Sears Roebuck & Co.

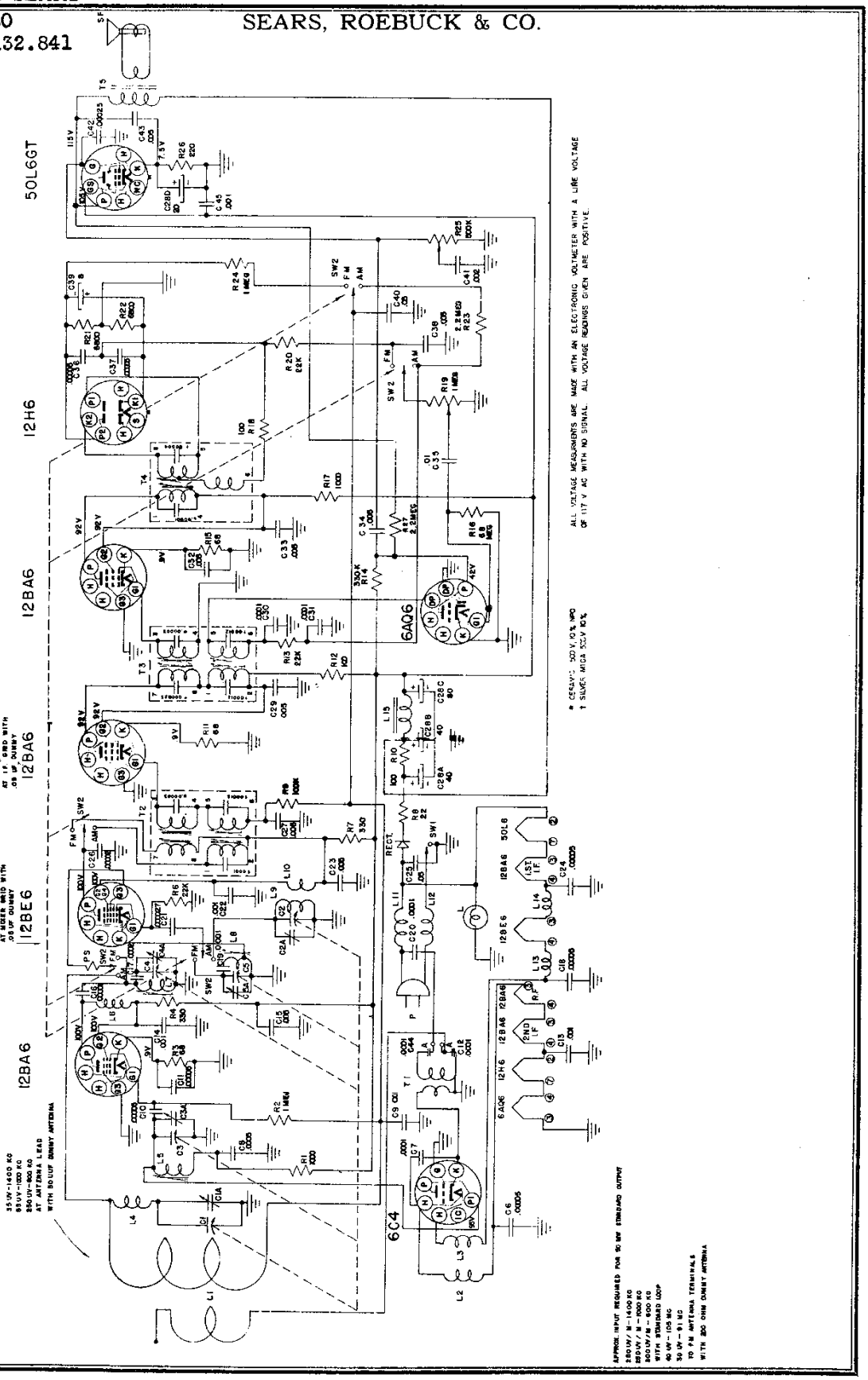
Model: 8020	Chassis:	Year: Pre 1950
Power:	Circuit:	IF:
Tubes:		
Bands:		

Resources
Riders Volume 18 - SEARS 18-56
Riders Volume 18 - SEARS 18-57
Riders Volume 18 - SEARS 18-58
Riders Volume 18 - SEARS 18-59
Riders Volume 18 - SEARS 18-60

Courtesy Nostalgia Air

MODEL 8020
CHASSIS 132.841

SEARS, ROEBUCK & CO.



