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**

<table>
<thead>
<tr>
<th>BASE:</th>
<th>Small Shell Duodecal 6-Pin</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAP:</td>
<td>Recessed Small Cavity</td>
</tr>
</tbody>
</table>

**TERMINAL CONNECTIONS:**

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

**ELECTRICAL DATA**

**GENERAL CHARACTERISTICS:**

<table>
<thead>
<tr>
<th>Phosphor</th>
<th>10WP7</th>
<th>10WP14</th>
<th>10WP19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorescence</td>
<td>Blue</td>
<td>Blue</td>
<td>Orange</td>
</tr>
<tr>
<td>Phosphorescence</td>
<td>Yellow</td>
<td>Orange</td>
<td>Orange</td>
</tr>
<tr>
<td>Persistence</td>
<td>Long</td>
<td>Medium-long</td>
<td>Long</td>
</tr>
<tr>
<td>Focusing Method</td>
<td>Electrostatic</td>
<td>Electrostatic</td>
<td>Electrostatic</td>
</tr>
<tr>
<td>Deflecting Method</td>
<td>Magnetic</td>
<td>Magnetic</td>
<td>Magnetic</td>
</tr>
<tr>
<td>Deflection Angle</td>
<td>50°</td>
<td>50°</td>
<td>50°</td>
</tr>
</tbody>
</table>

**HEATER CHARACTERISTICS:**

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

**DIRECT INTERELECTRODE CAPACITANCES:** (μµµµs) (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 #2 Voltage: 300 volts DC
- Grid #1 Voltage: +15 to +15
- Line Width: 0.017 inch max.
- Spot Position (undeflected): 0.5 inch

**MAXIMUM CIRCUIT VALUES:**

- Grid #1 Circuit Resistance: 1.5 inch max.
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.
CATHODE RAY TUBE

10 1/2' ± 1/8'' Dia.
10 3/8'' Dia. max.

MINIMUM USEFUL SCREEN DIAMETER 9''

3/8'' R

42'' R

20'' R

7 1/8'' + 1/2'' - 1/6''

9 7/16'' ± 3/16''

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.

NOTE 1 Reference line is determined by position where 1.50000'' ± .003'' 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.

Small Shell Duodecal
6-Pin Base
(B6-63)

10° Maximum Collector Contact

Bottom View