RAYTHEON

CATHODE RAY TUBE CK1419P-

The CK1419P– is a projection cathode ray tube that will yield high light output with excellent resolution and long life. It is intended for use in large display systems with television type format and raster scans. It can also be used for large Radar displays using scan conversion to television format.

The tube uses a removable heat exchanger to cool the phosphor screen surface during operation. This permits the screen to be energized to high light output levels and prolongs the life of the phosphor.

GENERAL DATA

Phosphor	31
Fluorescence	Blue–Green
Phosphorescence	Green
Persistence	Medium
Focusing Method	Magnetic
Deflecting Method	Magnetic
Deflection Angle (Approx.)	38° Maximum
Ion Trap Gun	See Note ▲

HEATER CHARACTERISTICS:

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

DIRECT INTERELECTRODE CAPACITANCES: (pf) (approx.)

Grid #1 to all other electrodes	6
Cathode to all other electrodes	5

DESIGN CENTER MAXIMUM RATINGS:

Anode Voltage	50,000 volts DC
Grid #2 Voltage	700 volts DC
Grid #1 Voltage:	
Negative–Bias Value	250 volts DC
Positive–Bias Value	0 volts DC
Positive–Peak Value	0 volts DC

CHARACTERISTICS AND TYPICAL OPERATION: (With Coolant System Operating)

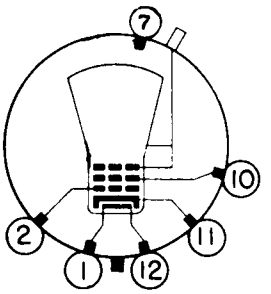
Anode Voltage	40,000 volts DC
Grid #2 Voltage	+600 volts DC
Grid #1 Voltage	–100 to 200
Resolution	600 TV lines ⊕
Light Output	38,000 Foot–lamberts

MECHANICAL DATA

BASE . . . . . Small Shell Duodecal 7–Pin

MOUNTING POSITION . . . Any

BASING



BOTTOM VIEW

TERMINAL CONNECTIONS

Pin 1 Heater
Pin 2 Grid #1
Pin 7 No Connection
Pin 10 Grid #2
Pin 11 Cathode
Pin 12 Heater
Cap Anode

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MAXIMUM CIRCUIT VALUES:

♦ Grid #1 Circuit Resistance . . . . . 1.5 max. megohms

Cathode should be returned to one side or to the mid–top of the heater transformer winding.

⊕ Spot cutoff (undeflected focused spot).
Anode Current – 500 μa

▲ An ion trap gun has been used to minimize phosphor and cathode damage from ions present in the tube. A magnetic or fixed permanent type may be used. It is necessary to use the trap magnet to produce a beam.

* 525 line raster, retrace blanked, 3" x 4", $1A_2$ will be no more than 500 μa to reach 20,000 FL at the face of the tube.

APPLICATION DATA

1. HEAT EXCHANGER DATA:
   Type – Esso univolt 30 or equivalent

   Flow Rate – 5 Gallons per minute minimum.

   It is recommended that a constant displacement type pump be used.

   Cooling capacity of system must be sufficient for 40 watts maximum heat dissipation at 70° F.

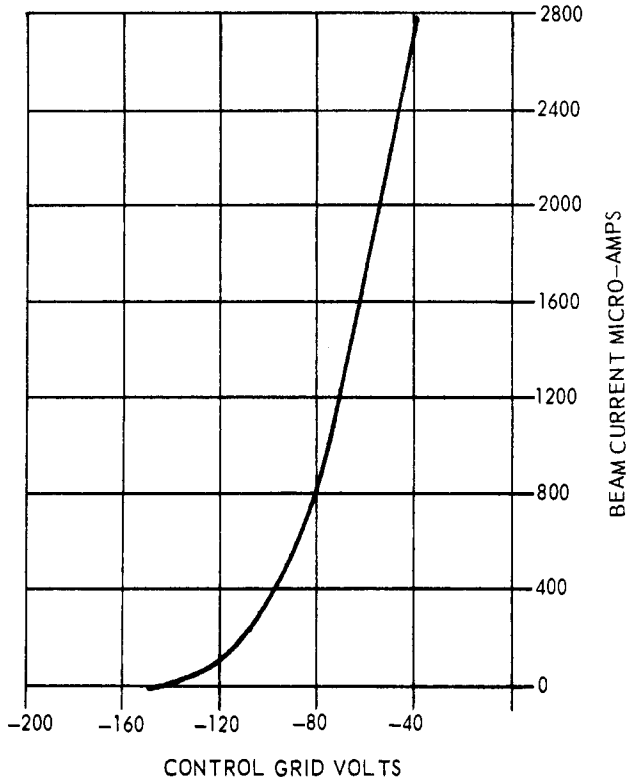
   If anode is operated above ground potential flexible insulating type tubing should be used. "Tygon" tubing made by U.S. Stoneware or equivalent is recommended.

