



RCA VICTOR



STEREO-HIGH FIDELITY COMBINATION MODELS

SHC 461FM
"The New Debonaire"

SHC 462
"The Grosvenor"

SHC 463
"The Sheridan"

SERVICE DATA



MODEL SHC 461FM
"THE NEW DEBONAIRE"



MODEL SHC 462
"THE GROSVENOR"



MODEL SHC 463
"THE SHERIDAN"

ELECTRICAL AND MECHANICAL SPECIFICATIONS

TUNING RANGE

Standard Broadcast (AM) 540-1,600 kc.
Frequency Modulation (FM) 88-108 mc.

INTERMEDIATE FREQUENCIES

AM 455 kc. FM 10.7 mc.

TUBE COMPLEMENT

| Sym. | Type | Function |
|------|-----------|---------------------------------|
| V-1 | RCA 6CB6 | RF Amplifier |
| V-2 | RCA 6X8 | Mixer oscillator |
| V-3 | RCA 6BA6 | IF Amplifier |
| V-4 | RCA 6AU6 | 2nd FM IF amplifier |
| V-5 | RCA 6AU6 | 3rd FM IF amplifier |
| V-6 | RCA 6AL5 | Ratio detector |
| V-7 | RCA 6AV6 | Am Det. AVC - Ph. Inv. |
| V-8 | RCA 6CG7 | Two channel 1st audio amplifier |
| V-9 | RCA 6CG7 | Two channel 2nd audio amplifier |
| V-10 | RCA 6CG7 | Two channel 3rd audio amplifier |
| V-11 | RCA 6V6GT | Left Channel output |
| V-12 | RCA 6V6GT | Right Channel output |
| V-13 | RCA 6CA4 | Rectifier |

POWER SUPPLY RATING

115 volts, 60 cycles, 145 watts (includes record changer)

TUNING DRIVE RATIO 18:1 (9 turns of knob)

RECORD CHANGER (RP-205 C-1)

Turntable speed 16 $\frac{2}{3}$, 33 $\frac{1}{3}$, 45 or 78 r.p.m.
Record capacity Up to fifteen 7 inch or
twelve 10 inch or
ten 12 inch or
ten 10 inch and 12 inch intermixed
Pickup Stock No. 106770 Stereophonic. Ceramic

