MODELS 4W18, 4W19, Ch. 4W1; 4T11, Ch. 4T1

REMOVING AND INSTALLING CHASSIS

To remove the chassis from the cabinet, remove the tuning knobs, cabinet bottom (base) and on the 4W1, the metal speaker grille. The speaker grille is removed by pulling it down away from the cabinet.

Release the chassis by removing the two mounting screws located in the top inside of the cabinet just below the handle brackets.

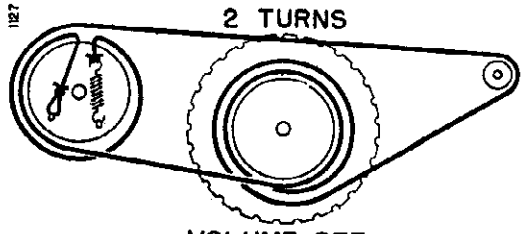
Install the chassis in cabinet in the same manner, being sure that the 1 5/16" diameter fibre washer (sleeve retainer) used on the 4W1 chassis is placed over the volume tuning sleeve just before sliding the 4W1 chassis into the cabinet.

Also, before tightening the two chassis mounting screws adjust the chassis for even spacing between all sides of the dial and the cut-out in the cabinet, otherwise binding may result.

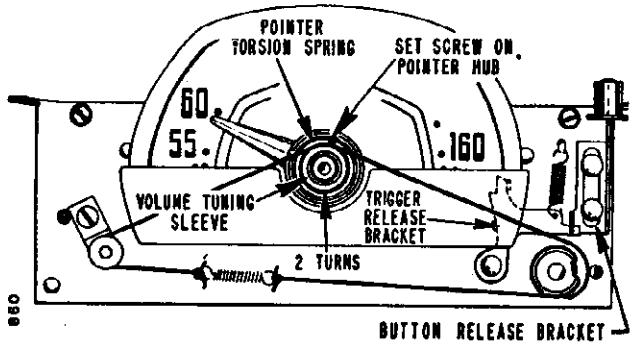
STRINGING VOLUME CONTROL DRIVE

The illustrations below show the volume cord stringing system used on each of the chassis.

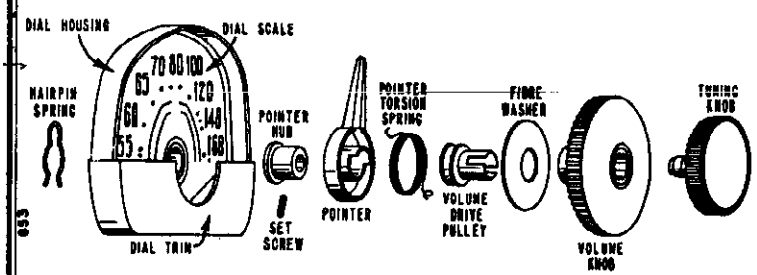
Before restringing the volume cord on these models, rotate volume control fully clockwise and, using a #6 Allen wrench, tighten the set screw on the volume control pulley, first being sure the cut-out slot(s) on the volume control pulley are in the position shown in each illustration. Loop the cord in the cut-out slots, winding 1½ turns around the volume control pulley, and then winding 2 turns around the volume tuning sleeve on the 4W1 chassis or the volume-off knob on the 4T1 chassis. Loop the cord around the fibre pulley at other end of chassis. To prevent slipping, be sure that the volume control turns freely and that the dial cord tension spring has sufficient tension.



Chassis 4T1, Front View Showing Stringing



Chassis 4W1, Front View Showing Stringing



Chassis 4W1, Dial and Tuning Knob Assembly, Exploded View

"HIDE-A-WAY" DIAL ON CHASSIS 4W1

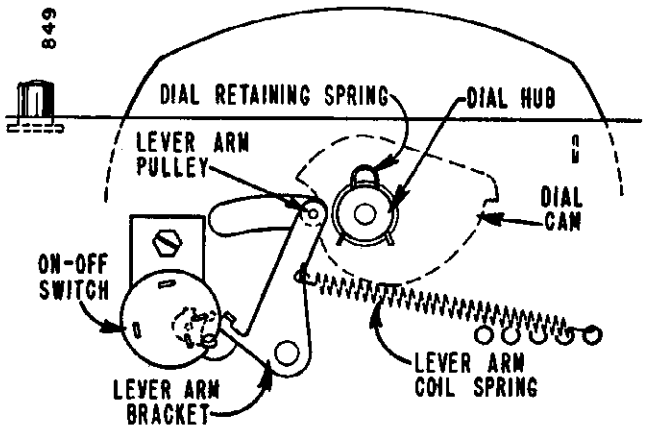
Illustrations below show front, rear and exploded views of dia mechanism. Follow the sequence shown in exploded view fo disassembly or reassembly of the knobs, pointer or dial.

The "Hide-A-Way" dial mechanism is operated by the pus button which works the trigger release bracket. The trigge bracket releases the dial assembly.

Thrust of the lever arm roller against the cam on back of th dial causes the dial to pop-up while a protruding edge on th lever arm simultaneously trips (turns on) the on-off switch.

Lever arm thrust is adjustable by attaching the far end of th lever arm spring to any of the holes spaced at different distance from the lever arm.

Rotating the dial fully to the left locks the dial into the cabi net and also trips (shuts-off) the on-off switch.

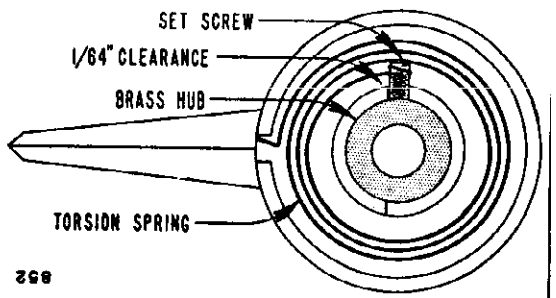


Chassis 4W1, "Hide-A-Way" Dial, Rear View

DIAL POINTER ON CHASSIS 4W1

The illustration shows an exploded view of the dial assembly and the sequence in which the pointer hub and torsion spring are to be assembled. When assembling the pointer torsion spring to the pointer, insert the rectangular end into the base of the pointer; compress the spring from about one-half to one turn in a clock-wise direction. Insert the rounded or looped end of the spring over the top end of the pointer set screw. Allow about 1/64" clearance between the inner turn of the pointer spring and pointer hub, or the pointer may bind or stick.

To adjust pointer, fully close the gang condenser. Set the end of the pointer over the two dots below 55 on the dial and tighten the pointer screw with a #4 Allen wrench. Important: Allow approximately 1/32" clearance between the hub on the pointer and the dial scale.



Chassis 4W1, Dial Pointer and Hub Assembly

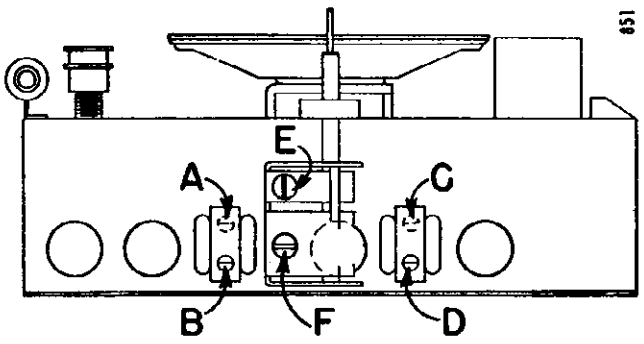
MODELS 4W18, 4W19, Ch. 4W1; 4T11, Ch. 4T1

ALIGNMENT PROCEDURE

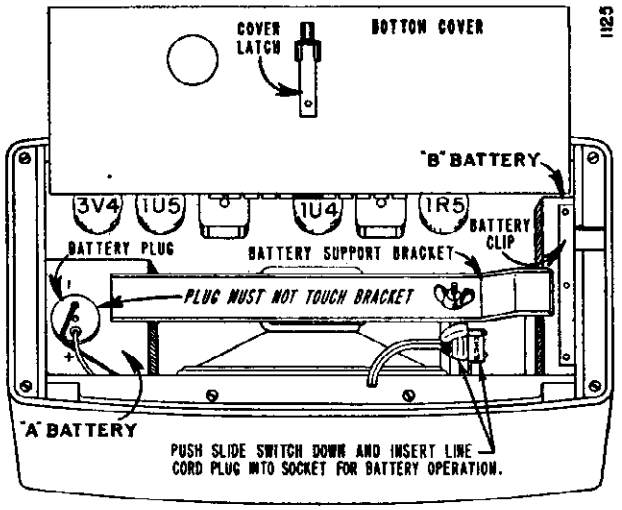
- Use battery power for alignment if fresh batteries are available.
- When using AC power, an isolation transformer should be used if available. If not using an isolating transformer, connect a .1 mfd. condenser in series with the signal generator low side to B minus (pin 7 of 1U5 tube).
- Batteries should be held in chassis during alignment.
- Set volume control full on.
- Connect output meter across speaker voice coil.
- Use lowest setting of signal generator capable of producing adequate output meter indication.
- Use a non-metallic alignment tool for IF transformers.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	.001 mfd. when using A. C. .1 mfd. when using Battery	Antenna stator of tuning condenser	455 KC	Gang fully open	2nd IF 1st IF	*A, B *C, D	Maximum output
2	"	"	1620 KC	"	Oscillator (on gang)	E	"
Install metal chassis cover.							
3	Loop of several turns of wire, or place generator lead close to receiver for adequate signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	"

*Adjustments A and C are made from other side of chassis.



Trimmer Location, Underside of Chassis



Tube and Battery Location

REPLACING OF BATTERIES

Use replacement "A" and "B" batteries of the following types:

A Battery (7½ Volts): General 31, Eveready 717, Burgess C5, Ray-o-Vac 751C or equivalent.

B Battery (67½ Volts): General 108, Eveready 467, Burgess XX45, Ray-o-Vac 4367 or equivalent.

Electrical characteristics of recommended batteries for these models provide for equal life for both the "A" and "B" batteries. "A" batteries may give satisfactory performance as low as 5.5 volts; "B" batteries as low as 49.5 volts. Replace batteries when reception is weak and voltage has dropped below values given above.

To install replacement batteries, slide the cover latch and open the hinged bottom cover. Then remove the wing nut which holds the battery support bracket in place.

Disconnect battery connectors from old batteries. Batteries can easily be removed from the set by grasping them with long nose pliers or if necessary removing the cabinet bottom. Install new batteries so battery connectors are farthest away from the ends of the battery bracket. Batteries may become shorted if bracket touches connectors.

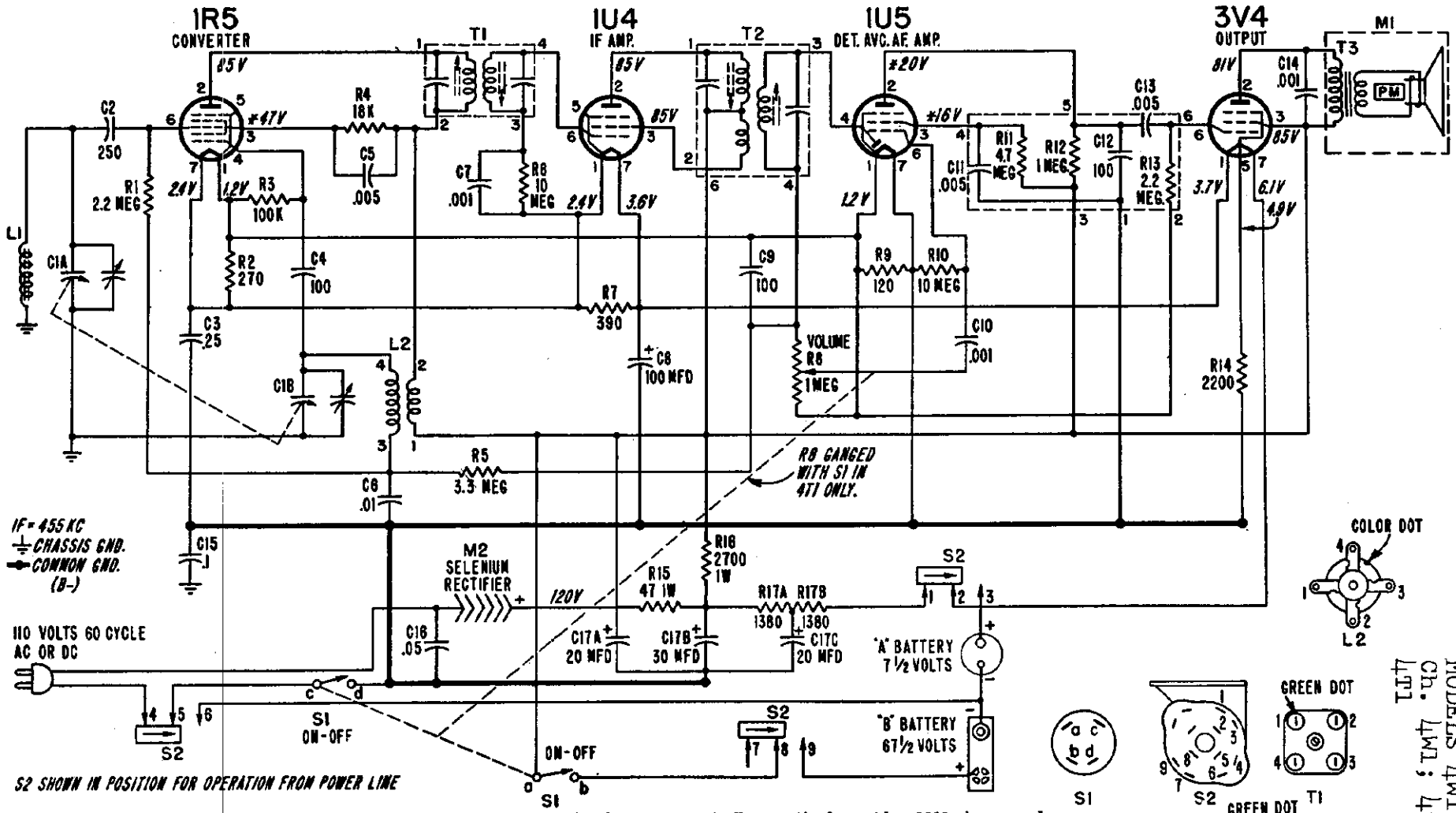
REPLACING TUBES

Tubes can most conveniently be removed or replaced by first removing the batteries and cabinet bottom. A miniature tube puller or extractor will be of help in facilitating tube replacement.

VOLTAGE DATA

Voltages shown on schematic diagram.

- All voltages taken between tube socket terminals and B minus (pin 7 of 1U5 tube).
- Dial turned to low frequency end; volume control at minimum.
- Voltages measured with Vacuum Tube Voltmeter from 117 Volts AC line.

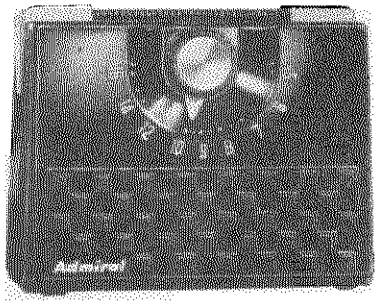


*These readings will be either lower or practically zero if taken with a 1000 ohm-per-volt meter

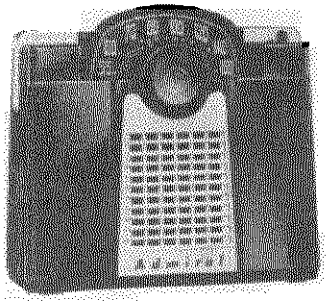
MODELS 4M18, 4M19, Ch. 4M1; 4T11, Ch. 4T1

MODELS 4W18, 4W19, Ch. 4W1; 4T11, Ch. 4T1

4T11



4W18, 4W19



RESISTORS

Symbol	Description	Part No.
R1	2.2 megohms, ½ watt	60B 8-225
R2	270 ohms, ½ watt	60B 8-271
R3	100,000 ohms, ½ watt	60B 8-104
R4	18,000 ohms, ½ watt	60B 8-183
R5	3.3 megohms, ½ watt	60B 8-335
R6	10 megohms ½ watt	60B 8-106
R7	390 ohms, ½ watt	60B 8-391
R8	1 Megohm, Vol. Control for 4T1	75B 1-43
	for 4W1	75B 1-37
R9	120 ohms, ½ watt	60B 8-121
R10	10 megohms, ½ watt	60B 8-106
*R11	4.7 megohms, 1/5 watt	
*R12	1 megohm, 1/5 watt	
*R13	2.2 megohms, 1/5 watt	
R14	2,200 ohms, ½ watt	60B 8-222
R15	47 ohms, 1 watt	60B 14-470
R16	2,700 ohms, 1 watt	60B 14-272
R17A	1380 ohms 5 watt, Tapped	
R17B	1380 ohms Candohm	61A 5-7

CONDENSERS

Symbol	Description	Part No.
C1A	272 mmfd. max., Ant. Gang†	
C1B	107 mmfd. max., Osc. Gang†	
C2	250 mmfd., ceramic	65B 6-5
C3	.25 mfd, 200 volts, paper	64B 1-28
C4	100 mmfd., ceramic	65B 6-3
C5	.005 mfd, ceramic	65A 10-5
C6	.01 mfd, 400 volts, paper	64B 1-25
C7	.001 mfd, min. ceramic	65B 6-41
C8	100 mfd, 25 volts, Elec.	67A 4-6
C9	100 mmfd, ceramic	65B 6-3
C10	.001 mfd, min. ceramic	65B 6-41
*C11	.005 mfd, min. ceramic	
*C12	100 mmfd. ceramic	
*C13	.005 mfd, ceramic	
C14	.001 mfd, min. ceramic	65B 6-41
C15	.1 mfd, 200 volts, paper	64B 1-30
C16	.05 mfd, 400 volts, paper	64B 8-28
C17A	20 mfd, 150 volts	
C17B	30 mfd, 150 volts Elect.	67C 7-41
C17C	20 mfd, 150 volts	

COILS, TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Antenna, Rod	69C 120-1
L2	Coil, Oscillator	69A 39-5
T1	Transformer, 1st IF	72B 28-1
T2	Transformer, 2nd IF	72B 28-62
T3	Transformer, Output	98A 21
M1	Speaker (3½" PM) and Output Trans.	78B 58-1
M2	Rectifier, Selenium	93A 1-6
S1	Switch, On-Off, DPST, (less bracket)	77A 23
S2	Switch, Power Change	77A 19-1
	*Couplate (includes R11, R12, R13, C11, C12, C13)	63A 4-3

MISCELLANEOUS PARTS

Description	Part No.
Baffle, Speaker	43A 111
Bracket (4W1 only)	
on-off switch mounting	15A 602
battery support	15A 603
button release	15A 599
trigger release bracket	15A 600
volume pulley and bracket ass'y.	A3316
shield for gang	15A 618
cover for AC switch	15A 595
lever arm assembly	A3254
Carton and Fillers	44B 165
Clip, IF Transformer mounting	72B 28-10
Clip "B" Battery Connector	90A 5-3
Cover, Metal for chassis	14C 70
Drum, Vol. control (4T1 only)	17A 30
Insulator, Fibre (for mtg. rectifier)	32A 137
Customers Instructions	
for 4W18, 4W19	41A 18 42
for 4T11	41A 18-38
Dial Cord (order length needed; 24" required for 4W1, 30" required for 4T1)	50A 1-3
Nut, Wing (#6/32 for battery support bracket)	2A 5-4-71
Plate, Electrolytic Mounting	67A 2-1
Plug, "A" Battery Connector	88A 4-6
Pulley, Brass	
mounts on volume control shaft (4W1 only)	27A 150-1
drive for volume control cord	27A 149-1
riveted to lever arm (4W1 only)	27A 146
Screw, Set	
for volume control pulley (#6-32x3/16)	1A 48-3
Socket, Tube	87A 3-4
Speed Nut, #5/32 (for trigger adjustment bracket)	2B 10-12
Speed Nut, #6 Escutcheon mtg. (4T1 only)	2B 10-9-68
Spring, Coil	
for 4W1 dial relase bracket (½"x3/16" dia.	19B 1-18
for 4W1 lever arm (1¾" long)	19A 64
for 4W1 dial cord (tension) (7/16"x⅛" dia.)	19B 1-16
for 4T1 dial cord (tension) (11/32"x9/64" dia.)	19B 1-17
Washer, Spring (5/16"ODx3/16"ID)	4A 6-13

CABINET PARTS

Description	Part No.
Bottom, Cabinet (Base)	
Ebony for 4T11	
complete with metal door	A3270
plastic frame only	34D 35-2
Green for 4W18	
complete with metal door	A3493
plastic frame only	34D 35-6
Tan for 4W19	
complete with metal door	A3494
plastic frame only	34D 35-8
Bracket, Handle Support (metal ends)	20B 14
Button, Push	
Green for 4W18	33A 61-3
Tan for 4W19	33A 61-4
Cabinet (less bottom)	
Green for 4W18	34D 35-5
Tan for 4W19	34D 35-7
Ebony for 4T11	34D 44-1
Grille Cloth, Speaker (4W1)	36B 3-81
Grille, Plastic (gold) (4W1)	23C 95-1
Grille, Plastic (black) (4T1)	23C 94-1
Handle, Carrying (plastic covering only)	
Ebony for 4T11	33A 58-1
Green for 4W18	33A 58-3
Tan for 4W19	33A 58-4
Hinge, Bottom Cover	37A 33
Knob, Volume	
Green for 4W18	33C 56-8
Tan for 4W19	33C 56-10
Ebony for 4T11	33C 67-1
Knob, Tuning (includes compression ring)	
Green for 4W18	A3491
Tan for 4W19	A3492
Ebony for 4T11	A3473
Pointer, Dial	
for 4T1 chassis	25B 47-1
for 4W1 chassis	25A 40
Ring, Compression (for tuning knob)	
for 4W18, 4W19	19A 31-6
for 4T11	19A 31-7
Ring, Compression (for Pointer, 4T1)	19A 31-2
Rivet, Shoulder	
with 5/64 shoulder	6A 4-2-2
with 7/64 shoulder	6A 4-12-71
with 15/64 shoulder	6A 4-11-2
with 3/32 shoulder	6A 4-7-71
Rubber Strap, for carrying handle	
upper, with 13/32" holes	12A 38
lower, with ¼" holes	12A 38-1
Screw	
#4x⅝ self tapping; for mtg. plastic base to cabinet	1A 69-6-71
#8-32x7/16; for mtg. handle and chassis	280-437-C2-71
Slide Arm (for bottom door)	15A 291
Spring, Support (for carrying handle)	18A 42
Washer	
felt, for 4W1 volume knob	5A 4-17
felt, for 4T1 volume knob	5A 4-8
fibre, for retaining volume knob on 4W1 (15/16"OD x 7/16"ID)	5A 1-17

PARTS FOR "HIDE-A-WAY" DIAL In 4W1 Chassis

Description	Part No.
Dial Scale	
Green for 4W18	22C 25-5
Tan for 4W19	22C 25-7
Housing Assembly, Metal (for dial scale, includes hub and cam)	
Green for 4W18	A3495
Tan for 4W19	A3496
Hub, Brass (for dial pointer)	27A 151
Pointer, Dial	25A 40
Pulley, Brass (volume tuning sleeve)	27A 149-1
Screw (#6x5/6 S.T.B.H.—for mtg. dial trim)	1A 71-9-71
Screw, Set (#4-40x5/16—for dial pointer hub)	1A 43-4
Spring, Hairpin (for mtg. dial assembly)	19A 2-6
Spring, Pointer Torsion	19A 63
Trim, Plastic (front bottom of dial housing)	
Green for 4W18	33B 60-3
Tan for 4W19	33B 60-4

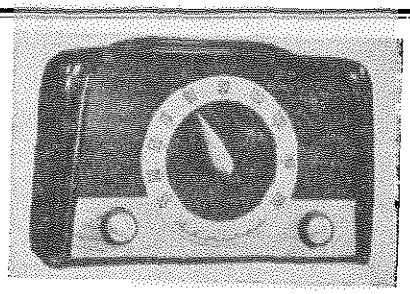
†Use number 68B34-1 gang for 4W1 chassis, and number 68B41 gang for 4T1 chassis. Except for shaft lengths, these gang condensers are identical.

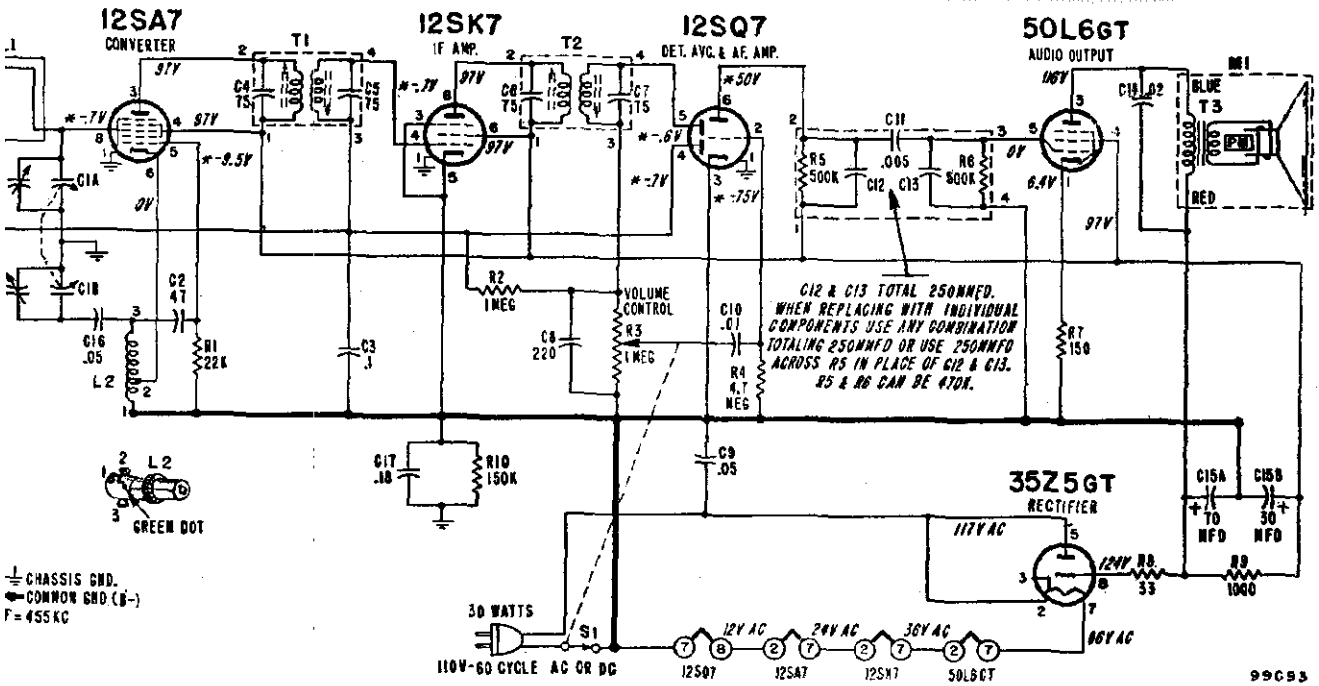
*Part of couplate (part #63A4-3). Replace with exact duplicate or individual components. Note that numbers 1, 2, 3, 4, 5, 6, on schematic correspond to lead numbers printed on face of couplate.

VOLTAGE DATA

Voltages shown on schematic diagram.

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Dial turned to low frequency end; volume control at minimum.
- Measured on 117 Volts AC line.
- Voltages measured with Vacuum Tube Voltmeter.





'These readings will be either lower or practically zero if taken with a 1000 ohm-per-volt meter.

CONDENSERS

C1a	Ant., 420 mmfd. max} Gang	68B 38	
C1b	Osc. 109 mmfd. max} Gang		
	(Dial drum spot welded to gang)		
C2	47 mmfd., ceramic	65C 6-79	
C3	.1 mfd., 200 volts, paper	64B 1-30	
C4	75 mmfd., 3%	Part of T1	
C5	75 mmfd., 3%	Part of T1	
C6	75 mmfd., 3%	Part of T2	
C7	75 mmfd., 3%	Part of T2	
C8	220 mmfd., ceramic	65C 6-80	
C9	.05 mfd., 400 volts, paper	64B 1-22	
C10	.01 mfd., 400 volts, paper	64B 1-25	
†C11	.005 mfd., 400 volts		
†C12	See schematic		
†C13	See schematic		
C14	.02 mfd., 400 volts, paper	64B 1-24	
C15a	70 mfd., 150 volts} elect	67A 1-7	
C15b	30 mfd., 150 volts} elect		
C16	.05 mfd., 400 volts, paper	64B 1-22	
C17	.18 mfd., 200 volts, paper	64A 2-2	

Part of couplate (part 63A5-4). Replace with exact duplicate or individual components. Note hat numbers 1, 2, 3, 4, on schematic correspond to couplate lead numbers printed on face

COILS, TRANSFORMERS, Etc.

L1	Antenna, Loop (mounted on cardboard back)	69C 142
L2	Coil, Oscillator	69A 52-3
T1	Transformer, 1st I.F.	72B 50
T2	Transformer, 2nd I.F.	72B 51
T3	Transformer, Output	98A 4
	Speaker (5" PM) and Output Transformer	78B 62-1
S1	Switch, On-Off	Part of R3
	†Couplate (Includes R5, R6, C11, C12, C13).	63A 5-4

MISCELLANEOUS

Description	Part No.
Cabinet	
Ebony (5E21)	34D 39-1
Mahogany (5E22)	34D 39-2
Ivory (5E23)	34D 39-3
Carton and fillers	44B 191
Clip, Elect., mtg.	18A 10-6
Cotter Pin (for carrying handle)	8A 4-5-71
Dial Cord (32" required)	50A 1-3

Description	Part No.
Drum, Dial Pointer	17A 27
Escutcheon, Dial Scale	23C 77
Grille, Speaker (Metal)	
Ebony (for 5E21)	16A 30-1
Gold (for 5E22, 5E23)	16A 30-2
Handle, Plastic	
Ebony (for 5E21)	37B 36-1
Ivory (for 5E23)	37B 36-3
Mahogany (for 5E22)	37B 36-2
Knob, Tuning	
Ebony (for 5E21)	33A 64-4
Ivory (for 5E23)	33A 64-3
Mahogany (for 5E22)	33A 64-2
Pointer, Dial	
Gold (for 5E21)	25A 45-1
Ivory (for 5E23)	25A 45-3
Mahogany (for 5E22)	25A 45-2
Ring, Dial Pointer Compression	19A 31-2
Shaft, Dial Pointer	28A 42-1
Shaft, Tuning	28A 26-4
Sleeve, Dial Pointer Shaft	27A 124
Sleeve, Tuning Shaft	27A 124-1
Snap Buttons (cabinet back)	13A 1-5
Snap Button, Escutcheon mtg.	13A 1-2-71
Socket, Tube	87A 10-2
Spacer, Tuning Shaft	29A 2-7-71
Speed Nut, Escutcheon Retaining	2B 10-35-68
Speed Nut (for tuning shaft spacer)	2B10-21-59
Spring, Dial Cord Tension	19B 1-5
Spring (for carrying handle)	19A 69
Washer, "C" (tuning shaft)	4A 4-6-0
Washer, Felt (knob)	5A 4-4
Washer, Spring (tuning shaft)	4A 4-6-0

RESISTORS

Symbol	Description	Part No.
R1	22,000 ohms, ½ watt	60B 8-223
R2	1 megohm, ½ watt	60B 8-105
R3	1 megohm, Volume Control and On-Off switch S1	75B 1-40
R4	4.7 megohms, ½ watt	60B 8-475
†R5	500,000 ohms, ½ watt	
†R6	500,000 ohms, ½ watt	
R7	150 ohms, ½ watt	60B 8-151
R8	33 ohms, 1 watt	60B 28-3
R9	1,000 ohms, 1 watt	60B 28-2
R10	150,000 ohms, ½ watt	60B 8-154

MODELS 5E21, 5E22,
5E23, Ch. 5E2

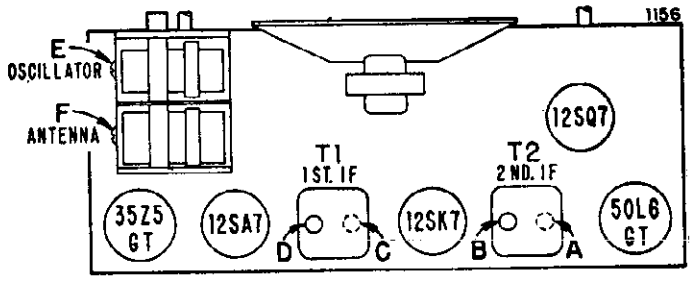
ALIGNMENT PROCEDURE

- Connect output meter across speaker voice coil.
- Turn receiver volume control full on.
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and connect to chassis.
  Caution: Do not connect a ground wire directly to chassis.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	250 mmfd. condenser	Antenna stator of tuning condenser	455 KC	Gang fully open	2nd IF 1st IF	*A, B *C, D	Maximum Output
2	250 mmfd. condenser	Antenna stator of tuning condenser	1620 KC	Gang fully open	Oscillator (on gang)	E	Maximum Output
3	Loop of several turns of wire or place generator lead close to receiver loop for adequate signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	Maximum Output
4	Mount and set dial pointer as shown in Pointer Setting and Dial Cord Stringing Diagram.						

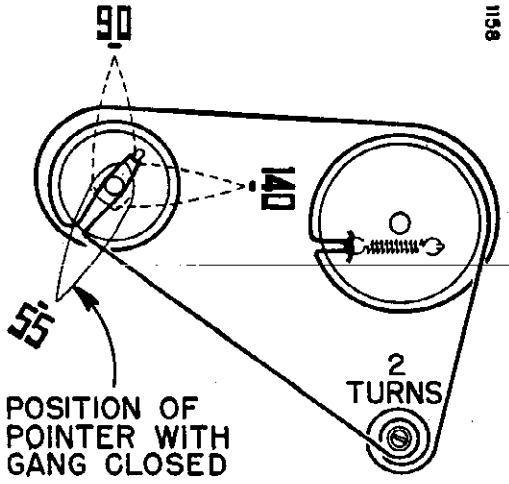
*Adjustments A and C made from the underside of the chassis. If IF transformers have hollow core slugs, these adjustments may all be made from the top of chassis, if you use alignment tool #98A30-7 obtainable from your Admiral distributor. The bottom IF slug adjustment may be reached through the hollow core in the upper slug.

TUBE AND TRIMMER LOCATION



Adjustments A and C are made from underside of chassis.

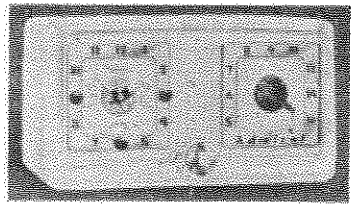
POINTER SETTING AND DIAL CORD STRINGING

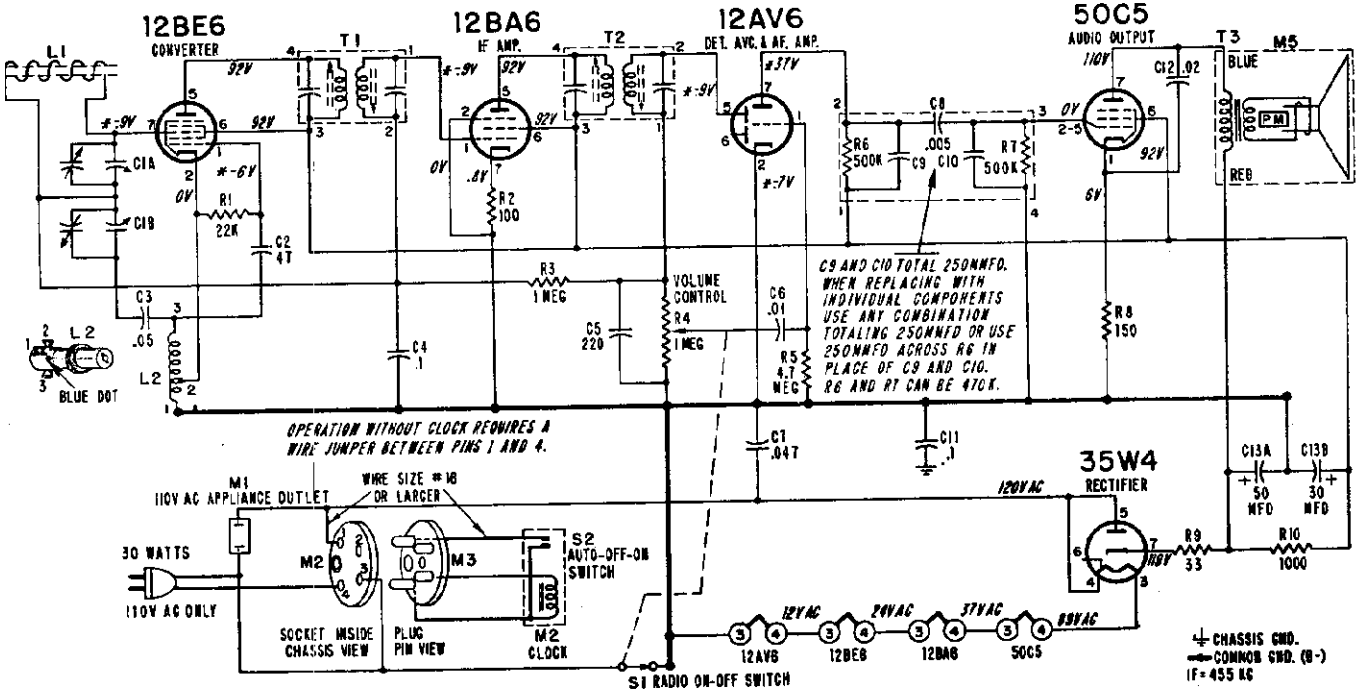


VOLTAGE DATA

Voltages shown on schematic diagram

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Measured on 117 Volt AC line.
- Volume control minimum; dial turned to low frequency end.
- Voltages measured with Vacuum Tube Voltmeter.





*These readings will be either lower or practically zero if taken with a 1000 ohm-per-volt meter.

RESISTORS

Symbol	Description	Part No.
R1	22,000 ohms, ½ watt	60B 8-223
R2	100 ohms, ½ watt	60B 8-101
R3	1 megohm, ½ watt	60B 8-105
R4	1 megohm, Volume Control (includes Radio On-Off Switch S1)	75B 1-41
R5	4.7 megohms, ½ watt	60B 8-475
§R6	500,000 ohms, ¼ watt	
§R7	500,000 ohms, ¼ watt	
R8	150 ohms, ½ watt	60B 8-151
R9	33 ohms, 1 watt	60B 28-3
R10	1,000 ohms, 1 watt	60B 28-2

CABINET PARTS

Description	Part No.
Background, Tuning Dial Bezel	22A 27
Bezel, Tuning Dial (Frame)	
polished brass finish	23A 85-2
gold spray finish	23A 85-1
Cabinet, Plastic	
Ebony (5G21, 5G21/15)	34D 43-1
Mahogany (5G22, 5G22/15)	34D 43-2
Ivory (5G23, 5G23/15)	34D 43-3
Grille, Speaker (plastic)	36A 22
Knob	
Radio Off-Volume, Gold	33D 55-25
Tuning, Ebony	33D 55-24
Tuning, Mahogany	33D 55-23
Tuning, Ivory	33D 55-26
Washer, Felt (for tuning knobs)	5A 4-18

COIL, TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Rod Antenna & Cabinet Back	69C 143
L2	Coil, Oscillator	69A 52-4
T1	Transformer, 1st IF	72B 28-7
T2	Transformer, 2nd IF	72B 28-7
T3	Transformer, Output	98A 21
M1	Appliance Outlet	87A 21-1
M5	Speaker (4" PM) and Output Trans.	78B 65-1
S1	Switch, Radio On-Off	Part of R4
S2	Switch, Auto-Off-On (part of M4)	91C 4-14

CLOCK PARTS

M2	Socket, Clock, 4 contact	87A 6-3
M3	Plug, Clock, 4 pin	88B 22-5
	Shell and Insulator for plug M3	88B 22-3
M4	Clock, Complete	
	60 cycle, for 5G21, 5G22	**91C 4-1
	60 cycle, for 5G23	91C 4-2
	50 cycle, for 5G21/15, 5G22/15	**91C 4-3
	50 cycle, for 5G23/15	91C 4-4
Background, Clock Dial Bezel		22A 27
Bezel, Clock (Frame)		
	gold spray finish	91C 4-12
	polished brass finish	91C 4-13
Field and Coil Assembly		
	for 110 V. 60 cycles	91C 4-15
	for 110 V. 50 cycles	91C 4-17
Glass, Window		91C 4-11
Knobs, Clock (Mahogany)		91C 4-10
Rotor		
	for 110 V. 60 cycles	91C 4-16
	for 110 V. 50 cycles	91C 4-18

**Specify whether bezel is gold spray finish or polished brass finish.

CONDENSERS

Symbol	Description	Part No.
C1A, C1B	290 mmfd. max., Ant. / 104 mmfd. max., Osc. (Dial drum spotwelded to gang)	Gang 68B 39
C2	47 mmfd. ceramic	65C 6-79
C3	.05 mfd, 400 volts, paper	64B 1-22
C4	.1 mfd, 200 volts, paper	64B 1-30
C5	220 mfd, ceramic	65C 6-80
C6	.01 mfd, 400 volts, paper	64B 1-25
C7	.047 mfd, 400 volts, paper	64B 8-28
§C8	.005 mfd, 450 volts.	
§C9, §C10	See Schematic	
C11	.1 mfd, 200 volts, paper	64B 1-30
C12	.02 mfd, 400 volts, paper	64B 1-24
C13A, C13B	50 mfd, 150 volts / 30 mfd, 150 volts	Elect. 67A 22-1

§Part of couplate (part #63A5-4). Replace with exact duplicate or individual components. Note that numbers 1, 2, 3, 4, on schematic correspond to lead numbers printed on face of couplate.

MISCELLANEOUS PARTS

Description	Part No.
Bracket, Tuning Shaft	15A 698
Carton and Fillers	44B 214
Clamp, for Line Cord	11A 9-4
Clip, IF Transformer mtg.	72B 28-10
Compression Ring (for pointer)	19A 31-2
Dial Cord (30" length needed)	50A 1-3
Drum, Dial Pointer	17A 27
Grommet, Rubber (Gang mtg.)	12A 1-19
Line Cord and Plug	89A 34-1
Manual	
Customer Instructions	41A 18-41
Service Manual	S407
Socket, Tube	
plain type	67A 24-2
with grounding strap	67A 24-3
Plate, Pointer Support	15A 498
Pointer, Dial	25A 46-1
Sleeve, for pointer shaft	27A 124
Sleeve, Tuning (Brass)	27A 157
Speed Nut (for mtg. pointer shaft sleeve)	2B 10-28-59
Spring, Dial Cord Tension	19B 1-5
Washer, "C" (for pointer drum)	4A 4-6

MODELS 5G21, 5G21/15, 5G22, 5G22/15, 5G23, 5G23/15, Ch. 5G2

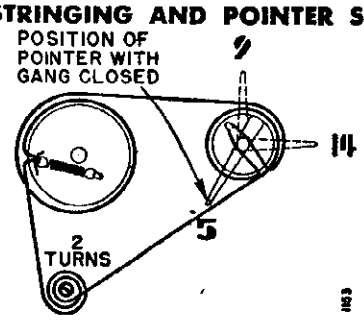
ALIGNMENT PROCEDURE

- Connect a wire jumper between pins 1 and 4 on clock plug (M2) as shown in illustration below.
- Turn receiver volume control full on (fully clockwise).
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and connect to chassis.
  Caution: Do not connect a ground wire directly to chassis.
- Connect output meter across speaker voice coil.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and proceed in the following sequence.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	250 mmfd. condenser	Antenna stator of tuning condenser	455 KC	Gang fully open	2nd IF 1st IF	*A, B *C, D	Maximum output
2	250 mmfd. condenser	Antenna stator of tuning condenser	1620 KC	Gang fully open	Oscillator	E	Maximum output
Mount and set dial pointer to horizontal position with tuning condenser tuned to 1400 KC generator signal; see illustration below.							
3	Loop of several turns of wire, or place generator lead close to receiver loop for adequate* signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna	F	Maximum output

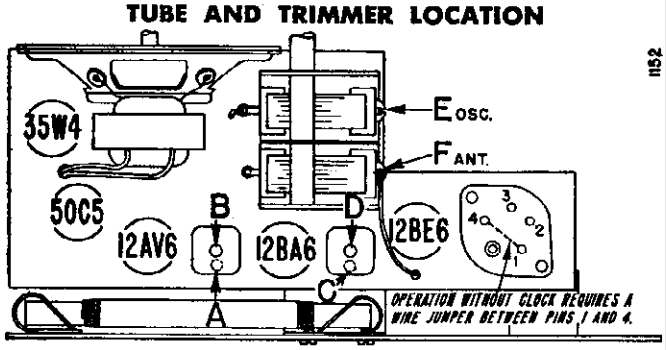
*Adjustments A and C made from the underside of the chassis. If IF transformers have hollow core slugs, these adjustments may all be made from the top of the chassis, if you use alignment tool #98A30-7 obtainable from your Admiral distributor. The bottom IF slug adjustment may be reached through the hollow core in the upper slug.

DIAL STRINGING AND POINTER SETTING



Dial stringing and pointer with solid lines shown with gang closed. Dashed line pointer positions (1400 KC and 900 KC) shown when tuning condenser is tuned to generator signal.

TUBE AND TRIMMER LOCATION



Adjustments A and C made from underside of chassis.

TO REMOVE CLOCK from CABINET

(Radio chassis need not be removed when removing clock)

1. Remove the back from radio cabinet.
2. Remove the clock plug from the socket on top of the radio chassis, by removing screw from top of plug and gently prying plug out from socket.
3. Turn the slumber switch to the "60" position.
4. Remove the 3 nuts which hold the clock back cover to the clock.
5. Carefully pull the clock through the front of the cabinet while twisting it slightly to eliminate binding.

OPERATING RADIO MANUALLY

To operate the radio manually, the "Auto-Off-On" switch must be in the "On" position or the radio will not operate.

The radio on-off switch will turn the radio on or off, but will have no control over the appliance or the clock.

TO REMOVE FIELD and COIL ASSEMBLY or TO REMOVE ROTOR

The field and coil assembly and the rotor can be easily removed after the two screws which mount the nameplate are removed.

Note that when the rotor is replaced, the gear on the rotor must drop into the hole in the center of the gear plate and mesh with the clock gear.

MODELS 5J12,
5J13, Ch. 5J

CIRCUIT

5 tube AC-DC Superheterodyne covering two bands, (540 KC—1730 KC) and (5.8 MC—18MC).

OPERATING VOLTAGE

110-120 Volts AC or 110-120 Volts DC. It can b operated on 220 Volts AC or DC only if a special lin resistance cord is used. (See Parts List.)

ALIGNMENT PROCEDURE

- Connect output meter across voice coil.
- Turn receiver volume control full on.
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and attach to B minus of chassis.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

NOTE

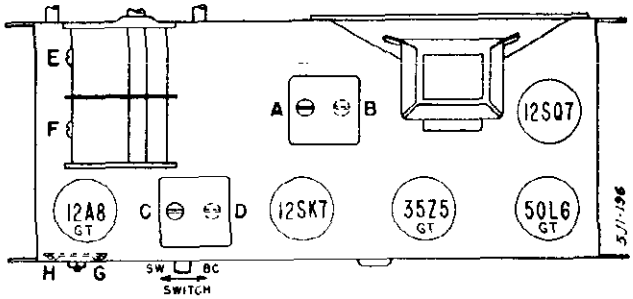
To avoid splitting the slotted head of powdered iron core tuning slugs in I.F. transformers, use an alignment tool having a blade 1/8" wide.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Band Switch Position	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustmen
1	250 mmfd. condenser	Grid Cap 12A8 Tube	B.C.	455 K.C.	Gang fully open	2nd IF 1st IF	A, B* C, D*	Maximum Output
2	250 mmfd. condenser	End of Ant. Wire	B.C.	1730 K.C.	Gang fully open	B.C. Oscillator (on gang)	E	Maximum Output
3	250 mmfd. condenser	End of Ant. Wire	B.C.	1400 K.C.	Tune in generator signal	B.C. Antenna (on gang)	F	Maximum Output
4	250 mmfd. condenser	End of Ant. Wire	B.C.	600 K.C.	Tune in generator signal	B.C. pad	G	Maximum Output. Rock gang while adjusting
Recheck alignment at 1400 K.C. (in step 3 above)								
5	400 ohm carbon resistor	End of Ant. Wire	S.W.	15 M.C.	Tune in generator signal	S.W. Antenna	H (see caution below)	Maximum Output. Rock gang while adjusting

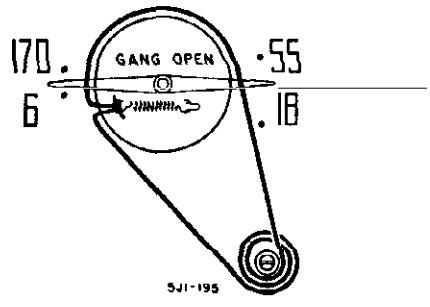
*Adjustments B and D are made from underside of chassis.

Caution: Be sure that trimmer "H" is aligned on correct frequency and not on image which is approximately 910 K.C. lower in frequency as indicated on dial.

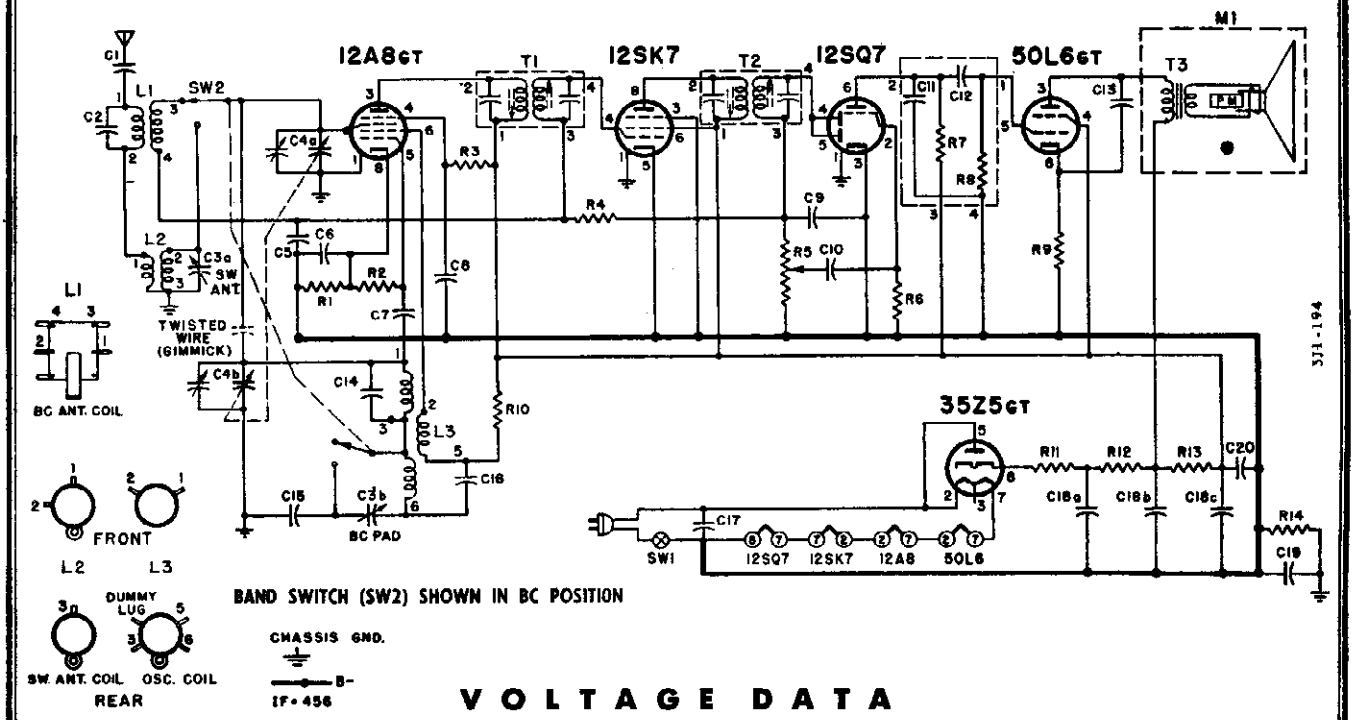
TUBE AND TRIMMER LOCATION



POINTER SETTING AND DIAL CORD STRINGING



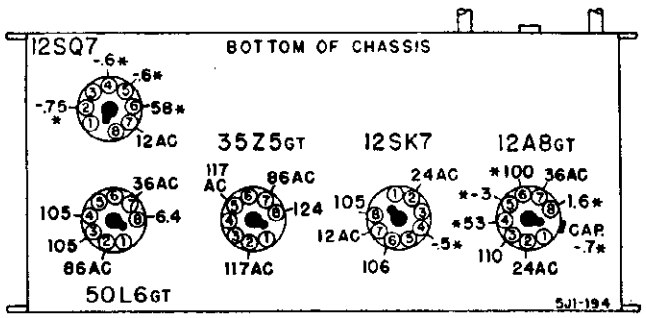
MODELS 5J12, 5J13, Ch. 5J1



BAND SWITCH (SW2) SHOWN IN BC POSITION

VOLTAGE DATA

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Dial turned to low frequency end; volume control at minimum.
- Band switch set in "BC" position.
- Measured on 117 Volts AC line. When measured from DC line, voltages may be slightly lower.
- Voltages measured with Vacuum Tube Voltmeter. Readings taken with a 1,000 ohm per volt meter will be approximately the same except for those marked with an asterisk * in the voltage chart; these readings will either be lower or practically zero.



* If taken with a 1000 ohm-per-volt meter, readings will either be lower or practically zero.

RESISTORS

Symbol	Description	Part No.
R1	330 ohms, ½ Watt	60B 8-331
R2	47,000 Ohms, ½ Watt	60B 8-473
R3	39,000 ohms, ½ Watt	60B 8-393
R4	2.2 Megohms, ½ Watt	60B 8-225
R5	1 Megohm Volume Control	75B 1-25
R6	4.7 Megohms, ½ Watt	60B 8-475
*R7	470,000 ohms, ½ Watt	
*R8	470,000 ohms, ½ Watt	
R9	220 ohms, ½ Watt	60B 8-221
R10	3,300 ohms, ½ Watt	60B 8-332
R11	33 ohms, 1 Watt	60B 28-3
R12	150 ohms, 1 Watt	60B 28-1
R13	1,000 ohms, 1 Watt	60B 28-2
R14	150,000 ohms, ½ Watt	60B 8-154

CONDENSERS

Symbol	Description	Part No.
C1	.001 mfd., 400 Volts, Paper	65A 2-6
C2	50 mmfd., Mica	65B 5-11
C3a	3 to 30 mmfd. } Dual Trimmer	66A 23-4
C3b	450 to 510 mmfd. }	
C4a	0 to 420 mmfd. } Gang	68B 22
C4b	0 to 420 mmfd. }	
	Dial drum spotwelded to gang	
C5	.05 mfd., 400 Volts, Paper	65A 2-9
C6	.05 mfd., 400 Volts, Paper	65A 2-9
C7	100 mmfd., 10%, —.00075 Temp. Coeff., Ceramic	65B 6-19
C8	.05 mfd., 400 Volts, Paper	65A 2-9
C9	250 mmfd., Ceramic	65B 6-5
C10	.01 mfd., 400 Volts, Paper	65A 2-18
*C11	250 mmfd., 500 Volts	
*C12	.01 mfd., 400 Volts	
C13	.01 mfd., 400 Volts, Paper	65A 2-18
C14	10 mmfd., 10%, Zero Temp. Coeff., Ceramic	65B 6-44
C15	.003 mfd., 3%, Silver Mica	65B 1-6
C16	.005 mfd. min., Ceramic Disc	65A 10-1
C17	.05 mfd., 400 Volts, Paper	65A 2-9
C18a	30 mfd., 150 Volts } Elect.	67A 8
C18b	30 mfd., 150 Volts }	
C18c	20 mfd., 150 Volts }	
C19	.18 mfd., 200 Volts, Paper	65A 2-27
C20	.05 mfd., 400 Volts, Paper	65A 2-9

COILS, TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Coil, Antenna BC	69A 74
L2	Coil, Antenna SW	69A 75
L3	Coil, Oscillator BC and SW	69A 76
T1	Transformer, 1st IF	72B 50
T2	Transformer, 2nd IF	72B 51
T3	Transformer, Output	98A 4
SW1	Switch, On-Off	Part of R5
SW2	Switch, Band	77B 1-12
MI	Speaker (5" PM) and Output Trans.	78B 26-1
*Couplate		63A 5-1

* C11, C12, R7, and R8 are contained in a multiple-unit component called a couplate (part number 63A5-1). Although a defective section of the couplate can sometimes be replaced by individual components, we strongly recommend replacing the entire couplate. Note that numerals 1, 2, 3, 4, shown at schematic connections correspond to couplate lead numbers printed on face of couplate.

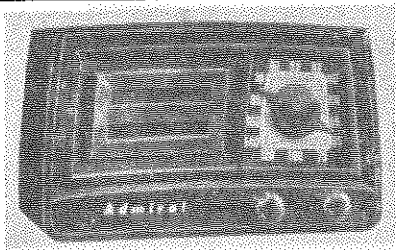
MISCELLANEOUS

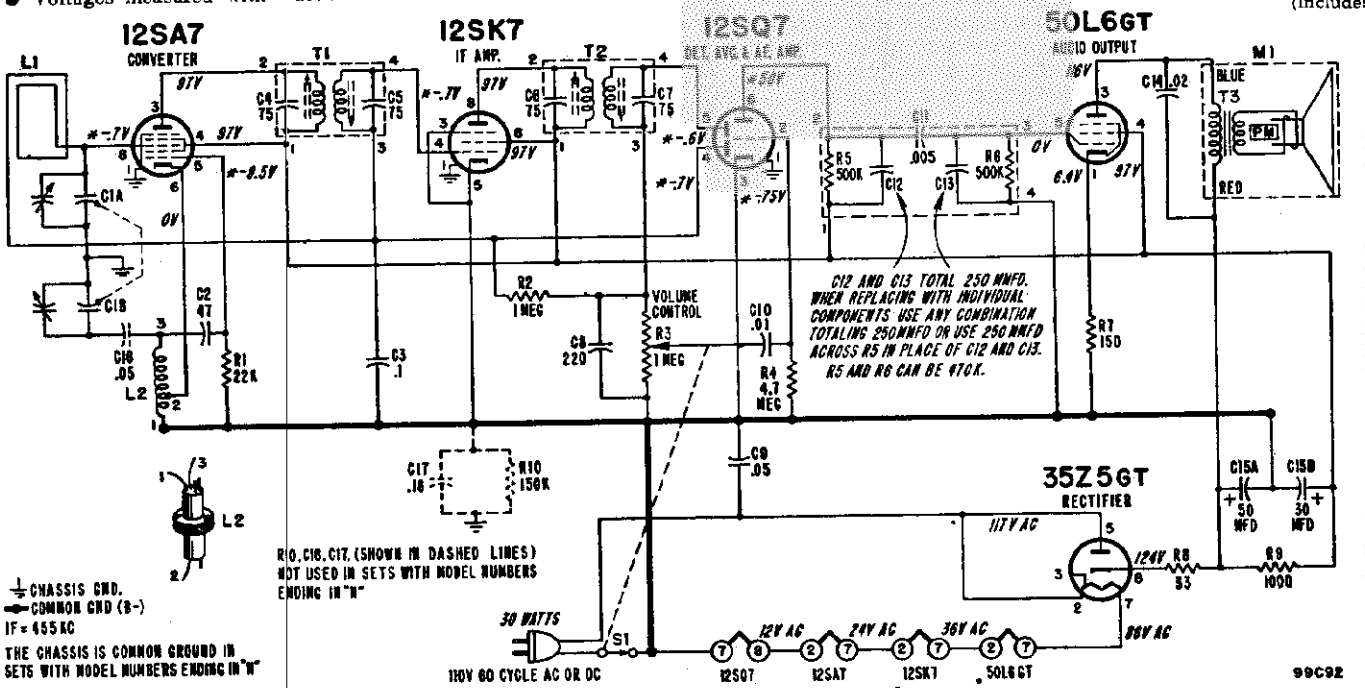
Description	Part No.
Antenna Hank (20')	89A 4-2
Cabinet	
Mahogany (5J12)	34D 22-6
Ivory (5J13)	34D 22-7
Carton and Fillers	44B 110
Dial Cord	50A 1-3
Felt Washer (Knob)	5A 4-3
Felt Washer (Pointer)	5A 4-8
Knob	
Ivory	33A 32-5
Walnut	33A 32-4
Pointer	
Ivory	25A 31-2
Walnut	25A 31-1
Ring, Pointer Compression	19A 31-1
Shaft, Tuning	28A 26-1
Spacer, Tuning Shaft	29A 2-7-21
Speed Nut, Tuning Shaft	2B 10-19-59
Spring, Dial Cord Tension	19B 1-2
Washer, "C" (Tuning Shaft)	4A 4-6-0
Washer, Spring (Tuning Shaft)	4A 6-3-0
Resistance Cord, for 220 V. operation	
With American Male Plug	89A 14
With Continental Male Plug	89A 14-1

VOLTAGE DATA

Voltages shown on schematic diagram.

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Dial turned to low frequency end; volume control at minimum.
- Measured on 117 Volts AC line.
- Voltages measured with Vacuum Tube Voltmeter.





*These readings will be either lower or practically zero if taken with a 1000 ohm-per-volt meter.

COILS, TRANSFORMERS, Etc.

L1	Antenna, Loop (mounted on cardboard back)	69C 60
L2	Coil, Oscillator	69A 20-2
T1	Transformer, 1st I.F.	72B 50
T2	Transformer, 2nd I.F.	72B 51
T3	Transformer, Output	98A 4
	Speaker (5" PM) and Output Transformer	78B 26-1
S1	Switch, On-Off	Part of R3
	†Couplate (Includes R5, R6, C11, C12, C13)	63A 5-4

MISCELLANEOUS

Description	Part No.
Cabinet	
Ebony (5J21)	34D 26-9
Mahogany (5J22)	34D 26-10
Ivory (5J23)	34D 26-11
Carton and fillers	44B 210
Clip, Electrolytic Mounting	18A 10-6
Dial Cord	50A 1-3
Dial Crystal	23B 82
Escutcheon, Dial Scale	23B 57
Knob, Tuning	
Ebony (5J21)	33A 39-7
Ivory (5J23)	33A 39-9
Mahogany (5J22)	33A 39-10
Pointer, Dial	
Mahogany	25A 31-5
Ivory	25A 31-6
Ebony	25A 31-7
Ring, Pointer Compression	19A 31-1
Shaft, Tuning	28A 26-1
Socket, Tube	87A 10-2
Spacer, Tuning Shaft	29A 2-1-71
Speed Nut (for tuning shaft spacer)	2B 10-19-2
Spring Dial Cord Tension	19B 1-2
Washer, "C" (tuning shaft)	4A 4-6-0
Washer, Spring (tuning shaft)	4A 6-3-0

RESISTORS

Symbol	Description	Part No.
R1	22,000 ohms, ½ watt	60B 8-223
R2	1 megohm, ½ watt	60B 8-105
R3	1 megohm, Volume Control and On-Off switch S1	75B 1-25
R4	4.7 megohms, ½ watt	60B 8-475
†R5	500,000 ohms, ½ watt	
†R6	500,000 ohms, ½ watt	
R7	150 ohms, ½ watt	60B 8-151
R8	33 ohms, 1 watt	60B 28-3
R9	1,000 ohms, 1 watt	60B 28-2
R10	150,000 ohms, ½ watt	60B 8-154
	R10 not used in sets with model	

CONDENSERS

C1a	Ant., 420 mmfd., max.	Gang 68B 28-1
C1b	Osc., 108 mmfd., max. (Dial drum spot welded to gang)	
C2	47 mmfd., ceramic	65C 6-79
C3	.1 mfd., 200 volts, paper	64B 1-30
C4	75 mmfd., 3%	Part of T1
C5	75 mmfd., 3%	Part of T1
C6	75 mmfd., 3%	Part of T2
C7	75 mmfd., 3%	Part of T2
C8	220 mmfd., ceramic	65C 6-80
C9	.05 mfd., 400 volts, paper	64B 1-22
C10	.01 mfd., 400 volts, paper	64B 1-25
†C11	.005 mfd., 400 volts	
†C12 †C13	See schematic	
C14	.02 mfd., 400 volts, paper	64B 1-24
C15a C15b	50 mfd., 150 volts 30 mfd., 150 volts	elect. 67A 10
C16	.05 mfd., 400 volts, paper	64B 1-22
C17	.18 mfd., 200 volts, paper (C16, 17 not used in sets with model numbers ending in "N".)	64A 2-2

†Part of couplate (part 63A 5-4). Replace with exact duplicate or individual components. Note that numbers 1, 2, 3, 4, on schematic correspond to couplate lead numbers

MODELS 5J21, 5J22,
5J23, Ch. 5J2

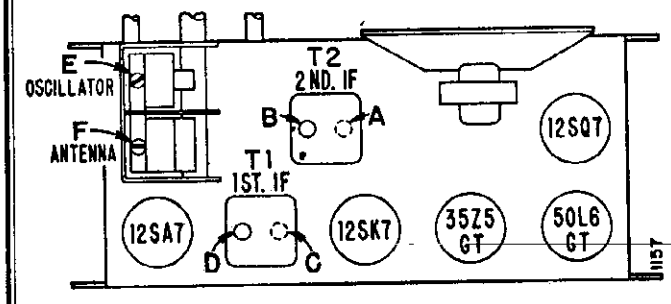
ALIGNMENT PROCEDURE

- Connect output meter across speaker voice coil.
- Turn receiver volume control full on.
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and connect to chassis.
  Caution: Do not connect a ground wire directly to chassis.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	250 mmfd. condenser	Antenna stator of tuning condenser	455 KC	Gang fully open	2nd IF 1st IF	*A, B *C, D	Maximum Output
2	250 mmfd. condenser	Antenna stator of tuning condenser	1620 KC	Gang fully open	Oscillator (on gang)	E	Maximum Output
3	Loop of several turns of wire or place generator lead close to receiver loop for adequate signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	Maximum Output
4	Mount and set dial pointer as shown in Pointer Setting and Dial Cord Stringing Diagram.						

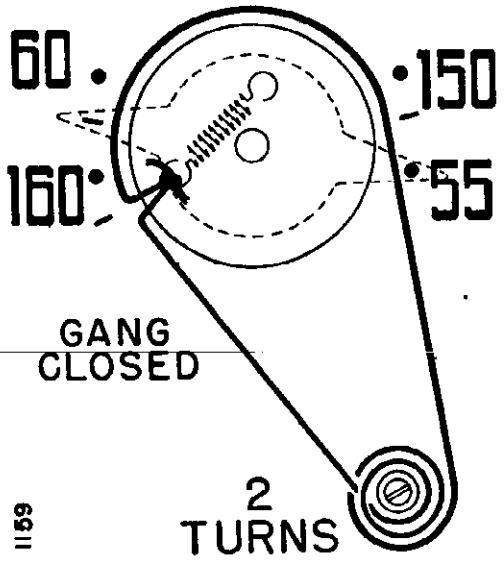
*Adjustments A and C made from the underside of the chassis. If IF transformers have hollow core slugs, these adjustments may all be made from the top of chassis, if you use alignment tool #98A30-7 obtainable from your Admiral distributor. The bottom IF slug adjustment may be reached through the hollow core in the upper slug.

TUBE AND TRIMMER LOCATION

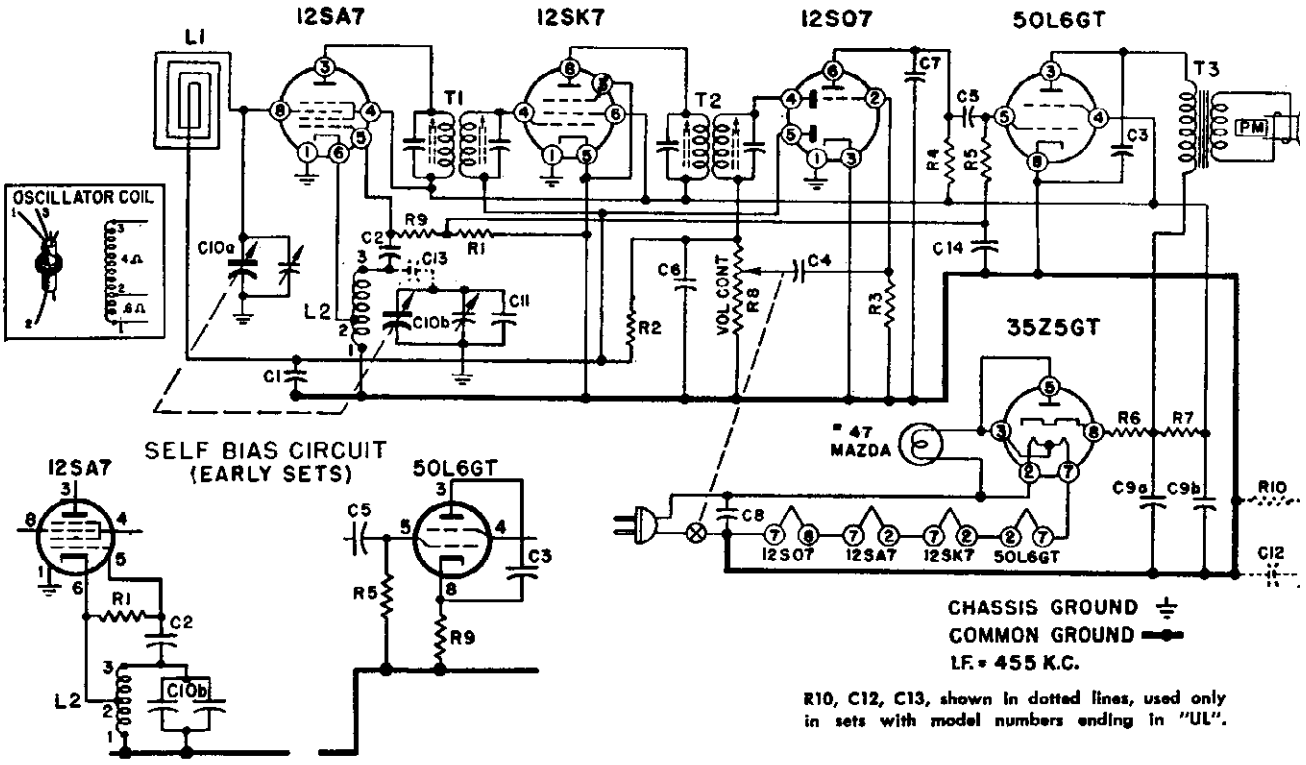


Adjustments A and C are made from underside of chassis.

