

SECTION 4

TAPE CONTROL PANEL PA6/30

Introduction

The PA6/30 panel is intended for use with up to four tape machines, to provide facilities for switching independently (a) any machine input to any of 8 sources and (b) any machine output to one of two output busbars or to a studio acoustic effects reproduction (A.E.R.) circuit. The level on the output busbars may be adjusted to suit the type of studio equipment with which the machines are being used. Facilities for dubbing from machine to machine are provided.

General Description (Fig. 6)

The panel is fitted to a wall or bay mounting box. It carries four pairs of rotary step switches for switching the input and output circuits of the machines and has also a 4-position monitoring switch. The input (recording) switches, which have nine positions, and the output (replay) switches, which have seven positions, provide access from sources and to destinations as listed in Tables 1 and 2. The monitoring switch receives its inputs direct from the prefade outputs on the machines and it feeds the selected input to the studio cubicle loud-speaker via the control desk.

TABLE 1

<i>Recording Switch Setting</i>	<i>Designation</i>	<i>Source</i>
1	Off	—
2	A	Output from another machine or machines via busbar A
3	B	Output from another machine or machines via busbar B
4—7	OS1—OS4	Outside sources
8	Std. Out	Studio output
9	Tone	Tone

TABLE 2

<i>Replay Switch Setting</i>	<i>Designation</i>	<i>Destination</i>
1	Off	—
2	Dir. A	Output busbar A
3	Both A	Output busbar A and A.E.R. output
4	A.E.R.	Acoustic effects reproduction circuit in studio
5	Both B	Output busbar B and A.E.R. output
6	Dir. B	Output busbar B
7	Off	—

The circuit of the panel is given in Fig. 6; only one of the four pairs of recording and replay switches is shown.

The replay switches each have 6 wafers. Wafers 1 and 2 carry the output signal from the associated machine to one leg of the star mixers. Wafers 3—6 switch 600-ohm terminations across the unused legs of the mixers to maintain correct impedance conditions and to ensure that the signal levels do not alter.

When a machine is feeding either the *Both A* or the *Both B* circuit, the feed to the A.E.R. line is obtained from the centre point of the associated star mixer via a 44-dB attenuator.

The recording switches each have two wafers and carry the input signals at -14 dB to the machines. The recording amplifiers have high input impedance; thus the various low impedance sources may be multiplied across the recording switches. No significant change in signal level occurs when the number of machines switched to one source is altered. Positions *A* and *B* of the recording

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switches allow any machine to record from the output of another, but only if the replay machine is feeding onto the *Dir. A* or *Dir. B* circuits. Small loss pads in series with each take-off lead adjust the levels at the recording switch to be -14 dB. (Each loss pad is approximately equivalent to two star mixer limbs.) A recording machine may be switched on to, or away from, the circuit without appreciably disturbing the signal level.

In the off positions of the recording switches, the machines are terminated with 600 ohms.

The outputs of the mixers on the *Both* circuits are terminated by 510-ohm resistors to equalise the levels on the *Both* and the *Direct* circuits.

