



## CATHODE RAY TUBES

### E-4103-B-4 OSCILLOGRAPHIC TUBE, 1½" SCREEN

#### DESCRIPTION

The G.E.C. cathode ray tube, type E-4103-B-4, is a miniature high vacuum cathode ray tube with indirectly heated cathode and is designed for electrostatic focus and deflection.

It is intended for use in portable oscillographic apparatus, as used for radio servicing purposes, and may also be employed in applications where a visual means of studying transient or recurrent phenomena is required.

Features of the E-4103-B-4 are—small overall length and comparatively low operating voltage.

In this tube all four deflector plates are brought out to separate pins so that symmetrical (push-pull) deflection can be used if desired; the tube can also be used with unsymmetrical (non-push-pull) deflection with some deterioration of performance.

The screen has green fluorescence of negligible persistence.

#### RATINGS

Heater voltage	....	....	....	....	....	4.0 ± 5%	volts
Heater current	....	....	....	....	....	1.1	approx. amp
First anode voltage (VA1)				internally	....	600	min. volts
Third anode voltage (VA3)				connected	....	1000	max. volts
Second anode focussing voltage (VA2)	....	....	....	....	....	VA3 × 0.15	mean volts
Brightness control (modulator or grid) voltage (VM)	....	....	....	....	....	-VA1 × 0.025	max. volts

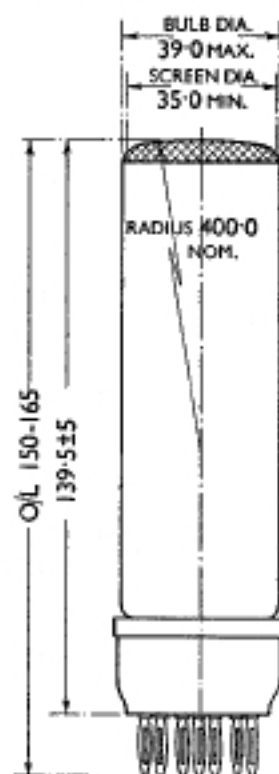
#### Deflection Sensitivity :

1. Deflectors nearest base Y1 and Y2	....	....	....	....	....	$\frac{100}{\sqrt{VA3}}$	mm/v
2. Deflectors nearest screen X1 and X2	....	....	....	....	....	$\frac{90}{\sqrt{VA3}}$	mm/v

#### Capacitances :

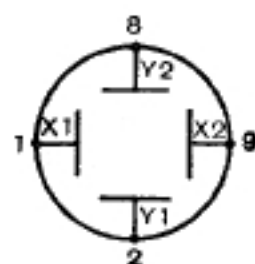
Modulator (grid) to all other electrodes	....	....	....	....	....	20	max. pF
Either X or Y deflector to all other electrodes	....	....	....	....	....	15	max. pF
Either X to either Y deflector, other electrodes earthed	....	....	....	....	....	5	max. pF

#### DIMENSIONS



All dimensions are in mm. and are the maximum except where otherwise stated.

#### DEFLECTOR PLATES

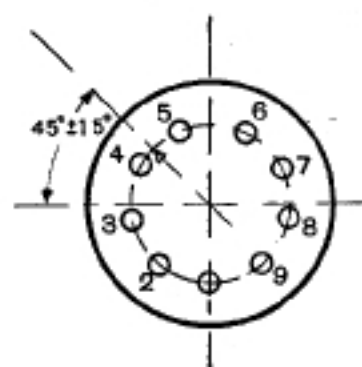


Disposition of plates viewed from screen end of tube.

With the tube viewed from the screen end and the arrow between pins 4 and 5 pointing downwards, a positive voltage applied to X1 and Y1 simultaneously will deflect the spot downwards.

Tolerances should be allowed for by mounting the tube holder in such a way that it may be rotated to accommodate individual tubes.

#### BASE



External view. Base end of tube.

#### PIN CONNECTIONS

- Pin 1: X1, Deflector Plate
- 2: Y1, Deflector Plate
- 3: A2
- 4: Heater and Cathode
- 5: Heater
- 6: Modulator
- 7: A1 and A3
- 8: Y2, Deflector Plate
- 9: X2, Deflector Plate

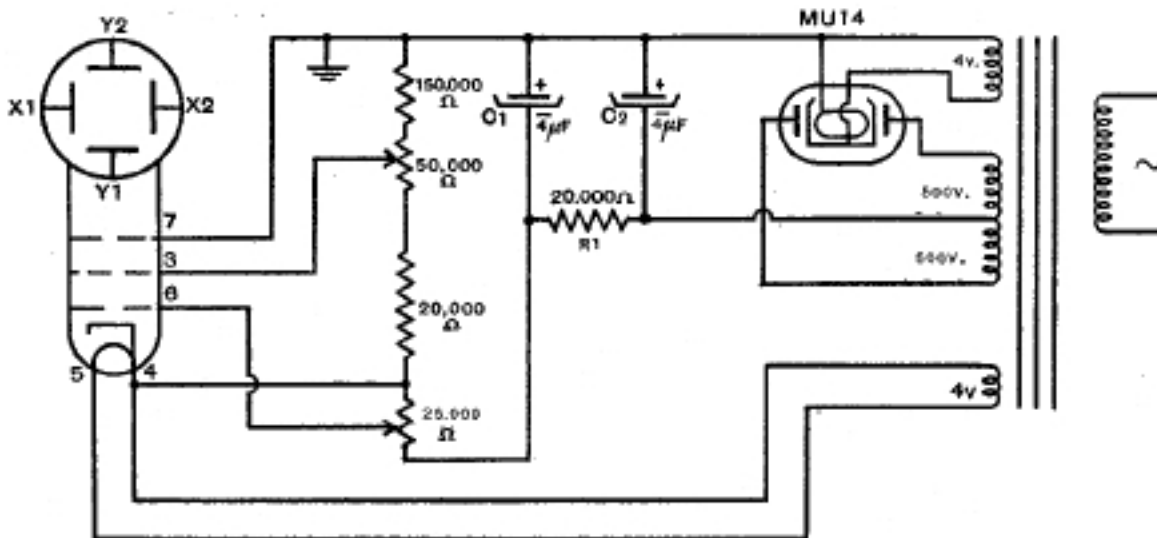
# TYPE E-4103-B-4

## OPERATING CONDITIONS

The attention of the user is drawn to the CODE OF PRACTICE FOR THE USE OF CATHODE RAY TUBES IN EQUIPMENT BS. 1147, 1943. Failure to observe the recommendations contained therein may result in poor performance of, or damage to, both tube and equipment.

A.C. supplies for operating these tubes should be obtained from transformers provided with an earthed screen between primary and secondary windings in order to protect the main supplies from any high voltage surges produced under fault conditions in the equipment.

Supplies for the tube may be conveniently obtained from A.C. mains by the use of the rectifier circuit shown below.



TYPICAL CIRCUIT SHOWING POWER SUPPLY TO E-4103-B-4 TUBE.