from JETEC release #1473, May 31, 1955

BOMAC LABORATORIES, INC. Beverly, Mass. May 4, 1955

# TYPE DESIGNATION REGISTRATION FORM

## SHUTTER AND TR TUBE

Manufacturer: Bomac Laboratories, Inc.
Beverly, Massachusetts

Mfr's Type No. - BL-312

Tentative JETEC Type No. 6615

The Bomac 6615/BL-312 is a combined shutter and standard broad-band TR tube (type 1B63A) for use with RG-52/U size waveguide. The shutter mechanism consists of two electro-magnetically operated plungers which short the two fixed-tuned gaps inside the tube when the coils are not energized. When the shutter is closed, protection is provided for the receiver crystal when the radar set is not in use. When the shutter is open, the TR tube functions normally and provides decoupling of the receiver from a common transmitting and receiving antenna during a period of transmission. It is an integral cavity type with fixed tuned gaps. Its operational band is from 8490 Mc to 9578 Mc.

## ELECTRICAL DATA - GENERAL

### TR Tube (With Shutters Open)

| | |
|---|---|
| Operational Band | |
| VSWR 1.9 maximum | 8490 to 9578 Mc. |
| VSWR 1.4 maximum | 8565 to 9487 Mc. |
| Ignitor Starting Voltage | -700 Vdc max. |
| Ignitor Voltage Drop at 100 μAdc of ignitor current | 200 to 375 Vdc. |
| Spike Leakage Energy | 0.3 erg max. |
| $p_o$= 40 kw; prr= 1000 pps; | |
| F = 9000 Mc; $tp_1$ = 1.0 μs; | |
| $tp_2$ = 0.5 μs; Ii = 100 μAdc | |
| Flat Leakage Power | 40 mw max. |
| (See Spike Leakage for conditions.) | |
| Insertion Loss at 9000 Mc and Ii = 0 | 0.7 db max. |
| Ignitor Interaction at 9000 Mc and Ii = 100 μAdc | 0.2 db max. |
| Recovery Time at 200 kw peak; 3 db down | 10 μs max. |

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### Shutter Tube

| | |
|---|---|
| Attenuation 8490 Mc to 9578 Mc (shutters closed) | 40 db min. |
| Shutter Circuit Voltage (nom.) | 28 Vdc |
| Shutter Circuit Pull-In Current (min.) | 110 mAdc |
| Shutter Circuit Holding Current (min.) | 30 mAdc |

### MECHANICAL DATA - GENERAL

| | |
|---|---|
| Mounting Position | Any |
| Number of Ignitors | One |
| Ambient Temperature Range (non-operating) | -40 to + 100 °C |
| Net Weight, approximately | 5 oz. |

### MAXIMUM RATINGS

| | |
|---|---|
| Transmitter Peak Power (Note 1) | 250 kw. |
| Shutter Circuit Holding Current | 160 mAdc. |
| Ignitor Current | 200 μAdc |