POINTER SETTING AND DIAL CORD STRINGING



MODELS 5K11, 5K12, 5K13
5K14; 7T10, 7T14, 7T15,
Rev.; Ch. 5K1



Loctal tubes 14B6, 50A5, 35Y4 used as alternates for 12SQ7, 50L6, 35Z5 respectively. See tube manual for pin numbers.

ALIGNMENT PROCEDURE

1. Check pointer setting: With gang closed, the pointer should be horizontal.
2. Connect Output Meter across Voice Coil.
3. Turn Receiver Volume Control full on.
4. Use lowest Output setting of Signal Generat capable of producing adequate Output Meter i dication and then proceed as outlined in cha below.
5. Repeat adjustments to insure good results.

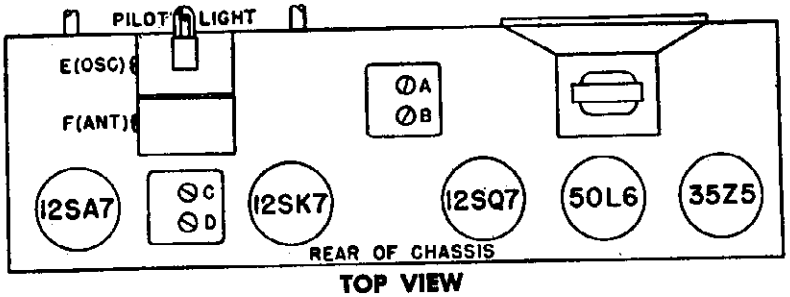
Connect Signal Generator to—	Dummy Antenna Between Radio and Generator	Set Generator Frequency to—	Set Receiver Dial Frequency to—	Adjust Following Trimmers	Type of Adjustmen
Tuning Condenser Antenna Stator	250 mmfd. Condenser	455 K.C.	High frequency end of Dial	A-B—2nd I. F. C-D—1st I. F. (See note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

Note: In some sets, the B and D adjustments must be made from the underside of the chassis.

MODELS 5K11, 5K12, 5K13,
5K14; 7T10, 7T14, 7T15,
Rev.; Ch. 5K1

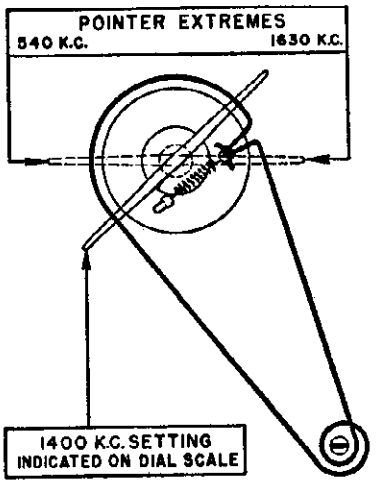
TUBE AND TRIMMER LOCATION

Loctal tubes 14B6, 50A5, 35Y4 used as alternates for 12SQ7, 50L6, 35Z5 respectively. See tube manual for pin numbers.

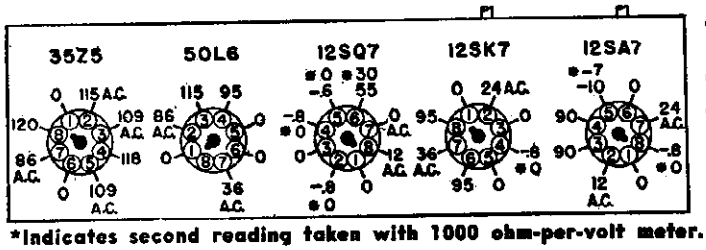


TOP VIEW

DIAL CORD STRINGING



VOLTAGE DATA



***Indicates second reading taken with 1000 ohm-per-volt meter.**

- All readings made between tube socket terminals and B minus (Terminal of on-off switch).
- Voltages measured on a 117 Volt A.C. line.
- Dial turned to low frequency end, no signal.
- Voltages measured with a vacuum-tube voltmeter. A second voltage reading (marked with an asterisk *) indicates readings made with a 1000 ohm-per-volt meter when use of this instrument would result in appreciably lower readings.

RESISTORS

Symbol	Description	Part No.
†R1	12,000 ohms, ½ watt	60B8-123
R2	1 Megohm, ½ Watt	60B 8-105
R3	4.7 Megohms, ½ Watt	60B 8-475
R4	470,000 Ohms, ½ Watt	60B 8-474
†R5	150,000 Ohms, ½ watt	60B8-154
R6	33 Ohms, 1 Watt	60B 28-3
R7	1000 Ohms, 1 Watt	60B 28-2
R8	1 Megohm Volume Control and Switch	75B 1-16
†R9	12,000 Ohms, ½ watt	60B8-123
R10	150,000 Ohms, ½ watt	60B 8-154

(R10 used only in sets with model numbers ending in "UL".)

†R1 was 22,000, R5 was 470,000 and R9 was 150 ohms when self-bias circuit was employed. See schematic inset.

CONDENSERS

C1	.1 mfd., 200 Volts, Paper		64B 1-30
C2	50 mmfd., ±20%, Ceramic		65B 6-4
C3	.02 mfd., 400 Volts, Paper		64B 1-24
C4	.01 mfd., 400 Volts, Paper		64B 1-25
C5	.01 mfd., 400 Volts, Paper		64B 1-25
C6	250 mmfd., ±20%, Ceramic		65B 6-5
C7	500 mmfd., ±20%, Ceramic		65B 6-6
C8	.05 mfd., 400 Volts, Paper		64B 1-22
C9a	50 mfd., 150 Volts } Elec		67A 10
C9b	30 mfd., 150 Volts } Elec		
C10a, C10b	O-420 mmfd } Stamped		A1460
	O-162 mmfd { 68B5		
	or		
	O-420 mmfd } Stamped		68B19
	O-108 mmfd { 68B19		

(Drums are spotwelded to gangs.)

C11	20 mmfd., ±20%, Ceramic	65B 6-26

(Used in early sets only.)

CONDENSERS

Symbol	Description	Part No.
C12	.18 mfd., 200 Volts, paper	64A2-2
C13	.05 mfd., 400 Volts, paper	64B1-22
	(C12 and C13 used only in sets with model numbers ending in "UL".)	
C14	500 mmfd., ±20%, Ceramic	65B6-6
	(Added in later production to prevent R.F. oscillation.)	

COILS, TRANFORMERS, ETC.

L1	Antenna, Loop	69C 19
L2	Coil, Oscillator	
	for gang stamped 68B5	69A20
	for gang stamped 68B19	69A20-2
T1	Transformer, 1st I.F. Alternates 72B31 and 72B33 also used. Order part number stamped on original part.	72B50
T2	Transformer, 2nd I.F. Alternates 72B32 and 72B34 also used. Order part number stamped on original part.	72B51
T3	Transformer, Output	98A 4
	Speaker (5" PM) and Output Transformer	78B 26-1
SW1	Switch, On-Off	Part of R8

MISCELLANEOUS

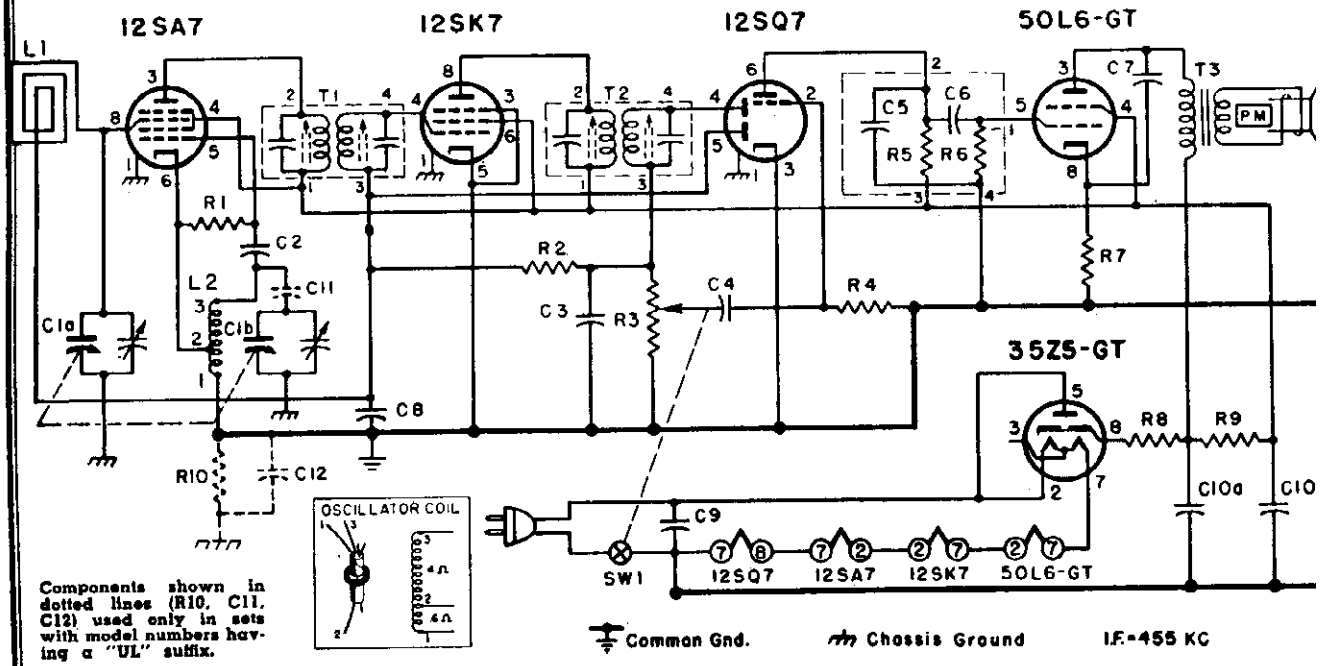
Cabinet	
Plastic Ebony (7T10E)	34D 14-1
Plastic Mahogany (7T10M)	34D 14-2
Plastic Ivory (7T10C)	34D 14-3
Wood (7T15)	*
Plastic Ebony (5K11)	34D 18-1
Plastic Mahogany (5K12)	34D 18-2
Plastic Ivory (5K13)	34D 18-3
Plastic Mahogany & Gold (5K14)	34D 18-4

MISCELLANEOUS

Description	Part No.
Carton and Fillers	44B 98
Dial Background	15B 180
Dial Cord	50A 1-3
Dial Crystal	
for 7T10, 7T14, 7T15	24A 4
for 5K11, 5K12, 5K13, 5K14	24A 8
Dial Drum	See C10
Dial Light (#47 Mazda)	81A 1-8
Dial Light Socket and Leads	82A 7-2
Dial Scale	21B 39-1
Knob	
Plastic Ebony (7T10E)	33A 18-6
Plastic Mahogany (7T10M)	33A 18-4
Plastic Ivory (7T10C)	33A 18-5
Plastic Ebony (5K11)	33A 32-3
Plastic Mahogany (5K12)	33A 32-1
Plastic Mahogany & Gold (5K14)	33A 32-7
Plastic Ivory (5K13)	33A 32-2
Pointer, for 7T10, 7T14, 7T15	25A 26
Pointer, for 5K11, 5K12, 5K13, 5K14	
Brown	25A 30-1
Brown and Gold	25A 30-2
Shaft, Tuning	28A 11-3
Snap, Buttons (For dial scale)	13A 1-3-47
Snap Button, for dial crystal	13A 1-1-47
Snap Ring (For pointer)	19A 31-1
Socket, Tube	87A 10-2
Spring, Tension	19B 1-2
Washer, 'C' (for tuning shaft)	4A 4-1
Washer, Felt (for knobs)	5A 4-3
Washer, Fibre	5A 2-1
Washer, Spring (for tuning shaft)	4A 6-3-0

*No longer available. Order plastic "cabinet.

MODELS 5R10, 5R11
5R12, 5R13, 5R14,
Ch. 5R1



5R1-143

ALIGNMENT PROCEDURE

- Connect output meter across voice coil.
- Turn receiver volume control full on.
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and attach to B minus of chassis.
- Use lowest output setting of signal generator capa of producing adequate output meter indication a then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

NOTE

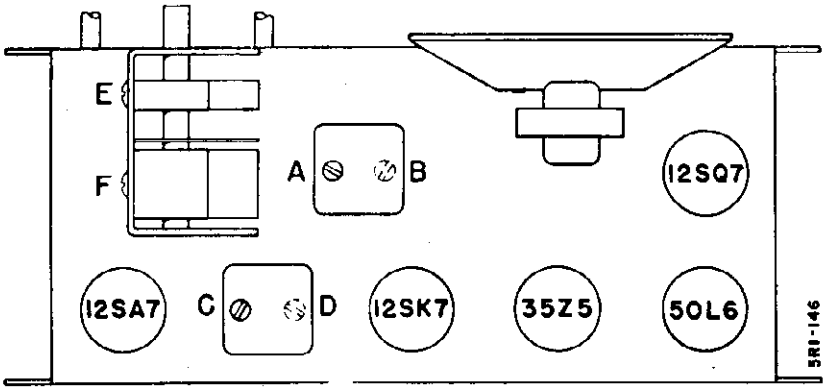
To avoid splitting the slotted head of powdered iron core tuning slugs in I.F. transformers, use an alignmer tool having a blade 1/8" wide.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type o Adjustm
1	250 mmfd. condenser	Tuning condenser Antenna stator	455 KC	Gang fully open	2nd IF 1st IF	A, B C, D	Maximu Outpu
2	250 mmfd. condenser	Tuning condenser Antenna stator	1620 KC	Gang fully open	Oscillator (on gang)	E	Maximu Outpu
3	Loop of several turns of wire (or place generator lead close to receiver loop for adequate signal)	No physical connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna (on gang)	F	Maximu Outpu
4	Upon completion of alignment, install chassis in cabinet. Mount and set dial pointer as shown in Dial String and Pointer Setting Diagram.						

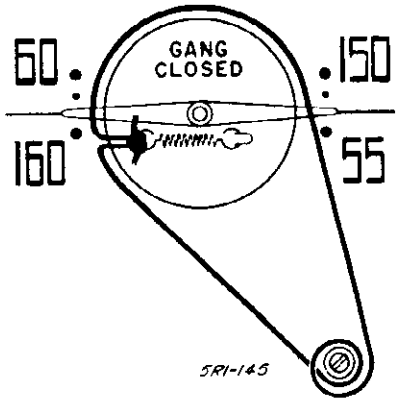
NOTE: Adjustments B and D are made from underside of chassis.

MODELS 5R10, 5R11,
5R12, 5R13, 5R14,
Ch. 5R1

TUBE AND TRIMMER LOCATION

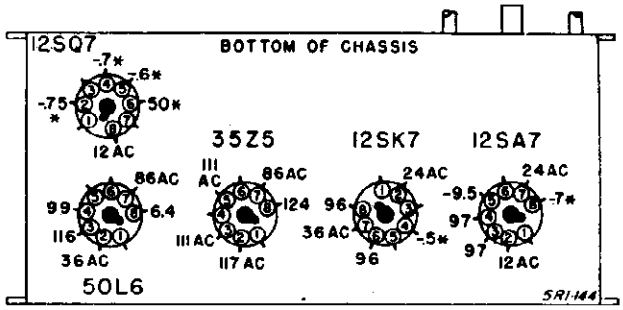


POINTER SETTING AND DIAL CORD STRINGING



VOLTAGE DATA

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Dial turned to low frequency end; volume control at minimum.
- Measured on 117 Volts AC line. When measured from DC line, voltages may be slightly lower.
- Voltages measured with Vacuum Tube Voltmeter. Readings taken with a 1,000 ohm per volt meter will be approximately the same except for those marked with an asterisk * in the voltage chart; these readings will either be lower or practically zero.



RESISTORS

Symbol	Description	Part No.
R1	22,000 Ohms, ½ Watt	60B 8-223
R2	1 Megohm, ½ Watt	60B 8-105
R3	1 Meghom Volume Control and On-Off switch SW1	75B 1-25
R4	4.7 Megohms, ½ Watt	60B 8-475
*R5	470,000 Ohms, ½ Watt	
*R6	470,000 Ohms, ½ Watt	
R7	150 Ohms, ½ Watt	60B 8-151
R8	33 Ohms, 1 Watt	60B 28-3
R9	1,000 Ohms, 1 Watt	60B 28-2
R10	150,000 Ohms, ½ Watt	60B 8-154

CONDENSERS

Symbol	Description	Part No.
C1a	Gang, 0 to 420 mmfd.	68B 19
C1b	Gang, 0 to 162 mmfd. (Spot welded to drum)	68B 19
C2	50 mmfd., Ceramic	65B 6-4
C3	250 mmfd., Ceramic	65B 6-5
C4	.01 mfd., 400 Volts, Paper	64B 1-25
*C5	250 mmfd., 500 Volts	
*C6	.01 mfd., 400 Volts	
C7	.02 mfd., 400 Volts, Paper	64B 1-24
C8	.1 mfd., 200 Volts, Paper	64B 1-30
C9	.05 mfd., 400 Volts, Paper	64B 1-22
C10a	50 mfd., 150 Volts	Elect. 67A 10
C10b	30 mfd., 150 Volts	Elect. 67A 10
C11	.05 mfd., 400 Volts, Paper	64B 1-22
C12	.18 mfd., 200 Volts, Paper	64A 2-2

COILS, TRANSFORMERS, Etc.

Symbol	Description	Part No.
L1	Antenna, Loop (mounted on cardboard back)	69C 60
L2	Coil, Oscillator	69A 20-2
T1	Transformer, 1st I.F.	72B 50
T2	Transformer, 2nd I.F.	72B 51
T3	Transformer, Output	98A 4
	Speaker (5" PM) and Output Transformer	78B 26-1
SW1	Switch, On-Off	Part of R3
	*Couplate (Includes R5, R6, C5, C6)	63A 5-1

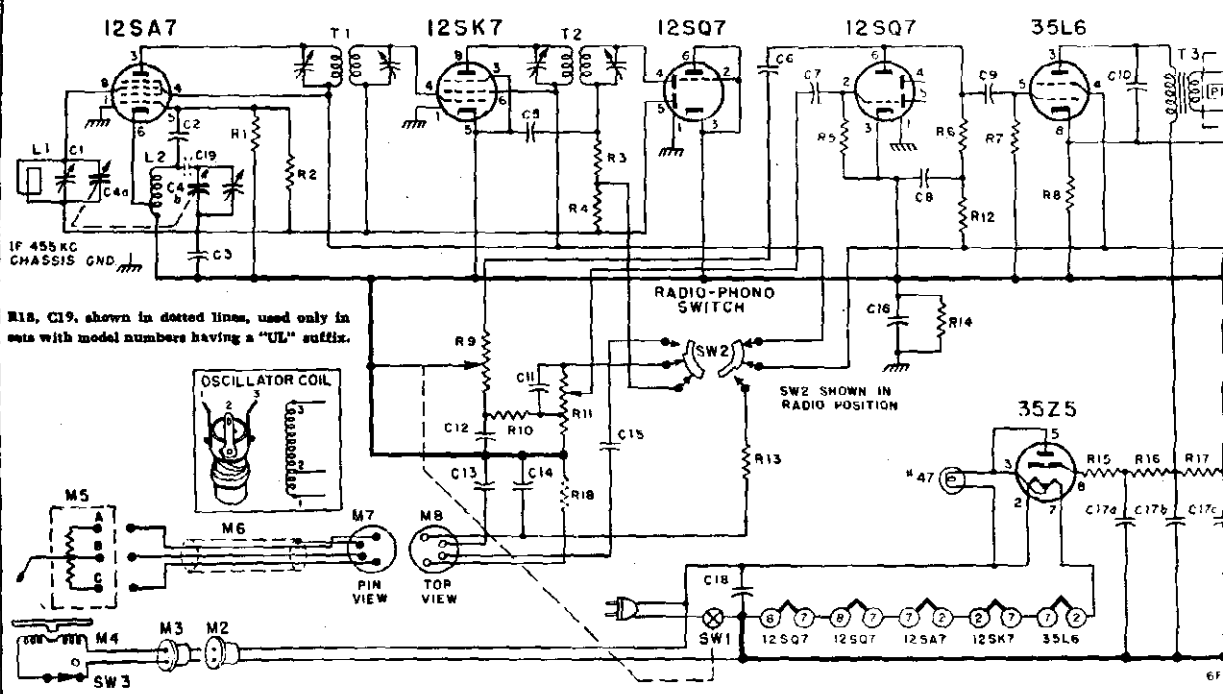
MISCELLANEOUS

Description	Part No.
Cabinet	
Ebony	34D 22-1
Mahogany	34D 22-2
Ivory	34D 22-3
Walnut and Gold	34D 22-4
Cartons and fillers	44B 110
Dial Cord	50A 1-3
Felt Washer (Knob)	5A 4-3
Felt Washer (Pointer)	5A 4-8
Knob	
Ebony	33A 32-6
Ivory	33A 32-5
Walnut	33A 32-4
Walnut and Gold	33A 32-7
Pointer	
Ebony	25A 31-3
Ivory	25A 31-2
Walnut	25A 31-1
Ring, Pointer Compression	19A 31-1
Shaft, Tuning	28A 26-1
Spacer, Tuning Shaft	29A 2-7
Speed Nut, Tuning Shaft	2B10-19
Spring, Dial Cord Tension	19B1-2
Washer, "C" (tuning shaft)	4A4-6-0
Washer, Spring (tuning shaft)	4A6-3-0

* C5, C6, R5, and R6 are contained in a multiple-unit component called a couplate (part number 63A5-1). Although a defective section of the couplate can sometimes be replaced by individual components, we strongly recommend replacing the entire couplate.

Note that numerals 1, 2, 3, 4, shown at schematic connections correspond to couplate lead numbers printed on face of couplate.

MODELS 6F10, 6
6F12, Ch. 6F1



ALIGNMENT PROCEDURE

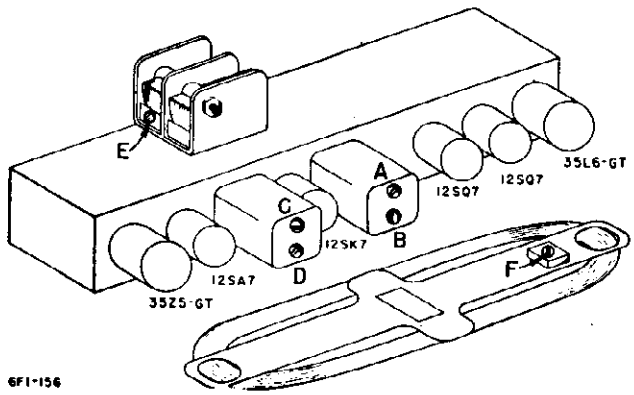
- Check pointer position. With tuning gang closed, the tip of the pointer clip should be over the 1/16" circular punch at the extreme left end of the dial background (see stringing diagram).
- Connect output meter across voice coil.
- Turn receiver volume control full on; set tone control at full treble.
- Loop antenna must be connected and placed in the same relative position to the chassis as when in cabinet.
- Use an isolation transformer if available, otherwise co a .1 mfd. condenser in series with low side of signal gen and attach to B minus of chassis.
- Use lowest output setting of signal generator capab producing adequate output meter indication and proce the following sequence.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type Adjust
1	250 mmfd. condenser	Tuning condenser, antenna stator	455 KC	Gang fully open	2nd IF 1st IF	A, B C, D	Maxin outp
2	250 mmfd. condenser	Tuning condenser, antenna stator	1630 KC	Gang fully open	Oscillator	E	Maxin outp
3	Loop of several turns of wire, or place generator lead close to receiver loop for adequate signal.	No physical connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna	F (see note below)	Maxin outp

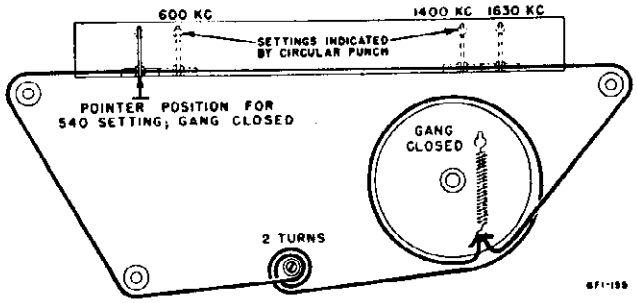
NOTE: Antenna Trimmer "F" must be aligned after chassis and loop are mounted in cabinet. Loop trimmer adjustment is located at the rear of the cabinet.

MODELS 6F10, 6F11, 6F12, Ch. 6F1

TUBE AND TRIMMER LOCATION



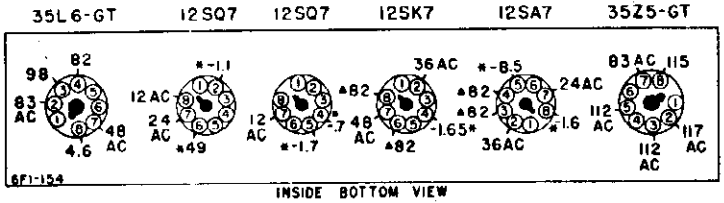
DIAL STRINGING AND POINTER SETTING



With the gang fully closed, the tip of the pointer clip should be in line with the 1/16" circular punch at the extreme left end of the dial background.

VOLTAGE DATA

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Switch in "Radio" position.
- Measured on 117 Volt AC line.
- Volume control minimum; dial turned to low frequency end.
- Voltages measured with Vacuum Tube Voltmeter. Readings taken with a 1000 ohm-per-volt meter will be approximately the same except for those marked with an asterisk * in the voltage chart; these readings will either be lower or practically zero.



INSIDE BOTTOM VIEW

*** If taken with a 1000 ohm-per-volt meter, readings will be lower or practically zero.**

▲ On "Phono" these voltages will be zero. All other DC readings may be slightly higher.

RESISTORS

Symbol	Description	Part No.
R1	22,000 Ohms, ½ Watt	60B 8-223
R2	10 Megohms, ½ Watt	60B 8-106
R3	100,000 Ohms, ½ Watt	60B 8-104
R4	1 Megohm, ½ Watt	60B 8-105
R5	4.7 Megohms, ½ Watt	60B 8-475
R6	470,000 Ohms, ½ Watt	60B 8-474
R7	470,000 Ohms, ½ Watt	60B 8-474
R8	150 Ohms, ½ Watt	60B 14-151
R9	2 Megohms Tone Control and On-Off Switch SW1	75B 1-12
R10	27,000 Ohms, ½ Watt	60B 8-273
R11	1 Megohm Volume Control	75B 2-6
R12	47,000 Ohms, ½ Watt	60B 8-473
R13	22,000 Ohms, ½ Watt	60B 8-223
R14	150,000 Ohms, ½ Watt	60B 8-154
R15	33 Ohms, 1 Watt	60B 28-3
R16	220 Ohms, 1 Watt	60B 28-7
R17	1,000 Ohms, 1 Watt	60B 28-2
R18	33,000 Ohms, ½ Watt (R18 used only in sets with model numbers having a "UL" suffix)	60B 8-333

CONDENSERS

Symbol	Description	Part No.
C1	Trimmer, 3 to 30 mmfd.	Part of L1
C2	50 mmfd., Ceramic	65B 6-4
C3	.1 mmfd., 200 Volts, Paper	64B 1-30
C4a, C4b	Gang-0 to 420 mmfd. / Gang-0 to 162 mmfd. (This gang stamped 68B5 or 68B20) OR Gang-0 to 420 mmfd. / Gang-0 to 108 mmfd. (This gang stamped 68B20-1)	A1654 / A1726
	Note—Gang spot welded to dial drum.	
C5	250 mmfd., Ceramic	65B 6-5
C6	.002 mfd., 600 Volts, Paper	64B 1-14
C7	.01 mfd., 400 Volts, Paper	64B 1-25
C8	.1 mfd., 200 Volts, Paper	64B 1-30
C9	.01 mfd., 400 Volts, Paper	64B 1-25
C10	.03 mfd., 400 Volts, Paper	64B 1-23
C11	500 mmfd., Ceramic	65B 6-6
C12	.01 mfd., 400 Volts, Paper	64B 1-25
C13	.05 mfd., 400 Volts, Paper	64B 1-22
C14	.18 mfd. 200 Volts, Paper	64A 2-2
C15	.001 mfd., 600 Volts, Paper	64B 1-15
C16	.18 mfd., 200 Volts, Paper	64A 2-2
C17a, C17b, C17c, C17d	30 mfd., 150 Volts / 30 mfd., 150 Volts / 20 mfd., 150 Volts / 20 mfd., 25 Volts	Elect. 67A 14-1
C18	.05 mfd., 400 Volts, Paper	64B 1-22
C-19	.02 mfd., 400 Volts, Paper (Used only in sets with model numbers having a "UL" suffix.)	64B 1-24

COILS, TRANSFORMERS, Etc.

Symbol	Description	Part No.
L1	Antenna and Trimmer, Loop	69B 13
L2	Coil, Oscillator (Use with gang stamped 68B5 or 68B20) / Coil, Oscillator (Use with gang stamped 68B20-1)	69A 14 / 69A 52
T1	Transformer, 1st IF	72B 3
T2	Transformer, 2nd IF	72B 4
T3	Transformer, Output	79A 11-2
M1	Speaker (5") with Output Trans. attached / Speaker (5") without output Trans. (Use when output trans. is mounted on chassis)	78B 19-2 / 78B 39-1
M2	Socket, Phono input	88A 8-6
SW1	Switch, On-Off	Part of R9
SW2	Switch, Radio-Phono	77A 16-4

PHONOGRAPH PARTS

Note—See RC180 Record Changer Manual for complete parts list.

M3	Plug, AC Phono Motor	88A 8-1
M4	Motor, 60 Cycles, 115 Volts AC	407B 3-2
M5	Cartridge and Needle, Pickup	A1372-13
M6	Cable, Pickup (3 conductor)	89A 18-4
M7	Plug, Pickup Cable	88A 8-5
SW3	Switch, Motor On-Off (See caution in changer manual)	408A 1
	Centerpost (includes speed-nut)	G400B 137-1
	Idler Wheel (407B 3-2 Motor)	G400A 23
	Idler Wheel (407B 1-2 Motor)	G400A 57

CABINET PARTS

Description	Part No.
Bracket, Dial Scale Mtg.	15A 169
Cabinet, Plastic	
Bottom Less Lid (Mahog. 6F11)	34D 11-12
Lid only (Mahogany 6F11)	34D 11-13
Bottom Less Lid (Ebony 6F10)	34D 11-14
Lid only (Ebony 6F10)	34D 11-15
*Cabinet, Wood	
*Complete (Walnut 6F12)	35D 81-1
Lid only (Walnut 6F12)	98A 43-1
Dial Scale, Glass	21B 35-2
Escutcheon Overlay	23C 23-1
Grille Cloth and Baffle	A1688
Hinge, Butt (for Walnut 6F12)	98A 43-3
Knobs, Radio	
"Volume" and "Tone" (Mahog. or Wal.)	33A 21-5
"Volume" and "Tone" (Ebony)	33A 21-6
"Tuning" (Mahog. or Wal.)	33B 34-2
"Tuning" (Ebony)	33B 34-4
"Radio-Phono" (Mahog. or Wal.)	33B 34-1
"Radio-Phono" (Ebony)	33B 34-3
Rubber Strip, Dial Scale Mtg. (8½")	12A 9-3
Stay Arm (For Walnut 6F12)	98A 43-2

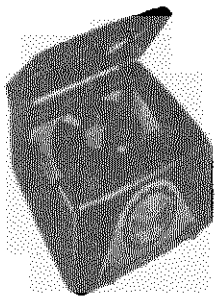
MISCELLANEOUS

Background, Dial	22B 9-1
Bracket, Tuning Sleeve	15A 289
Bracket, Dial Light	15A 156
Cartons and Fillers	
Models 6F11 and 6F10	44B 112
Model 6F12	44B 116
Pilot Light No. 47	81A 1-8
Pilot Light Socket and Leads	82A 2-4
Pointer, Dial	25A 21
Sleeve, Tuning (Brass)	27A 61
Spring, Dial Drum Tension	19B 1-3
Washer, Felt ("Volume" and "Tone")	5A 4-8
Washer, Felt (Center Knob)	5A 4-9

*** Supplied only if old cabinet cannot be repaired. When ordering, describe condition of old cabinet in detail.**

MODELS 6J21,
6J22, Ch. 6J

RECORD CHANGER SERVICE DATA



The changer model number will be found stamped at the top rear of the changer base and also on the changer model label

RECORD CHANGER: See Model RC550, Pgs. RCD.CH.21-9 to RCD.CH.21-16.

ALIGNMENT PROCEDURE

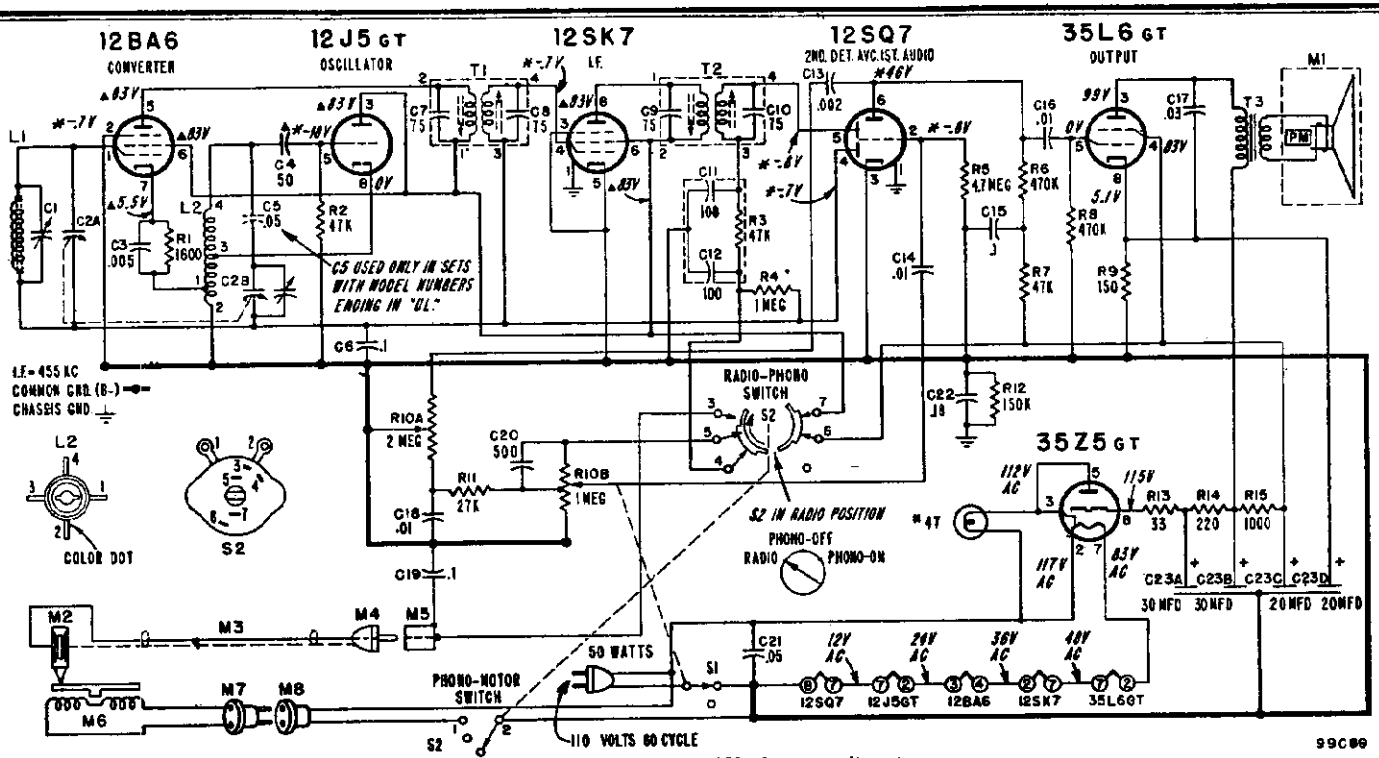
- Turn receiver volume and tone controls full on.
- Antenna must be connected and placed in the same relative position to the chassis as when in cabinet.
- Use an isolation transformer if available, otherwise connect a .1 mfd. condenser in series with low side of signal generator and connect to chassis. Caution: Do not connect a ground wire directly to chassis.
- Connect output meter across speaker voice coil.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and proceed in the following sequence.
- Repeat adjustments to insure good results.

Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustme
1	250 mmfd. condenser	Tuning condenser, antenna stator	455 KC	Gang fully open	2nd IF 1st IF	*A, B *C, D	Maximu output
2	250 mmfd. condenser	Tuning condenser, antenna stator	1620 KC	Gang fully open	Oscillator	F	Maximu output

Mount dial pointer. Set pointer to horizontal position with tuning condenser tuned to 1400 KC generator signal (see illustrati below). Rotate the tuning condenser until the pointer is in a vertical position (900 KC), then slip chassis in cabinet, carefu guiding the pointer so that it locates between the dial escutcheon and the cabinet. Install antenna and chassis mounting bol The pointer and escutcheon may be mounted after installing the chassis in cabinet as follows: Set pointer to horizontal positi with gang tuned to 1400 KC signal. Place escutcheon on cabinet. With long nose pliers slip the hairpin ends of the escutche mounting springs in holes of escutcheon tabs.

3	Loop of several turns of wire, or place generator lead close to receiver antenna for adequate signal pickup.	No actual connection (signal by radiation)	1400 KC	Tune in generator signal	Antenna	†F	Maximu output

*Adjustments A and C made from the underside of the chassis. If IF transformers have hollow core slugs, these adjustments m all be made from the top of chassis, if you use alignment tool #98A30-7 obtainable from your Admiral distributor. The bott IF slug adjustment may be reached through the hollow core in the upper slug.
† Antenna Trimmer "F" should be aligned after chassis and antenna are mounted in cabinet.

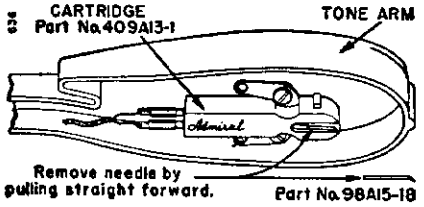


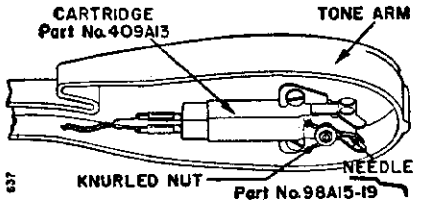
99C89

*These readings will be either lower or practically zero if taken with a 1000 ohm-per-volt meter.
▲ These readings will be zero on "Phono"; all other DC readings may be slightly higher.

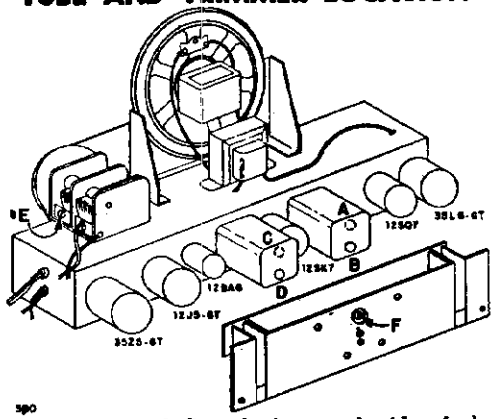
Cartridge and Needle

As shown in the illustrations, alternate cartridges may be used. Cartridges are interchangeable when complete with needle.



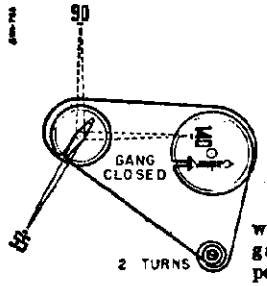


TUBE AND TRIMMER LOCATION



Adjustments A and C made from underside of chassis.

DIAL STRINGING AND POINTER SETTING



Dial stringing and pointer with solid lines shown with gang closed. Dashed line pointer positions (1400 KC and 900 KC) shown when tuning condenser is tuned to generator signal.

VOLTAGE DATA

Voltages given on schematic diagram.

- All readings made between tube socket terminals and B minus (terminal of On-Off switch).
- Range Switch in "Radio" position.
- Measured on 117 Volt AC line.
- Volume control minimum; dial turned to low end.
- Voltages measured with Vacuum Tube Voltmeter.

CABINET PARTS

Cabinet, Plastic	
Bottom, less lid (Ebony 6J21)	34D 28-3
Bottom, less lid (Mahogany 6J22)	34D 28-5
Lid only (Ebony 6J21)	34D 28-4
Lid only (Mahogany 6J22)	34D 28-6

PHONOGRAPH PARTS

Symbol	Description	Part No.
M2	Cartridge Pickup (includes needle)	409A 13
M3	Cable, Shielded Pickup (includes plug)	413A 11-1
M4	Plug, Pickup Cable	88A 2-3
M6	Motor, Phono (3 speed)	407B 19
M7	Plug, Motor (Male)	89A 8-1
	Adapter, 45 RPM (envelope of 12)	48A 8-1
	Button, Snap-in Plug	13A 2-8-57
	Centerpost, Record	G400B 505-1
	Idler Wheel (Includes tire)	G400A 279
	Needle, Pickup	
	for 409A13 cartridge	98A 15-19
	for 409A13-1 cartridge	98A 15-18
	Needle Retaining Nut (for 409A13 cartridge)	98A 54-2
	Service Manual, RC550 Changer	S327
	Screw and Washer, Changer Mounting (10-32x1¼ RH MS)	AA210
	Spring, Changer Float	19A 10-3

RESISTORS

Symbol	Description	Part No.
R1	1,600 ohms, ½ watt, 5%	60B 7-162
R2	47,000 ohms, ½ watt	60B 8-473
†R3	47,000 ohms, ¼ watt	
R4	1 megohm, ½ watt	60B 8-105
R5	4.7 megohms, ½ watt	60B 8-475
R6	470,000 ohms, ½ watt	60B 8-474
R7	47,000 ohms, ½ watt	60B 8-473
R8	470,000 ohms, ½ watt	60B 8-474
R9	150 ohms, 1 watt	60B 14-151
R10A	2 megohms, tone	75B 11-8
R10B	1 megohm, volume	
R11	27,000 ohms, ½ watt	60B 8-273
R12	150,000 ohms, ½ watt	60B 8-154
R13	33 ohms, 1 watt	60B 28-3
R14	220 ohms, 1 watt	60B 28-7
R15	1,000 ohms, 1 watt	60B 28-2

COILS, TRANSFORMERS, ETC.

Symbol	Description	Part No.
§L1	Rod Antenna (includes board and Cl)	
L2	Coil, Oscillator	69A 113-1
T1	Transformer, 1st IF	72B 50
T2	Transformer, 2nd IF	72B 51
T3	Transformer, Output	79A 11-3
M1	Speaker, (5" pm)	78B 39-3
M5	Socket, Phono Input	88A 1
M8	Socket & Leads, Motor	89A 6-3
S1	Switch, On-Off	Part of R10
S2	Switch, Radio-Phono	77A 28-1
S3	Switch, Phono Motor	Part of S2
	†Diode Filter	63A 3-1

CONDENSERS

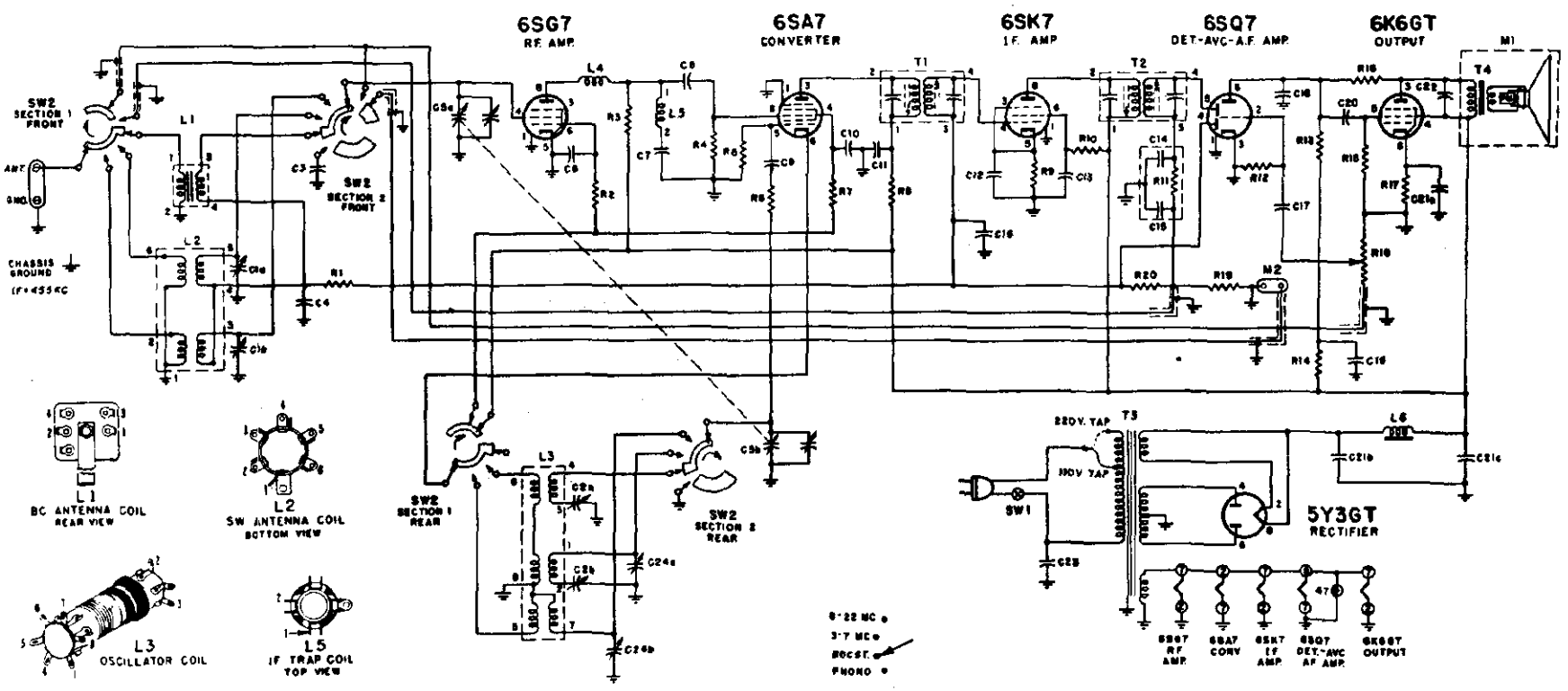
Symbol	Description	Part No.
C1	Trimmer, 3 to 30 mmfd.	Part of L1
§C2	Antenna and Oscillator gang	
C3	.005 mfd., min., Ceramic	65A 10-1
C4	50 mmfd., Ceramic	65B 6-4
C5	.05 mfd., 400 volts, paper	64B 1-22
C6	.1 mfd., 200 volts, paper	64B 1-30
C7	75 mmfd., 3%, Ceramic	Part of T1
C8	75 mmfd., 3%, Ceramic	Part of T1
C9	75 mmfd., 3%, Ceramic	Part of T2
C10	75 mmfd., 3%, Ceramic	Part of T2
†C11	100 mmfd., Ceramic	
†C12	100 mmfd., Ceramic	
C13	.002 mfd., 600 volts, paper	64B 1-14
C14	.01 mfd., 400 volts, paper	64B 1-25
C15	.1 mfd., 200 volts, paper	64B 1-30
C16	.01 mfd., 400 volts, paper	64B 1-25
C17	.03 mfd., 400 volts, paper	64B 1-23
C18	.01 mfd., 400 volts, paper	64B 1-25
C19	.1 mfd., 200 volts, paper	64B 1-30
C20	500 mmfd., Ceramic	65B 6-6
C21	.05 mfd., 400 volts, paper	64B 1-22
C22	.18 mfd., 200 volts, paper	64A 2-2
C23a	30 mfd., 150 volts	
C23b	30 mfd., 150 volts	Elect. 67A 14-1
C23c	20 mfd., 150 volts	
C23d	20 mfd., 25 volts	

MISCELLANEOUS

Description	Part No.
Carton and Fillers	44B 145
Clip, Electrolytic Mounting	18A 10-6
Speed Nut (esc. mtg.)	2B 10-35-68
Dial Cord	50A 1-3
Drum, Pointer	17A 27
Gasket, Sponge Rubber (mounts on Speaker)	12B 43
Grommet, Rubber (gang mtg.)	12A 1-2
Insulator, Phono Receptacle	32A 46
Manual	
Customer Instruction	41A 18-33
Service, for RC550 Changer	S327
Pilot Light, #47	81A 1-8
Pilot Light Socket and Leads	82A 2-2
Plate, Pointer Support	15A 498
Pointer, Dial	25A 35-1
Shaft, Pointer	28A 42
Shield, Pilot Light	82A 15-1
Sleeve, Pointer Shaft	27A 162-1
Sleeve, Tuning (Brass)	27A 123
Spacer, "T" (gang condenser mtg.)	29A 2-1-71
Spring, Dial Cord Tension	19B 1-5
Socket, Tube (12BA6)	87A 33-2
Washer, "C" (for pointer drum)	4A 4-6
Washer, Spring	4A 6-10-0
Clamp, Cable	11A 2-2
Escutcheon, Dial	23C 81-1
Escutcheon Ring (Gold trim)	23A 53
Hinge	37A 8-1
Hinge Screw (6/32x¼ BH MS)	365-250-C2-58
Hinge Stud	27A 17-1
Jewel, Pilot Light	82A 14-2
Knobs, Radio, for Ebony 6J21	
"Tuning" (outer knob)	33C 55-15
"Radio-Phono" (inner knob)	33C 55-16
"Off-On Volume" (inner knob)	33C 55-18
"Tone" (outer knob)	33C 55-17
Knobs, Radio, for Mahogany 6J22	
"Tuning"	33C 55-19
"Radio-Phono"	33C 55-20
"Off-On Volume"	33C 55-22
"Tone"	33C 55-21
Rubber Bumper	
for cabinet bottom	12A 3-4
for cabinet top	12A 9-8
Stay Arm and Plate	37A 9-1
Washer, Felt (for tuning knobs)	5A 4-9

† Part of Diode Filter 63A3-1. This unit consisting of C11, C12 and R3 may be replaced with individual components.

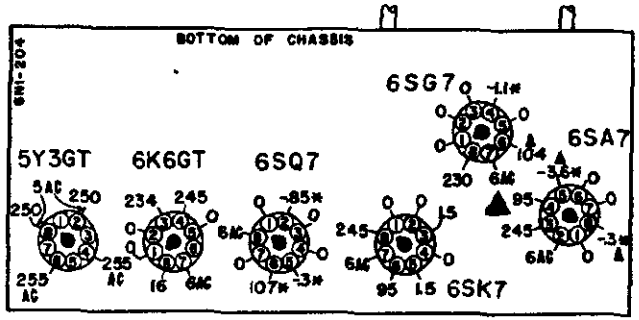
§ Early sets used part number 68B30 gang (antenna 420 mmfd. max., oscillator 108 mmfd. max.) with part number 69B141 rod antenna. Late sets use part number 68B30-1 gang (antenna 324 mmfd. max., oscillator 108 mmfd. max.) with part number 69B144 rod antenna; the model label on these sets is stamped "RUN 2". Interchangeable only as sets; part numbers are stamped on gang and board.



BAND SWITCH (SW2) SHOWN IN BC POSITION

VOLTAGE DATA

- Measured on 117 Volts AC line.
- Voltages measured with Vacuum Tube Voltmeter. Readings taken with a 1,000 ohm per volt meter will be approximately the same except for those marked with an asterisk * in the voltage chart; these readings will either be lower or practically zero.
- All readings made between tube socket terminals and chassis ground, unless otherwise indicated.
- *Dial turned to low frequency end; volume control at minimum.*
- Band switch set in "BC" position.



* If taken with a 1000 ohm-per-volt meter, readings will be lower or practically zero.

▲ On "Phono" these voltages will be zero. All other DC readings may be slightly higher.

ALIGNMENT PROCEDURE

- Be sure both set and signal generator are thoroughly warmed up before starting alignment.
- Turn gang condenser to wide open position and make sure that dial pointer is at position shown in illustration below.
- Connect output meter across voice coil.
- Turn receiver volume control full on.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

NOTE

To avoid splitting the slotted head of powdered iron core tuning slugs in I.F. transformers, use an alignment tool having a blade 1/8" wide.

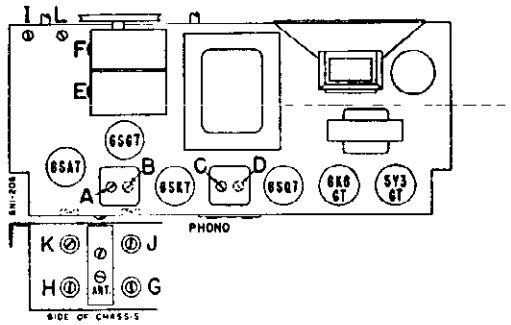
Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Band Switch Position	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	.02 mfd. condenser	†Pin No. 8 of 6SA7	Broadcast	455 KC	Gang fully open	2nd IF 1st IF	A, B* C, D*	Maximum Output
2	200 mmfd. condenser	Antenna Terminal	Broadcast	1730 KC	Gang fully open	B.C. Oscillator (on gang)	E	Maximum Output
3	200 mmfd. condenser	Antenna Terminal	Broadcast	1400 KC	Tune in generator signal	B.C. Antenna (on gang)	F	Maximum Output
4	200 mmfd. condenser	Antenna Terminal	Broadcast	600 KC	Tune in generator signal	B.C. pad	G	Maximum Output. "Rock" gang while adjusting
Recheck alignment at 1400 KC (in step 3 above)								
5	400 ohm carbon resistor	Antenna Terminal	Medium	7.5 MC	Gang fully open	M.B. Osc. Trimmer	H **	Maximum Output
6	400 ohm carbon resistor	Antenna Terminal	Medium	6.2 MC	Tune in signal	M.B. Ant. Trimmer	I	Maximum Output
7	400 ohm carbon resistor	Antenna Terminal	Medium	3.2 MC	Tune in signal	M.B. Osc. Pad	J	Maximum Outut "Rock" gang while adjusting
Recheck alignment in step 5 and 6								
8	400 ohm carbon resistor	Antenna Terminal	Short Wave	23 MC	Gang fully open	S.W. Osc. Trimmer	K **	Maximum Output
9	400 ohm carbon resistor	Antenna Terminal	Short Wave	18 MC	Tune in signal	S.W. Ant. Trimmer	L	Maximum Output "Rock" gang while adjusting

* Adjustments B and D are made from underside of chassis.

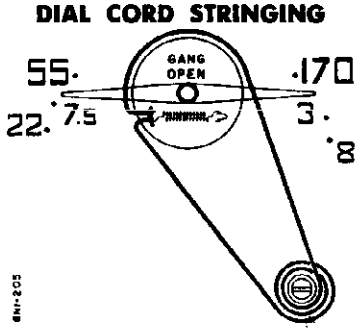
† If IF adjustments are very far off alignment, it may be necessary to feed signal through pin #4 of 6SK7, then through pin #8 of 6SA7.

** Be sure that trimmer is aligned at correct frequency and not on image which should be approximately 910 KC lower than correct frequency, as indicated on the dial. Check to see that image appears 910 KC lower than alignment frequency.

TUBE AND TRIMMER LOCATION



POINTER SETTING AND DIAL CORD STRINGING



MODELS 6N12,
6N13, Ch. 6N1

RESISTORS

Symbol	Description	Part No.
R1	270,000 ohms, ½ Watt	60B 8-274
R2	47,000 ohms, ½ Watt	60B 8-473
R3	2,200 ohms, ½ Watt	60B 8-222
R4	100,000 ohms, ½ Watt	60B 8-104
R5	22,000 ohms, ½ Watt	60B 8-223
R6	100 ohms, ½ Watt	60B 8-101
R7	15,000 ohms, ½ Watt	60B 8-153
R8	1,000 ohms, ½ Watt	60B 8-102
R9	100 ohms, ½ Watt	60B 8-101
R10	47,000 ohms, ½ Watt	60B 8-473
*R11	47,000 ohms, ¼ Watt	
R12	4.7 megohms, ½ Watt	60B 8-475
R13	270,000 ohms, ½ Watt	60B 8-274
R14	33,000 ohms, ½ Watt	60B 8-333
R15	470,000 ohms, ½ Watt	60B 8-474
R16	1 Megohm, ½ Watt	60B 8-105
R17	560 ohms, 1 Watt	60B14-561
R18	2 Megohm, Volume Control and On-Off Switch SW1	75B 1-29
R19	680,000 ohms, ½ Watt	60B 8-684
R20	2.2 Megohms, ½ Watt	60B 8-225

CONDENSERS

C1a	3 to 40 mmfd } Dual Trimmer	66A 23-7
C1b	3 to 40 mmfd }	
C2a	410 to 500 mmfd } Dual	
C2b	1700 to 3100 mmfd } Trimmer	66A 23-5
C3	.01 mfd., 450 Volts, Ceramic	65A 10-3
C4	.05 mfd., 400 Volts, Paper	65A 2-9
C5a	0 to 420 mmfd., Ant. } Gang	68B 23
C5b	0 to 420 mmfd., Osc. }	
	(Dial drum spotwelded to gang)	
C6	.05 mfd., 400 Volts, Paper	65A 2-9
C7	60 mmfd., ±5%, —.00075 Temp. Coeff., Ceramic	65B 6-8
C8	100 mmfd., Mica	65B 5-17
C9	50 mmfd., Mica	65B 5-11
C10	.05 mfd., 400 Volts, Paper	65A 2-9
C11	.05 mfd., 400 Volts, Paper	65A 2-9
C12	.05 mfd., 400 Volts, Paper	65A 2-9
C13	.05 mfd., 400 Volts, Paper	65A 2-9
*C14	100 mmfd., Ceramic	
*C15	100 mmfd., Ceramic	
C16	.05 mfd., 400 Volts, Paper	65A 2-9
C17	.01 mfd., 400 Volts, Paper	65A 2-8
C18	250 mmfd., Ceramic	65B 6-5
C19	.05 mfd., 400 Volts, Paper	65A 2-9
C20	.01 mfd., 400 Volts, Paper	65A 2-8
C21a	20 mfd., 25 Volts } Elect	67C 6-25
C21b	30 mfd., 350 Volts }	
C21c	30 mfd., 350 Volts }	
C22	.005 mfd., 400 Volts, Paper	65A 2-17
C23	.01 mfd., 400 Volts, Paper	65A 2-8
C24a	3 to 40 mmfd. } Dual Trimmer	66A 23-6
C24b	3 to 30 mmfd. }	

* Part of Diode Filter Unit 63A3-1. This unit consists of R11, C14, C15 (see schematic). If a section of the unit becomes defective, replace with exact duplicate or individual components of proper value.

CIRCUIT

Six tube AC operated Superhetrodyne receiver, covering three bands. Broadcast: 540 KC—1730 KC. Medium: 2.75 MC—7.5 MC. Short Wave: 7.2 MC to 23 MC. A phono-jack has been provided on rear of set to plug in phonograph.

ANTENNA

Since this set is highly sensitive, for best results do not use an antenna longer than necessary.

COILS, TRANSFORMERS, ETC.

* Symbol	Description	Part No.
L1	Coil, Antenna (BC)	69A 78
L2	Coil, Antenna (MB and SW)	69A 79
L3	Coil, Osc. (BC, MB and SW)	69A 67
L4	Coil, Peaking (RF)	69A 80
L5	Coil, Trap (455 KC)	69A 77
L6	Filter Choke	74A 10
T1	Transformer, 1st IF	72B 71
T2	Transformer, 2nd IF	72B 72
T3	Transformer, Power (117 V and 220 V)	80B 14
T4	Transformer, Speaker Output	98A 55-1
M1	Speaker (5" PM) with Output Transformer	78B 42
M2	Jack, Phono Input	86A 1
SW1	Switch, On-Off	Part of R18
SW2	Band Switch	76B 15
	Diode Filter	63A 3-1

DIAL PARTS

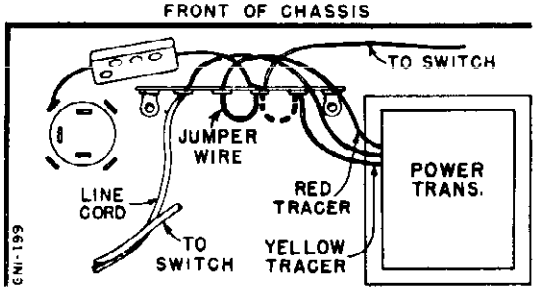
Bracket, Dial Background	15A	180-1
Dial Cord	50A	1-3
Dial Crystal	24A	8
Dial Scale	21B	53
Pilot Light #47	81A	1-8
Pointer, Dial	25A	30-1
Ring, Compression (Pointer)	19A	31-1
Sleeve, Tuner (Brass)	27A	93
Snap Button (for mtg. dial crystal)	13A	1-1-47
Snap Button (for mtg. dial scale)	13A	1-3-47
Socket and Leads, Pilot Light	82A	7-2
Spring, Tension (Dial Cord)	19B	1-2

MISCELLANEOUS

Back, Cabinet	43B	63
Bag, Waxed Paper Shipping	45A	4-12
Bracket, Band Switch	15A	393
Cabinet, Plastic		
Ivory (6N13)	34D	18-3
Mahogany (6N12)	34D	18-2
Carton and Fillers	44B	133
Decal, Band Switch	26A	26
Knobs		
"Band Switch" (Mahog., 6N12)	33B	38-11
"Band Switch" (Ivory, 6N13)	33B	38-12
"On-Off Volume" (Mahog., 6N12)	33B	38-6
"On-Off Volume" (Ivory 6N13)	33B	38-9
"Station Selector" (Mahog., 6N12)	33B	38-5
"Station Selector" (Ivory, 6N13)	33B	38-8
Screw, Mounting (for cabinet back, #6x1¼ ST)	1A	S1-2-21
Socket Tube (Octal)	87A	10-2
Terminal Board, Antenna	10A	6-2
Washer, Felt (for knobs)	5A	4-10

OPERATING VOLTAGE

110-120 Volts AC, 50 or 60 cycle. 220 Volts AC may be used by changing the connection on terminal strip (see illustration).



For 220 Volt operation, move jumper wire as indicated by dotted line connection.

ALIGNMENT PROCEDURE

1. Loop must be connected during alignment.
   Check the set screws that hold the tuning drum to the shaft to see that they are tight and that the drum has not slipped on the shaft. The correct position of the drum can be seen on the stringing diagram.
2. In the closed position the stop on the rear of the dial drum must be against the stop post.
3. With the gang wide open, all slugs should be 1⅜ inches out of their coil forms. If there is any serious deviation or if there has been any tampering, turn the adjusting screws until this distance is correct.
4. Be sure both the set and the signal generator are thoroughly warmed up before starting alignment.
5. Turn receiver Volume Control full on.
6. Use lowest output setting of signal generator that gives a satisfactory reading on meter.
7. Proceed in sequence as outlined below.

Step	Connect Signal Generator To	Dummy Antenna Between Radio and Signal Generator	Signal Generator Frequency	Tuning Gang Setting	Adj. Trimmers in Following Order to Max.
1	Set Band Change Switch to Broadcast Position. 6SA7 Grid (Pin #8)	.1 MFD.	455 K.C.	Set Pointer to Upper Limit	A, B, C, D
2	Before proceeding to step 3 check pointer travel as outlined under paragraph below headed "Pointer Adjustment."				
3	Black Loop Lead	20 MMFD. If not available wrap several turns of the generator lead around the black loop lead.	1605 K.C.	Set Pointer to Upper Limit	E, F, G
4	Black Loop Lead		1300 K.C.	Set Pointer to 1300 Mark on Slide Rail	H, I, J
5	Set Band Change Switch to Short Wave Position.				
6	Black Loop Lead	400 Ohms	12.5 M.C.	Set Pointer to Upper Limit	K, L, M
7	Black Loop Lead	400 Ohms	12.0 M.C.	Set Pointer to 1300 Mark on Slide Rail	N, O, P

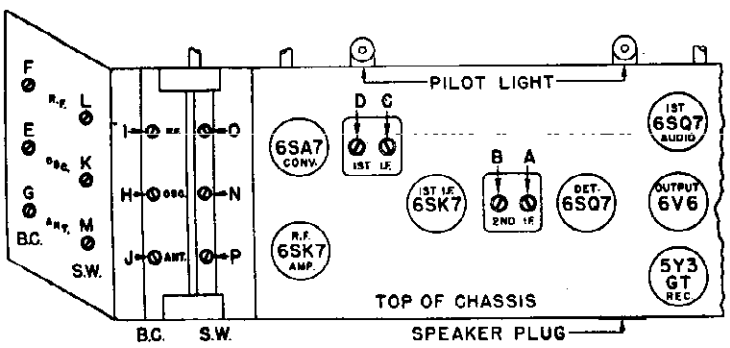
POINTER ADJUSTMENT

Move the dial pointer by means of the tuning control knob to see that it reaches the upper and lower limits as shown on the stringing diagram. In the upper limit position measure the distance D-E and in the lower limit position measure the distance A-B. The distance from A and B must be the same as the distance from D to E. If these distances are not equal, unclamp and move the pointer slide on the string until they are the same. The pointer should be checked again at the upper and lower limit to be sure that it is right. Take care to see that the pointer does not slip during this operation. Reclamp the pointer slide tightly to the string and seal with any quick-drying cement. Set the tuning gang wide open and proceed with operation 3.

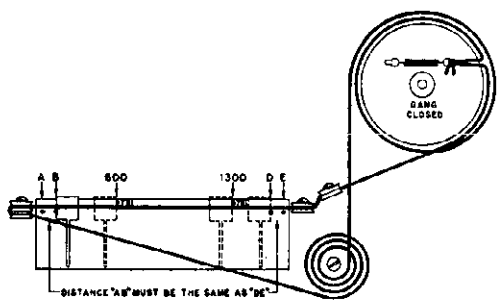
REPLACING TUNING SLUG

If it becomes necessary to change a tuning slug proceed in the following manner: Set the gang to its wide open position, unsolder and remove the old slug. Set the slug adjusting screw about half way down. Place the new slug in such a position that 1⅜ inches of its length is above the coil form. Solder it in this position making sure that it does not slip during the operation and that the slug wire is straight. Proceed to realign the set as shown in the chart.

