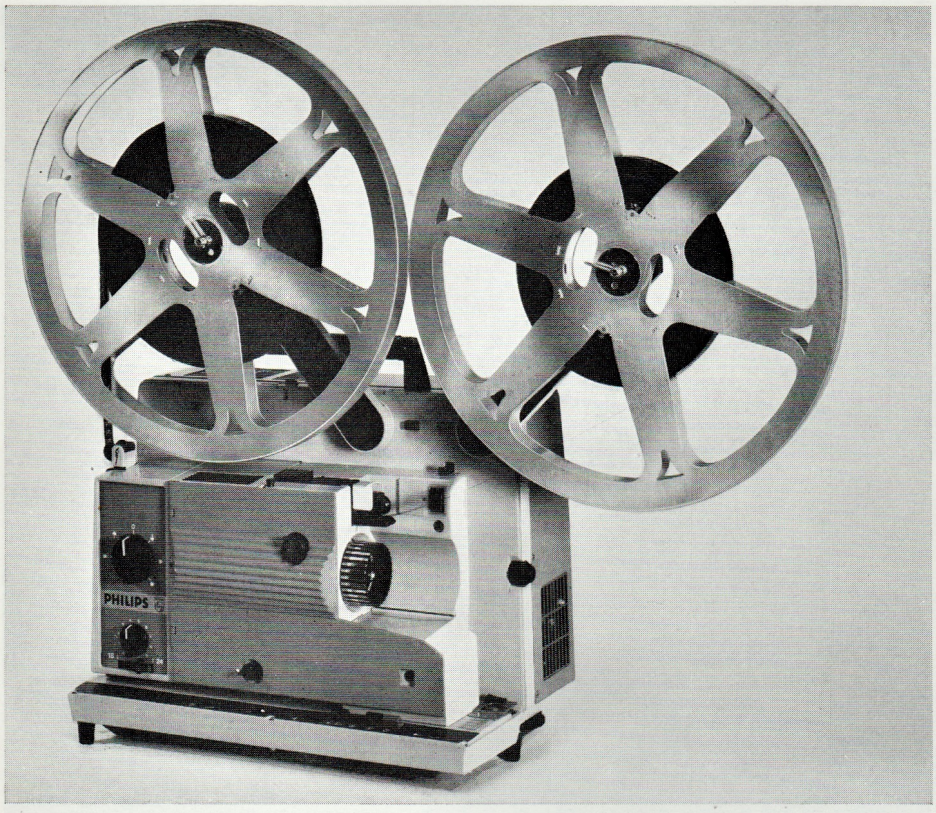
Norelco MOTION PICTURE EQUIPMENT
NORTH AMERICAN PHILIPS CORPORATION
Motion Picture Equipment Division
One Philips Parkway, Montvale, New Jersey 07645

PHILIPS PROJECTION EQUIPMENT

Self-threading portable projector, type LCB 1000 for 16-mm sound and silent film



High light output

Automatic film threading

Easy operation and maintenance

Light weight

Versatile sound system

The LCB 1000 projector of well-styled, modern design combines high picture and sound quality with ease of operation and great versatility. Although small, light and really portable, it is of sturdy construction ensuring reliable operation during many years.

The automatic threading, the automatic end-of-film stop and the built-in rewinding device contribute to the ease of handling. The extensive range of lenses available (including an anamorphic lens), the high luminous flux and the powerful sound system (including public-address facility) are of great advantage in large halls.

The fact that the projector is self-threading is of particular importance when a show comprises several short films; the almost immediate threading makes it unnecessary to splice these films into one film of long footage. This also avoids loss of time if the sequence has to be changed for a following performance. Programming is therefore greatly facilitated.

If a silent film is shown, or if the sound on the film is not used in the show, the sound system of the projector is available for the transmission of live speech (public address) or for background music from records or magnetic tape. With fully processed and striped films, the operator may use the stripe for recording on the film speech or background music. He can also erase completely or partly any previous recording. This feature not only widens the scope of the equipment, but may also be essential for the programming of filmed lectures and similar professional performances.

