MINISTRY OF AVIATION D.L.R.D./R.A.E. VALVE ELECTRONIC **CV8269**

| SPECIFICATION M.O.A. CV8269 | SECURITY | |
|---|---|---|
| ISSUE No.1 DATED 1st DECEMBER 1964 | SPECIFICATION | VALVE |
| To be read in conjunction with K1001 | Unclassified | Unclassified |

TYPE OF VALVE: Packaged Tunable Magnetron for Pulsed Operation fitted with Thermal Compensating Heater and Thermostat Assembly

CATHODE: Indirectly Heated

PROTOTYPE: JPT9-01D

MARKING

See drawing on Page 4

CONNECTIONS & DIMENSIONS

See Page 4.

RATINGS

(All Limiting Values are absolute)

| | | | NOTE. |
|---|---|---|---|
| Filament Voltage | (V) | 6.3 ± 0.6 | A |
| Nom Filament Current | (A) | 1.2 | |
| Max Peak Anode Voltage | (V) | 950 | |
| Min Peak Anode Voltage | (V) | 800 | |
| Max Peak Anode Current | (mA) | 65 | |
| Min Peak Anode Current | (mA) | 55 | |
| Max Duty Ratio | | 0.01 | |
| Max Pulse Length | (μS) | 2.0 | |
| Max Mean Input Power | (W) | 6.0 | |
| Nom Peak Output Power | (W) | 5.0 | |
| Min Tuning Range | (Mc/s) | 9050-9600 | |
| Max Ambient Temperature | (°C) | 70 | |
| Max Rate of Rise of Voltage | (kV/μS) | 5.0 | |
| Auxiliary Heater Voltage | (V)a.c. | 230-250 | B |
| Max Auxiliary Heater Current | (A) | 0.3 | |

NOTES

A. The filament Voltage shall be applied at least 2 minutes before the application of anode voltage.

B. Stable frequency operation is achieved within 40 minutes of the application of auxiliary heater voltage.

C. The Joint Service Catalogue Number is:-

5960-99-037-3414

## TESTS

To be performed in addition to those applicable in K1001, and with particular reference to Section 5F.

TEST CONDITIONS: Unless otherwise specified:-

| Vh (V) | Vh(aux) (V) a.c. | Ia(pk) (mA) | f1 (Mc/s) | f2 (Mc/s) | f3 (Mc/s) |
|---|---|---|---|---|---|
| 6.3 | 240 | 60 | 9300 | 9050 | 9600 |

| | TEST CONDITIONS | TEST | UNITS | LIMITS | | NOTE |
|---|---|---|---|---|---|---|
| | | | | MIN. | MAX. | |
| a | Vah = 0 | Filament Current | A | 1.1 | 1.3 | - |
| b | - | Auxiliary Heater Current | A | 0.2 | 0.3 | 9 |
| c | f1 | Warm Up Time | Mins. | - | 40 | 2, 7, 9 |
| d | f1 | Frequency Hunting Deviation | Mc/s | - | ± 3 | 2, 8 |
| e | f1 - f3 | Scale Calibration | Mc/s | - | 40 | 1, 2, 3, 4 |
| f | f2 | Anode Voltage | V | 800 | 950 | 2 |
| g | f2 | Power Output (Mean) | mW | 2.0 | 14.0 | 2 |
| h | Ia (pk) mA = 55-65. f2 | Stable Range | - | - | - | 2, 5 |
| j | f3 | Anode Voltage | V | 800 | 950 | 2 |
| k | f3 | Power Output (Mean) | mW | 2.0 | 14.0 | 2 |
| l | Ia (pk)mA = 55-65. f3 | Stable Range | - | - | - | 2, 5 |
| m | f2 - f3 | Torque | lb-ins | - | 2.0 | 2 |
| n | f2 and f3 | Temperature Coefficient | Mc/s | - | 15 | 2, 6, 9 |

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## NOTES

1. The valve and scale shall be assembled in the test equipment as described in Fig.1 Page 5

2. The following are the general test conditions

   ± p = 1.0 µS
   Duty Ratio = 0.001
   r.r.v. = 5.0 - 6.0 kV/µS
   V.S.W.R. = 1. 1:1
   Ambient Temperature = 15 - 25°C

3. For this test the calibration points are approached from both directions and the maximum frequency deviation in a test period of 2 mins. shall be measured. The frequency shall be within 40 Mc/s of the scale marking.

4. This test shall be carried out at 9050, 9300 and 9600 Mc/s.

5. The performance shall be satisfactory as viewed on the anode voltage and current pulses.

6. The ambient temperature shall be varied over the range +5 to +70°C. The change in frequency excluding the frequency hunting effects shall not exceed that specified.

7. The valves shall be operating and the auxiliary heater voltage applied. The frequency is then measured at every operation of the thermostat. The mean frequency during the last twenty minutes of the first hour of operation shall not vary by more than ± 1 Mc/s.

