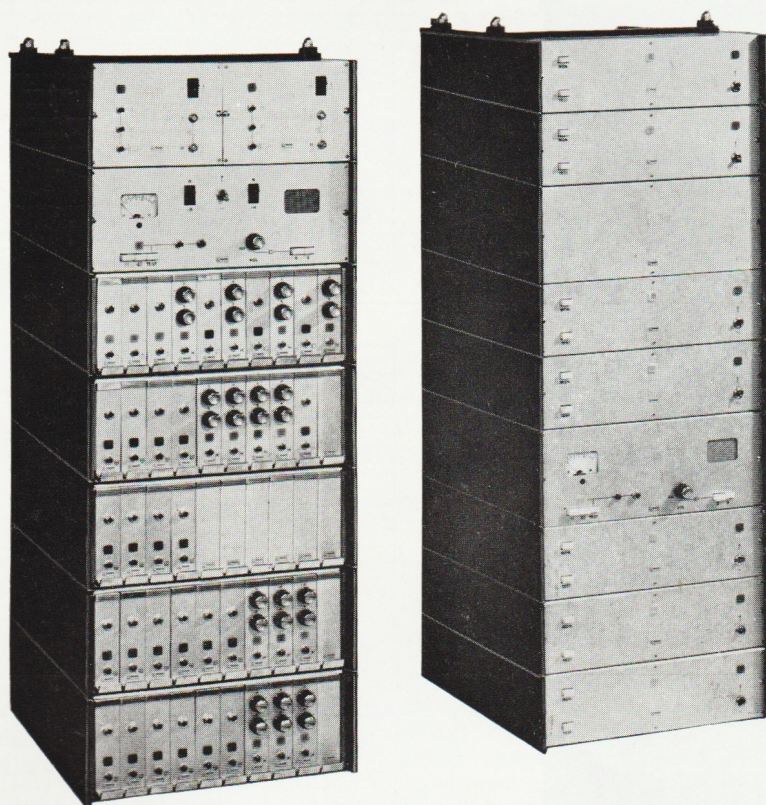


FULLY TRANSISTORISED CINEMA AMPLIFIER EQUIPMENT TYPE "OMA 6"



This equipment consists of:

- type EL 5373 pre-amplifier rack,
- type EL 5374 output amplifier rack,
- type EL 5463 six-channel volume control.

It is suitable for the reproduction of:

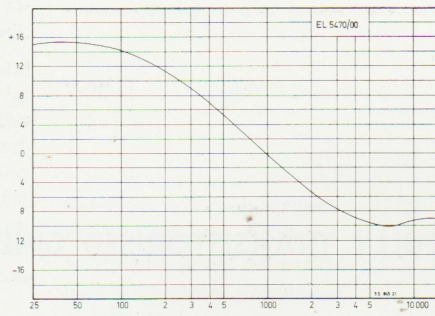
- 35-mm films with optical sound track,
- 35-mm films with four magnetic sound tracks,
- 70-mm films with six magnetic sound tracks,
- three arbitrary non-sync. sound sources, e.g. gramophones, microphones or tape recorders.

PRINCIPAL FEATURES

- Perfect sound reproduction.
- Maximum reliability.
- Small dimensions.
- Very easy operation.
- Minimum maintenance.
- Built-in checking devices.
- Great versatility.
- Suitable for:
 - all conventional mains voltages and frequencies,
 - remote control and automation,
 - use under tropical conditions.
- Easily adaptable to projectors and loudspeakers of other makes.



Magnetic pre-amplifier



PERFECT SOUND REPRODUCTION

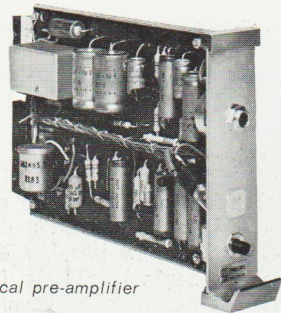
In this equipment each sound track on the film in each projector, and each non-sync. sound source, has its own pre-amplifier with adjustable gain. The sound volume of all the signals can therefore be set accurately to the same level. Moreover, each film channel and each non-sync. sound channel has its own filter unit. Consequently the frequency responses of all the sound systems can be adjusted independently of each other so as to provide the best possible adaptation to the prevailing acoustics of the auditorium.

