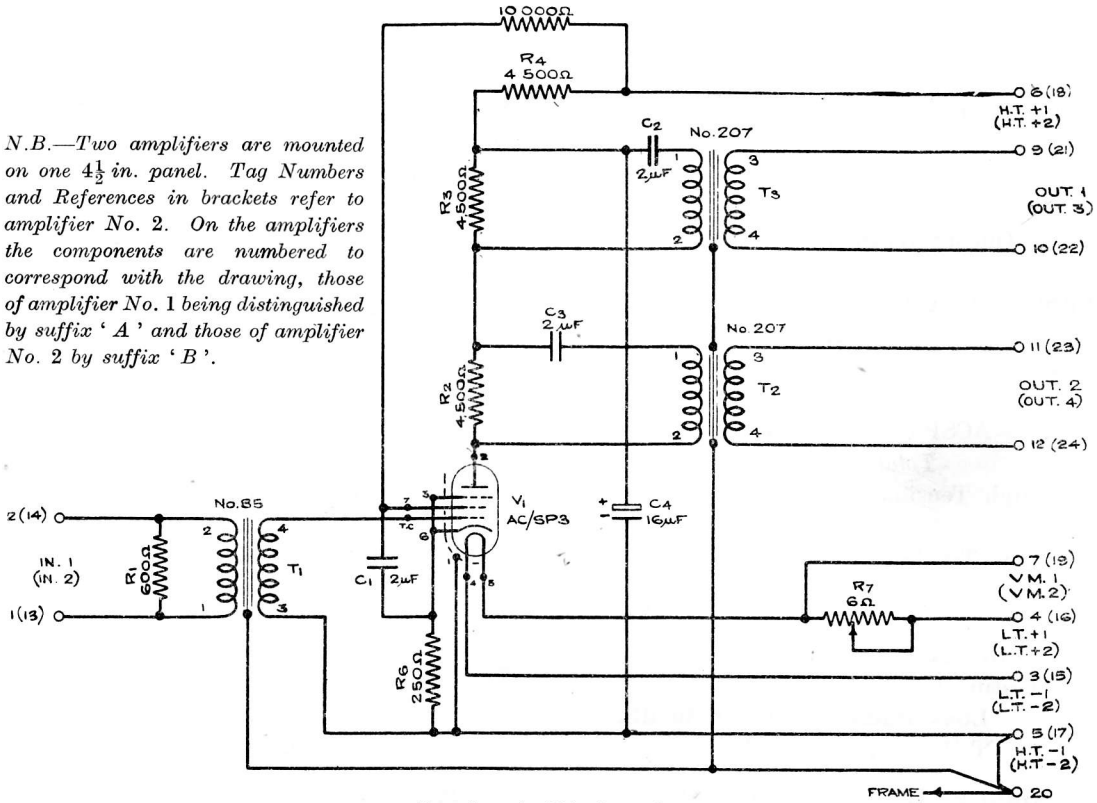
AMPLIFIER SPA/1

N.B.—Two amplifiers are mounted on one 4½ in. panel. Tag Numbers and References in brackets refer to amplifier No. 2. On the amplifiers the components are numbered to correspond with the drawing, those of amplifier No. 1 being distinguished by suffix 'A' and those of amplifier No. 2 by suffix 'B'.



Drawing A.5224, Issue 1

This amplifier is used at **Glasgow (Queen Margaret College).** It is a separator amplifier and is employed in connection with the 'D' amplifier, D/7, in order to provide two outputs where echo is required, since the 'D' amplifier itself has only one output. Each panel carries two amplifiers.

Circuit

It is a single-stage amplifier, with a screened input transformer, employing an ACSP 3 high-slope pentode valve operating with negative current feed-back, amounting to 8.5 db. The negative feed-back is obtained from the grid bias resistance R_6 which for this purpose is left unshunted by a condenser. The two outputs are obtained via screened transformers with their primary circuits connected, in series with a blocking condenser, across two equal resistances in series with the anode of the valve. A common high tension supply is used for the anode and screen grid. Decoupling of the anode is provided by the resistance R_4 in conjunction with the condenser C_4, and of the screen grid by the condenser C_1 connected between this grid and cathode.

Impedances

Input impedance	(approx) 600 ohms
Output impedance (both outputs)	(approx) 600 ohms
Normal load impedance	(approx) 600 ohms

Transformers

	Number	*Impedance Ratio*	*Turns Ratio*
Input	85	1/5350	1/73.1
Output (both outputs)	207	7.83/1	2.8/1

Supply Data

Valve	*Automatic Grid Bias*	*Screen*		*Anode*		*Filament*	
	Volts negative	Volts	mA	Volts	mA	Volts	Amps.
ACSP 3	3.75	200	4.5	110	10.5	4	1

Total Current (each amplifier) H.T. 15 mA L.T. 1A

High Tension Supply — 250 volts rectified A.C. or 300V battery

Low Tension Supply — 6 volts (adjusted to 4V by a series resistance)

600 Ohm Test Gain

Testing Conditions

Loss Pads key set at **30 db.**

T.M.S. sending level — + 5 db.

Gain at 1,000 c/s. (Outputs 1 & 2) — **1.0 ± 1 db.**

Gain at 50—5,000 c/s. — ± 0.5 db. } Relative to gain

Gain at 5,000—9,000 c/s. — ± 1.0 db. } 1,000 c/s.

Working Voltage Gain

Testing Conditions

Output loaded with 600 ohms and at a level of approximately —10 db.

Gain at 1,000 c/s (both outputs) — **1.0 ± 1 db.**