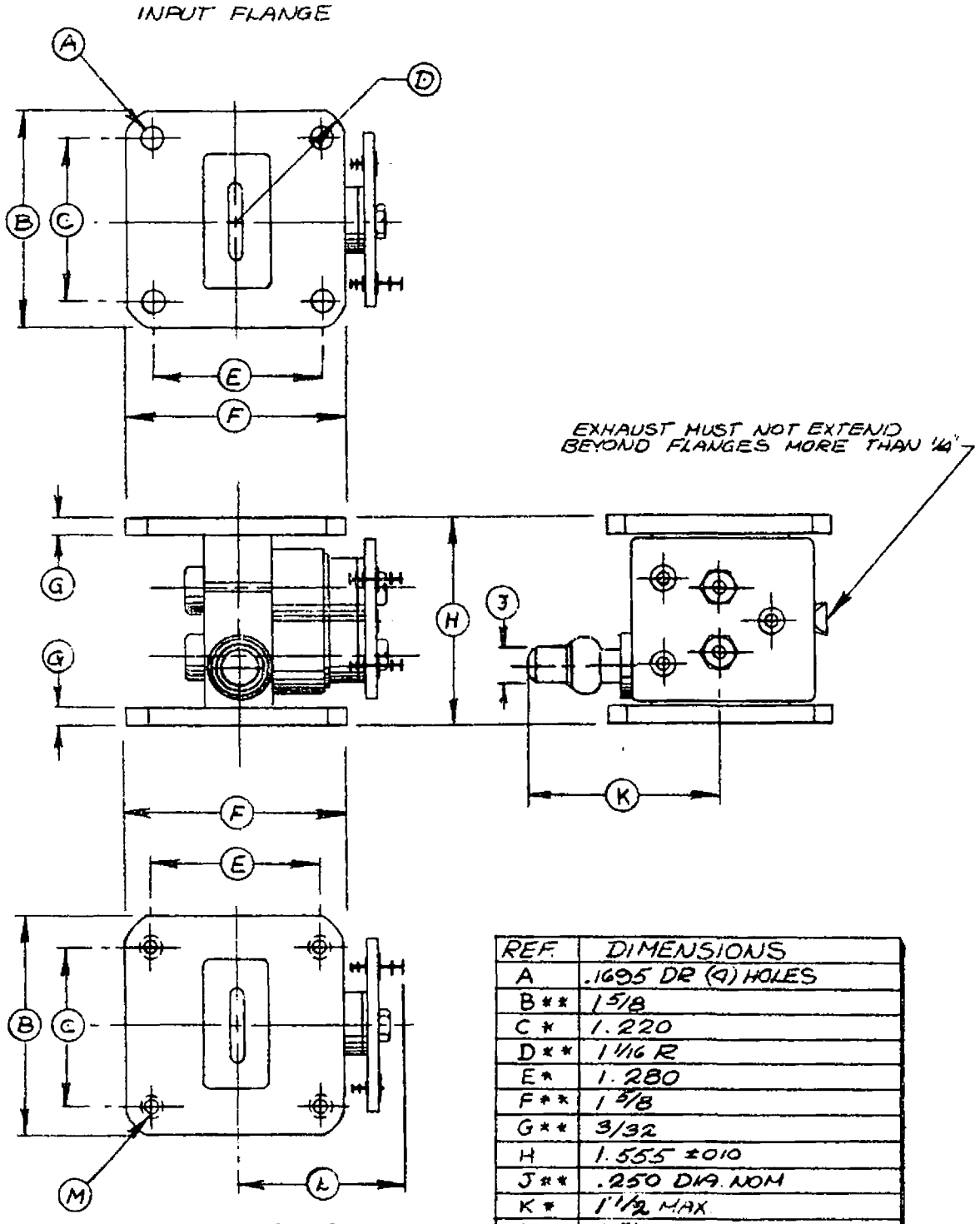
(Note 1) The shutter is not intended for applications involving the switching of peak power greater than one kilowatt, therefore, the rating applies only when the shutter is open.

### OUTLINE DRAWING

As per attached drawing dated 3/29/55.

### ELECTRICAL AND MECHANICAL DATA

| | Min. | Bogey | Max. | |
|---|---|---|---|---|
| Effective Short Plane (Measured from outer surface of input flange) | .058 | .065 | .072 | inches |




| REF. | DIMENSIONS |
|---|---|
| A | .1695 DR (4) HOLES |
| B ** | 1 5/8 |
| C * | 1.220 |
| D ** | 1 1/16 R |
| E * | 1.280 |
| F ** | 1 5/8 |
| G ** | 3/32 |
| H | 1.555 ±010 |
| J ** | .250 DIA. NOM |
| K * | 1 1/2 MAX |
| L * | 1 5/8 MAX. |
| M | 8-32 NC (4) HOLES |

# SPECIFICATION SHEET

OUTLINE

6615/BL-312, 6597/BL-320

BOMAC LABORATORIES INC.
SALEM ROAD
BEVERLY, MASSACHUSETTS

3-29-55 E.O.

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