

ELECTRONIC TUBE REFERENCE

7037

Specialized - Photo Tube electronic tube

CONSOLIDATED TECHNICAL DATA
1 SECTION
CONSTRUCTION
CAMERAPICKUP

Exceptionally sensitive image-orthicon television camera tube designed for simultaneous three-channel color pickup.

GENERAL CHARACTERISTICS

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

SECTION RATINGS

SECTION1 CameraPickup
No fixed ratings recorded.
Source-derived section; promoted values populated where applicable.

7037 IMAGE ORTHICON Magnetic Focus For Simultaneous Color Pickup 3"-Diameter Bulb Magnetic Deflection Exceptionally High Sensitivity 15-1/4" Length TENTATIVE DATA RCA-7037 is a television camera tube in- in picture retention throughout the life of the tended for use in color cameras utilizing the tube and thus contributes to longer service-hours. method of simultaneous pickup of the studio or The micro-mesh screem, which has a fineness outdoor scene to be televised. of 750 lines per inch, eliminates mesh pattern This method employs three 7037's and moiré effect without defocusing, minimizes --one for each channel--to pro- beat pattern between color subcarrier frequency duce the information necessary and the frequency generated by the beam scanning for the formation of a color- the mesh-screen pattern, permits operation of television image. the tubewith aperture-correction circuit to pro- The 7037 has exceptionally vide 100 per cent response for 350-line informa— high sensitivity combin

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 · CameraPickup

OTHER		
PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
grid (grid No.6) to provide an electrostatic voltage cutoff. Therefore, the potential of the	6 V	grid (grid No.6) to provide an electrostatic voltage cutoff. Therefore, the potential of the
92CM-9442 the return beam which has been amplitude modu	9442	92CM-9442 the return beam which has been amplitude modu-
dynode No.2 of the secondaries from dynode No.1	2 s	dynode No.2 of the secondaries from dynode No.1.
multiplier section amplifies the modulated beam peflecting~Coil Length« «	5	multiplier section amplifies the modulated beam peflecting~Coil Length« «... 5"
the use of a video amplifier with fewer stages. Alignment-Coil Length	16	the use of a video amplifier with fewer stages. Alignment-Coil Length. . 15/16"
voltage., ... « « « « « . . ~550 max. volts	550 V	voltage., ... « « « « « . . ~550 max. volts
GRID-NO.6 VOLTAGE. - « « « . . -550 max. volts	-550 V	GRID-NO.6 VOLTAGE. - « « « . . -550 max. volts
Positive value . . « . . « . . 10 max. volts	10 V	Positive value . . « . . « . . 10 max. volts
the load resistor (R25 in Fig.3) changes in the Negative value . . «« « . 10 max. volts	10 V	the load resistor (R25 in Fig.3) changes in the Negative value . . «« « . 10 max. volts
positive direction. Hence, for highlights in GRID-NO.5 VOLTAGE. « « « « « & v & 150 max. volts	150 V	positive direction. Hence, for highlights in GRID-NO.5 VOLTAGE. « « « « « & v & 150 max. volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
the scene, the grid of the first video amplifier GRID-NO.Y¥ VOLTAGE. . . .+« . « . . 300 max.	300 V	the scene, the grid of the first video amplifier GRID-NO.Y¥ VOLTAGE. . . .+« . « . . 300 max. volts
stage swings in the positive direction. GRID-No.3 VOLTAGE. PR 400 max. volts	400 V	stage swings in the positive direction. GRID-No.3 VOLTAGE. PR 400 max. volts
GRID-No.2 & DYNODE-No.1 VOLTAGE e 350 max. volts	350 V	GRID-No.2 & DYNODE-No.1 VOLTAGE e 350 max. volts
GRID-NO	1 V	GRID-NO.1 VOLTAGE:
DATA Negative bias value. 125 max. volts	125 V	DATA Negative bias value. 125 max. volts
General: Positive bias value. + . . 0 max. volts	0 V	General: Positive bias value. + . . 0 max. volts
voltage (AC or DC) 6.31109% volts Heater negative with respect	6.31109 V	voltage (AC or DC) 6.31109% volts Heater negative with respect
Current. 0.6 ampere to cathode . . Ce e 125 max. volts	125 V	Current. 0.6 ampere to cathode . . Ce e 125 max. volts
to cathode . . P 10 max. volts	10 V	to cathode . . P 10 max. volts
Anode to all other electrodes	12 pF	Anode to all other electrodes. 12 uuf
ANODE-SUPPLY VOLTAGE P 1350 max. volts	1350 V	ANODE-SUPPLY VOLTAGE P 1350 max. volts
VOLTAGE PER MULTIPLIER STAGE 350 max. volts	350 V	VOLTAGE PER MULTIPLIER STAGE 350 max. volts
Photocathode voltage {lImage Focus) --400 to	-540 V	Photocathode voltage {lImage Focus) --400 to -540 wvolts
photocathode should be adjusted so that its Grid-No.6 voltage (Accelerator)	6 V	photocathode should be adjusted so that its Grid-No.6 voltage (Accelerator)--
voltage. -300 to	-405 V	voltage. -300 to -405 volits
target should have a size such that the corners Target --Cutoff voltage . -3 to	1 V	target should have a size such that the corners Target--Cutoff voltage . -3 to +1 volts
of the rectangle just touch the target ring. Grid-No.5 voltage (Decelerator). 0 to	125 V	of the rectangle just touch the target ring. Grid-No.5 voltage (Decelerator). 0 to 125 volts