Moreover, the circuiting is such that optical sound tracks are always reproduced via the output amplifiers and loudspeakers of channels 1 - 2 - 3. At the full output of 40 W per channel the distortion is less than 1.5%. The frequency response of the output amplifiers is flat from 40 to 12,000 c/s. The hum-and-noise level is very low.

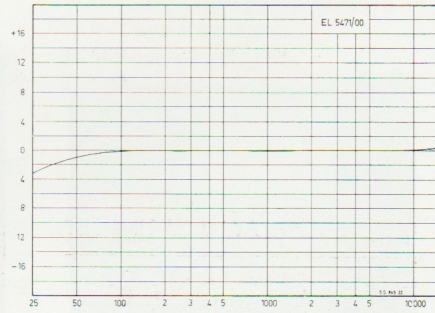
The supply voltages for the photocell, the exciter lamp, the pre-amplifiers and the filter units are stabilised, which makes the sound reproduction independent of mains-voltage fluctuations.

Change-over from one projector to the other and matching to the sound system on the film take place behind the pre-amplifiers at a level of 80 mV, 5000 Ω and without the use of relays in the signal leads. In this equipment all the switching operations in signal leads are effected with the aid of LDRs (light-dependent resistors), which assures click-free operation.

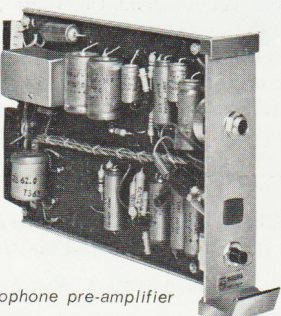
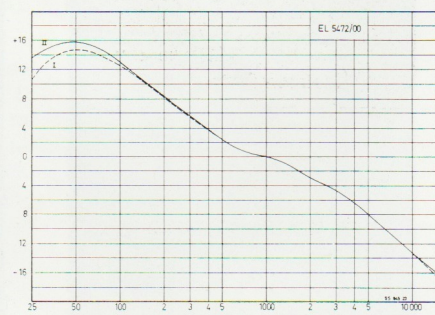
An LDR consists of a cadmium sulphide cell and a 6-V lamp. When the cell is not illuminated, its resistance is very high; when the cell is illuminated, it drops to a low value. Cells of this kind are inserted in series with the outputs of all the pre-amplifier and filter units. A signal is allowed to pass by the switching on of the LDR lamps of all the units in its path, which is effected by means of flip-flops. These are transistorised switching elements without moving parts.



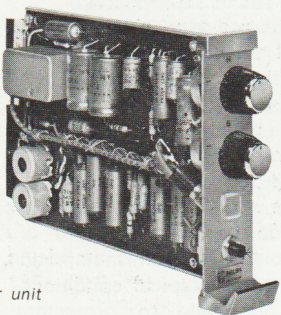
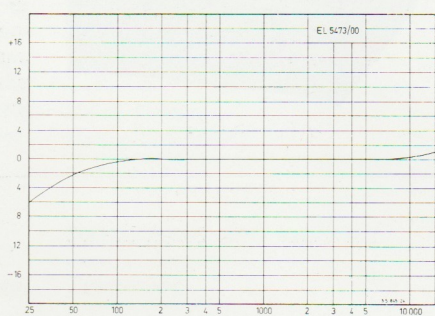
Optical pre-amplifier



