



3-VE-0, -1, -2 Series  
3-VF-0, -1, -1X, -2, -2X Series

## SPECIFICATIONS (Continued)

### TUBE COMPLEMENT

#### Tuner Chassis—RC-1206C, F

(V101) RCA 12DT8	.....FM RF Amp. and Converter
(V2) RCA 12BE6	.....AM Converter
(V3) RCA 12BA6	.....2nd FM IF Amplifier
(V4) RCA 12AU6	.....AM and 3rd FM IF Amplifier
(V5) RCA 12AL5	.....FM Ratio-Detector
(V6) RCA 35W4	.....Rectifier
(V7) RCA 12BA6	.....1st FM IF Amplifier

A crystal diode is used for the AM Detector

#### FM-Stereo Chassis—RS-200C

(V501) RCA 12AX7A	....Compensating Amplifier & Phase Splitter
(V502) RCA 6CL8A	.....Driver & Oscillator
CR501	.....Doubler
CR502	.....Doubler
CR503	.....Detector
CR504	.....Detector

#### Power Amplifier Chassis—RS-193A,B,D,E,F,

(V201) RCA 6EU7	....Right and Left Channel Amplifier
(V202) RCA 6BQ5	.....Right Channel Amplifier
(V203) RCA 6BQ5	.....Left Channel Amplifier
(V204) RCA 5Y3GT	.....Rectifier

### PICKUP

RP-216B-1 (Stock No. 110023)	.....Stereophonic Ceramic
RP-216B-2 (Stock No. 110021)	.....Stereophonic Ceramic

TUNING DRIVE RATIO .....15:1 (7½ Turns of Knob)

### LOUD SPEAKERS

#### 3-VE-0,-1 Series, 3-VF-0,-1,-1X Series

Two—8" PM "Duo-Cone"	.....3.2 ohm voice coil imp.
Two—3½" PM "Tweeter"	.....6-8 ohm voice coil imp.

#### 3-VE-2 Series, 3-VF-2,-2X Series

Two—10" PM "Duo-Cone"	.....3.2 ohm voice coil imp.
Two—3½" PM "Tweeter"	.....6-8 ohm voice coil imp.

CABINET DIMENSIONS	Height	Width	Depth
3-VE-07,-8	29¼"	32"	16¾"
3-VE-09	29¼"	32"	17½"
3-VE-10, 3-VF-10	29"	39¾"	17½"
3-VE-20, 3-VF-20	30¼"	41¾"	18¾"
3-VE-22, 3-VF-22	31¼"	42¼"	18½"
3-VE-24, 3-VF-24	31¼"	42½"	18¾"
3-VF-06	27¾"	37¾"	17¾"

## DESCRIPTION

Models of the 3-VE-0 Series, 3-VE-1 Series and 3-VE-2 Series are high-fidelity stereophonic "Victrola" consoles designed to provide in-the-cabinet stereophonic reproduction; they are complete stereophonic record playing systems consisting of a record changer, a dual-channel amplifier, and two speaker systems, all housed in a single console cabinet styled in Contemporary, Danish or Early American design.

Models of the 3-VF-1 Series and 3-VF-2 Series are high-fidelity Radio/"Victrola" combination consoles; they are similar to the models in the 3-VE-1 Series and 3-VE-2 Series respectively but with the addition of an FM-AM radio tuner. Jacks are provided on the tuner for the connection of an FM stereo (Multiplex) adapter to permit reception of FM stereophonic broadcasts.

Models of the 3-VF-0 Series, 3-VF-1X Series and 3-VF-2X Series are Radio/"Victrola" combination consoles that are similar to the above models but with the addition of a factory installed FM-Stereo adapter.

All models, except those of the 3-VE-0 Series have jacks provided for the connection of "Total Sound" speakers (Model SS-6), to obtain optimum stereophonic effect.

The seven tube (11 function) tuner (RC-1206C,F) provides for the reception of regular FM or AM broadcasts and for the reception of FM stereo broadcasts, when an FM stereo adapter is used. Three controls (TUNING, NORMAL/AFC switch, AM/FM/MULTIPLEX function switch) are provided for the operation of this chassis.

The FM channel consists of an RF stage, a mixer-oscillator stage, three IF stages and a ratio detector stage. The AM channel consists of a mixer-oscillator stage, and IF amplifier stage, and a detector stage. Superhetrodyne circuitry is used in both channels. The output of the tuner chassis is connected to the tuner input of the audio amplifier chassis (RS-193A,E, or F). A 1:1 transformer is used to provide power line isolation to the tuner chassis.

The 3-VE-2 Series, 3-VF-2 Series and 3-VF-2X Series instruments use the RP-216-B1 record changer which contains a ceramic stereophonic pickup equipped with a "push-over" "clip-in" dual styli assembly, containing a 0.7-mil diamond "MG" stylus and a 3-mil synthetic sapphire "78" stylus. The record changer will play 7", 10", or 12" records at speeds of 16-2/3, 33-1/3, 45 or 78 rpm.

