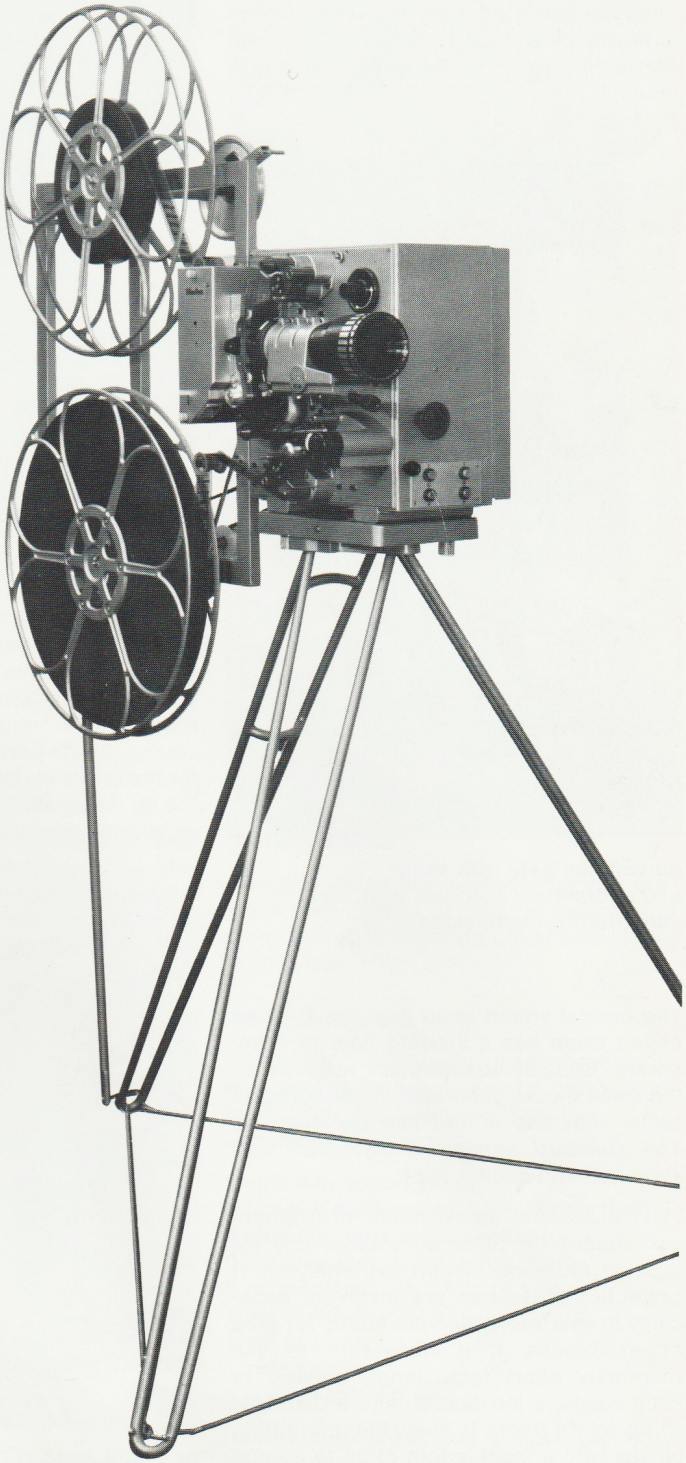
Kinoton

SOUND AND PROJECTION

Projector FP 23

The FP 23 projector, a portable 35 mm cinema equipment, is designed to meet the most demanding performance and quality specifications. It is equally suitable for use as a permanent installation in many applications, such as in studios, shipboard cinemas, small theatres and other installations. The FP 23 projector, developed from the fully proven FP 20 projector, has all the outstandig characteristics of that mechanism which which has given long and reliable operation in hundreds of cinemas throughout the world.



Special features of the FP 23 Projector:

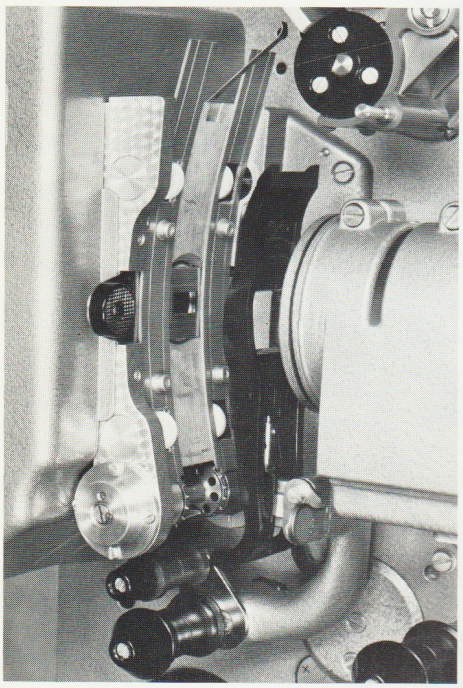
- Excellent picture and sound quality
- High reliability
- Excellent light-intensity
- Ease of installation and operation
- Minimal maintenance
- Compact design
- Small dimension and low weight
- Fully tropicalised

Projector Mechanism

The complete film mechanism including the optical sound head is mounted on a light metal plate with a width of 376 mm and a height of 410 mm.

