

PHILIPS

Cinema

A-III-14-E

AMPLIFIER ASSEMBLY
FOR OPTICAL SOUND

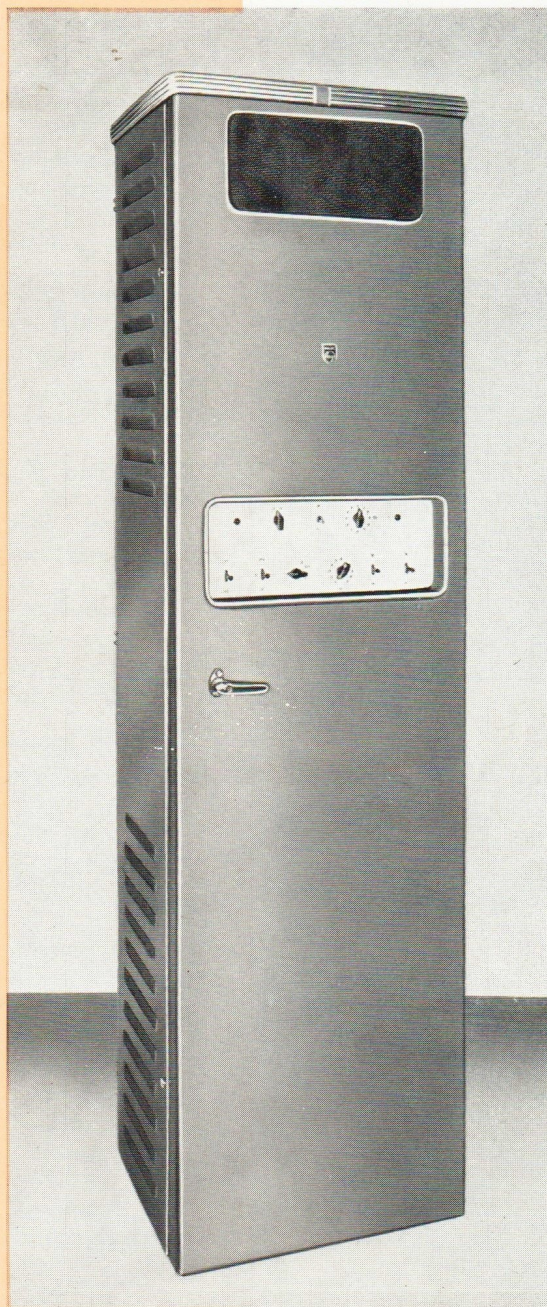
TYPE EL 5330

This self-contained Cinema Amplifier Assembly comprises all the elements for optical sound reproduction, required between the photocell cables and the loudspeaker cables, with the exception of the master volume control. The latter is supplied in a separate box for mounting at any convenient place either in the projection room or in the auditorium.

The assembly is housed in a grey standardized 19" cabinet which can be placed anywhere in the projection room. All the units are connected to the internal wiring of the cabinet by means of plugs and sockets, so that they can easily be taken out and re-inserted.

