7VP1

OSCILLOGRAPH TUBE

ELECTROSTATIC FOCUS — ELECTROSTATIC DEFLECTION

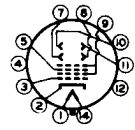
DATA

General:

Heater, for Unipotential Cathode:		
Voltage	6.3	ac or dc volts
Current	0.6	amp
Direct Interelectrode Capacitances (Approx.):		
Grid No.1 to All Other Electrodes	6	μμf
DJ_1 to DJ_2	3	μμf
DJ_3 to DJ_4	2	μμf
DJ_1 to All Other Electrodes	9	μμf
DJ_2 to All Other Electrodes	9	μμf
DJ_3 to All Other Electrodes	7	μμf
DJ_4 to All Other Electrodes	7	μμf
Faceplate		Clear Glass
Phosphor (For Curves, see front of this Section)		P1
Fluorescence and Phosphorescence		Green
Persistence of Phosphorescence		Medium
Focusing Method		Electrostatic
Deflection Method		Electrostatic
Overall Length		14-1/2" ± 3/8"
Greatest Diameter of Bulb		7" ± 1/8"
Minimum Useful Screen Diameter		6"
Mounting Position		Any
Bulb		J56H

Base .... Medium-Shell Diheptal 12-Pin (JETEC No.B12-37)

BOTTOM VIEW



Pin 1 – Heater
Pin 2 – Cathode
Pin 3 – Grid No.1
Pin 4 – No Connection
Pin 5 – Grid No.3
Pin 7 – Deflecting Electrode DJ_3
Pin 8 – Deflecting Electrode DJ_4
Pin 9 – Ultor● (Grid No.2, Grid No.4, Collector)
Pin 10 – Deflecting Elect. DJ_2
Pin 11 – Deflecting Elect. DJ_1
Pin 12 – Internal Connection–Do Not Use
Pin 14 – Heater

DJ_1 and DJ_2 are nearer the screen
DJ_3 and DJ_4 are nearer the base

With DJ_1 positive with respect to DJ_2, the spot is deflected toward pin 5. With DJ_3 positive with respect to DJ_4, the spot is deflected toward pin 2.

The plane through the tube axis and pin 5 may vary from the trace produced by DJ_1 and DJ_2 by an angular tolerance (measured about the tube axis) of ±10°. Angle between DJ_1 – DJ_2 trace and DJ_3 – DJ_4 trace is 90° ± 3°.

●: See next page.

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Maximum Ratings, *Design-Center Values:*

ULTOR● VOLTAGE	4000 max.	volts
GRID-No.3 VOLTAGE	2000 max.	volts
GRID-No.1 VOLTAGE:		
Negative bias value	200 max.	volts
Positive bias value*	0 max.	volts
Positive peak value	2 max.	volts
PEAK VOLTAGE BETWEEN ULTOR AND ANY DEFLECTING ELECTRODE	750 max.	volts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	125 max.	volts
Heater positive with respect to cathode	125 max.	volts

Equipment Design Ranges:

For any ultor voltage (E_u) between 1000# and 4000 volts

Grid-No.3 Voltage for Focus	27% to 40% of E_u	volts
Maximum Grid-No.1 Voltage for Visual Extinction of Undeflected Focused Spot	2.8% of E_u	volts
Grid-No.3 Current	−15 to +10	μamp
Deflection Factors:		
DJ_1 & DJ_2	31 to 41	v dc/in./kv of E_u
DJ_3 & DJ_4	25 to 34	v dc/in./kv of E_u
Spot Position	##	

Examples of Use of Design Ranges:

For ultor voltage of	*1500*	*3000*	*volts*
Grid-No.3 Voltage for Focus	400 to 600	800 to 1200	volts
Maximum Grid-No.1 Voltage for Visual Extinction of Undeflected Focused Spot	−42	−84	volts
Deflection Factors:			
DJ_1 & DJ_2	47 to 62	93 to 123	volts dc/in.
DJ_3 & DJ_4	38 to 51	75 to 102	volts dc/in.

Maximum Circuit Values:

Grid No.1-Circuit Resistance	1.5 max.	megohms
Resistance in Any Deflecting-Electrode Circuit°	5.0 max.	megohms

● In the 7VP1, grid No.4 which has the ultor function, grid No.2, and collector are connected together within the tube and are conveniently referred to collectively as "ultor." The "ultor" in a cathode-ray tube is the electrode, or the electrode in combination with one or more additional electrodes connected within the tube to it, to which is applied the highest dc voltage for accelerating the electrons in the beam prior to its deflection.

* At or near this rating, the effective resistance of the ultor supply should be adequate to limit the ultor input power to 6 watts.

#,##,°: See next page.

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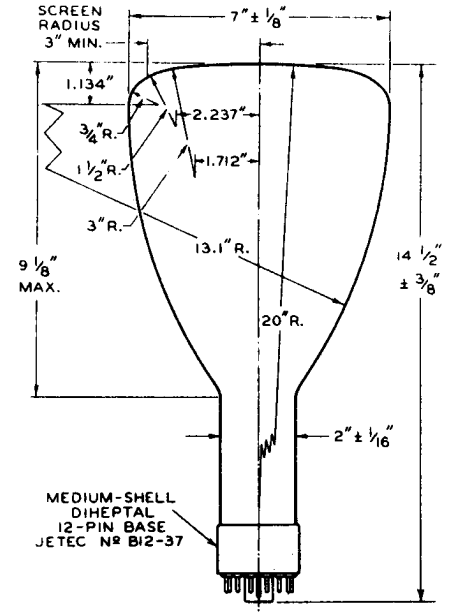
Brilliance and definition decrease with decreasing ultor voltage. A value as low as 1000 volts is recommended only for low-velocity deflection and low ambient-light levels.

