROEBUCK AND CO. Chassis 101.662-2B, and -2D



Sockets bottom view.

Voltage readings socket prongs to chassis, wave switch in "Broadcast," no signal, line 117 volts A.C.

## PARTS LIST FOR CHASSIS

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	R17998	Board - Antenna		R59053	Log - BC. & S.W. Stations
	R45512	Board - Terminal - Loop		R57216	Loop - Complete
	R57285	Buttons - Push (High Boost, Bass Boost, Phono-Tel.-Freq. Mod.) (Cat. #6104A)		R18112	Mounting - Bias Cell
	R57205	Buttons - Push (High Boost, Bass Boost, Phono-Tel.-Freq. Mod.) (Cat. #6105A)		R57192	Needle - Phono
	R57284	Buttons - Push Stations (Cat. #6104A)		R16039	Pin - Loop Lead
	R57204	Buttons - Push Stations (Cat. #6105A)		R57207	Pointer - Dial
				R18477	Pulley - Wood, large
C30, C31	R45829	Capacitor - Elec. 30 mfd. 275 V; 30 mfd. 375 V.	R3, R4, R13	R43416	Pulley - Wood, small
C1, C2, C5			R20, R23		Resistor - 1 megohm, 1/3 Watt
C6, C7, C10	R47199	Capacitor - Trimmer - 6 Gang	R25		Resistor - 4.7 megohm, 1/3 Watt
C15, C16		Capacitor - .1 mfd. 200 V.	R1		Resistor - 1M ohm, 1/3 Watt
C12, C13		Capacitor - .1 mfd. 400 V.	R11		Resistor - 10M ohm, 1/3 Watt
C17, C26		Capacitor - .1 mfd. 400 V.	R7		Resistor - 22M ohm, 1/3 Watt
C14, C28		Capacitor - .01 mfd. 400 V.	R15		Resistor - 27M ohm, 1/3 Watt
C27, C32		Capacitor - .01 mfd. 600 V.	R21, R27		Resistor - 47M ohm, 1/3 Watt
C3, C4		Capacitor - .05 mfd. 200 V.	R17		Resistor - 56M ohm, 1/3 Watt
C21, C33, C34		Capacitor - .002 mfd. 600 V.	R14		Resistor - 82M ohm, 1/3 Watt
C19		Capacitor - .003 mfd. 400 V.	R9		Resistor - 120M ohm, 1/3 Watt
C29		Capacitor - .005 mfd. 400 V.	R30		Resistor - 180M ohm, 1/3 Watt
C20		Capacitor - .008 mfd. 400 V.	R16, R24		Resistor - 220M ohm, 1/3 Watt
C9		Capacitor - .004 mfd. Mica	R28		Resistor - 270M ohm, 1/3 Watt
			R29		Resistor - 330M ohm, 1/3 Watt
			R19		Resistor - 560M ohm, 1/3 Watt
			R5		Resistor - 47 ohm, 1/3 Watt
			R6, R8		Resistor - 100 ohm, 1/3 Watt
			R12		Resistor - 270 ohm, 1/3 Watt
			R31		Resistor - 270 ohm, 2 Watt
			R10		Resistor - 8200 ohm, 1 Watt
				R47262	Shaft - Drive
				R44897	Socket - Phono-Tel.-Freq. Mod.
				R16958	Socket - Bactifier
				R17983	Socket - Speaker
				R17987	Socket - Tube
					WHEN ORDERING SPEAKER PARTS, ALWAYS GIVE THE PART NUMBER APPEARING ON THE SPEAKER.
L4	R17915	Cell - Bias		R57221	Speaker - 10" Dynamic
L5	R57203	Clip - Pilot Light		R45836	Cone and Voice Coil
L1	R47193	Coil - Ant. Loop Loading		R45838	Field Coil
L1	R47192	Coil - BC. & S.W. Oscillator		R45837	Output Transformer
L3	R47194	Coil - BC. Transistor	T3	R18251	Spring - Drive Tension
L2	R57187	Coil - Preselector Coupling		R45844	Switch - Tone and Phono-Tel.-Freq. Mod.
R26	R47495	Coil - S.W. Antenna		R47191	Switch - Wave
R18	R47235	Control - On-Off and Tone - 1 meg.		R45995	Tab - Bass Boost
	R47240	Control - Volume - 2 meg.		R45994	Tab - High Boost
	R57273	Cord - Line (Phono)		R45996	Tab - Phono-Tel.-Freq. Mod.
	R18395	Cord - Line (Power)		R42879	Tab - Call Letter
	R42673	Cover - Push Button Tabs		R45305	Transformer - #1 I.F.
	R57206	Dial - Station		T2	Transformer - #2 I.F.
	R57271	Escutcheon - Dial (Cat. #6104A)		T4	Transformer - Power - 60 cycle
	R57231	Escutcheon - Dial (Cat. #6105A)		VC	Tuner - Push Button with Variable Capacitor
	R49940	Knob - On-Off and Tone			
	R49939	Knob - Tuning			
	R49941	Knob - Volume			
	R49943	Knob - Wave Switch			
	R14914	Lamp - Dial, Type #44			
	R59047	Leaflet - Instruction			

Alignment information on page 118.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Alignment for Sears, Roebuck & Co. Chassis 101.662-2B, and -2D

**PRELIMINARY:**

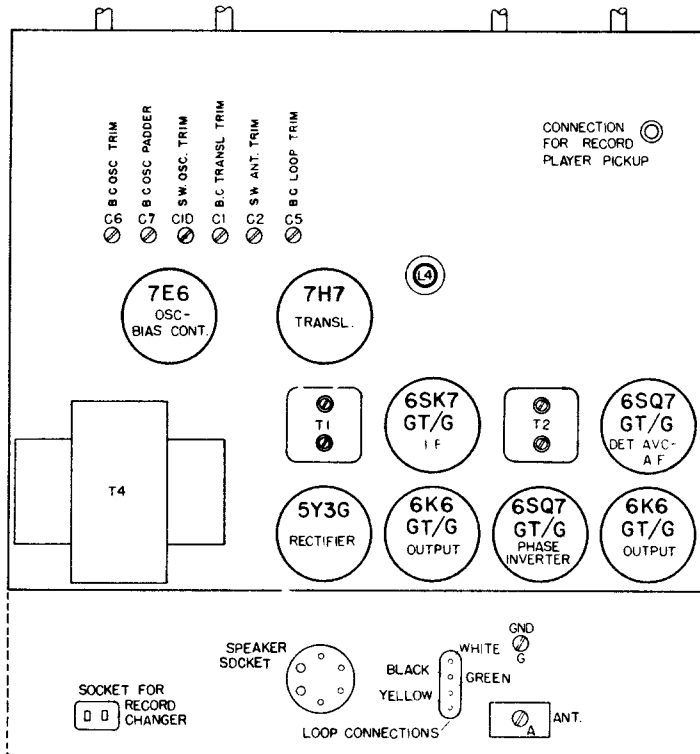
Output Meter Connection.....Across loud speaker voice coil  
 Generator ground lead connection.....Receiver chassis  
 Dummy Antenna value to be in series with generator output.....See chart below  
 Connection of generator output lead.....See chart below  
 Generator Modulation.....30%, 400 cycles  
 Position of Volume Control.....Fully on  
 Position of Tone Control.....Treble  
 Position of pointer with tuner fully closed.....Last line below 540 calibration mark

WAVE BAND SWITCH POSITION	POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION
BC	Closed	455 KC	.1 mfd.	7H7 Transl. grid	T2, T1	IF
BC	Open	1750 KC	.0002 mfd.	Ant. Terminal	C6	Oscillator
BC	1410	1410 KC	.0002 mfd.	Ant. Terminal	C5, C1	Ant. Transl.
BC	600 (rock)	600 KC	.0002 mfd.	Ant. Terminal	C7	Padder
SW	Open	18.3 MC	400 ohms	Ant. Terminal	C10	SW Oscillator
SW	15 (rock)	15 MC	400 ohms	Ant. Terminal	C2	Transl.

The Antenna Alignment Procedure should be repeated step by step in the original order for greatest accuracy.

Always keep the output power from the generator at its lowest possible value to prevent the AVC of the receiver from interfering with accurate alignment.

During alignment of the Band "BC" Padder and the Band "SW" Translator Trimmers, the Tuner should be rocked through resonance to assure alignment.



Circuit diagram on page 117.

LOCATION OF PARTS ON TOP OF CHASSIS 101 662-2B, 2D,

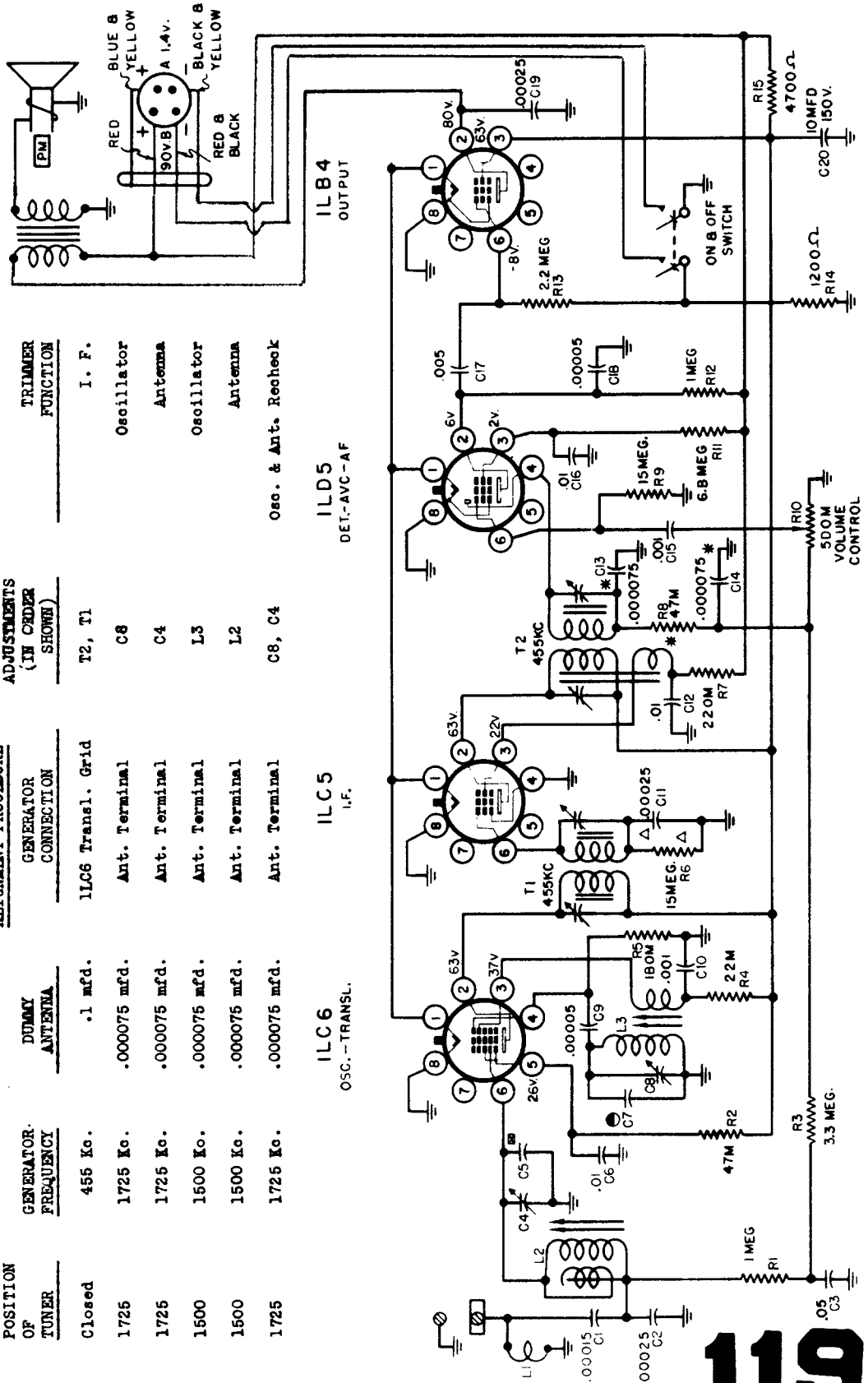
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

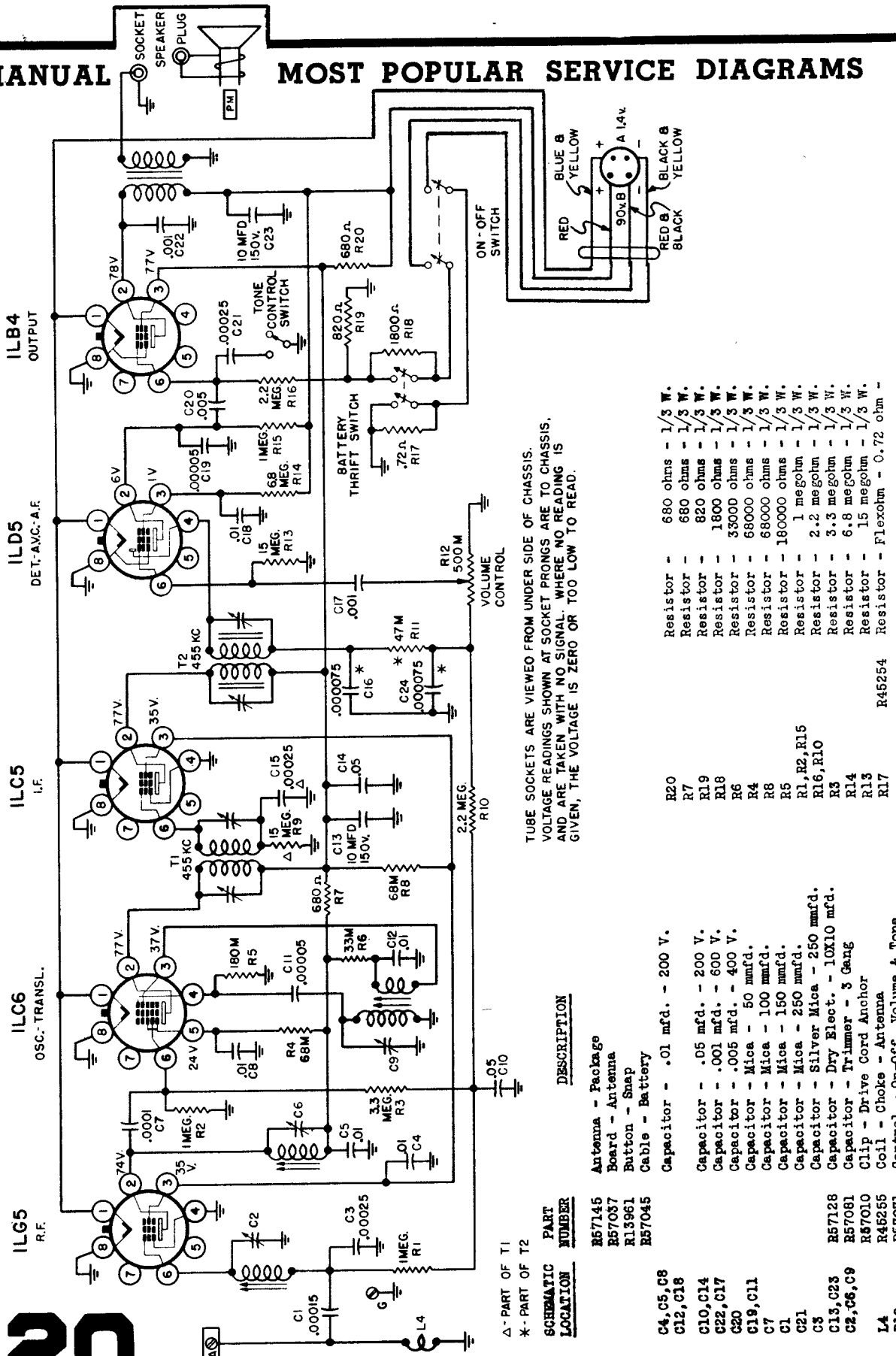
Sears, Roebuck & Co.  
Chassis 101.800

△ PART OF T1  
\* PART OF T2

TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS, AND ARE TAKEN WITH NO SIGNAL. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

POSITION OF TUNER	GENERATOR FREQUENCY	DUMMY ANTENNA	ALIGNMENT PROCEDURE GENERATOR CONNECTION	TRIMMER ADJUSTMENTS (IN ORDER SHOWN)	TRIMMER FUNCTION
Closed	455 Kc.	.1 mfd.	1LC6 Transl. Grid	T2, T1	I. F.
1725	1725 Kc.	.000075 mfd.	Ant. Terminal	C8	Oscillator
1725	1725 Kc.	.000075 mfd.	Ant. Terminal	C4	Antenna
1500	1500 Kc.	.000075 mfd.	Ant. Terminal	L3	Oscillator
1500	1500 Kc.	.000075 mfd.	Ant. Terminal	L2	Antenna
1725	1725 Kc.	.000075 mfd.	Ant. Terminal	C8, C4	Osc. & Ant. Reseek





TUBE SOCKETS ARE VIEWED FROM UNDER SIDE OF CHASSIS. VOLTAGE READINGS SHOWN AT SOCKET PRONGS ARE TO CHASSIS. AND ARE TAKEN WITH NO SIGNAL. WHERE NO READING IS GIVEN, THE VOLTAGE IS ZERO OR TOO LOW TO READ.

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
Δ - PART OF T1	R57145	Antenna - Package
* - PART OF T2	R57037	Board - Antenna
	R13961	Button - Snap
	R57045	Cable - Battery
		Capacitor - .01 mfd. - 200 V.
		Capacitor - .05 mfd. - 200 V.
		Capacitor - .001 mfd. - 600 V.
		Capacitor - .005 mfd. - 400 V.
		Capacitor - Mica - 50 mmfd.
		Capacitor - Mica - 100 mmfd.
		Capacitor - Mica - 150 mmfd.
		Capacitor - Mica - 250 mmfd.
		Capacitor - Silver Mica - 250 mmfd.
		Capacitor - Dry Elect. - 10X10 mfd.
		Capacitor - Trimmer - 3 Gang
		Clip - Drive Cord Anchor
		Coil - Choke - Antenna
		Control - On-Off, Volume & Tone
		Resistor - 680 ohms - 1/3 W.
		Resistor - 680 ohms - 1/3 W.
		Resistor - 820 ohms - 1/3 W.
		Resistor - 1800 ohms - 1/3 W.
		Resistor - 35000 ohms - 1/3 W.
		Resistor - 68000 ohms - 1/3 W.
		Resistor - 68000 ohms - 1/3 W.
		Resistor - 180000 ohms - 1/3 W.
		Resistor - 1 megohm - 1/3 W.
		Resistor - 2.2 megohm - 1/3 W.
		Resistor - 3.3 megohm - 1/3 W.
		Resistor - 6.8 megohm - 1/3 W.
		Resistor - 15 megohm - 1/3 W.
		Resistor - Flexohm - 0.72 ohm -

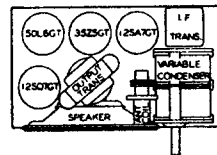
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Sears, Roebuck & Co. Chassis 132.818

Schematic Location	Part No.	Description
R1		Resistor, 4.7 Megohms, 1/4 watt
R2		Resistor, 1 Megohm, 1/4 watt
R3		Resistor, 150 ohms, 1/4 watt
R4		Resistor, 22,000 ohms, 1/4 watt
R5		Resistor, 330,000 ohms, 1/4 watt
R6		Resistor, 15,000 ohms, 1/4 watt
R7	N18587	Resistor, 2 Megohms Vol. Control & Switch
R8		Resistor, 470,000 ohms, 1/4 watt
R9	N19177	Resistor, 47 ohms, 1 watt
R10		Resistor, 2,200 ohms, 1 watt
R11		Resistor, 15 ohms, 1/4 watt
C1, C2	N17115	Condenser, Variable 2-gang
C3		Condenser, .05 mfd., 200 volt
C4		Condenser, .05 mfd., 400 volt
C6		Condenser, .00005 mfd., 500 volt
C7		Condenser, .0001 mfd., 500 volt
C8		Condenser, .002 mfd., 500 volt
C9		Condenser, .01 mfd., 400 volt
C10		Condenser, 40 mfd., 150 volt
C11	N19176	Condenser, 20 mfd., 150 volt
C12		Condenser, 20 mfd., 25 volt
T1	N18255	Coil, antenna
T2	N18256	Coil, oscillator
T3	N1964.9	Transformer, i-f
Spk.	N17209	Speaker less output transformer
T4	N18258	Transformer output
	N19122	Dial scale emblem
	N18577	Cabinet, ivory

Tuning range 540-1600 Kc. Intermediate frequency, 455 Kc. Measurements made at 200 milliwatts output—approximately .8 volt on a rectifier type volt-meter connected across the voice coil. Dummy load for i-f .05 mfd. condenser in series with generator lead. Connect generator ground to receiver floating ground.

## TUBE LOCATION

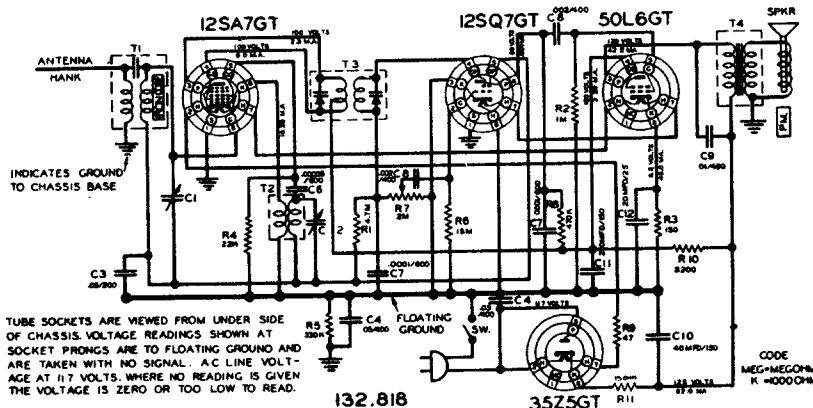


Balance at 1400 Kc. by rocking variable condenser while adjusting oscillator trimmer for maximum output. Check sensitivity at 600 Kc. If low, adjust antenna section plates for maximum output at 600 Kc.

Approximate inputs for 200 MW output: I-f, 3000 uv. R-f at 1400 Kc., 360 uv; at 1000 Kc., 360 uv; at 600 Kc., 500 uv.

**CAUTION:** Remove the electric or power cord from the wall or floor outlet before replacing tubes, removing, adjusting or cleaning the chassis, or while connecting an aerial.

## SCHEMATIC DIAGRAM FOR SILVERTONE CHASSIS NUMBER 132.818





# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## SILVERTONE POWR SHIFTR

Sears, Roebuck & Co. Chassis 139.150

### IMPORTANT - READ CAREFULLY

The "A" supply of this power unit is supplied through a dry disc rectifier. If the radio ceases to operate or drops off in performance, it may be due to a chemical change in this rectifier. This may cause the "B" voltage to drop low enough to affect the performance of the receiver.

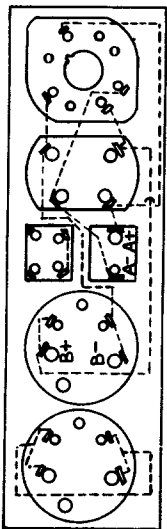
To reactivate the rectifier it is only necessary to short (connect together) the "A" plus end "A" minus of plug or terminals of socket for a period of 4 minutes. The high temperature

developed in the rectifier during this period has the tendency to restore the discs to their normal rectifying capacity. The unit will not be harmed by this process.

This deactivated condition is more likely to occur in the rectifier when the power unit has been out of service for some length of time (4 months or more).

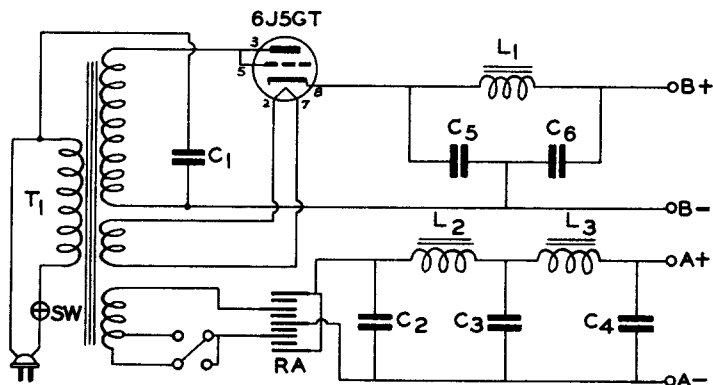
### PARTS LIST

PART NO.	SCHEMATIC LOCATION	DESCRIPTION
J 1059	T1	POWER TRANSFORMER
J 1060	C1	LINE COND. .01 MFD. 400V
J 2933	RA	RECTIFIER
J 1061	L1	"B" CHOKE
J 1435	L2 L3	"A" CHOKE
J 2036	C2 C3 C4	"A" FILTER CONDENSER
J 2037	C5 C6	"B" FILTER CONDENSER
J 5538	SW	DUAL 8 MFD. - 150V
J 1841		CORD, SWITCH & PLUG
J 1062		TUBE SOCKET
J 5442		TAP CHANGE PLUG

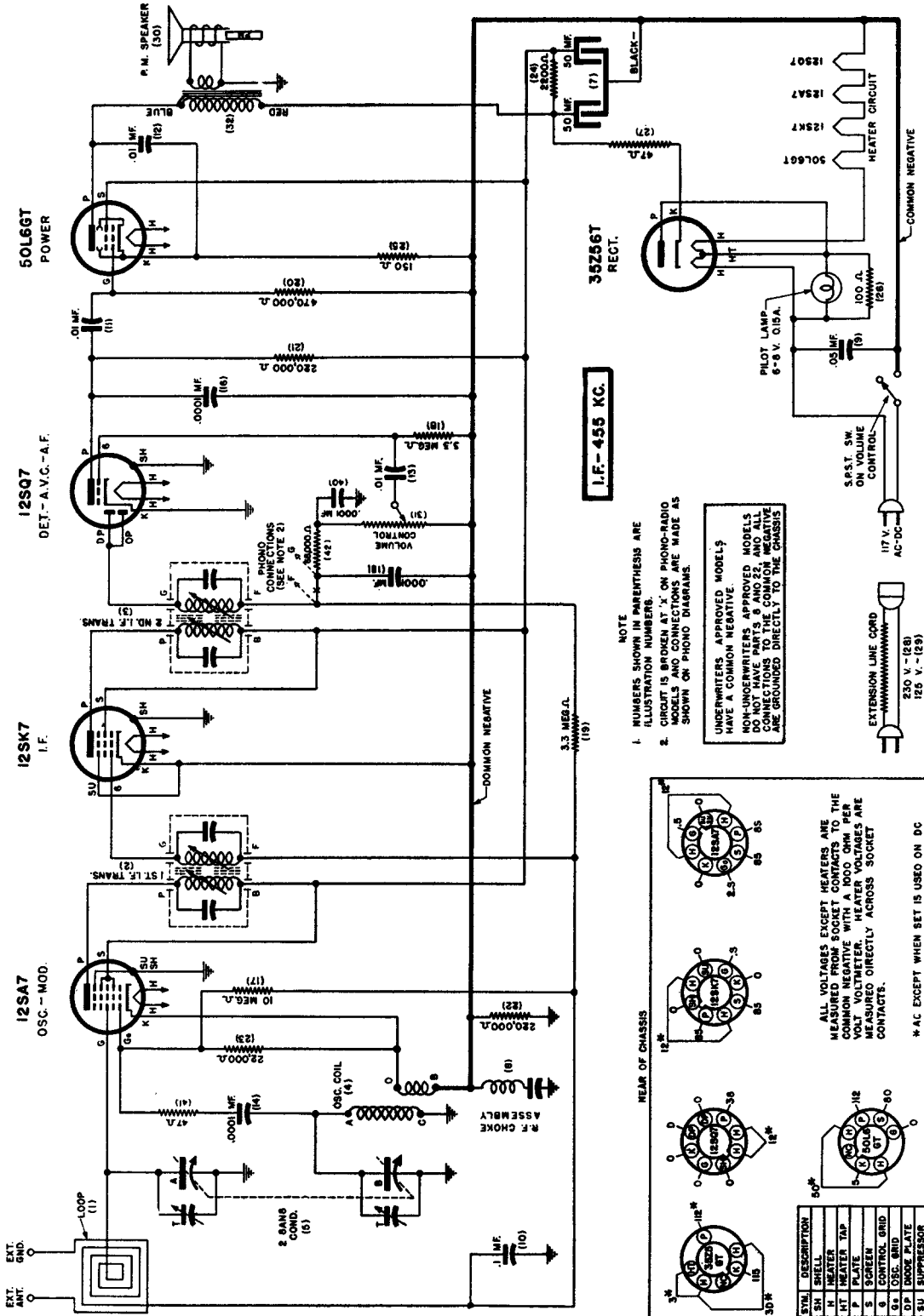


WIRING DIAGRAM OF SOCKET ASSEMBLY (Back)

SEARS, ROEBUCK AND CO.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



I.F. - 455 KC.

- NOTE
- NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS.
  - CIRCUIT IS BROKEN AT 'X' ON PHONO-RADIO MODELS AND CONNECTIONS ARE MADE AS SHOWN ON PHONO DIAGRAMS.

UNDERWRITERS APPROVED MODELS HAVE A COMMON NEGATIVE  
 NON-UNDERWRITERS APPROVED MODELS DO NOT HAVE PARTS 6 AND 22, AND ALL CONNECTIONS TO THE COMMON NEGATIVE ARE GROUNDED DIRECTLY TO THE CHASSIS.

NEAR OF CHASSIS

SYM.	DESCRIPTION
EXT.	EXT. ANT. CO.
SH	SHIELD
HT	HEATER
HT	HEATER TAP
P	PLATE
S	SCREEN
G	CONTROL GRID
G	OSC. GRID
DP	DIODE PLATE
SU	SUPPRESSOR
K	CATHODE
INC	INC. CONNECTION

ALL VOLTAGES EXCEPT HEATERS ARE MEASURED FROM SOCKET CONTACTS TO THE COMMON NEGATIVE WITH A 100Ω OHMS PER VOLT VOLTMETER. VOLTAGES ARE MEASURED DIRECTLY ACROSS SOCKET CONTACTS.

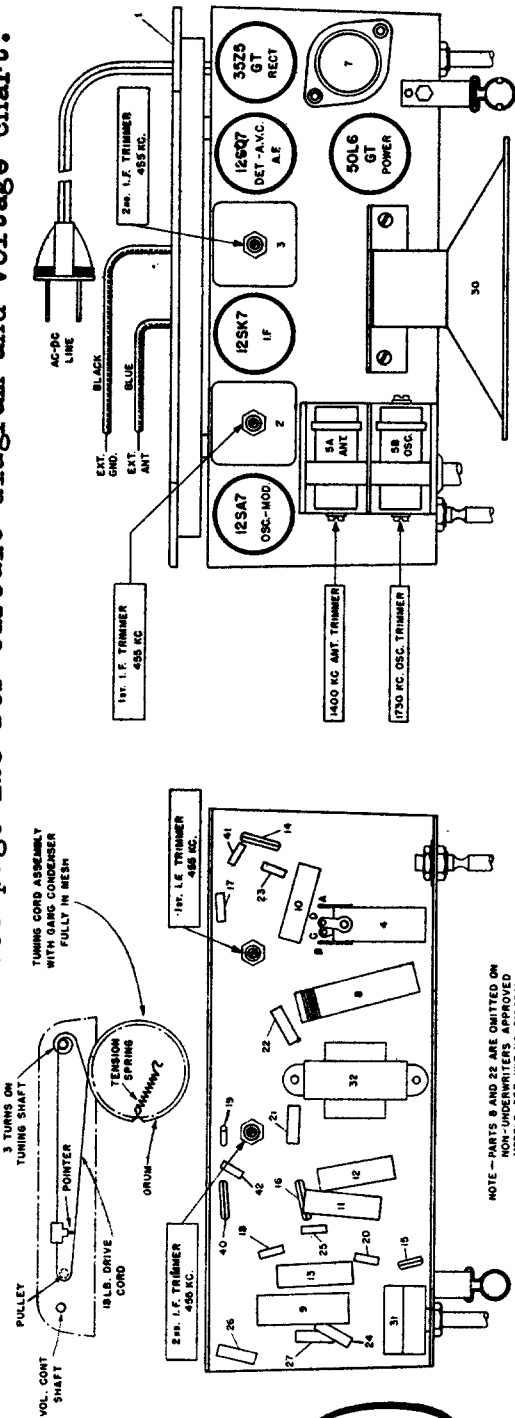
\*A.C. EXCEPT WHEN SET IS USED ON DC

VOLTAGE TABLE  
(BOTTOM VIEW OF CHASSIS)

Sentinel Radio Models 284W, 284I, 284NI, 284NA,  
 1U-284W, 1U-284I, 1U-284NI, 1U-284NA  
 COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

More service information and alignment on page 124.

See page 123 for circuit diagram and voltage chart.



For alignment procedure read tabulations from left to right, and make the adjustment marked (1) first, (2) next, (3) third.

Before starting alignment:

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.
- (c) PLACE LOOP ANTENNA IN THE SAME POSITION IN THE SAME POSITION IT WILL BE IN WHEN THE SET IS IN THE CABINET.

Sentinel Radio

124

MODELS 284W, 284I, 284NI, 284NA, 1U-284W, 1U-284I, 1U-284NI, 1U-284NA,

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

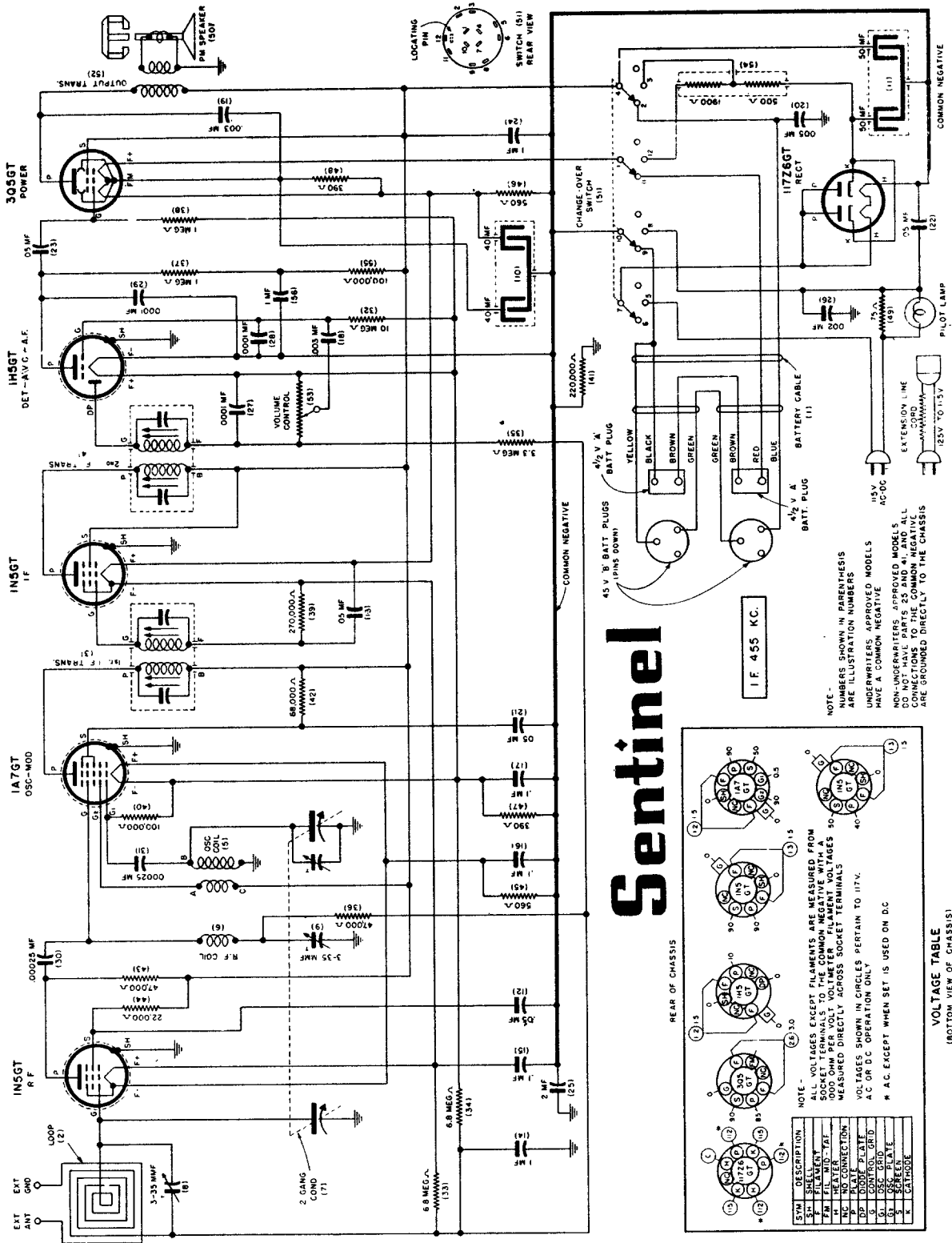
Steps	TEST OSCILLATOR			Refer to parts layout diagram for location of trimmers mentioned below:
	Set receiver dial to:	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	
1	Any point where no interfering signal is received.	455 K. C.	.02 MFD. condenser	High side to rear stator plates of tuning condenser. Low side to frame of condenser through a .02 MFD. blocking condenser.
2	Exactly 1730 K. C.	Exactly 1730 K. C.	.00025 MFD. condenser	Receiver blue antenna lead Receiver black ground lead
3	Approx. 1400 K. C.	Exactly 1400 K. C.	.00025 MFD. condenser	Receiver blue antenna lead Receiver black ground lead

Adjust each of the second I. F. transformer trimmers for maximum output— then adjust each of the first I. F. trimmers for maximum output.

Adjust 1700 K. C. oscillator trimmer for maximum output.

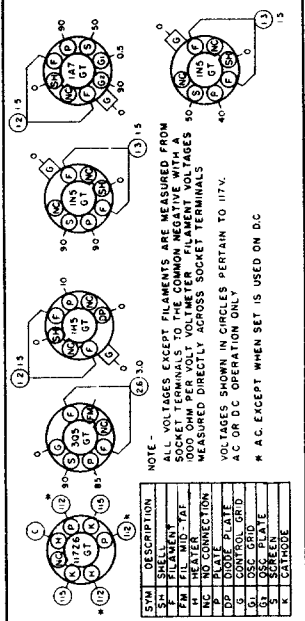
While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



## Sentinel

NOTE - NUMBERS SHOWN IN PARENTHESIS ARE ILLUSTRATION NUMBERS UNDERWRITERS APPROVED MODELS NON-UNDERWRITERS APPROVED MODELS DO NOT HAVE PARTS 25 AND 41, AND ALL COMPONENTS ARE GROUNDED DIRECTLY TO THE CHASSIS



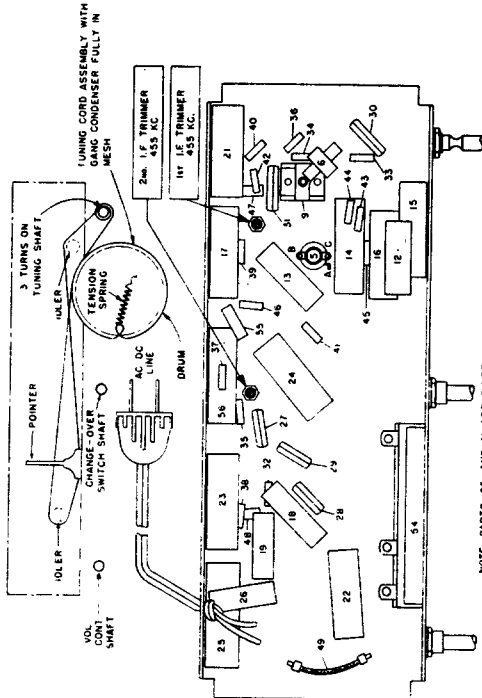
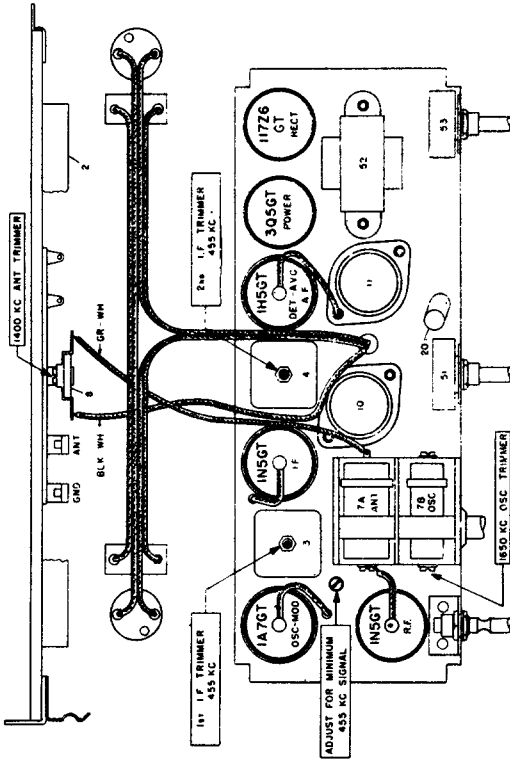
VOLTAGE TABLE (BOTTOM VIEW OF CHASSIS)

SOCKET	DESCRIPTION
1	30 SGT
2	INS GT
3	IA TGT
4	INS GT
5	INS GT
6	INS GT

See page 126 for more service information and alignment data.

### MODEL 285P and IU-285P

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



Before starting alignment:

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.
- (c) WHEN ADJUSTING 1650 KC OSCILLATOR TRIMMER AND 455 KC TRIMMER remove chassis from cabinet and disconnect the white-green and white-black loop connection wires from the 1400 KC loop antenna trimmer. Attach a 1 megohm resistor across these wires and feed output of test oscillator across the 1 megohm resistor.
- (d) THE 1400 KC LOOP ANTENNA TRIMMER is accessible through hole in cabinet back. It should be adjusted only after all other adjustments have been made and with the set mounted in the cabinet and the back IN CLOSED position. When aligning the 1400 KC trimmer connect test oscillator output to the "ANT" and "GND" clips that are attached to the inside of the cabinet back.

TEST OSCILLATOR					
Steps	Set receiver dial to:	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
1	Any point where no interfering signal is received	Exactly 455 K. C.	0.2 MFD. Condenser	High side to grid of 1A7GT tube. Low side to chassis (if non-Underwriter Approved) or Common Negative (if Underwriter Approved).	Adjust each of the 2nd I.F. transformer trimmer adjustment screws for maximum output, then adjust each of the 1st I.F. transformer trimmer adjustment screws for maximum output.
2	Rotate gang condenser to maximum capacity	Exactly 455 K. C.	See paragraph (C) above	See paragraph (U) above	Adjust R. F. coil trimmer for minimum 455 K. C. signal.
3	Rotate gang condenser to minimum capacity	Exactly 1650 K. C.	See paragraph (D) above	See paragraph (D) above	Adjust 1650 K. C. oscillator trimmer for maximum output.
4	Approximately 1400 K. C.	Approx. 1400 K. C.	See paragraph (D) above	See paragraph (D) above	Adjust 1400 K. C. antenna trimmer for maximum output.

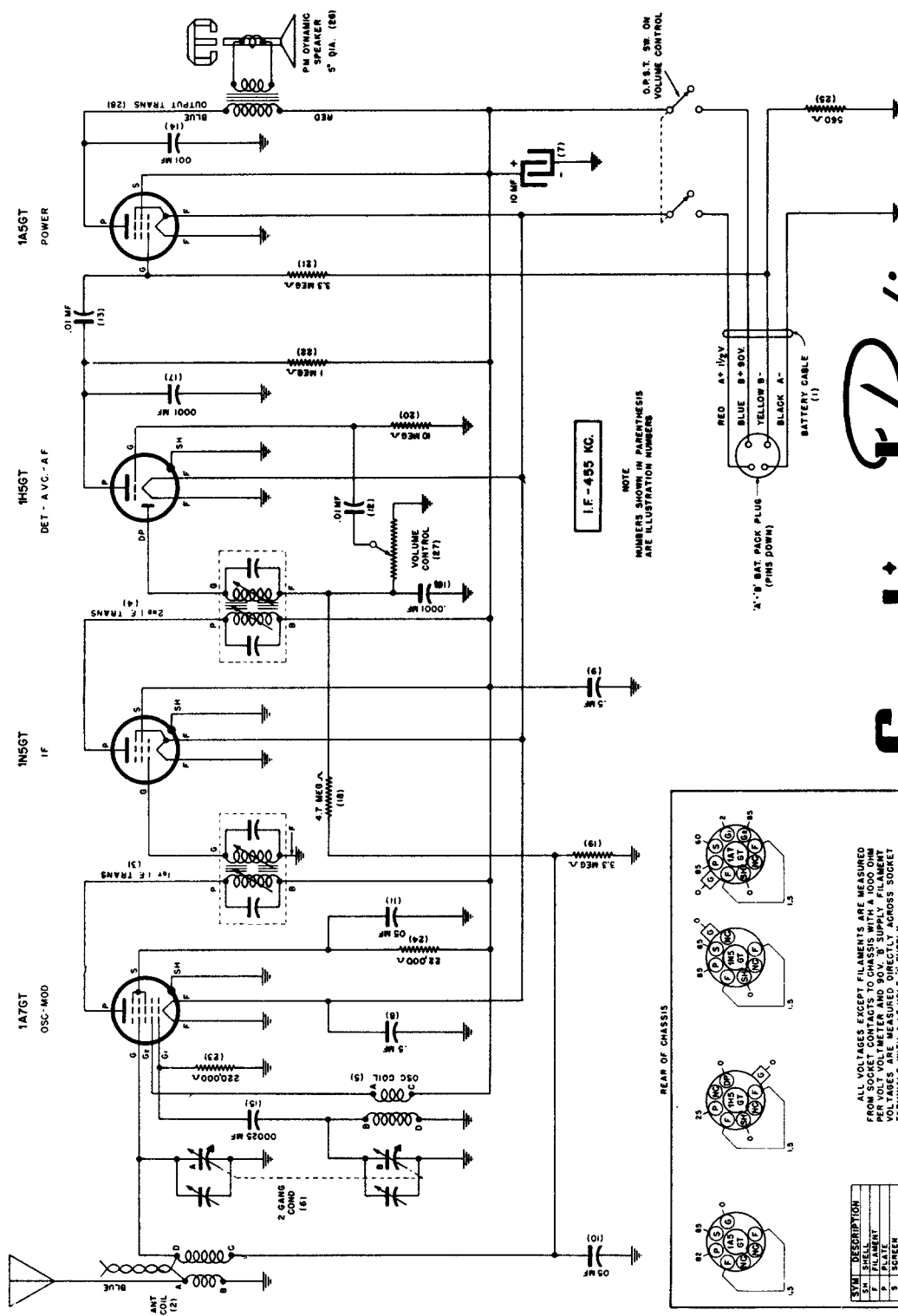
# Sentinel

# 126

## MODEL 285P and IU-285P

See page 125 for circuit diagram.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



# Sentinel Radio

MODEL 289-T

FOUR-TUBE

I.F. - 455 KC.