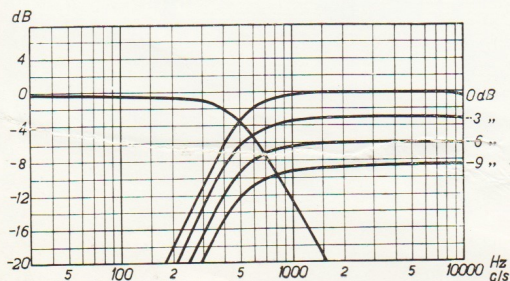
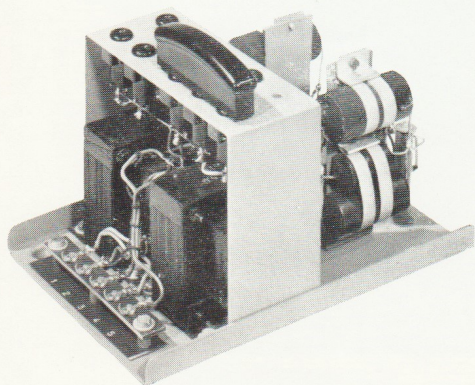
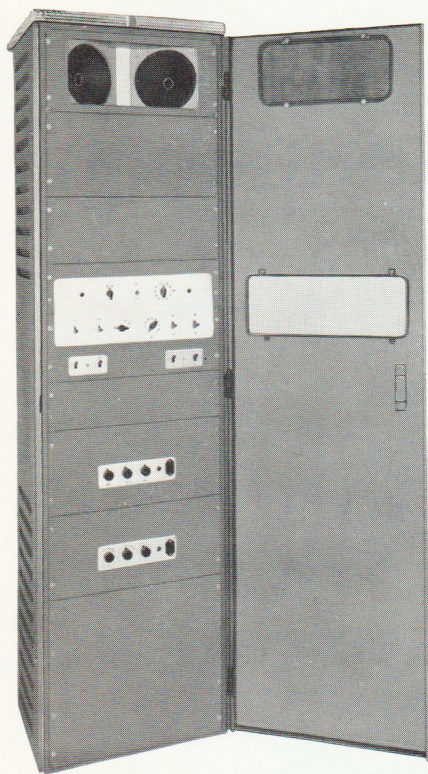
Principal features:

- Easy extension for one to four-track magnetic sound and for Perspecta-Sound, the room for the additional amplifiers being available.
- Equipped with two identical pre-amplifiers and two output amplifiers with change-over switches for 100 % standby.
- Change-over facility of exciter-lamp supply from D.C. to A.C. for 100 % standby.
- Simple operation.
- Built-in relays, operated by push-buttons on the projectors, for simultaneous change-over of picture and sound.
- Easily surveyable arrangement of the various components.
- Very simple projection-room wiring.
- Suitable for two-way sound reproduction.
- Separate treble and bass controls.
- Minimum distortion.
- Very low hum-and-noise level.
- Suitable for mains of 110-245 V, 40-60 c/s.
- Suitable for use under tropical conditions.
- Functional and modern throughout.



QUALITY OF REPRODUCTION

DESCRIPTION



Thanks to the excellent properties of the amplifier units and to the ripple-free exciter-lamp supply, this assembly guarantees optimum sound quality when used with the appropriate loudspeakers. As will be seen from the technical data, the distortion and the hum-and-noise level are remarkably low.

From top to bottom the assembly comprises the following panels:

- 1 *loudspeaker panel* equipped with two identical monitoring loudspeakers (frequency response: 60 to 10,000 c/s) for perfect sound distribution in the projection room;
- 1 *blind panel* which can be replaced by a panel with max. four pre-amplifiers for one to four-track magnetic sound;
- 1 *blind panel* which can be replaced by a panel with the power-supply units for the above pre-amplifiers;
- 1 *master control panel*;
- 1 *pre-amplifier panel* (partly covered by the master control panel) equipped with two identical optical pre-amplifiers as well as with a selenium rectifier for D.C. and a transformer for A.C. supply of the exciter lamps; type of the complete panel: EL 5422;
- 1 *blind panel*;
- 2 *amplifier panels*, each equipped with a type EL 6411/07 output amplifier;
- 1 *blind panel* which can be replaced by one blind panel and one panel with a type EL 6411/07 amplifier for Perspecta Sound, or by two panels each with a type EL 6411/07 amplifier for four-track magnetic sound.

The *master volume control*, type EL 5863, supplied separately, has 21 steps of 2 dB each. When the box is mounted between the projectors, the shaft of the right-hand knob can be extended for easy operation from either projector.

The *cross-over network*, type EL 5411, is mounted against the rear wall of the cabinet. The cross-over frequency is 500 c/s and the output impedance, both for the treble-note and for the bass-note channel, is 500 ohms. To compensate efficiency differences of the used bass and treble loudspeakers, the network is provided with a plug for attenuating the treble notes in three steps of 3 dB each (see graph).