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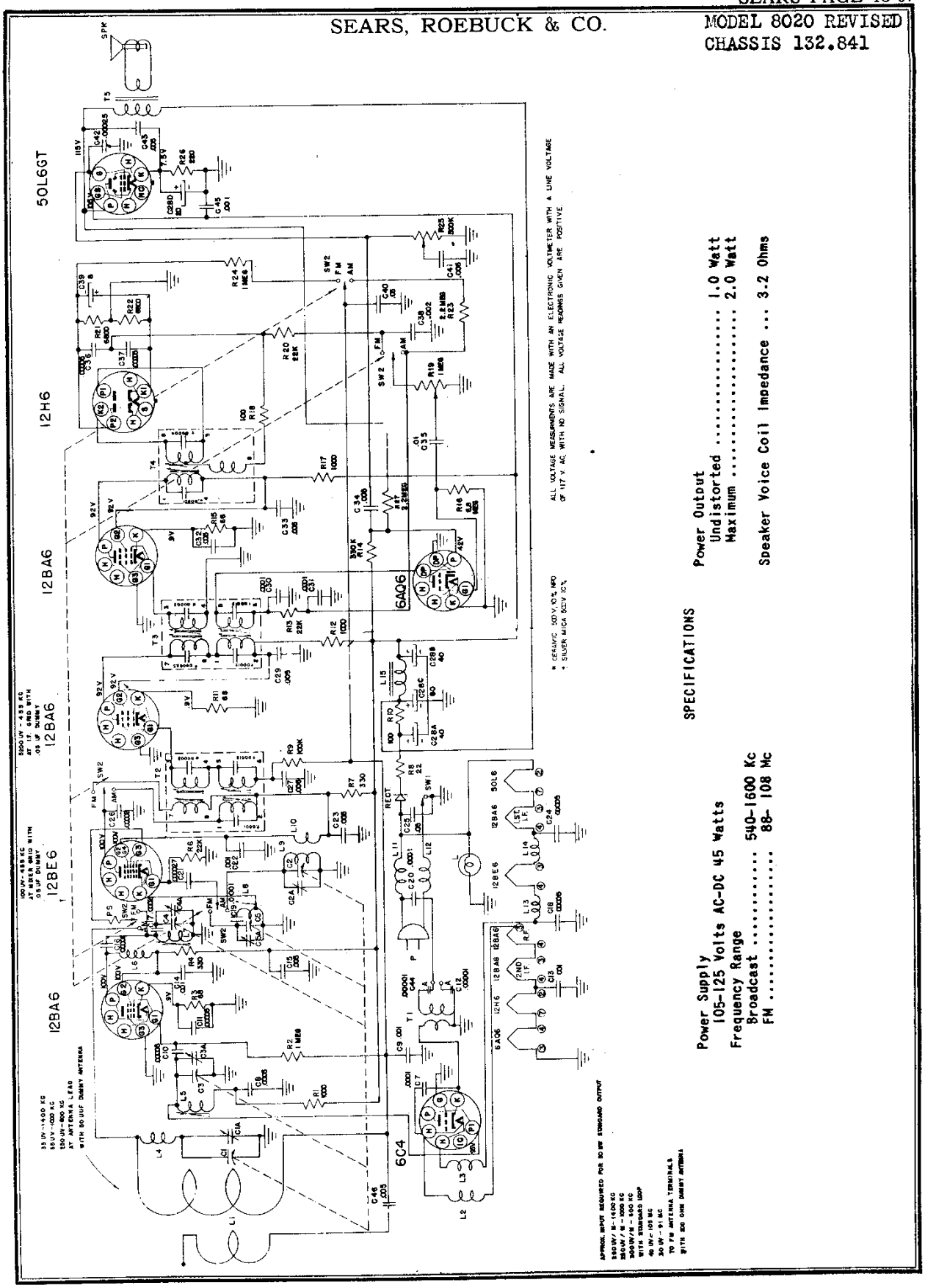
MODEL 8020 REVISED
CHASSIS 132.841



