

Emerson Radio & Phonograph Corp.

Model: 520

Chassis:

Year: Pre 1948

Power:

Circuit:

IF:

Tubes:

Bands:

Resources

[Riders Volume 16 - EMERSON 16-1](#)

[Riders Volume 15 - EMERSON 15-1](#)

[Riders Volume 15 - EMERSON 15-2](#)

[Riders Volume 16 - EMERSON 16-3](#)

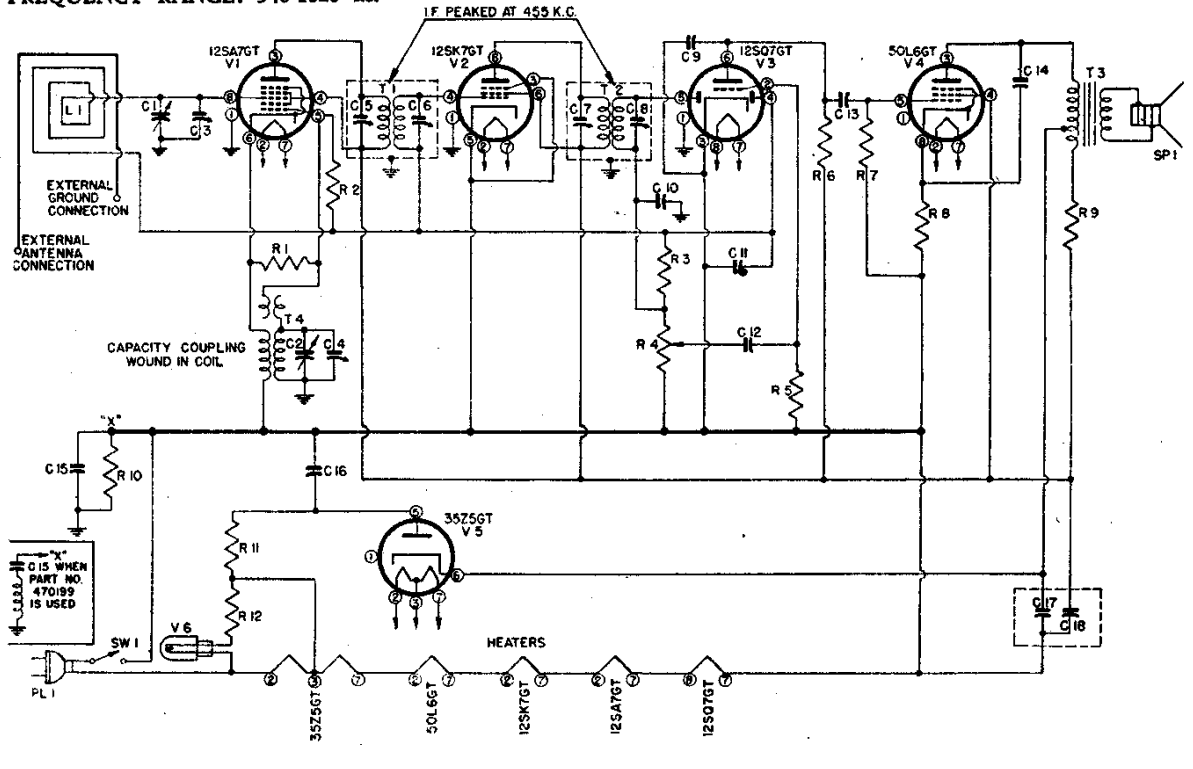
[Riders Volume 15 - EMERSON 15-12](#)

EMERSON RADIO & PHONO. CORP.