NOTE  
NUMBERS SHOWN IN PARENTHESIS  
ARE ILLUSTRATION NUMBERS

REAR OF CHASSIS

ALL VOLTAGES EXCEPT FILAMENT'S ARE MEASURED FROM SOCKET CONTACTS TO CHASSIS WITH A 1000 OHM RESISTOR IN SERIES WITH THE METER. FILAMENT VOLTAGES ARE MEASURED DIRECTLY ACROSS SOCKET TERMINALS WITH A 1.5 VOLT 'X' SUPPLY.

'X' BATTERY DRAIN - 300 MA  
'B' BATTERY DRAIN - 5 MA

SYM.	DESCRIPTION
1A	1A7GT
1N	1N56GT
1A5	1A56GT
F	FILAMENT
P	PLATE
5	SCREENING GRID
G	OSC. GRID
6	OSC. PLATE
7	CONTROL GRID
8	NO CONNECTION
9	NO CONNECTION

VOLTAGE TABLE  
(BOTTOM VIEW OF CHASSIS)

See page 128 for additional service material and alignment data.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. If more than one adjustment is required on any one band, make the adjustment marked (1) first, (2) next, etc.

Before starting alignment:

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.

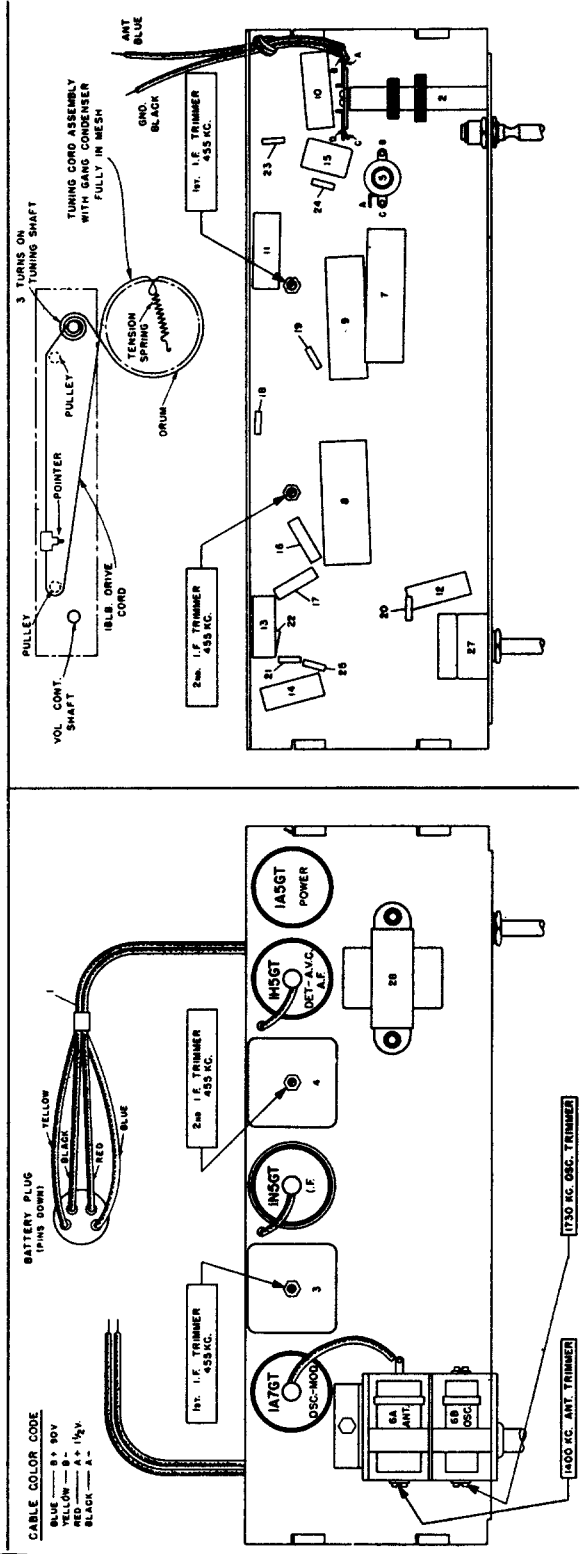
Steps	Set receiver dial to:	TEST OSCILLATOR	
		Adjust test oscillator frequency to:	Attach output of test oscillator to:
1	I.F. Any point where no interfering signal is received	.02 MFD. condenser	High side to grid terminal of 1A7GT tube DO NOT REMOVE CAP. Low side to receiver black ground lead.
2	Exactly 1730 K. C.	.00025 MFD. condenser	Receiver blue antenna lead Receiver black ground lead
3	Exactly 1400 K. C.	.00025 MFD. condenser	Receiver blue antenna lead Receiver black ground lead

Refer to parts layout diagram for location of trimmers mentioned below:

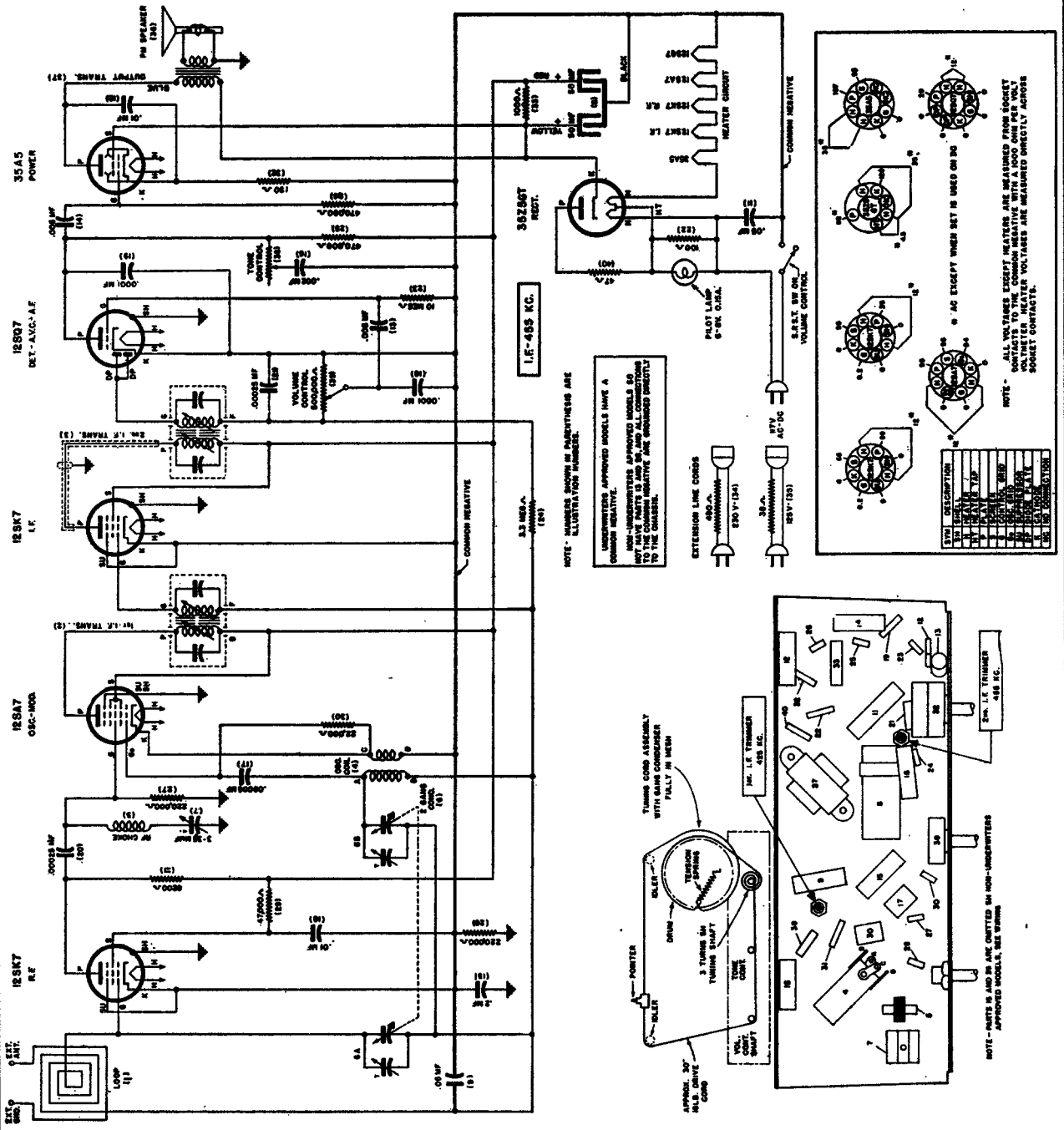
Adjust each of the second I. F. transformer trimmers for maximum output—then adjust each of the first I. F. trimmers for maximum output.

Adjust 1730 K. C. oscillator trimmer for maximum output.

While rocking gang condenser adjust 1400 K. C. antenna trimmer for maximum output.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**MODELS 293W, 293I, 293T  
1U-293W, 1U-293I, 1U-293T  
SIX TUBE  
AC-DC SUPERHETERODYNE RADIO**

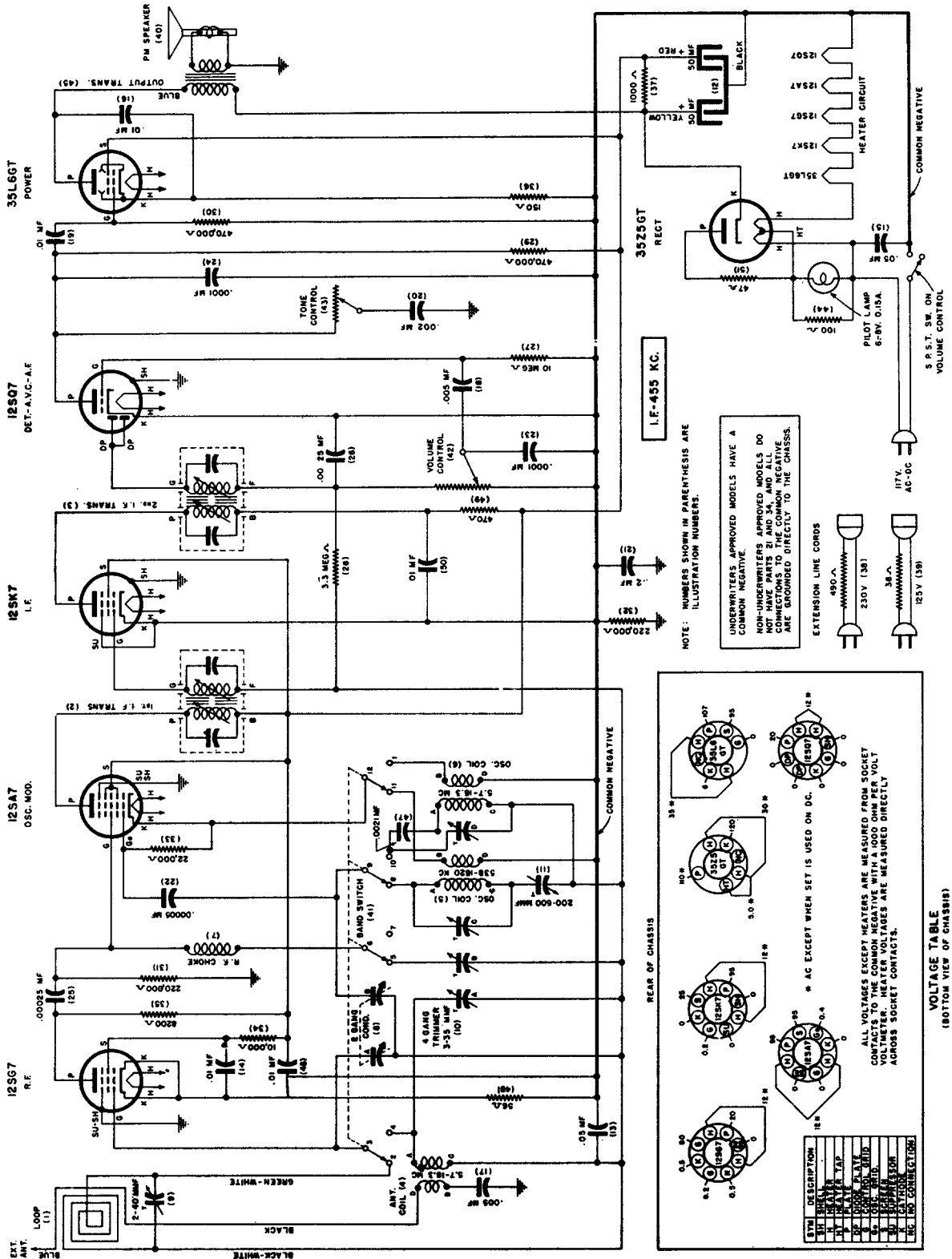
**SentinelRadio**

**129**

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



See page 131 for additional service material and alignment data.

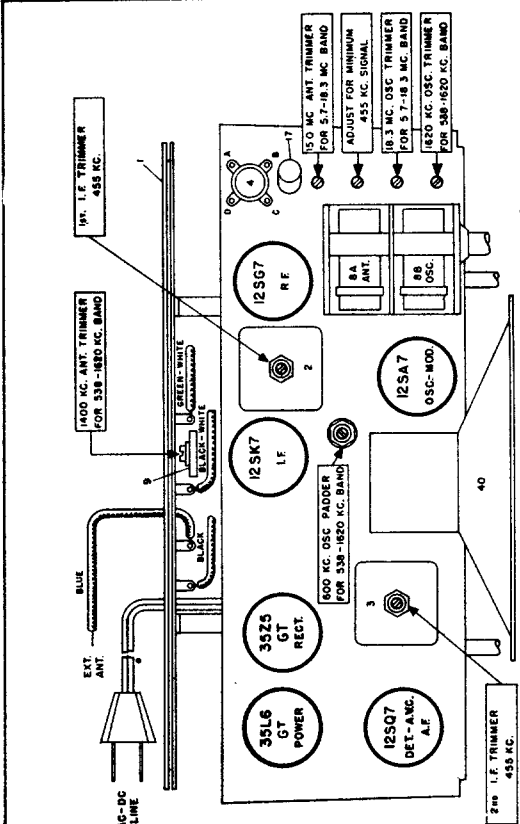
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Be sure to follow procedure carefully and in the order given—otherwise the receiver will be insensitive and the dial calibration incorrect. For alignment procedure read tabulations from left to right. Make the adjustment marked (1) first, (2) next, (3) third, etc.

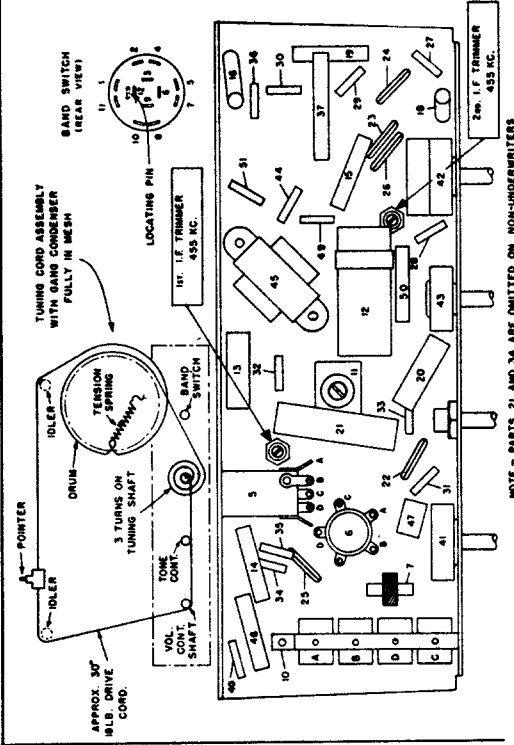
Before starting alignment:

- (a) Check tuning dial adjustment by tuning gang condenser until plates touch maximum capacity stop (completely in mesh) at which point the dial needle must be exactly even with the last line at the low frequency end of the dial calibration. If dial needle does not point exactly to last line move to correct position.
- (b) Use an accurately calibrated test oscillator with some type of output measuring device.
- (c) Place loop antenna in the same position it will be in when set is in the cabinet.

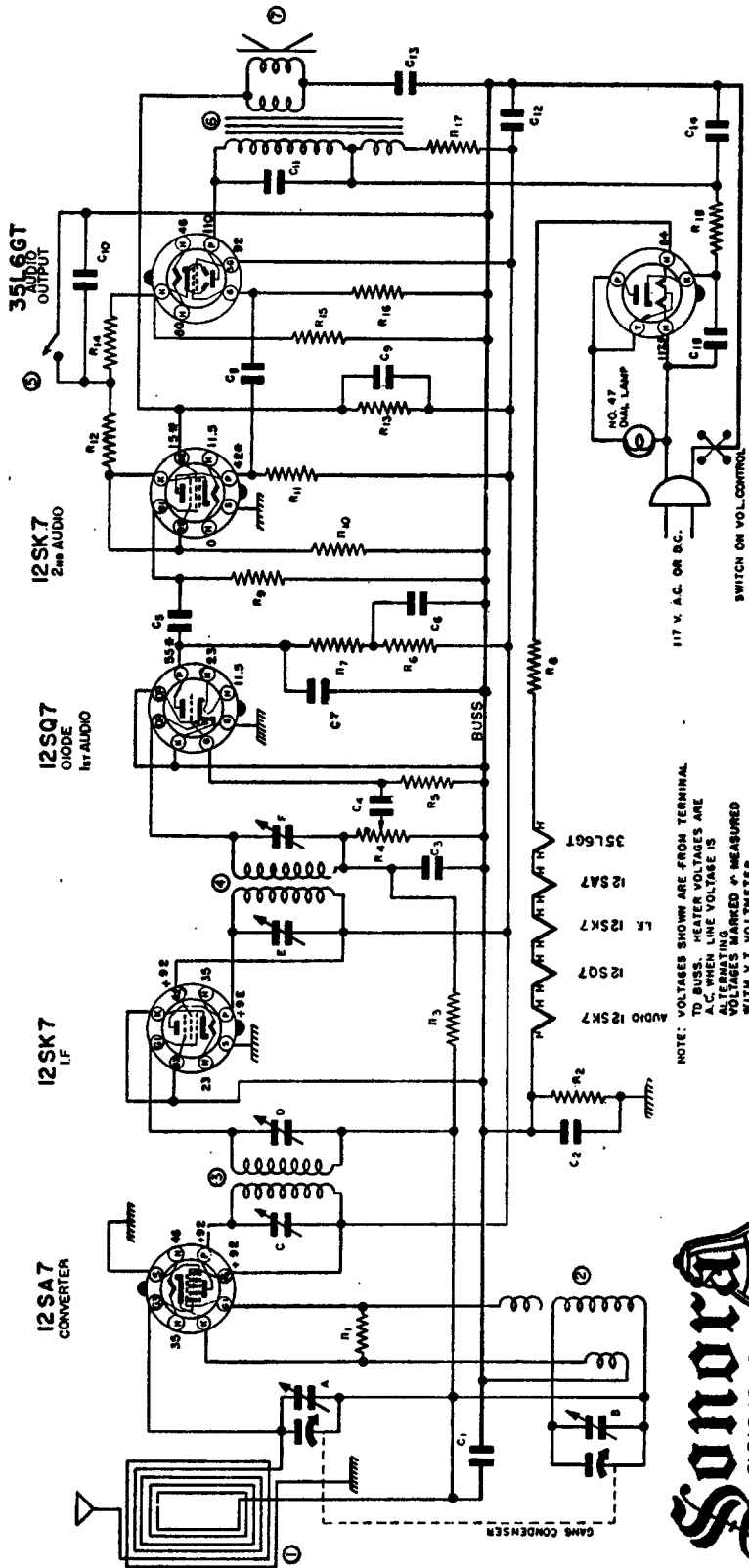
TEST OSCILLATOR						
Steps	Place band switch for operation on:	Set receiver dial to:	Adjust test oscillator frequency to:	Use dummy antenna in series with output of test oscillator consisting of:	Attach output of test oscillator to:	Refer to parts layout diagram for location of trimmers mentioned below:
1	I.F. alignment use any band position.	Any point where no interfering signal is received	Exactly 455 K.C.	0.2 Mfd. condenser	High side to rear stator plates of tuning condenser. Low side to frame of condenser through .01 Mfd. condenser	Adjust each of the second I.F. transformer trimmers for maximum output, then adjust each of the first I.F. transformer trimmers for maximum output.
2	1620 to 538 K.C. Band	Rotate gang condenser to Maximum Capacity	Exactly 455 K.C. Exactly 1620 K.C. Approx. 1400 K.C. Approx. 600 K.C.	.00025 Condenser	High side to <b>BLAUF</b> Antenna Lead. Low side to chassis through a .01 mfd. condenser.	Adjust R.F. coil trimmer for <u>minimum</u> 455 K.C. signal. Adjust 1620 K.C. oscillator trimmer for maximum output. While rocking gang condenser adjust 1400 K.C. loop trimmer for maximum output. While rocking gang condenser adjust 600 K.C. oscillator padder for maximum output.
3	5.7 to 18.3 M.C. Band	Exactly 18.3 M.C. Approx. 15 M.C.	Exactly 18.3 M.C. Approx. 15 M.C.	400 Ohm carbon resistor 400 Ohm carbon resistor		Adjust 18.3 M.C. oscillator trimmer for maximum output. While rocking gang condenser adjust 15 M.C. antenna trimmer for maximum output.



See page 130 for circuit diagram.



NOTE - PARTS 21 AND 34 ARE OMITTED ON NON-UNDERWRITERS APPROVED MODELS, SEE WIRING DIAGRAM



NOTE: VOLTAGES SHOWN ARE FROM TERMINAL TO BUSS. HEATER VOLTAGES ARE A.C. WHEN LINE VOLTAGE IS 117 V. A.C. OR D.C. VOLTAGES MARKED "V" MEASURED WITH V.T. VOLTMETER.

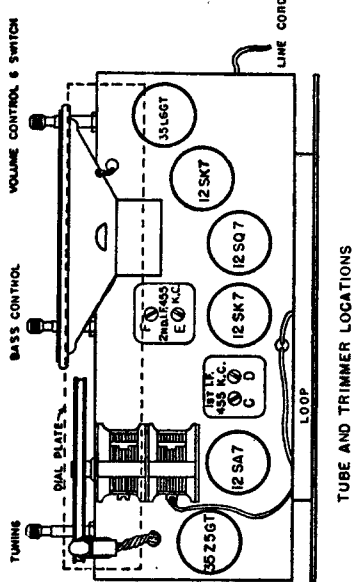
35Z5GT RECTIFIER

I.F.—455 K.C.

6 TUBE A.C.—D.C. SUPERHETERODYNE SINGLE BAND

APPROVED BY *[Signature]*  
DATE: 9-27-1945

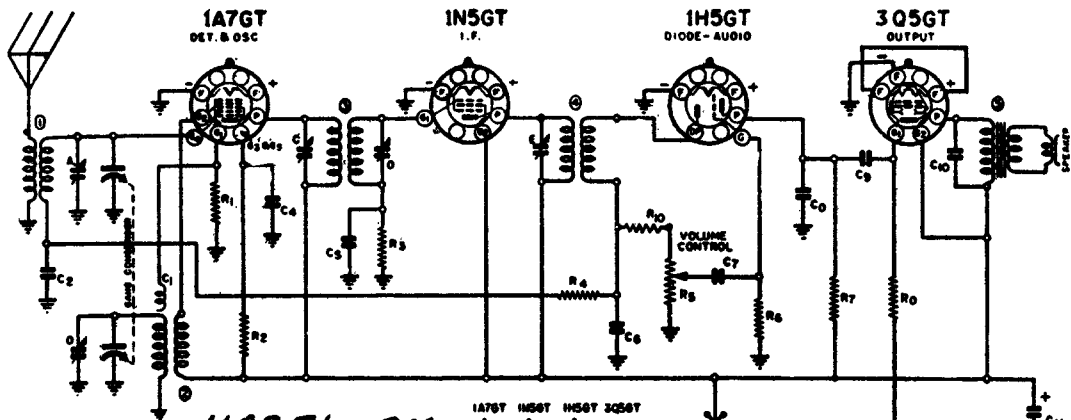
MODEL RDU



TUBE AND TRIMMER LOCATIONS

DIAG. PART NO.	DESCRIPTION	DIAG. PART NO.	DESCRIPTION
C1	.05 MFD. 200 V.	33	0HM 1.0 W. 20%
C2	.09 MFD. 200 V.	R8	N-4068
C3	100 MFD. MICA 500V.	R9	N-4061
C4	N-4894	R10	N-4895
C5	.003 MFD. 600 V.	R11	N-4899
C6	N-2063	R12	N-5029
C7	6 MFD. 150WV. ELECTROLYTIC	R13	N-4470
C8	N-1387	R14	N-4897
C9	.01 MFD. 400 V.	R15	N-4067
C10	N-1374	R16	N-4027
C11	.02 MFD. 400 V.	R17	N-4900
C12	N-3568	R18	N-4068
C13	.05 MFD. 200 V.	1	N-4517
C14	N-3858	2	N-4810
C15	.05 MFD. 400 V.	3	N-4872
R1	N-4028	4	N-4873
R2	N-4029	5	N-4942
R3	N-4030	6	N-4875
R4	N-4031	7	N-4886
R5	N-4032		
R6	N-1778		
R7	N-4893		

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



**MODEL RX**

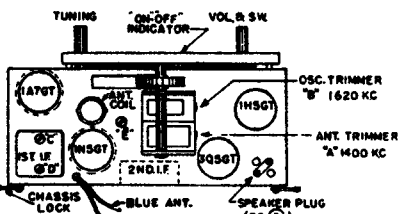
QWG. NO.	PART NO.	DESCRIPTION	QWG. NO.	PART NO.	DESCRIPTION
R-1	N-4082	22000 OHM	C-10	N-2712	.005 MFD. 600V.
R-2	N-4823	36,000 OHM	C-11	N-1367	5MFD. 50 V. ELECT.
R-3	N-1063	10 MEGOHM	R-1	N-4834	ANTENNA COIL
R-4	N-4277	2.2 MEGOHM	R-2	N-4835	OSCILLATOR COIL
R-5	N-3411	1MEG. VOL. CONTROL	R-3	N-3410	1ST. I.F. TRANS.
R-6	N-4277	2.2 MEGOHM	R-4	N-2548	2ND. I.F. TRANS.
R-7	N-1262	1 MEGOHM	R-5	N-3406	6\"/>

(ALL RESISTORS ARE .5 WATT SIZE.)

C-1	DESCRIPTION	N-4824	DESCRIPTION
C-1	CAPACITY IN OSCILLATOR COIL	N-4824	GANG CONDENSER
C-2	N-1345 .05 MFD. 200 V.	N-1326	BATTERY CABLE
C-4	N-1345 .05 MFD. 200 V.		
C-5	N-1376 .02 MFD. 400 V.		
C-6	N-1342 50 MMFD. MICA		
C-7	N-2702 .005 MFD. 600 V.		
C-8	N-1348 50 MMFD. MICA		
C-9	N-1344 .01 MFD. 400 V.		

1A7GT 1N5GT 1H5GT 3Q5GT

TUBE & TRIMMER LOCATIONS



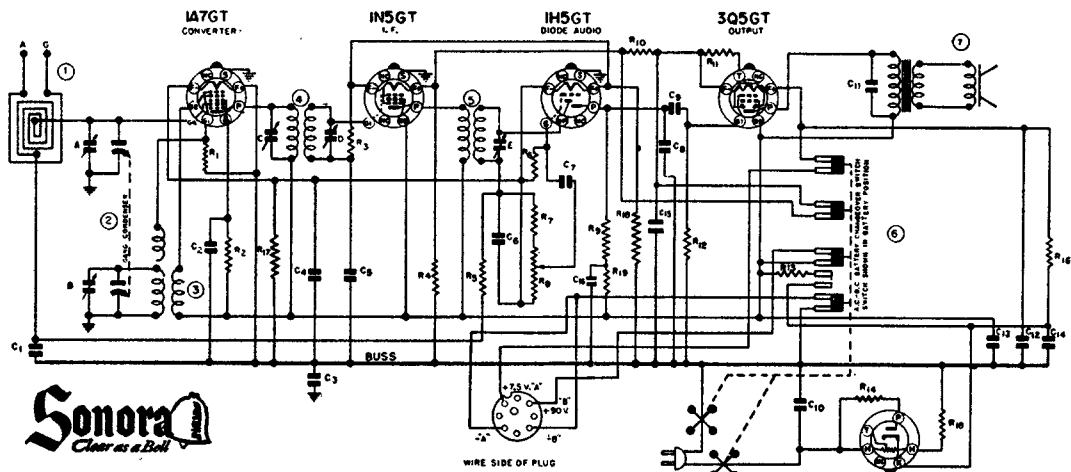
**I.F. 455 K.C.**

NOTE: TUBE SOCKETS SHOWN FROM WIRING SIDE

**4 TUBE - 1 1/2 VOLT SUPERHETERODYNE SINGLE BAND**

DRAWN *28* APPROVED *28*  
AUGUST 1945

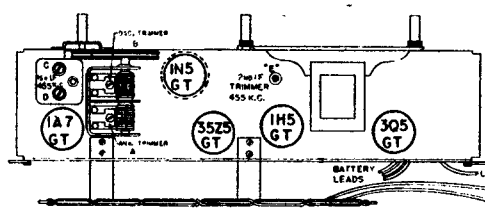
RX



**MODEL RY**

QWG. NO.	PART NO.	DESCRIPTION	QWG. NO.	PART NO.	DESCRIPTION
C-1	N-1345	.05 MFD. 200V. 20%	R-1	N-4081	27,000 OHM 3W 20%
C-2	N-1345	.05 MFD. 200V. 20%	R-2	N-4820	56,000 OHM 3W 20%
C-3	N-1376	.02 MFD. 200V. 20%	R-3	N-2653	10 MEGOHM 3W 20%
C-4	N-1376	.02 MFD. 200V. 20%	R-4	N-4280	3.30 OHM 3W 10%
C-5	N-1376	.02 MFD. 400V. 20%	R-5	N-4277	2.2 MEGOHM 3W 20%
C-6	N-1376	.02 MFD. MICA 20%	R-6	N-4277	2.2 MEGOHM 3W 20%
C-7	N-2702	.005 MFD. 600V. 20%	R-7	N-4083	47,000 OHM 3W 20%
C-8	N-1376	.02 MFD. MICA 20%	R-8	N-3406	1 MEG. VOL. CONTROL
C-9	N-1344	.01 MFD. 400V. 20%	R-9	N-1262	1 MEGOHM 3W 20%
C-10	N-1348	.05 MFD. 400V. 20%	R-10	N-5033	1E. OHM 3W 10%
C-11	N-2065	.005 MFD. 600V. 20%	R-11	N-4820	33.0 OHM 3W 10%
C-12			R-12	N-4277	2.2 MEGOHM 3W 20%
C-13			R-13	N-1776	1,500 OHM 3W 20%
C-14	N-2746	.60 MFD. 150V. ELECT.	R-14	N-1326	100 OHM 1W 10%
C-15			R-15	N-3406	1 MEG. VOL. CONTROL
C-16	N-5232	.005 MFD. 7.5 V. ELECT.	R-16	N-5054	2,150 OHM 5W 3%
C-17	N-1376	.02 MFD. 200V. 20%	R-17	N-1776	1,500 OHM 3W 20%
C-18	N-5088	LOOP ANTENNA COIL	R-18	N-5052	2,200 OHM 3W 20%
C-19	N-482	TWO GANG COND.	R-19	N-4988	25,000 OHM 20%
C-20	N-5122	OSCILLATOR COIL			
C-21	N-2647	1ST. I.F. TRANS.			
C-22	N-2648	2ND. I.F. TRANS.			
C-23	N-4149	CHANGEOVER SWITCH			
C-24	N-5833	6\"/>			

TUNING CONTROL



**I.F. 455 K.C.**

**5 TUBE BATTERY & 110-120 V. A.C.-D.C. SUPERHETERODYNE**

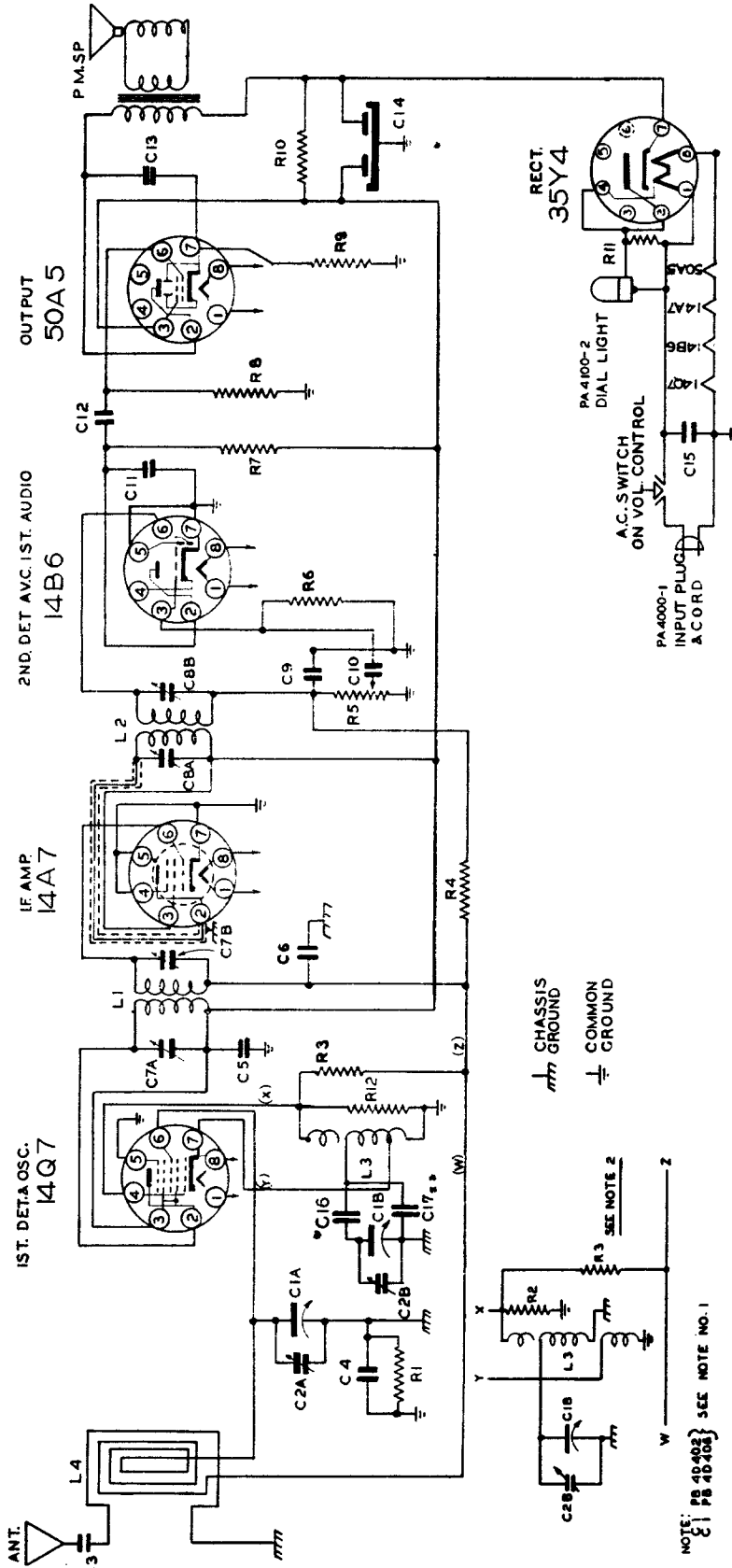
DRAWN *28* APP. *28*  
NOVEMBER, 1945

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

# 134

## SPARTON SUPERHETERODYNE MODEL 5-06 INTERMEDIATE FREQUENCY 4.56K.C. BOTTOM VIEWS OF ALL SOCKET CONNECTIONS

L1 NO.1 I.F. COIL ASSEMBLY AA6000-1  
L2 NO.2 I.F. COIL ASSEMBLY AA6000-2  
L3 B.C. OSCILLATOR COIL ASSEMBLY AB42200-1 (SEE NOTE NO.2)  
L4 LOOP ASSEMBLY AB43019-1 (SEE NOTE NO.1)  
NOTE NO.1: THE FIRST 4000 UNITS WILL BE ASSEMBLED USING C1A2 BE PB40402 AND L4 AS AB43019-1 AFTER FIRST 1000 C1A2 WILL BE PB40408 MOUNTED ON SPECIAL BRACKET PB41913 AND USING L4 AS AB43024 - ELIMINATING USE OF C1 (18 MFC. CONDENSER)  
NOTE NO.2: AFTER 15,000 UNITS USE L3 AS AA6752-3 AND HOOK UP AS SHOWN IN SECTIONAL DRAWING ELIMINATING C16 CONDENSER.



**THE SPARKS-WITHINGTON COMPANY**  
RADIO AND APPLIANCE DIVISION  
Service Department  
Jackson, Michigan, U. S. A.

- R1 150,000 Ω
- R2 22,000 Ω
- R3 15 MEGOHM
- R4 2.2 MEGOHM
- R5 .5 MEG. VOL. CONT.
- R6 5.6 MEGOHM
- R7 220,000 Ω
- R8 470,000 Ω
- R9 150 Ω
- R10 1200 Ω
- R11 82 Ω
- R12 47,000 Ω
- R13 .5W
- R14 .5W
- R15 .5W
- R16 .5W
- R17 .5W
- R18 .5W
- R19 .5W
- R20 .5W
- R21 .5W
- R22 .5W
- R23 .5W
- R24 .5W
- R25 .5W
- R26 .5W
- R27 .5W
- R28 .5W
- R29 .5W
- R30 .5W
- R31 .5W
- R32 .5W
- R33 .5W
- R34 .5W
- R35 .5W
- R36 .5W
- R37 .5W
- R38 .5W
- R39 .5W
- R40 .5W
- R41 .5W
- R42 .5W
- R43 .5W
- R44 .5W
- R45 .5W
- R46 .5W
- R47 .5W
- R48 .5W
- R49 .5W
- R50 .5W
- R51 .5W
- R52 .5W
- R53 .5W
- R54 .5W
- R55 .5W
- R56 .5W
- R57 .5W
- R58 .5W
- R59 .5W
- R60 .5W
- R61 .5W
- R62 .5W
- R63 .5W
- R64 .5W
- R65 .5W
- R66 .5W
- R67 .5W
- R68 .5W
- R69 .5W
- R70 .5W
- R71 .5W
- R72 .5W
- R73 .5W
- R74 .5W
- R75 .5W
- R76 .5W
- R77 .5W
- R78 .5W
- R79 .5W
- R80 .5W
- R81 .5W
- R82 .5W
- R83 .5W
- R84 .5W
- R85 .5W
- R86 .5W
- R87 .5W
- R88 .5W
- R89 .5W
- R90 .5W
- R91 .5W
- R92 .5W
- R93 .5W
- R94 .5W
- R95 .5W
- R96 .5W
- R97 .5W
- R98 .5W
- R99 .5W
- R100 .5W

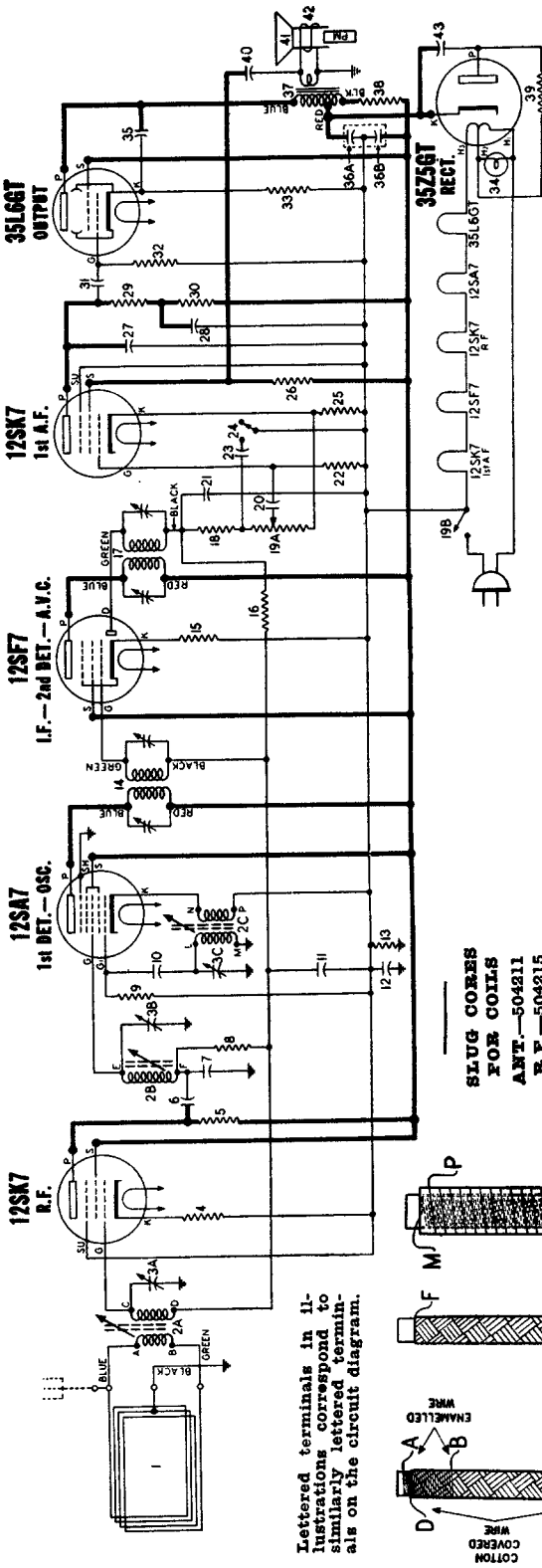
- C9 270 MFC. MICA
- C10 .01 MFD. 400V
- C11 510 MFC. MICA
- C12 .002 MFD. 400V
- C13 .01 MFD. 400V
- C14 .01 MFD. 400V
- C15 .05 MFD. 400V
- C16 .05 MFD. 200V
- C17 .05 MFD. 200V
- C18 .05 MFD. 200V
- C19 .05 MFD. 200V
- C20 .05 MFD. 200V
- C21 .05 MFD. 200V
- C22 .05 MFD. 200V
- C23 .05 MFD. 200V
- C24 .05 MFD. 200V
- C25 .05 MFD. 200V
- C26 .05 MFD. 200V
- C27 .05 MFD. 200V
- C28 .05 MFD. 200V
- C29 .05 MFD. 200V
- C30 .05 MFD. 200V
- C31 .05 MFD. 200V
- C32 .05 MFD. 200V
- C33 .05 MFD. 200V
- C34 .05 MFD. 200V
- C35 .05 MFD. 200V
- C36 .05 MFD. 200V
- C37 .05 MFD. 200V
- C38 .05 MFD. 200V
- C39 .05 MFD. 200V
- C40 .05 MFD. 200V
- C41 .05 MFD. 200V
- C42 .05 MFD. 200V
- C43 .05 MFD. 200V
- C44 .05 MFD. 200V
- C45 .05 MFD. 200V
- C46 .05 MFD. 200V
- C47 .05 MFD. 200V
- C48 .05 MFD. 200V
- C49 .05 MFD. 200V
- C50 .05 MFD. 200V
- C51 .05 MFD. 200V
- C52 .05 MFD. 200V
- C53 .05 MFD. 200V
- C54 .05 MFD. 200V
- C55 .05 MFD. 200V
- C56 .05 MFD. 200V
- C57 .05 MFD. 200V
- C58 .05 MFD. 200V
- C59 .05 MFD. 200V
- C60 .05 MFD. 200V
- C61 .05 MFD. 200V
- C62 .05 MFD. 200V
- C63 .05 MFD. 200V
- C64 .05 MFD. 200V
- C65 .05 MFD. 200V
- C66 .05 MFD. 200V
- C67 .05 MFD. 200V
- C68 .05 MFD. 200V
- C69 .05 MFD. 200V
- C70 .05 MFD. 200V
- C71 .05 MFD. 200V
- C72 .05 MFD. 200V
- C73 .05 MFD. 200V
- C74 .05 MFD. 200V
- C75 .05 MFD. 200V
- C76 .05 MFD. 200V
- C77 .05 MFD. 200V
- C78 .05 MFD. 200V
- C79 .05 MFD. 200V
- C80 .05 MFD. 200V
- C81 .05 MFD. 200V
- C82 .05 MFD. 200V
- C83 .05 MFD. 200V
- C84 .05 MFD. 200V
- C85 .05 MFD. 200V
- C86 .05 MFD. 200V
- C87 .05 MFD. 200V
- C88 .05 MFD. 200V
- C89 .05 MFD. 200V
- C90 .05 MFD. 200V
- C91 .05 MFD. 200V
- C92 .05 MFD. 200V
- C93 .05 MFD. 200V
- C94 .05 MFD. 200V
- C95 .05 MFD. 200V
- C96 .05 MFD. 200V
- C97 .05 MFD. 200V
- C98 .05 MFD. 200V
- C99 .05 MFD. 200V
- C100 .05 MFD. 200V

NOTE: C1 PB 40402 SEE NOTE NO.1  
C2 PB 40408

C1A8 VARIABLE CONDENSER [SEE NOTE]  
C2A8 TRIMMERS ON VARIABLE [SEE NOTE]  
C3 .001 MFD. 400V. PC40GL-102  
C4 .15 MFD. 400V. PC40GL-154  
C5 .05 MFD. 200V. PC40CK-503  
C6 .05 MFD. 200V. PC40CK-503  
C7A8 NO.1 I.F. TRIMMERS AB43500-1  
C7B8 NO.2 I.F. TRIMMERS AB43500-2

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 61T16 AND 61T26

Alignment on page 136.



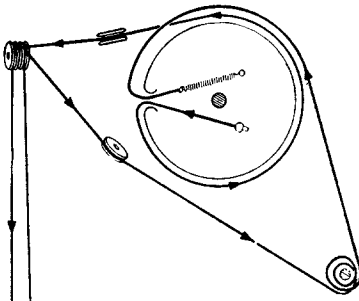
**CONDENSERS**

3-A, B, C 504086 Condenser—trimmer assembly  
A—10 to 160 Mmfd.  
B—20 to 270 Mmfd.  
C—20 to 270 Mmfd.

6 ..... 502271 Condenser—mica 260 Mmfd. 500 volt.  
7 ..... 502165 Condenser—mica 1,000 Mmfd. 500 volt.  
10 ..... 502159 Condenser—mica 50 Mmfd. 500 volt.  
11 ..... 502155 Condenser—1 Mfd. 200 volt.  
12 ..... 502158 Condenser—2 Mfd. 400 volt.  
20 ..... 502453 Condenser—.002 Mfd. 400 volt.  
21 ..... 502160 Condenser—mica 110 Mmfd. 500 volt.  
23 ..... 502470 Condenser—mica 110 Mmfd. 500 volt.  
27 ..... 502160 Condenser—mica 110 Mmfd. 500 volt.  
28 ..... 502153 Condenser—.05 Mfd. 200 volt.  
31 ..... 502156 Condenser—.01 Mfd. 400 volt.  
35 ..... 502151 Condenser—electrolytic  
36-A, B, ..... 500256 Condenser—150 volt  
40 ..... 502152 Condenser—.02 Mfd. 400 volt.  
43 ..... 502157 Condenser—.05 Mfd. 400 volt.

