12DP7-B

OSCILLOGRAPH TUBE

MAGNETIC FOCUS

Supersedes Type 12DP7-A

MAGNETIC 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 .... 9  μf
  Cathode to All Other Electrodes .... 6  μf
Faceplate (With about 66% light transmission) .... Filterglass
Phosphor (For Curves, see front of this Section) .... P7
  Fluorescence ................ Blue
  Persistence .................. Short
  Phosphorescence .......... Greenish-Yellow
  Persistence .................. Long
Focusing Method .... Magnetic
Deflection Method .... Magnetic
Deflection Angle (Approx.) .... 50°
Overall Length ........ 19-5/8" ± 1/2"
Greatest Diameter .... 12" ± 3/16"
Minimum Useful Screen Diameter .... 10"
Weight (Approx.) .... 8 lbs
Mounting Position .... Any
Cap .... Medium (JETEC No.C1-5)
Bulb .... Long Medium-Shell Octal 8-Pin (JETEC No.BB-65)

BOTTOM VIEW

Pin 1—No Connection
Pin 2—Heater
Pin 3—Grid No.2
Pin 4—No Connection
Pin 5—Grid No.1
Pin 6—No Connection
Pin 7—Cathode
Pin 8—Heater (Grid No.3, Collector)

Maximum Ratings, Design-Center Values:
ULTOR VOLTAGE .......... 10000 max. volts
GRID-No.2 VOLTAGE:
  Positive value (DC or Peak AC) .... 700 max. volts
  Negative value (DC or Peak AC) .... 180 max. volts
GRID-No.1 VOLTAGE:
  Negative bias value .......... 180 max. volts
  Positive bias value .......... 0 max. volts
  Positive peak value .......... 2 max. volts

*In the 12DP7-B, grid No.3 which has the ulture function and collector
are connected together within the tube and are conveniently referred to
collectively as "ulture". The "ulture" in a cathode-ray tube is the elec-
trode, or the electrode in combination with one or more additional elec-
trodes connected within the tube to it, to which is applied the highest
dc voltage for accelerating the electrons in the beam prior to its de-
lection.

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

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TENTATIVE DATA
PEAK GRID–No. 1 DRIVE FROM CUTOFF ........ 65 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 ultron voltage \( (E_u) \) between 4000* and 10000 volts
and grid–No. 2 voltage \( (E_{c2}) \) between 150 and 700 volts

Grid–No. 1 Voltage for Visual Extinction of Undeflected
Focused Spot ............ 10% to 28% of \( E_{c2} \) volts

Grid–No. 2 Current ........ -15 to +15 \( \mu \)amp

Focusing–Coil Current (DC) \(^{00}\) \[ \frac{\sqrt{E_u}}{4000} \times 88.5 \] \( \pm \) 15% ma

Spot Position ............. **

Examples of Use of Design Ranges:
For ultron voltage of .. 4000 7000 volts
and grid–No. 2 voltage of 250 250 volts

Grid–No. 1 Voltage for Visual Extinction of Undeflected
Focused Spot ........... -25 to -70 -25 to -70 volts

Focusing–Coil Current (DC) .. 88.5 \( \pm \) 15% 117 \( \pm \) 15% ma

Maximum Circuit Values:
Grid–No. 1–Circuit Resistance ........ 1.5 max. megohms

* Brilliance and definition decrease with decreasing ultron voltage. In general, the ultron voltage should not be less than 4000 volts.

\(^{00}\) For specimen focusing coil similar to JETEC Focusing Coil No. 106 positioned with air gap toward faceplate and center line of air gap 4-1/8" from Reference Line (see Outline Drawing) and ultron current of 200 microamperes.

** The center of the undeflected, unfocused spot will fall within a circle having a 20-mm radius concentric with the center of the tube face.
NOTE 1: THE PLANE THROUGH THE TUBE AXIS AND PIN No.5 MAY VARY FROM THE PLANE THROUGH THE TUBE AXIS AND ULTORM TERMINAL BY AN ANGULAR TOLERANCE (MEASURED ABOUT THE TUBE AXIS) OF \pm 10^\circ. ULTORM TERMINAL IS ON SAME SIDE OF TUBE AS PIN No.5.

NOTE 2: REFERENCE LINE IS DETERMINED BY POSITION WHERE GAUGE 1.430" \pm .003" -.000" I.D. AND 2" LONG WILL REST ON BULB CONE.

NOTE 3: \theta OF BULB WILL NOT DEVIATE MORE THAN 2^\circ IN ANY DIRECTION FROM THE PERPENDICULAR ERECTED AT THE CENTER OF THE BOTTOM OF THE BASE.

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AVERAGE GRID-DRIVE CHARACTERISTICS

$E_g = 6.3$ VOLTS
ULTOR VOLTS = 4000 - 10000
GRID NO. 1 BIASED TO CUTOFF OF UNDEFLECTED FOCUSED SPOT

APRIL 9, 1952
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