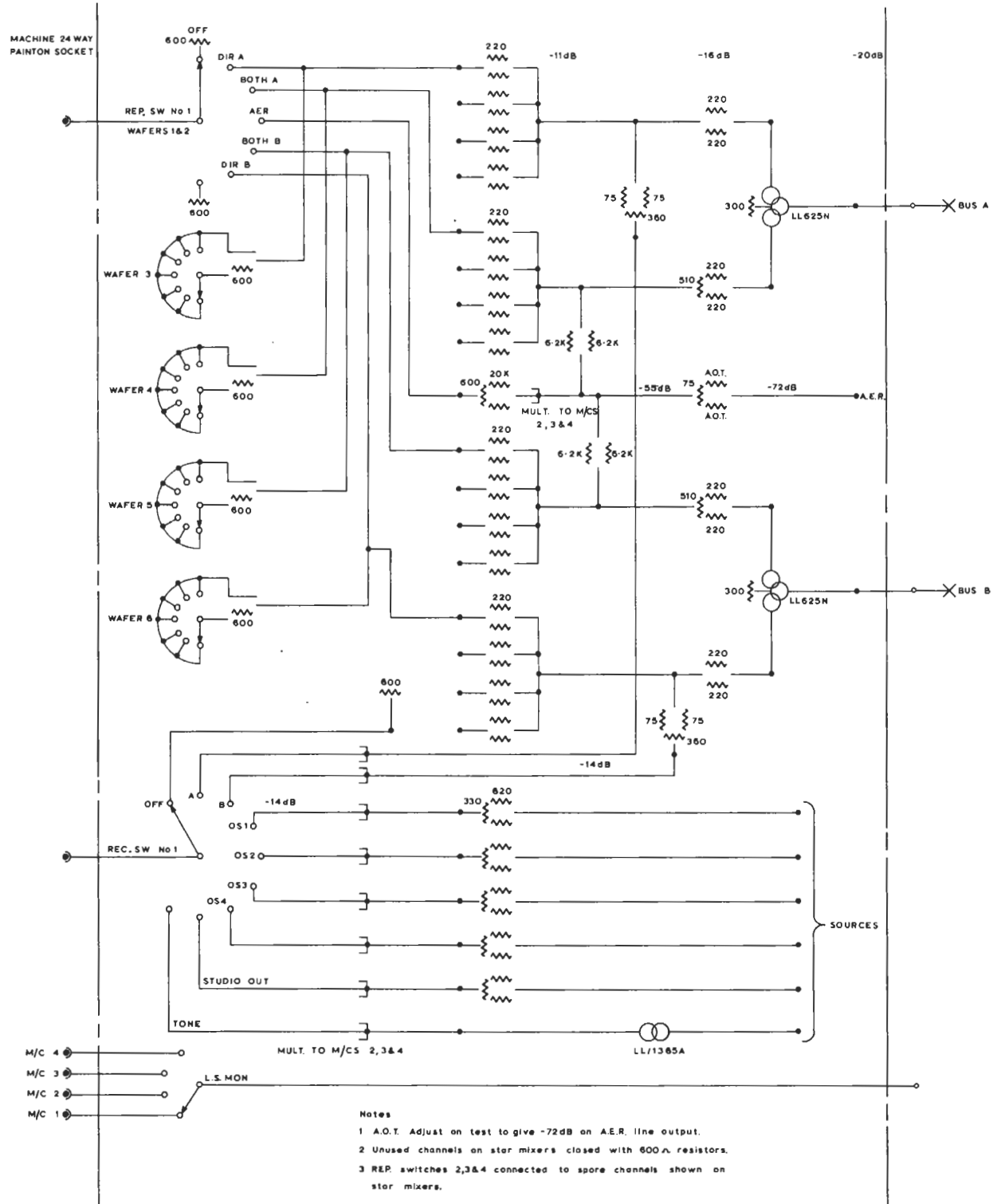
Hybrid transformers are used to mix the *Dir.* and *Both* output signals on to the *Bus A* or *Bus B* lines to maintain the high degree of separation necessary between the circuits. In the circuit shown in Fig. 6 it is assumed that the associated studio equipment is Type A. For Type B equipment, which requires a much smaller output from the

panel, the hybrid transformers are not used, the high loss of the series attenuators (60 dB) providing sufficient separation between the circuits. The values of the A.O.T. resistors in the A.E.R. line also depend on the type of associated equipment.

The pads in the input lines to the recording switch multiple are adjusted to suit the impedance of the signal sources. In Broadcasting House, London, this is 75 ohms and the resistance values are as shown on the diagram. For Bush House, where the source impedance is 600 ohms, the resistance values are 600 ohms in shunt and 1.2 kilohms in each series arm. The purpose of the pads is to provide -14 dB signal level to the tape machines. The resistance values used for the pads are chosen not only to avoid loading the sources, but also to prevent significant modification of the attenuation ratio when several machines are being fed from one pad. The transformer in the tone feed to the recording switches performs the same function for the tone source.

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- Notes
- 1 A.O.T. Adjust on test to give -72dB on A.E.R. line output.
 - 2 Unused channels on star mixers closed with 600Ω resistors.
 - 3 REP. switches 2,3&4 connected to spare channels shown on star mixers.

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