



RCA VICTOR



MODEL 7Q51X

Chassis No. RC-1055D—Mfr. No. 274

SERVICE DATA

1949 X6

Electrical and Mechanical Specifications

Frequency Ranges

| | |
|-------------------------------------|------------------------------|
| Low Frequency ("X" Band) | 150-380 kc (2000-789.5 m) |
| Standard Broadcast ("A" Band) | 525-1600 kc (571-187 m) |
| Short Wave ("C" Band) | 5.9 mc-18.0 mc (50.8-16.6 m) |
| "31-25 Meter" Spread Band | 9.5-12 mc (31.6-25 m) |
| "19-16 Meter" Spread Band | 15.1-17.9 mc (19.8-16.7 m) |
| Intermediate Frequency | 455 kc |

Tube Complement

| | |
|---------------------|-----------------------|
| (1) RCA 6BE6 | Converter |
| (2) RCA 6BA6 | I.F. Amplifier |
| (3) RCA 6SQ7 | Det.-A.V.C.-A.F. Amp. |
| (4) RCA 6F6G | Output |
| (5) RCA 6F6G | Output |
| (6) RCA 5Y3GT | Rectifier |
| (7) RCA 6AT6 | Phase Inverter |

Loudspeaker

| | |
|-----------------------|--------------------------|
| Type 92570-4 | Permanent-Magnet Dynamic |
| Size | 6½ in. (16.5 cm) |
| V. C. Impedance | 3.2 ohms @ 400 cycles |

Power Output

| | |
|-------------------|------------|
| Undistorted | 4 watts |
| Maximum | 4.25 watts |

Power Supply Ratings

| Symbol | Voltage | Frequency | Watts |
|----------------|-------------|-----------|-------|
| Rating A | 105-125 | 50-60 | 60 |
| Rating B | 105-125 | 25-60 | 60 |
| Rating D | (See below) | 40-60 | 60 |

110 position—100 to 115 v.
125 position—115 to 135 v.
150 position—135 to 165 v.
210 position—180 to 220 v.
240 position—220 to 260 v.

Note: Shipped in 240 v. position.
To change, remove round cover
on top of transformer case and
move link to desired position.

CAUTION: Remove power cord from line receptacle before changing link position.

Dial Lamps (2) Mazda No. 44, 6.3 volts, .25 amp.

Cabinet Dimensions

| | |
|--------------|------------------------|
| Height | 10-13/16 in. (27.4 cm) |
| Width | 16¼ in. (41.3 cm) |
| Depth | 8¼ in. (21 cm) |

Tuning Drive Ratio 13½ to 1 (6¾ turns of knob)

Description

This instrument is a seven-tube five-band receiver of conventional design with the exception of the spread-band tuning.

A two-section gang condenser one section for antenna and one for oscillator circuit, is used for the X, A, and C bands. The 31-25 Meter and the 19-16 Meter spread bands are tuned by a specially designed permeability tuning system actuated by a cam and rocker assembly which is mechanically fastened to the gang condenser shaft. The core assembly of the permeability tuning system is molded to insure the required tolerances, and tunes both the 31-25 Meter and the 19-16 Meter bands with different circuit constants.

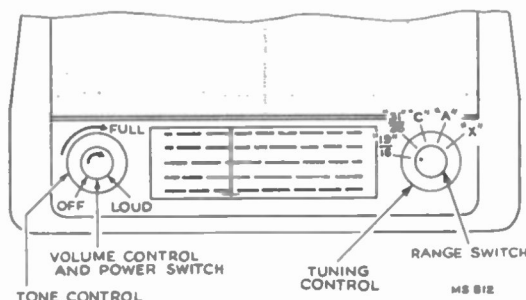
In the 31-25 Meter band position the 31-25 Meter coils (antenna and oscillator) are used. In the 19-16 Meter band position the 31-25 Meter and 19-16 Meter band coils are used in parallel.

The inductances of the AC windings of the multiple antenna coil are all fixed, but the inductances of all other coils in the antenna and oscillator circuits are permeability adjusted. Un-grounded screw-type cores are used for these coils and adjustments are made with a non-metallic screwdriver.