The projector is equipped with a halogen projection lamp of 250 W, 24 V. It is arranged for two speeds, 18 and 24 frames/s, to suit silent and sound films. Speed switching is combined with automatic change-over from 3-blade to 2-blade shutter (by means of a centrifugal switch). This ensures maximum light output and flicker-free projection at both speeds.

OPERATION

A selector switch permits the film to be run in the normal direction without, with reduced or with full light, and in the reverse direction without or with reduced light.

The motor is of the single-phase, asynchronous induction type. A dual fan on its shaft cools efficiently both the film and the projector. All the essential bearings are self-lubricating and need no maintenance.

Framing is carried out by shifting the film-transport mechanism with respect to the aperture, so that the position of the picture on the screen does not change. The projector can be aligned with respect to the screen by varying the height of its front foot with the aid of a knurled wheel.

AUTOMATIC FILM THREADING

For threading the film into the projector, it is sufficient to lay the beginning on the entrance slide, to depress the threading button, and to switch on the motor. The film will then be pulled automatically through the projector and leave it near the take-up spool, to which it has to be fastened in the usual way. A lamp, located close to the film entrance, facilitates threading in darkened rooms.

A fast-rewind gear enables rapid and smooth rewinding of the film. The gear is disengaged automatically when the motor is stopped. The film can also be threaded and removed in the normal way by hand, also when it has run already partially through the projector.

PROJECTION SYSTEM

The projection system has been designed specially for use of a halogen lamp. The mains transformer for this lamp is located in the projector. The heat dissipation of the lamp is relatively low for a lamp of this light output, and the quartz bulb will not be blackened, not even after a long time of operation. To lengthen its life, the lamp can be switched to reduce power when full power is not required, e.g. with smaller screens. A choice can be made out of high-quality, high speed lenses having a focal length of 25, 35, 50, 65 and 75 mm, all with a diameter of 42.5 mm, and a zoom lens with a focal range of 35 to 65 mm. An anamorphic lens can be fitted for the projection of CinemaScope films.

The lens holder and the cover of the optical soundhead can be removed for easy cleaning of the film path.