**RESISTORS**

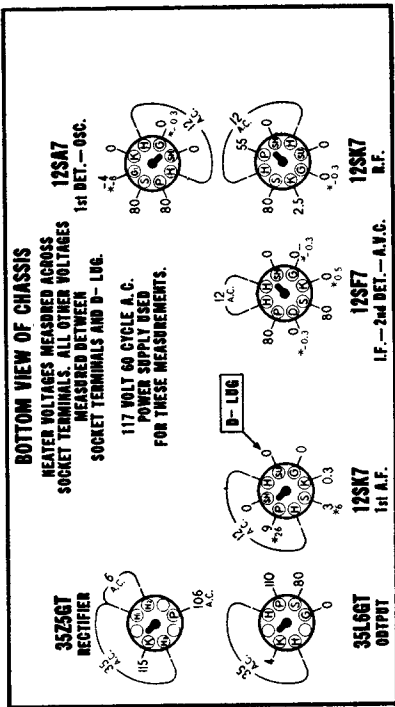
4 ..... 502140 Resistor—carbon 390 ohms 1/4 watt.  
5 ..... 502291 Resistor—carbon 4700 ohms 1/4 watt.  
8 ..... 502134 Resistor—carbon 470,000 ohms 1/4 watt.  
9 ..... 502130 Resistor—carbon 22,000 ohms 1/4 watt.  
13 ..... 502133 Resistor—carbon 220,000 ohms 1/4 watt.  
15 ..... 502264 Resistor—carbon 47 ohms 1/4 watt.  
16 ..... 502269 Resistor—carbon 3.3 Meg. 1/4 watt.  
18-A, ..... 502131 Resistor—carbon 47,000 ohms 1/4 watt.  
18-B, ..... 502145 Volume control 500,000 ohms (with switch)  
22 ..... 502136 Resistor—carbon 10 Meg. 1/4 watt.  
25 ..... 502128 Resistor—carbon 2200 ohms 1/4 watt.  
26 ..... 502135 Resistor—carbon 2.2 Meg. 1/4 watt.  
29 ..... 502133 Resistor—carbon 220,000 ohms 1/4 watt.  
30 ..... 502134 Resistor—carbon 130 ohms 1/4 watt.  
32 ..... 502138 Resistor—carbon 130 ohms 1/4 watt.  
38 ..... 502469 Resistor—carbon 1500 ohms 1/4 watt.  
39 ..... 502574 Resistor—carbon 33 ohms 1/2 watt.



## SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).

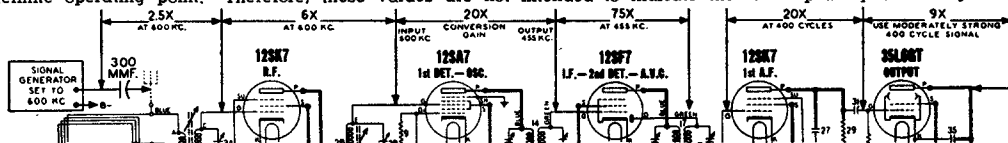
VOLUME ON FULL WITH NO SIGNAL DIAL TUNED TO 540 KC.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STEWART-WARNER MODELS 61T16 AND 61T26

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.

### ALIGNMENT PROCEDURE

Remove chassis and loop from cabinet. Solder approximately 8" of insulated wire to any B— connection (see voltage chart on opposite side for convenient B— location). Then reinstall chassis and loop in cabinet. The B— lead should extend from under the chassis at the back.

Connect ground lead of signal generator to B— lead.

Connect output meter across the speaker voice coil (terminals at back of speaker.)

Turn the tuning control knob clockwise as far as it will go (tuner mechanism is now in maximum open position with tuning slugs almost completely withdrawn from coils). Dial pointer should then point to 1600 Kc mark on scale. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
--	-----------------------------------	----------------------------	-----------------------	----------------	---------------------	--------------------

Set tuner mechanism to maximum open position by turning the tuning control knob clockwise as far as it will go (Dial pointer at 1600 Kc). Then check whether the positions of the tuning slugs correspond to the positions shown in Fig. 1 below. If settings are incorrect, rotate the individual core and threaded stem until desired position is reached. Note that threaded stem is prevented from moving by a dab of speaker cement at top.

.1 MFD. Condenser	Ungrounded terminal of trimmer No. 6 (see Fig. 2 below for location of trimmer.)	455 KC	Any point where it does not affect the signal.	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
300 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1600 KC	1600 KC	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
300 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1600 KC	Tune to 1600 KC generator signal	6	Broadcast R.F.	Adjust for maximum output.
				7	Broadcast Antenna	Adjust for maximum output.
300 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1400 KC	Tune to 1400 KC generator signal	Ant. coil tuning slug		Adjust position of slug for maximum output.
				R.F. coil tuning slug		Adjust position of slug for maximum output.
300 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1600 KC	Tune to 1600 KC generator signal	6	Broadcast R.F.	Recheck adjustment for maximum output.
				7	Broadcast Antenna	Recheck adjustment for maximum output.

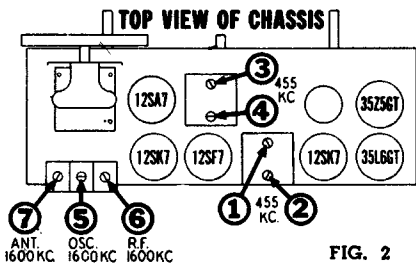


FIG. 2

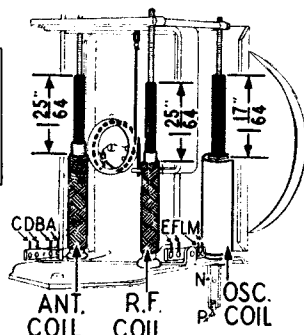


FIG. 1

#### SLUG TUNER ASSEMBLY (Drive Parts)

117057 Cord (8")  
114955 Clip on cord  
504012 Spring

#### AUDIO OSCILLATION

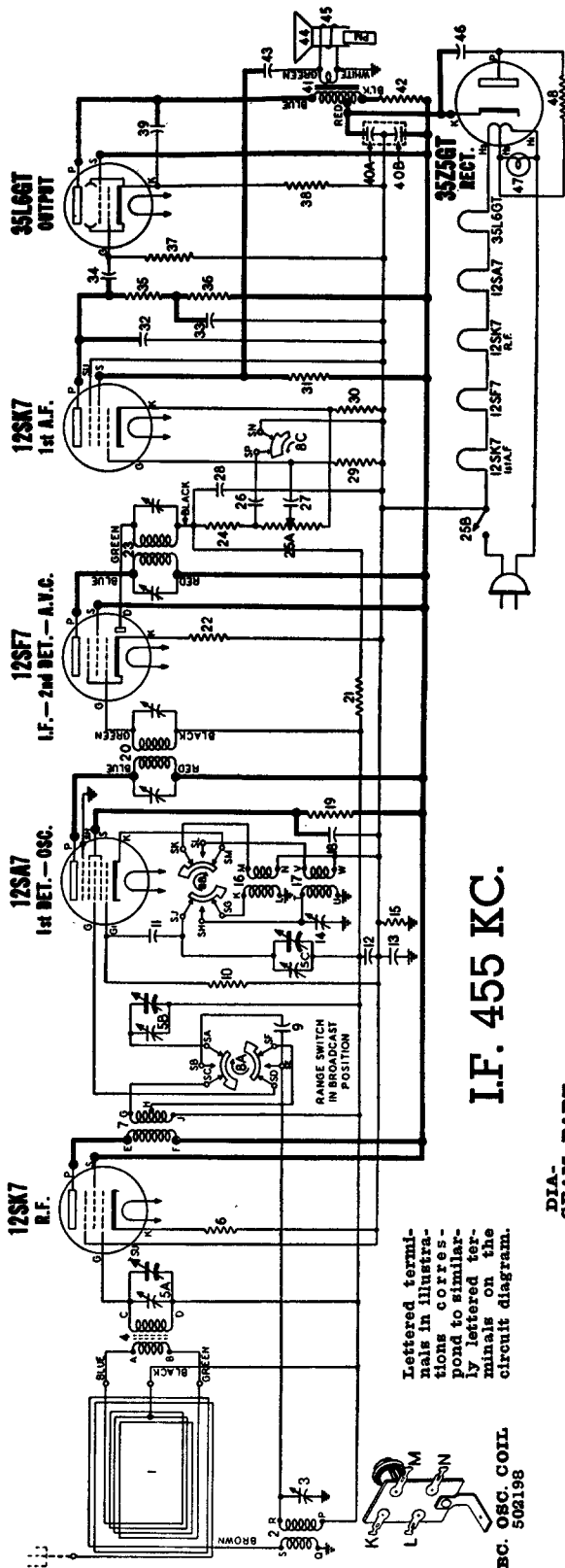
The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and, should it ever be necessary to replace the speaker or output transformer, it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under those conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the secondary of the output transformer.

# 136

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STEWART-WARNER MODEL 9000-B



Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

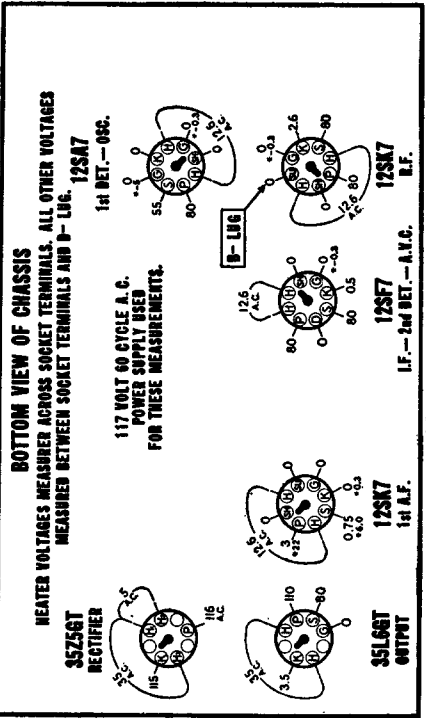
40A-40B OSC. COIL 502198

See page 138 for alignment data.

### SOCKET VOLTAGES

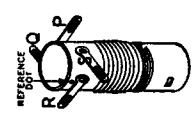
Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).

VOLUME ON FULL WITH NO SIGNAL      DIAL TUNED TO 540 KC.



### DESCRIPTION

DIA-GRAM PART NO.	DESCRIPTION
3	CONDENSERS
5A-5B-5C	Condenser—trimmer: 25 to 100 Mmfd.
9	Condenser—variable gang (with drum)
11	Condenser—315 Mmfd. 500 volt.
12	Condenser—mica—50 Mmfd. 500 volt.
13	Condenser—1 Mid. 200 volt.
14	Condenser—2 Mid. 200 volt.
18	Condenser—trimmer: 25 to 100 Mmfd.
14	Condenser—25 Mfd. 200 volt.
26	Condenser—.008 Mid. 400 volt.
27	Condenser—.002 Mid. 400 volt.
28	Condenser—mica—110 Mmfd. 500 volt.
32	Condenser—.05 Mfd. 200 volt.
33	Condenser—.05 Mfd. 200 volt.
34	Condenser—.04 Mfd. 400 volt.
35	Condenser—.01 Mfd. 400 volt.
38	Condenser—electrolytic A-40 Mid. 150 volt B-20 Mid. 150 volt
40A-40B	Condenser—.05 Mid. 400 volt.
43	502152
46	502157
	RESISTORS
6	Resistor—carbon 380 ohms 1/4 watt.
10	Resistor—carbon 22,000 ohms 1/4 watt.
15	Resistor—carbon 240,000 ohms 1/4 watt.
19	Resistor—carbon 4700 ohms 1/4 watt.
21	Resistor—carbon 3.3 Meg. 1/4 watt.
22	Resistor—carbon 47 ohms 1/4 watt.
24	Resistor—carbon 47,000 ohms 1/4 watt.
25A-25B	Volume control 500,000 ohms (with switch)
29	Resistor—carbon 220 ohms 1/4 watt.
30	Resistor—carbon 2.2 Meg. 1/4 watt.
31	Resistor—carbon 220,000 ohms 1/4 watt.
35-36	Resistor—carbon 220,000 ohms 1/4 watt.
37	Resistor—carbon 470,000 ohms 1/4 watt.
38	Resistor—carbon 130 ohms 1/4 watt.
42	Resistor—carbon 1500 ohms 1/4 watt.
48	Resistor—carbon 33 ohms 1/2 watt.



BC ANTENNA COUPLING COIL 502121



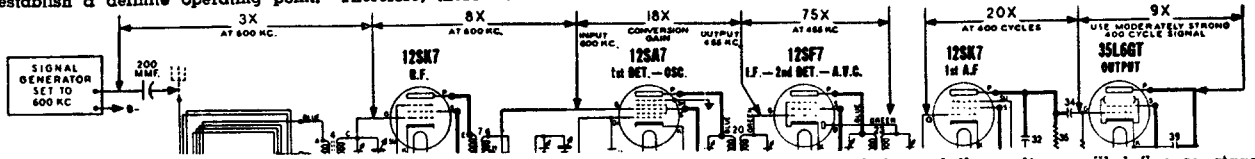
R.F. COIL 502142



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STEWART-WARNER MODEL 9000-B

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.

### ALIGNMENT PROCEDURE

Remove chassis and loop antenna from cabinet (do not remove loop of wire stapled to cabinet). After chassis has been removed, replace loop antenna in cabinet. Stand the chassis on one end and space it approximately same distance from loop as when installed in cabinet. Then reconnect all leads to loop antenna and to loop of wire stapled on cabinet.

Note that there are four calibrating lines stamped into the metal dial frame. When gang condenser is fully meshed, dial pointer should be in the position indicated by first line at the left. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

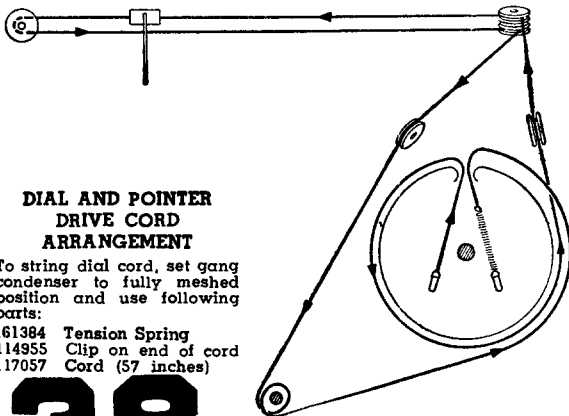
Connect an output meter across the speaker voice coil or from plate of 35L6GT tube to B— through a .1 Mfd. condenser (see voltage chart for convenient B— connection).

Connect ground lead from signal generator to B— through a .25 Mfd. condenser.

Set volume control at maximum volume position and use a weak signal from the signal generator.

Align this receiver in exactly the order shown below. Broadcast band must be aligned before short wave band.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF GENERATOR TO	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
200 MMFD. Mica Condenser	Control Grid of 12SA7	455 KC	Broadcast	Any point where it does not affect the signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast	Set pointer to 1500 KC reference line stamped into metal dial plate (first line at the right)	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
					6	Broadcast R.F.	
					7	Broadcast Antenna	
400 OHM Resistor	External Antenna Clip on Loop Frame	12 MC	Short Wave	Set pointer to 12 MC. Reference line stamped into metal dial plate (second line from the right)	8	Short Wave Oscillator	Adjust to bring in signal. Check to see if proper peak was obtained by tuning in image at approx. 11.1 MC. If image does not appear, realign at 12 MC. with trimmer screw farther out. Recheck image.
400 OHM Resistor	External Antenna Clip on Loop Frame	12 MC	Short Wave	Tune to 12 MC generator signal	9	Short Wave Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

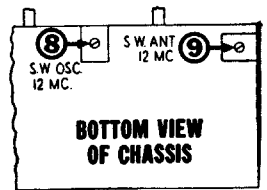
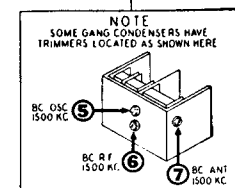
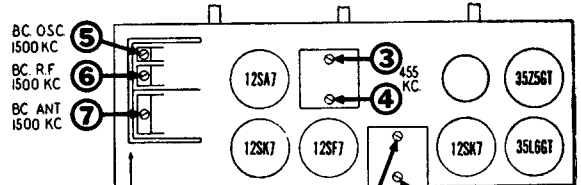


#### DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

- 161384 Tension Spring
- 114955 Clip on end of cord
- 117057 Cord (57 inches)

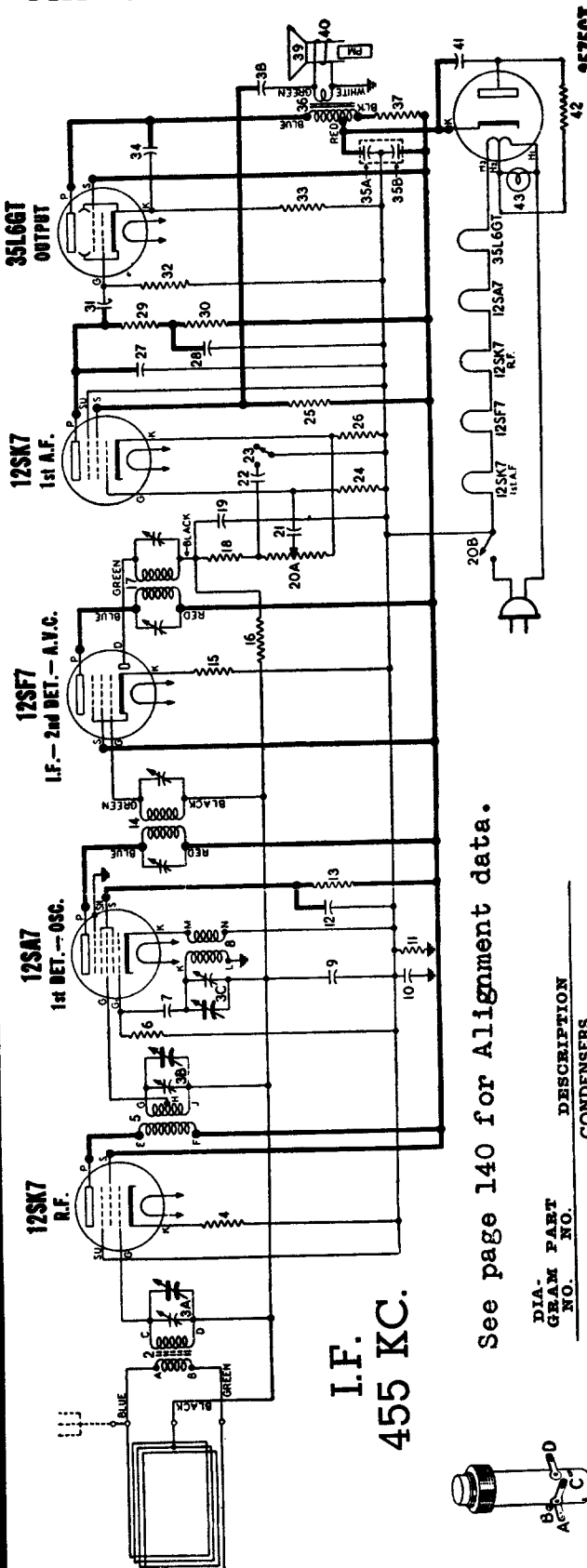
# 138



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STEWART-WARNER

### MODELS 9002-A, B, P, R.



See page 140 for Alignment data.

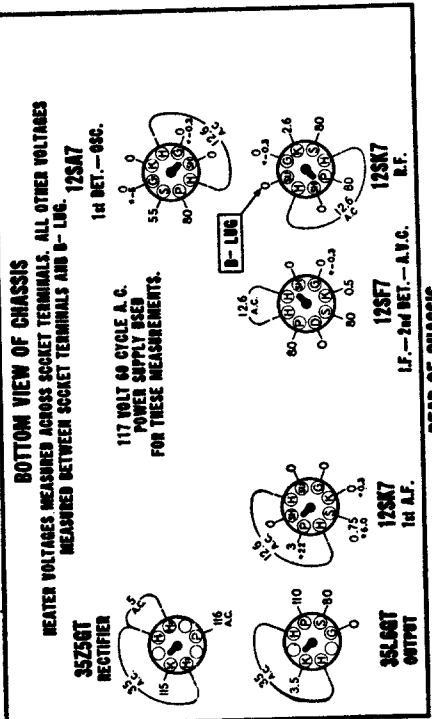
### SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).

VOLUME ON FULL WITH NO SIGNAL DIAL TUNED TO 540 KC.

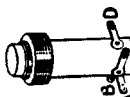
DIA. GRAM. PART NO.	DESCRIPTION
---------------------	-------------

- CONDENSERS**
- 3A-3B-3C 502123 Condenser variable gang (with drum).....
  - 7 502159 Condenser mica .50 Mmrd. 500 Volt.....
  - 9 502155 Condenser .1 Mid. 200 Volt.....
  - 10 502158 Condenser .2 Mid. 200 Volt.....
  - 12 502262 Condenser .25 Mid. 200 Volt.....
  - 19 502160 Condenser mica .110 Mmrd. 500 Volt.....
  - 21 502453 Condenser .002 Mid. 400 Volt.....
  - 22 502470 Condenser .008 Mid. 400 Volt.....
  - 27 502160 Condenser Mica. 110 Mmrd. 500 Volt.....
  - 31 502153 Condenser .05 Mid. 200 Volt.....
  - 38 502156 Condenser .004 Mid. 400 Volt.....
  - 34 502151 Condenser .01 Mid. 400 Volt.....
  - 35A,35B,500256 Condenser electrolytic A-40 Mid. 150 Volt..... B-20 Mid. 150 Volt.....
  - 38 502152 Condenser .02 Mid. 400 Volt.....
  - 41 502157 Condenser .05 Mid. 400 Volt.....
- RESISTORS**
- 4 502140 Resistor carbon 390 Ohms 1/4 Watt.....
  - 6 502130 Resistor carbon 22,000 Ohms 1/4 Watt.....
  - 11 502133 Resistor carbon 220,000 Ohms 1/4 Watt.....
  - 13 502291 Resistor carbon 4700 Ohms 1/4 Watt.....
  - 15 502264 Resistor carbon 47 Ohms 1/4 Watt.....
  - 16 502269 Resistor carbon 3.3 Meg. 1/4 Watt.....
  - 18 502131 Resistor carbon 47,000 Ohms 1/4 Watt.....
  - 20A-20B 502145 Volume control 500,000 Ohms (with switch)
  - 24 502136 Resistor carbon 10 Meg. 1/4 Watt.....
  - 25 502135 Resistor carbon 2.2 Meg. 1/4 Watt.....
  - 26 502128 Resistor carbon 2200 Ohms 1/4 Watt.....
  - 28 502134 Resistor carbon 220,000 Ohms 1/4 Watt.....
  - 29-30 502134 Resistor carbon 470,000 Ohms 1/4 Watt.....
  - 32 502134 Resistor carbon 130 Ohms 1/4 Watt.....
  - 33 502469 Resistor carbon 1500 Ohms 1 Watt.....
  - 37 502469 Resistor carbon 33 Ohms 1/2 Watt.....
  - 42 502574 Resistor carbon 33 Ohms 1/2 Watt.....

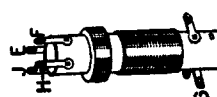


REAR OF CHASSIS

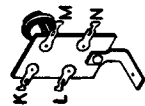
\*—Measured with vacuum tube voltmeter



REFERENCE NOTCH ANT. COUPLING COIL 502142



R. F. COIL 502143



OSC. COIL 502198

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 9002-A, B, P, R.

Remove chassis and loop antenna from cabinet. Reconnect loop to chassis and space it approximately same distance from chassis as when installed in cabinet.

Note that there are four calibrating lines stamped into the metal dial frame. When gang condenser is fully meshed, dial pointer should be in the position indicated by first line at the left. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

Connect an output meter across the speaker voice coil or from plate of 35L6GT tube to B— through a .1 Mfd. condenser (see voltage chart for convenient B— connection).

Connect ground lead from signal generator to B— through a .25 Mfd. condenser.

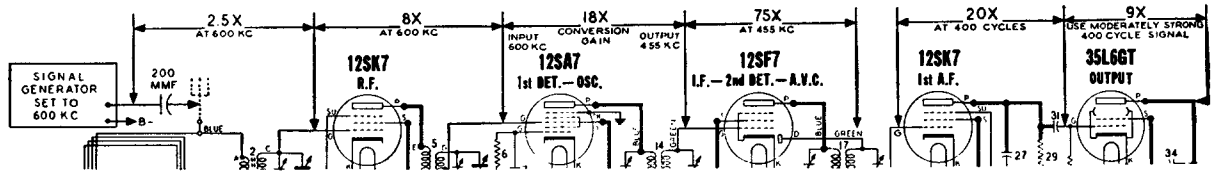
Set volume control at maximum volume position and use a weak signal from the signal generator.

## APPROXIMATE STAGE GAIN DATA

A vacuum tube voltmeter may be used for audio gain measurements. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. Observe following precautions:

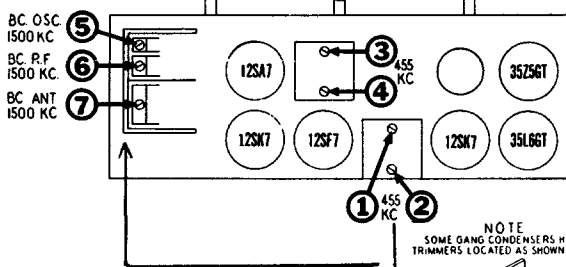
1. For all gain measurements connect signal generator as shown. Use 600 KC. signal with 400 cycle modulation (use nearby frequency if local station interferes.)
2. For R.F. and I.F. measurements connect negative terminal of a 3 volt battery (two 1½ volt cells in series) to A.V.C. lead and positive terminal to B—. This provides a definite operating point. IMPORTANT: Disconnect battery when measuring audio stage gains.
3. Be sure radio is carefully tuned to generator signal (use weak signal for sharp tuning.)
4. When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.

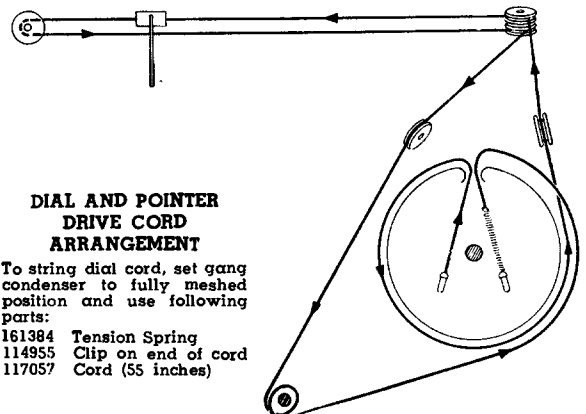
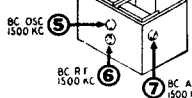


DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECTION OF SIG. GENERATOR OUTPUT TO RECEIVER	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
200 MMFD. Mica Condenser	Control Grid of 12SA7	455 KC	Any point where it does not affect the signal	1-2 3-4	2nd I.F. 1st I.F.	Adjust for maximum output. Then repeat adjustment.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Set pointer to 1500 KC reference line stamped into metal dial plate (first line at the right)	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Tune to 1500 KC generator signal	6	Broadcast R.F.	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Tune to 1500 KC generator signal	7	Broadcast Antenna	Adjust for maximum output.

TOP VIEW OF CHASSIS



NOTE  
SOME GANG CONDENSERS HAVE TRIMMERS LOCATED AS SHOWN HERE

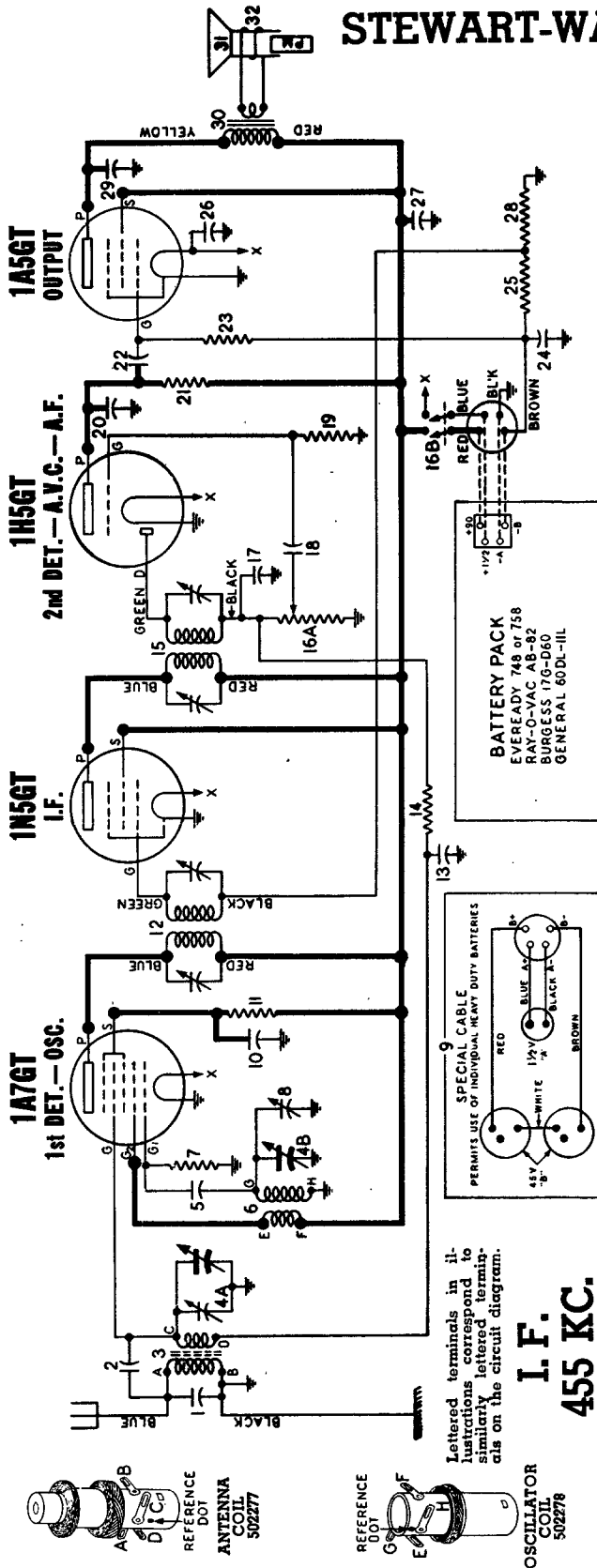


DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:  
161384 Tension Spring  
114955 Clip on end of cord  
117057 Cord (55 inches)

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 9005-A, B.

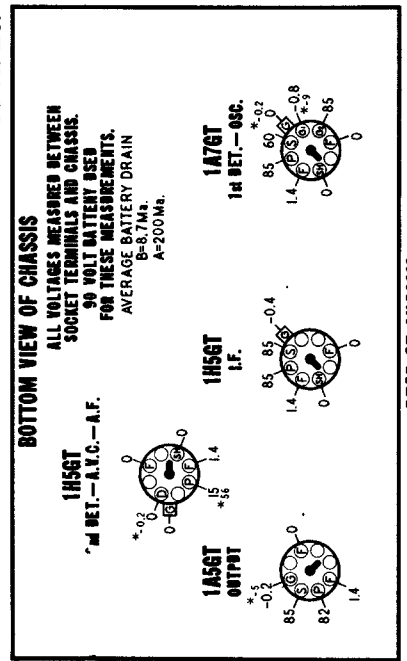
Alignment on page 142, over.



Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

**I. F.  
455 KC.**

**SOCKET VOLTAGES**  
Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).  
**VOLUME ON FULL WITH NO SIGNAL DIAL TUNED TO 540 KC.**



**REAR OF CHASSIS**  
\*—Measured with vacuum tube voltmeter

DIA. GRAM NO.	PART NO.	DESCRIPTION
1	502159	Condenser—mica—50 Mmfd. 500 volt.....
2	502411	Condenser—2 Mmfd. 500 volt.....
4A, B	119528	Condenser—variable gang.....
5	502159	Condenser—mica—50 Mmfd. 500 volt.....
8	119719	Condenser—trimmer 5 to 50 Mmfd.....
10	502157	Condenser—.05 Mid. 400 volt.....
13	502157	Condenser—.05 Mid. 400 volt.....
17	502160	Condenser—mica—110 Mmfd. 500 volt.....
18	502151	Condenser—.01 Mid. 400 volt.....
20	502271	Condenser—mica—260 Mmfd. 500 volt.....
22	502151	Condenser—.01 Mid. 400 volt.....
24	502286	Condenser—electrolytic 10 Mid. 25 volt.....
26	502263	Condenser—.25 Mid. 150 volt.....
27	502262	Condenser—.25 Mid. 200 volt.....
29	502260	Condenser—.002 Mid. 600 volt.....
<b>CONDENSERS</b>		
1	502132	Resistor—carbon—250,000 ohms 1/4 watt.....
7	502269	Resistor—carbon—3 Mes. 1/4 watt.....
14	502269	Resistor—carbon—3 Mes. 1/4 watt.....
16A, B	161325	Volume control (with switch) 500,000 ohms.....
19	502269	Resistor—carbon—3.3 Mes. 1/4 watt.....
21	502267	Resistor—carbon—680,000 ohms 1/4 watt.....
23	502268	Resistor—carbon—1 Mes. 1/4 watt.....
25	502127	Resistor—carbon—560 ohms 1/4 watt.....
28	502264	Resistor—carbon—47 ohms 1/4 watt.....
<b>RESISTORS</b>		

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 9005-A, B.

When gang condenser is fully meshed, dial pointer should be in the position indicated by the 54 mark on the dial. If it is set incorrectly, release the pointer clip on the dial cord and reposition pointer.

Connect an output meter across speaker voice coil or from the plate of the 1A5GT tube to chassis through a 0.1 Mfd. condenser.

Connect the ground lead of the signal generator to the receiver ground lead (black) or to the chassis.

Set volume control to maximum volume position and use a weak signal from the signal generator.

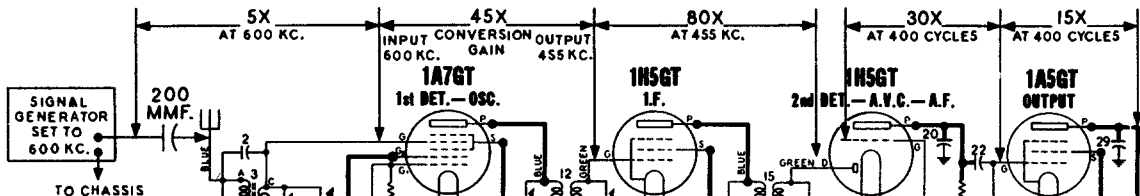
DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
.1 MFD. Condenser	Grid cap on 1A7GT tube	455 KC	Any point where it does not affect the signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
200 MMFD. Mica Condenser	External antenna lead (blue)	1500 KC	1500 KC	5	Broadcast Oscillator	Adjust for maximum output.
200 MMFD. Mica Condenser	External antenna lead (blue)	1500 KC	Tune to 1500 KC generator signal	6	Broadcast Antenna	Adjust for maximum output.

## APPROXIMATE STAGE GAIN DATA

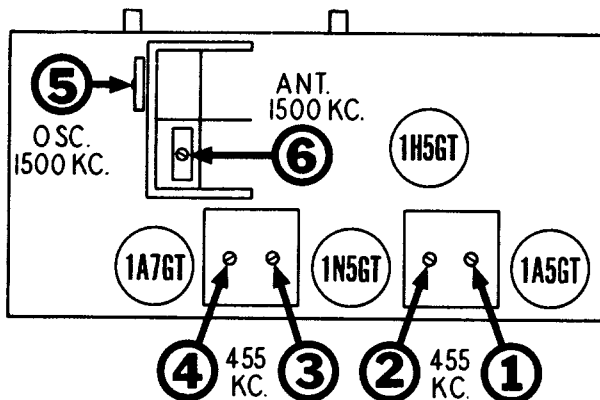
Be sure R.F. and I.F. stages are accurately aligned before measuring gain. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. A vacuum tube voltmeter may be used for audio gain measurements. Observe following precautions.

- For all gain measurements connect signal generator as shown. Use 600 KC signal with 400 cycles modulation (use nearby frequency if local station interferes.)
- For R.F. and I.F. measurements connect negative terminal of a 1½-volt battery to A.V.C. lead and positive terminal to chassis. This provides a definite operating point.
- Be sure radio is carefully tuned to generator signal (use weak signal for sharp tuning.)
- When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 1½ volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



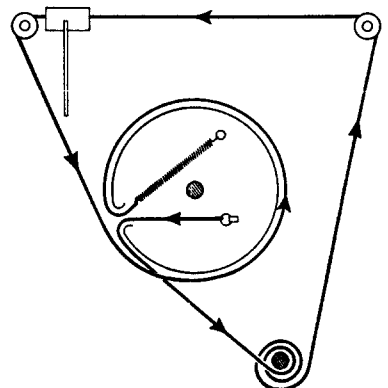
Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.



### DIAL AND POINTER DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position and use following parts:

- 114955 Clip on end of cord
- 117057 Cord (36 inches)
- 119087 Ring for dial cord
- 114968 Tension Spring

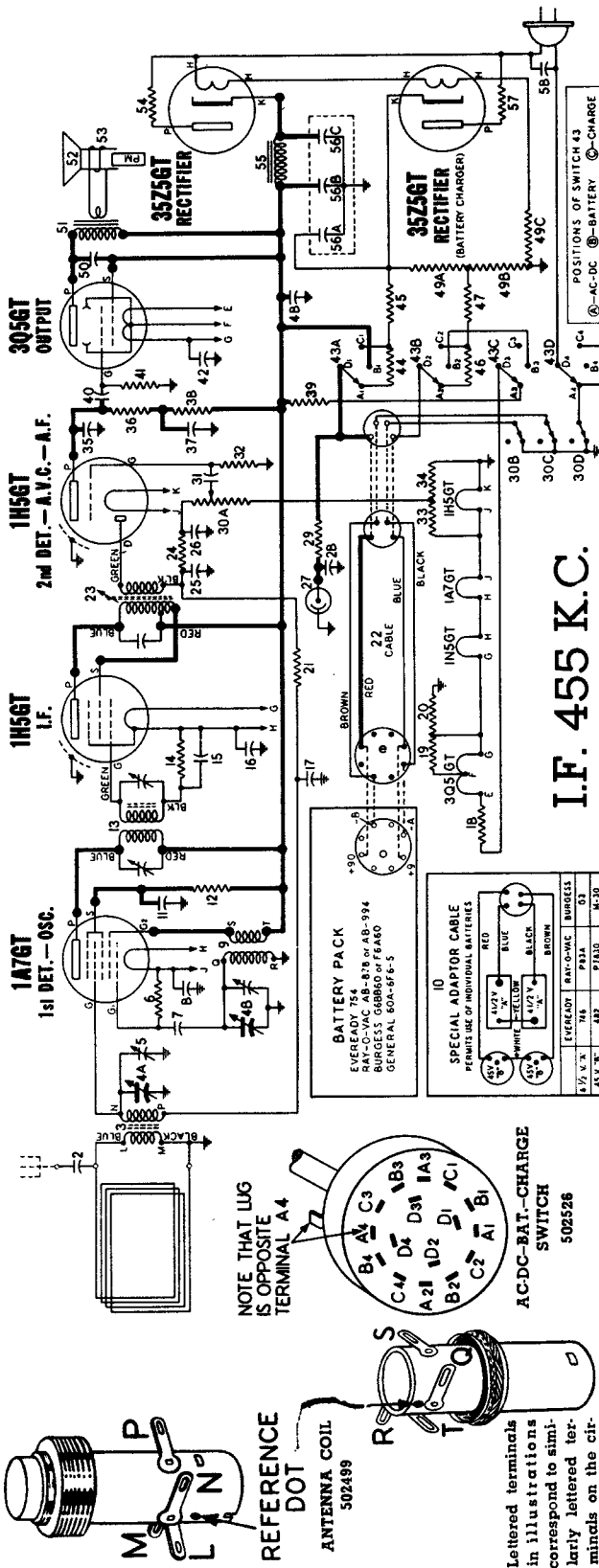


### POWER LINE OPERATION

The following power pack may be used to operate this set on 110 volt 50-60 cycle A.C. power lines.

Porta-Power Model "H"  
This unit is manufactured by the General Transformer Corp., 1250 W. Van Buren St., Chicago, Ill.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 9007-A,F,G.



I.F. 455 K.C.

See page 144 for alignment data.

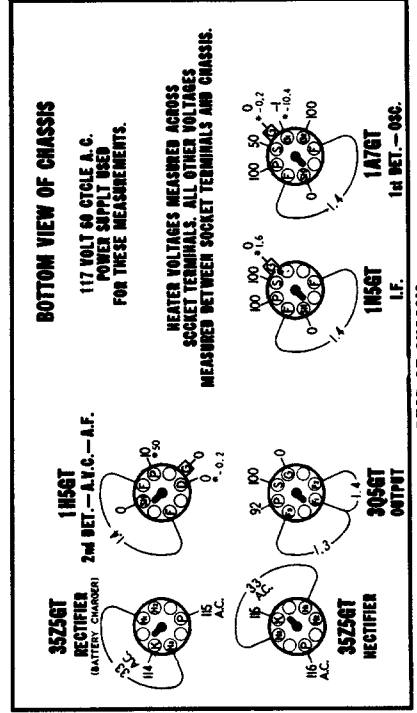
OSC. COIL  
502498

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).

VOLUME ON FULL WITH NO SIGNAL  
"AC-DC-BAT.-CHARGE" SWITCH IN "AC-DC" POSITION  
DIAL TUNED TO 540 KC.



**RESISTORS**

6	502133	Resistor—carbon 220,000 ohms 1/4 watt
12	502131	Resistor—carbon 47,000 ohms 1/4 watt
14	502136	Resistor—carbon 10 Meg. 1/4 watt
18	502455	Resistor—carbon 27 ohms 1/4 watt
19	502457	Resistor—carbon 330 ohms 1/4 watt
20	502458	Resistor—carbon 430 ohms 1/4 watt
21	502269	Resistor—carbon 3.3 Meg. 1/4 watt
22	502132	Resistor—carbon 100,000 ohms 1/4 watt
29	502269	Resistor—carbon 3.3 Meg. 1/4 watt
30-A,B,C,D	502525	Volume control (with switch) 1 Meg.
32	502269	Resistor—carbon 3.3 Meg. 1/4 watt
33	502456	Resistor—carbon 220 ohms 1/4 watt
34	502269	Resistor—carbon 1 Meg. 1/4 watt
36	502269	Resistor—carbon 1 Meg. 1/4 watt
38	502134	Resistor—carbon 470,000 ohms 1/4 watt
39	500712	Resistor—wire wound 1830 ohms 5 watt
41	502133	Resistor—carbon 2.2 Meg. 1/4 watt
44	502268	Resistor—carbon 15,000 ohms 1/4 watt
45	502459	Resistor—carbon 6800 ohms 1/4 watt
46	502457	Resistor—carbon 330 ohms 1/4 watt
47	502455	Resistor—carbon 27 ohms 1/4 watt
49-A,B,C	500715	Resistor—wire wound A—1460 ohms 10 watt B—155 ohms 1 watt C—310 ohms 10 watt
54	502454	Resistor—wire wound 47 ohms 1 watt
57	502454	Resistor—wire wound 47 ohms 1 watt

**CONDENSERS**

2	502150	Condenser—.004 Mfd. 600 volt
4-A, B	502494	Condenser—variable gang
5	119132	Condenser—trimmer 2 to 15 Mmfd.
7	502159	Condenser—mica 50 Mmfd. 500 volt
8	502153	Condenser—.05 Mfd. 200 volt
11	502547	Condenser—electrolytic 4 Mfd. 150 volt
15	502153	Condenser—.05 Mfd. 200 volt
16	502155	Condenser—.1 Mfd. 200 volt
17	502153	Condenser—.05 Mfd. 200 volt
25, 26	502159	Condenser—mica 50 Mmfd. 500 volt
28	502155	Condenser—.1 Mfd. 200 volt
31	502156	Condenser—.004 Mfd. 400 volt
35	502160	Condenser—mica 110 Mmfd. 500 volt
37	502155	Condenser—.1 Mfd. 200 volt
40	502151	Condenser—.01 Mfd. 400 volt
42	502527	Condenser—electrolytic 50 Mfd. 25 volt
48	502155	Condenser—.1 Mfd. 200 volt
50	502453	Condenser—.002 Mfd. 400 volt
56-A, B, C	500714	Condenser—electrolytic A—20 Mfd. 150 volt B—20 Mfd. 200 volt C—20 Mfd. 200 volt
58	502153	Condenser—.05 Mfd. 200 volt

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODELS 9007-A,F,G. ALIGNMENT PROCEDURE

Slide chassis partially out of cabinet by removing staples at each side of wood shelf and pulling entire shelf back about 2 inches. Do not disturb connections to loop antenna.

Connect an output meter across the voice coil of the speaker or between the plate of the 3Q5GT output tube and chassis through a .1 mfd. condenser.

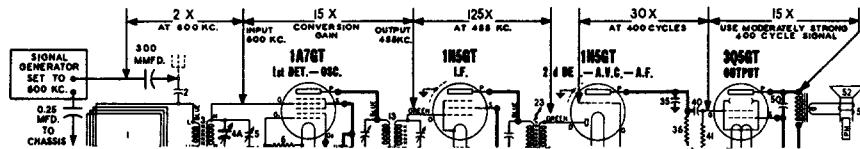
Connect the ground lead of the signal generator to chassis through a .25 mfd. condenser.

Set the volume control in the maximum position and use a weak signal from the generator.

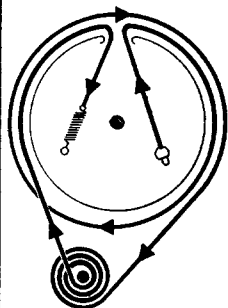
Set "AC-DC—BAT.—CHARGE" Switch in "AC-DC" position.

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
300 MMFD. Condenser	Grid Cap of 1A7GT Tube	455 KC.	Any Point Where it Does Not Affect Signal	1	2nd I.F.	Loosen lock nut. Adjust screw for maximum output.
				2-3	1st I.F.	Adjust for maximum output. Recheck 1, 2 and 3 for maximum output and tighten lock nut on 1.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	1500 KC. (Slide set into cabinet and replace pointer to set dial.)	4	Broadcast Oscillator (Shunt)	Adjust trimmer for maximum output.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	Tune to 1500 KC. Generator Signal	5	Broadcast Antenna	Adjust for maximum output. Slide chassis all the way into cabinet when making this adjustment.

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 1½ volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



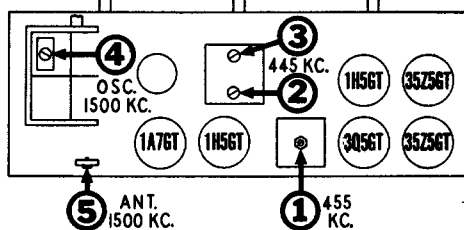
Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.



## DIAL DRIVE CORD ARRANGEMENT

To string dial cord, set gang condenser to fully meshed position

## TOP VIEW OF CHASSIS



## INDICATOR LAMP

The flashing neon lamp on the dial face indicates condition of batteries. This lamp is included in an oscillating (R-C) circuit which is designed to oscillate at approximately 3 pulses per second when batteries are in a fully charged condition. As the battery voltage decreases with use, number of pulses per second decreases.

This lamp will only show the true condition of the batteries when the Selector Switch is in the "Battery" position. Lamp flashes more rapidly during charging or "AC-DC" operation.

