

MODEL 641



RCA VICTOR



AC OPERATED RADIO RECEIVER

MODEL 641

SERVICE DATA

—1953 No. 12—

HOME INSTRUMENT SERVICE DIVISION
RCA VICTOR COMPANY LTD.
MONTREAL, QUE.

ELECTRICAL AND MECHANICAL SPECIFICATIONS

Tuning Range

Standard Broadcast ("A" Band) ... 520-1605 kc (576-186 m.)
Medium Wave ("B" Band) ... 2.3-7 mc. (131-42.8 m.)
Short Wave ("C" Band) ... 7-22 mc. (42.8-13.7 m.)

Spread-Band tuning ("Microtune") may be used on all portions of the "C" Band tuning range

Intermediate Frequency ... 455 kc.

Tube Complement

- | | |
|-----------------|--------------------|
| (1) RCA 6BE6 | Converter |
| (2) RCA 6SK7 | I.F. Amplifier |
| (3) RCA 6SQ7 | Det.-AVC-A.F. Amp. |
| (4) RCA 6V6GT | Output |
| (5) RCA 6X5GT | Rectifier |
| (6) RCA 6U5/6GS | Tuning Eye |

Dial Lamps (2)

Mazda type 47 ... 6.3 volts, .15 amp.

Loudspeaker

Size and type ... 5" x 7" PM dynamic
Voice coil impedance ... 3.2 ohms at 400 cycles

Tuning Drive Ratio

Main tuning ... 13 1/2:1 (6 3/4 turns of knob)
Microtune ... 3.6 turns of knob

Power Output

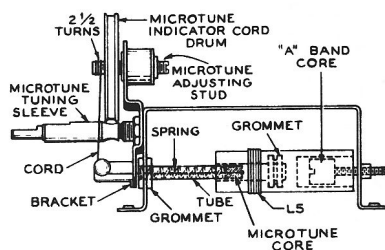
Undistorted ... 1.9 watts. Maximum ... 3.8 watts

Power Supply Rating

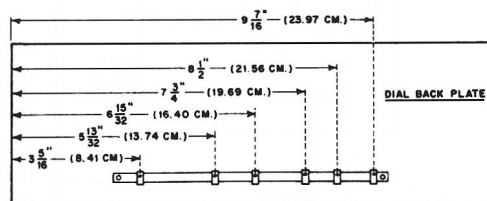
105 to 125 or 210 to 250 volts, 50 to 60 cycles, 50 watts.
Voltage range is selected by means of a switch on the back of the chassis.

Cabinet Dimensions

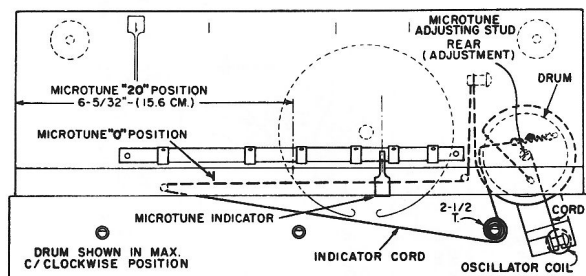
Height	Width	Depth
12 1/2"	17 3/4"	8 1/8"
Weight		16 1/4 lbs.