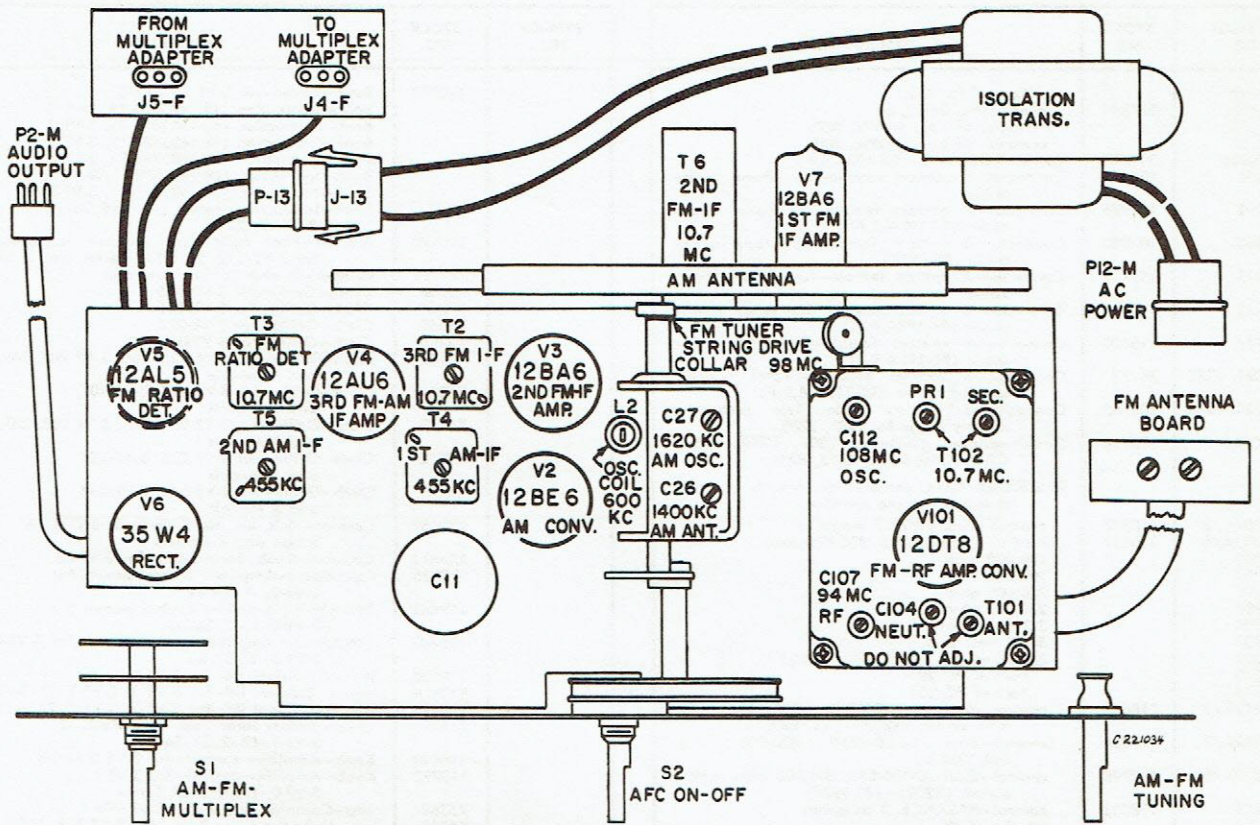
The 3-VE-0 Series, 3-VE-1 Series, 3-VF-0 Series, 3-VF-1 Series and 3-VF-1X Series instruments use the RP-216-B2 record changer which is similar to the RP-216-B1 except for the styli assembly which contains a 0.7-mil "MG" and a 3-mil "78" synthetic sapphire stylus.

The RS-193 amplifier chassis is a four tube (including rectifier) dual-channel audio amplifier consisting of a pre-

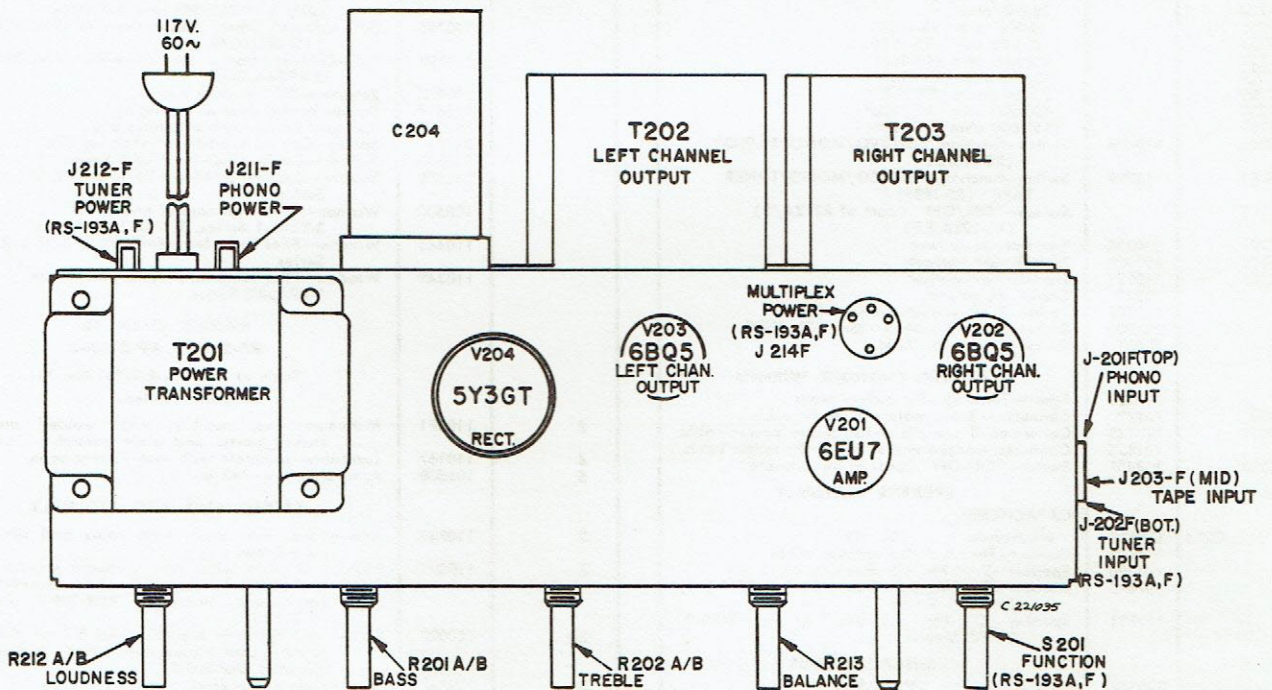
amplifier stage and an output stage for each channel. Three dual section controls (LOUDNESS, BASS, and TREBLE) provide simultaneous regulation of the two channels, and a single section BALANCE control provides for the regulation of the relative strength of each channel. The dual LOUDNESS control is compensated to maintain a balance between the bass and treble frequencies at all settings of the control.