When battery voltage is low (approximately 72 volts) the lamp flashes more slowly (about once per second). The set should not be operated from battery power after this point is reached and batteries should be recharged immediately. Charge for at least twice the time they were used and as soon as possible after they are run down. As batteries age it is necessary to charge for a longer period. For longest battery life, charge immediately after using.

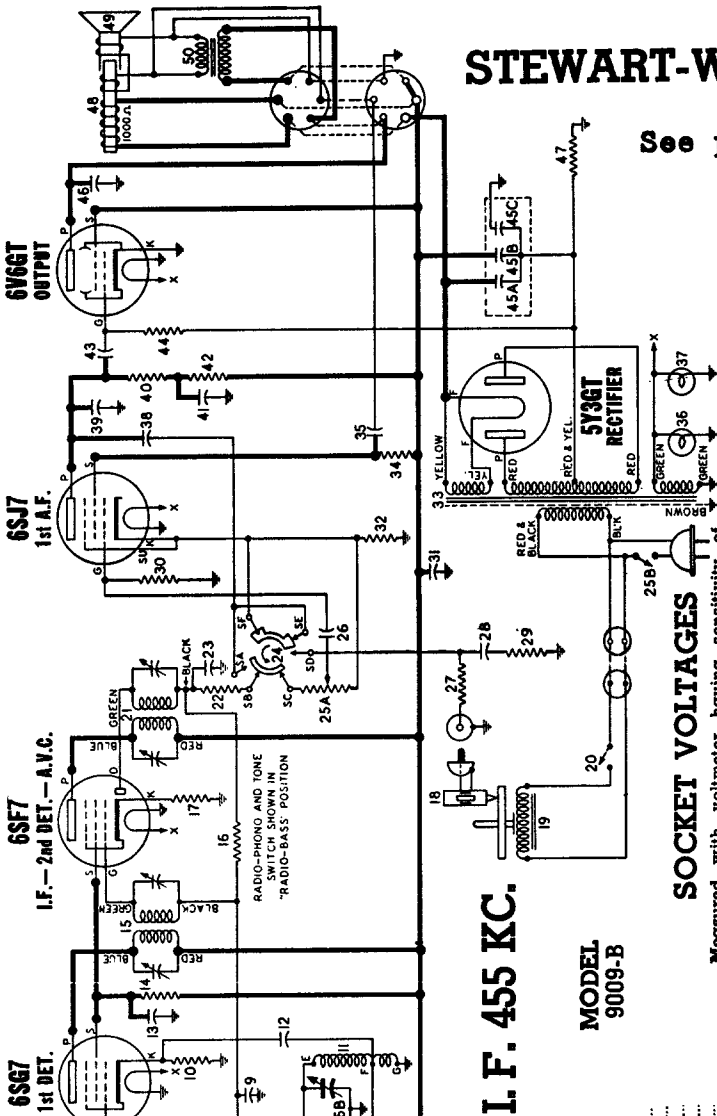
- IMPORTANT:**
1. Completely dead batteries cannot be recharged.
  2. When set is connected to a DC line, check for correct polarity by operating it before attempting to charge the batteries.
  3. Batteries will be discharged if ON-OFF switch is left ON when power cord is not connected to wall outlet.

## CHARGING CIRCUIT

The battery charging circuit consists of a 35Z5GT rectifier and a suitable resistor voltage dividing network. This circuit provides a very low charging current when the receiver is operated on AC-DC and is just enough to maintain the batteries but will not charge them. A separate charging position is provided for the regular charging operation. A charging rate of approximately 1/3 the discharge rate is used to give best results.

STEWART-WARNER MODEL 9009-B

See page 146 for alignment data.

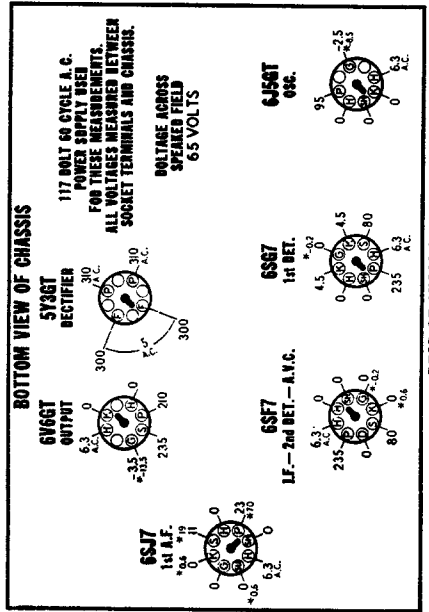


I.F. 455 KC.

MODEL 9009-B

SOCKET VOLTAGES

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*). RADIO-PHONO-TONE SWITCH IN "RADIO-BASS" POSITION VOLUME ON FULL WITH NO SIGNAL DIAL TUNED TO 540 KC.



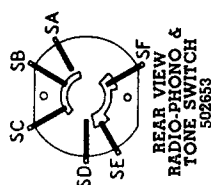
BOTTOM VIEW OF CHASSIS

117 ONLY 60 CYCLE A.C. POWER SUPPLY USED FOR THESE MEASUREMENTS. ALL VOLTAGES MEASURED BETWEEN SOCKET TERMINALS AND CHASSIS.

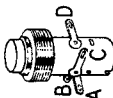
VOLTAGE ACROSS SPEAKER FIELD 6.5 VOLTS

REAR OF CHASSIS

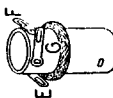
\*-Measured with vacuum tube voltmeter.



REAR VIEW RADIO-PHONO & TONE SWITCH 502653



ANTENNA COIL 502649



OSCILLATOR COIL 502650

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

**CONDENSERS**

3	.....	502151	Condenser—.01 Mid. 400 volt.
5	.....	502651	Condenser—trimmer 12 to 18 Mmfd.
6A, B	.....	502652	Condenser—variable gng and drum.
7	.....	502160	Condenser—micc—110 Mmfd. 500 volt.
9	.....	502153	Condenser—.05 Mid. 200 volt.
12	.....	502151	Condenser—.01 Mid. 400 volt.
13	.....	502157	Condenser—.05 Mid. 400 volt.
23	.....	502160	Condenser—micc 110 Mmfd. 500 volt.
26	.....	502156	Condenser—.004 Mid. 400 volt.
28	.....	502479	Condenser—.006 Mid. 600 volt.
31	.....	502157	Condenser—.05 Mid. 400 volt.
35	.....	502405	Condenser—.25 Mid. 400 volt.
38	.....	502150	Condenser—.004 Mfd. 600 volt.
39	.....	502271	Condenser—micc—260 Mmfd. 500 volt.
41	.....	502410	Condenser—.1 Mfd. 400 volt.
43	.....	502152	Condenser—.02 Mid. 400 volt.
45A, B, C	.....	502207	Condenser—electrolytic A — 10 Mfd. 400 volt. B — 10 Mfd. 25 volt. C — 20 Mfd. 25 volt.
46	.....	502156	Condenser—.004 Mfd. 400 volt.

**RESISTORS**

2	.....	502466	Resistor—carbon—33,000 ohms 1 watt.
8	.....	502131	Resistor—carbon—47,000 ohms 1/4 watt.
10	.....	502514	Resistor—carbon—3,300 ohms 1/4 watt.
14	.....	502288	Resistor—carbon—47,000 ohms 1 watt.
16	.....	502269	Resistor—carbon—3.3 Meg. 1/4 watt.
17	.....	502264	Resistor—carbon—47 ohms 1/4 watt.
22	.....	502131	Resistor—carbon—47,000 ohms 1/4 watt.
25A, B	.....	502654	Volume control—with switch. 1 Meg.
27	.....	502133	Resistor—carbon—220,000 ohms 1/4 watt.
29	.....	502408	Resistor—carbon—68,000 ohms 1/4 watt.
30	.....	502406	Resistor—carbon—4.7 Meg. 1/4 watt.
32	.....	502468	Resistor—carbon—1.50 ohms 1/4 watt.
34	.....	502135	Resistor—carbon—2.2 Meg. 1/4 watt.
40	.....	502133	Resistor—carbon—220,000 ohms 1/4 watt.
42	.....	502133	Resistor—carbon—220,000 ohms 1/4 watt.
44	.....	502134	Resistor—carbon—470,000 ohms 1/4 watt.
47	.....	502293	Resistor—wire wound—200 ohms 2 watt.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODEL 9009-B

Remove chassis and loop antenna (cabinet back) from cabinet. Reconnect loop to chassis and space it approximately same distance from chassis as when installed in cabinet.

With the gang condenser fully meshed, the dial pointer should be in the position indicated by the last mark below 55 on the dial. If it is set incorrectly, release the pointer clip on the dial cord and reposition pointer.

Connect an output meter across the speaker voice coil or from the plate of the 6V6GT tube to chassis through a .1 Mfd. condenser.

Connect the ground lead of signal generator to the receiver chassis.

Set volume control at maximum volume position and use a weak signal from the signal generator.

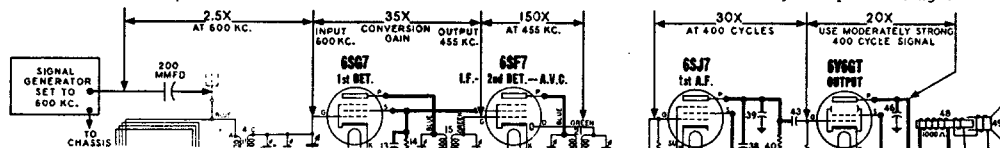
DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
.1 MFD. Condenser	Trimmer on top section of gang.	455 KC	Any point where it does not affect the signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
				3-4	1st I.F.	
200 MMFD. Mica Condenser	External Antenna Clip on Loop Antenna	1500 KC	1500 KC	5	Broadcast Oscillator	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Antenna	1500 KC	Tune to 1500 KC generator signal	6	Broadcast Antenna	Adjust for maximum output.

## APPROXIMATE STAGE GAIN DATA

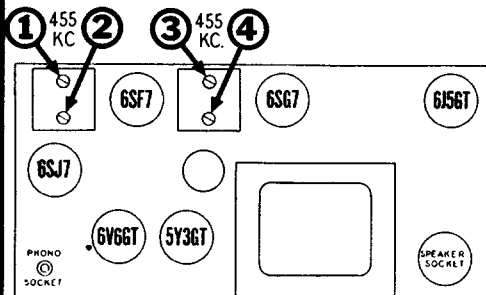
Be sure R.F. and I.F. stages are accurately aligned before measuring gain. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. A vacuum tube voltmeter may be used for audio gain measurements. Observe following precautions:

- For all gain measurements connect signal generator as shown. Use 600 K.C. signal with 400 cycle modulation (use nearby frequency if local station interferences.)
- For R.F. and I.F. measurements connect negative terminal of a 3 volt battery (two 1 1/2 volt cells in series) to A.V.C. lead and positive terminal to chassis. This provides a definite operating point. **IMPORTANT:** Disconnect battery when measuring audio stage gains.
- Be sure radio is carefully tuned to generator signal (use weak signal for sharp tuning.)
- When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



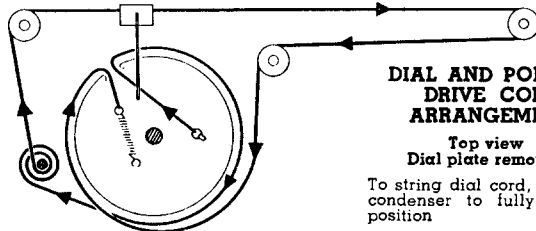
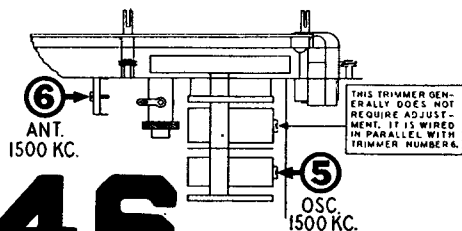
Differences in tube characteristics, tolerance of parts, adjustment of tuned circuits, and variations of line voltage will influence stage gain. Accuracy of measurements is dependent upon careful tuning of receiver to generator signal and experience in using your test equipment. These factors may create considerable variation in gain measurements.



The audio system of this receiver utilizes a two stage type of inverse feed-back arrangement and should it ever be necessary to replace the speaker or output transformer it is important to maintain a definite phase relationship in the feed-back circuit. If the connections to the output transformer are reversed or if the feed-back connection is made to the wrong side of the output transformer secondary, the system will become regenerative instead of degenerative. Under these conditions audio oscillation may result. If that occurs, oscillation may be prevented by reversing the connections to the primary of the output transformer.

### IMPORTANCE OF MAINTAINING FIXED POSITIONS FOR LEADS AT TOP OF CHASSIS

The shielded leads which are routed to the "Radio-Phono" switch and volume control should be tied to the upright bracket which supports the dial assembly. Grounded shields on these leads must not be allowed to contact electrolytic condenser case. If case of condenser is grounded it will short out bias voltage for 6V6GT tube.



### DIAL AND POINTER DRIVE CORD ARRANGEMENT

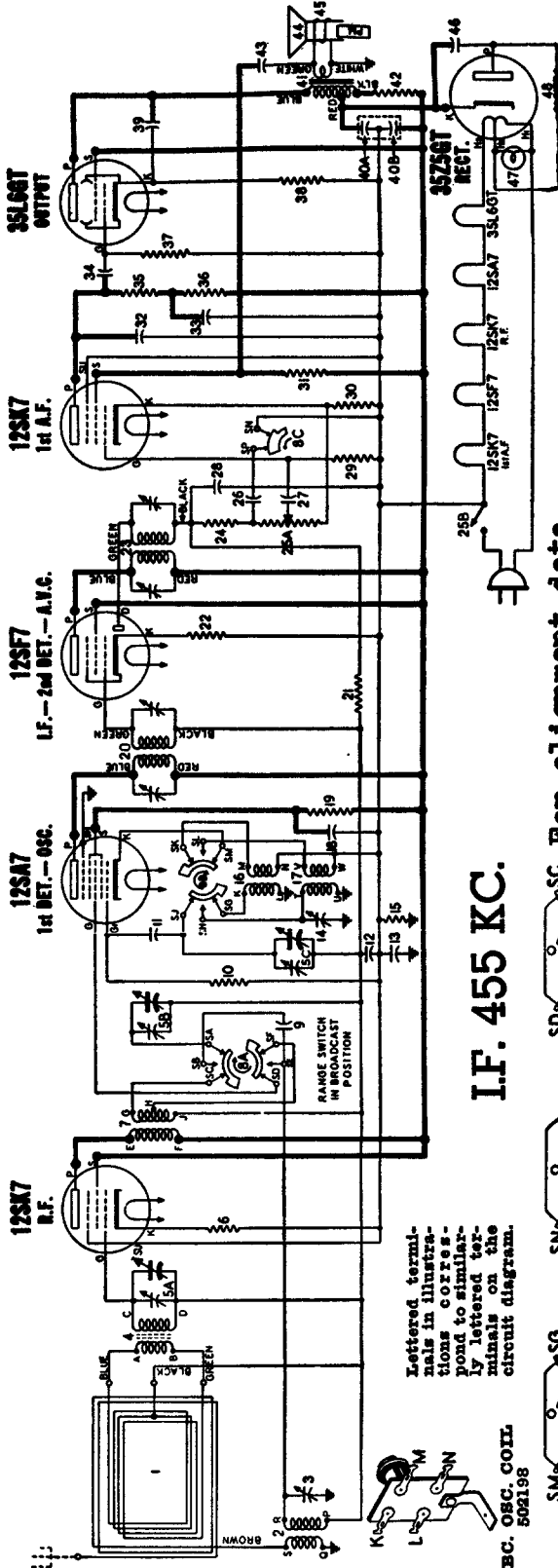
Top view  
Dial plate removed

To string dial cord, set gang condenser to fully meshed position

# 146

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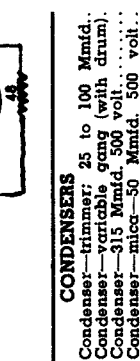
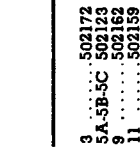
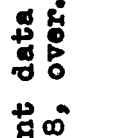
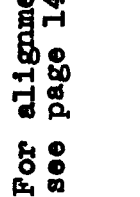
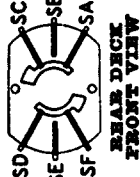
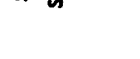
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STEWART-WARNER MODEL 9014-E



**I.F. 455 KC.**

Lettered terminals in illustrations correspond to similarly lettered terminals on the circuit diagram.

BC. OSC. COIL 5021198

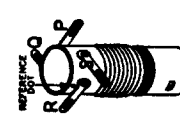
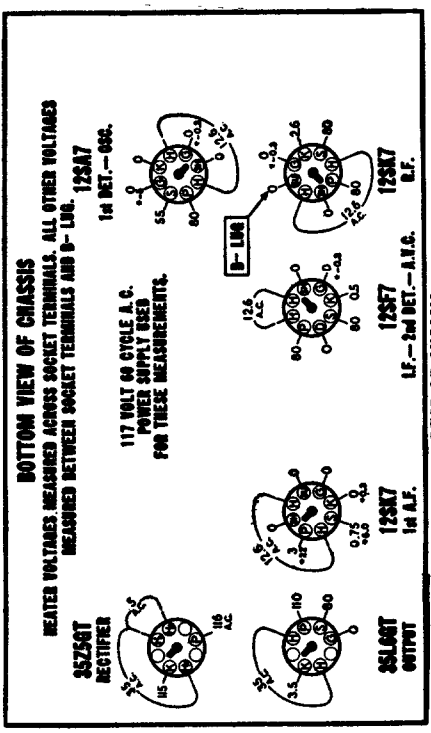


CONDENSERS	
3	502172 Condenser—trimmer: 25 to 100 Mmfd.
5A-5B-5C	502123 Condenser—variable gang (with drum).
9	502162 Condenser—315 Mmfd. 500 volt.
11	502159 Condenser—mic—50 Mmfd. 500 volt.
12	502155 Condenser—1 Mfd. 200 volt.
13	502158 Condenser—2 Mfd. 200 volt.
14	502172 Condenser—trimmer: 25 to 100 Mmfd.
18	502262 Condenser—.0008 Mfd. 400 volt.
26	502470 Condenser—.002 Mfd. 400 volt.
27	502160 Condenser—mic—110 Mmfd. 500 volt.
28	502160 Condenser—mic—110 Mmfd. 500 volt.
32	502153 Condenser—.05 Mfd. 200 volt.
33	502156 Condenser—.04 Mfd. 400 volt.
34	502156 Condenser—.01 Mfd. 400 volt.
39	502151 Condenser—electrolytic
40A-40B	500256 A-40 Mfd. 150 volt
	B-20 Mfd. 400 volt
43	502152 Condenser—.02 Mfd. 400 volt.
46	502157 Condenser—.05 Mfd. 400 volt.
RESISTORS	
6	502140 Resistor—carbon 390 ohms 1/4 watt.
10	502130 Resistor—carbon 22,000 ohms 1/4 watt.
15	502133 Resistor—carbon 470,000 ohms 1/4 watt.
19	502281 Resistor—carbon 25 Meg. 1/4 watt.
21	502289 Resistor—carbon 2.5 Meg. 1/4 watt.
22	502284 Resistor—carbon 47,000 ohms 1/4 watt.
24	502131 Resistor—carbon 47,000 ohms 1/4 watt.
25A-25B	502145 Volume control 500,000 ohms (with switch)
29	502136 Resistor—carbon 19 Meg. 1/4 watt.
30	502128 Resistor—carbon 220 ohms 1/4 watt.
31	502135 Resistor—carbon 2.2 Meg. 1/4 watt.
35-36	502133 Resistor—carbon 220,000 ohms 1/4 watt.
37	502134 Resistor—carbon 470,000 ohms 1/4 watt.
38	502138 Resistor—carbon 150 ohms 1/4 watt.
42	502469 Resistor—carbon 1500 ohms 1 watt.
48	502574 Resistor—carbon 33 ohms 1/2 watt.

For alignment data see page 148, over.

Measured with voltmeter having sensitivity of 1000 ohms per volt except where indicated by (\*).

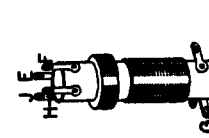
**VOLUME ON FULL WITH NO SIGNAL. DIAL TUNED TO 540 KC.**



S.W. ANTENNA COIL 502740



BC. ANTENNA COUPLING COIL 502121



B.F. COIL 502142



OBC. COIL 502197

\*—Measured with vacuum tube voltmeter

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## Stewart-Warner Alignment Procedure for Model 9014-E

Note that there are four calibrating lines stamped into the metal dial frame. When gang condenser is fully meshed, dial pointer should be in the position indicated by first line at the left. If it is set incorrectly, release pointer clip on dial cord and reposition pointer.

Connect an output meter across the speaker voice coil or from plate of 35L6GT tube to B— through a .1 Mfd. condenser (see voltage chart for convenient B— connection).

Connect ground lead from signal generator to B— through a .25 Mfd. condenser.

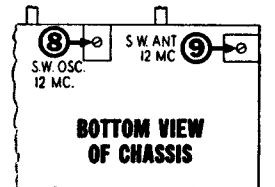
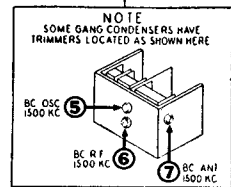
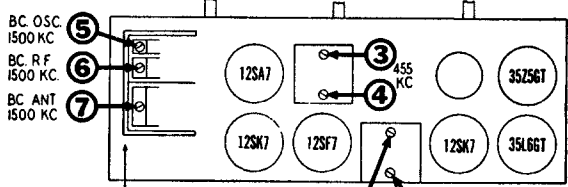
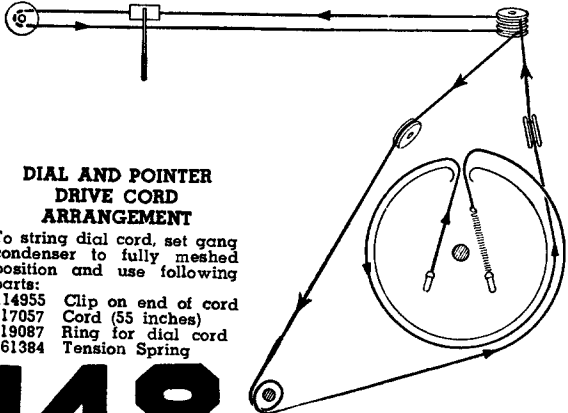
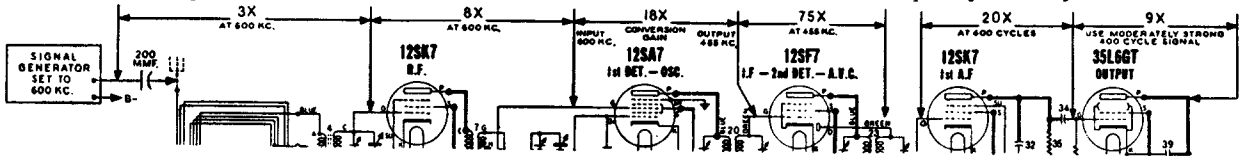
DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF GENERATOR TO	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POSITION	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
200 MMFD. Mica Condenser	Control Grid of 12SA7	455 KC	Broadcast	Any point where it does not affect the signal	1-2	2nd I.F.	Adjust for maximum output. Then repeat adjustment.
					3-4	1st I.F.	
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast	Set pointer to 1500 KC reference line stamped into metal dial plate (first line at the right)	5	Broadcast Oscillator (Shunt)	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast	Tune to 1500 KC generator signal	6	Broadcast R.F.	Adjust for maximum output.
200 MMFD. Mica Condenser	External Antenna Clip on Loop Frame	1500 KC	Broadcast	Tune to 1500 KC generator signal	7	Broadcast Antenna	Adjust for maximum output.
400 OHM Resistor	External Antenna Clip on Loop Frame	12 MC	Short Wave	Set pointer to 12 MC. Reference line stamped into metal dial plate (second line from the right)	8	Short Wave Oscillator	Adjust to bring in signal. Check to see if proper peak was obtained by tuning in image at approx. 11.1 MC. If image does not appear, realign at 12 MC. with trimmer screw farther out. Recheck image.
400 OHM Resistor	External Antenna Clip on Loop Frame	12 MC	Short Wave	Tune to 12 MC generator signal	9	Short Wave Antenna	Adjust for maximum output. Try to increase output by detuning trimmer and retuning receiver dial until maximum output is obtained.

### APPROXIMATE STAGE GAIN DATA

A vacuum tube voltmeter may be used for audio gain measurements. R.F. gains can be measured with a "channel" type instrument containing a tuned and calibrated R.F. amplifier. Observe following precautions:

- For all gain measurements connect signal generator as shown. Use 600 KC. signal with 400 cycle modulation (use nearby frequency if local station interferes.)
- For R.F. and I.F. measurements connect negative terminal of a 3 volt battery (two 1½ volt cells in series) to A.V.C. lead and positive terminal to B—. This provides a definite operating point. **IMPORTANT:** Disconnect battery when measuring audio stage gains.
- Be sure radio is carefully tuned to generator signal (use weak signal for sharp tuning.)
- When using a "channel" type instrument carefully tune it for maximum output at desired frequency before making measurements.

The R.F. and I.F. stage gains shown below are less than under normal operating conditions due to the use of 3 volts fixed bias in order to establish a definite operating point. Therefore, these values are not intended to indicate the full capability of a stage.



# 148

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STROMBERG-CARLSON NO. 1100 AC-DC RADIO RECEIVERS

### NORMAL VOLTAGE READINGS

Use a good voltmeter having a resistance of at least 1000 ohms per volt. See chart below if electronic voltmeter is used.

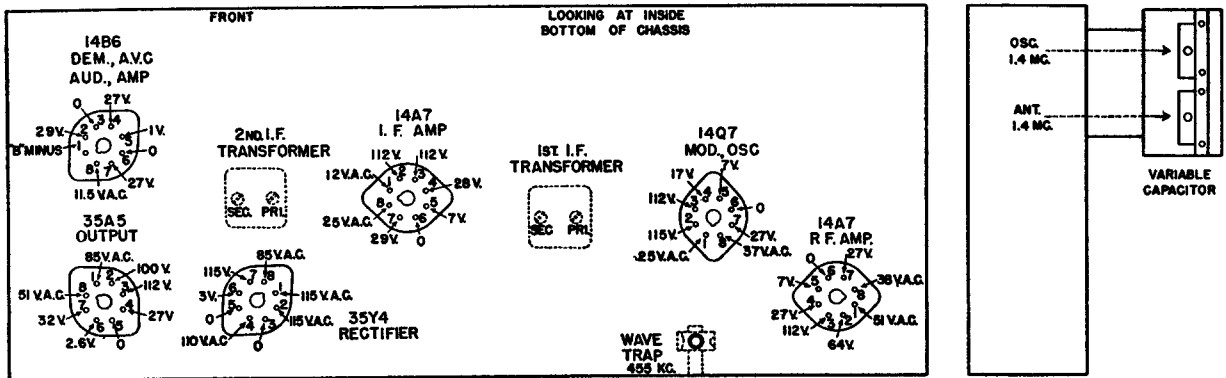
Take all readings with chassis operating and tuned to approximately 1000 Kc.—no input signal.

Use a line voltage of 117 volts or make allowance for the variation.

Read from indicated socket terminals to B minus. A convenient point is terminal No. 1 of the 14B6 Dem. A.V.C. Socket.

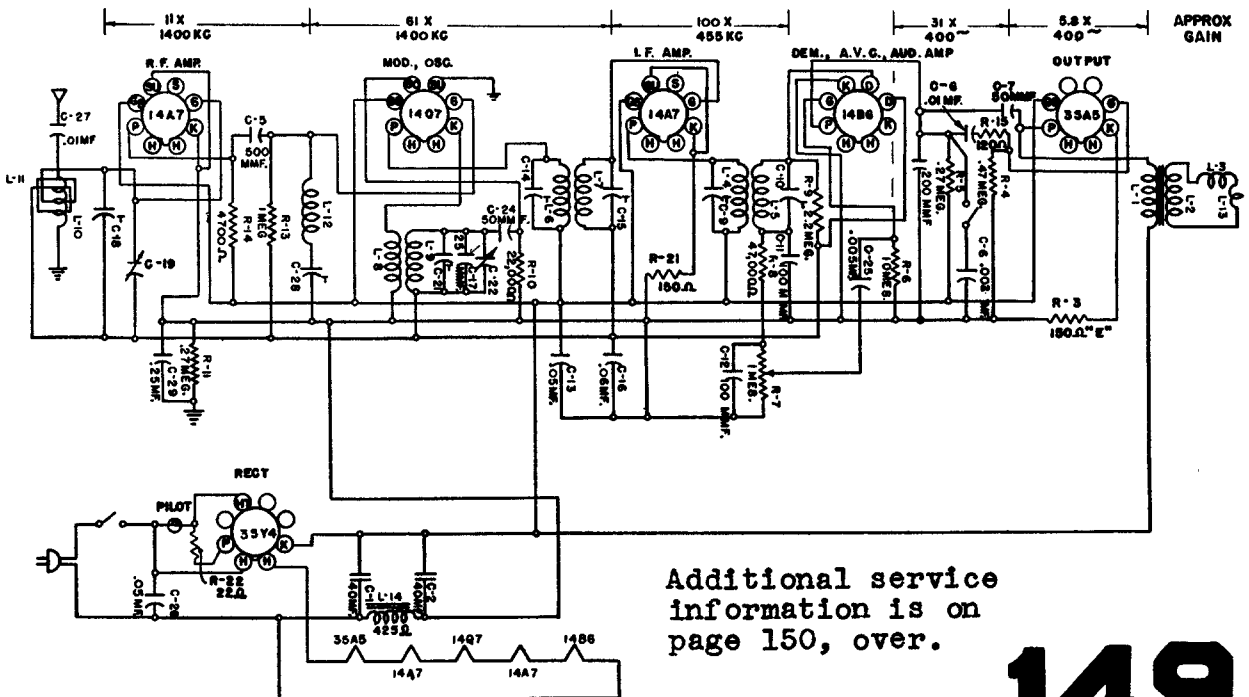
See Location Chart for position of terminals.

A. C. Voltages are indicated as A. C.; when the receiver is operated from a D. C. power supply, D. C. voltages will be obtained in place of A. C. voltages shown.



### VOLTAGE CHART FOR ELECTRONIC VOLTMETER

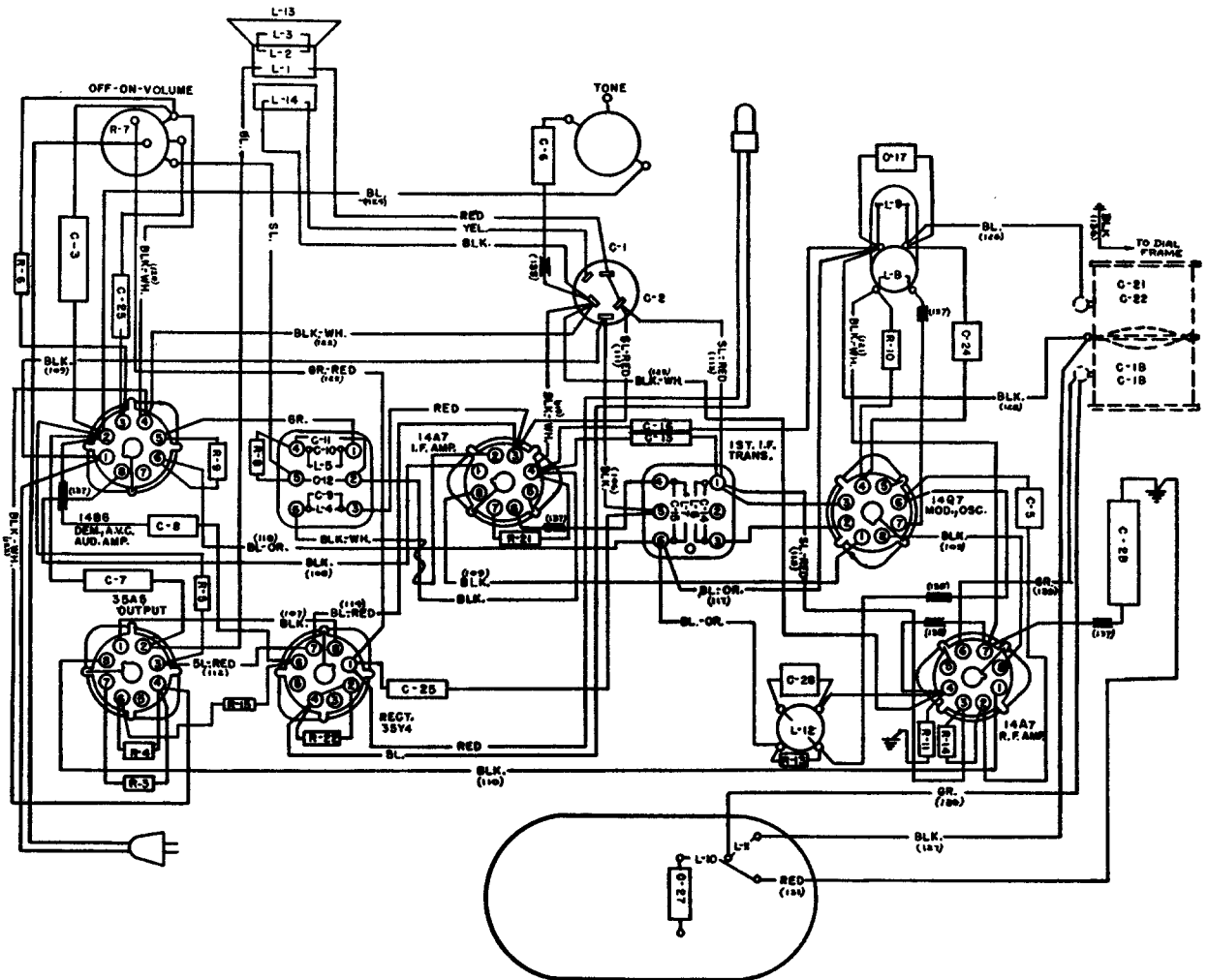
Tube	Circuit	1	2	3	4	5	6	7	8
14B6	Dem. A.V.C. Audio Amp.	—B	81	14	26.5	23.5	18	27	12AC
14A7	I. F. Amp.	11.5AC	105	105	36.5	26	18.4	27.6	24AC
14A7	R. F. Amp.	47AC	69	105	26.7	26	18.4	26.7	35AC
35A5	Output	82.5AC	100	105	26.5	0	25	32	49AC
14Q7	Mod. Osc.	27.5AC	105	105	18	26	17.2	26.5	36AC
35Y4	Rect.	105AC	117AC	0	117AC	0	25.8	105	85AC



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## STROMBERG-CARLSON NO. 1100 AC-DC RADIO RECEIVERS

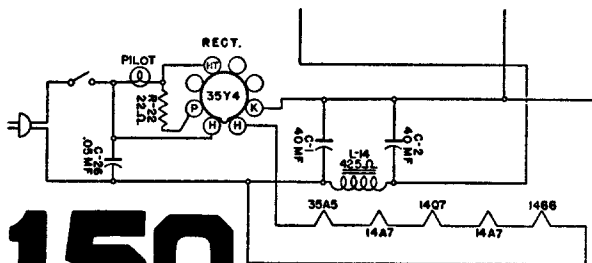
(Continued from page 149).



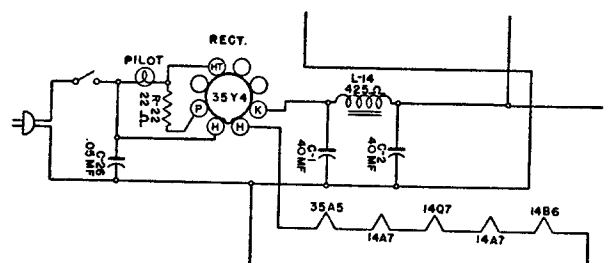
### 1100 RECEIVER—CHANGE IN RECTIFIER CIRCUIT

Field Coil of Speaker has been removed from negative side of Rectifier Circuit to positive side.

**CIRCUIT BEFORE CHANGE**  
Using Capacitor 34506 C-1, C-2



**CIRCUIT AFTER CHANGE**  
Using Capacitor 111001 C-1, C-2



# 150



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS STROMBERG-CARLSON NO. 1020-1120 RADIO RECEIVERS

Voltage Rating	-----	A.C. 105 to 130 Volts
Type of Circuit	-----	Superheterodyne with Push Button Tuning
Tuning Ranges	-----	A—540 to 1600 Kc., C—8.8 to 12 Mc.
Number and Type of Tubes—7	-----	
1—6SK7 R. F. Amplifier		1—6SC7 Audio Amplifier and Inverter
1—6SA7 Modulator and Oscillator		2—6V6GT Output
1—6SF7 I. F. Amplifier, Demodulator and A. V. C.		1—5Y3G Rectifier
Input Power Rating	-----	96-115 Watts
Intermediate Frequency	-----	455 Kilocycles
Speaker Voice Coil Impedance at 400 Cycles	-----	Approximately 3.5 Ohm
Speaker Field Coil Resistance	-----	950 Ohms
Power Output	-----	10 Watts 10% Distortion, 12 Watts Maximum

## ALIGNING INFORMATION

Never re-align unless absolutely necessary.

Use a good modulated signal generator (test oscillator with variable output voltage and a sensitive output meter across the voice coil of the speaker).

Always align using the smallest possible input from the signal generator. A strong signal makes adjustments inaccurate.

Always have the volume control "full on".

**ALIGNING PROCEDURE (follow this order exactly).**

### I. Intermediate Frequency Adjustments.

- Set range switch to Standard Broadcast position (loop).
- Turn the tuning control to extreme low frequency end of dial.
- Connect the ground terminal of the signal generator to the ground terminal of the chassis.
- Introduce a modulated signal of 455 kilocycles to the grid of the 6SA7 Modulator and Oscillator tube (terminal No. 8) using a 0.1 microfarad capacitor in series with the output lead of the signal generator.
- Adjust the I. F. aligners for maximum output in the following order:
  - Secondary of second I. F. Transformer.
  - Primary of second I. F. Transformer.
  - Secondary of first I. F. Transformer.
  - Primary of first I. F. Transformer.

### II. Dial Pointer Adjustment.

With the plates of the gang tuning capacitor fully engaged, check to be sure that the dial pointer is in a vertical position directly on the calibration marks located at the low frequency end of the dial scale. Adjust the dial pointer if necessary.

### III. Radio Frequency Adjustments.

#### Short Wave Range

- Remove the output lead of the signal generator and the 0.1 microfarad capacitor from the grid of the 6SA7 tube.
- Disconnect the output lead from the signal

generator and replace with a few turns of wire connected to the signal generator output terminals.

- Place the signal generator two or three feet from the receiver's loop.
- Set the range switch to the short-wave range position.
- Set the signal generator frequency and the receiver tuning dial to 9 megacycles.
- Adjust the 9 megacycle oscillator and loop aligners (iron cores) for maximum signal.
- Set the signal generator frequency and the receiver tuning dial to 12 megacycles.
- Adjust the 12 megacycle oscillator aligning capacitors for maximum signal. Then rock the tuning gang capacitor slowly through resonance and adjust the 12 megacycle antennae aligning capacitor for maximum signal.
- Repeat operations 5 and 6.
- Repeat operations 7 and 8.

#### Standard Broadcast Range

- Set the range switch to the "Loop" position.
- Set the signal generator frequency and the receiver tuning dial to 600 kilocycles.
- Adjust the 600 K. C. oscillator and antennae aligner (iron cores) for maximum signal.
- Set the signal generator frequency and the receiver tuning dial to 1400 kilocycles.
- Adjust the 1400 K. C. oscillator and antennae aligning capacitors for maximum signal.
- Repeat operations 2 and 3.
- Repeat operations 4 and 5.

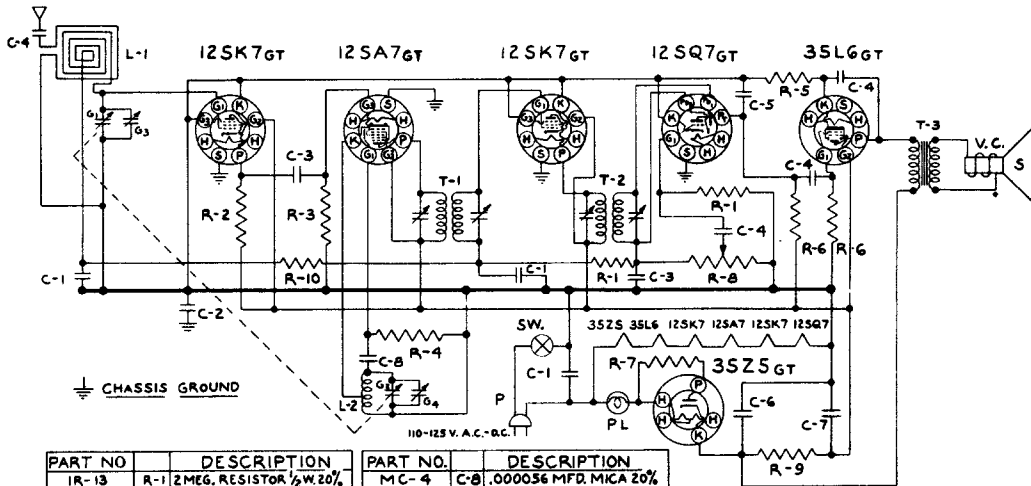
### IV. Wave Trap Adjustment.

- Tune the receiver to 1000 kc.
- Set the signal generator frequency to 455 kc. Increase signal generator output until audible in speaker.
- Adjust the wave trap aligning capacitor for minimum signal.

## VOLTAGE TABLE FOR ELECTRONIC VOLTMETER

Tube		1	2	3	4	5	6	7	8
6V6	Output	0	6.3AC	245	251	0	0	0	16
6V6	Output	0	0	245	251	0	0	6.3AC	16.
6SC7	1st A.F. Conv.	0	93	0	0	93	1.1	0	6.3AC
6SA7	Mod. Osc.	0	0	246	80	7.5	0	6.3AC	0
5Y3	Rect.	0	360	0	340AC	0	340AC	0	360
6SF7	I.F. Det. A.V.C.	0	.6	0	92	0	250	0	6.3AC
6SK7	R.F. Amp.	0	6.3AC	0	.6	0	80	0	196

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



CHASSIS No 102

TRAV-LER RADIO CORP.

## Model 5002

PART NO.	DESCRIPTION
IR-13	R-1 2 MEG. RESISTOR 1/2 W 20%
IR-7	R-2 2200-Ω
IR-10	R-3 47000-Ω
IR-16	R-4 33,000-Ω
IR-5	R-5 220-Ω
IR-11	R-6 470 M-Ω
IR-4	R-7 47-Ω
VC-3	R-8 1 MEG. VOLUME CONTROL
IR-15	R-9 2200-Ω RESISTOR 1/2 W 20%
IR-12	R-10 1 MEG.
PC-1	C-1 .05 MFD. COND. 400 V.
PC-1-B	C-2 .1 MFD. COND. 400 V.
PC-1-C	C-3 .001 MFD. MICA 20%
PC-1-D	C-4 .01 MFD. COND. 400 V.
MC-1	C-5 .0005 MFD. MICA 20%
EC-5	C-6 40 MFD.
	C-7 20 MFD. 150 V. ELECTROLYTIC

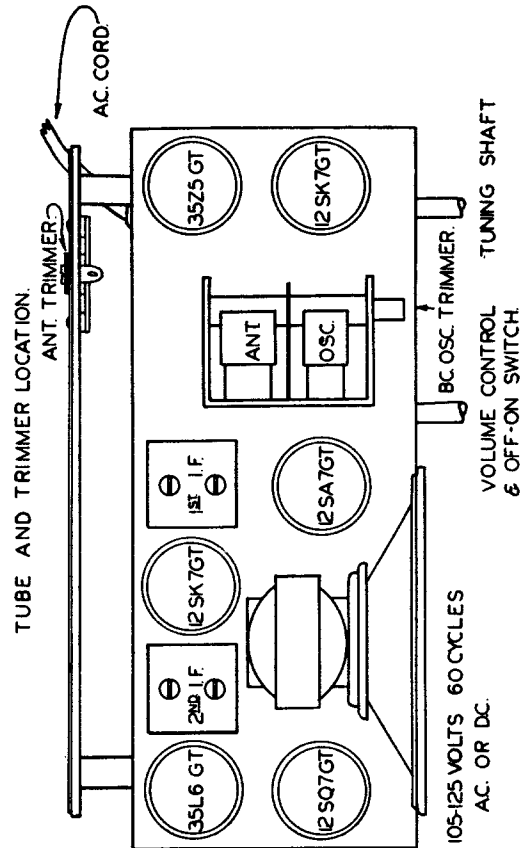
PART NO.	DESCRIPTION
MC-4	C-8 .000056 MFD. MICA 20%
LL-1	L-1 LOOP ANTENNA
LO-2	L-2 OSC. COIL
LI-1	T-1 INPUT I.F. TRANSFORMER
LI-2	T-2 OUTPUT I.F. "
	T-3 OUTPUT SPK. "
SPK-4	V.C. VOICE COIL
	S P.M. SPEAKER
PB-1	#47 PILOT BULB
GC-1	GANG COND.
TC-1	ANT. TRIMMER COND.
CC-1	OSC. TRIMMER COND.
LC-1	LINE COIL
TU-4	12SK7GT 12SA7GT 12SK7GT 12SQ7GT 35L6GT 35Z5GT

The receiver volume control should be turned to maximum during the I.F. and all subsequent alignments to keep the AVC from working and giving false readings. Keep the generator output as low as possible to prevent overloading.

**FIRST STEP:** Connect the hot lead from the generator to the ANT. section of the gang condenser, through a .1 MFD. condenser. The ground lead from the generator must be connected to the metal frame of the gang condenser. Turn the gang condenser to complete minimum capacity. Adjust the generator to 455 KC and adjust the trimmers of the 1st and 2nd I.F. transformers until a maximum reading is noted on the output meter.

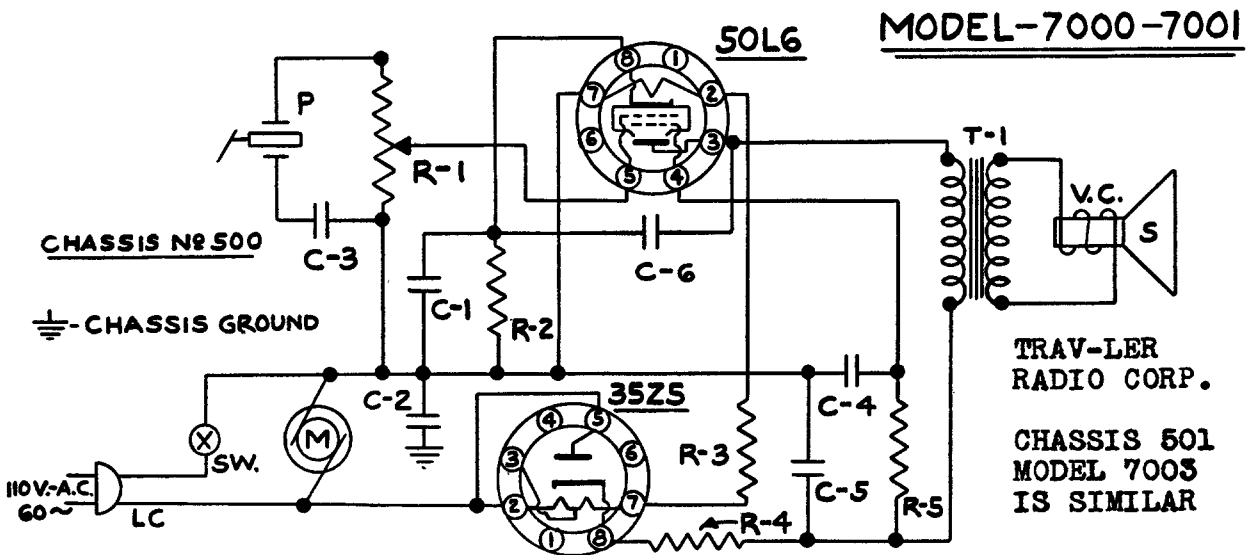
**SECOND STEP:** With the leads from the generator still connected in the same manner, adjust the Signal Generator to 1720 KC. The OSC. trimmer is located on the front of the chassis between the volume and tuning controls. Adjust this trimmer until the 1720 KC signal is tuned in.