SPECIFICATIONS

Power Supply
105-125 Volts AC-DC 45 Watts

Frequency Range
Broadcast ..... 540-1600 Kc
FM ..... 88- 108 Mc

Power Output
Undistorted ..... 1.0 Watt
Maximum ..... 2.0 Watt

Speaker Voice Coil Impedance ... 3.2 Ohms

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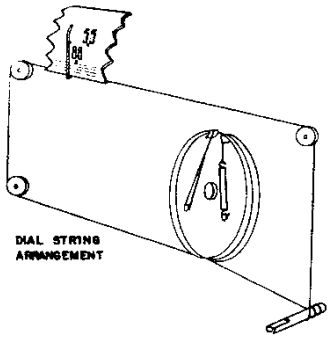
MODEL 8020
CHASSIS 132.841

SEARS, ROEBUCK & CO.

CIRCUIT CHANGES

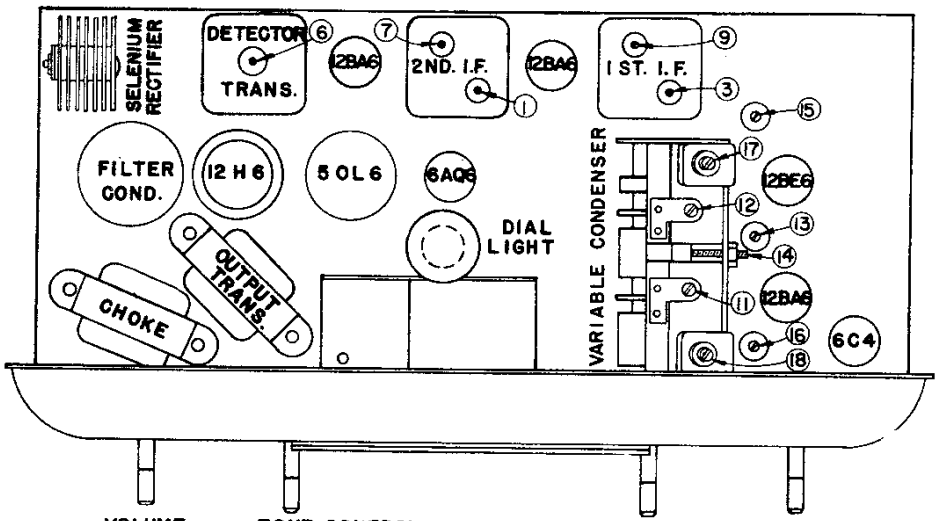
Before start of Production on this model, certain circuit improvements were made, which do not appear on the printed stickers and instruction sheets which accompany each receiver. These differences are as follows:

1. A pickup coil was added to the AM loop antenna.
2. C44 added to FM antenna circuit and C12 relocated in FM antenna circuit.
3. R27 added from plate of 50L6 to plate of 6AQ6.
4. C34 -- .005 Mfd. was .05 Mfd.
5. C38 -- .005 Mfd. was .002 Mfd.
6. C41 -- .002 Mfd. was .005 Mfd.
7. L4 -- is relocated on the Schematic Diagram.
8. R5 -- deleted from FM antenna circuit.

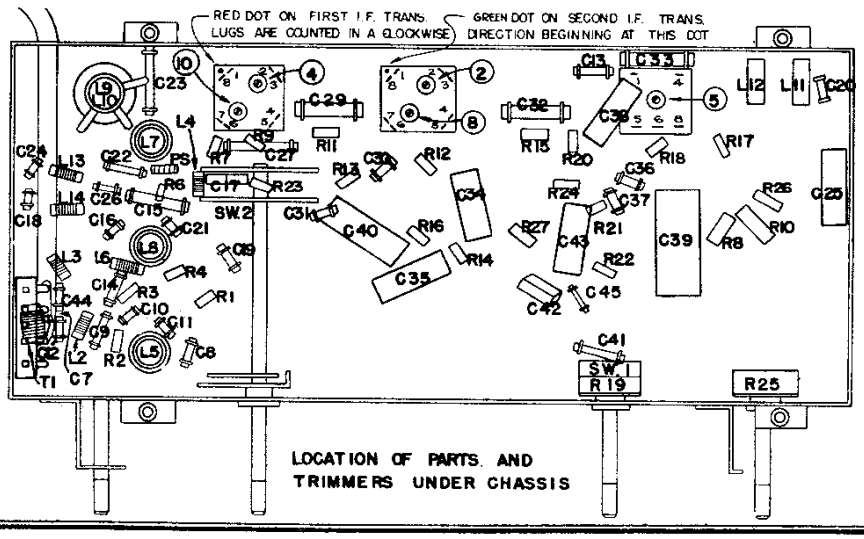


The following changes were made after some sets had been produced, to improve the sensitivity and tone.