The intermittent movement runs in an oil bath. All shafts have maintenance-free sealed ball bearings. The feed and hold-back sprockets are driven by chains on wheels ensuring silent operation. The disc-shaped single-blade 2880 r.p.m. shutter has an efficiency of 54 %. The very light-weight intermittent sprocket is supported on both sides for extra stability.

The film gate is curved and ensures perfect picture steadiness, both horizontally and vertically. The film runs between easily replaced Delrin or Novotex runners and centrally adjusted pressure skates. The aperture plates are removeable and can be readily interchanged, even during projection.

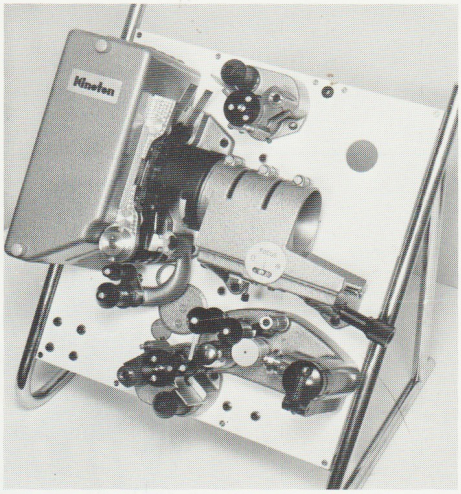


curved film gate with skate and intermittent sprocket with shaft supported on both sides

The optical sound head with the rotating sound drum has a starting time of 3 seconds. Special construction absorbs all the small shocks generated by the sprocket teeth engaging in the film perforations. The standard version is equipped with solar cell and exciter lamp.

The lensholder (with a diameter of 70.6 mm) can readily be replaced without any focussing problems. When extremely short projection distances are involved, especially in rear projection situations for fairs or exhibitions, it is necessary to use extremely short focal length lenses. In such cases, a lensholder with a diameter of up to 101.6 mm is available, permitting lenses with a focal length of up to 30 mm to be used.

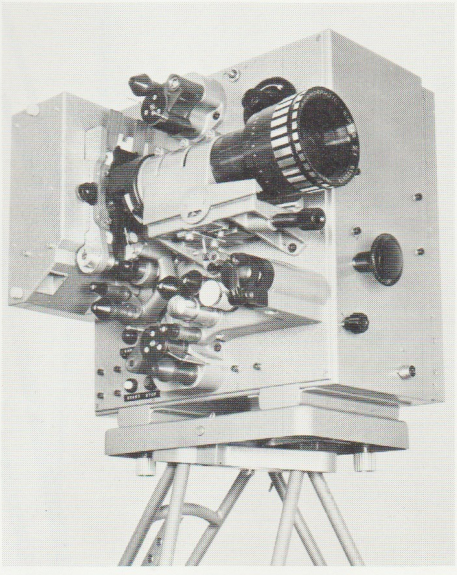
The projector mechanism described is mounted on a front plate and can be supplied without housing (quote part number 0010 231 00000 when ordering). This is particularly advantageous for installations in studio equipments or modules for television scanning and also for countries unable to import complete projectors (because of import constraints or high import duties). These countries are invariably able to manufacture accessories locally.



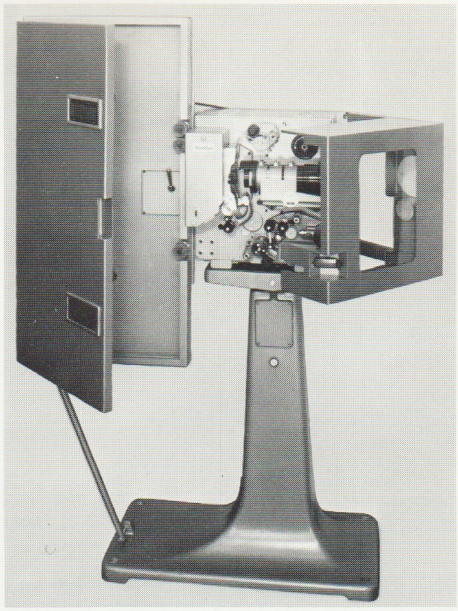
projector mechanism with optical sound head mounted on front panel

