

# Burroughs Corporation

ELECTRONIC COMPONENTS DIVISION  
PLAINFIELD, NEW JERSEY

Bulletin No. 1031

January 1, 1963

## 6712

(BX-3000) High Current, BEAM-X<sup>R</sup> Switch

The 6712 (BX-3000) is a high current 10 position, high vacuum electronic switching tube. It is intended for use wherever multiposition electronic counting, distributing or switching is required. It has frequency capabilities from DC to above 2 MC.

### ELECTRICAL CHARACTERISTICS

<u>Ratings Absolute Maximum</u>	<u>Value</u>	<u>Notes</u>
Target Voltage ( $E_t$ ) . . . . .	300 Vdc	
Spade Voltage ( $E_s$ ) . . . . .	150 Vdc	
Grid Voltage ( $E_{cc}$ ) . . . . .	200 Vdc	
Shield Grid Voltage ( $E_{sg}$ ) . . . . .	200 Vdc	
Heater - Cathode Voltage ( $E_{hk}$ ) . . . . .	$\pm$ 100 Vdc	
Individual Target Dissipation ( $P/t_a$ ) . . . . .	1 W	
Heater Voltage ( $E_f$ ) . . . . .	6.3 $\pm$ 10% V	
Switching Speed (F) . . . . .	2 MC . . . . .	Notes 1, 4

### MECHANICAL CHARACTERISTICS

	<u>Value</u>	<u>Notes</u>
Overall Length . . . . .	3.125 in. max.	
Seated Height . . . . .	2.875 in. max.	
Diameter . . . . .	1.160 in. max.	
Weight Total . . . . .	1.75 oz. nom.	
Mounting Position . . . . .	Any . . . . .	Note 6
Outline . . . . .	See Figure 6	
Envelope Connection . . . . .	See Figure 3	

### ENVIRONMENTAL DATA

Temperature . . . . .	-65° C. to +85° C.
Altitude . . . . .	60,000 ft.

## TEST CONDITIONS AND TEST LIMITS

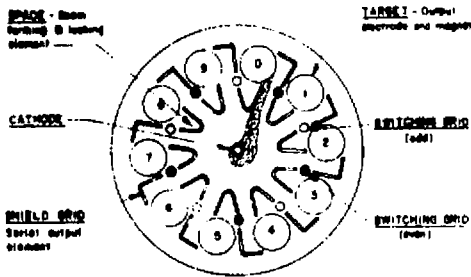
The BEAM-X Switch, Type BX-3000, is tested in a circuit similar to Figure 7. These tests are designed to demonstrate current uniformity from position to position within specified limits and operating stability throughout the frequency range at high and low voltage limits.

<u>Test Conditions</u>	<u>Value</u>	<u>Notes</u>
Spade Resistance ( $R_s$ ) . . . . .	150 K ohms	
Target Load Resistance ( $R_t$ ) . . . . .	3.3 K ohms	
Target Voltage ( $E_t$ ) . . . . .	Equals $E_s$	
Shield Grid Voltage ( $E_{sg}$ ) . . . . .	Equals $E_s$	
Grid Bias Voltage ( $E_{cc}$ ) . . . . .	50 V	
Grid Switching Voltage ( $E_f$ ) . . . . .	-55 V . . . . .	Note 4
Heater Voltage ( $E_f$ ) . . . . .	6.3	
Test Frequency ( $f$ ) . . . . .	Pushbutton . . . . .	Notes 1, 4 and 10 KC

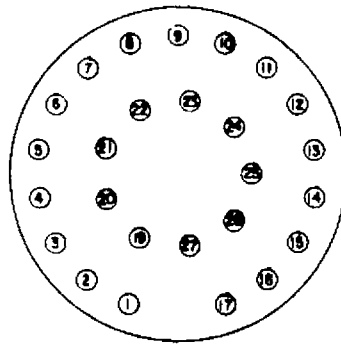
<u>Test Limits</u>	<u>Value</u>	<u>Notes</u>
Spade Voltage ( $E_s$ ) . . . . .	80 + 10% V . . . . .	Note 2
Individual Target Current ( $I_t$ ) . . . . .	5.0 + 20% ma . . . . .	Note 3
Heater Current ( $I_h$ ) . . . . .	150 + 10% ma . . . . .	Note 5
Firing Voltage ( $E_{co}$ ) . . . . .	150 V . . . . .	Note 7

### NOTES

1. Tube is tested at 10 KC but will operate in excess of 2 MC under suitable operating conditions.
2. When tube is operated in test circuit.
3. When tube is operated in test circuit at Spade Voltage = 80 V.
4. For higher frequency operation, a greater pulse amplitude is required.
5. When filament is operated at 6.3 V.
6. Tubes should be mounted at least 1.5 inch from magnetic material and should be spaced at least 3.5 inches center to center.
7. Firing Voltage (DC Cutoff Voltage): That voltage between cathode and spade buss above which erratic electron beam formation will occur.