With ultor voltage of 1500 volts, the center of the undeflected focused spot will fall within a circle having a 10-mm radius concentric with the center of the tube face.

o It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

The 7VP1 can be used as a direct replacement for the 7JP1 in all equipment where the high-voltage supply does not provide more than 4000 volts.



92CM-6667R1

℄ OF BULB WILL NOT DEVIATE MORE THAN 2° IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF BOTTOM OF THE BASE.

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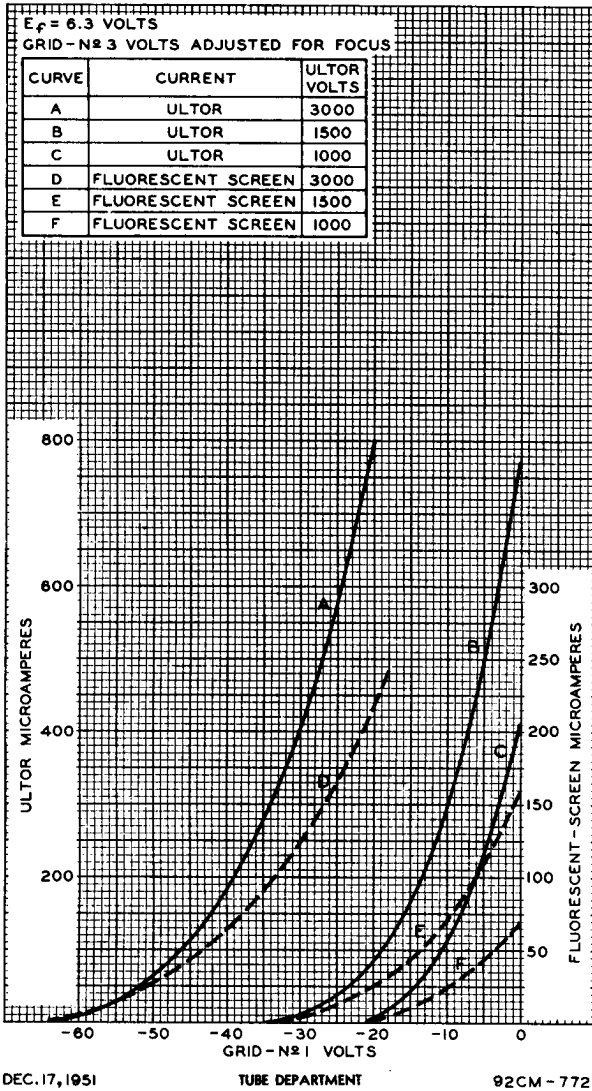
AVERAGE CHARACTERISTICS

E_f = 6.3 VOLTS
GRID-№ 3 VOLTS ADJUSTED FOR FOCUS

CURVE	CURRENT	ULTOR VOLTS
A	ULTOR	3000
B	ULTOR	1500
C	ULTOR	1000
D	FLUORESCENT SCREEN	3000
E	FLUORESCENT SCREEN	1500
F	FLUORESCENT SCREEN	1000



7VP31

Oscillograph Tube

ELECTROSTATIC FOCUS
ELECTROSTATIC DEFLECTION

MEDIUM-SHORT-PERSISTENCE SCREEN
HIGH DEFLECTION SENSITIVITY

The 7VP31 is the same as the 7VP1 except for the following items:

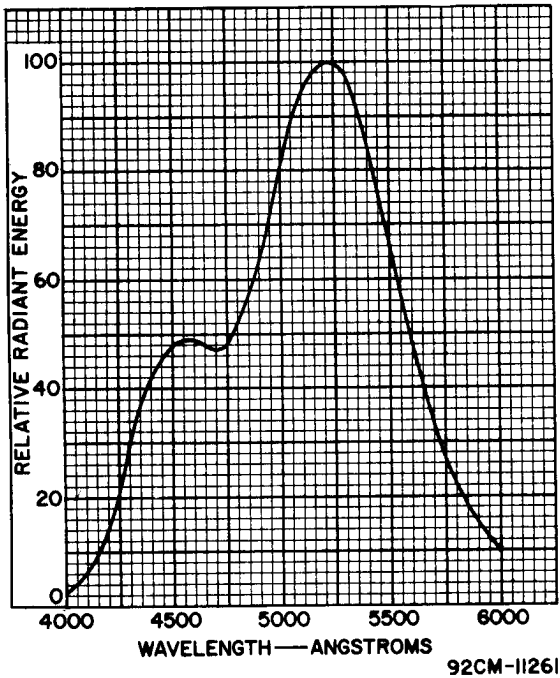
General:

Phosphor (See accompanying curves)	P31
Fluorescence	Green
Phosphorescence	Green
Persistence[a]	Medium Short[b] (Approx. 38 μsec)

[a] Time for initial brightness to decay to 10% point.

[b] Phosphorescence may have a useful brightness for over a minute under conditions of adequate excitation and low-ambient illumination.

SPECTRAL-ENERGY EMISSION CHARACTERISTIC OF PHOSPHOR P31



PERSISTENCE CHARACTERISTIC OF PHOSPHOR P31