TUBE AND TRIMMER LAYOUTS



STRINGING DIAGRAM



RESISTORS

Symbol	Description	Part No.
R1	12,000 Ohms 5 Watt	61A1-1
R2	150,000 Ohms ½ Watt	60B8-154
R3	470,000 Ohms ½ Watt	60B8-474
R4	10,000 Ohms 2 Watt	60B20-103
R6	22,000 Ohms ½ Watt	60B8-223
R7	10 Megohms ½ Watt	60B8-106
R8	1 Megohm ½ Watt	60B8-105
R9	2 Megohms, Tone Control	75B1-5
R10	27,000 Ohms ½ Watt	60B8-273
R11	1 Megohm, Volume Control Tapped at Approx. 500,000 ohms	75B2-1
R12	270,000 Ohms ½ Watt	60B8-274
R13	470,000 Ohms ½ Watt	60B8-474
R14	1 Megohm ½ Watt	60B8-105
R15	390 Ohms 1 Watt	60B14-391
R16	10 Megohms ½ Watt	60B8-106
R17	100 Ohms ½ Watt	60B8-101
R18	47,000 Ohms ½ Watt	60B8-473
R19	100,000 Ohms ½ Watt	60B8-104
R20	270,000 Ohms ½ Watt	60B8-274
R22	100 Ohms ½ Watt	60B8-101

CONDENSERS

Symbol	Description	Part No.
C1	1,000 Mmfd., Mica	65B7-33
C2	140 Mmfd., Silver Mica 3%	65B1-26
C3	25 Mmfd., Silver Mica 3%	65B1-28
C4	100 Mmfd., Mica	65B7-17
C5	50 Mmfd., Mica	65B5-11
C6	.05 Mfd., 400 Volts	64B1-22
C7	65 Mmfd., Silver Mica 3%	65B1-27
C8	420 Mmfd., Silver Mica 2%	65B1-13

CONDENSERS (Cont'd)

Symbol	Description	Part No.
C10	20 Mmfd., Mica	65B7-5
C11	65 Mmfd., Silver Mica 3%	65B1-27
C12	200 Mmfd., Silver Mica 2%	65B1-14
C13	.1 Mfd., 400 Volts	64B1-20
C14	250 Mmfd., Mica	65B7-22
C15	1,000 Mmfd., Mica	65B7-33
C16	.02 Mfd., 400 Volts	64B1-24
C17	.01 Mfd., 400 Volts, Condenser	64B1-25
C18	.01 Mfd., 400 Volts, Condenser	64B1-25
C19	.01 Mfd., 600 Volts, Condenser	64B1-10
C20a	30 Mfd., 350 Volts	67C6-25
C20b	30 Mfd., 350 Volts	
C20c	20 Mfd., 25 Volts	
C21a	3-40 Mmfd. Trimmer	66A1-5
C21b	3-40 Mmfd.	
C22a	3-40 Mmfd. Trimmer	66A1-5
C22b	3-40 Mmfd.	
G23a	3-40 Mmfd. Trimmer	66A1-5
C23b	3-40 Mmfd.	
C24	100 Mmfd., Mica	65B7-17
C26	1,200 Mmfd., Mica	65B5-34
C27	100 Mmfd., Mica	65B7-17

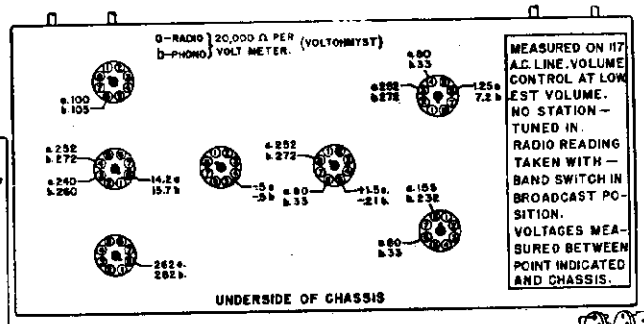
TRANSFORMERS and COILS

Symbol	Description	Part No.
L1	Antenna, Loop	AC104
L2	Coil, S.W. Antenna	AD116-1
L3	Coil, B.C. Antenna	AB100-2
L4	Coil, B.C. R.F.	AB100-1
L5	Coil, S.W. R.F.	AD116-2
L6	Coil, S.W. Oscillator	AD116-3
L7	Coil, B.C. Oscillator	AC101-1
T1	Transformer, 1st I.F.	72B7
T2	Transformer, 2nd I.F.	72B8
T3	Transformer, Power	80B1
T4	Transformer, Output	98B6-1
CH1	Choke, Filter	74A3
CH2	Choke, Oscillator Cathode	AB103-1

SWITCHES, PLUGS and SOCKETS

Symbol	Description	Part No.
S1	Socket, Phono	88A1
S2	Socket, Speaker	87A6-1
S3	Socket and Cord, Phono Motor	89A6-3
SW1	Switch, Antenna	76B1-3
SW2	Switch, Oscillator	76B1-2
SW3	Switch, R.F.	76B1-1
SW4	Switch (on-off) S.P.S.T.	77B1-44

VOLTAGE CHART



MISCELLANEOUS

Description	Part No.
Background, Dial	22B7-1
Bulb, Pilot Light No. 47	81A1-8
Button (For Phono switch button)	33A8-1
Cable and Plug, Shielded	89A5-1
Cord, Dial (64" approx.)	50A1-3
Drum, Dial	17A3
Escutcheon, Dial	21C7-1
Escutcheon, Switch	26A7-1
Knob, Tuning	33B9-1
Knob, SW, B.C., Phono	33B9-2
Knob, Tone	33B9-3
Knob, Volume	33B9-4
Pin Tip, Antenna (Large)	86A2-1
Pin Tip, Antenna (Small)	86A2-2
Plug, Speaker	88A4-4
Plug, Phono Output	88A2-1
Pointer, Dial	25A3
Slug, B.C. Tuning—Specify color code when ordering	71B1-3
Slug, S.W. Tuning—Specify color code when ordering	71B1-9
Socket, Dial Light	82A2-1
Socket, Speaker	87A6-1
Speaker	78B7
Spring, Drum Tension	19B1-7
Stud, Slug adjusting	27A4

PHONOGRAPH PARTS

See Record Changer Service Manual for Detailed Parts List.

Description	Part No.
Centerpost	G400A12
Crystal Cartridge	409A1
Idler Wheel (407B3 Motor)	G400A23
Idler Wheel (407B2 Motor)	G400A59
Idler Wheel (407B1 Motor)	G400A57
Motor, 60 cycle 115 volt, A.C. (Types 407B1 & 407B2 also used)	407B3

MODELS 6T01,
6T04X, Ch. 5A

CIRCUIT

Chassis 5A1—A.C.-D.C. 5 tube Superheterodyne covering two bands, (540 K.C.—1730 K.C.) and 5.45 Megacycles—17.5 Megacycles.

POWER SUPPLY

110-120 Volts A.C. or 110-120 Volts D.C. It can b operated on 220 Volts A.C. or D.C. only if a special lin resistance cord is used.

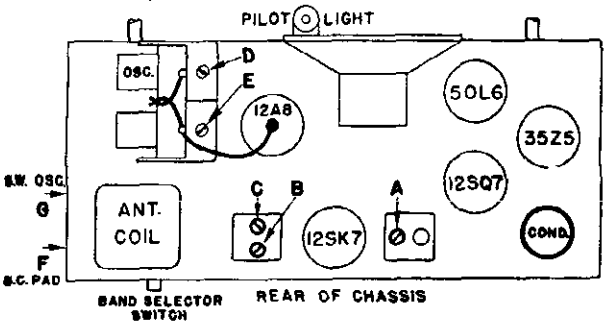
ALIGNMENT PROCEDURE

1. Be sure both set and signal generator are thoroughly warmed up before starting alignment.
2. Turn gang condenser to wide open position and make sure that dial pointer is at position marked "pointer extremes" on the dial diagram (see below).
3. Connect Output Meter across the Voice Coil.
4. Turn receiver Volume Control full on.
5. Use *lowest* output setting of signal generator that will give a satisfactory reading on the Output Meter.
6. Proceed in sequence as indicated in the chart.

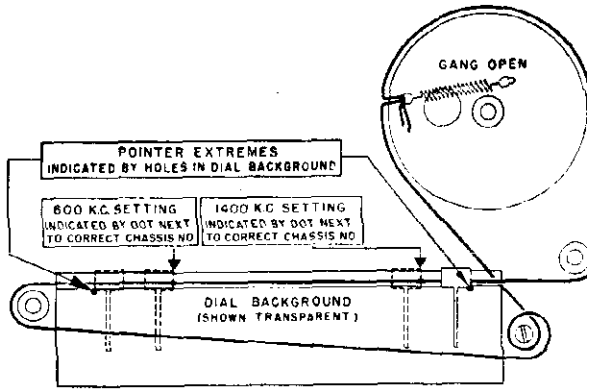
Dummy Antenna in Series with Signal Generator	Signal Generator Frequency	Connect Signal Generator to	Band Switch Position	Receiver Dial Pointer Setting	Adjust Following Trimmers	Type of Adjustment
.00025 Mica	455 K.C.	Grid Cap 12A8 Tube	B.C.	Gang-Condenser Wide open	(A) 2nd I.F. (B) 1st I.F. (C) 1st I.F.	Maximum Deflection Output Meter
.00025 Mica	1730 K.C.	End of Ant. Wire	B.C.	Set to Black dot at extreme upper end of scale.	(D) B.C. Osc.	Maximum Deflection Output Meter
.00025 Mica	1400 K.C.	End of Ant. Wire	B.C.	Tune in Generator Signal	(E) B.C. Ant.	Maximum Deflection Output Meter
.00025 Mica	600 K.C.	End of Ant. Wire	B.C.	Tune in Generator Signal	(F) B.C. Pad Rock Condenser gang while adjusting.	Maximum Deflection Output Meter
Recheck Alignment at 1400 Kc (2nd step above)						
400 ohm Carbon	15 Mc.	End of Ant. Wire	S.W.	Tune in Generator Signal	(G) S.W. Antenna	Maximum Deflection Output Meter

TUBE and TRIMMER LAYOUT

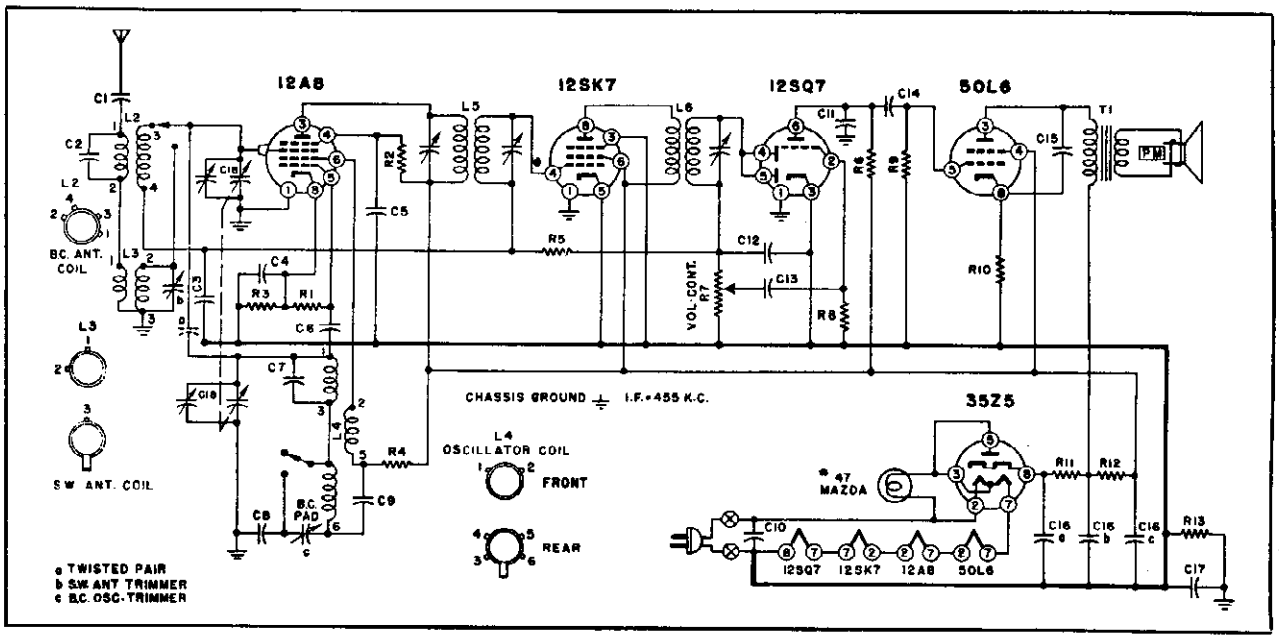
Top View



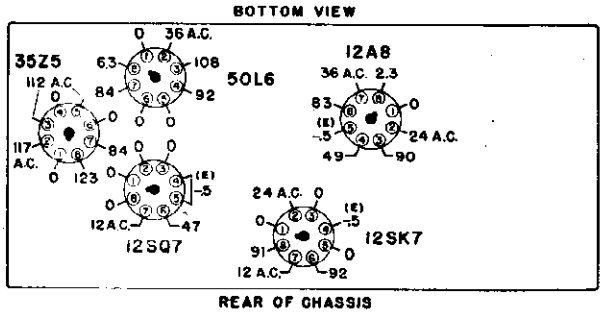
DIAL STRINGING



MODELS 6T01,
6T04X, Ch. 5A1



VOLTAGE CHART



VOLTAGE DATA

1. All readings made between Tube Socket Terminals and Terminal No. 8 on the 12SQ7 Socket.
2. Measured on a 117 Volt A.C. line.
3. Volume control full on.
4. Dial tuned to low frequency end, no signal.
5. Voltages indicated (E) obtained on Vacuum Tube volt meter.
6. All other readings shown are made with a 1000 ohm per volt meter.

REPLACEMENT PARTS

CONDENSERS

Symbol	Description	Part No.
C1	.001 Mfd., paper, 400 V.	65A2-5
C2	.00005 Mfd., mica, 500 V.	65B5-11
C3	.05 Mfd., paper, 400 V.	65A2-4
C4	.05 Mfd., paper, 400 V.	65A2-4
C5	.05 Mfd., paper, 400 V.	65A2-4
C6	.0001 Mfd., mica, 500 V.	65B5-17
C7	.00001 Mfd., mica, 500 V.	65B5-1
C8	.003 Mfd., mica, 500 V.	65B1-6
C9	.005 Mfd., paper, 400 V.	65A2-2
C10	.05 Mfd., paper, 400 V.	65A2-4
C11	.0005 Mfd., mica, 500 V.	65B5-27
C12	.00025 Mfd., mica, 500 V.	65B5-22
C13	.01 Mfd., paper, 400 V.	65A2-3
C14	.002 Mfd., paper, 400 V.	65A2-1
C15	.01 Mfd., paper, 400 V.	65A2-3
C16a	30 Mfd., electrolytic, 150 V.	67C7-41
C16b	30 Mfd., electrolytic, 150 V.	
C16c	20 Mfd., electrolytic, 150 V.	
C17	.2 Mfd., paper, 400 V.	65A2-10
b, c	Trimmer Condenser	66A1-1
C18	Tuning Condenser Gang	68A1

RESISTORS

Symbol	Description	Part No.
R1	47,000 Ohms, Carbon, ½ W.	60B8-473
R2	22,000 Ohms, Carbon, ½ W.	60B8-223
R3	470 Ohms, Carbon, ½ W.	60B8-471
R4	3,300 Ohms, Carbon, ½ W.	60B8-332
R5	2.2 Meg Ohms, Carbon, ½ W.	60B8-225
R6	220,000 Ohms, Carbon, ½ W.	60B8-224
R7	.5 Meg. Ohms, Volume Control	75B1-7
R8	4.7 Meg Ohms, Carbon ½ W.	60B8-475
R9	470,000 Ohms, Carbon, ½ W.	60B8-474
R10	220 Ohms, Carbon, ½ W.	60B8-221
R11	150 Ohms, Carbon, 1 W.	60B28-1
R12	1,000 Ohms, Carbon, 1 W.	60B28-2
R13	150,000 Ohms, Carbon, ½ W.	60B28-154

COILS & TRANSFORMERS

Symbol	Description	Part No.
L2	BC, Antenna coil	69A1
L3	SW, Antenna coil	69A2
L4	BC & SW, Oscillator coil	69A3
L5	1st I.F. Trans.	72B2
L6	2nd I.F. Trans.	72B1

MISCELLANEOUS

Description	Part No.
Band Change Switch	77B1-4
Buttons, Snap for Dial Background	13A1-3-2
Cabinet, Ivory Plastic	34D1-1
Cabinet, Mahogany Plastic	34D1-2
Collar for Line Cord Connector	32A19
Connector for Line Cord (female plug)	88A6-2
Cord, Line, 220 V	89A3
Dial Background	22B7-1
Dial Cord (42 inches)	50A1-1
Dial Pointer Strip	25A3
Dial Pointer Slide	25A2
Drive Drum Assembly	A1012
Fibre Dial Pulley	17A1-3
Knob, Ivory	33A1-1
Knob, Mahogany or Walnut	33A1-2
Pilot light, Mazda No. 47	81A1-8
Pilot light Socket & leads	82A2-2
Shaft, Tuning	28A1-1
Scale, Dial	21C1-1
Speaker & Output Transformer	78B1-1
Tension Spring, Dial cord	19A1-3

CIRCUIT

Six tube AC operated Superheterodyne receiver, covering three bands. Medium: 540 KC—1730 KC. Short Wave 1: 2.75 MC—7.5 MC. Short Wave 2: 7.2 MC to 23 MC. Set has a three-speed Record Changer (RC222).

CONVERSION INSTRUCTIONS

CONVERTING THE SET FOR 220 VOLT OPERATION

To convert this set for 220 volt operation, a conversion kit must be ordered. Be sure to read all of the information for 220 volt operation.

CONVERTING THE RADIO To convert the radio from 110 volts to 220 volts, unsolder one end of the Jumper Wire at point "A" and solder it to point "B". See figure 1. To convert from 220 volts to 110 volts, reverse the procedure.

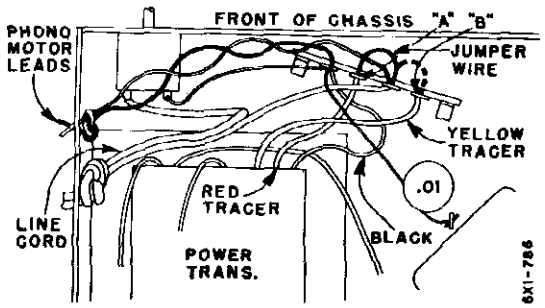


Figure 1. Bottom View of Chassis Showing Jumper Wire

CONVERTING THE PHONOGRAPH A step-down transformer (included in conversion kit, part #98A15-17) must be mounted on the inside back of the cabinet to operate this changer on 220 volts. This kit consists of a step-down transformer, a mounting plate, socket and plug, and the necessary bolts and nuts to mount the plate to the cabinet back.

Mount the transformer to the cabinet back as shown in figure 2. Disconnect the phonograph plug "C", and insert it into the socket "D" provided for it on the conversion transformer. Also, insert the conversion transformer plug "E" into the radio socket "F".

To convert the phonograph from 220 volts to 110 volts, merely unplug the transformer connections, and insert the phono plug "C" into the radio socket "F".

Conversion Transformer Kit

Transformer, Step-down (includes socket and plug)	80B20
Mounting Plate	15B544
Plug	88A8-1
Socket and Leads	89A6-3

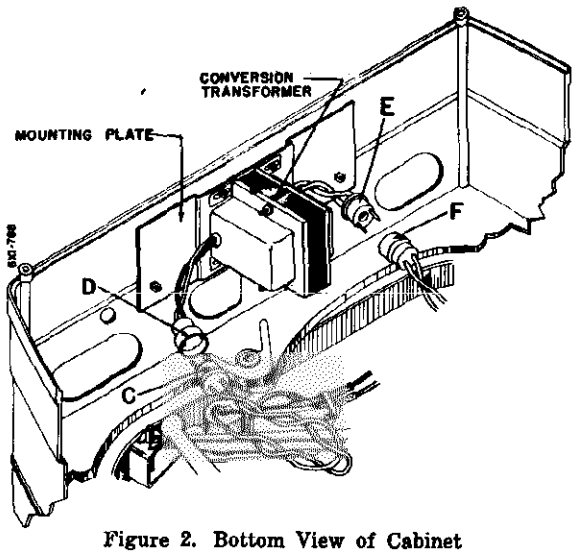


Figure 2. Bottom View of Cabinet

CONVERTING THE PHONOGRAPH MOTOR FROM 60 CYCLES TO 50 CYCLE OPERATION

To convert an Admiral (60 cycle) three-speed phonograph for 50 cycle operation, first remove the turntable retaining clip by slipping it off of the turntable hub and then remove the turntable by lifting it straight up.

NOTE: Make certain that the record changer is not in change cycle before attempting to lift the turntable. Then proceed as follows:

1. Remove the two rubber drive belts. Do not handle these belts excessively or get grease or oil on them.
2. Remove the original 78 RPM - 60 cycle coil spring from the motor drive shaft (smallest diameter shaft). Then slip the 50 cycle conversion spring (part #405A113, inside diameter 11/64") in its place.
3. Install the 33-1/3 RPM 50 cycle conversion spring (part #405A112, inside diameter 15/64") by slipping it over the 33-1/3 RPM brass drive shaft (smaller diameter of the two brass drive shafts).

IMPORTANT

The conversion springs can best be installed by turning the springs counterclockwise (to the left) while pushing down until the top of the spring is flush with the top of the shaft.

4. Remove the 45 RPM, 60 cycle drive shaft (largest diameter shaft) by lifting it straight up and off. Do not remove the oil retaining felt washer under the brass drive shaft. Then install the 45 RPM, 50 cycle conversion drive shaft (part #98A15-15) by sliding it down on the mounting stud.
5. Carefully reinstall the two rubber drive belts.
6. Reinstall the turntable. No force is needed to seat the turntable. Be sure that indented portion of the record changer drive wheel (near turntable hub) faces the turntable hub. Also, it will be necessary to push the idler wheel in toward the center of the turntable as the turntable is lowered on the hub. When the turntable is seated, replace the turntable retaining clip or ring, if used.

RECORD CHANGER: Model RC222, Pgs. RCD.CH.20-9 to RCD.Ch. 20-20.

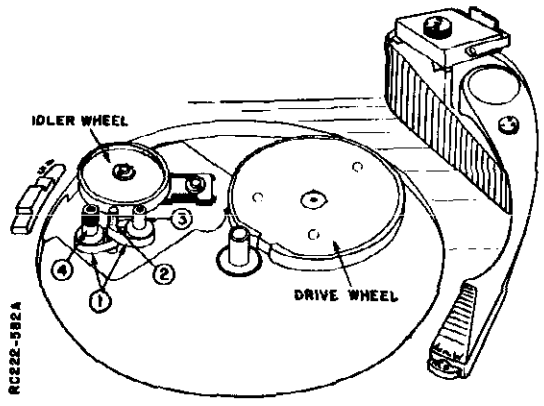


Figure 3. Top of Record Changer, Turntable Removed.

MODEL 6X12,
Ch. 6X1

ALIGNMENT PROCEDURE

- Be sure both set and signal generator are thoroughly warmed up before starting alignment.
- Turn gang condenser to wide open position and make sure that dial pointer is at position shown in illustration below.
- Connect output meter across voice coil.
- Turn receiver volume and tone controls full on.
- Use lowest output setting of signal generator capable of producing adequate output meter indication and then proceed as outlined in chart below.
- Repeat adjustments to insure good results.

NOTE

To avoid splitting the slotted head of the powdered iron core tuning slugs in IF transformers, use an alignment tool having a blade 1/8" wide. Since this tool must be inserted into the underside of the IF transformers across the chassis, it must be NON-METALLIC and at least 7" long.

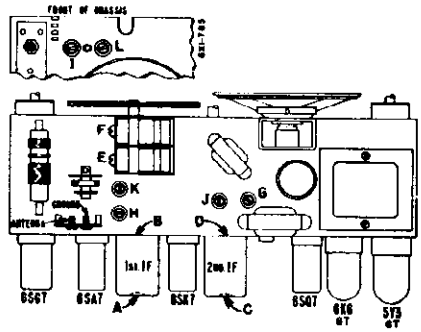
Step	Dummy Antenna in Series with Signal Generator	Connection of Signal Generator (High Side)	Band Switch Position	Signal Generator Frequency	Receiver Gang Setting	Trimmer Description	Trimmer Designation	Type of Adjustment
1	.02 mfd. condenser	†Pin No. 8 of 6SA7	"BC" Medium Band	455 KC	Gang fully open	2nd IF 1st IF	A, B* C, D*	Maximum output.
2	200 mmfd. condenser	Antenna Terminal	"BC" Medium Band	1725 KC	Gang fully open	M.B. Oscillator (on gang)	E	Maximum output.
3	200 mmfd. condenser	Antenna Terminal	"BC" Medium Band	1400 KC	Tune in generator signal	M.B. Antenna (on gang)	F	Maximum output.
4	200 mmfd. condenser	Antenna Terminal	"BC" Medium Band	600 KC	Tune in generator signal	M.B. pad	G	Maximum output. "Rock" gang while adjusting.
			Recheck alignment at 1400 KC (in step 3 above)					
5	400 ohm carbon resistor	Antenna Terminal	"SW1" Short Wave	7.5 MC	Gang fully open	SW1 Osc. Trimmer	H**	Maximum output.
6	400 ohm carbon resistor	Antenna Terminal	"SW1" Short Wave	6.2 MC	Tune in signal	SW1 Ant. Trimmer	I	Maximum output.
7	400 ohm carbon resistor	Antenna Terminal	"SW1" Short Wave	3.2 MC	Tune in signal	SW1 Osc. Pad	J	Maximum output. "Rock" gang while adjusting.
			Recheck alignment in step 5 and 6					
8	400 ohm carbon resistor	Antenna Terminal	"SW2" Short Wave	23 MC	Gang fully open	SW2 Osc. Trimmer	K**	Maximum output.
9	400 ohm carbon resistor	Antenna Terminal	"SW2" Short Wave	18 MC	Tune in signal	SW2 Ant. Trimmer	L	Maximum output. "Rock" gang while adjusting.

* Adjustments B and D are made from underside of chassis.

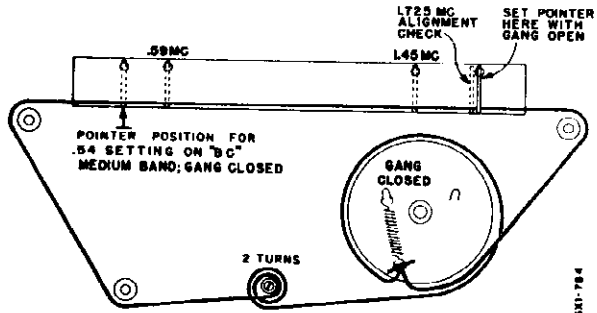
† If IF adjustments are very far off alignment, it may be necessary to feed signal through pin #4 of 6SK7, then through pin #8 of 6SA7.

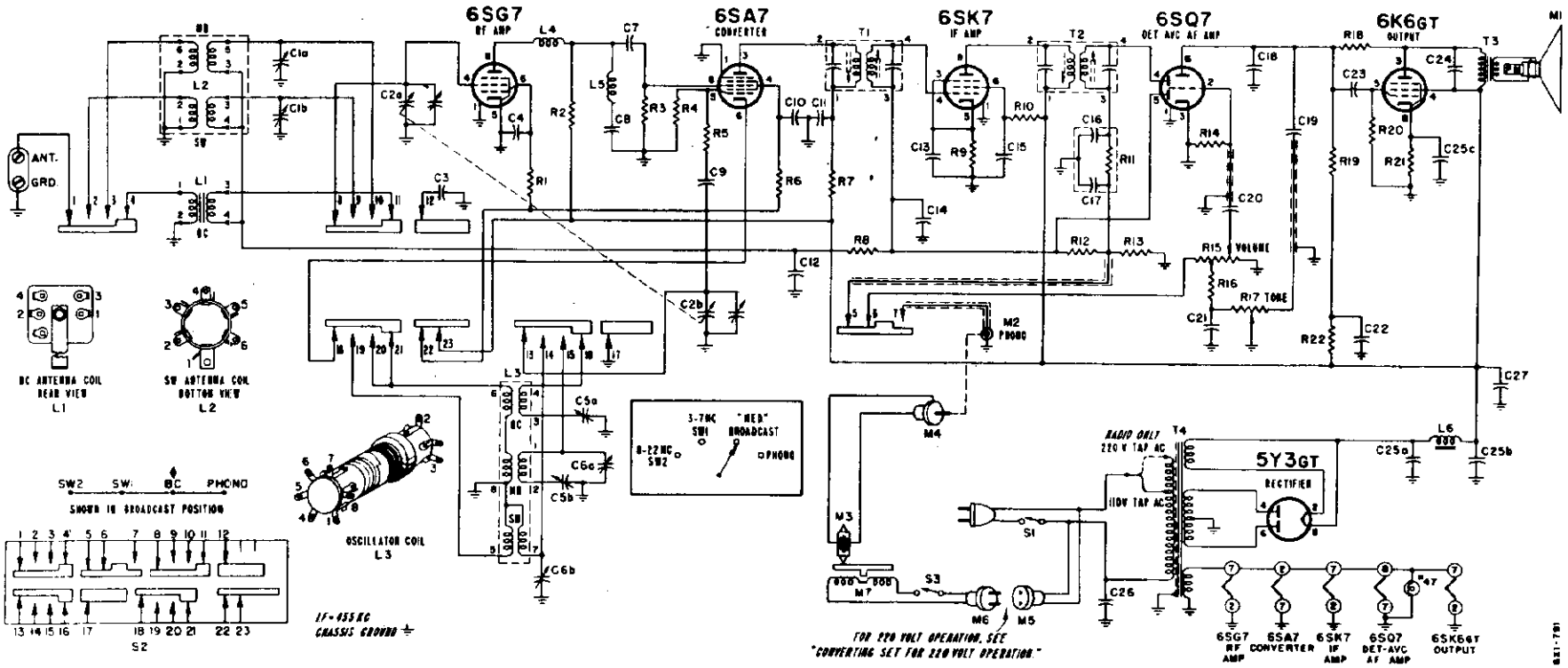
** Be sure that trimmer is aligned at correct frequency and not on image which should be approximately 910 KC lower than correct frequency, as indicated on the dial. Check to see that image appears 910 KC lower than alignment frequency.

TUBE AND TRIMMER LOCATION



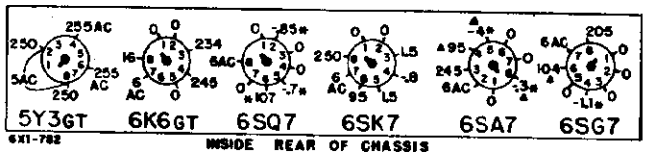
POINTER SETTING AND DIAL CORD STRINGING





VOLTAGE DATA

- Measured on 117 Volts AC line.
- Voltages measured with Vacuum Tube Voltmeter. Readings taken with a 1,000 ohm per volt meter will be approximately the same except for those marked with an asterisk * in the voltage chart; these readings will either be lower or practically zero.
- All readings made between tube socket terminals and chassis ground, unless otherwise indicated.
- Dial turned to low frequency end; volume and tone controls at minimum.
- Band switch set in "BC" position.



* If taken with a 1000 ohm-per-meter, readings will be lower or practically zero.

▲ On "Phono" these voltages will be zero. All other DC readings may be slightly higher.

MODEL 6X12,
Ch. 6X1

OPERATING VOLTAGE AND FREQUENCY

These sets are wired at the factory to operate on 110 volts, AC. To operate on 220 volts, a conversion kit must be obtained (part number 98A15-17) and all instructions under "Converting The Set For 220 Volt Operation" must be followed. In some sets, the phonograph has been converted to operate on 50 cycles; in other sets the phonograph operates on 60 cycles. To convert the phonograph to operate on either 50 cycles or 60 cycles, see the conversion instructions

PARTS LIST

RESISTORS

Symbol	Description	Part No.
R1	47000 ohms, 1 Watt	60B 14-473
R2	2,200 ohms, ½ Watt	60B 8-222
R3	100,000 ohms, ½ Watt	60B 8-104
R4	22,000 ohms, ½ Watt	60B 8-223
R5	47 ohms, ½ Watt	60B 8-470
R6	15,000 ohms, 1 Watt	60B 14-153
R7	1,000 ohms, ½ Watt	60B 8-102
R8	270,000 ohms, ½ Watt	60B 8-274
R9	100 ohms, ½ Watt	60B 8-101
R10	47,000 ohms, ½ Watt	60B 8-473
†R11	47,000 ohms, ¼ Watt	
R12	2.2 megohms, ½ Watt	60B 8-225
R13	680,000 ohms, ½ Watt	60B 8-684
R14	4.7 megohms, ½ Watt	60B 8-475
R15	2 megohms, Volume Control	75B 2-15
R16	27,000 ohms, ½ Watt	60B 8-273
R17	2 megohm Tone Control and on-off Switch	75B 1-35
R18	1 megohm, ½ Watt	60B 8-105
R19	270,000 ohms, ½ Watt	60B 8-274
R20	470,000 ohms, ½ Watt	60B 8-474
R21	560 ohms, 1 Watt	60B 14-561
R22	33,000 ohms, ½ Watt	60B 8-333

CONDENSERS

Symbol	Description	Part No.
C1a	3 to 40 mmfd. | Dual	
C1b	3 to 40 mmfd. | Trimmer	66A 23-7
C2a	13 to 420 mmfd., Ant. | Gang	68B 31
C2b	13 to 420 mmfd., Osc. |	
C3	.01 mfd., 450 Volts, Ceramic	65A 10-3
C4	.05 mfd., 400 Volts, Paper	64B 5-22
C5a	410 to 500 mmfd. | Dual	
C5b	1700 to 3100 mmfd. | Trimmer	66A 23-5
C6a	3 to 40 mmfd. |	
C6b	3 to 30 mmfd. | Dual Trimmer	66A 23-8
C7	100 mmfd., Mica	65B 5-17
C8	60 mmfd., ± 3%, Mica	65B 1-49
C9	120 mmfd., Mica	65B 5-18
C10	.05 mfd., 400 Volts, Paper	64B 5-22
C11	.05 mfd., 400 Volts, Paper	64B 5-22
C12	.05 mfd., 400 Volts, Paper	64B 5-22
C13	.05 mfd., 400 Volts, Paper	64B 5-22
C14	.05 mfd., 400 Volts, Paper	64B 5-22
C15	.05 mfd., 400 Volts, Paper	64B 5-22
†C16	100 mmfd., Ceramic	
†C17	100 mmfd., Ceramic	
C18	250 mmfd., Ceramic	65B 6-5
C19	.005 mfd., 450 Volts, Ceramic	65A 10-5
C20	.01 mfd., 450 Volts, Ceramic	65A 10-3
C21	.01 mfd., 450 Volts, Ceramic	65A 10-3
C22	.05 mfd., 400 Volts, Paper	64B 5-22
C23	.01 mfd., 450 Volts, Ceramic	65A 10-3
C24	.005 mfd., 450 Volts, Ceramic	65A 10-5
C25a	30 mfd., 350 Volts |	
C25b	30 mfd., 350 Volts | Elect.	67C 7-15
C25c	20 mfd., 25 Volts |	
C26	.01 mfd., 450 Volts, Ceramic	65A 10-3
C27	.05 mfd., 400 Volts, Paper	64B 5-22

COILS, TRANSFORMERS, ETC.

Symbol	Description	Part No.
L1	Coil, Antenna (BC)	69A 78
L2	Coil, Antenna (SW1 and SW2)	69A 112
L3	Coil, Osc. (BC, SW1 and SW2)	69A 111
L4	Coil, Peaking (RF)	69A 80
L5	Coil, Trap (455 KC)	69A 77
L6	Choke, Filter	74A 10
T1	Transformer, 1st IF	72B 71
T2	Transformer, 2nd IF	72B 72
T3	Transformer, Speaker Output	79A 25-2
T4	Transformer, Power (117V and 220V)	80B 14-1
M1	Speaker, 5" PM	78B 39-2
M2	Jack, Phono Input	88A 1
S1	Switch, On-off	Part of R17
S2	Switch, Band (4 position)	77B 30
	Diode Filter	63A 3-1

CABINET PARTS

Description	Part No.
Bracket, Dial Scale Mtg.	15A 169
Cabinet, Plastic (Complete) Mahogany (6X12)	34D 11-2
Dial Glass	21B 54-1
Escutcheon Overlay	23C 23-4
Grille Cloth and Baffle	A1688
Hex Nut, Escutcheon Mtg. (#4-40)	2A 1-6-71
Hinge	37A 9-1
Hinge Stud	27A 17-1
Knobs, Radio	
On-Off Tone	33C 40-27
Volume	33C 40-27
Band Switch	33C 40-29
Tuning	33C 40-31
Lid, Cabinet Mahogany (6X12)	34D 11-13
Rubber Bumper (for cabinet lid)	12A 3-2
Rubber Strip, Dial Scale Mtg. (1¼" long)	12A 9-4
Screw, Escutcheon Mtg. (#4-40x¾)	1A 80-4

MISCELLANEOUS

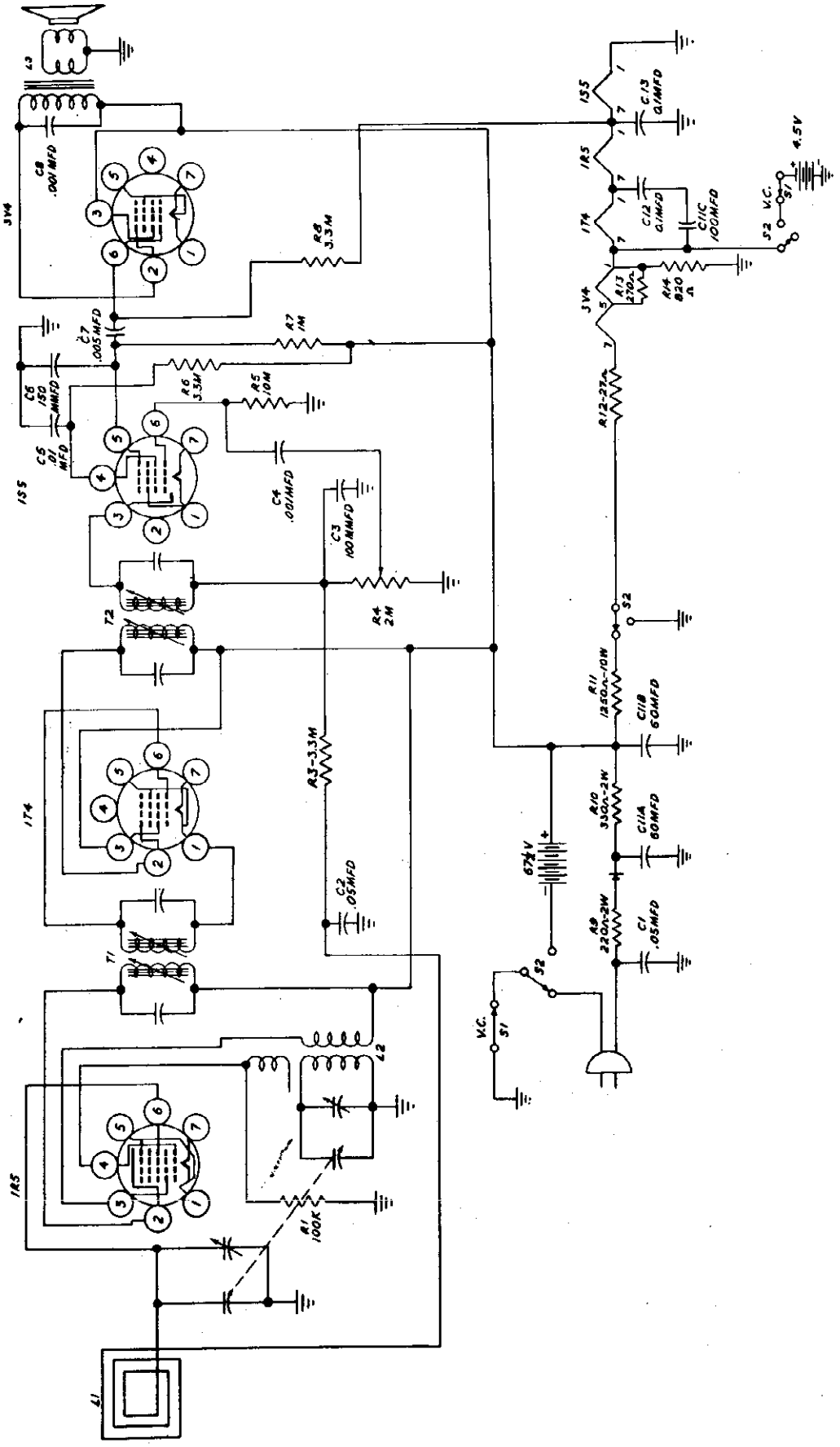
Description	Part No.
Bracket, Pilot Light	15A 535
Cable, 3 Wire (10" long)	89A 1-3
Carton and Fillers	44B 112
Dial Background	22B 9-1
Dial Cord	50A 1-3
Grommet, Gang Mounting	12A 1-2
Line Cord	89A 1-1
Manual	
Customer Instruction (English)	41A 17-47
Customer Instruction (Spanish)	41A 17-48
Service, for 6X1 Chassis	S282
Service, for RC221, RC222 Record Changers (English)	S256
Service, for RC322	S256A
Phono Jack	88A 1
Pilot Light	81A 1-8
Pointer	25A 21
Pulley, Dial Cord	17A 1-3
Sleeve, Tuning	27A 145
Socket and Leads (Pilot light)	82A 2-2
Spring, Dial Cord Tension	19B 1-3
Washer, Tuning Shaft "E"	4B 12-24

PHONOGRAPH PARTS

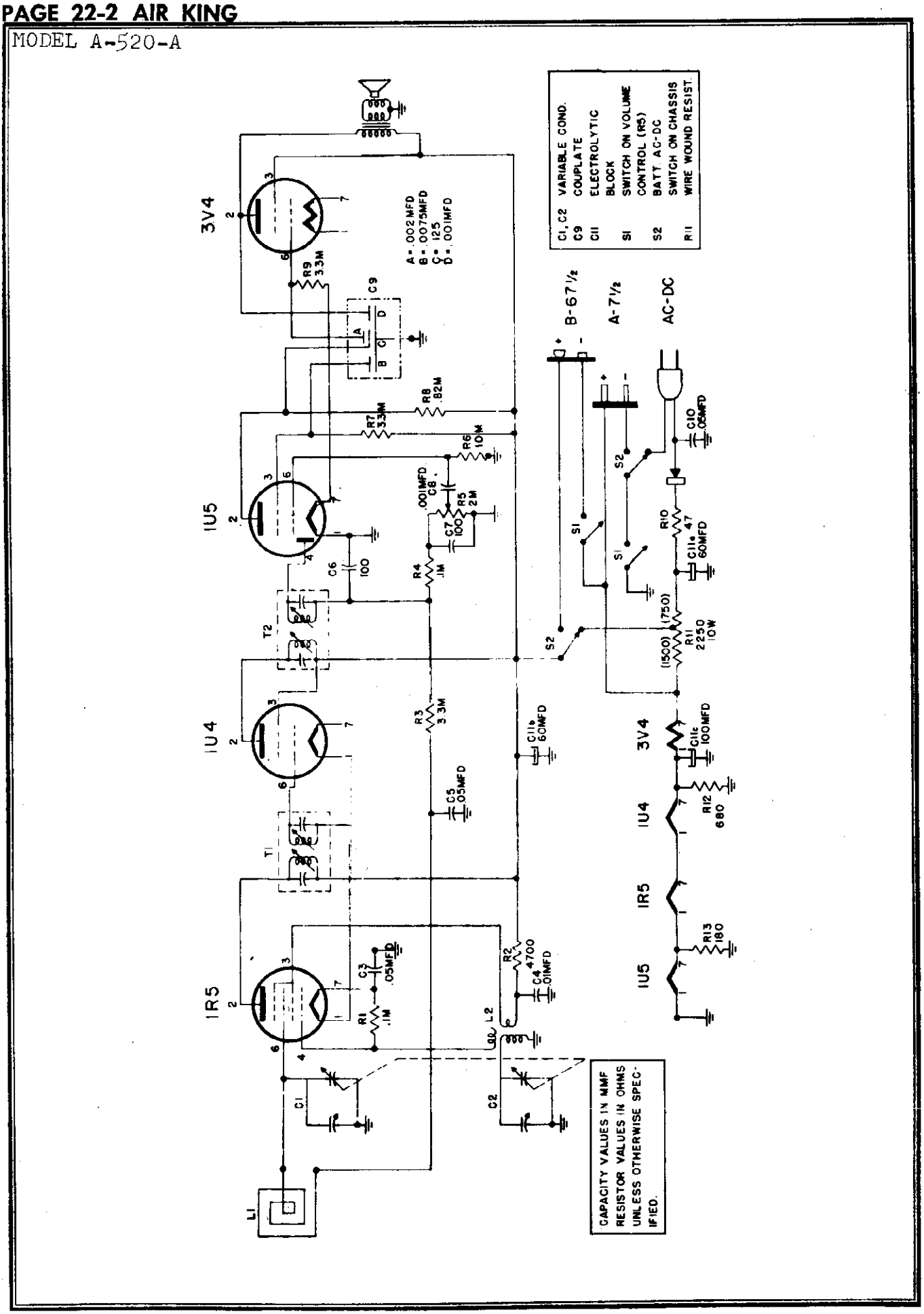
NOTE: See Record Changer Service Manual (form S256) and its supplement (form S256A) for complete parts list.

M3	Cartridge (includes needle)	409A 12
	Needle, Phonograph Long Play	98A 15-6
	Standard 78 RPM	98A 15-7
M4	Plug, Pickup Shielded Cable	88A 2-3
M5	Phono Motor Socket and Leads	89A 6-3
M6	Motor Plug	88A 8-1
M7	3 Speed Motor	407B 17
S3	Switch, Phono Motor On-Off (See Caution in Changer Manual)	408A 1
	Centerpost (for 10" & 12" records)	G400B 311
	Centerpost (for 7" 33 RPM records)	G400B 310
	Centerpost for 7" 45 RPM records)	G400B 29

† Part of Diode Filter Unit 63A3-1. This unit consists of R11, C16, C17 (see schematic). If a section of the unit becomes defective, replace with exact duplicate or individual components of proper value.


L3
C8 .001 MFD
3V4
R8 3.3M
C7 .005 MFD
R7 1M
C6 150 MMFD
C5 .01 MFD
R6 3.3M
R5 10M
155
C4 .001 MFD
C3 100 MMFD
R4 2M
T2
174
R3 3.3M
C2 .05 MFD
T1
185
L2
R1 100K
L1
155
C13 0.1 MFD
185
C12 0.1 MFD
C11C 100 MFD
174
3V4
R13 270Ω
R14 820Ω
R12 27Ω
S2
R11 1250Ω-10W
C11B 60 MFD
R10 330Ω-2W
C11A 60 MFD
R9 220Ω-2W
C1 .05 MFD
67½ V
V.C.
S1
4.5V
S1
S2 V.C.

MODEL A-520-A


C1, C2 VARIABLE COND.
C9 COUPLATE
C11 ELECTROLYTIC BLOCK
S1 SWITCH ON VOLUME CONTROL (R5)
S2 BATT. AC-DC SWITCH ON CHASSIS
R11 WIRE WOUND RESIST.
A = .002 MFD
B = .0075MFD
C = 125
D = .001MFD
B-67½
A-7½
AC-DC
3V4
1U5
1U4
1R5
T1
T2
L1
L2
C1
C2
C3 .05MFD
C4 .01MFD
C5 .05MFD
C6 100
C7 100
C8 .001MFD
C10 .05MFD
C11a 60MFD
C11b 60MFD
C11c 100MFD
R1 .1M
R2 4700
R3 3.3M
R4 .1M
R5 2M
R6 10M
R7 3.3M
R8 .82M
R9 3.3M
R10 47
R11 2250 10W
(1500) (750)
R12 680
R13 180
S1
S2
CAPACITY VALUES IN MMF
RESISTOR VALUES IN OHMS
UNLESS OTHERWISE SPECIFIED.

HOW TO INSTALL THE RADIO

MODEL 5G-563

POWER SUPPLY: This receiver is designed to operate from a power source of 110 to 125 volts AC current at 60 cycles only.

Always predetermine the type of power in your location by consulting the local power company for this information.

CAUTION: Never plug this unit into a 220 Volt or a DC power source as you will seriously damage the component parts, which have been designed for 110 to 125 volts AC current at 60 cycles only.

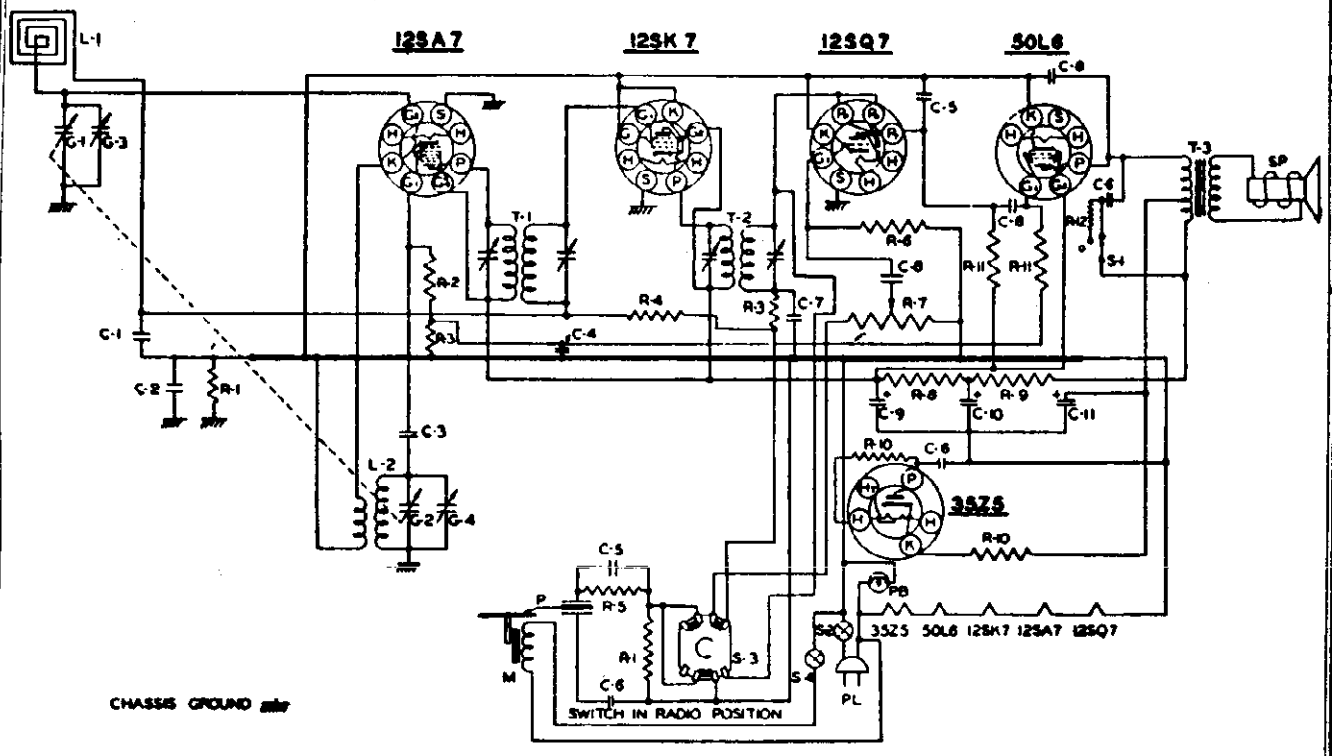
ANTENNA: This receiver is equipped with a sensitive loop antenna and will require no external antenna or ground. However, due to the directional qualities of the loop antenna, the reception of some stations may be improved by turning the receiver in different directions.

CONTROL KNOBS: This instrument is equipped with four knobs to control the operation. The extreme left knob is the "Tone" control. This control has three positions. The left hand position is "Normal" usually used for speech. The center position is "Medium" and is used for music. The right hand position is "Low" and is used to attenuate the high notes and increase the low notes. The second knob is the "Tuning" selector. This knob may be moved to the right or left to select the desired station. By mentally adding a zero to the numbers on the dial, the result will be read directly in kilocycles, i. e. 60 + 0 = 600 KC or 170 + 0 = 1700 KC.

The first knob to the right of the speaker opening is the "Volume" control and also the "OFF-ON" switch. In the extreme left hand position the switch is in "OFF" position. Turn this knob to the right and a click will be heard. This indicates that the power has been turned on. Allow about 30 seconds for the tubes to heat up and the instrument will be ready for operation. To increase volume, turn this knob to the right.

The extreme right hand knob is the "Radio-Phono" switch. The right hand position is for "Radio" operation and the left hand position is for "Phono" operation.

SD-77 U



MODEL 5G-563

ALIGNMENT DATA

Remove the chassis from the cabinet. A Signal Generator with the following frequencies is required: 455 KC, 1400 KC and 1720 KC.

The receiver volume control should be turned to maximum during the I.F. and all subsequent alignments to keep the A.V.C. from working and giving false readings. Turn the tone control to complete left hand position. Keep the generator output as low as possible to prevent overloading.

Connect an output meter across the voice coil of the speaker.

Connect a 20,000 ohm resistor across the loop connector terminals to reflect proper loop impedance.

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 must be connected to the floating ground buss under the chassis. 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.

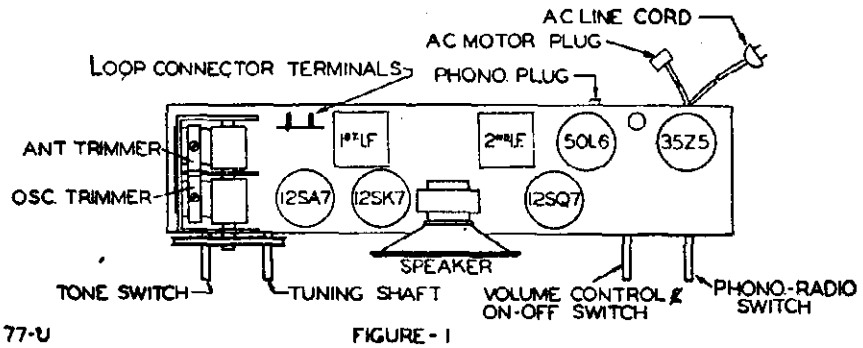
SECOND STEP: With the leads from the generator connected in the same manner as in I.F. alignment, adjust the signal generator to 1720 KC. The "O.S.C." trimmer is located on the front section of the gang condenser. Adjust this trimmer until the signal is tuned in. The gang condenser should be at complete minimum capacity for this setting.

THIRD STEP: Remove the generator leads from the chassis. Remove the 20,000 ohm resistor from the loop connector terminals. Reinstall the chassis in the cabinet, connect the loop leads, motor plug and phono pickup leads.

Connect the generator leads to a transmitting loop, made of a few turns of wire, and loosely couple to the receiver loop antenna which is located on the back end of the cabinet. Adjust the generator to 1400 KC. Rotate the tuning control until this signal is tuned in. The "ANT." trimmer is located on the rear section of the gang condenser. Adjust this trimmer until a maximum signal is noted on the output meter.

No further adjustment should be necessary, unless the receiver has been damaged, as the coils and tuning condenser have been specially handled at the factory to insure proper alignment at the lower frequencies.

TUBE AND TRIMMER LOCATION

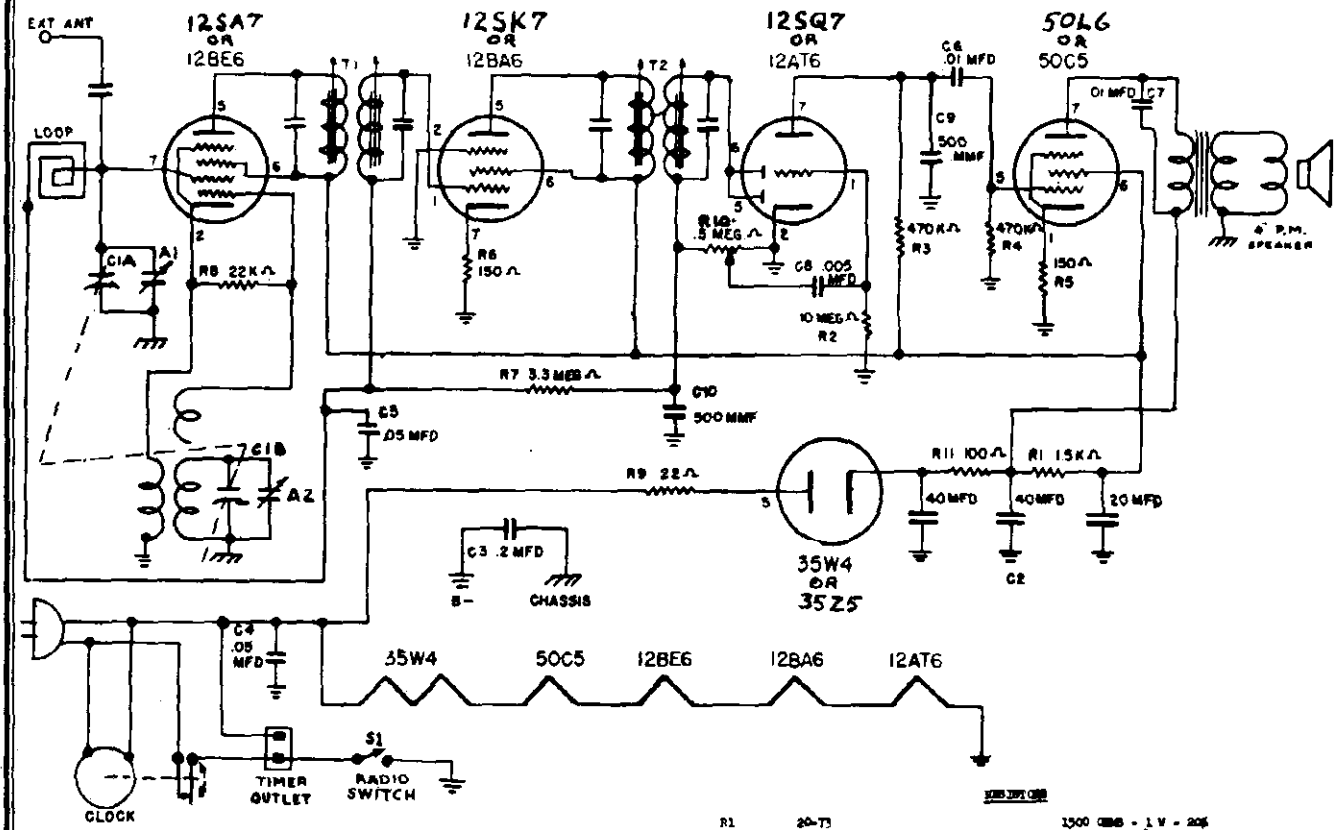


TL-77-U

FIGURE - 1

PART NO.		DESCRIPTION	PART NO.		DESCRIPTION	PART NO.		DESCRIPTION
PC-2	C-1	.05MFD. CONDENSER 200 V.	1R-1	R-6	470Ω RESISTOR 1/2W 20 %	SW-2	S-1	TONE SWITCH
PC-6	C-2	.1MFD. CONDENSER 400 V.	1R-42	R-9	1000Ω RESISTOR 1 W 10 %		S-2	SWITCH ON VOLUME CONTROL
MC-4	C-3	.00005MFD. MICA.	1R-17	R-10	33Ω RESISTOR 1/2 W. 20 %	SW-1	S-3	PHONO-RADIO SWITCH
PC-4	C-4	.25MFD. CONDENSER 200V.	1R-11	R-11	470Ω RESISTOR 1/2 W. 20 %		S-4	SWITCH ON RECORD CHANGER
MC-5	C-5	.0005MFD. MICA	1R-15	R-12	2200Ω RESISTOR 1/2 W. 20%	AC M-7	M	RECORD CHANGER MOTOR
PC-5	C-6	.05MFD. CONDENSER 400 V.	GC-3	G-1	GANG CONDENSER	AC-PU-7	P	CRYSTAL PICKUP ARM CARTRIDGE & STYLUS
MC-2	C-7	.0001MFD. MICA		G-2		PB-2	PB	110 V. 7½ W. PILOT BULB
PC-7	C-8	.01MFD. CONDENSER 400 V.		G-3	ANT. TRIMMER	CO-2	PL	LINE CORD
EC-14	C-9	20MFD.		C-4	OSC. TRIMMER.			
	C-10	40MFD. 150 WV. ELECTROLYTIC						
	C-11	40MFD.		T-1	INPUT I.F. TRANSFORMER			
1R-20	R-1	220M RESISTOR 1/2W. 20 %	LI-8	T-2	OUTPUT I.F. TRANSFORMER			
1R-9	R-2	22 M RESISTOR 1/2 W. 20%	LI-7	T-3	OUTPUT TRANSFORMER			
1R-10	R-3	47 M RESISTOR 1/2W. 20%						
1R-23	R-4	3.3MEG RESISTOR 1/2 W. 20%	LL-17	L-1	LOOP ANT.			
1R-12	R-5	1MEG. RESISTOR 1/2 W. 20%	LO-44	L-2	OSC. COIL			
1R-13	R-6	2.2MEG RESISTOR 1/2W. 20%						
VC-4	R-7	1 MEG. VOLUME CONTROL	SPK-12	SP	5" P.M. SPEAKER			

MODELS 5H-678,
5H-679



REPLACEMENT PARTS LIST

SYMBOL NO.	PART NO.	DESCRIPTION
		CONDENSERS
C1	30-26	VARIABLE CONDENSER, 2 GANG, 420 & 162 MMF.
C2	31-308	ELECTROLYTIC CONDENSER, 40MFD-40MFD-20 MFD/150 V
C3	33-13	TUBULAR PAPER CONDENSER, .2 MFD/400 V
C4	32-39	" " " , PHENOLIC, .05 MFD/400V
C5	32-4	" " " , .05 MFD/600 V
C6,7	33-1	" " " , .01 MFD/400 V
C8	32-20	" " " , .005 MFD/600 V
C9,10	35-13	MICA CONDENSER, 500 MMFD/500 V
		RESISTORS
R1	20-73	1500 OHMS - 1 W - 20%
R2	20-57	10 MEG. - 1/2 W - 20%
R3,4	20-98	470 K - 1/2 W - 20%
R5	20-81	150 OHMS - 1/2 W - 20%
R6	20-89	150 OHMS - 1/2 W - 20%
R7	20-56	3.3 MEG. - 1/2 W - 20%
R8	20-82	22 K - 1/2 W - 20%
R9	20-93	22 OHMS - 1/2 W - 20%
R10	30-27	VOLUME CONTROL, 0.5 MEG.
R11	20-40	100 OHMS - 1/2 W - 20%
T1,2	60-18	OSCILLATOR COIL
	61-11	IF TRANSFORMER
	125-38-8	BACK ASSEMBLY, INCL. LOOP
S1	69-11	RADIO SWITCH
	80-25A	4" P.M. SPEAKER WITH OUTPUT TRANSFORMER
	120-54	CABINET (WITHOUT CLOCK INSERT)
	120-45	CENTER CLOCK INSERT
	122-21	KNOB (2)
	140-7	CLOCK

ALIGNMENT PROCEDURE

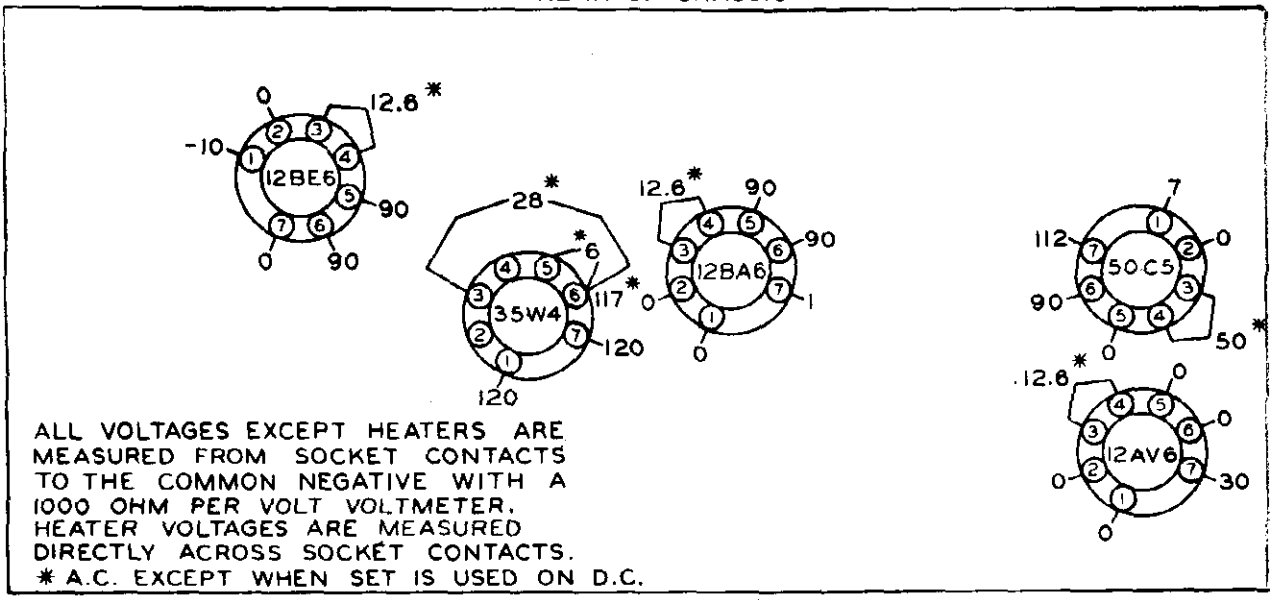
- Output meter across voice coil (3.2 ohm)
- Volume control at maximum for all adjustments.
- Align for maximum output. Reduce input as needed to keep output near 1.28 volts (0.5 watt).

SIGNAL GENERATOR				TUNER SETTING	ADJUST TRIMMERS TO MAXIMUM OUTPUT (in order shown)
Frequency	Coupling Capacitor	Connections to Receiver	Ground Connection		
455 kc	0.1 mfd.	12BE6 grid	B—	Rotor full open (Plates out of mesh)	Input and output slugs of IF cans
1650 kc	0.1 mfd.	12BE6 grid	B—	Rotor full mesh (Plates out of mesh)	Oscillator trimmer A2
1500 kc		Radiating Loop		1500 kc*	Antenna trimmer A1

*Nine markings on the dial represent respectively 540KC, 600KC, 700KC, 800KC, 900KC, 1100KC, 1300KC, 1500KC, and 1650KC reading from left to right. These points are to be used for the alignment of the receiver.

MODELS 5H-570,
5H-571, Ch. YHU

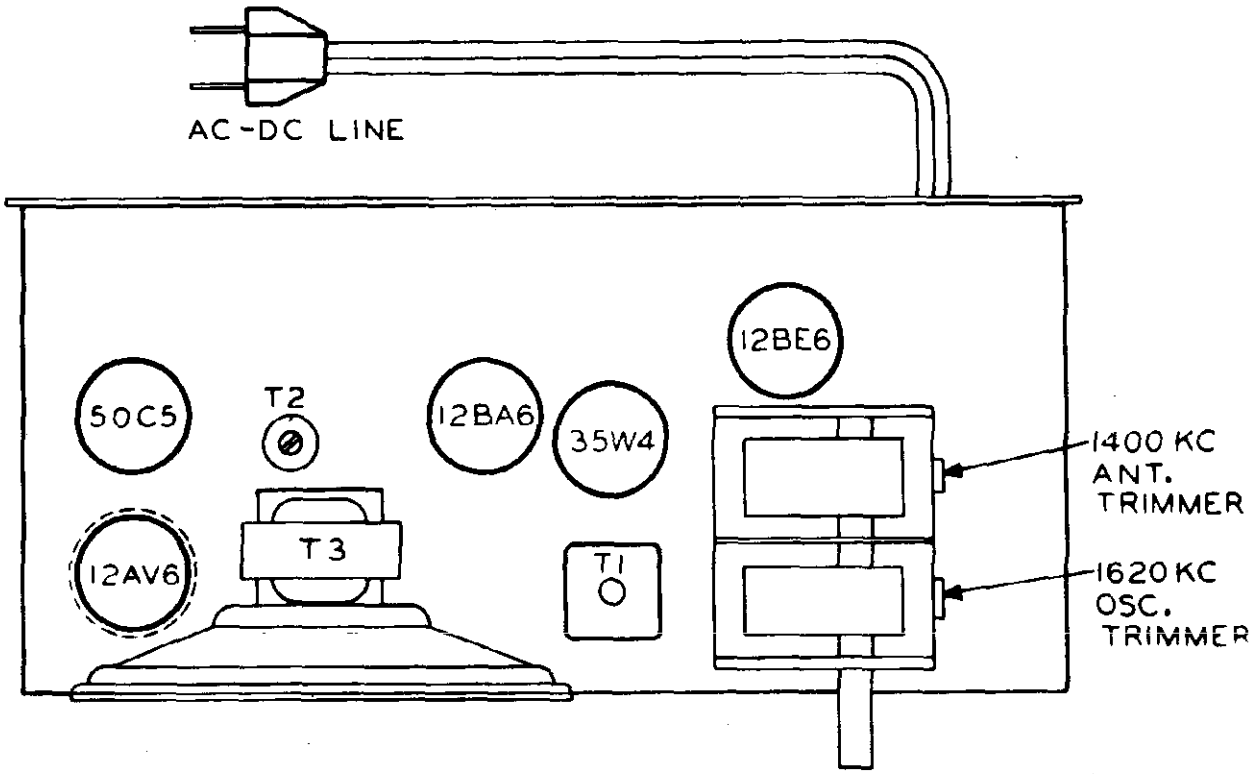
REAR OF CHASSIS



ALL VOLTAGES EXCEPT HEATERS ARE MEASURED FROM SOCKET CONTACTS TO THE COMMON NEGATIVE WITH A 1000 OHM PER VOLT VOLTMETER. HEATER VOLTAGES ARE MEASURED DIRECTLY ACROSS SOCKET CONTACTS.
* A.C. EXCEPT WHEN SET IS USED ON D.C.