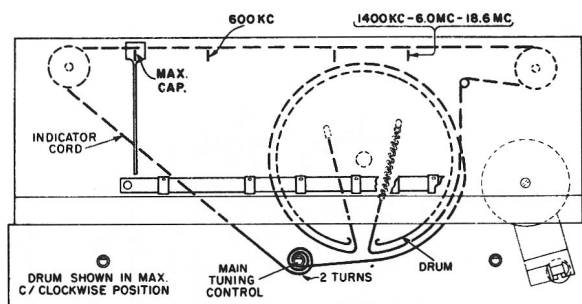
Microtuning Assembly



Spread-Band Marker Position



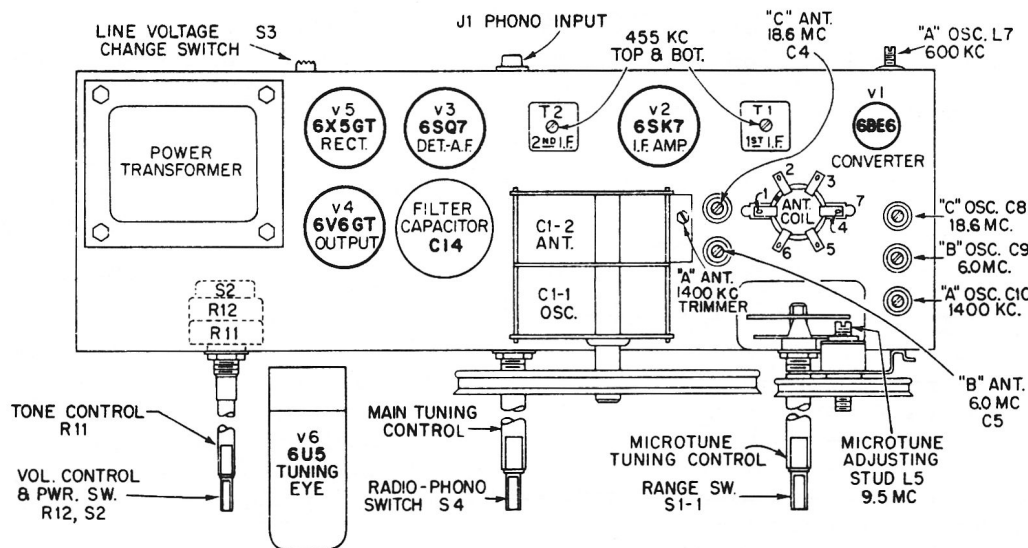
Microtune Indicator and Drive Mechanism



Dial Indicator and Drive Mechanism

CIRCUIT DIAGRAM

FRONT & REAR SECTIONS OF SWITCH S1-1
ARE VIEWED FROM FRONT WITH THE CONTROL
SHAFT IN EXTREME C/CLOCKWISE POSITION #1



TUBE AND TRIMMER LOCATIONS

Alignment Procedure

Output Meter Alignment—If this method is used, connect the meter across the voice coil, and turn the receiver volume control to maximum.

Test-Oscillator—For all alignment operations, connect the low side of the test-oscillator to the receiver chassis, and keep the oscillator output low to avoid a-v-c action.

Calibration Scale

The dial scale may be removed from the cabinet and used as a reference during alignment or the marks on the dial back plate which correspond to the frequencies indicated on the illustration "Dial Indicator and Drive Mechanism" may be used for reference.

Dial Pointer—With the gang condenser in full mesh the dial pointer should be set to the top left hand reference mark on the dial back plate.

The microtuning indicator should be set to the bottom left hand reference mark when the microtune drum is in the max. clockwise position.

Step	Connect high side of test osc. to—	Tune test osc. to—	Range switch	Turn radio dial to—	Adjust for max. output
1	6SK7 grid (pin #4) in series with .05 mf.	455 kc.	A	Quiet point near 600 kc.	T2 cores top and bottom
2	6BE6 grid (pin #1) in series with .05 mf.				T1 cores top and bottom
3	Antenna lead in series with 300 ohm resistor	Set Microtune indicator to 0			
4		9.5 mc.	C	9.5 mc. signal	L5 for MAX. INDUCT-ANCE††
5	Antenna lead in series with 220 mmf.	Set Microtune indicator to 20			
6		1400 kc.	A	1400 kc.	C10 (osc.) C1-2 trimmer (ant.)
7		600 kc.		600 kc.	L7 (osc.) Rock gang
8		Repeat Steps 6 and 7			
9	Antenna lead in series with 300 ohm resistor	6.0 mc.	B	6.0 mc.	C9 (osc.) C5 (ant.)
10		18.6 mc.	C	18.6 mc.	C8 (osc.)† C4 (ant.)† Rock gang

†Do not re-adjust T2.

††Set the main tuning slightly higher in frequency than the 9.5 mc. signal and adjust L5 for max. output. Repeat this procedure until no further **INCREASE IN FREQUENCY** can be obtained.

‡Oscillator frequency is above signal. Use minimum capacity peak on C8 and max. capacity peak on C4.

Microtune (Spread-Band) Alignment

The conventional alignment will affect the Microtune alignment and should be done before positioning the spread-band markers.

For spread-band alignment an extremely high degree of accuracy is required of the test-oscillator, as a slight error will produce considerable inaccuracy in spread-band tuning.

Determine the exact dial settings of the test-oscillator (for frequencies at or close to the specified alignment frequencies) by one of the following methods:

1. Zero-beat the test-oscillator against short-wave stations of known frequency.
2. Check test-oscillator signals with a crystal controlled oscillator.

Connect the high side of the test-oscillator to the ANT. terminal in series with a 300 ohm resistor and the low side to chassis.