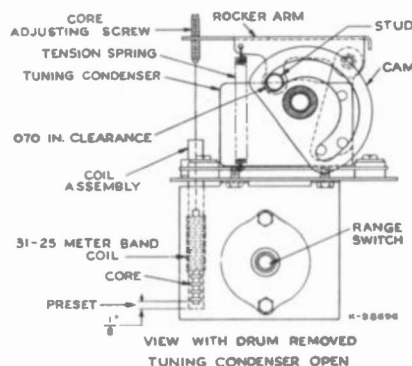
RADIO CORPORATION OF AMERICA

RCA INTERNATIONAL DIVISION

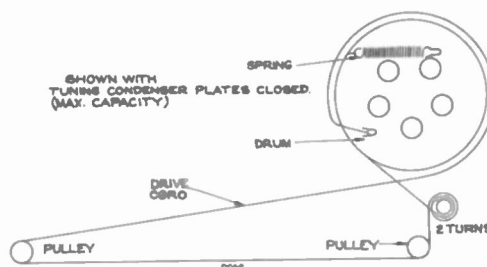
745 FIFTH AVE., NEW YORK 22, N. Y.



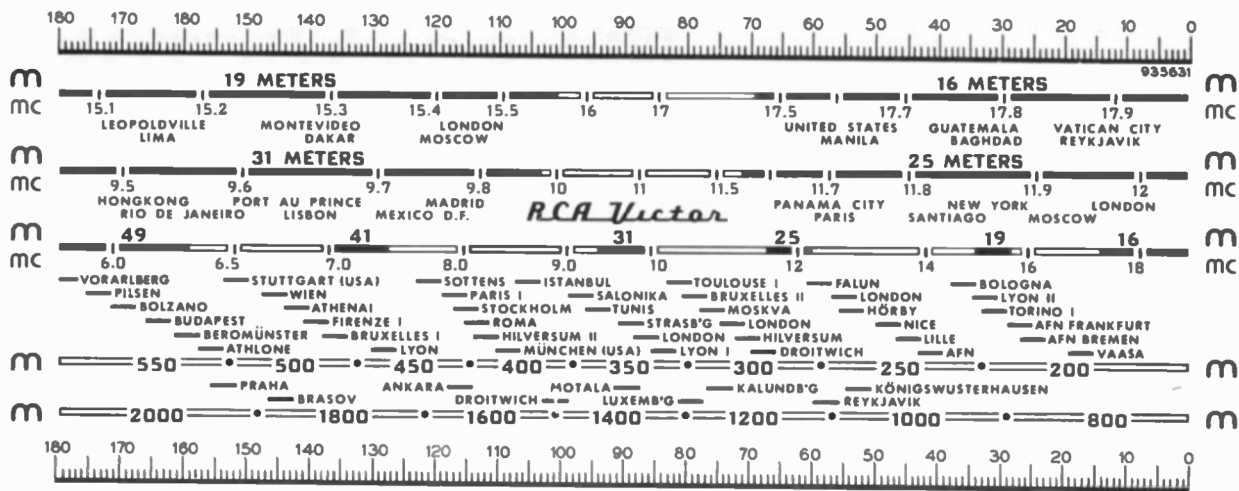
Operating Controls



Spread-Band Tuning (Front View)



Dial-Indicator and Drive Mechanism



Reduced Reproduction of Receiver Dial and Corresponding 0-180° Calibration Scales

The corresponding position of the dial indicator for any setting of the calibration scale can be determined by drawing a line from this point on the bottom calibration scale to the same point on the top calibration scale. For example: 143° on the calibration scale corresponds to approximately 600 kc on "A" band, etc. Read instructions under "Alignment Procedures."

Alignment Procedure

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

Calibration Scale on Indicator-Drive-Cord Drum.—The tuning dial is fastened in the cabinet and cannot be used for reference during alignment, therefore a calibration scale is attached to the indicator-drive-cord drum which is mounted on the shaft of the gang condenser. The setting of the gang condenser is read on this scale, which is calibrated in degrees.

As the first step in r-f alignment, check the position of the drum. The "180°" mark on the drum scale must be vertical and directly over the center of the gang-condenser shaft when the plates are fully meshed. The drum is held to the shaft by means of two set screws, which must be tightened securely when the drum is in the correct position.

Pointer for Calibration Scale.—Improvise a pointer for the calibration scale by fastening a piece of wire to the gang-condenser frame, and bend the wire so that it points to the "180°" mark on the calibration scale when the plates are fully meshed. The correct setting of the gang in degrees, for each alignment frequency, is given in the alignment table.

Receiver Dial with Calibration Scale.—To determine the corresponding frequency for any setting of the calibration scales, refer to the dial with calibration scale drawing.

