BULLETIN NO. 1011
April 15, 1961

NUMERICAL INDICATOR

engineering data report

7977

(B 4032) ULTRA LONG LIFE MINIATURE NIXIE® TUBE

The 7977 (B4032) is a gas-filled, cold cathode, 10 digit ("0" through "9"), miniature indicating tube, having a common anode. This tube is intended for use as a direct in-line readout-device. The extremely long life of this indicator is an outstanding characteristic.

MECHANICAL DATA

Overall Length	1.175" Max.
Seated Height	.940" Max.
Bulb Diameter	.592" ± .031"
Overall Diameter	.680" Max.
Envelope Connections	See Figure 2
Height Numerals	0.305" Nominal See Figure 1
Numeral Design	See Figure 3
Socket (SK 116) 11 Pin	See Figure 4
Weight	0.2 Oz. Max.
Mounting Position	See Note 1
Cathode (s)	Glow Discharge

ENVIRONMENTAL DATA

Temperature	-65°C to +65°C
Altitude	70000 ft.
Vibration	10 to 500 cps. 0.06 in D.A. or 10 G
Applicable Government Specifications	MIL-STD 202A Method 204 condition (A)
Shock	55 G, 11 ±1 m sec.

ELECTRICAL DATA

1. ABSOLUTE RATINGS:

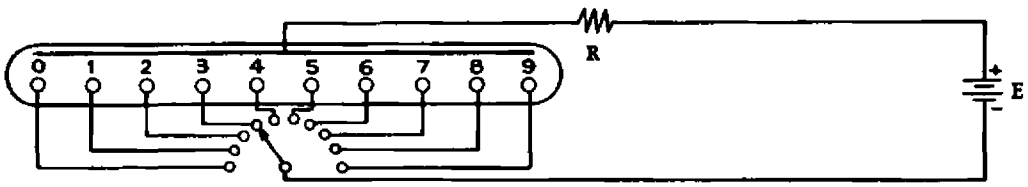
Ionization Voltage	170 V. Max. (See Note 2)
Supply Voltage	170 V. Min. (See Note 2)
Cathode Current	1.5 ma Max. (See Note 3)

2. TEST CONDITIONS:

(See Typical Circuit) Note 5

Supply Voltage (E)	170 Vdc
Series Resistor (R)	15 K ± 1%
Cathode Current (I_k)	1.05 ma ± 33% (Note 4, 6)

TYPICAL CIRCUIT



RECOMMENDED OPERATING CONDITIONS

E	R
170 V	15 K
250 V	91 K
300 V	150 K

NOTES

(1) The tube socket is mounted with respect to the viewing position so that a line intersecting pins 1 & 7 is vertical with pin 7 on top. This orients the numbers in the correct viewing position. They are viewed through the top of the tube.

(2) All 7977 tubes will ionize at 170 V. or less. The minimum supply voltage should be 170 V.; however, the use of the highest voltage available with the appropriate series resistor is recommended to maintain cathode current within the specified limits.

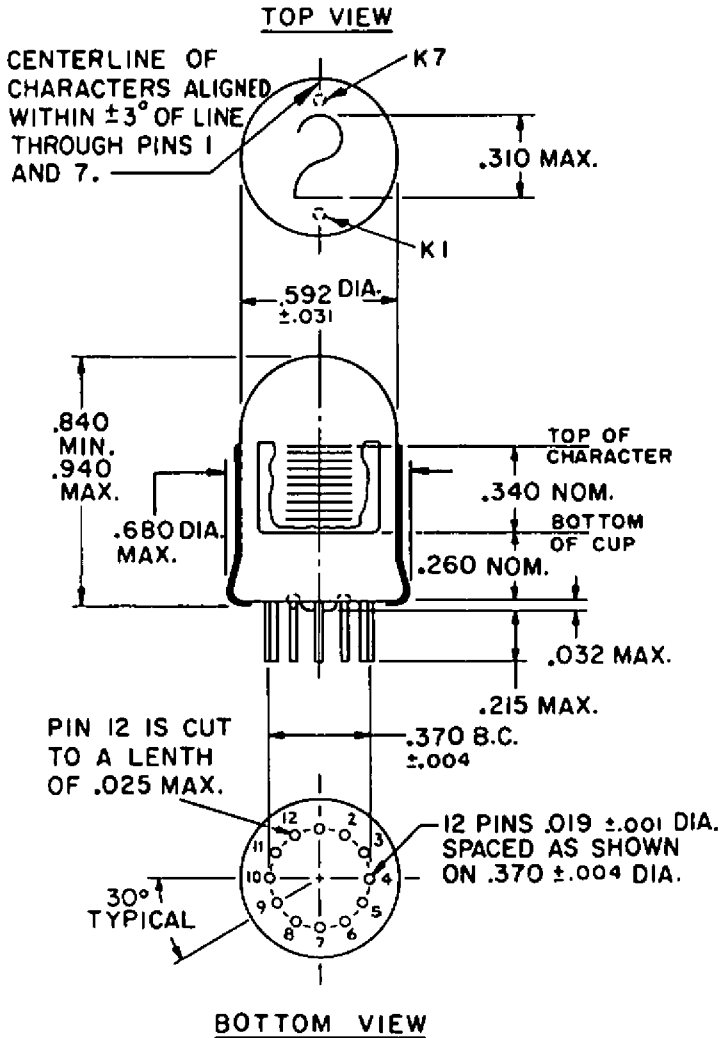
(3) The section of the pins that protrudes above the base into the tube may glow when the corresponding cathode is energized. This glow is not harmful, however, and is hidden from view by the anode cup and the plastic sleeve around the tube.