Five versions of the RS-193 chassis are used as noted in the table. Each of the versions are electrically identical circuit-wise—with the differences existing only in the input circuits, power take off jacks, "Total Sound" speaker jacks and pilot lamp. The "A" version of the chassis (RS-193A) embodies a function switch and associated audio input and power jacks, to provide for the connection of a tuner unit and a record player. Jacks for the connection of "Total Sound" speakers and a pilot lamp are also provided. The "B" version of the chassis (RS-193B) has jacks provided for the connection of a record player and "Total Sound" speakers, but contains no function switch or jacks for tuner connection. A pilot lamp is provided. The "D" version of the chassis (RS-193D) is similar to the "B" version except that the "Total Sound" speaker jacks and pilot lamp are omitted. The "E" version of the chassis (RS-193E) is similar to the "A" version except that the pilot lamp is omitted. The "F" version of the chassis (RS-193F) is similar to the "A" version with the additional provision of a stereo input/output tape jack. When the function switch is in the Tuner position or either of the Phono positions, the Tape jack becomes an output connection from the preamplifier stage. When the function switch is in the Tape position the Tape jack becomes an input connection to the preamplifier stage. This version also has provisions for placing the power for the entire instrument under control of the "ON-OFF" switch on the record changer thus accomplishing shut-off of the complete instrument after the last record has been played.

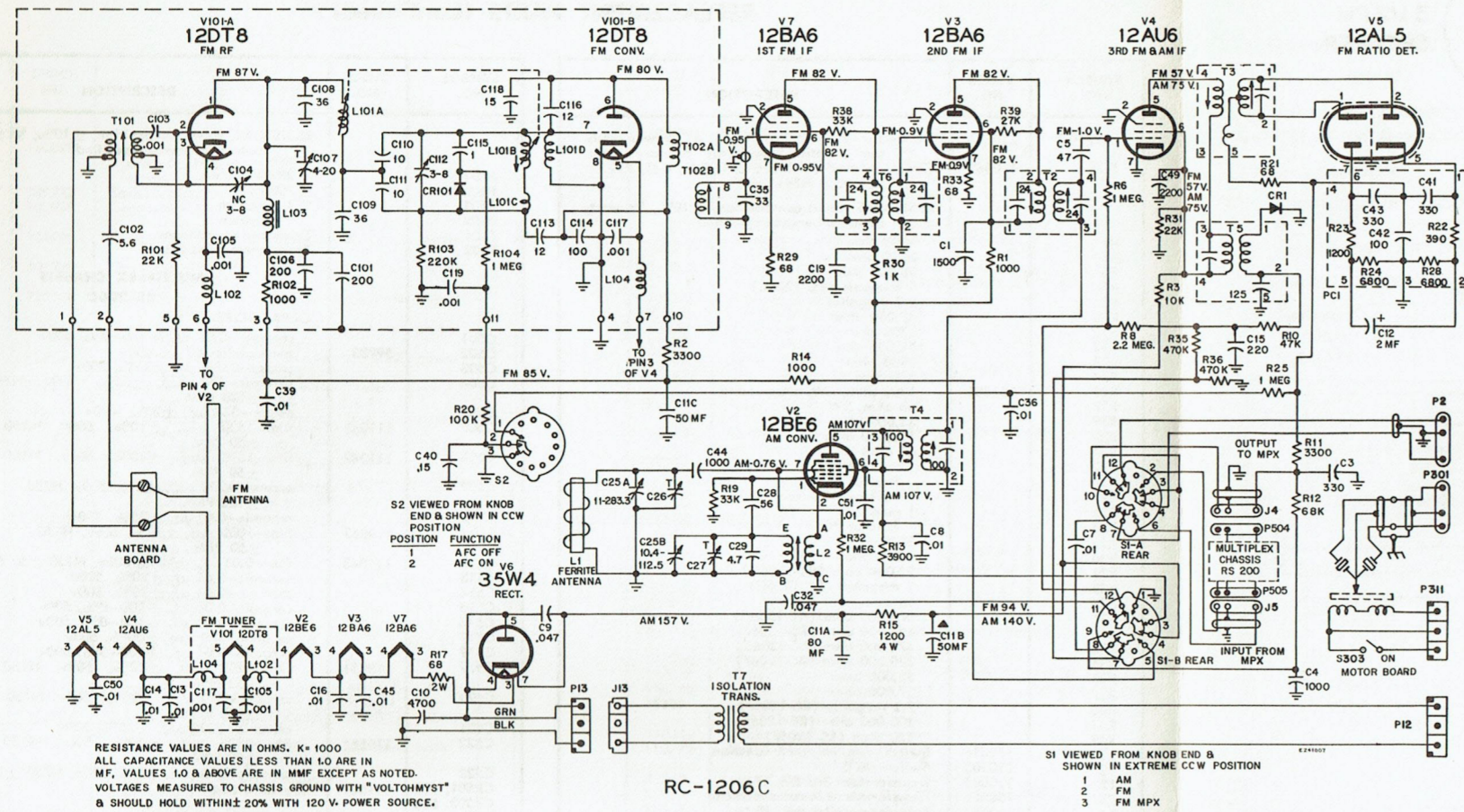
The SS-6 speaker contains a 5" x 7" "woofer" and a 3½" "tweeter" speaker plus appropriate networks to limit the range of frequencies applied to each speaker and to the speakers in the main instrument. It also includes a terminal board with an adjustable shorting bar. In the NORMAL position, the internal speaker systems in the main instrument reproduce only the low frequencies, and the external speaker systems reproduce only the mid-range and higher frequencies. When the shorting bar is placed in the ALTERNATE position, the full range of frequencies is reproduced in the internal speaker systems, and the external speaker systems reproduce only the mid-range and higher frequencies. This system is designed to provide "Total Sound" stereophonic reproduction.