A *box with transformers*, type 9569/10, can be supplied for matching the various loudspeaker groups.

CONTROLS

The controls are divided into two groups:

- controls for daily use, assembled on the master control panel and accessible when the door is closed;
- controls for occasional use which are pre-adjusted and need only seldom be re-adjusted; they are not accessible when the door is closed.

Owing to the convenient and central arrangement of the various switches and controls, operation is simplicity itself.

Upper row from left to right:

- *Pilot lamp "A"* which lights up as soon as projector No. A comes into operation.
- *Standby switch "V1-V2"* for changing over from the upper to the lower output amplifier or vice versa.
- *Mains switch* for the complete assembly.
- *11-step volume control for the monitoring loudspeakers.*
- *Pilot lamp "B"* which lights up as soon as projector No. B comes into operation.

Lower row from left to right:

- *Standby switch "Opt. 1-Opt. 2"* for the pre-amplifiers.
- *System selector "PS-N-M"* which is left in position "N" (= normal optical sound) as long as the assembly has not been arranged for Perspecta-Sound (PS) or magnetic sound (M).
- *Input selector* for soundhead (film), gramophone, magnetic recorder, microphone or another signal source, e.g. gong.
- *Volume control* for input signals other than film.
- *Tone control "-B"* for attenuating the bass notes of badly recorded, boomy prints.
- *Tone control "-H"* for attenuating the treble notes of old prints with much background noise.

The controls for occasional use are located on the units to which they belong.

Controls underneath the master control panel; from left to right:

- mains switch of the rectifier for the exciter-lamp supply (D.C. 5 V, 4 A); the lamp of the projector not in use is pre-heated;
- change-over switch for supplying the exciter lamps with A.C. in the event of a breakdown in the D.C. supply;
- mains switches for the two pre-amplifiers "Opt. 1" and "Opt. 2".

Controls on each output amplifier; from left to right:

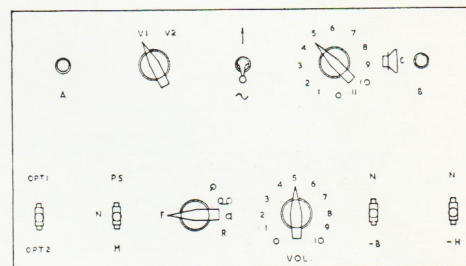
- gain control to pre-adjust and to equalize the outputs of the amplifiers;
- bass and treble controls to adapt the sound reproduction to the acoustics of the auditorium; with the controls in the centre position, the frequency-response curve is practically flat between 60 and 10,000 c/s; when the controls are fully turned to the right, the level of the bass notes at 60 c/s and that of the treble notes at 8000 c/s are boosted 12 dB and with the controls turned fully to the left, they are attenuated about 10 dB;
- mains switch with red pilot lamp.

Controls on the pre-amplifiers, accessible when the left-hand side door is opened:

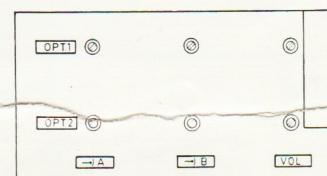
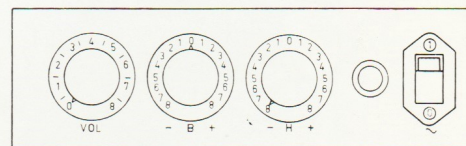
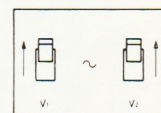
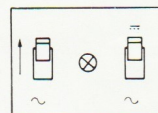
- potentiometers "A" and "B" for adjusting the photocell voltages;
- potentiometer "Vol" for adjusting the gain of the pre-amplifiers.

These six potentiometers are adjusted by means of a screwdriver.