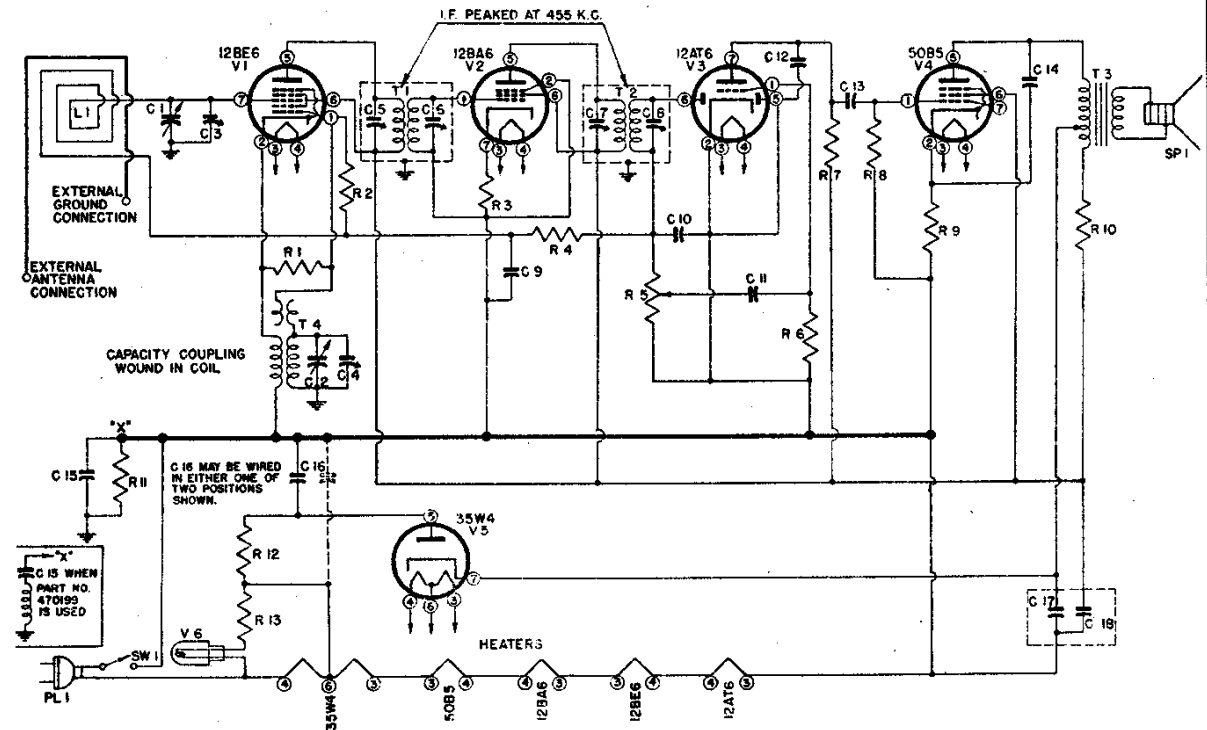
MODELS 503, 510, 510A, 520, 539
Chassis 120000, 120029, 120030,
120032, 120035, 120044

TYPE: Single-band superheterodyne.

FREQUENCY RANGE: 540-1620 kc.



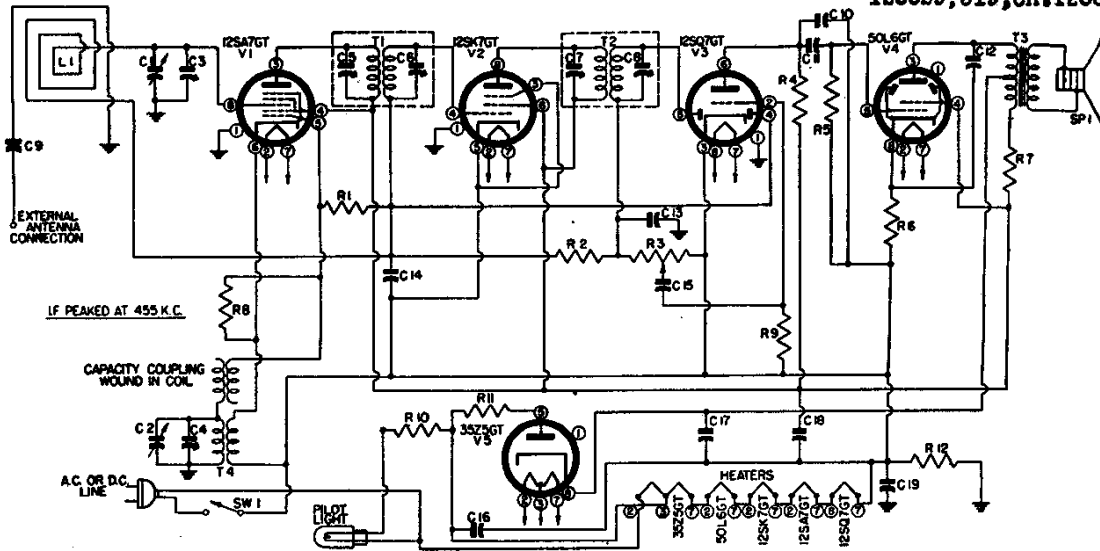
Schematic Circuit Diagram of Chassis Models 120000, 120029, 120030, 120044



Schematic Circuit Diagram of Chassis Models 120032, 120035

EMERSON RADIO & PHONO. CORP.

