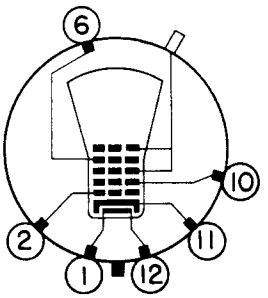
TYPE 10UP7A 10UP14A

The type 10UP— is a 10 inch aluminized electrostatic focus and magnetic deflection cathode–ray tube suitable for radar applications. A low–voltage electrostatic focus lens is employed, designed to operate at near cathode potential to afford substantially automatic focus, independent of accelerator voltage variations. In addition, the 10UP7A employs a high resolution gun.

The 10UP— utilizes a metallized screen for greater light output, improved contrast, and to minimize screen charging effects.



BOTTOM VIEW

12M

MECHANICAL DATA

BASE: Small Shell Duodecal 6–Pin

CAP: Recessed Small Cavity

TERMINAL CONNECTIONS:

Pin 1	Heater	Pin 11	Cathode
Pin 2	Grid #1	Pin 12	Heater
Pin 6	Grid #4	Cap	Grids #3 and #5 (Collector)
Pin 10	Grid #2		

GENERAL DATA

	10UP7A	10UP14A
Phosphor	#7	#14
Fluorescence	Blue	Blue
Phosphorescence	Yellow	Orange
Persistence	Long	Medium–Long
Focusing Method	Electrostatic	Electrostatic
Deflecting Method	Magnetic	Magnetic
Deflection Angle	50°	50°

ELECTRICAL DATA

HEATER CHARACTERISTICS:

Heater Voltage	6.3	volts
Heater Current	0.6 ± 10%	amps.
Peak Heater–Cathode Voltage: ♦		
Heater Negative with Respect to Cathode	180	volts DC
Heater Positive with Respect to Cathode	180	volts DC

DIRECT INTERELECTRODE CAPACITANCES: (μμfds.) (approx.)

Grid #1 to all other electrodes	6.5	
Cathode to all other electrodes	5	

DESIGN CENTER MAXIMUM RATINGS:

Collector Voltage ▲	12,000	volts DC
Grid #4 Voltage (Focusing Electrode)	−500 to +1000	volts DC
Grid #2 Voltage	700	volts DC
Grid #1 Voltage:		
Negative–Bias Value	180	volts DC
Positive–Bias Value *	0	volts DC
Positive–Peak Value	0	volts DC

CHARACTERISTICS AND TYPICAL OPERATION:

Collector Voltage ▲	10,000	volts DC
Grid #4 Voltage (Focusing Electrode) ●	−150 to +150	volts DC
Grid #2 Voltage	300	volts DC
Grid #1 Voltage ⊕	−28 to −72	volts DC
Line Width ■	0.015	inch max.
Spot Position (undeflected) □	0.50	inch

MAXIMUM CIRCUIT VALUES:

Grid #1 Circuit Resistance	1.5	max. Megohm

Tentative Data

Printed in U.S.A.

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

▲ *Collector, Grids #3 and #5 are connected internally and referred to as Collector. Brilliance and definition decrease with decreasing collector voltages. In general collector voltage should not be less than 7,000 volts.*