MASTER CONTROL PANEL



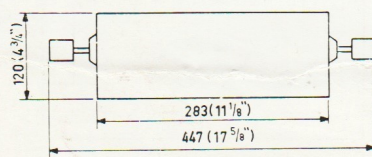
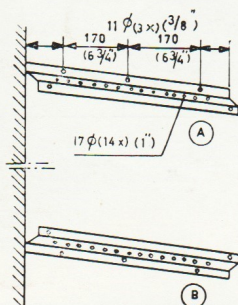
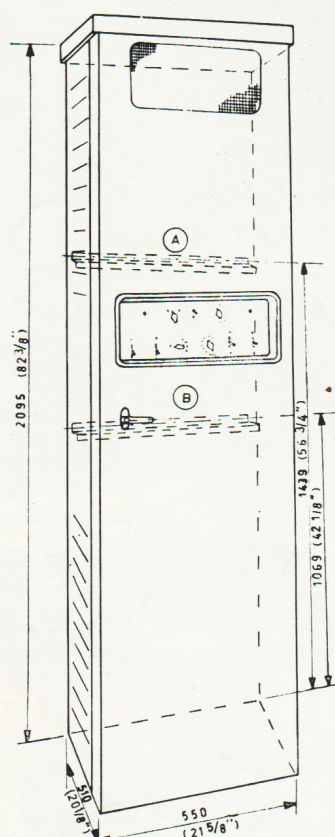
OTHER CONTROLS



CHANGE-OVER OF PICTURE AND SOUND

CONNEXIONS

TECHNICAL DATA



The assembly is equipped with relays for simultaneous change-over of picture and sound. They are operated by push-buttons on the mounting tables of our projectors. When projectors of another make are used, the push-buttons can easily be fitted at any convenient place in the projection room, e.g. on the front wall.

Master volume control, projectors, soundheads, loudspeakers, mains, a gramophone, a microphone, etc., and earth leads are connected to clearly marked terminal strips which are easily accessible after the side doors of the assembly have been opened.

The rear of the cabinet is so profiled that, when the cabinet is pushed against a wall of the projection room, sufficient space is left for the electric cable conduits laid along this wall.

| | |
|--|---|
| Input impedance and average input voltage at an output voltage of 100 V: | |
| photocell | 20,000 Ω ; 0.6 mV |
| pick-up | 300,000 Ω ; 300 mV |
| recorder | 50,000 Ω ; 40 mV |
| microphone | 50,000 Ω ; 40 mV |
| reserve | 50,000 Ω ; 40 mV |
| Output impedance: | |
| bass notes | 500 Ω |
| treble notes | 500 Ω |
| Max. output voltage .. | 100 V |
| Distortion | < 1% |
| Hum and noise level .. | -66 dB |
| Mains voltage | 100; 110; 125; 200; 220; 245 V |
| Mains frequency | 40-60 c/s |
| Max. power consumption | 260 W |
| D.C. supply of exciter lamp | adjustable between: 4.8 and 7.25 V at 4 A or 4 and 6.6 V at 5 A |
| A.C. supply of exciter lamp | adjustable between: 5.2 and 7 V at 4 A or 4.8 and 6.8 V at 5 A |
| Photocell voltage | adjustable between: 50 and 100 V |
| Voltage for change-over relay | about 7 V |
| Valve complement: | |
| pre-amplifier for optical sound | 2 x EF 40 (pre-amplifier) |
| control panel | 2 x ECC 40 (pre-amplifier) |
| each power amplifier | 2 x 8008 N (pilot lamp) |
| | 1 x EF 40 (pre-amplifier) |
| | 2 x ECC 40 (pre-amplifier/phase inverter) |
| | 4 x EL 81 (output valve) |
| | 1 x OA 55 (germanium diode) |
| | 1 x 8008 N (pilot lamp) |
| Net weights: | |
| complete assembly (EL 5330) | 325 lbs (150 kg) |
| pre-amplifier for optical sound (EL 5422) | 52.5 lbs (23.8 kg) |
| power amplifier (EL 6411/07) | 23.5 lbs (10.6 kg) |
| Dimensions | see sketch |