# VALVE ELECTRONIC CV6027

| Specification MOA/CV6027 | SECURITY | |
|---|---|---|
| | Specification | Valve |
| Issue 1 dated 19th December, 1960 | Unclassified | Unclassified |
| To be read in conjunction with K1001, BS448 and BS1409 | | |

⟶ indicates a change

TYPE OF VALVE - Cathode Ray Tube "A Scan"
DEFLECTION - Electrostatic Symmetrical or Asymmetrical
FOCUS - Electrostatic
BULB - Glass Internal conductive coating
SCREEN - GG4
PROTOTYPE - 1601G

MARKING

See K1001/5

BASE

B12F

RATINGS AND CHARACTERISTICS

All limiting values are absolute

| | | | Note |
|---|---|---|---|
| Heater Voltage | (V) | 6.3 | |
| Heater Current | (A) | 0.6 | A |
| Max. Anode 1 Voltage | (kV) | 2.5 | |
| Max. Anode 2 Voltage | (kV) | 2.0 | |
| Max. Anode 3 Voltage | (kV) | 6.0 | |
| Max. Negative Grid Voltage | (V) | 200 | B |
| Max. Heater-cathode Voltage | (V) | 100 | |

TYPICAL OPERATING CONDITIONS

| | | |
|---|---|---|
| Anode 1 Voltage | (kV) | 2.2 |
| Anode 2 Voltage | (V) | 600 |
| Anode 3 Voltage | (kV) | 2.2 |
| Sensitivity, x plates | (mm/V) | 1000 / Va3 |
| Sensitivity, y plates | (mm/V) | 1270 / Va3 |

CONNECTIONS

| | | |
|---|---|---|
| 1 | Grid | g |
| 2 | Cathode | k |
| 3 | Heater | h |
| 4 | Heater | h |
| 5 | Anode 2 | a2 |
| 6 | Internal Coating | m |
| 7 | Anode 1 | a1 |
| 8 | Deflection plate | y1 |
| 9 | Deflection plate | y2 |
| 10 | Anode 3 | a3 |
| 11 | Deflection plate | x2 |
| 12 | Deflection plate | x1 |

DIMENSIONS

See drawing on page 5

NOTES

A. Alternatively, 0.3A

B. The grid must never become positive with respect to the cathode

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# CV6027

**TESTS**

To be performed in addition to thoseapplicable in K1001 

**TEST CONDITIONS**

| Vh(V) | Vg(V) | Va1, Va3(kV) | Va2 |
|---|---|---|---|
| 6.3 | adjust | 2.2 | optimum focus |

The x and y deflection voltages shall be asymmetrical

| K1001 Ref. | Test | Test Conditions | AQL % | Insp-Level | Symbol | Limits Min. | Limits Max. | Units |
|---|---|---|---|---|---|---|---|---|
| 5A.1 | General Inspection - Dimensions | No Voltages<br>No voltages See drawing on page 5 | | 100% | | | | |
| 5A.2 | Loose Particles | No Voltages | | 100% | | | | |
| 5A3.1 | Insulation | | | 100% | | | | |
| 5A3.2 | Grid Insulation Increase in voltmeter reading | Rg = 5M | | 100% | | - | 100 | % |
| 5A3.3 | Heater-cathode Leakage Current | Vhk = ± 100v | | 100% | Ihk | - | 50 | uA |
| | Heater Current | Note 3 | | 100% | Ih | 0.54 | 0.66 | A |
| 5A.10 | Negative Grid Cut-off Voltage ($V_1$) | No deflection | | 100% | Vg | 30 | 80 | V |
| 5A.8 | Negative Grid Voltage ($V_2$) and Cathode Current | Raster scan of convenient size. Adjust Vg for light intensity of .03 candela. The beam current shall increase continuously over the grid voltage range $V_1$ to $V_2$ | | 100%<br>100% | Vg<br>Ik | Record<br>- | <br>250 | V<br>uA |
| | Grid Drive ($V_1$-$V_2$) | | | 100% | Vg | - | 25 | V |
| 5A.12 | Useful Screen Area | y direction<br>x direction | | 100% | | 35<br>125 | -<br>- | mm<br>mm |
| 5A.7 | Focus, Line width at centre of trace | With Vg adjusted to the cut-off value given in 5A.10 above, the grid is pulsed with a square waveform, p.r.f. 100 p.p.s., duration 100 uSecs and amplitude equal to the value $V_1$ minus $V_2$ as above | | 100% | | - | 0.6 | mm |

| K1001 Ref. | TEST | TEST CONDITIONS | AQL % | Insp-Level | Sym-bol | Limits Min. | Limits Max. | Units |
|---|---|---|---|---|---|---|---|---|
| 5A.7 Cont. | Anode 2 Voltage | Optimum Focus, other conditions as above | | 100% | | 500 | 700 | V |
| 5A.11.1 | Spot Position and Displacement | | | 100% | | - | 7.5 | mm |
| | Deflection Sensitivity<br>x plates<br>y plates | | 6.5 | IB | <br>Sx<br>Sy | 900/Va3<br>1100/Va3 | 1100/Va3<br>1430/Va3 | mm/V<br>mm/V |
| | Orientation of Deflection Axes | x axis relative to XX[1] axis on drawing page 5. | | 100% | | -2° | +2° | |
| | | Angle between x and y deflection axes | | 100% | | 88° | 92° | |
| | Orientation of Base axis to axis YY' | No Voltages | | 100% | | | +10° | |
| | Trapezoidal Distortions<br>1) Angle between adjacent sides<br>2) Angle between opposite sides | Minimum area of scan 100 mm x 30 mm | 6.5 | IB | | <br>87°<br>177° | <br>93°<br>183° | |
| | Screen Blemishes Stones, Bubbles and Screen defects | Defocussed raster to cover useful screen area. Vg adjusted for convenient light intensity | | | | | | |
| | Max. size of any blemish | Note 1 | | | | - | 1 | mm |
| | No of blemishes between 0.25-0.6 | | | | | - | 10 | |
| | No of blemishes between 0.6-1.0 | | | | | - | 5 | |
| 11.5 | Vibration | | | TA | | | | |
| 5A.13 | Capacitances<br>Each x plate-all<br>Each y plate-all<br>Grid - all<br>Each x plate - Each y plate<br>Cathode - all | No voltages | 6.5 | IC | <br>Cx-all<br>Cy-all<br>Cg-all<br>Cx-y<br>Ck-all | | <br>10<br>10<br>9<br>3.5<br>7 | <br>pF<br>pF<br>pF<br>pF<br>pF |