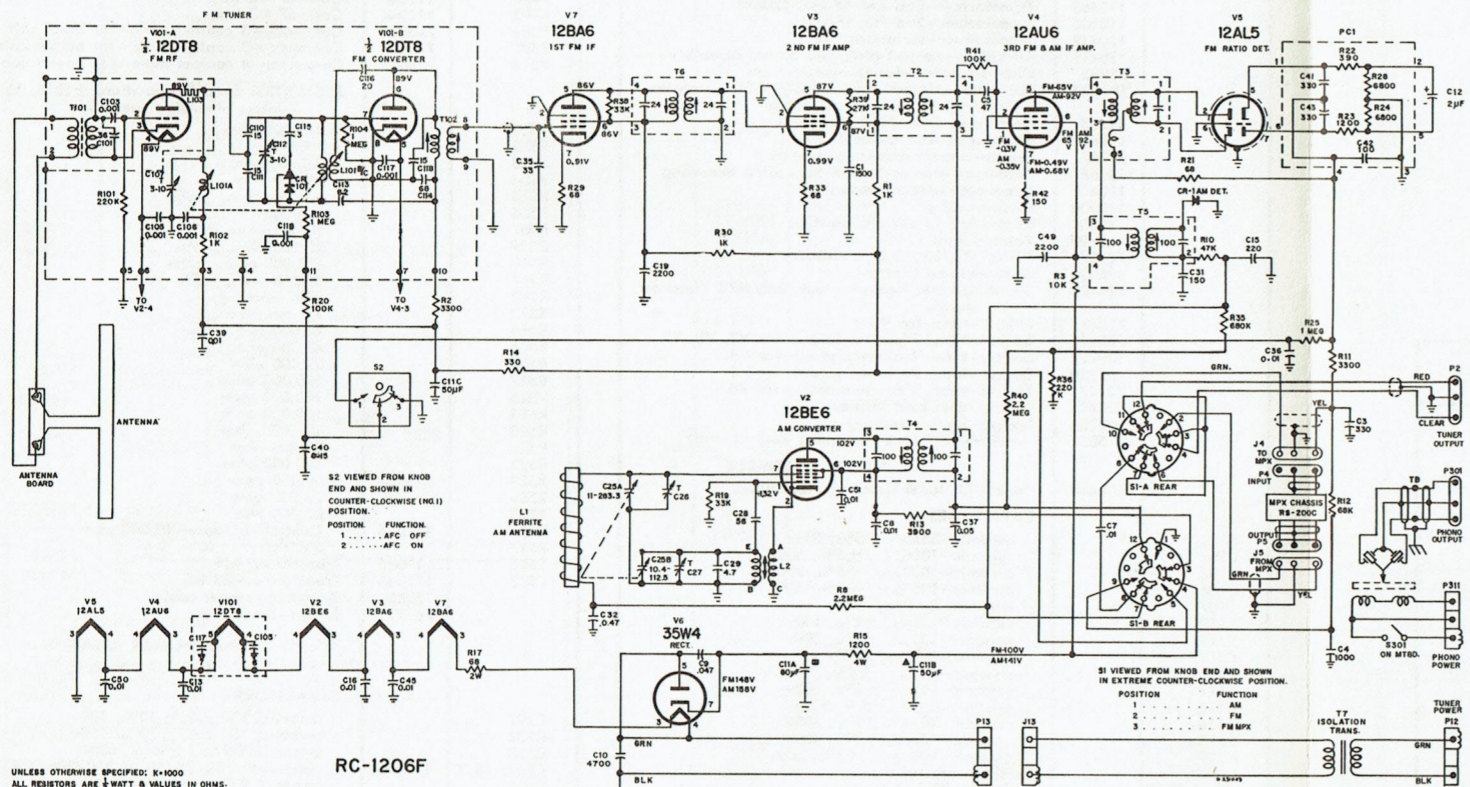
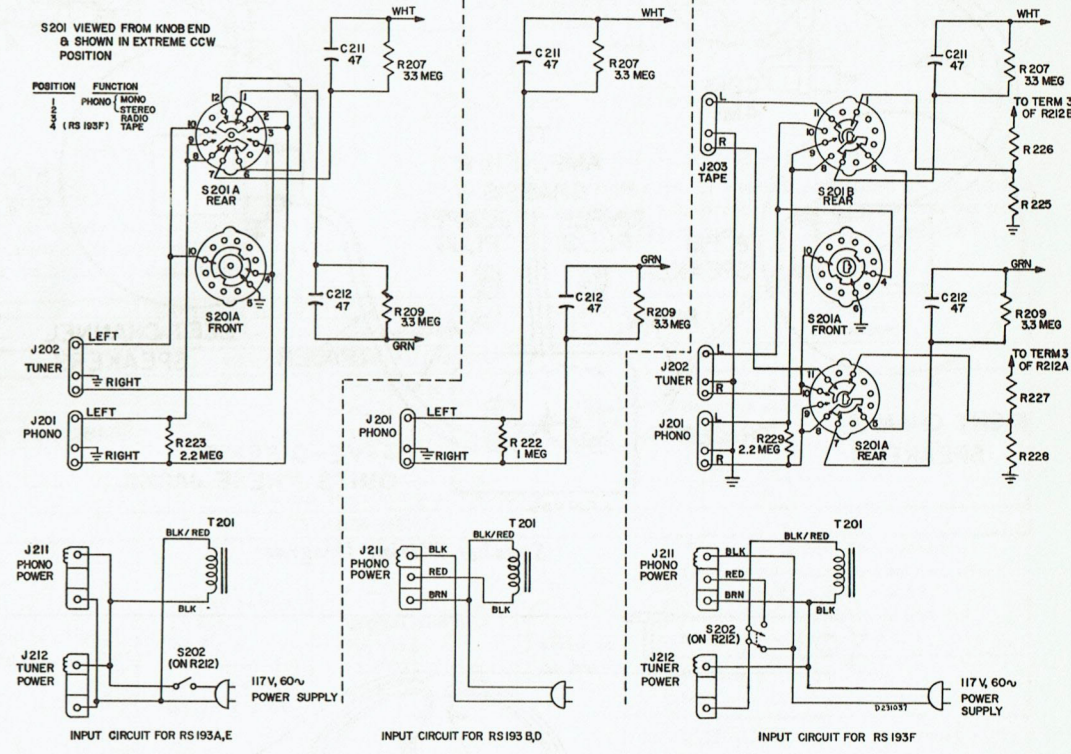
Chassis RC-1206—Location of Major Components