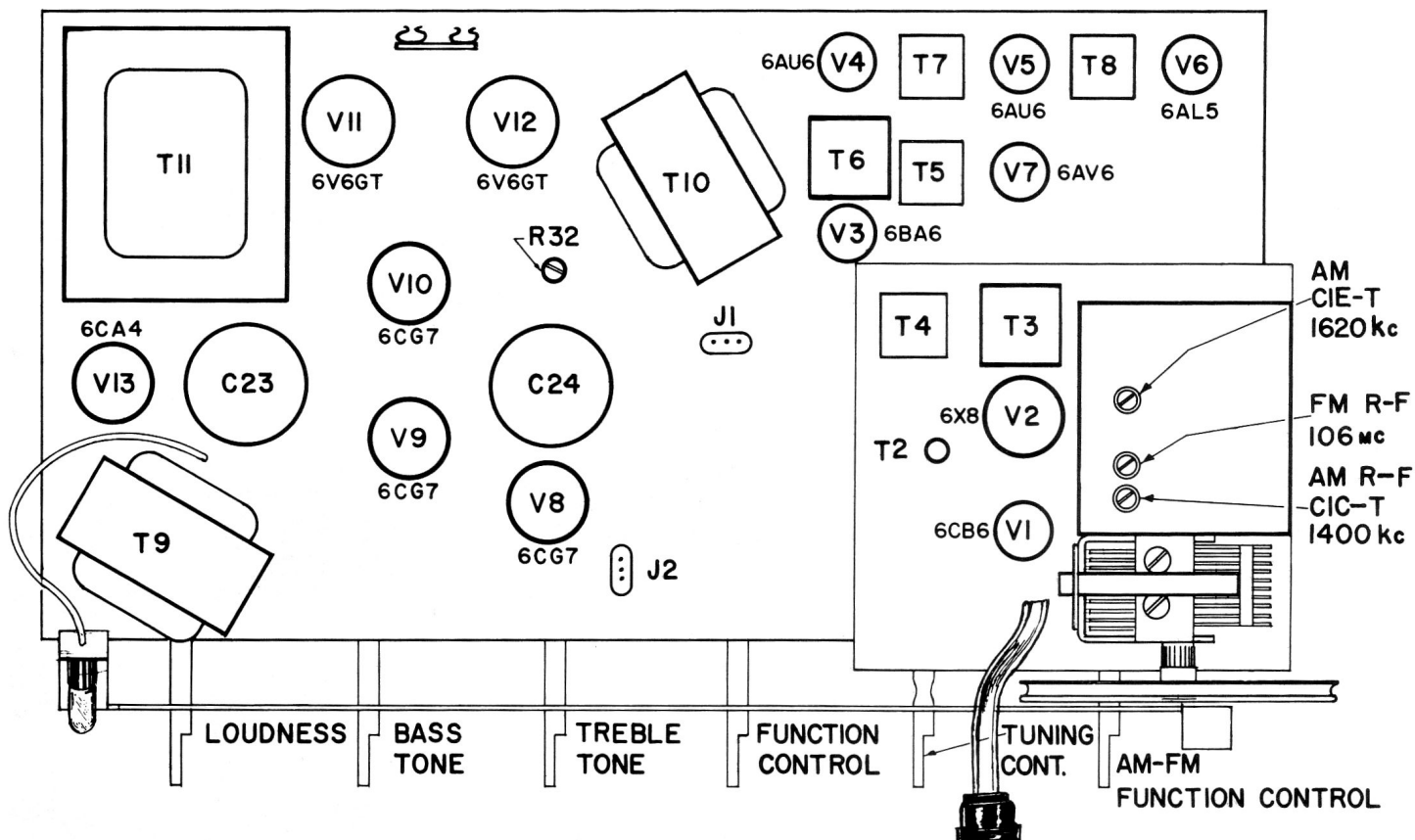
AUDIO POWER OUTPUT 14 watts maximum

FREQUENCY RESPONSE 45 cycles to 20,000 cycles

LOUDSPEAKERS

Two 12" PM "woofers" 8 ohms @ 400 cycles
Two 3 $\frac{1}{2}$ " PM "tweeters" 6-8 ohms @ 3000 cycles

ISSUED BY
SERVICE DIVISION
RCA VICTOR COMPANY, LTD.
MONTREAL, CANADA



CHASSIS LAYOUT SHOWING LOCATION OF TUBES AND MAJOR COMPONENTS

ALIGNMENT PROCEDURE — LEAD DRESS

AM Alignment

RANGE SWITCH IN AM POSITION

| Steps | Connect high side of sig. gen. to— | Sig. gen. output (400 cy. modulation) | Turn radio dial to— | Adjust for peak output |
|-------|--|--|------------------------------|---|
| 1 | Pin 1 of V3 6BA6 in series with .01 mfd. | 455 kc. | Quiet point at low freq. end | T6 bottom core (pri.) T6 top core (sec.) |
| 2 | T1 term. 4 in series with .01 mfd. | | | T4 top core (sec.) T4 bottom core (pri.) |
| 3 | AM terminal on ant. input strip | 1620 kc. | gang fully open | C-28 |
| 4 | | 1400 kc. | 1400 kc. signal | C-28F ant. C-28H r.f. |
| 5 | | Shunt a 10,000 ohm resistor across the r.f. section (C-28C) of the gang. | | |
| 6 | | 600 kc. | 600 kc. signal | T2 osc. (Rock gang.) |
| 7 | | Remove the 10,000 ohm resistor and peak T1 r.f. at 600 kc. | | |
| 8 | | Repeat 3, 4, 5, 6 and 7 | | |

The RF transformer (T1) and the oscillator coil (T2) cores should be adjusted on the peak obtained with the core coming out the lug end of the coil. When adjusting from the top of the chassis, this is the peak with the core farthest into the coil.

CRITICAL LEAD DRESS

1. Dress R-70, R-43, R-40 up in the air and away from all other components.
2. Dress R-3, R-4 down against the chassis and keep the leads as short as possible.
3. Keep all by-pass capacitor leads as short as possible.
4. Keep leads of C-64, C-53 short and keep these components as close as possible to the chassis.
5. Do not relocate ground straps from chassis to RF Shelf.
6. Dress power line leads away from all audio leads at loudness control.
7. Dress R-73 down against the chassis.
8. Dress all components and wiring away from V-1 grid circuit. Keep grid end of R-3 short.
9. Dress audio capacitors down against chassis and away from heater leads wherever possible.
10. Replace all shields securely if it has been necessary to remove them.