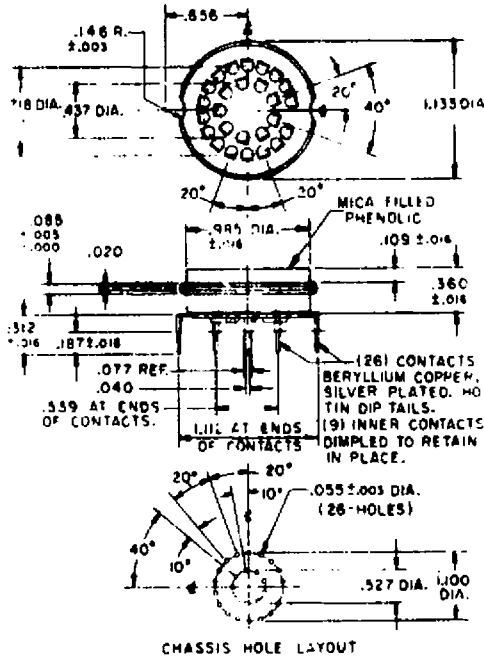
1. CROSS SECTION



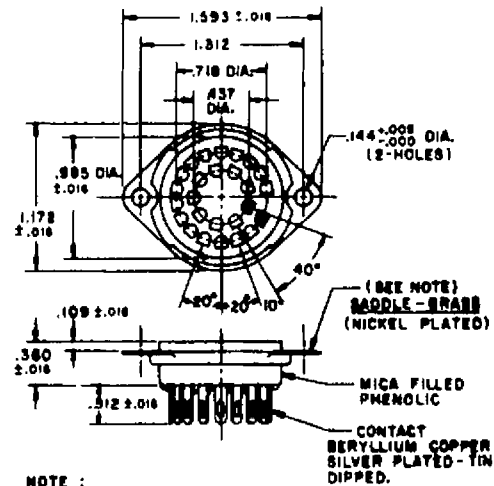
2. PIN NUMBERING DIAGRAM

PIN NO.	CONNECTION	PIN NO.	CONNECTION
1	Spade-0	14	Spade-2
2	Target-9	15	Target-1
3	Target-8	16	Grid Even
4	Grid Odd	17	Target-0
5	Target-7	19	Spade-9
6	Spade-7	20	Spade-8
7	Target-6	21	Heater
8	Target-5	22	Spade-6
9	Spade-5	23	Spade-4
10	Target-4	24	Spade-3
11	Shield Grid	25	Heater
12	Target-3	26	Spade-1
13	Target-2	27	Cathode

3. TUBE CONNECTION TABLE

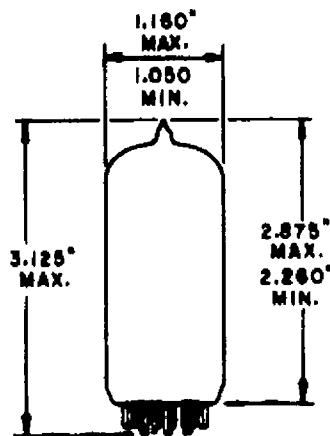


4. PRINTED CIRCUIT SOCKET, SK-131

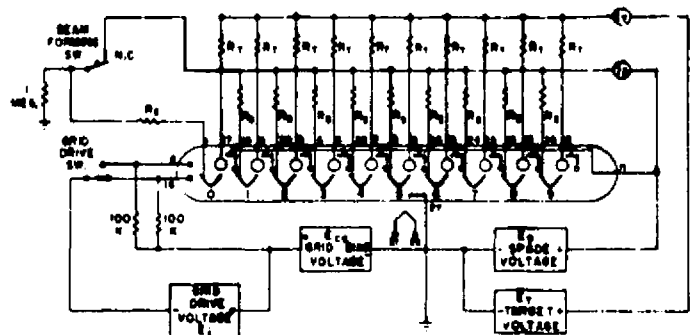


NOTE :  
THE SADDLE SHALL  
BE PERMANENTLY  
FASTENED TO SOCKET.

5. GENERAL PURPOSE, SK-100



6. OUTLINE DRAWING



7. TYPICAL TEST CIRCUIT

ANOTHER ELECTRONIC CONTRIBUTION BY  
**Burroughs Corporation**  
 ELECTRONIC COMPONENTS DIVISION  
 PLAINFIELD, NEW JERSEY