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
Orientation of Proper orientation isobtained when Grid-No.4 voltage (Beam Focus) 140 to	180 V	Orientation of Proper orientation isobtained when Grid-No.4 voltage (Beam Focus) 140 to 180 volts
parallel to the plane passing Grid-No.3 Vvoltage . « .. 225 to	330 V	parallel to the plane passing Grid-No.3 Vvoltage . « .. 225 to 330 volts
through center of faceplate and Grid-No.2 & Dynode--No.1 Voltage P	300 V	through center of faceplate and Grid-No.2 & Dynode--No.1 Voltage P 300 volts
Focusing Method. . Magnetic cutoff . -U45 to	115 V	Focusing Method. . Magnetic cutoff . -U45 to 115 volts
Dynode-No.2 voltage. 600 volts the neck of the tube will not fall down and	600 V	Dynode-No.2 voltage. 600 volts the neck of the tube will not fall down and
Dynode~No.3 voltage. 800 volts strike or become lodged on the target. Therefore,	800 V	Dynode~No.3 voltage. 800 volts strike or become lodged on the target. Therefore,
Dynode--No.4 voltage	1000 V	Dynode--No.4 voltage. 1000 volts
Dynode-No.5 voltage	1200 V	Dynode-No.5 voltage. 1200 volts
Anode voltage. e e e e e	1250 V	Anode voltage. e e e e e 1250 volts
anode Current (DC) . . . + « « .« . . 30 pamp end up nor in any other position where the axis	30	anode Current (DC) . . . + « « .« . . 30 pamp end up nor in any other position where the axis
Signal-Output Current {Peak to peak) 3 to2u namp of the tube with base up makes an angle of less	3	Signal-Output Current {Peak to peak) 3 to2u namp of the tube with base up makes an angle of less
Minimum Peak-to-Peak Blanking voltage	5 V	Minimum Peak-to-Peak Blanking voltage 5 volts
0 Normal setting of target voltage is +2 volts from target and should incorporate an iris to control	2 V	0 Normal setting of target voltage is +2 volts from target and should incorporate an iris to control the
from -3 to	5 V	from -3 to +5 volts.
For thehigh dcvoltages required by the	7027 V	For thehigh dcvoltages required by the 7027,

