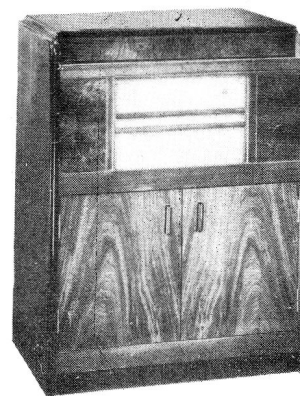




PHILIPS

SERVICE NOTES

RADIO PHONOGRAPH CM55A



SPECIFICATIONS

MODEL CM55A: Is a five tube superheterodyne receiver combined with an automatic record changer phonograph designed for use on A.C. lines only. Five tuning ranges cover from 13.6 to 560 meters, 22 Mc to 535 kc with Bandsread on three short wave ranges.

PHILIPS TUBES: Converter 12SA7, I.F. Amplifier 12SK7GT, Detector A.V.C. & 1st A.F. Amplifier 12SQ7GT, Audio Output 50L6GT, Rectifier 35Z5GT or 35Z4GT.

RANGE SWITCH POSITIONS AND TUNING RANGES:

- 1st—560-170 m—535-1635 kc (Special)
- 2nd—560-170 m—535-1635 kc (Normal)
- 3rd—120-37.5 m—2.5-8.0 Mc
- 4th—32.2-28.5 m—9.3-10.5 Mc Bandsread
- 5th—28.8-24.6 m—10.4-12.2 Mc Bandsread
- 6th—25.5-13.6 m—14.6-22.0 Mc Bandsread

INTERMEDIATE FREQUENCY: 455 kc

AUDIO POWER OUTPUT: 2 watts

LOUDSPEAKER: Is an 8 inch permanent magnet dynamic with a voice coil D.C. resistance of 2.9 ohms.

ANTENNA & GROUND: For optimum results an outside antenna is necessary. A secure ground connection should be made to a cold water pipe or to a grounding plate buried in damp ground.

CONTROLS: Left front to right rear (looking at front)

1. Volume Control (Outer)
2. Tone Control Switch (Inner)
3. On-Off and Radio Phonograph Switch (Inner)
4. Tuning Control (Outer)
5. Wave Range Switch

PHONOGRAPH: The Phonograph unit is a Seeburg Model "K" utilizing a Shure Brothers crystal pickup cartridge No. P93S. The turntable is rotated by either a 115 volt, 25 or 60 cycle motor, depending upon the frequency of the power source. For service data on the record changer refer to the accompanying Seeburg Record Changer Service Manual.

LINE VOLTAGE: 115 volts, 25 cycles, or 115 volts, 60 cycles.

POWER CONSUMPTION: 75 watts maximum

CABINET DIMENSIONS: Width—25 $\frac{3}{8}$ inches

Height—32 inches

Depth—17 $\frac{3}{4}$ inches

WEIGHT: 79.5 pounds

SERVICE DATA

WAVE RANGE SWITCH: The schematic diagram shows each section of this switch in a straight line form. The short stator contacts are represented as solid squares; the long contacts as solid rectangles; and the rotor contacts as bars. All sections are shown in the extreme counterclockwise (14.6 to 22.0 Mc Range or 6th) position of the switch or the extreme clockwise rotation of the

switch knob. As the switch rotates clockwise (knob counterclockwise) the rotor contacts move upwards through the 5th to the 1st Wave Range Switch positions as listed above. The exact location of each stator contact on its wafer is shown on a front view drawing of a switch wafer on the schematic diagram.

TO REMOVE CHASSIS

1. Disconnect plug from mains.
2. Remove antenna and ground connections.
3. Remove back cover and control knobs.
4. Disconnect the speaker, phonograph motor and phonograph pickup cables from the chassis.
5. Remove the screws securing receiver top panel to the cabinet.
6. Remove chassis mounting screws.

ALIGNMENT OF RECEIVER

See that the Radio-Phonograph switch is in the radio position (centre position). With the variable capacitor fully closed, adjust the dial pointer on the alignment marks on the sides of the dial scale below the 550 calibration mark, (approximately 530 kc).