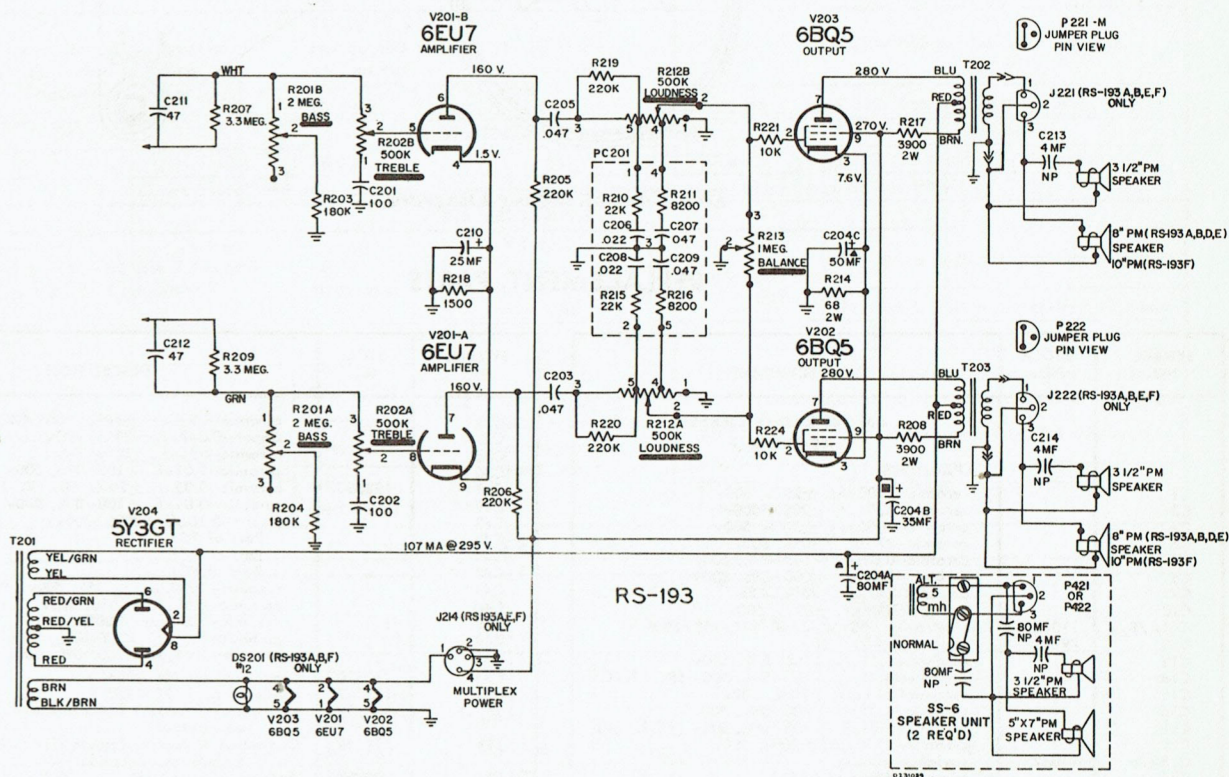
Chassis RS-193—Location of Major Components