**THIRD STEP:** Remove the hot lead of the generator from the ANT. section of the gang condenser. Connect this lead to the antenna lead wire that projects from the back of the loop antenna through a 200 MMFD condenser. Adjust the Signal Generator to 1400 KC. Rotate the tuning control until this signal is tuned in. The ANT. trimmer is located on the back of the loop antenna. Adjust this trimmer until a maximum reading is noted on the output meter. No further adjustment should be necessary, unless the set has been damaged, as the coils and condenser in this receiver have been specially handled at the factory to insure proper alignment at the lower frequencies.



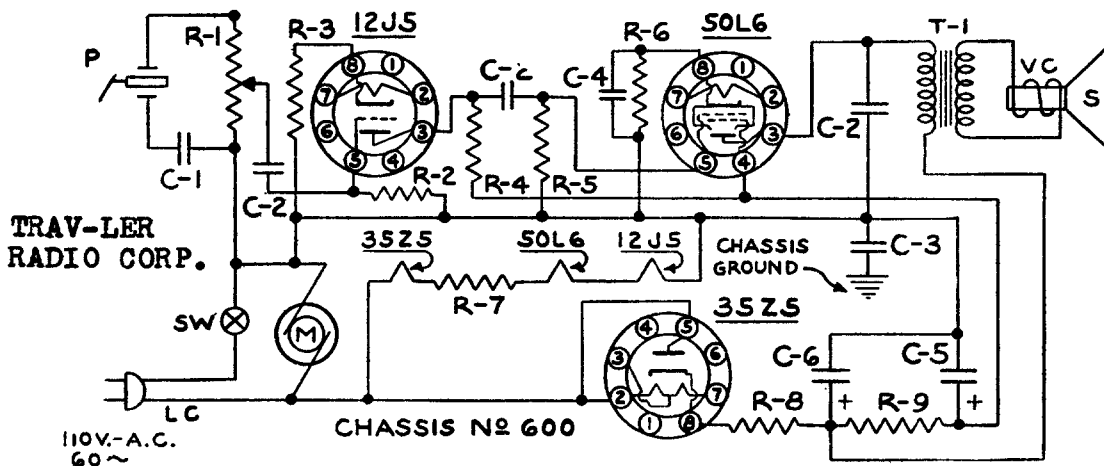


# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



PART NO.	DESCRIPTION	PART NO.	DESCRIPTION
VC-3	R-1 1 MEG. VOLUME CONTROL	CO-2	LC POWER CORD
CR-11	R-2 150 $\Omega$ 1/2 W.-20% RESISTOR	RC-1	C-6 .01 MFD. 400 W.V. PAPER COND.
WR-1	R-3 210 $\Omega$ 5 W.-5% WIRE WOUND	PC-8	C-2 .1 MFD. 400 W.V. PAPER COND.
CR-1	R-4 33 $\Omega$ 1/2 W.-20% RESISTOR	C-3	.05 MFD. 400 W.V. PAPER COND.
CR-15	R-5 5000 $\Omega$ 1/2 W. 20% RESISTOR	SW.	A.C. SWITCH ON VOLUME CONTROL
PU-2	P L-72 CRYSTAL CARTRIDGE	T-1	OUTPUT TRANSFORMER
EC-5	C-1 10 MFD. 25 V.	SP-2	V.C. VOICE COIL
	C-4 12 MFD. 150 V. ELECTROLYTIC		S. P.M. SPEAKER
	C-5 80 MFD. 150 V.		50L6 - 35Z5
M-1	M MOTOR-110V.-60~9" TURNTABLE	TU-2	

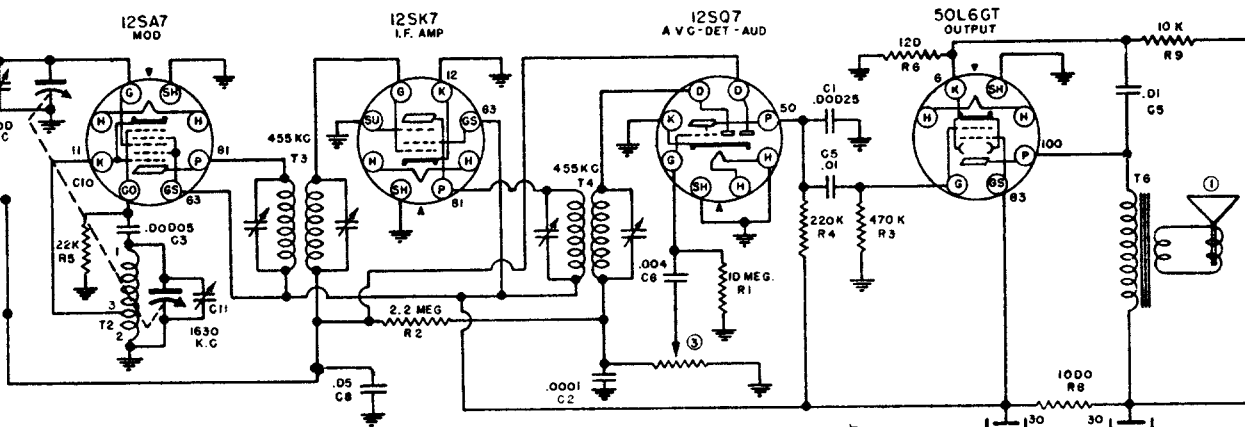
## MODEL-7005



PART NO.	DESCRIPTION	PART NO.	DESCRIPTION	
VC-3	R-1 1 MEG. VOLUME CONTROL	EC-5	C-4 10 MFD. 25 V. ELECTROLYTIC	
C.R.-16	R-2 220 M $\Omega$ RESISTOR 1/2 W. 20%		C-5 12 MFD. 150 V. ELECTROLYTIC	
CR-15	R-3 5000 $\Omega$ RESISTOR " "		C-6 80 MFD. 150 V. CONDENSER	
CR-17	R-4 100 M $\Omega$ RESISTOR " "	PU-3	P L-75 CRYSTAL CARTRIDGE	
CR-8	R-5 470 M $\Omega$ RESISTOR " "	RC-3	M RECORD CHANGER MOTOR	
CR-11	R-6 150 $\Omega$ RESISTOR " "	CO-2	LC LINE CORD	
WR-2	R-7 130 $\Omega$ 3 W. 5% WIRE WOUND	SW	A.C. SWITCH ON VOL. CONTROL	
CR-1	R-8 33 $\Omega$ RESISTOR 1/2 W. 20%	T-1	OUTPUT TRANSFORMER	
CR-15	R-9 4700 $\Omega$ RESISTOR 1/2 W. 20%	SP-2	V.C. VOICE COIL	
PC-5	C-1 .05 MFD. CONDENSER 400 V.		S	P.M. SPEAKER
PC-7	C-2 .01 MFD. CONDENSER 400 V.			
PC-8	C-3 .1 MFD. CONDENSER 400 V.	TU-7	12J5 <sub>GT</sub> 50L6 <sub>GT</sub> 35Z5 <sub>GT</sub>	

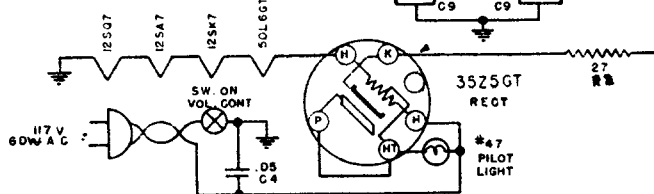
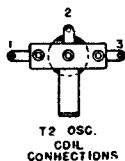
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## WARWICK MANUFACTURING CORPORATION



### MODEL C100

TUBE SOCKETS ARE VIEWED FROM UNDERSIDE OF CHASSIS VOLTAGE READINGS INDICATED AT SOCKET TERMINAL ARE TO CHASSIS WITH 1000 OHM PER VOLT METER, WITH NO SIGNAL ON 117 VOLT LINE. WHERE NO VOLTAGE IS SHOWN, IT INDICATES ZERO VOLTAGE OR A VERY LOW READING ALIGNMENT IS TO BE MADE AT THE FREQUENCY SHOWN AT EACH TRIMMER CONDENSER CAPACITY VALUES ARE IN MICROFARADS.

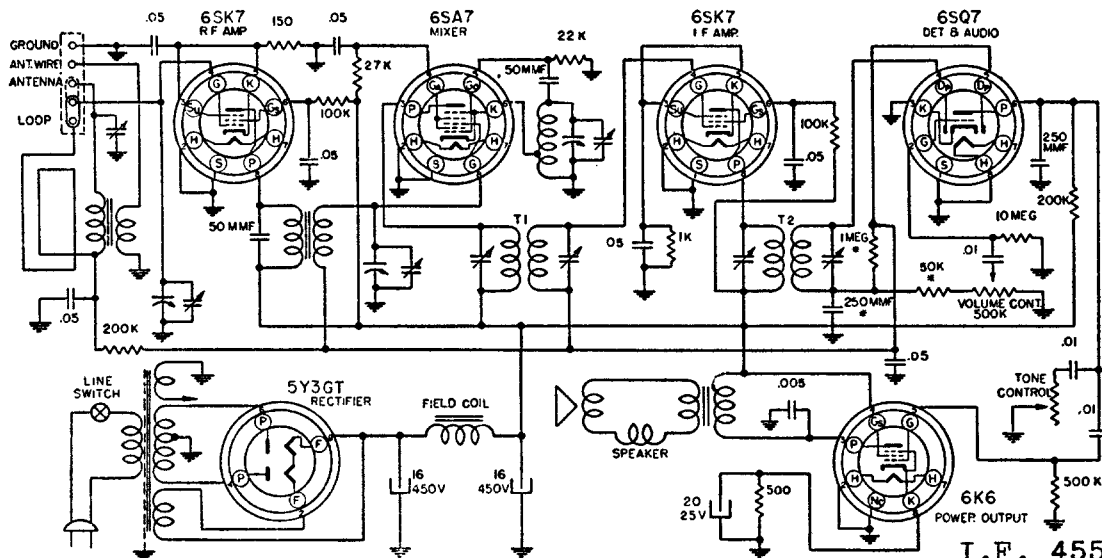


CODE	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION
R 1		10 MEGOHM 1/4 WATT RESISTOR	C 1		00025 MFD MICA CONDENSER
R 2	2.2	" " " "	C 2		0001 " " " "
R 3	470 K	" " " "	C 3		00005 " " " "
R 4	220 K	" " " "	C 4		05 MFD. 400V TUBULAR CONDENSER
R 5	22 K	" " " "	C 5	.01	" " " "
R 6	120	" " " "	C 6	.004	" " " "
R 7	27	1/2 WATT " "	C 7		.05 " 200 V
R 8	10 K	1 WATT " "	C 8		30 X 30 MFD 150 W V ELECTROLYTIC
R 9			C 9	18-266	30 X 30 MFD 150 W V ELECTROLYTIC
			C 10	19-177	2 GANG VARIABLE CONDENSER (ALSO C1 '3 C12)

Model C101 is similar to C100, but uses a record player.

## WARWICK MANUFACTURING CORPORATION

## MODEL C104



\* PART OF T2

I.F. 455 KC.

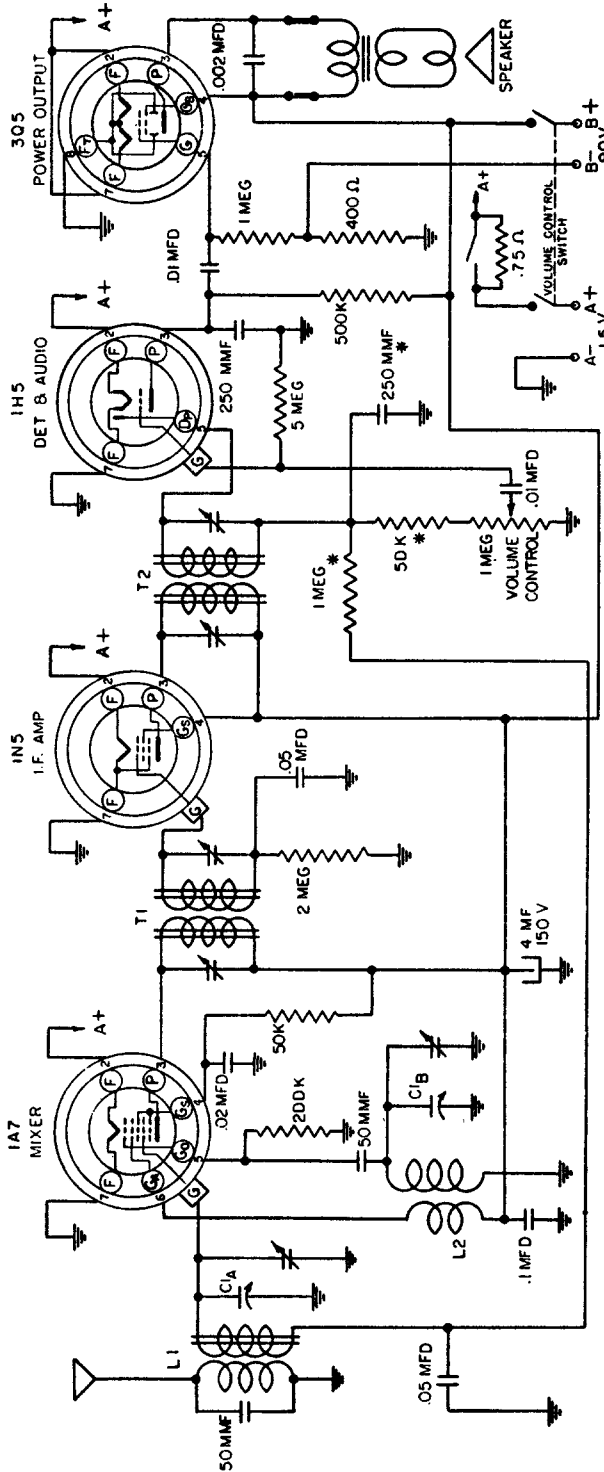
Model C105 is similar to C104, but uses a record player

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# 155

MODEL C108

WARWICK MANUFACTURING CORPORATION

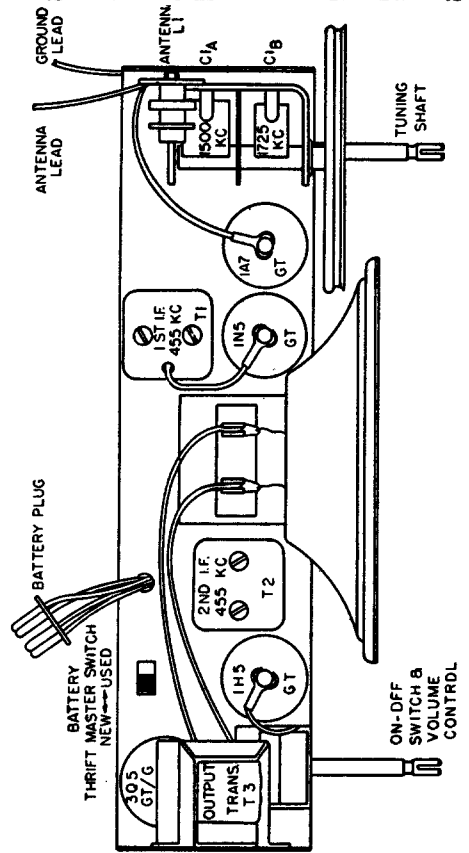


ALIGNMENT PROCEDURE

With an output meter connected across the voice coil of the speaker, the output meter reading for 50 milliwatts is .4 volts using a signal which is modulated 30% at 400 c.p.s. Follow through the procedure as outlined below for proper alignment.

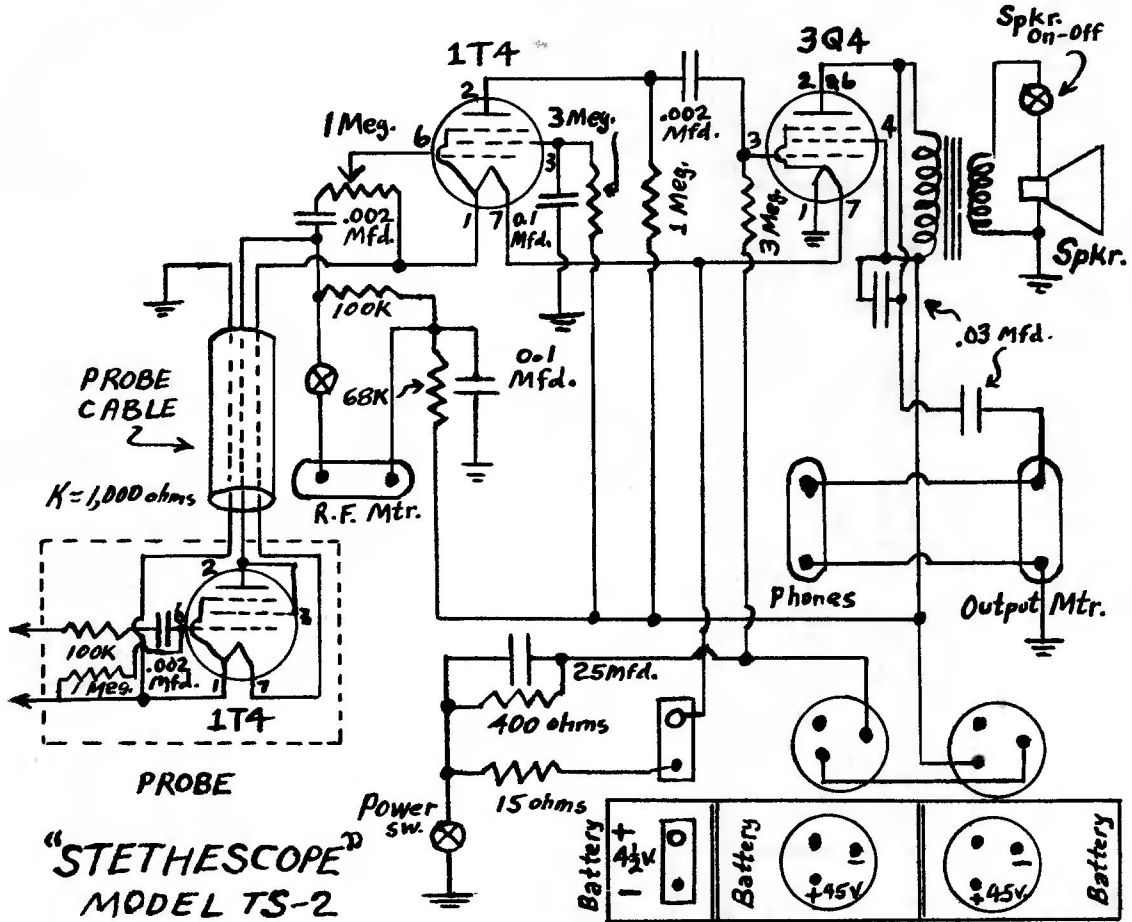
Connect the signal generator to the grid cap of the 1A7 GT Tube through a .1 MFD. Condenser. Connect the ground lead of the generator to the chassis. Adjust the signal generator to 455 K.C. and set the variable condenser of the receiver to minimum capacity (fully opened). With the volume control full on and minimum output from the signal generator adjust the two trimmers on top of the first and second I.F. transformers for maximum output.

Now connect the signal generator to the antenna connection of the receiver through a .00025 condenser. Adjust the signal generator frequency to 1725 K. C. and set the variable condenser to minimum capacity (fully opened), and adjust the oscillator trimmer (C1B) for maximum output. Set signal generator to 1500 K. C. and tune receiver to signal. Adjust the antenna trimmer (C1A) on the variable condenser for maximum output.



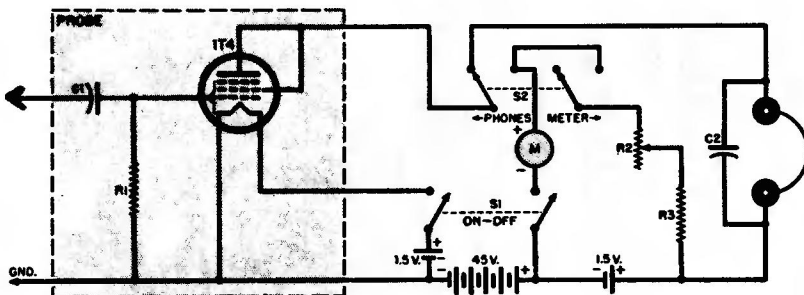
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## FEILER ENGINEERING CO.



## SUPERIOR INSTRUMENTS CO.

# Model CA-11



R<sub>1</sub>—20 megohm, 1/2 w. res.  
R<sub>2</sub>—300 ohm rheostat  
R<sub>3</sub>—600 ohm, 1/2 w. res.  
C<sub>1</sub>—300 μfd mica cond.

C<sub>2</sub>—0.02 μfd cond.  
S<sub>1</sub>—D.p.s.t. sw.  
S<sub>2</sub>—D.p.d.t. sw.  
M—1 ma., 150 ohm meter

Schematic diagram of the single-tube signal tracer. The unit is constructed in two separate parts, a detector probe and the battery and meter box.



Wells-Gardner & Co.

# Series 37D14-600

## ALIGNMENT NOTES

**NOTE A**—Adjust Oscillator Range B (C9) trimmer on side of chassis. Oscillator Range B (C6) auxiliary trimmer on gang condenser is adjusted at factory and ordinarily need not be readjusted in the field.

**NOTE B**—Index line is on dial background strip. See DIAL CALIBRATION paragraph.

**NOTE C**—Turn the rotor back and forth and adjust the trimmer until the peak of greatest intensity is obtained.

**NOTE D**—A "gimmick" capacity is used on the loop antenna in place of a trimmer. This normally requires no adjustment. However, if a new loop is installed it may be necessary to adjust the "gimmick" by increasing or decreasing the number of turns in the "gimmick." Complete the oscillator adjustment (C9) at 1400 KC, then adjust the "gimmick" at the same frequency.

## ALIGNMENT PROCEDURE

Check Dial Pointer position, see DIAL CALIBRATION paragraph.

Volume Control—Maximum All Adjustments. Allow Chassis and Signal Generator to "Heat Up" for several minutes.

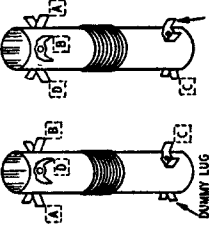
The equipment in column at right is required for Aligning:

SIGNAL GENERATOR	BAND SWITCH	DUMMY ANTENNA CONNECTION	CONDENSER SETTING	ADJUST TRIMMERS TO MAXIMUM (See Trimmer Illustrations)
455 KC Signal Grid of 1st. Det. Connect at Stator of Large Gang Section.	.1 mf.	B Range	Turn Rotor to Full Open	let I.F. (G13) & (C14) 2nd I.F. (C17) & (C18)
1400 KC External Antenna Clip	200 mmf.	B Range	Turn Rotor to 1400 KC Index Line. See Note B	SEE NOTE D
600 KC External Antenna Clip	200 mmf.	B Range	Turn Rotor to Max. Output and Resk	600 KC Padder (C10) Resk Rotor See Note C
1400 KC External Antenna Clip	200 mmf.	B Range	Turn Rotor to 1400 KC Index Line. See Note B	Oscillator Range B (C9)
Repeat above steps at 1400 and 600 KC until readjusting the oscillator Range B Trimmer (C9) causes no further improvement of output.				
16 MC External Antenna Clip	400 Ohm	D Range	Turn Rotor to 1400 KC Index Line. See Note B	Oscillator Range D (D5)
18 MC External Antenna Clip	400 Ohm	D Range	Turn Rotor to 1400 KC Index Line. See Note B	Ant. Range D (C2)

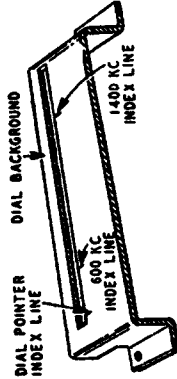
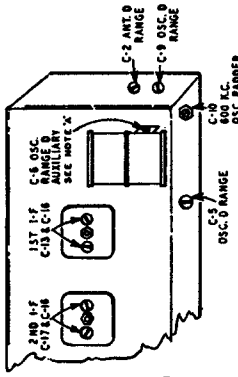
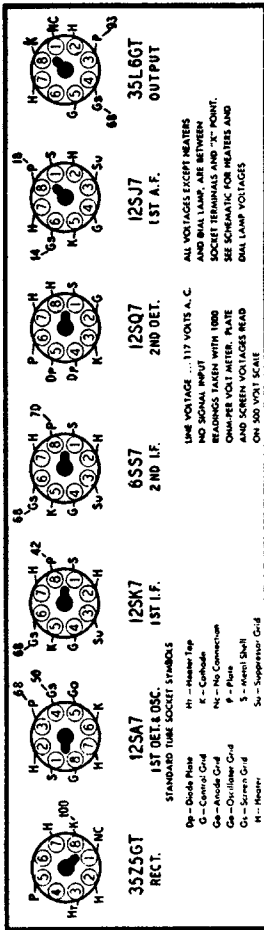
T-4  
"B" RANGE OSC. COIL



T-3  
"D" RANGE ANT. COIL

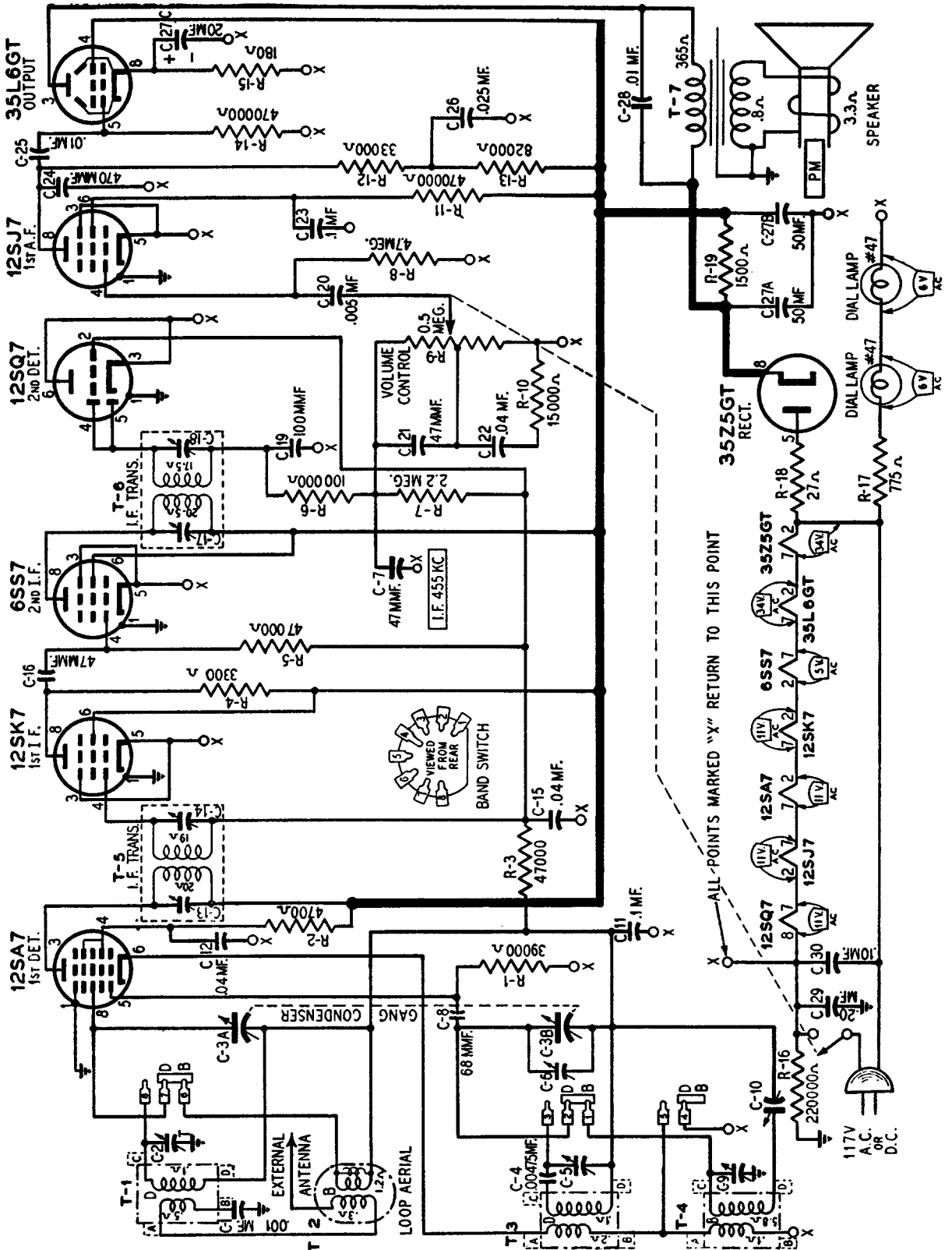


# 158



OHMS	WATTS	DIAL AND DRIVE ASSEMBLY
B05104 R 6 100,000	0.5	Mounting slide
B85225 R-7 2.2 meg	0.5	Rubber grommet
B85475 R-8 4.7 meg	0.5	Coak, cushion stud
36X309 R-9 Volume control and switch	0.5	Coak disc assembly
B04153 R-10 15,000	0.5	Dial scale
B04213 R-11 32,000	0.5	58X987 Dial background
B04323 R-12 32,000	0.5	58X987 Dial background
B04323 R-13 32,000	0.5	26A394 Pointer
B04323 R-14 470,000	0.5	15X220 Pointer bracket assembly complete with pulleys and studs
B04181 R-15 150	0.5	28X113 Drive card bracket (1/8 in. dia.)
B85224 R-16 220,000	0.5	20X485 Drive shaft
43X214 R-17 775	28	20X485 Drive shaft
B04270 R-18 27	0.5	18X192 Drive shaft spool
C85152 R-19 1500	1.8	21X564 Drive shaft spool
		7A135 Mkt. of Pilot light assembly
		Mk. of Pilot light

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



Wells-Gardner & Co. Model 37D14-600

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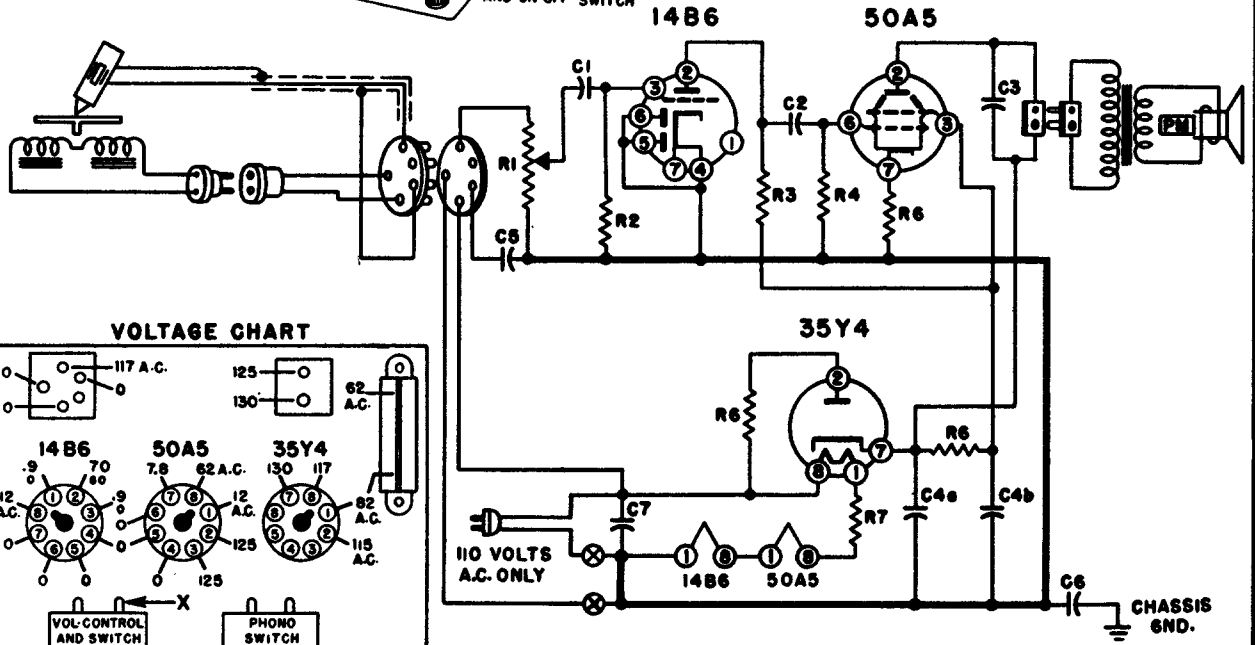
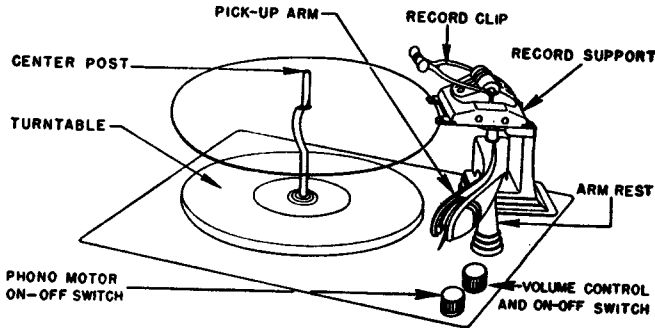
# 159

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

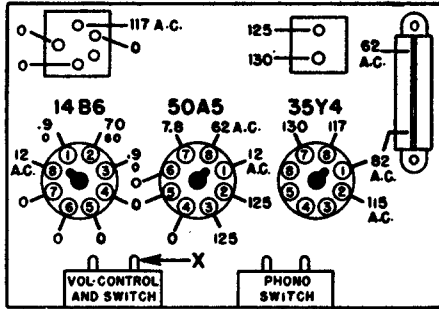
## TRUETONE

## MODEL D2604

Western Auto



### VOLTAGE CHART



### VOLTAGE DATA

Voltage measured from socket terminal to point marked "X". Large numerals indicate readings with vacuum tube voltmeter. Small numerals indicate readings with 1000 ohm-per-volt meter.

\*\*\*

### POWER SUPPLY

Operation on 105-125 volts, 60-cycle, alternating current only. Power consumption: 45 watts.

### RECORD CHANGER

Complete service information and parts list are covered by a separate service manual. Check record changer for model number since different record changers may be used from time to time.

### VARIABLE RESISTORS

Part No.	Symbol	Description
75B1-9	R1	1 Megohm Volume Control & Switch

### MISCELLANEOUS

Part No.	Description
12A3-3	Feet, Rubber
23D2-2	Grill, Speaker (Ivory)
23D2-4	Grill, Speaker (Mahogany)
33A11-1	Knob, On-Off
33A11-2	Knob, Volume
88A8-1	Plug for A.C. Motor (2 prong)
88A3-5	Plug for Phono Input (5 prong)
88A3-4	Cover for 5 prong Plug
88A5-4	Plug for Speaker (2 prong)

### PAPER CONDENSERS

Part No.	Symbol	Description
64B1-12	C1	.005 Mfd. 600 V.D.C.
64B1-25	C2	.01 Mfd. 400 V.D.C.
64B1-24	C3	.02 Mfd. 400 V.D.C.
64B1-20	C5 & C6	.1 Mfd. 400 V.D.C.
64B1-22	C7	.05 Mfd. 400 V.D.C.

### ELECTROLYTIC CONDENSERS

Part No.	Symbol	Description
67A10	{ C4A	50 Mfd. 150 V.
	{ C4B	30 Mfd. 150 V.

### RESISTORS

Part No.	Symbol	Description
60B8-106	R2	10 Megohms 1/2 Watt
60B8-274	R3	270,000 ohms 1/2 Watt
60B8-474	R4	470,000 ohms 1/2 Watt
60B14-151	R5	150 ohms 1 Watt
60B14-152	R6	1,500 ohms 1 Watt
61A3-4	R7	130 ohms 5 Watt
60B14-330	R8	33 ohms 1 Watt

### MISCELLANEOUS (Cont'd)

Part No.	Description
87A12-1	Socket, Tube
78B9-2	Speaker and Output Transformer
	Output Transformer. (When ordering, specify all of the numbers on the transformer and speaker.)
77A5-2	Switch, On-Off (Phono)

### PHONOGRAPH PARTS

(See Record Changer Service Manual for Detailed List.)

Part No.	Description
G400A12	Centerpost
409A1	Crystal Cartridge
G400A23	Idle Wheel (407B3 Motor)
G400A52	Idle Wheel (407B2 Motor)
G400A52	Idle Wheel (407B1 Motor)
407B3	Motor, 60 cycle 115 volt, A.C. (Types 407B1 & 407B2 also used.)

# 160

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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

WESTERN AUTO SUPPLY COMPANY

## MODEL D2615

Factory Model 6D110

### RESISTORS

R1	150,000 ohms, 20%, 1/2 w.
R2	100 ohms, 10%, 1/2 w.
R3	150,000 ohms, 20%, 1/2 w.
R4	4700 ohms, 10%, 1/2 w.
R5	100,000 ohms, 20%, 1/2 w.
R6	47,000 ohms, 10%, 1/2 w.
R7	22 ohms, 10%, 1/2 w.
R8	220 ohms, 10%, 1 w.
R9	1200 ohms, 10%, 1 w.
R10	150 ohms, 10%, 1/2 w.
R11	3.3 megohms, 20%, 1/2 w.
R12	150 ohms, 10%, 1/2 w.
R13	470,000 ohms, 20%, 1/2 w.
R14	220,000 ohms, 20%, 1/2 w.
R15	Volume control, 1 megohm
R16	47,000 ohms, 20%, 1/2 w.
R17	4.7 megohms, 20%, 1/2 w.

### CONDENSERS

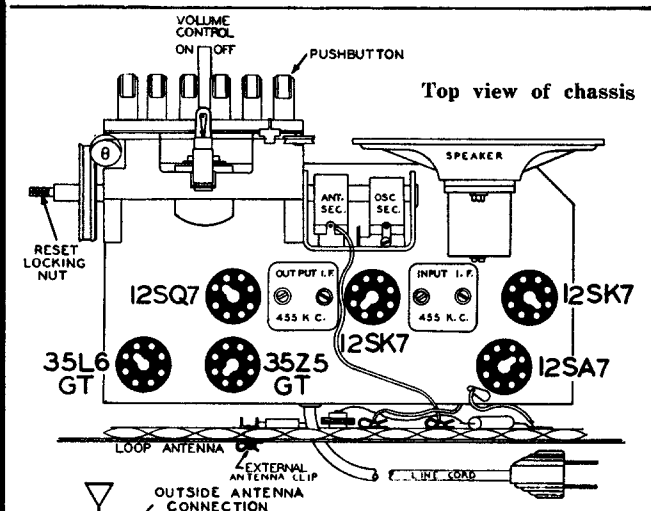
C	2-gang variable
C1	.01 x 400 volts
C2	.000125 mica
C3	.02 x 400 volts
C4	Antenna trimmer on gang
C5	.1 x 400 volts
C6	.25 x 200 volts
C7	Oscillator trimmer on gang
C8	.0001 mica
C9	.0001 mica
C10	40 mfd. lytic x 150 w.v.
C11	20 mfd. lytic x 150 w.v.
C12	20 mfd. lytic x 150 w.v.

NOTE: C10, C11, C12 are in same unit. In 25-cycle sets values are 60 mfd., 40 mfd., 40 mfd.

C13	.05 x 200 volts
C14	.02 x 400 volts
C15	.004 x 600 volts
C16	.00005 mica
C17	.0001 mica
C18	.002 x 600 volts
C19	.2 x 400 volts
C20	.0001 mica

### MISCELLANEOUS

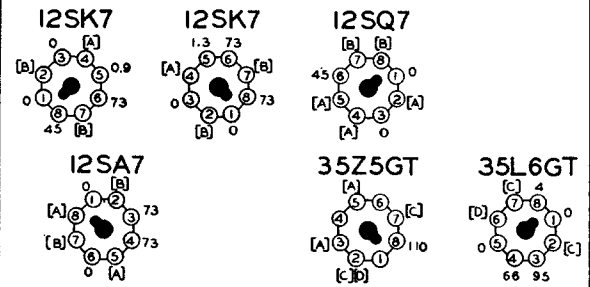
T1	Loop antenna assembly
T2	Loading coil
T3	Oscillator coil
T4	Input I.F. coil
T5	Output I.F. coil



### BOTTOM VIEW OF CHASSIS

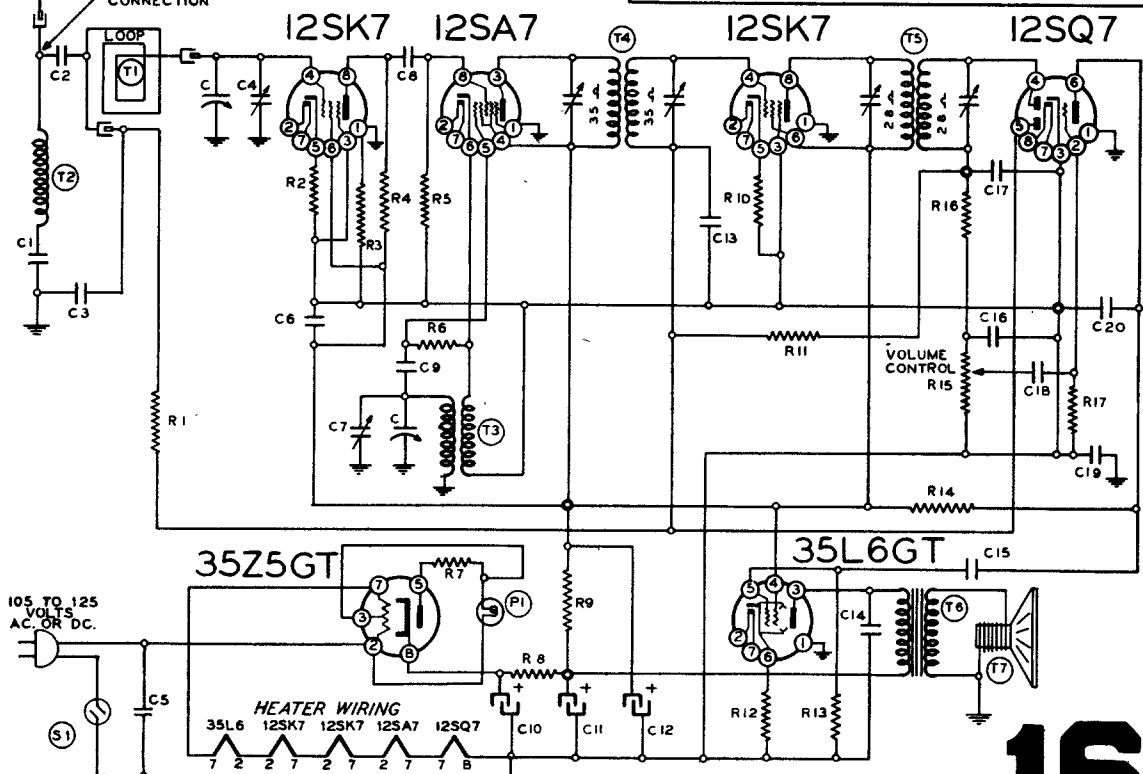
VOLTAGES MEASURED WITH 1000 OHM PER VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND B - WITH A LINE VOLTAGE OF 117 VOLTS A.C.

[A] CANNOT BE READ WITH VOLTMETER  
[B] 12 VOLTS A.C. BETWEEN PINS MARKED B  
[C] 32 VOLTS A.C. BETWEEN PINS 2 & 7  
[D] 117 VOLTS A.C. BETWEEN PINS MARKED D



### REAR OF CHASSIS

Voltages at tube socket terminals



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# 161



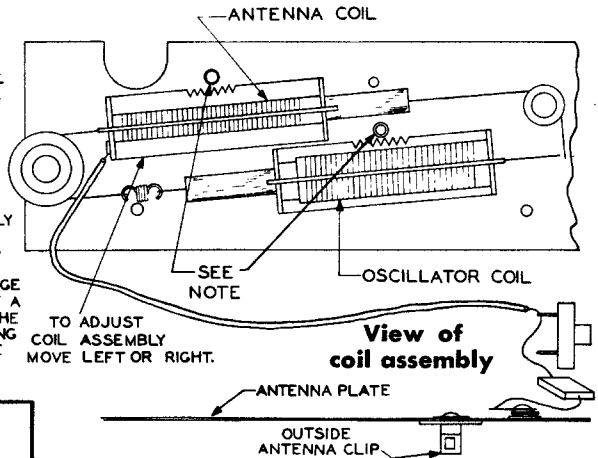
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

**WESTERN AUTO SUPPLY**

**MODEL D2610 or D2611**

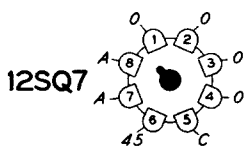
**Factory Model 5D116 or 5D120**

NOTE:  
THE ANTENNA COIL ASSEMBLY IS MADE SO THAT IT IS MOVABLE LEFT OR RIGHT. WHEN MAKING THE ADJUSTMENT AS GIVEN IN THE ALIGNMENT PROCEDURE, MOVE THE COIL ASSEMBLY VERY SLOWLY. IT CAN BE MOVED BY HAND OR BY PIVOTING ONE EDGE OF THE BLADE OF A SCREWDRIVER IN THE HOLE AND ENGAGING THE BLADE IN THE GEAR TEETH OF THE COIL FORM.

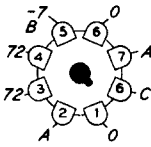
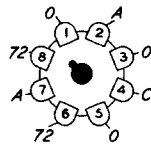
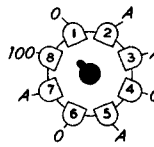
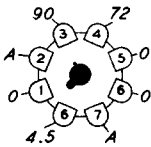
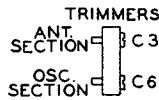


NOTES - VOLTAGES MEASURED WITH A 1000-OHM-PER-VOLT VOLTMETER BETWEEN SOCKET TERMINALS AND NEGATIVE B SUPPLY.

- A - CANNOT BE MEASURED WITH VOLTMETER.
- B - OSCILLATOR VOLTAGE MEASURED WITH R.F. CHOKE IN SERIES WITH VOLTMETER LEAD.
- C - DIODE VOLTAGE, LESS THAN ONE VOLT NEGATIVE, CANNOT BE MEASURED ACCURATELY.