Dial-Indicator Adjustment.—After fastening the chassis in the cabinet, attach the dial indicator to the drive cable with indicator at the end calibration mark, and gang condenser fully meshed. The indicator has a clip for attachment to the cable.

Spread-Band Alignment.—For spread-band alignment an extremely high degree of accuracy is required of the test-oscillator, as a slight error will produce considerable inaccuracy on the spread-band dials.

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. A final check should be made on actual reception of short-wave stations of known frequency.

For additional information, refer to booklet "RCA Victor Receiver Alignment."

| Step | Connect high side of test oscillator to— | Test oscillator frequency | Turn radio dial to— | Adjust for maximum output |
|------|--|---------------------------|--------------------------------|------------------------------------|
| 1 | Pin #1 of 6BA6 thru .01 mfd. capacitor | 455 kc | Quiet point near 600 kc A Band | T-3 2nd I.F. trans.—top and bottom |
| 2 | Pin #7 of 6BE6 thru .01 mfd. capacitor | | | T-2 1st I.F. trans.—top and bottom |
| 3 | Ant. terminal thru 200 mmfd capacitor | 350 kc | X Band 23° | C14 osc. C3 ant. |
| 4 | | 160 kc | X Band 144.9° | L9 osc. L2 ant. |
| 5 | | Repeat steps 3 and 4 | | |
| 6 | | 1400 kc | A Band 27.3° | C15 osc. C4 ant. |
| 7 | | 600 kc | A Band 142.6° | L11 osc. |
| 8 | | Repeat steps 6 and 7 | | |
| 9 | | 15.2 mc | C Band 31.7° | †C16 osc. C5 ant. |
| 10 | | 7.2 mc | C Band 132° | L13 osc. |
| 11 | | Repeat steps 9 and 10 | | |
| 12 | | 9.5 mc | 31-25 Meter Band 169.6° | †C13 osc. †C2 ant. |
| 13 | Ant. terminal thru 300 ohm resistor | 11.8 mc | 31-25 Meter Band 44.8° | †L14 osc. †L7 ant. ‡ |
| 14 | | Repeat steps 12 and 13 | | |
| 15 | | 17.75 mc | 19-16 Meter Band 37.5° | †C19 osc. C8 ant. |
| 16 | | 15.2 mc | 19-16 Meter Band 157.2° | †L15 osc. L8 ant. |
| 17 | | Repeat steps 15 and 16 | | |

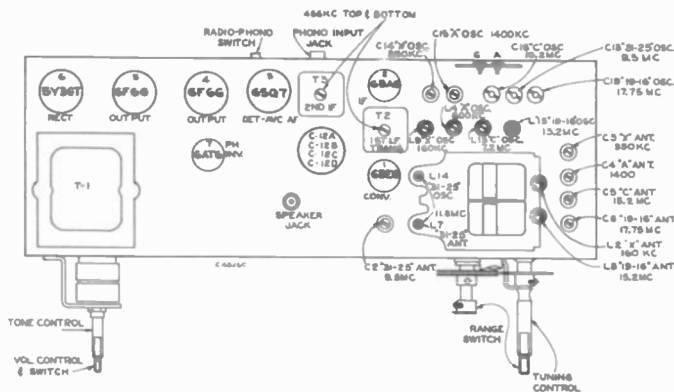
† Oscillator frequency is higher than signal frequency on all bands. Use minimum capacity or minimum inductance peak on oscillator adjustments if two peaks can be obtained.

‡ Pre-set L14 and L7, with tuning condenser at minimum capacity (0°), so that the cores are exactly 1/8 in. (3.175 mm) from the bottom end of their respective coils (coil end to bottom end of iron core—not the insulating rod of the core assembly).

† If dial reading for maximum output at 11.8 mc is lower than 11.8 mc, rotate studs approx. 1/2 turn clockwise—if higher rotate approx. 1/2 turn counterclockwise.

Critical Lead Dress

1. The 6BA6 screen by-pass capacitor C27 should be dressed close to the chassis with short leads.
2. The grid resistors R12 and R20 should be dressed close to the chassis with short leads.
3. The speaker wires should be dressed as far away from the 6SQ7 and 6AT6 sockets as possible.