ALIGNMENT PROCEDURE

Signal Generator

For alignment operations connect the low side of the signal generator to the receiver chassis. The output of the signal generator should always be controlled to prevent over-loading or excessive AVC action.

Alignment Indicators

For measuring the developed d-c voltage across R45 or R47 during FM alignment an RCA VoltOhmyst® or an equivalent meter should be used.

The RCA VoltOhmyst can also be used to indicate audio output voltage across the voice coil or developed voltage on the AVC bus.

Alignment Sequence

There is a slight interaction between AM and FM adjustments on the tuning condenser; if a large amount of adjustment is required of any circuit, all others should be checked in the following order:

FM I.F. AM I.F. AM Osc. ant. and r.f.

FM Osc., ant. and r.f. Final adjustment of AM ant. trimmer should be made with chassis and antenna in cabinet.

FM Alignment

RANGE SWITCH IN FM POSITION
VOLUME CONTROL MAXIMUM—TONE CONTROL CENTER

| Steps | Connect high side of sig. gen. to— | Sig. gen. output | Turn radio dial to— | Adjust for peak output |
|-------|---|------------------|------------------------------|--|
| 1 | Pin 1 of V5 6AU6 in series with .01 mfd.* | 10.7 mc. | Quiet point at low freq. end | |
| 2 | Connect VoltOhmyst across R76 or R77 resistor. Adjust Sig. gen. output to give 6 volts d-c on VoltOhmyst. | | | T8 top core for max. d-c voltage across R76 or R77 |
| 3 | Connect VoltOhmyst from chassis to junction of R78 and C64. | | | T8 bottom core for 0 volts d-c |
| 4 | Connect VoltOhmyst to pin #1 of V5 | | | |
| 5 | Pin 1 of V3 6BA6 in series with .01 mfd.* | 10.7 mc. | Quiet point at low freq. end | ††T7 top core. T5 top & bottom cores. |
| 6 | Stator of C1D in series with .01 mfd.* | | | ††T3 top and bottom cores |
| 7 | FM Ant. terminals thru 120 ohms in each side of line | 90 mc. | 90 mc. | Remove bottom shield. **Osc. coil L4 |
| 8 | | 106 mc. | 106 mc. signal | Replace bottom shield. C2 ant., C8 r.f. |
| 9 | | 90 mc. | 90 mc. | **L1 ant. L3 r.f. |
| 10 | Repeat steps 7, 8 and 9 until further adjustment does not improve calibration. | | | |

* Use ceramic disc capacitor with short leads.

†† Alternate loading may be necessary to provide accurate observation of peaks. Alternate loading involves the use of a 270 ohm resistor to load the plate winding while the grid winding of the SAME TRANSFORMER is being peaked. Then the grid winding is loaded with the resistor while the plate winding is peaked. Only one winding is loaded at any one time.

It is possible to run the IF transformer cores all the way through the coil winding and obtain a second peak. This will cause serious overcoupling and should be avoided by using a marked adjusting stick. The correct peak is always the first peak obtained when the core is started in from the "backed all the way out" position.

** Note: FM antenna, mixer and oscillator coils are adjustable by increasing or decreasing the spacing between turns. The location of the tap on the antenna coil is $\frac{1}{8}$ turn to $\frac{1}{4}$ turn from the ground end.

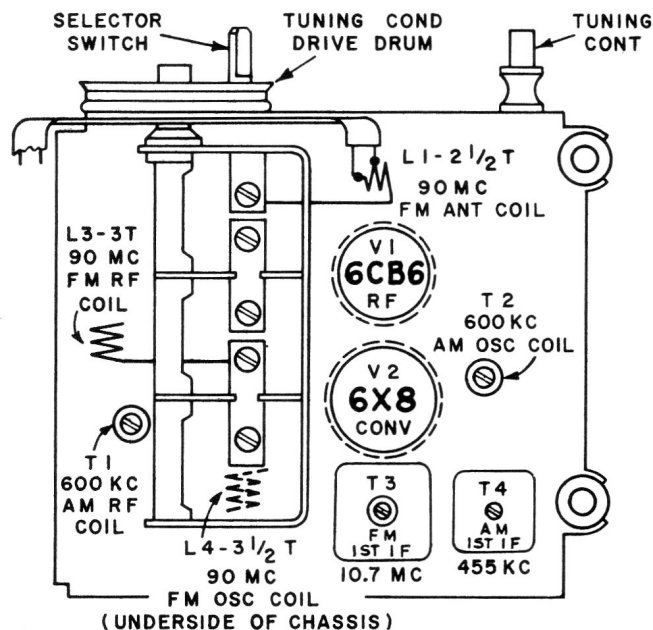
Oscillator frequency is above signal frequency on both AM and FM.