Place the tone switch in the second position (one position to the right of full counterclockwise) and turn the volume control to the maximum volume (clockwise) position.

EQUIPMENT REQUIRED

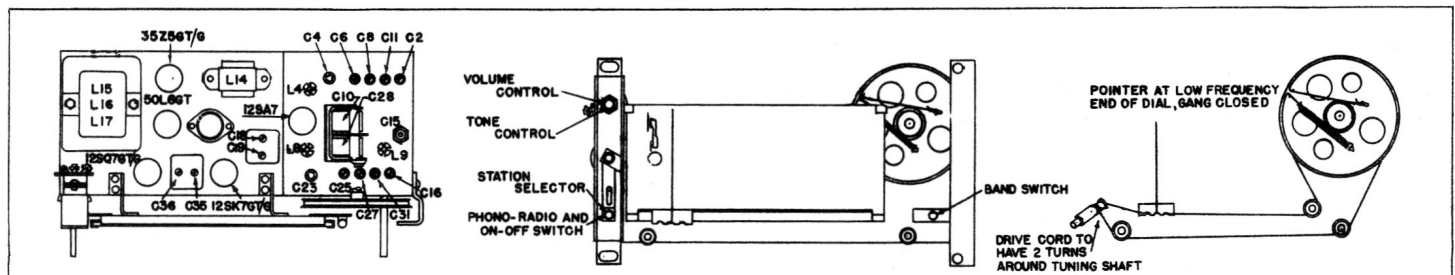
OUTPUT INDICATOR: A high resistance A.C. voltmeter and an output transformer.

SIGNAL GENERATOR: A generator capable of supplying modulated signals between 455 kc and 22 Mc.

Equipment Connections and Alignment Procedure

OUTPUT INDICATOR: Connect the A.C. voltmeter across the voice coil of the speaker. During alignment, keep the output below 1.25 A.C. volts across the voice coil. If the meter is not sensitive enough to indicate 1.25 volts, connect the secondary of an output transformer across the speaker voice coil and connect the A.C. voltmeter across the primary. When using the latter method, the maximum output reading should be kept below 30 A.C. volts. When the output indication increases regulate the signal generator attenuator to restore the original indication.

SIGNAL GENERATOR: Connect the ground lead of the signal generator to the ground jack in the rear of the receiver and the output lead to the points indicated in the chart below, in series with the specified resistor or capacitor.



ALIGNMENT PROCEDURE

SIGNAL GENERATOR			RECEIVER			
Operation Steps	Output Connections to Receiver	Frequency	Range Switch	Tuning Capacitor	See Notes	Adjust in stated order for Maximum Output
1	To 12SK7GT Control Grid (4) through .05 ufd. Capacitor	455 kc	Pos. 2	Min.		2nd. I.F. Trimmers C36, C35.
2	To Stator C10 through .05 ufd. Capacitor	455 kc	Pos. 2	Min.	A	1st. I.F. Trimmers C19, C18.
3	To Antenna Contact through 200 uuf. Capacitor	600 kc	Pos. 2	600 kc		Broadcast Padder C15
4	To Antenna Contact through 200 uuf. Capacitor	1500 kc	Pos. 2	1500 kc	B	BC-Osc. Trimmer C16 BC-Ant. Trimmer C2
5	To Antenna Contact through 400 ohms Resistance	7.0 Mc	Pos. 3	7.0 Mc	C	SW-Osc. Trimmer C31 SW-Ant. Trimmer C11
6	To Antenna Contact through 400 ohms Resistance	2.9 Mc	Pos. 3	2.9 Mc	D	SW-Osc. Coil L9
7	To Antenna Contact through 400 ohms Resistance	21.5 Mc	Pos. 6	21.5 Mc	C	BS-Osc. Trimmer C23
8	To Antenna Contact through 400 ohms Resistance	15.2 Mc	Pos. 6	15.2 Mc	D	BS-Osc. Coil L8
9	To Antenna Contact through 400 ohms Resistance	21.5 Mc	Pos. 6	21.5 Mc	E	BS-Ant. Trimmer C4
10	To Antenna Contact through 400 ohms Resistance	15.2 Mc	Pos. 6	15.2 Mc	F	BS-Ant. Coil L4
11	To Antenna Contact through 400 ohms Resistance	11.6 Mc	Pos. 5	11.6 Mc	C	BS-Osc. Trimmer C25 BS-Ant. Trimmer C6
12	To Antenna Contact through 400 ohms Resistance	9.6 Mc	Pos. 4	9.6 Mc	C	BS-Osc. Trimmer C27 BS-Ant. Trimmer C8

ALIGNMENT NOTES

Note "A"—After step 2 has been completed, do not make any further adjustments of the 2nd I.F. trimmers C36 and C35.