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
respect to the horizontal-deflecting field 1s furnishing 1250 volts with an output current of	1250 V	respect to the horizontal-deflecting field 1s furnishing 1250 volts with an output current of
socket and which passes through the center of ing =550 volts with anoutput current of milli	550 V	socket and which passes through the center of ing =550 volts with anoutput current of milli-
pins 3 and 4 of the annular base is at right supplying the plate voltage and current for the	4 V	pins 3 and 4 of the annular base is at right supplying the plate voltage and current for the
of 459 with respect to the horizontal scanning voltage divider which isused to supply the volt	459 V	of 459 with respect to the horizontal scanning voltage divider which isused to supply the volt-
+1250V. TO VIDEQ_AMPLIFIER	330	+1250V. TO VIDEQ_AMPLIFIER +330V.
Cl ϕ 2: 0.05 uf, 1600 v working voltage R5: 270000 ohms, 1/2 watt R18: 510000 ohms,	1 V	Cl ϕ 2: 0.05 uf, 1600 v working voltage R5: 270000 ohms, 1/2 watt R18: 510000 ohms, 1 watt
C3: 0.01 uf mica, 1600 v working R6 R7: 200-ohm potentiometer, center— R19: 11000 ohms, 1/	2 W	C3: 0.01 uf mica, 1600 v working R6 R7: 200- ohm potentiometer, center— R19: 11000 ohms, 1/2 watt
) voltage tapped, 2 watts R20: 310000 ohms, 1/	2 V	) voltage tapped, 2 watts R20: 310000 ohms, 1/2 watt
Cd4: 0.001 uf mica, 1000 v working R8: 5100 ohms, 1/2 watt R21: 500000-ohm potentiometer,	1 W	Cd4: 0.001 uf mica, 1000 v working R8: 5100 ohms, 1/2 watt R21: 500000-ohm potentiometer, 1 watt
A voltage R9: 51000 ohms, 2 watts R22: 250000 ohms,	1 V	. A voltage R9: 51000 ohms, 2 watts R22: 250000 ohms, 1 watt
C5: 0.001 uf mica, 00 v working voltage R10: 510 ohms, 1/2 watt R23: 560000 ohms, 1/	2 V	C5: 0.001 uf mica, 00 v working voltage R10: 510 ohms, 1/2 watt R23: 560000 ohms, 1/2 watt
C6: 0.03 uf, 1600 v working voltage. R11: 150000-ohm potentiometer, 1/2watt R24: L7000 ohms, 1/	2 V	C6: 0.03 uf, 1600 v working voltage. R11: 150000-ohm potentiometer, 1/2watt R24: L7000 ohms, 1/2 watt
See text under wvoltage divider. R12: 125000 ohms, 1/2 watt R25: 20000 ohms, 1/	2 V	See text under wvoltage divider. R12: 125000 ohms, 1/2 watt R25: 20000 ohms, 1/2 watt

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
€7 C8 €9 Cli Ci2 C13 C14 C15: 0.001 uf R13: 75000-ohm potentiometer, 1 watt R26 R27: 100000 ohms, 1/	2 W	€7 C8 €9 Cli Ci2 C13 C14 C15: 0.001 uf R13: 75000-ohm potentiometer, 1 watt R26 R27: 100000 ohms, 1/2 watt
mica, 400 v working voltage Rid4: 125000 ohms, 1/2 watt R28 R29 R31 R32 R34 R35 R36 R	8 V	mica, 400 v working voltage Rid4: 125000 ohms, 1/2 watt R28 R29 R31 R32 R34 R35 R36 R37 R38:
Ci10: 1 wf, 400 v working voltage R15: 250000-ohm potentiometer, 1 watt 200000 ohms, 1/	2 V	Ci10: 1 wf, 400 v working voltage R15: 250000-ohm potentiometer, 1 watt 200000 ohms, 1/2 watt
R1: 47000 ohms, 1/2 watt R16: 150000-ohm potentiometer, 1 watt R30: 50000 ohms, 1/	2 W	R1: 47000 ohms, 1/2 watt R16: 150000-ohm potentiometer, 1 watt R30: 50000 ohms, 1/2 watt
R2 R3 RU: 220000 ohms, 1t/2 watt R17: 250000-ohm potentiometer, 1 watt R33: 100000 ohms, 1/	2 W	R2 R3 RU: 220000 ohms, 1t/2 watt R17: 250000-ohm potentiometer, 1 watt R33: 100000 ohms, 1/2 watt
Fig.3 - Voltage-Divider Circuit for Type %7037 with Recommended	7037 V	Fig.3 - Voltage-Divider Circuit for Type %7037 with Recommended
the 7037 is shown in Fig.3. It is to be noted previous to the clamp-circuit location	3	the 7037 is shown in Fig.3. It is to be noted previous to the clamp-circuit location.
current will not introduce disturbing effects to signal-output current of 3 to	24 A	current will not introduce disturbing effects to signal-output current of 3 to 24 microamperes
off by a relay which applies —~115 to —	125 V	off by a relay which applies —~115 to —125 volts
self. For 7037's having high dc outputs, a cur— of at least -10 volts to it. FEither relay is	-10 V	self. For 7037's having high dc outputs, a cur— of at least -10 volts to it. FEither relay is
serviceable amount of target blanking is 6 voltspeak Spare 7037's should be placed in service for	7037 V	serviceable amount of target blanking is 6 voltspeak Spare 7037's should be placed in service for
adjustment of voltage on grid No.3 in order to liberated within the tube during prolonged storage	3 V	adjustment of voltage on grid No.3 in order to liberated within the tube during prolonged storage.