MODELS 501, 502, 503, 504,
510, 520, Ch. 120, 000,
120029; 519, Ch. 120030



The following voltage readings are d-c measurements taken from B— (line switch) in the indicated tube-socket pin. A 1000 ohms-per-volt meter should be used for all readings except those indicated by an asterisk (*), which should be taken with a d-c vacuum-tube voltmeter. Line voltages for these readings was 117 volts, 60 cycles, a.c. Measurements made with 117 volts d.c. will be lower than those given below. Take readings with the volume control set at minimum and the variable condenser closed.

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

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

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

Always use as weak a test signal as possible when aligning the receiver.

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

Location of Coils and Trimmer Adjustments

The first i-f transformer (T1) is mounted on top of the chassis deck to the right of the variable condenser. The trimmers (C5, C6) are accessible through holes in the top of the can.

The second i-f transformer (T2) is mounted on top of the chassis between the variable condenser and the speaker. The trimmers (C7, C8) are accessible through holes in the top of the can.

The trimmer for the antenna (C3) and the trimmer for the oscillator coil (C4) are located on the variable condenser. The trimmer on the front section is for the oscillator coil.

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

FREQUENCY RANGE: 540-1620 kc.

NUMBER OF TUBES: Five.

TYPE OF TUBES:

- 1—12SA7, pentagrid oscillator-modulator
- 1—12SK7, first i-f amplifier
- 1—12SQ7, diode detector, a-f amplifier, a.v.c.
- 1—50L6GT, beam power output
- 1—35Z5GT, half-wave rectifier

I-F Alignment

1. Rotate the variable condenser to the minimum capacity position.
2. Feed 455 kc to the converter grid (stator of the r-f section of the variable condenser) and adjust the four i-f trimmers (C5, C6, C7, C8) for maximum response.

R-F Alignment

1. Connect the oscillator to a coil composed of three to four turns of wire wound in a circle approximately 12" in diameter. This coil should be held parallel to and in line with the loop antenna of the receiver at a distance of 15 to 20 inches.
2. Radiate a signal at 1425 kc, set the dial indicator to 1425 kc, and adjust the trimmers on the variable condenser (C3, C4) for maximum response.
3. Radiate a 600 kc signal and tune in the signal on the receiver. Adjust the loose outside turn of the loop antenna for maximum response. This loose turn may be moved to either side of the center. Fasten it in the position which gives maximum response.
4. Repeat steps 2 and 3 until no further improvement is evident.

POWER SUPPLY: A.C. or D.C.

VOLTAGE RATING: 105-125 volts.

POWER CONSUMPTION: 30 watts.

DIAL CORD REPLACEMENT

Draw the cord snugly around the condenser pulley and knot it, with no slack, near the notch in the pulley, after which the spring may be hooked to the cord and pulley.

MODELS 503, 510, 510A, 520, 539

EMERSON RADIO & PHONO. CORP.