**Voltages at tube sockets**



**50L6GT**

**35Z5GT.**

**12SK7**

**12SA7**

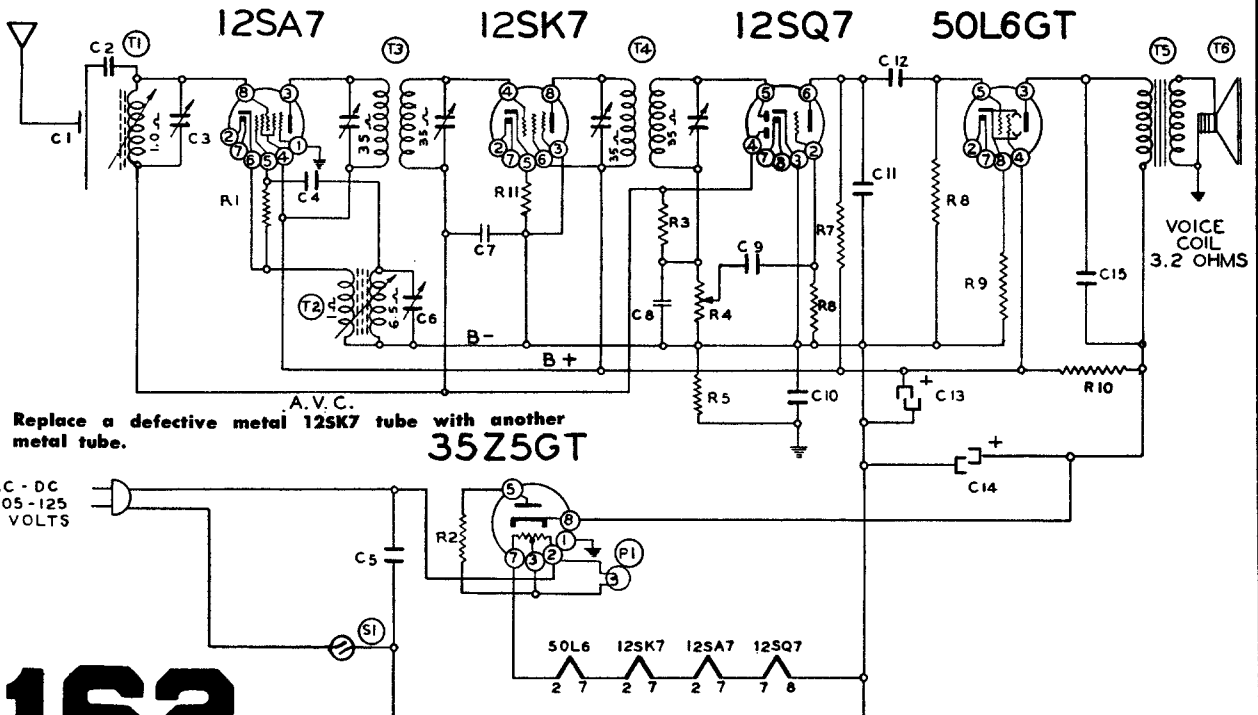
**BOTTOM VIEW OF CHASSIS**

## CONDENSERS

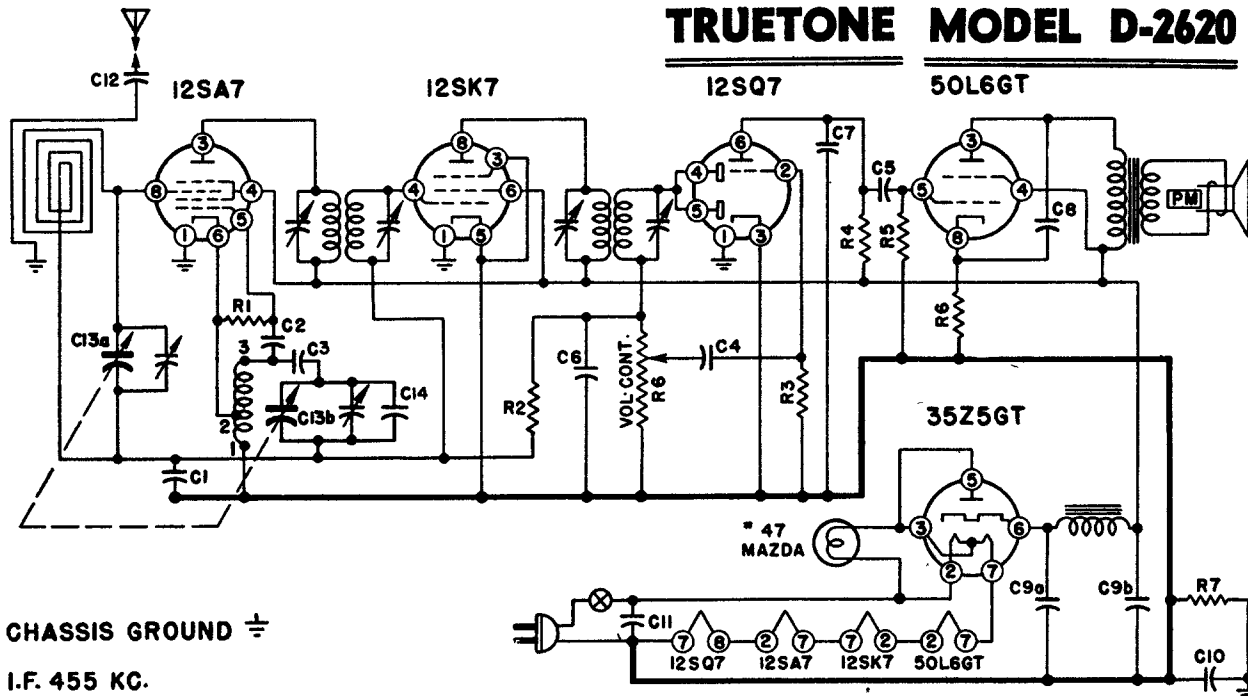
- C1 See "Antenna plate" under "Miscellaneous"
- C2, C8 .00025 mfd., mica, 20%
- C3, C6 Dual trimmer, antenna and oscillator
- C4 .00005 mfd., mica, 10%
- C5 .1 mfd., 400 volts, +50%-10%
- C7 .95 mfd., 200 volts, 25%
- C9 .002 mfd., 600 volts, 25%
- C10 .15 mfd., 400 volts, 25%
- C11 .0004 mfd., mica, 20%
- C12 .01 mfd., 200 volts, 25%
- C13, C14 Electrolytic, for 60-cycle sets, 20 mfd. x 150 volts, 40 mfd. x 150 volts
- or C13, C14 Electrolytic, for 25-cycle sets, 60 mfd. x 150 volts, 60 mfd. x 150 volts
- C15 .01 mfd., 400 volts, 25%

## RESISTORS \*

- R1 22,000 ohms, 10%, 1/2 watt
- R2 22 ohms, 20%, 1/2 watt
- R3 3.3 megohms, 20%, 1/2 watt
- R4 Volume control, 500,000 ohms
- R5, R7 150,000 ohms, 10%, 1/2 watt
- R6 4.7 megohms, 20%, 1/2 watt
- R8 330,000 ohms, 20%, 1/2 watt
- R9 150 ohms, 10%, 1/2 watt
- R10 1500 ohms, 10%, 1 watt
- R11 100 ohms, 10%, 1/2 watt



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS TRUETONE MODEL D-2620



CHASSIS GROUND  $\perp$

I.F. 455 KC.

### CONDENSERS

Symbol No.	Capacity	Type	Symbol No.	Capacity	Type
C-1	.1 mfd	200 V.	C-9a	30. mfd (Elect.)	150 V.
C-2	.00005 mfd	Mica	C-9b	50. mfd (Elect.)	150 V.
C-3	.02 mfd	400 V.	C-10	.2 mfd	900 V.
C-4	.01 mfd	400 V.	C-11	.05 mfd	400 V.
C-5	.01 mfd	400 V.	C-12	.005 mfd	600 V.
C-6	.00025 mfd	Mica	C-13a	.00042 mfd (max.)	Variable
C-7	.0005 mfd	Mica	C-13b	.00018 mfd (max.)	Variable
C-8	.02 mfd	400 V.	C-14	.00002 mfd	Mica

### RESISTORS

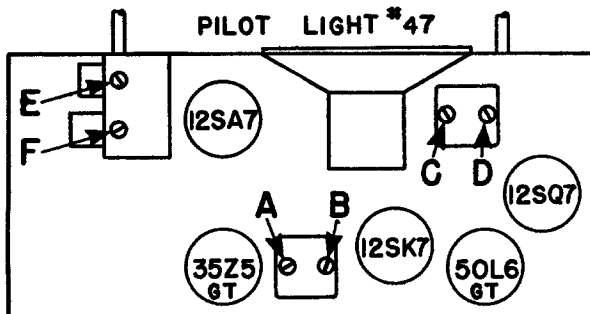
Symbol No.	Ohms	Type
R-1	22,000 ohms	C 1/2 W
R-2	1 meg ohm	C 1/2 W
R-3	10 meg ohms	C 1/2 W
R-4	220,000 ohms	C 1/2 W
R-5	470,000 ohms	C 1/2 W
R-6	150 ohms	C 1/2 W
R-7	150,000 ohms	C 1/2 W
R-8	1 meg ohm	Volume Control

BAND	SIGNAL GENERATOR Frequency Setting	Dummy Antenna	Connection to Radio	Variable Condenser Setting	Trimmers Adjusted (In Order Shown)	Trimmer Function	Adjustment
I. F.	455 KC.	.1 MFD.	Gang Condenser Ant. Stator	Rotor full open (Plates out of mesh)	C, D	Output I.F.	Adjust to maximum output
	455 KC.	.1 MFD.	Gang Condenser Ant. Stator	Rotor full open (Plates out of mesh)	A, B	Input I.F.	Adjust to maximum output
BROAD-CAST	1630 KC.	.1 MFD.	Gang Condenser Ant. Stator	Rotor full open (Plates out of mesh)	E gang-front	Oscillator	Adjust to maximum output
	1400 KC.	Inductive Coupling—Use a loop or place Gen. lead close to Rec. loop. No connection bet. Receiver and Generator		Set dial to tune in Generator Signal	F gang-rear	Antenna	Adjust to maximum output

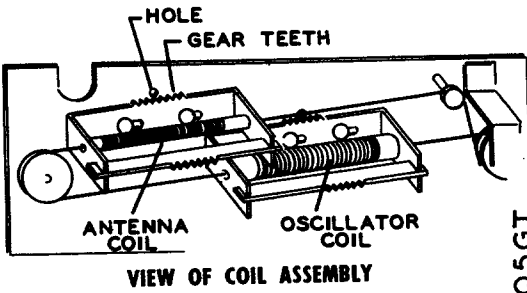
- Volume control—Maximum all adjustments.
- Connect radio chassis to ground post of signal generator with a short heavy lead.
- Connect dummy antenna value in series with generator output lead, when needed (see below).
- Connect output meter across primary of output transformer.
- Allow chassis and signal generator to "heat up" for several minutes.

The following equipment is required for aligning:

- An all wave signal generator which will provide an accurately calibrated signal at the test frequencies as listed.
  - Output indicating meter.
  - Non-metallic screwdriver.
- Dummy antenna—.1 mf.



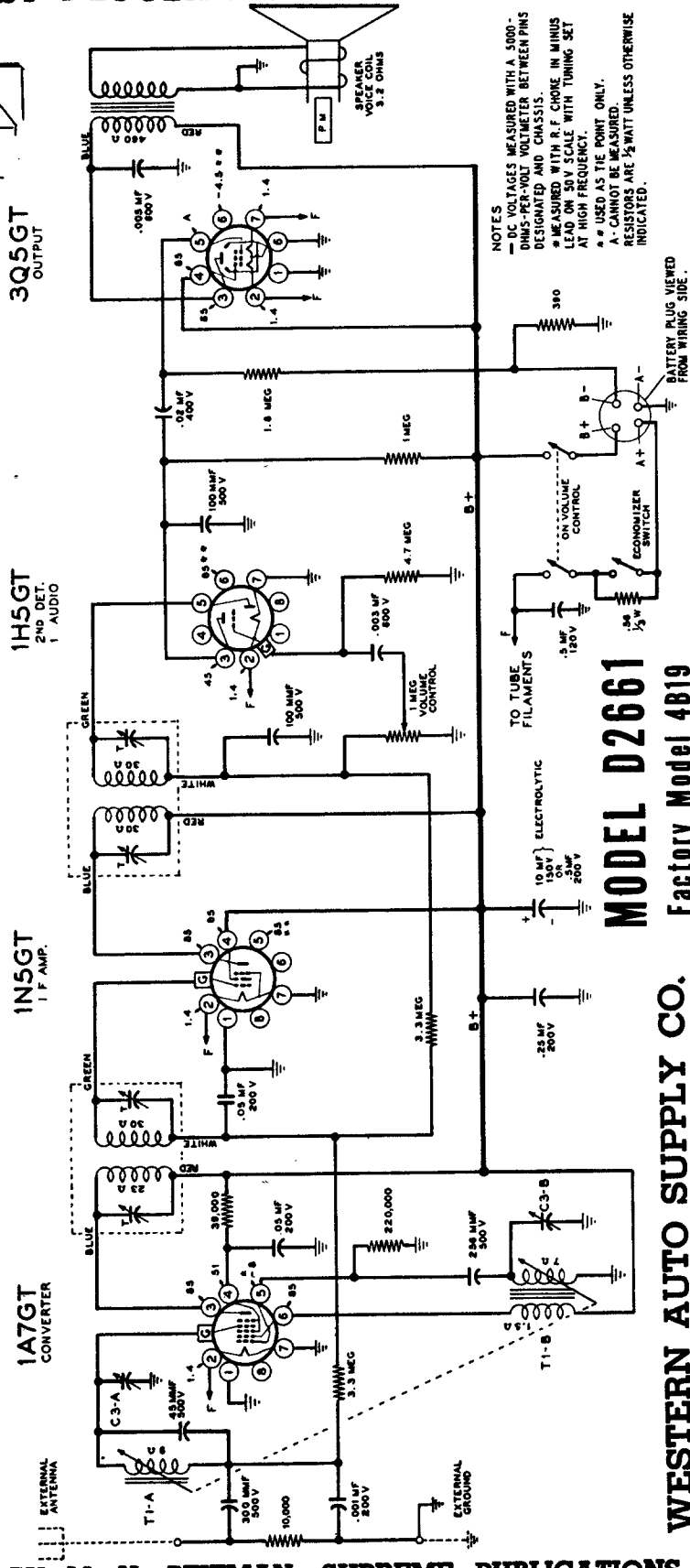
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



- Output meter across 3.2-ohm output load.
- Align for maximum output. Reduce input as needed to keep output near 0.4 volts.
- Volume control at maximum for all adjustments.
- Connect ground post of signal generator to radio chassis.

SIGNAL GENERATOR		Connection to Radio	TUNER SETTING	ADJUST FOR MAXIMUM OUTPUT (in order shown)
Frequency	Dummy Antenna			
455 kc	.1 mf	Grid (top cap) of 1A7GT	Iron cores all the way out	Trimmers on output and input I.F. cans
1700 kc	.1 mf	Grid (top cap) of 1A7GT	Iron cores all the way out	Oscillator trimmer C3-B
1700 kc	200 mmf	Antenna lead	Iron cores all the way out	Antenna trimmer C3-A
1400 kc	200 mmf	Antenna lead	Turn dial to 1400 kc	Adjust position of antenna coil (see coil view)*

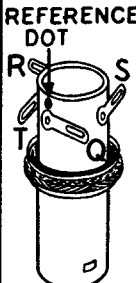
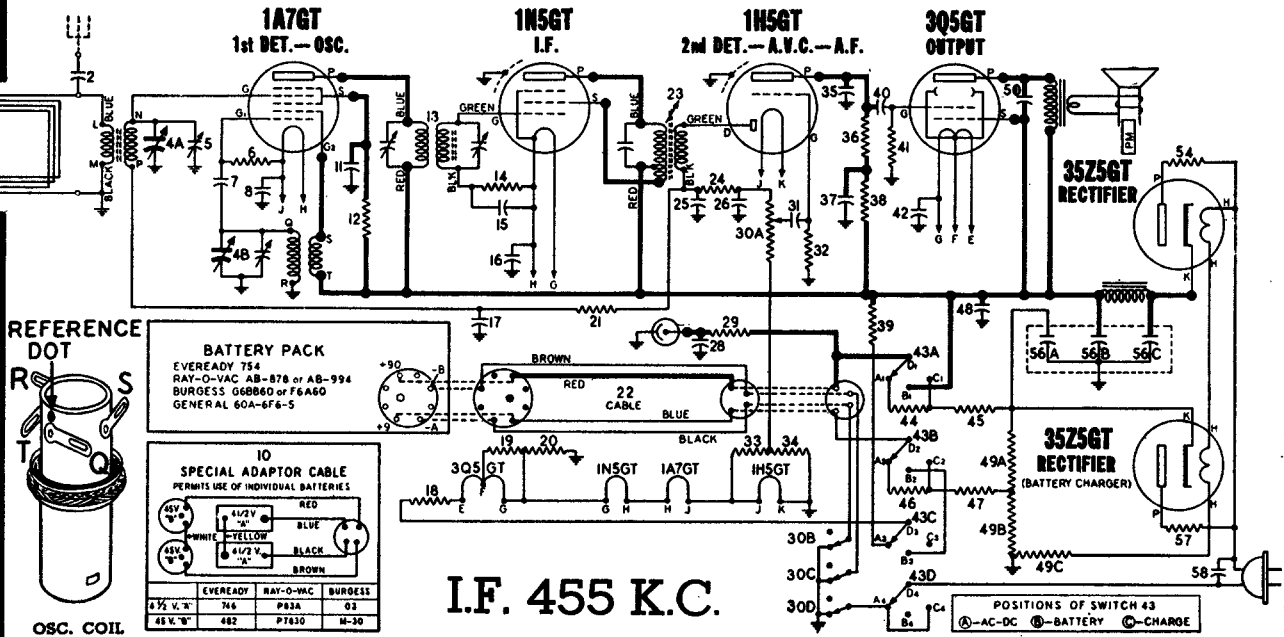
\*This adjustment and the previous adjustment are interlocking; therefore repeat the two adjustments alternately for best results.



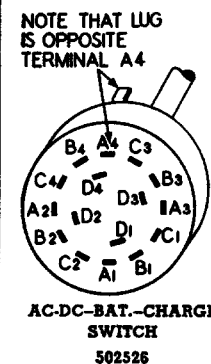
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS TRUETONE MODEL D3635

CODE No. SW-9007-C

DUMMY ANT. IN SERIES WITH SIGNAL GENERATOR	CONNECT HIGH SIDE OF SIG. GENERATOR TO	SIGNAL GENERATOR FREQUENCY	RECEIVER DIAL SETTING	TRIMMER NUMBER	TRIMMER DESCRIPTION	TYPE OF ADJUSTMENT
300 MMFD. Condenser	Grid Cap of 1A7GT Tube	455 KC.	Any Point Where It Does Not Affect Signal	1	2nd I.F.	Loosen lock nut. Adjust screw for maximum output.
				2-3	1st I.F.	Adjust for maximum output. Re-check 1, 2 and 3 for maximum output and tighten lock nut on 1.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	1500 KC. (Slide set into cabinet and replace pointer to set dial.)	4	Broadcast Oscillator (Shunt)	Adjust trimmer for maximum output.
300 MMFD. Condenser	Center Terminal on Antenna Terminal Strip at bottom of cabinet.	1500 KC.	Tune to 1500 KC. Generator Signal	5	Broadcast Antenna	Adjust for maximum output. Slide chassis all the way into cabinet when making this adjustment.



OSC. COIL  
502498



**RESISTORS**

6	502133	Resistor-carbon 220,000 ohms 1/4 watt
12	502131	Resistor-carbon 47,000 ohms 1/4 watt.
14	502136	Resistor-carbon 10 Meg. 1/4 watt.
18	502455	Resistor-carbon 27 ohms 1/4 watt.
19	502457	Resistor-carbon 330 ohms 1/4 watt.
20	502458	Resistor-carbon 430 ohms 1/4 watt.
21	502269	Resistor-carbon 3.3 Meg. 1/4 watt.
24	502132	Resistor-carbon 100,000 ohms 1/4 watt
29	502269	Resistor-carbon 3.3 Meg. 1/4 watt.
30-A, B, C, D.	502525	Volume control (with switch) 1 Meg.
32	502269	Resistor-carbon 3.3 Meg. 1/4 watt.
33, 34	502456	Resistor-carbon 220 ohms 1/4 watt.
36	502268	Resistor-carbon 1 Meg. 1/4 watt.
38	502134	Resistor-carbon 470,000 ohms 1/4 watt
39	500712	Resistor-wire wound 1830 ohms 5 watt
41	502135	Resistor-carbon 2.2 Meg. 1/4 watt.
44	502266	Resistor-carbon 15,000 ohms 1/4 watt.
45	502459	Resistor-carbon 6800 ohms 1/4 watt.
46	502457	Resistor-carbon 330 ohms 1/4 watt.
47	502455	Resistor-carbon 27 ohms 1/4 watt.
49-A, B, C	500715	Resistor-wire wound A-1460 ohms 10 watt. B-155 ohms 1 watt C-310 ohms 10 watt
54	502454	Resistor-wire wound 47 ohms 1 watt
57	502454	Resistor-wire wound 47 ohms 1 watt

**CONDENSERS**

2	502150	Condenser-.004 Mfd. 600 volt.
4-A, B	502494	Condenser-variable gang.
5	119132	Condenser-trimmer 2 to 15 Mmfd.
7	502159	Condenser-mica 50 Mmfd. 500 volt.
8	502153	Condenser-.05 Mfd. 200 volt.
11	502547	Condenser-electrolytic 4 Mfd. 150 volt
15	502153	Condenser-.05 Mfd. 200 volt.
16	502155	Condenser-.1 Mfd. 200 volt.
17	502153	Condenser-.05 Mfd. 200 volt.
25, 26	502159	Condenser-mica 50 Mmfd. 500 volt.
28	502155	Condenser-.1 Mfd. 200 volt.
31	502156	Condenser-.004 Mfd. 400 volt.
35	502160	Condenser-mica 110 Mmfd. 500 volt.
37	502155	Condenser-.1 Mfd. 200 volt.
40	502151	Condenser-.01 Mfd. 400 volt.
42	502527	Condenser-electrolytic 50 Mfd. 25 volt
48	502155	Condenser-.1 Mfd. 200 volt.
50	502453	Condenser-.002 Mfd. 400 volt.
56-A, B, C	500714	Condenser-electrolytic A-20 Mfd. 150 volt B-20 Mfd. 200 volt C-20 Mfd. 200 volt
58	502153	Condenser-.05 Mfd. 200 volt.

Westinghouse  
RADIO · TELEVISION

**VOLTAGE AND CURRENT TABLE**  
ALL VOLTAGES ARE MEASURED FROM THE NEGATIVE SIDE OF THE OVAL FILTER CAPACITOR USING A 20,000 OHMS PER VOLT METER. LINE VOLTAGE IS 117 V.A.C. SIGNAL VOLTAGE IS ZERO.

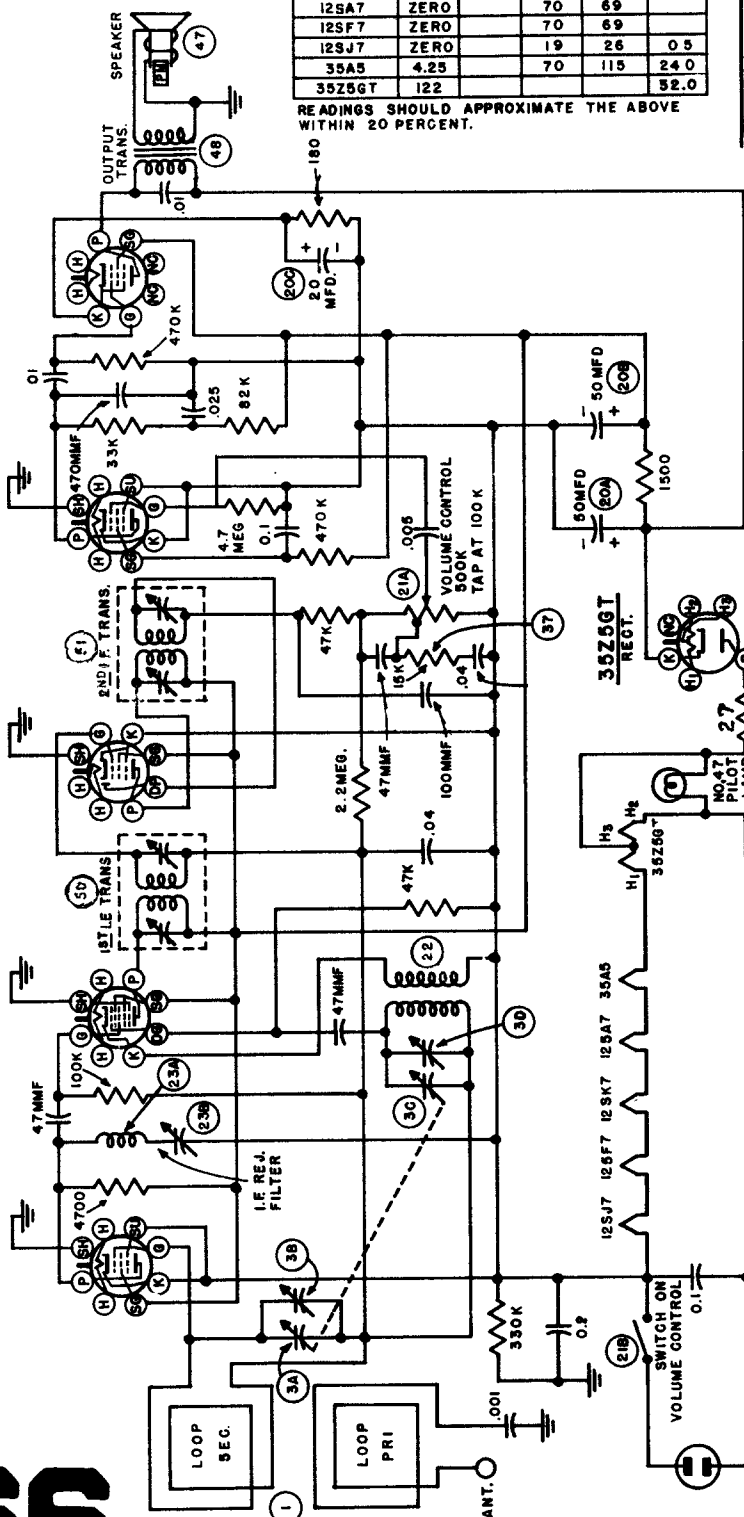
TUBE	SOCKET TERMINAL			I <sub>k</sub> ma
	K	56	P	
12SK7	ZERO	70	31	
12SA7	ZERO	70	69	
12SF7	ZERO	70	69	
12SJ7	ZERO	19	26	0.5
35A5	4.25	70	115	24.0
35Z5GT	122			52.0

READINGS SHOULD APPROXIMATE THE ABOVE WITHIN 20 PERCENT.

Steps	Connect Signal Generator to—	Adjust Signal Generator to—	Tune Radio Dial to—	Adjust for Maximum Output
1	12SF7 grid in series with a .01 mfd. capacitor	455 kc	quiet point near 1600 kc.	primary and secondary 2nd i-f transformer
2	12SA7 grid in series with a .01 mfd. capacitor	455 kc	quiet point near 1600 kc.	primary and secondary 1st i-f transformer
3	12SA7 grid in series with a .01 mfd. capacitor	455 kc	quiet point near 1600 kc.	repeat 1 and 2
4	antenna terminal	455 kc	600 kc	adjust i-f rejection trimmer for minimum
5	antenna terminal in series with a 50 mmfd. capacitor	1615 kc	gang at minimum	oscillator trimmer
6	radiated signal from signal generator	1400 kc	1400 kc	adjust antenna trimmer

Westinghouse RADIO · TELEVISION **MODELS H-125 & H-126**

12SK7 R.F.  
12SA7 CONVERTER  
12SF7 I.F. & DET.-A.V.C.  
12SJ7 A.F.  
35A5 OUTPUT



INTERMEDIATE FREQUENCY : 455 KC

**RESISTANCE TABLE**

ITEM	PRIMARY OHMS	SECONDARY OHMS	REMARKS
1		2	
22	1/2	7	
23A	50		
50	27	26	
51	27	23	VOICE COIL DISCONNECTED
47	2.95		VOICE COIL DISCONNECTED
48	37.5	1/4	

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

*Westinghouse Electric Corporation*

## MODELS H-122 & H-130

### Frequency Range:

Standard Broadcast .....550 to 1600 kc  
Intermediate Frequency .....455 kc

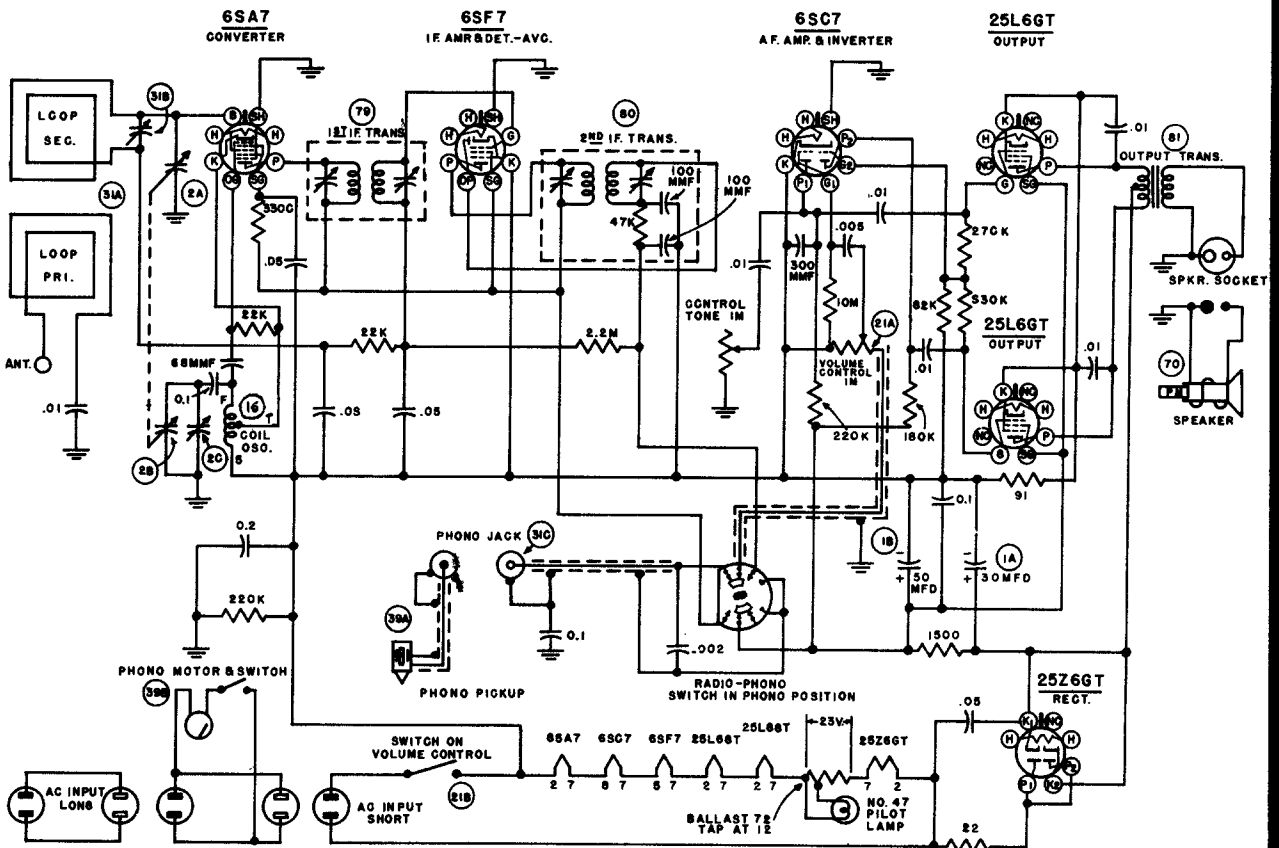
### Power Output:

Undistorted (radio) ..... 3 watts  
Undistorted (phonograph) .....3.5 watts  
Maximum ..... 5 watts

### Loudspeaker:

Type .....6 $\frac{5}{8}$ " dia. P.M. dynamic  
Voice Coil Impedance .....3.2 ohms

When replacing tubes remove the snap-on fasteners or screws which hold the rear cover-loop assembly in place and carefully swing the loop around to give access to the chassis. Turn the tuning dial to 550 kc to prevent damage to the tuning capacitor plates when removing the 6SA7 tube. This will allow removal or insertion of the tubes without difficulty.



### VOLTAGE AND CURRENT TABLE

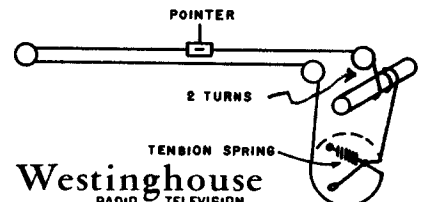
ALL VOLTAGES ARE MEASURED FROM THE NEGATIVE SIDE OF THE DUAL FILTER CAPACITOR USING A 20,000 OHMS PER VOLT METER. ALL CURRENTS ARE MEASURED FROM TOP OF TUBE SOCKETS USING A BREAK-IN ADAPTER. LINE VOLTAGE 117V.A.C. SIGNAL VOLTAGE ZERO.

TUBE	SOCKET TERMINAL			IK mA
	K	S8	P	
6SA7	ZERO	G5	B2	
6B07	ZERO			NO.1-48 NO.2-30
6SF7	ZERO	B2	B2	
25L6GT	5.4	B2	120	60
25Z6GT	128			84

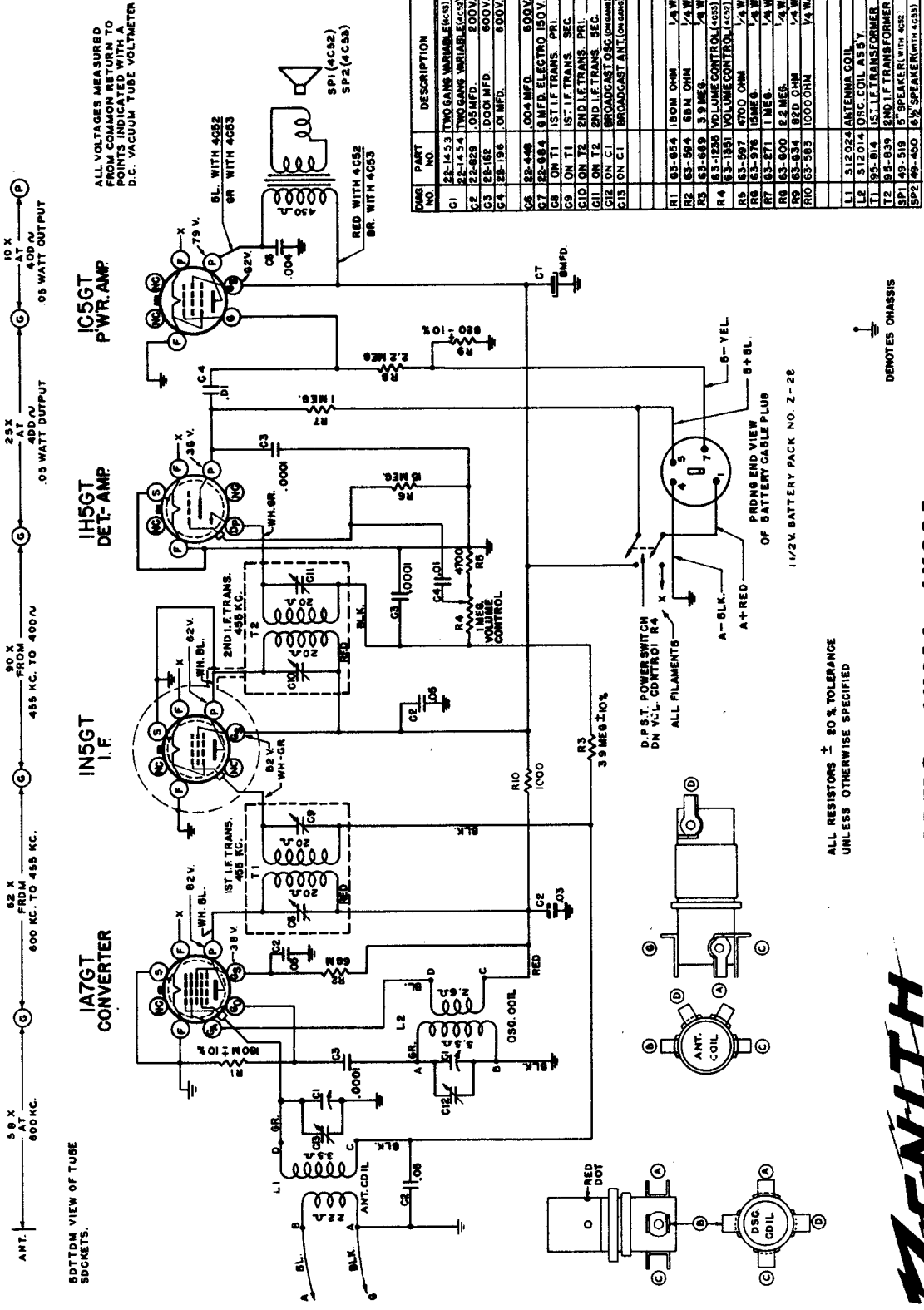
READINGS SHOULD APPROXIMATE THE ABOVE WITHIN 20 PERCENT.

### RESISTANCE TABLE

ITEM	PRIMARY OHMS	SECONDARY OHMS	REMARKS
31A	$\frac{1}{2}$	$\frac{1}{2}$	
16	"F" TO "S" - $\frac{1}{2}$	"F" TO "S" - $\frac{1}{2}$	"F" TO "S" - $\frac{1}{2}$ OHMS
79	28	28	
80	19	19	
80		47,000	INCLUDES INTERNAL RESISTOR IN SERIES WITH SECONDARY.
81	288		PLATE TO PLATE
81		$\frac{1}{2}$	PLUGS REMOVED FROM SPEAKER SOCKET
7C		3.2	PLUGS REMOVED FROM SPEAKER SOCKET



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



DIAG. NO.	PART NO.	DESCRIPTION
C1	22-14-53	TWO GANS. VARIABLE (K-10)
C2	22-14-54	TWO GANS. VARIABLE (4C53)
C3	22-82-29	1.05 MFD. 200V.
C4	22-162	1.00 MFD. 600V.
C5	22-198	0.1 MFD. 600V.
C6	22-448	0.004 MFD. 600V.
C7	22-68A	8 MFD. ELECTRO. 150V.
C8	ON T1	1ST I.F. TRANS. PRI.
C9	ON T1	1ST I.F. TRANS. SEC.
C10	ON T2	2ND I.F. TRANS. PRI.
C11	ON T2	2ND I.F. TRANS. SEC.
C12	ON C1	BROADCAST ANT. (ON TAP)
C13	ON C1	BROADCAST ANT. (ON TAP)
R1	63-854	180M OHM 1/4 W.
R2	63-594	58M OHM 1/4 W.
R3	63-583	3.9 MEG. 1/4 W.
R4	63-1285	VOLUME CONTROL (4C53)
R5	63-597	4700 OHM 1/4 W.
R6	63-576	15M OHM 1/4 W.
R7	63-571	1 MEG. 1/4 W.
R8	63-800	2.2 MEG. 1/4 W.
R9	63-834	82 OHM 1/4 W.
R10	63-585	1000 OHM 1/4 W.
L1	312024	ANTENNA COIL
L2	312014	OSC. COIL AS 5 Y.
T1	95-814	1ST I.F. TRANSFORMER
T2	95-839	2ND I.F. TRANSFORMER
SP1	49-519	5" SPEAKER WITH 4C52
SP2	49-450	6 1/2" SPEAKER WITH 4C53



**MODELS 4K016-4K035**  
**CHASSIS Nos. 4C52-4C53**  
 Alignment data on page 169.

I.F. FREQUENCY 455 KC.  
 TUNING RANGE 535-1620 KC.

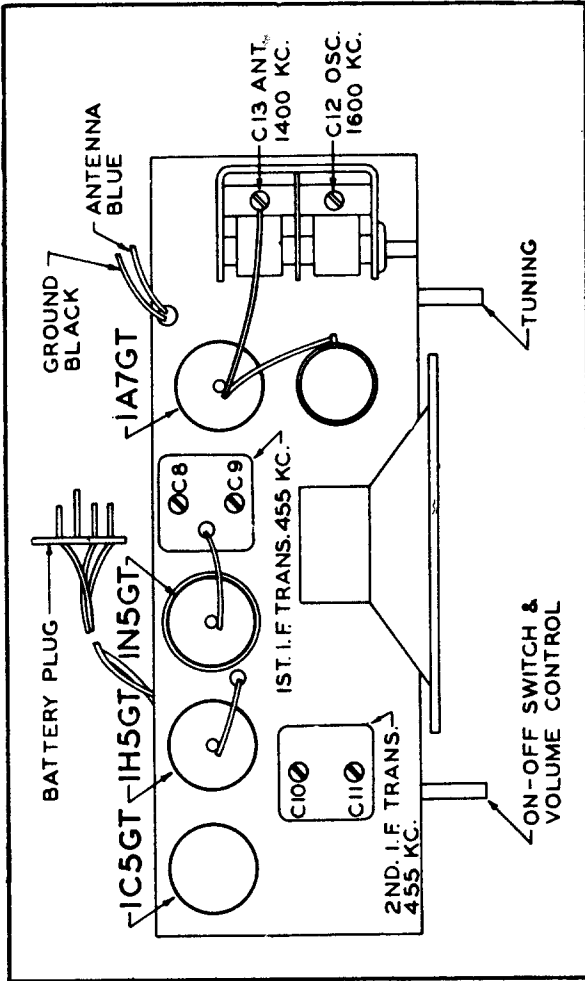
Zenith Radio Corp. Continued from page 168.

**MODELS 4K016-4K035  
CHASSIS Nos. 4C52-4C53**

The alignment of this chassis is conventional.

A 4700 ohm resistor R5 between the low end of the volume control and ground allows some audio output with normal signal input when the volume control is in counter clockwise positions. This is the Guardian Reminder circuit.

If the audio output is objectionably high (with the volume control in counter clockwise position) resistor R5 may be reduced in value to 2500 ohms or removed from the circuit and the low end of the control grounded.



**TUBE AND TRIMMER LOCATION**

**ALIGNMENT PROCEDURE**

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc	600 Kc.	C-8, C-9, C-10, C-11	Align I. F.
2	Antenna and Ground	200 mmfd.	1600 Kc.	1600 Kc.	C-12	Set Oscillator to Dial Scale.
3	Antenna and Ground	200 mmfd.	1400 Kc.	1400 Kc.	C-13	Align antenna stage.





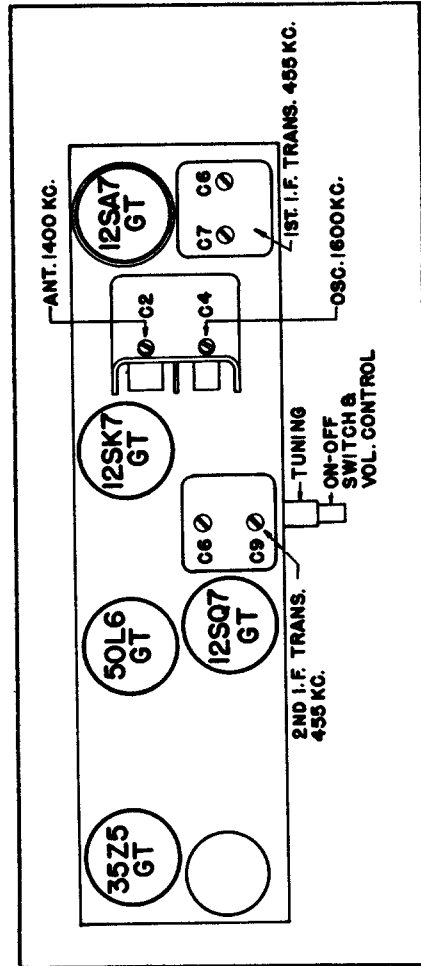
# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## ALIGNMENT PROCEDURE

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	C-6, C-7, C-8, C-9	Align I. F.
2	One turn loop Coupled loosely to wave magnet	--	1600 Kc.	1600 Kc.	C-4	Set Oscillator to Dial Scale.
3	"	--	1400 Kc.	1400 Kc.	C-2	Align Antenna Stage



**MODELS 5D011-5D027**  
**CHASSIS No. 5C01**



TUBE AND TRIMMER LOCATION

Circuit diagram on page 170.



**MODELS 5R080-5R086  
CHASSIS Nos. 5C02-5C04**

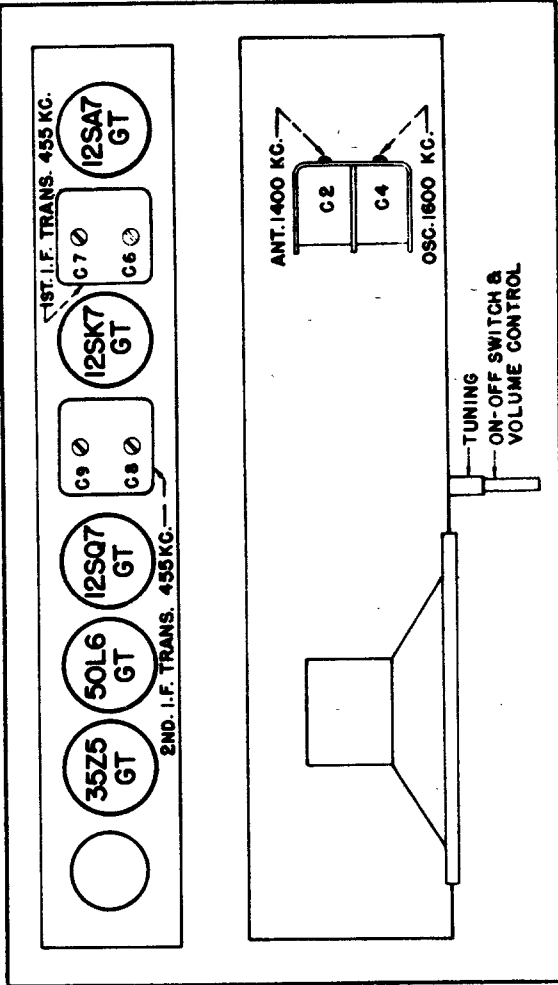
Zenith Radio Corp. Continued from page 172.

The 5C02 and 5C04 chassis are identical electrically. Chassis 5C02 has a Record Reject push button switch on the receiver control panel to reject records.

The socket P1 is used to connect the automatic record changer to the receiver.

The Phono-Radio switch is a two position double acting push-button switch and when in the "in" position connects the changer for playing records.

Chassis 5C04 has the same Phono-Radio switch arrangement. However, the 5C04 does not have socket P1 and the Record Reject switch. The record player is connected to the receiver by a shielded cable and socket arrangement.