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
introduced in the amplifier after clamping is in size with continuous operation, the	7037	introduced in the amplifier after clamping is in size with continuous operation, the 7037
occurs when the target voltage is adjusted to 2 picture on the monitor	2 V	occurs when the target voltage is adjusted to 2 picture on the monitor.
the "knee" is straightened out to give a more voltage set at approximately 2 volts negative,	2 V	the "knee" is straightened out to give a more voltage set at approximately 2 volts negative,
was established by the 2-volt adjustment. current so that the small white dynode spot does	2 V	was established by the 2-volt adjustment. current so that the small white dynode spot does
When the target voltage is adjusted as not move when the beam--focus control {(grid No	4 V	When the target voltage is adjusted as not move when the beam--focus control {(grid No.4)
Next, uncap the lens and open the lens iris Then adjust the grid-No.1 voltage contro! to	1 V	Next, uncap the lens and open the lens iris Then adjust the grid-No.1 voltage contro! to
Cap the lens and adjust the grid-No	3 V	Cap the lens and adjust the grid-No.3 voltage
well as the voltage on grid No.4 to produce the	4 V	well as the voltage on grid No.4 to produce the
the grid-No.5 and grid-No.3 voltage controls. step pattern	3 V	the grid-No.5 and grid-No.3 voltage controls. step pattern.
voltage to approximately 4 volts above the target--	4 V	voltage to approximately 4 volts above the target--
cutoff value. Avalue slightly iess then	4 V	cutoff value. Avalue slightly iess then 4 volts
secondaries from dynode No.1. The grid-No.3	7 s	secondaries from dynode No.1. The grid-No.3 80 7/
adjust the voltage on grid No.6 along with the Ry	6 V	adjust the voltage on grid No.6 along with the Ry
adjustment of the grid-No.6 voltage control will	6 V	adjustment of the grid-No.6 voltage control will
the grid-No.b voltage control andsometimes after	2 V	the grid-No.b voltage control andsometimes after 2

PARAMETER	PUBLISHED VALUE	CONDITION / NOTE
each adjustment of the grid-No.3 voltage control	3 V	each adjustment of the grid-No.3 voltage control.
target voltage accurately to 2 volts above the HIGHLIGHT ILLUMINATION ON PHOTOCATHODE	2 V	target voltage accurately to 2 volts above the HIGHLIGHT ILLUMINATION ON PHOTOCATHODE
a slight degree even initially. However, any Systems'', RCA Review, March,	19	a slight degree even initially. However, any Systems'', RCA Review, March, 19u8;
justed to exactly 2 volts above target cutoff	2 V	justed to exactly 2 volts above target cutoff.
7. Don't turnoff beamwhile voltages are applied to photo	7 V	7. Don't turnoff beamwhile voltages are applied to photo-

TUBE TINKER

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