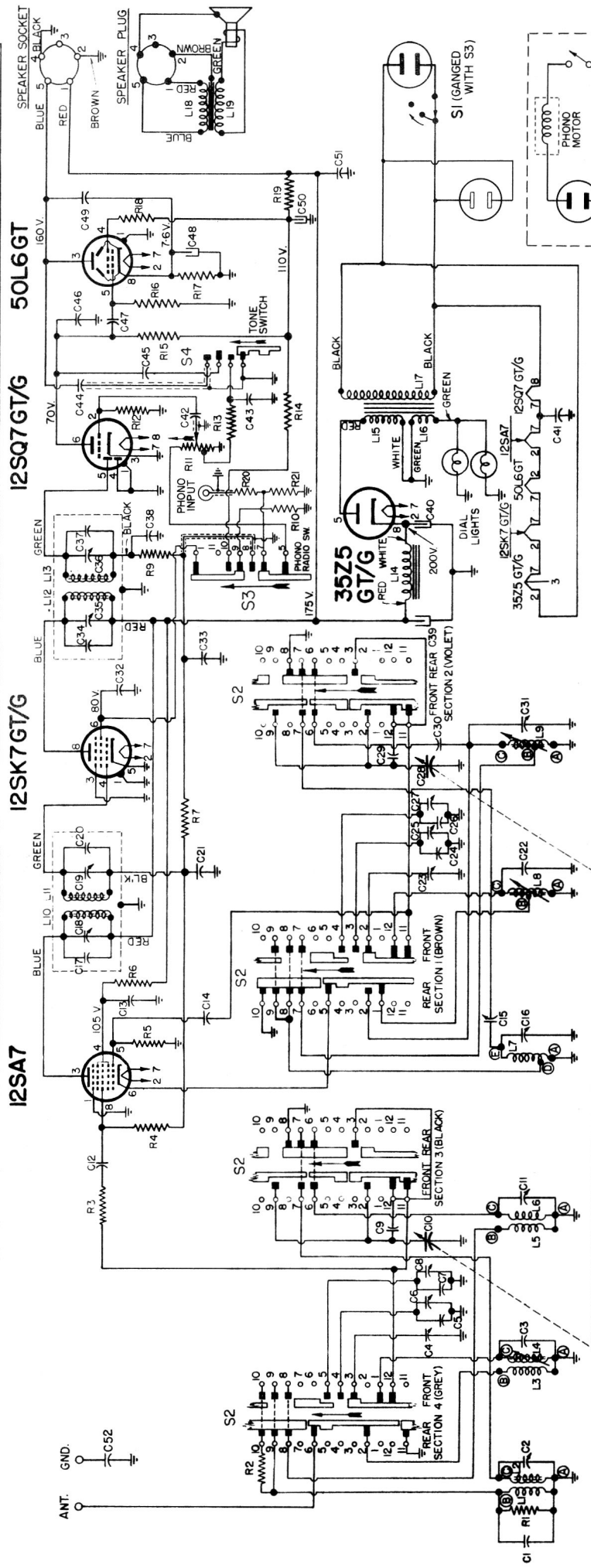
Note "B"—Return to 600 kc and tune receiver for maximum output, vary padder adjustment slightly and turn the tuning capacitor back and forth through maximum peak. Repeat until the greatest output is obtained.

Note "C"—Unscrew oscillator trimmer capacitor to minimum capacity (counter clockwise). Turn adjustment clockwise until the first output peak is obtained. Make adjustment using this peak.

Note "D"—Check high frequency end of dial for accuracy, adjust oscillator trimmer if necessary.

