



ELECTRONIC TUBE REFERENCE

902

Specialized - Cathode Ray electronic tube

CONSOLIDATED TECHNICAL DATA

1 SECTION
CONSTRUCTION
CATHODERAY

Early electrostatic cathode-ray oscillograph tube intended for observation or recording of electrical phenomena, with manufacturer-defined focusing, deflection, and fluorescent-screen characteristics for type 902.

GENERAL CHARACTERISTICS

BASE DESIGNATION	—	BASE PINS	—
NOMINAL HEATER	1 V / —	PARALLEL HEATER	— / —
HEATING	Indirect	SERIES OPERATION	Not specified
CATHODE ARRANGEMENT	Separate cathodes	SECTION CONSTRUCTION	Similar

SECTION RATINGS

SECTION 1 Cathode Ray

No fixed ratings recorded.

Source-derived section; identical dual beam-power sections compressed where applicable.

RCA-902 is a high-vacuum cathode-ray tube having SPOT POSITIONING a fluorescent viewing screen two inches in diameter. The undeflected focused spot will fall within a 10-mm square centered at the geometric center of the tube face diameter.

SOURCE OPERATING CONDITIONS

[SOURCE PDF](#)

1940 RCA

Published test conditions and operating points. Values on this page are preserved as reported by this source.

1940 RCA

Section 1 · Cathode Ray

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
RMA release #	399 mA	RMA release # 399,
ing a fluorescent viewing screen two inches in The undeflected focused spot will fall within a	10 in	ing a fluorescent viewing screen two inches in The undeflected focused spot will fall within a 10-mm
of electrostatic electrodes for deflection of and pJy. sSuitable test conditions are: anode No	2 V	of electrostatic electrodes for deflection of and pJy. sSuitable test conditions are: anode No.2 volts;
600; anode No.1 volts, adjusted for focus; deflecting—	1 V	600; anode No.1 volts, adjusted for focus; deflecting—
the electron beam. The	1 ohm	the electron beam. The 902 will operate with electrode resistors, 1 megohm each, connected to anode
anode voltages as low as	2 V	anode voltages as low as 400 volts, and it can No.2; the tube shielded from extraneous fields. To avoid
damage to the tube, grid No	1 V	damage to the tube, grid No.1 voltage should be near cut-
replace electricalty the RCA	91 V	replace electricalty the RCA-91i3 provided the off before anode voltage is applied.
anode No	400 V	anode No.2 voltage is not less than 400 volts.
HEATER VOLTAGE (A.C. or D.C.)	10 V	HEATER VOLTAGE (A.C. or D.C.) 6.3 +10% Volts
HEATER CURRENT	600 mA	HEATER CURRENT 0.6 Ampere
DJs to All other Electrodes	9.5 pF	DJs to All other Electrodes 9.5 uuf baffles between contacts provides an additional

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
ANODE No	2 V	ANODE No.2 (High-voltage glectrode) demagnetized.
VOLTAGE	6.3 V	VOLTAGE . 660 max. Volts The heater isdesigned to operate at 6.3 volts.
ANODE No	330 V	ANODE No.1 (Focusing Electrode) VOLTAGE 330 max. Volts
GRID No	1 V	GRID No.1 (control Electrode) VOLTAGE The transformer winding supplying the heater pow-
PEAK VOLTAGE BETWEEN ANODE NO	2 V	PEAK VOLTAGE BETWEEN ANODE NO.2
and ANY DEFLECTING ELECTRODE	385 V	and ANY DEFLECTING ELECTRODE 385 max. Volts the rated voltage under average ine-voltage
CIRCUIT at HEATER-SUPPLY FREQUENCY	1 ohm	CIRCUIT at HEATER-SUPPLY FREQUENCY 1 max. Megohm
GRID-CIRCUIT RESISTANCE	5 ohm	GRID-CIRCUIT RESISTANCE 5 max. Megohms cause ahigh voltage to appear between the heater
Anode No	600 V	Anode No.2 Voltage* 400 600 voits
Anode No	1 V	Anode No.1 Voltage for Focus be adequately insulated to withstand the high
at 75% of Grid voltage for	75 V	at 75% of Grid voltage for
cut-off (Approx.)**	150 V	cut-off (Approx.)** 100 150 Volts voltage.
Grid voltage for cut-off#	-60 V	Grid voltage for cut-off# -40 -60 volts
DJ1 and DJ2	0.182 V	DJ1 and DJ2 0.273 0.182 mm/volt p.c. one side of the heater. The terminal for this
DJ3 and DJy	0.214 V	DJ3 and DJy 0.321 0.214 mm/volt p.cC.
DJ1 and DJz	902 V	DJ1 and DJz 93 139 voltspi/in. The fluorescent screem of the 902 employs
DJ3 and DJy	117 V	DJ3 and DJy 78 117 volts pG/in.
No.2 voltages. in general, anode No.2 voltage should not ities as well	2 V	No.2 voltages. in general, anode No.2 voltage should not ities as well as high luminous efficiency.
be less than	300 V	be less than 300 volts.
Individual tubes may require between	-35 V	Individual tubes may require between +20% and -35% of The d-c supply wvoltages for the electrodes
values shown for focus when grid No	1 V	values shown for focus when grid No.1 voltage is varied