1. C45 Condenser added from 50L6 screen grid to chassis .001 uf.
2. C12 Condenser changed from .001 uf. to .00001 uf.
3. C44 Condenser changed from .001 uf. to .00001 uf.
4. C34 Condenser changed from 400 Volt to 600 Volt.



LOCATION OF TUBES AND TRIMMERS ON TOP OF CHASSIS



LOCATION OF PARTS AND TRIMMERS UNDER CHASSIS

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MODEL 8020
CHASSIS 132.841

ALIGNMENT PROCEDURE

PRELIMINARY:

Output meter connection ..... Across speaker voice coil
Output meter reading to indicate 50 MW (Standard Output) ..... .4 volt
Generator modulation ..... 30 % 400 cycles
Position of volume control ..... Fully clockwise
Set dial pointer ..... To last mark on left end of dial with variable condenser closed
Set band switch ..... To left for AM alignment and to right for FM alignment

AM ALIGNMENT

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION HIGH SIDE	GENERATOR CONNECTION GROUND LEAD	ADJUST TRIMMERS IN ORDER SHOWN FOR MAX. OUTPUT	TRIMMER FUNCTION
Open	455 Kc	.05 Mfd.	Mixer grid	Chassis	1-2-3-4	IF
1400 Kc	1400 Kc		*Test loop	Test loop	11	Oscillator
1400 Kc	1400 Kc		*Test loop	Test loop	12	Antenna
**600 Kc	600 Kc		*Test loop	Test loop	Check point	Antenna

*Connect generator lead to a Standard Hazeltine Test Loop, Model 1150, placed two feet from the set loop, or three turns of wire about six inches in diameter, placed about one foot from the set loop. Or the generator can be connected with the high side lead to the green lead on the set loop and the ground lead to the chassis.

**With a generator signal of 600 Kc, tune the set to the point where maximum output is obtained, which should be approximately 600 Kc on the dial. Adjust antenna section plates of variable for maximum output.

The alignment procedure should be repeated in the original order for greatest accuracy.

Always keep the output from the signal generator at its lowest possible value to make the A.V.C. action of the receiver ineffective.

FM ALIGNMENT

Discriminator

POSITION OF VARIABLE	GENERATOR FREQUENCY	DUMMY ANTENNA	GENERATOR CONNECTION HIGH SIDE	GENERATOR CONNECTION GROUND LEAD	ADJUST TRIMMERS IN ORDER SHOWN	TRIMMER FUNCTION
Open	10.7 Mc	.05 Mfd.	2d IF grid	Chassis	*5, 6	Discriminator

*5 is adjusted for maximum A.V.C. voltage.
*6 is adjusted for zero reading of a vacuum tube voltmeter connected across the volume control. Rock this adjustment through the zero point to see that the voltage is positive on one side of the zero point and negative on the other.

IF

Open	10.7 Mc	.05 Mfd.	Mixer grid	Chassis	7, 8, 9, 10	IF

Adjust trimmers for maximum A. V. C. voltage.

Repeat "Discriminator" and "IF Alignment" with generator connected to mixer grid, being careful not to shift the generator frequency during this operation.

NOTE: If a 10.7 Mc FM generator is not available for alignment of discriminator and IF, an unmodulated signal of 10.7 Mc from an accurately calibrated conventional AM type generator can be used.

RF

108 Mc	108 Mc	200 Ohm Resistor	Ant. Terminal on Rear Cover	Ant. Terminal on Rear Cover	14	Oscillator
88 Mc	88 Mc	200 Ohm Resistor	Ant. Terminal on Rear Cover	Ant. Terminal on Rear Cover	13	Oscillator

Repeat the above oscillator adjustments until proper coverage is obtained.

105 Mc	105 Mc	200 Ohm Resistor	Ant. Terminal on Rear Cover	Ant. Terminal on Rear Cover	17, 18	Mixer & Antenna
91 Mc	91 Mc	200 Ohm Resistor	Ant. Terminal on Rear Cover	Ant. Terminal on Rear Cover	15, 16	Mixer & Antenna

All RF trimmers are adjusted for maximum output.

