KINESCOPE
RECTANGULAR GLASS TYPE
LOW-VOLTAGE FOCUS MAGNETIC DEFLECTION

DATA

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

Direct Inter-electrode Capacitances:
Grid No.1 to All Other Electrodes. ....... 6 \mu f
Cathode to All Other Electrodes. ....... 5 \mu f

External Conductive Coating to Ultron\textsuperscript{*}. \{1500 max. \mu f
\hspace{1cm} 750 min. \mu f

Faceplate, Spherical. \hspace{1cm} Filterglass
Light Transmission (Approx.). \hspace{1cm} 66%\%
Phosphor (For Curves, see front of this section) \hspace{1cm} P4—Sulfide Type
\hspace{1cm} Fluorescence and Phosphorescence \hspace{1cm} White
\hspace{1cm} Persistence of Phosphorescence \hspace{1cm} Short
Focusing Method. \hspace{1cm} Electrostatic
Deflection Method. \hspace{1cm} Magnetic
Deflection Angles (Approx.):\n\hspace{1cm} Diagonal \hspace{1cm} 70°
\hspace{1cm} Horizontal \hspace{1cm} 65°
\hspace{1cm} Vertical \hspace{1cm} 50°

Ion-Trap Gun \hspace{1cm} Requires External, Single-Field Magnet

Overall Length. \hspace{1cm} 19-3/16" \pm 3/8"

Greatest Diagonal of Tube. \hspace{1cm} 16-5/8" \pm 1/8"

Greatest Width of Tube. \hspace{1cm} 15-3/8" \pm 1/8"

Greatest Height of Tube. \hspace{1cm} 12-9/32" \pm 1/8"

Screen Size. \hspace{1cm} 14-3/8" x 11-1/16"

Mounting Position. \hspace{1cm} Any

Cap. \hspace{1cm} Recessed Small Cavity (JETEC No. 31-21)
Base. \hspace{1cm} Small-Shell Duodecal 6-Pin (JETEC No. B6-63)

\textbf{BOTTOM VIEW}

Pin 1 - Heater
Pin 2 - Grid No. 1
Pin 6 - Grid No.4
Pin 10 - Grid No.2
Pin 11 - Cathode
Pin 12 - Heater

Cap - Grid No. 3,
Grid No. 5,
Collector
C - External
Conductive
Coating

Maximum Ratings, \textit{Design-Center Values}:
ULTOR\textsuperscript{*} VOLTAGE \hspace{1cm} 16000 max. volts
GRID-No.4 VOLTAGE:
Positive value \hspace{1cm} 1000 max. volts
Negative value \hspace{1cm} 500 max. volts
GRID-No.2 VOLTAGE:
GRID-No.1 VOLTAGE:
Negative bias value \hspace{1cm} 125 max. volts
Positive bias value \hspace{1cm} 0 max. volts
Positive peak value \hspace{1cm} 2 max. volts

\textsuperscript{*} See next page.

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PEAK HEATER-CATHODE VOLTAGE:
Heater negative with respect to cathode:
During equipment warm-up period
not exceeding 15 seconds.  410 max. volts
After equipment warm-up period . . . .  180 max. volts
Heater positive with respect to cathode.  180 max. volts

Equipment Design Ranges:
For any ultron voltage \( (E_u) \) between 12000* and 16000 volts
and grid-No.2 voltage \( (E_{c2}) \) between 150 and 500 volts

Grid-No.4 Voltage for Ultron
Current of 100 \( \mu \)amp... -0.4% to 2.2% of \( E_u \) volts
Grid-No.1 Voltage for Visual Extinction of Undelected Focused Spot . . . . 11% to 25.7% of \( E_{c2} \) volts
Grid-No.4 Current... -25 to +25 \( \mu \)amp
Grid-No.2 Current... -15 to +15 \( \mu \)amp
Field Strength of Single Field Ion-Trap Magnet (Approx.) . . . . \( \sqrt{\frac{E_u}{12000}} \times 42 \) gausses
Field Strength of Adjustable Centering Magnet. . . . . 0 to 8 gausses

Examples of Use of Design Ranges:
For ultron voltage of 14000 16000 volts
and grid-No.2 voltage of 300 300 volts

Grid-No.4 Voltage for Ultron Current of
100 \( \mu \)amp . . . . -55 to +300 -65 to +350 volts
Grid-No.1 Voltage† . . . . -33 to -77 -33 to -77 volts
Ion-Trap Magnet (Rated Strength). . . . 45 50 gausses

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

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• In the 17HP4, grid No.5 which has the ultron function, grid No.3, and collector are connected together within the tube and are conveniently referred to collectively as "ultron". The "ultron" 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.
• Brilliance and definition decrease with decreasing ultron voltage. In general, the ultron voltage should not be less than 12000 volts.
† For visual extinction of undeflected focused spot.
† This value has been specified to take care of the condition where an ac voltage is provided for dynamic focusing.

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OPERATING NOTES

X-Ray Warning. When operated at ultor voltages up to 16 kilovolts, the 17HP4 does not produce any harmful x-ray radiation. However, because the rating of the tube permits operation at voltages as high as 17.6 kilovolts (absolute value), shielding of the 17HP4 for x-ray radiation may be needed to protect against possible injury from prolonged exposure at close range whenever the operating conditions involve voltages in excess of 16 kilovolts.

NOTE 2: WITH TUBE NECK INSERTED THROUGH FLARED END OF REFERENCE LINE GAUGE JETEC NO. 110 (SHOWN AT FRONT OF THIS SECTION) AND WITH TUBE SEATED IN GAUGE, THE REFERENCE LINE IS DETERMINED BY THE INTERSECTION OF THE PLANE CC' OF THE GAUGE WITH THE GLASS FUNNEL.

NOTE 3: SOCKET FOR THIS BASE SHOULD NOT BE RIGIDLY MOUNTED; IT SHOULD HAVE FLEXIBLE LEADS AND BE ALLOWED TO MOVE FREELY. BOTTOM CIRCUMFERENCE OF BASE SHELL WILL FALL WITHIN A CIRCLE CONCENTRIC WITH BULB AXIS AND HAVING A DIAMETER OF 2-3/4".

NOTE 4: EXTERNAL CONDUCTIVE COATING MUST BE GROUNDED.
AVERAGE GRID-DRIVE CHARACTERISTICS

$E_f = 6.3$ VOLTS
ULTOR (GRIDS - N° 3 & N° 5
AND COLLECTOR) VOLTS = 14000
GRID-N° 4 VOLTS ADJUSTED TO GIVE FOCUS
AT AVERAGE RASTER BRIGHTNESS
GRID N° 1 BIASED TO CUTOFF OF
UNDEФLECTED FOCUSED SPOT
Raster size = $14 \frac{3}{8}'' \times 11 \frac{1}{16}''$
AVERAGE GRID-DRIVE CHARACTERISTICS

$E_0 = 6.3$ VOLTS
ULTOR (GRIDS - Nº 3 & Nº 5 AND COLLECTOR) VOLTS = 12000 TO 16000
GRID Nº 1 BIASED TO CUTOFF OF UNDEFLECTED FOCUSED SPOT

VIDEO SIGNAL VOLTS FROM CUTOFF

ULTOR MILLIAMPERES

SEPT. 26, 1951
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