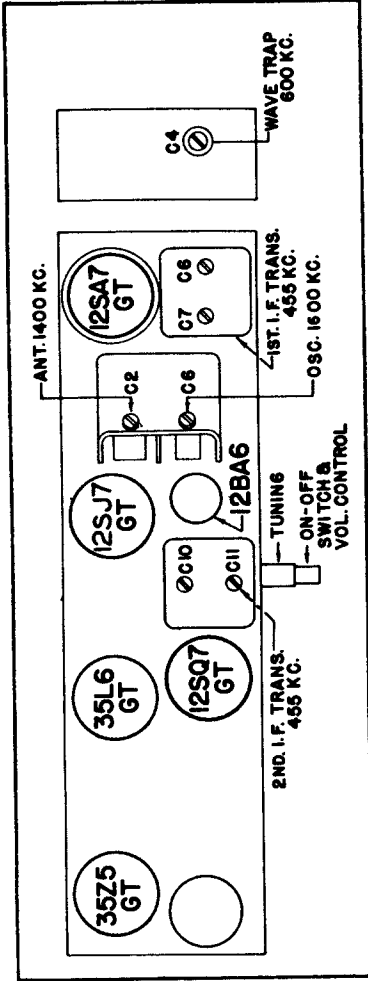
**TUBE AND TRIMMER LOCATION**

**ALIGNMENT PROCEDURE**

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter	.5 Mfd.	455 Kc.	1600 Kc.	C-6, C-7, C-8, C-9	Align I. F.
1	Grid		1600 Kc.	1600 Kc.	C-4	Set Oscillator to Dial Scale.
2	Single Turn Loop Loosely Coupled to Wave magnet		1400 Kc.	1400 Kc.	C-2	Align Ant
3						



Zenith Radio Corp. Continued from page 174.



**TUBE AND TRIMMER LOCATION**

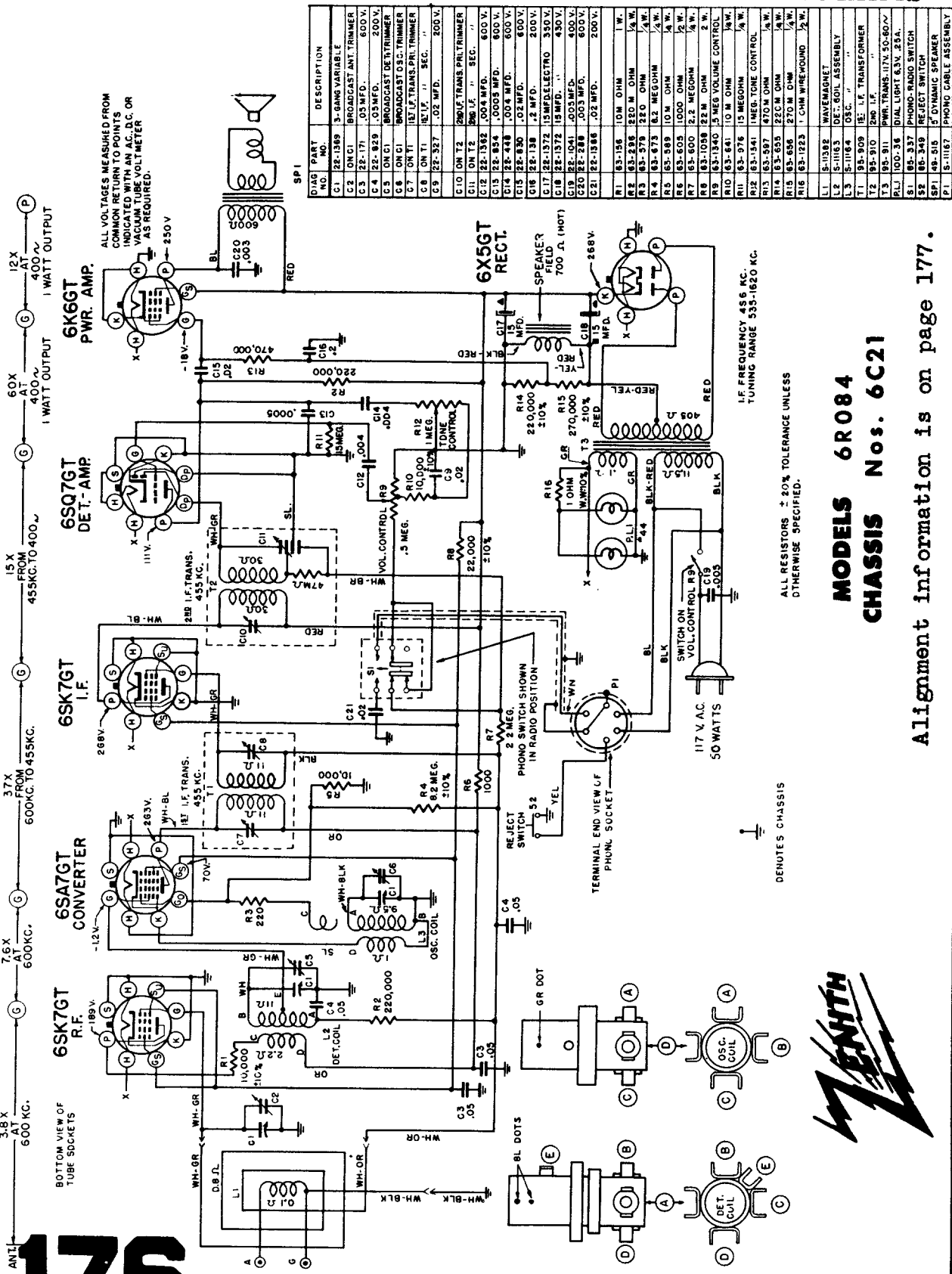
The filter circuits of chassis 6C05 incorporate new features that should be well understood by the service man. An examination of the schematic drawing will show the output transformer tapped slightly off center. This tap is the B + connection from filter resistor R11 and capacitor C19 off the cathode of the rectifier 35Z5 to the 35L6 plate. The lower connection of the output transformer feeds B + to the rest of the tubes in the receiver. Current flowing through the upper windings of the output transformer to the 35L6 produces a magnetic field which is 180° out of phase with the output transformer to the rest of the receiver. Further reduction of hum is accomplished by filtering through resistor R10 and 12 and capacitors C17 and 18.

This development in filtering systems allows a higher effective plate voltage on the 35L6 for increased power output.  
 NOTE: The output transformer must be replaced with an exact duplicate, Part No. 206-547. Be sure to add the speaker code letter to the transformer part number.

**ALIGNMENT PROCEDURE**

OPERATION	CONNECT OSCILLATOR	DUMMY TO ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	C-6, C-7, C-10, C-11	I. F. Alignment
2	Single Turn Loosely Coupled to Wave Magnet		455 Kc.	600 Kc.	C-4	Adjust Wave Trap to minimum.
3			1600 Kc.	1600 Kc.	C-8	Set Oscillator to Dial Scale.
4			1400 Kc.	1400 Kc.	C-2	Antenna Alignment

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



I.F. FREQUENCY 456 KC.  
TUNING RANGE 535-1620 KC.

ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

⊥ DENOTES CHASSIS

## MODELS 6R084 CHASSIS Nos. 6C21

Alignment information is on page 177.



Zenith Radio Corp. Continued from page 176.

**MODELS 6R084  
CHASSIS Nos. 6C21**

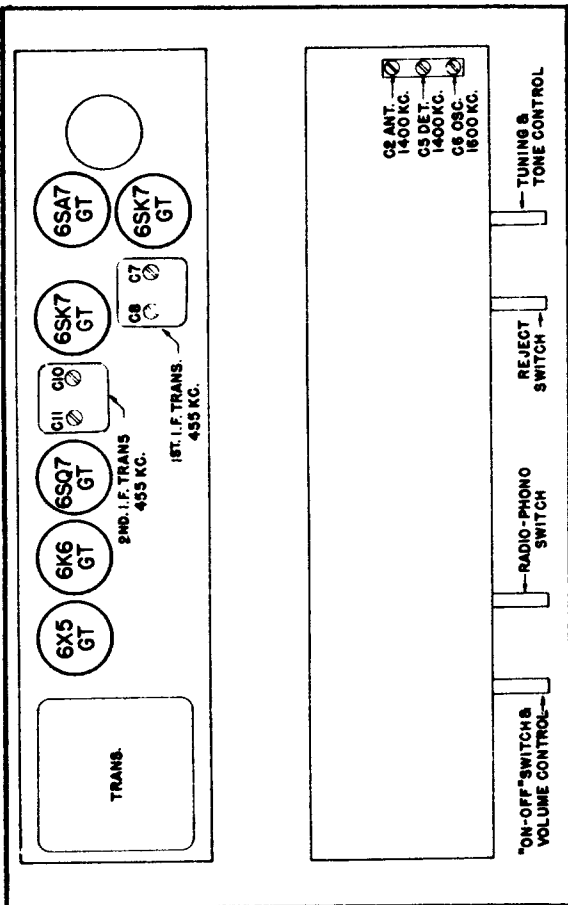
A feature of chassis 6C21 is a high gain tuned R.F. stage ahead of the conventional superheterodyne circuit. When making repairs or adjustments on the chassis be sure to have the Phono-Radio switch in Radio position (button out).

The Tone Control circuit used in chassis 6C21 is unusual. Attenuation or control occurs in both the grid and plate circuit of the triode section of the 6SQ7 tube. To increase the bass response Resistor R10 and Capacitor C9 boost the bass in the grid circuit.

Capacitor C14 and the Variable Tone Control R12 attenuate the highs in the plate circuit. When the tone control R12 is in the treble position attenuation to highs are greatly reduced in the plate circuit and minimum bass boost takes place in the grid circuit.

When the tone control is in bass position, attenuation to the highs takes place in the plate circuit with maximum bass boost in the grid circuit.

The result of this arrangement allows a smooth tone control over the audio frequency range.



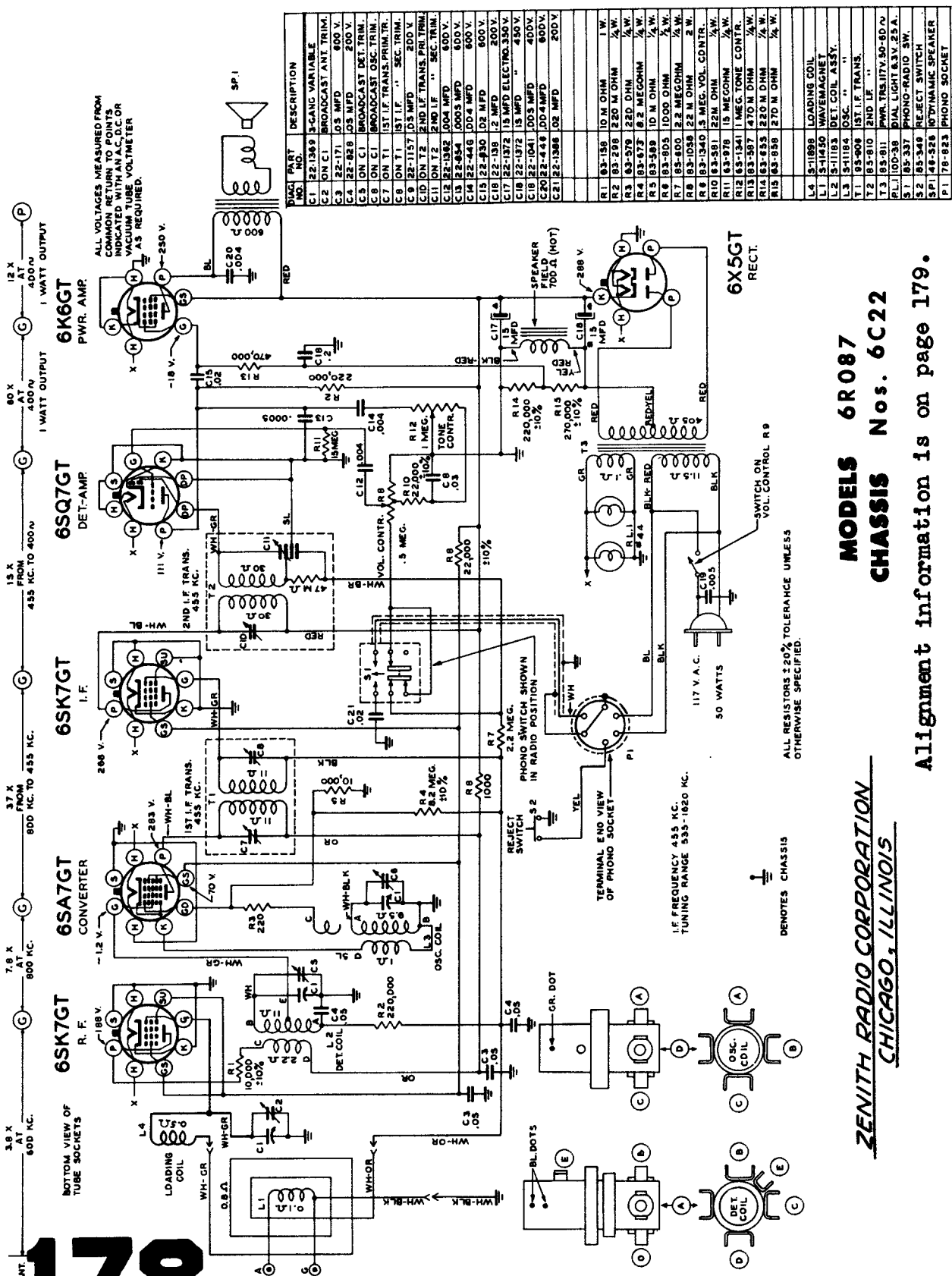
**TUBE AND TRIMMER LOCATION**

**ALIGNMENT PROCEDURE**

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	0.5 Mfd.	455 Kc.	600 Kc.	C-7-, C-8, C-10, C-11	Align I F
2	One Turn Loop Coupled to Loosely to Wave Magnet	--	1600 Kc.	1600 Kc.	C-6	Set Oscillator to Dial Scale
3		--	1400 Kc.	1400 Kc.	C-5	Align det.
4		--	1400 Kc.	1400 Kc.	C-2	Align Ant.



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



PART NO.	DESCRIPTION
C1 22-1369	3-GANG VARIABLE
C2 ON C1	BROADCAST ANT. TRIM.
C3 32-171	.05 MFD 600 V.
C4 32-828	.05 MFD 200 V.
C5 ON C1	BROADCAST DET. TRIM.
C6 ON C1	BROADCAST OSC. TRIM.
C7 ON T1	1ST I.F. TRANS. PHIN. TR.
C8 ON T1	1ST I.F. " SEC. TRIM.
C9 32-1147	.05 MFD 200 V.
C10 ON T2	2ND I.F. TRANS. PHIN. TRIM.
C11 ON T2	" " SEC. TRIM.
C12 32-1382	.004 MFD 600 V.
C13 32-844	.0005 MFD 600 V.
C14 32-446	.004 MFD 600 V.
C15 32-830	.02 MFD 600 V.
C16 32-139	200 V.
C17 52-1972	15 MFD ELECTRO. 350 V.
C18 52-1972	15 MFD " 450 V.
C19 52-1041	.003 MFD 400V.
C20 52-448	.004 MFD 600V.
C21 22-1388	.02 MFD 200 V.
R1 83-186	10 M OHM 1/2 W.
R2 83-298	220 M OHM 1/2 W.
R3 83-278	220 OHM 1/2 W.
R4 83-579	2.2 MEG OHM 1/2 W.
R5 83-589	10 M OHM 1/2 W.
R6 83-805	1000 OHM 1/2 W.
R7 83-800	2.2 MEG OHM 1/2 W.
R8 83-1048	22 M OHM 2 W.
R9 83-1340	15 MEG. VOL. CONTR.
R10 83-581	22 M OHM 1/2 W.
R11 83-978	15 MEG OHM 1/2 W.
R12 63-1341	1 MEG. TONE CONTR.
R13 83-587	470 M OHM 1/2 W.
R14 63-653	220 M OHM 1/2 W.
R15 63-848	270 M OHM 1/2 W.
L4 51-1898	LOADING COIL
L1 51-1450	WAVEMAGNET
L2 51-1183	DET. COIL ASSY.
L3 51-1184	OSC. " "
T1 85-908	1ST I.F. TRANS.
T2 85-910	2ND I.F. " "
T3 85-911	PWR. TRANS. 50-80 V.
PL1 100-38	DIAL LIGHT 6.3 V. 25 A.
S1 85-337	PHONO-RADIO SW.
S2 85-349	REJECT SWITCH
SP1 46-526	10" DYNAMIC SPEAKER
P1 76-823	PHONO SOCKET

**MODELS 6R087  
CHASSIS Nos. 6C22**

Alignment information is on page 179.

ALL RESISTORS ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

6X5GT RECT.

117 V. A.C. 50 WATTS

REJECT SWITCH SHOWN IN RADIO POSITION

TERMINAL END VIEW OF PHONO SOCKET

IF FREQUENCY 455 KC. TUNING RANGE 535-1820 KC.

SWITCH ON VOL. CONTROL R9

PHONO TRANS. 50-80 V.

117 V. TRANS. 455 KC.

2ND I.F. TRANS. 455 KC.

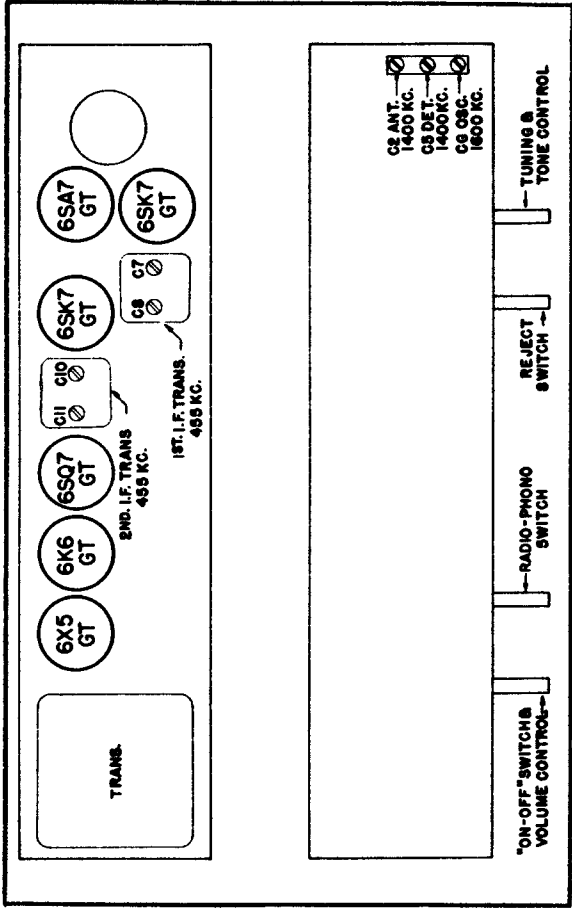
117 V. TRANS. 455 KC.

117 V. TRANS. 455 KC.

ZENITH RADIO CORPORATION  
CHICAGO, ILLINOIS

Zenith Radio Corp. Continued from page 178.

**MODEL 6R087  
CHASSIS No. 6C22**



A feature of chassis 6C22 is a high gain tuned R.F. stage ahead of the conventional superheterodyne circuit. When making repairs or adjustments on the chassis be sure to have the Phono-Radio switch in Radio position (button out).

The Tone Control circuit used in chassis 6C22 is unusual. Attenuation or control occurs in both the grid and plate circuit of the triode section of the 6SQ7 tube. To increase the bass response Resistor R10 and Capacitor C9 boost the bass in the grid circuit.

Capacitor C14 and the Variable Tone Control R12 attenuate the highs in the plate circuit.

When the tone control R12 is in the treble position attenuation to highs are greatly reduced in the plate circuit and minimum bass boost takes place in the grid circuit.

When the tone control is in bass position, attenuation to the highs takes place in the plate circuit with maximum bass boost in the grid circuit.

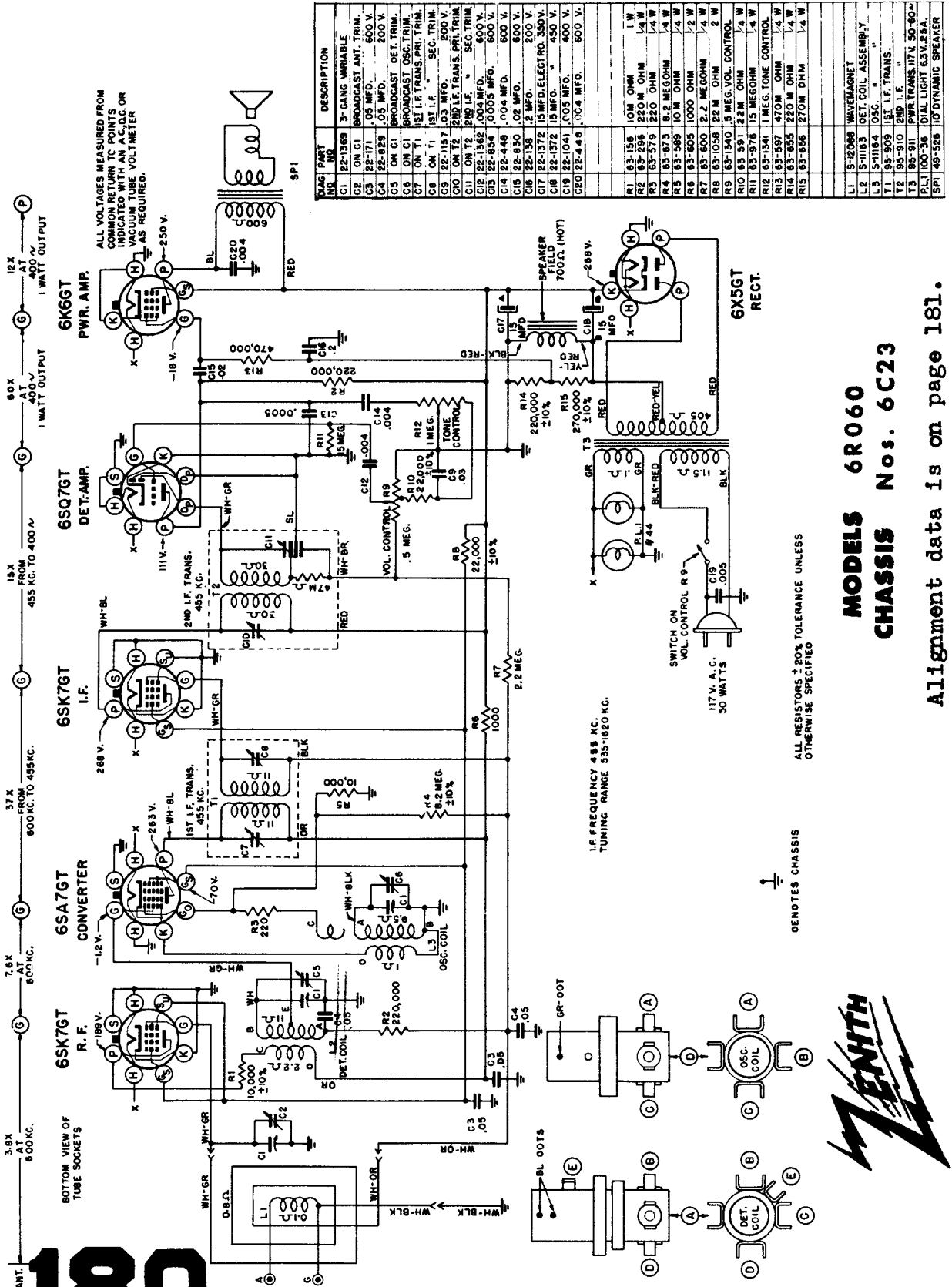
The result of this arrangement allows a smooth tone control over the audio frequency range.

**TUBE AND TRIMMER LOCATION**

**ALIGNMENT PROCEDURE**

OPERATION	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	C-7-, C-8, C-10, C-11	Align I. F.
2	One Turn Loop Coupled Loosely to Wave Magnet	--	1600 Kc	1600 Kc	C-6	Set Oscillator to Dial Scale.
3		--	1400 Kc.	1400 Kc.	C-5	Align det.
4		--	1400 Kc.	1400 Kc.	C-2	Align Ant.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



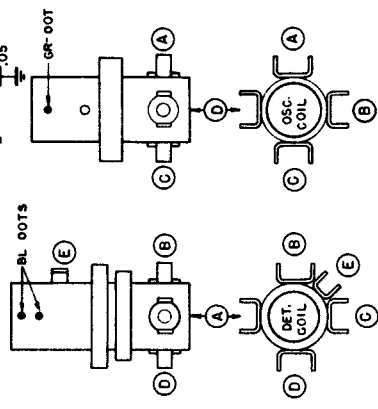
PART NO.	DESCRIPTION
C1	22-1369 3-GANG VARIABLE
C2	ON C1 BROADCAST ANT. TRIM.
C3	22-171 .05 MFD. 200 V.
C4	22-829 .05 MFD. 200 V.
C5	ON C1 BROADCAST DET. TRIM.
C6	ON C1 BROADCAST OSC. TRIM.
C7	ON T1 1ST I.F. TRANS. PRI. TRIM.
C8	ON T1 1ST I.F. SEC. TRIM.
C9	22-1187 .03 MFD. 200 V.
C10	ON T2 2ND I.F. TRANS. PRI. TRIM.
C11	ON T2 2ND I.F. SEC. TRIM.
C12	22-1362 .004 MFD. 600 V.
C13	22-854 .005 MFD. 600 V.
C14	22-449 .004 MFD. 600 V.
C15	22-850 .02 MFD. 200 V.
C16	22-138 .2 MFD. 200 V.
C17	22-1372 15 MFD. ELECTRO. 350 V.
C18	22-1372 15 MFD. " 450 V.
C19	22-1041 .005 MFD. 600 V.
C20	22-446 .004 MFD. 600 V.
R1	53-156 10M OHM 1/4 W
R2	53-236 220M OHM 1/4 W
R3	53-579 220 OHM 1/4 W
R4	53-473 8.2 MEG OHM 1/4 W
R5	53-589 10M OHM 1/4 W
R6	53-605 1000 OHM 1/2 W
R7	53-600 2.2 MEG OHM 1/4 W
R8	53-1038 22M OHM 2 W
R9	53-1340 5 MEG VOL CONTROL
R10	53-591 22M OHM 1/4 W
R11	53-976 15 MEG OHM 1/4 W
R12	53-1341 1 MEG TONE CONTROL
R13	53-497 470M OHM 1/4 W
R14	53-285 220M OHM 1/4 W
R15	53-856 270M OHM 1/4 W
L1	S-12088 WAVEMAGNET
L2	S-11183 DET. COIL ASSEMBLY
L3	S-11184 OSC. " "
T1	95-909 1ST I.F. TRANS.
T2	95-910 2ND I.F. " "
T3	95-911 PWR. TRANS. 17A 50-60A
PL1	100-36 DIAL LIGHT 6.3V. 2.5A
SPI	40-556 10" DYNAMIC SPEAKER

**MODELS 6R060  
CHASSIS Nos. 6C23**

Alignment data is on page 181.

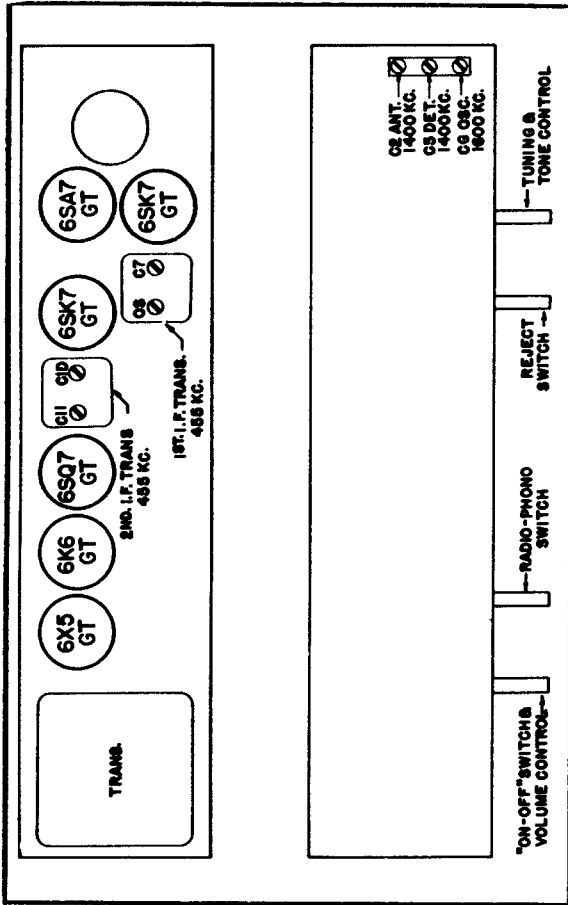
ALL RESISTORS ± 20% TOLERANCE UNLESS OTHERWISE SPECIFIED

Ø DENOTES CHASSIS



**MODELS 6R060  
CHASSIS Nos. 6C23**

Zenith Radio Corp. Continued from page 180.



**TUBE AND TRIMMER LOCATION**

**ALIGNMENT PROCEDURE**

OPERATOR	CONNECT OSCILLATOR TO	DUMMY ANTENNA	INPUT SIG. FREQUENCY	SET DIAL AT	TRIMMERS	PURPOSE
1	Converter Grid	.5 Mfd.	455 Kc.	600 Kc.	C-7-, C-8, C-10, C-11	Align I. F.
2	One Turn Loop Coupled Loosely to Wave Magnet	--	1600 Kc.	1600 Kc.	C-6	Set Oscillator to Dial Scale.
3		--	1400 Kc.	1400 Kc.	C-5	Align detector
4		--	1400 Kc.	1400 Kc.	C-2	Align antenna stage

A feature of chassis 6C23 is a high gain tuned R.F. stage ahead of the conventional super-heterodyne circuit.

The Tone Control circuit used in chassis 6C23 is unusual. Attenuation or control occurs in both the grid and plate circuit of the triode section of the 6SQ7 tube. To increase the bass response Resistor R10 and Capacitor C9 boost the bass in the grid circuit.

Capacitor C14 and the Variable Tone Control R12 attenuate the highs in the plate circuit.

When the tone control R12 is in the treble position attenuation to highs are greatly reduced in the plate circuit and minimum bass boost takes place in the grid circuit.

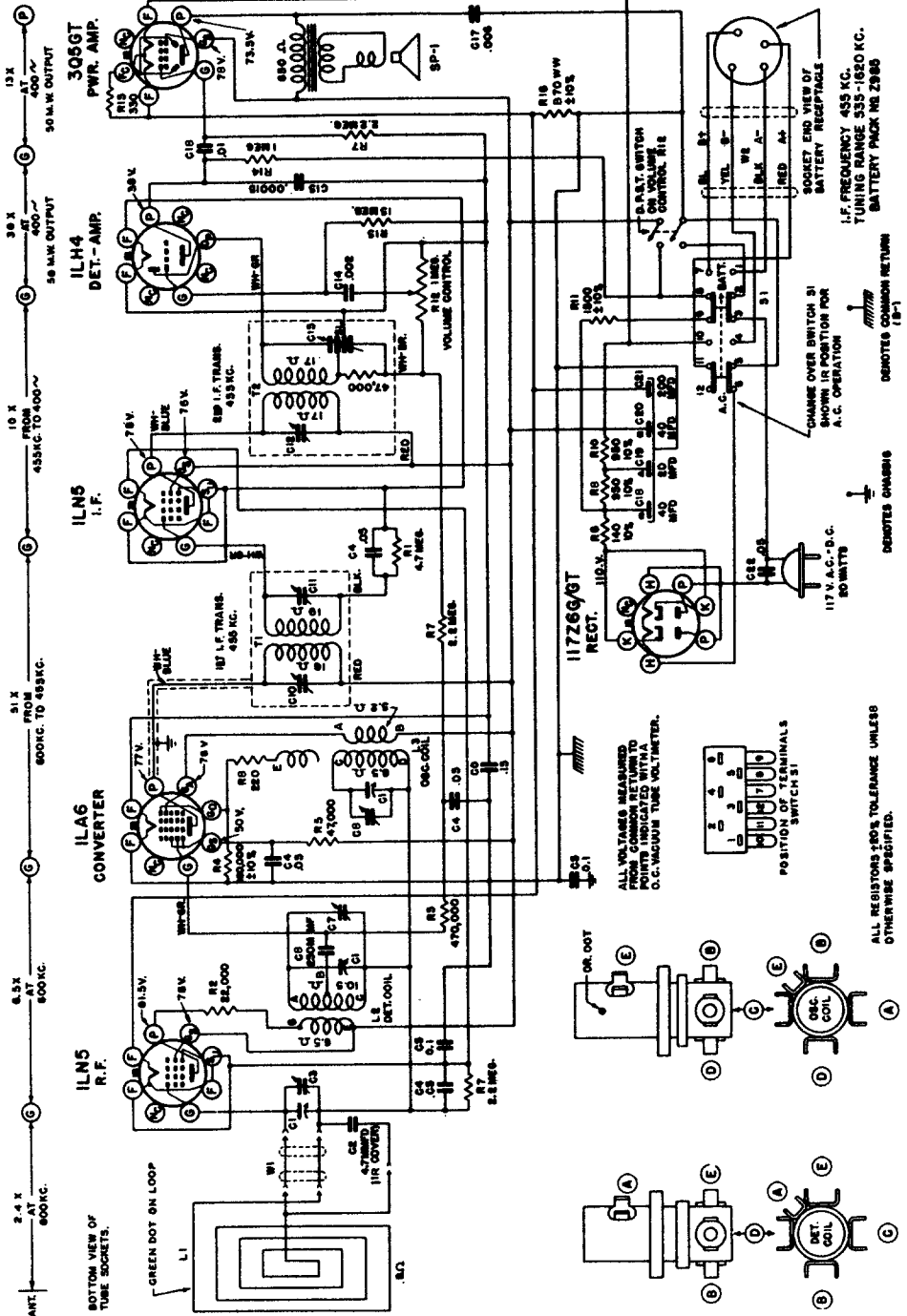
When the tone control is in bass position, attenuation to the highs takes place in the plate circuit with maximum bass boost in the grid circuit.

The result of this arrangement allows a smooth tone control over the audio frequency range.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## MODEL 6G001 CHASSIS No. 6C40

Alignment information is on page 185.



Part No.	Part	Description
A-1	3Q5GT	3 Q5GT P.W.R. AMP.
C1	22-1342	3 GANG VARIABLE
C2	22-1342	3 GANG VARIABLE (IN COVER COIL)
C3	ON C1	BROADCAST AMT. TRIMMER
C4	22-829	100V. 200V.
C5	22-827	1 MFD. 200V.
C6	22-182	250 MINFD. 600V.
C7	ON C1	BROADCAST DET. TRIMMER
C8	22-1226	BROADCAST OSC. TRIMMER
C9	22-1025	.15 MFD. 200V.
C10	ON T1	15 I.F. TRANS. ON T1
C11	ON T1	15 I.F. TRANS. ON T1
C12	ON T2	15 I.F. TRANS. ON T2
C13	ON T2	15 I.F. TRANS. ON T2
C14	22-482	100V. 200V.
C15	22-470	100015 MFD. 600V.
C16	22-184	100 MFD. 600V.
C17	22-458	100V. 200V.
C18	ON T1	15 I.F. TRANS. ON T1
C19	22-148	40 MFD. ELECTRO. 150V.
C20	ON T1	15 I.F. TRANS. ON T1
C21	ON T1	15 I.F. TRANS. ON T1
C22	22-1017	.05 MFD. 200V.
R1	53-602	4.7 MEG. OHM
R2	53-644	22 M. OHM
R3	53-719	470M. OHM
R4	53-713	100M. OHM
R5	53-578	810 OHM
R6	53-500	1.5 K. MEG. OHM
R7	53-1544	140 OHM
R8	53-142	250 OHM
R9	53-143	1500 OHM
R10	53-419	1500 OHM
R11	53-1831	1500 OHM
R12	53-271	1500 OHM
R13	53-540	150 OHM
R14	53-1037	1870 OHM WIREWOUND
L1	510837	WAVE METER ASSEM.
L2	510864	DETECTOR COIL "
L3	510883	OSCILLATOR COIL "
L4	52-604	15 I.F. TRANS. - OWNER
L5	52-604	15 I.F. TRANS. - OWNER
L6	52-604	15 I.F. TRANS. - OWNER
L7	52-604	15 I.F. TRANS. - OWNER
L8	52-604	15 I.F. TRANS. - OWNER
L9	52-604	15 I.F. TRANS. - OWNER
L10	52-604	15 I.F. TRANS. - OWNER
L11	52-604	15 I.F. TRANS. - OWNER
L12	52-604	15 I.F. TRANS. - OWNER
L13	52-604	15 I.F. TRANS. - OWNER
L14	52-604	15 I.F. TRANS. - OWNER
L15	52-604	15 I.F. TRANS. - OWNER
L16	52-604	15 I.F. TRANS. - OWNER
L17	52-604	15 I.F. TRANS. - OWNER
L18	52-604	15 I.F. TRANS. - OWNER
L19	52-604	15 I.F. TRANS. - OWNER
L20	52-604	15 I.F. TRANS. - OWNER
L21	52-604	15 I.F. TRANS. - OWNER
L22	52-604	15 I.F. TRANS. - OWNER
L23	52-604	15 I.F. TRANS. - OWNER
L24	52-604	15 I.F. TRANS. - OWNER
L25	52-604	15 I.F. TRANS. - OWNER
L26	52-604	15 I.F. TRANS. - OWNER
L27	52-604	15 I.F. TRANS. - OWNER
L28	52-604	15 I.F. TRANS. - OWNER
L29	52-604	15 I.F. TRANS. - OWNER
L30	52-604	15 I.F. TRANS. - OWNER
L31	52-604	15 I.F. TRANS. - OWNER
L32	52-604	15 I.F. TRANS. - OWNER
L33	52-604	15 I.F. TRANS. - OWNER
L34	52-604	15 I.F. TRANS. - OWNER
L35	52-604	15 I.F. TRANS. - OWNER
L36	52-604	15 I.F. TRANS. - OWNER
L37	52-604	15 I.F. TRANS. - OWNER
L38	52-604	15 I.F. TRANS. - OWNER
L39	52-604	15 I.F. TRANS. - OWNER
L40	52-604	15 I.F. TRANS. - OWNER
L41	52-604	15 I.F. TRANS. - OWNER
L42	52-604	15 I.F. TRANS. - OWNER
L43	52-604	15 I.F. TRANS. - OWNER
L44	52-604	15 I.F. TRANS. - OWNER
L45	52-604	15 I.F. TRANS. - OWNER
L46	52-604	15 I.F. TRANS. - OWNER
L47	52-604	15 I.F. TRANS. - OWNER
L48	52-604	15 I.F. TRANS. - OWNER
L49	52-604	15 I.F. TRANS. - OWNER
L50	52-604	15 I.F. TRANS. - OWNER
L51	52-604	15 I.F. TRANS. - OWNER
L52	52-604	15 I.F. TRANS. - OWNER
L53	52-604	15 I.F. TRANS. - OWNER
L54	52-604	15 I.F. TRANS. - OWNER
L55	52-604	15 I.F. TRANS. - OWNER
L56	52-604	15 I.F. TRANS. - OWNER
L57	52-604	15 I.F. TRANS. - OWNER
L58	52-604	15 I.F. TRANS. - OWNER
L59	52-604	15 I.F. TRANS. - OWNER
L60	52-604	15 I.F. TRANS. - OWNER
L61	52-604	15 I.F. TRANS. - OWNER
L62	52-604	15 I.F. TRANS. - OWNER
L63	52-604	15 I.F. TRANS. - OWNER
L64	52-604	15 I.F. TRANS. - OWNER
L65	52-604	15 I.F. TRANS. - OWNER
L66	52-604	15 I.F. TRANS. - OWNER
L67	52-604	15 I.F. TRANS. - OWNER
L68	52-604	15 I.F. TRANS. - OWNER
L69	52-604	15 I.F. TRANS. - OWNER
L70	52-604	15 I.F. TRANS. - OWNER
L71	52-604	15 I.F. TRANS. - OWNER
L72	52-604	15 I.F. TRANS. - OWNER
L73	52-604	15 I.F. TRANS. - OWNER
L74	52-604	15 I.F. TRANS. - OWNER
L75	52-604	15 I.F. TRANS. - OWNER
L76	52-604	15 I.F. TRANS. - OWNER
L77	52-604	15 I.F. TRANS. - OWNER
L78	52-604	15 I.F. TRANS. - OWNER
L79	52-604	15 I.F. TRANS. - OWNER
L80	52-604	15 I.F. TRANS. - OWNER
L81	52-604	15 I.F. TRANS. - OWNER
L82	52-604	15 I.F. TRANS. - OWNER
L83	52-604	15 I.F. TRANS. - OWNER
L84	52-604	15 I.F. TRANS. - OWNER
L85	52-604	15 I.F. TRANS. - OWNER
L86	52-604	15 I.F. TRANS. - OWNER
L87	52-604	15 I.F. TRANS. - OWNER
L88	52-604	15 I.F. TRANS. - OWNER
L89	52-604	15 I.F. TRANS. - OWNER
L90	52-604	15 I.F. TRANS. - OWNER
L91	52-604	15 I.F. TRANS. - OWNER
L92	52-604	15 I.F. TRANS. - OWNER
L93	52-604	15 I.F. TRANS. - OWNER
L94	52-604	15 I.F. TRANS. - OWNER
L95	52-604	15 I.F. TRANS. - OWNER
L96	52-604	15 I.F. TRANS. - OWNER
L97	52-604	15 I.F. TRANS. - OWNER
L98	52-604	15 I.F. TRANS. - OWNER
L99	52-604	15 I.F. TRANS. - OWNER
L100	52-604	15 I.F. TRANS. - OWNER

**MODEL 6G001  
CHASSIS No. 6C40**

Zenith Radio Corp.

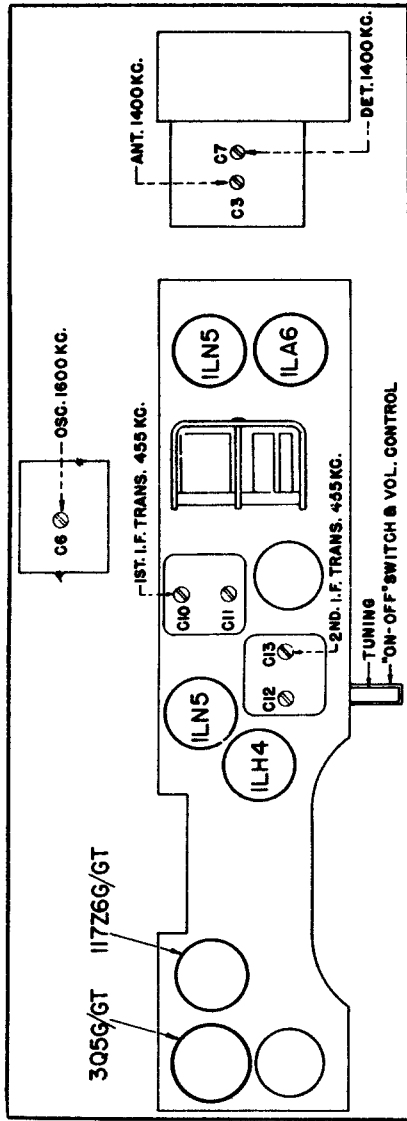
Continued from page 182.

The 6C40 chassis is an AC, DC or battery operated superheterodyne circuit with a stage of RF amplification. The chassis is isolated from the DC circuit, and all measurements must be made from a common negative point. The most convenient place to reach this negative point is the terminal strip to which C5 is connected. The DC resistance from chassis to any circuit must be almost infinite. If any circuit becomes grounded a hum will appear. Microphonic tubes will cause audio howl. Check 11L4C.

The wavemagnet is connected to the chassis through the hinges in the cabinet, snaps and flexible leads. If the RF becomes weak or dead, check resistance of wavemagnet at condenser gang. The DC resistance across the two leads should be approximately 1 ohm. If the circuit is open, remove the two screws that hold the handle and top panel. When the top is removed, the wavemagnet connecting leads will be visible for inspection. Also loosen the snap-on socket and check for shorted or broken leads.

**IF Alignment:** Remove the chassis from the cabinet and arrange the units so that the wavemagnet can be plugged in. All the connections and adjustments can be made from the top of the chassis. of the gang condenser (converter grid) and condenser gang. Just high enough to get an indication, otherwise excessive loading may result. Remove the signal generator, loosely couple the leads of the receiver to 1600 Kc. and adjust C8 to resonance. Set the signal generator and dial pointer to 1400 and adjust C7 (detector) and C3 (RF) to resonance. These trimmers are on the side of the gang condenser. Check operation and re-install set in cabinet. Tune in a weak station near 1400 Kc. or use background noise and readjust C3 through the hole in the side of the cabinet for maximum sensitivity.

**RF Alignment:** Connect a two turn loop across the leads of the signal generator, loosely couple this loop to the wavemagnet. Set the signal generator and dial pointer to 1400 and adjust C7 (detector) and C3 (RF) to resonance. These trimmers are on the side of the gang condenser. Check operation and re-install set in cabinet. Tune in a weak station near 1400 Kc. or use background noise and readjust C3 through the hole in the side of the cabinet for maximum sensitivity.



**TUBE AND TRIMMER LOCATION**

Connect a signal generator, through a .1 mfd. dummy antenna, to the lug on top of the center section of the gang frame. Connect an output meter across the voice coil of the speaker (two lugs provided). Set the signal generator to 455Kc. and adjust C10, C11, C12 and C13 for maximum indication on the output meter. Always keep the signal output from the generator just high enough to get an indication, otherwise excessive loading may result. Remove the signal generator, loosely couple the leads of the receiver to 1600 Kc. and adjust C8 to resonance. Set the signal generator and dial pointer to 1400 and adjust C7 (detector) and C3 (RF) to resonance. These trimmers are on the side of the gang condenser. Check operation and re-install set in cabinet. Tune in a weak station near 1400 Kc. or use background noise and readjust C3 through the hole in the side of the cabinet for maximum sensitivity.

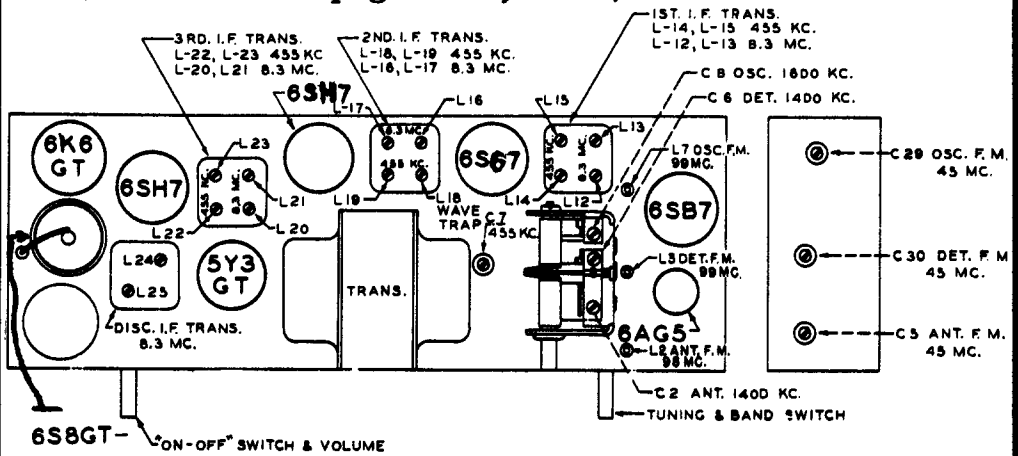
**ALIGNMENT PROCEDURE**

Operation	Connect Osc. To Converter Grid	Dummy Antenna .1 MFD	Input Signal Frequency	Band	Set Dial To	Trimmers	Purpose
1	Converter Grid	.1 MFD	455KC	BC	600KC	C-10-11-12 C3	IF alignment
2	Two turns loosely coupled to Wave Magnet		1600KC	BC	1600KC	C8	Set oscillator to scale
3	Two turns loosely coupled to Wave Magnet		1400KC	BC	1400KC	C7	Align Det.
4	Two turns loosely coupled to Wave Magnet		1400KC	BC	1400KC	C3	Align Wave magnet

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Zenith Radio, Chassis 8C20,  
Models 8H032, 8H033, 8H050, 8H051, 8H052.  
(Continued on pages 185, 186.)