Housing

The projector mechanism described is installed in a sheet metal housing 38 cm wide, 43 cm high and 38 cm deep. The housing contains the projector mechanism and includes the optical soundhead as well as the drive motor and the electrical units, which are attached at the rear. The rear section forms a door for access to the mechanism. When ordering the complete ready-to-use equipment, without light source, quote part number 0010 231 01000 for the 50 Hz version or 0010 231 02000 for the 60 Hz version, a projector fitted with a synchronous motor is also available.



projector head FP 23 with halogen lamp without door



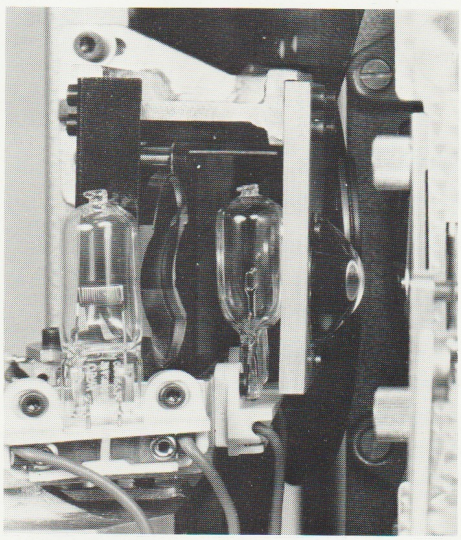
projector head FP 23 with door opened

The projector mechanism can also be supplied with a front door enclosing the film path. Part numbers for the 50 Hz and 60 Hz versions in this case are 0010 235 01000 and 0010 235 02000 respectively.

Light Source

The FP 23 Projector is equipped with 36V 400 Watt halogen lamps. This lamp was chosen because of its pure white colour (colour temperature) and its extremely high light-intensity due to the size of the helix. Two halogen lamps are fitted in a lamp turret. Should one lamp fail, an electronic control operates the turret and the second lamp replaces the faulty one. The lamp voltage is provided by a built-in universal transformer.

The optical system consists of a Dichroic mirror, an aspherical condenser and an aperture condenser. The aperture condenser corresponds to the focal length of the lens to be used, or, if different aspect ratios are to be used, the mean or average



turret for halogen lamps

of all focal lengths should be calculated. If for instance a 120 mm Cinemascope lens, or 86 mm wide screen lens are used, the focal length of the aperture condenser should be 100 mm. Aperture condensers are available from 40 mm to 80 mm in 10 mm steps and 100 and 120 mm. We recommend Super-Kiptar Lenses with an f value of 1.6 to 1.8, a barrel diameter of 70.6 mm and a range of 45 mm to 120 mm in 5 mm steps. For Cinemascope, an anamorphic lens is available to which these Lenses can be screwed.

The complete optical system is so compact that it can be installed in the shutter housing. Cooling is effected by the shutter acting as a fan.

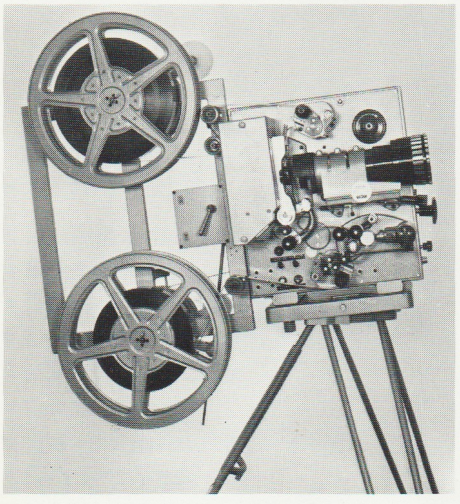
The light bringhtness in front of the lens, measured with the shutter rotating, amounts to 1600 lumen. When using a mattwhite screen, a picture size of 16 square metres can be obtained with a light-intensity approximating 10 ft lamberts, or using a screen with a reflection factor of 2, a cinemascope picture of 370 cm x 870 cm can be achieved.

Electrical Equipment

A long mains cable is supplied with the equipment and fitted with a plug to match the socket in the projector. If two projectors are being used with a change-over device, a 6-core cable is also required for insertion into the 6-pole socket of both projectors. A 3-pole socket is used to connect the solar cell to the amplifier.

The projector should be ordered with built-in exciter lamp rectifier, otherwise the exciter lamp connection would have to be made separately.

The projector is push-button controlled. Linking of the motor relay, lamp relay and spare lamp switching relay ensures automatic safety switching in connection with the magnetic film-rupture device.