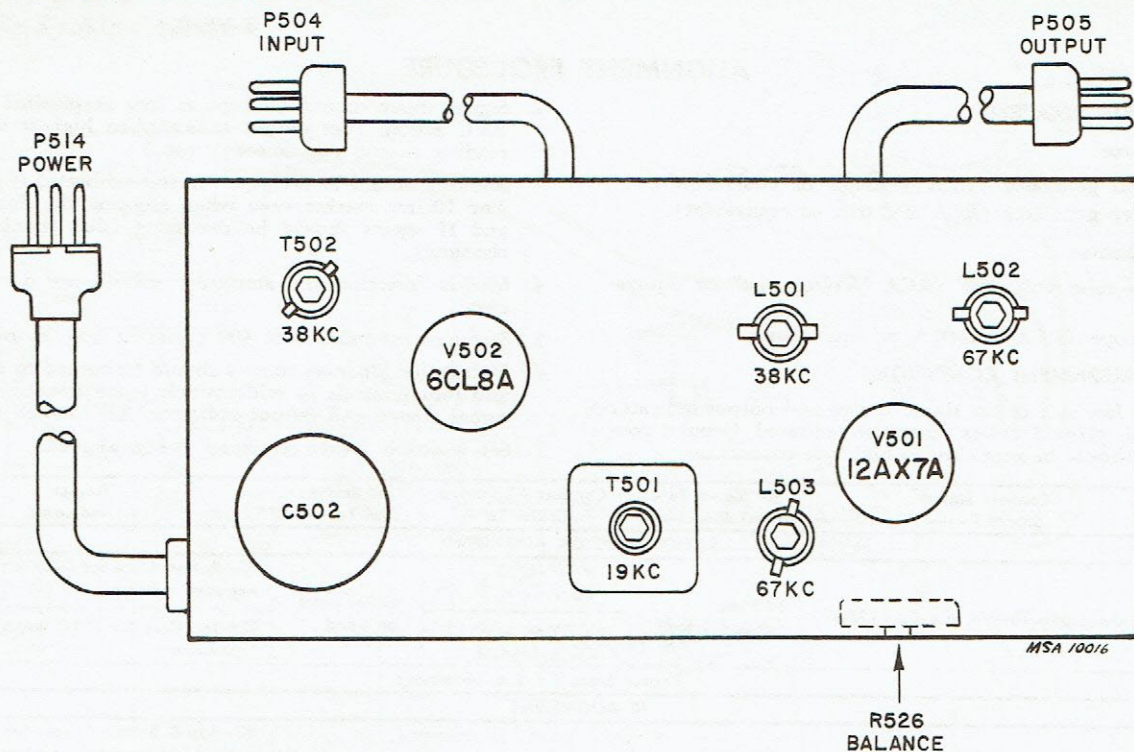
RC-1206C



RC-1206F



RS-193

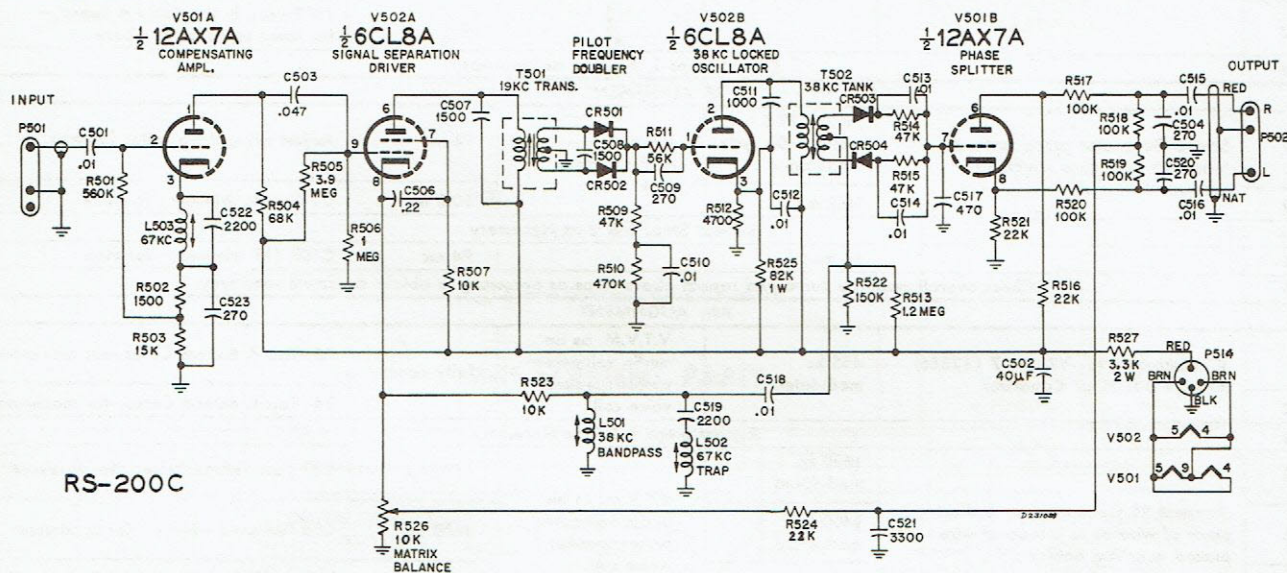


Chassis RS-200C—Location of Major Components

### FM STEREO (MULTIPLEX) ALIGNMENT

At the time of publication, an FM Stereo Simulator (WR-51A) has been planned for early availability in the field. Its

accompanying instruction book will include a detailed procedure for FM Stereo alignment.



RS-200C—Schematic Diagram

### CRITICAL LEAD DRESS

#### Chassis RC-1206C,F

1. 10.7 mc IF grid and plate wiring must be short and dressed close to chassis.
2. Connect AVC side of AM antenna to top side of tuning gang, and dress clear of 12BE6 and 12BA6 tubes.
3. Dress heater lead which connects to pin 4 of 12BE6 along rear apron and to rear of 12BA6 socket.
4. B+ lead from pin 6 of 12BE6 to T4 must be short and dressed along chassis.
5. All RF bypass capacitor leads must be short and direct.
6. All heater leads must be close to chassis.

#### Chassis RS-193A, B, D, E, F

1. Dress all heater leads close to chassis and away from a grid connections.
2. Dress all green and white leads against front apron.
3. Dress all leads to pins 6 and 8 of V204(5Y3) close to chassis.
4. Dress all leads from T202 and T203 against back apron.
5. Dress R8 and R17 (3900Ω) close to back apron keeping leads as short as possible.
6. Bend terminal 2 away from terminals 1 and 3 of J21 on RS-193B amplifier.
7. Dress leads away from all power resistors.