DIAG NO	PART NO	DESCRIPTION
C1	22-1368	3-GANG VARIABLE
C2	DN C1	BROADCAST ANT. TRIM.
C3	22-829	.05 MFD. 200V.
C4	27-87	475 MMFD. NICA DISC.
C5	22-1465	90 MMF TRIMMER
C6	ON C1	BROADCAST DET. TRIM.
C7	ON L5	WAVETRAP TRIMMER
C8	22-1431	.001 MFD. 600V.
C9	DN C1	BROADCAST OSC. TRIM
C10	22-1367	50 MMFD. 500V.
C11	22-1492	50 MMFD. GER.
C12	22-47D	150 MMFD. 600V.
C13	22-830	.02 MFD 800V
C14	22-1138	50 0MMF. 600V
C15	22-1445	.002 MFD. 600V.
C18	22-288	.003 MFD 600V
C17	22-827	.1 MFD. 200V.
C18	22-448	.004 MFD. 600V.
C19		40 MFD. ELECTRD 25V.
C20	22-1362	40 MFD. " 450V.
C21		40 MFD. " 450V.
C22	22-162	100 MMFD. 600V.
C23	22-1041	.005 MFD. 400V.
C24	22-182	250 MMFD. 600V.
C25	22-1491	20 MMFD. GER.
C26	22-1488	100 MMFD. 300V.
C27	22-1489	10 MMFD. GER.
C28	22-1490	18 MMFD. GER.
C28	22-1487	55 MMF TRIMMER
C30	22-1488	70 MMF "
C31	22-1365	.01 MFD. 200V.
C32	22-1137	150 MMFD 800V.
C33	22-196	.01 MFD. 600V.
C34	22-188	.02 MFD. 400V.
C35	22-135	.005 MFD 600V.



## TUBE AND TRIMMER LOCATION

**AM Alignment:** The alignment of this chassis on the standard broadcast band is conventional. The alignment slugs in the IF transformers are threaded and screw into the coil forms. The slugs are slotted for a small-size fiber screw driver. Do not press hard on the aligning tool (fiber screw driver) or the threads in the coil forms will strip and adjustment will be impossible.

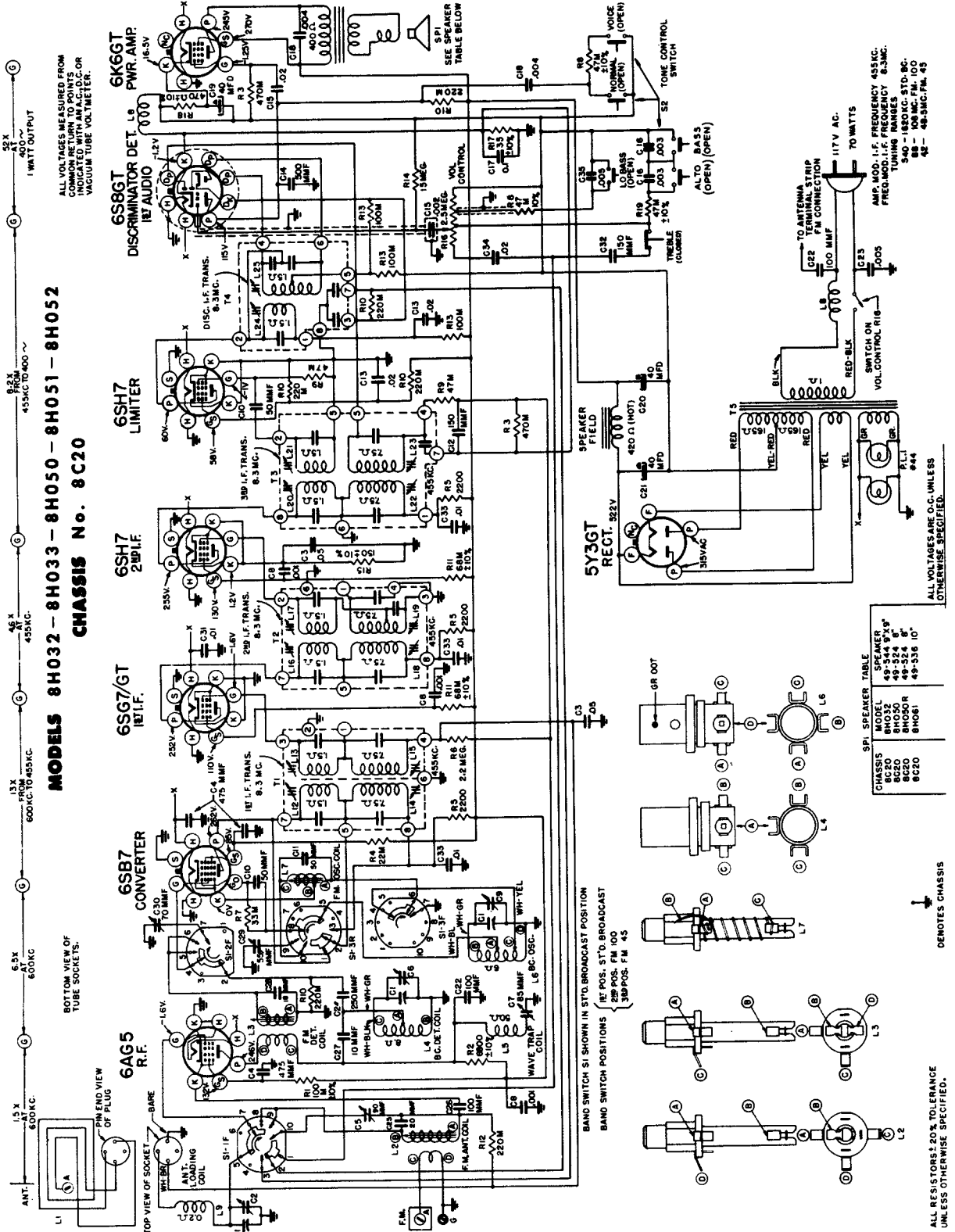
**FM RF Alignment:** The same coil slug arrangement which tunes the 100 MC FM band also tunes the 45 MC band. However, on 45 MC the band switch connects trimmer condensers in parallel and padding wires in series with the 100 MC coils. The tuning slugs are attached to threaded shafts and the slugs are varied in the field of the coils by turning the shafts clockwise or counter-clockwise. After adjustments the shafts must be secured with a drop of speaker cement.

**FM IF Alignment:** The same type of tuning slugs for aligning the AM IF Amplifier are used for the FM I.F.'s. The second 8.3 Mc IF stage is overcoupled. When an overcoupled stage is aligned with an unmodulated signal, the stage must be loaded. A 300 ohm carbon resistor soldered across the secondary of the second IF transformer provides a satisfactory load for this circuit.

When aligning a loaded stage, it will be found that considerable signal from the generator will be required.

**FM Discriminator Alignment:** When the secondary of the discriminator is aligned (operation 6) use sufficient signal input to get a good positive and negative indication before setting the slug for zero reading. A center zero indicating meter is recommended for this adjustment, but is not absolutely necessary. Reversing the leads of a non-zero center meter, or observing closely when this meter starts to go to the left (negative) of zero will give the same results. See table on page 186.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

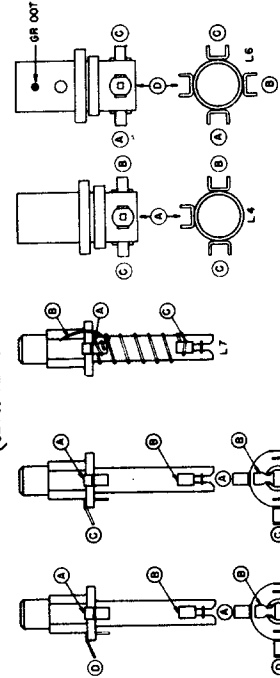


**MODELS 8H032 - 8H033 - 8H050 - 8H051 - 8H052**  
**CHASSIS No. 8C20**

AMP. MOD. I.F. FREQUENCY 455KC.  
 FREQ. MOD. I.F. 5.3MC.  
 TUNING RANGE  
 540 - 1620 KC. STD. BC.  
 88 - 108 MC. FM. 100  
 42 - 48.5 MC. FM. 45

ALL VOLTAGES ARE O.C. UNLESS OTHERWISE SPECIFIED.

SPEAKER TABLE	
MODEL	49-344 9" x 9"
8C20	49-324 6"
8C20	49-324 6"
8H051	49-336 10"
8C20	49-336 10"



BAND SWITCH S1 SHOWN IN STD. BROADCAST POSITION  
 BAND SWITCH POSITIONS  
 1B POS. STD. BROADCAST  
 2B POS. FM 100  
 3B POS. FM 45

See also additional material on pages 184, and 186.  
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# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## ALIGNMENT PROCEDURE MODELS 8H032 - 8H033 - 8H050 - 8H051 - 8H052

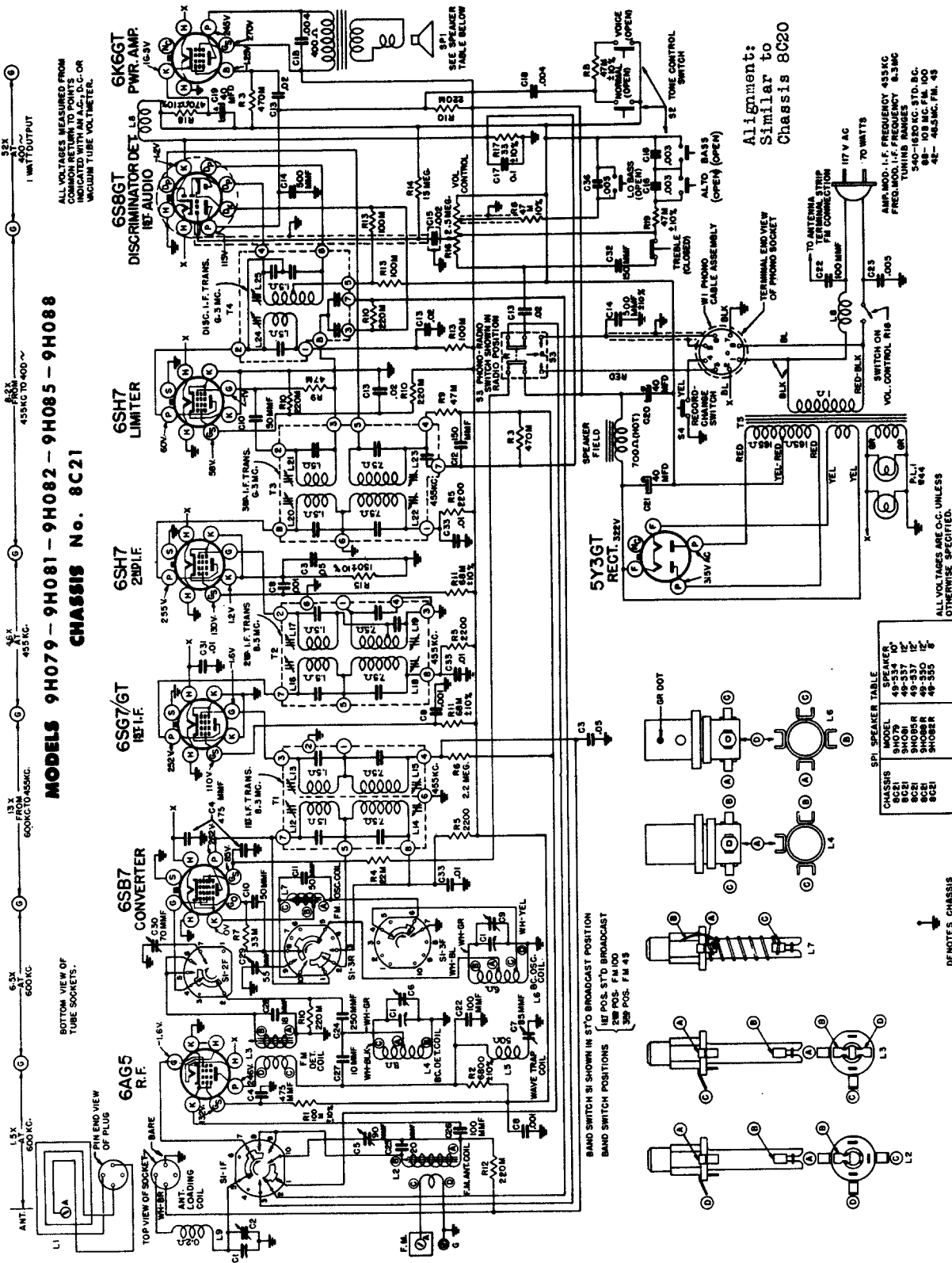
The signal generator output should be kept just high enough to get an indication on the meter.

- (a) Vacuum Tube Voltmeter pin 5 on discriminator transformer to chassis (half discriminator load.)
- (b) Vacuum Tube Voltmeter pin 7 on discriminator transformer to chassis (full discriminator load.)
- (c) Vacuum Tube Voltmeter 6SH7 limiter grid (pin 4) to chassis.
- (d) 300 ohm  $\frac{1}{2}$  watt carbon resistor soldered across the secondary L17 (pin 2 and 3 of 2nd, IF trans.).

**CHASSIS No. 8C20**

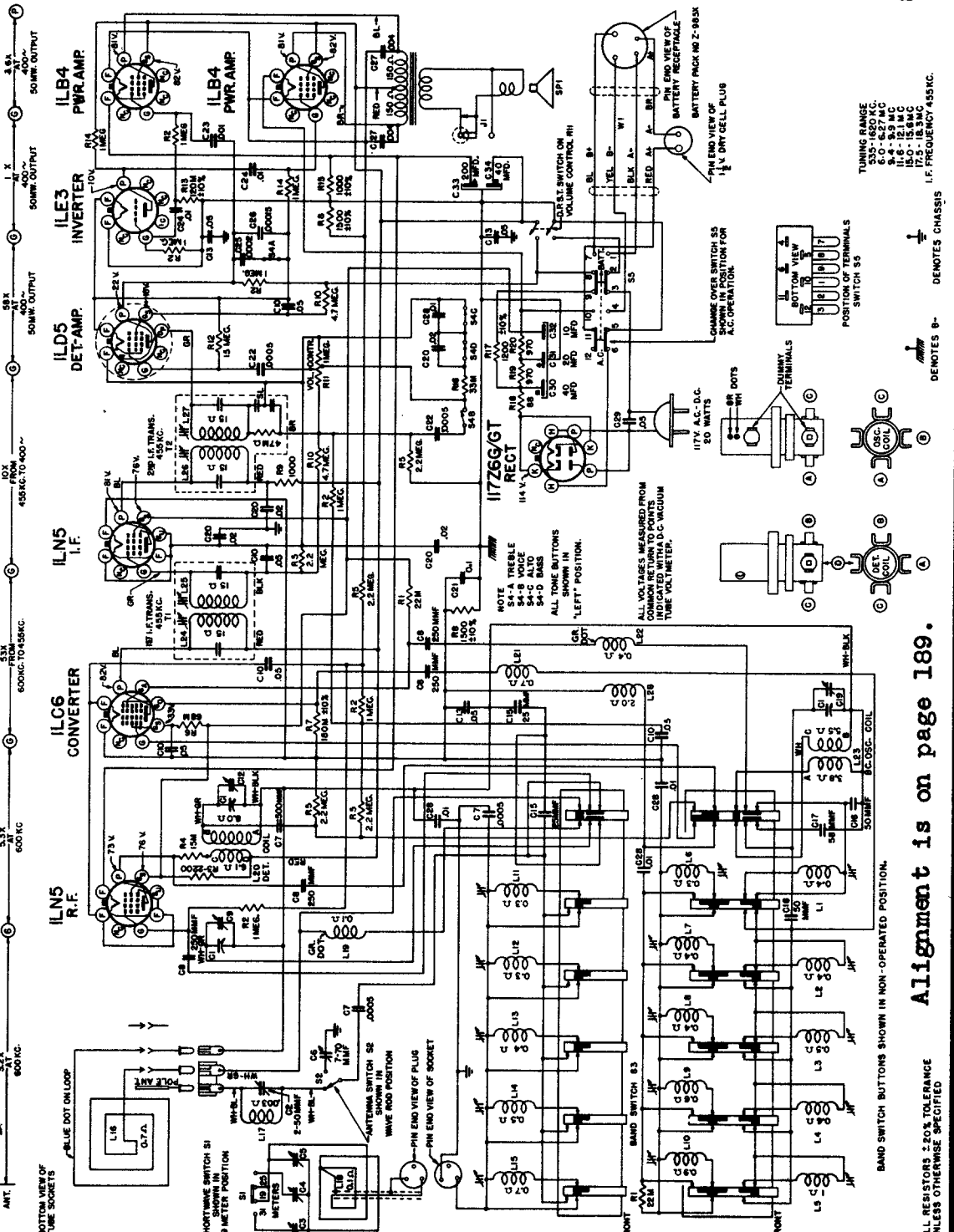
Opera- tion	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial To	Adj. Trimmers	Purpose
1	Pin 8 on Converter Tube 6SB7 Socket	.05 Mfd.	455 Kc. Modulated	BC	600 Kc.	L-14, 15, 18, 19 22 and 23	Align I.F. channel for maximum output
2	Pin 1 on R.F. tube 6AG5 socket	.05 Mfd.	455 Kc. Modulated	BC	600 Kc.	C7	Adjust wavetrap for minimum output
3	2 turns loosely cpld. to wavemagnet		1600 Kc. Modulated	BC	1600 Kc.	C9	Set oscillator to dial scale
4	2 turns loosely cpld. to wavemagnet		1400 Kc. Modulated	BC	1400 Kc.	C2 & C6	Align det. and ant. stages.
5(a)	Pin 4 (grid) on 6SH7 limiter socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L24 coil slug Primary disc.	Align primary of discriminator for maximum reading
6(b)	Pin 4 (grid) on 6SH7 limiter socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L25 coil slug sec. of disc.	Adjust secondary of discrimin- ator for zero reading
7(c)	Pin 4 (grid) on 6SH7 2nd IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L20 & L21 Prim. & sec. of 3rd IF trans.	Align 3rd IF transformer for maximum reading
8(c)(d)	Pin 4 (grid) on 6SG7 1st IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L16 & L17 primary and sec. of 2nd IF transformer	Align 2nd IF transformer for maximum reading
9(c)(d)	Pin 8 (grid) on 6SB7 converter tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM		L12 & L13 Primary & Sec. of 1st IF transformer	Align 1st IF transformer for maximum reading
10(c)	Antenna Post (Re- move line ant.)	270 ohms	98 Mc. Unmodulated	FM	98 Mc.	L7 Osc. Coil slug	Set oscillator to dial scale
11(c)	Antenna Post (Re- move line ant.)	270 ohms	98 Mc. Unmodulated	FM	98 Mc.	L2 & L3 Det. and RF coil slugs	Align det. and ant. stages to maximum reading
12(c)	Antenna Post (Re- move line ant.)	270 ohms	45 Mc. Unmodulated	FM	45 Mc.	C29	Set oscillator to dial scale
13(c)	Antenna Post (Re- move line ant.)	270 ohms	45 Mc. Unmodulated	FM	45 Mc.	C5 and C30	Align detector & ant. stages for maximum reading

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS



# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

**MODEL 8G005  
CHASSIS 8C40**



ANT. 3.2K AT 600KC. 5.5K AT 600KC. 600KC. TO 458KC. 10K AT 458KC. TO 400~ 400~ 400~ 50WPM OUTPUT. 3.8K AT 400~ 400~ 50WPM OUTPUT.

SHORTWAVE SWITCH S1 IS IN METER POSITION. ANTENNA SWITCH S2 SHOWN IN WAVE BAND POSITION. PIN END VIEW OF PLUG SOCKET. PIN END VIEW OF BATTERY PACK NO. Z-9838. 1/2 V. DRY CELL PLUS.

PART NO.	DESCRIPTION	QTY.
1L5	5Y5 NIXIE TUBE	1
1L6	6X4 RECT. TUBE	1
1L7	6AV6 DET. TUBE	1
1L8	6BE6 CON. TUBE	1
1L9	6BE6 CON. TUBE	1
1L10	6BE6 CON. TUBE	1
1L11	6BE6 CON. TUBE	1
1L12	6BE6 CON. TUBE	1
1L13	6BE6 CON. TUBE	1
1L14	6BE6 CON. TUBE	1
1L15	6BE6 CON. TUBE	1
1L16	6BE6 CON. TUBE	1
1L17	6BE6 CON. TUBE	1
1L18	6BE6 CON. TUBE	1
1L19	6BE6 CON. TUBE	1
1L20	6BE6 CON. TUBE	1
1L21	6BE6 CON. TUBE	1
1L22	6BE6 CON. TUBE	1
1L23	6BE6 CON. TUBE	1
1L24	6BE6 CON. TUBE	1
1L25	6BE6 CON. TUBE	1
1L26	6BE6 CON. TUBE	1
1L27	6BE6 CON. TUBE	1
1L28	6BE6 CON. TUBE	1
1L29	6BE6 CON. TUBE	1
1L30	6BE6 CON. TUBE	1
1L31	6BE6 CON. TUBE	1
1L32	6BE6 CON. TUBE	1
1L33	6BE6 CON. TUBE	1
1L34	6BE6 CON. TUBE	1
1L35	6BE6 CON. TUBE	1
1L36	6BE6 CON. TUBE	1
1L37	6BE6 CON. TUBE	1
1L38	6BE6 CON. TUBE	1
1L39	6BE6 CON. TUBE	1
1L40	6BE6 CON. TUBE	1
1L41	6BE6 CON. TUBE	1
1L42	6BE6 CON. TUBE	1
1L43	6BE6 CON. TUBE	1
1L44	6BE6 CON. TUBE	1
1L45	6BE6 CON. TUBE	1
1L46	6BE6 CON. TUBE	1
1L47	6BE6 CON. TUBE	1
1L48	6BE6 CON. TUBE	1
1L49	6BE6 CON. TUBE	1
1L50	6BE6 CON. TUBE	1
1L51	6BE6 CON. TUBE	1
1L52	6BE6 CON. TUBE	1
1L53	6BE6 CON. TUBE	1
1L54	6BE6 CON. TUBE	1
1L55	6BE6 CON. TUBE	1
1L56	6BE6 CON. TUBE	1
1L57	6BE6 CON. TUBE	1
1L58	6BE6 CON. TUBE	1
1L59	6BE6 CON. TUBE	1
1L60	6BE6 CON. TUBE	1
1L61	6BE6 CON. TUBE	1
1L62	6BE6 CON. TUBE	1
1L63	6BE6 CON. TUBE	1
1L64	6BE6 CON. TUBE	1
1L65	6BE6 CON. TUBE	1
1L66	6BE6 CON. TUBE	1
1L67	6BE6 CON. TUBE	1
1L68	6BE6 CON. TUBE	1
1L69	6BE6 CON. TUBE	1
1L70	6BE6 CON. TUBE	1
1L71	6BE6 CON. TUBE	1
1L72	6BE6 CON. TUBE	1
1L73	6BE6 CON. TUBE	1
1L74	6BE6 CON. TUBE	1
1L75	6BE6 CON. TUBE	1
1L76	6BE6 CON. TUBE	1
1L77	6BE6 CON. TUBE	1
1L78	6BE6 CON. TUBE	1
1L79	6BE6 CON. TUBE	1
1L80	6BE6 CON. TUBE	1
1L81	6BE6 CON. TUBE	1
1L82	6BE6 CON. TUBE	1
1L83	6BE6 CON. TUBE	1
1L84	6BE6 CON. TUBE	1
1L85	6BE6 CON. TUBE	1
1L86	6BE6 CON. TUBE	1
1L87	6BE6 CON. TUBE	1
1L88	6BE6 CON. TUBE	1
1L89	6BE6 CON. TUBE	1
1L90	6BE6 CON. TUBE	1
1L91	6BE6 CON. TUBE	1
1L92	6BE6 CON. TUBE	1
1L93	6BE6 CON. TUBE	1
1L94	6BE6 CON. TUBE	1
1L95	6BE6 CON. TUBE	1
1L96	6BE6 CON. TUBE	1
1L97	6BE6 CON. TUBE	1
1L98	6BE6 CON. TUBE	1
1L99	6BE6 CON. TUBE	1
1L100	6BE6 CON. TUBE	1

TUNING RANGE  
6.0-6.27 MC  
9.4-9.9 MC  
15.6-15.8 MC  
17.5-18.3 MC

Alignment is on page 189.

ALL RESISTORS ±20% TOLERANCE UNLESS OTHERWISE SPECIFIED.

TO THE SERVICE MAN:

Chassis 8C40 features a high gain tuned RF stage ahead of a conventional superheterodyne circuit with band spread tuning on the 49, 31, 25, 19 and 16 meter bands.

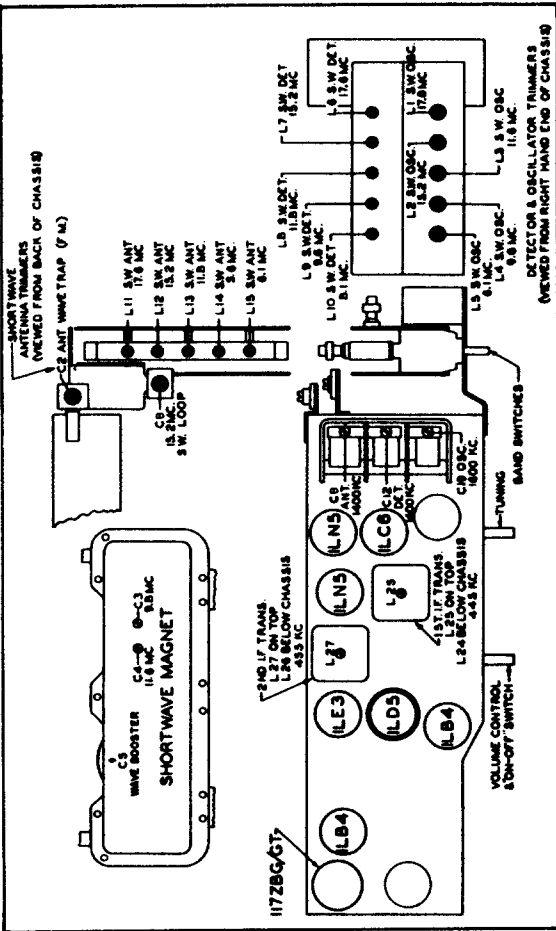
The audio amplifier used in chassis 8C40 features phase inversion and push-pull power output.

If removal of the chassis from the cabinet ever becomes necessary this should be done with care.

The alignment of chassis 8C40 is conventional. However, care must be exercised when making adjustments, and the alignment procedure must be followed exactly. Set the chassis over a metal plate approximately the same distance the battery pack is from the bottom of the chassis when it is in the cabinet. This procedure will introduce the approximate amount of metal in the field of the RF and oscillator coils as when the chassis is in the cabinet.

A signal generator of reasonable accuracy and good attenuation must be used. An output meter (AC) of the copper oxide rectifier type with a range of 1 to 30 volts in several steps is necessary to get accurate readings. Alignment wrenches should be of the non-metallic type, especially when making adjustments at the higher frequencies.

Zenith Radio Corp.  
**MODEL 8G005**  
**CHASSIS 8C40**  
 (Continued from page 188.)



TUBE AND TRIMMER LOCATION  
 ALIGNMENT AND PROCEDURE

OPERATION	CONNECT OSCILLATOR TO Antenna Converter	DUMMY INPUT SIG. FREQUENCY	BAND	SET DIAL AT	TRIMMERS	PURPOSE
1	Grid	455 Kc.	BC	600 Kc.	L-24, 25	Align I.F. Set Oscillator to Scale
2		1600 Kc.	BC	1600 Kc.	C-19	
3	One Turn Loop Coupled Loosely to Broadcast Wavemagnet	1400 Kc.	BC	1400 Kc.	C-12	Alignment of Detector Sec.
4		1400 Kc.	BC	1400 Kc.	C-9	Alignment of B.C. Wave-magnet
5*	3 Feet of wire Approx. 1 foot from Extended Waverod	6.1 Mc.	49 Met.	6.1 Mc.	L-5, L-10, L-15	Alignment of S.W. Antenna, Detector and Oscillator
6*		9.6 Mc.	31 Met.	9.6 Mc.	L-4, L-9, L-14	
7*		11.8 Mc.	25 Met.	11.8 Mc.	L-3, L-8, L-13	
8*		15.2 Mc.	19 Met.	15.2 Mc.	L-2, L-7, L-12	Alignment of Shortwave Magnet
9*		17.8 Mc.	16 Met.	17.8 Mc.	L-1, L-6, L-11	
10	One Turn Loop Coupled Loosely to Shortwave Magnet, Waverod Collapsed	15.2 Mc.	19 Met.	15.2 Mc.	C-5, C-6	
11		11.8 Mc.	25 Met.	11.8 Mc.	C-4	Alignment of Shortwave Magnet
12		9.6 Mc.	31 Met.	9.6 Mc.	C-3	
13	When Receiving Normal Transmissions On The 49, 31, 25, 19 or 16 Meter Bands, if FM Interference is Experienced Adjust Wave Trap Trimmer C-2 for Minimum Response of The Interfering Signal.					

\*Note: Rock Tuning Condenser When Making Alignment Under Operations 5, 6, 7, 8 and 9



## MODELS 12H090 - 12H091 - 12H092 - 12H093 - 12H094 CHASSIS No. 11C21

(Continued on pages 191, 192.)

The 11C21 chassis incorporates a superheterodyne circuit with three stages of IF, and one stage of RF amplification on all hands.

**AM Alignment:** The alignment of this chassis on the short wave and standard broadcast band is conventional. The alignment slugs in the IF transformers are threaded and screw into the coil forms. The slugs are slotted for a small size fiber screw driver. Do not press hard on the aligning tool (fiber screw driver) or the threads in the coil forms will strip and adjustment will be impossible.

**FM RF Alignment:** The same coil slug arrangement which tunes the 100 MC FM band also tunes the 45 MC band. However, on 45 MC the band switch connects trimmer condensers in parallel and padding wires in series with the 100 MC coils. The tuning slugs are attached to threaded shafts and the slugs are varied in the field of the coils by turning the shafts clockwise or counter-clockwise. After adjustments the shafts must be secured with a drop of speaker cement.

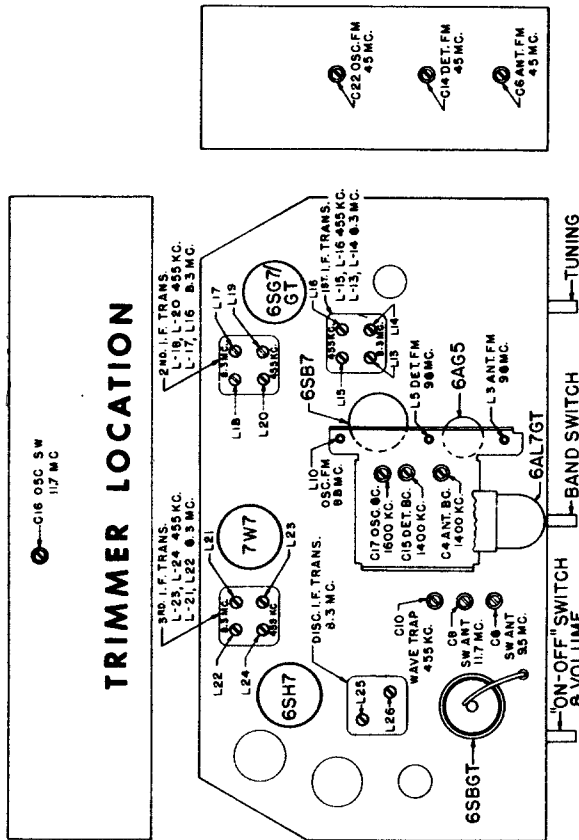
**FM IF Alignment:** The same type of tuning slugs for aligning the AM IF Amplifier are used for the FM I.F.'s. Observe the same precautions when making adjustments. The second 8.5 MC IF stage is overcoupled. Overcoupling gives a wide band pass with good sensitivity. When an overcoupled stage is aligned with an unmodulated signal, the stage must be loaded. A 500 ohm carbon resistor soldered across the secondary of the second IF transformer provides a satisfactory load for this circuit. The resistor leads must be kept short to reduce the distributed capacity of the circuit.

When aligning a loaded stage, it will be found that considerable signal from the generator will be required, and that it will tune broadly. THE LOAD RESISTOR MUST BE REMOVED AFTER ALIGNMENT.

If the signal generator used does not have sufficient output to overcome the temporary loss caused by the load resistor, the load resistance may be increased or the signal fed into the preceding stage.

**FM Discriminator Alignment:** When the secondary of the discriminator is aligned (operation 9) use sufficient signal input to get a good positive and negative indication before setting the slug for zero reading. A center zero indicating meter is recommended for this adjustment, but is not absolutely necessary. Reversing the leads of a non-zero center meter, or observing closely when this meter starts to go to the left (negative) of zero will give the same results.

### TRIMMER LOCATION



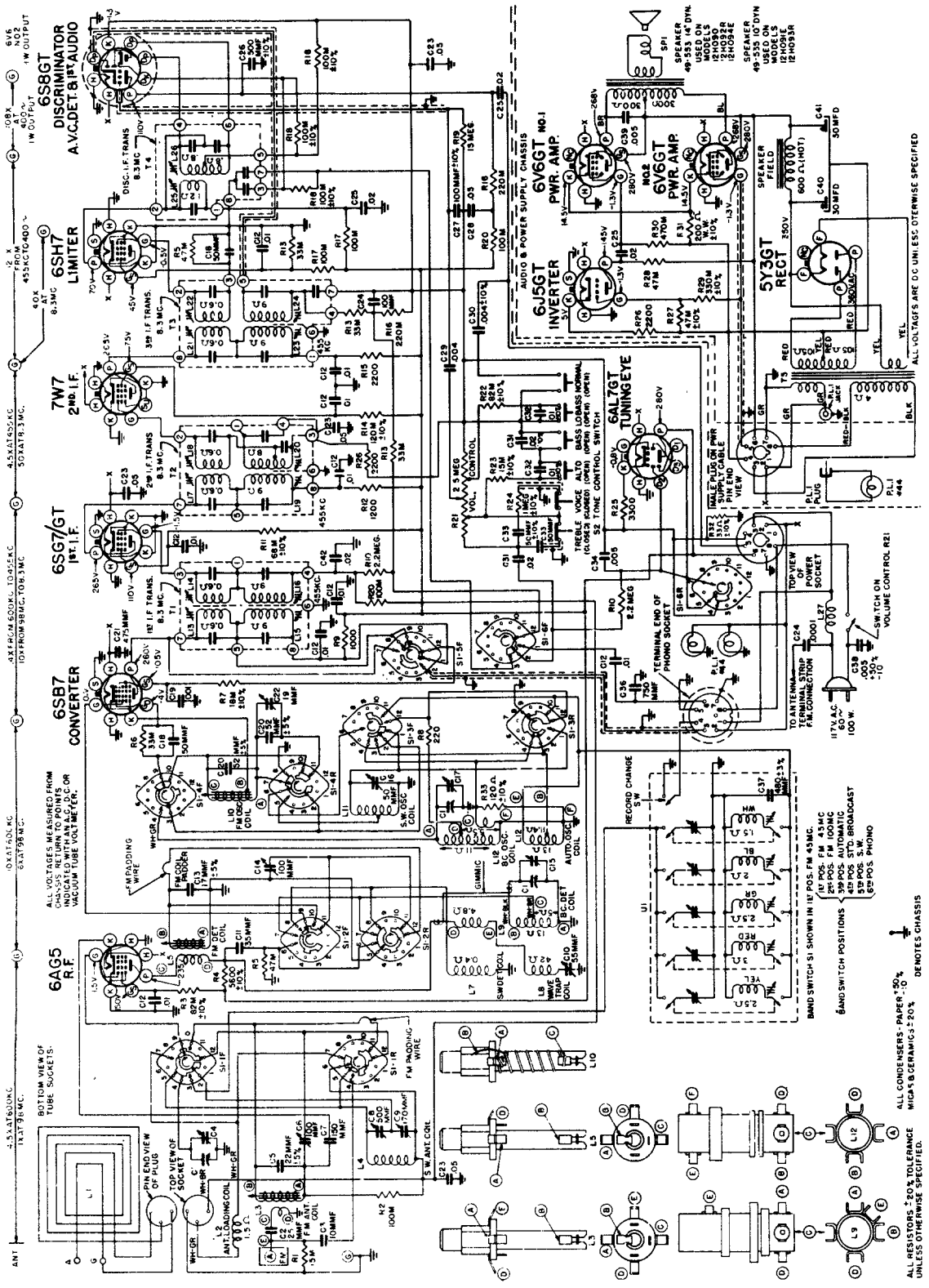
DIAL NO.	PART NO.	DESCRIPTION
C1	22-1365	3-GANG VARIABLE
C2	22-1507	25 MMFD. CER. 500V.
C3	22-1504	25 MMFD. CER. 500V.
C4	22-1504	25 MMFD. CER. 500V.
C5	22-1506	25 MMFD. CER. 500V.
C6	22-1493	FM ANTENNA TRIM
C7	22-1503	150 MMFD. 300V.
C8	72-467	S.W. ANT.
C9	72-467	S.W. ANT.
C10	72-467	WAVE TRAP TRIMMER
C11	22-1508	35 MMFD. CER. 500V.
C12	22-1516	.01 MFD. 600V.
C13	22-1505	17 MMFD. CER. 500V.
C14	22-1494	FM DET. TRIMMER
C15	72-467	S.W. ANT.
C16	72-467	S.W. ANT.
C17	72-467	S.W. ANT.
C18	72-467	S.W. ANT.
C19	72-467	S.W. ANT.
C20	72-467	S.W. ANT.
C21	72-467	S.W. ANT.
C22	22-1514	FM OSC. TRIMMER
C23	22-878	.05 MFD. 200V.
C24	22-162	100 MMFD. MICA 600V.
C25	22-1156	500 MMFD. MICA 600V.
C26	22-1156	100 MMFD. MICA 600V.
C27	22-365	.05 MFD. 600V.
C28	22-171	.05 MFD. 600V.
C29	22-1562	.004 MFD. 10X. 600V.
C30	22-446	.004 MFD. 10X. 600V.

C31	22-1278	25 MFD.	400V.
C32	22-1162	.01 MFD.	600V.
C33	22-288	50 MMFD. MICA	600V.
C34	22-319	1005 MFD.	200V.
C35	22-242	780 MMFD. MICA	500V.
C36	22-868	480 MMFD. SILVER MICA	400V.
C37	22-1041	205 MFD.	1000V.
C38	22-1537	505 MFD.	1000V.
C39	22-1496	50 MFD. ELECTRO	450V.
C40	22-1496	50 MFD. ELECTRO	450V.
C41	22-1586	.02 MFD.	200V.
C42	22-1586	.02 MFD.	200V.
C43	63-607	15M OHM	1/2W.
C44	63-715	15M OHM	1/2W.
C45	63-885	82M OHM	1/2W.
C46	63-1648	5600 OHM	1/2W.
C47	63-593	47M OHM	1/2W.
C48	63-712	33M OHM	1/2W.
C49	63-510	18M OHM	1/2W.
C50	63-510	220 OHM	1/2W.
C51	63-510	220 OHM	1/2W.
C52	63-510	220 OHM	1/2W.
C53	63-510	220 OHM	1/2W.
C54	63-510	220 OHM	1/2W.
C55	63-510	220 OHM	1/2W.
C56	63-510	220 OHM	1/2W.
C57	63-510	220 OHM	1/2W.
C58	63-510	220 OHM	1/2W.
C59	63-510	220 OHM	1/2W.
C60	63-510	220 OHM	1/2W.
C61	63-510	220 OHM	1/2W.
C62	63-510	220 OHM	1/2W.
C63	63-510	220 OHM	1/2W.
C64	63-510	220 OHM	1/2W.
C65	63-510	220 OHM	1/2W.
C66	63-510	220 OHM	1/2W.
C67	63-510	220 OHM	1/2W.
C68	63-510	220 OHM	1/2W.
C69	63-510	220 OHM	1/2W.
C70	63-510	220 OHM	1/2W.
C71	63-510	220 OHM	1/2W.
C72	63-510	220 OHM	1/2W.
C73	63-510	220 OHM	1/2W.
C74	63-510	220 OHM	1/2W.
C75	63-510	220 OHM	1/2W.
C76	63-510	220 OHM	1/2W.
C77	63-510	220 OHM	1/2W.
C78	63-510	220 OHM	1/2W.
C79	63-510	220 OHM	1/2W.
C80	63-510	220 OHM	1/2W.
C81	63-510	220 OHM	1/2W.
C82	63-510	220 OHM	1/2W.
C83	63-510	220 OHM	1/2W.
C84	63-510	220 OHM	1/2W.
C85	63-510	220 OHM	1/2W.
C86	63-510	220 OHM	1/2W.
C87	63-510	220 OHM	1/2W.
C88	63-510	220 OHM	1/2W.
C89	63-510	220 OHM	1/2W.
C90	63-510	220 OHM	1/2W.
C91	63-510	220 OHM	1/2W.
C92	63-510	220 OHM	1/2W.
C93	63-510	220 OHM	1/2W.
C94	63-510	220 OHM	1/2W.
C95	63-510	220 OHM	1/2W.
C96	63-510	220 OHM	1/2W.
C97	63-510	220 OHM	1/2W.
C98	63-510	220 OHM	1/2W.
C99	63-510	220 OHM	1/2W.
C100	63-510	220 OHM	1/2W.

R18	63-960	100M OHM	1/4W.
R19	63-976	15 MEG OHM	1/4W.
R20	63-985	100M OHM	1/4W.
R21	63-1349	25 MEG. VOL. CONT. VOL.	1/4W.
R22	63-1349	25 MEG. VOL. CONT. VOL.	1/4W.
R23	63-441	15M OHM	1/4W.
R24	63-441	15M OHM	1/4W.
R25	63-545	3300 OHM	1/4W.
R26	63-545	3300 OHM	1/4W.
R27	63-648	47M OHM	1/4W.
R28	63-1187	47M OHM	1/4W.
R29	63-647	330M OHM	1/4W.
R30	63-397	470M OHM	1/4W.
R31	63-1180	200 OHM WIREWOUND	1/4W.
R32	63-820	33 OHM	1/4W.
R33	63-856	180 OHM	1/4W.

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

## MODELS 12H090 - 12H091 - 12H092 - 12H093 - 12H094 CHASSIS No. 11C21



See pages 190 and 192 for additional service material and alignment data on these models.

COMPILED BY M. N. BEITMAN, SUPREME PUBLICATIONS

# MANUAL OF 1946 MOST POPULAR SERVICE DIAGRAMS

Operation	Connect Oscillator to	Dummy Antenna	Input Signal Frequency	Band	Set Dial To	Adj. Trimmers	Purpose
1	Pin 8 on Converter Tube 6SB7 socket	.05 Mfd.	455 Kc. Modulated	BC	600 Kc.	L15, 16, 19, 20, 23 and 24	Align I.F. channel for maximum output
2	Pin 1 on R.F. tube 6AG5 socket	.05 Mfd.	455 Kc. Modulated	Aut.	Press any button on Auto.	C10	Adjust wavetrap to minimum
3	2 Turns loosely coupled to wavemag.		1600 Kc. Modulated	BC	1600 Kc.	C17	Set oscillator to dial scale
4	2 turns loosely coupled to wavemag.		1400 Kc. Modulated	BC	1400 Kc.	C15 & C4	Align det. and ant. stages. Set oscillator to dial scale
5	Antenna Post (Re-move line ant.)	400 ohms	11.7 Mo. Modulated	SW	11.7 Mo.	C16	
6	Antenna Post (Re-move line ant.)	400 ohms	11.7 Mo. Modulated	SW	11.7 Mo.	C9	Align ant. stage
7	Antenna Post (Re-move line ant.)	400 ohms	9.7 Mo. Modulated	SW	9.7 Mo.	C8	Align ant. stage Repeat Oper. 6 for maximum output
8 (a)	Pin 4 grid on 6SB7 limiter socket	.05 Mfd.	8.3 Mo. Unmodulated	FM 45		L25 coil slug primary diso.	Align primary of discriminator for maximum reading
9 (b)	Pin 4 grid on 6SB7 limiter socket	.05 Mfd.	8.3 Mo. Unmodulated	FM 45		L26 coil slug seo. of disor.	Adjust secondary of discr. for zero reading
10 (o)	Pin 4 (grid) on 7M7 2nd IF tube socket	.05 Mfd.	8.3 Mo. Unmodulated	FM 45		L21 & L22 prim. & seo. of 3rd IF transformer	Align 3rd IF transformer for maximum reading
11 (o) (d)	Pin 4 (grid) on 6SG7 1st IF tube socket	.05 Mfd.	8.3 Mc. Unmodulated	FM 45		L17 & L18 prim. & seo. of 2nd IF transformer	Align 2nd IF transformer for maximum reading
12 (o) (d)	Pin 8 (grid) on 6SB7 converter tube socket	.05 Mfd.	8.3 Mo. Unmodulated	FM 45		L13 & L14 prim. & seo. of 1st IF transformer	Align 1st IF transformer for maximum reading
13 (o)	Antenna Post (re-move line ant.)	270 ohms	98 Mo. Unmodulated	FM 100	98 Mo.	L10 Osc. coil Slug	Set oscillator to dial scale
14 (o)	Antenna Post (re-move line ant.)	270 ohms	98 Mo. Unmodulated	FM 100	98 Mo.	L5 and L3 Det. and RF coil slugs	Align det. and Ant. stage to maximum reading
15 (o)	Antenna Post (re-move line ant.)	270 ohms	45 Mo. Unmodulated	FM 45	45 Mo.	C22	Set oscillator to dial scale
16 (o)	Antenna Post (re-move line ant.)	270 ohms	45 Mo. Unmodulated	FM 45	45 Mo.	C14 and C6	Align detector and ant. stages for maximum reading

The signal generator output should be kept just high enough to get an indication on the meter.

(a) Vacuum Tube Voltmeter pin 5 on discriminator transformer to chassis (half discriminator load.)  
 (b) Vacuum Tube Voltmeter pin 7 on discriminator transformer to chassis (full discriminator load.)  
 (c) Vacuum Tube Voltmeter 6SB7 limiter grid (pin 4 to chassis).  
 (d) 300 ohm  $\frac{1}{2}$  watt carbon resistor soldered across the secondary L18 (pin 2 and 3 of 2nd IF trans.).

The leads to the resistor must be as short as possible and the resistor removed before operation is started.

Zenith Radio  
 Chassis 11C21