Oscilloscope Alignment

It is preferable to use a sweep generator and oscilloscope for aligning I.F. and R.F. circuits to obtain a visual observation of curve shape during alignment.

With FM sweep generator connected between FM ant. (#3) terminal and chassis, and oscilloscope connected between the junction of R78-C64 and chassis, the overall FM linearity may be observed. There should be a peak-to-peak separation of 250 kc. with 50,000 microvolts input.

For FM alignment of the ratio detector, connect oscilloscope to junction of R78-C64 as in alignment table, adjusting T8 top and bottom cores for 10.7 mc. crossover and balanced peaks. When aligning other FM tuned circuits, connect oscilloscope to pin #1 of V5 (3rd FM IF). Follow alignment table sequence, adjusting for maximum gain and symmetry.



FM Coil Locations

CHANNEL GAIN EQUALIZATION

A gain equalization control is provided to enable the gain of the RIGHT CHANNEL (internal speakers) to be balanced with the gain of the LEFT CHANNEL (external speakers).

This equalization control (R-32) is located on the top of the chassis. When adjusting this control, five conditions must exist:

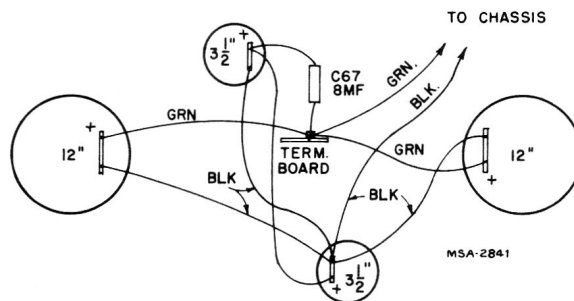
1. A Monaural signal input must be used. This should be a monaural test record; use a frequency test record when measuring with an output meter or use a music record for listening test.
2. The function switch must be in #3 position (PHONO-STEREO). This enables the two channels to have independent outputs.
3. The speaker selection switch must be in the "INT. & EXT. SPKRS" position. This is necessary for the two channels to have independent outputs.
4. Both internal and external speaker systems must be connected or the outputs loaded equally with resistors. If output is measured with an output meter, a channel having no speakers connected will have an abnormally high output voltage reading.

Adjust the equalization control (R-32) to obtain right channel output equal to left channel output. The left channel gain is not adjustable.

NOTES

It is not necessary to measure the audio output while making the equalization adjustment; sufficient accuracy can usually be had by listening. This is best done by playing a monaural record with the left channel speaker placed for stereo listening. Adjust the balance control until the sound appears to be coming from a point midway between the two speakers.

If the external speaker system is other than 3.5 ohms impedance, the output voltages will not be equal for equal power output.



Speaker Wiring Assembly

REPLACEMENT PARTS LIST

Insist on Genuine Factory Tested Parts, which are readily identified and may be purchased from Authorized Dealers.