Tube and Trimmer Location (Top View)

7Q51X

Replacement Parts

| STOCK No. | DESCRIPTION | STOCK No. | DESCRIPTION |
|------------------------------------|--|---------------------------|---|
| CHASSIS ASSEMBLIES RC-1055D | | | |
| R-F PLATE SUB-ASSEMBLY | | | |
| S-4512 | Board—Antenna-Ground terminal board | S-4313 | Cord—Dial drive cord (approx. 45" required) |
| S-4513 | Capacitor—Trimmer capacitor, single, 4-70 mmf. (C2) | S-4548 | Cord—Power cord |
| S-5390 | Capacitor—Trimmer capacitor, dual, two sections of 4-70 mmf. (C14, C15) | S-4549 | Gear—Gear and hub for range switch shaft |
| S-4515 | Capacitor—Trimmer capacitor, triple, two sections of 5-25 mmf. and one section of 8-50 mmf. (C13, C16, C19) | S-4550 | Gear—Gear and hub for range switch control shaft |
| S-4516 | Capacitor—Trimmer capacitor, quadruple, four sections of 3-35 mmf. (C3, C4, C5, C8) | S-4551 | Lever—Range indicator lever and hub |
| S-4517 | Capacitor—Ceramic, 7 mmf. (C6) | S-4552 | Resistor—Fixed-composition, 560 ohms, 1 watt (R18) |
| S-4518 | Capacitor—Ceramic, 22 mmf. (C17) | S-4553 | Resistor—Fixed-composition, 2200 ohms, 2 watt (R19) |
| S-4519 | Capacitor—Ceramic, 27 mmf. (C7) | S-4554 | Resistor—Fixed-composition, 10,000 ohms, 1/2 watt (R15) |
| S-4520 | Capacitor—Ceramic, 27 mmf. (C31) | S-4555 | Resistor—Fixed-composition, 18,000 ohms, 1 watt (R4) |
| S-4521 | Capacitor—Ceramic, 120 mmf. (C18) | S-4556 | Resistor—Fixed-composition, 22,000 ohms, 1/2 watt (R9) |
| S-5017 | Capacitor—Mica, 180 mmf. (C24) | S-4557 | Resistor—Fixed-composition, 82,000 ohms, 1/2 watt (R5) |
| S-4439 | Capacitor—Mica, 220 mmf. (C9) | S-4558 | Resistor—Fixed-composition, 100,000 ohms, 1/2 watt (R21) |
| S-5018 | Capacitor—Mica, 470 mmf. (C42) | S-4559 | Resistor—Fixed-composition, 270,000 ohms, 1/2 watt (R17) |
| S-4440 | Capacitor—Mica, 560 mmf. (C25) | S-4560 | Resistor—Fixed-composition, 330,000 ohms, 1/2 watt (R8) |
| S-4442 | Capacitor—Mica, 6000 mmf. (C23) | S-4476 | Resistor—Fixed-composition, 470,000 ohms, 1/2 watt (R13, R16) |
| S-4820 | Capacitor—Ceramic, .01 mf. (C28) | S-4561 | Resistor—Fixed-composition, 470,000 ohms, 1/2 watt (R14) |
| S-4448 | Capacitor—Tubular, .047 mf., 200 v. (C22) | S-4562 | Resistor—Fixed-composition, 2.2 megohm, 1/2 watt (R6) |
| S-4523 | Capacitor and Resistor Assembly—56 mmf., capacitor and 33 ohm resistor (C10, R2) | S-4478 | Resistor—Fixed-composition, 4.7 megohm, 1/2 watt (R12, R20) |
| S-4524 | Choke—Cathode choke coil (L14) | S-4563 | Socket—Dial lamp socket and lead assembly |
| S-4525 | Coil—"A" band oscillator coil (L11, L12) | S-4564 | Spring—Dial drive cord tension spring |
| S-5391 | Coil—"X" band oscillator coil (L9, L10) | S-4565 | Shaft—Range switch control shaft |
| S-4527 | Coil—"C" band oscillator coil (L13) | S-4566 | Shaft—Tuning control shaft |
| S-5023 | Coil—"X" band antenna coil (L1, L2) | S-4480 | Socket—Phono input or speaker output socket |
| S-4528 | Coil—"31-25 Meter" band antenna or oscillator coil (L7, L14) | S-4567 | Socket—Tube socket—octal—for 6SQ7 tube |
| S-4529 | Coil—"19-16 Meter" band antenna or oscillator coil (L8, L15) | S-4482 | Socket—Tube socket—octal—for 5Y3 GT or 6F6G tubes |
| S-4530 | Condenser—Tuning condenser (C1, C26) | S-4568 | Socket—Tube socket—miniature—for 6AT6 tube |