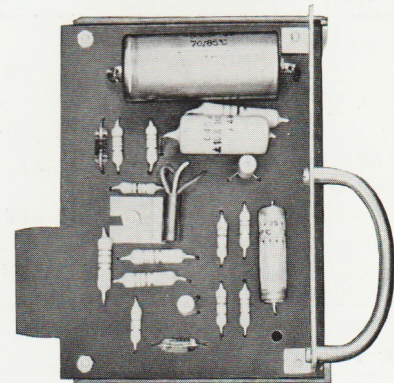
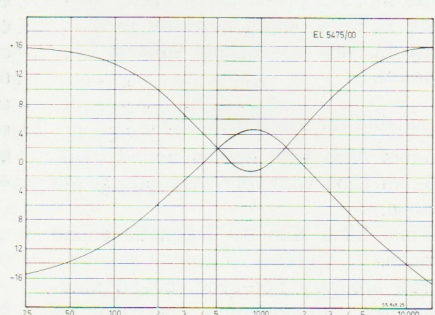
Gramophone pre-amplifier



Microphone pre-amplifier



Filter unit



Flip-flop

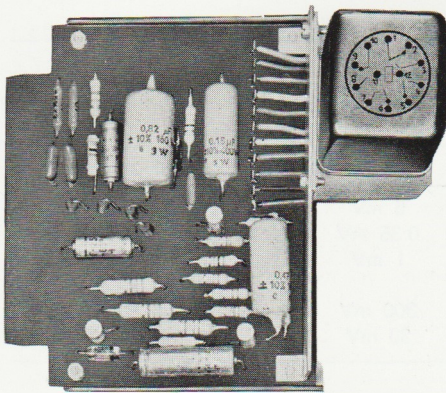
MAXIMUM RELIABILITY

With this equipment utmost reliability—so important for cinemas—is achieved by means of:

- LDRs instead of relays,
- transistors instead of valves,
- printed circuits instead of the conventional wiring,
- plug-in units (100% reserve).

The LDRs, unlike relays, contain no moving components nor soiling contacts. The 6-V LDR lamp operates at a voltage of 5 V; because of this undervoltage it has a very long life.

Only for change-over of the exciter lamp and for the dowser supply is one relay per projector used. A complete equipment



Relay unit

therefore contains three relays at the most. These are housed in air-tight boxes; after a life test, during which they were operated 250,000 times, they did not show any measurable wear.

Transistors contain no components subject to deterioration, such as the filament of a valve, and hence their life is many times longer.

The use of printed wiring excludes short-circuits, such as may occur in normal wiring because of a worn insulation. Moreover the soldering spots are much more reliable.

Each equipment comprises plug-in spare units for the pre-amplifier, the output-amplifier, the filter, the supply, the relay and the flip-flop units.

SMALL DIMENSIONS

Because of the use of transistors and of printed wiring, this equipment is much smaller than its predecessors. Consequently it even fits easily into rather small projection booths. The dimensions of the different versions are indicated on the back page.

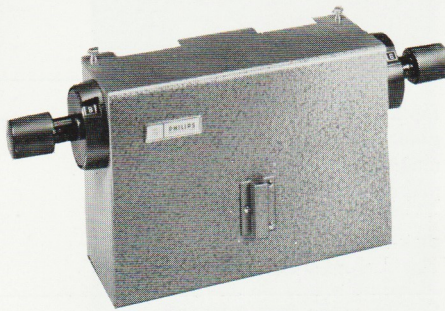
VERY EASY OPERATION

Near each sound source there is a push-button.

Simply pressing it will open the path for the relevant sound signal and simultaneously block the paths of the other signals. The push-buttons near the projectors serve at the same time for opening the relevant dowser so that picture and sound are changed over simultaneously from one projector to the other.

A preselector switch near each projector makes it possible to choose the desired sound system—35-mm optical or magnetic, or 70-mm magnetic—already before change-over. With the Philips 35/70 mm projectors, this switch is operated automatically by the film itself, so that the operator need not bother about it.

The equipment is switched on by means of the master mains switch and the volume



Six-channel volume control

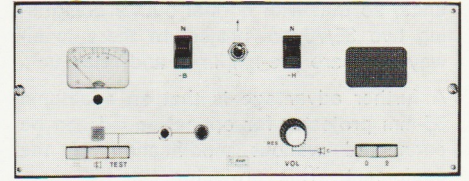
is adjusted with the aid of the six-channel volume control.

MINIMUM MAINTENANCE

As this equipment contains only three relays (one being a spare) and no valves, maintenance involves nothing more than keeping it dust-free.