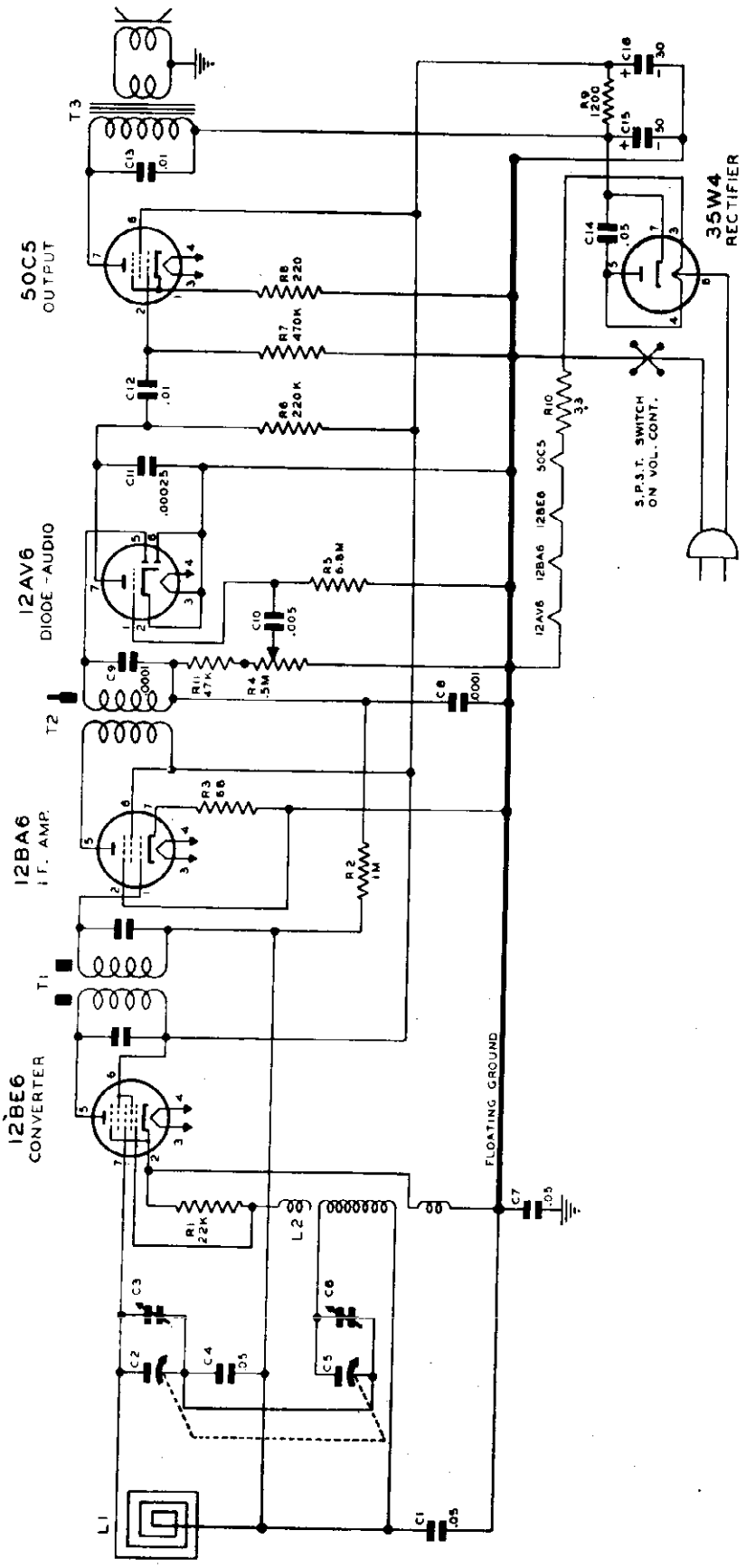
VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

PART NO. 4-A-90



PART NO. 4-A-90

MODELS 5H-570,
5H-571, Ch. YHU



ALIGNMENT PROCEDURE

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

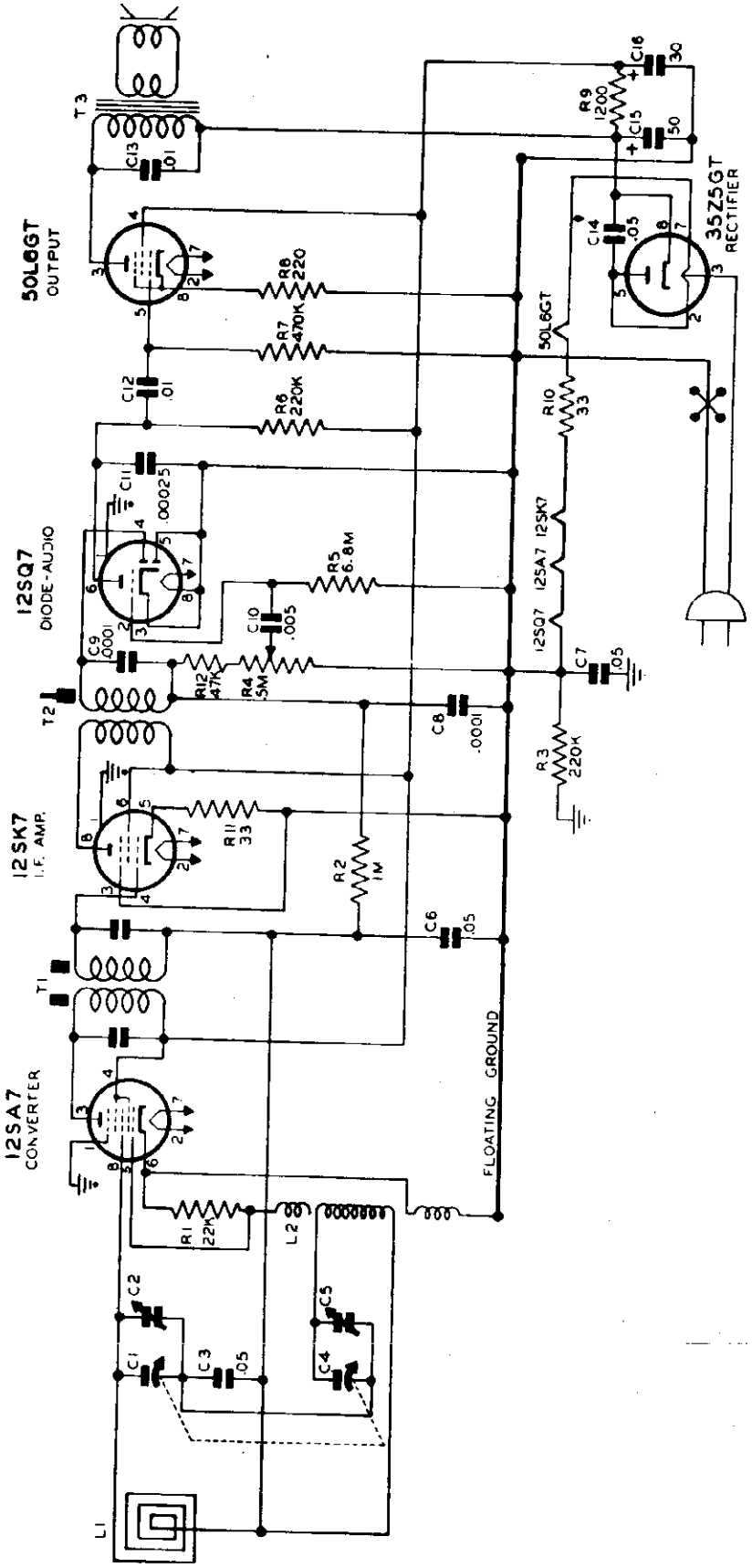
BEFORE STARTING ALIGNMENT:

(A) Remove the chassis and loop antenna from the cabinet at the same time by removing the two screws on the rear apron of the chassis which fasten the chassis to cabinet.

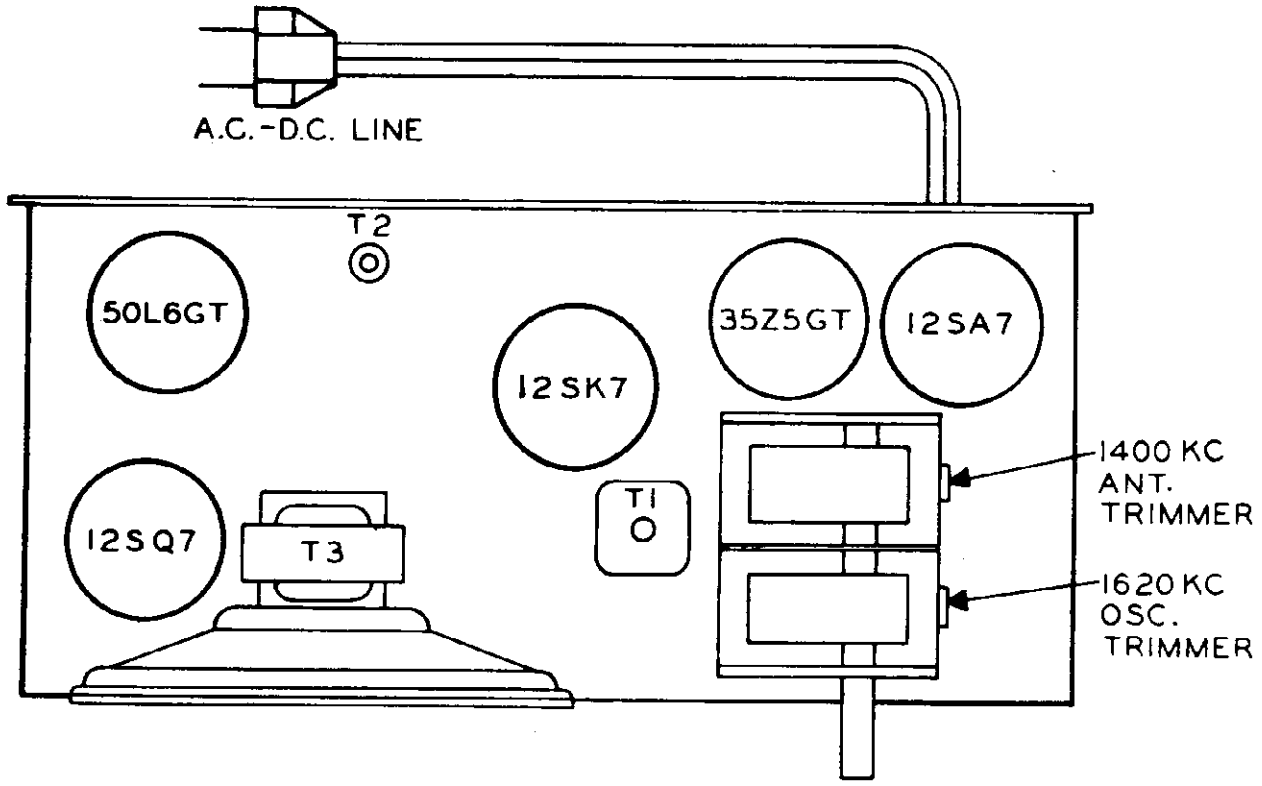
(B) Use an accurately calibrated test oscillator with some type of output measuring device.

STEPS	Set Receiver dial to:	TEST OSCILLATOR: Adjust test Oscillator Frequency to:	TEST OSCILLATOR: Attach Output of test oscillator to:	Dummy Antenna	Refer to parts designations in schematic drawing for trimmers mentioned below:
1	Any point where no interfering signal is received.	EXACTLY 455 KC	High side to grid of Converter tube (*). Low side to common negative	.1 MFD CONDENSER	Adjust 2nd. I. F. (T2) and then each of the slugs of the 1st. I.F. (T1) for maximum output.
2	Exactly 1620 KC	Exactly 1620 KC	Dummy Antenna	2 Turns of Hookup Wire 6" in Dia. (Place Approx. a Foot from and in Same Plane as Loop)	Adjust 1620 KC oscillator trimmer for maximum output.
3	Approx. 1400 KC	Approx. 1400 KC	Dummy Antenna		Adjust 1400 KC antenna trimmer for maximum output.

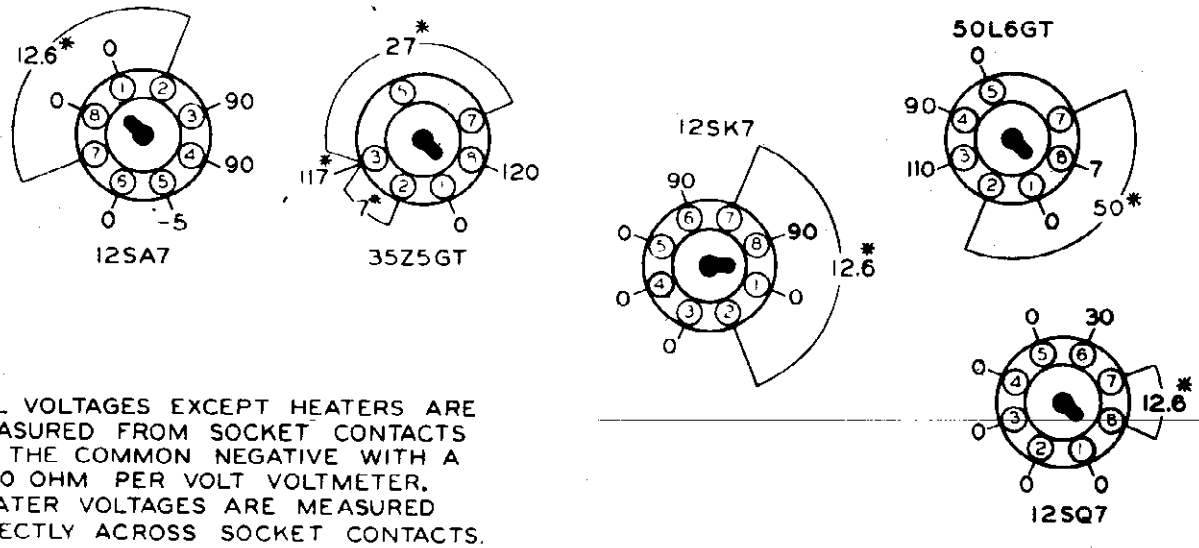
* Insert 12AU6 for No. YHU. Insert 12SA7 for No. YHAU


T3
C13 .01
50L6GT
OUTPUT
R8 220
R7 470K
C12 .01
R6 220K
C11 .00025
12SQ7
DIODE-AUDIO
R5 6.8M
C10 .005
C9 .0001
R12 47K
R4 5M
T2
C8 .0001
12SK7
I.F. AMP.
R11 33
R2 1M
C6 .05
T1
12SA7
CONVERTER
R1 22K
L2
C2
C1
C3 .05
C5
C4
L1
FLOATING GROUND
C16 30
R9 1200
C15 50
C14 .05
35Z5GT
RECTIFIER
50L6GT
R10 33
12SK7
12SA7
12SQ7
C7 .05
R3 220K

MODELS 5H-570,
5H-571, Ch. YHAU



REAR OF CHASSIS



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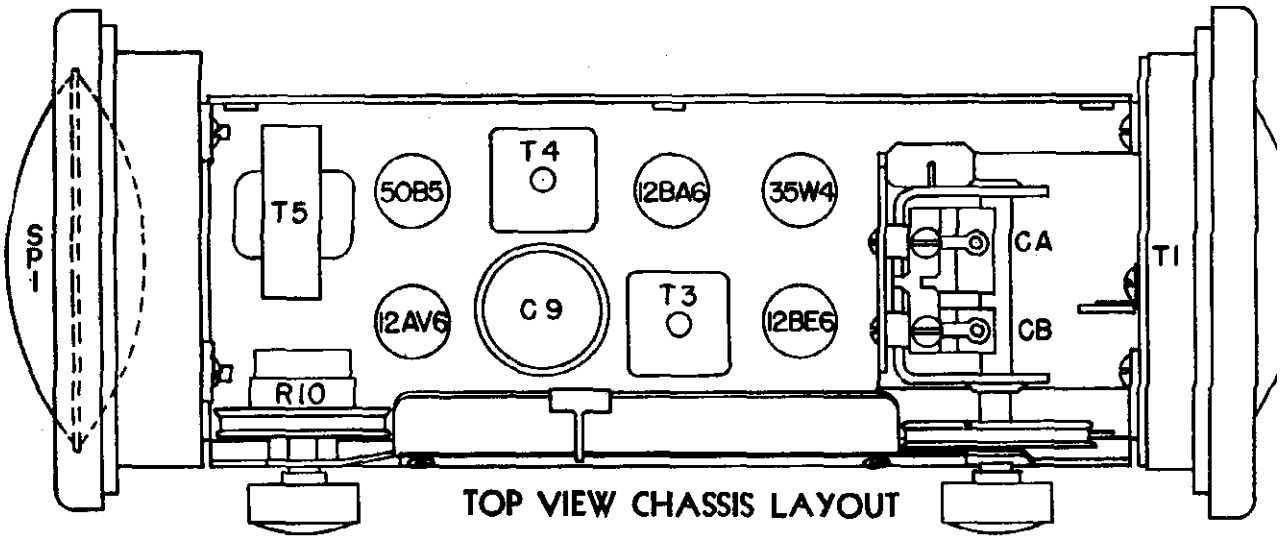
* A.C. EXCEPT WHEN SET IS USED ON D.C.

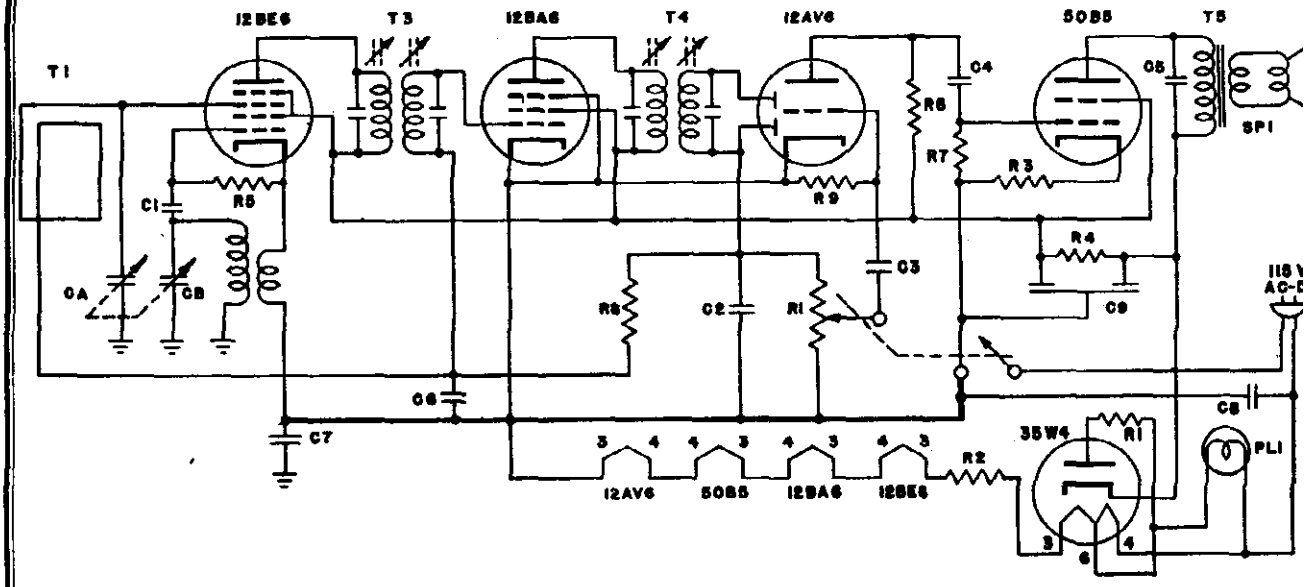
VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)

MODELS 5H-60
5H-608

- Band Coverage: 1750 KC to 535 KC.
- Operates on 115 Volts—A. C. or D. C.
- Four tubes plus rectifier { 1-12BE6 Det. Osc., 1-12BA6 I. F. Amp., 1-12AV6 2nd Det. 1st Audio, 1-50B5 Output, 1-35W4 Rect.



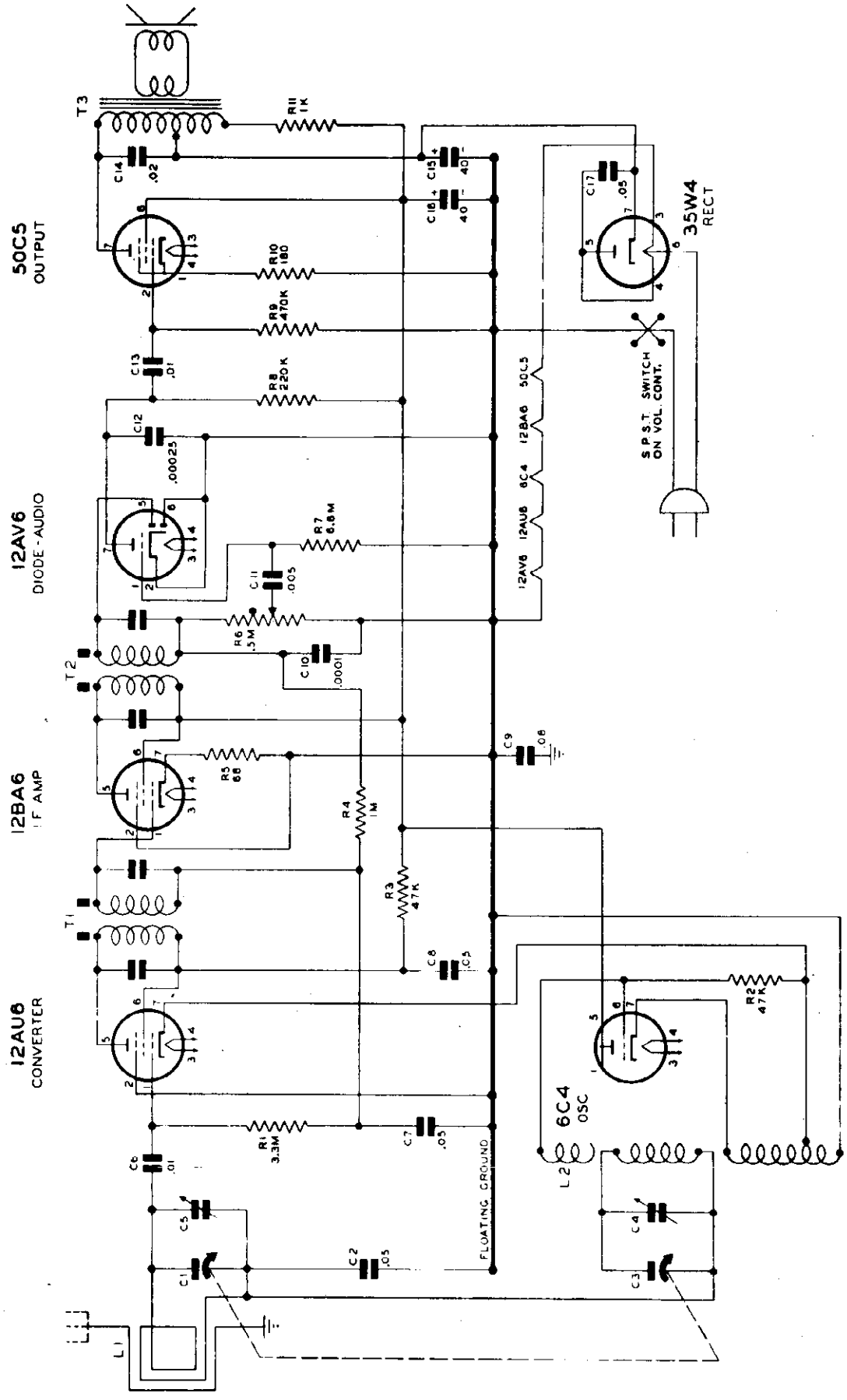
TOP VIEW CHASSIS LAYOUT



R 1 - 25	OHM	1/2	WATT	RESISTOR	C 1 - .0001	MFD.	400V.	CONDENSER
R 2 - 100	"	5	"	"	C 2 - .0001	"	"	"
R 3 - 180	"	1/2	"	"	C 3 - .01	"	"	"
R 4 - 1500	"	"	"	"	C 4 - .01	"	"	"
R 5 - 25Ω	"	"	"	"	C 5 - .01	"	"	"
R 6 - 500M	"	"	"	"	C 6 - .05	"	200V.	"
R 7 - 500M	"	"	"	"	C 7 - .1	"	400V.	"
R 8 - 5MEG.	"	"	"	"	C 8 - .1	"	"	"
R 9 - 5MEG.	"	"	"	"	C 9 - 50+50	"	150V.	"
R10 - 500M	"	POT. WITH SWITCH			CA-B - GANG CONDENSER			

T 1 - LOOP ANTENNA
T2 - OSC. COIL
T3 - 455 KC. I.F.
T4 - 455 KC. I.F.
T5 - O. P. TRANSFORMER
P L1 - NO. 44 PILOT LAMP
SP1 - PILLOW SPEAKER

MODELS 6H-580,
6H-581



ALIGNMENT PROCEDURE

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

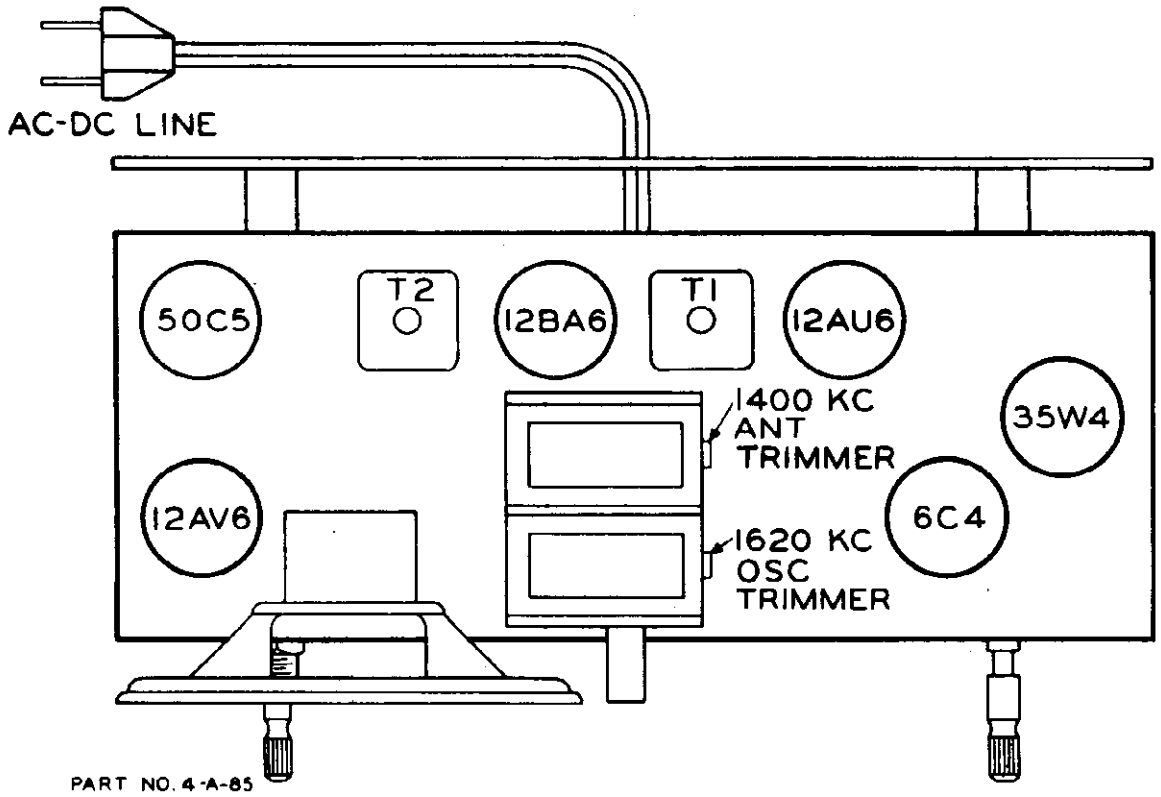
Before starting alignment:

(A) Remove the chassis and loop antenna from the cabinet at the same time. To accomplish this, remove the two fasteners holding the top of the back to the cabinet and remove the two screws on the rear apron of the chassis which fasten the chassis to the cabinet.

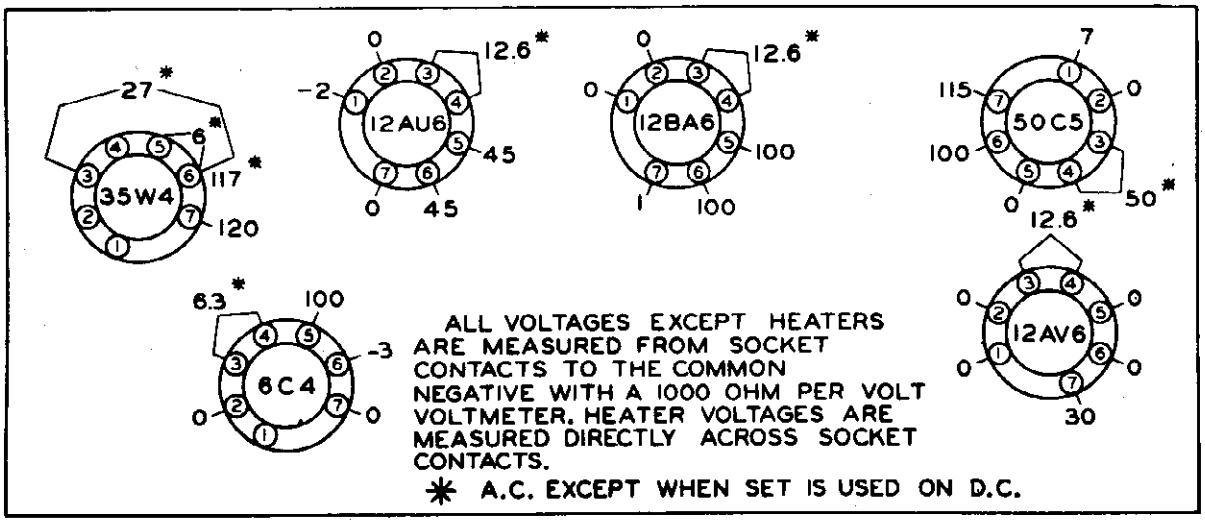
(B) Use an accurately calibrated test oscillator with some type of output measuring device.

STEPS	Set Receiver dial to:	TEST OSCILLATOR		DUMMY ANTENNA	ADJUSTMENT
		Adjust test oscillator Frequency to:	Attach output of test oscillator to:		
1	Any point where no interfering signal is received.	Exactly 455 KC.	High side to gric of 12AU6 Tube. Low side to common negative.	.05 MFD Conden-ser.	Adjust slugs at top and bottom of 2nd. I.F. (T2) and then each of the slugs of the 1st. I.F. (T1) for maximum output.
2	Exactly 1620 KC.	Exactly 1620 KC.	External Antenna. Blue lead on loop.	100 MMFD Conden-ser	Adjust 1620 KC Oscillator trimmer for maximum output.
3	Approx. 1400 KC.	Approx. 1400 KC.	External Antenna. Blue lead on loop.	100 MMFD Conden-ser	Adjust 1400 KC Antenna trimmer for maximum output.

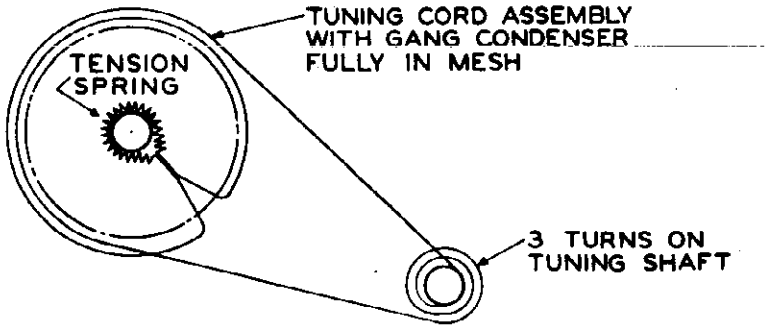
MODELS 6H-580,
6H-581



REAR OF CHASSIS



VOLTAGE TABLE
(BOTTOM VIEW OF CHASSIS)



DESCRIPTION

Your new Automobile Receiver is a 6-tube (including rectifier) superhetrodyne, designed to operate from the 6-volt storage battery in your car. It is custom-built to mount behind the instrument panel in the place provided for a radio by the automobile manufacturer. It has a self-contained PM speaker and covers the frequency range 538 to 1600 KC. Two simple controls are provided for operating the receiver. (See Fig. 1.)

This receiver has been designed with a tuned RF stage and a 3-gang tuning condenser thereby insuring the finest in sensitivity and selectivity. Any standard two or three section whip or "fish pole" antenna will provide good reception of distant or weak stations. The unit is simple to install and requires no electrical adjustment after installation.

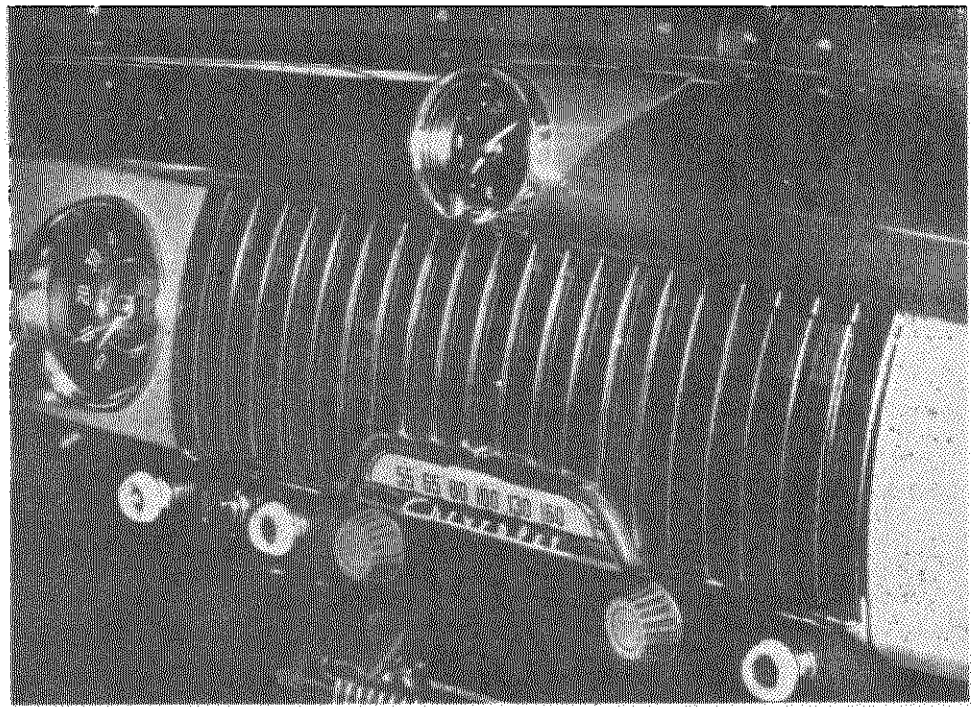


Fig. 1

OPERATION

VOLUME CONTROL KNOB

This knob is located on the left side of the radio. Turning this knob slightly to the right until a slight click is heard will put the radio into operation. Turning this knob further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to desired level. The volume should never be reduced by detuning the station selector knob.

STATION SELECTOR KNOB

This knob is located on the right side of the radio. This knob should be turned until a desired station has been selected. Adjust this knob very carefully until the station comes in with the most natural tone.

INSTALLATION

1. Remove two speed nuts securing dummy control cover plate. Discard dummy plate and speed nuts.
2. Remove 12-24 hex nuts securing dummy radio opening cover plate. Save hex nuts but discard dummy plate.
3. Referring to Fig. 2 (rear view), place mounting brackets over 12-24 stud bolts and attach with #12 lockwashers, contained in kit of mounting hardware, and 12-24 hex nuts previously removed.
4. Remove knobs, cup washers, hex nuts, washers and control cover plate from control shafts and mounting bushings.
5. Referring to Fig. 2 (front view), position the receiver behind the instrument panel so that the shafts and mounting bushings protrude through the instrument panel and the stud bolts on the sides of the receiver slide into the slotted ends of the mounting brackets.
6. Secure the mounting brackets to receiver with ¼" lockwashers and ¼-20 hex nuts.

MODEL C-351,
1951 Chevrolet

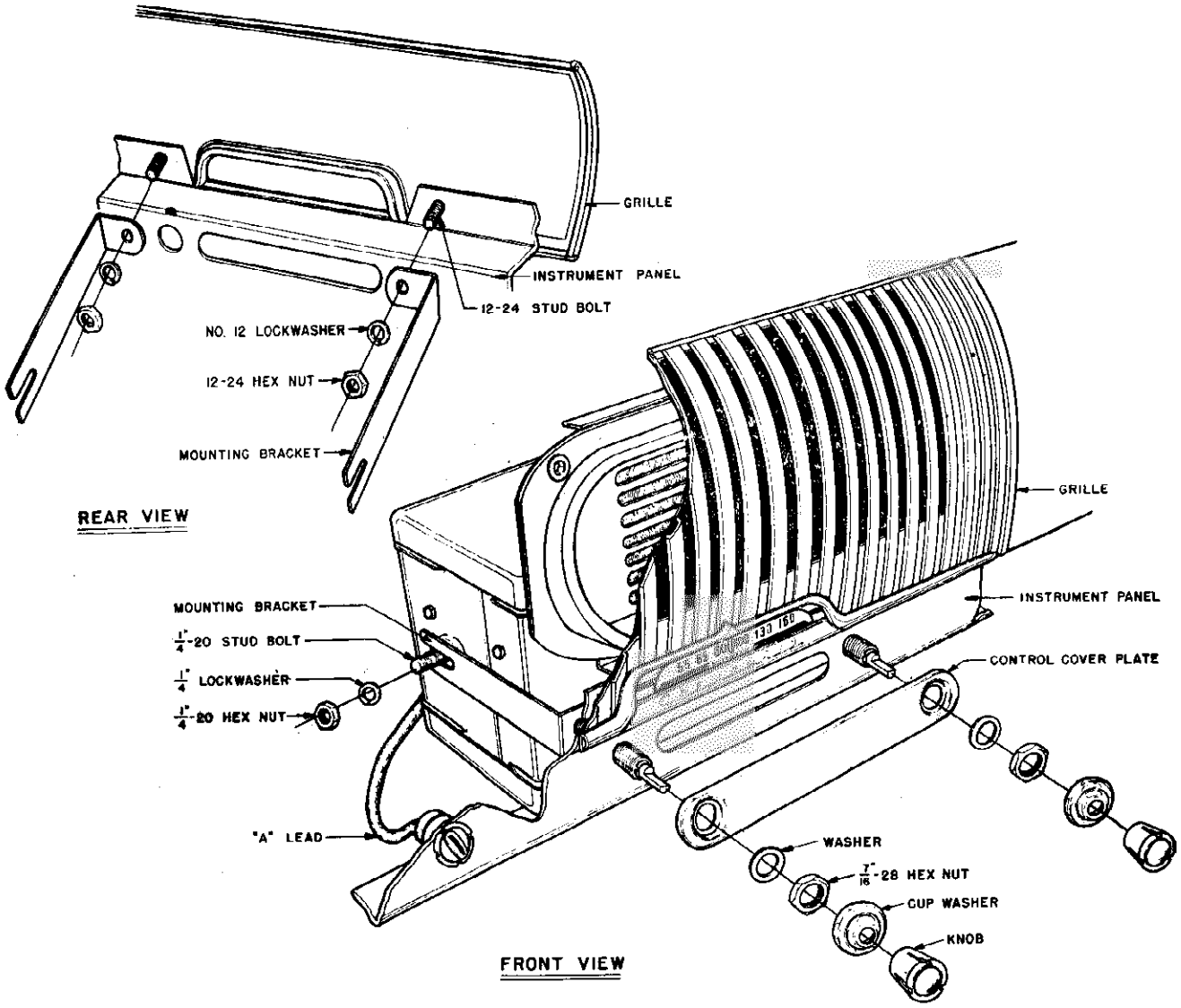


Fig. 2 DETAIL ASSEMBLY

INSTALLATION (Continued)

7. Place control cover plate over mounting bushings.
8. Replace washers and hex nuts on mounting bushings.
9. Replace cup washers and knobs on control shafts.
10. Connect the "A" lead to ignition switch.
11. Plug antenna cable into receptacle located on the back of the receiver.

ACCESSORIES FURNISHED FOR INSTALLATION

The following mounting hardware parts are shipped attached to the receiver. (See **Detail Assembly drawing** Fig. 2.)

- 2 Knobs
- 2 Cup washers
- 2 7/16-28 Hex nuts
- 2 Washers
- 1 Control Cover Plate
- 2 1/4" Lockwashers
- 2 1/4-20 Hex Nuts

An envelope containing additional mounting hardware is supplied with this receiver. In contains the following parts:

- 2 No. 12 Lockwashers
- 2 Mounting Brackets

MOTOR NOISE ELIMINATION

SUPPRESSION KIT

A suppression kit is shipped with this receiver. It contains the following parts:

1 Generator Condenser.

1 Distributor Suppressor.

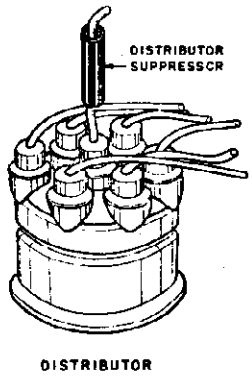
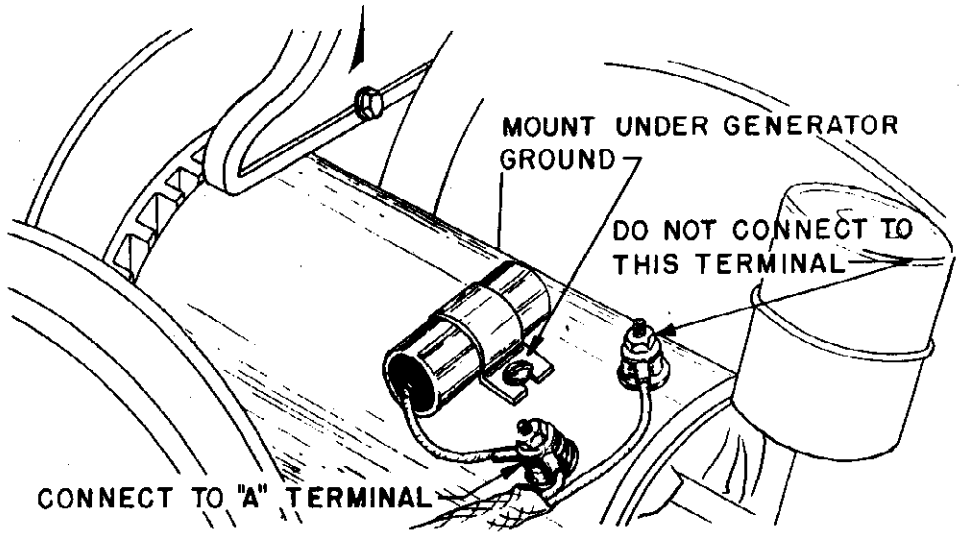


Fig. 3

GENERATOR CONDENSER



DISTRIBUTOR SUPPRESSOR

Disconnect the center lead in the distributor head of the motor. Cut lead approximately 2 inches back from metal tip end. Screw suppressor into cut end of long lead. Screw cut end of short lead into suppressor. Plug lead, with attached suppressor, back into distributor head.

The generator condenser and distributor suppressor will normally eliminate all objectionable motor noise. If the motor noise persists, a .5 MFD by-pass condenser may be connected to either side of the ammeter with the ground lug fastened to a good ground nearby.

WHEEL STATIC

Wheel static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present, it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

ELECTRICAL ACCESSORIES

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays or gauges, may cause interference while in operation. Proper procedure in such cases is to connect a .5 MFD by-pass condenser from ground to the suspected accessory until the source of interference is found. The condenser then should be permanently mounted in this location.

MODEL C-351,
1951 Chevrolet

HOW TO ORDER PARTS

Always give the part No. (No. printed on the part if different from that shown on this list) and the name of the part. When No. is not available, give complete description of part and the Model No. of this receiver.

ELECTRICAL SPECIFICATIONS

Power Supply	6.3 Volts DC
Current	5.5 Amp. average
Frequency Range	538-1600 KC
Speaker	5¼" PM
Power Output	2 watts, undistorted
	3 watts, maximum
Sensitivity	2-3 microvolts average for 1 watt output
Selectivity	40 KC broad at 1000 times signal, at 1000 KC

This receiver contains the following:
1—6BA6—RF Amplifier
1—6BE6—Converter
1—6BA6—I. F. Amplifier
1—6AT6—Detector—AVC—1st Audio
1—6AQ5—Power Output
1—6X4—Rectifier
(6AV6 used in place of 6AT6 on some models.)

SERVICE NOTES

Voltage taken from the different points of the circuit to the chassis are measured with volume control in maximum position, all tubes in their sockets, no signal applied, and with a volt meter having a resistance of 20,000 Ohms per volt. These voltages are clearly shown on the voltage chart, (Fig. 4).
All voltages should be measured with an input voltage of 6.3 volts DC.
To check for open by-pass condensers, shunt each condenser with another one having the same capacity and voltage rating which is known to be good until the defective unit is located.

ALIGNING INSTRUCTION

Never attempt any adjustments on this receiver unless it becomes necessary to replace a coil or transformer, or the adjustments have been tampered with in the field. Always make certain that other circuit components, such as tubes, condensers, resistors, etc., are normal before proceeding with realignment.
If realignment is necessary follow the instructions given under the heading "Alignment Procedure". After realignment has been completed repeat the procedure as final check.

INSTRUCTIONS FOR SERVICING RECEIVER COMPONENTS

The novel design of this receiver permits servicing all components without removing the chassis from the case. The top cover can be removed by removing the four (4) screws securing it to the case. This exposes all tube sockets, connections, resistors and condensers for observation and service.
Removing the bottom cover makes it possible to service tubes, vibrator, and volume control.

PARTS LIST

CONDENSERS

Schematic Diagram Reference	Part No	Description
C2, C3, C4	C207	.05 MFD 200 volt condenser
C5	CC200	100 MMFD ceramic condenser
C6, C13, C14	CC201	200 MMFD ceramic condenser
C7	C203	.002 MFD 400 volt condenser
C8, C9	C206	.01 MFD 600 volt condenser
C10, C11	C209	.5 MFD 100 volt condenser
C12	C205	.008 MFD 1600 volt condenser
CE-86	CE-86	20 MFD 350 volt electrolytic condenser 20 MFD 350 volt electrolytic condenser 20 MFD 25 volt electrolytic condenser
CV-200	CV-200	3 section variable tuning condenser

RESISTORS

R1	R309	1 megohm ½ watt 20% resistor
R2	R306	20K ohm ½ watt 20% resistor
R3	R314	1.5K ohm ½ watt 20% resistor
R4	R310	2 megohm ½ watt 20% resistor
R5	R311	10 megohm ½ watt 20% resistor
R6	R307	250K ohm ½ watt 20% resistor
R7	R308	500K ohm ½ watt 20% resistor
R8, R13	R303	330 ohm ½ watt 20% resistor
R9	R313	20K ohm 2 watt 20% resistor
R10, R11	R301	100 ohm ½ watt 20% resistor
R12	R312	1K ohm 1 watt 20% resistor
RV-200	RV-200	Volume control ¾ megohm with switch

COILS AND TRANSFORMERS

L1-C1	L200	Motor noise elimination unit
L2	57FB-3	Antenna Coil
L3	57FB-4	RF coil
L4	L201	RF Oscillator coil
L5	L202	Choke, vibrator hash
L6	L203	Choke, "A" line
T1	1655-16	1st IF transformer
T2	1655-16	2nd IF transformer
T3		Output transformer (Part of speaker not furnished separately)
T4	TV-100 or TV-86A	Vibrator transformer

MISCELLANEOUS

A351	"A" lead assembly
H352	Bracket, mounting
H353	Case, (less covers)
H207	Clip, anti-rattle
H208	Clip, coil mounting
H209	Cover, bottom case
H354	Control Cover Plate
H355	Cover, top case
H311	Cup washers, shaft
A201	Fuse, 15 amp
H211	Grommet, rubber, gang mounting
H310	Knob
H212	Receptacle, antenna cable
PM-250	Speaker, 5¼" PM includes output transformer
V-83 or V-94	Vibrator
H113	¼-28 Hex nut
C100	.5 MFD Generator condenser
R100	Distributor suppressor

DIAL PARTS

D351	Dial Scale
PS351	Dial Pointer
DS200	Drive shaft assembly
H201	Grommet, rubber drive
T51	Pilot light
H202	Pilot light socket
H203	Pulley, idler
H204	Spring, Dial Drive String Tension
H205	String, Dial Drive

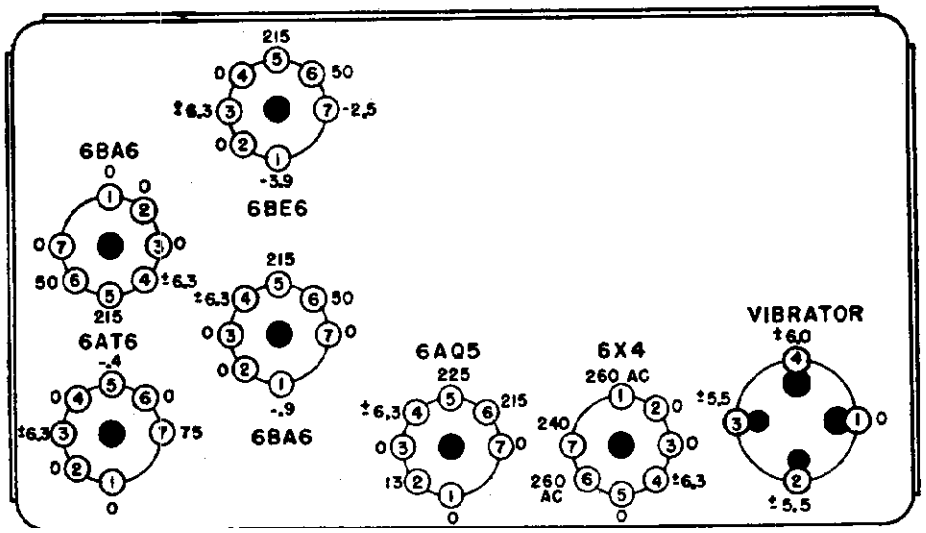
ALIGNMENT PROCEDURE

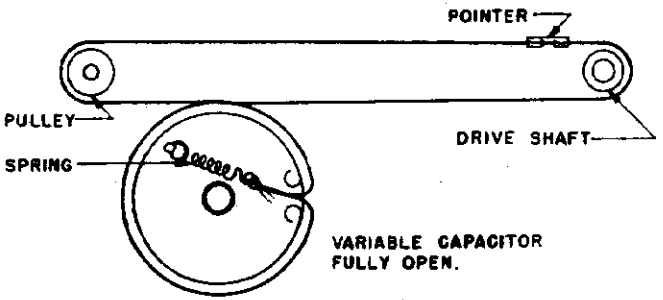
Volume control—Maximum, all adjustments.
No signal applied to antenna.
Power input—6.3 volts.
Connect dummy antenna in series with output lead of signal generator.
Connect ground lead of signal generator to chassis.
Repeat alignment procedure as a final check.

The following equipment is necessary for proper alignment:
Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.
Non-metallic screwdriver.
Output meter. (1.8 volt for 1 watt output.)
Dummy antennas—.1 MFD., 100 MMFD.
For alignment points refer to Schematic Diagram.

Dial Setting	*Generator Frequency*	*Dummy Ant.*	*Generator Connection*	*Trimmer Reference*	*Trimmer Adjustment*	*Trimmer Function*
1) Fully open	455 KC	.1 MFD	6BE6 Grid	T2 Top & bottom	Maximum	Output I.F.
2) Fully open	455 KC	.1 MFD	6BE6 Grid	T1 Top & bottom	Maximum	Input I.F.
3) Fully open	1600 KC	100 MMFD	Ant. lead	CV2	Maximum	Oscillator
4) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV3	Maximum	RF Stage
5) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV1	Maximum	Antenna
6) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L3	Maximum	RF Stage
7) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L2	Maximum	Antenna
8) Repeat steps 4 and 5						

BOTTOM VIEW OF CHASSIS





DIAL CORD DRIVE

MODEL C-351,
1951 Chevrolet

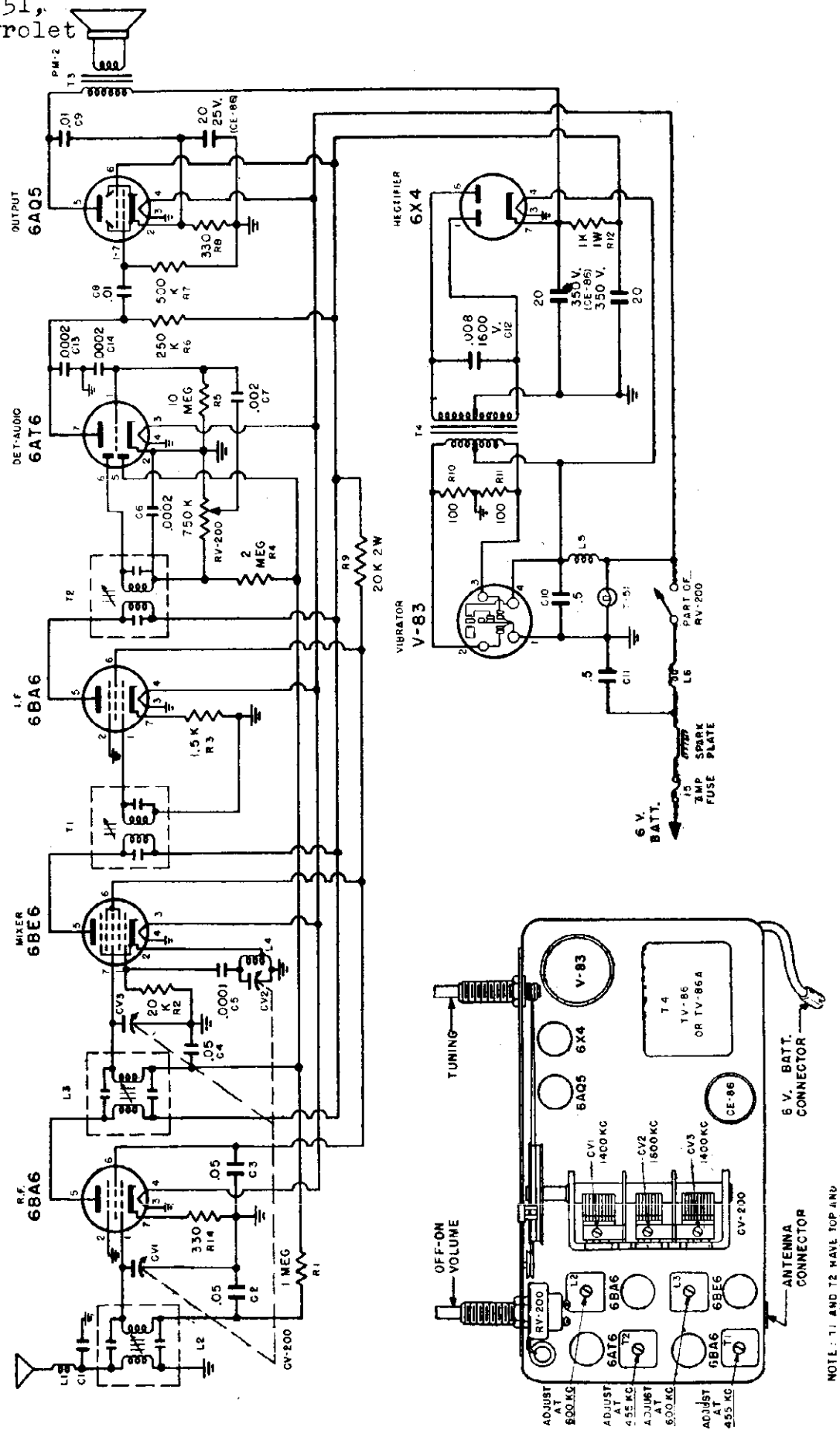


Fig. 6 Note: 6AV6 used in place of 6AT6 on some models.

DESCRIPTION

Your new Automobile Receiver is a 6-tube (including rectifier) superhetrodyne, designed to operate from the 6-volt storage battery in your car. It is custom-built to mount behind the instrument panel in the place provided for a radio by the automobile manufacturer. It has a self-contained PM speaker and covers the frequency range 538 to 1600 KC. Two simple controls are provided for operating the receiver. (See Fig. 1.)

This receiver has been designed with a tuned RF stage and a 3-gang tuning condenser thereby insuring the finest in sensitivity and selectivity. Any standard two or three section whip or "fish pole" antenna will provide good reception of distant or weak stations. The unit is simple to install and requires no electrical adjustment after installation.

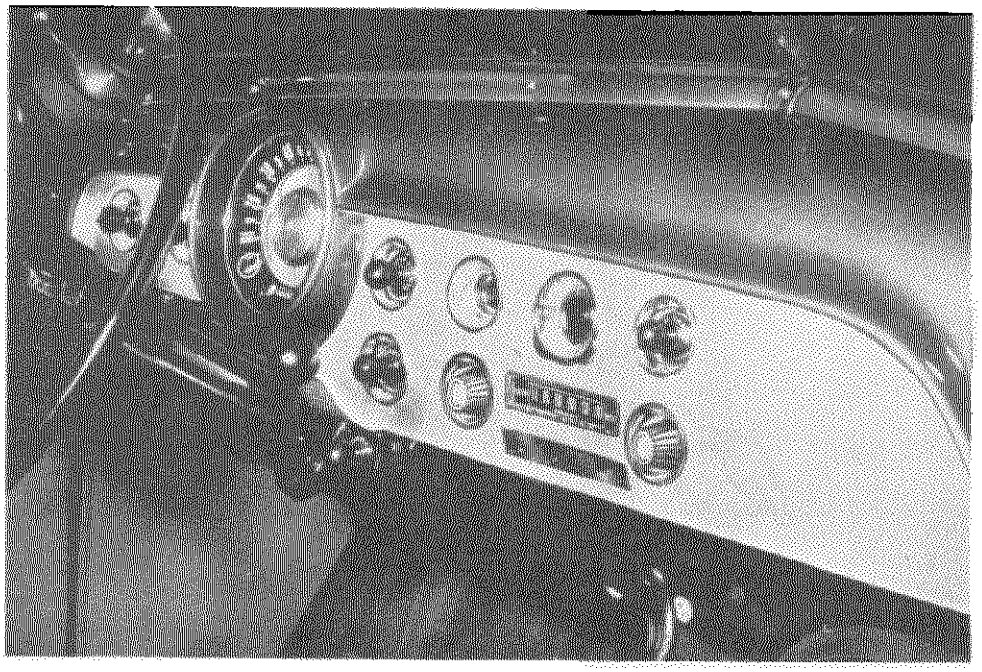


Fig. 1

OPERATION

VOLUME CONTROL KNOB

This knob is located on the left side of the radio. Turning this knob slightly to the right until a slight click is heard will put the radio into operation. Turning this knob further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to desired level. The volume should never be reduced by detuning the station selector knob.

STATION SELECTOR KNOB

This knob is located on the right side of the radio. This knob should be turned until a desired station has been selected. Adjust this knob very carefully until the station comes in with the most natural tone.

INSTALLATION

1. Remove the radio opening cover plate by removing the speed nuts at the rear of the instrument panel.
2. Remove and discard radio bezel cups on car by removing hex nuts securing bezel cups to instrument panel.
3. Remove knobs, hex nuts, and bezel cups from tuning unit.
4. Carefully position tuning unit behind instrument panel so the mounting bushings and shafts protrude through the front panel.
5. Place bezel cups over mounting bushings.
6. Attach tuning unit and bezel cups to instrument panel with a hex nut on each mounting bushing.
7. Replace knobs.
8. Position mounting bracket over mounting stud located behind instrument panel and secure with a ¼" lockwasher and a ¼ - 20 nut.
9. Secure mounting bracket to side of tuning unit with hex head No. 8 self tapping screw, as shown in Fig. 2
10. Place speaker and power pack unit over three threaded stud bolts behind the instrument panel. (Position power pack unit so that power cable is located near the tuning unit.) See Fig. 2.
11. Secure power pack into position with the wing nuts supplied in the kit of mounting hardware.

MODEL F-151,
1951 Ford

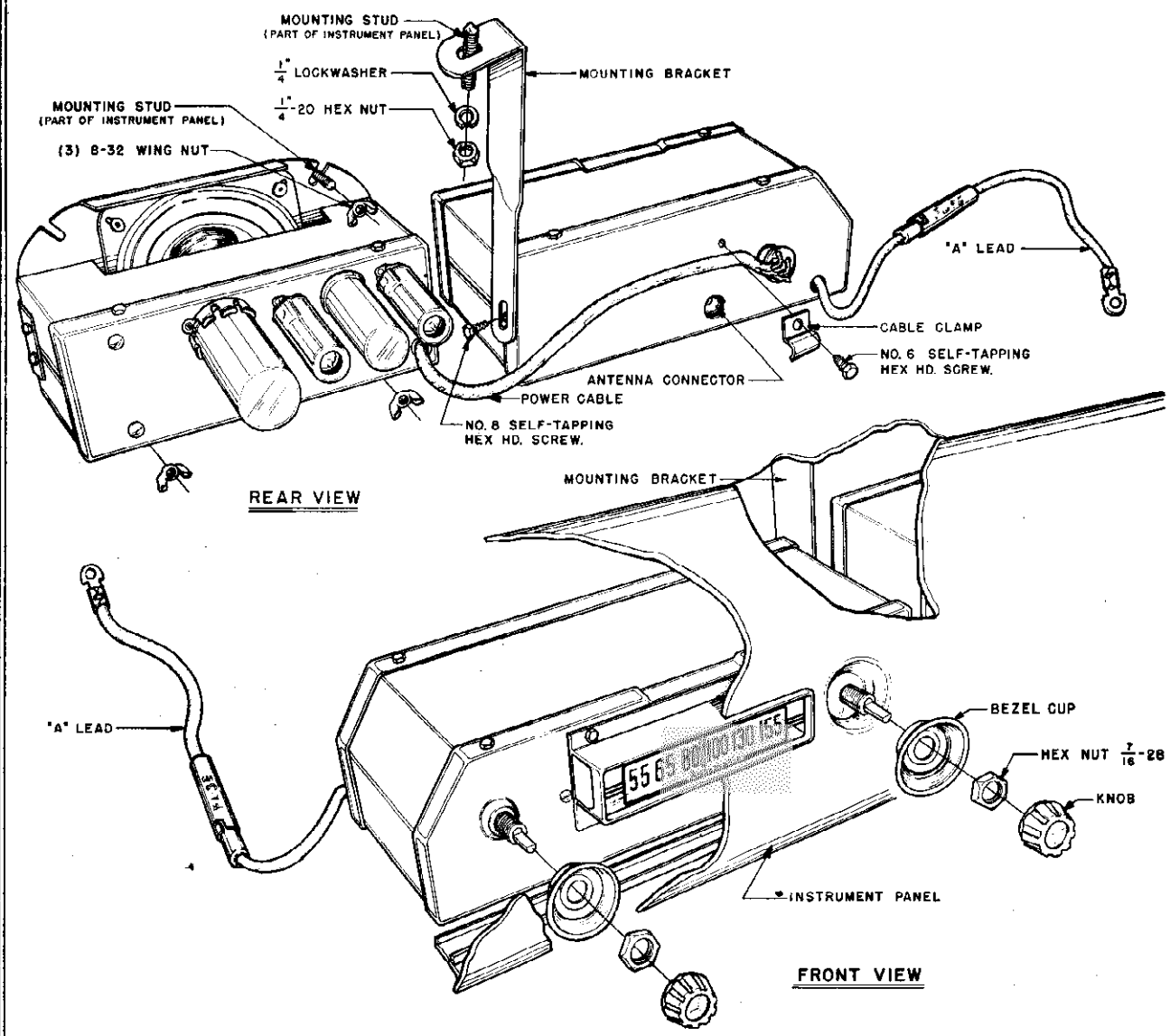


Fig. 2 DETAIL ASSEMBLY

INSTALLATION (Continued)

12. Insert power cable plug into socket on rear of tuning unit.
13. Secure power cable under cable clamp and tighten clamp screw.
14. Plug antenna cable into tuning unit.
15. Connect "A" lead to terminal on ignition switch.

ACCESSORIES FURNISHED FOR INSTALLATION

MOUNTING PARTS KIT

The following mounting hardware parts are shipped attached to the receiver.

(See detail assembly drawing FIG. 2)

- 2 Bezel cups
- 2 7/16 — 28 hex nuts
- 2 Knobs
- 1 Cable clamp

An envelope containing additional mounting hardware is supplied with this receiver. It contains the following parts:

- 1 Supporting bracket
- 1 No. 8 self-tapping screw
- 1 1/4" lockwasher
- 1 1/4 — 20 nut
- 3 No. 8 — 32 wing nuts

MOTOR NOISE ELIMINATION

SUPPRESSION KIT

A suppression kit is shipped with this receiver. It contains the following parts:
1 Generator Condenser
1 Distributor suppressor

DISTRIBUTOR SUPPRESSOR

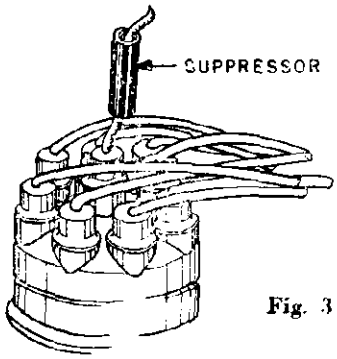


Fig. 3

DISTRIBUTOR 8 CYLINDER

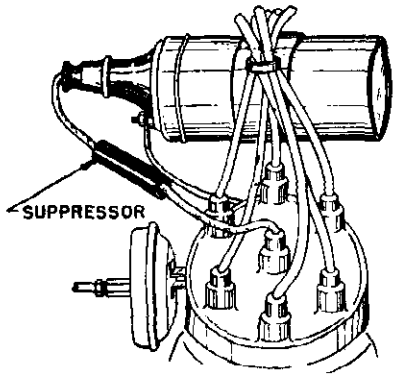


Fig. 4

DISTRIBUTOR-6 CYLINDER

Disconnect high tension wire that runs from the ignition coil to the center hole of the distributor head. Cut lead one and one-half inches back from metal tip end for 8 cylinder Ford or two and one-half inches back for 6 cylinder Ford. Screw suppressor into cut end of long lead. Screw cut end of short lead into suppressor. Plug lead with attached suppressor, back into distributor head.

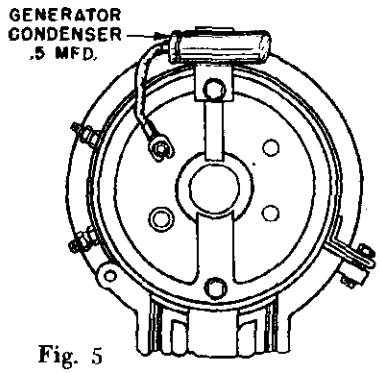


Fig. 5

GENERATOR CONDENSER

Loosen the top assembly bolt from the rear end plate of the generator. DO NOT REMOVE. Mount .5 MFD generator condenser under this bolt. Tighten bolt and connect condenser lead to the armature terminal of the generator.

The generator condenser and distributor suppressor will normally eliminate all objectionable motor noise. If the motor noise persists, a .5 MFD by-pass condenser may be connected to either side of the ammeter with the ground lug fastened to a good ground nearby.

WHEEL STATIC

Wheel static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present, it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

ELECTRICAL ACCESSORIES

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays or gauges, may cause interference while in operation. Proper procedure in such cases is to connect a .5 MFD by-pass condenser from ground to the suspected accessory until the source of interference is found. The condenser then should be permanently mounted in this location.

HOW TO ORDER PARTS

Always give the part No. (No. printed on the part if different from that shown on this list) and the name of the part. When No. is not available, give complete description of part and the Model No. of this receiver.

MODEL F-151,
1951 Ford

SERVICE DATA

ELECTRICAL SPECIFICATIONS

Power Supply	6.3 Volts DC
Current	5.5 Amp. average
Frequency Range	538-1600 KC
Speaker	5¼" PM
Power Output	2 watts, undistorted
	3 watts, maximum
Sensitivity	2-3 microvolts average for 1 watt output
Selectivity	40 KC broad at 1000 times signal, at 1000 KC

This receiver contains the following:
1—6BA6—RF Amplifier
1—6BE6—Converter
1—6BA6—I. F. Amplifier
1—6AT6—Detector—AVC—1st Audio
1—6AQ5—Power Output
1—6X4—Rectifier
(6AV6 used in place of 6AT6 on some models)

SERVICE NOTES

Voltage taken from the different points of the circuit to the chassis are measured with volume control in maximum position, all tubes in their sockets, no signal applied, and with a voltmeter having a resistance of 20,000 Ohms per volt. These voltages are clearly shown on the voltage chart, (Fig. 7 and 7A)

All voltages should be measured with an input voltage of 6.3 volts DC.

To check for open by-pass condensers, shunt each condenser with another one having the same capacity and voltage rating which is known to be good until the defective unit is located.

ALIGNING INSTRUCTION

Never attempt any adjustments on this receiver unless it becomes necessary to replace a coil or transformer, or the adjustments have been tampered with in the field. Always make certain that other circuit components, such as tubes, condensers, resistors, etc., are normal before proceeding with realignment.

If realignment is necessary follow the instructions given under the heading "Alignment Procedure." After realignment has been completed repeat the procedure as final check.