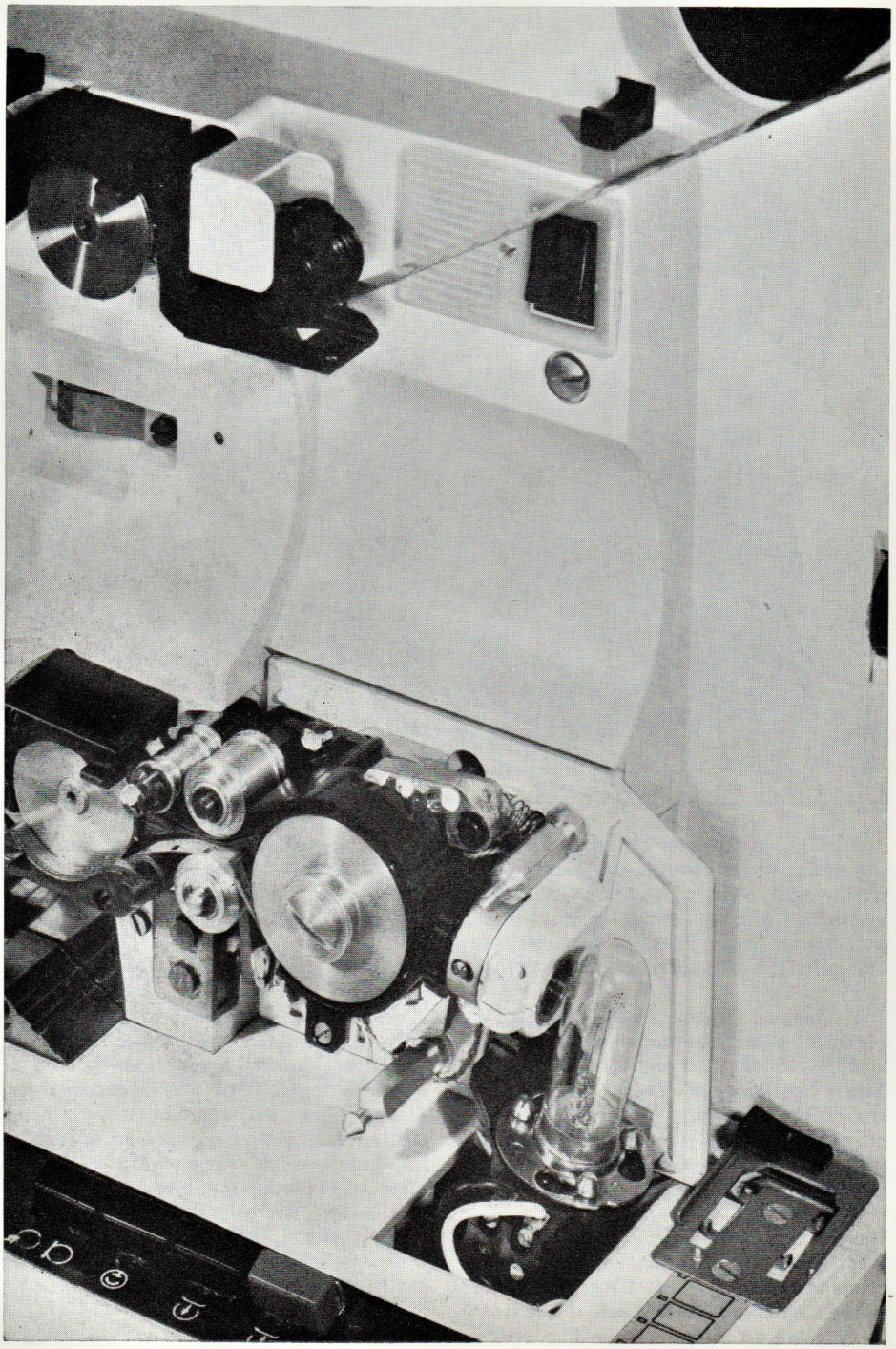
SOUND SYSTEM

A sound drum, fitted to its shaft by means of a friction coupling, and a lead-filled flywheel ensure uniform film speed and hence high-quality sound reproduction with low wow and flutter. The different functions of the sound system (optical or magnetic reproduction or magnetic sound recording) are selected by means of push-buttons. Previously recorded sound can be erased completely or partially, a nine-position knob being provided for this purpose.

A modulation indicator, responding even to very short peaks, is built in. A safety lock combined with the recording button prevents unintended erasure. When the magnetic sound heads are not used, they are lifted automatically from the film.

The optical sound-scanning system comprises a solar cell and a 3-W exciter lamp.

The projector is equipped with a 15-W amplifier and a 3-W loudspeaker. The amplifier



has two inputs; one for microphone and one for a crystal pick-up or a tape recorder. The built-in loudspeaker is switched off automatically as soon as the separate loudspeaker is connected. In the sound channel there are separate bass and treble controls.