**ALIGNMENT PROCEDURE**

**INSTRUMENTS REQUIRED**

**Signal Source**

1. RF signal generator (RCA WR-49B or equivalent).
2. FM sweep generator (RCA WR-69A or equivalent).

**Output Indicator**

3. Vacuum tube voltmeter (RCA "Voltohmyst" or equivalent).
4. Oscilloscope (RCA WO-91A or equivalent).

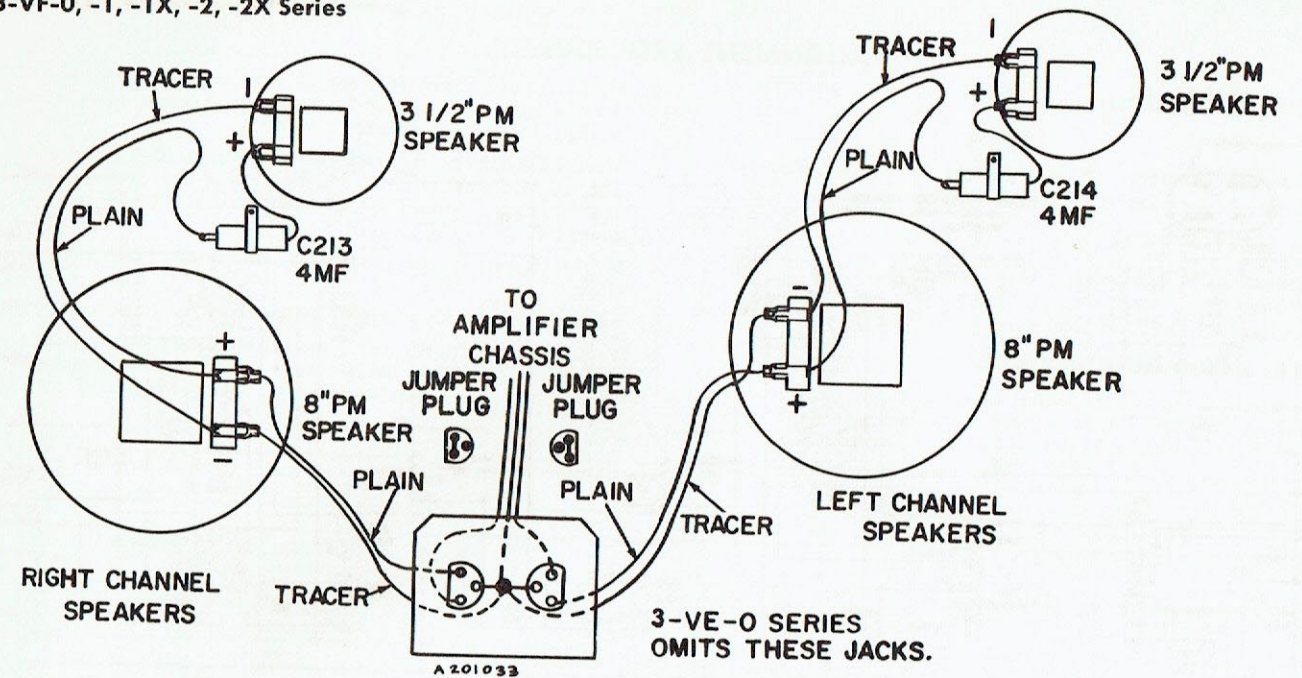
**GENERAL ALIGNMENT CONDITIONS**

1. Connect low side of the signal source and output indicator to chassis ground unless otherwise indicated. Ground connection should be kept close to high side connection.

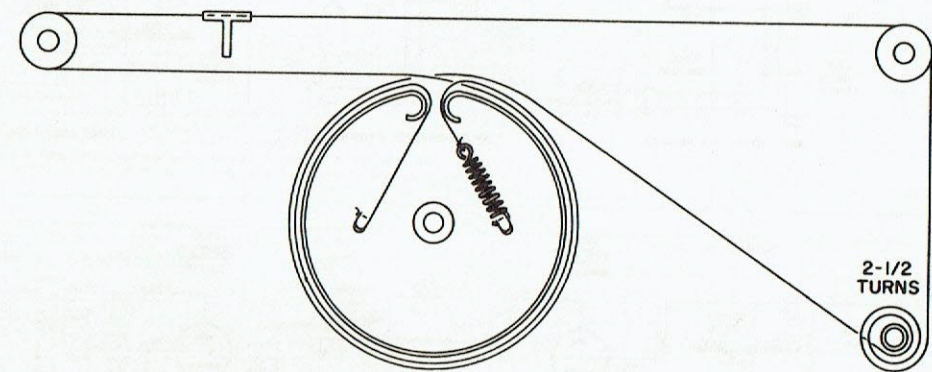
2. Signal input should be kept as low as possible to avoid AVC action. (Set output indicator to highest sensitivity, reading should not exceed 1 volt.)
3. Markers should be accurate (crystal calibrated if possible). The 10.7mc marker used when aligning the demodulator and IF stages should be the same (dial should not be changed).
4. Marker insertion and amplitude should not distort scope trace.
5. Standard modulation is 400 cycles at 30% amplitude.
6. Volume or loudness control should be turned to maximum and tone controls to mid-position when they are between signal source and output indicator. AFC switch OFF.
7. Set function switch to band being aligned.

Step	Connect Signal Source To —	Set Signal To — Insert Markers —	Connect Alignment Indicator To —	Set Radio Dial To —	Adjust As Indicated
<b>RATIO DETECTOR ALIGNMENT</b>					
1	RF Generator To—V4, pin #2 (12EQ7)	10.7 mc (unmodulated)	V.T.V.M. to— PC 1, Term. 5	Quiet point on band	T3—Bottom Core for maximum negative voltage
2			V.T.V.M. to— PC 1, Term. 4		T3—Top Core for ZERO voltage (cross-over)
3			Repeat Steps 1 & 2 as Necessary		
<b>IF ALIGNMENT</b>					
1	Sweep Generator to—a piece of wire inserted between tube and tube shield of V101 (on FM Tuner)	240 kc Sweep centered at 10.7 mc	Oscilloscope to— V4, pin 2 (12EQ7) through a 180 k resistor	Quiet point on band	T2—Top & Bottom Cores—for max. symmetrical response—centered at 10.7 mc with 10.6 & 10.8 mc markers at equal heights and not more than 50% down slope
2		Markers at—10.6, 10.7 & 10.8 mc			T6—Top & Bottom Cores—for same response as above
3		Repeat Steps 1, 2 and 3 as Necessary			
<b>RF ALIGNMENT</b>					
1	Sweep Generator across antenna terminals through a matching network if necessary	98 mc, 22.5 kc sweep, 400 cycle modulation	V.T.V.M. to— Audio Output Jack	98 mc	Adjust string-drive collar for max.
2		10.8 mc		10.8 mc	C112 (osc. trimmer) for max.
3		Repeat Steps 1 & 2 as Necessary			
4		94 mc		94 mc	C107 (RF trimmer)—for max.
5	Check overall response curve and repeat above steps as necessary to obtain maximum sensitivity.				
<b>AM ALIGNMENT</b>					
1	RF Generator to—V2, pin 7 (12BE6) through a 0.01 mf Capacitor	455 kc modulated	V.T.V.M. as an audio voltmeter—across speaker voice coil	fully open	T5—Top & Bottom Cores—for maximum
2					T4—Top & Bottom Cores—for maximum
3				Repeat Steps 1 & 2 as Necessary	
4	Connect RF Generator to—a short piece of wire or to a loop of wire placed near AM antenna	1620 kc modulated	V.T.V.M. as an audio voltmeter—across speaker voice coil	1620 kc	C27 (oscillator trimmer) for maximum
5		1400 kc modulated		1400 kc	C26 (antenna trimmer) for maximum
6		600 kc modulated		600 kc (rock gang)	L2 (oscillator coil) for maximum
7	Repeat 4, 5, & 6 for maximum sensitivity				

