



Programme Lines and Input Equipment

A SERIES OF ANCILLARY UNITS has been designed for use in conjunction with standard amplifiers, in order to provide broadcasting studios with handling facilities for incoming and outgoing lines. This type of equipment is normally installed in control room cabinets, and the equipment can be supplied either as individual units or as cabinet-mounted assemblies.

All units are built on 19 in. (48 cm) panels, and panel heights are given with individual units. The advantages of this arrangement are:

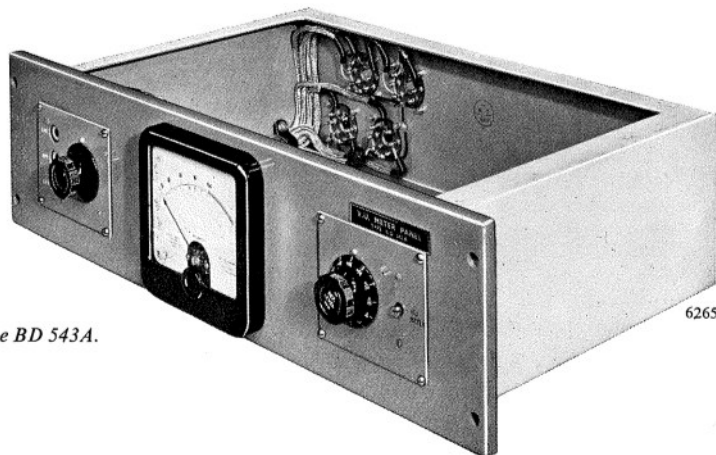
1. Easy installation and removal of units.
2. Arrangements are flexible and can be built-up as required.
3. Components are readily available and interchangeable.
4. Where applicable all panels incorporate line-listen-apparatus jack facilities.

Volume Unit Meter Panel Type BD 543A

The VU meter indicates the average value of the signal being monitored. Any one of eleven inputs can be selected, and a variable attenuator is also provided together with jacks to give access to the meter circuit.

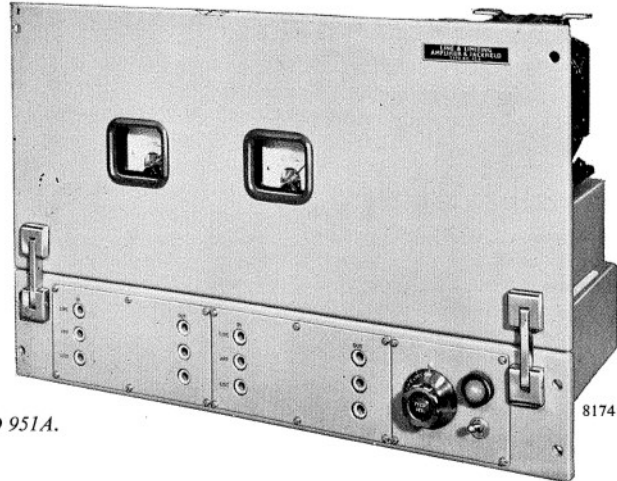
DATA SUMMARY

Scale range: -20 to +3 VU.
Sensitivity: +4 dBm for zero VU reading.
Frequency range: 30-15,000 c/s with an accuracy of ± 0.5 dB.
Variable attenuator: 20 dB in 2 dB steps.
Speed of registration: 0.3 s.
Fall-back time: 0.3 s approx.
Input impedance: 7500 Ω .
Panel height: 5 $\frac{1}{4}$ in. (13.3 cm).



Type BD 543A.

6265



Type BD 951A.

8174

Peak Programme Meter Panel Type BD 543B

(designed in co-operation with the B.B.C.)

This type of meter gives visual monitoring of peak values of signal. Any one of eleven inputs can be selected, and jacks are provided to give access to the meter circuit.

DATA SUMMARY

Single range: 26 dB in 4 dB graduations.
Sensitivity (max.): -8 dBm at half-scale reading.
Frequency range: 20-20,000 c/s with an accuracy of ± 0.5 dB.
Speed of registration: 4 ms.
Fall-back time: 3 s.
Input impedance: 10,000 Ω .
Panel height: 5 $\frac{1}{4}$ in. (13.3 cm).

Limiting Amplifier Assembly Type BD 951A

This unit consists of two Limiting Amplifiers Type 2770 and a power unit, together with a 12-way jackfield.

The limiting amplifier is designed to restrict the peak level of the signal in order to ensure that the transmitter is not over-modulated. The essential feature of this amplifier is that limiting is achieved with a minimum of distortion, by automatic reduction of the gain above the point where limiting starts.

The limiter's response to a peak is almost instantaneous, but its recovery period is variable from 0.1 to 4 seconds, and each amplifier in this assembly has a meter which indicates the amount of compression.

An alternative assembly, Type BD 951 B, incorporates only one Type 2770 limiter.

DATA SUMMARY

Input and output impedance: 600 Ω .
Frequency response: ± 1 dB from 30 c/s to 15 kc/s.
Input limiting level: -10 to +10 dBm.
Output limiting level: 0 to +20 dBm.
Max. output level: +20 dBm.
Max. gain: 30 dB.
Power supplies: 200-250 V, 40-60 c/s, single-phase AC.
Panel height: 12 $\frac{1}{4}$ in. (31 cm).