CHASSIS 120000, 120029, 120030, 120044

Schematic Symbol	†Part No.	DESCRIPTION	Schematic Symbol	†Part No.	DESCRIPTION
C1, C2	900170	Two-gang variable condenser (chassis 120000)	L1	700200	Loop antenna, or
C1, C2	900319	Two-gang variable condenser (chassis 120030 and 120044)	L1	700210	Loop antenna
C1, C2	900290	Two-gang variable condenser (chassis 120029)	*PL1		Plug, part of line cord
*C3, C4		Trimmers, part of variable condenser	R1	310810	22,000 ohms, ¼ watt resistor
*C5, C6, } C7, C8 }		Trimmers, part of i-f transformers	R2, R5	397000	15 meg., ½ watt resistor
C9	920170	0.001 mfd., 600 volt condenser	R3	321330	3.3 meg., ¼ watt resistor
C10	910000	0.00022 mfd. mica condenser	R4	390010	0.5 meg. volume control
C11	920040	0.1 mfd., 200 volt condenser	R6, R7	321130	470,000 ohms, ¼ watt resistor
C12	920010	0.002 mfd., 600 volt condenser	R8	340290	150 ohms, ½ watt resistor
C13, C14	920020	0.02 mfd., 400 volt condenser	R9	370490	1,000 ohms, 1 watt resistor
C15	920050	0.2 mfd., 200 volt condenser, or	R10	321050	220,000 ohms, ¼ watt resistor
C15	470199	0.2 mfd., 200 volt assembly (used only with midget i-f transformers 720525 and 720529)	R11	340050	15 ohms, ½ watt resistor
C16	920030	0.05 mfd., 400 volt condenser	R12	340010	10 ohms, ½ watt resistor
C17, C18	925009	50-50 mfd., 150 volt dual electrolytic condenser	SP1	180000	P.M. speaker
L1	700000	Loop antenna, or	*SW1		Line switch on volume control
			T1	720000	First i-f transformer, or
			T1	720525	First i-f transformer, midget
			T2	720100	Second i-f transformer, or
			T2	720529	Second i-f transformer, midget
			T3	734000	Output transformer
			T4	716010	Oscillator coil
				583010	Line cord

CHASSIS 120032, 120035

C1, C2	900319	Two-gang variable condenser	R1	310810	22,000 ohms, ¼ watt resistor
*C3, C4		Trimmers, part of variable condenser	R2, R6	397000	15 meg., ½ watt resistor
*C5, C6, } C7, C8 }		Trimmers, part of i-f transformers	R3	340310	180 ohms, ½ watt resistor
C9	920040	0.1 mfd., 200 volt condenser	R4	321290	2.2 meg., ¼ watt resistor
C10	910000	0.00022 mfd. mica condenser	R5	390010	0.5 meg. volume control
C11	920010	0.002 mfd., 600 volt condenser	R7, R8	321130	470,000 ohms, ¼ watt resistor
C12	920170	0.001 mfd., 600 volt condenser	R9	340290	150 ohms, ½ watt resistor
C13, C14	920020	0.02 mfd., 400 volt condenser	R10	370490	1,000 ohms, 1 watt resistor
C15	920050	0.2 mfd., 200 volt condenser, or	R11	321050	220,000 ohms, ¼ watt resistor
C15	470199	0.2 mfd., 200 volt assembly (used only with midget i-f transformers 720525 and 720529)	R12	340050	15 ohms, ½ watt resistor
C16	920030	0.05 mfd., 400 volt condenser	R13	340010	10 ohms, ½ watt resistor
C17, C18	925009	50-50 mfd., 150 volt dual electrolytic condenser	SP1	180000	P.M. speaker
L1	700000	Loop antenna, or	*SW1		Line switch on volume control
L1	700210	Loop antenna	T1	720000	First i-f transformer, or
*PL1		Plug, part of line cord	T1	720525	First i-f transformer, midget
			T2	720100	Second i-f transformer, or
			T2	720529	Second i-f transformer, midget
			T3	734000	Output transformer
			T4	716010	Oscillator coil
				583010	Line cord

CABINET AND DIAL PARTS

* Not supplied separately.

† Specify part numbers when ordering

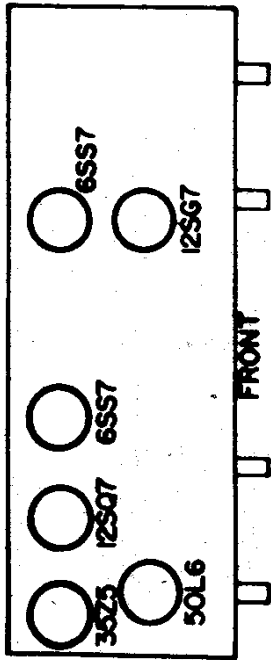
807000	Pilot light	520470	Dial crystal, printed (Chassis 120030, 120035)
280103	Drive shaft	460140	Knob (Model 503)
520019	Dial backplate, 320° dial numbers (Chassis 120000)	460470	Knob (Models 510, 539)
520500	Dial backplate, 180° dial numbers (Chassis 120029)	460150	Knob (Model 520)
412600	Dial backplate, plain (Chassis 120035, 120030)	450230	Ivory plastic front, square holes, (Model 520)
410004	Dial backplate, plain (Chassis 120032, 120044)	450250	Ivory plastic front, round holes, (Model 520)
520513	Dial face, paper (Chassis 120032, 120044)	450330	Black plastic front, square holes, (Model 510)
525010	Pointer (Chassis 120000, 120029)	450350	Black plastic front, round holes, (Model 510)
525090	Pointer (Chassis 120030, 120032, 120035, 120044)	140001	Cabinet (Model 503)
520080	Dial crystal (Chassis 120000, 120029, 120032, 120044)	140000	Cabinet (Model 520)
		140005	Cabinet (Model 510, 510A)
		140069	Cabinet (Model 539)