Repeat "Mixer & Antenna" adjustments until proper tracking is obtained.

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MODEL 8020
CHASSIS 132.841

SEARS, ROEBUCK & CO.

PARTS LIST

SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
	N21535	Cabinet (Less metal grille & dial cover)
L15	N21394-2	Choke, B+ Filter
L2,L3,L4	N21445-1	Choke, R. F.
L6,L13,L14		
L11, L12	N21446-1	Choke, R. F.
L5	N21399-1	Coil, F. M., First R. F.
L7	N21400-1	Coil, F. M., Second R. F.
L9,L10	N21396-1	Coil, A. M. Oscillator
L8	N21397-1	Coil, F. M. Oscillator
C1,C2,C3	N21401-2	Condenser, Variable
C4,C5		
C6		Condenser, .00005 Mfd., 500 Volts
C7		Condenser, .0001 Mfd., 500 Volts
C8		Condenser, .0005 Mfd., 350 Volts
C9		Condenser, .001 Mfd., 350 Volts
C10		Condenser, .00005 Mfd., 350 Volts
C11		Condenser, .00005 Mfd., 500 Volts
C12, C44		Condenser, .00001 Mfd., 350 Volts
C13		Condenser, .001 Mfd., 350 Volts
C14		Condenser, .001 Mfd., 350 Volts
C15		Condenser, .005 Mfd., 350 Volts
C16		Condenser, .00001 Mfd., 500 Volts
C17		Condenser, .0002 Mfd., 500 Volts
C18		Condenser, .00005 Mfd., 500 Volts
C19		Condenser, .0001 Mfd., 500 Volts
C20		Condenser, .0001 Mfd., 500 Volts
C21		Condenser, .000027 Mfd., 500 Volts
C22		Condenser, .001 Mfd., 350 Volts
C23		Condenser, .005 Mfd., 350 Volts
C24		Condenser, .00005 Mfd., 500 Volts
C25		Condenser, .05 Mfd., 400 Volts
C26		Condenser, .00002 Mfd., 500 Volts
C27		Condenser, .005 Mfd., 350 Volts
C28A,C28B, C28C, C28D	N21402	Condenser, Electrolytic 40-40-80 Mfd., 150 Volt, 20 Mfd., 25 Volts
C29		Condenser, .005 Mfd., 350 Volts
C30		Condenser, .0001 Mfd., 500 Volts
C31		Condenser, .0001 Mfd., 500 Volts
C32		Condenser, .005 Mfd., 350 Volts
C33		Condenser, .005 Mfd., 350 Volts
C34		Condenser, .005 Mfd., 600 Volts
C35		Condenser, .01 Mfd., 400 Volts
C36		Condenser, .00005 Mfd., 500 Volts
C37		Condenser, .00005 Mfd., 500 Volts
C38		Condenser, .005 Mfd., 350 Volts
C39	N21403	Condenser, Electrolytic, 8 Mfd., 50 Volts
C40		Condenser, .05 Mfd., 200 Volts
C41		Condenser, .002 Mfd., 200 Volts
C42		Condenser, .00025 Mfd., 500 Volts
C43		Condenser, .005 Mfd., 600 Volts
C45		Condenser, .001 Mfd., 350 Volts
R19	N21651	Control, Volume, 1 Megohm