2. CAUTION – OPERATION AT HIGH VOLTAGE
   presents potential X–ray and shock hazard.

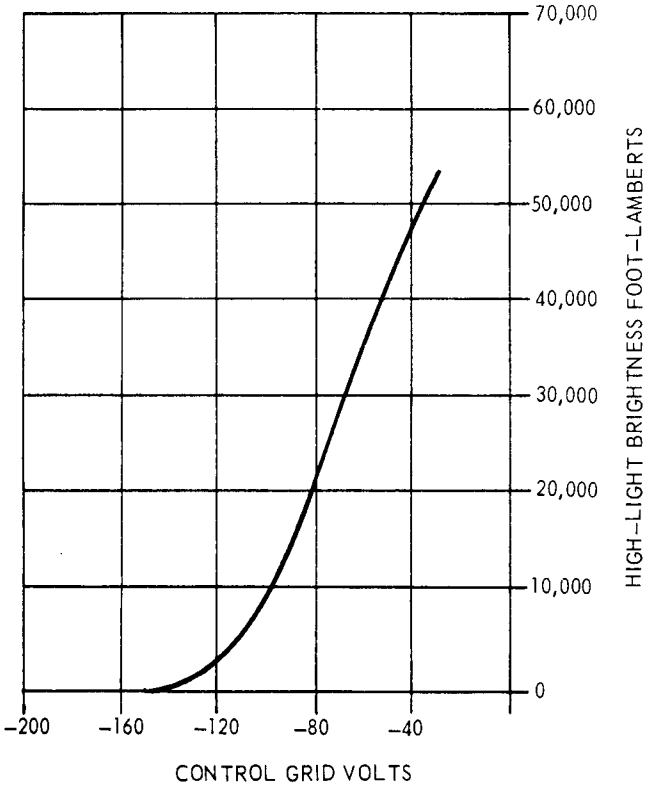
TYPICAL CHARACTERISTICS

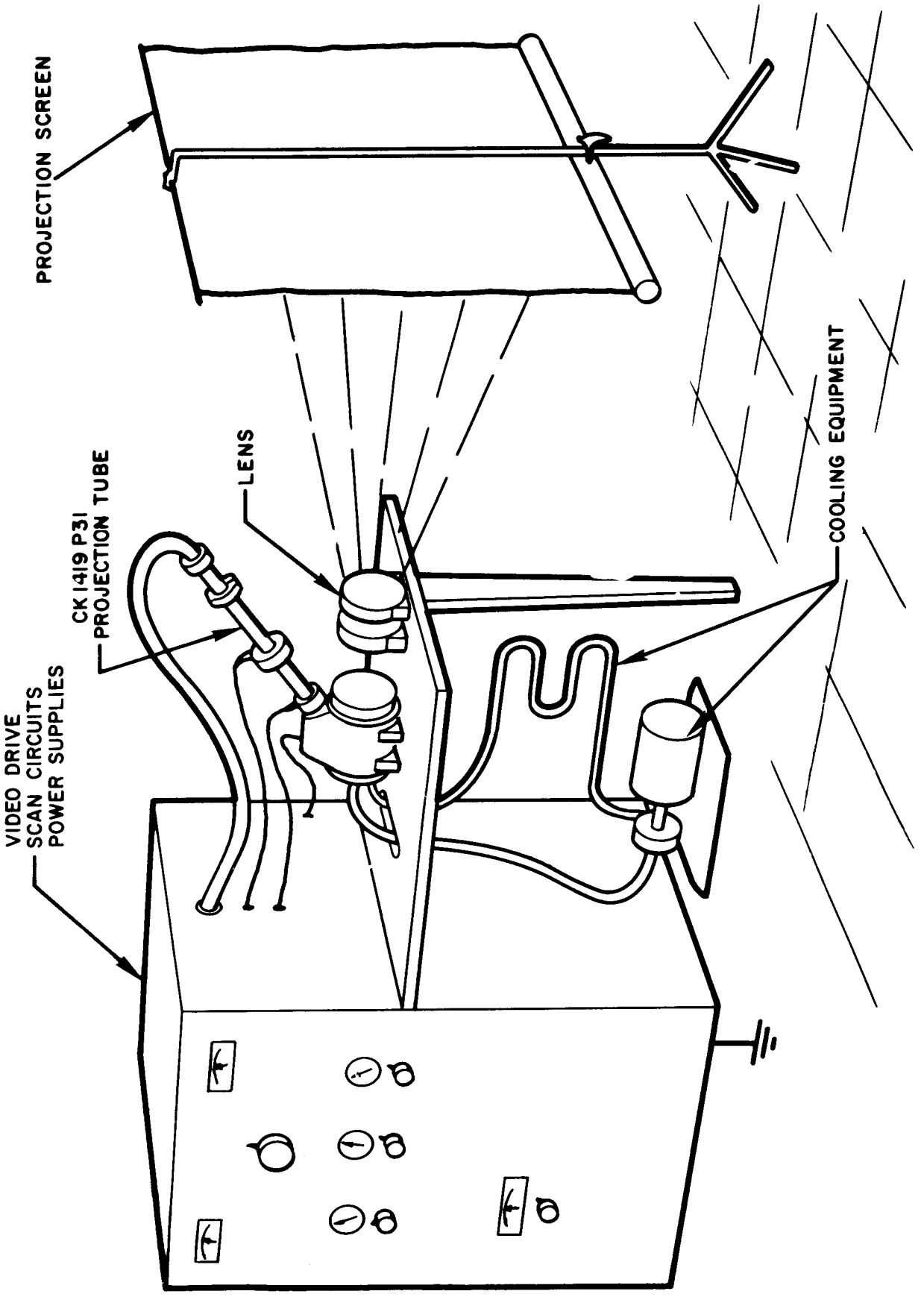
PHOSPHOR TYPE –P31
Eh = 6.3V
Eanode = +40KV
Eg2 = +600 VDC

BEAM CURRENT VS GRID VOLTAGE



HIGH–LIGHT BRIGHTNESS VS GRID VOLTAGE





TYPICAL CK1419 P31 PROJECTION DISPLAY SYSTEM

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