8. To be tested during the 20 minute period referred to in Note 7.

9. This test to be carried out on every 5th Valve offered for delivery. In the event of a failure, the Valve shall not be delivered and a second valve tested. If the second valve fails, 100% inspection shall be carried out on tests (b) (c) and (n) until 10 consecutive valves have shown satisfactory results. The initial sampling rate shall then be restored.

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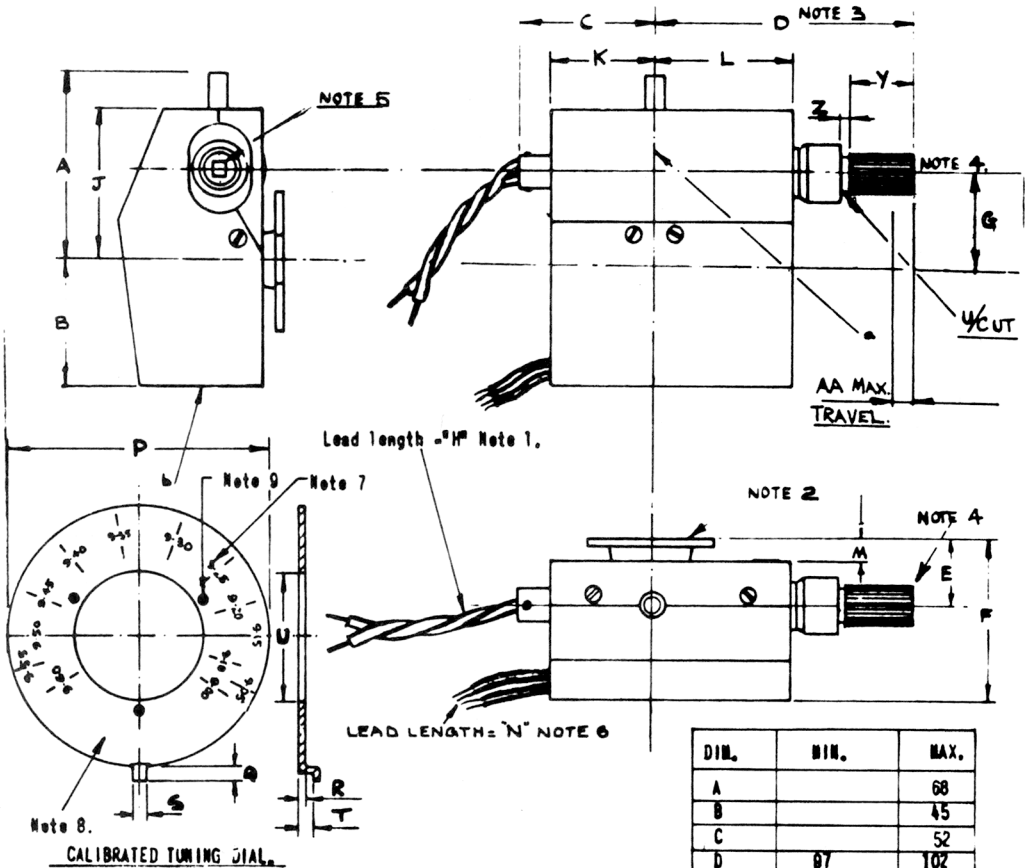


CALIBRATED TUNING DIAL.

NOTES.

1. Red lead heater, blue lead heater & cathode, body anode
2. Flange ref. Z830004 fitted with female ring Z830005.
3. Dimension "D" measured with tuner fully out.
4. Variation of dimension E not greater than 0.6mm over length Y
   Variation of dimension G not greater than 0.4mm over length Y
5. A square gauge plug of dimension
   $4.76^{+0}_{-0.02}$ m/m x $4.76^{+0}_{-0.02}$ m/m shall enter the pinion socket to a depth of 8 m/m.
6. Auxiliary Heater Leads RED, Thermostat Leads BLUE.
7. Typical calibration shown. Engrave characters to TAYLOR HOBSON STANDARD 3/4 x 10
8. Magnetron serial no. and frequency reference point to be engraved on reverse s ide as follows:-
   Serial Number * For * Gc/s Set * On micrometer Dial.
   * Insert figure as appropriate
9. 3 holes equispaced on "V" P.C.R. "W" dia. (No. 40 drill) C/Sk. "X" dia. x 90°.

| DIM. | MIN. | MAX. |
|---|---|---|
| A | | 68 |
| B | | 45 |
| C | | 52 |
| D | 97 | 102 |
| E | 23 | 26 |
| F | | 60 |
| G | 31 | 35 |
| H | 125 | 135 |
| J | | 60 |
| K | | 40 |
| L | | 50 |
| M | 8 | |
| N | 130 | 150 |
| P | 88.7 | 89.1 |
| Q | 3.6 | 4.4 |
| R | 1.2 | 2.0 |
| S | 4.4 | 5.2 |
| T | 6.7 | 7.5 |
| U | 44.3 | 44.7 |
| V | 25.3 | 25.5 |
| W | 2.3 | 2.7 |
| X | 3.9 | 4.3 |
| Y | 24.5 | 25.5 |
| Z | 4.5 | 5.5 |
| AA | | 7.0 |

Dims. in m/m

MARKING

For general marking instructions see GWV5-7-0/202 type marking acc. to pattern S.E. and positioned where indicated by arrow 'a'. Date and Code Mark positioned where indicated by arrow 'b'.