The position of the markers may be pre-set to the approximate position as shown in the illustration. "Spread-Band Marker Position."

With the range switch in "C" band position, set the Microtune pointer to the position specified below and carefully tune in the signal with the main tuning control. Position the spread-band marker so that its indication is directly under the main tuning pointer.

Band	Microtune Pointer	Test. Osc. Output
41 M	20	7.2 mc.
31 M	18.4	9.6 mc.
25 M	17.2	11.8 mc.
19 M	21.6	15.3 mc.
16 M	20	17.8 mc.
13 M	20	21.6 mc.

To tune in stations with Microtuning, the range switch knob is turned to "C" band and the main tuning control knob is turned so that the main tuning pointer is directly in line with the indicator hole in the marker of the desired spread band. Spread-band tuning is then done with the Microtune control knob.

Critical Lead Dress

1. The oscillator capacitor/resistor (C12, R2) must be dressed away from base and have short leads.
2. Dress R1, R8 and R9 close to chassis base.
3. Dress C11 edgewise to base.
4. Dress C20 close to base.
5. Dress lead from phono input jack to radio-phon switch up and away from chassis.
6. Lead connecting to pin #3 (plate) of V4 (6V6GT) should be dressed close to chassis and away from volume control.
7. Resistor R4 should be dressed away from terminal #3 of V1 (6BE6) and the lead connecting to that terminal.