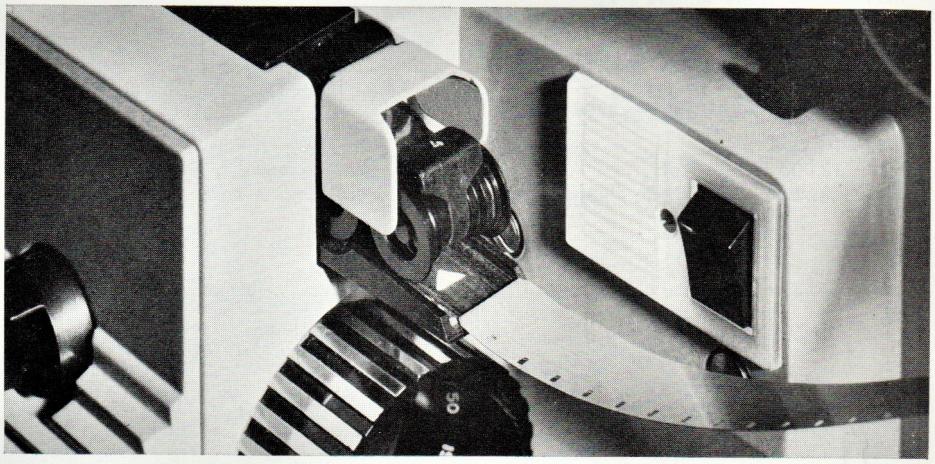
AVAILABLE VERSIONS

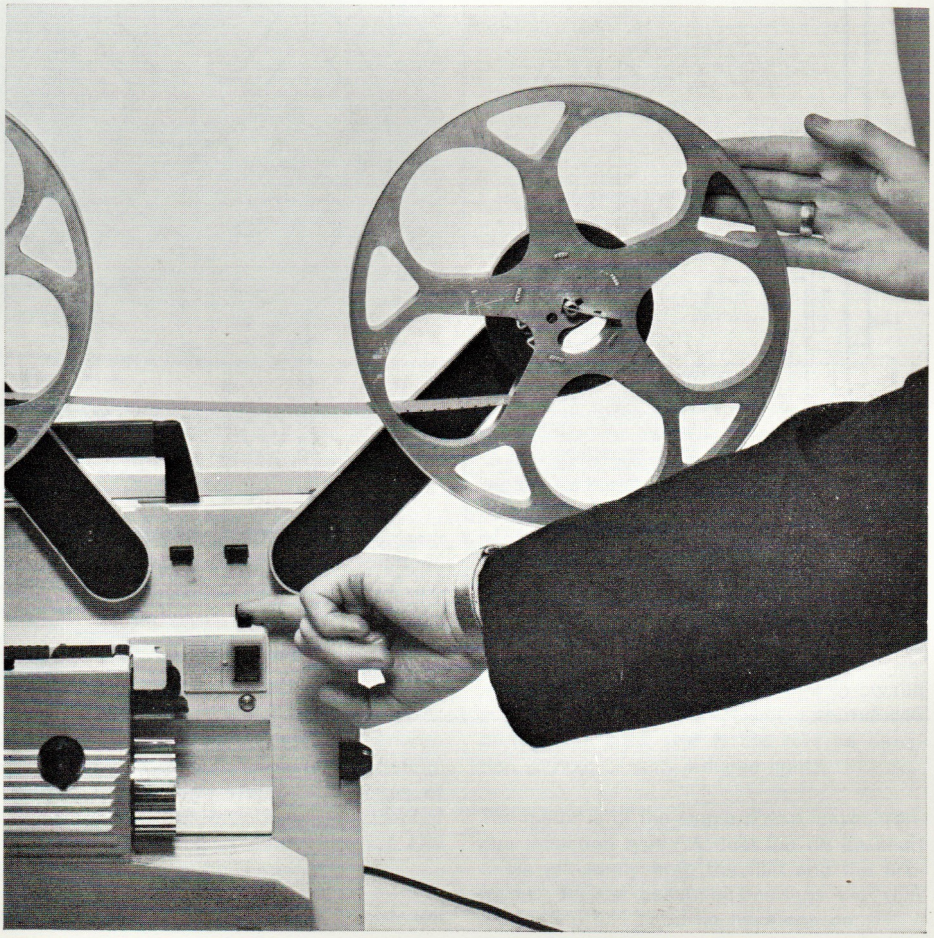
Two versions of the projector are available, each in three models, viz.:

LCB 1000/00 **50-Hz** version, only suitable for optical sound reproduction
LCB 1000/01 as /00, but also suitable for magnetic sound reproduction
LCB 1000/02 as /01, but also suitable for magnetic sound recording
LCB 1000/60 **60-Hz** version, only suitable for optical sound reproduction
LCB 1000/61 as /60, but also suitable for magnetic sound reproduction
LCB 1000/62 as /61, but also suitable for magnetic sound recording.

