

ADMIRALTY SIGNAL ESTABLISHMENT

Specification AD/CV289/Issue 5. Dated 18.12.46. To be read in conjunction with K1001.	<u>SECURITY</u>	
	<u>Specn.</u> Restricted Unclass	<u>Valve</u> Unclassified

<u>TYPE OF VALVE:-</u> Gas filled ATR cell for X-Band. <u>CONSTRUCTION:-</u> Resonant metal cavity with glass "window" soldered to gas reservoir.	<u>MARKING</u> See K1001/4.
	<u>DIMENSIONS</u> See Fig. 3.

FOR "RATING" see "TESTS"

<u>REQUIREMENTS</u>	
<u>GAS FILLING:-</u>	The filling shall consist of equal volumes of water vapour and a mixture of 80% Argon and 20% Helium, at a total pressure of 20 mm. mercury.

TESTS

To be performed in addition to those applicable in K1001.

	Test Conditions	Test	<u>Limits</u>		No. Tested	Note
			Min.	Max.		
a	Operate the cell in an approved circuit of the kind shown in Fig. 1. Increase the oscillation amplitude in the waveguide until the gas in the cell ionises.	Striking Power (kW)	-	3	100%	1
b	As in test 'a'. Observe de-ionisation time. (Time from the end of the transmitter current pulse taken for signal power reflected from ATR to rise to 6db below the signal level when fully de-ionised.)	De-ionisation ("recovery") time (μS)	-	3	10%	1
c		Insertion loss (db)	-	0.5	5%	1
d	Observe the frequency band over which the V.S.W.R. due to the resistive component of the cell impedance is not less than 7.5:1. This test is to be made in an approved circuit of the kind shown in Fig. 2. The reactive component of the cell impedance being balanced out at each frequency by means of the terminating plunger "P", i.e. "P" is adjusted for a minimum reading on the meter "M" at each frequency.	Band Width (Mc/s)	Min. Range:- 9702-9640		100%	1

NOTE

1. For this test, the valve must be operated in a mount approved by A.S.E.

→ Indicates a change

POWER SUPPLY FOR FREQUENCY MODULATED OSCILLATOR

FREQUENCY MODULATED OSCILLATOR

FREQUENCY MODULATED OSCILLATOR CV 224

CV 289

LOCAL OSCILLATOR CV 224

ATTENUATION THROUGH DIRECTIVE FEEDS IS ABOUT 20 db; DIRECTIVITY 20 db.

CRYSTAL

RECTIFIER W 9926.

PRE-AMPLIFIER

RECEIVER P 57 W 9921

INDICATOR W 4889

VE-X-SWEEP VOLTAGE

R/F HEAD CV 214

MODULATOR PANEL 3B0 W 9920

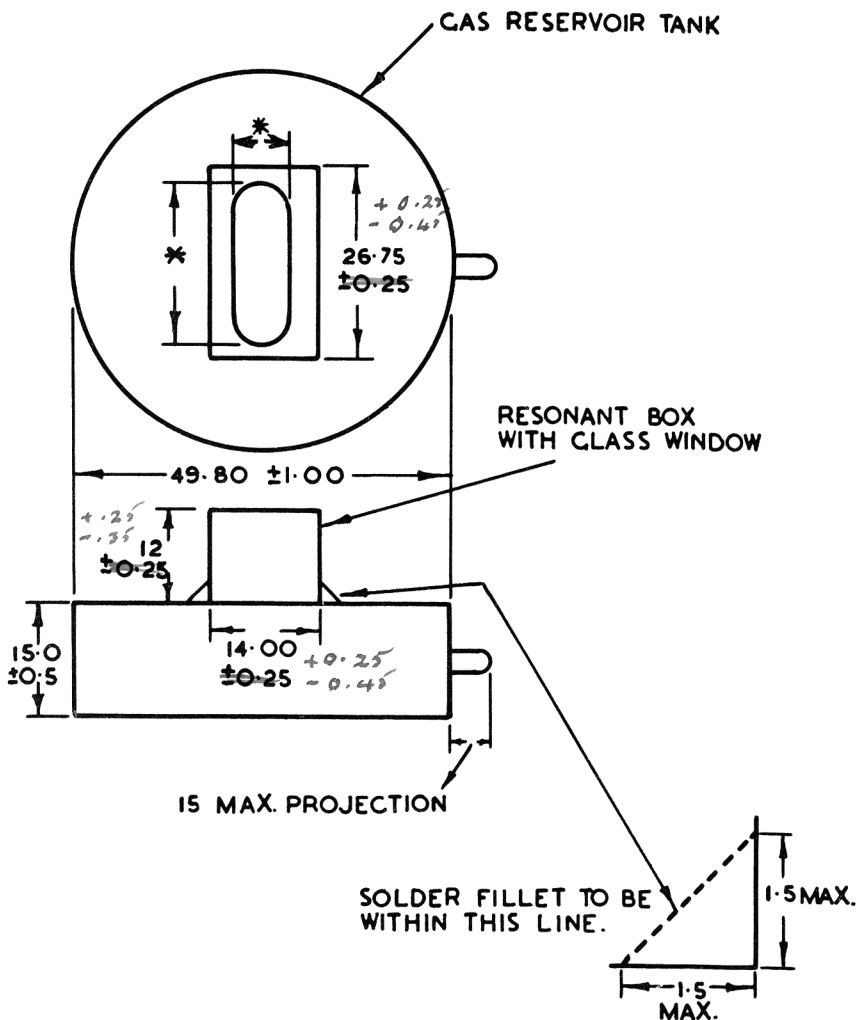
O-20 db.

W 9924 (OR W 9925)

Diagram illustrating the receiver system components and connections:

- PLUNGER P.** (Input)
- CV289** (Component)
- SWI** (Switch)
- METER M** (Meter)
- K CRYSTAL** (Crystal)
- 10-40db** (Attenuation)
- LOCAL OSCILLATOR CV323** (Oscillator)
- POWER SUPPLY FOR LOCAL OSCILLATOR** (Power supply)
- TO GRID.** (Connection to grid)
- GRID-BIAS SUPPLY** (Grid bias supply)
- SQUARE WAVE OSCILLATOR** (Square wave oscillator)
- C.R.O. OR METER** (Cathode ray oscilloscope or meter)
- LF (BB) AMPLIFIER** (Low frequency (baseband) amplifier)
- CALIBRATED ATTENUATOR** (Calibrated attenuator)
- K CRYSTAL.** (Crystal)

FIG. 3.

**NOTES:-**

1. * ACTUAL DIMENSIONS CONTROLLED BY ELECTRICAL REQUIREMENTS.
2. ALL DIMENSIONS IN MILLIMETRES.

ELECTRONIC VALVE SPECIFICATION AD/CV289,
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AMENDMENT A, DATED 5.6.47.

Fig. 3. Page 3.

The following amendment to dimensional tolerances has been agreed.

For 26.75 ± 0.25 , read, $26.75 \begin{matrix} + 0.25 \\ - 0.45 \end{matrix}$

For 14.00 ± 0.25 , read, $14.00 \begin{matrix} + 0.25 \\ - 0.45 \end{matrix}$

For 12.00 ± 0.25 , read, $12.00 \begin{matrix} + 0.25 \\ - 0.35 \end{matrix}$

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