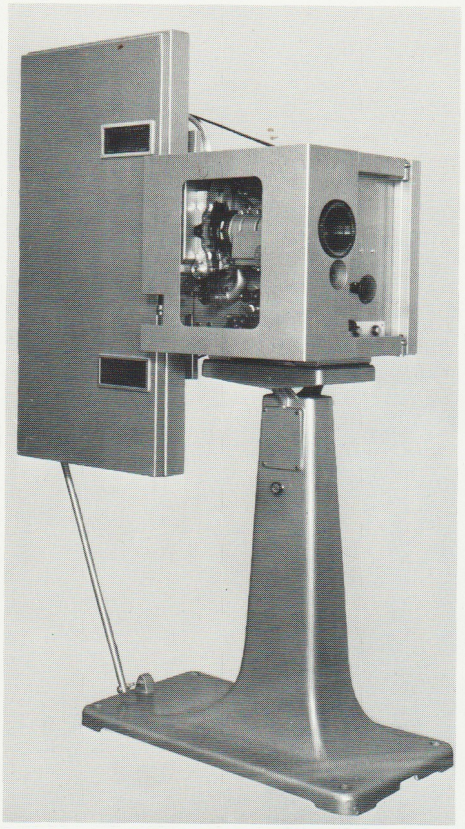


projector head FP 23 with spool shafts 600 m

Spool Shafts and Spool Boxes

The FP 23 projector can be supplied with spool shafts for 600 m and 1800 m spools. The shafts are fixed with two knurled screws at the rear of the projector. Flat belts provide the take-up friction drive.

Spool boxes can be supplied for 600 m or 1800 m spools, they can be readily screwed on to the spool shafts.



FP 23 with door, spool shafts and spool boxes 600 m, mounted on column

Rewind Equipment

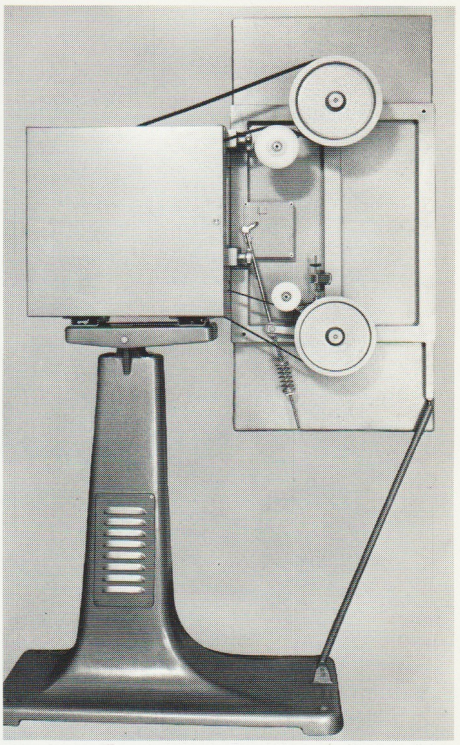
The FP 23 projector may be supplied with built-in rewind equipment, avoiding the need for a separate rewinder. The rewind equipment uses the projector motor which is declutched from the projector mechanism during rewinding and also drives the shaft of the upper spool. Thus the film can be rewound from the lower to the upper spool. The transfer from forward to reverse running modes is actuated at the spool shaft. When ordering the projector with rewind equipment, please quote part number 0010 238 1 ...

Installation

The FP 23 projector mechanism can be mounted positively on a tripod by means of two knurled screws without the use of any tools. For a fixed installation, the mechanism can be mounted on a column.

Amplifier

Where there are no existing cinema amplifiers, the use of the SO or the LBB 1251



reverse running equipment on projector FP 23

amplifiers is recommended for either portable or fixed operation. Fully transistorized with 50 Watt output, the amplifiers are equipped with a volume control and a separate control for low and high frequency. A tape recorder, cassette recorder, record player or microphone can be connected. A monitor loudspeaker can also be connected via the intercom output.

Loudspeakers

For use where no loudspeakers are installed or available, a wide range of 25 Watt loudspeakers can be supplied. These are built into a carrying case with 25 metres of cable. The carrying case is also sufficiently large to house the amplifier.

Carrying Cases

Carrying cases are available for the projector and 600 m or 1800 m spools and spool boxes. A separate cover is supplied for the tripod.

Programme Case

When the projector is used as portable equipment, the purchase of a programme case with the following facilities is recommended: –

1 split film spool 600 m
6 film spools 600 m or 3 film spools 1800 m
1 cine film tape splicer with tape
2 halogen lamps (36 V 400 Watt)
2 exciter lamps (6.5 V 1.48 amps)
1 set of lubricants
1 set of tools
1 set of spares
1 set of spares fuses

Lenses and screens, as well as any other booth accessories, can also be supplied if required.