(4) When operated in test circuit current measured for each cathode in turn will be within specified limits.

(5) Tubes may be driven by electronic switches. Consult representative or factory for recommended circuitry.

(6) The selected character should glow over its entire surface when the test voltage is applied.

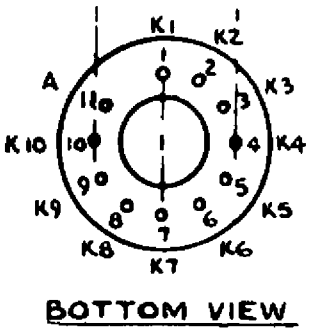
from JEDEC release #3295, May 29, 1961



NOTE: TUBE NORMALLY SUPPLIED WITH .250 PINS. TUBES WITH LEADS, 1.140" LONG MAY BE OBTAINED BY ORDERING TUBES WITH SUFFIX L ADDED TO DESIGNATION, AS 7977 L

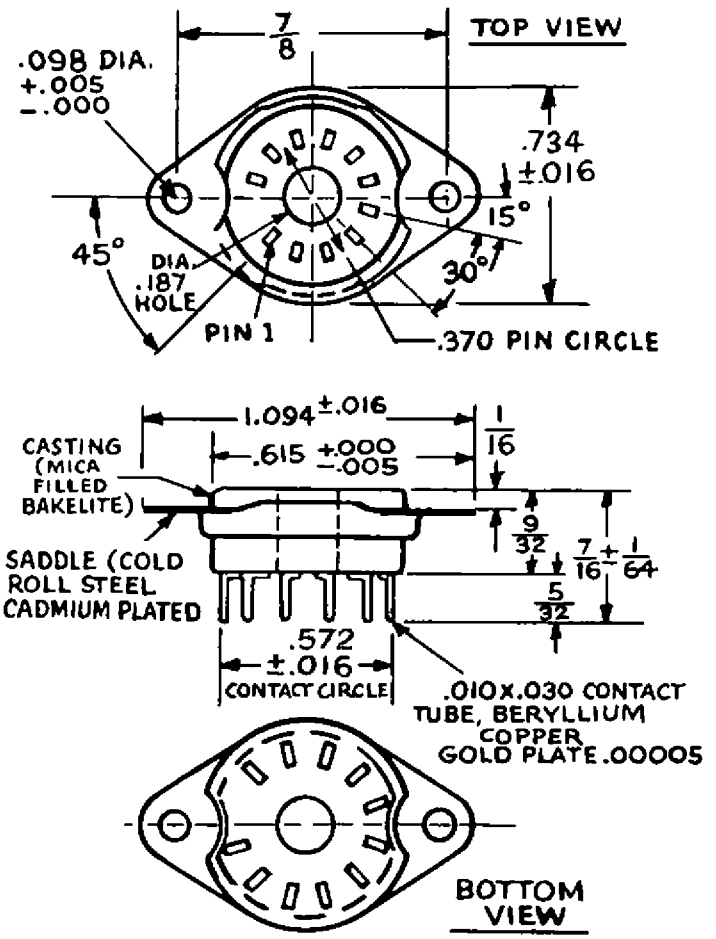
OUTLINE DRAWING

FIG. 1



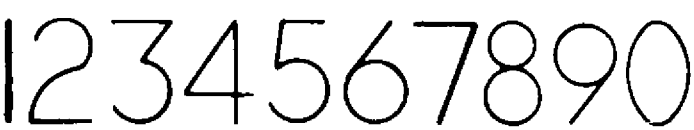
ENVELOPE CONNECTION DIAGRAM

FIG. 2



CONTACT SOCKET ASSEMBLY SK 116

FIG. 4



NUMBER SHAPES USED ON ALL TUBE TYPES

LETTERS AND SPECIAL CHARACTERS ARE ALSO AVAILABLE ON REQUEST.

FIG. 3

ANOTHER ELECTRONIC CONTRIBUTION BY

Burroughs Corporation

ELECTRONIC COMPONENTS DIVISION

PLAINFIELD, NEW JERSEY

Formerly Electronic Tube Division

AN APPLICATIONS ENGINEERING DEPARTMENT, OFFERING ENGINEERING SERVICE AND CONSULTATION, IS AVAILABLE TO ASSIST YOU IN TAKING FULL ADVANTAGE OF THIS DEVICE. WRITE FOR FURTHER INFORMATION.

Phone: PLainfield 7-5000.