General:

Heater, for Unipotential Cathode:
  Voltage, ................. 6.3 ± 10% .... ac or dc volts
  Current, ................. 0.6 .... amp.

Direct Inter-electrode Capacitances (Approx.):
  Grid No.1 to All Other Electrodes, .... 8.0 .... µf
  Cathode to All Other Electrodes, .... 5.5 .... µf
  DJ1 to DJ2 .......... 0.6 .... µf
  DJ3 to DJ4 .......... 1.1 .... µf
  DJ1 to All Other Electrodes, .... 8.5 .... µf
  DJ3 to All Other Electrodes, .... 9.0 .... µf
  DJ1 to All Other Electrodes except DJ2, .... 8.0 .... µf
  DJ2 to All Other Electrodes except DJ1, .... 4.6 .... µf
  DJ3 to All Other Electrodes except DJ4, .... 7.5 .... µf
  DJ4 to All Other Electrodes except DJ3, .... 6.0 .... µf

Phosphor (For Curves, see front of this Section) No.1
  Fluorescence ................. Green
  Persistence ................. Medium

Focusing Method ................. Electrostatic
Deflection Method ................. Electrostatic
Overall Length .................. 7-7/16" ± 3/16"
Greatest Diameter of Bulb ........ 2" ± 1/16"
Minimum Useful Screen Diameter .... 1-3/4"
Mounting Position ................. Any
Base .................. Small Shell Magnal 11-Pin 11L

Basing Designation for BOTTOM VIEW
  Pin 1 - Heater
  Pin 2 - Cathode
  Pin 3 - Deflecting Electrode DJ1
  Pin 4 - Anode No.1
  Pin 5 - No Connection
  Pin 6 - Deflecting Electrode DJ4
  Pin 7 - Anode No.2, Grid No.2

  Pin 8 - Deflecting Electrode DJ2
  Pin 9 - Deflecting Electrode DJ3
  Pin 10 - Grid No.1
  Pin 11 - Heater

DJ1 and DJ2 are nearer the screen
DJ3 and DJ4 are nearer the base

With DJ1 positive with respect to DJ2, the spot is deflected toward pin 4. With DJ3 positive with respect to DJ4, the spot is deflected toward pin 1.

The angle between the trace produced by DJ3 and DJ4 and its intersection with the plane through the tube axis and pin 1 does not exceed 100°.

The angle between the trace produced by DJ3 and DJ4 and the trace produced by DJ1 and DJ2 is 90° ± 4°.
HIGH-VACUUM CATHODE-RAY TUBE

(continued from preceding page)

**Maximum Ratings, Absolute Values:**

- **ANODE-NO.2 & GRID-NO.2 VOLTAGE:** 1100 max. volts
- **ANODE-NO.1 VOLTAGE:** 550 max. volts
- **GRID-NO.1 (CONTROL ELECTRODE) VOLTAGE:**
  - Negative Value: 125 max. volts
  - Positive Value: 0 max. volts
- **PEAK VOLTAGE BETWEEN ANODE NO.2 AND ANY DEFLECTING ELECTRODE:** 660 max. volts
- **PEAK HEATER-CATHODE VOLTAGE:**
  - Heater negative with respect to cathode: 125 max. volts
  - Heater positive with respect to cathode: 10 max. volts

**Typical Operation:**

- **Anode-NO.2 & Grid-NO.2 Voltage**\* \* 500 1000 ... volts
- **Anode-NO.1 Voltage for Focus at 75% of Grid-NO.1 Voltage for Cutoff** \* 125 250 ... volts
- **Grid-NO.1 Volt, for Visual Cutoff** \# -30 -60 ... volts
- **Max. Anode-NO.1 Current Range** \* Between -50 and +10 ... \mu amp.

**Deflection Sensitivity:**

- **DJ1 and DJ2:** 0.220 0.110 ... mm/v dc
- **DJ3 and DJ4:** 0.260 0.130 ... mm/v dc

**Deflection Factor:**

- **DJ1 and DJ2:** 115 230 ... v dc/in.
- **DJ3 and DJ4:** 98 196 ... v dc/in.

\* Brilliance and definition decrease with decreasing anode-NO.2 voltage. In general, anode-NO.2 voltage should not be less than 500 volts.

\* Individual tubes may require between +20% and -45% of the values shown with grid-NO.1 voltages between zero and cutoff.

\# Visual extinction of stationary focused spot. Supply should be adjustable to ± 50% of these values.

\* See curve for average values.

** Individual tubes may vary from these values by ± 20%.

**Spot Position:**

The undeflected focused spot will fall within a 10-mm square centered at the geometric center of the tube face and having one side parallel to the trace produced by DJ1 and DJ2. Suitable test conditions are: anode-NO.2 voltage, 1000 volts; anode-NO.1 voltage, adjusted for focus; deflecting-electrode resistors, 1 megohm each, connected to anode No.2; the tube shielded from all extraneous fields. To avoid damage to the tube, grid-NO.1 voltage should be near cutoff before application of anode voltages.

**Maximum Circuit Values:**

- **Grid-NO.1-Circuit Resistance:** 1.5 max. megohms
- **Impedance of Any Deflecting-Electrode Circuit at Heater-Supply Frequency:** 1.0 max. megohms

JULY 1, 1945

B.C.A. VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
Resistance in Any Deflecting-Electrode Circuit ** 5.0 max. megohms

** It is recommended that all deflecting-electrode-circuit resistances be approximately equal.

TYPICAL OSCILLOGRAPH CIRCUIT

C1: 0.1 \( \mu \)F
C2: 1.0 \( \mu \)F
C3, C4, C5, C6: 0.05-\( \mu \)F Blocking Capacitor
R1 R2: 0.5 Megohm
R3: 3.0 Megohms
R4: 1.0-Megohm Potentiometer
R5: 0.5 Megohm
R6: 0.5-Megohm Potentiometer
R7 R8: Dual 5-Megohm Potentiometer
R9 R10: Dual 5-Megohm Potentiometer
R11 R12 R13 R14: 2 Megohms

When cathode is grounded, capacitors should have high voltage rating; when anode No.2 is grounded, they may have low voltage rating. For dc amplifier service, deflecting electrodes should be connected direct to amplifier output. In this service, it is preferable usually to remove deflecting-electrode resistors to minimize loading effect on amplifier. In order to minimize spot defocusing, it is essential that anode No.2 be returned to a point in the amplifier system which will give the lowest possible potential difference between anode No.2 and the deflecting electrodes.

The license extended to the purchaser of tubes appears in the License Notice accompanying them. Information contained herein is furnished without assuming any obligations.

JULY 1, 1945

RCA VICTOR DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY
$\frac{7}{16}$ MIN.

$3\frac{1}{16}$

$1\frac{3}{8} \pm \frac{1}{16}$

$8''$ R.

$12.37''$

$2'' \pm \frac{1}{16}$

$0.225''$

$0.188''$ R.

$7\frac{7}{16}$

$\pm \frac{3}{16}$

$6\frac{7}{8}$

$\pm \frac{3}{16}$

SMALL SHELL MAGNAL

11-PIN BASE

$\&$ OF BULB WILL NOT DEVIATE MORE THAN $2^\circ$
IN ANY DIRECTION FROM PERPENDICULAR ERECTED AT CENTER OF BOTTOM OF BASE