| SYMBOL | STOCK NO. | DESCRIPTION | SYMBOL | STOCK NO. | DESCRIPTION |
|--------|-----------|--|--------|-----------|---------------------------------|
| C-1 | | Capacitor-.047 400V 10% | C-35 | | Capacitor- 220 500V |
| C-2 | | Capacitor-.047 400V 10% | C-36 | S-22610 | Capacitor-Feed thru - 1000 mmf. |
| C-3 | | Capacitor-.001 600V 10% | C-37 | | Capacitor- 12 mmf. 500V |
| C-4 | | Capacitor-.001 600V 10% | C-38 | | Capacitor- 47 mmf. 500V |
| C-5 | | Capacitor-.01 200V 10% | C-39 | | Capacitor- 4700 mmf. 500V |
| C-6 | | Capacitor-.01 200V 10% | C-40 | | Capacitor- 4700 mmf. 500V |
| C-7 | | Capacitor- 470 500V 10% | C-41 | | Capacitor- 4700 mmf. 500V |
| C-8 | | Capacitor- 470 500V 10% | C-42 | | Capacitor- 10 mmf. 500V |
| C-9 | | Capacitor-.0047 400V 10% | C-43 | | Capacitor- 4700 mmf. 500V |
| C-10 | | Capacitor-.0047 400V 10% | C-44 | | Capacitor- 4700 mmf. 500V |
| C-11 | | Capacitor-.022 200V 10% | C-45 | | Capacitor- 4700 mmf. 500V |
| C-12 | | Capacitor-.022 200V 10% | C-46 | | Capacitor- 4700 mmf. 500V |
| C-13 | | Capacitor-.047 200V 10% | C-47 | | Capacitor- 4700 mmf. 500V |
| C-14 | | Capacitor-.047 200V 10% | C-48 | | Capacitor- 4700 mmf. 500V |
| C-15 | | Capacitor-.01 400V 10% | C-49 | | Capacitor- 4700 mmf. 500V |
| C-16 | | Capacitor-.047 400V 10% | C-50 | | Capacitor- 4700 mmf. 500V |
| C-17 | | Capacitor-.22 400V 10% | C-51 | | Capacitor- 330 mmf. 500V |
| C-18 | | Capacitor-.22 400V 10% | C-52 | | Capacitor- 330 mmf. 500V |
| C-19 | | Capacitor-.0022 1000V 10% | C-53 | | Capacitor- 330 mmf. 500V |
| C-20 | | Capacitor-.0022 1000V 10% | C-54 | | Capacitor- 2 mfd. 500V |
| C-21 | | Capacitor-.1 mfd. 200V 10% | C-55 | | Capacitor-.047 mmf. 200V |
| C-22 | | Capacitor- 1 mfd. 200V 10% | C-56 | | Capacitor-.01 mmf. 200V |
| C-23 | S-12474 | Capacitor-Electrolytic-35/35 mfd/400/400 | C-57 | | Capacitor-.01 mmf. 200V |
| C-24 | S-12475 | Capacitor-Electrolytic-20/20/20 mfd 400/400/20 | C-58 | | Capacitor-.01 mmf. 200V |
| C-25 | *S-22747 | Capacitor- 1 mfd. 50V | C-59 | | Capacitor-.033 mmf. 400V |
| C-26 | *S-22747 | Capacitor- 1 mfd. 50V | C-60 | | Capacitor-.056 mmf. 400V |
| C-27 | S-21641 | Capacitor- 8 mfd. A.C. Electrolytic | C-61 | | Capacitor-.01 mmf. 400V |
| C-28 | *S-22594 | Capacitor-Variable Capacitor | C-62 | | Capacitor-.01 mmf. 400V |
| C-29 | | Capacitor- 18 500V | C-63 | | Capacitor-.01 mmf. 400V |
| C-30 | | Capacitor- 220 500V | C-64 | | Capacitor-.0012 mmf. 600V |
| C-31 | *S-22610 | Capacitor-Feed Thru-1000 mmf. | L-1 | 103501 | Coil-FM Antenna Coil |
| C-32 | | Capacitor- 4700 500V | L-2 | *S-22597 | Coil-AM Antenna Coil |
| C-33 | | Capacitor- 33 500V | L-3 | 76353 | Coil-FM RF Coil |
| C-34 | | Capacitor- 4700 500V | L-4 | 77973 | Coil-FM Oscillator Coil |
| | | | L-5 | 71942 | Coil-Filament Choke |

* Indicates New Stock Items.