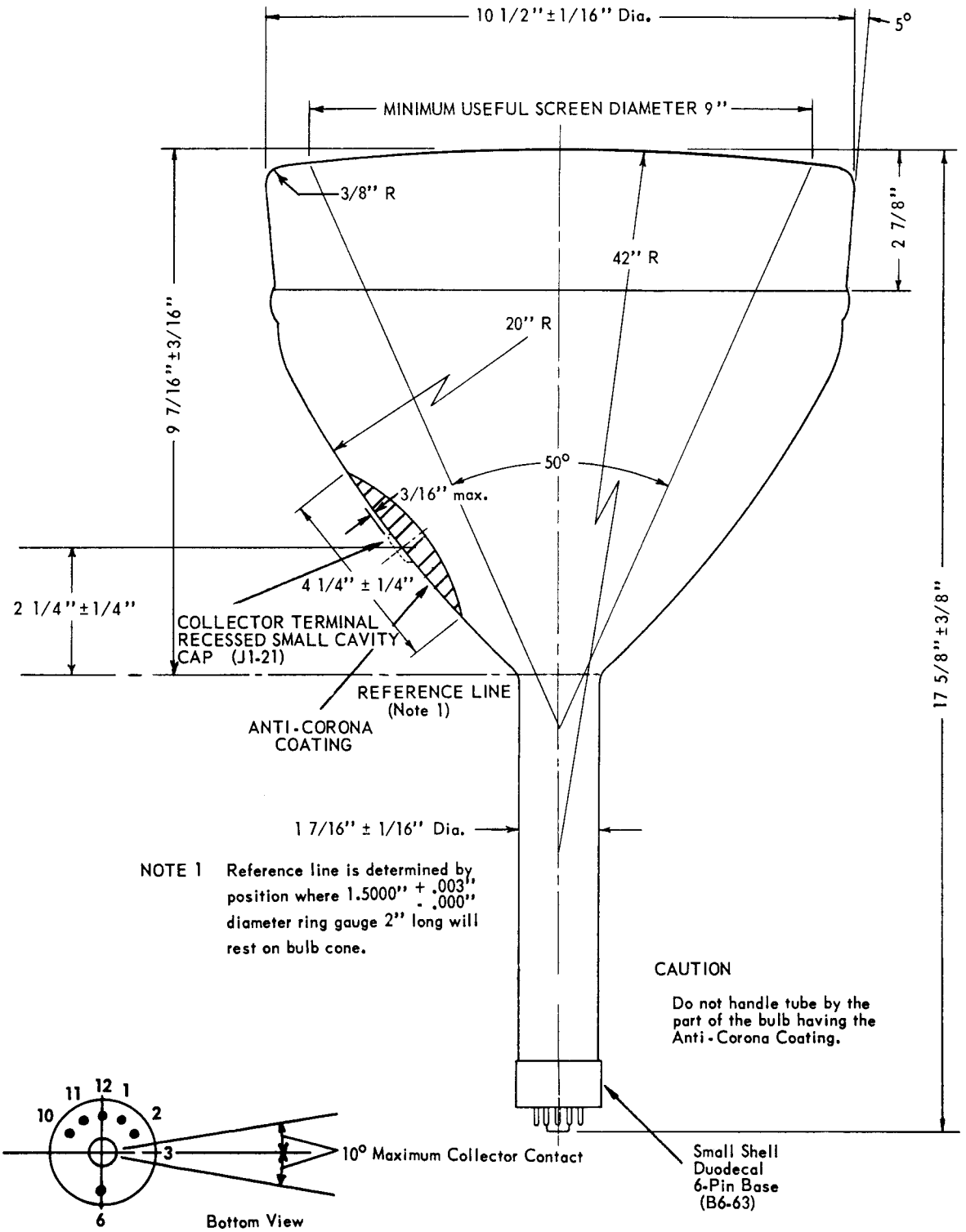
⧫ *Cathode should be returned to one side or to the mid-tap of the heater transformer winding.*

● *With grid #1 voltage adjusted to produce a collector current of 100 μA., with the pattern adjusted for best overall focus. Measured with a 525-line interlaced and synchronized 6X8 inch pattern, with interlaced line blanking (current measured before applying blanking).*

⊕ *Visual extinction of focused 6X8 inch raster pattern.*

■ *Measured with a 525-line interlaced and synchronized pattern with interlaced line blanking. Pattern width adjusted to 90% of minimum useful screen diameter. Ib-100 μA., measured before applying blanking. Line width is the merged raster height divided by the number of lines (262.5) (measured in center of tube face). The line width under this condition will be 0.015 inch maximum (current measured before applying).*

□ *The center of the undeflected, focused spot will fall within a circle of 1/2-inch radius concentric with the center of the tube face, with tube shielded.*


10 1/2" ± 1/16" Dia.
5°
MINIMUM USEFUL SCREEN DIAMETER 9"
3/8" R
42" R
20" R
2 7/8"
9 7/16" ± 3/16"
50°
3/16" max.
4 1/4" ± 1/4"
2 1/4" ± 1/4"
COLLECTOR TERMINAL
RECESSED SMALL CAVITY
CAP (J1-21)
REFERENCE LINE
(Note 1)
ANTI-CORONA
COATING
17 5/8" ± 3/8"
1 7/16" ± 1/16" Dia.
NOTE 1 Reference line is determined by position where 1.5000" + .003" - .000" diameter ring gauge 2" long will rest on bulb cone.
CAUTION
Do not handle tube by the part of the bulb having the Anti-Corona Coating.
11 12 1
10 2
3
6
10° Maximum Collector Contact
Bottom View
Small Shell
Duodecal
6-Pin Base
(B6-63)