DIAL CORD DRIVE

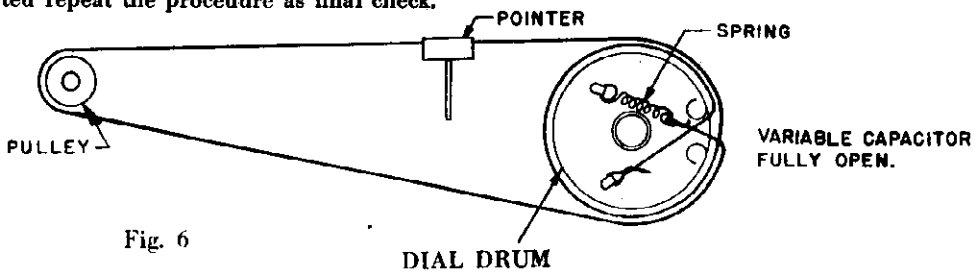


Fig. 6

REPLACEMENT PARTS LIST

SCHEMATIC DIAGRAM REF. NO.	PART NO.	DESCRIPTION
		CONDENSERS
C2, C3, C5	C207	.05 MFD 200 volt condenser
C4, C12	C209	.5 MFD 100 volt condenser
C6	CC200	100 MMFD ceramic condenser
C7, C9	CC201	200 MMFD ceramic condenser
C8	C203	.002 MFD 400 volt condenser
C10, C13	C206	.01 MFD 400 volt condenser
C11	C205	.008 MFD 1600 volt condenser
CE-86	CE-86	20 MFD 350 volt electrolytic condenser 20 MFD 350 volt electrolytic condenser 20 MFD 25 volt electrolytic condenser
CV1-CV2-CV3	CV-100A	3 section variable
		RESISTORS
R1	R309	1 megohm ½ watt 20% resistor
R2, R14	R303	330 ohm ½ watt 20% resistor
R3	R306	20K ohm ½ watt 20% resistor
R4	R314	1.5K ohm ½ watt 20% resistor
R5	RV-100	Volume control ¾ megohm with switch
R6	R310	2 megohm ½ watt 20% resistor
R7	R311	10 megohm ½ watt 20% resistor
R8	R313	20K ohm 2 watt 20% resistor
R9	R307	250K ohm ½ watt 20% resistor
R10, R11	R301	100 ohm ½ watt 20% resistor
R12	R312	1K ohm 1 watt 20% resistor
R13	R308	500K ohm ½ watt 20% resistor
		COILS AND TRANSFORMERS
L1-C1	L200	Motor noise elimination unit
L2	15053 or 57FB-3	Antenna coil
L3	15054 or 57FB-4	R.F. coil
L4	L201	R.F. oscillator coil
L5	L203	Choke "A" line
L6	L202	Choke, vibrator hash
T2	14977 or 1655-16	2nd IF transformer
T1	14977 or 1655-16	1st IF transformer
T3	TV-100 or 318V-2	Vibrator transformer
T4		Output transformer (Part of speaker not furnished separately)

DIAL PARTS

D151	Dial Scale
H151	Dial Scale Holder
PS151	Dial Pointer
T47	Pilot Light
H114	Pilot Light Socket
H203	Pulley, idler
H204	Spring, Dial drive String Tension
H115	String, dial drive

MISCELLANEOUS

A300	"A" lead assembly
H152	Bezel Cup
H163	Case, less covers for Power Supply Unit
H154	Case, complete with covers for R.F. tuning unit
H207	Clip, Anti-rattle
H208	Clip, coil mounting
H102	Cover, power supply unit mounting (with speaker louvres)
A201	Fuse 15 Amp.
H155	Knob
H156	Mounting Bracket
504PC-300	Power Cable Assembly (complete with plug)
H212	Receptacle, Antenna cable
504-FC	Socket, power cable
PM-705	Speaker, 5¼" PM (includes output transformer)
V-83	Vibrator
H311	Cup washer
H113	7/16—28 Hex nut
C100	.5 MFD generator condenser
R100	Distributor suppressor

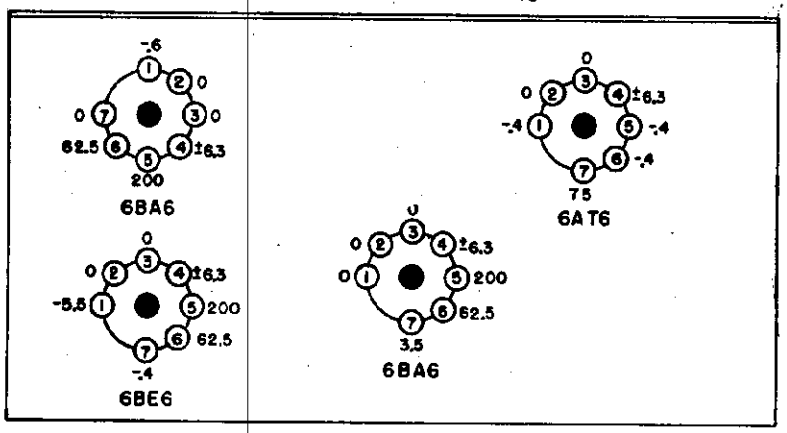
ALIGNMENT PROCEDURE

Volume control—Maximum, all adjustments.
No signal applied to antenna.
Power input—6.3 volts.
Connect dummy antenna in series with output lead of signal generator.
Connect ground lead of signal generator to chassis.
Repeat alignment procedure as a final check.

The following equipment is necessary for proper alignment:
Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.
Non-metallic screwdriver.
Output meter. (1.8 volt for 1 watt output.)
Dummy antennas—.1 MFD., 100 MMFD.
For alignment points refer to Schematic Diagram.

Dial Setting	*Generator Frequency*	*Dummy Ant.*	*Generator Connection*	*Trimmer Reference*	*Trimmer Adjustment*	*Trimmer Function*
1) Fully open	455 KC	.1 MFD	6BE6 Grid	T2 Top & bottom	Maximum	Output I.F.
2) Fully open	455 KC	.1 MFD	6BE6 Grid	T1 Top & bottom	Maximum	Input I.F.
3) Fully open	1600 KC	100 MMFD	Ant. lead	CV2	Maximum	Oscillator
4) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV3	Maximum	RF Stage
5) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV1	Maximum	Antenna
6) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L3	Maximum	RF Stage
7) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L2	Maximum	Antenna
8) Repeat steps 4 and 5						

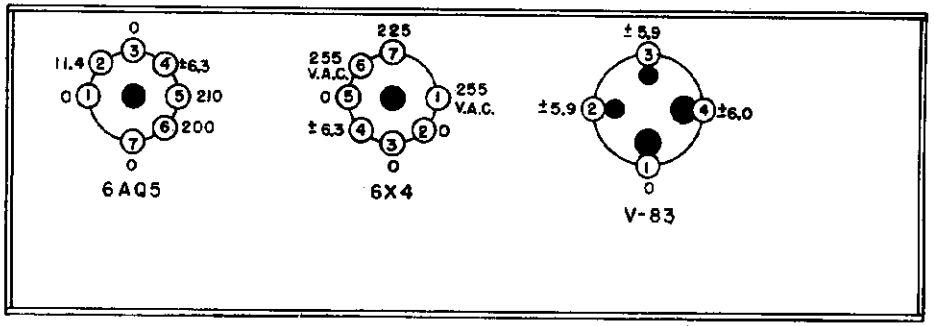
BOTTOM VIEW OF CHASSIS



FRONT OF CHASSIS

Fig. 7

BOTTOM VIEW OF POWER PACK



SOCKET VOLTAGES

Fig. 7A

MODEL
F-151,
1951
Ford

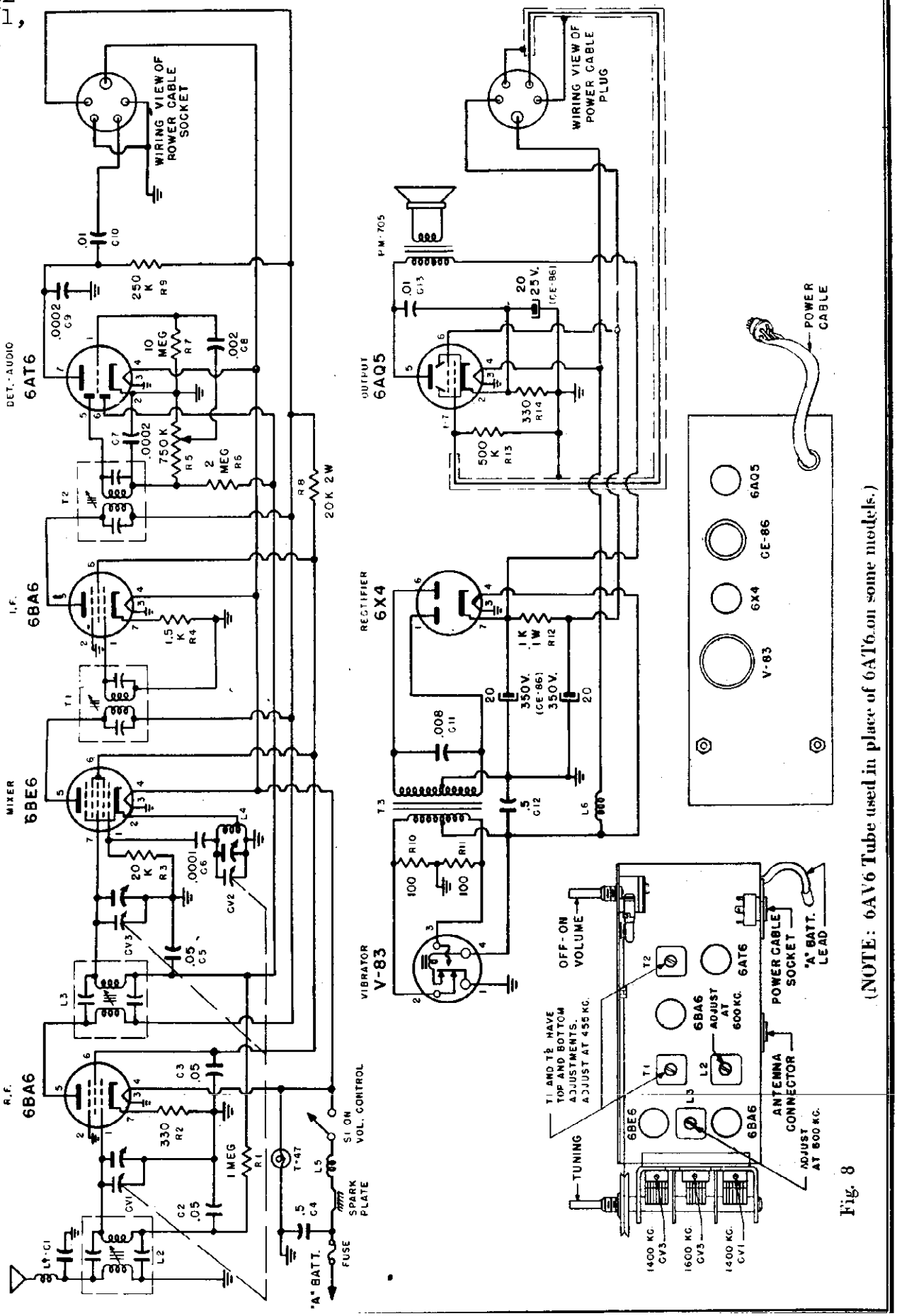


Fig. 8

(NOTE: 6AV6 Tube used in place of 6AT6 on some models.)

DESCRIPTION

Your new Automobile Receiver is a 6-tube (including rectifier) superhetrodyne, designed to operate from the 6-volt storage battery in your car. It is custom-built to mount behind the instrument panel in the place provided for a radio by the automobile manufacturer. It has a self-contained PM speaker and covers the frequency range 538 to 1600 KC. Two simple controls are provided for operating the receiver. (See Fig. 1.)

This receiver has been designed with a tuned RF stage and a 3-gang tuning condenser thereby insuring the finest in sensitivity and selectivity. Any standard two or three section whip or "fish pole" antenna will provide good reception of distant or weak stations. The unit is simple to install and requires no electrical adjustment after installation.

Fig. 1

OPERATION

VOLUME CONTROL KNOB

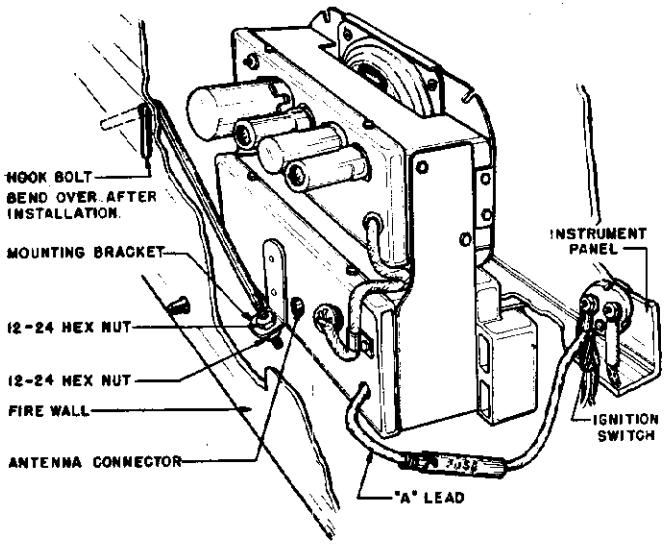
This knob is located on the left side of the radio. Turning this knob slightly to the right until a slight click is heard will put the radio into operation. Turning this knob further to the right will increase the volume and turning it to the left will decrease the volume. After a station has been selected, the volume control should be adjusted to desired level. The volume should never be reduced by detuning the station selector knob.

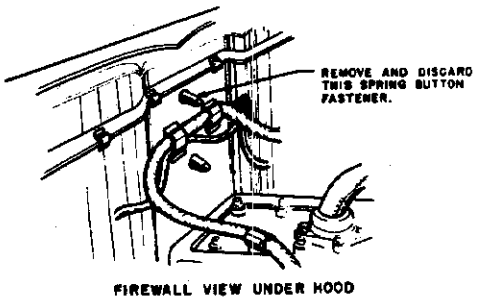
STATION SELECTOR KNOB

This knob is located on the right side of the radio. This knob should be turned until a desired station has been selected. Adjust this knob very carefully until the station comes in with the most natural tone.

INSTALLATION (See Fig. 2)

1. Remove ash tray and holder and discard.
2. Lift hood of car and push out upper spring button fastener by compressing with a pair of pliers and pushing forward. This fastener is located on the firewall directly behind the speaker grill and is used to secure the wall mat to the firewall.
3. Insert hook bolt through the spring button fastener hole from the engine side.
4. Place a 12-24 hex nut approximately one inch up on threaded end of hook bolt.
5. Remove mounting plate from radio by removing the two flat head 10-32 screws under the tuning head.
6. Attach mounting plate to instrument panel with two 10-32 flat head screws, lockwashers, and nuts.
7. Position radio behind instrument panel so that bushings on mounting bracket protrude into holes on die-cast tuning head. Insert threaded end of hook bolt through hole on bracket attached to back of radio.
8. Screw 12-24 hex nut on hook bolt.





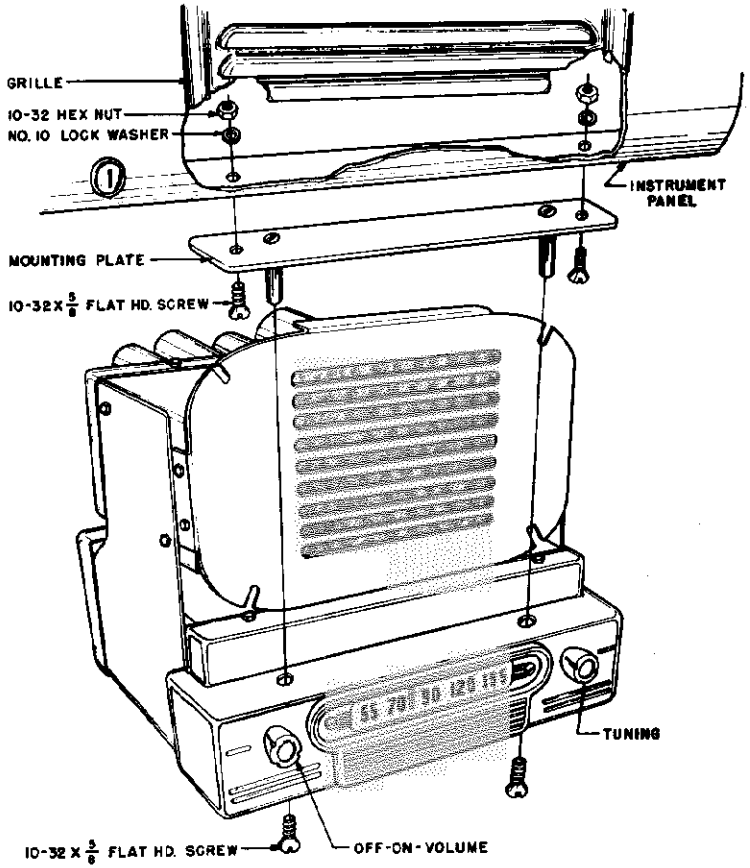


Fig. 2

DETAIL MOUNTING ASSEMBLY

ACCESSORIES FURNISHED FOR INSTALLATION

- 1 Mounting plate
- 2 12-24 hex nuts
- 4 10-32 x 5/8" flat head screws
- 2 No. 10 lockwashers
- 2 10-32 hex nuts
- 1 Hook bolt

INSTALLATION (Continued)

9. Insert two 10-32 flat head screws through bottom edge of radio and screw into bushings attached to mounting bracket.
10. Adjust position of the two 12-24 hex nuts on hook bolt so that radio is mounted parallel to the instrument panel. Tighten bottom hex nut. Bend over end of hook bolt on engine side.
11. Connect "A" lead to terminal on ignition switch.
12. Plug antenna cable into receiver.

GENERATOR CONDENSER

Loosen screw on top surface of generator near terminals. Insert slotted generator condenser bracket under screw head and tighten screw. Connect generator condenser lead to armature terminal. *Do not connect to field terminal.*

MOTOR NOISE ELIMINATION

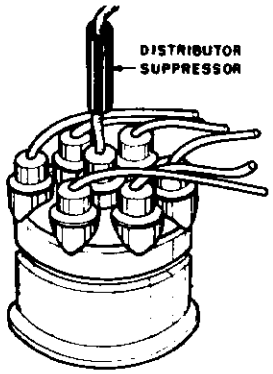
SUPPRESSION KIT

A suppression kit is shipped with this receiver. It contains the following parts:

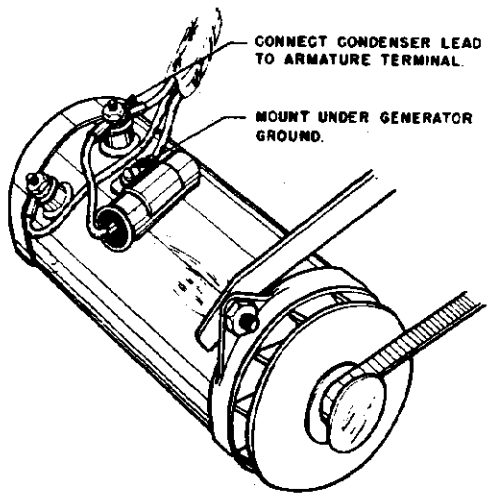
1 Generator Condenser.
1 Distributor suppressor.

DISTRIBUTOR SUPPRESSOR

Disconnect the high tension wire that runs from the ignition coil to the center hole of the distributor cap. Cut lead one inch back from the metal tip end. Screw suppressor into cut end of long lead. Screw cut end of short lead into suppressor. Plug lead with attached suppressor back into distributor cap.



DISTRIBUTOR
Fig. 3



GENERATOR CONDENSER
Fig. 4

The generator condenser and distributor suppressor will normally eliminate all objectionable motor noise in most cases. If the motor noise persists the following steps should be taken. Check operation of radio as each step is made.

WHEEL STATIC

Wheel static is a form of interference caused by the rotation of the front wheels of the car, and it is, of course, only noticed when the car is in motion. If this form of interference is present, it can be eliminated by installing wheel static collector springs between the inner hub cap and the spindle shaft.

AMMETER CONDENSER

A .5 MFD by-pass condenser should be connected to either side of the ammeter with the ground lug fastened to a good ground nearby.

ELECTRICAL ACCESSORIES

In some cases, it may be found that car accessories such as electric heaters, lighters, automatic relays or gauges, may cause interference while in operation. Proper procedure in such cases is to connect a .5 MFD by-pass condenser from ground to the suspected accessory until the source of interference is found. The condenser then should be permanently mounted in this location.

ELECTRICAL SPECIFICATIONS

Power Supply	6.3 Volts DC
Current	5.5 Amp. average
Frequency Range	538-1600 KC
Speaker	5¼" PM
Power Output	2 watts, undistorted
	3 watts, maximum
Sensitivity	2-3 microvolts average for 1 watt output
Selectivity	40 KC broad at 1000 times signal, at 1000 KC

This receiver contains the following:
1—6BA6—RF Amplifier
1—6BE6—Converter
1—6BA6—1. F. Amplifier
1—6AT6—Detector—AVC—1st Audio
1—6AQ5—Power Output
1—6X4—Rectifier

SERVICE NOTES

Voltage taken from the different points of the circuit to the chassis are measured with volume control in maximum position, all tubes in their sockets, no signal applied, and with a voltmeter having a resistance of 20,000 Ohms per volt. These voltages are clearly shown on the voltage chart, (Fig. 6 and 6A).
All voltages should be measured with an input voltage of 6.3 volts DC.
To check for open by-pass condensers, shunt each condenser with another one having the same capacity and voltage rating which is known to be good until the defective unit is located.

ALIGNING INSTRUCTION

Never attempt any adjustments on this receiver unless it becomes necessary to replace a coil or transformer, or the adjustments have been tampered with in the field. Always make certain that other circuit components, such as tubes, condensers, resistors, etc., are normal before proceeding with realignment.
If realignment is necessary follow the instructions given under the heading "Alignment Procedure." After realignment has been completed repeat the procedure as final check.

DIAL CORD DRIVE

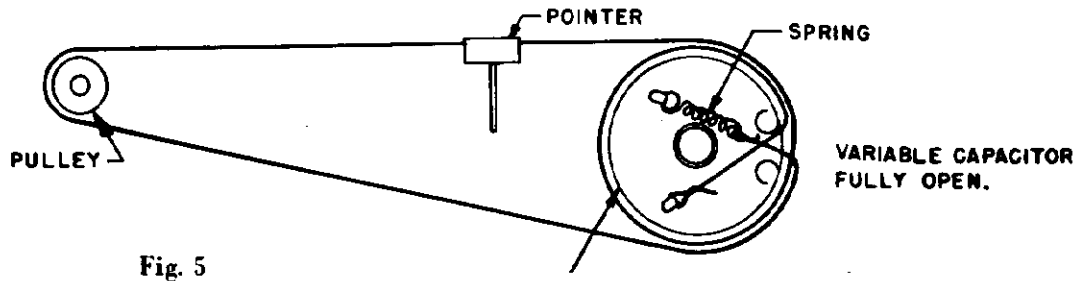


Fig. 5

ALIGNMENT PROCEDURE

Volume control—Maximum, all adjustments.
No signal applied to antenna.
Power input—6.3 volts.
Connect dummy antenna in series with output lead of signal generator.
Connect ground lead of signal generator to chassis.
Repeat alignment procedure as a final check.

The following equipment is necessary for proper alignment:
Signal generator that will provide the test frequencies as listed, modulated 400 cycles, 30%.
Non-metallic screwdriver.
Output meter. (1.8 volt for 1 watt output.)
Dummy antennas—.1 MFD., 100 MMFD.
For alignment points refer to Schematic Diagram.

Dial Setting	*Generator Frequency*	*Dummy Ant.*	*Generator Connection*	*Trimmer Reference*	*Trimmer Adjustment*	*Trimmer Function*
1) Fully open	455 KC	.1 MFD	6BE6 Grid	T2 Top & bottom	Maximum	Output I.F.
2) Fully open	455 KC	.1 MFD	6BE6 Grid	T1 Top & bottom	Maximum	Input I.F.
3) Fully open	1600 KC	100 MMFD	Ant. lead	CV2	Maximum	Oscillator
4) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV3	Maximum	RF Stage
5) Tune in signal from generator	1400 KC	100 MMFD	Ant. lead	CV1	Maximum	Antenna
6) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L3	Maximum	RF Stage
7) Tune in signal from generator	600 KC	100 MMFD	Ant. lead	L2	Maximum	Antenna
8) Repeat steps 4 and 5						

BOTTOM VIEW OF CHASSIS

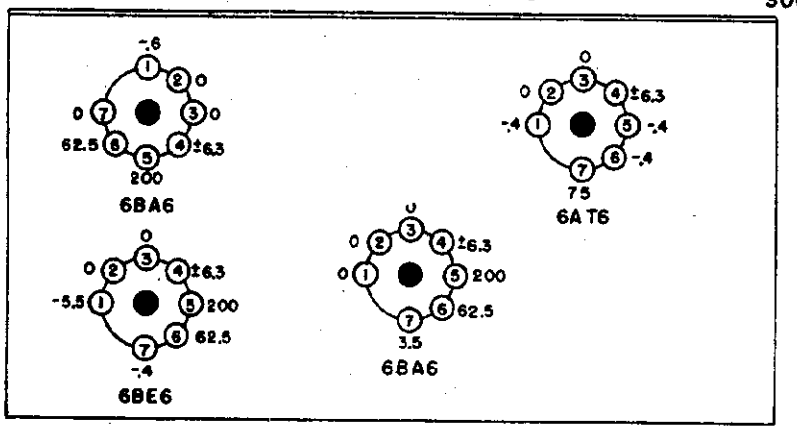


Fig. 6

SOCKET VOLTAGES

BOTTOM VIEW OF POWER PACK

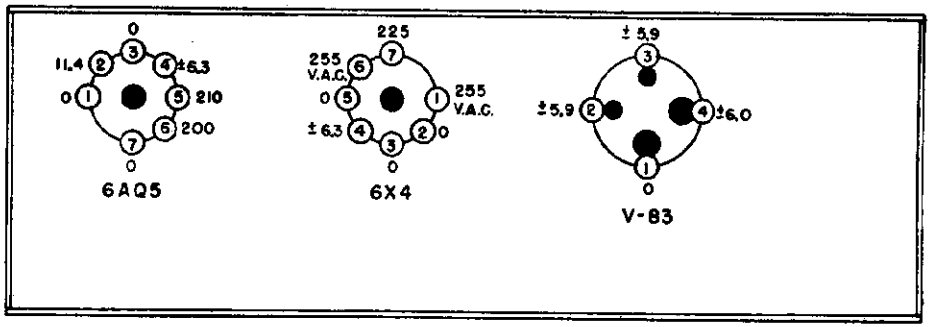


Fig. 6A

MODEL
K700,
Henry J

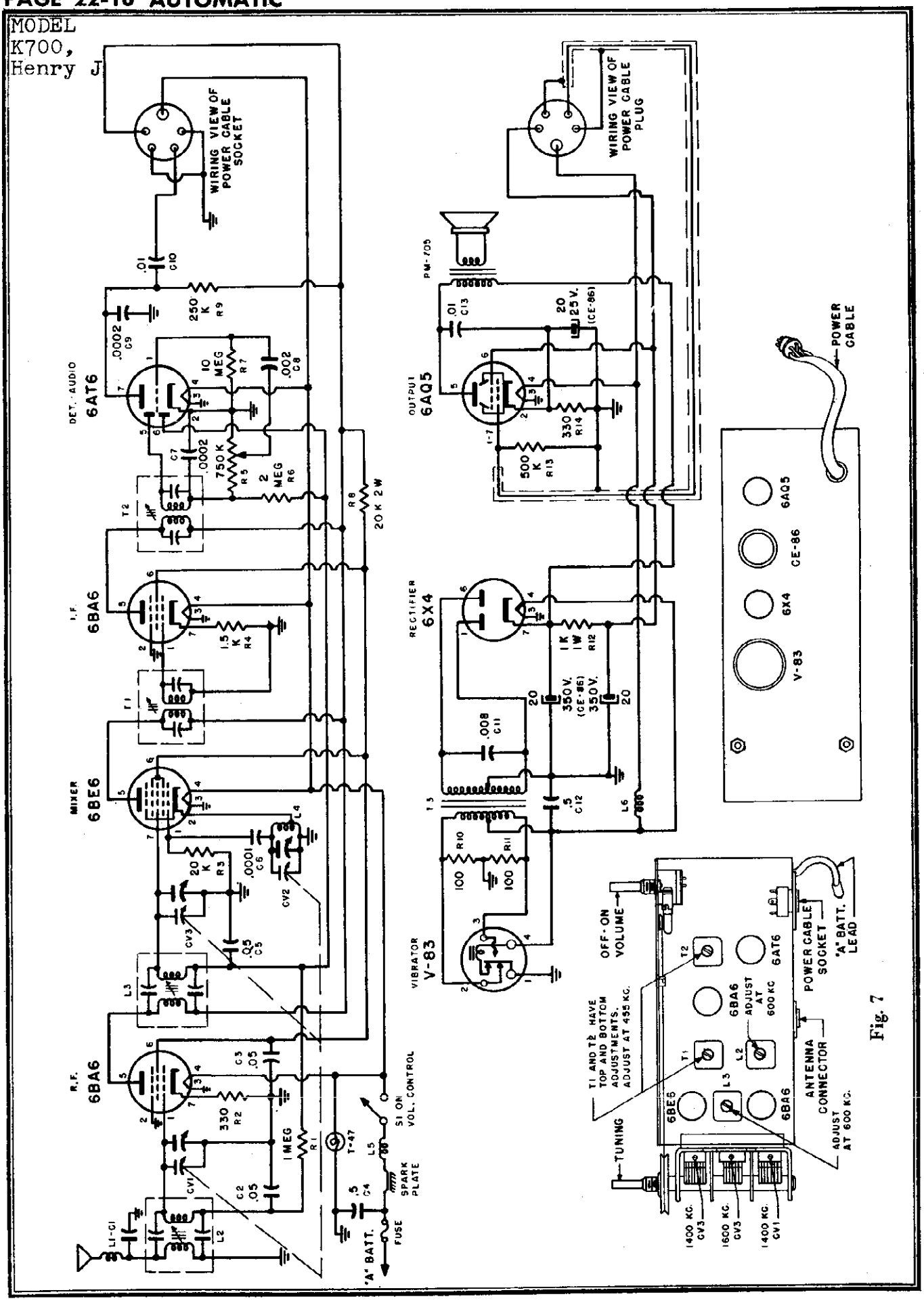


Fig. 7

PARTS LIST

CONDENSERS

Schematic Diagram Reference	Part No.	Description
C2, C3, C5	C207	.05 MFD 200 volt condenser
C4, C12	C209	.5 MFD 100 volt condenser
C6	CC200	100 MMFD ceramic condenser
C7, C9	CC201	200 MMFD ceramic condenser
C8	C203	.002 MFD 400 volt condenser
C10, C13	C206	.01 MFD 400 volt condenser
C11	C205	.008 MFD 1600 volt condenser
CE86	CE-86	20 MFD 350 volt electrolytic condenser 20 MFD 350 volt electrolytic condenser 20 MFD 25 volt electrolytic condenser
CV1-CV2-CV3	CV-400	3 section variable

RESISTORS

R1	R309	1 megohm ½ watt 20% resistor
R2, R14	R303	330 ohm ½ watt 20% resistor
R3	R306	20K ohm ½ watt 20% resistor
R4	R314	1.5 K ohm ½ watt 20% resistor
R5	RV-570	Volume control ¾ megohm with switch
R6	R310	2 megohm ½ watt 20% resistor
R7	R311	10 megohm ½ watt 20% resistor
R8	R313	20K ohm 2 watt 20% resistor
R9	R307	250K ohm ½ watt 20% resistor
R10, R11	R301	100 ohm ½ watt 20% resistor
R12	R312	1K ohm 1 watt 20% resistor
R13	R308	500K ohm ½ watt 20% resistor

COILS AND TRANSFORMERS

L1-C1	L200	Motor noise elimination unit
L2	15053 or 57FB-3	Antenna coil
L3	15054 or 57FB-4	R.F. coil
L4	L201	R.F. oscillator coil
L5	L203	Choke "A" line
L6	L202	Choke, vibrator hash
T2	14977 or 1655-16	2nd IF transformer
T1	14977 or 1655-18	1st IF transformer
T3	TV-100 or 318V-2	Vibrator transformer
T4		Output transformer (Part of speaker not furnished separately)

MISCELLANEOUS

A300	"A" lead assembly
H521	Case, less covers for Power Supply Unit
H520	Case, complete with covers for R.F. tuning unit
H207	Clip, Anti-rattle
H208	Clip, coil mounting
H102	Cover, power supply unit mounting (with speaker louvres)
K700	Cover, RF tuning unit, front (complete with plastic escutcheon)
A201	Fuse 15 Amp.
K701	Hook bolt
504PC-360	Power Cable Assembly (complete with plug)
H212	Receptable, Antenna cable
504-FC	Socket, power cable
PM-705	Speaker, 5¼" PM (includes output transformer)
V-83	Vibrator
H310	Knob
H311	Cup washer
C100	.5 MFD generator condenser
R100	Distributor suppressor
K702	Mounting Bracket

DIAL PARTS

H523	Dial Scale Escutcheon. Plastic
PS100	Dial Pointer
T47	Pilot Light
H114	Pilot Light Socket
H203	Pulley, idler
H204	Spring, Dial drive String Tension
H115	String, dial drive

Operating Instructions

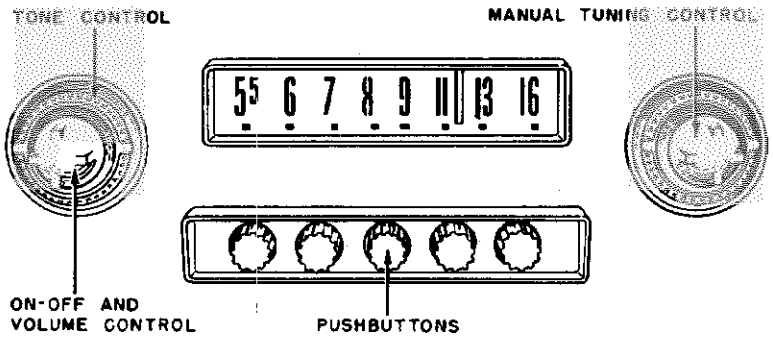


Figure 1—Operating Controls

Dial Illumination

The radio dial lamp is independent of radio operation, and is turned on and off with the car lights. Its brilliance is adjusted by means of the Instrument Panel Lighting intensity control.

Receiver Installation

1. Install the antenna in accordance with the instructions packed in the antenna kit.

2. Remove and discard the radio opening coverplates from the instrument panel by removing the speed nuts at the rear of the panel.

3. CAREFULLY, from the underside of the instrument panel, position the speaker baffle and speaker on the three threaded stud bolts so that the speaker lead is on the left when viewed from the front, and tighten securely with the three #8-32 wing nuts provided in the installation kit (see figures 2 and 3).

4. Using the ¼-inch lock washers and nuts supplied in the installation kit, attach the tops of the right-hand and left-hand rear mounting brackets loosely to the studs on the underside of the instrument panel, near the windshield, as shown in figures 2 and 3.

5. Place the receiver in position behind the instrument panel, with the radio head centered in the panel openings (see figure 3). Secure the control shafts with two hex nuts supplied in the installation kit. Attach the lower ends of the mounting brackets loosely to the studs on the sides of the case, using the serrated washers, lock washers, and hex nuts provided in the installation kit (see figures 2 and 3). Tighten the upper ends of the brackets securely. Adjust the serrated washers at the lower ends of the bracket to make fine adjustments on the position of the unit, then tighten the hex nuts securely.

6. Place the bezel cups over the Tuning and Volume control shafts, and secure with the ½-inch hex nuts supplied (see figure 3). Slip the disc and knob on the Volume control shaft, and the knob on the Tuning control shaft.

7. Connect the speaker by inserting its plug into the receptacle on the rear of the receiver. Connect the antenna by inserting its cable plug into the receptacle on the right side of the case (see figure 2).

8. Plug the "A" lead bullet-connector (see figure 3) into the female receptacle that terminates the Blue-White tracer of the double connector at the end of the main wiring harness, behind the circuit breaker.

9. Plug the dial light bullet-connector (see figure 3) into the female receptacle that terminates the Blue-Red tracer of the double connector at the end of the main wiring harness, behind the circuit breaker

10. VERY IMPORTANT: Turn the receiver on and allow it to operate for approximately 15 minutes in order for each part to reach its normal operating temperature. Tune in a weak station at the high end of the broadcast band (near 1300 kilocycles) and, with fingers, rotate the antenna trimmer (see figure 2) for maximum volume.

Setting Pushbuttons

Manually tune in a local station of your choice, so that, with volume turned down, its signal is heard without distortion. With finger pressure, loosen a pushbutton by rotating it in a counterclockwise direction. (IMPORTANT: DO NOT ROTATE PUSHBUTTON MORE THAN ONE FULL TURN TO THE LEFT.) Press in the loosened pushbutton, and release. Tighten the button with fingers by turning to the right. The pushbutton is now set up for the station which was tuned in manually. Use the same procedure for setting up the remaining pushbuttons, manually tuning in the desired station for each button. (Preferably set up pushbuttons during daytime, due to high sensitivity of the set.)

MODEL M-2, Ford Part
No. 1A-18805-A1

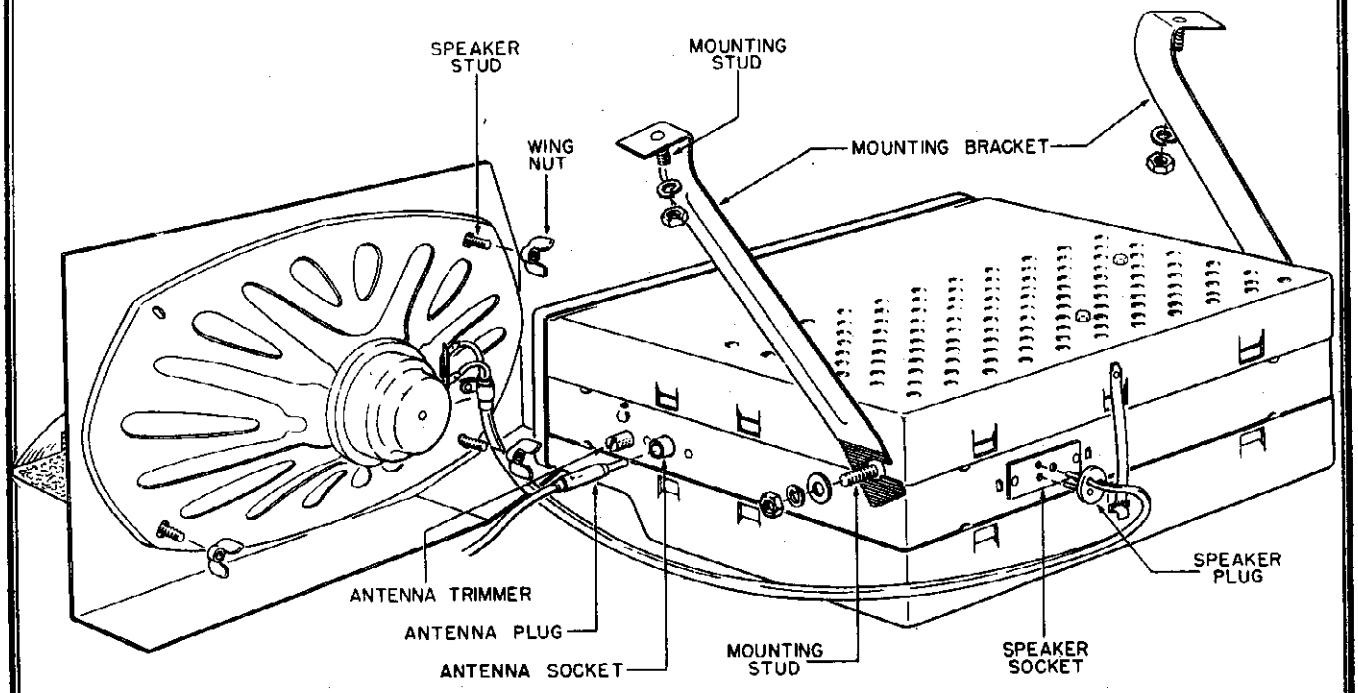


Figure 2—Installation Procedure, Rear View of Receiver

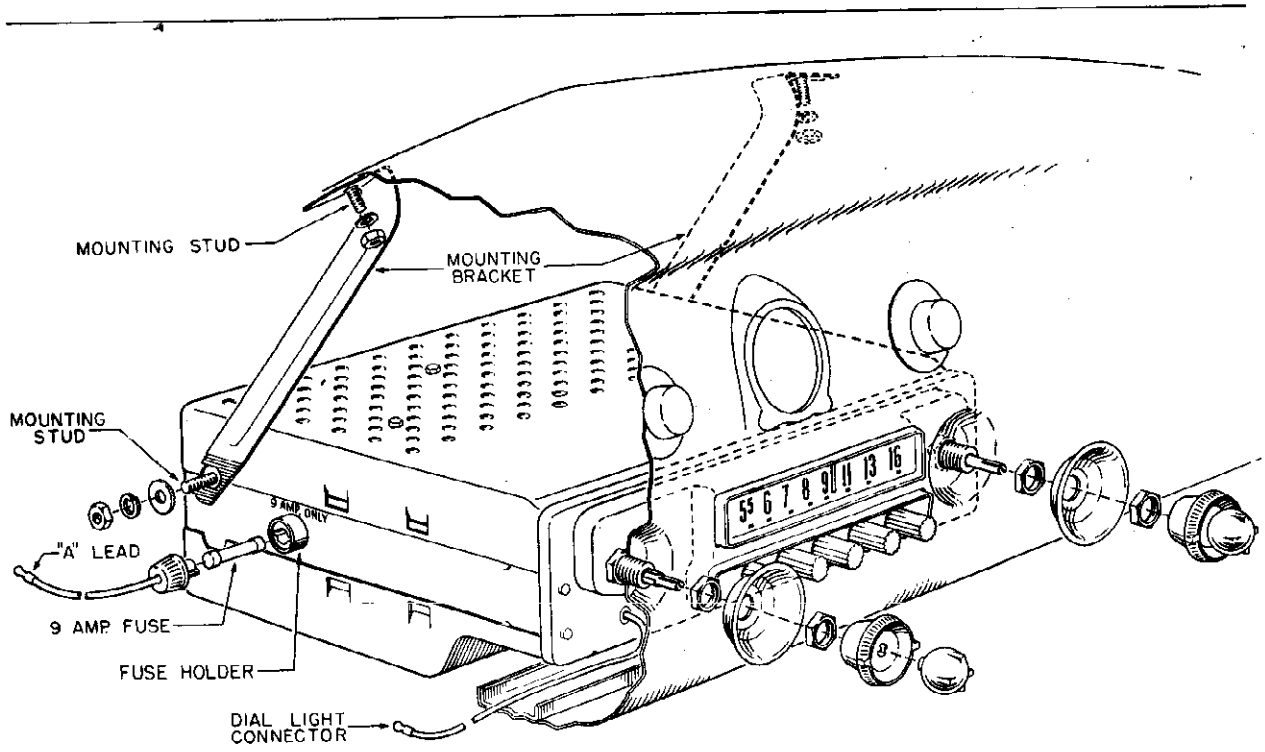


Figure 3—Installation Procedure, Front View of Receiver

Interference Elimination

Extraneous radio-frequency noises from ignition systems and other sources that might interfere with reception on your Ford Radio Receiver can be eliminated by installing the suppression parts, packed in the installation kit, in accordance with the directions given herein.

IMPORTANT: Use the utmost care in cleaning away paint and dirt where parts are to be installed to insure good electrical contacts. Tighten all nuts and bolts securely.

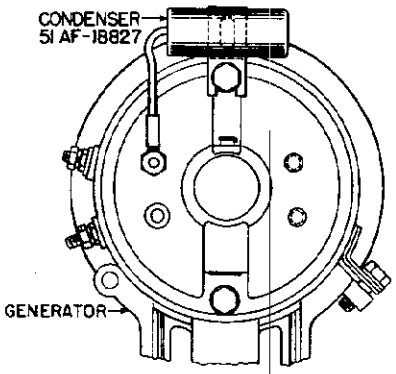


Figure 1

1. Loosen (do not remove) the top assembly bolt on the rear end plate of the Generator. Slide the bracket of Condenser 51AF-18827 under the bolt and tighten (see figure 1). Connect the lug end of the Condenser lead to the Armature terminal of the Generator.

2. Cut the high tension wire that runs from the Ignition Coil to the center hole of the Distributor Cap (make the cut 2½-inches from the coil on six cylinder cars, and 1½-inches on eight cylinder cars). See figure 2. Remove the wire from the Coil and screw the cut end of the wire into Suppressor 1GA-18811-A. Screw the other end of the Suppressor on the cut end of the Distributor wire, and replace the wire in the Ignition Coil.

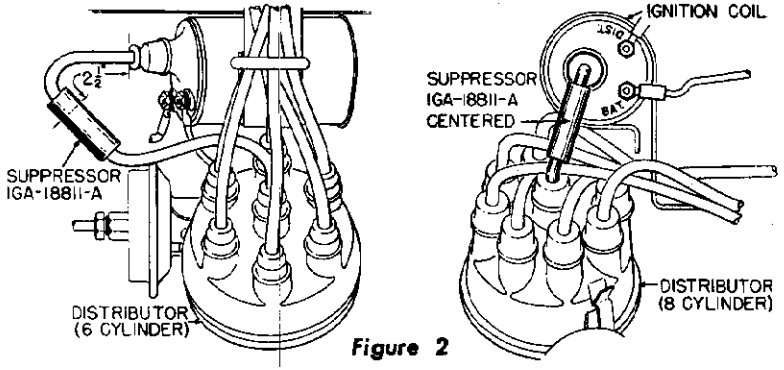


Figure 2

Condenser Installation

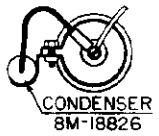


Figure 3

3. Condenser 8M-18826 is furnished with a bracket which fits around the Oil Pressure Gauge Unit. Mount and connect the Condenser as shown in figure 3.

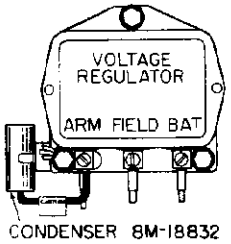


Figure 4

4. Mount Condenser 8M-18832 on the Voltage Regulator as shown in figure 4. Connect its lead to the "ARM" terminal on the Regulator. Be careful that Condenser bracket does not short on the terminal.

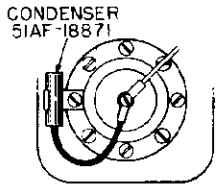


Figure 5

5. Remove the Fuel Tank Gauge cover plate located in the luggage compartment floor. Mount and connect Condenser 51AF-18871 as shown in figure 5. Fasten cover plate and apply sealing compound to insure a good seal for the cover.

Wheel Static

6. Remove inner and outer hub caps from each front wheel. Clean inner cups and spindles. Snap Static Collector Springs (Part No. 8A-18938) in inner hub caps (see figure 6). IMPORTANT: BEND COTTER KEY AWAY FROM SPINDLE CENTER HOLE SO THAT IT WILL NOT INTERFERE WITH STATIC COLLECTOR. Replace inner and outer hub caps.

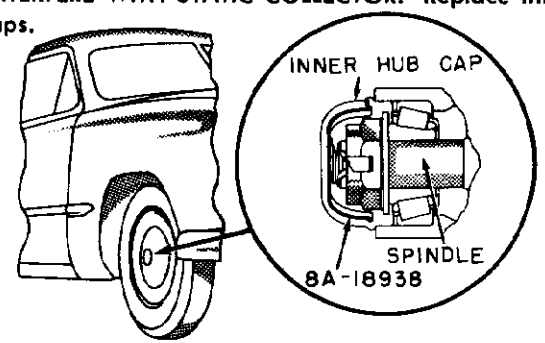


Figure 6

MODEL M-2, Ford Part No. 1A-18805-A1

GENERAL

The Bendix Model M-2, Ford Model 1A-18805-A1 Auto Radio is a six-tube superheterodyne receiver with vibrator power supply and full wave rectifier. The antenna, radio, frequency, and oscillator circuits are inductively tuned, by means of push buttons and or the manual tuning control, over a frequency range of 540 to 1606 kilocycles, by means of iron cores.

The On-Off, Volume and Tone Controls are on concentric shafts at the left of the receiver. The Manual Tuning Control is at the right. The Speaker is a separate unit.

TUBE COMPLEMENT

6SK7/GT	R.F. Amplifier	6SQ7/GT	Det., AVC and AF ampl
6SA7/GT	Converter	6V6/GT	AF Amplifier
6SK7/GT	I.F. Amplifier	6X5/GT	Rectifier

POWER SUPPLY

The Power Supply uses a 6X5/GT full wave rectifier tube in conjunction with a four prong full wave non-synchronous type vibrator.

ALIGNMENT

Recommended Test Equipment

Signal Generator - 260 to 1700 KC range. Output from 1, to 100,000 microvolts. Modulation 30% at 400 cycles.

Output meter - 2 watt capability with 4.0 ohm termination or, P. M. Speaker, for alignment by ear as an alternate.

Dummy Antenna - Constructional circuit included in the rear section of this manual.

General:

Make all alignment adjustments to the receiver with "A" lead connected to a 7.2 volt negative source, and ground the chassis to the positive side of this source. Rotate the volume and tone controls to their maximum clockwise position. Connect the output meter across the speaker voice coil. Use an insulated screw driver for making all adjustments Use shielded cables for connections between signal generator, dummy antenna and receiver For each adjustment, the signal level should be set as low as possible while still obtaining a reasonable output indication. The signal level should be controlled at the signal generator, and not with the receiver controls.

1. I.F. Alignment

(a) Set the signal generator frequency to 265.0 KC. Connect the signal lead thru the standard test dummy antenna to the receiver antenna connection.

(b) Turn the receiver manual tuning control for the high frequency end of the dial

(c) Adjust the I.F iron cores L-6A, L-6B, L7A and L7B for maximum output. Repeat this operation to assure accurate alignment.

2. R.F. Alignment

Note: Before commencing RF alignment, turn the manual tuning control until the dial pointer travels as far towards the low frequency end of the dial as possible. This should be about one quarter of an inch to left of the 5.5 marker. Reset the dial pointer if necessary.

(a) Set the signal generator to 1606 KC, and connect the signal lead thru the dummy antenna to the receiver antenna socket.

(b) Turn the receiver tuning control until the receiver is set to the highest frequency as indicated by the pointer.

(c) Adjust the trimmers C1, C7 and C9 for maximum output. Repeat this to assure accurate alignment.

3. Sensitivity Control Adjustment

(a) Using the dummy antenna, the signal generator should be connected to the receiver as in the R. F. alignment procedure. Make sure the receiver volume control is fully clockwise.

(b) Apply a signal, 30 percent modulated at 400 cycles, of sufficient strength to produce one watt output, when tuned in on the receiver.

(c) Remove modulation and adjust the sensitivity control R14 for 100 milliwatts of noise, maximum, at the worst point in the band. This will usually be found at the high frequency end of the dial.

4. Alignment with Car Antenna

With the antenna fully extended, tune in a weak station near 1600 KC and adjust the antenna trimmer C1 for maximum volume.

5. Tuner Iron Core Alignment

Note: The following procedure is only required when a coil or iron tuning core is replaced.

(a) Be sure the I.F. coils are properly aligned as outlined in Section 1.

(b) Set the tuner core carriage at the position which tunes the receiver to the highest frequency. Adjust the position of the iron tuning cores so that they do not extend inside the coil, but remain well within the coil form.

(c) Introduce a 1606 KC signal into the set through the dummy antenna and adjust trimmers C1, C7 and C9 for maximum output.

(d) Use the manual control to tune the receiver until the position is centered on the 1300 KC dial frequency marker. Tune the signal generator to 1300 KC. Adjust the iron tuning cores separately for maximum output.

(e) Set the tuner again to the highest frequency position and introduce 1606 KC. Tune trimmers C1, C7 and C9 for maximum output. Note: Make no further adjustment of the iron tuning cores at 1606 KC.

(f) Repeat sections (d) and (e).

(g) Use glyptol or equivalent cement to cement the iron core screws

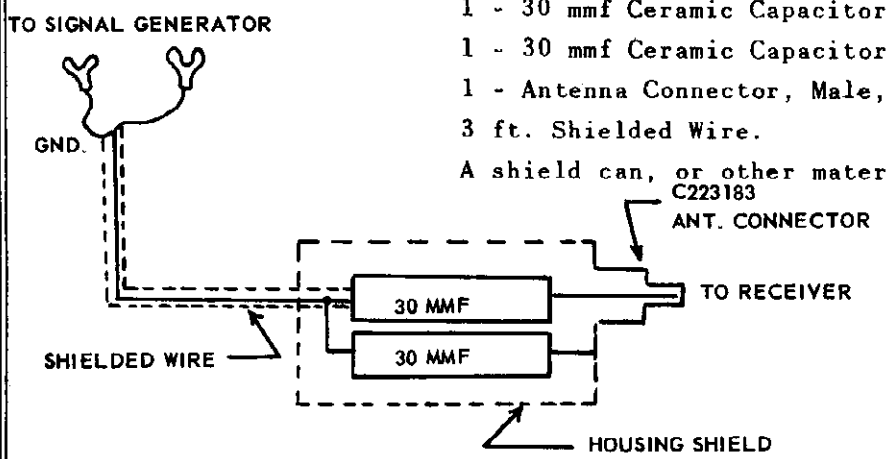
MODEL M-2, Ford Part No. 1A-18805-A1

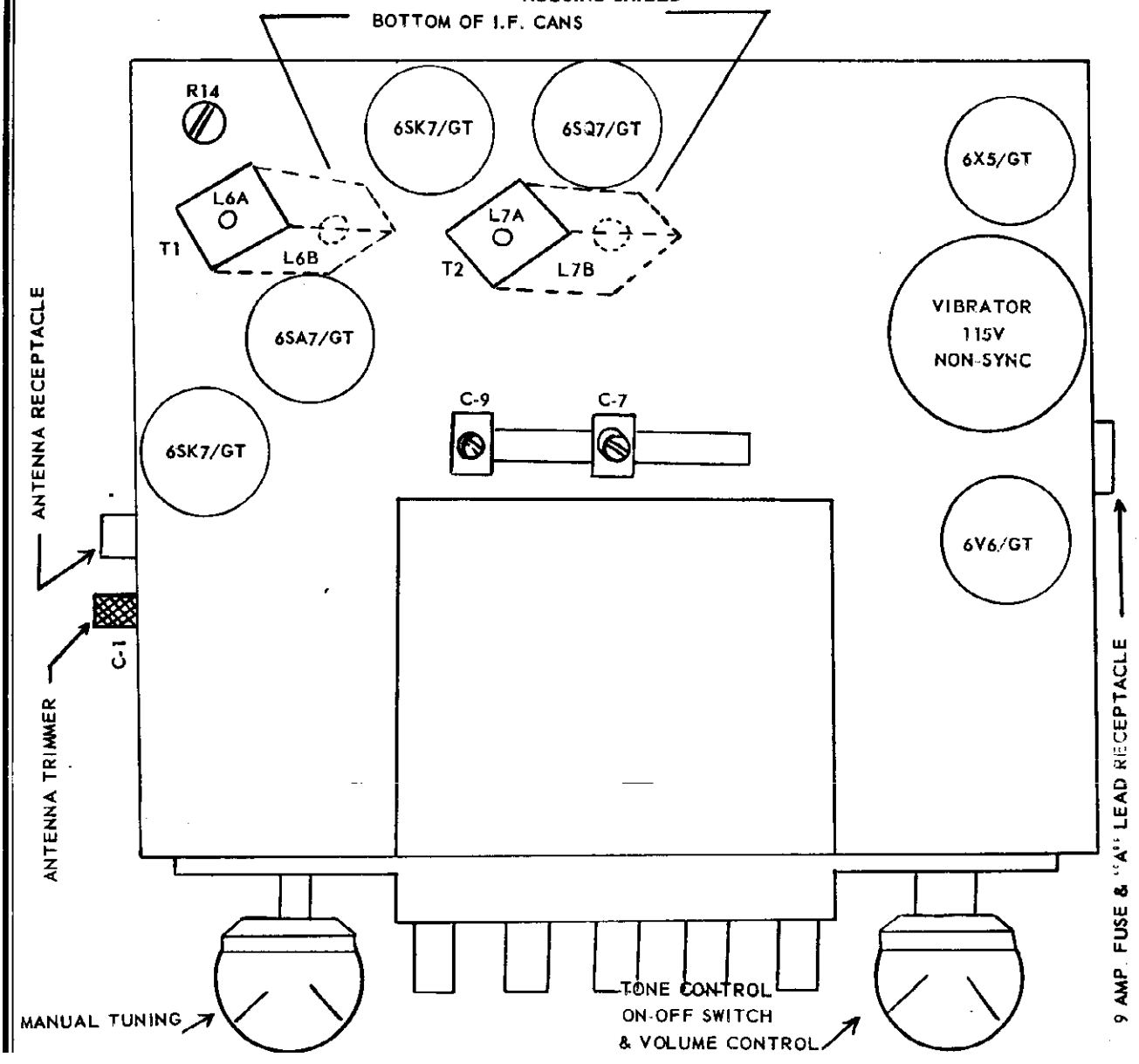
DETAILS FOR CONSTRUCTING DUMMY ANTENNA

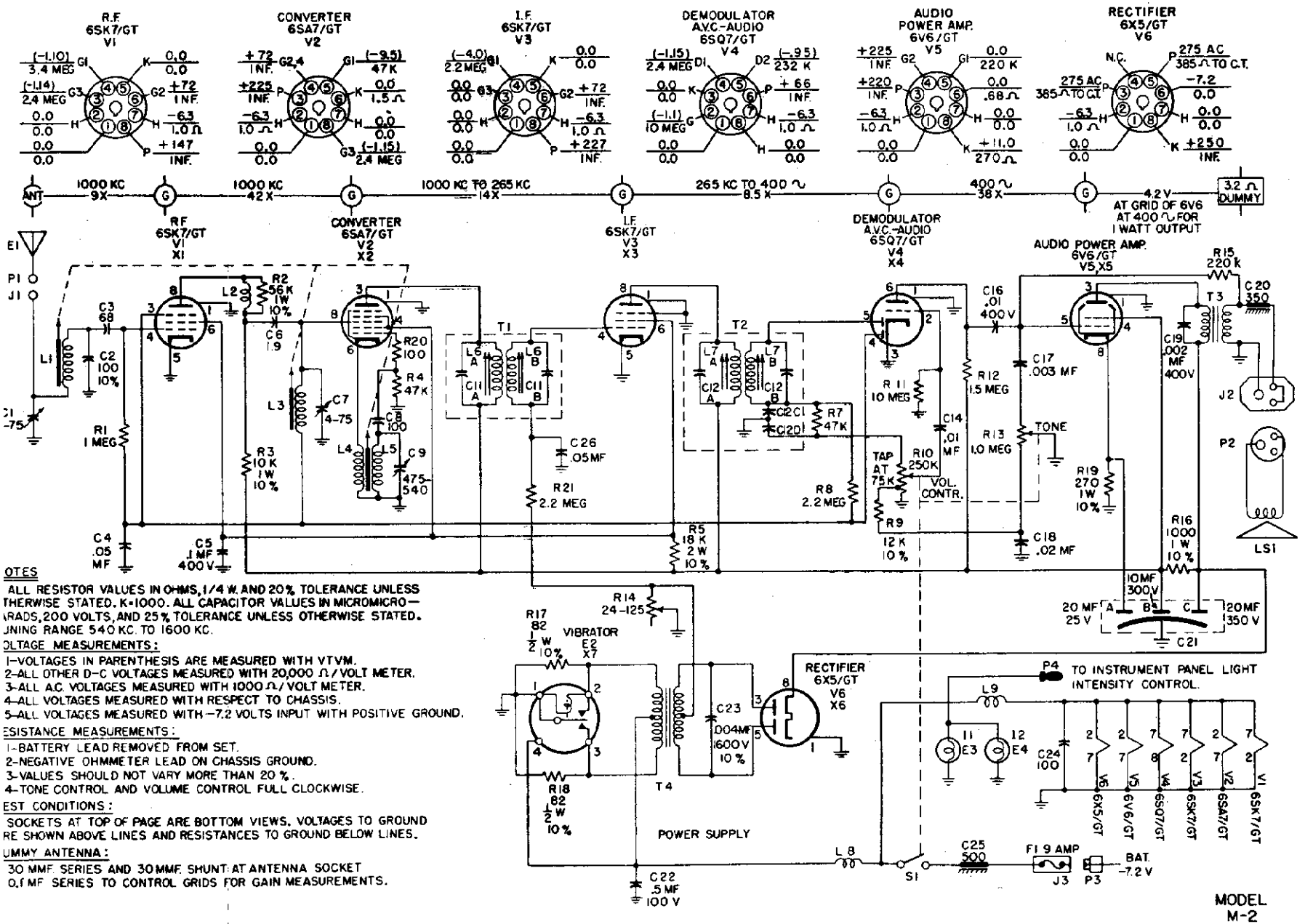
The purpose of the dummy antenna is to properly match the output of the signal generator to the receiver input.

Material Required

1 - 30 mmf Ceramic Capacitor plus or minus 1 mmf.
1 - 30 mmf Ceramic Capacitor plus or minus 1 mmf.
1 - Antenna Connector, Male, C223183.
3 ft. Shielded Wire.
A shield can, or other material for a shielded housing.







OTES

ALL RESISTOR VALUES IN OHMS, 1/4 W. AND 20% TOLERANCE UNLESS THERWISE STATED. K=1000. ALL CAPACITOR VALUES IN MICROMICRO— ARADS, 200 VOLTS, AND 25% TOLERANCE UNLESS OTHERWISE STATED. UNING RANGE 540 KC. TO 1600 KC.

OLTAGE MEASUREMENTS:

1-VOLTAGES IN PARENTHESIS ARE MEASURED WITH VTVM.
2-ALL OTHER D-C VOLTAGES MEASURED WITH 20,000 Ω / VOLT METER.
3-ALL A.C. VOLTAGES MEASURED WITH 1000 Ω / VOLT METER.
4-ALL VOLTAGES MEASURED WITH RESPECT TO CHASSIS.
5-ALL VOLTAGES MEASURED WITH -7.2 VOLTS INPUT WITH POSITIVE GROUND.

ESISTANCE MEASUREMENTS:

1-BATTERY LEAD REMOVED FROM SET.
2-NEGATIVE OHMMETER LEAD ON CHASSIS GROUND.
3-VALUES SHOULD NOT VARY MORE THAN 20 %.
4-TONE CONTROL AND VOLUME CONTROL FULL CLOCKWISE.

EST CONDITIONS:

SOCKETS AT TOP OF PAGE ARE BOTTOM VIEWS. VOLTAGES TO GROUND RE SHOWN ABOVE LINES AND RESISTANCES TO GROUND BELOW LINES.

