Excellence in Electronics

TYPE 10WP7 10WP14 10WP19

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

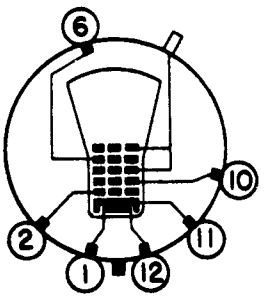
MECHANICAL DATA

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	



BOTTOM VIEW

12M

ELECTRICAL DATA

GENERAL CHARACTERISTICS:

	10WP7	10WP14	10WP19
Phosphor	#7	#14	#19
Fluorescence	Blue	Blue	Orange
Phosphorescence	Yellow	Orange	Orange
Persistence	Long	Medium-long	Long
Focusing Method	Electrostatic	Electrostatic	Electrostatic
Deflecting Method	Magnetic	Magnetic	Magnetic
Deflection Angle	50°	50°	50°

HEATER CHARACTERISTICS:

Heater Voltage	6.3	volts
Heater Current	0.6 ± 10%	amps.
Peak Heater-Cathode Voltage: ♦		
Heater Negative with Respect to Cathode		
During warm-up period not to exceed 15 sec.	410	volts DC
After equipment warm-up period	180	volts DC
Heater Positive with Respect to Cathode	180	volts DC

DIRECT INTERELECTRODE CAPACITANCES: ($\mu\mu fds.$) (approx.)

Grid #1 to all other electrodes	6
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

CHARACTERISTICS AND TYPICAL OPERATION:

Collector Voltage ▲	10,000	volts DC
Grid #4 Voltage (Focusing Electrode) ●	0 to 300	volts DC
Grid #4 Current	-15 to +15	
Grid #2 Voltage	300	volts DC
Grid #1 Voltage ⊕	-28 to -72	volts DC
Line Width ■	0.017	inch max.
Spot Position (undeflected) □	0.5	inch

MAXIMUM CIRCUIT VALUES:

Grid #1 Circuit Resistance	1.5	inch max.

Tentative Data

Printed in U.S.A.

RAYTHEON MANUFACTURING COMPANY

RECEIVING AND CATHODE RAY TUBE OPERATIONS

December 15, 1955 NEWTON 58, MASS.

* *At or near this rating, the effective resistance of the collector supply should be adequate to limit the collector input power to 6 watts. The screen of the 10WP19 can be permanently damaged should the current density be permitted to rise too high. To prevent burning, minimum beam current densities should be employed.*

▲ *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.*

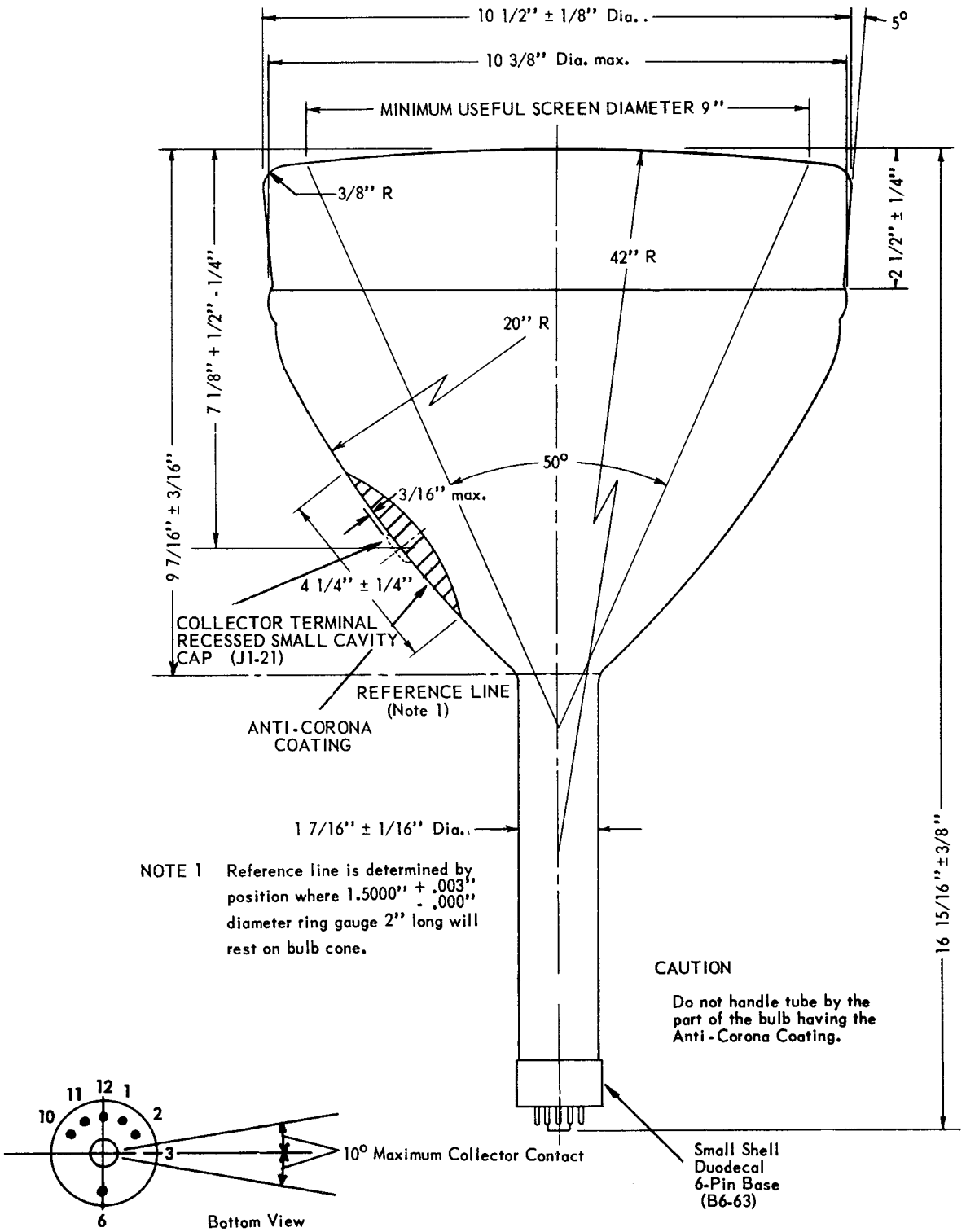
♦ *Cathode should be returned to one side or to the mid-tap of the heater transformer winding.*

● *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). To avoid damage to the screen of the 10WP19, it is recommended that the screen current be not more than 50 μA. when measuring line width. The line width under this condition will be 0.016 inch maximum (current measured before applying blanking).*

□ *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" ± 1/8" Dia..
5°
10 3/8" Dia. max.
MINIMUM USEFUL SCREEN DIAMETER 9"
3/8" R
42" R
2 1/2" ± 1/4"
7 1/8" + 1/2" - 1/4"
20" R
9 7/16" ± 3/16"
50°
3/16" max.
4 1/4" ± 1/4"
COLLECTOR TERMINAL
RECESSED SMALL CAVITY
CAP (J1-21)
REFERENCE LINE
(Note 1)
ANTI-CORONA
COATING
1 7/16" ± 1/16" Dia.
16 15/16" ± 3/8"
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.
12
1
2
3
6
10
11
10° Maximum Collector Contact
Small Shell
Duodecal
6-Pin Base
(B6-63)
Bottom View