TESTS

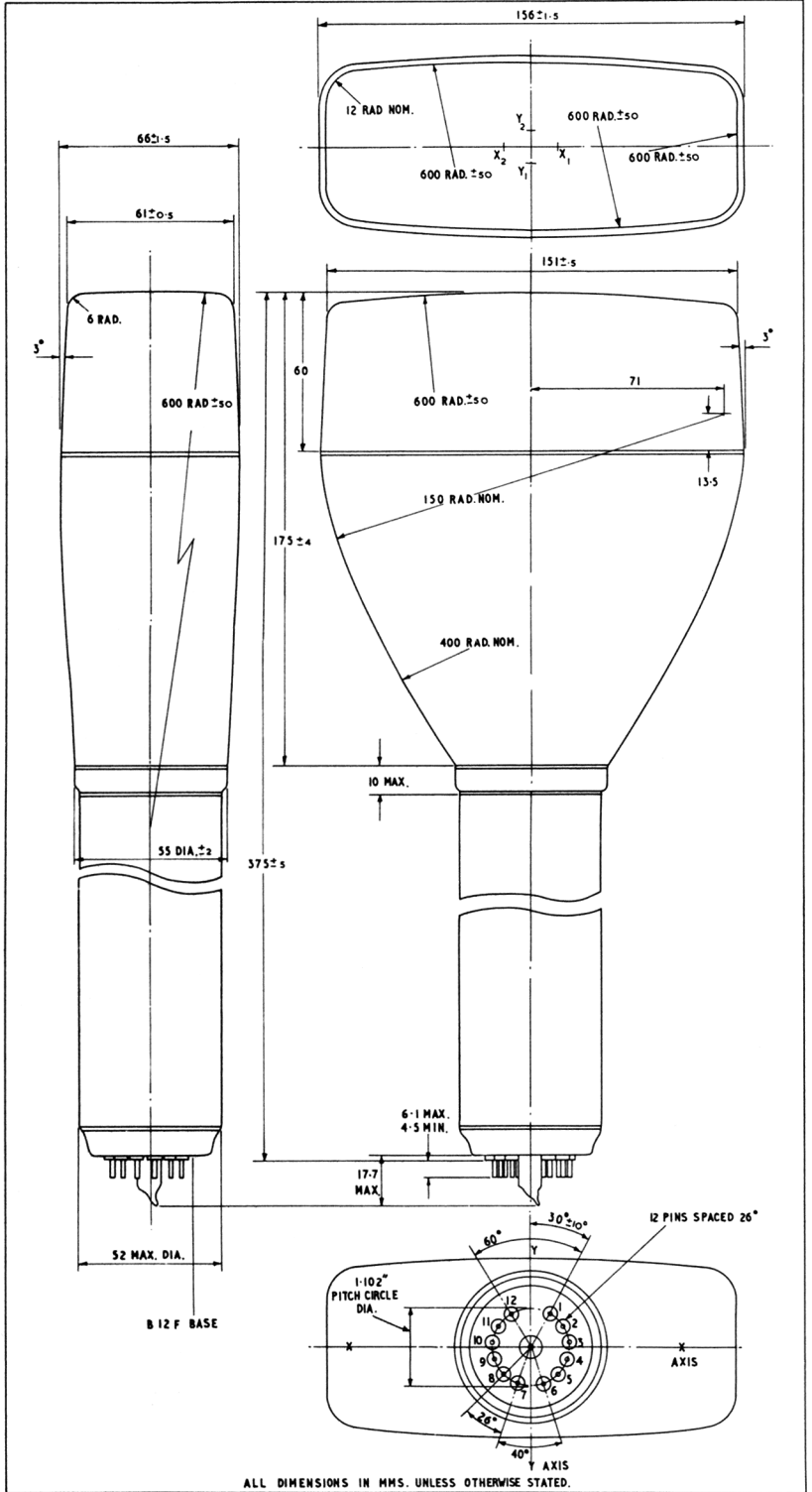
| K1001 | TEST | TEST CONDITION | AQL % | Insp Level | Symbol | LIMITS Min. | LIMITS Max. | UNITS |
|---|---|---|---|---|---|---|---|---|
| 5A.21 | Resistance to external pressure<br><br>LIFE | No Voltages<br><br>To be specified | | Note 2 | | | | |

NOTES

1. If two blemishes are separated by a distance not greater than the maximum dimension of the largest blemish in a group then the group of blemishes shall be considered as one blemish of dimensions equal to the maximum overall dimensions of the group.

2. One tube per lot shall be tested, further conditions to be determined

3. Limits of 0.27A to 0.33A apply as alternative.




ALL DIMENSIONS IN MMS. UNLESS OTHERWISE STATED.