UMMY ANTENNA:

30 MMF. SERIES AND 30 MMF. SHUNT AT ANTENNA SOCKET
0.1 MF SERIES TO CONTROL GRIDS FOR GAIN MEASUREMENTS.

MODEL M-2

BENDIX PAGE 22

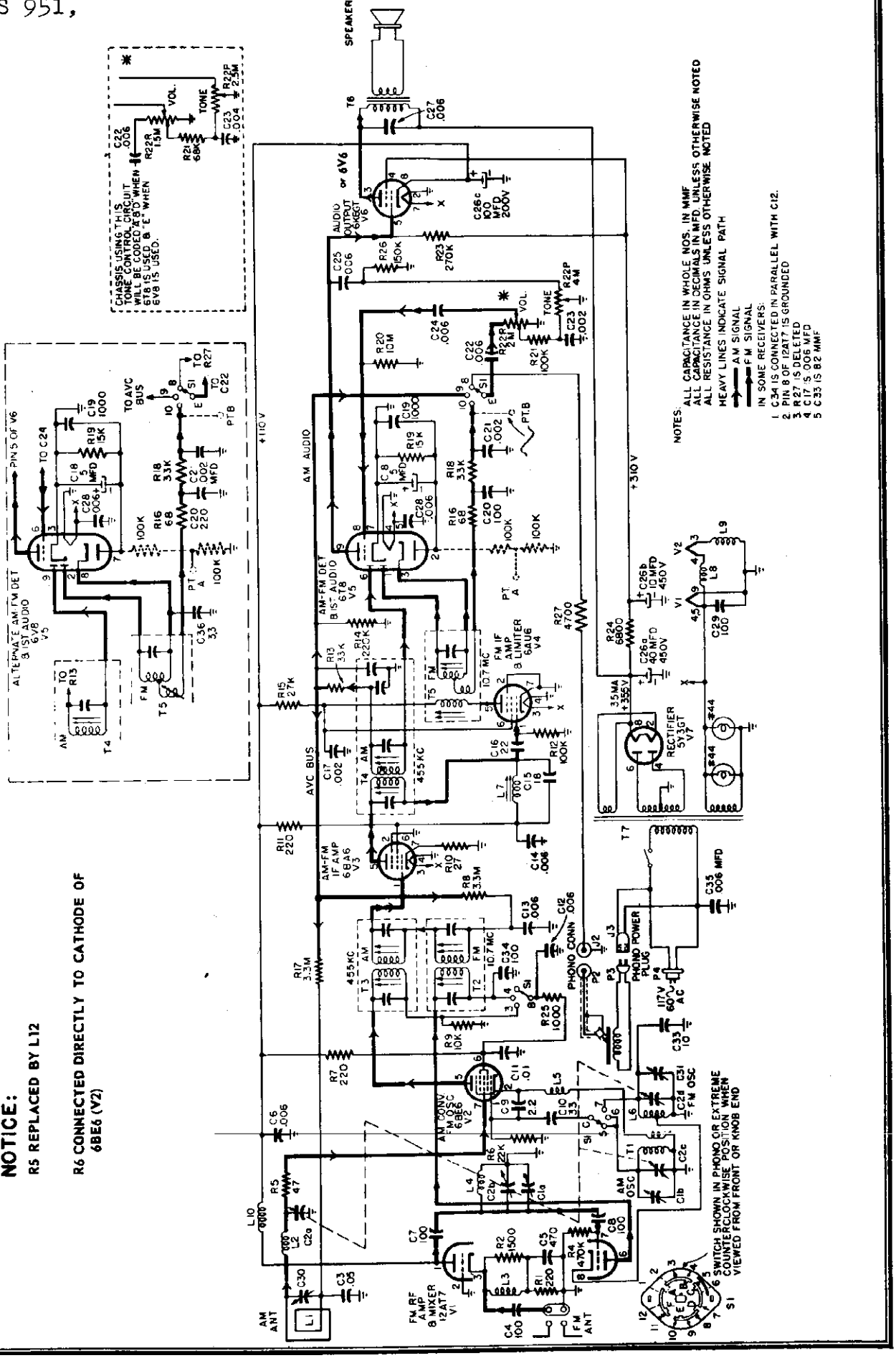
MODEL M-2, Ford Par
No. 1A-18805-A1

MODEL M-2, Ford Part No. 1A-18805-A1

Bendix Radio Part Number	Description
HSC-775-S-23	Nut, 1/2 x 28
HN-799-G16-E	Lock Washer, 1/4"
HC-897-S-08-6	Self Tapping Screw #6 - 1/4"
HC-897-S-08-8	Self Tapping Screw #8 - 1/4"
HC-897-S-24-8	Self Tapping Screw #8 - 3/4"
A-17028-13	Grommet for "A" Lead
L-201564-1	Escutcheon Assy. Complete
C-203458	Clutch and Gear Assy. (Tuner)
L-203683-1	Speaker Baffle Assembly
R-203684-1	Push Button Tuner & Coil Plate Assy.
R-203684-2	Pinion Shaft & Drive Assy. (Tuner)
R-203684-3	Manual Drive Shaft Assy. (Tuner)
C-204412-1	Knob - Volume and ON-OFF
C-204419-1	Knob - Tuning Control
C-204858-1	Wheel Static Collector Assy.
L-206690-1	Top Cover Assembly
L-206691-1	Bottom Cover Assembly
C-207001-1	Capacitor - Volt Regulator- Cond. Assy.
L-207070-1	Installation Kit of Parts (Includes complete set of knobs, wheel static collector assy., generator condenser, fuel gauge condenser, oil gauge condenser, ten (10) ignition suppressors, two (2) bezel plates, volt regulator cond., three (3) wing nuts and miscellaneous hardware
L-207097-1,2-3-4	Speaker Assembly
C-207746	Manual Drive Shaft (Tuner Assembly)
A-207747	Push Button Reset Screw Assembly (Tuner Assy.)
C-215521-2	Coil - Hash Choke
A-215705	Iron Core Slug (Tuner)
C 215734	R.F. Coil with Iron Core Slug
C-215739-2	Filament Choke Assembly
C-215785	Oscillator Coil with Iron Core Slug
C-215787	Antenna Coil with Iron Core Slug
C-215818-1	Image Trap Assembly (alternate C-215818-2)
C-217453-1	Transformer - Power
C-217465	Transformer - Audio Output
C-219046-2	Antenna Trimmer
C-219057	Special Trimmer Capacitor - 430-500 mmf.
C-219555-5	Sensitivity Control - 200 ohm
C-219586-2	Dual Potentiometer, Volume Tone On-Off Sw
C-220098-1	Capacitor - Paper - .003 mfd. - 600 V
C-220098-3	Capacitor - Paper - .01 mfd. - 200 V
C-220098-4	Capacitor - Paper - .02 mfd. - 200 V
C-220098-5	Capacitor - Paper - .05 mfd. - 200 V
C-220098-6	Capacitor - Paper - .1 mfd. - 400 V
C-220098-10	Capacitor - Paper - .5 mfd. - 100 V
C-220098-11	Capacitor - Paper - .002 mfd. - 600 V
C-220098-12	Capacitor - Paper - .01 mfd. - 400 V
C-220098-17	Capacitor - Paper - .004 mfd. - 1600 V
C-220099-3	Capacitor - Mica - 100 mmfd. - 20% - 500 V
C-220099-11	Capacitor - Mica - 100 mmf. - 10% - 500 V
C-220106	Capacitor - Generator - 1.0 mfd. - 200 V
C-220108-1	Capacitor - Dry Electrol - Triple - 20 mfd. 350V 20 mfd. - 25V - 10 mfd. - 300 V
C-220173	Capacitor - Special Temp. Coef - 43 mmf.
C-220183-1	Capacitor - Fuel Gauge Cond.Assy. - .0 mfd.-200V
C-220184	Capacitor - Voltage Regulator Condenser (part of C-207001-1)

Bendix Radio Part Number	Description
C-220185	Capacitor - Oil Gauge Cond.Assy.-.5 mfd. 200 V
C-220186-3	Capacitor - Mica - 68 mmf. - 20% - 500 V
C-220551A-101M	Resistor - 100 ohm - 1/4 W - 10%
C-220551A-105M	Resistor - 1.0 megohm - 1/4 W - 20%
C-220551A-106M	Resistor - 10 megohm - 1/4 W - 20%
C-220551A-123K	Resistor - 12,000 ohm - 1/4 W - 10%
C-220551A-155M	Resistor - 1.5 meg. - 1/4 W - 20%
C-220551A-224M	Resistor - 220,000 ohm - 1/4 W - 20%
C-220551A-225M	Resistor - 2.2 megohm - 1/4 W - 20%
C-220551A-473M	Resistor - 47,000 ohm - 1/4 W - 20%
C-220551B-820M	Resistor - 82 ohm - 1/2 W - 10%
C-220551C-102K	Resistor - 1000 ohm - 1 W - 10%
C-220551C-103K	Resistor - 10,000 ohm - 1 W - 10%
C-220551C-271K	Resistor - 270 ohm - 1 W - 10%
C-220551D-183K	Resistor - 18,000 ohm - 2 W - 10%
C-220554	Suppressor Resistor - 10,000 ohm
C-221319-2	Pilot Lamp - 6 V - Mazda - Type #55
C-221613-9	Fuse - 9 amp. - SFE Fast Blow
C-222118-1-3	"A" Lead Assembly
C-222810-1	Vibrator - 115 cycles
A-223012-3	Octal Socket, Lugs 1 & 7 Gnded.
A-223012-4	Octal Socket, Lugs 1 & 4 Gnded.
A-223012-5	Octal Socket, Lugs 1, 2, 3 & 5 Gnded.
A-223012-7	Octal Socket, Lugs 1, 3 & 8 Gnded.
C-223182-2	Vibrator Socket - 4 prong
C-223183	Antenna Socket
C-223184-1	Speaker Socket
N-230182	Tuner Coil Assy. (Includes osc. & ant. coils, RF Coils, Iron Core Slugs, Capacitors, etc.)
L-230840	R.H. Support Bracket
L-230841	L.H. Support Bracket
A-233499-1-2-4	Fuse Holder Assembly (Alternate C-233775-1-2-4)
A-234668	Clip (I.F. Mtg.)
C-235233	Bezel - (Trim)
L-235234	Knob - Tone
A-238531	Spring - Tension (Manual Shaft)
C-238533	Spring - Backlash (Pointer)
A-239702	Knob Retaining Spring
A-240354	Bushing (Manual Drive)
C-241709-6	Nut 1/4 - 20
A-241710-1	Tinnerman Nut Lock (for fuse holder)
A-241736	Wing Nut
C-243223	Hash Shield
A-243398-1	Capacitor - Spark Plate
A-243398-2	Capacitor - Spark Plate
A-243399-1	Capacitor - Spark Plate Insulator
A-243399-2	Capacitor - Spark Plate Insulator
A-245602	Neoprene Torque Washer (for tuner)
A-245631	"C" Washer (for manual shaft assy.)
A-245692	Stop Washer (for manual shaft assy.)
A-245770	"C" Washer (for securing pointer)
A-245886	Serrated Washer (installation kit)
L-246968	Calibrated Dial Glass
L-246980	Sub-Dial (Black Plate)
C-249615	Pointer Arm
CH-263010-1	Iron Core (I.F. Can)
C-287055	Lamp Holder
L-291701	Transformer - L.F. - Input
L-291702-1	Transformer - I.F. - Output
C-293168-1	R.F. Coupling - 1.9 mmf. (Capacitor)

MODELS 951,
951W



MODELS 951
951W

REPLACEMENT PARTS LIST
Models 951 & 951W

Stock No.	Symbol No.	Description
		ELECTRICAL COMPONENTS
CV0F00	C1a,b,2a,b,c,d	CAPACITOR–Variable
CP2T40	C3	CAPACITOR–Paper .05 mfd 200V
CM22A101M	C4,29	CAPACITOR–Mica 100 mmf 500V
CC9M42	C5	CAPACITOR–Ceramic 470 mmf Min 500V
CP6T20	C6,12,13,14,22,24,25,27,28	CAPACITOR–Paper .006 mfd 600V
CC9A34	C7,8	CAPACITOR–Ceramic 100 mmf 500V
CC9A14	C9	CAPACITOR–Ceramic 2.2 mmf 500V
CC8B28	C10	CAPACITOR–Ceramic 33 mmf 500V
CC9R80	C11	CAPACITOR–Ceramic .01 mfd Min 500V
CM6S16	C15	CAPACITOR–Mica 18 mmf 500V
CM22A220M	C16	CAPACITOR–Mica 22 mmf 500V
CE1T06	C18	CAPACITOR–Electrolytic 5 mfd 50V
CC9M50	C19	CAPACITOR–Ceramic 1000 mmf Min 500V
CP6T12	C17,21,23	CAPACITOR–Paper .002 mfd 600V
CM22A101M	C20	CAPACITOR–Mica 100 mmf 500V (Use only with 6T8-V5-tube)
CM22A221K	C20	CAPACITOR–Mica 220 mmf 500V (Use only with 6V8-V5-tube)
CE3A06	C26a,b,c	CAPACITOR–Electrolytic 40-450, 10-450, 100-200
CT1B06	C31	CAPACITOR–Trimmer FM
CC6B22	C33	CAPACITOR–Ceramic 10 mmf 500V N330
CC9A34	C34	CAPACITOR–Ceramic 100 mmf 500V
CP9T21	C35	CAPACITOR–Paper .0068 mfd 600V
CC9A16	C36	CAPACITOR–Ceramic 3.3 mmf 500V (Use only with 6V8-V5-tube)
RC22A221M	R1,7,11	RESISTOR–Comp 220 ohms ¼W
RC22A474M	R4	RESISTOR–Comp 470K ¼W
RC22A470M	R5	RESISTOR–Comp 47 ohms ¼W
RC22A223M	R6	RESISTOR–Comp 22K ¼W
RC22A335M	R8,17	RESISTOR–Comp 3.3 meg ¼W
RC25A103M	R9	RESISTOR–Comp 10K 2W
RC22A270K	R10	RESISTOR–Comp 27 ohms ¼W ±10%
RC22A104M	R12,21	RESISTOR–Comp 100K ¼W
RC22A333M	R13,18	RESISTOR–Comp 33K ¼W
RC22A224M	R14	RESISTOR–Comp 220K ¼W
RC23A273K	R15	RESISTOR–Comp 27K ½W +10%
RC22A680M	R16	RESISTOR–Comp 68 ohms ¼W
RC22A153M	R19	RESISTOR–Comp 15K ¼W
RC22A106M	R20	RESISTOR–Comp 10 meg ¼W
*RV4D00	R22p,r,	POTENTIOMETER–Tandem 4 meg Min ¼W Tone; 2 meg ¼W Vol. with switch
RC23A274K	R23	RESISTOR–Comp 270K ½W ±10%
RC24A682M	R24	RESISTOR–Comp 6800 ohms 1W
RC22A102M	R25	RESISTOR–Comp 1000 ohms ¼W
RC22A154M	R26	RESISTOR–Comp 150K ¼W
RC22A472M	R27	RESISTOR–Comp 4700 ohms ¼W
SR3D00	S1	SWITCH–Rotary 4 Pole 3 Pos
TO0B00	T1	TRANSFORMER–Osc BC
TI0C15	T2	TRANSFORMER–1st IF Input FM
TI0C14	T3	TRANSFORMER–IF Input AM
TI0D27	T4	TRANSFORMER–IF Output AM
TR0R00	T5	TRANSFORMER–Ratio Detector
TA0O25	T6	TRANSFORMER–Output
TP0H03	T7	TRANSFORMER–Power
LF0A11	L2	COIL–RF Choke
LA0F02	L3,R2	COIL–Antenna FM Input
LI0F02	L4	COIL–RF FM
LF0A13	L5	COIL–RF Filament Choke 2.2 mh
LO7F01	L6	COIL–Osc FM
LI0F03	L7	COIL–2nd IF FM
LF0A00	L8,9	COIL–RF Choke Filament
LF0A12	L10	COIL–RF Choke
#44		LAMP–Bayonet Base
		MECHANICAL COMPONENTS
BT3S06		BOARD–Terminal 3 Lug 1 Mtg
BT4S05		BOARD–Terminal 4 Lug 1 Mtg
BT5S03		BOARD–Terminal 5 Lug 1 Mtg
CD0N04		CABLE–Dial 37-3/16"
CL2A08		CORD–AC Line
HC0S00		CLIP–Spring Tuning Shaft
HC0S60		CLIP–Spring Retainer Transformer Mtg
HP0D05		PLATE–Dial Back
HR0S14		RIVET–Shoulder .375 x .118
HS0C75		SPRING–Coil Dial Cord
HS6F00		SLEEVE–Spacer Flared Tuning Cap.
ID0M29		INDICATOR–Dial Metal
JR2O16	J3	JACK–Receptacle 2 Contact Phono Power
JR1S00	J2	JACK–Receptacle 1 Contact Phono Audio
MP0I00		PULLEY–Idler Fibre
SO0D05		SOCKET–Dial Lamp
SO7M16		SOCKET–Tube 7 Prong Min
SO7M17		SOCKET–Tube 7 Prong Min
SO9M01		SOCKET–Tube 9 Prong Min
SO8S07		SOCKET–Tube Octal

CABINET COMPONENTS

Stock No.	Description
AL0Z23	ANTENNA–Loop AM
BT2T01	BOARD–Terminal 2 Lug with Bracket
BZ0B39	BACK–Cabinet Cover
DS0C18	DIAL–Scale 540-1620 KC, 88-108 MC
HC0D02	CLAMP–Dial Retainer
HZ0C12	CATCH–Bullet
HZ0G01	GLIDE–Metal
HZ0H23	HINGE–Door R.H.
HZ0H24	HINGE–Door L.H.
HZ0H25	HANDLE–Door
KC0B31	KNOB–Control, Tone
KC0B32	KNOB–Control, Volume
KC0B33	KNOB–Control, Tuning
KC0B34	KNOB–Control, Bandswitch
SP1R03	SPEAKER–12" PM Round
ZW7G12	CABINET–Console Combination

*Receivers coded "D" and "E" use a 1.5 meg pot. for Volume in conjunction with a 68K resistor (R21) and a .004 mfd capacitor (C23). This 1.5 meg pot. is not a replaceable item. Please reorder by stock no. KR0T00, which includes a 2 meg pot. (R22r), a 100K resistor (R21) and a .002 mfd capacitor (C23).

Chassis Description

The C-300 chassis used in the Model T-30 is a five tube radio chassis designed for reception of AM (Broadcast band) signals. The chassis contains a single ended 50L6 Power Output amplifier in conjunction with a 5" speaker for sound reproduction. It can be operated on either AC or DC.

Parts List C-300 (T-30)

Ref. No.	Part Description	Part No.
	-Transformers-	
L101	Loop Antenna (T-30)	750219A-1
T101	Oscillator Coil	452242A-1
T102	IF Transformer	452243A-1
T103	IF Transformer	452243A-1
T104	Output Transformer part of	750220A-1
	-Resistors-	
R102	22K ½w 10%	3229A-223
R103	1 meg ½w 10%	3229A-105
R104	3.3 meg ½w 10%	3229A-335
R105	Control (Volume & Switch)	452312A-1
R106	220K ½w 10%	3229A-224
R107, R109	150 ohms ½w 10%	3229A-151
R108	1500 ohms 1w 10%	3232A-152
	Printed Circuit	452244A-1
	-Condensers-	
C101, C110	(2) 470 mmf ± 20% Ceramic	2239A-103
C102	56 mmf ± 10% Ceramic	2241A-554
C103, ABCD	Tuning Gang	650349A-1
C104	.047 mfd 200V MOPT	2246A-4730
C105	150 mmf ± 20% Ceramic	2240A-021
C106, AB	Electrolytic (a) 50 mfd 150V (b) 50 mfd 150V	650326A-1
C107	.01 mfd 600V MOPT	2248A-1030
C108	.022 mfd 600V MOPT	2244A-2230
C112	.1 mfd 600V MOPT	2244A-1040

-Miscellaneous-

Cabinet	950090A-1
Knobs (2)	452321A-1
Back Cover	850135A-1
Speaker, PM 5"	750220A-1
Line Cord	650171A-4
Mounting Clips for IF Transformers	58514

MODEL T-30,
Ch. C-300

Alignment Instructions

Equipment required:

1. Calibrated RF Signal Generator (Signal from 455 KC to 1620KC).
2. Low Range Output Meter.

Alignment:

a. Turn set on, adjust volume to maximum.
b. See that dial pointer coincides with calibration marks at extremes of dial scale.
c. Connect output meter across the speaker voice coil.
d. Make a loop of the RF Generator leads (connect the leads together through a .01 mfd capacitor) and loosely couple to the Loop Antenna.

Step	Set RF Generator at	Set Condenser gang at	Adjust	To Obtain
1	455KC	Fully Open at some quiet point	IF Slugs T103 T102	Maximum Output
2	1620KC	1620KC	Osc. Trimmer C103D	Same
3	1500	1500	Ant. Trimmer C103B (on Loop)	Same
4	537KC	537KC	T101 Osc. Slug	Same

SPECIFICATIONS

Tube Complement:

Type	
12BE6	Oscillator-Converter
12BA6	IF Amplifier
12SQ7	Detector, AVC & 1st Aud. Amp.
50L6	Power Output
35Z5	Rectifier

Frequency Range:
AM Broadcast Band 540KC to 1620KC

Power Source:
Rating 105-125 volts, AC-DC
Power Consumption 35 watts

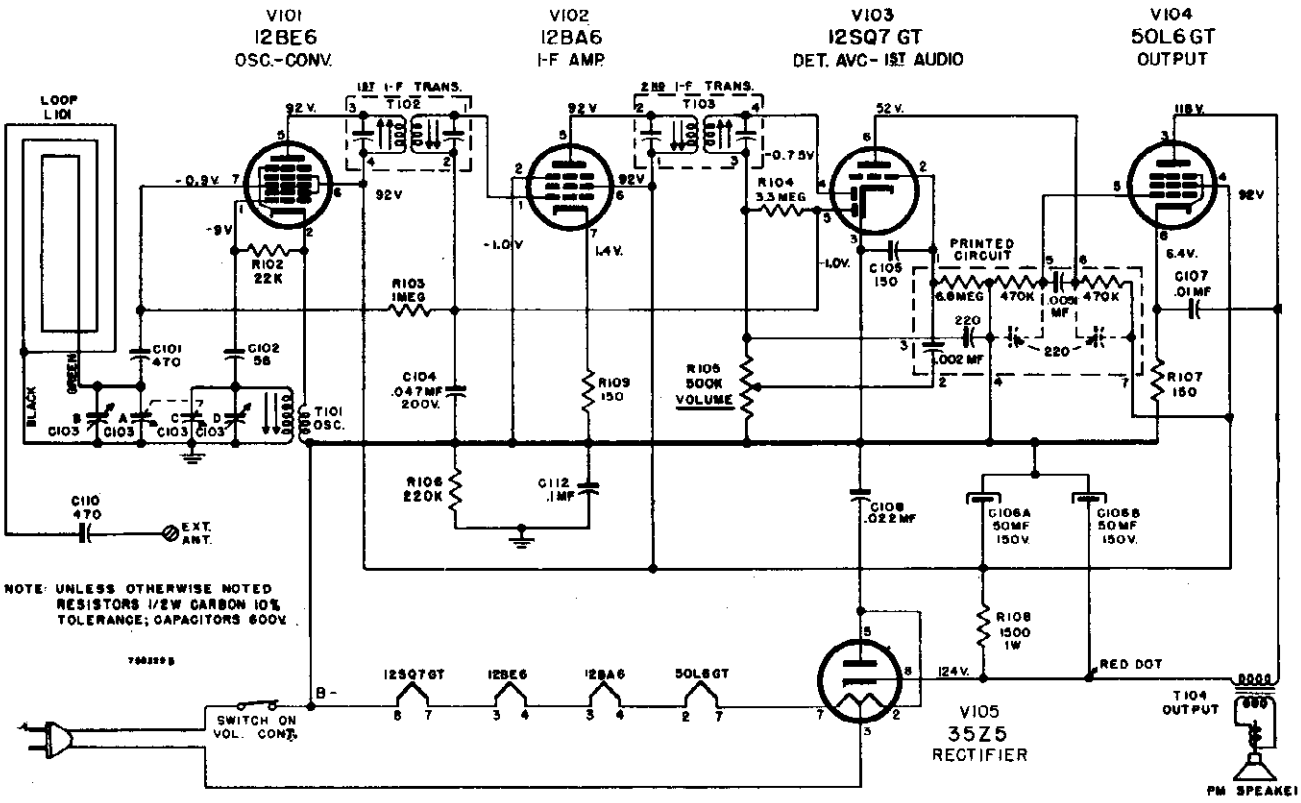
Loudspeaker:
Size & Type 5 inch PM
Voice Coil Impedance 3.2 ohms

Power Output: 1.75 watts

Antenna:
Built-in Loop in rear of cabinet (Terminal on rear of cabinet for connection of outdoor aerial.)

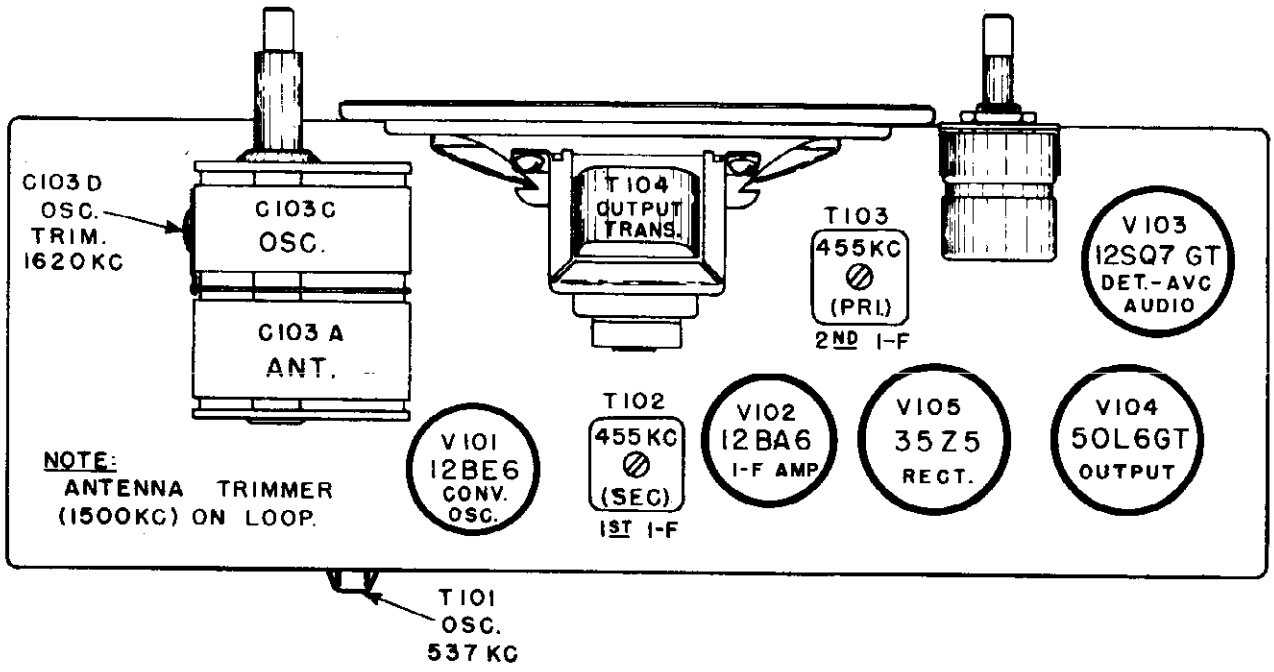
Cabinet Dimensions:
Height 6 5/8", Width 12 1/2", Depth 5 7/16".

SCHEMATIC DIAGRAM

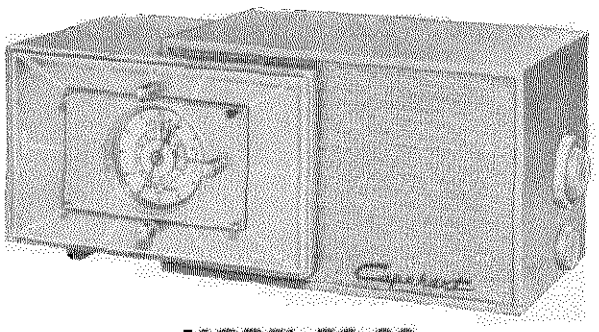


NOTE: UNLESS OTHERWISE NOTED
RESISTORS 1/2W CARBON 10% TOLERANCE; CAPACITORS 600V.

CHASSIS LAYOUT



MODEL TC-20,
Ch. C-297



MODEL TC-20

CHASSIS DESCRIPTION

The C-297 is a 5 tube radio chassis, designed for reception of AM (Broadcast Band) signals only. Since the chassis is operated in conjunction with an electric clock mechanism, it is to be operated only from an alternating current (AC) source.

The power source for the chassis is turned "on" and "off" by the Control Knob on the clock. When the Control Knob is in the **Manual** position, the radio chassis power source is on and it cannot be turned on or off automatically by the clock. When the Control Knob is in the **Off** position, the power source to the chassis is off and it cannot be turned on by the clock. However, with the Control in the **Off** position the power source can be turned on by adjusting the Sleep Knob for a time period up to 60 minutes and at the expiration of this time period, the power source will be turned off. (The Sleep control is a mechanical timing device which mechanically actuates the "on-off" switch which is also manually actuated by the Control Knob). When the Control Knob is in the **Wake-Up** position, the power source is off, however, it will be turned on automatically by the clock mechanism at the time to which the clock alarm is set. The function of the Sleep Knob is the same in this Control Knob position as it is in the **Off** position.

NOTE: The clock motor will be energized at all times when the line cord is connected to the power source.

SPECIFICATIONS

Tube Compliment:

Type	Purpose
12BE6	Oscillator-Converter
12BA6	I-F Amplifier
12AV6	Detector, AVC & 1st Audio Amplifier
50C5	Power Output
35W4	Rectifier

Frequency Range:

AM Broadcast Band .....540KC to 1620KC

Power Source:

Rating .....105-125 volts, 60 cycle AC only
Power Consumption .....35 watts

Appliance Outlet:

Maximum Rating .....1100 watts

Loudspeaker:

Size and type .....4 inch PM
Voice Coil Impedance .....3.2 ohms

Power Output:

.....1.5 watts

Antenna:

Built-in loop in rear of cabinet
(terminal on rear of cabinet for connection of outdoor aerial.)

Cabinet Dimensions:

Height 5 7/16 inches, Width 12 3/8 inches, Depth 5 1/2 inches.

OPERATING INSTRUCTIONS

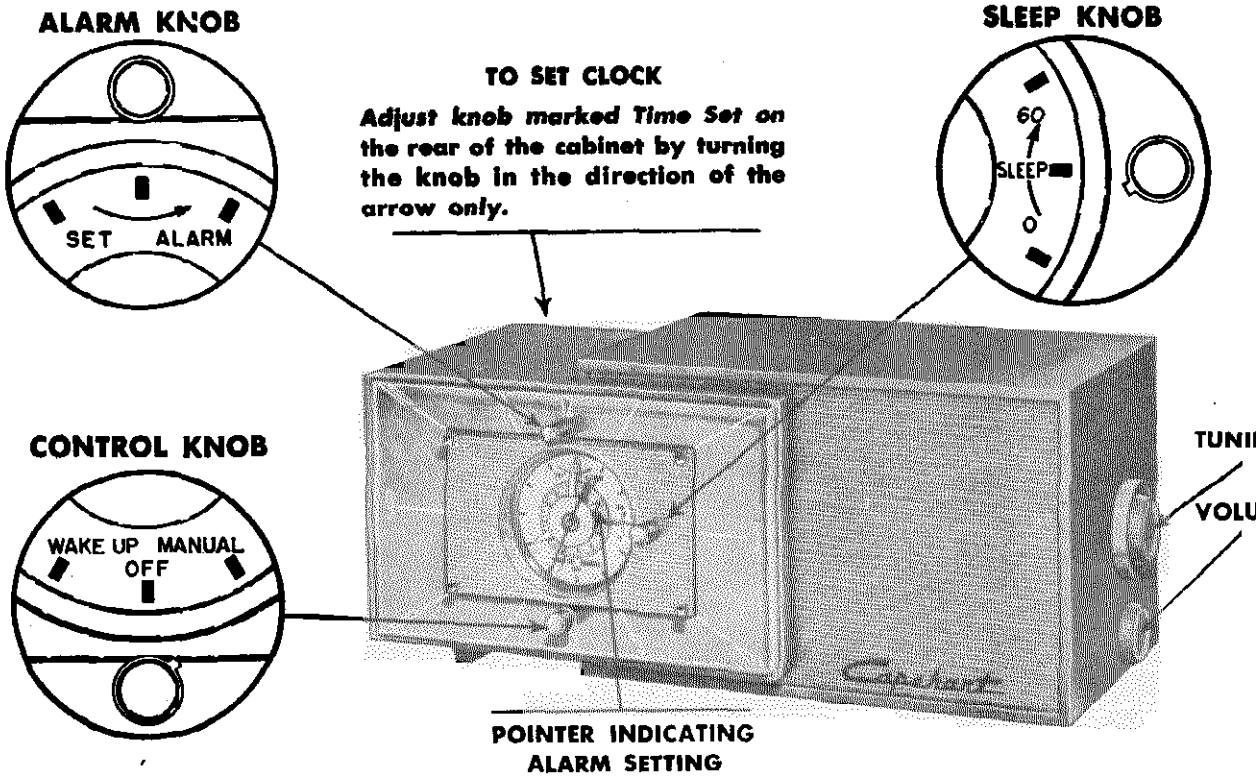
TO SET ALARM FOR EITHER AUTOMATIC RADIO OPERATION OR "BUZZER" OR COMBINATION OF BOTH

Pull out Alarm Knob and turn to the left, this motion will rotate the small disk in the center of the clock face. Set the pointer attached to the hour hand to the desired time indicated on the disk. When the Control Knob is on **Wake-Up** the radio will turn on automatically. Of course, the radio should be pre-tuned to a station and the Volume Control should be pre-set to the proper level to obtain proper automatic radio operation.

If the Alarm Knob is in the out position the "bu
zer" will be sounded shortly after the radio go
on.

If it is desired to have the alarm only, inc
pendent of the radio pull the Alarm Knob out a
set the Control Knob to Off.

Another combination of operations is pr
vided with the Sleep Knob, which will turn off t
radio automatically at night (see "TO TUR
RADIO AND APPLIANCE OFF AUTOMA
ICALLY") and, provided that Control Knob is
Wake-Up position, the radio will turn on au
matically in the morning.



TO TURN RADIO AND APPLIANCE OFF AUTOMATICALLY

Turn the Sleep Knob to the right and if the small projection on the Sleep Knob is used as a rough indicator for a reasonable degree of accuracy can be obtained in adjusting for any period of operation up to 60 minutes. For instance, if 15 minutes of operation is desired the Sleep Knob should be adjusted approximately one-quarter of its full rotation. If it is not desired to have the radio turned on automatically in the morning, then set the Control Knob to **Off** before you set the Sleep Knob for automatic turnoff.

TO TURN ON APPLIANCE AUTOMATICALLY

Plug electrical appliance into outlet on re
of radio, set Control Knob at Wake-Up positi
and the appliance will be turned on at the time d
termined by the setting of the Alarm Knob. T
radio will operate at the same time, but if rad
music is not desired the Volume Knob should
turned fully to the left.

TO PLAY RADIO MANUALLY

1. Set the Control Knob to the manual positi
2. Adjust Tuning Knob for desired station.
3. Set the Volume Control for desired sou
volume.

MODEL TC-20,
Ch. C-297

REMOVAL AND SERVICE OF CLOCK MECHANISM

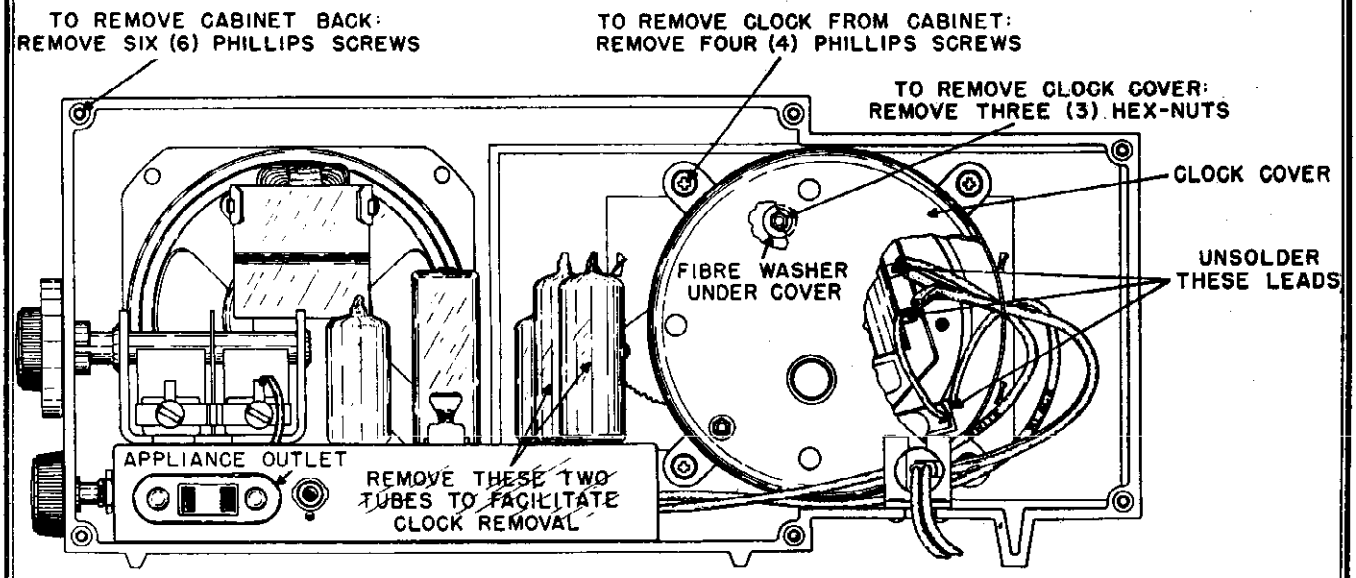
SERVICE

The clock mechanism used in this unit is not to be serviced by anyone other than an authorized Telechron Service Agency (see pages 7 and 8 of this manual for a listing of these agencies). When it is determined that the clock requires adjustment or repair, remove the clock mechanism from the cabinet (as per the following instructions) and return the clock mechanism to your Capehart distributor or an agency specified by him. If the clock mechanism is to be shipped by mail or express, be certain that it is adequately protected and properly packed.

TO REMOVE CLOCK

1. Remove (pull off) the three knobs from the front of the clock.
2. Remove the six (6) Phillips-head screws which fasten the back of the cabinet.
3. Remove the four (4) Phillips-head screws which secure the clock to the inside of the cabinet.
4. Remove the 35W4 and 50C5 tubes to facilitate removal of the clock.
5. Pull clock out of the cabinet by sliding it to the left and back.
6. Remove the three hex nuts which fasten the metal cover to the clock. Keep the metal cover and hardware (4 Phillips screws, 3 hex nuts, and 3 fibre washers) with the cabinet, do not return this material with the clock.
7. Unsolder four (4) electrical leads from the clock.

NOTE: To re-install the clock follow the above procedure in reverse.



ALIGNMENT INSTRUCTIONS

Equipment required:

1. Calibrated R.F. Signal Generator (Signal from 455KC to 1620KC).
2. Low Range Output Meter.

Alignment:

a. Turn set on, adjust volume to maximum.

b. See that dial pointer coincides with calibratio marks at extremes of dial scale.

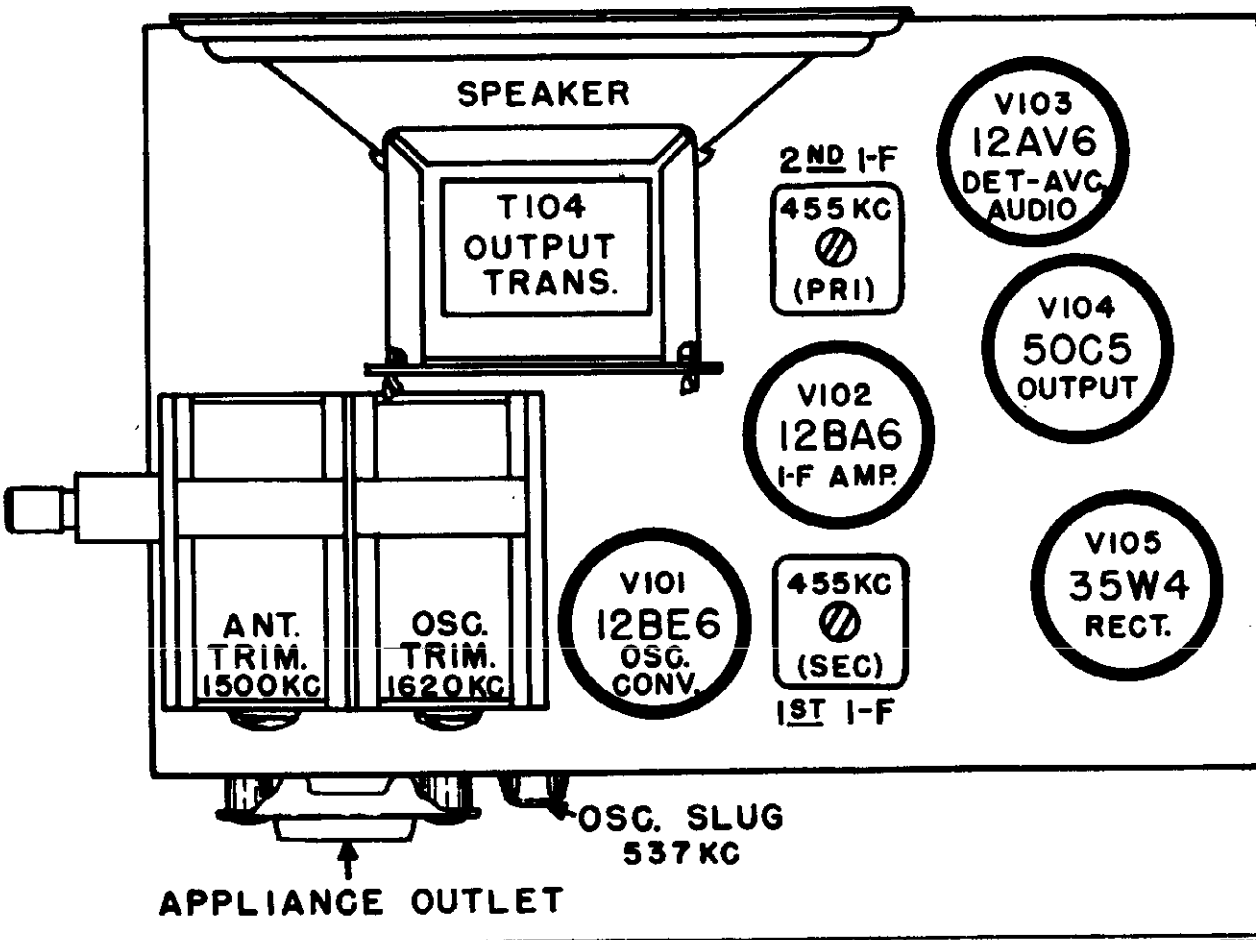
c. Connect output meter across the speaker voic coil.

d. Make a loop of the R-F Generator leads (con nect the leads together through a .01mfd ca pacitor) and loosely couple to the Loop An tenna.

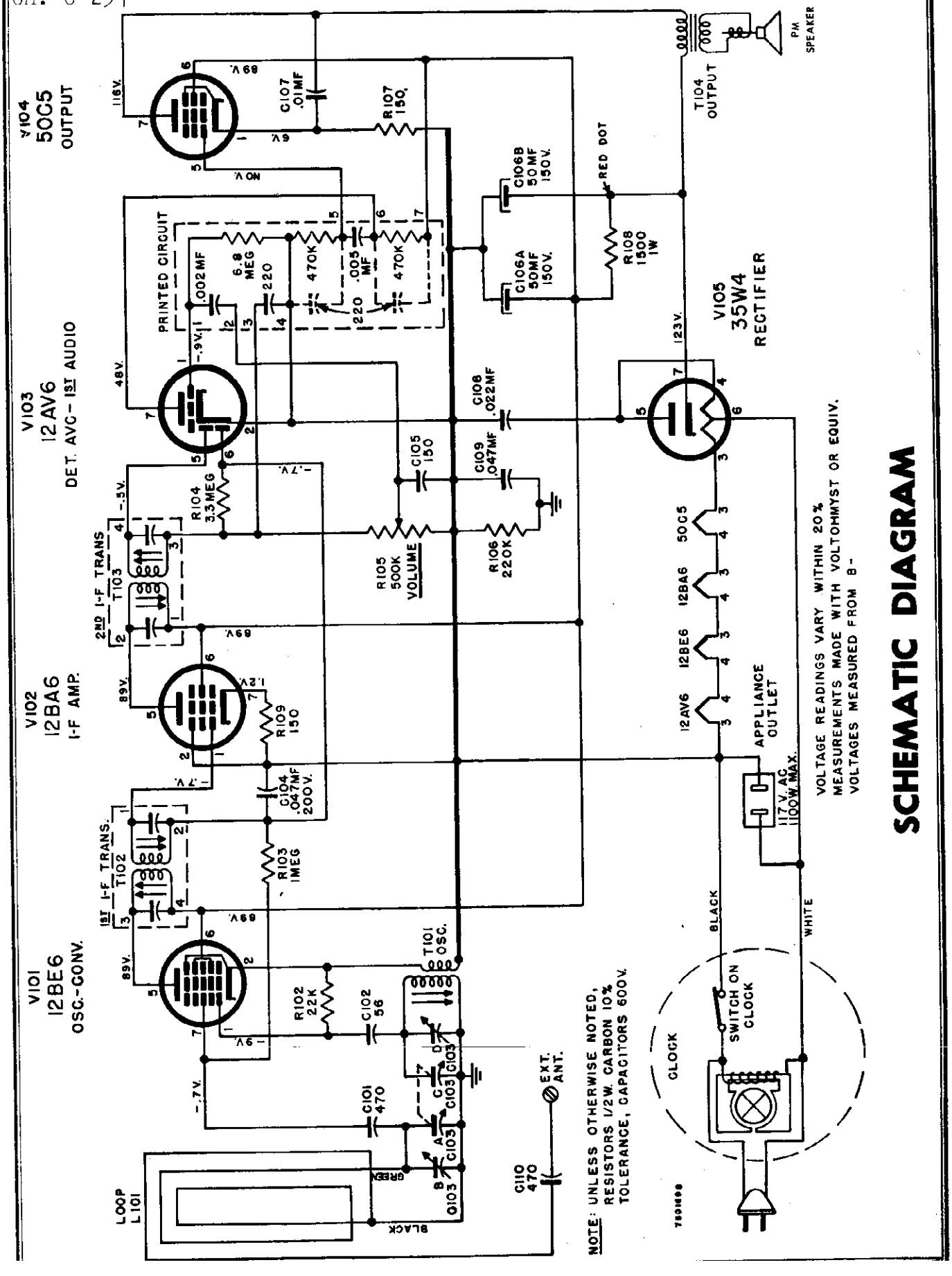
Step	Set RF Generator At	Set Condenser Gang At	Adjust	To Obtain
1	455KC	Fully Open. Disable Osc. Section of Tuning Gang	IF Slugs T103 T102	Max. Output
2	1620KC	1620KC	Osc. Trimmer C103D	Same
3	1500	1500	AF Trimmer C103D	Same
4	537KC	537KC	*T101 Osc. Slug	Same

* Adjust as Tuning Gang is Rocked

CHASSIS LAYOUT



MODEL TC-20,
Ch. C-297



PARTS PRICE LIST MODEL TC-20

Ref. No.	Description	Part No.
	INDUCTANCES	
L101	Loop Antenna	750207A-1
T101	Oscillator Coil	452242A-1
T102	1st IF Transformer	452243A-1
T103	2nd IF Transformer	452243A-1
T104	Output Transformer (part of assembly No. 750204A-1)	
	RESISTORS	
R102	22K, ½w, 10%	3229A-223
R103	1 meg. ½w, 10%	3229A-105
R104	3.3 meg, ½w, 10%	3229A-335
R105	500K volume control	452241A-1
R106	220K, ½w, 10%	3229A-224
R107 & R109	150 ohm, 1w, 10%	3229A-151
R108	1500 ohm, 1w, 10%	3229A-152
	Printed Circuit	452244A-1
	CAPACITORS	
C103A,B,C,D	Variable Tuning Capacitor	650327A-1
C101 & C110	470 mmf 20% Ceramic	2239A-013
C102	56 mmf 10% Ceramic	2241A-554
C104	.047 mf 200V (MOPT)	2246A-4730
C105	150 mmf 20% Ceramic	2240A-021
C106	(a. 50 mf 150V electrolytic)	
	(b. 50 mf 150V electrolytic)	650326A-1
C107	.01 mf 600V paper	2248A-1030
C108	.022 mf 600V (MOPT)	2244A-2230
C109	.047 mf 600V (MOPT)	2244A-4730
	P.M. Speaker and Output Trans. Assy.	750204A-1
	Clock Mechanism	750206A-1
	Appliance Outlet 117V AC 1100 Watts Maximum	450427A-1
	Line Cord	650171A-3
	MISCELLANEOUS	
	Cabinet Assembly	452234A-G1
	Cabinet Back	850130A-1
	Grille (speaker)	650324A-1
	Grille (clock)	650323A-1
	Capehart Insignia	452188A-2
	Escutcheon, Clock	750198A-1
	Stud Decorative	452235A-1
	Knob (dial)	650325A-1
	Pointer Hub Clamp	58549
	Knob Radio	452240A-1
	Knob Clock	452233A-1

MODELS 1005-B, 1005-M,
1005-W, Ch. C-296;
1006-B, 1006-M, 1006-W,
Ch. C-287

SPECIFICATIONS

Tuning Range

AM Band 540 KC to 1620 KC

FM Band 88 mc to 108 mc

Radio IF Frequencies

AM IF 455KC

FM IF 10.7 mc

Chassis Tube Complement

Type	Description
6BA6	AM, FM RF Amplifier
6J6	AM, FM Mixer, Oscillator
6BA6	FM, AM IF Amplifier
6BA6	FM Driver
6AL5	FM Ratio Detector
6SQ7	1st Audio, AM Detector---FM AVC Clamp
6V6GT	Power Amplifier
6X5	Full Wave Rectifier

Total: 8 tube, including one rectifier.

Speaker . . . . . 12 inch PM

Audio Output . . . . . 4 watts

Power Source . . . . . 105 to 125 volts, 60 cycle AC only

ALIGNMENT INSTRUCTIONS

Equipment Required

AM (broadcast band) IF and RF Alignment

1. Calibrated RF Signal Generator (range, 455KC to 1620KC)
2. Low Range Output Meter

FM (Frequency Modulation) IF & RF Alignment

1. FM Sweep Generator (range 10.7 mc to 108.5 mc)
2. Oscilloscope
3. RF Signal Generator (range 10.7 mc to 108.5 mc)
4. Vacuum tube Voltmeter

AM Alignment (IF & RF)

a. Set Operation Selector to AM position

b. See that the dial pointer coincides with the calibration marks at the extremes of the dial scale.

c. Connect the Output Meter cable to Speaker socket on receiver.

d. Turn set on and adjust Volume to maximum.

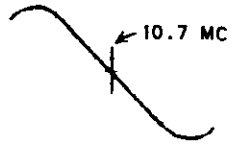
STEP	CONNECT GENERATOR	SET GENERATOR AT	SET GANG AT	ADJUST	TO OBTAIN
1	Green lead on mixer coil	455KC	fully open	T105 & T107 top & Bottom slugs	MAXIMUM OUTPUT
2	Loose Couple to loop Ant.	1620 KC	1620KC	C102E, AM Osc. coil Trimmer	
3	Same	1500KC	1500KC	C102B, Ant. Trimmer, C102C, AM Mixer coil Trimmer	
4	Same	600KC	600KC	T103, AM Mixer coil Slug	
5	Same	537KC	fully closed	T102, AM Osc. coil Slug	

MODELS 1005-B, 1005-M,
1005-W, Ch. C-296;
1006-B, 1006-M, 1006-W
Ch. C-287

FM Alignment

a. Connect the oscilloscope and FM or RF Generator as shown in the chart.
b. Set the Operation Selector in the FM position.
c. Turn the Receiver on.
d. During alignment, reduce the generator output to keep the signal just above noise level to avoid overloading.
e. For maximum signal transfer, Signal Generator should be balanced to 300 ohm FM Antenna terminal input.

IF SECTION

STEP	CONNECT FM (SWEEP) GENERATOR	SET GENERATOR AT	SET GANG AT	CONNECT OSCILLOSCOPE	ADJUST	REMARKS
1	Grid 6BA6 (FM Driver) pin #1, V104	10.7 MC ± 100KC dev.	fully open	Across C127 hot lead to junction R129 C127, C130 & C134, Grd lead to chassis	Top & bottom slugs of T108	Adjust for "S" curve and centered so that the two curved portions are symmetrically spaced from the center.
2	Grid of 6BA6 (IF amp) pin #1, V103	10.7 MC ± 100KC dev.	open	Same	Top & bottom slugs of T106	Adjust for Max. Amplitude of "S" curve  Ratio Det. "S" Curve
3	Grid of 6J6 (Mixer) pin #5, V102A	10.7 MC ± 100KC dev.	open	Same	Top & bottom slugs of T104	

RF SECTION

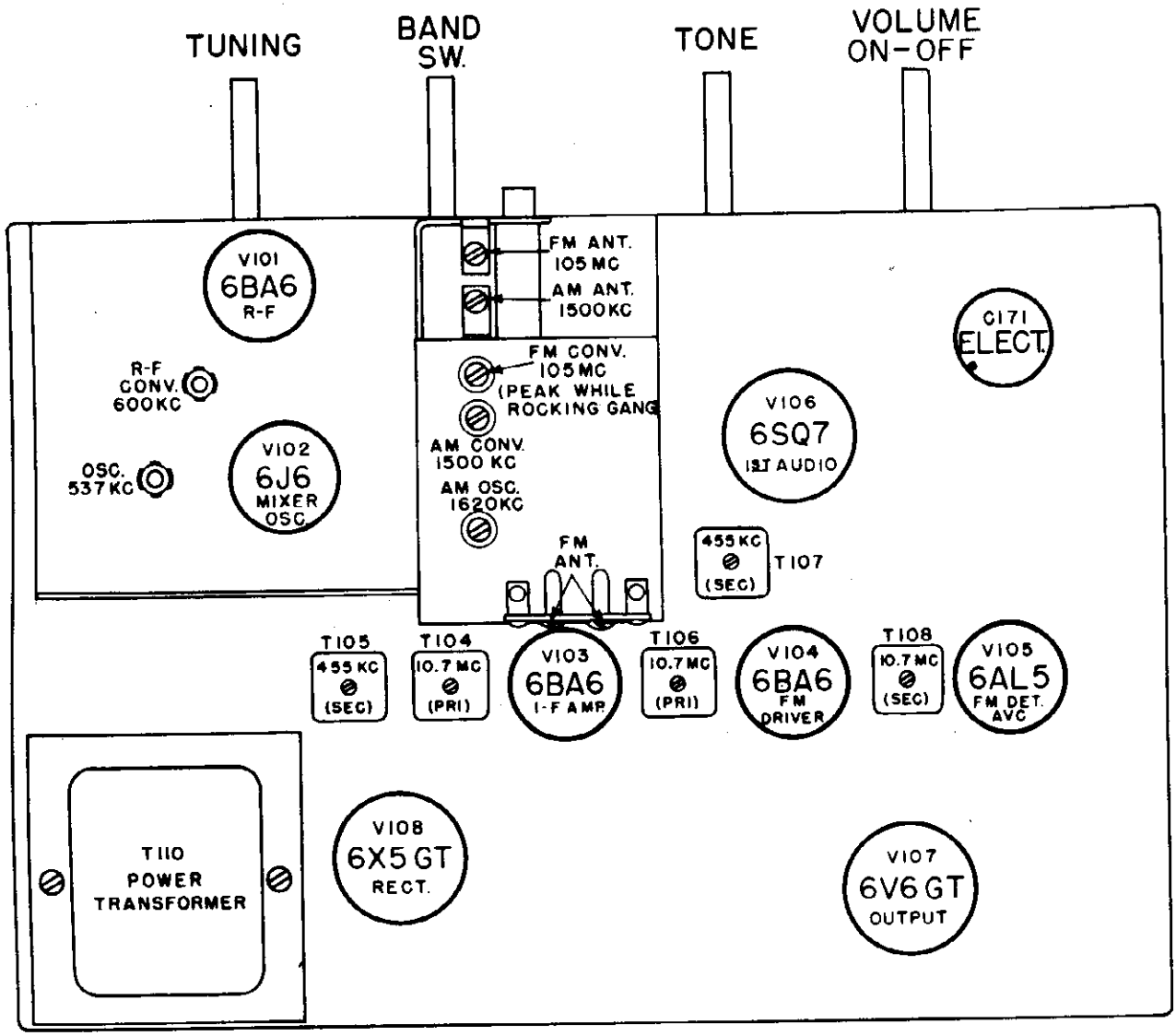
STEP	CONNECT RF GENERATOR	SET GENERATOR AT	SET POINTER OR GANG AT	ADJUST	REMARKS
1.	To FM Ant. Terminals	Modulated 106MC signal	dial point at 106 MC	*L103 osc. coil by adj. spacing of turns	For Max. Sound Output
2.	Same	Modulated 90 MC Signal	gang at 90 MC	Plates of FM tuning capacitor	Same
3.	Repeat steps 1 and 2 until signals are heard with dial pointer set to ½ a pointer's width below 90 MC and 106 MC respectively				
4.	To FM Ant. terminals	Modulated 106 MC	dial to 106 MC	C102D FM trimmer on Mix. Sec.	Max. output while rocking gang
5.	Same	Same	Same	C102A FM trimmer on Ant. section	Maximum Output
6.	Same	Same	Same	L103 (mixer)	Maximum Output
7.	Same	Same	Same	L102 FM Ant. Coil	Maximum Output

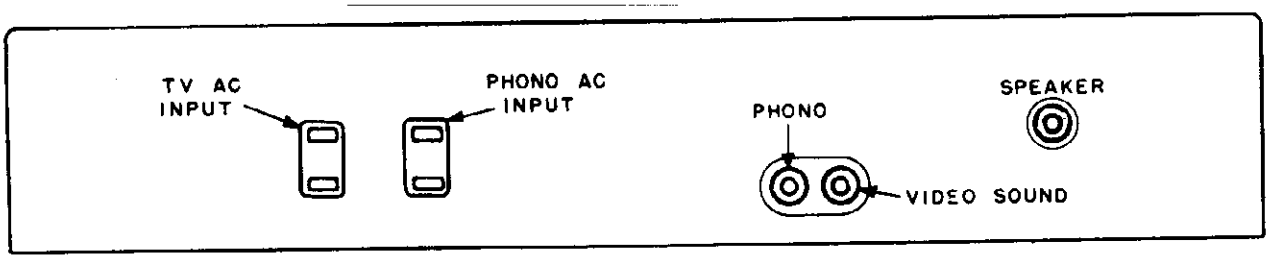
* Cement both coils on L103 after adjusting.

Check calibration of dial against known AM and FM stations.

MODELS 1005-B, 1005-M,
1005-W, Ch. C-296;
1006-B, 1006-M, 1006-W,
Ch. C-287

RADIO CHASSIS C-287 & C-296





CHASSIS
C-296, C-28

TUBE SOCKET TERMINAL VOLTAGES

Voltages measured with voltohmyst or equiv. from indicated Terminal to chassis. No signal input, all controls set for normal operation, Band Switch in AM position except where otherwise noted.

Tube No.	Tube Socket Terminal Numbers							
	#1	#2	#3	#4	#5	#6	#7	#8
V-101	-.85	0	0	6.3AC	170	90	0.7	
V-102	77	160	0	6.3AC	-1.6	-5.6* -7.5+	0	
V-103	-1.	0	0	6.3AC	170	80	0.6	
V-104	0	0	0	6.3AC	175	90	0.55	
V-105†	-.45	-.45	6.3AC	.0	0	0	-.7	
V-106	0	-.8	0	-.5	-1	87	6.3AC	0
V-107	0	0	225	180	0	87	6.3AC	9.5
V-108	0	6.3AC	205AC		205AC	0	0	240

* Reading at low frequency end of band.
\+ Reading at high frequency end of band.
† Band Switch in FM position.

PARTS LIST RADIO CHASSIS C-287 and C-296

- RESISTORS -

Ref. No.	Description	Part no.
R101	Carbon, 650 ohm, ½w, 10%	3229A-561
F102	Carbon, 27K, ½w, 10%	3229A-273
R103, R129	Carbon, 100 ohm ½w, 10%	3229A-101
R104	Carbon 18K ½w, 10%	3229A-183
R105	Carbon 8.2K, ½w, 10%	3229A-822
R106, R113, R118, R133, R135	Carbon 1K ½w, 10%	3229A-102
R107, R111, R112	Carbon 2.2 meg, ½w, 10%	3229A-225
R108, R127	Carbon 10 meg, ½w, 10%	3229A-106
R109	Carbon 33k, ½w, 10%	3229A-333
R110, R116, R131	Carbon 68 ohm, ½w, 10%	3229A-680
R114	Carbon 1.5K, 7w, 10%	650101A-12
R117, R132, R141	Carbon 39K, ½w, 10%	3229A-393
R120	Carbon 229K, ½w, 10%	3229A-224
R121	Carbon 330 ohm, 1w, 10%	3232A-331
R122, R134	Carbon 22k, ½w, 10%	3229A-223
R125	Carbon 100K ½w, 10%	3229A-104
R136	Carbon 330K, ½w, 10%	3229A-334
R138, R140	Carbon 470K ½w, 10%	3229A-474
R123	Control (tone) 3.2 meg.	78153
R124	Control (volume) 1.5 meg.	650290A-1

- CAPACITORS -

C101	Tuning Gang Capacitor Assembly	650278A-1
C102	Trimmer Condensers	Part of 650278A-1
C103, C107, C112, C114, C115, C117, C118, C125, C128, C129, C133, C138	Ceramic Disc 5000 mmf, 10% 500V	450469A-1
C104	Ceramic N330 56 mmf 10% 500V	2241A-554
C105	Ceramic 50 mmf 10%, 500V	25493
C106	Ceramic 4.7 mmf 10% 500V	650030A-10

MODELS 1005-B, 1005-M,
1005-W, Ch. C-296;
1006-B, 1006-M, 1006-W,
Ch. C-287

C108	Ceramic N750 100 mmf 10% 500V	2241A-766
C109	Ceramic N330 68 mmf 10% 500V	2241A-558
C110	Ceramic N750 4.7 mmf 10% 500V	650030A-12
C111	Ceramic N750 20 mmf 10% 500V	2241A-722
C113	Ceramic 240 mmf 10% 500V	25427
C116	OPT .047 mfd 20% 200V	2246A-4730
C119, C120, C126	OPT .01 mfd 20% 600V	2248A-1030
C121	Ceramic N750 33 mmf 10% 500V	2241A-337
C122, C131, C136	OPT .0033 mfd 20% 600V	2248A-3320
C127, C130	Mica 330 mmf 10% 500V	650162A-9
C132	Elect 2 mfd 50V	452132A-1
C135	OPT .022 mfd 20% 600V	2248A-2230
C134	Mica 100 mmf 10% 500V	25188
C139, C140	OPT .0047 mfd 20% 600V	2244A-4720
C142	Mica 150 mmf 10% 500V	650162A-8
C171A, C171B C171C	Elect 30 mfd 350V) Elect 20 mfd 25V)	750090B-18

- INDUCTANCES -

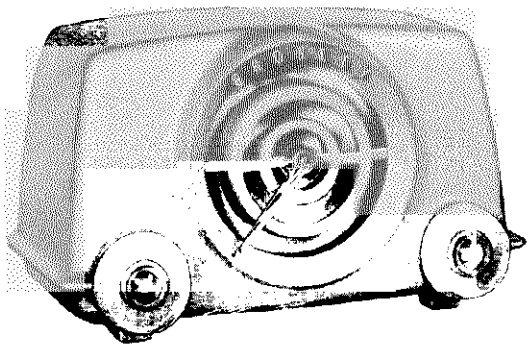
T102	Am Osc Coil Assembly	452174A-1
T103	AM Mixer Coil Assembly	452175A-1
T104	Transformer, 1st FM IF	452178A-1
T105	Transformer, 1st AM IF	452176A-1
T106	Transformer, 2nd FM IF	452179A-1
T107	Transformer, 2nd AM IF	452177A-1
T108	Transformer, Ratio Detector	452028A-1
T110	Transformer, Power	750178A-1
T111	Transformer, Output	650307A-1
L102	FM Antenna Coil	452189A-1
L103	FM Mixer and Osc. Coil	452100A-1
L104, L105	RF Choke	38884

- MISCELLANEOUS -

	Dial Glass, Vertical (1005)	750189A-1
	Dial Glass, Horizontal (1006)	650309A-1
	Dial Backplate	750188A-1
	Clips, Dial Mounting	452180A-1
	Pointer (Dial)	452208A-1
	Band Switch	750190A-2
L101	Loop Antenna Assembly	750194A-1
	Knob (off-on)	650186A-8
	Knob (tone)	650186A-7
	Knob (tuning)	650186A-6
	Knob (program)	650186A-5
	Speaker 12" PM	850129A-1
	Mounting Clips for IF & Detector Transformers	58514
	Printed Circuit (R119, C123, C124) Diode Filter	452171A-1

MODELS 1005-B, 1005-M, 1005-W, Ch. C-296; 1006-B, 1006-M, 1006-W Ch. C-287

Model No.	Color
D10BE	Blue
D10CE	Chartreuse
D10GN	Green
D10TN	Tan
D10RD	Red
D10WE	White



DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

POWER SUPPLY: a.c.-d.c.

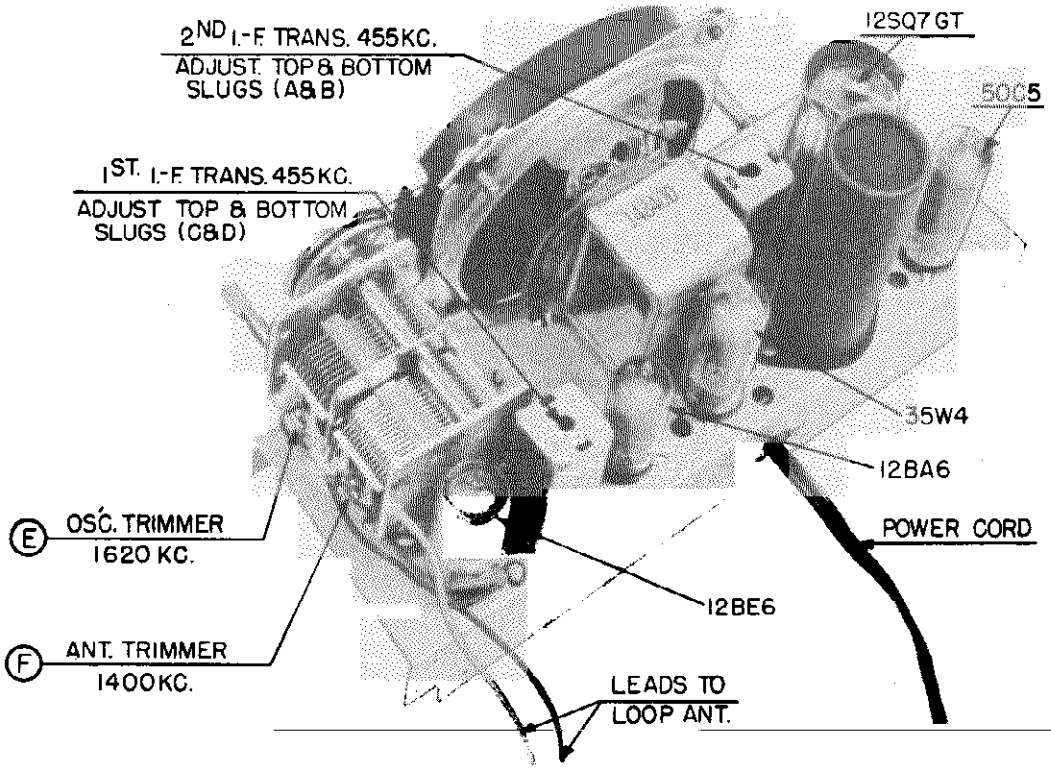
VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION: 30 watts.

POWER OUTPUT: 1.5 watts maximum.

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I. F. Amplifier
12SQ7GT	Detector, AVC, 1st. A. F. Amplifier
50C5	A. F. Power Output
35W4	Rectifier



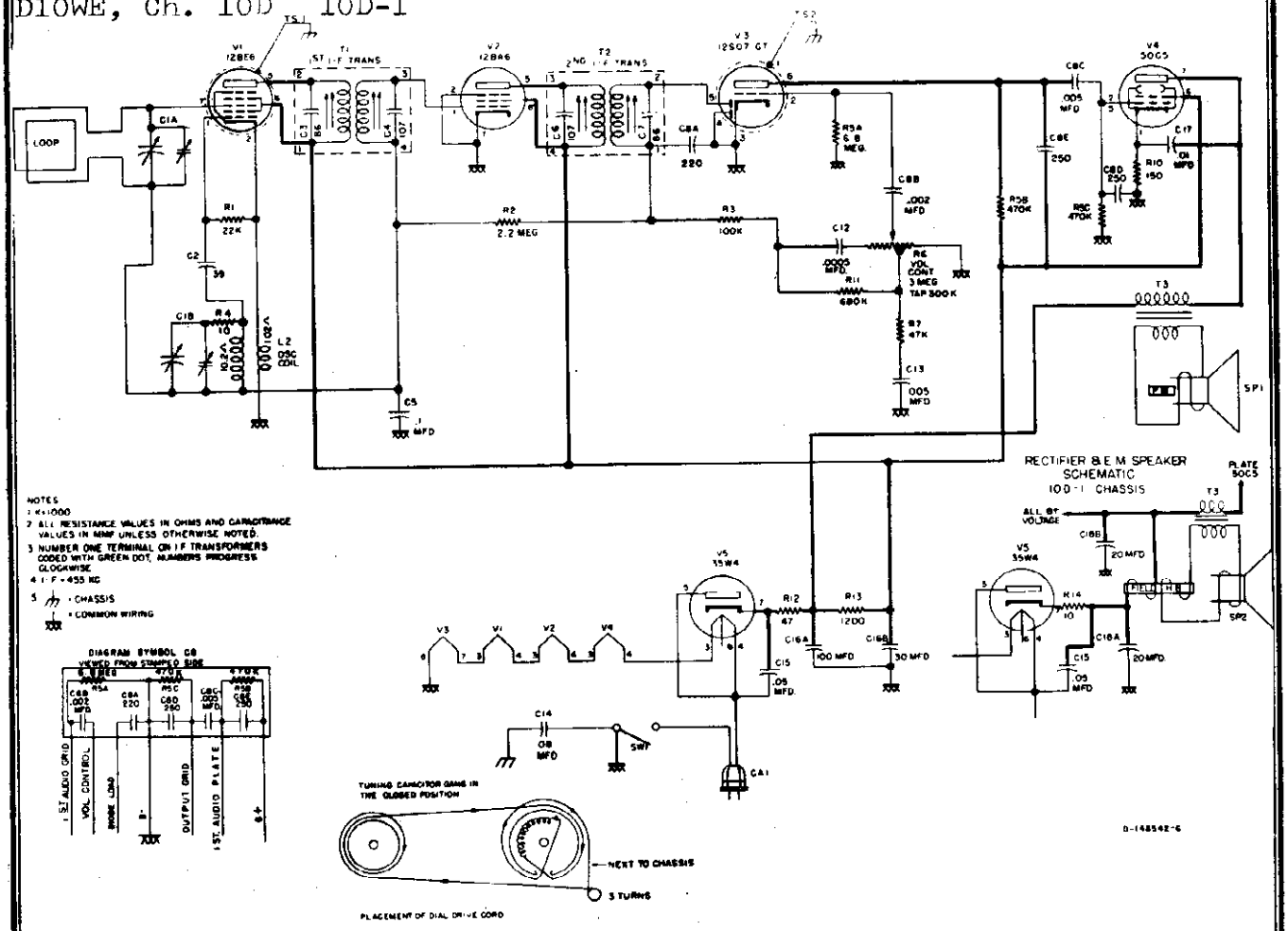
CHASSIS, TOP VIEW

When using direct current it may be necessary to reverse the position of the power plug in electric outlet for correct polarity.

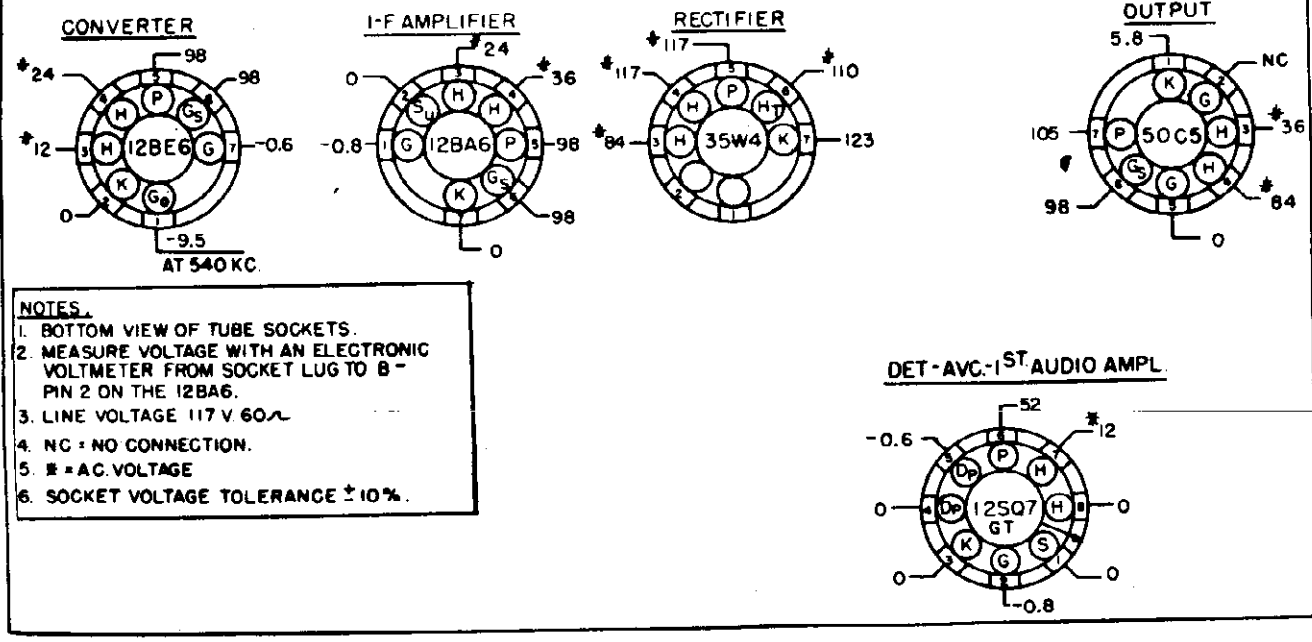
Reversing the position of the power plug when alternating current is used may reduce hum.

Under no circumstances should a ground be connected to this receiver.

MODELS D10BE, D10CE,
D10GN, D10TN, D10RD,
D10WE, Ch. 10D, 10D-1



SCHEMATIC DIAGRAM



SOCKET VOLTAGE CHART

ALIGNMENT PROCEDURE

MODELS D10BE, D10CE, D10GN, D10TN, D10RD, D10WE, Ch. 10D, 10D-1

1. Connect an output meter across the speaker voice coil.
2. The r.f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the signal generator ground through a 0.1 mfd. condenser to B - (pin 2 on 12BA6 tube socket).
3. Turn the volume control on full and adjust the signal generator output to produce approximately midscale 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 "CHASSIS, TOP VIEW."