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| SYMBOL | STOCK NO. | DESCRIPTION | SYMBOL | STOCK NO. | DESCRIPTION |
|--------|-----------|--|--------|-----------|-----------------------------------|
| L-6 | 71942 | Coil-Filament Choke | R-68 | | Resistor-100K ohms 10% 1/2 W |
| L-7 | | | R-69 | | Resistor-120 ohms 10% 1/2 W |
| L-8 | 76351 | Coil-Filament Choke | R-70 | | Resistor-47K ohms 20% 1 W |
| L-9 | 76351 | Coil-Filament Choke | R-71 | | Resistor-22K ohms 10% 1/2 W |
| R-1 | | Resistor-270K ohms 10% 1/2 W | R-72 | | Resistor-220K ohms 20% 1/2 W |
| R-2 | | Resistor-270K ohms 10% 1/2 W | R-73 | | Resistor-68 ohms 20% 1/2 W |
| R-3 | | Resistor-27MEG ohms 10% 1/2 W | R-74 | | Resistor-1000 ohms 10% 1/2 W |
| R-4 | | Resistor-27MEG ohms 10% 1/2 W | R-75 | | Resistor-1500 ohms 10% 1/2 W |
| R-5 | | Resistor-1500 ohms 10% 1/2 W | R-76 | | Resistor-6800 ohms 10% 1/2 W |
| R-6 | | Resistor-8200 ohms 10% 1/2 W | R-77 | | Resistor-6800 ohms 10% 1/2 W |
| R-7 | | Resistor-8200 ohms 10% 1/2 W | R-78 | | Resistor-100K ohms 10% 1/2 W |
| R-8 | | Resistor-120K ohms 10% 1/2 W | R-79 | | Resistor-82K ohms 10% 1/2 W |
| R-9 | | Resistor-120K ohms 10% 1/2 W | R-80 | | Resistor-2.2 Megs 20% 1/2 W |
| R-10 | | Resistor-220K ohms 10% 1/2 W | R-81 | | Resistor-270K ohms 10% 1/2 W |
| R-11 | | Resistor-220K ohms 10% 1/2 W | R-82 | | Resistor-390K ohms 10% 1/2 W |
| R-12 | | Resistor-22K ohms 10% 1/2 W | R-83 | | Resistor-10 Megs 10% 1/2 W |
| R-13 | | Resistor-22K ohms 10% 1/2 W | R-84 | | Resistor-2.7 Megs 10% 1/2 W |
| R-14A | | | R-85 | | Resistor-100K ohms 10% 1/2 W |
| R-14B | *S-12364 | Resistor-Bass-Tone Control-500K ohms | R-86 | | Resistor-150K ohms 10% 1/2 W |
| R-15A | | | R-87 | | Resistor-2200 ohms 10% 2 W |
| R-15B | *S-12363 | Resistor-Treble-tone Control-500K ohms | R-88 | | Resistor-1.8 Megs 10% 1/2 W |
| R-16 | | Resistor-100K ohms 10% 1/2 W | SW-1 | *S-22606 | Switch-AM-FM Switch |
| R-17 | | Resistor-100K ohms 10% 1/2 W | SW-2 | *S-22535 | Switch-Rotary Function Switch |
| R-18 | | Resistor-5700 ohms 10% 1/2 W | T-1 | 76338 | Coil-FM RF Coil |
| R-19 | | Resistor-4700 ohms 10% 1/2 W | T-2 | 76337 | Coil-AM oscillator |
| R-20 | | Resistor-220K ohms 10% 1/2 W | T-3 | 75559 | Transformer-1st FM IF Transformer |
| R-21 | | Resistor-220K ohms 10% 1/2 W | T-4 | *S-22746 | Transformer-1st AM IF Transformer |
| R-22 | | Resistor-22K ohms 10% 1/2 W | T-5 | 76329 | Transformer-2nd IF FM Transformer |
| R-23 | | Resistor-22K ohms 10% 1/2 W | T-6 | 76328 | Transformer-2nd IF AM Transformer |
| R-24 | | Resistor-8200 ohms 10% 1/2 W | T-7 | 77939 | Transformer-3rd IF FM Transformer |
| R-25 | | Resistor-8200 ohms 10% 1/2 W | T-8 | *S-22600 | Transformer-Ratio Detector Trans. |
| R-26A | | | T-9 | *S-12368 | Transformer-Output Transformer |
| R-26B | *S-22540 | Resistor-Volume Control | T-10 | *S-12369 | Transformer-Output Transformer |
| R-27 | | Resistor-1500 ohms 10% 1/2 W | T-11 | *S-22603 | Transformer-Power Transformer |
| R-28 | | Resistor-120K ohms 10% 1/2 W | | | |
| R-29 | | Resistor-120K ohms 10% 1/2 W | | | |
| R-30 | | Resistor-270K ohms 10% 1/2 W | | | |
| R-31 | | Resistor-3300 ohms 10% 1/2 W | | | |
| R-32 | *S-12366 | Resistor-Bal. Control | | | |
| R-33 | | Resistor-3300 ohms 10% 1/2 W | | | |
| R-34 | | Resistor-100K ohms 10% 1/2 W | | | |
| R-35 | | Resistor-100K ohms 10% 1/2 W | | | |
| R-36 | | Resistor-470K ohms 10% 1/2 W | | | |
| R-37 | | Resistor-470K ohms 10% 1/2 W | | | |
| R-38 | | Resistor-220K ohms 10% 1/2 W | | | |
| R-39 | | Resistor-150 ohms 10% 2 W | | | |
| R-40 | | Resistor-1200 ohms 10% 1 W | | | |
| R-41 | | Resistor-10K ohms 10% 1 W | | | |
| R-42 | | Resistor-10K ohms 10% 1 W | | | |
| R-43 | | Resistor-2200 ohms 10% 2 W | | | |
| R-44 | | Resistor-47 ohms 10% 2 W | | | |
| R-45 | | Resistor-47 ohms 10% 2 W | | | |
| R-46 | | Resistor-3300 ohms 10% 1/2 W | | | |
| R-47 | | Resistor-2.2 Megs 20% 1/2 W | | | |
| R-48 | | Resistor-68 ohms 10% 1/2 W | | | |
| R-49 | | Resistor-1000 ohms 20% 1/2 W | | | |
| R-50 | | Resistor-10 ohms 20% 1/2 W | | | |
| R-51 | | Resistor-10K ohms 20% 1/2 W | | | |
| R-52 | | Resistor-100K ohms 10% 1/2 W | | | |
| R-53 | | Resistor-3300 ohms 10% 1/2 W | | | |
| R-54 | | Resistor-330 ohms 10% 1/2 W | | | |
| R-55 | | Resistor-1000 ohms 20% 1/2 W | | | |
| R-56 | | Resistor-3.9K ohms 10% 1/2 W | | | |
| R-57 | | Resistor-18K ohms 10% 1/2 W | | | |
| R-58 | | Resistor-47K ohms 20% 1 W | | | |
| R-59 | | Resistor-150K ohms 20% 1 W | | | |
| R-60 | | Resistor-2200 ohms 20% 1/2 W | | | |
| R-61 | | Resistor-68 ohms 10% 1/2 W | | | |
| R-62 | | Resistor-47K ohms 20% 1/2 W | | | |
| R-63 | | Resistor-1000 ohms 20% 1/2 W | | | |
| R-64 | | Resistor-120K ohms 20% 1/2 W | | | |
| R-65 | | Resistor-150K ohms 20% 1/2 W | | | |
| R-66 | | Resistor-100K ohms 10% 1/2 W | | | |
| R-67 | | Resistor-1000 ohms 20% 1/2 W | | | |