BUILT-IN CHECKING DEVICES

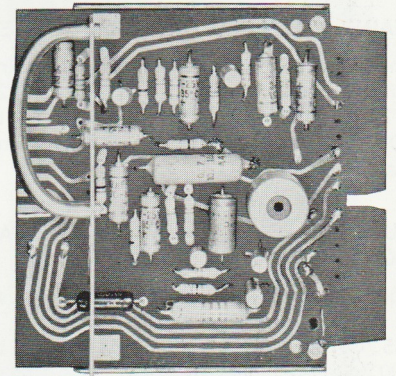
Normally the spare output amplifier is used as a monitor amplifier to which the loudspeakers near each projector (two or three) are connected. The sound volume of the monitor speakers depends on the position of the six-channel volume control but can in addition be adjusted to the desired level by a separate control on the output amplifier rack. On the control panel of this rack there are also two push-buttons, "2" and "0". When button "2" is pressed, channel 2 (central loudspeaker group behind the screen) is monitored continuously. Optionally the circuiting can be arranged so that when button "2" is pressed the mixed output of the six channels is reproduced by the monitor loudspeakers. When button "0" is pressed any arbitrary channel can be monitored separately whilst, moreover, the output can be read on the dB-scale of the measuring instrument on the control panel.



Control panel of pre-amplifier rack

Behind the control panels of both the pre-amplifier and the output amplifier racks there is an oscillator/measuring amplifier, also constructed as a plug-in unit. All the pre-amplifiers, filter units and output amplifiers are provided with a test button.

When that is pressed the oscillator supplies a 1000-c/s signal to the input of the relevant unit and the output of the latter



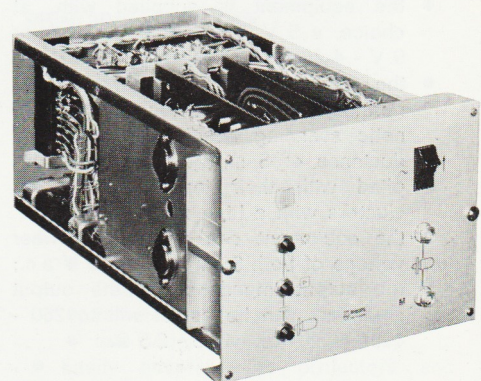
Oscillator/measuring amplifier

is connected to the measuring instrument via the measuring amplifier. The reading on the meter must always be $0 \text{ dB} \pm 1 \text{ dB}$, so that no mistakes are possible.

On the measuring instrument of the pre-amplifier rack can be read the photocell voltage, the exciter-lamp current and the supply voltages for the pre-amplifiers after the relevant test button on the power-supply unit has been pressed.

GREAT VERSATILITY

The pre-amplifier rack contains always three optical pre-amplifiers and three relay



Power-supply unit

units, so that with normal outfits comprising two 35/70-mm projectors there is always a spare pre-amplifier and relay unit.

A further advantage is that an additional 35-mm projector for optical sound can be connected without modification of the equipment. This projector can be used, for example, for showing a supporting programme on 35-mm film before the main feature on 70-mm film. This makes it unnecessary to change the 35/70-mm projectors from 35 to 70-mm reproduction and vice versa.

On request the equipment can also be supplied for:

- three 35/70-mm projectors or
- two 35/70-mm projectors and one 35-mm projector for optical and four-track magnetic sound.

MAINS VOLTAGES AND FREQUENCIES

The equipment is suitable for a.c. mains with a rated voltage of 110 - 125 - 220 - 250 V and with a frequency of 40 to 100 c/s, i.e. for practically all existing mains.

SUITABLE FOR USE UNDER TROPICAL CONDITIONS

The equipment is suitable for indoor use at an ambient temperature of up to 95 °F (35 °C) and an air humidity of up to 100%. For higher temperatures—up to 113 °F (45 °C)—the output amplifier rack will be equipped with an additional ventilating unit.

FACILITIES FOR REMOTE CONTROL AND AUTOMATION

A great advantage of the flip-flops is that any desired number of remote controls or contacts of an automatic programme selector can readily be connected to them, in parallel with the push-buttons of the relevant sound sources. The connecting cables need not be screened; any two-core cable can be used.