MODEL SERIES	TUNER CHASSIS	FM-STEREO CHASSIS	RECORD CHANGER	AMPLIFIER CHASSIS	JACKS PROVIDED FOR CONNECTION OF—				
					TUNER	TAPE	"TOTAL SOUND" SPKRS.	FM-STEREO	PILOT LAMP
3-VE-0	.....	.....	RP-216B-2	RS-193D	.....	.....	.....	.....	.....
3-VE-1	.....	.....	RP-216B-2	RS-193B	.....	.....	Yes	.....	Yes
3-VE-2	.....	.....	RP-216B-1	RS-193F	Yes	Yes	Yes	.....	Yes
3-VF-06	RC-1206F	RS-200C	RP-216B-2	RS-193E	Equipd.	.....	Yes	Equipd.	.....
3-VF-1	RC-1206C,F	.....	RP-216B-2	RS-193A	Equipd.	.....	Yes	Yes	Yes
3-VF-1X	RC-1206F	RS-200C	RP-216B-2	RS-193A	Equipd.	.....	Yes	Equipd.	Yes
3-VF-2	RC-1206C,F	.....	RP-216B-1	RS-193F	Equipd.	Yes	Yes	Yes	Yes
3-VF-2X	RC-1206F	RS-200C	RP-216B-1	RS-193F	Equipd.	Yes	Yes	Equipd.	Yes



Speaker Wiring Diagram



Dial Cord Stringing Diagram

**REPLACEMENT PARTS**

SYMBOL NO.	STOCK NO.	DESCRIPTION	SYMBOL NO.	STOCK NO.	DESCRIPTION
<b>AM/FM RADIO CHASSIS RC-1206C, F</b>					
<b>CAPACITORS:</b>					
C1	110421 79181	ceramic—1500µmf, ±20%, 500v	C31	103380	ceramic—150µmf, ±10%, 500v (RC-1206F)
C3		ceramic—330µmf, ±20%, 500v	C32		paper—0.047µmf, ±20%, 400v
C4		ceramic—1000µmf, ±20%, 500v	C35		ceramic—33µmf, ±10%, 500v
C5		ceramic—47µmf, ±10%, 500v	C36		ceramic—0.01µmf, ±100-0%, 500v
C7		ceramic—0.01µmf, +100-0%, 500v	C37		ceramic—0.05µmf, ±20%, 50v (RC-1206F)
C8		ceramic—0.01µmf, +100-0%, 500v	C39		ceramic—0.01µmf, +100-0%, 500v
C9		paper—0.047µmf, ±20%, 400v	C40		paper—0.15µmf, ±20%, 200v
C10		paper—4700µmf, ±20%, 600v	C41		Part of PC1
C11A/B/C		electrolytic—80/50/50µmf, 175/150/150v	C42		Part of PC1
C12		electrolytic—2µmf, 50v	C43		Part of PC1
C13	ceramic—0.01µmf, +100-0%, 500v	C44	ceramic—1000µmf, ±20%, 500v (RC-1206C)		
C14	ceramic—0.01µmf, +100-0%, 500v (RC-1206C)	C45	ceramic—0.01µmf, ±10%, 500v		
C15	ceramic—220µmf, ±20%, 500v	C49	ceramic—2200µmf, ±20%, 500v		
C16	ceramic—0.01µmf, +100-0%, 500v	C50	ceramic—0.01µmf, +100-0%, 500v		
C17	ceramic—0.01µmf, +100-0%, 500v (RC-1206F)	C51	ceramic—0.01µmf, +100-0%, 500v		
C19	ceramic—2200µmf, ±20%, 500v	CR1	110610	Diode—crystal (RC-1206C)	
C25A/B	variable-tuning trimmer—(Part of C25A)	CR1	111049	Diode—crystal (RC-1206F)	
C26	trimmer—(Part of C25B)	J4, J5	101998	Connector—3 contact female—for MPX input and output	
C27	ceramic—56µmf, ±10%, 500v, N750	J13	110119	Connector—2 contact female—for isolation transformer secondary	
C28	ceramic—4.7µmf, ±0.5µmf, 500v, N3300	L1	108999	Antenna—ferrite, AM	
C29		L2	108997	Coil—oscillator	
		P2	74882	Connector—3 contact male—for audio amplifier cable	

REPLACEMENT PARTS (Continued)

3-VE-0, -1, -2 Series
3-VF-0, -1, -1X, -2, -2X Series

Table with columns: SYMBOL NO., STOCK NO., DESCRIPTION. Includes components like connectors, resistors, capacitors, and various assembly parts.

Table with columns: SYMBOL NO., STOCK NO., DESCRIPTION. Includes resistors, capacitors, and chassis components.

3-VE-0, -1, -2 Series
3-VF-0, -1, -1X, -2, -2X Series

REPLACEMENT PARTS (Continued)

Table with columns: SYMBOL NO., STOCK NO., DESCRIPTION. Includes parts like PC 201, resistors, capacitors, and speaker assemblies.

Table with columns: SYMBOL NO., STOCK NO., DESCRIPTION. Includes various mechanical and electrical parts like covers, knobs, and chassis components.

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