



16ADP7

OSCILLOGRAPH TUBE

Magnetic Focus
Magnetic Deflection
53° Deflection Angle

Metal-Shell Envelope
Long-Persistence Screen
Filterglass Face

14-3/8" Min. Screen Dia.
16" Max. Diameter
22" Max. Length

TENTATIVE DATA

RCA-16ADP7 is a 16-inch oscillograph tube of the metal-shell type utilizing magnetic focus and magnetic deflection. It is intended particularly for those applications, such as radar indicator service, where grid No. 1 is pulse-modulated at low frequency to provide a temporary record of electrical phenomena, but it is also useful in general oscillographic applications where a temporary record of electrical phenomena is desired. The long-persistence, cascade (two-layer) screen used in the 16ADP7 exhibits bluish fluorescence of short persistence and greenish-yellow phosphorescence which persists for several minutes under conditions of adequate excitation and low ambient light.

Featured in the 16ADP7 is a limiting aperture at the end of the electron gun to produce a sharper, rounder spot on the screen, and hence greater effective resolution, especially at high values of beam current. This feature makes the 16ADP7 particularly useful in those applications where pulse-modulated operation causes high grid-No. 1 drive and resultant high beam current.

The high-quality faceplate of the 16ADP7 is made of Filterglass to provide increased contrast between the trace and the background. The Filterglass faceplate incorporates a neutral light-absorbing material which reduces ambient-light reflections from the phosphor and reflections within the faceplate itself in a much higher ratio than it reduces the directly viewed light of the trace. As a result, improved trace contrast is obtained. Also, having a relatively flat surface, the faceplate facilitates the use of an external, transparent, calibrated scale.

Because of its long persistence, the 16ADP7 is particularly useful where either low-speed non-recurring phenomena or high-speed recurring phenomena are to be observed. Furthermore, two or more phenomena can be observed simultaneously on the screen by means of a suitable switching arrangement. The persistence is such that the 16ADP7 without filter can be operated with scanning frequencies as low as 30 cycles per second without excessive flicker. When used with yellow filter, such as Wratten No. 15 (G), the 16ADP7 can be operated with much lower scanning frequencies.

The persistent light of the 16ADP7 permits the user to view a curve produced on the face of the tube by a single, high-speed sweep of the electron beam and, if desired, to make a tracing of the curve for record purposes.

Use of a yellow filter, such as Wratten No. 15 (G), over the tube face reduces the effect of the fluorescence in the observation of the phosphorescence. Use of a blue filter, such as Wratten No. 47A, reduces the observed phosphorescence and thus makes the screen appear to have only fluorescence.

Operation of the 16ADP7 as a short-persistence tube is suggested only when a short-persistence tube with P11 phosphor is not available. Because the persistence of the 16ADP7 used in this way is somewhat longer than the persistence of the P11 phosphor, any contemplated application should be limited either to visual observation or to photographic recording where the film does not move at more than moderate speed.



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DATA

General:

Heater, for Unipotential Cathode:

Voltage (AC or DC)	6.3	volts
Current.	0.6	ampere

Direct Interelectrode Capacitances (Approx.):

Grid No.1 to All Other Electrodes.	6	μf
Cathode to All Other Electrodes.	5	μf

Faceplate (With about 66% light transmission). Filterglass

Phosphor P7

Fluorescence Blue

Persistence. Short

Phosphorescence. Greenish-Yellow

Persistence. Long

Focusing Method. Magnetic

Deflection Method. Magnetic

Deflection Angle (Approx.) 53°

Maximum Overall Length 22"

Greatest Diameter at Lip $15\frac{7}{8}" \pm \frac{1}{8}"$

Minimum Useful Screen Diameter $14\frac{3}{8}"$

Ultor[®] Terminal. Metal-Shell Lip

Base Small-Shell Duodecal 7-Pin (JETEC No. B7-51)

Mounting Position. Any

Maximum Ratings, Design-Center Values:

ULTOR[®] VOLTAGE 14000 max. volts

GRID-No.2 VOLTAGE:

Positive value (DC or Peak AC) 410 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

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

Typical Operation:

Ultor Voltage* 12000 volts

Grid-No.2 Voltage. 250 volts

Grid-No.1 Voltage for Visual Extinction

of Undelected Focused Spot. -27 to -63 volts

Grid-No.2 Current. -15 to +15 μamp

Focusing-Coil Current (DC)⁰⁰ $95 \pm 15\%$ ma

Spot Position. ##

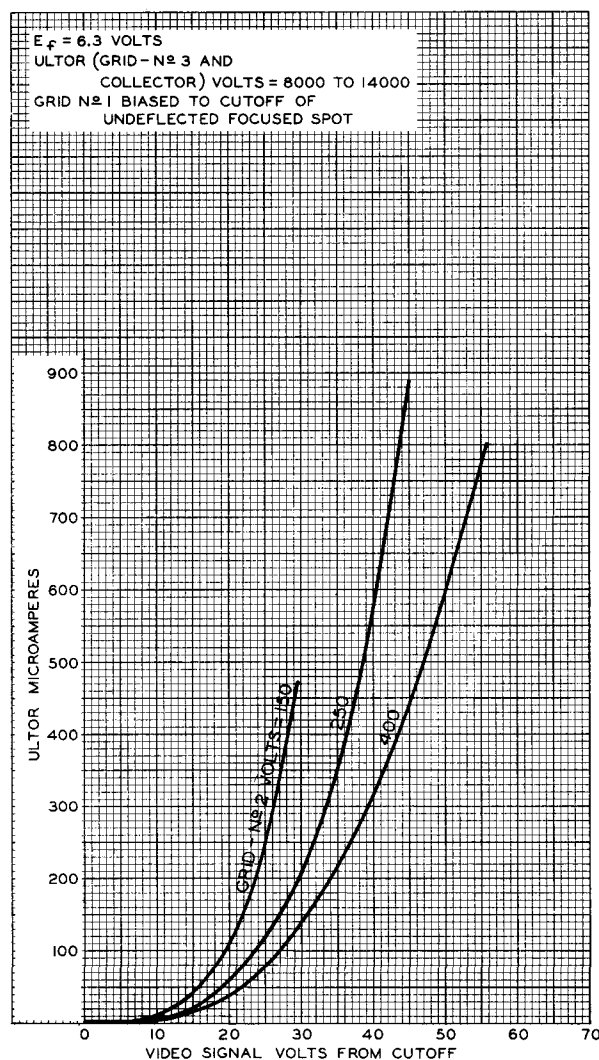
Maximum Circuit Values:

Grid-No.1-Circuit Resistance 1.5 max. megohms



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- In the 16ADP7, grid No.3 which has the ultor function, 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.
- * Brilliance and definition decrease with decreasing ultor voltage. In general,
 - ∞ for specimen focusing coil similar to JETEC Focusing Coil No.109 positioned with air gap toward faceplate and center line of air gap 3-1/4" from Reference Line (see *Outline Drawing*) and ultor current of 200 microamperes. The indicated tolerance on focusing-coil current is on basis that distance from Reference Line to grid No.1 is controlled as shown in Detail of Grid-No.1 Position on page 4.
 - ## The center of the undeflected, unfocused spot will fall within a circle having 25-mm radius concentric with the center of the tube face.



92CM-7692

Average Grid-Drive Characteristics
of Type 16ADP7.

92CS-7689