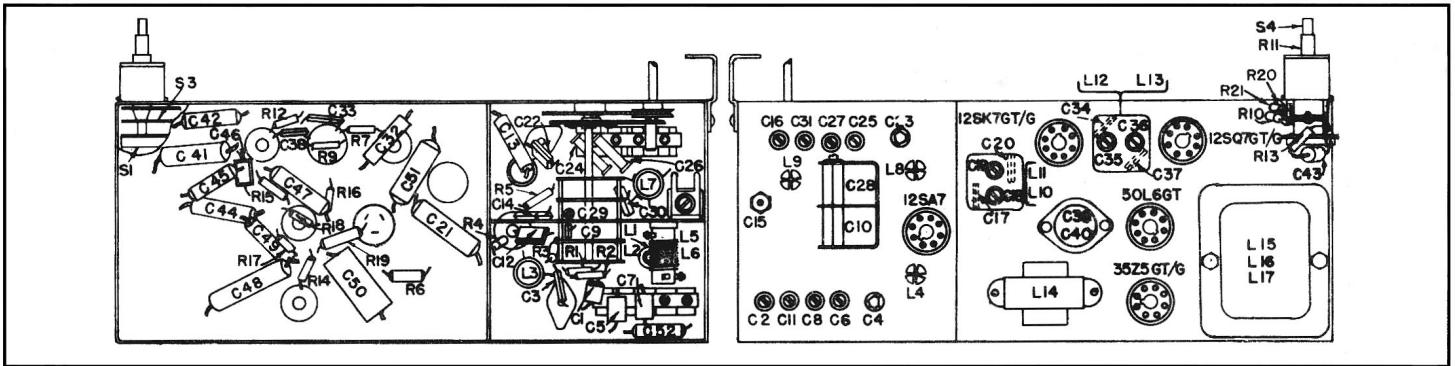
Note "E"—Rock tuning capacitor while adjusting antenna trimmer for maximum output.

Note "F"—Repeat operation 9.

[illegible]

I.F. 455 KC.

LOCATION OF PARTS



REPLACEMENT PARTS

FOR DEPENDABLE REPAIRS, USE ONLY GENUINE PHILIPS REPLACEMENT PARTS. When ordering always give description and code number and model of receiver.

CAPACITORS

			Code No.
C1	10 uuf.	Mica	512-018
C2, C11, C31	3-35 uuf.	Trimmer	511-004
C3, C22	35 uuf.	Silver Mica	513-010
C4, C23	3-30 uuf.	Trimmer	511-014
C5	150 uuf.	Silver Mica	513-004
C6, C8, C25, C27	10-160 uuf.	Trimmer	511-008
C7	200 uuf.	Silver Mica	513-006
C9	150 uuf. $\pm 5\%$	Silver Mica	513-003
C10, C28	13.0-498.8 uuf.	2-Gang Variable	510-005
C12, C14	100 uuf.	Mica	512-001
C13, C32, C44, C47	.05 uuf.	400V.	515-405
C15	250-525 uuf.	Padder	511-001
C16	1.6-18 uuf.	Trimmer	511-015
C17, C20	75 uuf.	Silver Mica	513-007
C18, C19, C35, C36	7-45 uuf.	Trimmer	511-011
C21	0.1 ufd.	200V.	515-210
C24	150 uuf.	Ceramicon	514-004
C26	200 uuf.	Ceramicon	514-003
C29	150 uuf. $\pm 5\%$	Ceramicon	514-001
C30	2340 uuf. $\pm 3\%$	Silver Mica	513-009
C33, C38	50 uuf.	Mica	512-011
C34, C37	140 uuf. $\pm 5\%$	Silver Mica	513-008
C39, C40	40-40 ufd.	250V.	516-007
C41	.025 ufd.	115V.	515-104
C42	.02 ufd.	600V.	515-613
C43, C52	.005 ufd.	600V.	515-612
C45	.002 ufd.	600V.	515-617
C46	200 uuf.	Mica	512-007
C48	25 ufd.	25V.	516-003
C49	.01 ufd.	600V.	515-614
C50	8 ufd.	150V.	516-006
C51	0.1 ufd.	400V.	515-406