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|--------|-----------|---|--------|-----------|---|
| | | MISCELLANEOUS - (Continued) | | | |
| | *S-22592 | Knob Ass'y. -AM-FM Control Knob-SHC462, 463 | | *S-12564 | Socket & Lead Ass'y. for Dog & Jewel Light |
| | S-10762 | Lamp-Dial Lamp | | *S-22591 | Socket-7 pin miniature for 6X8 |
| | *S-22550 | Manual-Customer Instruction Manual | | S-9513 | Socket-7 pin miniature for V-3, V-4, V-5, V-6, V-7 |
| | *S-22588 | Motif. -Stereo Orthophonic High Fidelity - "RCA Victor" | | S-20727 | Socket-9 pin miniature for 6CG7 |
| | *S-12361 | Plate - Dial Backplate - SHC462, 463 | | *S-12562 | Socket-Octal Socket for V-11, V-12 |
| | *S-22534 | Pointer-Dial Pointer-SHC461FM | | *S-12561 | Socket-Phono - Tape Socket |
| | S-12359 | Pointer-Dial Pointer-SHC462, 463 | | *S-22636 | Strip-Dial Glass- "U" strip for sides - SHC461FM |
| | *S-22683 | Pull-Door Pulls-SHC463 | | *S-22741 | Strip-Dial Glass- "U" strip for sides - SHC462, 463 |
| | *S-22618 | Pull-Door Pulls-SHC461FM, SHC462 | | *S-22740 | Support-Lid Support |
| | 76331 | Shield-Tube Shield for - V-1 (6CB6) | | | |
| | 73584 | Shield-Tube Shield for - V-2 (6X8) | | | |

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SPEAKER PHASING

For information on speaker phasing, refer to Supplementary Information at front of this volume.