| S-4531 | Core—Adjustable core and stud for "31-25 Meter" band oscillator coil | S-4569 | Switch—Radio—phono switch (S6) |
| S-5392 | Core—Adjustable core and stud for "31-25 Meter" band antenna coil | S-4571 | Transformer—Second I.F. transformer (T3) |
| S-4532 | Drum—Tuning condenser drum, hub and cam assembly | S-4572 | Transformer—Output transformer (T4) |
| S-4533 | Grommet—Rubber grommet to mount tuning condenser | S-4573 | Transformer—Power transformer, 105-125 volts, 50/60 cycles (T1) |
| S-4534 | Plate—Rocker arm plate and stud assembly—less adjustable cores | S-4574 | Transformer—Power transformer, 105-125 volts, 25/60 cycles (T1) |
| S-4535 | Resistor—Fixed-composition, 22,000 ohms, 1/2 watt (R3) | S-5395 | Transformer—Power transformer, 100-115, 115-135, 135-165, 180-220, 220-260 volts, 40/60 cycles (T1) |
| S-4476 | Resistor—Fixed-composition, 470,000 ohms, 1/2 watt (R1) | S-4576 | Washer—"C" washer for range switch shaft (inside) |
| S-4536 | Screw—Rocker arm plate bearing screw | S-4577 | Washer—"C" washer to retain tuning shaft on range switch shaft |
| S-4894 | Socket—Tube socket | SPEAKER ASSEMBLIES | |
| S-4537 | Spring—Rocker arm plate tension spring | S-4578 | Cone—Speaker cone |
| S-5393 | Switch—Range switch (S1, S2, S3) | S-4579 | Plug—Male pin plug for speaker cable |
| S-4539 | Transformer—First I.F. transformer (T2) | S-4580 | Speaker—6 1/2" P.M. speaker complete with cone and connecting cable |
| MAIN CHASSIS ASSEMBLY | | MISCELLANEOUS | |
| S-4540 | Bracket—Dial cord bracket and pulley assembly (two required) | S-4581 | Back—Back cover for cabinet |
| S-4439 | Capacitor—Mica, 220 mmf. (C36) | S-4582 | Baffle—Baffle board and grille cloth assembly—less emblem |
| S-4541 | Capacitor—Tubular, .0033 mf., 600 v. 20% (C37) | S-4583 | Bezel—Dial bezel |
| S-4853 | Capacitor—Tubular, .0033 mf., 600 v. 10% (C35) | S-4584 | Cabinet—Plastic cabinet |
| S-4542 | Capacitor—Tubular, .0047 mf., 1000 v. (C40, C41) | S-4585 | Cover—Plastic dial cover |
| S-4543 | Capacitor—Tubular, .0068 mf., 400 v. (C34) | S-5396 | Dial—Glass dial scale |
| S-4820 | Capacitor—Ceramic, .01 mf. (C29) | S-4499 | Emblem—Trademark emblem |
| S-4444 | Capacitor—Tubular, .01 mf., 400 v. (C11, C27, C32, C38, C39) | S-4587 | Grille—Metal grille |
| S-4544 | Capacitor—Tubular, .015 mf., 400 v. (C33) | S-4588 | Grommet—Rubber grommet for chassis mounting |
| S-4545 | Capacitor—Electrolytic, comprising one section of 20 mfd., 400 volts, two sections of 10 mfd., 400 volts and one section of 20 mfd., 25 volts (C12A, C12B, C12C, C12D) | S-4503 | Grommet—Rubber grommet for speaker mounting |
| S-5394 | Coil—"A" and "C" bands antenna coil (L3, L4, L5, L6) | S-4589 | Indicator—Station selector indicator |
| S-4547 | Control—Volume control, tone control and power switch (R10, R11, S5) | S-4590 | Knob—Range switch knob |
| | | S-4591 | Knob—Volume control knob |
| | | S-4895 | Knob—Tuning control knob |
| | | S-4896 | Knob—Tone control knob |
| | | S-4897 | Lamp—Dial lamp—Mazda type No. 44 |
| | | S-4592 | Plate—Dial back plate |
| | | S-5397 | Screw—Chassis mounting screw |
| | | S-4511 | Spacer—Metal spacer for speaker mounting |
| | | S-4595 | Shield—Dial lamp shield |

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