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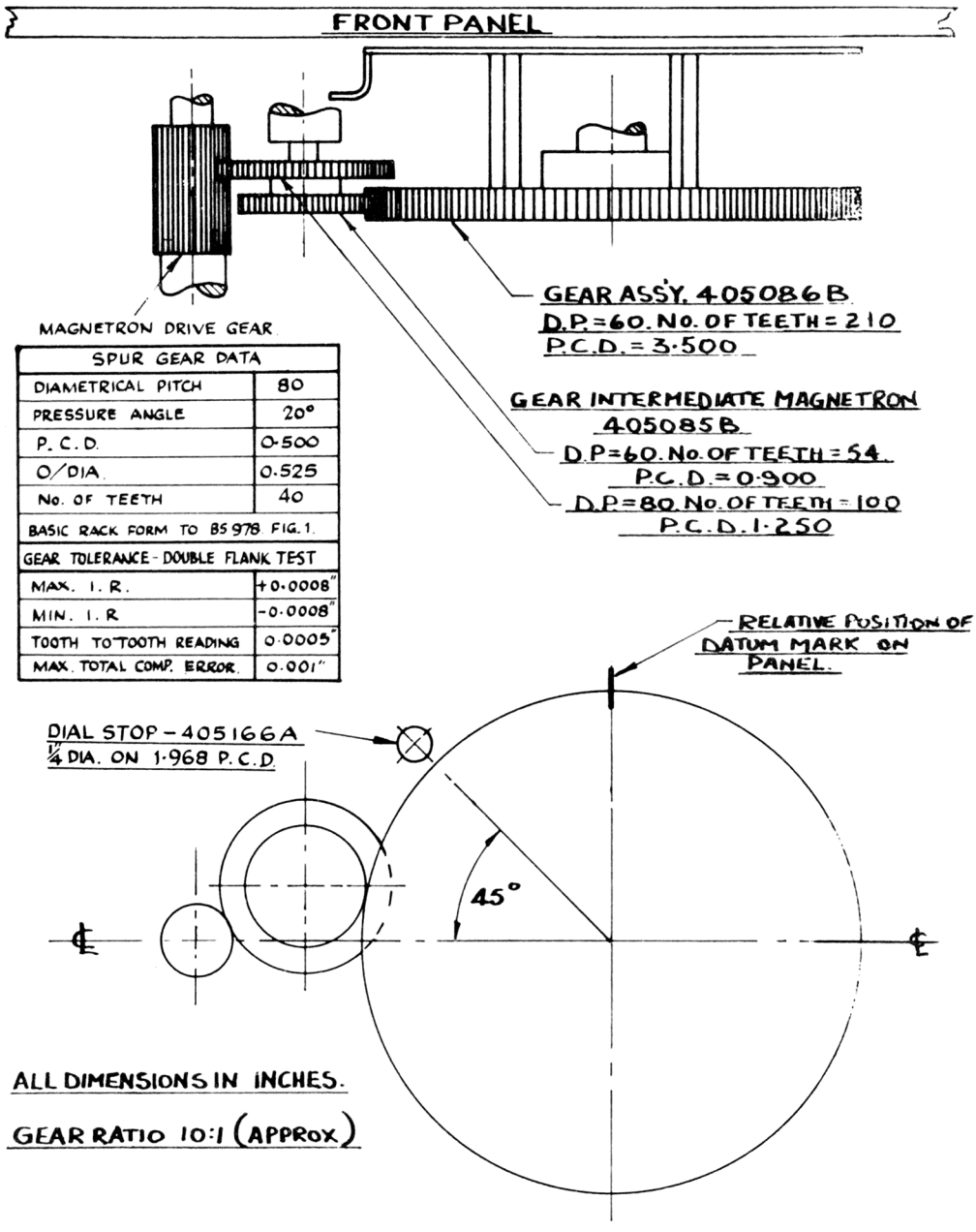


| SPUR GEAR DATA | |
|---|---|
| DIAMETRICAL PITCH | 80 |
| PRESSURE ANGLE | 20° |
| P. C. D. | 0·500 |
| O/DIA. | 0.525 |
| No. OF TEETH | 40 |
| BASIC RACK FORM TO BS 978 FIG. 1. | |
| GEAR TOLERANCE - DOUBLE FLANK TEST | |
| MAX. I. R. | +0·0008" |
| MIN. I. R | -0·0008" |
| TOOTH TO TOOTH READING | 0·0005" |
| MAX. TOTAL COMP. ERROR. | 0·001" |

GEAR DRIVE TO MAGNETRON.