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

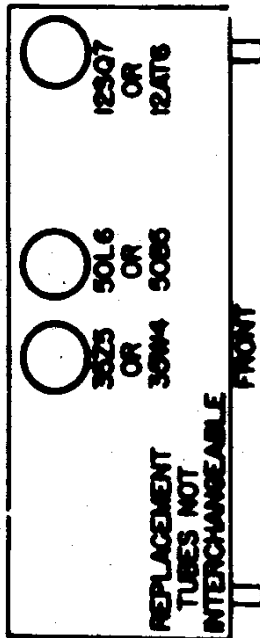
Grid—green Plate—blue
Grid return—black B+—red

Chassis 120000, 1200029, 120030, 120044 use metal or glass tubes. Chassis 120032 and 120035 use miniature tubes. Model 510A only uses chassis 120035.

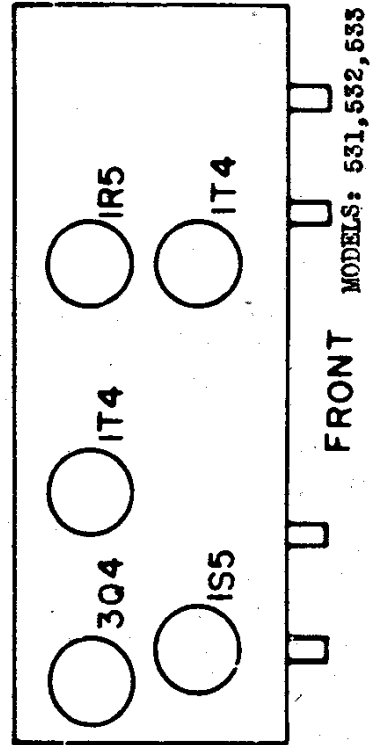
EMERSON RADIO & PHONO. CORP.



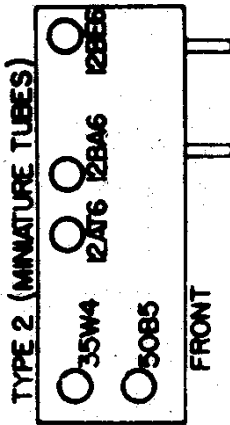
MODELS: 513, 514



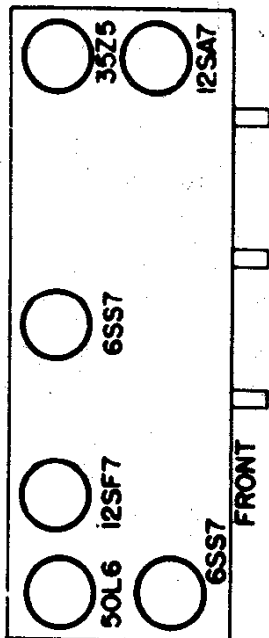
MODELS: 521, 542



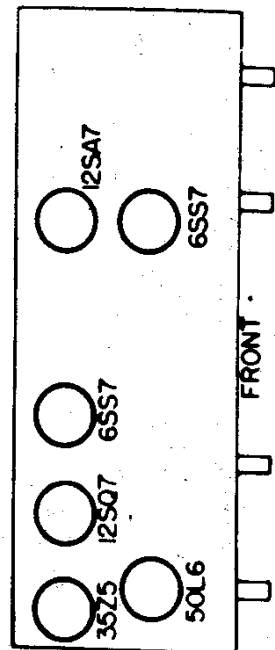
MODELS: 531, 532, 533



MODELS: 501, 502, 503, 504, 507, 509, 510, 511, 517, 518, 519, 520, 525, 539, 541



MODEL 506



MODELS: 512, 515, 516