MU-CODE	SCHEMATIC LOCATION	PART NUMBER	DESCRIPTION
85	Sw-1, R25	N21653	Control, AC Switch & Tone, ½ Megohm
		N19132	Cord, Dial Drive
		N21585	Cover, Dial
		N21584	Grille, Metal
			Lamp, Dial, Mazda, No. C7
	N	N21592	Leaflet, Instruction
	L1	N21605-1	Loop Antenna Assembly, A. M.
		N20054-5	Power Cord and Plug
		N21604	Pointer, Dial
85	R1		Resistor, 1000 Ohms, 1/4 Watt
	R2		Resistor, 1 Megohm, 1/4 Watt
	R3		Resistor, 68 Ohm, 1/4 Watt
	R4		Resistor, 330 Ohm, 1/4 Watt
	R5		Resistor, 220 Ohm, 1/4 Watt
	R6		Resistor, 22,000 Ohm, 1/4 Watt
	R7		Resistor, 330 Ohm, 1/4 Watt
	R8		Resistor, 22 Ohm, 1/4 Watt
	R9		Resistor, 100,000 Ohm, 1/4 Watt
	R10		Resistor, 100 Ohm, 1/4 Watt
	R11		Resistor, 68 Ohms, 1/4 Watt
	R12		Resistor, 1000 Ohm, 1/4 Watt
	R13		Resistor, 22,000 Ohm, 1/4 Watt
	R14		Resistor, 330,000 Ohm, 1/4 Watt
	R15		Resistor, 68 Ohm, 1/4 Watt
	R16		Resistor, 6.8 Megohm, 1/4 Watt
	R17		Resistor, 1,000 Ohm, 1/4 Watt
	R18		Resistor, 100 Ohm, 1/4 Watt
	R20		Resistor, 22,000 Ohm, 1/4 Watt
	R21		Resistor, 6800 Ohms, 1/4 Watt
	R22		Resistor, 6800 Ohms, 1/4 Watt
	R23		Resistor, 2.2 Megohm, 1/4 Watt
	R24		Resistor, 1 Megohm, 1/4 Watt
	R26		Resistor, 220 Ohm, 1/4 Watt
	R27		Resistor, 2.2 Megohm, 1/4 Watt
		N21601	Scale, Dial
		N21603	Shaft, Tuning
		N19134-4	Socket, Dial Light with Leads
		N21709-1	Suppressor, Parasitic
	Sw-2	N21652	Switch, Wave
		N21658	Speaker, 5-1/4" P.M.
		N19295	Spring, Dial Cord
	T2	N21390-2	Transformer, First I. F.
	T3	N21391-2	Transformer, Second I. F.
	T1	N21398-1	Transformer, Antenna Coupling
	T4	N21392-2	Transformer, F. M. Detector
	T5	N21393-2	Transformer, Output
		N20207-3	Rectifier, Selenium
		N21587	Knob, Tuning
		N21588	Knob, Volume
		N21589	Knob, Tone (Off-On)
		N21590	Knob, AM-FM

Subject: General Service Suggestions and Circuit Changes.

This supplement is issued for the purpose of distributing information which should be helpful in servicing this radio. The following points are covered.

1. REDUCTION OF HUM LEVEL:

On some earlier production sets, excessive hum may be reduced to an acceptable level by reversing the intermediate and output sections of the electrolytic condenser, part no. N21402. The intermediate section, indicated as C28C on the Schematic Diagram printed herewith, should be 80 Mfd., and the output section 40 Mfd. Should these be connected oppositely, reversing them as indicated in the diagram below, will result in a lower hum level.

2. MICROPHONISM:

Examination of the metal chassis will disclose that the R. F. unit (variable condenser, three miniature tubes and related parts underneath) is rubber mounted on a separate panel. Any direct contact between this panel and the main chassis base may result in a tendency toward microphonics, particularly at high volume level. Slightly loosening the three mounting screws which protrude through the rubber grommets, so as to free the "floating" action of the panel, will, in some cases, eliminate the microphonic tendency. It may be necessary also to pry up the front edge of the panel in order to clear contact with the head of the rivet in the front of the panel. On later production sets, the location of this rivet was changed, so as to avoid any contact with the main chassis base.

3. DISTORTION AT LOW VOLUME LEVEL:

A complaint of low volume distortion or "hum modulation" may be satisfied by the addition of a .001 mfd. condenser from the 50L6GT screen grid to chassis ground. This addition was incorporated in early production; however, some sets were shipped without it

4. NEW CIRCUITS:

(4) additional circuit changes have been made in current production. These are indicated on the revised schematic diagram printed here, and are as follows:

1. Condenser C6 - .00005 mfd., deleted.
2. Condenser C46 - .005 mfd., added across antenna loop sections and connection to antenna screw terminals removed.
3. Condenser C41 - changed from .002 mfd. to .005 mfd.
4. Condenser C38 - changed from .005 mfd. to .002 mfd.

Any set not wired in accordance with the above #2 change should be changed over, only if it is to be used in conjunction with an external antenna. Otherwise, these changes are not necessary.

Changes #3 and #4 make the tone control more effective.

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