REPLACEMENT PARTS FOR MODEL 641

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

STOCK No.	DESCRIPTION	STOCK No.	DESCRIPTION
CHASSIS ASSEMBLY		S-6338	Resistor—Fixed, composition, 33,000 ohms, ½ watt (R18)
S-5833	Bracket—Microtune pulley mounting bracket	S-4624	Resistor—Fixed, composition, 390,000 ohms, ½ watt (R8, R10)
S-6324	Cable—Tuning eye cable and socket assembly complete with one megohm resistor (R5)	S-4476	Resistor—Fixed, composition, 470,000 ohms, ½ watt (R4, R15)
S-6325	Cable—Speaker cable complete with four contact female connector (P2)	S-5010	Resistor—Fixed, composition, 1 megohm, ½ watt (R14)
S-5130	Capacitor—Ceramic, 82 mf. (C22)	S-4478	Resistor—Fixed, composition, 4.7 megohm, ½ watt (R6)
S-4439	Capacitor—Mica, 220 mmf. (C11)	S-5517	Resistor—Fixed, composition, 10 megohm, ½ watt (R9)
75611	Capacitor—Ceramic, 220 mmf. (C24)	S-6339	Shield—Tube shield for converter tube
S-4440	Capacitor—Mica, 560 mmf. (C7)	S-6340	Sleeve—Main tuning control sleeve
S-4441	Capacitor—Mica, 3300 mmf. (C6)	S-6341	Sleeve—Microtune tuning control sleeve
S-4442	Capacitor—Mica, 6000 mmf. (C13)	S-4485	Spring—Main tuning or microtune tuning drive cord tension spring
S-4541	Capacitor—Tubular, .0033 mf., 600v. (C25)	S-5710	Spacer—Metal spacer for mounting tuning capacitor (4 required)
S-4731	Capacitor—Tubular, .0047 mf., 600v. (C20)	S-6342	Stud—Microtune pulley adjusting stud
S-5469	Capacitor—Tubular, .0047 mf., 600v. (C27)	S-4480	Socket—Phono input socket (J1)
S-6326	Capacitor—Ceramic, .01 mf. (C2, C3, C16, C17)	S-9242	Socket—Tube socket—miniature
S-4444	Capacitor—Tubular, .01 mf., 400v. (C26)	S-4482	Socket—Tube socket—octal (4 required)
S-4821	Capacitor—Tubular, .01 mf., 600v. (C28)	S-6343	Socket—Dial lamp socket and lead assembly
S-4732	Capacitor—Tubular, .022 mf., 400v. (C23)	S-6344	Switch—Tuning range switch (S1)
S-4448	Capacitor—Tubular, .047 mf., 200v. (C15)	S-6345	Switch—Radio—Phono switch (S4)
S-4450	Capacitor—Trimmer capacitor, dual, 1.6-18 mf. (C4, C5)	S-4570	Switch—Line voltage change switch (S3)
S-4451	Capacitor—Trimmer capacitor, triple, two sections of 3-35 mmf., and one section of 4-70 mmf. (C8, C9, C10)	S-4487	Transformer—First I-F transformer (T1)
S-6327	Capacitor—Electrolytic, comprising two sections of 35 mf., at 350v., one section of 10 mf., at 300v. and one section of 20 mf., at 25v. (C14A, C14C, C14E, C14D)	S-4662	Transformer—Second I-F transformer (T2)
S-6328	Capacitor—Variable tuning capacitor (C1-1, C1-2)	S-6346	Transformer—Power transformer 117/234v, 50/60 cycles (T4)
S-4453	Capacitor & Resistor—Assembly comprising 39 mmf. capacitor and 10 ohm resistor (C12, R2)	S-6179	Washer—"C" washer to retain main tuning sleeve (2 required)
S-4614	Capacitor & Resistor—Assembly comprising two 105 mmf. capacitors and one 47,000 ohm resistor (C18, C19, R7)	S-5860	Washer—"C" washer to retain microtune drive cord pulley
S-4454	Clip—I-F transformer mounting clip (2 required)	SPEAKER ASSEMBLY	
S-6329	Contact—Miniature tube shield contact	31032	Plug—Four contact male plug (J2)
S-6330	Control—Volume control, tone control and power switch (R15, R17, S3)	S-6347	Speaker—5" x 7" PM speaker complete with cone, plug, and transformer
S-6034	Coil—"A", "B", "C" bands antenna coil (L1, L2, L3, L4)	S-6348	Transformer—Output transformer (T3)
S-6331	Coil—"A", "B", "C" bands oscillator coil (L5, L6, L7)	MISCELLANEOUS	
S-6311	Core—Adjustable core and stud for "A" band oscillator coil	S-6349	Back—Cabinet back cover
S-5841	Core—Microtune tuning core complete with core & compression spring	S-5501	Bezel—Bezel for tuning eye crystal
S-4313	Cord—Dial drive cord (approximately 51 inches required)	S-6350	Board—Baffle board and grille cloth assembly—less emblem and tuning eye bracket
S-4313	Cord—Microtune drive cord (approximately 35 inches required)	S-6351	Cabinet—Plastic cabinet
S-6370	Cord—Power cord and plug	S-5837	Clip—Metal clip to hold tuning eye tube (2 required)
S-6372	Grommet—Power cord strain relief grommet (body)	S-6352	Cloth—Grille cloth (9½" x 16¼")
S-6373	Grommet—Power cord strain relief grommet (key)	S-5496	Crystal—Tuning eye crystal
S-4464	Grommet—Rubber grommet for mounting tuning capacitor (4 required)	S-6353	Decal—Control marker decals (1 set)
S-4533	Grommet—Rubber grommet for spacing of microtune insulating tube in oscillator coil (2 required)	S-6354	Dial—Dial scale (plastic)
S-5842	Insulation—Insulation tube for microtune tuning core	S-6355	Emblem—Trademark emblem (RCA Victor)
S-6332	Indicator—Main dial indicating pointer	S-6356	Escutcheon—Dial escutcheon
S-6333	Indicator—Microtune dial indicating pointer	S-6371	Grommet—Rubber grommet for chassis mounting (4 required)
S-4893	Lamp—Dial lamp—type 47 (2 required)	S-4503	Grommet—Rubber grommet for speaker mounting (4 required)
S-6334	Marker—Microtune band indicator markers (1 set of 6)	S-6357	Knob—Tone control knob
S-6335	Plate—Dial back plate assembly complete with brackets, pulleys and studs	S-6358	Knob—Tuning control or microtuning control knob
S-5849	Pulley—Microtune drive cord pulley	74000	Knob—Volume control knob
S-6316	Nut—Speed nut to retain "A" band adjustable core	S-6359	Knob—Range switch or Radio-Phono switch control knob
S-6336	Resistor—Fixed, composition, 330 ohms, ½ watt (R16)	S-5739	Spacer—Metal spacer for chassis mounting (4 required)
S-6337	Resistor—Wire wound, 1500 ohms, 4 watts (R17)	S-4511	Spacer—Metal spacer for speaker mounting (4 required)
S-4562	Resistor—Fixed, composition, 8200 ohms, ½ watt (R13)		
S-4554	Resistor—Fixed, composition, 10,000 ohms, 2 watt (R3)		
S-4535	Resistor—Fixed, composition, 22,000 ohms, ½ watt (R1)		

All Parts subject to change or withdrawal without notice.