Alignment Sequence	Signal Generator Output			Position of Dial pointer	Adjust for Maximum Output
	Frequency in KC	In Series with	To		
1	455	200 mmf.	High Side of Loop	1620	A, B, C & D (See Note 1.)
2	1620	Radiated to Loop		1620	E (See Note 2.)
3	1400	Radiated to Loop		Tune to Signal	F (See Note 2.)

ALIGNMENT NOTES

1. Repeat adjustments (A, B, C & D) in sequence, until maximum output is obtained.
2. Place signal generator output lead near the loop antenna. The loop antenna must be positioned with respect to the chassis to simulate its position when chassis and loop are fastened in cabinet.

REPLACEMENT PARTS LIST

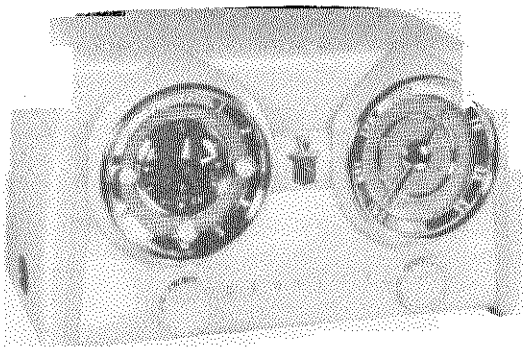
Symbol No.	Part No.	Description
C1A	B-148350	Capacitor, Variable } Two Section
C1B		Capacitor, Variable }
C2	C-137727-109	Capacitor, 39 mmf., 10%, 200 v., ceramic
C3	Part of T1	Capacitor, 86 mmf.
C4	Part of T1	Capacitor, 107 mmf.
C5	39001-19	Capacitor, .1 mfd., 600 v., paper
C6	Part of T2	Capacitor, 107 mmf.
C7	Part of T2	Capacitor, 86 mmf.
C8A	C-151550-1	Capacitor, 220 mmf., 450 v. } Capacitor-Resistor Unit
C8B		Capacitor, .002 mfd., 450 v. }
C8C		Capacitor, .005 mfd., 450 v. }
C8D		Capacitor, 220 mmf., 450 v. }
C8E		Capacitor, 220 mmf., 450 v. }
C12	39001-5	Capacitor, .005 mfd., 600 v., paper
C13	39001-11	Capacitor, .005 mfd., 600 v., paper
C14	39001-85	Capacitor, .08 mfd., 600 v., paper
C15	39001-17	Capacitor, .05 mfd., 600 v., paper
*C16A	B-148357	Capacitor, 100 mfd., 150 v. } Two Section Electrolytic
*C16B		Capacitor, 30 mfd., 150 v. }
C17	39001-13	Capacitor, .01 mfd., 600 v., paper
**C18A	B-151617	Capacitor, 20 mfd., 150 v. } Two Section Electrolytic
**C18B		Capacitor, 20 mfd., 150 v. }
R1	39373-60	Resistor, 22,000 ohm, ½ w.
R2	39373-97	Resistor, 2.2 megohm, ½ w.
R3	39373-74	Resistor, 100,000 ohm, ½ w.
R4	39373-1	Resistor, 10 ohm, ½ w.
R5A	Part of C8	Resistor, 6.8 megohm, 1/5 w.
R5B	Part of C8	Resistor, 470,000 ohm, 1/5 w.
R5C	Part of C8	Resistor, 470,000 ohm, 1/5 w.
R6	B-148327	Control, Volume (3 megohm, Tap 300,000 ohm)
R7	39373-67	Resistor, 47,000 ohm, ½ w.
R10	39373-16	Resistor, 150 ohm, ½ w.
R11	39373-90	Resistor, 680,000 ohm, ½ w.
*R12	39374-97	Resistor, 47 ohm, 10%, 1 w.
*R13	39374-114	Resistor, 1200 ohm, 10%, 1 w.
R14	39373-1	Resistor, 10 ohm, ½ w.
CA1	C142769-1	Cable & Plug Assy., Power

Symbol No.	Part No.	Description
L1	C-148399	Loop & Back Assy.
L2	AW-148259	Coil, Oscillator
*SP1	AD-148400	Speaker (4" P.M.)
**SP2	AD-151244	Speaker (4" E.M. 680 ohm)
SW1	Part of R6	Switch, Power
TS1	W-147784	Shield, Tube (V1)
TS2	W-46447-1	Shield, Tube (V3)
T1	C-139919-5	Transformer, 1st I.F.
T2	C-139919-5	Transformer, 2nd I.F.
	138131-1	Transformer, Output
	AB-152185	Baffle & Grille Cloth Assy.
	AB-152241-1	Cabinet (D10BE)
	AB-152241-4	Cabinet (D10CE)
	AB-152241-2	Cabinet (D10GN)
	AB-152241-5	Cabinet (D10TN)
	AB-152241-3	Cabinet (D10RD)
	AB-148465-1	Cabinet (D10WE)
	W-148434	Clip, I.F. Transformer Mtg.
	W-131154-1	Cotter (External), Tuning Shaft
	AB-150661	Gasket & Bushing Assy., Speaker
	W-148390-2	Grommet (3 used), chassis
	AB-152532-2	Knob (D10BE)
	AB-152532-6	Knob (D10CE)
	AB-152532-3	Knob (D10GN)
	AB-152532-5	Knob (D10TN)
	AB-152532-4	Knob (D10RD)
	AB-152532-1	Knob (D10WE)
	S-148555	Pad (Foot), Cabinet
	B-152176	Pointer, Dial
	AA-151144	Pulley & Shaft Assy., Dial Pointer
	39176-59	Screw Chassis Mtg.
	W-148379	Shaft, Tuning
	39462-2	Socket, Tube (V1, V2, V4, V5)
	W-149987	Socket, Tube (V3)
	W-51752	Spring, Drive Cord
	A-151085	Spring (Idler), Drive Cord
	W-132124	Stud (Trimount), Cabinet Back
	W-134916	Washer (Spring), Tuning Shaft

* Used on Chassis 10D, which is equipped with a P.M. speaker
** Used on Chassis 10D-1, which is equipped with an E.M. speaker.

MODELS D-25BE, D-25CE,
D-25GN, D-25MN, D-25TN,
D-25WE, Ch. 311, 311-1

Model No.	Color
D-25 WE	White
D-25 TN	Tan
D-25 CE	Chartreuse
D-25 MN	Maroon
D-25 BE	Metallic Blue
D-25 GN	Metallic Green



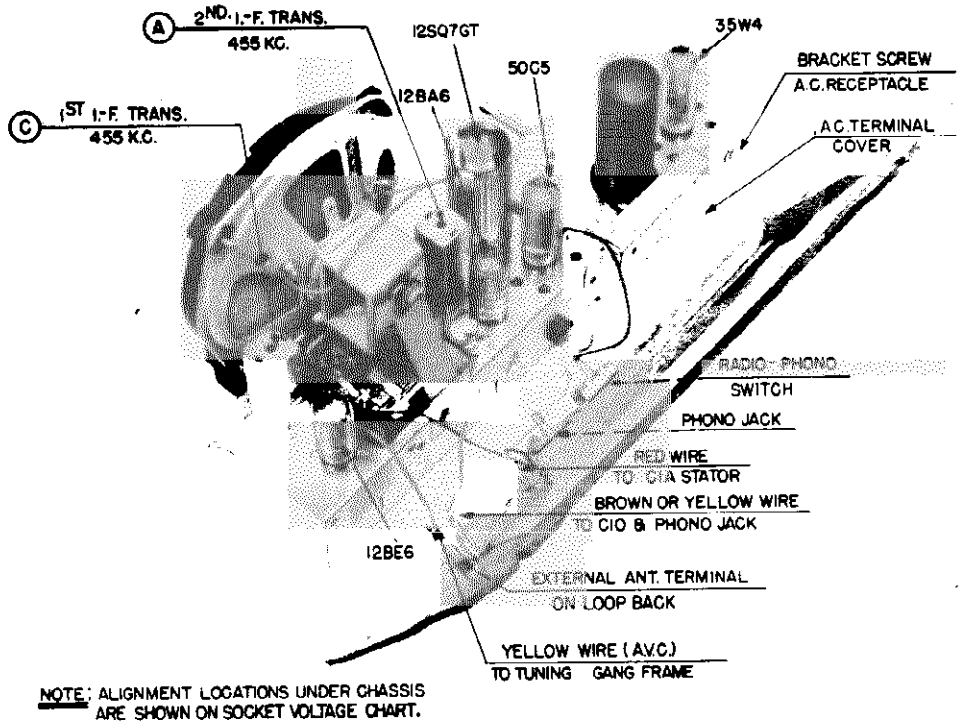
DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.
FREQUENCY RANGE: 540 to 1600 kc.
INTERMEDIATE FREQUENCY: 455 kc.
POWER SUPPLY: 60 cycle, a.c. only.
VOLTAGE RATING: 105-125 volts.
POWER OUTPUT: 1 watt maximum.
POWER CONSUMPTION:

Radio and Clock..... 35 watts
Clock ..... 2 watts

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I. F. Amplifier
12SQ7GT	Detector, AVC, 1st. A. F. Amplifier
50C5	A. F. Power Output
35W4	Rectifier



NOTE: ALIGNMENT LOCATIONS UNDER CHASSIS ARE SHOWN ON SOCKET VOLTAGE CHART.

CHASSIS, TOP VIEW

Under no circumstances should a ground be connected to this receiver.

Phonograph connection — To use a record player with this receiver insert the pickup plug of the record player into the Phono jack on back of receiver. Then slide the Radio-Phono Switch on the back of the receiver to the "Phono" position. Connect the power cord of the record player to a convenient electric outlet of the correct voltage and frequency. Operate the record player in the normal manner. The controls of the receiver operate the same as for radio programs.

ALIGNMENT PROCEDURE

1. To remove the chassis from the cabinet, proceed as follows:
   a. Turn the tuning control completely counter-clockwise to close the gang.
   b. Remove the volume and tuning control knobs, and the dial pointer.
   c. Remove the cabinet back and loosen the screw on the terminal cover behind the electrolytic capacitor. Lift up the cover and disconnect the three leads to the clock.
   d. Connect a jumper between the terminal coded yellow and the center terminal on the terminal board.
   e. Remove the two screws in the top corners of the chassis apron that secure the chassis to the cabinet.
   f. Loosen the slotted hex head screw on the right rear of the chassis and slide the screw toward the center of the chassis to release power receptacle from opening in side of cabinet.
   g. Slide the chassis from the cabinet.
2. Connect an output meter across the speaker voice coil.
3. The r.f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the signal generator ground to the top lug on loop antenna back (See Chassis Top View, page 1).
4. Turn the volume control on full and adjust the signal generator output to produce approximately midscale 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 "Chassis, Top View," and on "Socket Voltage Chart".

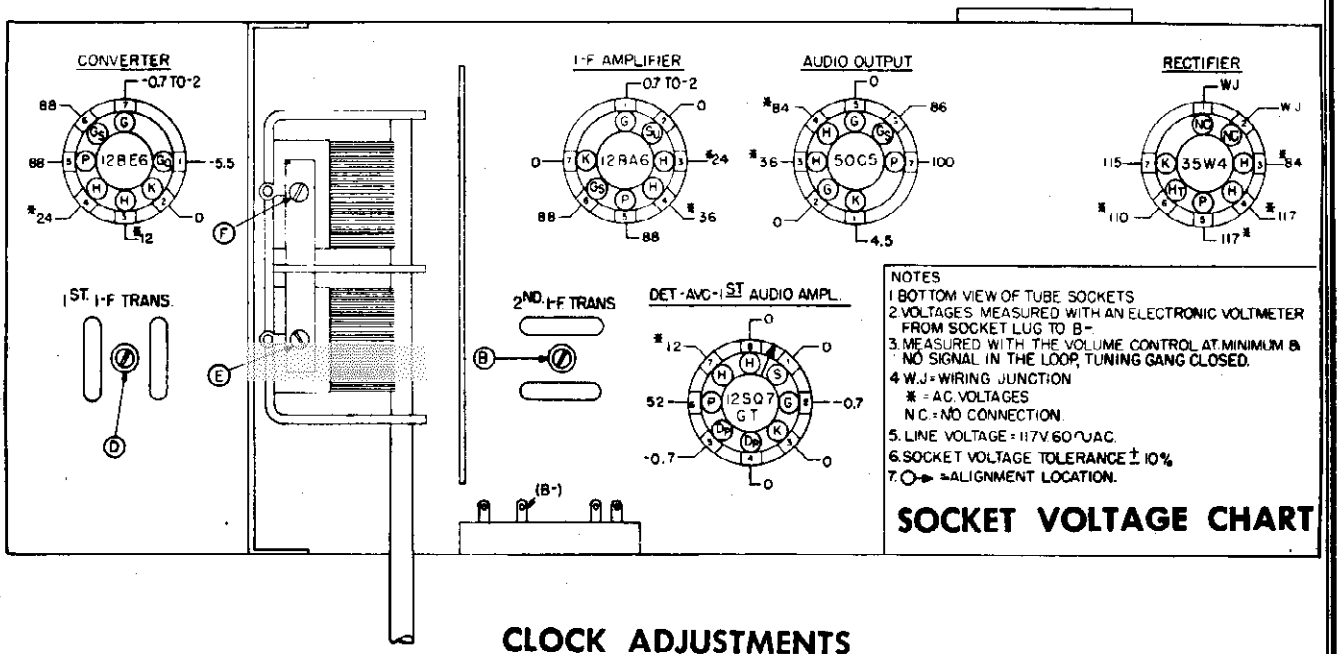
Alignment Sequence	Signal Generator Output			Position of Dial pointer	Adjust for Maximum Output
	Frequency in KC	In Series with	To		
1	455	200 mmf.	External Ant. Screw	1620	A, B, C & D (See Note 1.)
2	1620	200 mmf.	External Ant. Screw	1620	E
3	1400	200 mmf.	External Ant. Screw	1400	F (See Note 2.)

ALIGNMENT NOTES

Repeat adjustments (A, B, C & D) in sequence, until maximum output is obtained.

After the chassis and loop antenna have been replaced in the cabinet, repeat alignment sequence "3". Adjust "F" by inserting screw driver through the hole provided in the bottom of the cabinet.

MODELS D-25BE, D-25CE,
D-25GN, D-25MN, D-25TN,
D-25WE, Ch. 311, 311-1



CLOCK ADJUSTMENTS

PROCEDURE FOR CHECKING TIMER SWITCH AND VIBRATOR:

1. With the time set knob, turn the clock hands so as to advance the time at least one (1) hour. (For ease in checking, it is recommended that the time be set to the hour.)
2. Attach test light to black and yellow switch leads.
3. Turn switch knob to "Radio" position - light must go on.
4. Turn switch knob to "Off" position - light must go out.
5. Set alarm disc so that small pointer on hour hand reads two (2) hours in advance of the time of the clock. **EXAMPLE:** If the clock hands are set to read 7 o'clock, set the alarm disc to read 9 o'clock.
6. Turn sleep switch to "60" - test light must go on.
7. Turn time set knob advancing clock hands to next hour - light must go out and SLEEP SWITCH SECTOR GEAR must be completely disengaged within one (1) hour plus or minus eight (8) minutes.
8. Manually push SLEEP SWITCH SECTOR GEAR in until it touches its mating pinion WITHOUT meshing - light must go on.
9. Turn switch knob to "Radio Alarm" position.
10. Turn time set knob to advance clock hands so they read 15 minutes until the next hour. Then slowly advance the hands until the test light lights, which indicates the contacts are closed. The contacts must close somewhere between 14 minutes to the hour and 4 minutes past the hour.
11. Remove test light and connect 110 volt supply to the black and red leads.
12. Turn time set knob to advance the clock hands 4 minutes - vibrator must NOT buzz. Then advance the hands 14 minutes - vibrator MUST buzz within this 14 minute period.

ADJUSTING CONTACTS:

1. Set the alarm disc so that the time indicated by the small pointer on the hour hand is different (at least 1 hour) from the time indicated by the hands of the clock. Then set switch to "Radio Alarm" position so that the TIMING CAM FOLLOWER rests on the TIMING CAM. Contacts shall be adjusted at .020" minimum gap.

2. With switch in "OFF" position contacts shall remain open as in step one and there shall be clearance between TIMING CAM FOLLOWER and TIMING CAM.

3. With switch in "Radio" position, contacts shall be closed. Check for proper contact pressure by depressing CONTACT (A), using a small pointed tool. If CONTACT (B) follows CONTACT (A), a noticeable amount before the contacts separate, the pressure is sufficient.

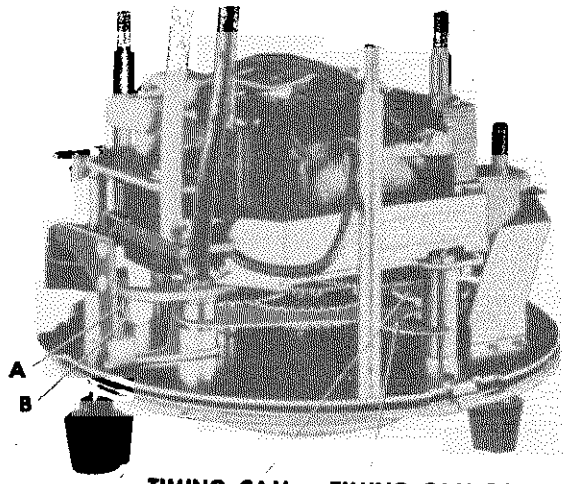
4. Set the switch to "Radio Alarm" position; pull out and turn alarm set knob counter-clockwise until the TIMING CAM FOLLOWER drops into the slot of TIMING CAM. The contacts shall be closed. Check contact pressure as previously described in step three.

5. SWITCH ARM (C) should clear CAM (D) by .008" minimum when in the "Radio Alarm" position.

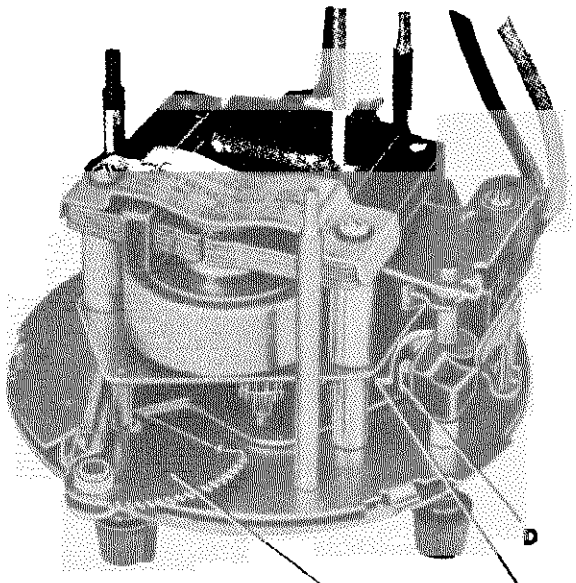
TIMING:

1. Adjust timer for contact closure at 6:55 o'clock. On repeat tests, contacts shall close at 6:55 plus or minus 3 minutes. At all other settings the contacts shall close between 12 minutes before and 2 minutes after the setting time.

2. Check time keeping for a minimum of twelve hours with power applied to the motor. Clock must be run with vibrator (buzzer) shut off.



TIMING CAM TIMING CAM FOLLOWER



SLEEP SWITCH SECTOR GEAR

VIBRATOR ADJUSTMENT:

1. Vibrator shall start buzzing 10 minutes plus or minus 5 minutes after contact closure occurs.

2. When the alarm set knob is pushed in ("shut-off" position of vibrator) the shut-off spring shall lift the vibrator sufficiently above the cam, so that the cam will not contact the vibrator in any position.

3. Adjust vibrator for good sounding position.

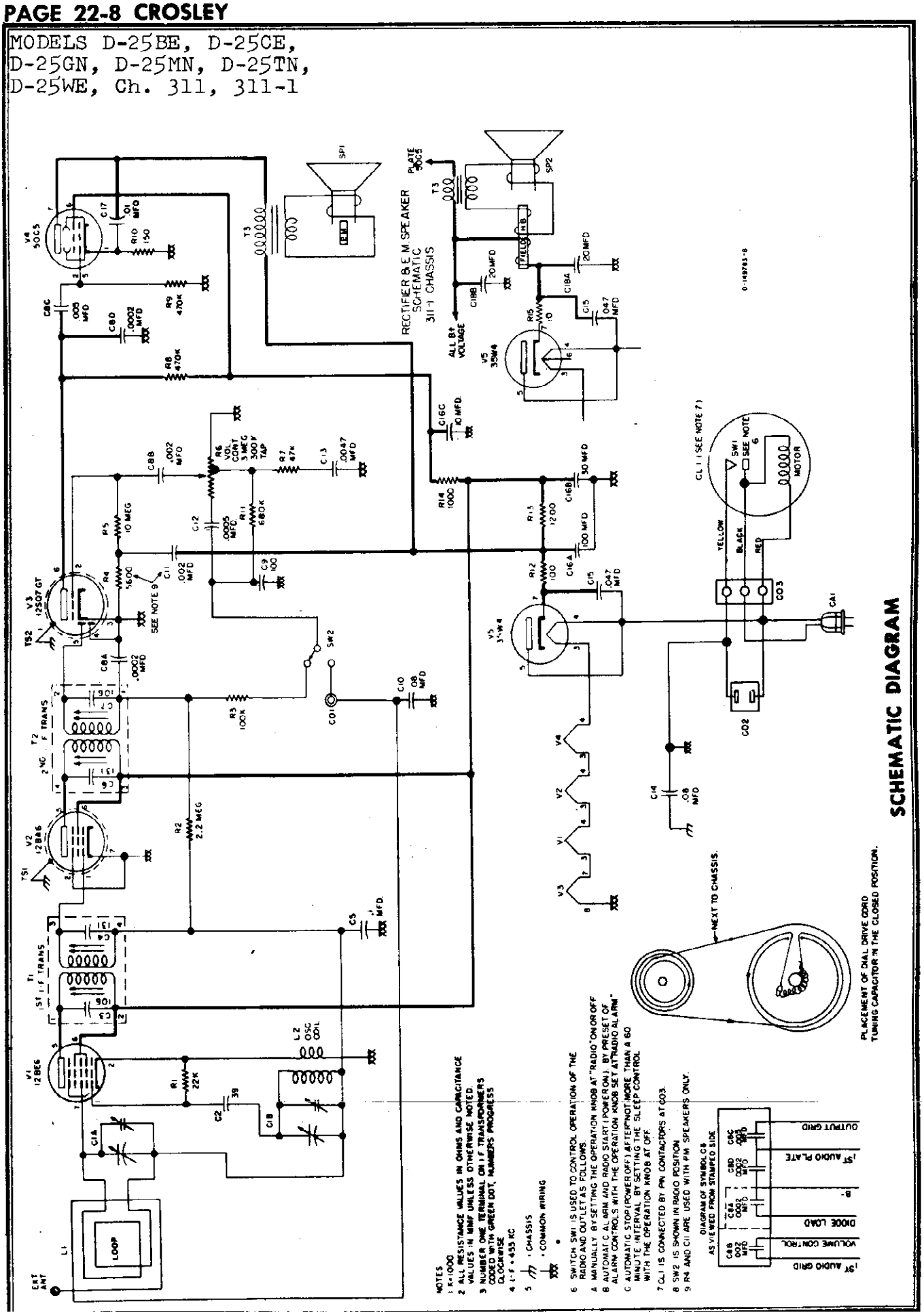
4. Vibrator shall be manually shut off before completion of buzzing period.

CLOCK LUBRICATION

1. Center stack bearing in base plate and hole in back gear pinion should be lubricated with Nye watch oil or equivalent.

2. Path of switch locating spring on bracket should be lubricated with Dixon graphite grease.

MODELS D-25BE, D-25CE,
D-25GN, D-25MN, D-25TN,
D-25WE, Ch. 311, 311-1



MODELS D-25BE, D-25CE, D-25GN, D-25MN, D-25TN, D-25WE, Ch. 311, 311-1

REPLACEMENT PARTS LIST

(Clock)

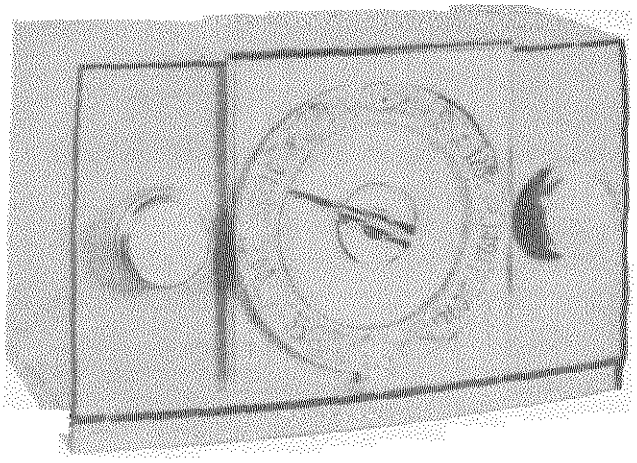
Part No.	Description	Part No.	Description
B-151389-1	Crystal, Dial	B-151389-6	Hands, Hour & Minute
B-151389-2	Rivet, Dial Crystal (3 required)	B-151389-8	Knob, Time Set (Bronze)
B-151389-3	Dial	B-151389-9	Field & Coil (60 cycle)
B-151389-4	Disc, Alarm	B-151389-10	Rotor Unit (60 cycle)
B-151389-5	Hand, Sweep Second (Gold)		

REPLACEMENT PARTS LIST

Symbol No.	Part No.	Description
C1A	B-149437	Capacitor, Variable } Two Section
C1B		Capacitor, Variable }
C2	C-137727-109	Capacitor, 39 mmf., 10%, 200 v., ceramic
C3	Part of T1	Capacitor, 106 mmf.
C4	Part of T1	Capacitor, 131 mmf.
C5	39001-19	Capacitor, .1 mfd., 600 v., paper
C6	Part of T2	Capacitor, 131 mmf.
C7	Part of T2	Capacitor, 106 mmf.
C8A	C-144675-1	Capacitor, .0002 mfd., 500 v. } Four Section disc ceramic
C8B		Capacitor, .002 mfd., 500 v. }
C8C		Capacitor, .005 mfd., 500 v. }
C8D		Capacitor, .002 mfd., 500 v. }
C9	B-143686-3	Capacitor, 100 mmf., 500 v., molded disc ceramic
C10	39001-85	Capacitor, .08 mfd., 600 v., paper
C11	39001-74	Capacitor, .002 mfd., 600 v., paper (Chassis 311)
C12	39001-5	Capacitor, .0005 mfd., 600 v., paper
C13	39477-39	Capacitor, .0047 mfd., 600 v., molded paper
C14	39001-85	Capacitor, .08 mfd., 600 v., paper
C15	39477-45	Capacitor, .047 mfd., 600 v., molded paper
C16A	B-149541	Capacitor, 100 mfd., 150 v. } Three Section Electrolytic
C16B		Capacitor, 30 mfd., 150 v. }
C16C		Capacitor, 10 mfd., 150 v. }
C17	39477-41	Capacitor, .01 mfd., 600 v., molded paper
C18A	B-151617	Capacitor, 20 mfd., 150 v. } Two Section Electrolytic (Chassis 311-1)
C18B		Capacitor, 20 mfd., 150 v. }
R1	39373-60	Resistor, 22,000 ohm, 1/2 w.
R2	39373-97	Resistor, 2.2 megohm, 1/2 w.
R3	39373-74	Resistor, 100,000 ohm, 1/2 w.
R4	39374-34	Resistor, 5600 ohm, 10%, 1/2 w. (Chassis 311)
R5	39373-107	Resistor, 10 megohm, 1/2 w.
R6	B-149382	Control, Volume (3 meg., Tap 300 K ohm)
R7	39373-67	Resistor, 47,000 ohm, 1/2 w.
R8	39373-87	Resistor, 470,000 ohm, 1/2 w.
R9	39373-87	Resistor, 470,000 ohm, 1/2 w.
R10	39373-16	Resistor, 150 ohm, 1/2 w.
R11	39373-90	Resistor, 680,000 ohm, 1/2 w.
R12	39374-189	Resistor, 100 ohm, 10%, 2 w. (Chassis 311)
R13	39374-114	Resistor, 1200 ohm, 10%, 1 w. (Chassis 311)
R14	39373-33	Resistor, 1000 ohm, 1/2 w. (Chassis 311)
R15	39373-1	Resistor, 10 ohm, 1/2 w. (Chassis 311-1)
TS1	W-147784	Shield, Tube (V2)
TS2	W-46447-1	Shield, Tube (V3)
CA1	C-149780	Cable & Plug Assy., Power
CO1	W-136998	Connector, Phono
L1	AC-149557	Loop Antenna & Back Assy.
L2	AW-148259	Coil, Oscillator
SP1	AD-145956-2	Speaker, 5 1/4" P.M. (Chassis 311)
SP2	AD-151190-2	Speaker, 5 1/4" E.M. 680 ohm (Chassis 311-1)
SW1	Part of CL1	Switch, On-Off
SW2	W-148260	Switch, Radio-Phono
CL1	AW-149689	Clock Assy.
T1	AC-139919-3	Transformer, 1st I.F.
T2	AC-139919-3	Transformer, 2nd I.F.
T3	B-147171	Transformer, Output
CO2	AB-149562	Outlet & Bracket Assy.
CO3	W-149673	Contact Strip
	W-149366	Bracket, Speaker Support
	AD-149598-1	Cabinet & Medallion Assy.(D-25WE)
	AD-149598-7	Cabinet & Medallion Assy.(D-25GN)
	AD-149598-3	Cabinet & Medallion Assy.(D-25CE)
	AD-149598-4	Cabinet & Medallion Assy.(D-25MN)
	AD-149598-8	Cabinet & Medallion Assy.(D-25BE)
	AD-149598-9	Cabinet & Medallion Assy.(D-25TN)
	W-139921	Clip, I.F. Transformer Mtg.
	W-131154-1	Cotter (External), Pointer Pulley
	B-149398	Cover, Clock
	W-147216	Cups, Suction
	B-149667-1	Escutcheon, Outlet
	D-149963-1	Escutcheon, Radio
	C-149964-1	Escutcheon, Clock
	D-149742	Gasket, Speaker
	W-149341	Gasket, Clock Dial Grille & Ring
	AC-149962-1	Grille & Ring Assy., Clock Dial(D-25WE)
	AC-149962-7	Grille & Ring Assy., Clock Dial(D-25GN)
	AC-149962-3	Grille & Ring Assy., Clock Dial(D-25CE)
	AC-149962-4	Grille & Ring Assy., Clock Dial(D-25MN)
	AC-149962-8	Grille & Ring Assy., Clock Dial(D-25BE)
	AC-149962-9	Grille & Ring Assy., Clock Dial(D-25TN)
	AB-149524-1	Grille, Radio Dial (D-25WE)
	AB-149524-7	Grille, Radio Dial (D-25GN)
	AB-149524-3	Grille, Radio Dial (D-25CE)
	AB-149524-4	Grille, Radio Dial (D-25MN)
	AB-149524-8	Grille, Radio Dial (D-25BE)
	AB-149524-9	Grille, Radio Dial (D-25TN)
	W-45580-2	Grommet (Rubber), Speaker Mtg.
	AC-149952-1	Knob, Volume-Tuning (D-25WE)
	AC-149952-7	Knob, Volume-Tuning (D-25GN)
	AC-149952-3	Knob, Volume-Tuning (D-25CE)
	AC-149952-4	Knob, Volume-Tuning (D-25MN)
	AC-149952-8	Knob, Volume-Tuning (D-25BE)
	AC-149952-9	Knob, Volume-Tuning (D-25TN)
	B-149311-1	Knob, Switch (D-25WE)
	B-149311-7	Knob, Switch (D-25GN)
	B-149311-3	Knob, Switch (D-25CE)
	B-149311-4	Knob, Switch (D-25MN)
	B-149311-8	Knob, Switch (D-25BE)
	B-149311-9	Knob, Switch (D-25TN)
	B-149339-1	Knob, Alarm Set (D-25WE)
	B-149339-7	Knob, Alarm Set (D-25GN)
	B-149339-3	Knob, Alarm Set (D-25CE)
	B-149339-4	Knob, Alarm Set (D-25MN)
	B-149339-8	Knob, Alarm Set (D-25BE)
	B-149339-9	Knob, Alarm Set (D-25TN)
	B-150140-1	Medallion (D-25WE, D-25GN, D-25MN, D-25TN)
	B-150140-2	Medallion (D-25CE, D-25BE)
	C-149621-1	Pointer, Tuning
	W-149368	Pulley, Pointer Mtg.
	W-51752	Spring, Drive Cord
	W-148469	Spring, Pointer Pulley
	39462-2	Socket, Tube (V1, V2, V4, V5)
	W-149987	Socket, Tube (V3)
	AB-149438	Support & Bushing Assy., Pointer Pulley
	W-149676	Washer (Rubber), Speaker Mtg.

MODELS 11-110U, 11-111U, 11-112U, 11-113U, 11-130U, 11-132U, Ch. 299

Model No.	Color
11-110U	White Pearl
11-111U	Malay Gray
11-112U	Horizon Gray
11-113U	Peruvian Gold
11-130U	Versailles Red
11-132U	Antique Sterling



DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

POWER SUPPLY: a.c.-d.c.

VOLTAGE RATING: 105-125 volts.

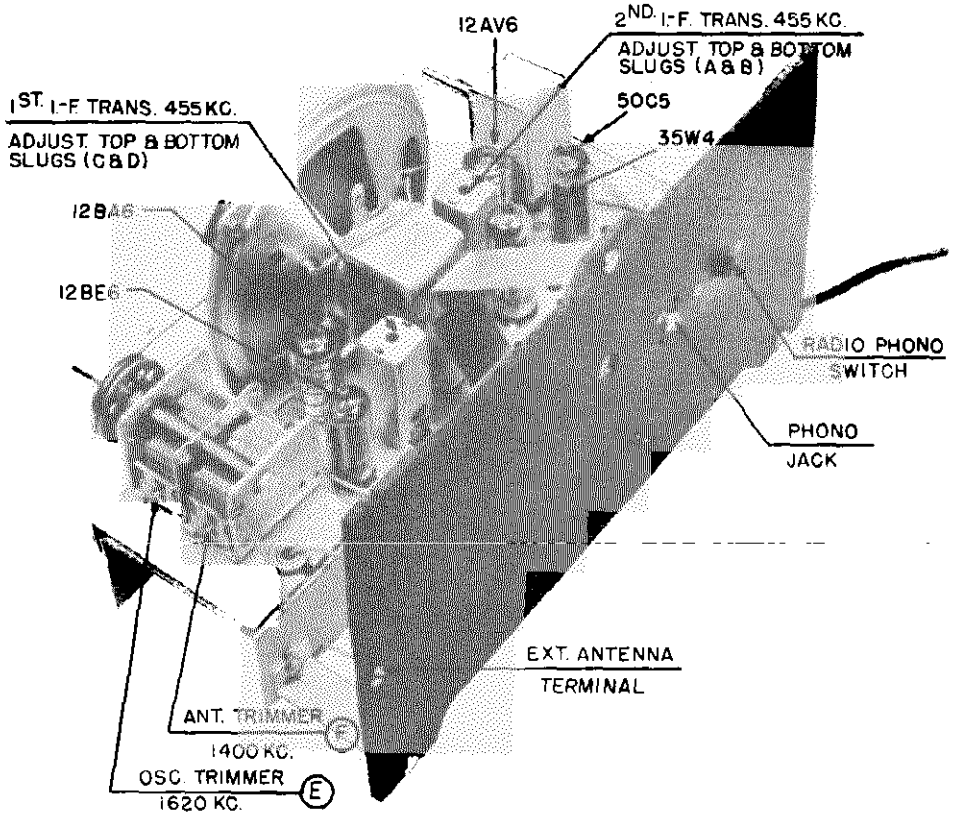
POWER CONSUMPTION: 30 watts maximum.

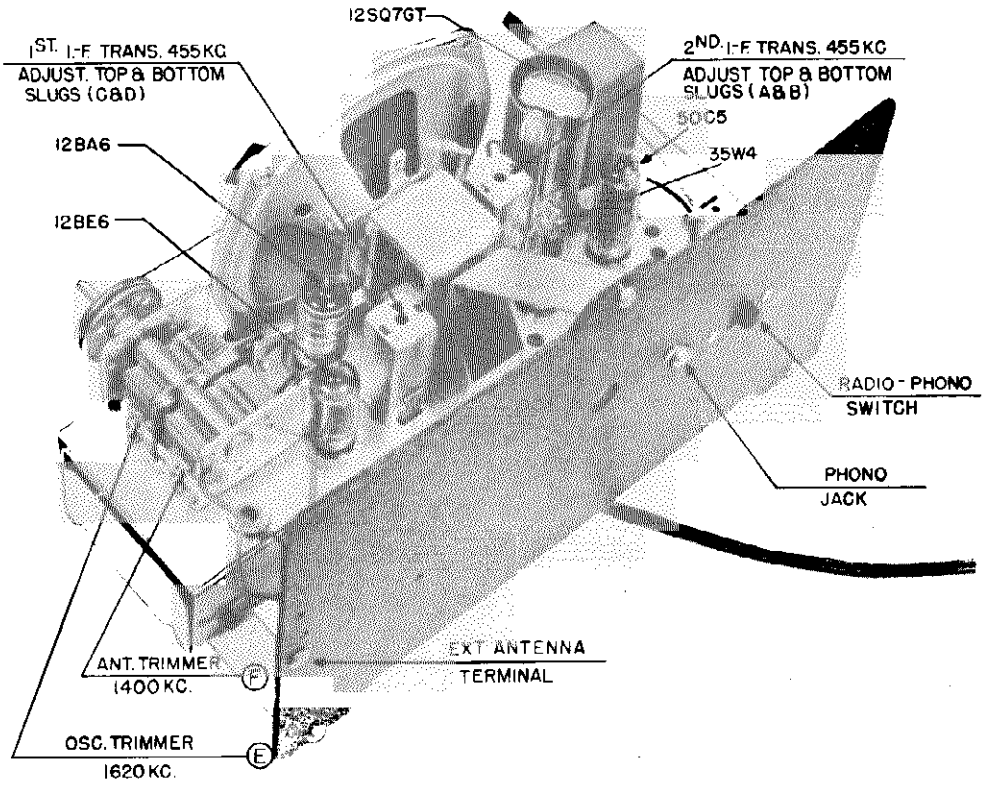
POWER OUTPUT: 1 watt maximum.

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I.F. Amplifier
*12AV6	Detector, AVC, 1st A.F. Amplifier
50C5	A.F. Power Output
35W4	Rectifier

* Some sets are equipped with a 12SQ7GT tube.





CHASSIS, TOP VIEW (Sets equipped with 12SQ7GT Tube)

When using direct current it may be necessary to reverse the position of the power plug in the electric outlet for correct polarity.

Reversing the position of the power plug when alternating current is used may reduce hum.

Under no circumstances should a ground be connected to this receiver.

Phonograph connection —To use a record player with this receiver insert the pickup plug of the record player into the Phono jack on back of receiver. Then slide the Radio-Phono Switch on the back of the receiver to the "Phono" position. Connect the power cord of the record player to a convenient electric outlet of the correct voltage and frequency. Operate the record player in the normal manner. The controls of the receiver operate the same as for radio programs.

ALIGNMENT PROCEDURE

1. Connect an output meter across the speaker voice coil.
2. The r.f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the signal generator ground to the top lug on loop antenna back.
3. Turn the volume control on full and adjust the signal generator output to produce approximately midscale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

MODELS 11-110U, 11-111U, 11-112U, 11-113U, 11-130U, 11-132U, Ch. 299

ALIGNMENT CHART

Alignment adjustment locations are shown on "CHASSIS, TOP VIEW."

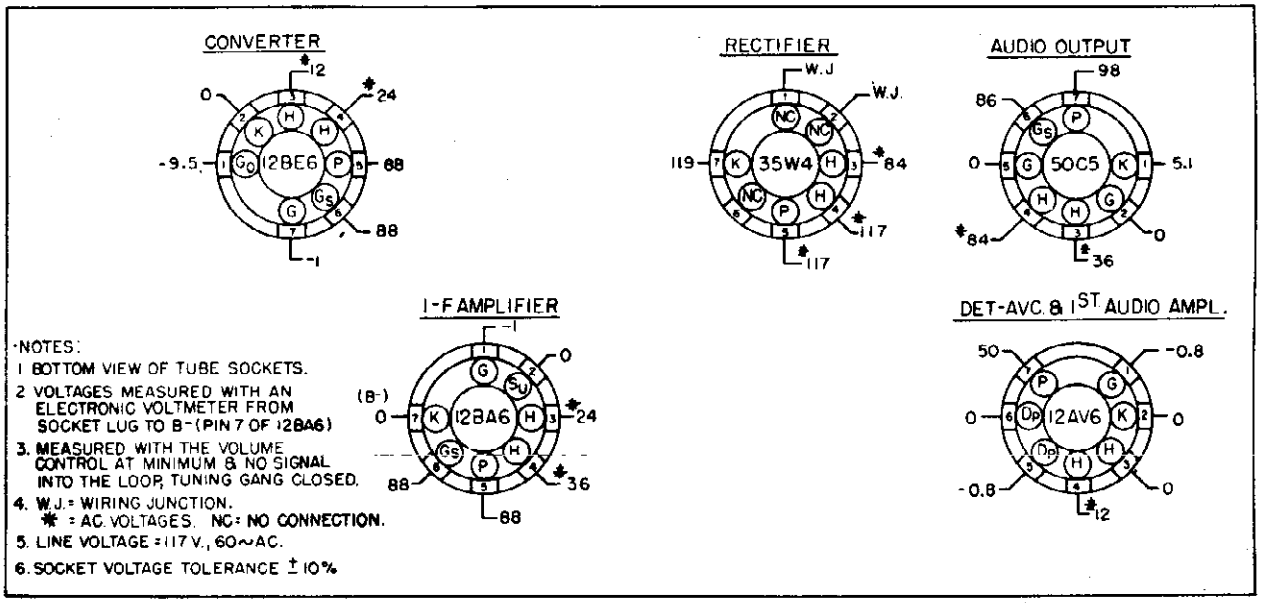
Alignment Sequence	Signal Generator Output			Position of Dial pointer	Adjust for Maximum Output
	Frequency in KC	In Series with	To		
1	455	200 mmf.	External Ant. Screw	1620	A, B, C & D (See Note 1.)
2	1620	200 mmf.	External Ant. Screw	1620	E (See Note 2.)
3	1400	200 mmf.	External Ant. Screw	Tune to Signal	F (See Note 2.)

ALIGNMENT NOTES

1. Repeat adjustments (A, B, C & D) in sequence, until maximum output is obtained.
2. The loop antenna must be positioned with respect to the chassis to simulate its position when chassis and loop are fastened in cabinet.

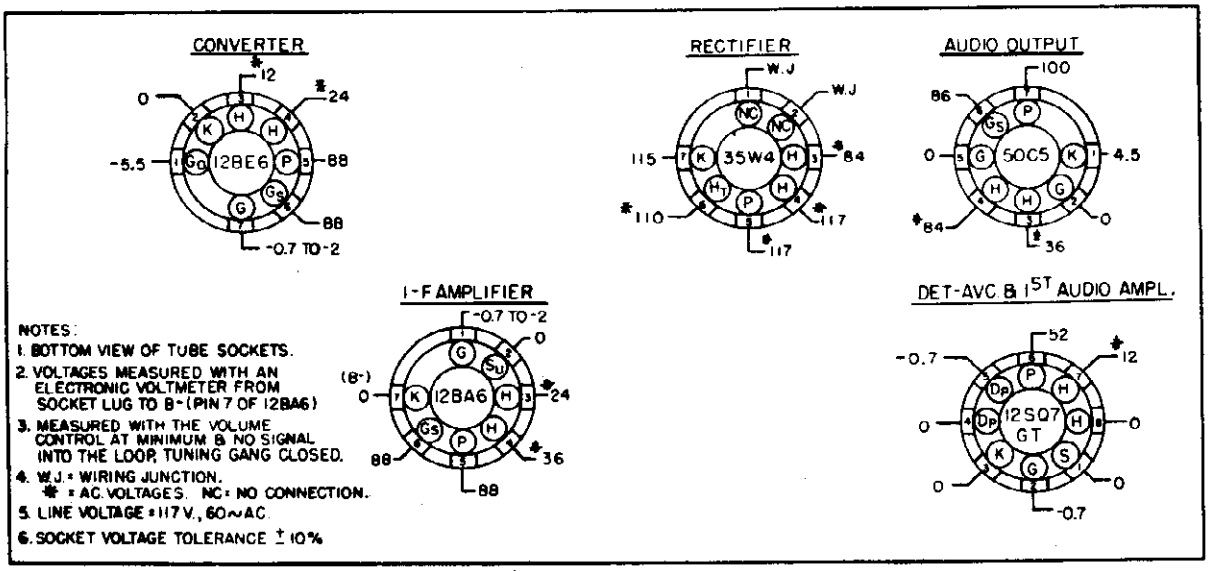
DIAL POINTER CALIBRATION

If it is necessary to calibrate the dial pointer after the chassis has been installed in the cabinet, remove the pointer and with a proper size screwdriver inserted into the screwdriver slots (notches on opposite sides at end of pointer pulley bushing), rotate clockwise or counter-clockwise as required.



SOCKET VOLTAGE CHART (Sets equipped with 12AV6 Tube)

MODELS 11-110U, 11-111U, 11-112U, 11-113U, 11-130U, 11-132U, Ch. 299



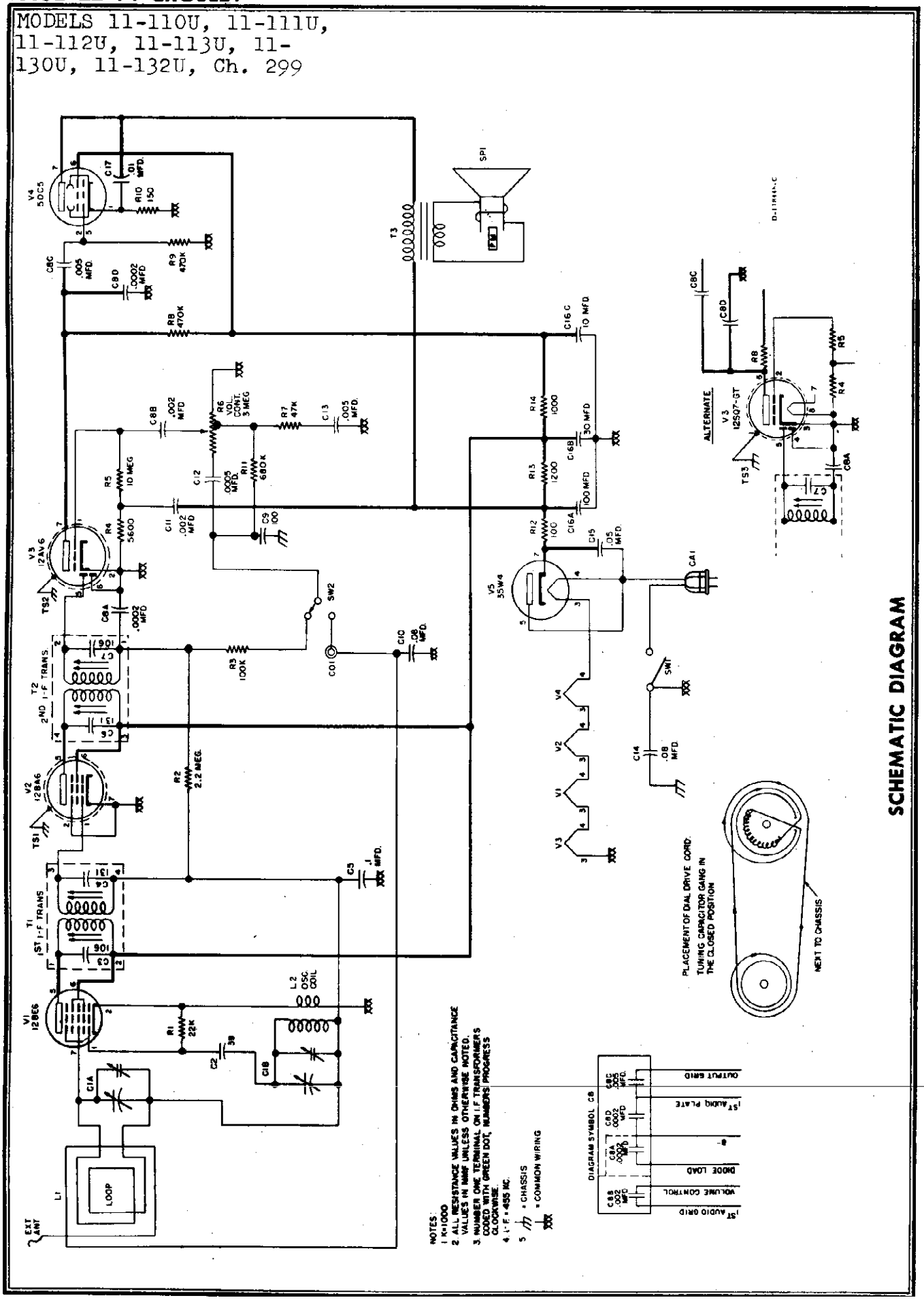
SOCKET VOLTAGE CHART (Sets equipped with 12SQ7GT Tube)

REPLACEMENT PARTS LIST

Symbol No.	Part No.	Description
C1A	B-147924	Capacitor, Variable } Two Section
C1B		Capacitor, Variable }
C2	C-137727-109	Capacitor, 39 mmf., 10%, 200 v., ceramic
C3	Part of T1	Capacitor, 106 mmf.
C4	Part of T1	Capacitor, 131 mmf.
C5	39001-19	Capacitor, .1 mfd., 600 v., paper
C6	Part of T2	Capacitor, 131 mmf.
C7	Part of T2	Capacitor, 106 mmf.
C8A	C-144675-1	Capacitor, .0002 mfd., 500 v. } Four Section disc ceramic
C8B		Capacitor, .002 mfd., 500 v.
C8C		Capacitor, .005 mfd., 500 v.
C8D		Capacitor, .0002 mfd., 500 v.
C9	B-143686-3	Capacitor, 100 mmf., 500 v., Molded disc ceramic
C10	39001-85	Capacitor, .08 mfd., 600 v., paper
C11	39001-74	Capacitor, .002 mfd., 600 v., paper
C12	39001-5	Capacitor, .0005 mfd., 600 v., paper
C13	39001-11	Capacitor, .005 mfd., 600 v., paper
C14	39001-85	Capacitor, .08 mfd., 600 v., paper
C15	39001-17	Capacitor, .05 mfd., 600 v., paper
C16A	B-147174	Capacitor, 100 mfd., 150 v. } Three Section Electrolytic
C16B		Capacitor, 30 mfd., 150 v.
C16C		Capacitor, 10 mfd., 150 v.
C17	39001-13	Capacitor, .01 mfd., 600 v., paper
R1	39373-60	Resistor, 22,000 ohm, 1/2 w.
R2	39373-97	Resistor, 2.2 megohm, 1/2 w.
R3	39373-74	Resistor, 100,000 ohm, 1/2 w.
R4	39374-34	Resistor, 5600 ohm, 10%, 1/2 w.
R5	39373-107	Resistor, 10 megohm, 1/2 w.
R6	B-147945	Control, Volume (3 megohm)
R7	39373-67	Resistor, 47,000 ohm, 1/2 w.
R8	39373-87	Resistor, 470,000 ohm, 1/2 w.
R9	39373-87	Resistor, 470,000 ohm, 1/2 w.
R10	39373-16	Resistor, 150 ohm, 1/2 w.
R11	39373-90	Resistor, 680,000 ohm, 1/2 w.
R12	39374-189	Resistor, 100 ohm, 10%, 2 w.
R13	39374-114	Resistor, 1200 ohm, 10%, 1 w.
R14	39373-33	Resistor, 1000 ohm, 1/2 w.
CA1	C132300-2	Cable & Plug Assy., Power
CO1	W-136998	Connector, Phono
L1	AC-147963	Loop & Back Assy.
L2	AW-148259	Coil, Oscillator
SP1	AD-145956-2	Speaker (5-1/4" P.M.)
SW1	Part of R6	Switch, Power
SW2	W-148260	Switch, Phono
T1	AC-139919-3	Transformer, 1st I.F.
T2	AC-139919-3	Transformer, 2nd I.F.

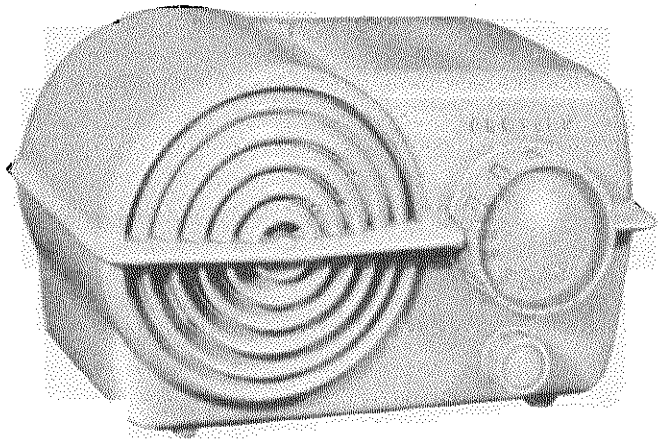
Symbol No.	Part No.	Description
T3	B-147171	Transformer, Output
TS1	W-147784	Shield, Tube (V2)
TS2	W-147784	Shield, Tube (V3)
TS3	W-46447-1	Shield, Tube (V3), sets equipped with 12SQ7GT tube
	C-147934	Bottom, Chassis
	W-147967	Bracket, Back Mtg.
	R-147922-1	Cabinet (11-110U)
	R-147922-2	Cabinet (11-111U)
	R-147922-3	Cabinet (11-112U)
	R-147922-4	Cabinet (110113U)
	R-147922-5	Cabinet (11-130U)
	R-147922-6	Cabinet (11-132U)
	W-139921	Clip, I.F. Transformer Mtg.
	W-131154-1	Cotter (External), Pointer Pulley
	D-148377-1	Escutcheon (11-110U)
	D-148377-2	Escutcheon (11-111U)
	D-148377-3	Escutcheon (11-112U)
	D-148377-4	Escutcheon (11-113U)
	D-148377-5	Escutcheon (11-130U)
	D-148377-6	Escutcheon (11-132U)
	B-147160	Gasket, Speaker
	B-147923	Gasket, Grille Cloth & Screen Assy.
	AB-147981-1	Grille Cloth & Screen Assy. (11-110U, 11-111U, 11-113U)
	AB-147981-2	Grille Cloth & Screen Assy. (11-112U, 11-130U)
	AB-147981-3	Grille Cloth & Screen Assy. (11-132U)
	AC-148277-1	Knob (11-110U)
	AC-148277-2	Knob (11-111U)
	AC-148277-3	Knob (11-112U)
	AC-148277-4	Knob (11-113U)
	AC-148277-5	Knob (11-130U)
	AC-148277-6	Knob (11-132U)
	W-147275	Mounting, Rubber (2 used)
	W-45580-2	Mounting, Rubber (4 used)
	B-94704-20	Nut (Push-On), Escutcheon
	C-147913	Pointer, Dial
	W-147929	Pulley, Dial Pointer
	39462-2	Socket, Tube
	W-149987	Socket, Tube (V3), sets equipped with 12SQ7GT tube
	W-49829	Spring (Lock), Pointer Pulley
	W-51752	Spring, Drive Cord
	W-136630	Stud (Trimount), Chassis Bottom
	AW-148203	Support & Bushing Assy., Pointer Pulley
	B-147968	Support, Speaker

MODELS 11-110U, 11-111U, 11-112U, 11-113U, 11-130U, 11-132U, Ch. 299



MODELS 11-114U, 11-115U,
11-116U, 11-117U, 11-118U
11-119U, Ch. 330, 330-1

Model No.	Color
11-114U	India Ivory
11-115U	Firebird Red
11-116U	Mist Gray
11-117U	Gulf Green
11-118U	Bahama Beige
11-119U	Smoke Blue



DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

POWER SUPPLY: a.c.-d.c.

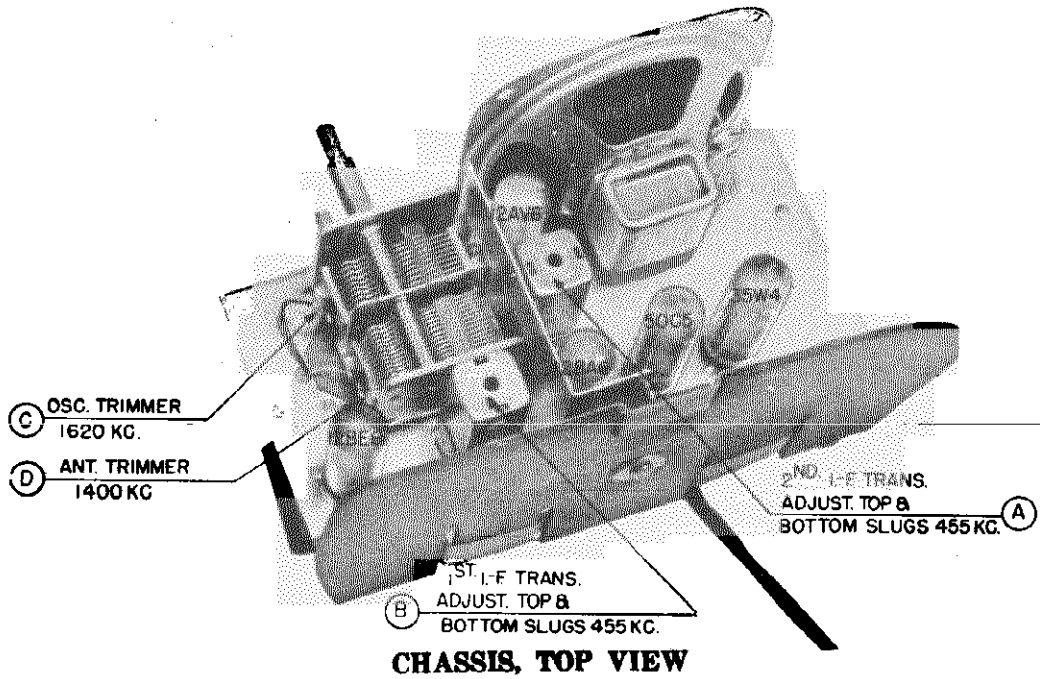
VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION: 30 watts.

POWER OUTPUT: 1.5 watts maximum.

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I. F. Amplifier
12AV6	Detector, AVC, 1st. A. F. Amplifier
50C5	A. F. Power Output
35W4	Rectifier



CHASSIS, TOP VIEW

MODELS 11-114U, 11-115U,
11-116U, 11-117U, 11-118U,
11-119U, Ch. 330, 330-1

ALIGNMENT CHART

Alignment adjustment locations are shown on "CHASSIS, TOP VIEW."

Alignment Sequence	Signal Generator Output			Position of Dial pointer	Adjust for Maximum Output
	Frequency in KC	In Series with	To		
1	455	200 mmf.	High Side of Loop	1620	A & B (See Note 1.)
2	1620	Radiated to Loop		1620	C (See Note 2.)
3	1400	Radiated to Loop		Tune to Signal	D (See Note 2.)

ALIGNMENT NOTES.

1. Repeat adjustments (A & B) until maximum output is obtained.
2. Place signal generator output lead near the loop antenna.

When using direct current it may be necessary to reverse the position of the power plug in the electric outlet for correct polarity.

Reversing the position of the power plug when alternating current is used may reduce hum.

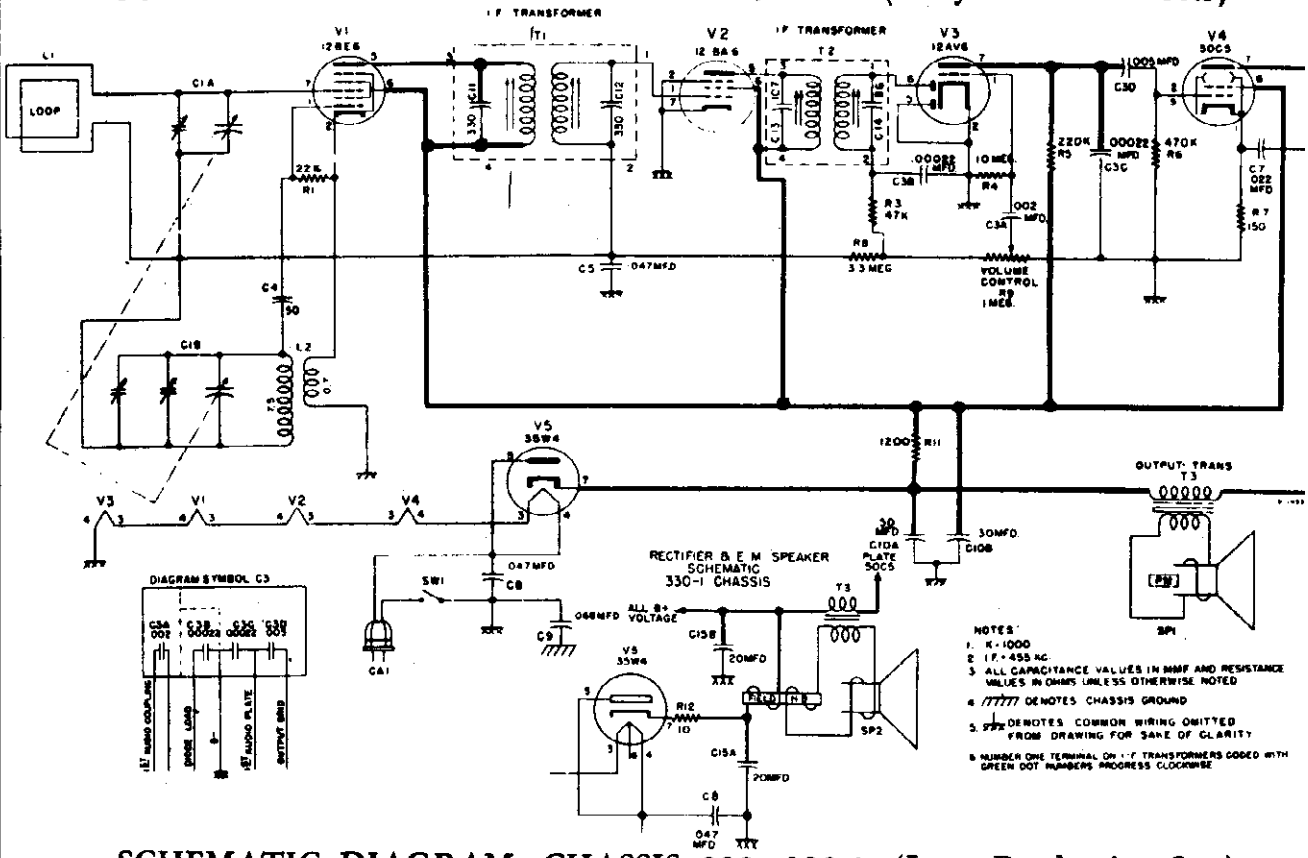
Under no circumstances should a ground be connected to this receiver.

ALIGNMENT PROCEDURE

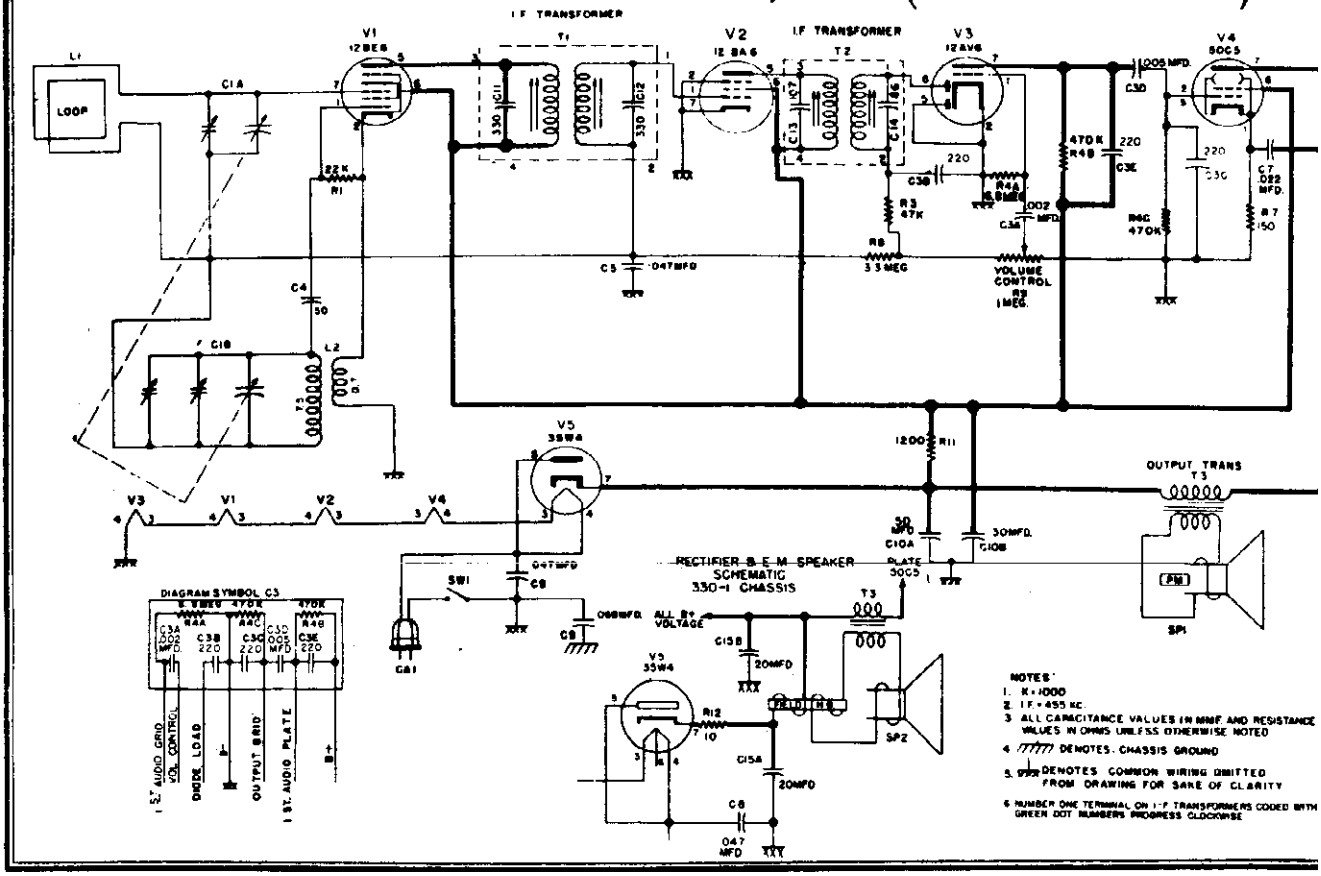
1. Connect an output meter across the speaker voice coil.
2. The r.f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the signal generator ground through a 0.1 mfd. condenser to B - (pin 2 on 12BA6 tube socket).
3. Turn the volume control on full and adjust the signal generator output to produce approximately midscale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

MODELS 11-114U, 11-115U,
11-116U, 11-117U, 11-118U
11-119U, Ch. 330, 330-1

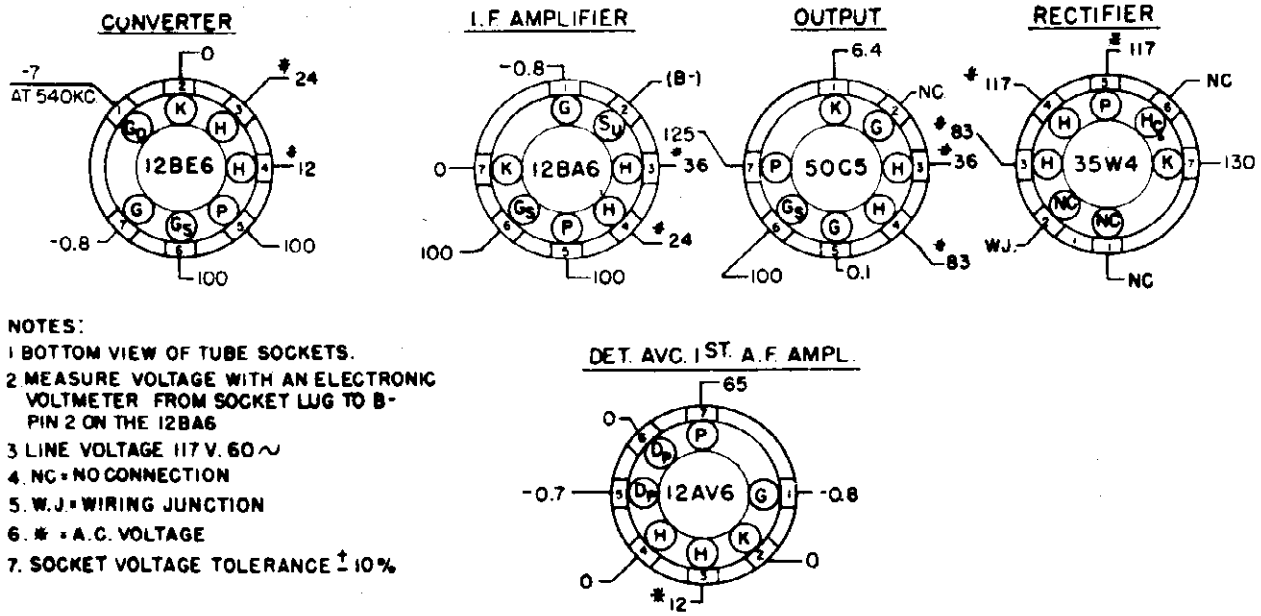
SCHEMATIC DIAGRAM: CHASSIS 330, 330-1 (Early Production Sets)



SCHEMATIC DIAGRAM: CHASSIS 330, 330-1 (Later Production Sets)



MODELS 11-114U, 11-115U,
11-116U, 11-117U, 11-118U,
11-119U, Ch. 330, 330-1



SOCKET VOLTAGE CHART

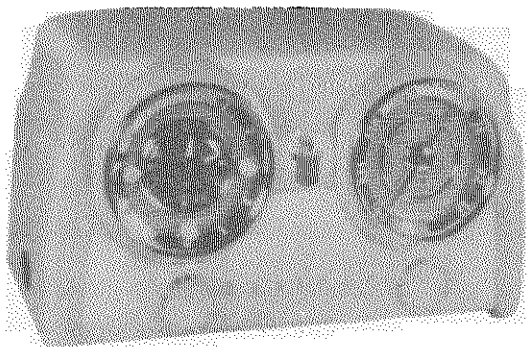
REPLACEMENT PARTS LIST

MODELS: 11-114U, 11-115U, 11-116U, 11-117U, 11-118U, 11-119U-Chassis 330, 330-1

Symbol No.	Part No.	Description
C1-A	B-149473	Capacitor, Variable } Two Section
C1-B		Capacitor, Variable }
†C3-A	C-144675-1	Capacitor, .002 mfd., 500 v. } Four Section
†C3-B		Capacitor, .00022 mfd., 500 v. } disc ceramic
†C3-C		Capacitor, .00022 mfd., 500 v. }
†C3-D		Capacitor, .005 mfd., 500 v. }
††C3-A	C-151550-1	Capacitor, .002 mfd., 450 v. }
††C3-B		Capacitor, 220 mmf., 450 v. } Resistor-Capaci-
††C3-C		Capacitor, 220 mmf., 450 v. } tor Unit; Includes
††C3-D		Capacitor, .005 mfd., 450 v. } R4A, R4B, R4C.
††C3-E		Capacitor, 220 mmf., 450 v. }
C4	C-137727-21	Capacitor, 50 mmf., 500 v., ceramic
C5	39477-45	Capacitor, .047 mfd., 600 v., molded paper
C7	39477-43	Capacitor, .022 mfd., 600 v., molded paper
C8	39477-45	Capacitor, .047 mfd., 600 v., molded paper
C9	39477-46	Capacitor, .068 mfd., 600 v., molded paper
▲C10A	B-149457	Capacitor, 50 mfd., 150 v. } Two Section
▲C10B		Capacitor, 30 mfd., 150 v. } Electrolytic
C11	Part of T1	Capacitor, 330 mmf.
C12	Part of T1	Capacitor, 330 mmf.
C13	Part of T2	Capacitor, 107 mmf.
C14	Part of T2	Capacitor, 86 mmf.
▲▲C15A	B-151645	Capacitor, 20 mfd., 150 v. } Two Section
▲▲C15B		Capacitor, 20 mfd., 150 v. } Electrolytic
R1	39373-60	Resistor, 22,000 ohm, ½ w.
R3	39373-67	Resistor, 47,000 ohm, ½ w.
†R4	39373-107	Resistor, 10 megohm, ½ w.
†R5	39373-80	Resistor, 220,000 ohm, ½ w.
†R6	39373-87	Resistor, 470,000 ohm, ½ w.
††R4A	Part of C3	Resistor, 6.8 megohm, 1/5 w.
††R4B	Part of C3	Resistor, 470,000 ohm, 1/5 w.
††R4C	Part of C3	Resistor, 470,000 ohm, 1/5 w.
R7	39373-16	Resistor, 150 ohm, ½ w.
R8	39373-100	Resistor, 3.3 megohm, ½ w.
R9	39368-14	Control, Volume (1 megohm)
▲R11	39374-114	Resistor, 1200 ohm, 10%, 1 w.
▲▲R12	39373-1	Resistor, 10 ohm, ½ w.
CA1	C-142769-1	Cable & Plug Assy., Power
L1	AC-149480	Loop Antenna & Black Assy.
L2	AW-148259	Coil, Oscillator
SW1	39369-1	Switch, Power
▲SP1	139631	Speaker (4" P.M.)
▲▲	C-151996	Speaker (4" E.M., 680 ohm Field)
T1	AC-139919-4	Transformer, 1st. I. F.
T2	AC-139919-5	Transformer, 2nd. I. F.
T3	138131-1	Transformer, Output
	AB-149495-1	Cabinet (11-114U)
	AB-149495-2	Cabinet (11-115U)
	AB-149495-3	Cabinet (11-116U)
	AB-149495-4	Cabinet (11-117U)
	AB-149495-5	Cabinet (11-118U)
	AB-149495-6	Cabinet (11-119U)
	W-145837	Clip, Spring
	B-149433-1	Knob, Volume (11-114U)
	B-149433-2	Knob, Volume (11-115U)
	B-149433-3	Knob, Volume (11-116U)
	B-149433-4	Knob, Volume (11-117U)
	B-149433-5	Knob, Volume (11-118U)
	B-149433-6	Knob, Volume (11-119U)
	C-149434-1	Knob, Tuning (11-114U)
	C-149434-2	Knob, Tuning (11-115U)
	C-149434-3	Knob, Tuning (11-116U)
	C-149434-4	Knob, Tuning (11-117U)
	C-149434-5	Knob, Tuning (11-118U)
	C-149434-6	Knob, Tuning (11-119U)
	39462-1	Socket, Tube

▲ Used on Chassis 330 only. † Used on early production sets.
▲▲ Used-on Chassis 330-1 only. †† Used on later production sets.