MATCHING TO PROJECTORS AND LOUDSPEAKERS OF OTHER MAKES

As a rule, matching is very simple since:

- the equipment is supplied with, at choice, a 5 V - 4 A or 6 V - 5 A or 9 V - 4 A exciter-lamp supply;
- the magnetic pre-amplifiers, which normally are suitable for Philips magnetic scanning heads with a self-inductance of 5 mH, can also be supplied with their inputs adapted to clusters with a high self-inductance;
- the equipment can supply a dowser voltage of both 90 V d.c. and 6 V a.c.;
- the output impedance of the output amplifiers can be set at will to 250 - 125 - 62.5 - 31 - 15.5 - 2.5 Ω.

SURVEY OF THE VARIOUS VERSIONS

TYPE	UNIT	PRE-AMPLIFYING RACK, EL 5373/..											OUTPUT-AMPLIFIER RACK, EL 5374/..		
		for two projectors					for three projectors						up to 95 °F	up to 113 °F	
		/20	/21	/22	/23	/24	/25	/30	/31	/32	/33	/34	/35	/00	/01
EL 5470 magnetic pre-amplifier		20	20	20	20	20	20	30	30	30	30	30	30	—	—
EL 5471 optical pre-amplifier		3	3	3	3	3	3	3	3	3	3	3	3	—	—
EL 5472 gramophone pre-amplifier		1	2	—	—	1	2	1	2	—	—	1	2	—	—
EL 5473 microphone pre-amplifier		1	—	2	3	2	1	1	—	2	3	2	1	—	—
EL 5474 12-kc/s unit		1	1	1	1	1	1	1	1	1	1	1	1	—	—
EL 5475 filter unit		13	13	13	14	14	14	13	13	13	14	14	14	—	—
EL 5476 oscillator/measuring amplifier		1	1	1	1	1	1	1	1	1	1	1	1	1	1
EL 5477 output amplifier		—	—	—	—	—	—	—	—	—	—	—	—	7	7
EL 5478 power-supply unit		2	2	2	2	2	2	2	2	2	2	2	2	—	—
EL 5486 ventilating unit		—	—	—	—	—	—	—	—	—	—	—	—	—	1

With all versions the six-channel volume control EL 5463/00 is supplied.

TECHNICAL DATA

	voltage	impedance
Inputs:		
photocell	6 mV	20.000 Ω
magnetic head	0.35 mV	for 5 mH cluster
microphone	1 mV	≥ 2100 Ω
		from 100-20,000 c/s
pick-up: crystal	300 mV	≥ 50,000 Ω
magnetodynamical	30 mV	≥ 40,000 Ω

Output of the output amplifiers:

power	40 W
voltages	100 - 70 - 50 - 35 - 25 - 10 V
impedances	250 - 125 - 62.5 - 31 - 15.5 - 2.5 Ω

	noise level		max. distortion at 1000 c/s
	average	max.	
Pre-amplifiers:			
optical	- 64 dB	- 60 dB	0.1 %
magnetic	- 57 dB	- 54 dB	0.2 %
microphone	- 65 dB	- 60 dB	1 %
gramophone	- 70 dB	- 65 dB	1 %
Filter unit	- 76 dB	- 70 dB	0.25 %
Output amplifiers	- 77 dB	- 72 dB	1.25 %

Mains voltages	110 - 125 - 220 - 250 V
Mains frequencies	40 to 100 c/s

DIMENSIONS AND WEIGHTS

Component	lb	kg	height	width	depth
Pre-amplifier rack EL 5373/..					
/20 to /25	187½	85	38½"	15"	15¾"
			980 mm		
/30 to /35	209½	95	44"		
			1120 mm	380 mm	400 mm
Output amplifier rack					
EL 5374/00	203	92	34½"		
			875 mm		
EL 5374/01	223	101	40"		
			1015 mm		
Volume control EL 5463/00	9	4	8¼"	15½"	4"
			210 mm	390 mm	100 mm