RESISTORS

			Code No.
R1, R5	22,000 ohms	$\frac{1}{4}$ watt	501-002
R2	33,000 ohms	$\frac{1}{2}$ watt	501-041
R3	10 ohms	$\frac{1}{4}$ watt	501-029
R4	470,000 ohms	$\frac{1}{2}$ watt	501-026
R6	8,200 ohms	1 watt	502-013
R7	2.2 Megohms	$\frac{1}{2}$ watt	501-006
R9, R10	68,000 ohms	$\frac{1}{2}$ watt	501-009
R11	1 Megohm	Volume Control	*505-009
R12	10 Megohms	$\frac{1}{2}$ watt	501-031
R13	39,000 ohms	$\frac{1}{4}$ watt	501-012
R14	10,000 ohms	$\frac{1}{2}$ watt	501-023
R15	220,000 ohms	$\frac{1}{4}$ watt	501-003
R16	470,000 ohms	$\frac{1}{2}$ watt	501-004
R17	150 ohms	$\frac{1}{2}$ watt	501-001
R18	100 ohms	$\frac{1}{2}$ watt	501-505
R19	15,000 ohms	1 watt	502-014
R20	1 Megohm	$\frac{1}{4}$ watt	501-010
R21	150,000 ohms	$\frac{1}{2}$ watt	501-251

TRANSFORMERS & COILS

	Code No.
L1, L2	070-045
L3, L4	070-046
L5, L6	070-047
L7, L9	070-048
L8	070-049
L10, L11	060-017
L12, L13	060-018
L14	050-021
L15, L16, L17	050-007
L18, L19	050-046
B.C. Antenna Coil Assembly	
B.S. Antenna Coil Assembly	
S.W. Antenna Coil Assembly	
B.C. & S.W. Oscillator Coil Assembly	
B.S. Oscillator Coil Assembly	
1st I.F. Transformer	
2nd I.F. Transformer	
Filter Choke Assembly	
Power Transformer	
Output Transformer	

MISCELLANEOUS

	Code No.
Antenna & Ground Plate	120-103
Antenna & Ground Banana Plug	571-113
Back Cover	303-095
Cabinet with Baffle	030-059
Dial Glass, Standard	331-029
Dial Lamp, 6-8V.	643-003
Dial Lamp Socket Assembly (Right)	570-103
Dial Lamp Socket Assembly (Left)	570-104
Dial Pointer & Slider Assembly	110-094
Dial Drive Cord — 1-1/3 yds.	595-002
Dial Drive Cord Pulley	310-010
Dial Drive Cord Spring	310-005
Iron Core Adjustment for L4, L8 & L9	609-004
Iron Core Locking Nut	531-003
Knob, Phonograph-Radio	572-002
Knob, Volume Control & Tuning	572-003
Knob, Wave Range	572-017
Knob, Tone Control	572-019
Knob Spring	300-110
Knob Set Screw	524-505
Line Cord & Plug	100-003
Phonograph Connector, Male	571-107
Phonograph Connector, Female	571-128
Phonograph-Radio on-off Switch	080-049
Phonograph Switch Arm & Plate Assembly	110-108
Phonograph Switch Link Assembly	110-023
Phonograph Record Changer Type K 25, cycle	090-029
Phonograph Record Changer Type K 60 cycle	090-030
Range Switch, Section 1	080-018
Range Switch, Section 2	080-041
Range Switch, Section 3	080-040
Range Switch, Section 4	080-017
Range Switch, Clicker Plate & Shaft Assembly	080-026
Range Switch, Gear & Hub Assembly	120-033
Range Switch, Gear & Hub Set Screw	524-501
Speaker 8" P.M.	041-019
Speaker Grille Cloth	627-005
Speaker Plug	571-118
Speaker Socket	571-119
Speaker Socket Contacts	571-105
Tone Control Switch	*080-048
Tube Grid Plate Shield Assembly	120-021
Tube Socket Octal	570-001
Tuning Drum & Hub Assembly	110-093
Tuning Shaft	310-028
*Part of Assembly	120-169