Model No.	Color
11-120U	Dulux White
11-121U	Ebony
11-122U	Chartreuse
11-123U	Maroon
11-124U	Regal Blue
11-125U	Sumatra Green



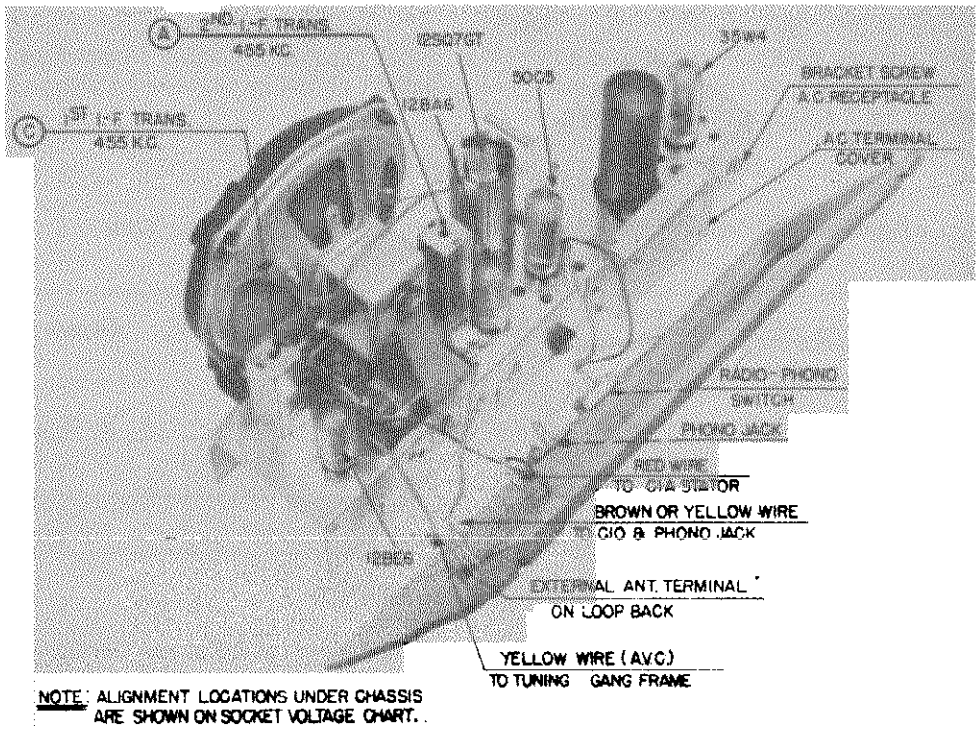
DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.
FREQUENCY RANGE: 540 to 1600 kc.
INTERMEDIATE FREQUENCY: 455 kc.
POWER SUPPLY: 60 cycle, a.c. only.
VOLTAGE RATING: 105-125 volts.
POWER OUTPUT: 1 watt maximum.
POWER CONSUMPTION:

Radio and Clock..... 35 watts
Clock ..... 2 watts

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I. F. Amplifier
12SQ7GT	Detector, AVC, 1st. A. F. Amplifier
50C5	A. F. Power Output
35W4	Rectifier



CHASSIS, TOP VIEW

MODELS 11-120U, 11-121U, 11-122U, 11-123U, 11-124U, 11-125U, Ch. 311

Under no circumstances should a ground be connected to this receiver.

Phonograph connection — To use a record player with this receiver insert the pickup plug of the record player into the Phono jack on back of receiver. Then slide the Radio-Phono Switch on the back of the receiver to the "Phono" position. Connect the power cord of the record player to a convenient electric outlet of the correct voltage and frequency. Operate the record player in the normal manner. The controls of the receiver operate the same as for radio programs.

ALIGNMENT PROCEDURE

1. To remove the chassis from the cabinet, proceed as follows:
   a. Turn the tuning control completely counter-clockwise to close the gang.
   b. Remove the volume and tuning control knobs, and the dial pointer.
   c. Remove the cabinet back and loosen the screw on the terminal cover behind the electrolytic capacitor. Lift up the cover and disconnect the three leads to the clock.
   d. Connect a jumper between the terminal coded yellow and the center terminal on the terminal board.
   e. Remove the two screws in the top corners of the chassis apron that secure the chassis to the cabinet.
   f. Loosen the slotted hex head screw on the right rear of the chassis and slide the screw toward the center of the chassis to release power receptacle from opening in side of cabinet.
   g. Slide the chassis from the cabinet.
2. Connect an output meter across the speaker voice coil.
3. The r.f. signal input from the signal generator should be connected as indicated in the alignment chart. Connect the signal generator ground to the top lug on loop antenna back (See Chassis Top View, page 1).
4. Turn the volume control on full and adjust the signal generator output to produce approximately midscale 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 "Chassis, Top View," and on "Socket Voltage Chart".

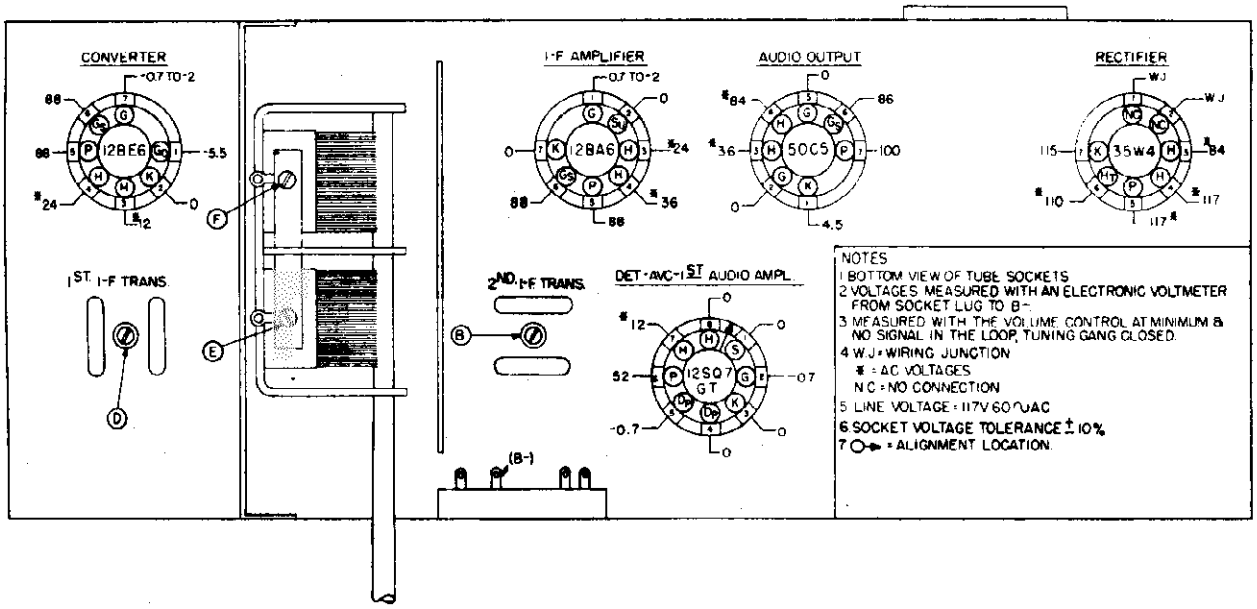
Alignment Sequence	Signal Generator Output			Position of Dial pointer	Adjust for Maximum Output
	Frequency in KC	In Series with	To		
1	455	200 mmf.	External Ant. Screw	1620	A, B, C & D (See Note 1.)
2	1620	200 mmf.	External Ant. Screw	1620	E
3	1400	200 mmf.	External Ant. Screw	1400	F (See Note 2.)

ALIGNMENT NOTES

1. Repeat adjustments (A, B, C & D) in sequence, until maximum output is obtained.
2. After the chassis and loop antenna have been replaced in the cabinet, repeat alignment sequence "3". Adjust "F" by inserting screw driver through the hole provided in the bottom of the cabinet.

MODELS 11-120U, 11-121U, 11-122U, 11-123U, 11-124U, 11-125U, Ch. 311

SOCKET VOLTAGE CHART

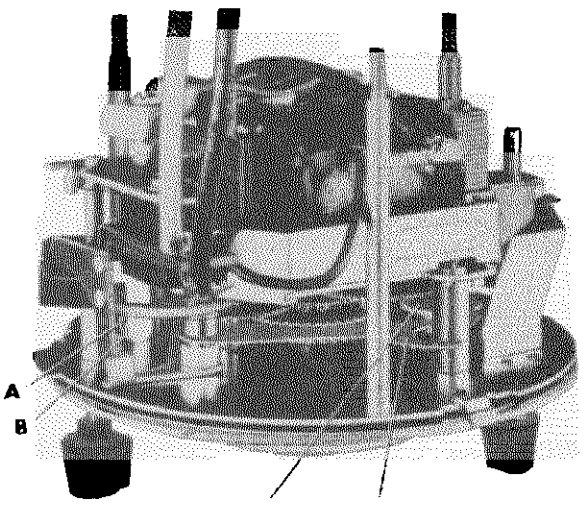


CLOCK ADJUSTMENTS

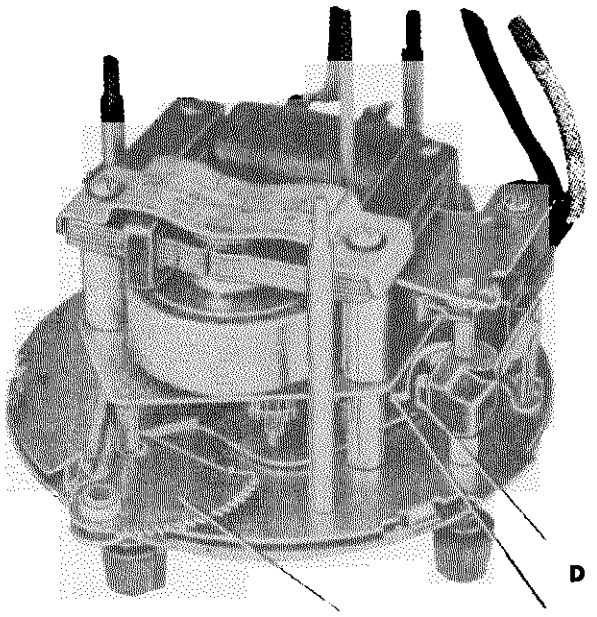
PROCEDURE FOR CHECKING TIMER SWITCH AND VIBRATOR:

1. With the time set knob, turn the clock hands so as to advance the time at least one (1) hour. (For ease in checking, it is recommended that the time be set to the hour.)
2. Attach test light to black and yellow switch leads.
3. Turn switch knob to "Radio" position - light must go on.
4. Turn switch knob to "Off" position - light must go out.
5. Set alarm disc so that small pointer on hour hand reads two (2) hours in advance of the time of the clock. EXAMPLE: If the clock hands are set to read 7 o'clock, set the alarm disc to read 9 o'clock.
6. Turn sleep switch to "60" - test light must go on.
7. Turn time set knob advancing clock hands to next hour - light must go out and SLEEP SWITCH SECTOR GEAR must be completely disengaged within one (1) hour plus or minus eight (8) minutes.
8. Manually push SLEEP SWITCH SECTOR GEAR in until it touches its mating pinion WITHOUT meshing - light must go on.
9. Turn switch knob to "Radio Alarm" position.
10. Turn time set knob to advance clock hands so they read 15 minutes until the next hour. Then slowly advance the hands until the test light lights, which indicates the contacts are closed. The contacts must close somewhere between 14 minutes to the hour and 4 minutes past the hour.
11. Remove test light and connect 110 volt supply to the black and red leads.
12. Turn time set knob to advance the clock hands 4 minutes - vibrator must NOT buzz. Then advance the hands 14 minutes - vibrator MUST buzz within this 14 minute period.

MODELS 11-120U, 11-121U, 11-122U, 11-123U, 11-124U, 11-125U, Ch. 311



TIMING CAM TIMING CAM FOLLOWER



SLEEP SWITCH SECTOR GEAR

ADJUSTING CONTACTS:

1. Set the alarm disc so that the time indicated by the small pointer on the hour hand is different (at least 1 hour) from the time indicated by the hands of the clock. Then set switch to "Radio Alarm" position so that the TIMING CAM FOLLOWER rests on the TIMING CAM. Contacts shall be adjusted at .020" minimum gap.

2. With switch in "OFF" position contacts shall remain open as in step one and there shall be clearance between TIMING CAM FOLLOWER and TIMING CAM.

3. With switch in "Radio" position, contacts shall be closed. Check for proper contact pressure by depressing CONTACT (A), using a small pointed tool. If CONTACT (B) follows CONTACT (A), a noticeable amount before the contacts separate, the pressure is sufficient.

4. Set the switch to "Radio Alarm" position; pull out and turn alarm set knob counter-clockwise until the TIMING CAM FOLLOWER drops into the slot of TIMING CAM. The contacts shall be closed. Check contact pressure as previously described in step three.

5. SWITCH ARM (C) should clear CAM (D) by .008" minimum when in the "Radio Alarm" position.

TIMING:

1. Adjust timer for contact closure at 6:55 o'clock. On repeat tests, contacts shall close at 6:55 plus or minus 3 minutes. At all other settings the contacts shall close between 12 minutes before and 2 minutes after the setting time.

2. Check time keeping for a minimum of twelve hours with power applied to the motor. Clock must be run with vibrator (buzzer) shut off.

VIBRATOR ADJUSTMENT:

1. Vibrator shall start buzzing 10 minutes plus or minus 5 minutes after contact closure occurs.

2. When the alarm set knob is pushed in ("shut-off" position of vibrator) the shut-off spring shall lift the vibrator sufficiently above the cam, so that the cam will not contact the vibrator in any position.

3. Adjust vibrator for good sounding position.

4. Vibrator shall be manually shut off before completion of buzzing period.

MODELS 11-120U, 11-121U
11-122U, 11-123U, 11-
124U, 11-125U, Ch. 311

CLOCK LUBRICATION

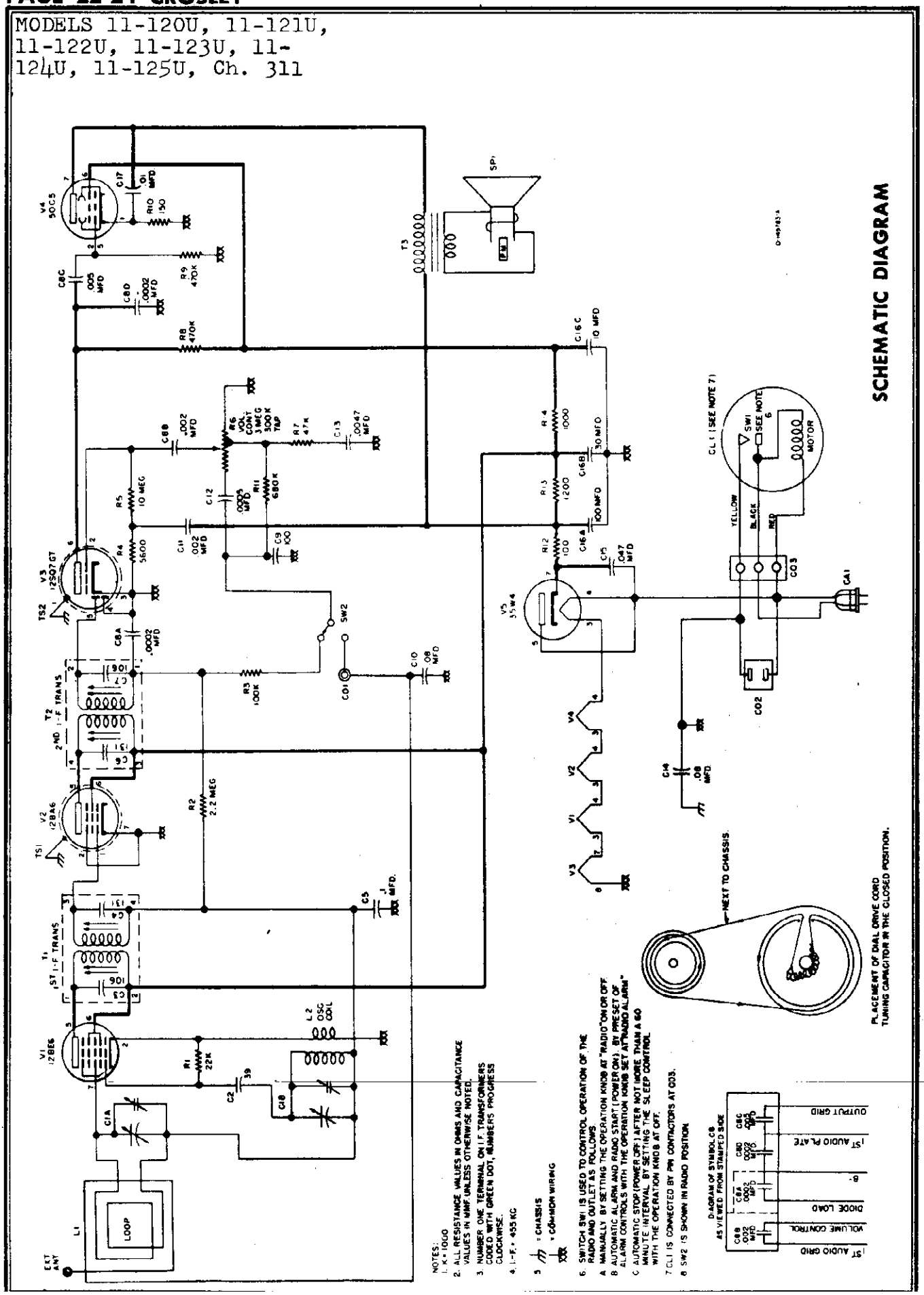
1. Center stack bearing in base plate and hole in back gear pinion should be lubricated with Nye watch oil or equivalent.

2. Path of switch locating spring on bracket should be lubricated with Dixon graphite grease.

REPLACEMENT PARTS LIST

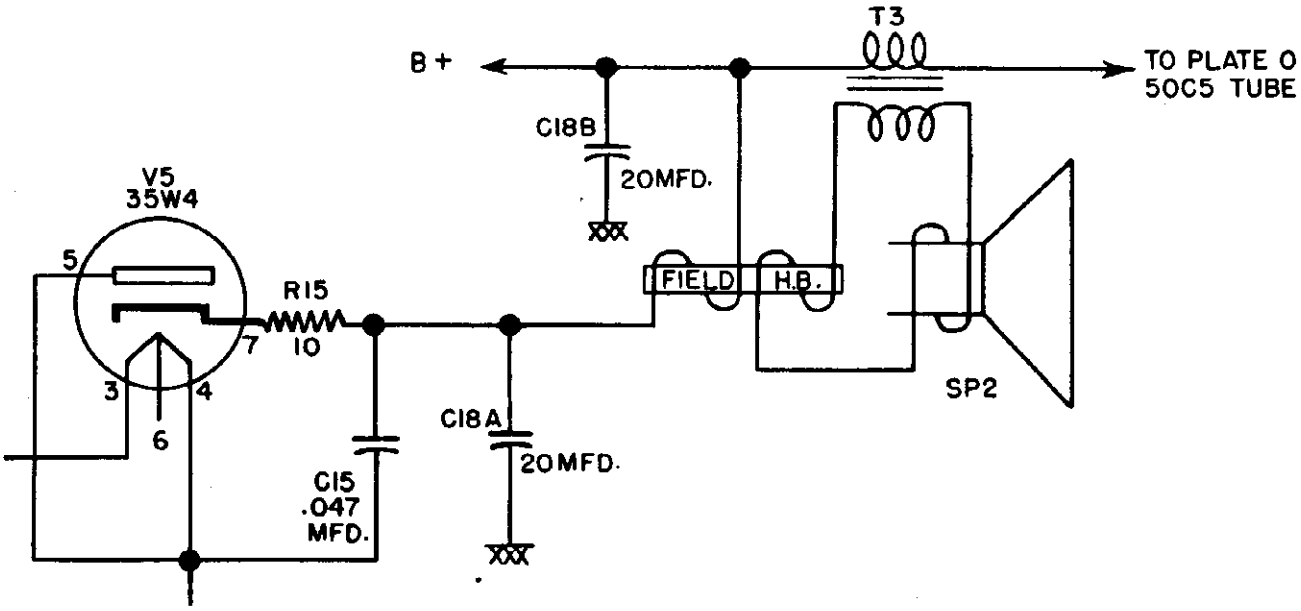
Symbol No.	Part No.	Description
C1A	B-149437	Capacitor, Variable } Two Section
C1B		Capacitor, Variable }
C2	C-137727-109	Capacitor, 39 mmf., 10%, 200 v., ceramic
C3	Part of T1	Capacitor, 106 mmf.
C4	Part of T1	Capacitor, 131 mmf.
C5	39001-19	Capacitor, .1 mfd., 600 v., paper
C6	Part of T2	Capacitor, 131 mmf.
C7	Part of T2	Capacitor, 106 mmf.
C8A	C-144675-1	Capacitor, .0002 mfd., 500 v. } Four Section disc ceramic
C8B		Capacitor, .002 mfd., 500 v. }
C8C		Capacitor, .005 mfd., 500 v. }
C8D		Capacitor, .0002 mfd., 500 v. }
C9	B-143686-3	Capacitor, 100 mmf., 500 v., molded disc ceramic
C10	39001-85	Capacitor, .08 mfd., 600 v., paper
C11	39001-74	Capacitor, .002 mfd., 600 v., paper
C12	39001-5	Capacitor, .0005 mfd., 600 v., paper
C13	39477-39	Capacitor, .0047 mfd., 600 v., molded paper
C14	39001-85	Capacitor, .08 mfd., 600 v., paper
C15	39477-45	Capacitor, .047 mfd., 600 v., molded paper
C16A	B-149541	Capacitor, 100 mfd., 150 v. } Three Section Electrolytic
C16B		Capacitor, 30 mfd., 150 v. }
C16C		Capacitor, 10 mfd., 150 v. }
C17	39477-41	Capacitor, .01 mfd., 600 v., molded paper
R1	39373-60	Resistor, 22,000 ohm, 1/2 w.
R2	39373-97	Resistor, 2.2 megohm, 1/2 w.
R3	39373-74	Resistor, 100,000 ohm, 1/2 w.
R4	39374-34	Resistor, 5600 ohm, 10%, 1/2 w.
R5	39373-107	Resistor, 10 megohm, 1/2 w.
R6	B-149382	Control, Volume (3 meg., Tap 300 K ohm)
R7	39373-67	Resistor, 47,000 ohm, 1/2 w.
R8	39373-87	Resistor, 470,000 ohm, 1/2 w.
R9	39373-87	Resistor, 470,000 ohm, 1/2 w.
R10	39373-16	Resistor, 150 ohm, 1/2 w.
R11	39373-90	Resistor, 680,000 ohm, 1/2 w.
R12	39374-189	Resistor, 100 ohm, 10%, 2 w.
R13	39374-114	Resistor, 1200 ohm, 10%, 1 w.
R14	39373-33	Resistor, 1000 ohm, 1/2 w.
TS1	W-147784	Shield, Tube (V2)
TS2	W-46447-1	Shield, Tube (V3)
CA1	C-149780	Cable & Plug Assy., Power
CO1	W-136998	Connector, Phono
L1	AC-149557	Loop Antenna & Back Assy.
L2	AW-148259	Coil, Oscillator
SP1	AD-145956-2	Speaker, 5-1/4" P.M.
SW1	Part of CL1	Switch, On-Off
SW2	W-148260	Switch, Radio-Phono
CL1	AW-149689	Clock Assy.
T1	AC-139919-3	Transformer, 1st I.F.
T2	AC-139919-3	Transformer, 2nd I.F.
T3	B-147171	Transformer, Output
CO2	AB-149562	Outlet & Bracket Assy.
CO3	W-149673	Contact Strip
	W-149366	Bracket, Speaker Support
	AD-149598-1	Cabinet & Medallion Assy. (11-120U)
	AD-150015	Cabinet & Medallion Assy. (11-121U)
	AD-149598-3	Cabinet & Medallion Assy. (11-122U)
	AD-149598-4	Cabinet & Medallion Assy. (11-123U)
	AD-149598-5	Cabinet & Medallion Assy. (11-124U)
	AD-149598-6	Cabinet & Medallion Assy. (11-125U)
	W-139921	Clip, I.F. Transformer Mtg.
	W-131154-1	Cotter (External), Pointer Pulley
	B-149398	Cover, Clock
	W-147216	Cups, Suction
	B-149667-1	Escutcheon, Outlet
	D-149963-1	Escutcheon, Radio
	C-149964-1	Escutcheon, Clock
	D-149742	Gasket, Speaker
	W-149341	Gasket, Clock Dial Grille & Ring
	AC-149962-1	Grille & Ring Assy., Clock Dial (11-120U)
	AC-149962-2	Grille & Ring Assy., Clock Dial (11-121U)
	AC-149962-3	Grille & Ring Assy., Clock Dial (11-122U)
	AC-149962-4	Grille & Ring Assy., Clock Dial (11-123U)
	AC-149962-5	Grille & Ring Assy., Clock Dial (11-124U)
	AC-149962-6	Grille & Ring Assy., Clock Dial (11-125U)
	AB-149524-1	Grille, Radio Dial (11-120U)
	AB-149524-2	Grille, Radio Dial (11-121U)
	AB-149524-3	Grille, Radio Dial (11-122U)
	AB-149524-4	Grille, Radio Dial (11-123U)
	AB-149524-5	Grille, Radio Dial (11-124U)
	AB-149524-6	Grille, Radio Dial (11-125U)
	W-45580-2	Grommet (Rubber), Speaker Mtg.
	AC-149952-1	Knob, Volume-Tuning (11-120U)
	AC-149952-2	Knob, Volume-Tuning (11-121U)
	AC-149952-3	Knob, Volume-Tuning (11-122U)
	AC-149952-4	Knob, Volume-Tuning (11-123U)
	AC-149952-5	Knob, Volume-Tuning (11-124U)
	AC-149952-6	Knob, Volume-Tuning (11-125U)
	B-149311-1	Knob, Switch (11-120U)
	B-149311-2	Knob, Switch (11-121U)
	B-149311-3	Knob, Switch (11-122U)
	B-149311-4	Knob, Switch (11-123U)
	B-149311-5	Knob, Switch (11-124U)
	B-149311-6	Knob, Switch (11-125U)
	B-149339-1	Knob, Alarm Set (11-120U)
	B-149339-2	Knob, Alarm Set (11-121U)
	B-149339-3	Knob, Alarm Set (11-122U)
	B-149339-4	Knob, Alarm Set (11-123U)
	B-149339-5	Knob, Alarm Set (11-124U)
	B-149339-6	Knob, Alarm Set (11-125U)
	B-150140-1	Medallion (11-120U, 11-121U, 11-123U, 11-124U, 11-125U)
	B-150140-2	Medallion (11-122U)
	C-149621-1	Pointer, Tuning
	W-149368	Pulley, Pointer Mtg.
	W-51752	Spring, Drive Cord
	W-148469	Spring, Pointer Pulley
	39462-2	Socket, Tube (V1,V2,V4,V5)
	W-149987	Socket, Tube (V3)
	AB-149438	Support & Bushing Assy., Pointer Pulley
	W-149676	Washer (Rubber), Speaker Mtg.

MODELS 11-120U, 11-121U, 11-122U, 11-123U, 11-124U, 11-125U, Ch. 311



MODELS 11-120U, 11-121U,
11-122U, 11-123U, 11-124U
11-125U, Ch. 311-1

To service the chassis 311-1, which is equipped with an E.M. speaker, refer to the following schematic sketch and parts list.



PARTS LIST

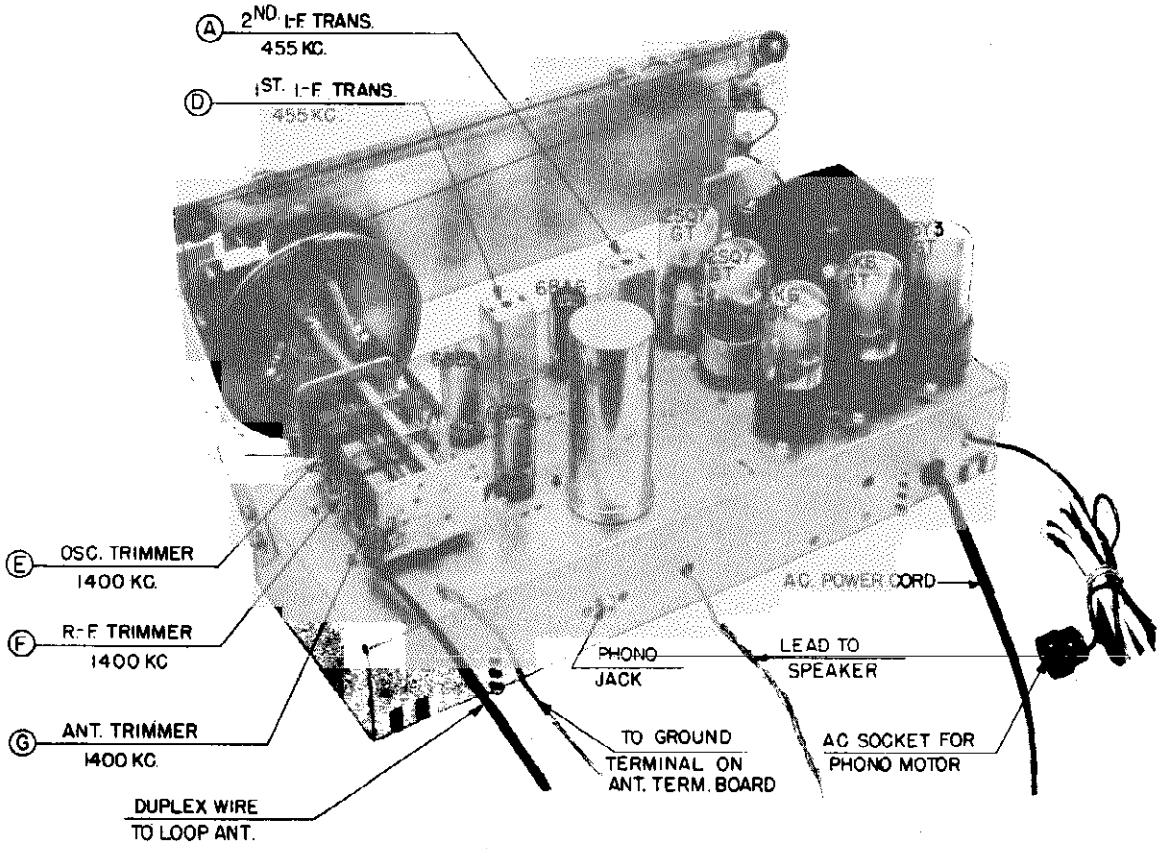
Symbol No.	Part No.	Description
C15	39477-45	Capacitor, .047 mfd. 600 V, molded paper
C18A	B-151617	Capacitor, 20 mfd., 150 V. } Two Section
C18B		Capacitor, 20 mfd., 150 V. } Electrolytic
R15	39373-1	Resistor, 10 ohm, 1/2 w.
SP2	151190-2	Speaker (5 " E.M., 680 ohm field)
T3	B-147171	Transformer, Output

ELECTRIC CLOCK PARTS LIST

	Part No.	Description
	151389-1	Crystal, Dial
	151389-2	Rivet, Crystal (3 Required)
	151389-3	Dial
	151389-4	Disc, Alarm
	151389-5	Hand, Sweep Second (Gold)
	151389-6	Hands, Hour & Minute
	151389-8	Knob, Time Set (Bronze)
	151389-9	Field & Coil, 60 Cycle
	151389-10	Rotor Unit, 60 Cycle

MODELS 11-207MU,
11-208BU, Ch. 333

Model 11-207MU (Mahogany) — Model 11-208BU (Blond)



CHASSIS, TOP VIEW

DESCRIPTION

TYPE: Eight-tube, single band, Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

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

VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION:

Radio Position ..... 65 watts

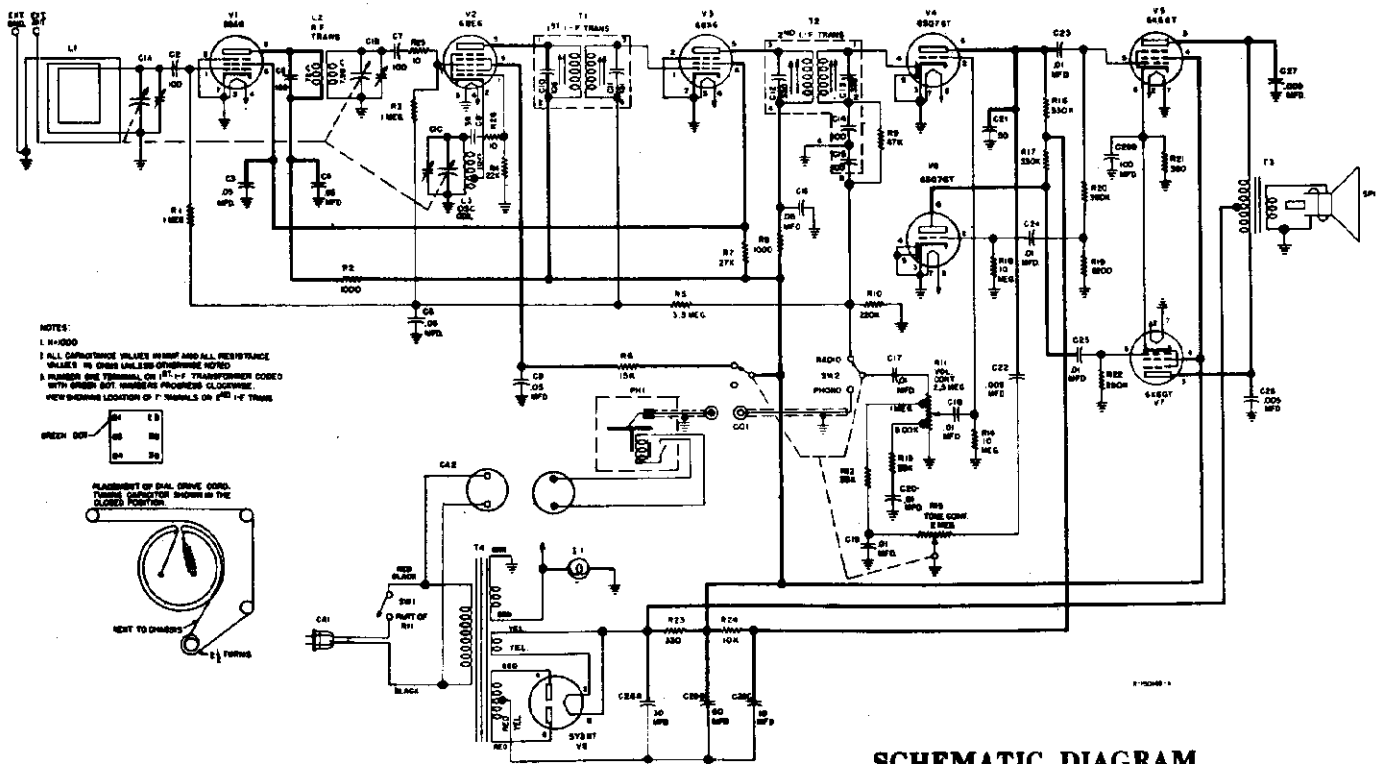
Phono Position..... 85 watts

Phono Motor only..... 20 watts

TUBE COMPLEMENT:

Symbol No.	Type	Function
V1	6BA6	R.F. Amplifier
V2	6BE6	Converter
V3	6BA6	I.F. Amplifier
V4	6SQ7GT	Diode Det., AVC, Audio Amplifier
V5	6K6GT	Audio Output
V6	6SQ7GT	Phase Inverter
V7	6K6GT	Audio Output
V8	5Y3GT	Rectifier

DIAL BULB: Type 47, 6.3V., .15 amp.



SCHEMATIC DIAGRAM

MODELS 11-207MU,
11-208BU, Ch. 333

ALIGNMENT PROCEDURE

1. Turn the tuning capacitor to full mesh against stop and set the dial pointer to the reference point on the dial to the left of "55".
2. Connect output meter across speaker voice coil leads.
3. Feed an r.f. signal modulated 30% at 400 cycles to the receiver as indicated in the Alignment chart. Connect the signal generator ground terminal to the chassis of the receiver.
4. Turn the volume control to maximum clockwise position and the tone control to maximum treble position. Adjust the signal generator output to produce a noticeable output meter reading, keeping the signal generator output as low as possible to prevent AVC action in the receiver.
5. For all alignments the loop antenna must remain connected.

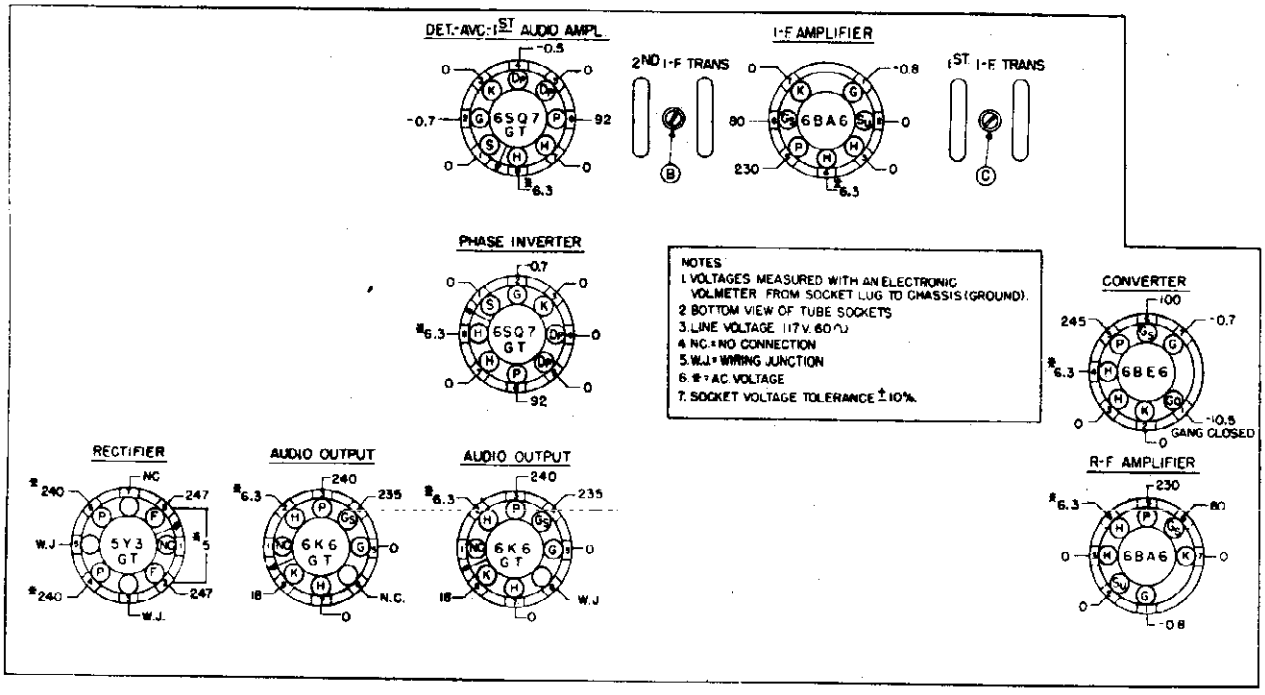
ALIGNMENT CHART

Alignment adjustment locations are shown on "CHASSIS, TOP VIEW."

Alignment Sequence	Signal Generator Output			Position of Tuning Dial or Tun. Cap.	Adjust for Maximum Output	
	Frequency in kc.	In Series with	To			
1	455	.05 mfd.	Stator plates of C1B (center sect.)	Gang open	A & B	
2	455	.05 mfd.	Stator plates of C1B (center sect.)	Gang open	C & D	
3	1400	200 mmf.	Ext. Ant. Term.	1400	E	(See Note 1)
4	1400	200 mmf.	Ext. Ant. Term.	1400	F	(See Note 1)
5	1400	200 mmf.	Ext. Ant. Term.	1400	G	(See Notes 1 & 2)

ALIGNMENT NOTES

1. Rock gang while adjusting r.f. and antenna trimmers for maximum sensitivity.
2. Antenna trimmer must be realigned at 1400 kc., after chassis is installed in its cabinet. A weak signal must be used so that the trimmer can be adjusted to maximum receiver sensitivity.



SOCKET VOLTAGE CHART

MODELS 11-207MU,
11-208BU, Ch. 333

REPLACEMENT PARTS LIST

MODELS 11-207MU, 11-208BU (Chassis No. 333)

Symbol No.	Part No.	Description
C1A	B-150011	Capacitor, Variable } Three Section
C1B		Capacitor, Variable } Three Section
C1C		Capacitor, Variable } Three Section
C2	C-137727-25	Capacitor, 100 mmf., 500 v., ceramic
C3	39001-17	Capacitor, .05 mfd., 600 v., paper
C4	39001-17	Capacitor, .05 mfd., 600 v., paper
C5	C-137727-24	Capacitor, 180 mmf., 500 v., ceramic
C6	39001-17	Capacitor, .05 mfd., 600 v., ceramic
C7	C-137727-25	Capacitor, 100 mmf., 500 v., ceramic
C8	C-137727-109	Capacitor, 39 mmf., 10%, 200 v., ceramic
C9	39001-17	Capacitor, .05 mfd., 600 v., paper
C10	Part of T1	Capacitor, 106 mmf., 5%.
C11	Part of T1	Capacitor, 131 mmf., 5%.
C12	Part of T2	Capacitor, 330 mmf., 5%.
C13	Part of T2	Capacitor, 330 mmf., 5%.
C14	Part of T2	Capacitor, 100 mmf.
C15	Part of T2	Capacitor, 100 mmf.
C16	39001-17	Capacitor, .05 mfd., 600 v., paper
C17	39001-13	Capacitor, .01 mfd., 600 v., paper
C18	39001-13	Capacitor, .01 mfd., 600 v., paper
C19	39001-13	Capacitor, .01 mfd., 600 v., paper
C20	39001-13	Capacitor, .01 mfd., 600 v., paper
C21	B-143686-1	Capacitor, 50 mmf., 500 v., molded disc ceramic
C22	39001-11	Capacitor, .005 mfd., 600 v., paper
C23	39001-13	Capacitor, .01 mfd., 600 v., paper
C24	39001-13	Capacitor, .01 mfd., 600 v., paper
C25	39001-13	Capacitor, .01 mfd., 600 v., paper
C26	39001-11	Capacitor, .005 mfd., 600 v., paper
C27	39001-11	Capacitor, .005 mfd., 600 v., paper
C28A	B-150035	Capacitor, 30 mfd., 350 v. } Four Section Electrolytic
C28B		Capacitor, 60 mfd., 350 v. } Four Section Electrolytic
C28C		Capacitor, 10 mfd., 350 v. } Four Section Electrolytic
C28D		Capacitor, 100 mfd., 25 v. } Four Section Electrolytic
R1	39373-92	Resistor, 1 megohm, ½ w.
R2	39373-33	Resistor, 1000 ohm, ½ w.
R3	39373-92	Resistor, 1 megohm, ½ w.
R4	39373-60	Resistor, 22,000 ohm, ½ w.
R5	39373-100	Resistor, 3.3 megohm, ½ w.
R6	39374-215	Resistor, 15,000 ohm, 10%, 2 w.
R7	39374-130	Resistor, 27,000 ohm, 10%, 1 w.
R8	39373-33	Resistor, 1000 ohm, ½ w.
R9	39373-67	Resistor, 47,000 ohm, ½ w.
R10	39373-80	Resistor, 220,000 ohm, ½ w.
R11	B-150018	Control, Volume (2.5 meg. Taps 1 meg. & 500,000 ohm)
R12	39373-64	Resistor, 33,000 ohm, ½ w.
R13	39373-64	Resistor, 33,000 ohm, ½ w.
R14	39373-107	Resistor, 10 megohm, ½ w.
R15	B-150019	Control, Tone (2 megohm) & Radio-Phono Switch
R16	39374-55	Resistor, 330,000 ohm, 10%, ½ w.
R17	39374-55	Resistor, 330,000 ohm, 10%, ½ w.
R18	39373-107	Resistor, 10 megohm, ½ w.
R19	39374-36	Resistor, 8200 ohm, 10%, ½ w.
R20	39374-56	Resistor, 390,000 ohm, 10%, ½ w.
R21	39374-196	Resistor, 390 ohm, 10%, 2 w.
R22	39374-56	Resistor, 390,000 ohm, 10%, ½ w.
R23	39374-107	Resistor, 330 ohm, 10%, 1 w.
R24	39373-54	Resistor, 10,000 ohm, ½ w.
R25	39373-1	Resistor, 10 ohm, ½ w.
R26	39373-1	Resistor, 10 ohm, ½ w.
L1	B-150260	Antenna Loop Assembly
L2	AW-150151	Transformer, R.F.
L3	AW-150150	Coil, Oscillator
I1	138437-1	Bulb (Dial), Type 47, 6.3 v., .15 amp.

Symbol No.	Part No.	Description
SW1	Part of R11	Switch, Power (ON-OFF)
SW2	Part of R15	Switch, Radio-Phono
T1	AC-139919-3	Transformer, 1st. I.F.
T2	D-145025-5	Transformer, 2nd. I.F.
T3	B-150028	Transformer, Output
T4	B-150029	Transformer, Power
PH1	D-148279-1	Record Changer (V950)
CA1	C-132300-2	Cable & Plug Assy., Power
CA2	B-139727-7	Cable & Plug Assy., Phono Motor
CO1	W-136998	Connector, Phono
SP1	138762-5	Speaker, 10" P.M.
	AB-150013	Background Assy., Dial
	148824	Baffle, Speaker (11-207MU)
	150308	Baffle, Speaker (11-208BU)
	W-149709	Bracket, Drive Shaft Support
	R-148738	Cabinet, (11-207MU)
	R-150299	Cabinet, (11-208BU)
	W-136201	Clip, Dial Glass
	W-139921	Clip, I.F. Transformer
	W-136999-1	Connector (Male), Shielded Wire
	W-131154-1	Cotter (External), Drive Shaft
	W-136853	Cushion (Rubber), Dial Glass
	150009	Decal (Off-On-Volume, Tone-Radio-Phono, Tuning)
	C-149991	Dial Glass
	148825	Drawer Assy., Record Changer (11-207MU)
	150302	Drawer Assy., Record Changer (11-208BU)
	C-148995-1	Escutcheon
	149097	Grille Cloth (11-207MU)
	149939	Grille Cloth (11-208BU)
	W-146390	Grommet, Variable Capacitor Mtg.
	148828	Hinge, Door (11-207MU)
	150306	Hinge, Door (11-208BU)
	C-148708	Knob
	148831	Leg, Left Rear } 11-207MU Cabinet
	148832	Leg, Right Rear } 11-207MU Cabinet
	148829	Leg, Left Front } 11-207MU Cabinet
	148830	Leg, Right Front } 11-207MU Cabinet
	148833	Leg & Base Assy. } 11-207MU Cabinet
	150300	Leg, Left Rear } 11-208BU Cabinet
	150301	Leg, Right Rear } 11-208BU Cabinet
	150304	Leg, Left Front } 11-208BU Cabinet
	150303	Leg, Right Front } 11-208BU Cabinet
	150305	Leg & Base Assy. } 11-208BU Cabinet
	W-148788-2	Name (CROSLEY)
	C-149431	Pointer, Dial
	W-137939-1	Pulley, Drive Cord Idler
	148827	Pull, Door Handle
	W-137170	Retainer, Record Changer Mtg.
	W-137940-1	Rivet, Drive Cord Idler Pulley
	W-150083	Shaft, Dial Pointer Drive
	AC-143896-9	Shielded Wire Assy., Phono
	W-33055-2	Sleeve (Rubber) Chassis Mtg.
	143478	Slide, Record Changer
	D-136565-16	Socket, Dial Light
	39462-2	Socket, Tube (V1, V2, V3)
	W-149987	Socket, Tube (V4, V5, V6, V7, V8)
	W-145757	Spring, Dial Drive Cord
	139319SB	Strike & Catch Assy., Door (11-207MU)
	149951	Strike & Catch Assy., Door (11-208BU)
	W-143552	Strip, Dial Pointer
	AW-150208	Terminal Assy., Antenna
	W-134916	Washer (Spring), Drive Shaft

MODELS 11-550MU,
11-560BU, Ch. 337

Model 11-550MU (Mahogany) — Model 11-560BU (Blond)

DESCRIPTION

TYPE: Five-tube, single band, Superheterodyne.

FREQUENCY RANGE: 540 to 1600 kc.

INTERMEDIATE FREQUENCY: 455 kc.

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

VOLTAGE RATING: 105-125 volts.

POWER OUTPUT: 1 watt maximum.

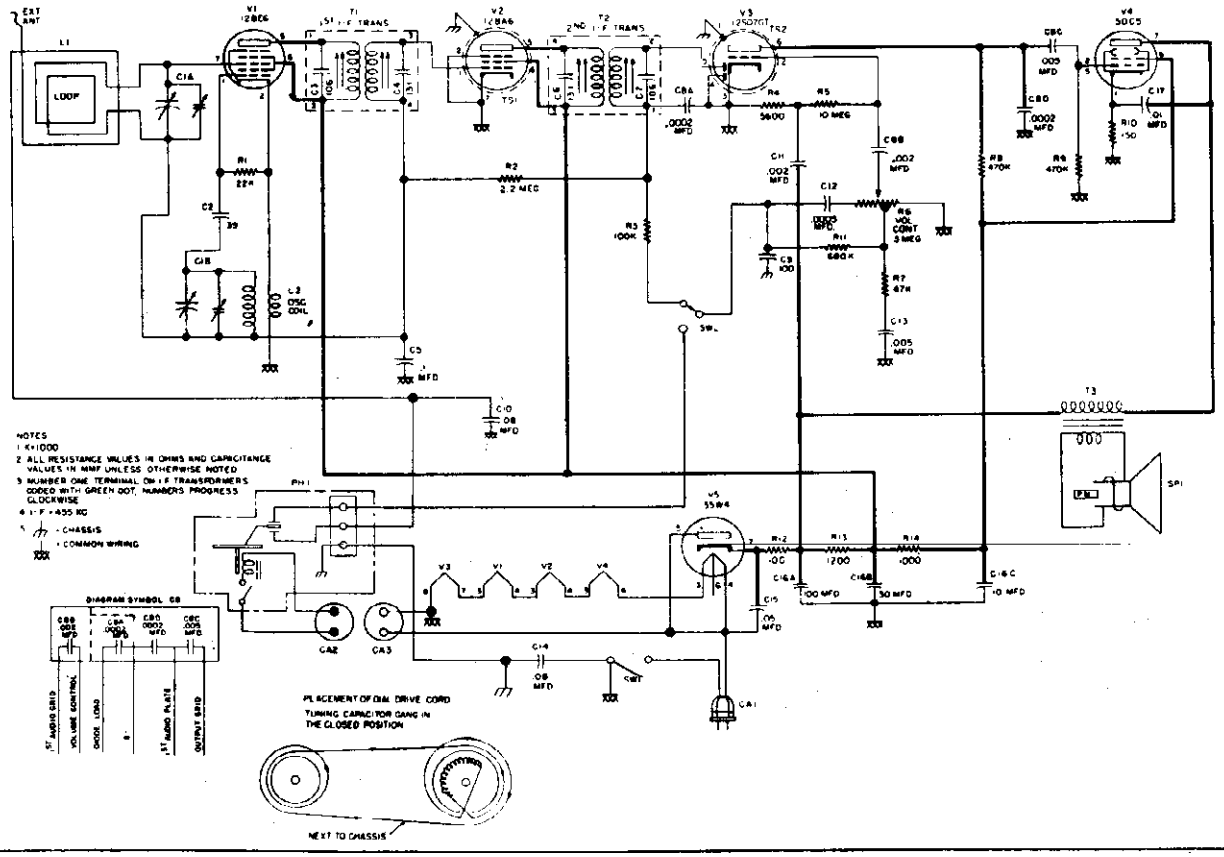
POWER CONSUMPTION:

Radio Position ..... 35 watts

Phono Position..... 55 watts

TUBE COMPLEMENT:

Type	Function
12BE6	Converter
12BA6	I. F. Amplifier
12SQ7GT	Detector, AVC, 1st. A. F. Amplifier
50C5	A. F. Power Output
35W4	Rectifier



Under no circumstances should a ground be connected to this receiver.

ALIGNMENT PROCEDURE

1. Connect an output meter across the speaker voice coil.
2. The r.f. signal input from the signal generator should be connected, through a 200 mmf. capacitor, to the external antenna screw. Connect the signal generator ground to the top lug on loop antenna (see Chassis Top View)
3. Turn the volume control on full and adjust the signal generator output to produce approximately midscale deflection of the output meter, but maintain signal generator output as low as possible to prevent AVC action in the receiver.

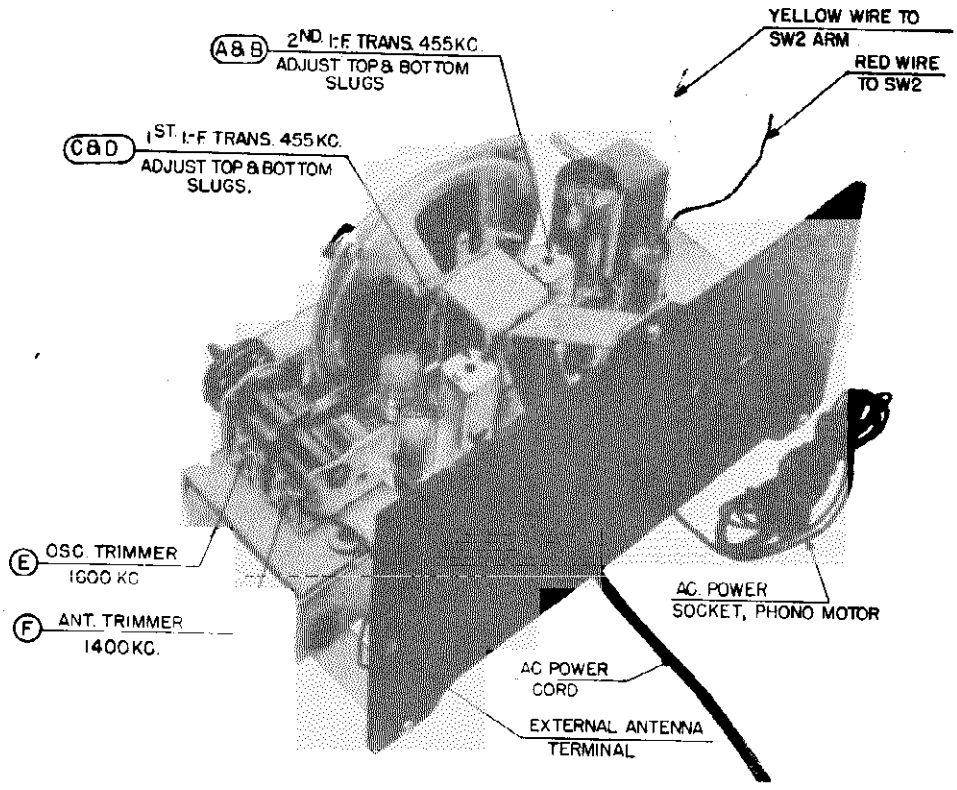
ALIGNMENT CHART

Alignment adjustment locations are shown on "CHASSIS, TOP VIEW."

Alignment Sequence	Signal Generator Output			Position of Dial Pointer	Adjust for Maximum Output
	Frequency in kc.	In Series with	To		
1	455	200 mmf.	External Ant. Screw	1620	* A, B, C & D
2	1620	200 mmf.	External Ant. Screw	1620	E
3	1400	200 mmf.	External Ant. Screw	1400	F

* Repeat adjustments until maximum output is obtained.

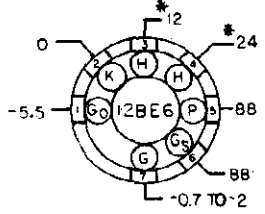
SCHEMATIC DIAGRAM



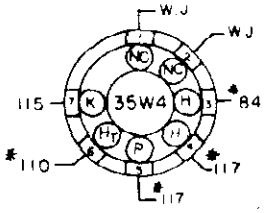
CHASSIS, TOP VIEW

MODELS 11-550MU,
11-560BU, Ch. 337

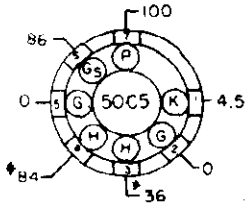
CONVERTER



RECTIFIER



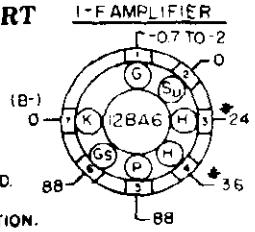
AUDIO OUTPUT



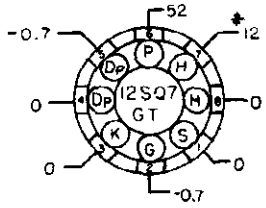
SOCKET VOLTAGE CHART

NOTES:
1. BOTTOM VIEW OF TUBE SOCKETS.
2. VOLTAGES MEASURED WITH AN ELECTRONIC VOLTMETER FROM SOCKET LUG TO B- (PIN 7 OF 12BA6)
3. MEASURED WITH THE VOLUME CONTROL AT MINIMUM & NO SIGNAL INTO THE LOOP, TUNING GANG CLOSED.
4. WJ = WIRING JUNCTION.
   * = AC VOLTAGES. NC = NO CONNECTION.
5. LINE VOLTAGE = 117 V., 60~AC.
6. SOCKET VOLTAGE TOLERANCE ± 10%

I-F AMPLIFIER



DET-AVC & 1ST AUDIO AMPL.



REPLACEMENT PARTS LIST

Symbol No.	Part No.	Description
C1A	B-150043	Capacitor, Variable } Two Section
C1B		Capacitor, Variable }
C2	C-137727-109	Capacitor, 39 mmf., 10%, 200 v. ceramic
C3	Part of T1	Capacitor, 106 mmf.
C4	Part of T1	Capacitor, 131 mmf.
C5	39001-19	Capacitor, .1 mfd., 600 v., paper
C6	Part of T2	Capacitor, 131 mmf.
C7	Part of T2	Capacitor, 106 mmf.
C8A	C-144675-1	Capacitor, .0002 mfd., 500 v. } Four Section
C8B		Capacitor, .002 mfd., 500 v. } disc ceramic
C8C		Capacitor, .005 mfd., 500 v. }
C8D		Capacitor, .0002 mfd., 500 v. }
C9	B-143686-3	Capacitor, 100 mmf., 500 v., molded disc ceramic
C10	39001-85	Capacitor, .08 mfd., 600 v., paper
C11	39001-74	Capacitor, .002 mfd., 600 v., paper
C12	39001-5	Capacitor, .0005 mfd., 600 v., paper
C13	39001-11	Capacitor, .005 mfd., 600 v., paper
C14	39001-85	Capacitor, .08 mfd., 600 v., paper
C15	39001-17	Capacitor, .05 mfd., 600 v., paper
C16A	B-147174	Capacitor, 100 mfd., 150 v. } Three Section
C16B		Capacitor, 30 mfd., 150 v. } Electrolytic
C16C		Capacitor, 10 mfd., 150 v. }
C17	39001-13	Capacitor, .01 mfd., 600 v., paper
R1	39373-60	Resistor, 22,000 ohm, 1/2 w.
R2	39373-97	Resistor, 2.2 megohm, 1/2 w.
R3	39373-74	Resistor, 100,000 ohm, 1/2 w.
R4	39374-34	Resistor, 5600 ohm, 10%, 1/2 w.
R5	39373-107	Resistor, 10 megohm, 1/2 w.
R6	B-150044	Control, Volume (3 megohm)
R7	39373-67	Resistor, 47,000 ohm, 1/2 w.
R8	39373-87	Resistor, 470,000 ohm, 1/2 w.
R9	39373-87	Resistor, 470,000 ohm, 1/2 w.
R10	39373-16	Resistor, 150 ohm, 1/2 w.
R11	39373-90	Resistor, 680,000 ohm, 1/2 w.
R12	39374-189	Resistor, 100 ohm, 10%, 2 w.
R13	39374-114	Resistor, 1200 ohm, 10%, 1 w.
R14	39373-33	Resistor, 1000 ohm, 1/2 w.
CA1	C-132300-10	Cable & Plug Assy., Power
CA2	Part of PH1	Cable & Connector (Male), Phono Motor
CA3	B-139727-1	Cable & Connector (Female), Phono Motor
L1	C-147961	Loop Antenna & Back Assy.
L2	AW-148259	Coil, Oscillator
PH1	D-148279-2	Record Changer (V950)
SP1	AD-145956-2	Speaker
SW1	Part of R6	Switch, Power
SW2	B-150042	Switch, Phono
T1	AC-139919-3	Transformer, 1st I.F.
T2	AC-139919-3	Transformer, 2nd I.F.
T3	B-147171	Transformer, Output
TS1	W-147784	Shield, Tube (V2)
TS2	W-46447-1	Shield, Tube (V3)
	R-150181	Base, 11-551M: Solid Front (11-550MU)
	R-150254	Base, 11-552M: with Doors (11-550MU)
	R-150182	Base, 11-561B: Solid Front (11-560BU)
	R-150311	Base, 11-562B: with Doors (11-560BU)
	W-147967	Bracket, Back Mtg.
	B-147968	Bracket, Speaker Support
	W-147184	Bracket, Volume Control
	AW-148203	Bushing & Support, Pointer Pulley
	R-150070	Cabinet (11-550MU)
	R-150268	Cabinet (11-560BU)
	AC-143896-12	Cable Assembly (53"-Shielded)
	W-131154-1	Cotter (External), Pointer Pulley
	150233	Doors, 1 pair (11-550MU)
	150255	Doors, 1 pair (11-552M Base)
	150270	Doors, 1 pair (11-560BU)
	150312	Doors, 1 pair (11-562B Base)
	150236	Drawer, Record Changer (11-550MU)
	150271	Drawer, Record Changer (11-560BU)
	D-150195	Escutcheon
	B-147160	Gasket, Speaker
	AB-150062-1	Grille & Cloth Assy. (11-550MU)
	AB-150062-2	Grille & Cloth Assy. (11-560BU)
	160273-1	Hinge, Upper L & Lower R (11-550MU, 11-552M Base)
	160273-2	Hinge, Upper R & Lower L (11-550MU, 11-552M Base)
	150269	Hinge, Upper L & Lower R (11-560BU, 11-562B Base)
	150273	Hinge, Upper R & Lower L (11-560BU, 11-562B Base)
	C-148708	Knob, Volume-Tuning
	W-139925-4	Knob, Radio-Phono (11-550MU)
	W-139925-3	Knob, Radio-Phono (11-560BU)
	W-147275	Mounting (Rubber), Speaker Support
	W-45580-2	Mounting (Rubber), Speaker
	W-147149-3	Pointer, Tuning
	W-147181	Pulley, Pointer
	150232	Pull, Door (11-550MU Cabinet, 11-552M Base, 11-560BU Cabinet, 11-562B Base)
	149977	Pull, Record Changer Drawer
	W-137170	Retainer, Record Changer
	143478	Slide, Record Changer Drawer
	39462-2	Socket, Tube (V1, V2, V4, V5)
	W-149987	Socket, Tube (V3)
	W-51752	Spring, Drive Cord
	139319SB	Strike & Catch, Door (11-550MU, 11-552M Base)
	149951	Strike & Catch, Door (11-560BU, 11-562B Base)
	150235	Top, Cabinet (11-550MU)
	150272	Top, Cabinet (11-560BU)
	150313	Top, Base (11-562B)