



TELEVISION PICTURE TUBE

DESCRIPTION

The 7JP4 is an electrostatic focus and deflection direct-view picture tube for television applications. It provides 4 by 5½-inch pictures. A feature of

this tube is the zero-first-anode-current electron gun. The 7JP4 is also suitable for use in oscillograph service.

TECHNICAL INFORMATION

GENERAL CHARACTERISTICS

Electrical

Heater voltage 6.3 volts
 Heater current 0.6 ± 10% amperes

Focusing method—Electrostatic
 Deflecting method—Electrostatic

Phosphor—P4

Fluorescence—White
 Persistence—Medium

Direct interelectrode capacitances, nominal

| | | |
|--|-----|-----|
| Cathode to all other electrodes | 9.5 | uuf |
| Grid No. 1 to all other electrodes | 8.5 | uuf |
| D1 to D2 | 3.5 | uuf |
| D3 to D4 | 2.0 | uuf |
| D1 to all other electrodes except D2 | 7.5 | uuf |
| D2 to all other electrodes except D1 | 7.5 | uuf |
| D3 to all other electrodes except D4 | 6.0 | uuf |
| D4 to all other electrodes except D3 | 6.0 | uuf |



TECHNICAL INFORMATION (CONT'D)

Mechanical:

| | |
|---|-------------------------------------|
| Over-all length | 14½ ± 3⁄8 inches |
| Greatest diameter of bulb | 7 ± 1⁄8 inches |
| Minimum useful screen diameter | 6 inches |
| Base | Medium shell diheptal 12-pin B12-37 |
| Basing | 14G |
| Base alignment | |
| D1-D2 Trace aligns with Pin No. 5 and tube axis ±10 degrees | |
| Positive voltage on D1 deflects beam approximately toward Pin No. 5 | |
| Positive voltage on D3 deflects beam approximately toward Pin No. 2 | |

MAXIMUM RATINGS

Design center values:

| | | |
|---|----------|-----------|
| Anode No. 2 voltage | 6000 max | volts d-c |
| Anode No. 1 voltage | 2800 max | volts d-c |
| Grid No. 1 voltage | | |
| Negative-bias value | 200 max | volts d-c |
| Positive-bias value* | 0 max | volts d-c |
| Positive-peak value | 2 max | volts |
| Peak heater-cathode voltage** | | |
| Heater negative with respect to cathode | | |
| During equipment warm-up period not to exceed 15 seconds | 410 max | volts d-c |
| After equipment warm-up period | 125 max | volts d-c |
| Heater positive with respect to cathode | 125 max | volts d-c |
| Peak voltage between anode No. 2 and any deflecting electrode | 750 max | volts |

*With 0 volts on grid No. 1 and 4000 to 6000 volts on anode No. 2 the effective resistance of the anode No. 2 supply must be adequate to limit the anode No. 2 input power to 6 watts.

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

RECOMMENDED OPERATING CONDITIONS

| | | |
|---|--------------|--|
| Anode No. 2 voltage | 3000 | 6000 volts |
| Anode No. 1 voltage (for focus)# | 810 to 1200 | 1620 to 2400 volts |
| Grid No. 1 voltage## | -36 to -84 | -72 to -168 volts |
| Deflection factors | | |
| D1 and D2δ | 31 to 41 | volts d-c per inch per kilovolt of Eb ₂ |
| D3 and D4 | 25 to 34 | volts d-c per inch per kilovolt of Eb ₂ |
| For anode No. 2 voltage between 3000 and 6000 volts | | |
| Anode No. 1 voltage | 27% to 40% | of Eb ₂ volts |
| Grid No. 1 voltage## | 1.2% to 2.8% | of Eb ₂ volts |
| Anode No. 1 current for any operating condition | -15 to +10 | microamperes |

#With the combined grid No. 1 bias voltage and video-signal voltage adjusted for a highlight brightness of 12 foot-lamberts on a 4 by 5½-inch picture area.

##For visual extinction of undeflected focused spot.

δTo obtain maximum deflection sensitivity, deflecting electrodes D1 and D2 are designed to produce less than full screen deflection. It is therefore recommended that for television service these electrodes be used for vertical deflection.

MAXIMUM CIRCUIT VALUES

| | | |
|---|---------|---------|
| Grid No. 1 circuit resistance | 1.5 max | megohms |
| Resistance in any deflecting-electrode circuit*** | 5.0 max | megohms |

***It is recommended that the deflecting-electrode-circuit resistances be approximately equal.

**OUTLINE
 7JP4**