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
values not greater than	10 ohm	values not greater than 10 megohms between each or the negative end of the cathode-ray high-volt-
anode No	2 V	anode No.2 voltages are given under TYP CAL OPER- d-c amplifier circuit such that the potential
The high voltages at which the	902 V	The high voltages at which the 902 is operated voltage across the deflecting electrodes will be
crease with decreasing anode No	2 V	crease with decreasing anode No.2 voltage. In
general, anode No	2 V	general, anode No.2 voltage should not be less
of anode No. voltage to anode No	400 V	of anode No. voltage to anode No.2 voltage. Or- than 400 volts, The maximum value shown under
Spot intensity, for a given anode No	2 V	Spot intensity, for a given anode No.2 volt- the minimum consistent with the desired bril-
Anode No	2 V	Anode No.2 voltage may be chosen from a range to anode No.2 may be increased to the maximum
of values. As anode No	2 V	of values. As anode No.2 voltage is increased, value. This procedure, however, Is not always
Ry —	5 ohm	Ry — 20000 OHMS, 5 WATTS
Cy3 Cyy —	0.5 pF	Cy3 Cyy — 0-1 pf, 250 V. Rs = 650 OHMS, 0.5 WATT
C, - 0.0008 uf, 500 V. Cy5 - 0.1 pf, 600 V.	600 pF	C, - 0.0008 uf, 500 V. Cy5 - 0.1 pf, 600 V.
Cyg Cy7 —	0 pF	Cyg Cy7 — 0-25 pf, 500 V, Rg - 25000-OHM POTENTIOMETER
€, - 0.002 pf, 600 V, R9 — 15000 OHMS, 0.5 WATT	0.5 pF	€, - 0.002 pf, 600 V, R9 — 15000 OHMS, 0.5 WATT
ci - 0.005 pf, 500 v. Cyg Cy9 — 0.5 pf, 500 V.	500 pF	ci - 0.005 pf, 500 v. Cyg Cy9 — 0.5 pf, 500 V.
Cg - 0.015 pf, 500 v. —~OHM POTENTIOMETER	500 pF	Cg - 0.015 pf, 500 v. —~OHM POTENTIOMETER
Chy Cog —	2 pF	Chy Cog — 0.003 pf Ry - 2
00 v 0. WATT	0 W	00 v 0. WATT
R12 12 - 25000 OHMS, , 0.5	0.5 ohm	R12 12 - 25000 OHMS, , 0.5
pf,	15 pF	pf, 500 v' Coy 22 ~ 2325 pf, 15 V.
R13 13 — 500 " WATT	500 W	R13 13 — 500 " WATT

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
£0000. OHMS, on 0.5	0.5 ohm	£0000. OHMS, on 0.5
Cr pf,	500 pF	Cr pf, 500 V.)
Cg -=	0.5 ohm	Cg -= 0.25 o R1y — 300000 OHMS, 0.5 WATT
Co Cor Coy Cyp =	1 pF	Co Cor Coy Cyp = 8 pf R, - 10000 OHMS, 2 WATTS 1OMETER
9 10 aap (Working LT ol3 _ 15000 ONMS,) 2 WATTS Ri5 MEGOHN, POTENT	2 W	9 10 aap (Working LT ol3 _ 15000 ONMS,) 2 WATTS Ri5 MEGOHN, POTENT
Ti -- 12~-MEGOWM 0.5 WATT	0.5 W	Ti -- 12~-MEGOWM 0.5 WATT
. R17 — 70000 OHMS, 1 WATT	1 ohm	. R17 — 70000 OHMS, 1 WATT
int age :; Ryg	1 ohm	int age :; Ryg - 100000 OHMS, 1 WATT
si Ryg R2	0.5 ohm	. si Ryg R20 — 0.5-MEGOHM POTENT OMETER
with	10000 ohm	with 10000 ohms and decrease value until ed T easive
tained. This method protects condensers Cq and Lyg Rp1 R2	0.5 ohm	tained. This method protects condensers Cq and Lyg Rp1 R22 — 200000 OHMS, 0.5 WATT
voltage. R2	0.5 V	voltage. R23 R2y - 1000 OHMS, 0.5 WATT
poiot R2	0.5 ohm	poiot R25 R26 — 2 MEGOHMS, 0.5 WATY
* the	15 mA	* the 883 will not oscillate when L ~ 30 HENRYS, 15 MA.
Ef =	6.3 V	Ef = 6.3 VOLTS FOCUSING ELECTRODE (ANODE Nei)
HIGH-VOLTAGE ELECTRODE (ANODE N2	2 V	HIGH-VOLTAGE ELECTRODE (ANODE N2 2) MICROAMPERES

CHARACTERISTIC		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
€y ~ STRAY CIRCUIT CAPACITANCE" R R7 =	1 ohm	€y ~ STRAY CIRCUIT CAPACITANCE" R R7 = 50000 OHMS, 1 WATT

TUBE TINKER

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