Sound Programme Input Panel Type BD 959A

The incoming programme lines at the transmitting station are usually handled by specialized and separate equipment known as Programme Input Equipment. This may include units for the termination, equalization, selection, and test of modulation lines, and in addition manual and automatic level control and programme monitoring facilities, including a level meter and a loudspeaker amplifier for aural monitoring.

However, for small broadcasting stations less complex equipment is required, and the Programme Input Panel Type BD 959A has been designed for this purpose. It employs the Limiting Amplifier Type 2770 which has already been described under the heading 'Limiting Amplifier Assembly, Type BD 951A'. Facilities are provided for full control and monitoring of a programme using a VU or peak programme meter. Provision is also made for feeding an externally mounted monitor amplifier.

This unit, therefore, contains the basic requirements of Programme Input Equipment, namely level control and programme monitoring facility, and is in addition notable for compactness and simplicity.

DATA SUMMARY

Input impedance: 600 Ω balanced or unbalanced.

Output impedance: 600 Ω balanced.

Gain: -20 dB to +30 dB adjustable.

Maximum output: +20 dBm.

Frequency response: ± 1 dB from 30 to 15,000 c/s.

Distortion at +12 dBm output: Less than 0.5% at 60 c/s. Less than 0.3% at 1000 c/s.

Noise level: Less than -60 dBm.

Power supplies: 100-125 V or 200-250 V 50-60 c/s AC.

Power consumption: 48 VA.

Dimensions:

Height 12 $\frac{1}{2}$ in. (31 cm)

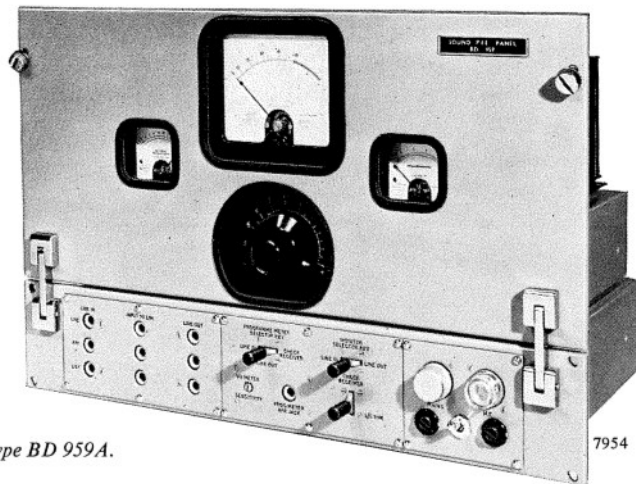
Width 1 ft 7 in. (48 cm)

Depth 11 $\frac{3}{4}$ in. (29 cm)

Weight 41 lb max. (18.6 kg)

Monitoring Assembly Type BD 958B

This unit employs a Marconi Leak TL 12 PLUS Amplifier together with a sequential switching unit. The amplifier has integral power supply and a loudspeaker-dim attenuator operated by a relay. The sequential switching unit enables each of two inputs to be routed to one output, either manually, or automatically every 4.5 seconds. This



Type BD 959A.

permits two signals to be continuously compared, so that, for example, a constant check can be kept on the output from the studio.

A simplified form of this unit is the *Monitoring Assembly Type 4803* which has no sequential switching unit.

DATA SUMMARY

Input impedance: 18 k Ω .

Output impedance: 4, 8 or 16 Ω .

Maximum gain: -16 dBm input gives 1 W output.

Maximum output: 12 W.

Distortion: 0.2% for 60 c/s, 10 watt output.

Frequency response: ± 0.5 dB from 20 to 20,000 c/s.

Automatic Monitor Type BD 544

(B.B.C.-Marconi)

This unit has been designed to provide continuous and fully automatic monitoring of programmes. An alarm bell or lamp indicates the necessity to attend to a faulty or subnormal line or link. The method of operation of the monitor is to compare the signal at a check point with that at some reference point earlier in the chain, where the content and quality of the programme have already been passed as satisfactory. Many circuit refinements are included in order that the response of the amplifiers should approximate to that of the human ear.

The monitor forms a complete 6 ft rack assembly.

Equalizer Panel Type BD 539A

This equalizer panel is capable of terminating up to ten lines, which are fed through sockets on the rear of the panel. Two of the

incoming lines are treated as main programme lines and are connected to line apparatus and listen jacks. They are wired *via* transformers, post office equalizers and other jacks to output sockets. The remaining eight lines, intended as tie-lines, telephone lines and emergency lines, are bridged by drop indicators fitted with jacks.

Using patch cords, it is possible to substitute any of the group of eight lines for the two main programme lines. The jacks which follow the equalizers enable the corrected frequency response of the lines to be checked.

Panel height: 5 $\frac{1}{4}$ in. (13.3 cm).

Variable Equalizer Type 4642

This panel employs a special equalizing circuit designed for unloaded 600 Ω telephone line up to 10 miles in length. The circuit consists essentially of a variable shunt equalizer followed by a variable attenuator and a 15 kc/s booster network between two isolation transformers. Equalization for either 10 kc/s or 15 kc/s can be selected by a switch, and the degree of equalization is controlled by coarse and fine controls.

Marconi

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