The 50-Hz version has a voltage adapter for 110, 130, 220 and 240 V mains.
The 60-Hz version is suitable for 115-V mains only.

A separate 20-W loudspeaker in case with extension cable on reel can be supplied under type LCB 1002/00.





TECHNICAL DATA

PROJECTION SYSTEM

Mains cable: three-core, with plugs, length 10 ft (3 m)

Power consumption: 400 W

Mains fuse: 2 x 2 A

Mains switch: combined motor/lamp switch

Driving motor: capacitor-type, asynchronous induction motor
for 50-Hz mains: 2800 rpm, with tapped transformer for: 110, 130, 220, 240 V
for 60-Hz mains:
3300 rpm, with 115-V transformer

Film speed: 18 and 24 frames/s

Film-gate dimensions: 7.16 x 9.6 mm (in accordance with SMPTE/PH 22.8; DIN 15650)

Spool capacity:
2000 ft (600 m)

Intermittent mechanism: hardened, 3-tooth claw, minimising film damage

Shutters:
2-blade for 24 frames/s
3-blade for 18 frames/s
automatic change-over with change of speed

Pull-down ratio: 1 : 6.9

Framing: central, without shifting of aperture

Picture stability: ± 0.1 % (measured with SMPTE picture steadiness film)

Light source: 24 V, 250 W halogen lamp (Philips type 7748)

Tilt of projector: max. 7° upwards (by easily adjustable front foot)

Focusing: separate knob for fine adjustment

CinemaScope: an anamorphic lens available; easily fitted to the projector

SOUND-SCANNING SYSTEM

Wow and flutter:
max. 0.4 % DIN (approx. 0.14 rms)

Exciter lamp:
4 V, 0.75 A d.c. (Philips type 7253 C)

Solar cell: Siemens BPY 44

Picture-to-sound distance:
optical sound: 26 ± ½ frame
magnetic sound: 28 ± ½ frame

Magnetic heads:
recording/playback head: 70 mH
erase head: 1.5 mH

Run-up time: 4 to 5 seconds

AMPLIFIER

Sensitivity for:
crystal pick-up: 220 mV across 500 kΩ
microphone: 8 mV across 5 kΩ

Frequency response:
crystal pick-up: 50 . . . 15 000 Hz ± 3 dB
microphone: 50 . . . 15 000 Hz ± 3 dB
optical system: 50 - 7,000 Hz ± 3 dB
magnetic recording:
50 . . . 12 000 Hz ± 5 dB
playback: 50 . . . 12 000 Hz ± 3 dB

Treble control: + 12 to −14 dB at 10 kHz

Bass control: + 12 to −14 dB at 50 Hz

Separate loudspeaker:
moving-coil type, in case
Power: 20 W
Cone diameter: 11½" (295 mm)
Cable (on reel): 80 ft (25 m)

Weights:
Projector: approx. 49 lb (22 kg)
Loudspeaker in case: approx. 22 lb (10 kg)

ACCESSORIES	Order No.:
Extension loudspeaker in case	LCB 1002/00
Lenses:	
Schneider Xenon	
1 : 1.4/ 25 mm	8.695.373.043
Isco Kiptaron	
1 : 1.3/ 35 mm	8.695.373.042
Isco Kiptaron	
1 : 1.3/ 50 mm	8.695.373.016
Emo Emostar	
1 : 1.5/ 65 mm	8.695.373.044
Emo Emostar	
1 : 1.6/ 75 mm	8.695.373.045
Vario	
1 : 1.5/ 35 . . . 65 mm	8.695.373.027
Anamorphic lens	32/2X
Anamorphic lens adaptor	8.695.770.202

Lamps:
Halogen projection lamp
24 V 250 W,
Philips type 7748
Exciter lamp
4 V 0.75 A,
Philips type 7253 C

Spools:

800 ft	(240 m)	LCB 1003/00
2000 ft	(600 m)	EL 5007/02