RADIO VALVE COMPANY LIMITED

7025A

HIGH-MU TWIN TRIODE AMPLIFIER

Type 7025A is a heater-cathode type of high-mu twin triode amplifier featuring a small glass envelope with integral 9-pin base and separate terminals for each cathode. A mid-point tapped heater allows operation from a 6.3 volt or 12.6 volt supply.

Because of several improvements in construction over its prototypes 12AX7, 12AX7A and 7025 the type 7025A is suitable for use in modern high gain audio amplifiers and modern television circuits where low hum and low microphonic noise is required.

GENERAL DATA

ELECTRICAL:

Heater, for Unipotential Cathodes:

Heater Arrangement	Series	Parallel	
Voltage (AC or DC)	12.6	6.3	Volts
Current	0.15	0.3	Ampere

Direct Interelectrode Capacitances:

	Triode Unit T_1	Triode Unit T_2	
Grid to Plate	1.7	1.7	uuf
Grid to Cathode	1.6	1.6	uuf
Plate to Cathode	0.46	0.34	uuf

MECHANICAL:

Mounting Position	Any
Maximum Overall Length	2-3/16"
Maximum Seated Length	1-15/16"
Length from Base Seat to Bulb Top (excluding tip)	1-9/16" ± 3/32"
Maximum Diameter	7/8"
Bulb	T-6 1/2
Base	Small-Button Noval 9-Pin

CLASS A_1 AMPLIFIER

Values are for each unit

MAXIMUM RATINGS, DESIGN-CENTER VALUES:

Plate Voltage	300	max.	Volts
Plate Dissipation	1	max.	Watt
Grid Voltage:			
Negative bias value	50	max.	Volts
Positive bias value	0	max.	Volts
Peak Heater-Cathode Voltage:			
Heater negative with respect to cathode	180	max.	Volts
Heater positive with respect to cathode	180	max.	Volts

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CLASS A₁ AMPLIFIER (Cont'd)

CHARACTERISTICS:

Plate Voltage	100	250	Volts
Grid Voltage	-1	-2	Volts
Amplification Factor	100	100	
Plate Resistance	80000	62500	Ohms
Transconductance	1250	1600	Micromhos
Plate Current	0.5	1.2	Ma

° With no external shield.

TYPICAL OPERATION — RESISTANCE-COUPLED AMPLIFIER:

Plate-Supply Voltage	90			180			300			Volts
Plate Load Resistor	0.1	0.22	0.47	0.1	0.22	0.47	0.1	0.22	0.47	Megohm
Grid Resistor (of following stage)	0.22	0.47	1.0	0.22	0.47	1.0	0.22	0.47	1.0	Megohm
Cathode Resistor	4700	7400	13000	2000	3500	6700	1500	2800	5200	Ohms
Cathode Bypass Capacitor●	2.4	1.4	0.8	3.5	2.1	1.1	4.0	2.3	1.3	uf
Blocking Capacitor●	0.013	0.006	0.003	0.013	0.006	0.003	0.013	0.006	0.003	uf
Peak Output Voltage■	6	9	11	25	34	39	57	69	77	Volts
Voltage Gain	35#	45##	52⌿	47▲	59▲	66▲	52▲	65▲	73▲	

\#   At an output voltage of 2 volts rms.

\##   At an output voltage of 3 volts rms.

⌿   At an output voltage of 4 volts rms.

▲   At an output voltage of 5 volts rms.

●   The cathode bypass capacitors and blocking capacitors have been chosen to give output voltages at 100 cps (f_1) which are equal to 0.8 of the mid-frequency value. For any other value of (f_1), multiply the values of cathode bypass and blocking capacitors by $100/f_1$.

■   This peak output voltage is obtained across the grid resistor of the following stage at any frequency within the flat region of the output vs frequency curve, and is for the condition where the signal level is adequate to swing the grid of the resistance-coupled amplifier tube itself to the point where its grid starts to draw current.

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1. HUM (Referenced to the grid, each unit)

(a) Average Value .... 1.8 microvolts RMS
Measured in true RMS units under the following conditions:

(Parallel Connection) Ef = 6.3 V A.C. Centre tap grounded.
Ep = 250 V D.C.
Plate Load = 0.1 megohm
Rk = 2700 ohms
Bypass = 100 uf
Rg = 0

(b) Maximum Value .... 7.0 microvolts RMS.
Measured under conditions described above but with
Rg = 50,000 ohms and Rk unbypassed.

2. MICROPHONIC NOISE (Recorded at the plate as equivalent RMS units.

(a) Average Value .... 1.0 millivolts RMS.
Measured under the following conditions:

Ef = 12.6 V A.C.
Ep = 250 V D.C.
Plate Load = 250,000 ohms
Rg = 100,000 ohms
Rk = 2700 ohms
Bypass = 50 uf

(b) Maximum Value .... 2.5 mV

The shock impulse is such that the tube receives 15 g acceleration
simultaneously in each of two planes at right angles to the vertical
axis of the electrode assembly, along the major and minor diameter
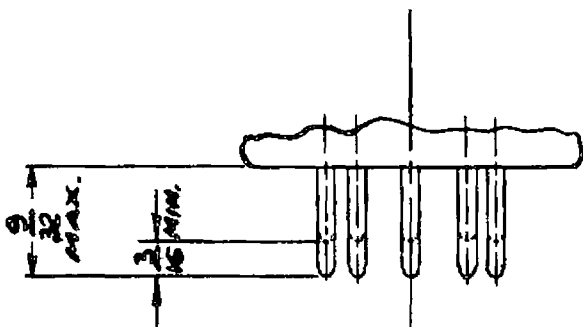of the grids.

The total Hum & Microphonic Noise output is recorded, within - 3 db of
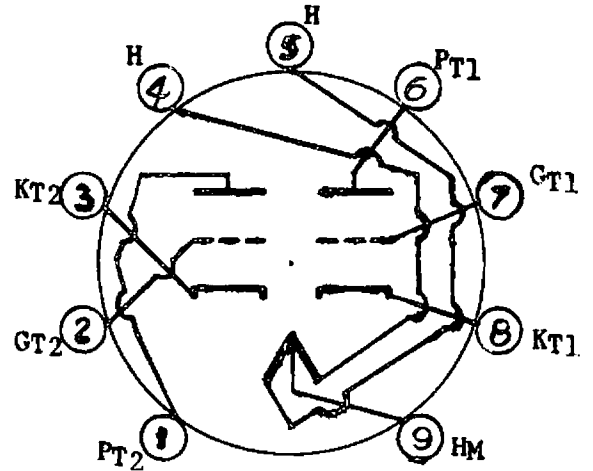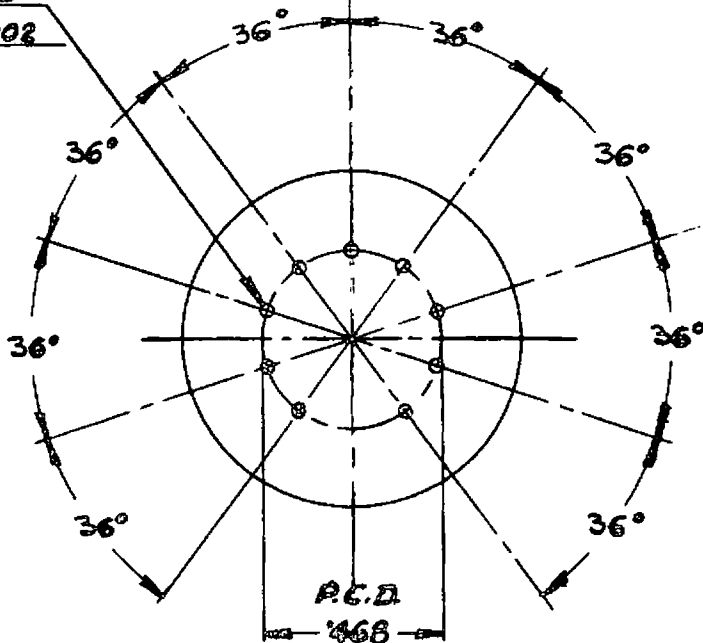400 cps reference, in the frequency range 15 to 13000 cycles.
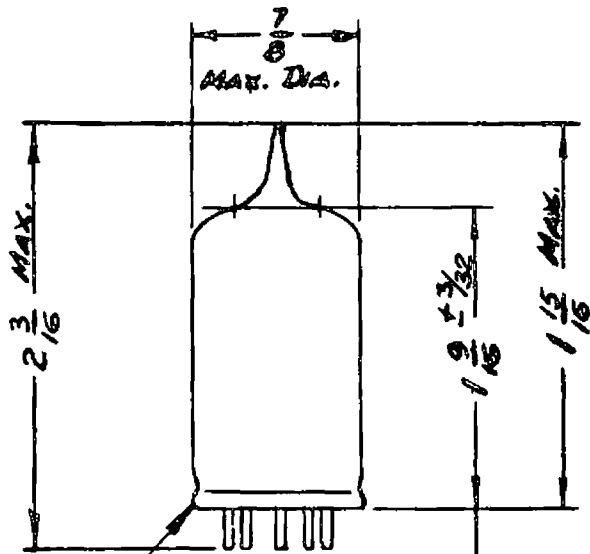
Measured from base seat to bulb-top line as determined by ring gauge of 7/16" I.D.

Small-Button Noval 9-Pin Base

SMALL-BUTTON NOVAL
9-PIN BASE

Pin 1 – Plate (Triode No. 2)
Pin 2 – Grid (Triode No. 2)
Pin 3 – Cathode (Triode No. 2)
Pin 4 – Heater
Pin 5 – Heater
Pin 6 – Plate (Triode No. 1)
Pin 7 – Grid (Triode No. 1)
Pin 8 – Cathode (Triode No. 1)
Pin 9 – Heater Mid-Tap

The pins will fit a flat-plate gauge having thickness of 1/4" and ten holes 0.0520" ±0.005" so located on a 0.4680" ±0.005" diameter circle that the distance along the chord between any two adjacent hole centers is 0.1446" ±0.005".

The design of socket should be such that circuit wiring can not impress lateral strains through the socket contacts on the base pins. The point of bearing of the contacts on the base pins should not be closer than 1/8" from the bottom of the seated tube.

(9) PINS
.040 ±.002

P.C.D.
.468